Kr. 15.–

Virtual Reality
– nå på din egen PC

Sky Commuter – den flyvende bil
Bygg din egen 486 PC
Intelligent kontrollerkort for PC
1000 nye produkter

METALL-DETEKTORER

Whites 5900 Di PRO SL

En bestselger p.g.a. sin kraftige ytelse. Fire diskriminasjonsprogrammer, signalbalanse-system som gir renere signaler ved vanskelige bakkekondisjoner. Nytt behagelig grep som gir større rekkevidde. Stort display som viser ID og dybde fra enhver vinkel. Maks teoretisk søkedybde ca. 200 cm. Leveres med 24 cm vanntett spole, batteriboks for 4 stk. 1,5V baby (følger ikke med), og engelsk bruksanvisning.
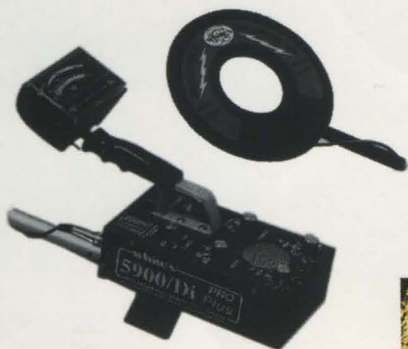
Best.nr.   Pris
29 14 47 B 6998.–

38 cm superspole for PRO

Denne spolen erstatter den vanlige 24 cm spolen som leveres med Whites Di PRO SL-serie. Forbedrer følsomheten for typygjenkjenning med 20% og størrelsen med 40%. Vanntett.

Best.nr.   Pris
29 16 50 B 1200.–

Whites AF 101

En bestselger i mange år for hobby-skattejegere over land og strand. Søker etter alle metaller. TR-teknologi gjør at man enkelt kan finne nøyaktig hvor objektet er. 15 cm vanntett spole. Innebygd høyttaler. Hodetelefon-tilkopling. Bruker 6 batterier1,5V størrelse AA. Maks teoretisk søkedybde 60 cm. Leveres med engelsk bruksanvisning.
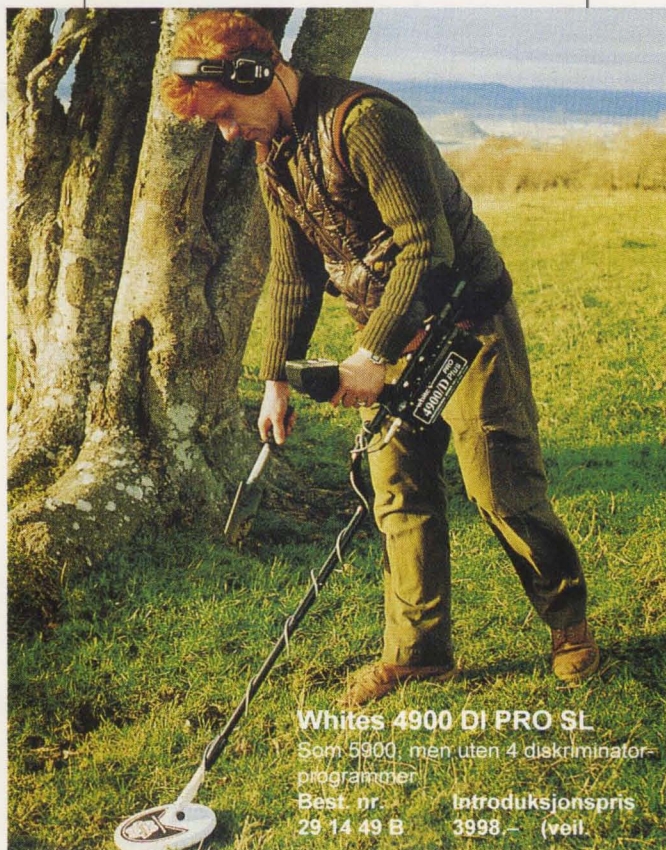
Best.nr.   Pris
29 15 95 B 998.–

Whites Eagle Spectrum

Whites toppprodukt. En fulllstendig datastyrt metalldetektor som har alle funksjoner man kan tenke seg, men er allikevel enkel å bruke. Fire innebygde programmer: Coins & Jewellery, Jewellery/beach, Relic og Prospecting, som tilsammen effektivt unngår søppel. Også to programmer som du kan programmere selv ved å gi VDI-tall. For å gjøre identifiseringsarbeidet lettere er det på bok-tabell over VDI-hvilke typer gjenstan-metaller de representerer. Man kan også enkelt justere tone ID, spektrumrespons, frekvensskifting, sendereffekt og forsterkning, og disse settingene kan også programmeres. Et nytt grafisk dybdevisnings-system gjør det enklere å finne gjenstander, og den nye, grafiske VDI-skalaen gjør det f.eks. lett å identifisere jern. Maks teoretisk søkedybde ca. 200 cm. Leveres med vanntett spole 24 cm, batterier og engelsk bruksan-visning.

Best.nr.   Pris
29 17 06 B 9998.–

Whites 4900 Di PRO SL
Som 5900, men uten 4 diskriminator-programmer
Best. nr.   Introduksjonspris
29 14 49 B   3998.– (veil.

## Hodetelefon Slimline 26

Dette hodetelefonsettet passer alle metalldetektorene på denne siden.

Best.nr.   Pris
29 15 97 B 98.–

Whites TM 800

Denne detektoren bruker en spesiell teknikk for å finne hulrom og større metallgjenstander gjennom flere meter mineralisert jord. Den kan brukes til å finne huler, gamle brønner, tunneller, septiktanker og rør, som ikke trenger å være av metall. Den finner et kloakkrør på opptil 2,5 m dybde og store luftlommer på 6 m. I tillegg er den en vanlig metalldetektor som f.eks. kan finne et metallobjekt på 2 m² på 7 meters dybde. Den er enkel å ta i fra hverandre og sette sammen. Ingen løse ledninger, alt blir koplet når man stikker delene i hverandre. Bruker 6 stk AA batterier (følger ikke med).
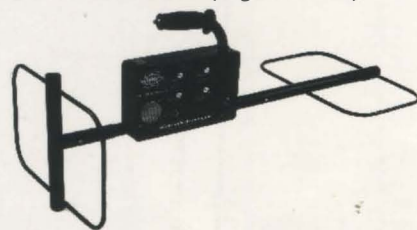
Best.nr.   Pris
29 17 14 B 8998.–

Beachcomber BC 60 S2

Dette er storebroren til AF 101. Den har i tillegg et instrument som som viser intensiteten på signalet og diskriminisator-mulighet, slik at man effektivt unngår "søppel". "Pinpointing"-mulighet gjør det lettere å plassere gjenstander eksakt. Leveres med 21 cm. spole. Innebygd høyttaler og utgang for hodetelefon. Bruker 6 stk AA-batterier (følger ikke med).
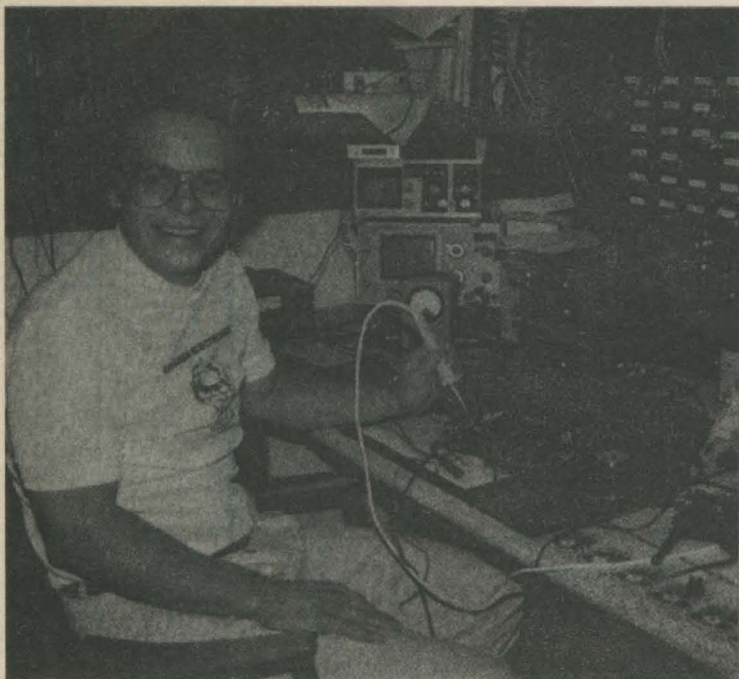
Best.nr.   Pris
29 16 33 B   1998.–

Metall/spenningsfinner

Nyttig når man skal finne rør,lledninger og skruer i vegger. Den gir ett signal ved metall og ett annet signal når den finner elektriske ledninger som er koplet til lysnettet. Leveres i en kraftig plastkasse. Batteri (vanlig 9V) er ikke inkludert.

Best.nr.   Pris
06 01 61 99.50

Innhold

Kjære kunde!

Dette er første utgave av vårt nye Data- og Elektronikkmagasin. Det vil komme ut fire ganger i året, og abonnement koster kr. 50.– per år. I dette magasinet vil det komme mange tilbud som kun gjelder abonnentene. Dessuten vil du bli informert om det siste som skjer innen data og elektronikk.

I dette nummer vil jeg spesielt anbefale:

o   Virtual Reality—hva er det? Vi gir deg en innføring i emnet, og viser hvordan du kan oppleve VR på din egen PC.

o   Sky Commuter—den flyvende bil. Denne blir snart leveringsklar i Norge, og her får du alle opplysninger om fremtidens transportmiddel.

o   Bygg et intelligent kontrollerkort til din PC. Den første i en serie om Vellemans byggesett, som forøvrig omtales på side 20 i den vedlagte Velleman-katalogen. NB! Velleman byggesett som går på 220V kan først leveres etter at Norge har blitt medlem av EØS.

o   Bygg din egen PC. Vi viser hvordan du kan montere en topp moderne PC fra løse deler og spare mye penger!

o   300 nye engelske bøker, fra alle områder innen data og elektronikk.

Mange hilsner fra

Frithjof Arngren
Siv. ing.

Virtual Reality

Av Frithjof Arngren

Du har tidligere vært vant til tre-dimensjonal dybdevirkning på PC-skjermen. Da satt du imidlertid utenfor og så på en flat skjerm inn i 3D-verdenen.

I *Virtual Reality*, eller "nesten-virkelighet", står du faktisk *inne i* skjermen og beveger deg rundt. Du kan spasere nedover en gate og går kanskje inn i et av husene langs veien. Her vil du oppleve hvert rom akkurat som om du var inne i det. Du kan plukke opp en gjenstand og ta den med deg, gjerne slippe den og se at den faller. Mulighetene er utrolige.

Vi vil her presentere to nivåer av *Virtual Reality* (VR) løsninger for PC. Det laveste nivået består av en 486 PC med spesielle programmer montert og en tredimensjonal joystick (men en vanlig joystick kan også brukes). Da vil det du ser vises på monitoren og du kan bevege deg fra rom til rom, gå rundt møbler, gå opp trapper eller gå ut og sette deg i en bil. 3D-joysticken vil hjelpe deg til å utføre alle disse operasjonene. Med dette settet (program og joystick) kan man også konstruere sin egen verden. Programmet og joysticken kan kjøpes hos Arngren Electronics for ca. kr. 12.000,-

Det høyeste nivået er litt mer komplisert og består av en 486 PC med EISA-bus og tre kort med hver sin hyperraske Intel *i860* RISC-prosessor. Kortene har hvert sitt sett av spesialbrikker og egen RAM. En eller to hansker dekket med sensorer som merker hver minste fingerbevegelse og en hjelm som dekker øynene og gir tredimensjonalt syn, erstatter joystick og monitor.

3-D lyd og bilde

Inne i hjelmen er det montert en liten skjerm foran hvert øye, slik at man får et fullstendig tredimensjonalt bilde. Systemet gir også tredimensjonal lyd, slik at f.eks. lyden fra en bil vil følge bilen i det den passerer deg. Tilskuere kan se på den vanlige dataskjermen hva du opplever inne i hjelmen. Nå befinner du deg inne i en helt ny tredimensjonal verden. Alt føles helt ekte ut. Da jeg testet dette utstyret falt jeg over en kant i VR-verdenen. Jeg var et øyeblikk helt overbevist om at jeg falt, og jeg datt sammen på gulvet.

Bildet du ser forflytter seg rundt etter hvert som du snur på hodet, og opp
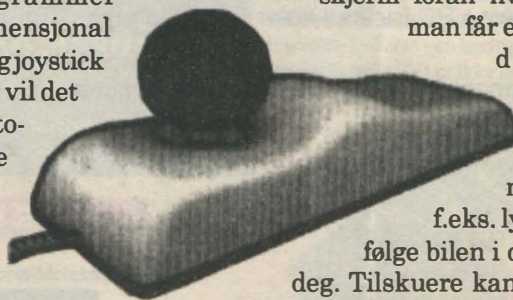
Med den nye VR Ski Trainer fra NEC kan man lære å gå på ski uten å risikere snøskred eller beinbrudd. Brunfargen må man derimot få på andre måter...

og ned hvis du nikker. Hanskene gir deg følelsen av motstand. Hvis du holder i noe eller skyver på noe vil de små putene i hansken presse tilbake. Alle disse effektene gir deg en følelse av bortimot fullstendig virkelighet.

Kan sammenkobles

Systemet kan også koples til et høyhastighets modem, slik at du kan treffe andre mennesker i samme situasjon. Faktisk kan mange mennesker snakke sammen, ta på hverandre og reise sammen overalt i en spennende ny verden som venter på å bli utforsket. Fremtidens reiser kan kanskje foretas uten at du beveger deg ut av stua. Allerede nå eksperimenterer NASA med å bruke VR-teknikk for å utføre farlige oppdrag innen romfartsindustrien.

Dette systemet koster komplett i dag 2-300.000 kroner, men utviklingen går så raskt at det ikke vil ta mange årene før det kommer ned i rundt 10 000 kr. Ønsker du mere informasjon om VR, så be om gratis *Virtual Reality-brosjyre* (best. nr. 0006).
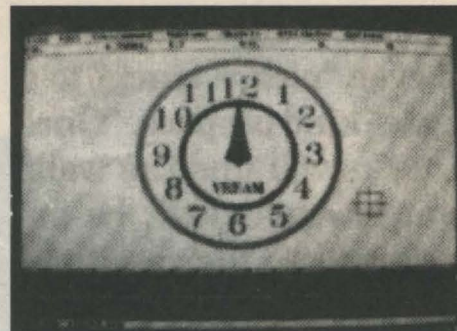
Definer rommet i objekteditoren

Start runtime-system og gå inn

Beveg deg fritt rundt i real-time

Ta tak i objekter med hånden...

...og flytt de rundt i rommet!
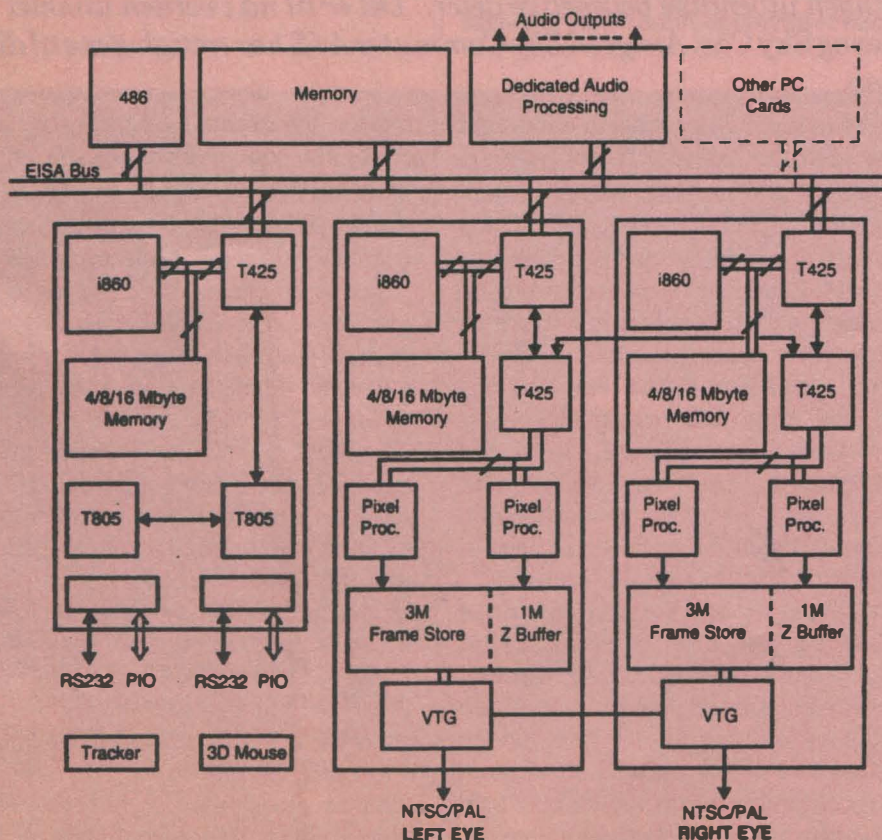
Oppbygning av Virtual Reality-maskinen. Hver bildekanal har sin egen Intel i860 RISC-prosessor, og en tredje tar for seg input

Sky Com

der

Av Frithjof Arngren

Dette er biler som kan lette og lande vertikalt, noe som kalles VTOL (vertical take off and landing) på fagspråket, og de har ingen utvendige bevegelige deler." Det er til nå i verden utviklet to forskjellige flygende biler, Sky Commuter og Sky Car. Arngren Sky Commuter A/S har rettighetene til disse i norden med opsjon for resten av europa.

Sky Commuter

På bakken blir den drevet fremover av en liten batteridrevet motor. Den har en toppfart på 40 km/t og kjører uten støy og forurensing. Ønsker du å fly er det bare å trykke inn en knapp som starter den FAA-godkjente Allison gass-turbinen. Denne driver to vekselstrøms-generatorer som gir strøm til fire elektromotorer, tre for løft og en for fremdrift. Hver motor driver to kontra-
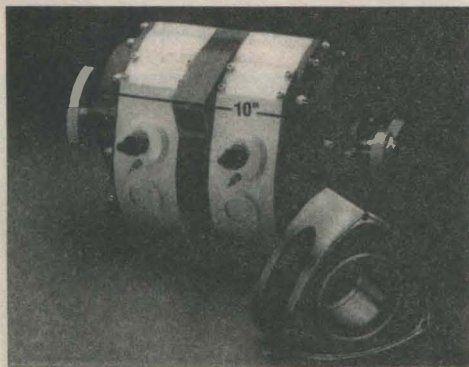
300Hk rotasjonsmotor, som veier under 60kg

roterende rotorer som sitter inne i skroget. Tuppen av hvert rotorblad blir skjøvet frem av mange elektromagneter plassert i en ring rundt rotoren, og magnetene skifter polaritet i stor hastighet, styrt av en datamaskin. Systemet er verdenspatentert. Under rotorene sitter den mer tradisjonelle børsteløse elektromotoren. Dette gjør at hver motor yter hele 140hk og veier under 10kg. Turbinen drives av kerosen (flybensin) som bare koster 2kr pr. liter, og den bruker kun 2 liter/mil.

Alt styres av fire datamaskiner (en nødvendig, tre i reserve) og gjør at det virker som om man styrer bilen direkte, men i virkeligheten gjør datamaskinen en masse beregninger for hver eneste operasjon. I motsetning til et helikopter er det faktisk datamaskinen som gjør mesteparten av styringen, føreren korrigerer bare med en styrespak og gir datamaskinen beskjed når den skal skifte retning (Fly-by-wire).

Det er også innebygd satelitt-navigasjon (GPS) og antikollisjons-system. GPS (global positioning system) fungerer i dag i hele verden og gir deg posisjonen i tre dimensjoner ned til en nøyaktighet på to meter. (Arngren selger også bærbare GPS-systemer til under kr 10 000.)

Toppfarten til Sky Commuteren i luften er ca. 200km/t og max høyde ca. 3000m. Den har en max rekkevidde på 800km og lager ikke mere støy enn en speedbåt (85dB ved 20m).

Hvis man skulle være så uheldig at alle systemene krasjer, selv om alle har minst et i reserve, vil en fallskjerm bli skutt ut fra skroget (BRS, ballistic recovery system), og hele bilen daler trygt ned på bakken.

Det er plass til to personer, og Sky Commuteren kan løfte 300kg i tillegg til full tank. Skroget er av karbonfiber og kevlar, som veier en brøkdel av stål og er åtte ganger sterkere.

muter

flyvende bil

Sky Commuteren vil foreløpig bli solgt som byggesett under kategorien eksperimentfly, det vil si at du må bygge minst halvparten selv. For å fly den må du ha småflysertifikat. Prisen er ca. 1,4 millioner kroner.
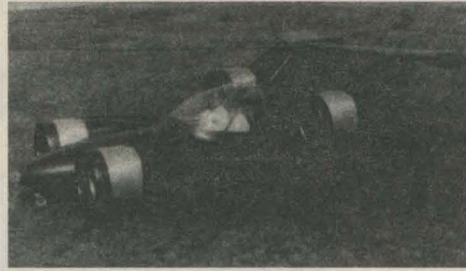
M400 SkyCar klar til å lette

Sky Car

Denne flygende bilen har fire mekaniske rotasjonsmotorer som er montert horisontalt parallelt med skroget, to foran og to bak. Hver motor yter 300hk og veier under 60kg. Motorene jobber etter *wankel-prinsippet* men bruker ikke olje (lean burning). Dette fungerer fordi rotasjonskammeret er dekket med et lag keramikk. Hver motor har kun 6 bevegelige deler, mens vanlige motorer har 48.

Bilen løftes ved at luftstrømmen fra motorene bøyes nedover av "gardiner" som er montert bak hver motor. Luftstrømmen blir bøyd mindre og mindre nedover etterhvert som man får høyde og ønsker fremdrift.

Sky Car'en kan ta fire personer og løfteevnen er 400kg med full tank. Toppfarten er på 670km/t og støyen er 62dBA ved 150m. Den bruker alle typer diesel og bensin og forbruket er ca. 4 liter pr. mil. Ellers fungerer den på samme måte som Sky Commuteren. Den leveres kun ferdigbygget til en pris av ca. 4 millioner kroner.

Ønsker du å se flybilen fly, kan du bestille en videokassett av den i lufta (best. nr. 0003, kr 250,–). Skal vi greie å demonstrere at Sky Commuteren flyr i Norge innen et år, må vi selge 85 aksjer i firmaet Arngren Sky Commuter A/S. Kjøp en aksje (0,5% av firmaet, kr. 51.000) og du får rett til å fly gratis, tilgang til all informasjon. Om to år skal vi gjøre en ny emisjon, og da vil antagelig aksjene ha steget fem ganger. Du vil også være med å tilføre Norge ny teknologi og skaffe nye arbeidsplasser. Vi gir også aksjeeierne garanti om at de får igjen 90% av pengene sine hvis det ikke blir kjøpt inn en flybil. Vi vil også gi firmaer som har kjøpt aksje mulighet til å annonsere sine produkter gratis ved hjelp av Sky Commuteren. Det er helt sikkert at det vekker oppsikt når denne bilen flyr lavt rundt omkring.

Prospekt og tegningsinnbydelse i farger: Best. nr. 0002, pris kr. 0,–
En times VHS video av flybilen i lufta: Best. nr. 0003, pris kr. 250,–
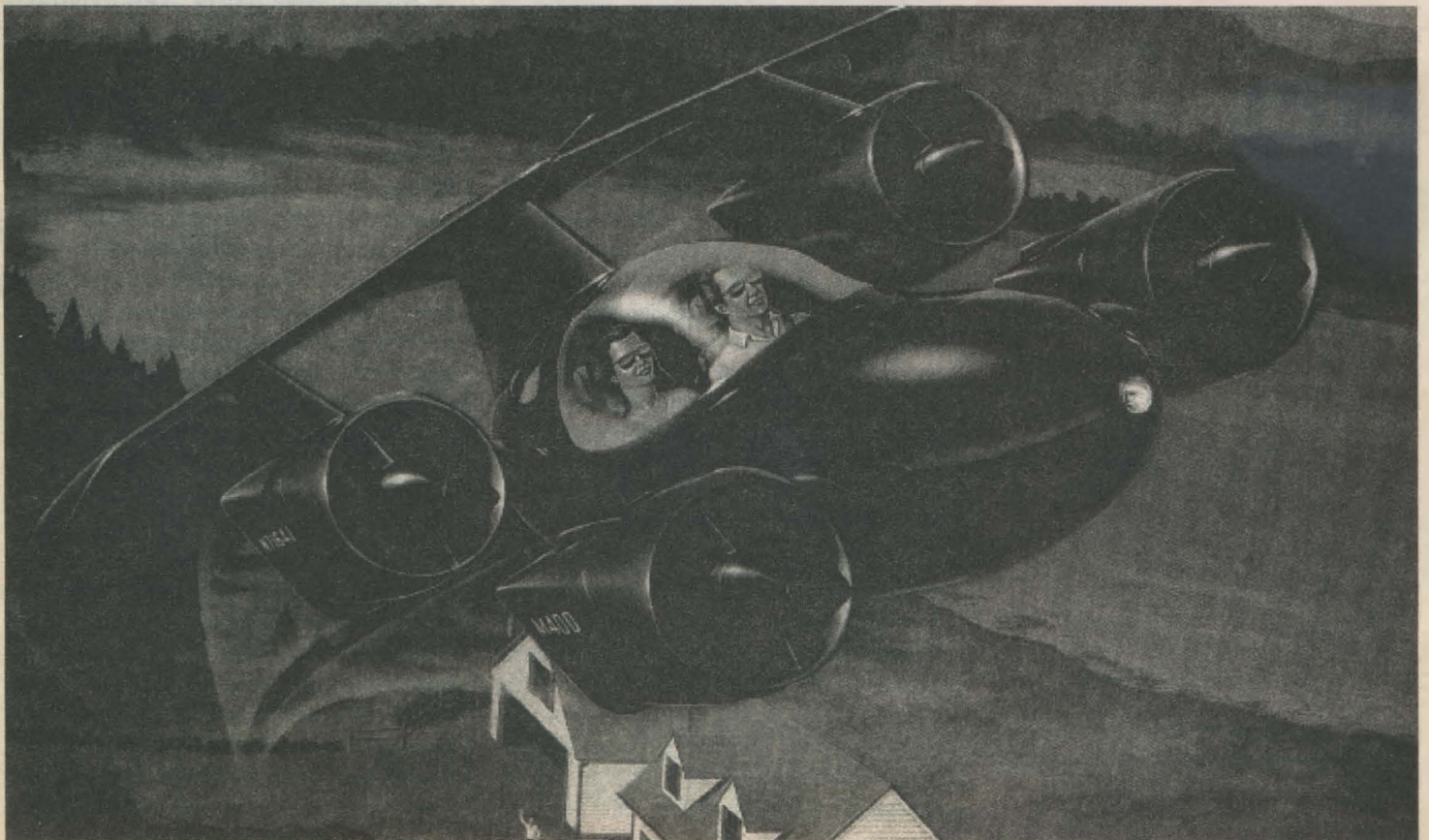
Intelligent kontrollerkort

Av Tony Brickell & Mike Holmes

Dette er en artikkel om bruk og programmering av Vellemans mikroprosessorstyrte styrings- og målingskort K2612. For informasjon om priser og tilleggsutstyr kan man se i slutten av artikkelen og i Arngrens egen Velleman-katalog på side 20–22.
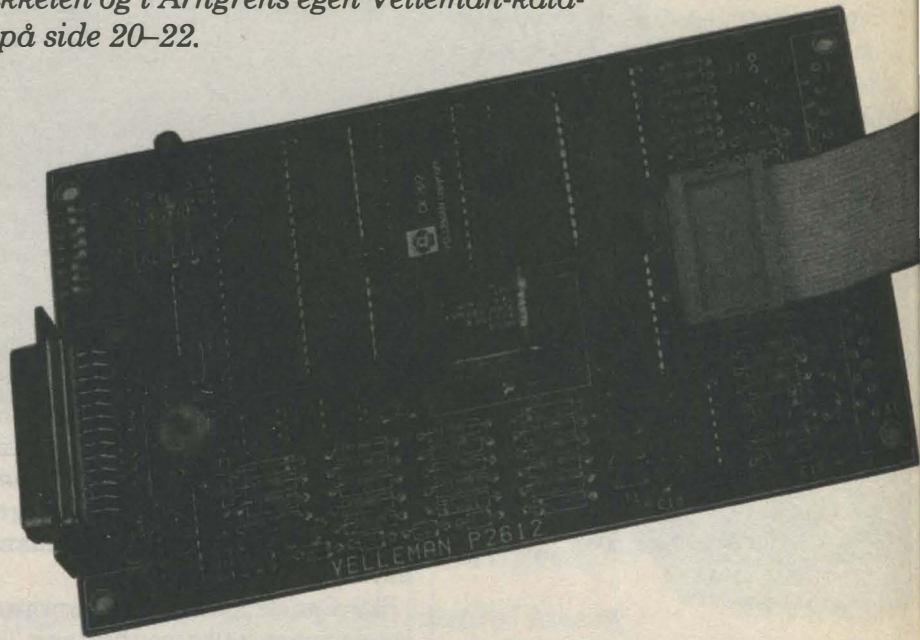
Dette input/output utvidelsessystemet er konstruert for måling og styring, og koples til en datamaskin som har en RS-232 port eller en 20mA strømslynge. En mikroprosessor med et kraftig tekstbasert programmeringsspråk gjør at hoveddatamaskinen slipper å følge med på I/O-portene og blir ledig mesteparten av tiden. Det eneste datamaskinen trengs til er programmering, spesielle avgjørelser samt opp- og nedlasting av data. Selve kontrollerkortet har én utvidelsesport for styrings- og målingsenheter, men denne kan koples til fire utvidelseskort som gir totalt seksten utvidelsesporter.

Kretsbeskrivelse

Som nevnt er kontrollerkortet en komplett mikrokontroller med en 8031 mikroprosessor. Figur 1 viser fire forskjellige måter kortet kan koples til datamaskinen på ved å bruke en vanlig 25pin DSUB-plugg. Den vanligste metoden er helt klart RS232-koplingen, 20mA strømsløyfen er kun med for industrielle datamaskiner. IC9 og IC10 er optokoplere som kun brukes til denne, og disse trengs derfor ikke hvis man bruker RS-232.

Igjen er da IC7 og IC8. Dette er RS-232 spenningskonvertere, som gjør om +12V og −12V til 5V TTL nivå for mikroprosessoren, IC1. IC12 er en spenningsregulator som gir negativ spenning til RS-232-driveren IC7. Legg også merke til at det ikke følger med noen RS-232-kontakt til å montere på kontrollerkortet, da dette er avhengig av kompatibilitet med datamaskinen. Det helt klart vanligste å bruke er en 25-pins hankontakt, som kan bestilles fra Arngren (best. nr. 741183, kr. 29,50, se også i listen over ekstrautstyr). Koblingen kan man se på Figur 1.

I figur 2 er +V1 den "rå" strømforsyningen på 9VDC, mens +V2 er 5V-forsyningen. −V1 er den negative spenningen generert av RS-232-driveren IC12. Hvis man kun bruker kontrollerkortet med en kortplass så er 5V-regulatoren med kjøleribbe montert på denne. Hvis man har utvidelseskortet for fire kort så er den plassert her. Utvidelseskortet har også

plass for komponenter til en komplett strømforsyning, se figur 3 og 4.

Mikrokontrollerdelen er ganske enkel og grei, da mikroprosessoren har mange funksjoner innebygd. Dette gjør at printkortet blir mye enklere og at antallet komponenter reduseres vesent-

lig.

Prosessoren har endel interessante muligheter, bl.a. en intern klokke som bare trenger krystallet X1 og kondensatorene C2, C10, C11 og C20. En annen ting er at databussen er multiplekset med de lavere 8 bit av adressebussen, fordi pinneantallet er begrenset. Dette gjør at adresselinjene A0 til A7 må gjennom den oktale latchen IC2 før databussen kan brukes. Latchen holder den lave adressen til hukommelseskretsene IC3 og IC4.

RESETinngangen på pinne 9 har en schmittrigger-inngang slik at den kun trenger et enkelt konstant nettverk, R7 og C16, for å resette prosessoren ved oppstart. Prosessoren startes med en gang pinne 9 går lav. For å gjøre alt litt greiere er det også med en krets som resetter og stopper CPU-aktiviteten når alt koples fra eller slås av. Dette gjøres av T1, T2, T8 og rundtliggende deler.

Når kortet startes vil ikke tidskonstant-kondensatoren C16 lade seg opp fordi T8 er på. Når +V1 går over zenerdioden ZD1 vil den slå på T1, som igjen slår av T2 og T8. ZD1 sikrer at det er høy nok spenning på +V1 til å forsyne regulatoren VR1 skikkelig, minst 7,5V. På samme måten vil CPUen bli resatt med en gang +V1 faller under denne verdien når kortet slås av eller ved strømbrudd. På denne måten blir

prosessoren slått av på en "ren" måte, uten at den gjør tilfeldige lese og skriveoperasjoner.

DIPswitchen SW1 er koplet til en port på IC1, som sjekkes ved oppstart for å sette overførings-protokollen og parameterene som skal brukes for å kommunisere med datamaskinen. Bryterne settes i følge tabell 1. SW1 bestemmer, i tillegg til hastighet, paritet og stoppbit setter man her også om kortet skal sende tilbake det

den mottar (echo). Dette er spesielt greit hvis man styrer kortet manuelt (med terminal eller terminalprogram), men bør ikke brukes hvis man bruker egne programmer for å styre kortet, da dette kan bli vanskelig for programmet.

SW1/7 velger teletype- eller terminal-mode. Denne bør settes i terminalmode da kortet neppe blir koblet til en teletype-maskin (påvirker kun hvordan tegn blir slettet med backspacetasten). SW1/8 blir ikke brukt.

IC5 og IC6 buffrer alle signaler til og fra kontrollerkortet. IC5 er en toveis, 8-bit buss tranceiver som har pullup-motstander R21–R28 i sokkel J9–J10 slik at ingen buss-linjer blir svevende mens IC5 er i høyimpedanse-fasen. IC6 gir både adresse- og kontrollbussen til denne. J9 er en 24-pin DIL-kontakt for å tilkoble utvidelseskortet med en flatkabel. Hvis kun et ekstrakort skal brukes setter man det i kantkontakten J10. Se figur 5 for pinneoversikt, bilder og figur 4 for kobling av kortet.

Selv om alle 8 adresselinjene er vist, så er bare 5 av dem koblet, A0 til A4, resten er fast koblet til +V2 (5V). Opp til 32 adresser er derfor mulige, men bare 19 brukes. 16 adresser til de fire utvidelseskortene og tre adresser til

Fig. 1 Noen av de forskjellige måtene man kan kommunisere med interfacekortet. Av disse vil i de fleste tilfeller RS-232 med handshaking være et naturlig valg.
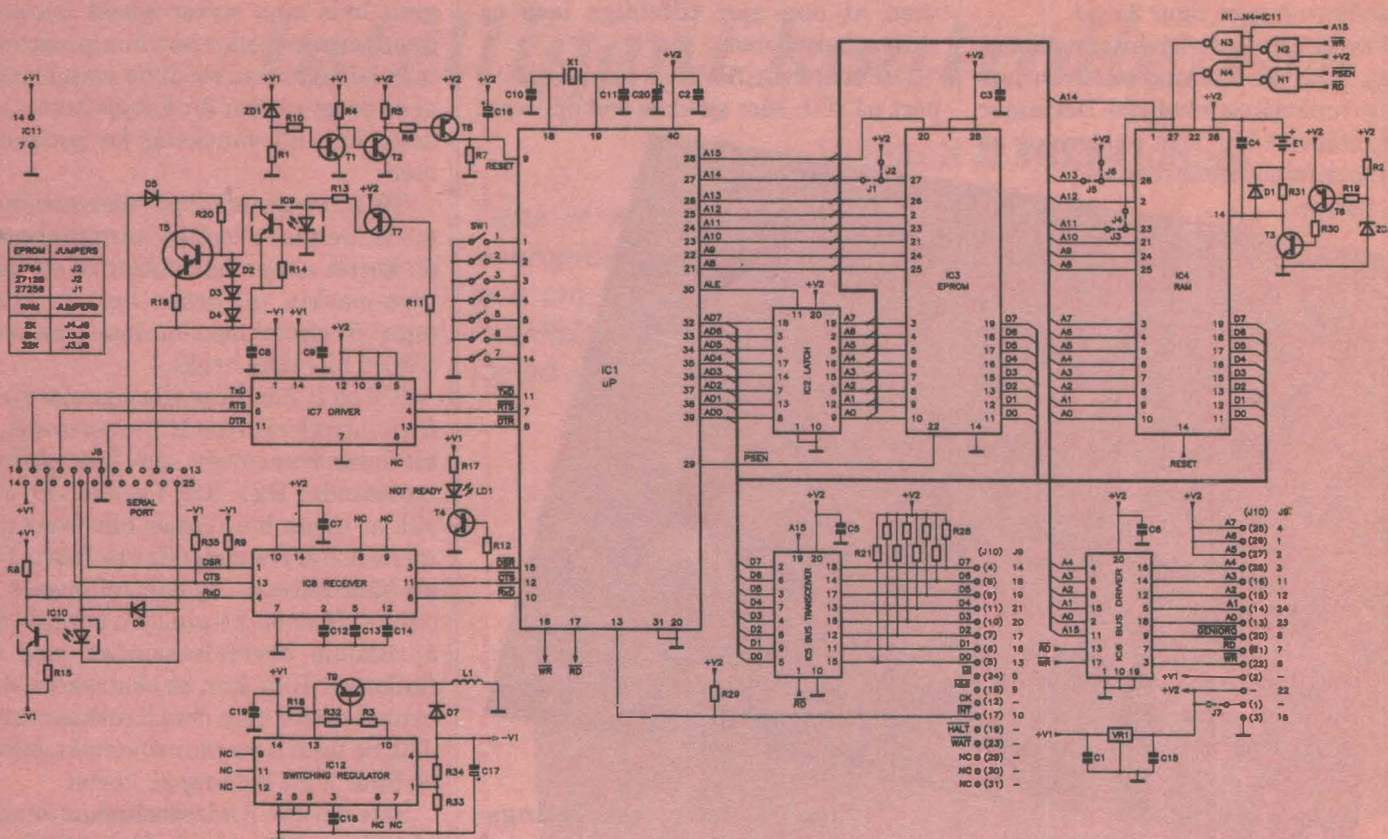
Fig. 2   Kretsskjema for interfacekortet

"spesielt bruk". Disse adressene plasseres som følger:

Øverste 32K blokk:

Grunnadresse	&H7F00
+Offset(A5–A7 v. J9=1)	&H7FE0
I/O-kort	&H7FE0–&H7FEF
Real-time klokke	&H7FF0
A/D-kort #1	&H7FF2
A/D-kort #2	&H7FF3

Prosessoren kan adressere opp til 64K, men programmene kan bare være i de laveste 32K (i IC3 og IC4). IC3 er 16K ROM med styringsprogrammet for kortet. J2 må kortsluttes for at dette blir adressert riktig. J1 kan kortsluttes i stedet, men det er kun hvis man har 32K ROM (16K i både IC3 og IC4). Dette gir imidlertid ikke plass for RAM, og anbefales ikke.

I IC4 er det plass for 16K statisk RAM, og her monteres 2K (6116, 5117 eller 5517), 8K (6264, 5165 eller 5565) eller en 32K-brikke (62256 eller 55257). I RAM blir brukerens instruksjoner lagret. Man har også batteri-backup, hvor E1 blir ladet via T3 og R31, og isolert fra 0V og kobles inn på IC4 ved strømfall av T6 og ZD2.

Konstruksjon

Instruksjonene for sammensetting som følger med settet er rimelig komplette og greie å følge, men et par punkter bør tas opp. Man *må* lodde sammen loddebroene J1–J6 *under* IC3 og IC4 (EPROM og statisk RAM). Dette er en litt uvanlig metode og bør gjøres forsiktig. Bruk følgende tabell:

EPROM (IC3):

CK2612	J2 kortsluttes, J1 åpen

RAM (IC4):

2K (std.)	J4 og J6 kortsluttes, J3 og J5 åpen
8K (6264)	J3 og J6 kortsluttes, J4 og J5 åpen
32K (62256)	J3 og J5 kortsluttes, J4 og J6 åpen

Som allerede nevnt leveres settet med 6116, en 2K statisk RAM-brikke. Alternativt kan man også sette i en 6264 på 8K (best. nr. 16 64 21, kr 49,50) eller en 32K 62256 (best. nr. 16 50 50, kr 99,50) for å gi mere plass til egne programmer.
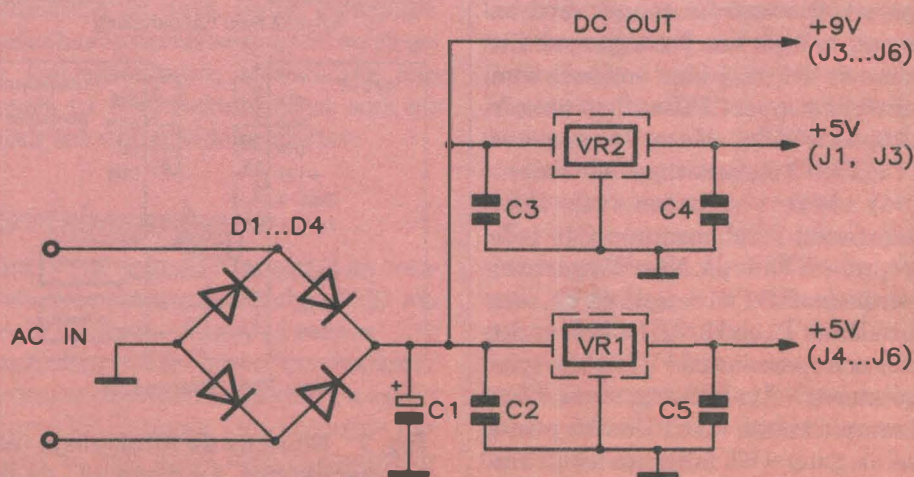
Fig. 3   Ekstern strømforsyning som koblet til utvidelseskortet
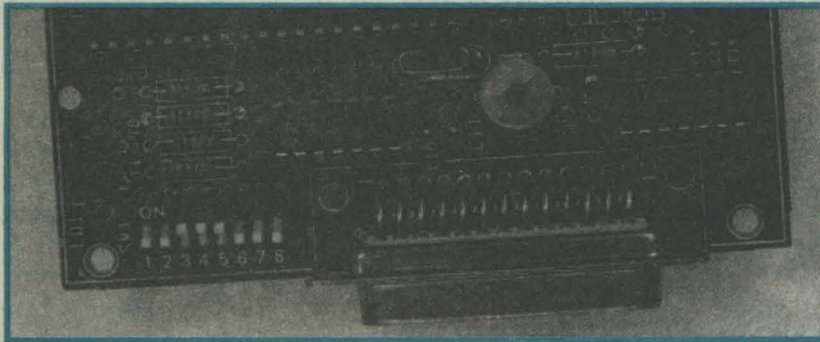
Detaljbilde av DIP-switch og RS-232 seriell port.

Imidlertid er de 2K som følger med vanligvis nok.

J8, en 25-pins DSUB han-kontakt, er ikke med i settet. En vinkel-type for montering på printkort bør kjøpes separat (best. nr. 741183, kr. 29,50).

Man må ikke ha utvidelseskortet for at alt skal virke. J9, VR1, C15 og C1 skal bare monteres hvis man *ikke* bruker utvidelseskortet, hvor disse komponentene ellers skal plasseres, og en ledning strekkes mellom DCOUT+ på utvidelseskortet og +9V inngangen på kontrollerkortet. Det er også verd å nevne at Euro-kontaktene som loddes på kontrollerkortet og utvidelseskortet ikke følger med disse, men følger isteden med hvert enkelt I/O-kort som kjøpes separat.Det anbefales å montere kortet i en skjermet boks for å unngå forstyrrelser fra og av andre maskiner (hovedkatalog 1992 side 201).

Operasjon

RS-232-kabelen må lages etter tegningen i figur 1. Man bør ta med alle ledninger som er koplet der. Det anbefales ikke å sette den opp uten handshaking (DSR/DTR). Legg merke til at koblingen er forskjellig i hver ende av kabelen. Merk derfor den ene enden tydelig for å unngå feilkobling.

Fulle detaljer om kortets instruksjonssett er umulig å ta med her, men de er ganske bra forklart i håndboken på 24 sider som følger med settet. Nedenfor kommer et ganske enkelt GW-basic-program for PC, men kortet fungerer like fint med de fleste terminalprogrammer som finnes, f. eks. Telix og ProComm.

```
10 CLS: COLOR 7,0
20 REM Hvis kontrollerkortet ikke er koblet til
   COM1 må neste linje forandres.
30 OPEN #"COM1:2400,E,7,1PE" AS #1
```
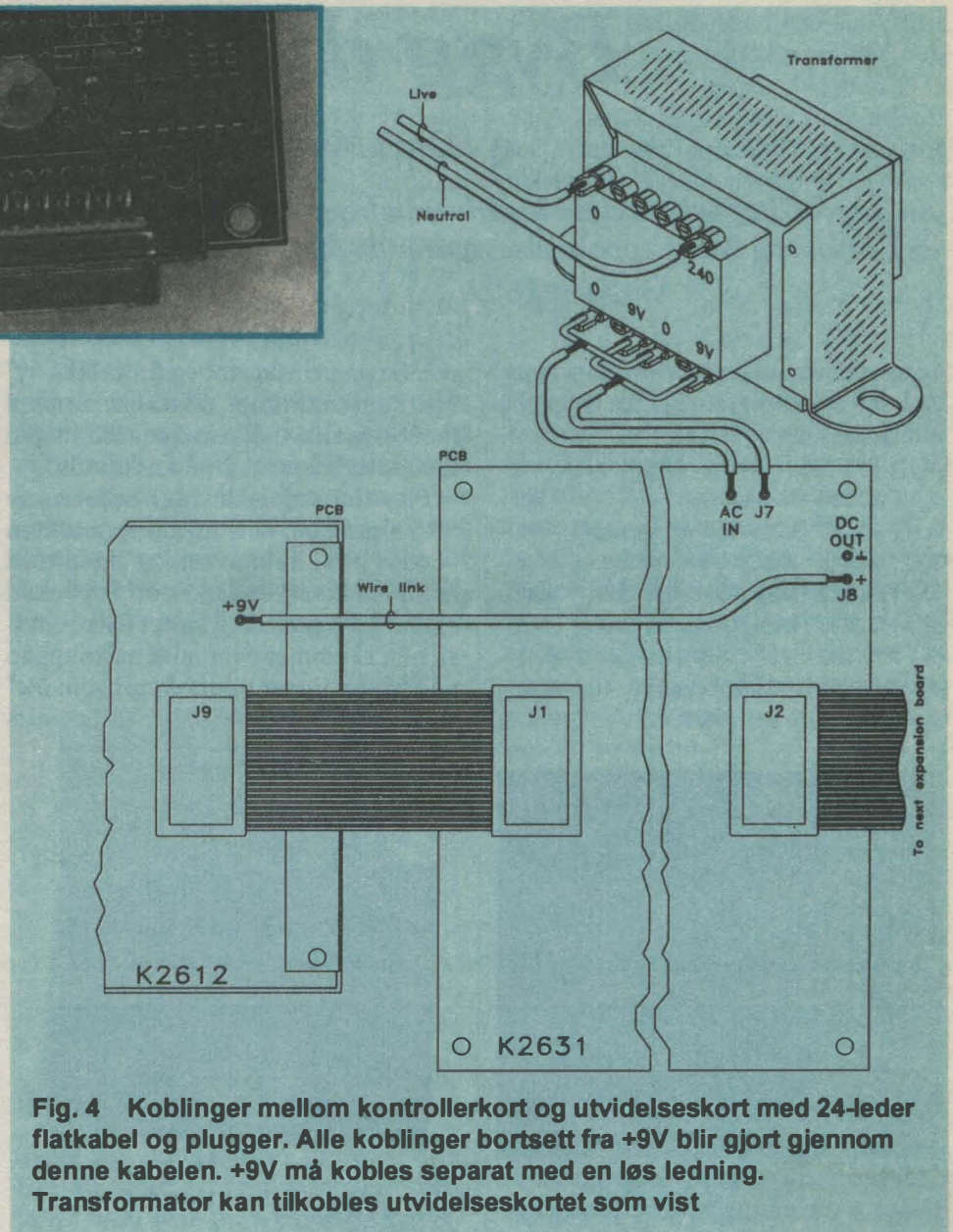

Fig. 4   Koblinger mellom kontrollerkort og utvidelseskort med 24-leder flatkabel og plugger. Alle koblinger bortsett fra +9V blir gjort gjennom denne kabelen. +9V må kobles separat med en løs ledning. Transformator kan tilkobles utvidelseskortet som vist

```
40 LOCATE ,,1
50 A$ = INKEY$
60 IF INKEY$ <> "" THEN PRINT #1, A$;
70 IF LOF(1) < 256 THEN GOSUB 100
80 GOTO 50
100 C$ = INPUT$ (1,#1)
110 IF C$ = CHR$(10) THEN RETURN
120 IF C$ = CHR$(8) THEN LOCATE,
    POS(l) - 1 ELSE PRINT C$;
130 RETURN
```

Dette kortet vil antageligvis mest bli brukt til prosesstyring, måling og testing, f. eks. måling av utladningskurven hos batterier, styring av servoer, etc. I håndboken står det mange eksempler på styringskommandoer. Noen eksempler følger her:

RDBI 15 XX XX 00 — Les bit 5 på kort 1 på minuttet, hvert minutt.

SADE 3 154 — Gi beskjed til datamaskinen når kort 3 leverer verdien 154.

Kontrollerkortet må ha ekstra kort for å kunne ta i mot og sende ut data, derfor er ikke programeksempler nevnt her. Disse ekstrakortene vil bli beskrevet i senere nummer.

Artikkel	Best.nr.	Pris
Hovedkort K2612	08 01 97	999,–
Utvidelseskort K2631	08 02 06	299,–
Åpen kollektor utgangskort	08 01 91	299,–
A/D-omformer-kort	08 01 93	399,–
Optokopler-ingangskort	08 01 95	299,–
D/A-omformer-kort	08 01 99	399,–
Realtime-klokke	08 02 04	399,–
8–1 Analog multiplekser	08 02 19	349,–
Relékort	08 02 16	199,–
Triac-kort	08 06 03	189,–

Bygg din egen PC

Av Carl Müller og Geir Aalberg

En steg-for-steg beskrivelse i hvordan du bygger en 486DX-33 PC fra standard komponenter. I tillegg til en morsom og lærerik opplevelse, sparer du også masse penger.

I denne beskrivelsen vil vi forklare hvordan du monterer en PC fra følgende komponenter:

1.	PC 2257	Mini-tower|	398.-
2.	PC 2271	200W strømforsyning	698.-
3.	PC 1176	486DX-33 hovedkort	4498.-
4.	PC 2819	Multi-I/O kontrollerkort	198.-
5.	PC 2705	Super VGA-kort 1MB	548.-
6.	PC 1203	3 ½" 1.44MB floppy	448.-
7.	PC 1390	120MB harddisk	2298.-
8.	PC 1721	4 stk. 1MB RAM	1192.-
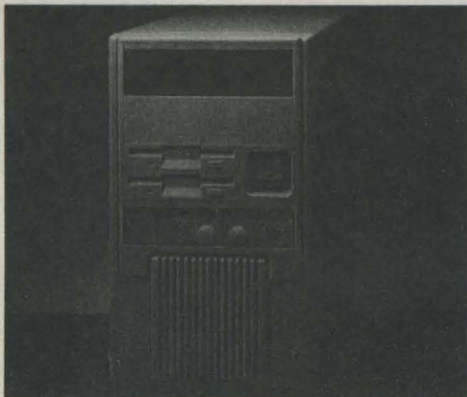
I tillegg må du naturligvis ha skjerm og tastatur (og gjerne mus). Fremgangsmåten vil som oftest være den samme for andre komponenter, så det er intet i veien for å lage en PC etter din egen spesifikasjon. Vær oppmerksom på at de forskjellige varene kan være produsert av forskjellige leverandører og avvike noe i utforming. Denne veiledningen må derfor ikke følges slavisk, men oppfattes som generelle retningslinjer.

Diskstasjoner

Før du monterer drivene, bør du sjekke etter hvilken vei kablene skal monte-res. Se på printkortet og finn tallet "1" ved kantkontakten. Flatkabelen skal monteres slik at den fargede ledningen kobles til leder nr. 1 på kontakten.

Plasser harddisken i den nederste av 3½"-rommene, slik at kantkontakten vender inn i kabinettet, og siden med komponenter vender ned. Fest med skruer på hver side. Monter diskettstasjonen i rommet over, slik at knappen på fronten ligger under åpningen. 5¼" diskettstasjon eller CD-ROM monteres på samme måte.
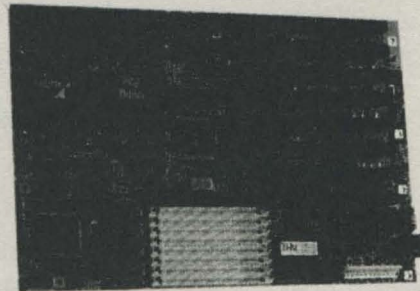
Hovedkort

På hovedkortet finnes det to banker for RAM-moduler, hvor hver bank tar fire moduler. Har du bare fire SIMM'er (tilsammen 4MB), må disse monteres i bank 1. Hovedkortet monteres stående i kabinettet, slik at slottene for ekspansjonskort passer inn sammen med åpningene i chassiet. Hvis kabinettet har monteringsplate for hovedkortet, kan denne med fordel løsnes fra chassiet (2 skruer) noe som gjør montereringen enklere.

Trykk de hvite distansestykkene av plast inn i hovedkortet slik at de korresponderer med sporene i monteringsplaten. Fest avstandsstykkene (sekskantformede metallskruer) i monteringsplaten på steder som passer til skruehull i hovedkortet. Skyv kortet på plass i monteringsplaten, og fest det med maskinskruer til distansestykkene.

Brytere og LED'er

Slå opp i manualen for hovedkortet, og finn diagrammet over jumpere og tilkoblingspinner. Koble ledningene fra tastaturlås, høyttaler, resetknapp, turboknapp og turbo-LED til de respektive pinnene på hovedkortet. Den varmeste fargen er alltid + (dvs rød hvis rød/hvit, gul hvis gul/svart, etc.). Finn også ledningen til harddisk-LED, som senere skal kobles til kontrollerkortet.
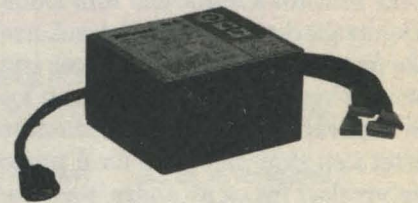
Strømforsyning

Hvis denne ikke sitter ferdig montert i kassen, festes den til bakkanten med fire skruer slik at viften stikker ut i friluft. Fra dette stikker det ut mengder med ledninger i alle regnbuens far-
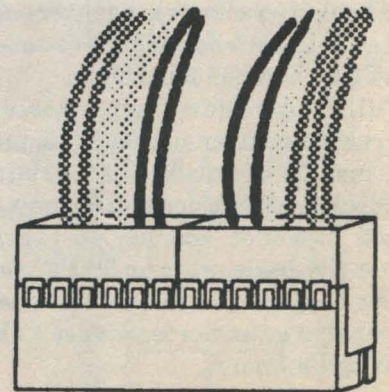
Fig. 1   De sorte ledningene skal vende mot hverandre når man kobler strømmen til hovedkortet

ger. Til hovedkortet skal det kobles to kontakter med seks ledninger hver på. Disse er som oftest merket P8 og P9, og skal kobles i henholdsvis pinne 1–6 og 7–12 på hovedkortet. **OBS! Kobles disse feil, ødelegger du hovedkortet!** Som huskeregel kan man merke seg at **de sorte ledningene skal alltid vende mot hverandre.** Se figur 1.

Enten du har strømbryter på fronten av kassen eller bak, må denne tilkobles en kabel fra strømforsyningen. Denne stikker det ut fire ledninger med kabelsko og en med øye på, av disse skal jordledningen (grønn/gul med øye) kobles så til et eller annet metallobjekt i chassiet. De andre ledningene kobles til bryteren på samme måte som er anvist på klistelappen på strømforsyningen (normalt blå–1/1, hvit–1/3, brun–2/4, sort 2/6). Skulle man være så uheldig å koble disse feil, skjer det ikke noe verre enn at sikringen i sikringsskapet går! Monter bryteren med posisjon 0 (av) ned og 1 (på) opp. Skyv bryteren inn til den sitter fast.
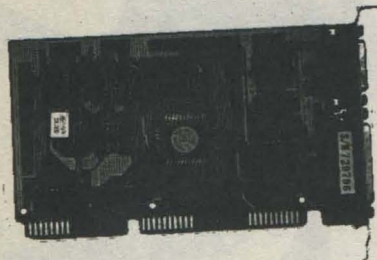
Kontrollerkort

Slå opp i dokumentasjonen til kontrollerkortet, og finn diagrammet for jumpere og tilkoblinger. Sjekk at jumperne står riktig (som oftest), og merk hvor pinne 1 er på kontaktene for harddisk og floppydriver. Sett kontrollerkortet i en passende (16-bits) slot, gjerne i plassen lengst inn mot sentrum. Koble flatkablen til harddisk og kontrollerkort, slik at den fargede lederen forbinder pinne 1 fra harddisken til kortet. Gjør likedan for diskettstasjonen. Til slutt forbinder du harddisk-LED'en til pinnene for dette på kortet.

Hvis du kjøper et multi-I/O kort, er det ikke plass til alle serie- og parallellporter på kortet. Noen av disse følger oftest med løst, og må skrus fast enten en ledig kortplass, eller i chassiet (bruk en spiss tang til å brekke ut dekslet hvis det ikke er skrudd fast). Koble disse til I/O-kortet som anvist.
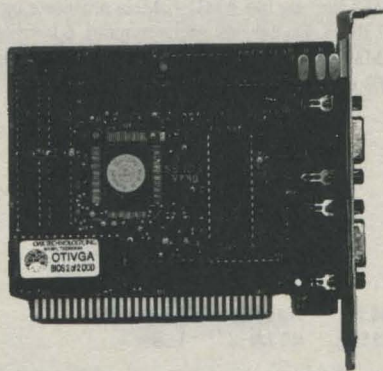
VGA-kort

Sjekk om det er noen jumpere eller DIP-switcher som må forandres (vanligvis bare hvis du har en multisync-monitor som ikke greier 72Hz sync fra Super VGA-kortet). Monter dette i en passende slot, gjerne i den ene enden (slik at det kommer lengst mulig unna lydkort hvis du kjøper deg dette). Til VGA-kortet følger det gjerne drivere for Windows og andre programmer, disse installeres senere som beskrevet i manualen til kortet.

Oppstart

Koble til VGA-skjerm og tastatur (og mus hvis du har det). Slå på maskinen. Hvis alt er koblet riktig, vil det først komme et pipp og copyright-beskjeder fra BIOS'ene på VGA-kortet og hovedkortet. Etter at den har telt opp hvor mye RAM som finnes, vil du få beskjed om å trykke [Del] eller [Esc] for å kjøre Setup. Etter å ha gjort så, går du inn i General Setup og setter klokkeslett og dato, samt hvilke typer diskstasjoner du har. For diskettstasjoner er dette veldig enkelt, for harddisker er det litt mer jobb.

Du må først finne frem dokumentasjonsarket for harddisken, og finne ut antall hoder, sylindre og sektorer per track (precomp og landing zone er irrelevant for IDE-harddisker). Som oftest må du velge harddisk type 47 (user defined), hvis du ikke finner den i listen over allerede definerte harddisker (trykk F1 på AMI BIOS for liste). Etter å ha lagt inn de relevante data, vil den regne ut størrelsen på harddisken. (Merk at AMI BIOS regner en megabyte som 1024K, mens de fleste harddiskfabrikanter regner med 1000K for å få de til å lyde større. En 120MB harddisk vil derfor oftest vises som en 116MB.)

Etter å ha lagret setup'en, er det bare å boote fra disketter, formattere harddisken (med FDISK og FORMAT). Bruker du MS-DOS 5.0, gjøres dette bortimot automatisk, og PC'en er klar til bruk.

```
         CMOS SETUP (C) Copyright 1985-1990, American Megatrends Inc.,

 Date (mn/date/year): Fri, Apr 02 1993    Base memory size  : 640 KB
 Time (hour/min/sec): 12 : 10 : 07        Ext. memory size  : 3328 KB
 Floppy drive A:      1.44 MB, 3½"        Numeric processor : Not Installed
 Floppy drive B:      Not Installed
                                          Cyln  Head  WPcom  LZone  Sect  Size
 Hard disk C: type  : 41                  977   5     977    977    17    41 MB
 Hard disk D: type  : Not Installed
 Primary display    : VGA or EGA
 Keyboard           : Installed           ┌─────┬─────┬─────┬─────┬─────┬─────┬─────┐
 Video BIOS shadow  : Enabled             │ Sun │ Mon │ Tue │ Wed │ Thu │ Fri │ Sat │
 Scratch RAM option : 1                   ├─────┼─────┼─────┼─────┼─────┼─────┼─────┤
 Main BIOS shadow   : Enabled             │ 28  │ 29  │ 30  │ 31  │  1  │  2  │  3  │
 Relocate option    : Enabled             ├─────┼─────┼─────┼─────┼─────┼─────┼─────┤
 AT Clock           : Enabled             │  4  │  5  │  6  │  7  │  8  │  9  │ 10  │
                                          ├─────┼─────┼─────┼─────┼─────┼─────┼─────┤
                                          │ 11  │ 12  │ 13  │ 14  │ 15  │ 16  │ 17  │
 Month : Jan, Feb,.....Dec                ├─────┼─────┼─────┼─────┼─────┼─────┼─────┤
 Date  : 01, 02, 03,...31                 │ 18  │ 19  │ 20  │ 21  │ 22  │ 23  │ 24  │
 Year  : 1901, 1902,...2099               ├─────┼─────┼─────┼─────┼─────┼─────┼─────┤
                                          │ 25  │ 26  │ 27  │ 28  │ 29  │ 30  │  1  │
 ESC = Exit   Arrows = Select, PgUp/PgDn = Modify  ├──┼─────┼─────┼─────┼─────┼─────┤
                                          │  2  │  3  │  4  │  5  │  6  │  7  │  8  │
                                          └─────┴─────┴─────┴─────┴─────┴─────┴─────┘
```

Eksempel på Setup for AMI BIOS

HOVEDKORT

386 SX hovedkort

Våre 386SX hovedkort har AMD prosessor og AMI BIOS fra '92. De har meget små mål (217×167mm), slik at de passer i omtrent et hvert kabinett. 6 kortplasser gir god utvidelsesmulighet. Opptil 16MB RAM kan plasseres i de 4 SIMM-slot'ene.
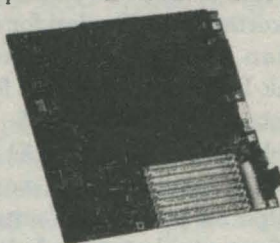
Best.nr.	Hastighet	Pris
PC 1168	25 MHz	898.–
PC 1169	33 MHz	998.–

386 DX 40MHz hovedkort

386 DX kortene har AMD 40MHz prosessor og AMI BIOS. De har 64k cache montert. 6 kortplasser. 8 SIMM plasser gjør at de kan bygges ut til hele 32MB RAM.
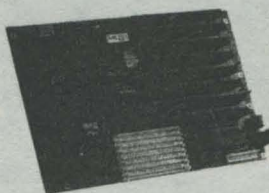
Best.nr.	Hastighet	Pris
PC 1165	40 MHz	1598.–

Cyrix 486DLC 40MHz kort

Dette hovedkortet bruker den nye 40MHz prosessoren fra Cyrix. Den gjør at dette hovedkortet går raskere enn et tilsvarende Intel 486DX 33MHz-kort. Det har AMI BIOS og 8 kortplasser. opptil 32 MB RAM kan monteres i de 8 SIMM-slot'ene. 1k intern 'writeback' cache og 128k ekstern cache. 'Writeback' betyr at prosessoren bruker cachen også når den skriver til minnet, noe Intel ikke gjør.

Best.nr.	Hastighet	Pris
PC 1177	33MHz DLC	2499.–
PC 1178	40MHz DLC	3498.–

Intel 486 hovedkort

Disse hovedkortene har Intel 486 prosessor og AMI BIOS. De har 8 kortplasser, og opptil 32 MB RAM kan plasseres i de 8 SIMM-slotene. Alle DX-kort har 256K cache, mens SX'en har 64K. 66MHz DX/2 kortet bruker klokkedobling.

Best.nr.	Hastighet	Pris	3 à
PC 1170	33MHz SX	2498.–	1998.–
PC 1176	33MHz DX	4498.–	3998.–
PC 1180	50MHz DX	6998.–	5998.–
PC 1182	66MHz DX/2	8498.–	6998.–

For flere hovedkort, se hovedkatalogen 1992 s. 4

HARDDISKER

IDE Harddisker

Alle harddiskene er av IDE-AT (AT-bus) typen, og det følger med instruksjoner om oppsett o.l. Alle kan settes opp til å være alene, eller som master el. slave i ett sett på to harddisker.
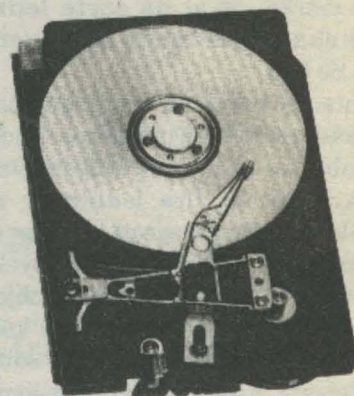
Best.nr.	Størrelse	Pris
PC 1380	40 MB	1398.–
PC 1382	80 MB	1898.–
PC 1386	105 MB	1998.–
PC 1390	120 MB	2298.–
PC 1392	210 MB	3498.–
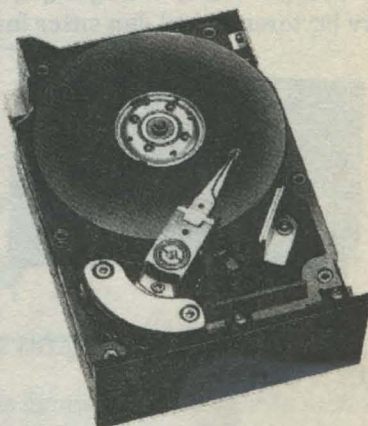
Monteringsskinner

For å montere en 3½" harddisk i en 5¼" plass.
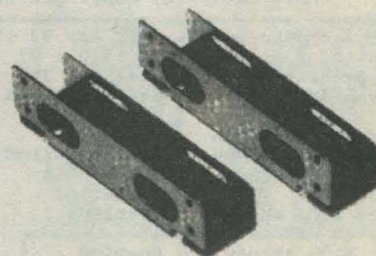
Best. nr.	Pris	3 à	10 à
PC 1376	59.–	54.–	49.–

40 pol IDE harddiskkabel

Med tre kontakter for tilkopling av opptil to harddisker. Se også under *Kabler* senere i katalogen.

Best. nr.	Pris	3 à	10 à
PC 2125	32.–	28.–	23.–

For flere harddisker, se hovedkatalogen 1992 s. 9

Alle priser på denne siden er ex. mva.

DISKETT-STASJONER

Diskettstasjon 3½" 1.44MB

Teac/Panasonic høykvalitets floppydrive for 3½" disketter opptil 1.44MB. Leveres uten ramme for montering i 5¼" plass.
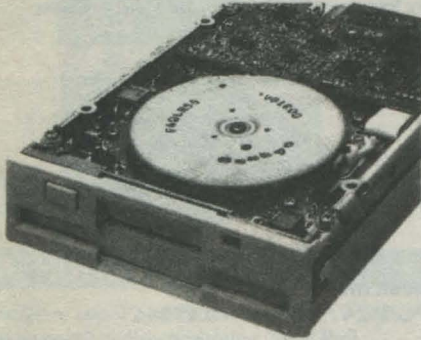
Best. nr.	Pris	3 à	10 à
PC 1203	448.–	4 3 8. –	398.–

Ramme til 3½" drive

For montering av 3½" drive i 5¼" plass.
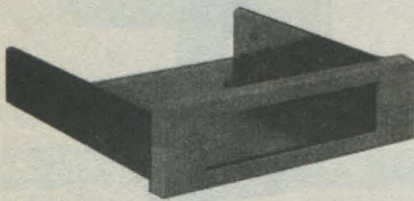
Best. nr.	Pris	3 à	10 à
PC 1238	59.–	54.–	49.–

Diskettstasjon 5¼" 1.2MB

Teac/Panasonic høykvalitets floppydrive for 5¼" disketter opptil 1.2MB.
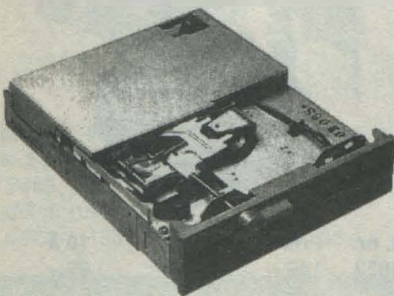
Best. nr.	Pris	3 à	10 à
PC 1273	798.–	698.–	598.–

SKJERMER

14" Super VGA skjerm

Multifrekvens lavstråleskjerm som følger MPR-II reglene for eletromagnetisk stråling. Støtter oppløsninger på opptil 1024×768 og har en dot pitch på 0.28.15 pins VGA plugg.

Best. nr.	Pris	3 à	10 à
PC 2275	2698.–	2598.–	2398.–

14" overscan lavstråleskjerm

Som over, men har i tillegg digital kontroll av bildestørrelse og -posisjon. Bildet kan dekke hele skjermen, så man slipper "sørgerender".

Best. nr.	Pris	3 à	10 à
PC 2277	2998.–	2798.–	2498.–

14" Monokrom SVGA skjerm

SuperVGA lavstråle multifrekvens gråtoneskjerm, som støtter oppløsninger på opptil 1024×768 og har en dot-pitch på 0.38. 15 pins VGA plugg.

Best. nr.	Pris
PC 2274	1298.–

SKJERMKORT

SuperVGA-kort

Alle de følgende kortene er 16-bits SuperVGA kort. De har 15 pin, 3-raders DSUB VGA-utgang. Drivere til mange programmer følger med. Max oppløsning er som følger (bredde × høyde × farger):

- 256K: 800 × 600 × 16
- 512K: 1024 × 768 × 16 eller 800 × 600 × 256
- 1MB: 1024 × 768 × 256
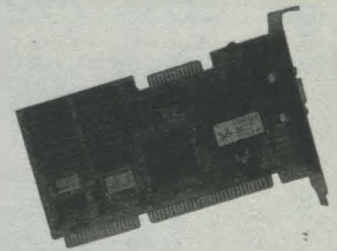
SVGA kort med 256K RAM
Best.nr. PC 2700   kr 298.–   3 à kr 248.–
SVGA kort med 512K RAM
Best.nr. PC 2701   kr 398.–   3 à kr 348.–
SVGA kort med 1MB RAM
Best.nr. PC 2705   kr 548.–   3 à 448.–

SVGA-kort med aksellerator

Skjermkort med grafikk-aksellerator for å gjøre Windows og andre grafiske grensesnitt mye raskere i bruk. Det gjør faktisk skjermoppdatering i Windows hele 7 ganger raskere! Med 1 MB minne. Viser 1024x768-oppløsning i 256 farger. Drivere for mange programmer følger med. 15pin VGA-utgang.
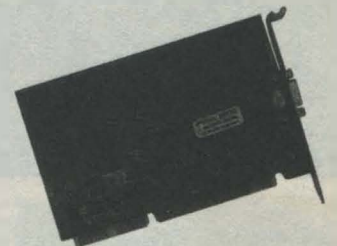
Best. nr.	Pris
PC 2710	1498.–

RAM

DRAM DIP-brikker

Best.nr.	Type		Pris stk.	v.ant.	v.ant.
PC 1749	41256-08	1 × 256Kb 80ns	23.–	9 stk: 19.–	36 stk: 18.–
PC 1675	414256-08	4 × 256Kb 80ns	49.–	8 stk: 44.–	16 stk: 39.–
PC 1679	411000-08	1 × 1000Kb 80ns	49.–	9stk: 44.–	

SIMM/SIP moduler

Best.nr.	Type		Pris stk.	v. ant.	v. ant.
PC 1722	256KB SIMM	9 × 256Kb 80ns	139.–	4 stk: 129.–	8 stk: 119.–
PC 1723	256KB SIP	9 × 256Kb 80ns	139.–	4 stk: 129.–	8 stk: 119.–
PC 1721	1MB SIMM	9 × 1Mb 70/80ns	298.–		
PC 1693	1MB SIP	9 × 1Mb 80ns	398.–		
PC 1720	4MB SIMM	9 × 4Mb 70ns	1498.–		
PC 1718	4MB SIMM (72p)	36 × 1Mb 70ns (32 bit)	1698.–		
PC 1719	8MB SIMM (72p)	36 × 2Mb 70ns (32 bit)	3298.–		

Alle priser på denne siden er ex. mva.

KASSER & PS

Mini-tower

For Baby AT-kort. Plass for to 3½" stasjoner, to 5¼" stasjoner og en 3½" harddisk. Inkluderer skruer og braketter for montering. Ytre mål 330×180×395mm.
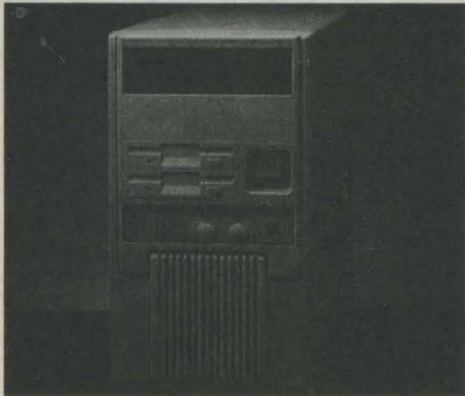
Best. nr.	Pris	3 à	10 à
PC 2257	398.–	378.–	298.–

Desktop-kasse

For Baby AT-kort. Plass for tre 5¼" stasjoner og en 3½" stasjon. Inkluderer skruer og braketter. Ytre mål 360×162×402mm.
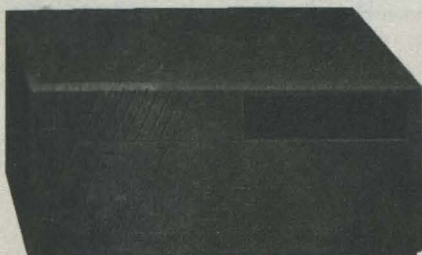
Best. nr.	Pris	3 à	10 à
PC 2253	398.–	378.–	298.–

Desktop-kasse m/ strømfors.

Samme som over, men inkluderer 200W strømforsyning og strømkabel. Godkjent av NEMKO.

Best. nr.	Pris	3 à
PC 2270	898.–	698.–

200W strømforsyning

Standard PS/2-type, passer i de fleste moderne PC/AT- og PS/2-kasser. Godkjent av NEMKO. Strømkabel medfølger. Mål 150×84×140mm.

Best. nr.	Pris	3 à
PC 2271	698.–	548.–

For flere kasser, se hovedkatalogen 1992 s. 14

INPUT-ENHETER

PC-tastatur

102-tasters tastatur med norske taster og LED-panel. Switch for tilkobling til XT eller AT. Kan også brukes til PS/2 sammen med adapter PC 2340.

Best. nr.	Pris	3 à
PC 2351	438.–	348.–

Tastaturskjøteledning

2 m skjøteledning for AT- og XT-tastaturer.

Best. nr.	Pris	3 à
PC 2337	24.–	19.–

PS/2 tastaturadapter

Gjør at et vanlig AT-tastatur kan kobles til en PS/2-maskin.

Best. nr.	Pris	3 à
PC 2340	29.–	24.–

Microsoft-kompatibel mus

Seriell mus som koples til serieporten (RS-232). Man kan velge om den skal være Microsoft eller PC-Mouse kompatibel med en bryter. Tre knapper. Leveres med kabel og driver.

Best. nr.	Pris	3 à
PC 3121	98.–	94.–

Musholder

Kjekk lomme til å f.eks. plassere på siden av monitoren, slik at musen ikke ligger i veien. Passer alle mus-typer.

Best. nr.	Pris	3 à	10 à
PC 4025	19.–	16.–	14.–

Musmatte

Gjør at musen glir jevnt uten å hakke. Forhindrer slitasje på mus og skrivebord, sørger også for at skitt ikke kommer inn i musen.

Best. nr.	Pris	3 à	10 à
PC 4023	29.–	24.–	19.–

Trackball

Microsoft og PC-Mouse-kompatibel trackball med tre knapper som kan låses individuelt. Driver medfølger.

Best. nr.	Pris	3 à
PC 3124	298.–	278.–

Quickshot joystick

En analog joystick med håndtilpasset grep. 15 pins plugg. Autofire, 2 knapper. Av/på-bryter for sentrering.

Best. nr.	Pris	3 à	10 à
PC 1805	159.–	139.–	119.–

Joystick

Analog joystick med to knapper og justerbar sentrering. 15 pins plugg.
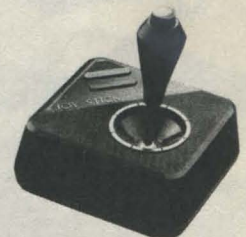
Best. nr.	Pris	3 à	10 à
PC 1833	149.–	129.–	99.–

Gameport for 2 joysticks

Med to 15-pins kontakter, for tilkobling av en eller to analoge joysticks.
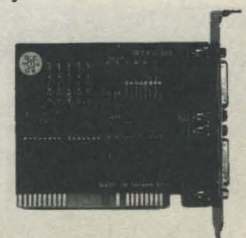
Best. nr.	Pris	3 à	10 à
PC 2631	98.–	88.–	68.–

Alle priser på denne siden er ex. mva.
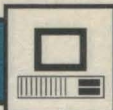
I/O-KORT

IDE Multi-I/O kort

Kontrollerkort med 2 serieporter, 1 parallellport, 1 gameport. Kontrollerer opptil 2 harddisker av type IDE (AT-buss) og opptil to diskettstasjoner (360KB til 1.44MB, 3½" og 5¼"). Alle porter kan disables hvis ønskelig. Leveres med alle nødvendige kabler.
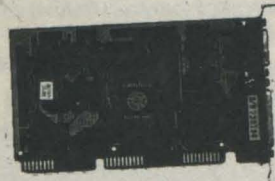
Best. nr.	Pris	3 à	10 à
PC 2819	198.–	188.–	178.–

IDE HD/floppykontroller

Kontrollerer opptil 2 harddisker av IDE (AT-BUS)-typen og opptil to diskettstasjoner (360KB til 1.44MB, 3½" og 5¼"). Leveres med alle nødvendige kabler.
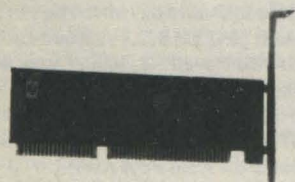
Best. nr.	Pris	3 à	10 à
PC 2817	98.–	94.–	89.–

RS-232 serieporter

RS-232 seriell port for tilkopling av modem, printer og terminal. Kan settes opp til COM1 eller COM3. Den har holder for en ekstra UART (som kan settes opp til COM2 og COM4). På PC 3023 er denne montert.
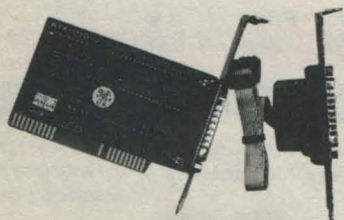
Best.nr.	Pris	3 à	10 à
Med 1 port:			
PC 2659	108.–	98.–	79.–
Med 2 porter (bildet):			
PC 3023	138.–	118.–	98.–

2 × seriell / parallell / game

Dette kortet har 2 serieporter (som kan settes opp som COM 1–4), en parallell printerport (kan settes opp som LPT 1 og 2). og en analog game-port for joystick.
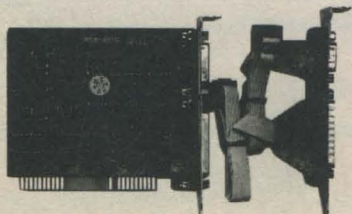
Best. nr.	Pris	3 à
PC 2924	198.–	148.–

CACHE-KONTROLLERE

Den rimeligste og enkleste måten måten å få fart på PC'en. Gjør alle eksisterende harddisker superraske—søketiden blir ca. 0.3 millisekunder! Firedobler hastigheten på diskkrevende applikasjoner. Å installere en cache-kontroller har oftest mer effekt enn å bytte hovedkort, og er *mye* enklere!

SCSI cache-kontroller

Kontroller for 7 HD, 2 FD og 1 tapedrive. Kan plasseres sammen med andre kontrollere uten konflikter, da kortet har egen BIOS uavhengig av hovedkortets. Leveres uten RAM, utbyggbar til 16MB

Best. nr.	Pris
PC 2832	2498.–

IDE cache-kontroller

Kontroller for 2 HD og 2 FD. Leveres med 512KB cache, utbyggbar til 8,5MB.

Best. nr.	Pris
PC 2828	1398.–
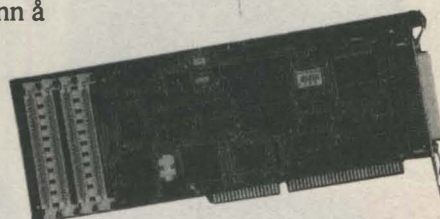
IDE multi-I/O cachekontroller

Kontroller for 4 HD, 2 FD, 1 tapedrive, med 2 serie og 1 parallellport. Kan plasseres sammen med andre kontrollere uten konflikter, da kortet har egen BIOS uavhengig av hovedkortets. Leveres uten RAM, utbyggbar til 16MB.

Best. nr.	Pris
PC 2830	1998.–

Fax dine bestillinger til 22 49 02 10!

2 × seriell / 1 × parallell

Det samme som over, men uten game-port.

Best. nr.	Pris	3 à	10 à
PC 2923	168.–	158.–	138.–

4 × seriellport

Dette kortet har 4 serieporter montert, som kan settes fra COM 1–8. Opptil to slike kort kan monteres i en maskin. Kabler følger med.
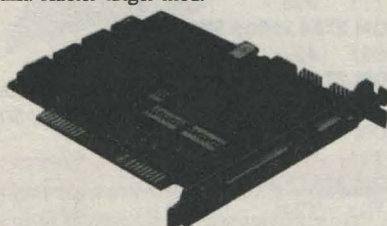
Best. nr.	Pris
PC 2841	398.–

Parallellport

Har en paralell printerport, som kan settes opp som LPT2 eller LPT3 (flyttes av DOS ned til LPT1 hvis du ikke har LPT1 fra før).
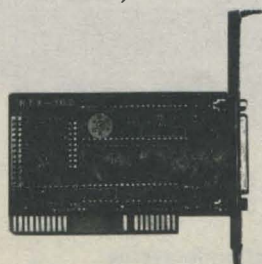
Best. nr.	Pris	3 à	10 à
PC 2645	74.–	64.–	59.–

For flere kort, se hovedkatalogen 1992 s. 11

Centronics relé-interfacekort

Dette interessante kortet kan koples til en vanlig parallellport og styres fra alle typer datamaskiner. Det har 8 Siemens reléer som kan styres individuelt. Disse reléene kan så styre alle spenninger opptil 250V 8A. En LED for hvert relé viser tilstanden. Det trenger strømforsyning 12V 400mA. Skrukoplinger på reléutgangene.
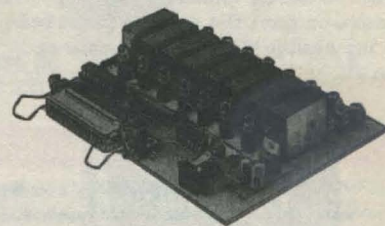
Best. nr.	Pris	3 à	10 à
97 58 77	599.–	569.–	539.–

Mascot 9–15V m/ multiplugg, 500mA

Best. nr.	Pris
09 02 62	185.–

Digitalt I/O-kort, 48 kanaler

Dette kortet har to stk. 8255 I/O-kretser, som til sammen har 48 fritt programmerbare digitale inn/utganger (med TTL-nivå). Det har 3 uavhengige 16-bits programmerbare tellere som kan telle binært eller BCD i frekvenser fra DC til 5MHz.
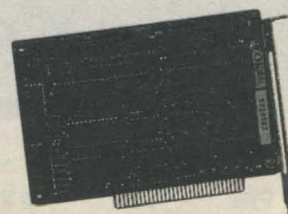
Best. nr.	Pris	3 à
PC 2736	398.–	298.–

Alle priser på denne siden er ex. mva.
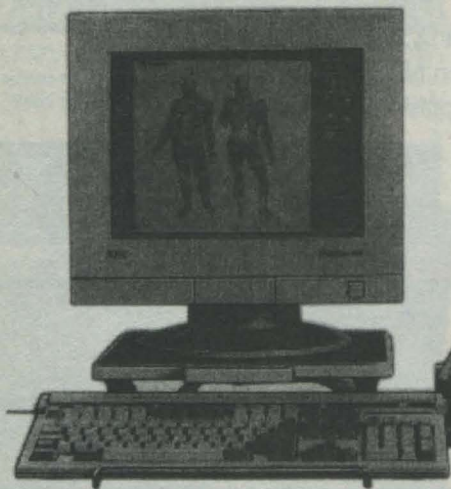
MONITOR-ARM

Mekanisk monitor- og tastatur-arm som gir deg frihet til å flytte monitoren og tastaturet rundt på bordet. Meget plass-besparende. Armen frigjør skrivebordet når PC'en ikke er i bruk. Meget stabilt design i hvitlakkert stål med en bæreevne på 25kg. 360° rotasjon på armen og 180° på monitorstativet. Enkel montering. Alle kablene trekkes gjennom armen. Mål på monitorplatået: 335×285mm.

Best. nr.	Pris
97 99 88	698.–

Digitalt I/O-kort, 192 kanaler

Samme som over, men 192 kanaler (8 stk. 8255)

Best. nr.	Pris
PC 2738	598.–

A/D–D/A-kort 12bit

16 kanaler 12 bit multiplekset A/D konvertering med sample/hold-krets. A/D-omformingstiden bedre enn 60µs. 12 bit D/A, spenning eller strømstyrt (kan velges med jumpere). D/A omformingsiden bedre enn 0,5µs. Analoge I/O-områder: Unipolar og bipolar 9V.
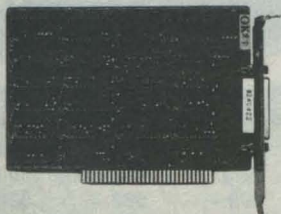
Best. nr.	Pris	3 à
PC 2715	698.–	548.–

A/D–D/A-kort 14bit

Samme som 12 bits over, men D/A oppløsning 14 bit, bedre enn 2µs, og A/D oppløsning 14 bits. A/D omformingsiden bedre enn 28µs. I/O-områder: Unipolar og bipolar 2,5V, 5V og 10V.
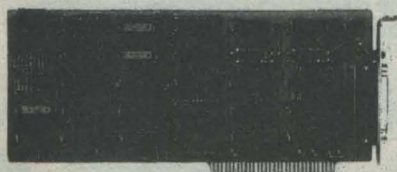
Best. nr.	Pris	3 à	10 à
PC 2757	1398.–	1198.–	998.–

Se også hovedkatalogen 1992 s. 4

EPROM-brenner

Brukes til å programmere (skrive) eller lese EPROMs. Data kan kopieres til/fra disk eller andre EPROMs. Støtter alle typer fra 2716 til 27512. Inkluderer brennerstativ, kontrollerkort, kabler, software og detaljert håndbok. Brennerstativ fås i en- og fire-brikkers utgave.
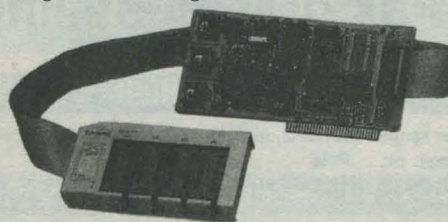
Best. nr.	Pris	3 à	5 à
Brenner for 4 EPROMs			
PC 2743	1398.–	1198.–	998.–
Brenner for 1 EPROM			
PC 2771	998.–	798.–	
EPROM 2764 250ns 8Kbit			
PC 1697	49.–	44.–	39.–
EPROM 27128 250ns 16Kbit			
PC 1699	54.–	49.–	42.–
EPROM 27256 250ns 32Kbit			
PC 1701	69.–	65.–	62.–
EPROM 27512 250ns 64Kbit			
PC 1703	124.–	118.–	98.–

EPROM UV-belyser

For sletting av data i EPROMs. Elektronisk tidskobler, max 25 min. med starttast. 4W UV-lampe. Kan belyse opp til fem EPROMs samtidig.
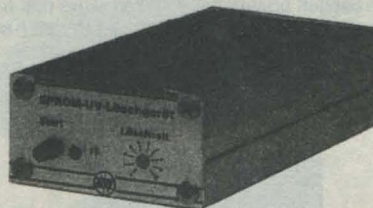
Best.nr.	Pris	3 à
98 22 61	698.–	598.–

Passende strømforsyning:
Mascot 9–15V m/ multiplugg

Best. nr.	Pris
09 02 62	185.–

Se hovedkatalogen 1992 s. 8 for mer info

ETHERNET

Ethernetkort

16-bits kort for thinwire og thickwire Ethernet nettverk, basert på IEEE 802.3 standard LAN. Kompatibelt med Novell NE-2000. Passer til de fleste populære nettverk som f.eks. Novell Advanced Netware, IBM PC LAN, Microsoft MS-NET og FTP PC/TCP. Direkte DMA kontroll, EPROM sokkel for Auto Boot ROM.
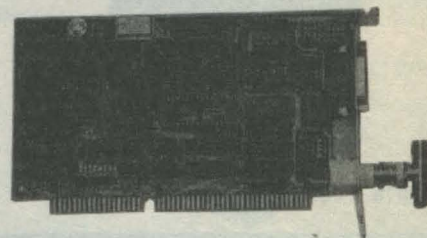
Best.nr.	Pris	3 à
PC 4050	1398.–	998.–

10Base-T Ethernetkort

16-bits kort for thickwire og twisted pair Ethernet nettverk, basert på IEEE 802.3 standard LAN. Kompatibelt med Novell NE-2000. Passer til de fleste populære nettverk som f.eks. Novell Advanced Netware, IBM PC LAN, Microsoft MS-NET og FTP PC/TCP. Direkte DMA kontroll, EPROM sokkel for Auto Boot ROM.
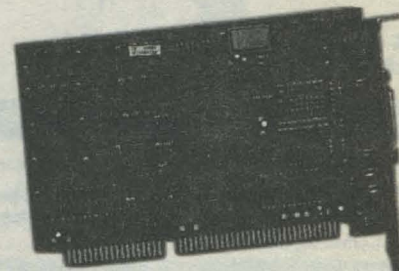
Best.nr.	Pris	3 à
PC 4060	1398.–	998.–

Ethernet-terminator

Brukes som avslutning i begge ender av et kabelanlegg. Motstand 50Ω.
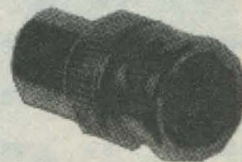
Best.nr.	Pris	3 à	10 à
PC 4058	64.–	54.–	49.–

Boot ROM for Novell V2.15

Brukes for automatisk å boote diskløse nettverksterminaler.
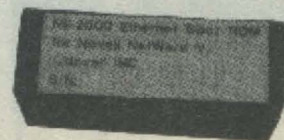
Best.nr.	Pris	3 à	10 à
PC 4056	149.–	129.–	119.–

Alle priser på denne siden er ex. mva.

RAM-KORT

2MB RAM-kort

16-bits RAM-kort med plass for opptil 2MB RAM. Bruker 1024Kb DRAM brikker (ikke inkludert), med plass til 18 brikker. Støtter extended og expanded (LIM/EMS 4.0) memory standarder. Opptil 4 slike kort kan settes på samme hovedkort, for totalt 8MB RAM. Kan også brukes for å fylle konvensjonelt memory fra 512K til 640K. Leveres med software.
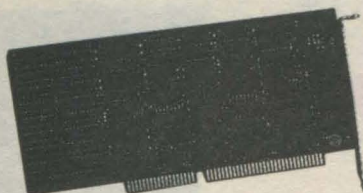
Best.nr.	Pris	3 à
PC 2617	598.–	498.–

8MB RAM-kort

16-bits RAM-kort med plass for opptil 8MB RAM. Bruker 1024Kb DRAM brikker (ikke inkludert), med plass til 72 brikker. Støtter extended og expanded (LIM/EMS 4.0) memory standarder, og hukommelsen kan deles opp i både extended og expanded. Opptil 4 slike kort kan settes på samme hovedkort, for totalt 32MB RAM. Kan kobles sammen med NEAT EMS, og har mulighet for paritetssjekk.

Best.nr.	Pris
PC 2620	698.–

2.5MB RAM-kort

16-bits RAM-kort med plass for opptil 2560KB RAM. Bruker standard 256Kb eller 1024Kb DRAM brikker (ikke inkludert), med plass til 36 brikker. Støtter extended og expanded (LIM/EMS 3.2) memory standarder.

Best.nr.	Pris
PC 3037	398.–

KABLER

Printerkabler

Standard 25-pins hankjønn DSUB til 36-pins Centronics printerkabler.
Lengde 1.8m:
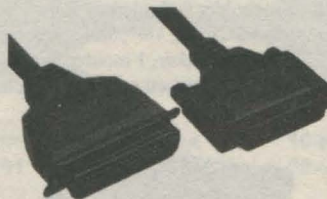
Best. nr.	Pris	3 à	10 à
PC 1861	39.–	34.–	29.–

Lengde 3m:

Best. nr.	Pris	3 à	10 à
PC 2211	59.–	53–	49.–

Vinklede printerkabler

Venstrevinklet 90°, 1.8m:
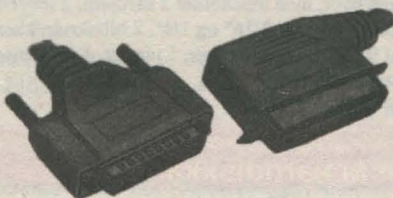
Best. nr.	Pris	3 à	10 à
98 06 68	98.–	88.–	78

Høyrevinklet 90°, 1.8m:
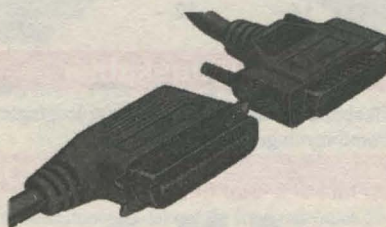
Best. nr.	Pris	3 à	10 à
98 06 33	98.–	88.–	78

25pins kabler

Alle disse kablene har 25 ledere som går rett igjennom kabelen. De kan brukes til RS232, parallell, SCSI, og de fleste andre steder hvor man bruker 25-pins DSUB-plugger.

3m han–han

Best. nr.	Pris	3 à	10 à
PC 2127	49.–	39.–	35.–

5m han–han

Best. nr.	Pris	3 à	10 à
PC 2141	59.–	54.–	49.–

3m hun–hun

Best. nr.	Pris	3 à	10 à
PC 2169	49.–	39.–	35.–

5m han–hun (V.24 modem-kabel)

Best. nr.	Pris	3 à	10 à
PC 2155	59.–	54.–	49.–

Strømkabel

2m strømkabel med rettvinklet kontakt. For datamaskiner, printere, keyboards og andre elektroniske apparater som ikke har fastmontert ledning.

Best. nr.	Pris	3 à
61 27 58	98.–	89.–

9-pins kabler

Alle disse kablene har 9 ledere som går rett igjennom kabelen. De kan brukes til RS-232 og de fleste andre steder hvor man bruker 9-pins DSUB-plugger.
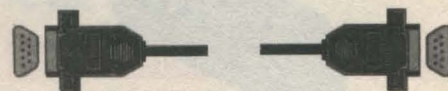
3m han–han

Best. nr.	Pris	3 à	10 à
PC 2135	54.–	49.–	44.–

3m han–hun

Best. nr.	Pris	3 à	10 à
PC 2134	54.–	49.–	44.–

3m hun–hun

Best. nr.	Pris	3 à	10 à
PC 2136	54.–	49.–	44.–

Centronics 3m han–han, 36 pin

Best. nr.	Pris	3 à	10 à
PC 2213	89.–	75.–	49.–

Monitor skjøtekabel

15 pinners VGA og SuperVGA 3-raders skjøteledning (han–hun). Lengde 2 meter.

Best. nr.	Pris	3 à	10 à
PC 2007	58.–	48.–	39.–

15–9 pins overgangskabler

Kabler for overgang mellom 15 pin VGA-kontakt og 9-pin digital multisynkplugg. Ikke for overgang mellom VGA og EGA.

15-pin han–9-pin han, 25cm.

Best. nr.	Pris	3 à	10 à
PC 2008	58.–	48.–	39.–

15-pin han–9-pin han, 2m.

Best. nr.	Pris	3 à	10 à
PC 2009	58.–	48.–	39.–

15-pin han–9-pin hun, 2m.

Best. nr.	Pris	3 à	10 à
PC 2010	58.–	48.–	39.–

Alle priser på denne siden er ex. mva.

Overganger 9p–25p

Gjør 9-pins RS-232 porter om til 25-pins og omv.

Best. nr.	Pris	3 à	10 à
9-pin hun–25 pin han			
PC 2225	26.–	22.–	19.–
9-pin han–25-pin hun			
PC 2239	26.–	22.–	19.–

Overganger D-SUB han/hun

Gjør om kjønnet på alle D-SUB kontakter.

Best. nr.	Pris	3 à	10 à
25-pin han–han			
PC 2241	29.–	27.–	25.–
25 pin hun–hun			
PC 2243	29.–	27.–	25.–
9 pin han–han			
74 16 20	49.–		
9 pin hun–hun			
74 16 39	49.–		

Nullmodem adapter

25-pins nullmodem-boks som kopler om alle 7 nødvendige ledere. 25 pin han–hun.
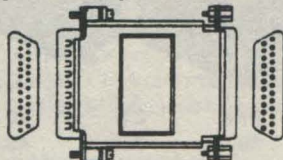
Best. nr.	Pris	3 à	10 à
97 99 96	36.–	29.–	25.–

Universal floppykabel

Med 5 kontakter for tilkopling av to diskettstasjoner. Med både 5¼" (edge) og 3½" (IDC) plugger.

Best. nr.	Pris	3 à
PC 2120	36.–	23.–

IDE harddiskkabel

For opptil 2 IDE harddisker med 40 pins IDC plugger.

Best. nr.	Pris	3 à	10 à
PC 2125	32.–	28.–	23.–

SERVICEKIT

Computer Service Kit 900

Komplett verktøysamling for montering av kort og diskstasjoner, fjerning av IC'er, bygging av PC'er etc. Inneholder 4 skrujern, 2 inner-sekskantnøkler 3/16" og 1/4", 1 bit-skrutrekker m/ innsats, 1 IC-uttrekker, 1 monteringsverktøy for 14/16-pins IC, 1 pinsett og 1 fjærpinsett.

Best.nr.	Pris
99 20 62	244.–

Computer Service Kit 802

Som over, men inneholder 2 skrujern, 2 inner-sekskantnøkler 3/16" og 1/4", 2 bit-skrutrekkere m/ innsats, 1 Ic-uttrekker, 1 pinsett, 1 fjærpinsett,

Best.nr.	Pris
99 20 54	204.–

MFM harddiskkabler

Best. nr.	Pris	3 à	10 à
34-pol for to harddisker			
PC 2122	19.–	14.–	11.–
20-pol for en harddisk			
PC 2121	14.–	12.–	8.–

Strømforgreningskabler

For tilkobling av flere driver enn det er ledninger til fra strømforsyningen.

1×stor han til 2×stor hun, 10cm
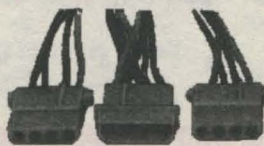
Best. nr.	Pris	3 à	10 à
97 62 70	36.89	35.08	33.20

1×stor han til 2×liten hun, 14cm

Best. nr.	Pris	3 à	10 à
97 62 88	33.–	31.39	29.67

1×stor han til 1×stor hun + 1×liten hun, 10cm
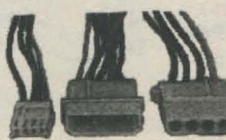
Best. nr.	Pris	3 à	10 à
97 62 96	33.–	31.39	29.67

TESTUTSTYR

RS-232 Breakout-boks

For testing av bestykning i RS-232 kontakter. 25 isolerte ledninger gjør det mulig å teste kontakter med ulike pin-kombinasjoner. Inneholder 3 jumper-blokker, 12 kontroll-LED'er standard RS-232 bestykningstabell og 25-pols rekke med plugg og kontakt. 16cm kabel gjør det lett å bruke boksen i fri posisjon.
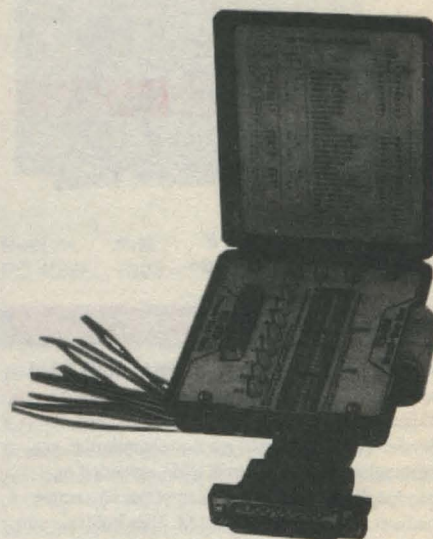
Best. nr.	Pris
98 13 97	259.–

RS-232 Hurtigtester

Viser med lysdioder tilstanden til alle RS-232 signalene. Grei å ha ved feilsøking i seriell-oppkoplinger. 25 pin han–hun.
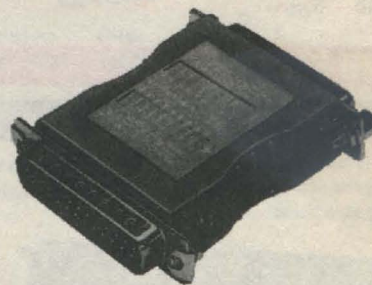
Best. nr.	Pris	3 à
PC 3410	128.–	120.–

RS-232 Joker

Koplingsboks for oppkopling av ustandard serieporter. 25 pin han–hun.
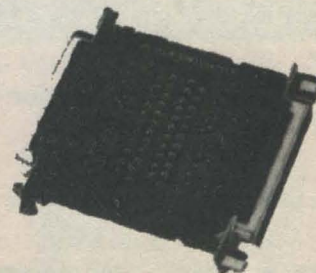
Best. nr.	Pris	3 à	10 à
98 18 50	139.–	132.–	125.–

Alle priser på denne siden er ex. mva.

MAC-KABLER

Mac Phonenet kit

Består av koplingsboks, Appletalk-kabel og en phonenet-kabel med RJ-11 (telefon) plugger.

Best. nr.	Pris	3 à	10 à
PC 2179	159.–	139.–	129.–

Mac Appletalk kit

Består av koplingsboks med maskintilkopling og en Appletalk-kabel.
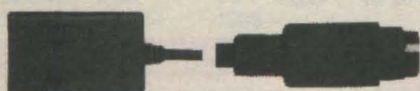
Best. nr.	Pris	3 à	10 à
PC 2175	199.–	179.–	169.–

Modemkabel Mac II

For å kople modem (V.24-tilkopling) til Mac II (9-pins DSUB).
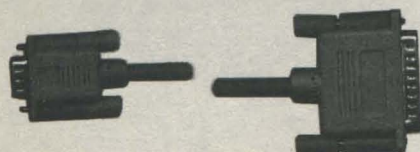
Best. nr.	Pris	3 à	10 à
PC 2171	59.–	54.–	49.–

Modemkabel Mac Plus

For å kople modem (V.24-tilkopling) til Mac Plus.
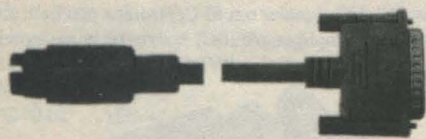
Best. nr.	Pris	3 à	10 à
PC 2177	59.–	54.–	49.–

SCSI harddiskkabler

Harddiskkabel for SCSI-harddisker, med en IDC 50pin flatkabelplugg og to Centronics 50pin bøssinger.
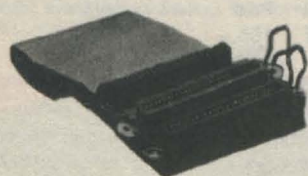
Best. nr.	Pris	3 à	10 à
PC 2189	149.–	139.–	109.–

Harddiskkabel for SCSI-harddisker, med tre IDC 50pin flatkabelplugger og to Centronics 50pin bøssinger.

Best. nr.	Pris	3 à	10 à
PC 2191	159.–	149.–	129.–

SCSI harddiskkabel 25M/50M

Harddiskkabel for SCSI-harddisker, med en D-SUB 25pin plugg (han) og en Centronics 50pin plugg (han).
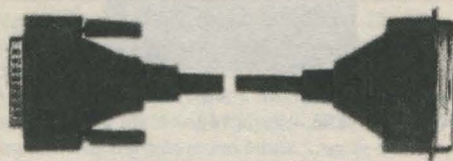
Best. nr.	Pris	3 à	10 à
PC 2181	79.–	69.–	59.–

SCSI Daisy-Chain HD-kabel

For å kople flere SCSI enheter i kjede. 50 pin centronics han i begge ender.
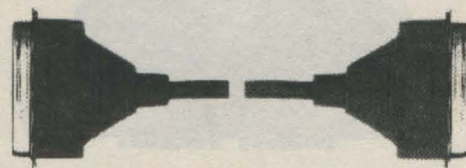
Best. nr.	Pris	3 à	10 à
PC 2185	109.–	99.–	89.–

SCSI forlengelseskabel

Kabel med Centronics 50-pols plugger, han-hun.
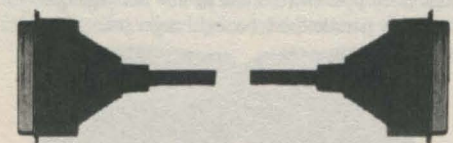
Best. nr.	Pris	3 à	10 à
PC 2187	109.–	99.–	89.–

SCSI Terminator

SCSI terminator endekontakt for Centronics 50 pol.
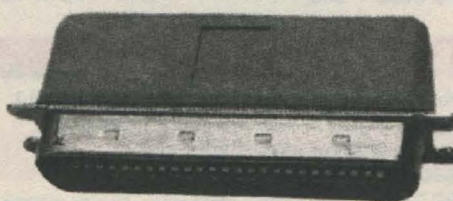
Best. nr.	Pris	3 à	10 à
PC 2183	79.–	69.–	59.–

For flere kabler, se hovedkatalogen 1992 s. 18–20 og 24–26

VIFTEREGULA-TORER

Noise-Killer vifteregulator

Får din PC-vifte til å bli bortimot lydløs. Koples inn mellom viften og printkortet inne i strømforsyningen, og regulerer ved hjelp av termostat ned hastigheten på viften. Norskprodusert, med livstidsgaranti fra leverandør på det tilkoplede utstyret.

Best. nr.	Pris	3 à
PC 4082	198.–	178.–

Termostat vifteregulator

Får din PC-vifte til å bli bortimot lydløs. Koples inn mellom viften og printkortet inne i strømforsyningen, og regulerer ved hjelp av termostat ned hastigheten på viften.

Best. nr.	Pris	3 à	10 à
PC 4080	98.–	88.–	78.–

LAPLINK-ADAPTER

Laplink-adapter

Gjør at du kan bruke en vanlig printerkabel til å overføre filer med Laplink III Pro (eller senere versjoner). Tre ganger raskere enn å bruke nullmodemkabel, med opp til 2.5MB i minuttet.
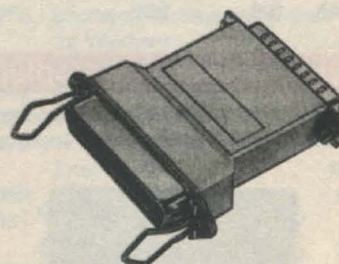
Best.nr.	Pris
96 63 55	125.–

Alle priser på denne siden er ex. mva.

SWITCH-BOKSER

2-veis D-SUB Switch

1 inngang og 2 utganger (eller motsatt). 25 pins D-SUB hun på alle inn/utganger. Solid bryter som kopler alle 25 lederene.

Best. nr.	Pris	3 à
PC 3359	128.–	98.–

2-veis Centronics Switch

1 inngang og 2 utganger (eller motsatt). 36 pins Centronics hun på alle inn/utganger. Solid bryter som kopler alle 36 lederene.

Best. nr.	Pris	3 à
PC 3275	128.–	98.–

4-veis D-SUB Switch

1 inngang og 4 utganger (eller motsatt). 25 pins D-SUB hun på alle inn/utganger. Solid bryter som kopler alle 25 lederene.

Best. nr.	Pris	3 à
PC 3247	198.–	148.–

4-veis Centronics Switch

1 inngang og 4 utganger (eller motsatt). 36 pins Centronics hun på alle inn/utganger. Solid bryter som kopler alle 36 lederene.

Best. nr.	Pris	3 à
PC 3205	198.–	168.–

2-veis Centronics X-kopler

2 innganger og 2 utganger. 36 pins Centronics hun på alle inn/utganger. Solid bryter som kopler alle 36 lederene.

Best. nr.	Pris	3 à
PC 3352	198.–	148.–

2-veis D-SUB X-kopler

2 innganger og 2 utganger. 25 pins D-SUB hun på alle inn/utganger. Solid bryter som kopler alle 36 lederene.

Best. nr.	Pris	3 à
PC 3345	198.–	148.–

2-veis D-SUB autoswitch

Gjør at man kan kople 2 maskiner på samme printer. For Centronics parallelle printere, 2 innganger og 1 utgang. 25 pins D-SUB hun på alle inn/utganger. Drives av parallellporten, og trenger ikke strømforsyning. Lite og hendig format.
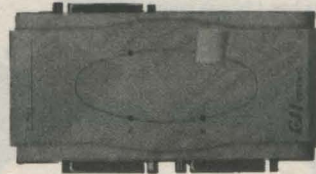
Best. nr.	Pris
PC 3364	248.–

4-veis D-SUB autoswitch

Gjør at man kan kople 4 maskiner på en printer. For Centronics parallelle printere, 4 innganger og 1 utgang. 25 pins D-SUB hun på alle inn/utganger. Drives av parallellportene, og trenger ikke strømforsyning.

Best. nr.	Pris
PC 3368	348.–

8-veis D-SUB autoswitch

For Centronics parallelle printere, 8 innganger og 1 utgang. 25 pins D-SUB hun på alle inn/utganger. Trenger strømforsyning 9 VAC 1 A.

Best. nr.	Pris	3 à
PC 3369	998.–	798.–

Mascot Strømforsyning 9V AC, 1A.

Best. nr.	Pris	3 à
PC 3370	218.–	198.–

RS-232 Surge-protector

Beskytter serieport og utstyr mot spenningsspisser ved lyn o.l. De 7 viktigste lederne er beskyttet. 25pin DSUB han-hun.

Best. nr.	Pris	3 à	10 à
98 19 74	74.–	59.–	53.–

Centronics Line-Booster

Forsterker signalet, slik at mulg kabellengde økes med minst 10 meter. 36 pol Centronics han-hun. Trenger strømforsyning 9VDC 100mA.

Best. nr.	Pris	3 à	10 à
98 06 50	348.–	330.–	313.–

Mascot strømforsyning 9V DC, 100mA.

Best. nr.	Pris
09 02 57	128.–

256k Parallell buffer

Lagrer informasjonen sendt til skriveren, slik at datamaskinen blir ledig for andre operasjoner raskere. 25 pin DSUB hun og 36pol Centronics han. Trenger strømforsyning 9VDC 300mA

Best. nr.	Pris	3 à
PC 3380	798.–	698.–

Mascot 9–15V DC strømforsyning m/ multiplugg, 500mA

Best. nr.	Pris
09 02 62	185.–

Seriell-parallell konverter

Gjør RS-232 signaler om til Centronics parallell, slik at man kan kople en parallell skriver på en serieport. Trenger strømforsyning 9VDC 300mA.
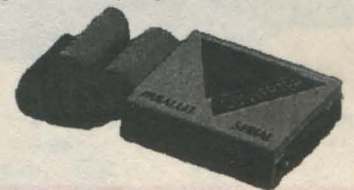
Best. nr.	Pris	3 à
PC 3385	448.–	398.–

Mascot 9–15V m/ multiplugg, 500mA

Best. nr.	Pris
09 02 62	185.–

Parallell-seriell konverter

Gjør Centronics parallell-signaler om til RS-232, slik at man f.eks. kan kople en seriell skriver på en parallellport. Trenger strømforsyning 9VDC 300mA.

Best. nr.	Pris	3 à
PC 3386	448.–	398.–

Mascot 9–15V m/ multiplugg, 500mA

Best. nr.	Pris
09 02 62	185.–

PRINTERE

Seikosha SP-1900 Plus

9-pins matriseskriver med innebygd traktormater. Hastighet 190 cps i kladdemodus, 40 cps i NLQ.

Best.nr.	Pris	3 à
PC 4035	1698.–	1598.–

Olivetti JP160 blekkskriver

Blekkstråleskriver med 300 dpi, samme oppløsning som laserskrivere. Emulerer HP Deskjet. Raskere enn BJ-10e.

Best.nr.	Pris
PC 4038	2698.–

Arkmater for JP150
Plass til 70 ark.

Best.nr.	Pris
PC4039	598.–

Blekkpatron for JP150
Varighet 1 million tegn (ca. 20 ganger så mye som et normalt fargebånd).

Best.nr.	Pris
PC4040	198.–

MODEM

2400 baud eksternt modem

Automatisk Hayes-kompatibelt modem med hastigheter opp til 2400 bps full duplex. Støtter V22, V22bis, CCITT V21, Bell 212A og Bell 103 standarder. Godkjent av Statens Teleforvaltning.
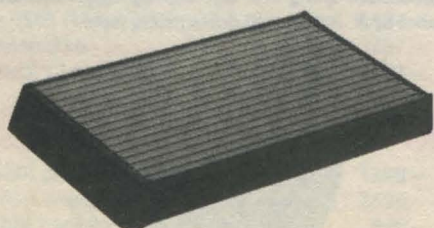
Best.nr.	Pris	3 à
PC 4003	1898.–	1798.–

LYDKORT

Soundblaster Pro

Standarden innen lydkort, kompatibelt med alle spill og multimedia-programmer på markedet. 22-stemmers FM-synthesizer for musikk. 8-bits DAC for samplede lyder, med maks frekvens 44kHz (mono) eller 22kHz (stereo). MIDI-interface og gameport for tilkobling av joystick. Mikrofon-, CD- og line-inngang med stereo mixer. Utgang til hodetelefoner, stereoanlegg eller høytalere. ISA-bus CD-ROM interface (passer til Panasonic CR-522). Mange programmer for sampling og avspilling av lyd og musikk, samt drivere for Windows
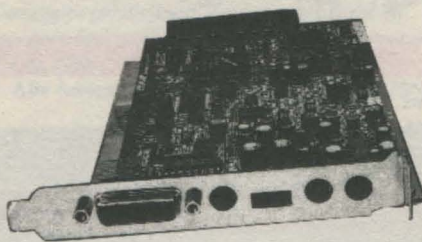
Best.nr.	Pris
PC 5050	1498.–

Booster-høyttalere

Høyttalere med innebygd 2×4W forsterker, kan kobles til alle 3.5mm hodetelefonutganger. Perfekt for Soundblaster, Amiga eller walkman. Bruker 6V strømforsyning eller 4 baby 1.5V batterier.
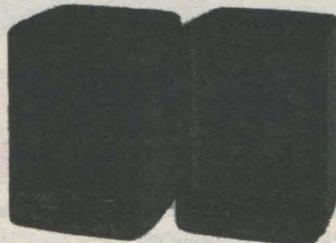
Best.nr.	Pris
34 95 34	399.–

Batterier, baby

39 24 48	6.–

2400 baud internmodem

Samme som PC 4003, men internt.

Best.nr.	Pris
PC 4000	1798.–

Internt faxmodem

Samme som PC 4000, men har i tillegg mulighet for å sende og motta Gruppe 3 fax på 9600 baud.

Best.nr.	Pris
PC 4001	2998.–

CD-ROM

Panasonic CR-522 ISA

Intern CD-ROM drive til Soundblaster lydkort. Overføringshastighet 150KB/s, søketid 390ms. Line-utgang for tilkobling til stereoanlegg/lydkort.
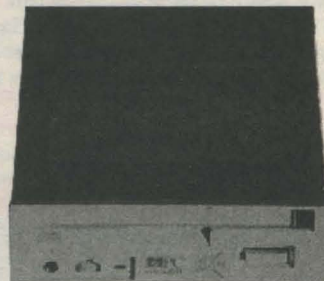
Best.nr.	Pris
PC 5000	2498.–

Panasonic CR-501 SCSI

Samme som over, men for tilkobling til SCSI-kontrollere eller lydkort med SCSI.

Best.nr.	Pris
PC 5010	2698.–

Kasse for ekstern tilkobling

For de som ikke har plass i PC'en til CD-ROM.

Best.nr.	Pris
PC 5005	598.–

AdLib-kompatibelt lydkort

m/ SCSI CD-ROM-kontroller

Best.nr.	Pris
PC5016	1098.–

CD-ROM software

PC 5060	CD-ROM Game Pack	1498.–
PC 5061	Windows Multimedia Encyclopedia	2998.–
PC 5062	CD-ROM Game Pack II	398.–
PC 5063	Amanda Stories MPC	598.–
PC 5064	Annabel's Dream MPC	698.–
PC 5065	CD Storytime, Vol. I	298.–
PC 5066	Chessmaster 2000 MPC	298.–
PC 5067	Composer Quest	498.–
PC 5068	DTPRO CD-ROM	198.–
PC 5069	Desert Storm	298.–
PC 5070	Family Doctor	398.–
PC 5071	GRIPS	298.–
PC 5072	Great Cities of the World II	298.–
PC 5073	Mavis Beacon Teaches Typing MPC	298.–
PC 5074	Microsoft Multimedia Bookshelf for Windows	398.–
PC 5075	Microsoft Multimedia Works for Windows	398.–
PC 5076	OCEAN Digital Imagery I	298.–
PC 5077	Publish It CD-ROM	298.–
PC 5078	Shareware Gold II	298.–
PC 5079	Toolworks Multimedia Encyclopedia	398.–
PC 5080	Voyage to the Stars, Vol I	698.–
PC 5081	Where in the World is Carmen Sandiego	398.–
PC 5082	Wing Commander & Secrets Missions	398.–
PC 5083	Wing Commander & Ultima IV	398.–
PC 5084	World Atlas	398.–

Alle priser på denne siden er ex. mva.

SCANNERE

Artec A256C fargescanner

92 dpi scanner med 256 farger, fra palett på 262.144. Max scanningområde (b×h) 64×160mm per scan, men større bilder (opptil 216mm bredde) kan scannes separat og settes sammen etterpå. Støtter TIFF, GIF og PCX grafikkformater. Leveres med program for scanning og retusjering, samt OCR-software for scanning og konverting av tekst.

Best.nr.	Pris	3 à
PC 4064	2998.–	2498.–

Artec A400 gråtonescanner

400 dpi gråtonescanner. Max scanningområde (b×h) 105×160mm per scan, men større bilder kan scannes separat og settes sammen etterpå. Leveres med program for scanning og retusjering, samt OCR-software for scanning og konverting av tekst.

Best.nr.	Pris	3 à
PC 4062	1498.–	1198.–

Skjøtekabel til Scanner

1.8m skjøtekabel til scannere og andre apparater som bruker 8-pins mini-DIN plugger.
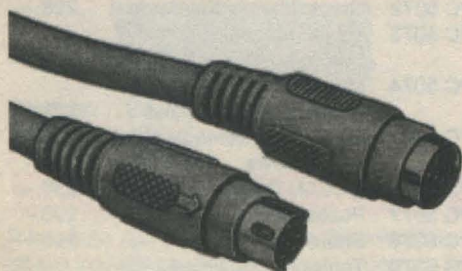
Best.nr.	Pris
96 59 79	99.50

REKVISITA

3½" HD disketter

10 stk. 1.44MB disketter
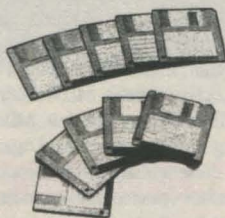
Best.nr.	1 pakke	10 pakker
PC 4021	89.–	68.–

3½" DD disketter

10 stk. 720KB disketter

Best.nr.	1 pakke	10 pakker
PC 4019	78.–	44.–

5¼" HD disketter

10 stk. 1.2MB disketter
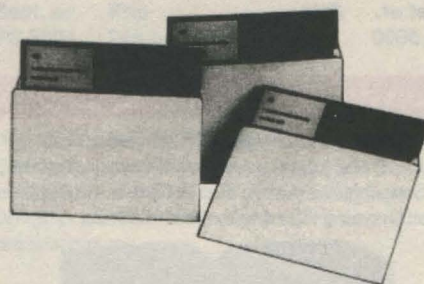
Best.nr.	1 pakke	10 pakker
PC 4017	89.–	68.–

Rensediskett, 3½"

Leveres med renseveske. Anbefales brukt minst en gang per uke ved normalt bruk.

Best.nr.	Pris	3 à	10 à
PC 1511	18.–	14.–	12.–

Rensediskett, 5¼"

Leveres med renseveske. Anbefales brukt minst en gang per uke ved normalt bruk.

Best.nr.	Pris	3 à	10 à
PC1399	18.–	14.–	12.–

Diskettboks, 3½"

Plass til 80 3½" disketter. Låsbar, antistatisk
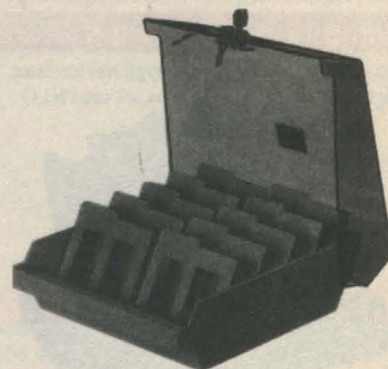
Best.nr.	Pris	3 à	10 à
PC 1469	62.–	57.–	49.–

Diskettboks, 5¼"

Plass til 100 5¼" disketter. Låsbar, antistatisk
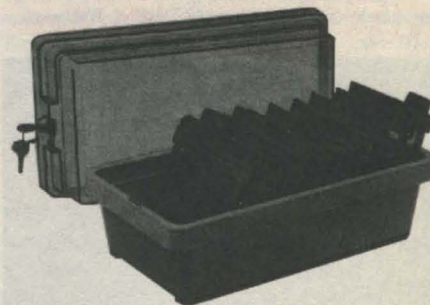
Best.nr.	Pris	3 à	10 à
PC 1539	62.–	57.–	49.–

5¼"/3½" låsediskett

Plasseres i diskettstasjonen og hindrer effektivt at noen stikker av med viktige data. Passer til både 5¼ og 3½" diskettstasjoner.
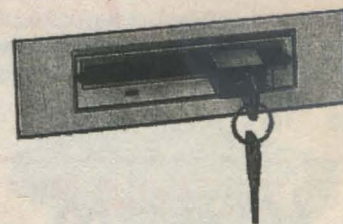
Best.nr.	Pris
97 39 39	199.50

Arkholder for notebook

Sammenleggbar arkholder som gjør det lettere å skrive av dokumenter med en notebook. Den holder arkene lett synlig over skjermen og legges sammen utter bruk. Festes med dobbeltsidig tape.
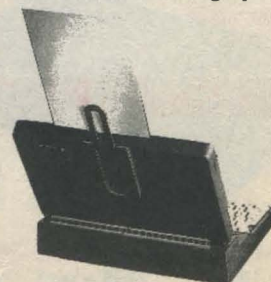
Best.nr.	Pris

VIRTUAL PC

NB! Ved kjøp av PC med skjerm får du 10% rabatt

Basispakke (priser ex.mva)

Diskettstasjon 3½", 1.44MB	PC 1203	448.–
Ramme for diskettstasjon	PC 1238	59.–
Harddisk, 45MB IDE	PC 1380	1398.–
Multi I/O-kort	PC 2819	198.–
Tastatur	PC 2351	438.–
AT-kasse med strømforsyning	PC 2270	898.–
SVGA skjermkort, 256K	PC 2700	298.–
Totalt		3737.–

386SX 25MHz

Hovedkort 386SX 25MHz	PC 1168	898.–
2 × 1MB RAM	PC 1721	596.–
Basispakke		3737.–
Totalt u/ skjerm	PC 0055	5231.–

386DX 40MHz

Hovedkort 386DX 40MHz	PC 1165	898.–
4 × 1MB RAM	PC 1721	1192.–
Basispakke		3737.–
Totalt u/ skjerm	PC 0055	6527.–

486SX 33MHz

Hovedkort 486SX 33MHz	PC 1170	2498.–
4 × 1MB RAM	PC 1721	1192.–
Basispakke		3737.–
Totalt u/ skjerm	PC 0055	7427.–

486DLC 33MHz

Hovedkort 486DLC 33MHz	PC 1177	2498.–
4 × 1MB RAM	PC 1721	1192.–
Basispakke		3737.–
Totalt u/ skjerm	PC 0055	7427.–

486DX 33MHz

Hovedkort 486DX 33MHz	PC 1176	4498.–
4 × 1MB RAM	PC 1721	1192.–
Basispakke		3737.–
Totalt u/ skjerm	PC 0055	9427.–

486DX 50MHz

Hovedkort 486DX 50MHz	PC 1180	6998.–
4 × 1MB RAM	PC 1721	1192.–
Basispakke		3737.–
Totalt u/ skjerm	PC 0055	11927.–

Tillegg

SVGA gråtoneskjerm	PC 2274	1398.–
SVGA fargeskjerm	PC 2275	2698.–
85MB harddisk		500.–
120MB harddisk		900.–
210MB harddisk		2100.–
Montering, MS-DOS og 1 års garanti		600.–

Priser ex. MVA

COMMODORE AMIGA

Disse maskinene er basert på Motorolas 680x0 serie, og Amiga'ens eget unike vindu-basert multitaskende operativsystem. De har egne koprosessorer som tar seg av grafikk, lyd og I/O (seriell/parallell/diskett/harddisk), mens CPU'en kan bruke ledig buss-tid til andre krevende oppgaver. Dette gjør at Amiga'en kan vise grafikk (animasjoner) og spille lyd uten at det krever noe av CPU'en.

Alle Amiga'ene har grafikkoppløsninger fra 320×200 i 2 farger til 704×560 i 16 farger, og 320×200 til 352×560 i 4096 farger (HAM mode). 4 8bits lydkanaler i stereo, RS-232 serieport, Centronics parallellport, 2 gameporter (hvor en vanligvis brukes til mus), samt utganger for monitor, TV og audio.

Alle Amiga priser er inkludert MVA på 22%!

Amiga 1200

Commodores nye supermaskin! En *ren* 32bits datamaskin basert på 68020 prosessoren. Denne maskinen blir levert med versjon 3.0 av AmigaDos med lokalisert Workbench, 2MB 32bits grafikkminne, klokke og kalender. Grafikkortet, Advanced Graphics Array (AGA) gir oppløsninger fra 320×200 til 1280×512 fra 2 til 262000 farger. Den har også egen PCMCIA2-kompatibel ekspansjonsport.
Kan leveres med ferdig installert intern 2½" IDE harddisk på 82MB eller 120MB.

Amiga 1200
Best. nr.	Pris.
PC 0800	4590.–

Amiga 1200 m/ 82MB Harddisk
Best. nr.	Pris.
PC 0801	7990.–

Amiga 1200 m/ 120MB Harddisk
Best. nr.	Pris.
PC 0802	8450.–

Amiga 600

Blir levert med versjon 2.05 av AmigaDos med lokalisert Workbench, Enhanced ChipSet (ECS) som gir oppløsninger fra 320×200 til 1280×512 i 2 til 4096 farger, 1MB 16bits grafikkminne, klokke og kalender. Har egen PCMCIA2-kompatibel ekspansjonsport. Kan leveres med ferdig installert intern 2½" IDE harddisk på 20MB.

Amiga 600
Best. nr.	Pris
PC 0803	3490.–

Amiga 600 m/20MB Harddisk
Best. nr.	Pris
PC 0804	4990.–

Priser inkl. MVA

Minnesekspansjoner

512KB ekstra fastRAM til Amiga 500
Best. nr.	Pris
PC 0840	495.–

1.0MB ekstra chipRAM til Amiga 500+
Best. nr.	Pris
PC 0842	695.–

1.0MB ekstra chipRAM til Amiga 600
Best. nr.	Pris
PC 0844	695.–

Skjerm

Commodore 1084S monitor med stereo lyd
Best.nr.	Pris
PC 0890	2998.–

Quantum harddisker

	Best.nr.	Pris
82MB 2½" IDE	PC 0872	3798.–
82MB 2½" IDE	PC 0870	4198.–
120MB 3½" SCSI	PC 0876	3798.–
240MB 3½" SCSI	PC 0878	4980.–

Annet

Alcotini st.sampler med programvare
Best. nr.	Pris
PC 0820	649.–

GVP Digital SoundSystem sampler m/prog.
Best. nr.	Pris
PC 0822	798.–

Ekstra diskettstasjon for alle Amigaer
Best. nr.	Pris
PC 0830	695.–

RF Modulator, kopler 500 & 500+ til TV
Best. nr.	Pris
PC 0850	395.-

MIDI Interface for alle Amiga modeller
Best. nr.	Pris
PC 0855	498.–

Amiga SpeedMouse—ekstra mus til Amiga
Best. nr.	Pris
PC 0880	349.–

Mus/joystickbryter
Best. nr.	Pris
98 12 49	269.50

GVP A1230 aksellerator

For Amiga 1200 med SCSI harddiskkontroller. Inneholder 40MHz 68EC030 CPU og 40MHz 68882 matteprosessor. 4MB 32bits RAM følger med.
Best. nr.	Pris
PC 0860	4990.–

ALARM-UTSTYR

Se også i hovedkatalogen for 1992 på side 61

Komplett alarmanlegg

Gjør-det-selv alarmpakke med alt du trenger for å sette opp et helt profesjonelt alarmanlegg. Alt utenom kabel er inkludert: Alarmsentral, 1 IR bevegelsesdetektor som dekker 100 m², strømforsyning, 10W høyttaler-sirene, 3 dør/vindu magnetkontakter, oppladbart reservebatteri og panikknapp.

Med alarmsentral HA-841

Best.nr.	Pris	10 à
09 00 63	1599.–	1149.–

Med alarmsentral HA-841D

Best.nr.	Pris	10 à
09 00 62	1650.–	1199.–

Med alarmsentral HA-871

Best.nr.	Pris	10 à
09 01 64	1799.–	1399.–

Alarmsentral HA-841

Alarmsentral med fire soner (24-timers, øyeblikkelig, forsinket åpen og forsinket lukket). Slås av og på med nøkkel eller fjernstyring (f.eks. vår eksterne kodelås DK-883). Justerbar alarmvarighet og forsinkelse. Forberedt for batteribackup 12V. Overvåket 12V utgang. To reléutganger og to høyttalerutganger (8Ω) for alarm. Driftsspenning 12V DC, mål 258×170×70mm.

Best.nr.	Pris	5 à	10 à
09 00 55	699.–	489.–	419.–

Alarmsentral HA-841D

Alarmsentral med fem soner (24-timers åpen, 24-timers lukket, øyeblikkelig lukket, forsinket åpen og forsinket lukket). Slås av og på med kodelås eller fjernstyring (f.eks. vår eksterne kodelås DK-881). Justerbar alarmvarighet og forsinkelse. Forberedt for batteribackup 12V. Overvåket 12V utgang. Dekselet er sabotasjesikkert. To reléutganger og to høyttalerutganger (8Ω) for alarm. Driftsspenning 12V DC, mål 258×170×70mm.

Best.nr.	Pris	5 à	10 à
09 00 57	750.–	525.–	450.–

Alarmsentral HA-871

Alarmsentral med fire soner som kan slåes av og på individuelt (A: 24-timers øyeblikkelig. B: øyeblikkelig. C: øyeblikkelig/forsinket. D: forsinket). Alle sonene kan brukes som normalt åpen eller normalt lukket. Justerbar alarmvarighet og forsinkelse. Slåes av og på med kodelås eller med fjernstyring (f.eks. vår eksterne kodelås DK-881). Overvåket 12V utgang. Dekselet er sabotasjesikkert. Forberedt for batteribackup 12V. To reléutganger og to høyttalerutganger (8Ω) for alarm. Driftsspenning 16 VAC, mål 258×172×74mm, vekt 1,9kg.

Best.nr.	Pris		
09 00 59	899.50	720.–	675.–

Infrarøde detektorer

Passive infrarøde bevegelsesdetektorer PIR-9038. Rimelige detektorer med god sikkerhet. Driftsspenning 8–16VDC 15mA. Alarminngang normalt lukket relé. Sabotasjesikret. Mål 54×73mm. Vekt 50g.
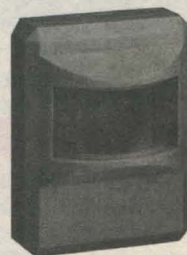
PIR-9038W vidvinkel 90° 12×12m

Best.nr.	Pris	5 à	10 à
09 00 79	299.50	239.50	224.50

PIR-9038L lang avstand 24×3m

Best.nr.	Pris	5 à	10 à
09 00 81	299.50	239.50	224.50

PIR-9038C 3 stråler 0°, 45° og 90° 12×12m

Best.nr.	Pris	5 à	10 à
09 00 83	299.50	239.50	224.50

Trykkammerhøyttaler 10W

For alarmsentraler som har 8Ω høyttalerutgang. Ved å bruke høyttalere og ikke 12V sirener får man høyere sikkerhet, da sentralen kan merke om ledningen blir kappet og så sette igang en annen alarm. Fot med vippeledd. Vanntett. Maks 10 W 8Ω. Ø 130mm, lengde 125mm. Sort farge.

Best.nr.	Pris
33 55 25	149.50

Mini sirene

Sirene med meget kraftig varierende signal, ideéll til alle alarmer. Svært høy lyd fra en sirene i så lite format. Driftspenning 6–12V DC, ca 150 mA. Lydtrykk 110dB/1 m. Mål 39×39×59mm.
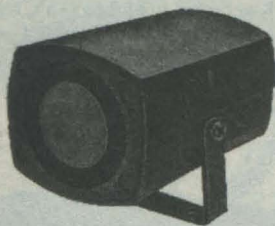
Best.nr.	Pris
75 40 21	79.50

Digital kodelås DK-883

Kodelås til å plassere ved døren el.lign. Firesifret kode med 10.000 kombinasjoner. 3 kodenivåer. Programmerbar. Utgangen slås av eller på når koden tastes inn (ikke puls). Driftsspenning 8–18VDC 10mA. Mål 114×70×36mm. Leveres med innbygningsboks.

Best.nr.	Pris	5 à	10 à
09 00 84	299.50	224.50	199.50

Digital kodelås DK-881

Kodelås til å plassere ved døren el.lign. Firesifret kode med 10.000 kombinasjoner. 3 kodenivåer. Programmerbar. Utgangen kan velges som sjalter (slås av eller på når koden tastes inn) eller puls (når koden tastes inn blir utgangen slått på i en kort, justerbar periode og så slått av igjen). Panikkutgang blir aktivisert når to taster trykkes ned samtidig. Sabotasjesikker. Driftsspenning 8–18VDC 10mA. Mål 114×70×36mm. Leveres med innbygningsboks.

Best.nr.	Pris	5 à	10 à
09 00 85	348.–	261.–	229.–

Selvforsvarsalarm

For kvinner, eldre, taxisjåfører og andre som trenger et lovlig middel til å avskrekke angripere. Alarmen bruker en gasspatron for å lage et øredøvende signal på 115dB, enten kontinuerlig eller i korte støt.

Best.nr.	Pris	10 à	25 à
06 01 21	99.50	89.–	79.–

Gasspatroner, 2-pack

Best.nr.	Pris	10 à	25 à
06 01 23	89.–	79.–	69.–

JECguard bilalarm

Enkel, men sikker alarm som utløses umiddelbart ved åpning av dører, knusing av ruter, bevegelse av bilen, støt og slag mot bilen samt spenningsforandring. Trenger ingen installasjon, skal kun tilkobles til sigarettenner. Transportabel, med innebygd 9V batteribackup og 10m fjernkontroll. Intern 120dB sirene, samt mulighet for tilkobling av ekstern sirene.

Best.nr.	Pris
05 00 81	798.–

Passende mignon-batterier

Best.nr.	Pris
61 57 81	7.50

Electro Guard

Overspenningsbeskyttelse for følsomt elektroutstyr, som TV, hifi, video og ikke minst datamaskiner. Beskytter effektivt mot lyn og andre spenningsforstyrrelser.
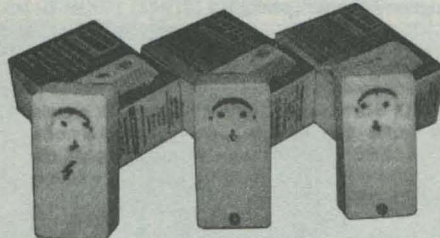
Best.nr.	Pris
05 00 73	198.–

House Guard

(Se ovenstående ill.) Slår av og på lys e.l. til vilkårlige tider. Utmerket for folk som er borte over flere dager. Sett en slik på til fire lamper i huset, og gjerne en radio, og tyvene kan lures til å tro at det noen hjemme.

Best.nr.	Pris
05 00 75	398.–

Light Guard

(Se ovenstående ill.) Har innebygd fotocelle, og kobler automatisk inn strømmen når det blir mørkt. Kan brukes til utendørsbelysning (innendørs montering) eller for å lure innbruddstyver når man er bortreist.

Best.nr.	Pris
05 00 79	299.50

Alarmutstyr, se også hovedkatalogen 1992 s. 62–77

Fax dine bestillinger til

22 49 02 10

HUS & HJEM

Video dørcalling

Med dette callinganlegget kan du se hvem som ringer på døren. Den delen som festes ved døren er ikke større enn 84×190×38mm og i enkel, stilig design. Innedelen har en 9cm (3½") skjerm, telefonrør og knapp som kan koples til dørlåsen. De koples sammen med en toleder kabel. Leveres med nettadapter, monteringsmatriell og bruksanvisning.

Best.nr.	Pris
26 29 94	4998.–

Dør-calling

Dør-samtaleanlegg som er meget enkelt å kople opp, da det kun trenger en toleder kabel. Utedelen er vannfast og måler 97×130×35 mm. Innedelen er hvit med innebyg treklangs gong. Den har en knapp som kan koples til døråpner (da trengs ekstra ledning). Mål 107×218×85 mm. Trenger 4 stk mignon 1,5 V batterier eller 6V strømforsyning.
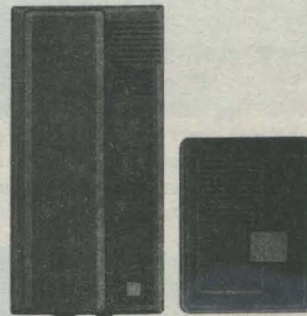
Best.nr.	Pris
60 60 57	498.–

Passende kabel 2-leder

Best.nr.	meter	10 à	100 à
65 01 80	2.50	2.–	1.–

Harmony dørklokke

Melodidørklokke med 25 innebygde melodier. Spiller en ny melodi for hvert trykk på knappen. Drives med 2 stk 1.5V mignon-batterier eller 8V AC 1 A.
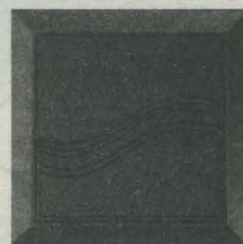
Best.nr.	Pris
61 26 34	399.50

Passende mignon-batterier

Best.nr.	Pris
61 57 81	7.50

Dørklokketransformator

Primærspenning 230V AC 50Hz, sekundær 8V AC
1A. Passer til Harmony dørklokke (61 26 34).
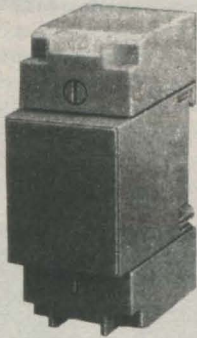
Best.nr.	Pris
61 35 84	250.–

Ringeknapp

Passer som trykknapp til dørklokkeanlegg.
Spenningsområde 1–24V. Sokkel med 2 festeskruer.

Best.nr.	Pris
61 35 50	49.50

NatureLite lysanlegg

Soldrevet lysanlegg med bevegelsesdetektor, som
automatisk slår på lyset i 90s når den registrerer
bevegelse innen 25m. Fotocelle deaktiverer anlegget
under dagslys, mens solcellepanel lader opp
batteriene (6V). Lett å installere.

Best.nr.	Pris
09 00 65	899.–

Batteridrevet lampe

Lampe i hvit plast for montering på vegg eller tak.
Egnet for garasjer, trappeoppganger, loft og ved
strømbrudd. Tenning med snoroppheng. Brukes 2
vanlige mono batterier (D).
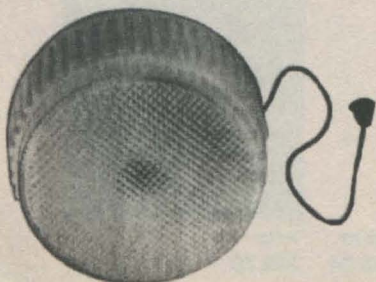
Best.nr.	Pris
06 00 53	39.50

Drikkevannsfilter

Vannfilter med fem faser som gjør vannet fra
springen om til det klareste, friskeste kildevann.
Anriker vannet med oksygen, fjerner klor og
bismaker med kullfilter og kapillarfilter, og gir
mineraler ved zeolittanrikning. To adaptere følger
med, slik at den passer til alle standardkraner.

Best.nr.	Pris
57 10 08	138.–

Digital romtermostat

Regulerer romtemperaturer mellom +7° til +35°C
gjennom varmeovner og air condition. 6 uavhengige
programmer kan legges inn. LCD-panel viser
programvalg og klokkeslett. Maks belastning uten
relèer 0.5mA, med relèer 61mA. Bruker 4 stk.
mignon-batterier (penlight).
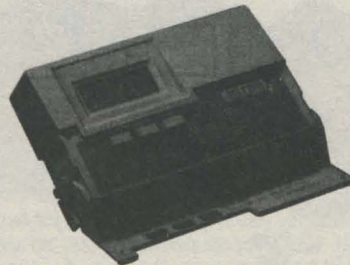
Best.nr.	Pris
61 59 27	798.–

Dobbelt kjempetermometer

Dobbelt inne og ute termometer med store, lettleste
siffere som er hele 25 mm. høye. Den kan settes opp
til å gi alarm hvis temperaturen går over en verdi
som du bestemmer. Temperaturområde –50 til +70
°C. Nøyaktighet ±1°C. Ekstern sensor kabel 3 m.
Mål 100×100×20 mm. Leveres med batteri og tysk
instruksjonsbok.

Best.nr.	Pris
13 50 20	199.50

Ekstra batteri

Best.nr.	Pris
13 36 12	19.50

DIVERSE

Tropicool 12V kjøleskap

24 liters kjøle- og varmeskap, som drives med 12V
likestrøm. Kan brukes til kjøling (+5°C) og varming
(+65°C), inntil 25° forskjell i forhold til omgivel-
sene. Kan monteres både som skap og boks.
Benytter Peltier-teknikk. Effekt 36–45W,
strømforbruk 3–4A. Vekt 6 kg. Utv. mål
40×40×40cm.
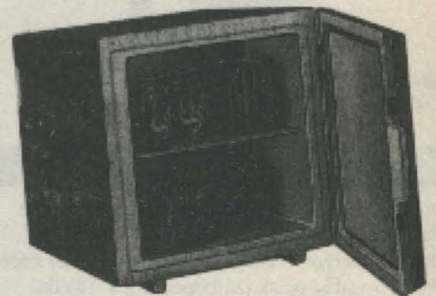
Best.nr.	Pris
19 65 17	1798.–

Strømforsyning 220V AC til 12V DC, 5A

Best.nr.	Pris
09 04 63	798.–

Digital målepenn

For rask og nøyaktig måling av rette og kurvede
linjer. Ideèll for avlesning av distanser på kart, for
båtbyggere o.a. Penn i skaftet.
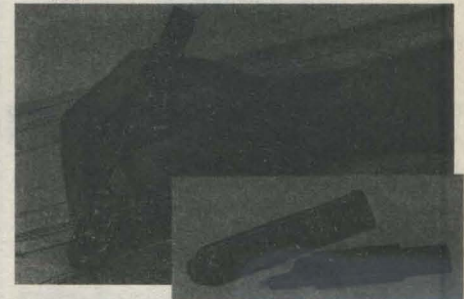
Best.nr.	Pris
77 02 80	39.50

Ekstra penninnsats

Best.nr.	Pris
77 03 02	3.50

Ekstra batteri

Best.nr.	Pris
77 05 15	7.50

Nødlykt

Batteridrevet håndlykt for bruk ved strømbrudd o.a.
Perfekt for å henge ved siden av sikringsboksen.
Tenner automatisk når lykten tas ut av
veggbraketten. Bruker to mignon-batterier (AA).
Mål 135×22mmØ.
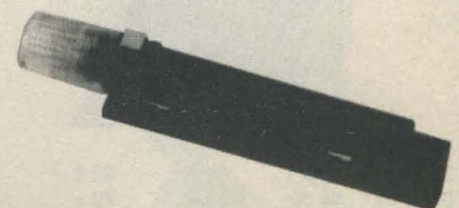
Best.nr.	Pris
06 00 55	19.50

Halogenlykt for bil

Solid lyskaster med 55 W halogenpære for tilkobling i bilens sigarettenner. Kraftig halogenpære på 50kcd. Bør ikke brukes over lengre perioder slik at batteriet kan bli utladet. Med oppheng og 3.6m spiralledning.
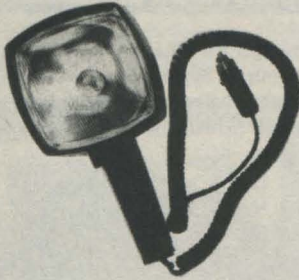
Best.nr.	Pris
06 00 57	149.50

LCD stoppeklokke

Ergonomisk utformet 7-siffers stoppeklokke med mellomtid. Viser også normaltid og dato. Stoppeklokke i timer, minutter, sekunder og hundredeler. Måler 60×62×16 mm. Leveres med halssnor, klype og batteri.
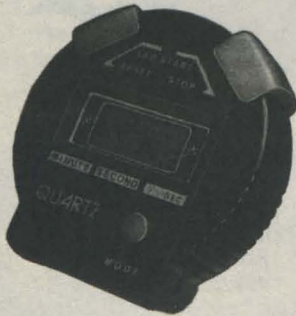
Best.nr.	Pris
84 39 20	49.50

Ekstra batteri

Best.nr.	Pris
84 41 01	29.50

Tredobbel timer

Denne multifunksjonstimeren har tre uavhengige timere som kan settes til opp- eller nedtelling med nøyaktighet på et sekund. Alle timere kan stilles til å telle til eller fra en innprogrammert tid, max 19 timer, 59 min. og 59 sek. De kan også settes opp som 24-timers klokke. Leveres med batteri og utførlig, tysk bruksanvisning.
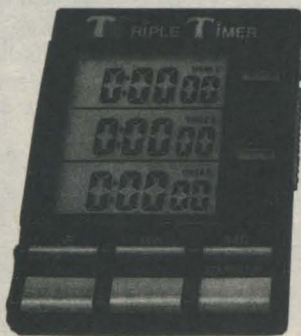
Best.nr.	Pris
61 60 87	138.–

Ekstra batteri

Best.nr.	Pris
61 48 82	7.50

HIFI UTSTYR

Se også I hovedkatalogen for 1992 på side 29

Komplett stereoanlegg

Dette anlegget er meget rimelig med en ytterst akseptabel kvalitet. Det har CD-spiller med display og programmeringsmuligheter. Her er også en remdrevet platespiller, radio med FM og AM, dobbel kasettspiller med hurtigkopiering og mange finesser og grafisk equalizer med uttak for hodetelefon og mikrofon. Max uteffekt er 30W. Alt leveres komplett med rack og fjernstyring.
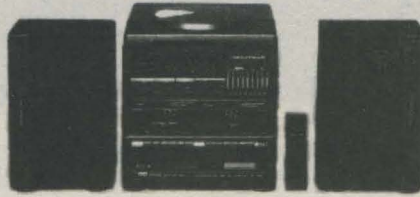
Best.nr.	Pris
05 00 01	2998.–

100W høyttalerpar

Nye høyttalere i miniformat med forbløffende god lyd. Disse plassvidunderene kan plasseres hvor som helst, hver av dem er bare 18,5 cm høy. De er også velegnet som satelitthøyttalere for romklang i et større anlegg. To-veis system med 100mm basshøyttaler. Maks 100W musikk, 50W sinus. Impedanse 4–8Ω. Frekvensområde 35–25.000 Hz. Mål (B×H×D) 115×185×125 mm. Svart utførelse.
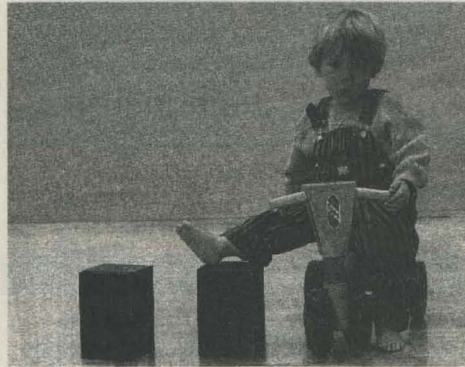
Best.nr.	Pris
33 76 25	899.–

160 W høyttalere

2 treveis bassrefleks høyttalere med avtagbart metallgitter og sølvfargede pynteringer rundt elementene. Med 1 diskant, 1 mellomtone og 1 basshøyttaler Ø 200mm. Maks effekt impuls 160W, musikk 130W og sinus 90W. Impedans 8Ω. Frekvensområde 30–22.000 Hz. Mål 270×450×195 mm. Sort utførelse.
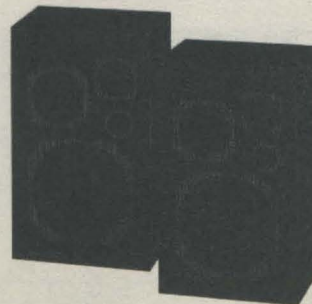
Best.nr.	Pr. par
33 69 98	1998.–

Proff diskotek-mixer

Fire kanalers mixer med massevis av funksjoner: 5 bånds equalizer, ekko, 6 lydeffekter, kryss-fader, automatisk DJ-mikrofon med stemmeforvrengning. Den har følgende innganger: DJ mikrofon, 2 andre mikrofoner, 2 platespillere, 2 CD-spillere, AUX og Camera Audio.
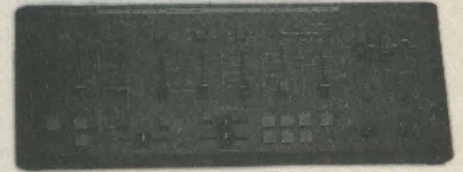
Best.nr.	Pris
06 02 00	1998.–

Diskotek-mixer

Lillebroren til den over. Denne er også en fire kanalers mixer med massevis av funksjoner: 6 lydeffekter (skarptromme, bombe, pistol, laser, telefon og UFO) og kryss-fader. Den har følgende innganger: 2 mikrofoner, 2 platespillere, 2 CD-spillere, AUX og Camera Audio.
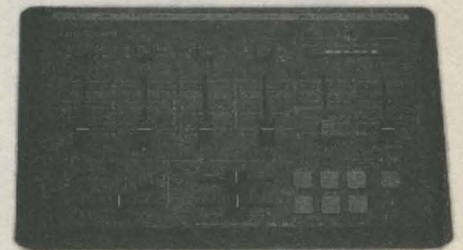
Best.nr.	Pris
06 02 01	998.–

Stereo mixer

En høykvalitets, enkel fire-kanals mixer med nok muligheter for de fleste. To platespiller-innganger, to line-innganger og to mikrofoninnganger. Den har også DIN-plugg for opptak på tape eller kassett. Bruker et vanlig 9-volts batteri (følger ikke med).
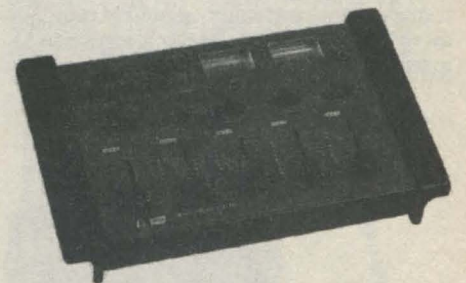
Best.nr.	Pris
03 00 04	798.–

Fax dine bestillinger
22 49 02 10

Camcorder audio mixer

En firekanals mixer beregnet for å editere lyden på video-opptak. Inngang for mikrofon, line (tape/CD), platespiller og kamera audio. Bruker et vanlig 9-volts batteri (følger ikke med).
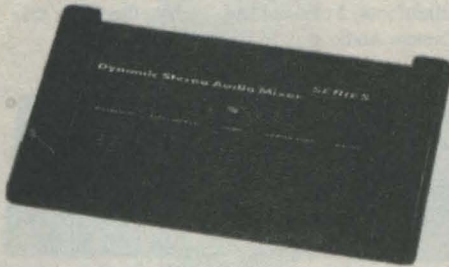
Best.nr. Pris
03 00 02 498.–

Hodetelefon med mikrofon

Hodetelefoner som er ypperlig for DJ'er. 40 mm mylar-høyttalere i sorte skumpolstrede skjell. Kondensatormikrofon med justerbar arm. 2 meter kabel går til to 3,5mm jackplugger. På pluggen til mikrofonen står en liten boks som holder en forsterker med batteri.

Best.nr. Pris
06 00 51 199.50
Overgang 3,5mm til 6,3mm jack
Best.nr. Pris
73 59 90 A 9.50

Lommedisko med radio

Sprutsikker gul kassettspiller og AM/FM radio. Mini hodetelefoner følger med. Trenger to mignon (AA) batterier (følger ikke med).

Best.nr. Pris
06 00 49 399.–

BILSTEREO

Se også hovedkatalogen for 1992 på side 104

Bil CD-spiller

CD-spiller for bil med PLL radio. Radioen har 18 hurtigvalg og autoscan, CD-delen har repeat, shuffle og intro.Tyverikassett gjør det lett å unngå at noen stjeler den. Opplyst lettlest display med klokke. Forsterkeren på 2×25W har fader og separat bass og diskant-justering, line utgang og CD el. Line inngang.

Best.nr. Pris
05 00 30 3499.–

Bilhøyttalere WM 31

Små, kompakte høyttaler med 75mm bredbåndsmembran, ideéll til små hattehyller eller som ekstrahøyttalere. Tiltalende sort design. Max belastning 2×25W, frekvensområde 100–18.000Hz, impedanse 4Ω. Mål 99×99×11!mm.
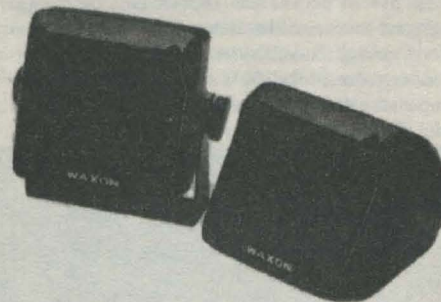
Best.nr. Pris
31 99 61 298.–

3veis bilhøttalere AB8000

Kraftige bilhøyttalere med bassrefleks. Full og rik bass gir deg ypperlig HiFi i bilen. Maks belastning 2×100W, frekvensområde 60–22.000Hz, impedanse 4Ω. Mål 250×120×146mm.
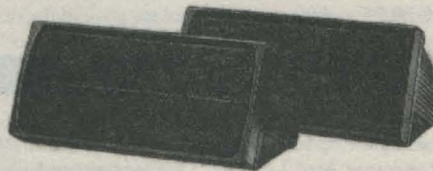
Best.nr. Pris
32 07 81 899.–

PARABOL-ANLEGG

Komplett Astra parabolanlegg

Alt man trenger for å få inn mange nye kanaler fra Astra-satellittene: 80cm antenne, mikrobølgehode med polarrotor, tuner(mottaker) med 16 minner, Nicam stereo, fjernkontroll, veggstativ, coax- og SCART-kabel.
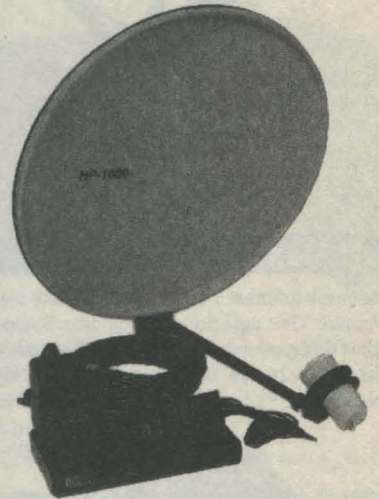
Best.nr. Pris
05 00 83 3998.–
Motor med polarmount
Best.nr. Pris
05 00 85 1298.–
Motorstyring
Best.nr. Pris
05 00 87 499.50

Tele-X antenne

Med denne 30cm antennen for Tele-X satellitten kan man få inn perfekte bilder i hele norge. Man kan få inn Nordic (TV5), Svensk TV4 og Televerkets nye kanal (når den kommer i gang). Den tar også inn NRK hvis tuneren har D-MAC. Mikrobølge og veggfeste følger med, og antennen koples enkelt i parallell med eksisterende antenne. Alle tunere med frekvensområde mellom 950 og 1750MHz kan bruke den.
Best.nr. Pris
05 00 91 A 899.–

Satellittfinner sett

Et kompakt, batteridrevet meter hjelper deg raskt til å finne den beste mottakningen. Settet inkluderer også et kompass til å sette opp antennen med. Trenger 10 mignon (AA) batterier (følger ikke med).

Best.nr. Pris
06 00 01 499.–

Mere satellittutstyr i hovedkatalogen 1992 s. 88–91
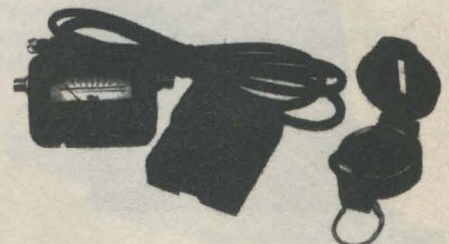
TELEFONER

Kompakttelefon Trend

En elegant telefon for montering på vegg eller lagt ned på et bord. Veggbrakett følger med. Har R-tast, og er klar for televerkets nye tjenester. Glifrie, behagelige taster med tydelige tall. Hvit utførelse.
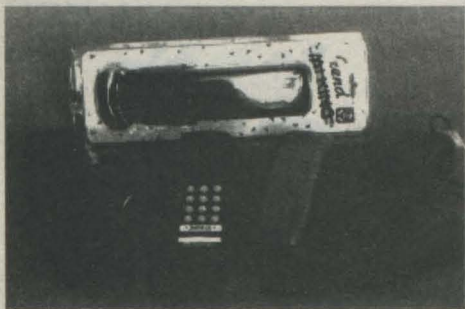
Best.nr.	Pris	10 á
05 00 67	198.–	149.50

Bordtelefon Athena

Lekker, marmorhvit utførelse i slagkraftig plast som passer både til kontor og hjemmebruk. Med #, Θ og R-taster. Tonevalgstelefon med 10 minner for de mest brukte numrene.

Best.nr.	Pris	10 á
05 00 64	298.–	249.50

Høyttalende telefon Opal

En toveis høyttalende telefon for bord eller veggmontasje. Den lar deg ha hendene frie til andre ting under en samtale. Med #, Θ og R-taster. 10 minner nås ved ett tastetrykk, og ringesignal og volum kan justeres.

Best.nr.	Pris	3 á
05 00 71	598.–	499.50

Telefon med telefonsvarer

For bord eller veggmontasje. Den er fjernstyrbar med kode for fjernavlytting, og bruker mikrokassetter. 10 minner. Vanlige telefonsamtaler kan spilles inn. Utgående beskjed kan være opptil 2.5 min. Hvit utførelse.

Best.nr.	Pris
05 00 55	699.–

Telefonsvarer Mark

Enkel og grei telefonsvarer med fjernstyring som bruker kassetter av vanlig størrelse. Utgående beskjed maks 30 sek, og inngående 3 min. Stemmeaktivert innspilling og medhørfunksjon.
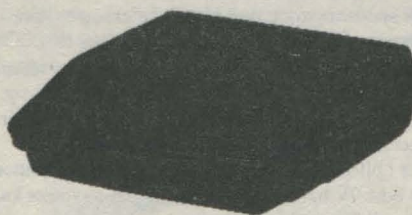
Best.nr.	Pris
05 00 33	599.50

Telefonsvarer Doro 3000

En litt mer avansert modell som viser antall oppringinger på et display. Alle funksjoner kan fjernstyres fra en annen telefon. Bruker mikrokassetter.
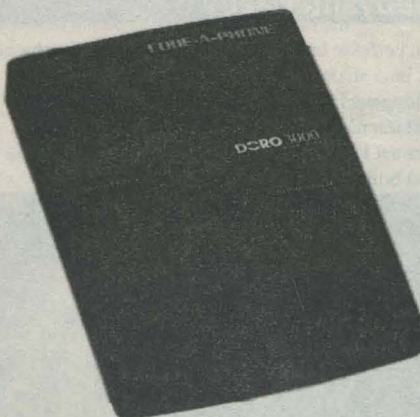
Best.nr.	Pris
05 00 39	699.–

Telefonplugger se side 63–64 i denne katalogen

Trådløs telefon Doro

Lite og hendig håndsett med utbrettbar mikrofon og tydelige taster. Tydelige lysende symboler som viser om linjen er opptatt etc. Den har #, Θ og R-taster. Rekkevidde opptil 400m. Kan sperres for utgående samtaler. To batterier følger med—ett lades opp mens det andre er i bruk. Kan også brukes for personsøking mellom håndsett og base.

Best.nr.	Pris
05 00 61	3998.–

Trådløs telefon Uniden

Lite håndsett med utbrettbar mikrofon. Tydelige tall viser oppringt nummer. Rekkevidden er innendørs 150m og utendørs 300m. To oppladbare batterier gir enkelt batteribytte. Kan sperres for utgående samtaler og til og med brukes som fullverdig internkommunikasjon.

Best.nr.	Pris	3 á
05 00 58	3499.–	2998.–

Trådløs telefon Sanyo

En intelligent mikroprosessorstyrt trådløs telefon som justerer seg selv for beste lydkvalitet, har 10 minner og "mute"-funksjon. Også #, Θ og R-taster for televerkets nye tjenester. Rekkevidde 300m. Kan brukes til kommunikasjon mellom håndapparat og base.

Best.nr.	Pris	5 á
05 00 91 B	2998.–	2498.–

INTERCOM

Walkie-Talkie

Nye PR-radioer som man ikke trenger lisens for å bruke. Rekkevidde opptil 1km. 1 kanal 27MHz. Passer f.eks. til kommunikasjon mellom venner, på byggeplassen eller mellom kontor og lager.
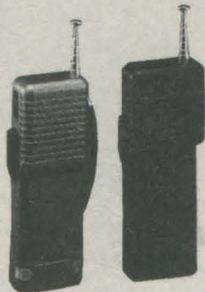
Best.nr.	Pr. par	5 par á
05 00 52	698.–	499.50

Se også i hovedkatalogen for 1992 på side 78

Mobil PR-telefon C-Phone

Et 27MHz PR-apparat med design og funksjoner som en mobiltelefon. Har alle 40 kanaler. Selektivt oppkall med 10000 koder og 10 gruppeanrop. Egen mottaker for nødkanaler. Programmering av nummer og kanaler på hurtigtaster. OBS! For å bruke PR-apparater trenger man lisens. Ring for mere informasjon.

Best.nr.	Pris	3 á	10 á
30 30 33	1999.–	1950.–	1899.–

Passende Antenne

Best.nr.	Pris	3 á
20 30 50	348.–	299.50

PR-utstyr, se også i hovedkatalogen 1992 s. 78–89

Trådløs intercom

3 kanalers intercom som plugges rett inn i 220V kontakten, og lyden følger ledningene i veggen. Kan brukes fra rom til rom og vanligvis fra hus til hus. "Auto"-knapp som gjør at det ene apparatet begynner å sende hvis det kommer en lyd, slik at den kan brukes som "baby-sitter". Opptil seks apparater kan koples sammen.

Best.nr.	Pris
05 00 36	249.50
Et par (2)	449.–

Mobil babysitter

Nå kan du lytte til barnet ditt mens du er i hagen eller hos naboen. Senderen plugges inn i 220V på barnerommet, og mottakeren, som ser ut som en personsøker, bærer du med deg. Rekkevidden er på ca. 300m. Babysitteren er talestyrt, d.v.s. at mottakeren bare blir koplet inn hvis det blir en lyd ved senderen. Kan også brukes til mange andre formål, som overvåkning av eldre og syke, passe telefon, etc.
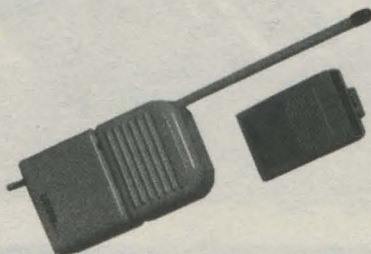
Best.nr.	Pr. par
05 00 43	498.–

Batteridrevet babysitter

Både sender og mottaker går på batteri og er ikke avhengig av å ha 200V i nærheten. De har to kanaler, slik at to par kan brukes samtidig uavhengig av hverandre. Senderen (hos barnet) er talestyrt og slår seg bare på hvis barnet gir fra seg en lyd, og er meget følsom. Nå kan du passe barnet mens det sover i bilen, båten, etc. Leveres med festebraketter, men ikke 9V batterier. Både sender og mottaker kan koples til batterieliminator.
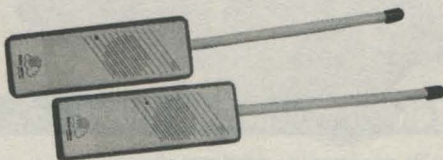
Best.nr.	Pr. par
05 00 46	598.–

Babysitter 220V

Den perfekte barnevakt. Sender og mottaker plugges rett inn i stikkontakten i veggen og lyden følger så ledningene i huset. Ingen susing, senderen koples først inn når den fanger opp lyd. Følsomhet og volumet kan justeres og den er meget følsom. Kan også brukes til å passe døren og telefonen.
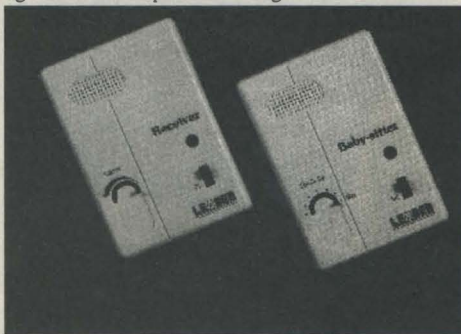
Best.nr.	Pr. par
05 00 41	398.–

Fax dine bestillinger til

22 49 02 10

ANTENNER

Portabel TV-antenne

Liten antenne med kraftige sugekopper som med enkelhet monteres på campingvogner, biler og båter. Tåler alt slags vær og sterke vinder. 4 meter kabel med plugg er montert på antennen. Den kan festes på oveflater i alle vinkler, og vil alltid stå rett. UHF kanal 21–63.
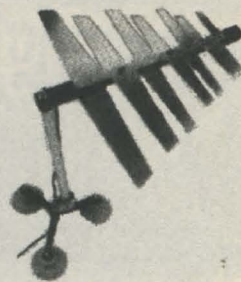
Best.nr.	Pris
06 00 45	398.–

Bordantenne

Bredbånds antenne for innendørs bruk i høy kvalitet. Kan enkelt justeres for horisontal og vertikal polarisasjon. UHF kanal 21–63.
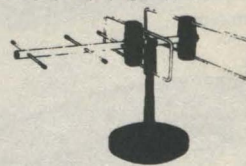
Best.nr.	Pris
06 00 13	198.–

Flerelement bordantenne

En smart, liten antenne for innendørs bruk. Antennen har to paralelle 7-elementers blader i matt aluminium som gir ekstra god forsterkning. Dekker alle kanaler UHF 21–63.
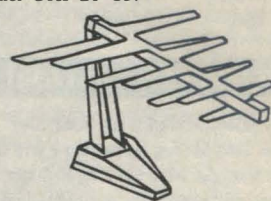
Best.nr.	Pris
06 00 17	298.–

Ferrittstavantenne

En 130mm lang og 10mmØ ferittstav med spoler for mellombølge og kortbølge montert. Flere spoler kan monteres, og spolene kan flyttes rundt for best mottak (bør limes fast). Induktanse MB 370µH (550–1550kHz), LB 4,1mH (150–280kHz).
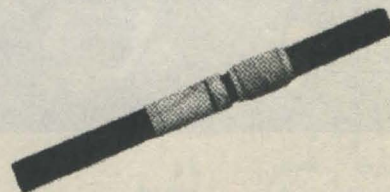
Best.nr.	Pris
06 00 03	49.50

Ferrittstaver

Runde ferittstaver med flate spor for MB/LB antenner. Målene er vist som l×d×d1 på tegningen. Stavene kan forkortes med en baufil.
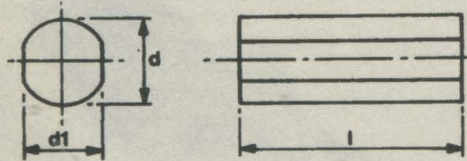
00×8×7 mm, permeabilitet 9.2–9.5

Best.nr.	Pris
06 00 19	9.50

40×10×9 mm, permeabilitet 9.9–10.2

Best.nr.	Pris
06 00 21	14.50

Erstatningsantenne I

To rimelige teleskopantenner, en med 6 deler og en med 7. Den med 6 deler er 482mm/105mm lang, 6mm tykk og har et 2.5mm skruehull (M2.5) opp i bunnen. Den med 7 er 670mm/123mm lang, 7mm tykk og har et 3mm skruehull (M3) i bunn.
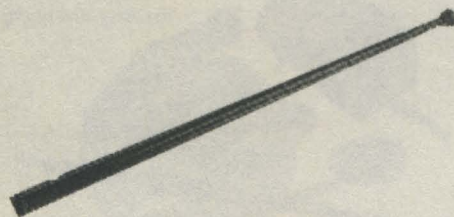
seksjoner

Best.nr.	Pris
06 00 23	19.50

seksjoner

Best.nr.	Pris
06 00 25	25.–

Erstatningsantenne II

En rimelig 8-delers teleskopantenne med et roterende ledd. Hele antennen kan skyves ned i apparatet, slik at bare 11mm stikker opp. Antennen er fullt utstrekt 1040mm høy. Den trenger et hull på 11,35 mm og 210mm fri plass for å få plass til hele antennen når den er sammenslått.
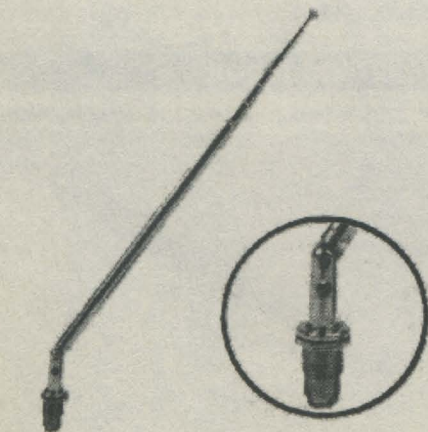
Best.nr.	Pris
06 00 27	49.50

Erstatningsantenne III

Rimelig 6-delers teleskopantenne med ledd for bærbare radioer og lignende. Kan erstatte de fleste brekte antenner. Antennen dras ut fra 275mm til 980mm. Monteres i et hull på 9,53mmØ. Selve antennen er 6mmØ.
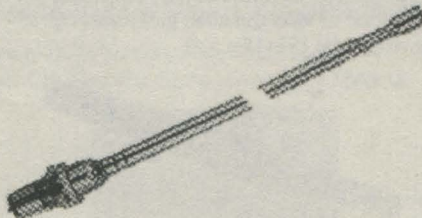
Best.nr.	Pris
06 00 29	39.50

Erstatningsantenne IV

Høykvalitets, krommet radioantenne med 10 seksjoner (uten ledd) som kan erstatte mange brekte antenner. Nedslått er antennen 166mm, og den strekker seg ut til 1,31m. I bunnen er antennen 9,5 mm tykk med et 4 mm skruehull (M4) boret opp i sentrum.
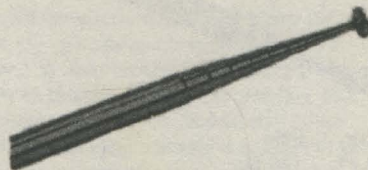
Best.nr.	Pris
06 00 31	39.50

144/430MHz BNC antenne

En antenne av høy kvalitet for bruk med hånd-trancievere som bruker 144/430 MHz. Oppdelt i fem seksjoner. Antennen er 187mm lang sammenslått, noe som er ¼ bølgelengde på 430MHz, og 535mm utslått, som er ¼ bølgelengde på 144MHz. Den har roterbart ledd og en BNC plugg i bunnen.
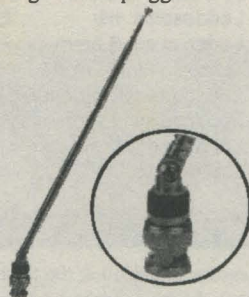
Best.nr.	Pris
06 00 33	98.–

Fleksibel 27MHz antenne

Gummiantenne for PR-båndet med god SWR. Lengde 355mm. Antennen ender i en PL259 UHF-plugg.

Best.nr.	Pris
06 00 35	148.–

Fleksibel 2m antenne

Gummiantenne for 2m-båndet med god SWR. Lengde 175mm. Ender i en BNC-plugg.

Best.nr.	Pris
06 00 37	99.50

FM T-antenner

Tre typer er tilgjengelig. En med kabelsko, en med coax plugg og en med flat FM-plugg. Alle har 300Ω impedanse.
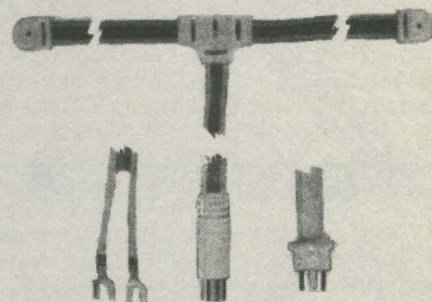
Best.nr.	Type	Pris
06 00 39	Kabelsko	19.50
06 00 41	Coaxplugg	19.50
06 00 43	Flat plugg	19.50

Telefonantenne

En kort, fleksibel gummiantenne for trådløse telefoner der antennen har brukket. Bruker en universell kobling som kan brukes til de fleste antenner. Den skrues utenpå den brukne stumpen av antennen, og kan festes på alle antenner opptil 6 mm i diameter. Lengde 20 cm, sort farge.

Best.nr.	Pris
06 00 47	148.–

Antenner, se også hovedkatalogen 1992 s. 83–91

LODDEUTSTYR

Gassdrevet mikrosveiser

Ekstremt kompakt sveiseapparat med justerbar sveiseflamme opp til 1300°C. Drives med butangass (lightergass), som kan kjøpes i vanlige forretninger. Kan brukes i 40 min mellom hver oppladning. Ypperlig for serviceingeniører, gullsmeder og hobbyister. Mål 184×15mm Ø.
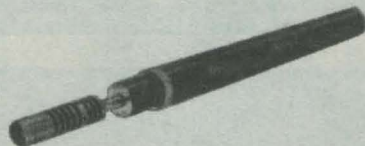
Best.nr.	Pris	10 á
06 01 59	139.–	98.–

Gassdrevet loddebolt

Samme som 06 01 59, men har i tillegg et loddehode med platinakatalysator, som holdes varm uten flamme. Kan også brukes til sveising. Mål med loddehode 230×15mm Ø. Ekstra loddespisser kan kjøpes separat.
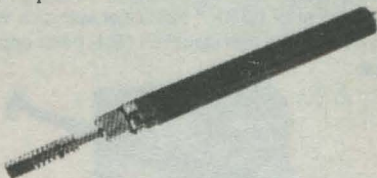
Best.nr.	Pris
06 01 41	199.50

Loddespisser og hoder

Passer til loddebolt 06 01 41.
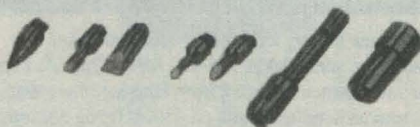
Best.nr.	Artikkel	Pris
06 01 45	Loddespiss. nål	29.50
06 01 47	Loddespiss. 3.5mm	29.50
06 01 49	Loddespiss. 7mm	29.50
06 01 51	Loddespiss. 2.5mm diag.	29.50
06 01 53	Loddespiss. 3.5mm diag.	29.50
06 01 55	Loddehode 98.–	
06 01 57	Flammedyse	78.–

Kombisett

Inneholder gassdrevet loddebolt (06 01 41), 3 forskjellige sveisehoder, loddehode, 4 loddespisser, varmekniv, loddesvamp, loddetinn og kasse.
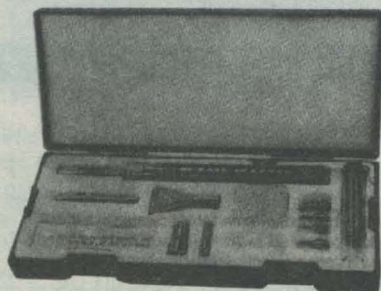
Best.nr.	Pris
06 01 43	399.–

Limpistol-adapter

Brukes med gassdrevet loddebolt (06 01 41) eller kombisett (06 01 43). Limpatroner medfølger.
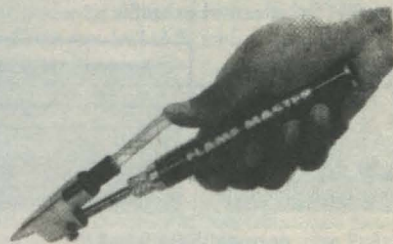
Best.nr.	Pris
06 01 37	98.–

Limpatroner, pakke på 18 stk.

Best.nr.	Pris
06 01 39	16.–

Weller loddestasjon

15W, 24V loddebolt med strømforsyning. Regulerbar temperatur på 270°, 320° og 320°C. Inneholder 2 longlife loddespisser, stativ, svamp og avlodningstråd.

Best.nr.	Pris
20 17 64	639.50

Tinnsuger

Enhåndsbetjent tinnsuger med teflonspiss. Mål 200×20mmØ.
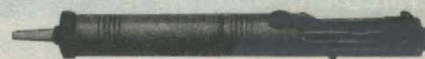
Best.nr.	Pris	3 á
81 21 29	49.50	39.50

Ekstra teflonspiss

Best.nr.	Pris
81 21 37	19.50

Weller loddebolt

25W, 220V loddebolt med standard rett spiss. Stativ medfølger.
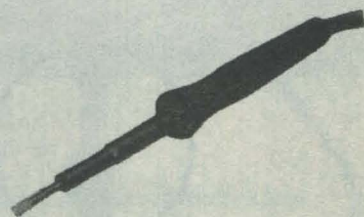
Best.nr.	Pris
20 17 65	129.50

Ekstra spiss, rett

20 17 66	28.–

Ekstra spiss, bøyd

20 17 67	28.–

Elektronikk-loddetråd

Tilsvarer alle industrielle kvalitetsnormer. Flyter hurtig, legering SN 60 Pb, inneholder antikorrosjonsmaterialer som kolophonium (flytemiddel). Syrefri.

Best.nr.	Dim./vekt	Pris	10 à
81 28 38	3mØ0.5mm/10g	14.50	9.50
81 28 03	30mØ0.5mm/100g	49.50	4.–
81 28 70	1mØ1mm	7.50	4.50
81 28 89	5mØ1mm	19.50	17.50
81 28 11	17mØ1mm/100g	39.50	37.50
81 28 62	40mØ1mm/250g	79.50	59.50
81 28 97	80mØ1mm/500g	139.50	99.50
81 28 20	13mØ1.5mm/100g	39.50	37.50

Avloddingstråd

I praktisk kunststoffrull. Mål 1,6m×2,5mm (l×b)

Best.nr.	Pris
81 17 85	19.50

Avloddingstråd, 4-pack

Best.nr.	Pris
81 17 93	49.50

Fotoetsesett

Ideèll startsett for etsing av printplater med fotobelegg. Layout tegnes med klebetape eller overføringssymboler og belyses med UV-lampe (medfølger ikke).
Innholder printplater med fotobelegg (2 stk 75×100mm, 2 stk 100×160mm, 1 stk 75×100 epoxy), etsemiddel (ammoniumpersulfat), fremkaller, etsekar (210×150mm), layout-folie, sprayboks med loddelakk, klebetape for loddebaner (1mm bred), samt overføringsmerker for loddeøyne (IC-sokler og komponenter). Leveres med utførlig tysk bruksanvisning.
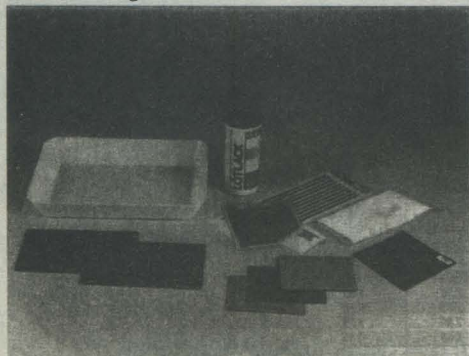
Best.nr.	Pris
52 94 35	199.50

For mer loddeutstyr, se hovedkatalogen 1992 s. 190

Osram infrarød 250W pære

Osram Nitraphot. For belysning av fototransfer eller andre fotosensitive belegg. Jevn lysfordeling og høy lysstyrke. E27 sokkel, 220V.

Best.nr.	Pris
52 91 41	64.50

Mignon NiCd-batterier

Sett med fire hurtigladende nikkel-kadmium-batterier i størrelse mignon (AA). 1.2V 500mAh.

Best.nr.	Pris
25 49 40	49.50

Temperaturmodul

En digital termometermodul med minne for minimums og maksimums temperatur. LCD displayet og elektronikken på ett enkelt printkort med en 16 leders kantkontakt for lodding. Bak printplaten er det festet en brakett som holder batteriet. En temperatursensor er montert på kortet, men denne kan erstattes av en ekstern sensor. Ved hjelp av de 16 koplingspunktene kan man bl. a. sette og vise høy og lav temperaturterskel, få noe til å skje hvis disse blir overskredet (signal, puls og 2kHz utganger), sette oppdateringsfrekvensen eller se den høyeste og laveste temperatur siden siste reset. Den interne temperatursensoren har måleområde fra −5 til +50 °C og nøyaktighet ±1°C. Utførlig engelsk manual følger med. Trenger et vanlig mignon-batteri, følger ikke med.
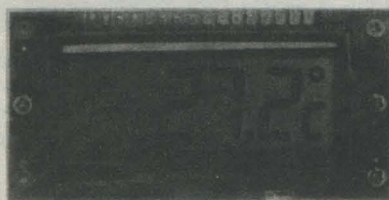
Best.nr.	Pris	10 á
06 01 71	138.–	99.50

Ekstern sensor med kabel, lave temp.
−40 til +50°C ±1°C

Best.nr.	Pris	10 á
06 01 73	49.50	39.50

Ekstern sensor med kabel, høye temp.
+20 til +110°C ±1°C

Best.nr.	Pris	10 á
06 01 75	49.50	39.50

PRINTUTLEGG & DESIGN

Seetrax Ranger 1

Ranger 1 er et kraftig program som hjelper deg til å designe kompliserte skjemaer eller utlegg. Pakken består av to separate moduler. Den første brukes til skjemategning og simulering, den andre brukes til printutlegg. For å bruke programmet må man minst ha en PC/XT med MS-DOS eller OS/2, 640k RAM, harddisk, 1.2MB 5¼" diskettstasjon og EGA eller VGA skjerm. Man trenger også en mus eller et digitaliseringsbord. Man kan skrive ut til en plotter med HP-GL, en matriseskriver, en fil eller til en gerber fil. Ranger 1 er menybasert og enkel og bruke og lære. Alle forskjellige design kan konstrueres, alt fra enkle enlags kretser til 16-lags printkort med overflatemonterte komponenter på begge sider.

Schematic Capture: Makroer for kretser som brukes ofte, 2300 symboler pr. tegning, arkstørrelser fra A1 til A5, opp til 8 ark pr. tegning, mer enn 750 symoler pr. symbolbibliotek, opp til 100 symbolbibioteker, opp til 256 pinner pr. symbol, 3500 signaler pr. ark, koplinger blir opprettholdt mellom arkene, automatisk komponentliste, delenummer og pinnenummer blir automatisk fordelt.

PCB Design: Makroer for kretser som brukes ofte, maks 1400 komponenter pr. kort, miltilags kort med maks 16 lag, stort komponentbibliotek, komponentene vises som de ser ut, riktig printbane bredde, komponenter kan flippes til den andre siden av kortet, engelsk eller metrisk mål ned til 0,01 mm, kortene kan være opp til 820×820 mm, legger printbaner nøyaktig med 0,01mm oppløsning, opp til 256 pinner pr komponent, sikkerhetslagring, silketrykk for begge sider av kortet med delenummerovergang, automatisk gjenkopling av kretsen for kortest mulig banelengde, vindussystem for store prosjekter, maks 8000 koplinger pr kort.
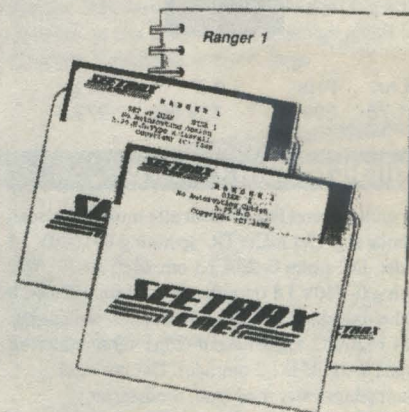
Best.nr.	Pris
06 00 63	1998.–

MÅLETEKNIKK

Digitalt multimeter HC-26

Enkelt og rimelig multimeter som tilfredstiller de flestes behov. Måler DC spenning 0--200V i to områder, AC spenning 0--500V, DC strøm 0--10A og motstand 0--2MΩ i to områder. Har også diodetester. Nøyaktighet ±0.7% DC

Best.nr.	Pris	3 á	10 á
09 01 67	199.50	179.50	149.50

Digitalt multimeter DM-206

Et litt mer avansert multimeter som dekker behovet for hobby-elektronikk og skolebruk. Det måler DC spenning 0–1000V i 5 områder, AC spenning 0--750V i to områder, DC strøm 0--10A i tre områder og motstand 0–2MΩ i 6 områder. Har også gjennomgangstester med tone, diodetester og "data hold". Nøyaktighet ±0,5% DC

Best.nr.	Pris	3 á	10 á
09 01 75	399.50	359.50	279.–

Digitalt multimeter HC-3500T

Dette multimeteret har omtrent alle muligheter man kan tenke seg. Det måler DC spenning 0–1000V i 4 områder, DC strøm 0--20A i 3 områder, AC spenning 0–750V i 4 områder, AC strøm 0--20A i tre områder, motstand 0–2MΩ i 6 områder, temperatur –20 til +1200°C, kapasitans 0–20µF i 3 områder og frekvens 0--200kHz i 2 områder. Det har også gjennomgangstester med tone, diodetester, transistortester ("hfe"-måler) og "data hold". Nøyaktighet ±0,5% DC

Best.nr.	Pris	3 á	10 á
09 01 71	699.50	629.–	559.–

Digitalt lommemultimeter

Lite og greit digitalt multimeter til en rimelig penge. Leveres i praktisk lomme-etui. Måler DC spenning 0--450V, AC spenning 0–450V og motstand 0–2MΩ. Har også gjennomgangstester.
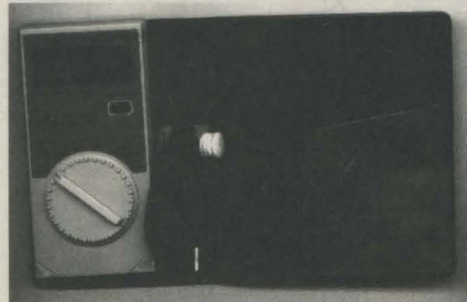
Best.nr.	Pris
13 59 50 A	299.–

Analogmultimeter HC-1015B

Enkelt og greit lite multimeter som passer i enhver verktøykasse. Måler DC spenning 0–1000V (R_i=10kΩ), AC spenning 0--100V (R_i=4kΩ), DC strøm 0--250mA, motstand 0–1MΩ og desibel –20 til +62 dB (AC volt). Har også batteritester for 1,5V og 9V småbatterier.
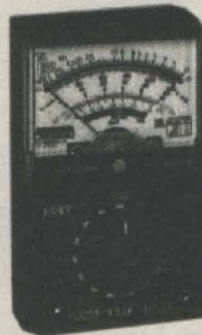
Best.nr.	Pris	3 á	10 á
09 01 85	99.50	89.50	79.50

Flere multimetere i hovedkatalogen 1992 s. 40–47

20MHz Oscilloskop

Profesjonelt oscilloskop som tilfredstiller alle krav til en rimelig pris. Massevis av muligheter og enkel å bruke. To kanaler, vertikal følsomhet 5mV–20V/div, tid/div 0,2µs–0,5s, kanalseparasjon bedre enn 60dB ved 1kHz
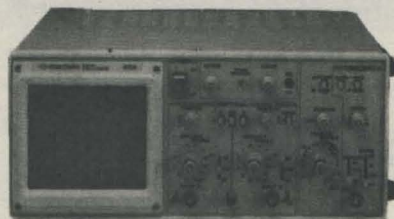
Best.nr.	Pris	5 á
09 01 57	3499.–	2999.–

Passende probe OP-20, 1:1 og 1:10

Best.nr.	Pris	3 á	10 á
09 01 63	199.50	149.50	129.–

Flere oscilloskoper på s. 49–53 i hovedkatalogen 92

Innbyggingsmetere

Dreiespoleinstrumenter med speilskala for innbygging med moderne firkantet form og grå front. Pærer for belysning kan monteres. Mål: 67×47×47 mm, hull Ø 38 mm.
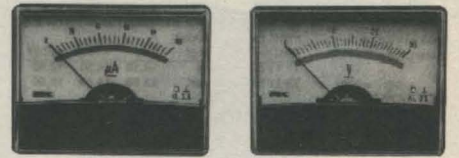
Best.nr.	Måleomr.	R_i	Pris	3 á
13 49 37	100µA	1.2kΩ	99.50	89.50
13 49 45	1mA	120Ω	99.50	89.50
13 48 72	100mA	<1Ω	99.50	89.50
13 48 99	500mA	<1Ω	109.–	99.–
13 49 53	1A	<1Ω	99.50	89.50
13 49 61	3A	<1Ω	109.–	99.–
13 49 70	5A	<1Ω	109.–	99.–
13 49 88	15A	<1Ω	109.–	99.–
13 49 96	15V	15kΩ	109.–	99.–
13 50 03	30V	30kΩ	109.–	99.–
13 49 10	300VAC	300kΩ	109.–	99.–

Belysningssett for 6 og 12 V med 2 pærer á 6V

Best.nr.	Pris
13 50 11	29.50

Galvaniseringssett

Med dette settet kan du selv galvanisere, forgylle (24 karat) og forsølve printbaner, plugger, mynter, smykker etc. Forgylte plugger blir aldri korrodert, og gir mye bedre ledeevne og sikkerhet. Bruker industristandard tampong-galvanisering. En flaske gull-elektrolytt på 30ml dekker en flate på ca. 270cm². Sølv dekker vesentlig mer. Strømforsyning 2 baby (C) batterier på 1,5V eller 3VDC batterieliminator med 2,5mm plugg. Settet inneholder Galvaniseringsapparat med edelstål hode, 30ml gull-elektrolytt, 30ml sølv-elektrolytt, 15ml pussemiddel, 2 svamper, testobjekt (barberblad) og bruksanvisning.

Best.nr.	Pris
53 05 06	298.–

Ekstra flaske Gull-elektrolytt 30ml

Best.nr.	Pris
53 05 22	139.–

Ekstra flaske Gull-elektrolytt 30ml

Best.nr.	Pris
53 04 14	78.–

BYGGESETT & DIVERSE

Mini Videokamera

Et meget lite CCD videokamera som gir et klart sort/hvitt bilde fra vanlig lys eller inrarødt lys (940nm) Det 8,5 mm store CCD elementet gir gode detaljer. Med infrarødt lys er det ideéllt for sikkerhet og overvåkning. All optikk er innebygd i elementet, så man trenger ingen linser. Det ferdige settet består av et printkort med kameraet på som måler 95×60 mm, og et styringskort 110×95mm. På siden av kameraet står det 6 IR lysdioder som gir kameraet nok infrarødt lys til å operere i stummende mørke på avstander fra 2–3m. Hele settet trenger kun 10-14V uregulert 200mA. Det trenger kun en treleders skjermet kabel, med felles jord, strømforsyning og videosignal. Videosignalet er vanlig 1Vp-p.
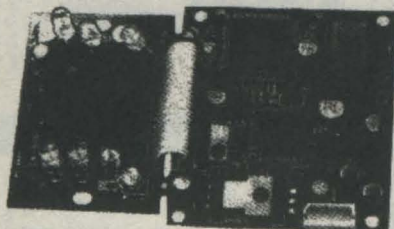
Best.nr.	Pris
06 00 61	1998.–

Stepmotor

En 12 volts, 4-fasers unipolar stepmotor ideéll til små roboter o.l. En passende driver for den er SAA1027. Step 7,5°, fasestrøm 130mA, fasemotstand 94Ω, induktans 43mH, dynamisk moment ved 10pps 80g/cm, responsfrekvens 300pps, vekt 57g, mål 3mmØ×25mm
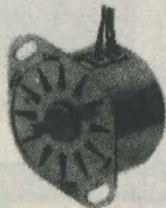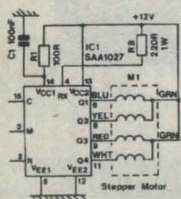
Best.nr.	Pris	10 á
06 01 67	250.–	199.50

Stepmotor byggesett

Et sett som inneholder stepmotoren over, en SAA 1027 driverkrets og passive komponenter. Det gjør at stepmotoren blir mulig å styre med vanlige spenninger. Drives av 12V.

Best.nr.	Pris	10 á
06 01 65	398.–	350.–

Byggesett, se også hovedkatalogen 1992 s. 222–239

Numerisk tastatur

Med 12 taster som presser på gummiplater med ledende silikon og gir et klikk når de trykkes ned. Utv. størrelse 51×64×13mm, monteringsåpning 46×59mm. Bryterene tåler 24V 5mA. Kontaktmotstand maks 200Ω.
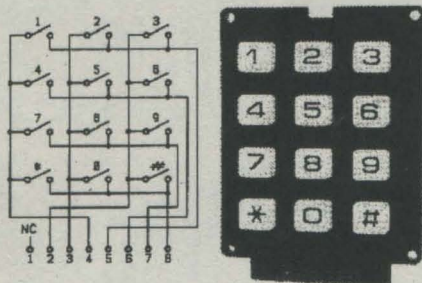
Best.nr.	Pris	10 á	100 á
06 01 33	39.50	29.50	19.50

Microsonic Audio Booster

Et byggesett til en lydforsterker som forsterker svake lyder og lyder langt borte. Den stiller selv styrken på forsterkningen etter hvor høy lyden er, slik at man ikke trenger å stille på volumet hele tiden. Utgang for hodetelefon (ikke inkl.). Bruker et vanlig 9V batteri (følger ikke med).

Best.nr.	Pris
06 00 87	299.50

Motstandssortiment 6000

Perfekt for elektronikkentusiasten som ønsker å ha orden i sakene. Inneholder 6000 1/4W kullsjiktmotstander, fordelt på 60 forskjellige verdier innen normrekke E12 fra 12Ω til 80MΩ. Dessuten medfølger et sortimentsmagasin i metall med 60 skuffer i klarplast og etiketter. Mål 552×307×145mm.

Best.nr.	Pris
41 91 17	699.–

For andre sortimenter, se hovedkatalogen s. 273

FUNTRONICS BYGGESETT

Et utvalg med 10 prosjekter for den absolutte begynner. Trenger ingen lodding og bare et minimum av verktøy. En liten skrutrekker, en tang og en avbiter er vanligvis alt som trengs. Komponentene og ledningene blir holdt fast av skruer som skrus ned i hullene i plastplaten som følger med alle settene. En tegning av kretsen følger med og legges på platen. Alt er inkludert utenom et vanlig 9V batteri og verktøy. Alle settene har engelske instruksjoner.

1. Pære og sikringstester

Et meget enkelt sett som tester pærer, sikringer, brytere o.l. Hvis det som testes virker, så blir en lysdiode tent.

Best.nr.	Pris
06 00 67	49.–

2. Transistortester

Dette settet viser deg hvordan en transistor virker, og kan brukes til å teste transistorer og dioder for å se om de virker.

Best.nr.	Pris
06 00 69	49.–

3. Vanndetektor

Dette lille settet er ideélt til å sjekke at det er vann i jorden til potteplanter etc. og gir et synlig signal med en lysdiode hvis det ikke er vann der.

Best.nr.	Pris
06 00 71	49.–

4. Lys/mørke-indikator

Dette settet slår på en lysdiode hvis det er mørkt i rommet. Det kan også modifiseres til å slå på lysdioden hvis lysstyrken er over en viss verdi. Kan for eksempel brukes i et mørkerom.

Best.nr.	Pris
06 00 73	89.–

5. Blinker

Dette er en astabil krets som slår av og på to lysdioder i tur. Lysdiodene vil blinke hvert 2. eller 3. sekund. Kan for eksempel brukes til varsellys ved en overgang i en modelljernbane.

Best.nr.	Pris
06 00 75	49.–

6. Elektronisk sirene

Denne er ideéll til modellbiler o.l. Den gir en lyd som kan varieres i frekvens, og kan settes opp til å lage flere forskjellige sirene-lyder.
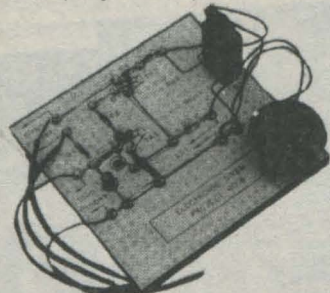
Best.nr.	Pris
06 00 77	89.–

7. Hundefløyte

Settet bruker en astabil multivibrator til å lage en lyd som varieres med lysstyrken. Om natten kommer det en meget dyp tone, men i dagslys kommer det en tone som er så høy at mennesker vanligvis ikke kan høre den. Med en enkel modifikasjon kan denne brukes som en sirene som kaller på hunden.

Best.nr.	Pris
06 00 79	98.–

8. Tosidet terning

Enkel multivibrator-krets som startes ved å holde to ledninger sammen. To lysdioder blinker da så fort at det ser ut som de lyser hele tiden. Når ledningene tas fra hverandre vil en minnefunksjon gjøre at en av lysdiodene vil lyse. Lysdiodene kan merkes med "ja/nei", "krone/mynt" etc.

Best.nr.	Pris
06 00 81	49.–

9. Morse-apparat

En astabil multivibrator som gir en hørbar lyd på flere hundre hertz. Når du trykker på bryteren vil det komme en lyd og en lysdiode blir tent. Dette settet kan hjelpe deg å lære morsekode og snakke med andre med dette spesielle "språket". Settet er ikke en radiosender.

Best.nr.	Pris
06 00 83	98.–

10. Musikkmaskin

Et enkelt elektronisk orgel som spiller ti noter, som er nok til å spille en del enkle melodier. Man bruker en pinne som man berører noen skruer med for å spille. Kretsen er en astabil multivibrator som kan lage lyder i mange frekvenser.
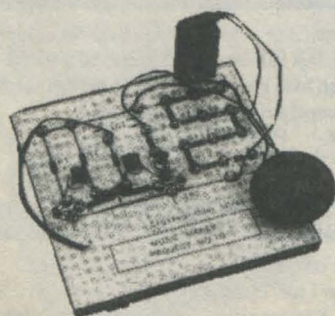
Best.nr.	Pris
06 00 85	89.–

Byggesett, se også hovedkatalogen 1992 s. 222–239

501 byggeprosjekter

Dette er boken alle elektronikkfans har drømt om. 501 forskjellige spennende byggeprosjekter med funksjonsbeskrivelse og koplingskjemaer. Printutlegg til mer en 60 prosjekter. Forsterkere, mottakere, sendere, måleutstyr, tyverialarm, strømforsyninger, lysorgler og mye mer. Svensk tekst

Best.nr.	Pris
07 01 31	198.–

IC-sammenligningsbok

560 sider med pinneoversikter, typer, kapslingstyper, bruksformål og sammenlikninger av intergrerte kretser fra alle de ledende produsenter.

Best.nr.	Pris
90 01 09	189.–

Transistor-sammenligninger

416 sider med sammenligninger av de forskjellige transistorene fra germanium til MOS-FET. Viser type, materiale, bruksområde, kapsling og tilkopling, samt sammenligning av forskjellige produsenter slik av man stort sett alltid finner ekvivalente typer.

Best.nr.	Pris
90 00 10	139.–

ELECTRICAL BOOKS

Newnes Electrical Pocket Book

Edited by E.A. Reeves, DFH (Hons), C. Eng, MIEE

A thorough guide to electrical engineering practice, which remains an indispensable reference book for the engineer and for all who require handy, concise yet comprehensive information on a wide range of electrical subjects.
1989. 517 pages. 165 x 101mm, illustrated.

Best. nr.   Pris
07 1001   229.–

Electric Wiring: Domestic

by A.J. Coker & W. Turner

A clear and reliable guide to the practical aspects of domestic wiring. Provides essential up-to-date information on modern methods and materials in a simple and concise way. Contents include wiring circuits, ratings, cable sizes and circuit protection, domestic installation practice, lighting points, socket outlets and portable appliances, installation of conduit systems, using PVC sheathed and MICS cable, prefabricated systems, earthing, inspection and testing.
1989. 198 pages. 234 x 155mm, illustrated.

Best. nr.   Pris
07 1004   229.–

Wire It

by Robert Henley

This book is intended for the average DIY person wanting to undertake some simple electrical modifications.
The book explains the basics of home wiring and how the electricity meter, the mains switch and the ring main system help deliver light and power. Simple guides to topics such as fuses and meter reading are recommended with one or two projects such as outdoor wiring and adding extra sockets. A good mixture of diagrams and colour illustrations explain some of the jargon including the reasons why amps, volts and watts are so important.
The book is well scattered with safety advice and warnings, also ways and means of dealing with electric shock. Amply demonstrating how important safety is in this area.
It makes an ideal present for the novice or those moving into a first or new home.
1989. 31 pages. 225 x 165mm, colour illustrations.

Best. nr.   Pris
07 1007   39.–

Wiring and Lighting

by Albert Jackson and David Day

This book will help anyone wanting to undertake household electrical tasks. It covers things as diverse as mending fuses and changing plugs through to good advice on complete rewiring. The diagrams and instructions here are full, many are step by step and a lot of the matters left hanging in the small book are explained. There are also a number of extended special sections which discuss the wiring of fixed appliances, the basic home electricians toolkit and how to reduce the cost of electricity – legally!
A short glossary explains some of the more basic terms as well as covering such matters as PME and ELCB. This is the book for the serious home electrician. The local illuminations may be a step away, but a safe, legal and more electrically efficient home is well within the capability of anyone using this readable and useful aid.
1988. 64 pages. 258 x 212mm, full colour illustrations.

Best. nr.   Pris
07 1010   99.–

IEE Wiring Regulations Explained and Illustrated

Second Edition

by Brian Scaddan

Written primarily for the student electrical technician or installation contractor who needs to understand the Wiring Regulations and how to apply them, but this knowledge is also essential for anyone contemplating domestic electrical wiring. Full of really useful and practical advice for the electrician, clearly explaining the background to the Regulations and concentrating on the key areas of earthing and bonding, protection and circuit design.
Topics include safety requirements, earthing, protection, control, circuit design and testing procedures. The author is an electrical engineer with many years' experience in the industry and a senior lecturer in electrical and electronic training. Even if you only contemplate tackling the simplest electrical wiring job, you should read this book first. If you are not already familiar with its contents then you will find it a real eye-opener.
1991. 99 pages. 146 x 210mm, illustrated.

Best. nr.   Pris
07 1013   158.–

Wiring Systems and Fault Finding For Installation Electricians

NEW

by Brian Scaddan

This book is written for the installation engineer and deals with an area of expertise with which many technicians, students and D-I-Y enthusiasts experience difficulties in practice. It will be particularly welcomed by all those, including both installation and plumbing contractors, self-employed

heating engineers and the home electrician, who need to be able to locate faults in circuits whether they be domestic, commercial or industrial systems.
The book covers the interpretation of wiring circuit diagrams, wiring systems and the principles and practice of testing for fault diagnosis. Diagrams which are closely linked with comment and explanation lead the reader from the basic symbols and circuit wiring diagrams, through more complex circuitry and various types of wiring systems, to the logical and methodical approach to the pinpointing of circuit faults.
1991. 96 pages. 210 x 145mm, illustrated.

Best. nr.   Pris
07 1016   179.–

Modern Wiring Practice

by W.E. Stewart and T.A. Stubbs

A completely revised edition of Modern Wiring Practice taking into account the requirements of the 15th edition of the IEE Regulations for Electrical Installations, and amendments to those regulations published up to 1989. Includes new procedures developed since the ninth edition was published. Both the design of electrical installation systems and the practical work itself are covered, and the authors have many years' experience of electrical installation. An absolute must for all electrical engineers, apprentices, contractors and architects etc., and an invaluable reference for DIY wiring at home.
1990. 304 pages. 215 x 138mm, illustrated.

Best. nr.   Pris
07 1019   269.–

Electrical Safety at Work

An IEEE Monograph

This volume is intended as a guide to the regulations covering electrical safety at work, with emphasis on the Electricity at Work Regulations 1989.
The eight chapters are written by specialists in their particular field, and the monograph covers such areas as general inspection and testing requirements to satisfy HSE regulations, the role of the electrical contractor, periodic testing, safety testing of appliances, local RCD protection, electrical safety in schools and hazardous areas. Appendices list the relevant safety regulations and standards, together with their sources. This is an obligatory book for the professional electrician, serious contractor or very advanced DIY person.
1991. 62 pages. 209 x 147mm, illustrated.

Best. nr.   Pris
07 1022   99.–

Specification Clauses for Electrical Installations

An IEEE Monograph

This technical monograph is intended to assist contractors and designers by providing guidance to the selection of appropriate wording for specification clauses in electrical installation contracts. Such clauses relate to utilisation features, technical requirements and definitions of requirements on performance factors for equipment.
The booklet covers such areas as statutory regulations and standards, building construction, switchgear and fusegear, cable and wiring systems, wiring accessories, lighting and hazardous locations. Thorough knowledge of this book and the material behind it will ensure that contractors and designers word their specifications in a way which ensures that the high standards set by the IEE are maintained, operate and are universally recognised as best practice.
1988. 72 pages. 209 x 147mm, illustrated.

Best. nr.   Pris
07 1025   79.–

Automobile Electrical and Electronic Systems

A 'Haynes' Manual

by Tony Tranter

This book meets the need for a clear explanation of modern electronic equipment used in the car, along with the co-operation of the major manufacturers. The book sets out to explain how electrical and electronic equipment works, while at the same time no prior knowledge is assumed on the reader who progresses logically to an understanding of the latest technology. Specific equipment and vehicles are referred to by way of illustration and the text is an ideal combination of theory and practice. Topics include batteries, starting and charging systems, fuelling, ignition and combustion, engine management, lighting and instruments, electromagnetic interference, vehicle wiring, general fault diagnosis, test equipment, and includes latest developments in fuel injection, pollution control, engine and body electronics, and braking and anti-skid systems.
1990. 264 pages. 279 x 214mm, illustrated, hard cover.

Best. nr.   Pris
07 1028   219.–

Microwave For Certain

by James Garrod and Annemarie Rosler

To cater for those who are technically inclined, the small print explains things in great detail and reveals some very interesting facts. It will make good supplementary training for anyone connected with microwave oven sales or servicing. In fact, the same can be said of the book

as a whole. It is important for microwave ovens to be used intelligently. Some people quickly take to microwave, whilst others have difficulty breaking away from the familiar heat and temperatures. The microwave story, as told in this book should leave no cause for doubt or confusion, and it may be an eye-opener even to the most successful microwave cook. The chapter on how to look after a microwave oven and recognise whether or not it needs attention is particularly good. This is the first publication to offer comprehensive advice along those lines. Engineers are often called out to microwave ovens which are in no way faulty. Everyone who uses a microwave oven has something to gain by reading this book, especially if they follow it through right from the beginning. It is strongly recommended they do just that.
1990. 89 pages. 210 x 148mm, illustrated.

Best. nr.   Pris
07 1031   79.–

An Introduction to Microwaves

by F.A. Wilson

This is an introductory book and no background in microwave technology is needed, although some elementary electronics experience is assumed. The mathematics required are little more than ordinary algebra.
Organisation of the book is straightforward. Brief reminders and technical explanations of those facets of electronics important for an appreciation of microwaves are followed by chapters on microwave generators and amplifiers. This leads onto the practical uses of microwaves in communications generally, mobile communication and television. The book ends with a look at radar and heating, and includes notes on the domestic microwave cooker.
1992. 144 pages. 178 x 111mm, illustrated

Best. nr.   Pris
07 10 34   68.–

ELECTRONICS HANDBOOKS

The Art of Electronics

by Paul Horowitz and Winfield Hill

This is a first reference book that emphasises electronic circuit design techniques and scientific measurement. Written in a down-to-earth manner it takes the reader from basic principles through to a reasonable degree of proficiency in circuit design. Mostly non-mathematical, it omits the usual discussion of network theory, solid-state physics and such like. Included in the chapters are: transistors, feedback, operational amplifiers, active filters, regulators, digital and analogue techniques; computing and measurement, active filter designs, switched-capacitor filters, quadrature oscillators, low-dropout regulators, switching supplies, crowbars, isolation amplifiers, SCR latchup, "ground bounce," dynamic power dissipation, optoelectronics, RS-232 interfacing, modems, memory chips, schematic capture, A/W detection, battery characteristics, sensor linearization.
1989. 1125 pages. 254 x 176mm, illustrated.

Best. nr.   Pris
07 10 37   598.–

Electronic Hobbyists Handbook

by R. A. Penfold

This book provides an inexpensive single source of easily located information on that the amateur electronics enthusiast is likely to need for the day to day pursuance of this fascinating hobby. The characteristics and pin-outs of many popular semiconductor devices are given, including various types of logic IC's, operational amplifiers, transistors, FET's, unijunctions, diodes, rectifiers, SCR's, diacs, triacs, regulators and SMD's. etc. The book illustrates many useful types of circuit, such as timers, oscillators, audio amplifiers, filters, and power supplies. Other data includes circuit symbols, common colour codes, interface detail and amateur and CB frequency allocations all useful to professional engineers, designers, and students alike.
1987. 88 pages, 265 x 195 mm, illustrated.

Best. nr.   Pris
07 1040   89.–

Basic Skills – Electronics

by Tom Duncan

For all those who want to gain a knowledge and understanding of some of the basic principles of electronics. It is suitable for anyone taking an introductory course in electronics, at school, college or by study at home. In particular, those working for the Associated Examining Board's Basic Test (Specialist) in Electronics will find it meets their needs. The ultimate aim may be to enter an electronics-related industry by either direct employment, or through a training scheme or after further education.
The theory is covered in part 1, and then part 2 provides a course of practical work in the form of experiments and projects. The experiments offer an opportunity to become familiar with some basic components before they are actually encountered in real life in the projects. The latter involve assembling and investigating simple electronic systems that actually do something, where the no-soldering S-DeC (solderless breadboard) method of construction is used. Matrix board and stripboard methods are also described as alternatives.
1988. 120 pages. 245x 188mm, illustrated.

Best. nr.   Pris
07 10 43   98.–

Electronics
by G. Waterworth

This book is primarily intended as a text for electrical engineering students, but is equally useful for the amateur hobbyist and is a companion volume to Electric Circuits, W207H. It describes all the common semiconductor devices, how they work and how they are used in various circuit schemes. The topics are arranged in the traditional order for semiconductor devices: diodes, BJTs, FETs and op-amps, followed by their applications in a variety of electronic subsystems such as amplifiers, oscillators, non-linear circuits, power amplifiers, regulated power supplies, power electronics systems, combinational and sequential logic circuits. This should enable the reader to use these worked examples alongside any of the standard textbooks in electronics.
The author has attempted to give a new engineering approach to the subject by including questions that have a sound application and a realistic solution. Examples are included for both discrete and IC devices. The book uses up-to-date techniques and devices and includes questions on mirror, bootstrapping, the constant current source, the Miller effect, the cascade circuit, feedback amplifiers, differential amplifiers, instrumentation amplifiers, IC regulators, switch mode regulators, chopper control, programmable logic arrays, synchronous counter design, and logic hazard detection.
1991. 257 pages. 275 x 210mm, illustrated.

Best. nr. 07 1085 **Pris** 179.–

Electric Circuits
by Noel M. Morris and Frank W. Senior

This book is one of a series for use by students, notably as a textbook but also as a guide to good practice on the solution of problems. The topics reflect the most popular areas in first year HND and HNC courses in Electrical and Electronic Engineering. While much of the mathematics is on the heavy side, many electrical engineering terms and circuit theory analyses are clearly and concisely described and illustrated.
The topics covered include basic electrical and mechanical units, circuit theory including mesh current and node voltage analysis, waveforms and Fourier analysis, and then, following in depth. Also series and parallel circuits, resonance reactance, susceptance and admittance. AC circuits and frequency response. You are also introduced to the concept of power, power, reactive VA and power factor improvement.
Two chapters are devoted to circuit theorems, including mesh current and node voltage analysis applied to AC circuits, Millman's theorem, Thevenin's theorem, Norton's theorem, duality, star-mesh and mesh-star transformations, superposition theorem, reciprocity theorem, compensation theorem, and the maximum power transfer theorem. Coupled circuits and the transformer are covered, as are polyphase systems, symmetrical components, and the measurement of power.
Four appendices cover complex numbers, matrices, determinants and partial fractions.
1991. 370 pages. 275 x 215mm, illustrated.

Best. nr. 07 1088 **Pris** 179.–

Electronics Principles and Applications
by Graham Giller

This is a comprehensive review of electronics, emphasising both the underlying fundamentals and the applications of electronic components and circuitry. The book is equally suitable for the hobbyist and student of 'A' level, BTEC level 3 and first year degree course.
In order that the reader does not get lost in mathematics, and hence conclude that electronics is a confusing subject, the working is more explicit than might be usual, but the essential maths is included as required for the subject. Divided into six main chapter groups, the book covers basic electricity, semiconductors, operational amplifiers, digital electronics, audio circuitry, and radio and data transmission. There are also glossaries of mathematical symbols and abbreviations, abbreviations used in electronics, and the S.I. system of units, with references for further reading and an index.
1991. 274 pages. 229 x 152mm, illustrated.

Best. nr. 07 1091 **Pris** 229.–

Electronics
by Harry Kybett

The second edition of this self teaching guide that leads you through the basic principles of modern electronics without going into complicated mathematics. The guide shows you how to design your own working circuits. American book.
1986. 304 pages. 252 x 170mm, illustrated.

Best. nr. 07 1094 **Pris** 198.–

Practical Electronics
by Barry Woollard
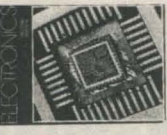
This book covers many electronic components, detailing their attributes, ratings and typical applications. There are sections on Resistors and Capacitors, Inductors and Transformers, Power Supplies, Transistors, Thyristors and Triacs. Pulse Shaping, Amplifiers, Logic and Digital Electronics, and also Measurements and Fault Diagnosis. Each section is complemented by a series of practical exercises for which typical results are given later in the book. The book is ideal for Students and Teachers alike.
1984. 260 pages. 230 x 150mm, illustrated.

Best. nr. 07 1097 **Pris** 198.–

Principles of Electronics
by B. Dowding

Developing from first principles an understanding of the properties, performance and operating capabilities of an extensive range of modern digital and analogue devices, circuits and sub-systems. Ideal introductory text for undergraduate students. Includes a balanced coverage of both digital and analogue electronics; six graduated chapters on digital electronics from a descriptive introduction through to combinational and sequential logic design using NAND/NOR logic and complex integrated circuits. A comprehensive treatment of Op-Amps is supported by separate chapters on amplification and feedback, and some specialist areas such as power supplies and power devices are not forgotten. Three introductory chapters cover semiconductor theory, the BJT and FETs. Numerous working examples throughout the text with end-of-chapter problems.
1988. 509 pages. 235 x 175mm, illustrated, hardback.

Best. nr. 07 1100 **Pris** 348.–

A Practical Introduction to Electronic Circuits
2nd Edition
by Martin Hartley Jones

Electronics to many people still contains an element of mystery, particularly when mathematics comes to the fore. This book dispels much of the mystery with its down to earth practical approach in presenting the various building blocks of electronics. Mathematics is limited to a basic understanding of Ohm's Law and a little calculus. Fourteen chapters covering amongst other subjects: amplification, thermionic valves, negative feedback, impedance matching, differential amplifiers, power supplies, integrated analogue and digital building blocks, pulse circuits and microcomputer circuits.
1985. 278 pages. 245 x 174mm, illustrated.

Best. nr. 07 1106 **Pris** 229.–

Compendium of Active Devices
An IEEIE Monograph

This monograph brings together in one volume concise definitions of the terminology and acronyms used in discrete semiconductor and integrated circuit technology.
Descriptions are given of specific device categories and families such as power rectifiers, transistors, logic elements, digital and analogue device technology, arrays, microprocessor, transputers and microwave devices. Individual appendices cover a listing of acronyms, British Standard letter symbols, elements and compounds, Alvey and ESPRIT IT/IKBS programmes and the Microelectronics Applications Project (MAP). The need to be able to lookup, quickly, the basic details of the language now used in semiconductor and IC technology has never been greater. This title volume will certainly mean the engineer is well briefed and has a basic insight into the device in question.
1987. 82 pages. 209 x 147mm, illustrated.

Best. nr. 07 1103 **Pris** 79.–

Electronic Signals and Systems
Television, Stereo, Satellite TV, Automotive
by Stan Prentiss

Understanding electronic signals is much more than just simply illustrating waveforms from selective sources and describing them. To fully define signal characteristics, you must also have a working knowledge of the equipment producing the signals.
This book presents a detailed study of signal analysis as it applies to the operation and signal generating capabilities of today's most advanced electronic devices, including: spectrum analysers, digital storage oscilloscopes, logic analysers, high-end multimeters, frequency counters, transmission coaxial cable, fibre-optics, AM and FM modulation, stereo multiplexing, vectors, television antennas; satellite earth terminals, data traffic, transponder waveforms, mono and stereo audio, harmonic distortion, stereo separation; and multiple analog satellite master antenna systems. Also covered are conventional distributors, fuel injection and turbo and superchargers. The book provides a fresh insight into both the commercial and consumer aspects of electronics that you won't find in any other volume.
1991. 325 pages. 235x 188mm, illustrated.

Best. nr. 07 1121 **Pris** 248.–

Preamplifier and Filter Circuits
by R.A. Penfold

This book provides both circuits and background information for a range of preamplifiers, together with tone controls, filters and mixers etc. The use of modern, low noise operational amplifiers and a specialist, high performance audio preamplifier IC results in designs having excellent performance but which are still quite simple. All the circuits featured can be built at quite low cost, in most cases, for just a few pounds. The preamplifier circuits include those for a wide range of microphones: magnetic cartridge pick-up preamplifiers with RIAA equalisation; crystal/ceramic cartridge pick-up preamplifiers; a guitar pick-up preamplifier and a cassette tape head preamplifier. The other circuits include an audio limiter; passive and active tone controls; PA highpass and lowpass filters; 'scratch' and 'rumble' filters; loudness control; audio mixers and volume and balance controls. In fact, everything you need to put together your own, custom preamplifier system.
No physical construction details are provided for the circuits, only the circuit diagrams, so the book is not suitable for absolute beginners. On the other hand the circuits are pretty simple, and you do not need much previous experience of project construction, in order to tackle them. Where appropriate any setting-up procedures and notes on any tricky aspects of construction are provided.
1991. 92 pages. 178 x 110mm, illustrated.

Best. nr. 07 1115 **Pris** 69.–

Electronics Sourcebook for Engineers
by George Loveday

This book is a sequence of concise explanatory texts arranged in alphabetical order. It is a guide to all the important topics in modern electronics. Each explanation is as self-contained as possible, but many cross-references are made to closely allied topics to help to establish the various interrelationships between the topics. Particular emphasis on component data and practical circuits.
1986. 294 pages. 245 x 185mm, illustrated.

Best. nr. 07 1109 **Pris** 248.–

Practical Electronic Filters
by Owen Bishop

Filters play a vital part in almost all electronic circuits, this book deals with the subject in a non-mathematical way. It reviews the main types of filter, explaining in simple terms how each type works and how it is used.
The book also presents a dozen filter-based, practical projects with applications in and around the home or in the constructor's workshop. These include a number of audio projects such as a rhythm sequencer and a multi-voiced electronic organ. Project descriptions include circuit diagrams, explanations of their operation, and detailed instructions for building them. A number of the projects are suited to the beginner while some will be of interest to the more advanced constructor. Concluding the book is a practical step-by-step guide to designing simple filters for a wide range of purposes, with circuit diagrams and worked examples.
1991. 104 pages. 178 x 111mm, illustrated.

Best. nr. 07 1112 **Pris** 89.–

Filter Handbook – A Practical Design Guide
by Stefan Niewiadomski

This book is a guide to electronic filter design and implementation, clearly written and without the enormous amount of mathematics usually found in books on this subject. With many outstanding features, the handbook covers passive and active filters, and contains computer programs to aid the design process. Outlines practical problems of implementing filters and how to overcome them, using simulation and measured results. Contains many working examples of filter designs for use at radio and audio frequencies. Explains the principles in a way that requires no advanced mathematical knowledge. Helps in the selection of the optimum filter response to meet a design requirement. Deals with the switched capacitor and switched resistor filters. Includes a useful catalogue of pre-calculated tables.
1989. 195 pages. 253 x 190mm, illustrated.

Best. nr. 07 1118 **Pris** 439.–

Electronic Systems and Techniques
by K. F. Ibrahim

Electronic Systems and Techniques

Covers the Level 2 and 3 syllabus of the BTEC and City and Guilds 224 Electronics Servicing course, but makes a useful reference guide for those interested in designing and building their own circuits. The book starts from the basic knowledge of Ohm's Law, waveform and generation technology, progressing to a sound understanding of electronic equipments. It is a good textbook for radio, television, audio and power generation, containing over 300 line drawings.
1987. 276 pages. 246 x 189mm, illustrated.

Best. nr. 07 1124 **Pris** 198.–

Power Control Circuits Manual
by R.M. Marston

Electronic Power Control techniques are used to control (either manually or automatically) the brilliance of lamps, the temperature of heating elements, the loudness of audio signals and so on. This control can be achieved using electro-mechanical means via switches and relays, or by electronic components such as transistors, SCR's, TRIAC's and power IC's. This book takes an in-depth look at the whole subject of electronic power control, and presents the reader with a vast range of useful circuits and diagrams. Subjects covered include basic principles, switch and relay circuits, CMOS switches and selectors, AC power control and DC power supply methods, and including audio power amplifiers and some used for in-car systems. The manual is primarily aimed at the electronics amateur/enthusiast.
1990, 206 pages, 214 x 136mm, illustrated.

Best. nr.
07 11 27

Pris
228.–

Superconductivity
by Jonathan L. Mayo

With the by-line 'The threshold of a new technology' and the statement 'The most revolutionary development in electronics technology since the transistor and laser', this book is written in an easy-to-follow terminology which covers the full spectrum of superconductivity and superconductive applications. This book explains the properties of superconductivity, describing what it is, what it can and cannot do, as well as its advantages and drawbacks. The most recent advances are included (high-temperature superconductivity) and a thorough history is provided to help you fully understand and appreciate the science. It discusses the present and future impact of the applications of superconductivity in the areas of: power systems – electric lines, generators, and motors; electronics – high density, high speed integrated circuits; science and medicine – containing fusion reactions and increasing the power of particle accelerators, and medical imaging systems; and transportation – electromagnetic trains and electric cars. It explores the future of superconductivity, including advanced research and applications, and governmental influences.
It also provides a comprehensive glossary of terms.
1988, 144 pages, 234 x 188mm, illustrated. American book.

Best. nr.
07 11 30

Pris
198.–

Electric Motors and Drives
by Austin Hughes

Radical changes have taken place over the last twenty years in the design and construction of electric motors and the means of driving them. For a hundred years or so, different kinds of motor have had to be designed for as many different purposes, as there was no easy way of achieving motor control; speed regulation under load has had to be done within the motor itself. Power electronics has changed all that with the thyristor (SCR) and the development of variable frequency inverters, with which single or three phase brushless induction motors can be controlled for speed. These developments resulted in the demise of many specialised motors as the emphasis has shifted from complexity within the actual motor to sophisticated control circuitry external to the motor. This book explores the many of the currently widely-used modern types of motor and electronic driving methods, including conventional and brushless DC, mains and inverter fed induction motors, stepping motors, mains and converter fed synchronous motors, and reluctance motors. Applications are deliberately spread throughout the text in order to emphasise the fact that there is no longer any automatic correlation between motor type and application. If you need to do anything with an electric motor you must read this super book first.
1990, 320 pages, 203x 135mm, illustrated.

Best. nr.
07 11 33

Pris
278.–

Electric Motors
by Jim Cox

This book sets out in simple terms the essential characteristics and operating limitations of the principle motor and generator types. The approach is essentially practical in nature with few calculations needing anything more than simple arithmetic, giving basic operation and installation information to the first time user.
The book shows you how to apply automotive, industrial and domestic motors in home-made applications, and identify their ratings, less common motor and generator types such as servo and stepper motors are included. Readily available in the surplus market, the unusual types can be extremely useful in special applications. The book includes data about motor starting systems, electronic speed control and motor braking.
1990, 134 pages, 209 x 148mm, illustrated.

Best. nr.
07 11 36

Pris
119.–

A Beginners Guide to Modern Electronic Components
by R.A. Penfold

The wide range of components available for use in modern electronics tends to baffle both newcomers and more seasoned users alike. This book tries to make life a little easier. The book describes the basic functions of components but is not an electronics text book. Instead of ideals with the practical aspects such as colour codes, deciphering code numbers and the suitability of components for given applications. Some of the components covered include Resistors (including Potentiometers), various types of capacitors, inductors, diodes (including Zeners and Varicaps). Transistors both silicon and germanium, opto electronic devices, operational amplifiers, logic integrated circuits, loudspeakers and microphones and meters. The book cleverly divides the components into Passive, semiconductors integrated circuits and The Rest which includes connectors, switches and multiway components. A useful index helps to be used in conjunction with the contents pages, but does enable much of the detail about components to be tracked down.
1990, 166 pages, 17.8 x 1.10mm, illustrated.

Best. nr.
07 11 39

Pris
68.–

Newnes Electronics Assembly Handbook
by Keith Brindley

This book is a fascinating insight into commercial electronics assembly techniques and considerations, and will be a source of inspiration and a guide to the amateur projects builder. The book covers electronics assembly to a depth which, the publisher believe, has not been seen in print before. Contents include an introduction to electronics assembly, PCB and surface mount assembly, electro-mechanical assembly, packaging, soldering, and quality testing, standardisation of manufacture and the worldwide standards, quality assurance, and an interesting chapter on the performance involved for a manufacturer seeking to secure the MoD as a customer.
1990, 350 pages, 250 x 195mm, illustrated, hard cover.

Best. nr.
07 11 45

Pris
598.–

Understanding Communications Systems
by Don L. Cannon and Gerald Luecke

An easy to understand look at the world of electronic communications. The book gives an overview of the types of circuits, the basic concepts of their operation and how they send and receive information. There is an in-depth look at AM/FM radio, TV, telephones, computers and even satellite systems. American book.
1991, 288 pages, 228 x 180mm, illustrated.

Best. nr.
07 11 48

Pris
298.–

Passive Components – A User's Guide
by R. Sinclair

'Passive' in this context is taken to include any component which is incapable of power amplification, rather than the narrower definition of resistors and capacitors only. Problems arising from an incomplete understanding of passives' include using resistors of insufficient heat dissipation rating, high-loss type capacitors being used in oscillator tuned circuits, and similar time and money wasting problems. Actually the intensive use of semi's and IC's has increased the vital importance that passive components have to play in establishing stable feedback loops and bias chains on which the overall performance of the circuit depends. The book covers the main passive components, their fundamental action, parameters, temperature variation, tolerance, stability, reliability, manufacturing methods and standards. An up-to-date and very educational book that you must read.
1990, 246 pages, 215 x 137mm, illustrated.

Best. nr.
07 11 42

Pris
259.–

How To Design Solid State Circuits
by Mannie Horowitz and Delton T. Horn

This revised book provides exact data on every aspect of semiconductor design; performance characteristics, applications, potential, operating reliability, and more! Four major categories of semiconductors are examined; diodes, transistors, integrated circuits, and thyristors. Discussion begins with devices made of individual semiconductors leading into a description of the semiconductor diode and its many functions in the modern circuit.
The DC bias and stabilisation conditions on bipolar and field-effect transistor (FET) devices are presented and the use of semiconductors in audio and radio-frequency (rf) amplifiers using a varying input signal are discussed. Emphasis is placed on digital-circuit design along with its many variations. Designs using both integrated circuits and discrete components are described. Discussions of silicon-controlled rectifiers and other lesser-known thyristors are also presented. New material covers additional semiconductors including zener diodes, tunnel diodes, light sensitive diodes, unijunction transistors, phototransistors, and microwave semiconductors. Ranging from simple temperature-sensitive resistors to integrated circuit units composed of multiple microcircuits, this book describes a host of the latest in solid state devices.
1988, 380 pages, 234 x 168mm, illustrated. American book.

Best. nr.
07 11 63

Pris
279.–

Telecom Circuits Data Book

After we have all got used to the introduction of the telephone, and the way in which it has changed our way of living, there is now a second telecommunications revolution going on – for what was once the exclusive purview of the electro-mechanical is now being pervaded by the electronic. This book contains all data and specifications for the latest integrated circuits and applications from Texas, covering the telephone set, exchange and switching, and signal transmission. The book also includes lots of information for designers.
1989, 530 pages, 211 x 149mm, illustrated.

Best. nr.
07 11 54

Pris
269.–

Understanding Data Communications
by George E. Friend, John L. Fike, H. Charles Baker, John C. Bellamy

Datacommunications – the transmission of words or symbols from a source to a destination – is no longer exclusive to the business world. You can learn the basic principles in this easy-to-understand book, and a whole lot more. Ten chapters cover basic concepts and fundamentals of transmission and reception, asynchronous and synchronous, protocols, error control & networking. Subjects include two wire and coaxial cable communication, waveguides, modems, fibre optics and satellite communication to name a few.
1988, 296 pages, 230 x 160mm, illustrated.

Best. nr.
07 11 57

Pris
298.–

Electronic Circuit Design Art and Practice
by T.H. O'Dell

The theme of this textbook is the practical element of electronic design. There is more to circuit design than a good theoretical foundation augmented by a considerable amount of laboratory experience. Where do new circuit ideas come from? This question is followed in the first chapter, and the discussion is maintained throughout the following eight chapters dealing with high and low frequency, small-signal amplifiers, optoelectronic circuits, digital circuits, oscillators, translinear circuits and power amplifiers. One or more experimental circuits are described in each chapter in detail for the reader to build, a total of thirteen project exercises in all. The last chapter draws some conclusions about the fundamental problem of design in the light of the circuits that have been dealt with in the book.
1988, 182 pages, 228 x 151mm, illustrated.

Best. nr.
07 11 80

Pris
198.–

Understanding Telephone Electronics
by Stephen J. Bigelow

This takes the reader step-by-step from the simplest explanation of telephonic principles through to an intermediate level of telecoms learning. It covers signalling, switching, digital types, modems and cordless telephones. American book.
1991, 363 pages, 235 x 188mm, illustrated.

Best. nr.
07 11 51

Pris
298.–

Digital Systems Design with Programmable Logic
by Martin Bolton

Programmable logic devices (PLD's) bring indispensible benefits in terms of speed, flexibility and reliability to digital systems design, and so the modern engineer needs to be familiar with the design principles of programmable logic. This book provides a clear and careful introduction to modern, structured digital systems design from a programmable logic perspective. Extensively covering synchronous and asynchronous techniques, a 'top-down', implementation-independent approach to design is taken throughout. Topics covered include extensive coverage of state machine design, an appendix listing all known PLD's, with each chapter, and a very comprehensive bibliography. An excellent introduction to programming logic for the practising professional and dabbling amateur alike.
1990, 384 pages, 240 x 160mm, illustrated, hard cover.

Best. nr.
07 11 66

Pris
396.–

DATA BOOKS

Newnes Radio & Electronics Engineer's Pocket Book
by Keith Brindley

An invaluable compendium of facts, figures and formulae, including common transistor and diode data and pin-outs, TTL and CMOS details, radio and TV frequencies, metric conversions, wire gauges and much, much more, plus a superbindex.
1989. 341 pages. 196 x 95mm, illustrated.

Best. nr.   Pris
07 11 78   175.–

Newnes Electronic Pocket Book
by E.A. Parr

The 5th edition of this pocket book now includes the latest aspects of semiconductor technology, namely LSI integrated circuits and microprocessors and their support chips, as well as operational amplifiers and communications devices. Commencing with electron theory, principles of thermionic valves and semiconductors, manufacture of semiconductor devices and ICs, the book goes on to illustrate essential circuit design for amplifiers and oscillators for most applications, AF and RF. A large proportion of the book is given over to digital techniques and computer systems and their construction, optoelectronics, servo and control mechanisms and power supplies. An invaluable reference book for the amateur and the engineer alike working with real electronic components in circuit and very readable.
1986. 327 pages. 196 x 95mm, illustrated.

Best. nr.   Pris
07 11 81   198.–

Everyday Electronics Data Book
by Mike Tooley BA

This book is an invaluable source of information and everyday reference in the world of electronics. It contains not only sections which deal with the essential theory of electronic circuits, but it also deals with a wide range of practical electronic applications. It is ideal for the hobbyist, student, technician and engineer. The information is presented in the form of a basic electronic 'recipe' book with numerous examples showing how theory can be put into practice using a range of commonly available industry standard components and devices. A must for everyone involved with electronics.
1990. 256 pages. 215 x 139mm, illustrated.

Best. nr.   Pris
07 11 84   159.–

EQUIVALENTS BOOKS

International Transistor Equivalents Guide
by Adrian Michaels

A listing of over 10,000 transistors from over 100 manufacturers around the world with equivalents and typical use of each type clearly shown.
1981. 320 pages. 180 x 108mm.

Best. nr.   Pris
07 11 72   68.–

Towers' International Transistor Selector Update 4
by T.D. Towers, MBE, BSc, C.Eng, MIERE

Knowing just the type number, readers can find voltage, current and power rating and other characteristics including case details, terminal identification, application and manufacturer of nearly 29,000 transistors of American, British, West and East European and Japanese origin along with possible substitutes. There is also a surface mount device cross index.
1990. 432 pages. 246 x 186mm.

Best. nr.   Pris
07 11 75   348.–

Electronic Power Supply Handbook
by Ian R. Sinclair

This book covers the often neglected topic of electronic power supplies. All types of supplies that are used for electronics purposes are covered in detail, starting with cells and batteries and extending by way of rectified supplies and linear stabilisers to modern switch-mode systems, IC switch-mode regulators, DC-DC converters and inverters.
The devices, their operating principles and typical circuits are all dealt with in detail. The action of rectifiers and the reservoir capacitor is emphasised, and the subject is all ironed out. The book includes some useful formulae for assessing the likely hum level of a conventional rectifier and reservoir supply. An invaluable book on an often neglected subject.
1990. 144 pages. 215 x 135mm, illustrated.

Best. nr.   Pris
07 11 69   139.–

Radio and Electronics Colour Codes and Data Chart

1971. Fold out sheet 584 x 458mm. Cover size 168 x 114mm.

Best. nr.   Pris
07 11 87   28.–

Chart of Radio Electronic Semiconductor and Logic Symbols
by M.H. Babani BSc(Eng)

1975. Fold-out sheet 635x445mm. Cover size 180 x 108mm.

Best. nr.   Pris
07 11 90   29.–

Practical Electronic Calculations & Formulae
by F.A. Wilson

This book aims to bridge the gap between complex technical theory and trial and error practical methods. It is in six sections: units and constants, DC circuits, passive components, AC circuits, networks and theorems, and measurements.
1981. 250 pages. 180 x 108mm.

Best. nr.   Pris
07 11 93   79.–

Further Practical Electronics Calculations and Formulae
by F.A. Wilson

A companion volume to the original reference book Practical Electronics Calculations and Formulae, this version continues on from where the other finishes. Where the first book deals with components, elementary circuit analysis, networks and measurements, this book encompasses many aspects of electronics where a knowledge and familiarity of the appropriate formula is essential for a fuller understanding of the subject, in order to achieve the desired results. Written in the same style as the first volume, but which it does not replace, this is a practical workshop manual.
1986. 450 pages. 178 x 110mm, illustrated.

Best. nr.   Pris
07 11 96   89.–

Master Handbook of Electronic Tables and Formulas
by Martin Clifford

This book is a fast, reliable and invaluable source of answers to the most common– and not so common– questions that are posed in everyday electronics. Completely revised, thoroughly updated, and greatly expanded edition of a classic reference used by thousands of hobbyists, technicians, and engineers. The book features all the latest developments in electronics technology and has been logically organised and fully indexed to give instant access to the formulas and vital component data needed when working on one electronic project. There is information on everything from resistance formulas, meter multipliers, and sine waves to capacitance, impedance vectors, decibels, and much, much more. A wide range of topics are covered, including microphones, magnetic data, modulation methods, filters, and analogue-to-digital and digital-to-analogue technology, as well as updated material on audio and video recording, antennas, TV broadcasting, computer logic and more. An indispensable reference book for hobbyists as well as professionals. American book.
1992. 566 pages. 235x 188mm, illustrated.

Best. nr.   Pris
07 11 99   348.–

Coil Design and Construction Manual
by B.B. Babani

1960 (Revised 1974). 106 pages. 180 x 108mm, illustrated.

Best. nr.   Pris
07 12 02   49.–

INTEGRATED CIRCUIT DATA BOOKS

Audio IC Circuits Manual
by R. M. Marston

A vast range of audio and audio-associated ICs are readily available for use by amateur and professional design engineers and technicians. This manual is a guide to the most popular and useful of these devices, with over 240 diagrams. It deals with ICs such as low frequency linear amplifiers, dual preamplifiers, audio power amplifiers, charge coupled device delay lines, bargraph display drivers, and power supply regulators, and shows how to use these devices in circuits ranging from simple signal conditioners and filters to complex graphic equalisers, stereo amplifier systems, and echo reverb delay line systems, etc. This book deals with its subject matter in an easy-to-read and non-mathematical manner, presenting the reader with many practical applications and circuits. It is specifically written for the practical design

engineer, technician, and the experimenter, as well as electronics students and amateurs. Most of the ICs and other devices used in the practical circuits are modestly priced and readily available types, with universally recognised type numbers.
1989. 168 pages. 260x 135mm, illustrated.

Best. nr.   Pris
07 12 05   229.–

Linear Circuits for Design Engineers Vol. 1.
Texas Instruments

Full data sheets covering TI's range of op-amps and voltage comparators. Op-amps covered in detail include LM301, LT1028, MC3403, NE5532, OP07, TL071 and over 15 others from our range. Voltage comparators covered include LM311, LM393 and many more. Many of the data sheets include detailed applications data, performance characteristics and in fact, just about everything the design engineer or hobbyist needs to know about each device.
1989. 1016 pages, 210 x 150mm, illustrated.

Best. nr.   Pris
07 12 08   198.–

Linear Circuits for Design Engineers Vol. 2.
Texas Instruments

Full data sheets covering TI's range of Voltage Regulators, D/A and A/D Converters and Special Functions. These include LM2917, NE555, TLC555, LM317, LM337, μA78 and μ79 series, ADC0820 and many more. Many of the data sheets include detailed applications data, performance characteristics and in fact, just about everything the design engineer or hobbyist needs to know about each device.
1989. 718 pages. 210 x 148mm, illustrated.

Best. nr.   Pris
07 12 11   139.–

TTL Pocket Guide
Volume 1:
74001 to 74200

Provides a comprehensive listing of all commonly used TTL ICs from 74001 to 74200 as available from all the major manufacturers. All the current families: Standard, Low Power, Schottky, Low Power Schottky, Advanced Schottky, Advanced Low Power Schottky, High Speed and Fast Schottky are covered. The Pocket Guide extracts all the essential data from the manufacturers' own data books and presents in a clear and concise format and is invaluable as an aid to choosing a device or identifying an unfamiliar component.
English translation of the German original.
1990. 288 pages. 185 x 105mm, illustrated.

Best. nr.   Pris
07 12 14   179.–

TTL Pocket Guide
Volume 2:
74201 to 74640

This is the second volume of the TTL pocket guide providing a comprehensive listing of all commonly used TTL integrated circuits, including products from all major manufacturers. All the current families are covered, i.e. standard, low power, Schottky, low power Schottky, advanced Schottky, advanced low power Schottky, high speed and fast Schottky. The guide is easy to use in both format and content. Each page extracts one component only and is divided into eight sections. There is a manufacturer's index at the back of the book, showing in tabular form which companies manufacture each device. The guide extracts all the essential data from the manufacturers' own data books and presents it in a clear and concise format. This book will replace all your loose, vagrant, dog-eared data sheets, and are as crucial to logic circuit design as they are for identifying unknown devices and describing what they are doing in a circuit.
English translation of the German original.
1991. 348 pages, 185 x 105mm, illustrated.

Best. nr.   Pris
07 12 17   179.–

TTL Pocket Guide
Volume 3:
74641-7430640

This is the third and final volume of three guides providing a comprehensive listing of all commonly used TTL integrated circuits, including TTL products from all major manufacturers. All current families are covered: Standard, Low Power, Schottky, Low Power Schottky, Advanced Low Power Schottky, High Speed and Fast Schottky. In format and content, the TTL Pocket Guide is easy to use. Each page describes one component only and is divided into eight sections. The first section illustrates the device schematically using a clear and simple logic diagram of the internal structure of the device. A brief description follows, providing quick reference to the internal structure. The next section provides details on the operation of the device, describing the input signals or levels at individual pins, and thereby showing how the device is controlled and what its outputs are. The fourth section lists major applications, followed by a summary of essential data. Below this, a table indicates the TTL families in which the device is available and, finally, the device description and type number are highlighted for easy reference. The guide extracts all the essential information from the manufacturers' own data books and presents in a clear and concise format. English translation of the German original.
1991. 320 pages. 185 x 105mm, illustrated.

Best. nr.   Pris
07 12 20   179.–

The TTL Data Book, Volume 1
Texas Instruments

Full data sheets covering TI's very large range of TTL, Schottky and Low Power Schottky IC's. Contains internal circuits, pin-out diagrams and specifications of over 400 device types.
American book.
1989. 1184 pages. 210 x 148mm, illustrated.

Best. nr. 07 12 23
Pris 269.-

The TTL Data Book, Volume 2
Texas Instruments

using a clean and simple logic diagram of the internal structure of the component within its pin-out diagram. The next section contains a brief description of the device, followed by full details on operating it, describing input signals and levels at individual pins. This indicates how the device is controlled, and its resulting output signals. The fourth section lists major applications, while the next two sections contain essential data for that particular device in abbreviated form, and a list of relevant manufacturers. The last two sections contain the device name and number, highlighted for easy reference.

As with its forerunners, the guide extracts all the essential data from the manufacturers' own data books and presents it in a clear and concise format. Translated from the German original.
1991. 314 pages. 185 x 105mm, illustrated.

Best. nr. 07 12 26
Pris 269.-

High Speed CMOS Logic Data Book
Texas Instruments

This comprehensive volume lists all types of high-speed silicon-gate HCMOS family currently in common use. Information includes parameter and function tables, pin-outs, logic symbols and internal logic diagrams, and tips on device interfacing and applications for designers.
1991. 928 pages. 210 x 148mm, illustrated.

Best. nr. 07 12 38
Pris 219.-

HCMOS Pocket Guide
NEW

Yet another in the this series of IC pocket guides covers all the commonly used HCMOS special devices currently available. It also sticks to the format and layout which has become a trademark of this series of books, which follows a clear and easy style with one device per complete page. Data which applies to the HCMOS series as a whole is not repeated for every device, but is presented in an introductory section. Each page describes one device only and is divided into eight sections.

The first section illustrates the device schematic using a clean and simple logic diagram of the internal structure of the device, with any external components shown outside the package outline where necessary. The next section contains a brief description of the component and is followed by full details on operating the device, describing input signals and levels at individual pins. This shows how the device is controlled and its resulting output signals. The fourth section lists the major applications, while the next two sections contain essential data for that particular device in abbreviated form, and a list of the relevant manufacturers. The last two sections contain the device name and number, highlighted for easy reference.

The guide extracts all the essential information from the manufacturers' own data books and presents it in a clear and concise format. As space within the package outline is limited for diagrams, the internal schematic is necessarily simplified as far as possible and in block form. This may mean that in some instances the proper circuit symbols could not be used. Translated from the German original.
1992. 331 pages. 185x 105mm, illustrated.

Best. nr. 07 12 35
Pris 179.-

CMOS Pocket Guide
Volume 1:
Standard 4000 series

Provides a comprehensive listing of all commonly used 4000 series CMOS logic IC's available from all the major manufacturers. The Pocket Guide extracts all the essential data from the manufacturers' own data books and presents it in a clear and concise format, and is invaluable as an aid to choosing a device or identifying an unfamiliar component. English translation of the German original.
1991. 234 pages, 185 x 105mm, illustrated.

Best. nr. 07 12 29
Pris 179.-

CMOS Pocket Guide
Volume 2:
AD-7501 to 45434
NEW

The CMOS Pocket Guide Volume 2 special components cover all the commonly used special devices currently on the market. The guide, as with others in the series, is clear and easy to use. Datawhich applies to the CMOS series as a whole is not repeated for every device. It is presented in an introductory section. Each page describes one component only and is divided into eight sections.
The first section illustrates the device schematic

INTEGRATED CIRCUIT HANDBOOKS

How to Identify Unmarked IC's
by K.H. Recor

The chart shows how to plot the 'signature' of an unmarked IC. This should then enable the IC to be identified with reference to manufacturers' or other data to be used in a specific application, without actually assigning a type number.
1982. Fold-out sheet 640 x 450mm. Cover size 176 x 120mm.

Best. nr. 07 12 50
Pris 29.-

Operational Amplifiers
by G.B. Clayton, BSc, FInstP.

Provides an insight into the capabilities of modern operational amplifiers, and also discusses in detail the problems encountered in practical applications.
1979. 416 pages. 222 x 145mm. illustrated, hardback.

Best. nr. 07 12 53
Pris 388.-

How to Use Op-Amps
by E.A. Parr

This designers guide covering many operational amps serves as a source book of circuits and a reference book for design calculations. The book covers basic circuits, oscillators, audio circuits, filters, power supplies, and a large selection of miscellaneous circuits. There is also a short section of constructional notes and fault finding details.
1982. 160 pages 176 x 110mm, illustrated.

Best. nr. 07 12 56
Pris 59.-

The Bifet Design Manual
Texas Instruments

A design reference manual for a wide range of analogue circuit and system designs using the TL series of Bipolar-JFET op-amps. The book includes full circuit diagrams, design equations and operation details on a wide range of applications, including, amplification, sampling, filter and oscillator circuits.
1985. 96 pages. 210 x 148mm, illustrated.

Best. nr. 07 12 59
Pris 79.-

Z80 Family Data Book

Contains full data sheets for the CPU, PIO, DMA CTC, DART, GLU, MPU and SIO. The book also contains over 125 pages of applications information.
American book.
1991. 750 pages. 228 x 178mm, illustrated.

Best. nr. 07 12 41
Pris 129.-

The MOS Memory Data Book

Full data sheets for TI's range of dynamic RAM's, EPROM's, ROM's and memory systems. An inter-changeability guide is included. American book.
1991. 1016 pages. 235 x 190mm, illustrated

Best. nr. 07 12 44
Pris 219.-

The Interface Circuits Data Book

Full data sheets for TI's range of data transmission and control circuits, peripheral drivers, power actuators and display drivers. Contains internal circuits, pin-out diagrams and specifications of over 275 device types.
1990. 1376 pages. 214 x 150mm. illustrated.

Best. nr. 07 12 47
Pris 258.-

CONSTRUCTOR GUIDES

How to Design and Make Your Own PCB's
by R.A. Penfold

This book should enable you to familiarise yourself with both the simple and more sophisticated methods of producing PCB's. The emphasis is very much on the practical aspects of design and construction, and is highly recommended to all newcomers to electronics.
1983. 66 pages. 177 x 110mm, illustrated.

Best. nr. 07 12 74
Pris 49.-

Practical Electronics Handbook
by Ian Sinclair

An excellent handbook for the constructor ranging from resistor colour codes to simple transistor circuit building blocks. An invaluable reference book for everyone from beginners to professional engineers. Covers passive and active discrete components, circuits, linear and digital IC's and TTL and CMOS pinouts.
1988. 224 pages. 216 x 138mm, illustrated.

Best. nr. 07 12 77
Pris 229.-

Introducing Amateur Electronics
by Ian R. Sinclair

Designed as an introductory text for anyone wanting to build electronic projects, the book assumes no previous knowledge and teaches the skills of constructing electronic circuits. Details of a number of actual practical experiments are given showing how components work and behave.
1981. 96 pages. 216 x 138mm, illustrated.

Best. nr. 07 12 80
Pris 98.-

Beginner's Guide to Building Electronic Projects
by R.A. Penfold

This book will help the complete beginner to tackle the projects in the popular magazines with confidence. Covers component identification, tools, soldering, constructional methods, cases, legends, etc.
1977. 108 pages. 180 x 106mm, illustrated.

Best. nr. 07 12 83
Pris 39.-

Op-Amp Circuits Manual
by R. M. Marston

One of the most popular and versatile building blocks of our time is the operational amplifier or op-amp. The 'standard' type is generally the most familiar, but you will also find described in this book the less well-known 'Norton' and OTA types. In addition a total of over 300 practical circuits, with diagrams and tables, are provided for the practical design engineer, technician and experimenter alike.
1989. 211 pages. 215 x 138mm, illustrated.

Best. nr. 07 12 62
Pris 229.-

Linear and Interface Circuit Applications Volume 1
by D.E. Pippenger and E.J. Tobaben

The first is a series of books showing applications using Texas Instruments' linear integrated circuits. This book covers op-amps and comparators, video amplifiers, voltage regulators, switching power supplies, power supply supervision and protection and timers. The book shows complete designs and how to design your own circuits in great detail.
1986. 312 pages. 210 x 148mm, illustrated.

Best. nr. 07 12 65
Pris 148.-

Linear and Interface Circuit Applications Volume 2
by D.E. Pippenger and E.J. Tobaben

In part two, display drivers for LED's, DC and AC plasma, vacuum fluorescent and AC thin film electroluminescent display drivers from Texas Instruments are covered. The remaining half of the book shows circuits and design parameters for data transmission line circuits including RS232C, RS423A, RS422A and RS485, IEEE488, IBM360/370series and general purpose line circuits are also discussed.
1986. 216 pages. 210 x 148mm, illustrated.

Best. nr. 07 12 68
Pris 148.-

A Practical Introduction to Digital IC's
by D.W. Easterling

Besides a number of simple and complex projects, the book contains full construction details of a test set that will enable the reader to identify and test TTL IC's.
1977. 76 pages. 180 x 108mm, illustrated.

Best. nr. 07 12 71
Pris 49.-

How to Get Your Electronic Projects Working
by R. A. Penfold

We have all built circuits from magazines and books only to find that they do not work correctly, or at all, when first switched on.
Chapter 1 deals with mechanical faults and describes construction of a tri-state continuity tester.
Chapter 2 deals with linear analogue circuits and describes construction of a signal injector.
Chapter 3 shows how to check common components with the aid of only a limited amount of test gear.
Chapter 4 deals with TTL and CMOS circuits and includes construction details of a pulse generator.
1982. 96 pages. 178 x 110mm, illustrated.

Best. nr. 07 12 86   **Pris** 49.–

Getting the Most from your Multimeter
by R. A. Penfold

The first piece of test equipment that most electronic hobbyists normally buy is a multimeter, probably because it is one of the least expensive items and, also if you know how to use it properly, one of the most useful.
The basics of analogue and digital multimeters are covered, discussing their relative merits and limitations. Various methods of component checking are described, including tests for transistors, thyristors, resistors, capacitors and diodes. Circuit testing is also covered with subjects such as voltage, current and continuity checks. Using these simple techniques the reader should be able to confidently tackle servicing of most equipment.
1988. 102 pages. 178 x 111mm, illustrated.

Best. nr. 07 12 89   **Pris** 59.–

More Advanced Uses of the Multimeter
by R. A. Penfold

This book is primarily intended as a follow-up to *Getting The Most From Your Multimeter* and also anyone who already understands the basics of voltage testing and simple component testing. Thoroughly testing some components requires specialised and expensive equipment. In some cases there would not seem to be equipment of the right type available at any price. By using the techniques described, you can test and analyse the performance of a range of components. Designs for simple add-ons are given to make the multimeter even more useful: An active RF probe, a high resistance probe, an AC sensitivity booster and a current tracer.
1989. 96 pages. 178 x 112mm, illustrated.

Best. nr. 07 12 92   **Pris** 59.–

How to Use Oscilloscopes and Other Test Equipment
by R. A. Penfold

Advances in electronics over recent years have brought some quite advanced pieces of test equipment within the scope of many electronics hobbyists. Whether building your own or buying ready made equipment, you no longer need to be a millionaire in order to afford signal generators, digital measuring equipment, or an oscilloscope having a fair specification! But how can you be sure about using such equipment properly? Not all test equipment is simple, and oscilloscopes in particular tend to have vast numbers of knobs and switches which are a bit daunting for the uninitiated, but mastering a workshop oscilloscope is not really too difficult. This book explains the basic function of an oscilloscope giving detailed explanation of all the standard controls, with advice on choosing an oscilloscope. A separate chapter deals with using the instrument for fault finding both linear and logic circuits, with plenty of example waveforms. The function and used various other pieces of test equipment are also covered, including signal generators, logic probes, logic pulsers, and crystal calibrators.
1989. 104 pages. 179 x 110mm, illustrated.

Best. nr. 07 12 95   **Pris** 69.–

Oscilloscopes
How to Use Them. How They Work
Third Edition
by Ian Hickman

Oscilloscopes are essential tools for checking circuit operation and diagnosing faults. But an enormous range of different models is available, and choosing an instrument suitable for your needs never has been easy, particularly for the hobbyist beginner.
This extensively enlarged edition of this book now includes new material on storage CRTs, DSOs (Digital Storage Oscilloscopes), sampling oscilloscopes, oscillographs, X-Y, X-T and X-Y-T plotters, both stand alone and as existing oscilloscope accessories: UV recorders, laser recorders, and use of dot matrix printers as output devices. In this case PCs are used with plug-in oscilloscope and logic analyser cards. There is also additional material on network analysers, intrinsically safe oscilloscopes, display oscilloscopes and fibre-optic TDRs. A new appendix covers the considerations relating to achievable measurement accuracy in various types of oscilloscope voltage, time, frequency, rise-time etc.; electronic cursors, coupled DVMs etc.
This is not intended to be a textbook of any sort, and certainly does not include any constructional details for building your own oscilloscope, but it is educational for anyone not familiar with the now great variety of these instruments and their capabilities.
1990. 255 pages. 215 x 138mm, illustrated.

Best. nr. 07 12 98   **Pris** 259.–

Electronic Test Equipment Handbook
by Steve Money

In this book the principles of the various types of test instrument are explained in simple terms with a minimum of mathematics.
The hobbyist's biggest problem is most probably that, unlike his professional counterpart in the industry, he does not have ready access to a vast armoury of sophisticated or otherwise test and measurement instruments, but test gear of some description is, as experience will show, vital even for the most modest home-brewed circuit. The problem is going to be what to choose given a limited budget. Here you will find described a wide selection of test instruments ranging in complexity from the humble continuity tester through analogue and digital multimeters to the next most popular item, the oscilloscope, followed by signal generators and finishing with computer controlled testing equipment.
1990. 206 pages. 216 x 134mm, illustrated.

Best. nr. 07 13 01   **Pris** 159.–

BOOKS FOR BEGINNERS

Introduction to Electronics
by Pam Beasant

This book is an introduction to the basic principles of electronics, and ideal for the younger beginner. The bulk of the book comprises many simple, practical experiments. Each experiment is designed to illustrate an important principle of electronics and demonstrate how each different component works. This ranges from the very basic through transistors, use of tools and soldering.
1990. 48 pages. 240 x 170mm, illustrated in colour.

Best. nr. 07 13 04   **Pris** 89.–

200 Illustrated Science Experiments for Children
by Robert J. Brown

This book is a fascinating collection of science experiments suitable for children of all ages. An ideal source book for parents, teachers and anyone who is fascinated with the wonders of science. The experiments cover air, sound, vibration, water, mechanics, chemistry, light, heat, biology, electricity and magnetism. The book is designed to make learning basics scientific principles exciting and fun – a good way to introduce youngsters of all ages to the world of science.
N.B. Many of the experiments MUST be performed under strict adult supervision since electricity, chemicals and heat are involved. American book.
1987. 190 pages. 210 x 130mm, illustrated.

Best. nr. 07 13 07   **Pris** 148.–

Mastering Electronics
by John Watson

A comprehensive handbook containing all the essential information required to learn and master the principles of electronics. Arranged as a complete self-contained course, for individual or classroom use, it includes basic theory as well as more advanced subjects such as Radio & TV, computers etc. Tested projects are featured to provide the reader with practical experience. This reasonably priced book is recommended for the beginner in electronics.
1991. 441 pages. 215 x 135mm, illustrated.

Best. nr. 07 13 10   **Pris** 129.–

Electronics – Build and Learn
2nd Edition
by R. A. Penfold

Electronics is a practical subject, but a certain amount of theoretical knowledge is necessary if you are to become proficient in it. This book combines theory and practice so that you can 'learn by doing'. Full constructional details of a circuit demonstrator unit are given which is used in subsequent chapters to introduce common electronic components. Later chapters describe how these components are built into useful circuits, oscillators, bistables and logic circuits. At every stage there are practical tests and experiments that you can carry out to investigate the points described and to help you understand the principles involved.
1988. 110 pages. 216 x 138mm, illustrated.

Best. nr. 07 13 13   **Pris** 98.–

Electronics in Practice
by M. P. Horsey

A practical introduction to electronics in which the reader is encouraged to start building circuits immediately. Instructions are given for constructing circuits on both breadboard and stripboard. Simple devices, such as a steady-hand tester, are dealt with initially. More complicated projects such as building an electronic organ, are then described before the introduction of logic integrated circuits and computer interfacing. This book contains theory appropriate to GCSE physics, but could also be used in electronics and CDT classes. The practical approach makes this a very suitable manual for TVE I and other vocational courses.
1988. 138 pages. 275 x 215mm, illustrated.

Best. nr. 07 13 16   **Pris** 129.–

Adventures with Electronics
by Tom Duncan

To start you don't need to know anything about electronics. But by the end of this book, you will find that you have learned quite a bit about this vital area of modern science and industry.
The bits and pieces needed for making all these models can be bought inexpensively as a complete kit, or you can search for them separately at radio hobby shops. Full details are given of both methods. All no soldering is required, which will be especially good news for beginners. Projects include a parking light, rain detector, fire alarm, flashing lamp, morse buzzer, burglar alarm, electronic organ, electronic metronome, wailing siren, intercom, three types of radio, electronic timer, and a (binary) 'computer counter'.
1978. 64 pages. 246 x 190mm, illustrated.

Best. nr. 07 13 19   **Pris** 129.–

Adventures with Micro-Electronics
by Tom Duncan

This superb book is the ideal introduction to electronics as a hobby for children and adults. No soldering is required and you will learn about electronics while building a two-tone doorbell, warbling-wailing siren two octave electronic organ, pulsed flashing lamp, light operated alarm, electronic dice, traffic lights, pulsed bleeper, four-bit binary counter, reaction timer and a medium wave/long wave radio. The circuit use the very latest CMOS IC's and components may be used over and over again.
1979. 64 pages. 245 x 188mm, illustrated in two colours.

Best. nr. 07 13 22   **Pris** 98.–

Adventures with Digital Electronics
by Tom Duncan

This book of entertaining and instructive projects is designed for students in schools and colleges, and also for hobbyists and electronics club enthusiasts. It is a follow-up to *Adventures with Microelectronics* and provides a stepping-stone to the microprocessor. A first part deals with the properties of some basic chips used in digital electronics such as logic gates, multivibrators, flip-flops, counters, shift registers, memories, adders, magnitude comparators, code converters and displays. The second part gives details of how to build eight devices – an electronic shooting gallery, quiz-game switches, an electronic fruit machine, computer space invaders game, two types of two-way traffic lights, pedestrian crossing signals and an electronic adder. For each project there is an explanation of

'how it works and also suggestions for things to try. Construction is on two standard circuit boards (no soldering required), using a 9V battery as the power supply.
1982. 64 pages. 245 x 188mm, illustrated.

Best. nr. 07 13 25   **Pris** 98.–

Digital Electronics Projects for Beginners
by Owen Bishop

Contains 12 digital electronics projects suitable for the beginner to build with the minimum of equipment. Aimed at newcomers to electronics construction with full construction details – learn about electronics as you solder! The projects cover a wide range of topics from instrumentation to home security, and a few 'fun' projects as well. With just one exception, all the projects are battery powered, and so are completely safe for the beginner. The introductory chapter and the detailed explanations of the working of each project make this not just a book of practical, useful projects, but also an introduction to the simplest basic theory and applications of digital electronics, a good foundation of understanding on which to expand. Each project is provided with a circuit diagram, a drawing of the stripboard layout (all the projects are assembled on stripboard, which will teach you a lot about component layout, unlike a ready-made PCB), and full construction details complete with instructions for testing the circuit at each stage. Each description ends with a list of the components required, all of which are readily obtainable. The appendix explains how to solder and how to build circuits on stripboard.
1990. 120 pages. 216 x 138mm, illustrated.

Best. nr. 07 13 28   **Pris** 98.–

30 Solderless Breadboard Projects Book 1
by R. A. Penfold

An ideal book for beginners because all the components used are carefully described in a 20 page section at the beginning. The projects can all be built on a Veroboc and wherever possible the components are common to several projects. Thus it is possible, with a small number of relatively inexpensive components, to build in turn every project shown.
1982. 160 pages. 178 x 110, illustrated.

Best. nr. 07 13 31   **Pris** 59.–

Electronic Circuits for the Computer Control of Model Railways
by R.A. Penfold

Modern home computers may easily be applied to the control of model railway layouts offering quite sophisticated automatic control and authentic timetable simulations which would be very complex to do using purpose built control logic, which this book shows you how to do.
The projects comprise various designs of controllers, train position sensors and signals and points control circuitry.
1987. 88 pages. 178 x 111mm, illustrated.

Best. nr. 07 13 82

Pris 59.–

Real-Life Scenic Techniques for Model Railroaders
by Carl Caiati

NEW

If you are a model railway enthusiast who will not settle for the ordinary, run-of-the-mill layout, then this complete, step-by-step guide is for you. It opens the door to hundreds of tips, hints, and techniques for creating elaborate, multi-level scenic layouts that are accurate to every last detail. The book, backed by numerous photos and drawings, describes in detail how to create scenic backdrops, mountains, tunnels, terrain, trees, foliage, fences, and water that will make your layout approach state-of-the-art realism. Whether you want your trackwork to look rustic and weathered, modern and industrial, or all natural, you will find all the instructions you need in this invaluable guide. The book includes information on the tools and materials used in scenic construction, scratchbuilding and superdetailing; table fabrication; types of trackwork; kitbashing; building wooden, stone and steel bridges; couplers; making trees (packaged or from scratch). The modeler will learn how to work with plastic sheeting, wood, cardboard, plaster of paris, car body filler and many other materials that are readily available.
American Book. 1987. 176 pages. 233 x 188mm, illustrated.

Best. nr. 07 13 85

Pris 198.–

More Advanced Power Supply Projects
by R.A. Penfold

This book is the companion volume to 'Power Supply Projects' and should be of interest to any one who has a reasonable knowledge of power supply basics and would like to learn about recent developments and more advanced designs.
The practical and theoretical aspects of the circuits are covered in some detail, and the reader is recommended to have an in-depth knowledge of electronic circuit design. However it is recommended that anyone who is not familiar with the fundamentals of power supply design and operation should obtain the introductory book first. Topics covered include switched mode power supplies, precision regulators, dual tracking regulators and computer controlled supplies.
1988. 92 pages. 178 x 111mm, illustrated.

Best. nr. 07 13 73

Pris 59.–

50 Projects Using Relays, SCR's and Triacs
by F.G. Rayer

Includes circuits of model train controllers, timers, auto emergency light, alarms, drill speed controller and many more.
1977. 102 pages.
180 x 108mm, illustrated.

Best. nr. 07 13 61

Pris 59.–

Electronic Games
by R.A. Penfold

Circuits for 19 different games including noughts and crosses, combination lock game, electronic roulette, one-armed bandit, snap indicator, electronic die etc. All the projects are inexpensive and easy to construct.
1980. 96 pages.
180 x 108mm, illustrated.

Best. nr. 07 13 64

Pris 48.–

Cost-Effective Electronic Construction
by John Watson

Originally printed under the title 'Cost-Effective Projects around the Home,' this revised edition contains 10 detailed projects with full circuit descriptions, automatic porch light, TV switch off, drill speed controller, counter and display, stereophoner, xenon strobe, ray gun, freezer/boiler alarm, computer I/O port, radio control system. In addition these are many simple but useful building block type circuits. One major project is for a complete multi-channel radio control system, using linear and CMOS IC's wherever possible for compactness.
1985. 142 pages. 215 x 137mm, illustrated.

Best. nr. 07 13 76

Pris 179.–

Model Railway Projects
by R.A. Penfold

Contains complete circuit and construction details of a number of different model train controllers and accessories. The accessories include a point controller, automatic signal, signal controller and various sound effects.
1981. 112 pages. 175 x 111mm, illustrated.

Best. nr. 07 13 79

Pris 59.–

Electronic Modules and Systems for Beginners
by Owen Bishop

Forget having to 're-invent the wheel' as it were, and design electronic systems using already established and developed circuit designs. Many oscillators, bistables, monostables and amplifier stages use time honoured techniques that are known to work. This book describes over 60 electronic circuit modules; how they work, how to build them and how to use them. In the process of working with these 'building blocks' you will learn the basic fundamentals of many established designs. Many modern electronics engineers are systems, not circuit, designers. Become such a systems 'designer' and combine the modules together to make hundreds of different electronic systems; both analogue and digital. To show you how over 25 actual electronic systems are described in detail, covering such diverse applications as timing, home security, measurement, audio, including a simple radio receiver, games and remote control. Although a book aimed at beginners, introducing the principles and practice of electronics, there are plenty of circuit ideas for the more experienced constructor too.
1989. 208 pages. 178 x 110mm, illustrated.

Best. nr. 07 13 43

Pris 79.–

Popular Electronic Projects
by R.A. Penfold

A selection of the most popular projects, 27 in all, divided into four sections.
Radio projects including MW radio, MW/LW radio, short wave converter and receiver, and radio control equipment. Audio projects including pre-amps, 10W power amp, filters and a mixer. Household projects including intercom and metal detector. Test equipment projects including a voltmeter, transistor tester and AF signal generator.
1978. 136 pages. 180 x 108mm, illustrated.

Best. nr. 07 13 48

Pris 48.–

Popular Electronic Circuits Book 1
by R.A. Penfold

Contains 73 projects to build with circuit and short text giving a brief introduction, circuit description and any special notes on construction and setting up. Chapter headings are: audio circuits; project circuits; and miscellaneous circuits. Not suitable for the absolute beginner.
1980. 150 pages. 180 x 108mm, illustrated.

Best. nr. 07 13 49

Pris 59.–

Popular Electronic Circuits Book 2
by R.A. Penfold

A further 73 projects to build covering a wide range of subjects. Chapter headings are: audio circuits, test gear circuits, radio circuits, house and car circuits and miscellaneous circuits. The book is suitable for those capable of building projects from just a circuit diagram, although a description of how it works and any testing or setting up information is given.
1982. 146 pages. 180 x 108mm, illustrated.

Best. nr. 07 13 52

Pris 59.–

From the 'Drawing Board' to Finished Project
by the editors of Radio-Electronics magazine

The projects assembled here have all been drawn from the popular "New Ideas", "Drawing Board", "Designer's Notebook" and "State of Solid State" articles as featured in *Radio-Electronics* magazine. Here you will discover dozens of unique and helpful ideas from electronics professionals and hobbyists alike. You will also find many fun and practical experiments and projects that you can build or modify to suit your own needs. Not just a compilation of articles or a collection of projects, this is an invaluable reference of expert electronic information that can benefit the casual or professional in electronics, whether it be audio, computers or automobile. Some of the useful and informative articles presented in this volume include: automobile (car) locator, broadcast-band RF amplifier, audio overload protection, ultrasonic pest repeller, add-on Scope multiplexer, proximity power switch, car theft protection, schmitt trigger designs, fibreoptic communications, precision rectifiers, single-chip sync/sweep circuits, frequency-boundary detectors, and more. American book.
1989. 160 pages. 235 x 185mm, illustrated.

Best. nr. 07 13 55

Pris 179.–

Mini-Matrix Board Projects
by R.A. Penfold

A selection of twenty useful and interesting circuits any of which can be built on a small Veroboard type 14354 (FL06G). Projects include a MW radio, guitar headphone amp, transistor checker, microphone amp, aerial booster, kitchen timer, baby alarm, touch switch, automatic signal, magnetic lock and 10 more.
1982. 112 pages. 178 x 110mm, illustrated.

Best. nr. 07 13 58

Pris 48.–

Remote Control Handbook
by Owen Bishop

This book includes many new circuits which have never been published before. There are circuits for interfacing to computers, use of fibre-optics and for using the domestic mains supply as a means of transmission. There are also circuits for frequency to voltage conversion and voltage to frequency conversion. In this book the circuits have been designed as far as possible, to be modular in concept, i.e., they can all be linked together in many different configurations to produce exactly the type of remote control system to suit the individual taste. Whatever type of system you require this book has a great deal to offer.
1988. 226 pages. 178 x 111mm, illustrated.

Best. nr. 07 13 67

Pris 79.–

Power Supply Projects
by R.A. Penfold

Gives details of stabilised, unstabilised, fixed and variable power supplies and explains how to design your own power supplies. There are also circuits for train controller, ni-cad charger, electronic fuse, shaver inverter and others.
1980. 96 pages. 180 x 108mm, illustrated.

Best. nr. 07 13 70

Pris 49.–

30 Solderless Breadboard Projects Book 2
by R.A. Penfold

As in Book 1 all the projects are built on Verobloc. However, in this book CMOS logic circuits are used where linear IC's were used in Book 1. Absolute beginners must start with Book 1, but this is an ideal follow-on text.
1983. 160 pages.
178 x 110mm, illustrated.

Best. nr. 07 13 34

Pris 48.–

The Maplin Electronic Circuits Handbook
by Michael Tooley

Welcome to the world of electronic circuit design! Whether you are an engineer, technician, student or enthusiast working at home, this book is for you. It aims to explode two popular myths – that only those with many years of experience should undertake circuit design, and that it requires advanced mathematics. Unless you are a very ambitious neither of these is true. The book contains a unique collection of practical working circuits together with supporting information so that circuits can be produced in the shortest possible time and without recourse to theory. The circuits have been thoroughly tested and, wherever possible, a range of commonly available, low-cost components is used. The circuits can be readily modified and extended by the reader to meet his or her own application. Related circuits are grouped together and cross referenced within the text and an index, identify any which common topic can be inter-connected and produce more complex systems. As far as possible a common range of supply voltages, signal levels and impedances have been adopted. The book assumes that the reader has an elementary understanding of electrical principles and is familiar with common units and quantities. A selection of Maplin projects is included.
1990. 288 pages. 246 x 189mm, illustrated.

Best. nr. 07 13 37

Pris 229.–

Electronic Projects For Beginners
by F.G. Rayer

Includes a number of projects which can be built without any need for soldering. The book is divided into four sections: 'No Soldering' projects, miscellaneous devices, radio and audio frequency projects and power supplies. Also included are some component & wiring layouts to aid beginners.
1978. 112 pages. 180 x 108mm, illustrated.

Best. nr. 07 13 40

Pris 48.–

Projects for the Car and Garage
by Graham Bishop

This is the 1985 revised edition of this popular book, containing more than 30 projects for the car owner, fully documented with constructional details, circuit diagrams, circuit board layout and installation recommendations. The projects are divided into the five main areas of ignition, anti-theft and security, lighting, accessories and test gear for the garage workshop. The main project comprises a capacitive discharge ignition system invaluable for winter starting. Various useful extras are included such as an ignition timing light and a dwell meter. Other useful add-on projects included are a lights-on reminder, lamp failure indicators, rev-counter, wiper delay, digital car clock, emergency beacon, car radio add-ons and many more. Note that we can no longer supply the pcb's mentioned in this book.
1985. 115 pages. 215 x 137mm, illustrated.

Best. nr. Pris
07 13 88 179.–

RADIO CONTROL BOOKS

The Off-Road Buggy Book
by Alan Harman

Written by the editor of Model Car, this book gives a comprehensive guide to all aspects of the sport. It sets out the various forms and scales of buggies, describes building, preparation and racing; discusses electric buggies, rally cross cars and radio control systems; gives a range of driving hints and tips on reliability. The book also has useful appendices giving the specification of the various racing classes and the organisations behind the sport. The very wide range of surfaces upon which buggies can be run and their continuing price decline is making this a fast growing sport. For the enthusiast who wants to do something more than go fast in a straight line through an empty carpark, then this is the book to own!
1990. 125 pages. 210 x 145mm, illustrated.

Best. nr. Pris
07 13 91 119.–

Radio Controlled Off-Road Cars
by Deryck Green and Chris Green

Building and racing radio controlled cars is fun, especially ½th scale electric powered 'buggies'. Because of their safety, quietness and versatility they are by far the most popular form of R.C car. Although the book is very much aimed at owners of ¼th scale cars, it should also be of general interest to owners of other types of electric powered R/C cars and models, especially ⅛th 'Monster' class cars. The book gives a detailed insight into the terminology of the sport, and describes the difference between

splits and 'solids', 'reds' and 'yellows', and how to choose, build and modify 'buggy' kits and set up radio equipment.
1990. 112 pages. 231 x 171mm, illustrated.

Best. nr. Pris
07 13 94 119.–

Getting Started in Model Car Building
by Dennis Doty

While this book has nothing to do with electronics directly, it would however, be very useful for anyone interested in building radio controlled models for example. While concentrating on static model cars, the chapters constitute a complete guide to the materials and tools you will need, descriptions of various painting methods, and details on which finishing applications for both plastic and metal components, and includes hints and tips from an author having many years experience behind him, enabling you to produce authentically detailed models. American book.
1989. 128 pages. 233 x 188mm, illustrated.

Best. nr. Pris
07 13 97 159.–

Electronic Projects for Model Boats
by Ken Ginn

Although radio control equipment is reliable and readily available nowadays, there are still many items which are not available commercially or which can be made more cheaply at home. This book describes how to make some of these items, which include servo checkers, a battery tester, glowplug supply and a multimeter, with no prior knowledge of electronics required. The book begins with an overview of the necessary tools, board construction techniques and basic R/C layout, moving on to discuss specific projects, each featuring a circuit description with full construction and testing procedures. The book is aimed at the boat modeller who likes to get involved in more than just the building of the model and who will, with the help of its contents, be able to lift the electronic equipment to a higher standard also. Appendices cover such aspects as resistor colour codes, component recognition, how to mount power semiconductor devices to heatsinks and component suppliers.
1990. 144 pages. 210 x 145mm, illustrated.

Best. nr. Pris
07 14 03 129.–

Introducing Radio Control Model Aircraft
by Bill Burkinshaw

Flying radio controlled models is a pastime open to anyone, even without specialist knowledge. It began around the 1950's and now attracts a growing band of regular followers. The technology has advanced spectacularly since those early days but has now settled down. This book from the former editor of RCM&E magazine knows the areas which may bemuse or baffle the newcomer. He therefore takes us step by step through the theory of flight, how aircraft will be controlled, into radio equipment, through engines, construction/finishing and installation, and finally into the flying of powered aircraft. He also describes flying helicopters and flying gliders to complete the book.
Model aircraft flying can be a rewarding hobby producing superb working scale models. This book will enable the reader either to construct from scratch or buy a ready made model and get straight onto the flying field. Whenever you start, this book is an invaluable guide of hints and tips.
1989. 95 pages. 210 x 145mm, illustrated.

Best. nr. Pris
07 14 06 119.–

Introducing Radio Control Model Boats
by Vic Smeed

The author has spent many years answering readers' questions for the magazines Model Maker and Model Boat. It was therefore fitting that he should draw upon that experience to introduce radio control model boats to a wider audience.
The book covers all aspects – including radio control equipment, boats and competition classes, construction, power options, equipment installation, pre-launch checks and operation. A useful discussion of maintenance and fault finding concludes the book, which should ensure that the modeller does not have to wade out too far to deal with equipment failure. The existence of 33 classes of models for competition means that the scope for getting involved in this long established but popular sport is vast. Certainly the experience passed on in this book should mean the transition from the modelling bench and bath-subtrials, to an enjoyable afternoon boating, is a quick one.
1989. 95 pages, 210 x 145mm, illustrated.

Best. nr. Pris
07 14 00 98.–

More Advanced Electronic Security Projects
by R. A Penfold

Intended primarily as a sequel to 'Electronic Security Devices' this book provides a number of slightly more complex projects that, it is hoped, should be within the capabilities of most electronics hobbyists including beginners. Ease of construction should be ensured as in all cases stripboard layouts have been provided.
Although the projects are not substantially more complex than those in the earlier book they do use more advanced techniques. The projects include a passive infra-red detector that can be used with a variety of lens systems, a fibre-optic loop alarm, computer based alarms and an unusual form of ultrasonic intruder detector. Some of the designs are for use as part of a burglar alarm system rather than as stand alone projects.
1988. 95 pages, 178 x 111mm, illustrated.

Best. nr. Pris
07 13 93 59.–

Electronic Alarm Circuits Manual
by R.M. Marston

Includes full circuit details of burglar alarms, car alarms, temperature operated and light-sensitive alarms, as well as power failure alarms, over-voltage alarms etc. etc.
This book is packed with useful circuits.
1988. 132 pages, 216 x 138mm, illustrated.

Best. nr. Pris
07 14 15 229.–

Aero Modellers' Handbook
by Les Netherton

Getting a model aircraft to fly successfully is not difficult, but in addition to possessing the right tools and a certain amount of manual skill, it does require a basic knowledge of what keeps an aeroplane in the air, and how its controls work. These basic principles are the starting point at the beginning of the book, which also explains all the essential principles so that the construction of the first model proceeds on a sound footing. Different methods of assembly are discussed using different materials for fuselages, wings and tailplanes, plus undercarriage construction, making propellers from scratch, and covering and painting the model.
Different types of aircraft are also considered, including gliders, rubber-powered models, diesel, glowplug and electric motors, radio control and control line systems. Finally, having built your chosen model, you are given extensive advice on flying it, correcting the balance, adjusting warps, and dealing with other common problems.
Fully illustrated with drawings, diagrams and photographs, the book is both a first-class primer for the beginner and a sound reference source for the more experienced modeller.
1990. 218 pages, 241 x 163mm hard cover, illustrated.

Best. nr. Pris
07 14 09 248.–

Radio Control Helicopter Models
by John Drake

Intended for aero-modellers who wish to have a go at designing their own helicopter, this book seems at first glance highly technical and mathematical, but on reading, you will find it straightforward and simple to follow. The basic example or analogies make for a clear explanation of the principles and complexities of the construction of a 60-powered model – but which will require the use of a lathe and similar machining work. There are valuable chapters on pre-flight checks and how to actually fly completed models. For the enquiring modeller, this book will provide a fascinating insight into what is still generally a little-understood area of model flight.
The author has virtually made it his life's work to understand and overcome the many practical problems that come from making a model helicopter fly, but, as with real aeroplanes, these problems are just as valid with real helicopters, and similarly are solved as they would be for the full sized machine.
1980. 149 pages, 210 x 144mm, illustrated.

Best. nr. Pris
07 14 12 98.–

Electronic Projects for Home Security
by Owen Bishop

This book deals with many aspects of home security, covering intruder, fire and flood protection, with the emphasis on how to make the best use of electronic devices that you can build yourself. There are 25 constructional projects, ranging in complexity from a single-door protection circuit that can be built in an hour or two, to a sophisticated, multi-channel security system, that most intruders will find very difficult to combine simplicity of construction with reliability of operation. Each project is described in detail, with circuit diagrams, full explanations of how it works, complete instructions for building and testing, and, often, suggestions for adapting it to specialised requirements.
The projects can be readily undertaken by the beginner. Even the multi-channel system starts at a simple level and is expandable later as the constructor's experience grows. Since all the projects are powered by battery or from an inexpensive, ready-made mains adapter, they are entirely safe.
1991. 141 pages, 216 x 135mm, illustrated.

Best. nr. Pris
07 14 24 129.–

Alarms
55 Electronic Projects and Circuits
by Charles D. Rakes

This book will show how to secure your home and property without spending a fortune, and no previous experience is necessary. Step-by-step instructions and work-in-progress diagrams are provided, with through-shooting advice, for building each project, including installation in your home or car.
The projects include car alarms, with indicators for low/high battery voltage, lighting failure, low brake fluid level, water overheating, and break-ins; intrusion alarms having sensors for light, proximity, sound, glass breakage, vibration and fence intrusion; burglar alarm control from a basic remote unit to adding extra functions; fire and smoke alarms and some miscellaneous alarm circuits; moisture and flood alarms, AC motor overload, radiation level, and severe weather warning. You are certain to find many projects in this book that you will find very useful.
1988. 178 pages, 234 x 185mm, illustrated.

Best. nr. Pris
07 14 18 229.–

Electronic Security Devices
by R.A. Penfold

The book covers switch activated burglar alarms with exit and entry delays, infra-red, ultrasonic and Doppler shift systems as well as smoke and gas detectors, water temperature and baby alarms. All the circuits are fairly simple and Veroboard layouts are given.
1979. 102 pages. 180 x 108mm, illustrated.

Best. nr. Pris
07 14 21 49.–

Practical Electronic Sensors
by Owen Bishop

NEW

This book describes various types of sensors and the ways in which they are used to monitor almost every aspect of the environment, how each type works and how its signals are processed electronically to produce a meaningful result.

A dozen construction projects, with functions which apply to the domestic environment in and around the home, are provided by way of practical examples of the uses of sensors. The projects include circuit diagrams with component values, explanations of operation and full building instructions. Some of them are suitable for the beginner, while others will be of interest to the more advanced constructor. The projects, which are indicated with levels of complexity in construction, include: sunshine duration meter; temperature alarm; passive infra-red intruder; car/bicycle alarm; wind direction indicator; inductive proximity detector; sound level meter; sound controlled switch; tachometer; gas alarm; water level controller; and model speed controller.
1991. 180 pages. 179 x 111mm, illustrated.

Best. nr. 07 14 30   Pris 98.–

Security Systems and Intruder Alarms
by Vivian Capel

An alarm system and total security coverage is becoming essential in every factory, business and shop. How should you choose, plan and install such a system?

This book is divided into two sections: a general section showing how alarm systems work, what they do, how they can be planned, and how proposed systems can be checked. It also describes counter measures against other hazards such as shoplifting, employee theft, fire, fraud, liability claims etc., examining control equipment, various types of sensors, going up to closed-circuit TV monitoring and domestic systems.

The technical section is more specific, dealing with installing and testing intruder and fire alarms, fault-finding and maintenance and the British Standards. Primarily written for managers and business people and installation engineers but will be of interest as a general reference to anyone planning to install a security system.
1989. 280 pages. 240 x 190mm hardcover, illustrated.

Best. nr. 07 14 33   Pris 498.–

TEST GEAR PROJECTS
Electronic Test Equipment Projects
by Alan C. Ainslie

Several interesting projects are covered and full constructional details are given. Projects include millivoltmeter, audio oscillator, frequency meter, RF signal generator, function generator etc.
1981. 88 pages. 216 x 135mm, illustrated.

Best. nr. 07 14 36   Pris 169.–

Test Equipment Construction
by R.A. Penfold

This book describes in detail how to construct some simple and inexpensive, but extremely useful, pieces of test equipment. Stripboard layouts are provided for all designs, together with wiring diagrams where appropriate, plus notes on the construction and use. The following designs are included: AF Generator, Test Bench Amplifier, Audio Millivoltmeter, High Resistance Voltmeter, Transistor Tester, Capacitance Meter, AF Frequency Meter, Analogue Probe, CMOS Probe, TTL Probe. Apart from providing the home constructor with a useful range of test gear, building these projects should also be an interesting and rewarding exercise in its own right. The designs are suitable for both newcomers and more experienced hobbyists alike.
1989. 104 pages. 178 x 110mm, illustrated.

Best. nr. 07 14 39   Pris 59.–

Build Your Own Test Equipment
by Homer L. Davidson

NEW

Learn how to build and use instruments for troubleshooting TVs, stereos, computers, CD players, ham radios, microwave ovens, camcorders, electric motors, power supplies, cables and more. The book tells you all you need to know about constructing inexpensive, high-capacity, trouble-shooting equipment for almost any purpose, leading you step-by-step through the entire process of finding and buying components, designing PCBs, substituting components, building and testing projects and finally putting your completed instruments to work.

There are projects for everyone, from the beginner to the seasoned professional, all accompanied by simple, easy to follow instructions, photographs and diagrams. American book.
Warning: references may be made to the American standard 110V AC mains supply. You should translate these into the English 240V AC mains standard and take the appropriate precautions with the higher voltage level
1991. 300 pages. 234 x 187mm, illustrated.

Best. nr. 07 14 42   Pris 248.–

More Advanced Test Equipment Construction
by R.A. Penfold

Describing some slightly more advanced test equipment projects for readers who have some amount of experience at project building. Full circuit diagrams plus notes on construction are provided. Detailed notes on any necessary setting up are also provided, together with information on using the projects to best effect. Projects included are: digital voltmeter, digital capacitance meter, digital transistor tester, digital heatsink thermometer, bench power supply, dynamic transistor tester, A.F. digital frequency meter, digital resistance meter, digital current tracer, crystal calibrator and pulse generator. When finished the projects provide a very useful range of test gear for future project development and servicing, and the building of them should prove an interesting and rewarding pastime in its own right. The projects are not strictly suitable for complete beginners, but anyone possessing a modicum of hands-on construction experience should have little difficulty.
1989. 112 pages. 178 x 110mm, illustrated.

Best. nr. 07 14 45   Pris 69.–

Diode, Transistor and FET Circuits Manual
by R.M. Marston

NEW

This is primarily a manual of circuits based on discrete semiconductor components such as diodes, transistors, FETs and associated devices, and as such it presents a total of over 340 carefully selected and outstandingly useful practical circuits, diagrams, graphs and tables. It deals with its subject in an easy-to-read, down-to-earth, non-mathematical but very comprehensive style.

Contents include basic diode circuits, special diode circuits, transistor principles, transistor amplifier circuits, transistor oscillators and astables, transistor audio amplifiers, transistor circuit miscellany, FET principles, JFET circuits, MOSFET circuits, VMOS circuits, unijunction transistor circuits.

The manual is specifically aimed at the practical design engineer, technician and experimenter, but will also be of interest to the electronics student and the amateur.
1991. 247 pages. 215 x 138mm, illustrated.

Best. nr. 07 14 54   Pris 229.–

Timer/Generator Circuits Manual
by R.M. Marston

This book is mainly concerned with waveform generator techniques and circuits. Waveform generators are used somewhere or other in most types of electronic equipment, and thus form one of the most widely used classes of circuit.

They may be designed to produce outputs with sine, square, triangular, ramp, pulse, staircase, or a variety of other forms. The generators may produce modulated or unmodulated outputs, and the outputs may be of single or multiple form.

The book is divided into 11 chapters presenting over 300 practical circuits, diagrams and tables. These comprise basic principles; sine wave generators; pulse generators; 'timer IC' generator circuits; triangular and sawtooth generators; multiple waveform generation; waveform synthesiser ICs; special waveform generators; phase-locked loop circuits; and miscellaneous '555' circuits.
1990. 278 pages. 215 x 138mm, illustrated.

Best. nr. 07 14 57   Pris 229.–

INTEGRATED CIRCUIT PROJECT BOOKS
Modern Op-Amp Projects
by R.A. Penfold

NEW

Contains a wide range of projects making use of all the latest types of op-amps including transconductance types. All of the projects are fairly easy to construct and a Veroboard layout is provided for most of them.
1982. 112 pages. 178 x 110mm, illustrated.

Best. nr. 07 14 48   Pris 48.–

IC 555 Projects
by E.A. Parr, BSc. C.Eng., MIEEE

Describes dozens of circuits using the NE555 timer, including car wiper delay, rev counter, emergency flashers, model railway shuttle service, station stop/start, computer voice, signal generator, police siren, Star Trek 'siren etc.etc.
1981. 176 pages. 180 x 108mm, illustrated.

Best. nr. 07 14 51   Pris 59.–

The Fibre Optics and Laser Handbook
by Edward L. Safford, Jr.

Video disk players that use laser beams to read information stored on the disk, laser devices that read bar graph data on food packages, fibre optic sensing devices that can relay information on malfunctioning car parts to a warning indicator on your dashboard. These are just a few of the many ways that lasers and fibre optics are making an impact in today's world. Whether you are simply curious about the subject, an engineer looking for a thorough overview of the latest practical applications or an electronics experimenter who wants some ideas on making your own laser and fibre optic devices, then this is probably the most complete book available on the state of the art! American book.
1988. 240 pages. 235 x 185mm, illustrated.

Best. nr. 07 14 72   Pris 298.–

The Laser Cookbook
by Gordon McComb

Inexpensive projects that span a wide range of practical uses. From phone lines and video discs to surgical procedures and optical computing – the laser is one of the most important inventions to come along during this half of the 20th century. This book gives you the opportunity to investigate, first hand, a relatively new and evolving science. With this book you can create and experiment with simple to advanced level lasers that have real, practical applications! The 88 laser-based projects presented here are geared toward the workshop experimenter on a limited budget. Spanning a wide range of disciplines, the projects vary from experimenting with laser optics and constructing a laser optical bench to using lasers for light shows, gunnery practice, even beginning and advanced holography. High quality laser art illustrations instruction and detailed project parts lists put all the information you need to get started right at your fingertips! Many of the topics covered are ideal for science projects as well as teaching tools for anyone interested in learning how lasers work and what they can do. Gordon McCombs an avid laser hobbyist and electronics experimenter. He has written over 1.000 magazine articles and a dozen books. Please note that this is an American book and references to mains voltages obviously do not apply in the UK.
1988. 404 pages. 234 x 189mm, illustrated. American book.

Best. nr. 07 14 75   Pris 298.–

OPTO ELECTRONIC BOOKS
50 Circuits Using 7400 Series IC's
by R.N. Soar

Fifty simple but useful circuits using eleven of the more common 74 series IC's. Circuits include logic level indicator, low frequency audio oscillator, fuse tester, two bit decoder, twin-tone oscillator, simple signal injector and many more. The circuits can also be built using 74LS series IC's.
1979. 76 pages. 180 x 108mm, illustrated.

Best. nr. 07 14 60   Pris 59.–

50 Simple LED Circuits
by R.N. Soar

Circuits using LED's and Displays. 50 different ones are described.
1977. 64 pages. 180 x 108mm, illustrated.

Best. nr. 07 14 63   Pris 48.–

50 Simple LED Circuits Book 2
by R.N. Soar

A useful sourcebook of circuits using LED's. Fifty are shown including LED test circuit, battery monitor, flasher, diode and transistor testers, magic boxes and many more.
1981. 64 pages. 180 x 108mm, illustrated.

Best. nr. 07 14 66   Pris 48.–

Lasers: Principles and Applications
by J. Wilson and J.F.B. Hawkes

A clearly written introduction to a rapidly developing subject, this book provides the reader with a grounding in laser physics, an analysis of laser technology and a wide survey of laser applications. Suitable for professional engineers wishing to increase their knowledge of laser applications and for students seeking an up-to-date introductory text which includes working examples and end-of-chapter problems.
1987. 308 pages. 228 x 150mm, illustrated.

Best. nr. 07 14 69   Pris 298.–

Building your own Working Fibre-Optic InfraRed and Laser Space-Age Projects
by Robert E. Iannini

This American book contains many do-it-yourself projects for exploring the possibilities of the current laser technology, by building a variety of lasers including the gallium arsenide infra-red, optical helium-neon and ruby diodes, through to the carbon dioxide laser, complete with its collection of somewhat involved support equipment. This last type has been made much of lately due to the American 'Star Wars' laser weapon research. Apart from this, lasers have found applications on a scale and variety approaching that of electronics. The book provides details for such examples as a high sensitivity laser light detector, a high-voltage laboratory generator for use in all sorts of laser, plasma ion and particle applications including lightning displays and special effects; an infra-red viewer for night-time surveillance as well as a detector for a 4-30W infra-red laser; a voice modulated optical laser link, and several versions of a hand-held, visible-red laser light gun. Also included are designs for 'plasma tornado' special effects generators, but bear in mind that any special items mentioned may not be available in the UK and suppliers mentioned are USA only.
1987. 264 pages. 233 x 187mm, illustrated.

Best. nr.   **Pris**
07 14 78   269.–

Homemade Holograms
The Complete Guide to Inexpensive Do-It-Yourself Holography
by John Iovine

This book provides a solid foundation in holography, describing how to produce various types of holograms from the simplest to the more elaborate. The equipment is innovative and simplified, for instance a large and very heavy 'sand table' is not, contrary to popular belief, essential, and the book describes plans for a small, lightweight table of only 20lbs, easy to construct, set-up, dismantle and transport. In addition there are plans to construct suitable lasers if required and simple magnetic optical mounts and component holders designed for use on the lightweight table.
Written in a very easy to understand style, and includes a simple introductory explanation of how holography works. Projects are included allowing you to continually improve your technique, and there are guidelines for the safe disposal of chemical waste, and a complete source list of publications and holographic equipment suppliers is also included. American book.
1990. 240 pages. 234 x 183mm, illustrated.

Best. nr.   **Pris**
07 14 81   219.–

Opto-Electronic Line Transmission
by R. L. Tricker

The use of fibre optics has become increasingly popular in both commercial and military environments, and although optoelectronics is based upon comparatively simple technology, it is, nevertheless, essential for working engineers and technicians to be aware of the basic fundamentals and capabilities of this modern technique. A chapter on test methods is also included. The book is written in an informative but non-mathematical style and is a very readable introduction to fibre optic transmission, appealing to practising electronics and telecommunications engineers, technicians and students.
1989. 161 pages. 234 x 156mm, illustrated.

Best. nr.   **Pris**
07 14 84   269.–

Optical Communications
by M.J.N. Sibley

The book serves as an introduction to the subject, and is presented with the assumption that the reader is familiar with Maxwell's equations and certain elements of communications theory. Notwithstanding, it is still a fascinating source of information about both circuit and device design techniques and data interchange. A detailed account of the various components and subsystems that make up an optical link, including light sources, optical fibres, detectors and preamplifiers, is given. A typical optical transmission system is then analysed in detail and practical links are described. Current developments, including advanced components and systems, are also considered. Throughout, the mathematical level is kept to an appropriate level concurrent with the latter stages of undergraduate electronics, communications and physics courses. The book will appeal to postgraduate students needing an introduction to the field, and to practising engineers and scientist meeting optical communications for the first time.
1990. 152 pages 235 x 156mm, illustrated.

Best. nr.   **Pris**
07 14 87   248.–

Projects in Opto Electronics
by R.A. Penfold

Contains dozens of useful and interesting projects using LED's, LDR's, etc. Circuits include automatic fader, audio compressor, lamp dimmer, stopwatch, modulated light transceivers, etc.
1978. 112 pages, 180 x 108mm, illustrated

Best. nr.   **Pris**
07 14 90   48.–

Optoelectronics Circuits Manual
by R. M. Marston

Optoelectronics is the study of any devices that produce an electrically-induced optical (visible or invisible light) output, or an optically-induced electrical output, and of the electronic techniques and circuitry used for controlling such devices. This manual is a useful guide to the optoelectronics device user, and is especially aimed at the practical design engineer, technician and experimenter, as well as the electronics student and amateur. It deals with the subject in an easy to read, down to earth, and non-mathematical yet comprehensive manner, explaining the basic principles and characteristics of the best known devices, and presenting the reader with many practical applications and over 200 circuits.
1986. 182 pages. 215 x 137mm, illustrated.

Best. nr.   **Pris**
07 1493   229.–

Modern Opto Device Projects
by R.A. Penfold

In recent years the range and variety of opto devices that have become available to the home constructor have expanded and changed radically. These devices are now representative of one of the more interesting areas of modern electronics in which the hobbyist can experiment, and many of these devices have useful practical applications too; the book contains a number of practical designs which utilise a range of modern opto-electric devices, including ultra-bright LED's, IR detectors and fibre-optic cable. The projects are not all simple in construction but they should be within the capabilities of those with some reasonable experience of project building, and some of the more simple designs are suitable for beginners.
1987. 104 pages. 178 x 111mm, illustrated.

Best. nr.   **Pris**
07 14 96   59.–

Audio Projects
by F.G. Rayer

The book covers the construction of a wide range of audio projects including pre-amps, mixers, power amps, tone controls, matching and a range of miscellaneous projects including audio tracer, level meters, sine wave source, dummy load, audio limiter, light modulator, VOX unit etc.
1981. 96 pages. 180 x 108mm, illustrated.

Best. nr.   **Pris**
07 14 99   48.–

Digital Audio Projects
R. A. Penfold

The first section of this book takes a look at the basic principles involved in converting an audio signal into digital form and then converting it back to an audio signal again. It also deals with some practical aspects that have to be borne in mind when considering digital audio projects. The second section contains some useful and extremely interesting, practical circuits for constructors to build and experiment with. By current standards the projects are not highly complex, but are probably beyond the scope of beginners and are more suited for someone with a moderate amount of experience in electronic project building.
1989. 81 pages. 178 x 112mm, illustrated.

Best. nr.   **Pris**
07 1502   59.–

Audio Circuits and Projects
by Graham Bishop

No matter how sophisticated your audio system, there are circuits here that will improve it – if not in sound quality, then in convenience. There are projects to cater for the musician too. A whole series of tested projects, easy and inexpensive to build, are shown together with full constructional details. The first part of the book includes projects for audio amplifiers, preamplifiers and signal correction/processing, with designs ranging from single transistor circuits to a 100W power amp design. The second part covers musical instruments such as synthesisers, rhythm generators and organs, including effects devices such as sound to light modulation and other 'fun circuits'. All the projects can be built onto veroboard, and components lists and relevant semiconductor informations included. Even if you do not wish to build all or any of the designs as they are, the book certainly contains many thought provoking ideas.
1985. 194 pages. 215 x 138mm, illustrated.

Best. nr.   **Pris**
07 15 05   198.–

Audio Amplifier Construction
by R.A. Penfold

Circuits of a wide range of preamplifier and power amplifier designs, from low noise microphone & tape head preamps to 100W MOSFET amps, are provided in this book. The projects are relatively easy to construct using the PCB or stripboard designs given. Setting up and testing procedures are described, although in most cases no test gear is required.
1983. 99 pages. 178 x 110mm, illustrated.

Best. nr.   **Pris**
07 15 08   59.–

Enhanced Sound
by Richard Kaufman

Now you can get better performance from your audio equipment without having to spend too much money. This book is designed to help you boost the capabilities of different types of audio systems. Examples of particular interest are computer programs for designing speaker enclosures, practical indoor FM aerials, a guide to electronic construction for the novice, an overview of active crossover networks, how to use a filter to provide bass boost, rhombic antennas, acoustic treatment of the listening room, and stereo image enhancement. The author provides 22 cost-effective electronic projects. Each project is sufficiently sophisticated to be useful to the professional engineer as well, yet is explained simply enough even for the most novice of builders. Projects include a surround sound decoder, a passive image enhancer, an auxiliary input switch, tone controls, amplifier bridging circuit, a shuffler, modern infrasonic filter, Linkwitz-Riley crossover, an improved dipole, helical antennas, and much more! American book. 1988. 180 pages. 235 x 185mm, illustrated.

Best. nr.,   **Pris**
07 1511   179.–

An Introduction to Loudspeakers and Enclosure Design
by V. Capel

There is more to building a loudspeaker enclosure than just fitting a couple of speaker units into a box. There are many types of enclosure and drive units, each having their own features, good points and snags. This book explores these, and in particular examines the whys and wherefore so that the reader can understand the principles involved and so make an informed choice of design, or even design loudspeaker enclosures for him or herself. Crossover units are also explained, the various types, how they work, the distortions they produce and how to avoid them. Finally, there is a step-by-step description of the construction of the Kapellmeister loudspeaker enclosure, a design that involves novel features which overcome many of the disadvantages of more conventional types. It is a transmission line speaker that has a remarkable stereo imaging, an uncoloured musical sound, occupies minimal floor space and is inexpensive to build.
1988. 148 pages, 178 x 111mm, illustrated.

Best. nr.   **Pris**
07 1514   59.–

Loudspeaker Enclosure Design and Construction

This booklet contains a broad selection of cabinet designs and enclosures for the chassis loudspeaker units in Maplin's BIGCAT range of loudspeakers and many others. Comprehensive guide-lines are given for tackling construction, stressing important points such as the care needed and details to consider in selecting materials, making joints, sealing, baffle mounting the driver units, wadding the cabinet and paying proper attention to electrical connections to guarantee a worthwhile finished product. Twenty-nine designs are described, from small-sized bass reflex cabinets using 12in dia. full range drivers, through folded horns, to monster multi-way high power systems.
1991. 165 pages. 296 x 210mm, illustrated.

Best. nr.   **Pris**
07 1517   179.–

Designing, Building and Testing Your own Loudspeaker System
by D.B. Weems

The book contains many detailed plans for speaker-box construction, for one, two or three-way systems. Simplified design charts are provided so that it is easy to design your own system. Full circuit details of many different types of crossover networks are given and much of the theory is explained, and includes much background theory with useful mathematical formulae. The appendix even includes a speaker design program listing to run on IBM compatible computers. American book.
1990. 222 pages. 236 x 186mm, illustrated.

Best. nr.   **Pris**
07 1520   269.–

Public Address Loudspeaker Systems
by Vivian Capel

The loudspeaker system is a critical part of any public address installation. All to often, it is woefully inadequate, resulting in poor intelligibility and unnatural reproduction. This book examines the various systems and their drawbacks, describing LISCA, the Line Source Ceiling Array. This gives astonishing clarity, coverage and reduced feedback, natural source location and a pseudo-stereo effect. It promises to be the ultimate system for small to medium sized halls. Full step-by-step constructional and installation details are given. Also included: low impedance matching, 100V line systems, transmission lines, and how to design and install inductive hearing-aid loops. Few public address systems could not be improved from the information supplied in this book.
1990. 114 pages, 178 x 110mm, illustrated.

Best. nr.   **Pris**
07 1523   79.–

AMATEUR RADIO BOOKS

Amateur Radio for Beginners — How to Discover the Hobby
by Victor Brand G3JNB
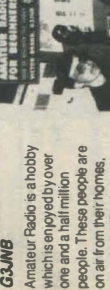
Amateur Radio is a hobby which is enjoyed by over one and a half million people. These people are on air from their homes, clubs and schools worldwide.

Designed for the absolute beginner, this book could easily be enjoyed by another million. As well as extolling the virtues of 'Ham' radio, the book goes on to explain how to make your first receiver and progress through to the acquisition of a licence. The grades of Novice (class A or B) licence are described, as is the help provided by R.S.G.B. to obtain the licence. The support and benefits derived from being in a club are described. Hopefully, this will go some way to shattering the common fallacy that 'Ham' radio is some kind of lonely attic hobby.

For many people the discovery of amateur radio has been the beginning of an entirely new and unique hobby. They have derived much from its pursuit and have gained knowledge of electronics in the process. Whatever the age, or reason this book will ensure the absolute beginner has all the information needed to join the worldwide Amateur radio family.
1991. 65 pages, 210 x 145mm, illustrated.

Best. nr.   Pris
07 1571   69.—

An Introduction to Amateur Radio
by I.D. Poole

Amateur radio is a unique and fascinating hobby which has attracted thousands of people since it began at the turn of the century. It encompasses a wide variety of subjects from the historical to the latest technology, and from operating to construction. In fact there is always some aspect of the hobby to interest people.

This book gives the newcomer a comprehensive and easy to understand guide through the subject so that the reader can gain the most from the hobby. It then remains an essential reference volume to be used over and over. Topics include the basic aspect of the hobby, such as operating procedures, jargon and setting up a station. Technical topics covered include propagation, receivers, transmitters and aerials etc.
1989. 160 pages 176 x 112mm, illustrated.

Best. nr.   Pris
07 1574   59.—

Setting Up An Amateur Radio Station
by I.D. Poole

The aim of this book is to give guidance on the decisions which have to be made when setting up any amateur radio listening station. Often, the experience which is needed is learned by making mistakes, but this can be expensive. To help overcome this, the book gives advice on many aspects of setting up and running an efficient station, and then proceeds by discussing the steps that need to be taken in gaining a full transmitting licence.

The topics covered include: the equipment needed; setting up the station; which aerials to use; methods of construction; test equipment; and preparing for the licence.
1991. 94 pages. 178 x 111mm, illustrated.

Best. nr.   Pris
07 1577   79.—

Practical Ideas for Radio Amateurs
by Ian Poole G3YWX

This book is designed to take the new Amateur Radio enthusiast a little further. It offers a wealth of hints, tips and general practical advice for transmitting amateurs and short wave listeners.

The book is divided into chapters, based around a particular aspect of amateur radio, such as the 'shack', aerials, construction techniques, components, circuits and testing techniques. The Circuit ideas chapter goes beyond offering a range of circuit designs. Instead it aims to be a source of useful ideas. Some of which may be incorporated into other circuits to improve them or add facilities.
1988. 125 pages, 210 x 150mm, illustrated.

Best. nr.   Pris
07 1580   119.—

Surplus 2-Way Radio Conversion Handbook
by Chris Lorek

As 2-way radio equipment, such as used by the police and other emergency services, is replaced, these sets become available on the surplus market for very economic prices and they can often out-perform purpose designed amateur radio equipment! This book explains how to modify these sets to amateur radio frequencies, describing the sort of equipment suitable for conversion, together with the relevant photographs and sources of supply. The book gives alignment and modification details covering variety variety of surplus Pye equipment suitable for modification, since Pye sets vastly dominate the surplus market, which explains their book's emphasis.

This book is the reference and handbook that amateur radio operators have been waiting for.
1989 223 pages 232x 155mm, illustrated.

Best. nr.   Pris
07 1583   198.—

An Introduction to VHF/UHF for Radio Amateurs
by I.D. Poole

The increase in the use of the VHF and UHF bands is now one of the largest growth areas within amateur radio. In fact, most radio amateurs have equipment for use on these bands, either for local contact or simply to exploit some of the many interesting and challenging aspects of so doing. This book covers the essentials required to gain the most from using the VHF and UHF bands. As such it will be of use to both the newcomer and the more experienced enthusiast alike.

Topics include propagation, the bands and channels, aerials, receivers, transmitters, and a special chapter on scanners. In addition, operation of repeaters and mobiles is included together with DXing and data modes, and a section on packet radio.
1990. 110 pages. 178 x 111mm, illustrated.

Best. nr.   Pris
07 15 86   69.—

An Introduction to Amateur Communications Satellites
by A. Pickard

There are a large number of amateur communications satellites around the world, traversing the globe continuously and they can be tracked and their signals received with relatively inexpensive equipment. This equipment can be connected to a home computer such as the BBC micro or an IBM compatible PC for decoding the signal. This book describes several currently available systems, their connection to an appropriate computer and how they can be operated with suitable software.

The results of decoding signals containing such information as telemetry data and weather pictures are demonstrated and will hopefully encourage the reader to become actively involved in pursuing this fascinating activity, which embraces many aspects of electronics, engineering and science as well as being an encapsulation of information technology.
1990. 102 pages, 178 x 110mm, illustrated.

Best. nr.   Pris
07 1589   79.—

Newnes Amateur Radio Computing Handbook
by Joe Pritchard
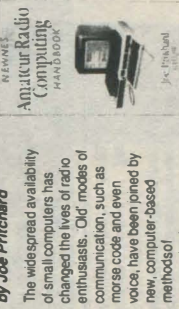
The widespread availability of small computers has changed the lives of radio enthusiasts. Old modes of communication, such as morse code and even voice, have been joined by new, computer-based methods of communication.

Computers are even used to predict which frequencies to use for the best results.
Contents include basic radio principles; basic computer principles; software for electronic design; logkeeping and QSL card software; satellite and geographical software; miscellaneous software; interfacing the computer to the radio; morse code; RTTY and ASCII; AMTOR; SSTV and FAX; packet radio; commercial decoders; controlling a radio with a computer, computer assisted circuit development and appendices.
1990. 363 pages, 214 x 138mm, illustrated.

Best. nr.   Pris
07 16 16   269.—

VHF/UHF Manual 4th Edition
by G. R. Jessop, G6JP

A companion volume to the Radio Communication Handbook, this book is dedicated to the VHF/UHF enthusiast who uses frequencies above 30MHz. Its very detailed chapters guide the reader from first principles through to the design and testing of quality VHF and UHF transmitters and receivers. Included in the book are chapters on propagation, receivers, transmitters, filters, aerials, microwave operation, space communication and integrated equipment.
1983. 526 pages, 248 x 184mm, illustrated.

Best. nr.   Pris
07 16 19   179.—

Introduction to Antenna Theory
by H. C. Wright

Any conducting body exposed to radio waves will have electric currents induced in it and, conversely, any conductor carrying varying electric currents will radiate energy in the form of radio waves.

Thus an antenna can take any form from a bedstead to a tin-tack and, while these particular items are seldom encountered in practice, the experimenter can test ideas and innovations with little more than TV and CB wavelengths. This book studies the basic concepts relevant to receiving and transmitting antenna in a manner which emphasises the mechanism involved, supported by copious diagrams and illustrations which help to reduce mathematics to a minimum.
1987. 66 pages. 178 x 110mm, illustrated.

Best. nr.   Pris
07 1622   59.—

25 Simple Indoor and Window Aerials
by E.M. Noll

For the short-wave listening enthusiast who may be living in a flat or similar accommodation where the use of external aerials is impossible, this book describes how one can install aerials in or around the room, ceiling, windows, attic, etc. — twenty-five different permutations are shown in detail. The book also shows how simple variations can be improved for optimum performance. Much information is given on the short-wave bands, aerial directivity, time zones, working dimensions etc.
1984. 64 pages. 178 x 110mm, illustrated.

Best. nr.   Pris
07 1634   39.—

25 Simple Tropical and MW Band Aerials
by E.M. Noll

Not about how to construct an aerial that will withstand the climatic rigours of a tropical climate, rather, this book contains details of how to construct antenna for receiving the 60, 75, 90 and 120 metre tropical broadcast bands. The 49 metre band is also included. In addition, information is given for the construction of MW aerials in the 550-1600kHz band. An essential addition to the library of all radio amateurs.
1984. 54 pages. 177 x 110mm, illustrated.

Best. nr.   Pris
07 16 37   39.—

Experimental Antenna Topics
by H.C. Wright

Although nearly a century has passed since Marconi's first demonstrations of radio communication, there is still research and experiment to be carried out in the field of antenna design and behaviour.

The aim of the experimenter will be to make a measurement or confirm a principle, and this can be done with relatively fragile, short-lived apparatus. Because of this, devices described in this book make liberal use of cardboard, cooking foil, plastic bottles, cat food tins, etc. These materials are, in general, cheap to obtain and easily worked with simple tools, encouraging the trial-and-error philosophy which leads to innovation and discovery.

Although primarily a practical book with text closely supported by diagrams, some formula which can be used by straightforward substitution and some simple graphs have also been included.
1990. 80 pages. 178 x 110mm, illustrated.

Best. nr.   Pris
07 16 25   79.—

Practical Wire Antennas
Effective H.F. Designs for the Radio Amateur
by John D. Heys G3BDQ

Wire antennas offer one of the most cost-effective ways of putting out a good signal on the HF bands, and this practical guide to their construction has something to interest every amateur on a budget. Many different types are covered, ranging from simple dipoles to ingenious multi-wire systems, even underground antennas! Full details about feeding and matching are included, making each antenna easy to set up and use successfully. Theory has been kept to a minimum - instead, the author has shared his years of experience in the field, offering down-to-earth advice that will be appreciated by beginners and enthusiasts alike. No-one who builds and uses wire antennas can afford to be without this handy guide.
1989. 100 pages, 244 x 164mm, illustrated.

Best. nr.   Pris
07 1628   139.—

25 Simple Shortwave Broadcast Band Aerials
by E.M. Noll

25 simple shortwave aerial project ideas are covered in this easy to understand, illustrated book. 1984. 68 pages. 178 x 112mm, illustrated.

Best. nr.   Pris
07 1631   48.—

H.F. Antennas for All Locations
by L.A. Moxon, G6XN

Amateur shortwave enthusiasts have been using H.F. antennas of various sorts for some sixty years or more, some of the best antennas in use today were designed twenty or thirty years ago and yet the search for 'better ones continues unabated. This book makes several challenges to established ideas and practices, in the first part the theory of antenna radiation and reception is dealt with afresh, and in the second part these theories are put into practice with actual working antenna designs. In this book you will find many solutions offering a substantial reduction in the size, weight and cost of various well known H.F. antenna designs without compromising performance. The book deals with waves and fields, gain and losses, antenna feeds, beams, arrays, long wires, ground reflectors, multiband antennas, bandwidth, designing, construction and erection, including a chapter on how to disguise or render 'invisible' external outdoor aerials. Although primarily aimed at the shortwave user, there are also many sound principles applicable to aerials for all sorts of other applications.
1982. 264 pages. 245 x 190mm, illustrated.

Best. nr.   Pris
07 1640   129.—

ELECTRONIC SERVICING

Audio Amplifier Fault-Finding Chart
by Chas. E. Miller

This chart has been designed to help the reader approach fault rectification and repair of audio amplifiers in a systematic and logical way. The author has developed the chart by drawing on many years of experience in repairing audio and hi-fi systems and used properly, should enable the reader to trace many common faults reasonably quickly. At the reader has to do is select one of the faults shown at the top of the chart, then follow the arrows carrying out the suggested checks in sequence until the fault is cleared.
1987. Fold out sheet 640 x 450mm. Cover size 176 x 120mm.

Best. nr. 07 17 03   Pris 24.–

Servicing Audio and Hi-Fi Equipment
by Nick Beer

Written specially for service technicians and engineers, this book is designed as a bench-side companion and guide. Its purpose is to ease and speed up the process of fault-diagnosis, repair and testing of all classes of home audio equipment: receivers, amplifiers, recorders and other playback machines. It is not a textbook, but written in a light style and is equally useful to the hobbyist and domestic hi-fi enthusiast, and anyone who needs help in identifying a problem.
It examines both the mechanics and electronics of domestic audio equipment in a down-to-earth and practical way, concentrating on what goes wrong, how to track down problems and how to solve them. Sixteen comprehensive chapters range from the simplest AM radio to the intricacies of CD and DAT systems. Along the way, such diverse subjects as servos, speakers, dial cords and 'dirty heads', motors and microprocessors, turntables and transistors are examined, together with the techniques and test equipment needed to sort them out and set them up. Fully illustrated with photographs, diagrams, fault-finding charts and circuits, the book also includes a comprehensive guide to manufacturers and suppliers, and a symptom index for quick access to specific advice and suggestions in particular areas. The book is especially notable for offering some advice, as part of the section on repair techniques, about handling SMDs (Surface Mounted Devices), and how to remove and replace these tiny components and what to watch out for.
1991. 218 pages. 252 x 194mm hardcover, illustrated

Best. nr. 07 17 06   Pris 439.–

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hints and tips, tricks of the trade and other quick but accurate methods of aligning a dish. The challenge of the changing technology must be continually met by all of the support services, and this guide is designed to help installation technicians achieve this, and so is equally useful to the competent home DIY enthusiast.
1992. 60 pages, 297 x 210mm, illustrated

Best. nr. 07 16 94   Pris 219.–

Newnes Guide to TV and Video Technology
by Eugene Trundle

This book represents a breakthrough in terms of value-for-money technical information. Based on two of the most popular Technical Guides, this new edition brings together in depth accounts of television and VCR technology, in twenty one chapters, over 250 illustrations and 400 odd pages, the technicalities of television, video and allied equipment are lucidly and concisely explained for the benefit of technicians, students, laymen and others. Coverage is wide and deep, extending from the camera lens via videotape signal processing and deck management to the very latest TV screen technology. Along the way we look at space satellites, microcomputers and such practical matters as videorecorder servicing and maintenance. Eugene Trundle, a practising video and TV engineer, has a knack of conveying highly technical information in the form of a 'good read'. It is well demonstrated here
1988. 432 pages, 185 x 128mm, illustrated

Best. nr. 07 16 97   Pris 259.–

Broadcast Television Fundamentals
by Michael Tancock

This book deals with the fundamentals of television with special emphasis given to the techniques used in broadcasting. It is aimed at technicians having a good general knowledge of electronics, including some digital techniques, but who are unfamiliar with the special requirements needed to produce high quality television pictures. Also suitable for graduate electronics engineers who have not previously dealt with the engineering aspects of television. The book begins with the fundamental considerations of the portrayal of motion, deals in some detail with the colorimetry of television, and goes on to look at the very latest techniques such as CCD sensors, high-definition television, MAC coding and serial data communications. The explanations are detailed but deliberately keep the use of mathematics to a minimum.
Although specific examples are based upon the UK television system, the NTSC and SECAM systems are also examined in sufficient depth to make the book international in its scope.
1991. 175 pages 240 x 160mm, hardcover, illustrated

Best. nr. 07 17 00   Pris 448.–

Guide to Satellite TV
Installation, Reception & Repair Second Edition
by D.J. Stephenson

A practical guide, without excessive theory mathematics, to the installation and servicing of satellite TV receiving equipment, primarily for those involved in the aerial installation and TV trades.
The book includes computer programs, written in the simplest Microsoft dialect of BASIC to run on any PC or 8-bit micro, (or the calculation of television, azimuth, polar and declination angles from any point in Europe for any current or future satellite. Among the many practical matters covered are the problems of sparkles, rain, trees, and vandals (the latter solved by the two-drunks high' dish-mounting rule!). Contents include an overview of satellite TV, antenna, head units, cables, line amplifiers and connectors, satellite receivers, the 'linked budget' calculation, installation and alignment of antenna and cabling, indoor wiring up, repairs and appendices and glossary.
1991. 284 pages. 240 x 160mm hard cover, illustrated

Best. nr. 07 16 88   Pris 298.–

The Satellite Book
A Complete Guide to Satellite TV Theory and Practice Second Edition
by John Breeds

This book provides a broad yet fairly in-depth introduction to satellite related subjects for both technicians and enthusiasts. The chapters are organised into two broad sections; practical, and theoretical. The topic for each chapter was carefully chosen, and the text written by a recognised expert in this particular field. The result is a handbook that is both comprehensive and authoritative. Contains lots of really interesting information about the satellites, signal protocols, scrambling, signal distribution and much more.
1992. 289 pages, 295 x 210mm, illustrated

Best. nr. 07 16 91   Pris 448.–

Satellite Television Installation Guide
Third Edition by John Breeds

The purpose of this booklet is to help newcomers to correctly align both azimuth/ elevation and polar mount dish types. If a polar mount assembly is accurately set up then the dish will be able to automatically track the satellites available now, and those launched in the future. The usual knowledge and skills normally associated with installing terrestrial UHF aerials are assumed. The booklet provides detailed guidelines on how to install a dish and receive satellite pictures, there are no mathematical explanations or complex formulae involved. The notes and procedures given are based on practical experience. They provide readers with
1990. 114 pages, 262 x 185mm, illustrated

Best. nr. 07 16 85   Pris 99.–

The Complete VHF/UHF Frequency Guide
by Bill Laver

The pressure on frequency space in the VHF/UHF bands, together with technological improvements, results in almost endless changes and amendments that have recently occurred. These include 25 kHz channel stepping in both bands, requiring that many civil and RAF frequencies be re-allocated. Similarly private mobile radio, due to increasing use which is now causing major overcrowding problems in the VHF band. The area centred around 200 MHz available to many PMR users, and clearly the use of UHF will also be actively promoted by the DTI who will be anxious that the pressure be taken off the frequencies below 200 MHz. And newly launched public telephone and satellite services will require more airwave space Consequently the bands have gone through a major re-shuffle making it difficult to find some transmissions again because they have moved. Covers equipment requirements including aerials, the future of VHF/UHF communications, frequency guide to 26 to 225 MHz, military aeronautical band of 225 to 399 MHz, and a frequency guide to 399.9 MHz to 47.2 GHz
1988. 95 pages, 296 x 210mm

Best. nr. 07 16 64   Pris 99.–

Air Band Radio Handbook
Third Edition
by David J. Smith

Air band radio listening allows you to eavesdrop on the conversations between aircraft and those on the ground who control them, and is an increasingly popular and fascinating hobby. It not only assists in the recognition of aircraft flying overhead, but also provides an insight into the complex world of air-traffic control. The author, who is an air-traffic controller by profession, describes the types of air band radio available and how to use them. With the intricacies of air-traffic control and its jargon explained, you will be able to translate what you hear into what's actually going on over your head. The book also includes full appendices containing comprehensive, up-to-date listed VHF, UHF and HF frequencies, callsigns etc. This extensively revised and updated edition maintains the book's position as the indispensable guide to the hobby, and the essential companion for every air band radio enthusiast.
1990. 173 pages. 215 x 157mm, illustrated

Best. nr. 07 16 67   Pris 139.–

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Marine UK Radio Frequency Guide
Compiled by Bill Laver

Produced for the benefit of the many enthusiasts who enjoy listening to marine radio transmissions, this book is entirely devoted to UK stations as it is felt that these provide the greatest interest for listeners in the British Isles. It is intended to be a handy reference book for the listener and is not a definitive manual, but contains information that has been taken from official publications and reference books. The frequencies cover both the VHF and short wave bands and to successfully monitor all those listed would require the use of two receivers, one for HF up to 30 MHz and another to cover the marine band in the VHF segment to 174 MHz. The information has been kept as concise as possible while providing the fullest details from the point of view of the listener. Channel numbers are also included for receivers, with which they are calibrated, mariners are more familiar with channels than frequencies, and coast stations usually direct ships to which channel to use, so you will need to know what they are, The information will fill a need that many have considered long overdue.
1969. 64 pages. 298 x 210mm

Best. nr. 07 16 70   Pris 89.–

International Radio Stations Guide
by P. Shore

A fully revised and updated edition which includes as much up-to-date information as possible, eliminating that which is no longer current or accurate. It is presented in a most readable way, and includes in many of the tables the town and country in which the radio station's transmitter is sited. The transmission frequency in kHz/MHz and/or wavelength in metres, plus the ERP in kW is listed. The book is divided into fifteen sections including listings of: worldwide short wave stations; medium wave stations in Europe, Middle East and Africa; and UK FM stations. There are listings of broadcasts in English, as well as useful information for SWL's such as time differences around the world, country codes, using the ISRG, choosing a short wave receiver and lots more
1991. 272 pages. 198 x 130mm.

Best. nr. 07 16 73   Pris 98.–

Traveller's Guide to World Radio
1991 Edition – English
Language Broadcasts in 51 Major International Cities
Compiled by Andy Sennitt, Bart Kuperus & Jonathan Marks

A business trip or holiday in a foreign land can sometimes be stressful traveller misses some of the conveniences of home. The simple things like being able to listen to the latest news or sport on the radio If you have a shortwave radio then you have the

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option of tuning in to the Voice of America, the BBC, or one of the other major international stations, provided, that is, that you know the times and frequencies. In this book you will find radio information you'll need in a easy-to-use, pocket size, graphic format. At any one of the 51 major travel destinations listed, you can see exactly what English speaking broadcasts are available on AM, FM and international shortwave. The shortwave data will equally be of use to stay-at-home shortwave DXers.
1991. 195 pages. 190 x 95mm, illustrated.

Best. nr. 07 16 76   Pris 159.–

World Radio TV Handbook

A complete directory of international radio and television with details of every broadcast station in the world, including frequencies, operating times, announcers station identification and signature tune. Also contains articles of interest to listeners to world broadcasts
Annual, current edition supplied.
1992. 590 pages, 228 x 144mm, illustrated

Best. nr. 07 18 79   Pris 329.–

Guide to Broadcasting Stations
by Philip Derrington 20th Edition

The book contains lists both in geographical order and in frequency order of long and medium wave European stations and short wave stations world wide. In addition there are sections on choosing a short-wave receiver, a guide to listening, reception reports, computers in radio and much more.
1989 240 pages. 215 x 140mm, illustrated

Best. nr. 07 16 82   Pris 229.–

TV & VIDEO BOOKS

An Introduction to Satellite Television
by F. A. Wilson

As a definitive introduction to the subject this book is presented on two levels For the absolute beginner the story is told as simply as such a complex one can be in the main text. For the professional engineer or electronics enthusiast, there are numerous appendices backing up the main text with additional technical and scientific detail, formulae, calculations, tables, etc. There is also plenty for the DIY enthusiast with practical advice on choosing and installing the most problematic part of the system, the dish antenna.
1990. 114 pages, 262 x 185mm, illustrated

Best. nr. 07 16 85   Pris 99.–

Transistor Radio Fault-Finding Chart
by C.E. Miller

This excellent chart contains lots of very useful tips and will help you find faults easily on AM transistor radios. 1980. Fold-out sheet 635 x 445mm. Cover size 180 x 120mm.

Best. nr. 07 17 09   **Pris** 24.–

Mobile Radio Servicing Handbook
by Roger Belcher, Mike Fitch, David Ogley and Geoff Varrall

An authorative and practical information source-book, on the servicing and repair of VHF and UHF mobile radios and base stations, together with the maintenance and support requirement to the overall radio system. The last changing component and system technology of mobile radio communications is having a major impact on the way in which equipment is installed, commissioned, serviced and maintained. The four highly experienced authors have combined to supply the technician or engineer with sufficient information to be able to undertake or plan, repair and maintenance work on modern mobile radio systems. In addition, the book covers the impact of data over radio, cellular radio, and trunking technologies on servicing, diagnosis and repair procedures.

Essential background topics covered include radio theory, amplitude (AM) and frequency (FM) modulation, radio wave propagation, reception and demodulation, fundamentals of receiver and transmitter systems, principles of transmitter and receiver design, synthesiser techniques, selective tone signalling and the digital signalling control and access protocols of cellular and trunked radio, but the handbook is intended primarily as a source of readily accessible information on how to fault-find and repair mobile radio equipment – mobiles, base stations and antenna – to circuit module and component level. 1989. 298 pages. 240 x 160mm hard-cover, illustrated.

Best. nr. 07 17 12   **Pris** 598.–

Electronic Testing & Fault Diagnosis
Second Edition
by George Loveday

The ability to rapidly diagnose the causes of faults in electronic equipment and circuits is one of the important skills that can be acquired by the electronics technician. The exercises throughout this book are designed to assist the student in acquiring this ability. The text mainly concentrates on component failure occurring in particular types of circuit. Techniques for localising faults in complete electronic instrumentation systems, is covered briefly. 1989. 257 pages. 245 x 185mm. illustrated.

Best. nr. 07 17 15   **Pris** 198.–

Electronic Fault Diagnosis
Third Edition
by G.C. Loveday

The ability to rapidly diagnose the causes of faults in electronic equipment and circuits is one of the important skills that can be acquired by the electronic technician or mechanic, including the hobbyist. This book is intended to serve as an introduction to the subject.

The text concentrates mainly on component faults occurring in particular types of circuit rather than the fault-finding techniques used for localising faults in complete electronic equipment or systems. However, there is a section that deals briefly with system fault-finding methods.

The majority of the circuits have been built and tested and then measurements made under fault conditions, and it is intended that the reader should construct or breadboard the circuits to produce practical projects with which to learn fault-finding. For this reason readily available components, i.e. non specialised ones, have been chosen. The book also reflects other important trends in the field of electronics, and includes notes and exercises on opto-isolators, timer ICs, SMPU designs and power FETs. 1988. 131 pages. 245 x 189mm. illustrated.

Best. nr. 07 17 18   **Pris** 298.–

Troubleshooting and Repairing CD Players
by Homer L. Davidson

During the past five years, compact disc players have enjoyed continuous growth in popularity because of the remarkable fidelity, clarity, and dynamic range compact discs (CDs) are capable of producing. But, like all machines, CD players require maintenance and do occasionally break down. Repairing these units can be very profitable, if you know how. Now an experienced electronics professional helps you learn to troubleshoot and repair this complicated electronic device, saving you money and time. Each section, circuit and component and how they work together is explained. All the latest electronic used in designing tabletop, portable, and automatic units has been included. Several major manufacturers of audo equipment have provided service literature and the actual schematic drawings they use in the production of their units. Combined with the author's expertise, the result is a very thorough book. An invaluable reference for the technician and the electronics do-it-yourselfer alike. 1989. 351 pages. 235 x 188mm. illustrated.

Best. nr. 07 17 21   **Pris** 229.–

Fault Diagnosis of Digital Systems
by Don L. Cannon

This book helps the reader to understand the workings of digital systems and operation of the components in the system so that he may go on to tackle fault finding, and the book covers this as a career.

A must to those who are concerned about the welfare and maintenance of their home computer and is also of use to those wanting to take up the servicing of digital systems as a career. 1984. 270 pages. 210 x 147mm. illustrated.

Best. nr. 07 17 24   **Pris** 99.–

Servicing Personal Computers
Third Edition
by Michael Tooley

This handy reference manual contains a wealth of information, and a large number of circuits and block diagrams. Software diagnostic routines with listings are included and photographs show typical alignment and adjustment points. The author shows how to set up a workshop showing what test equipment is required. The book also covers tape and disk drives, printers and monitors. 1992. 312 pages. 240 x 170mm. illustrated.

Best. nr. 07 17 27   **Pris** 439.–

Microcomputer Fault-Finding and Design
by Robin Holland

This book describes the procedures and test equipment that can be applied to the fault-finding of microprocessor equipment. In the process, you will also get an idea of how such systems are put together.

The book reviews the principles of microprocessor operation, describes the various testing methods such as board testing, diagnostic software, peripheral testing, signature analysis, logic analysis and in-circuit emulation. The book includes a series of applications studies of typical microcomputer systems designed to give the reader an understanding of formal design procedures and servicing requirements.

The book concludes with useful appendices describing a range of established microprocessors, which include the Inmos transputers T414, T424, T212, and T800, pin-outs of SN7400 and SN74LS00 series TTL devices, and a full ASCII character set. 1991. 202 pages. 234 x 157mm. illustrated.

Best. nr. 07 17 30   **Pris** 229.–

Troubleshooting and Repairing Personal Computers
Second Edition: Revised and Expanded to Include the Latest Intel and Motorola Microprocessors
by Art Margolis

This all-in-one volume has been updated with the latest information on today's most powerful microprocessors, including the Intel 80386 and 80486, as well as the latest laptops, video displays, disk drives and power supplies.

At the same time the book retains as much as possible the information contained in previous volumes for earlier personal computers, so that this second edition provides background theory and practical techniques for servicing Apple II, Macintosh, Amiga, Commodore and IBM PC circuitry and components, in other words both 8-bit and 16-bit machines. You need a combination of tools, technique and technician-level theory of operation, which is both general and specific and is shown in the book.

Computers are covered from their beginnings in the late 1970s, with specific emphasis on the IBM and clone machines, the Apple and Commodore computers, and others. Twenty-six chapters cover aspects such as diagnosing symptoms, what test equipment to use, how to take computers apart and put them back together again, using chip location guides, actual repair procedures and using diagnostic software, desoldering and resoldering the common DIPs and SMDs, explanation of typical PC operation, chip circuits, including 8, 16 and 32-bit microprocessors, right up to a special chapter on the 80486. This is followed by busses and slots and their importance as test points, memory maps, display monitor interfaces, video adaptor cards (including VGA), and disk drives. The book finishes with a chapter devoted to 'safety first'. Warning: references may be made to the American standard 110 VAC mains supply. You should translate these into the English 240V AC mains standard and take the appropriate precautions with the higher voltage level. 1991. 695 pages. 235 x 186mm. illustrated. American book.

Best. nr. 07 17 33   **Pris** 329.–

Servicing TV & Video Equipment
by Eugene Trundle

This 'hands-on' servicing book is specifically aimed at repair and service technicians and engineers, but students and laypeople should also find use ful. It guides its readers in test and diagnostic procedures for quick fault-finding in domestic video products, namely TVs, VCRs, cameras and camcorders. Based on many years of practical bench and field experience, the book has a minimum of regard to theoretical principles and circuit explanations, which are well covered elsewhere. Here the emphasis is on the practical nuts-and-bolts business of fault diagnosis and repair. Seventeen chapters are individually targeted on separate aspects of the equipment, dwelling longest on the most troublesome sections: TV power supplies, line timebases, intermittent faults and repair techniques.

Home VCR Repair Illustrated
Service & Repair Your Own VCR and Save a Bundle
by Richard Wilkins & Cheryl A. Hubbard

This book was based on an accumulation of ideas and the experience of the author gained in VCR repair. The methods described are simple and safe to use on any VCR. If you follow the instructions carefully. The book is designed to teach you how to do-it-yourself in your own home, using household items and basic tools and step-by-step instructions. No test equipment is involved.

The book is broken down into sections that correspond to each particular section of a VCR, so you can easily proceed to the relevant section. Most chapters contain a review section, providing step-by-step instructions to assist in diagnosis and repair. This also acts as a checklist so you don't miss any important steps when carrying out repairs. The examples discussed and shown in the photographs try to cover every commercial make or model of VCR. Warning: references may be made to the American standard 110 VAC mains supply. You should translate these into the English 240V AC mains standard and take the appropriate precautions with the higher voltage level. 1991. 398 pages. 234 x 188mm. illustrated. American book.

Best. nr. 07 17 45   **Pris** 229.–

The Washing Machine Manual
A 'Haynes' Manual
by Graham Dixon

The householder's complete DIY guide to plumbing-in, maintaining and repairing of automatic, front-loading washing machines, including the latest type of washer-dryer laundry centres. All popular makes and models spanning at least a decade are covered. In the Haynes tradition detailed step-by-step instructions are linked to photographs and fault finding flow charts, enabling the do-it-yourself to diagnose and repair faults quickly, saving money on call-out charges and maintenance contracts. Models covered include those manufactured by AEG, Ariston, ASEA, Balay, Beekay, Bendix, Blomburg, Bosch, Burco, Candy, Caravelle, Carlton, Colston, Creda, De Dietrich, Electra, Electrolux, Fagor, Frigidaire, Hauknecht, Hirundo, Hoover, Hotpoint, Husqvarna, Indesit, Jackson, Juno, Kelvinator, Kenwood, Miele, Neff, Newpol, Philco, Philips, Prowoda, Samel, Servis, Siemens, Smeg, Zanussi, Zerowatt. Several useful chapters deal with stain removal, the latest information on textile care labelling codes and jargon. 1988. 136 pages. 276 x 214mm hard-cover, illustrated.

Best. nr. 07 17 48   **Pris** 195.–

Videocassette Recorders – A Servicing Guide
Third edition
by Steve Beeching

The book covers VHS and Betamax machines as well as the Philips N1500/N1700 and V2000 systems. Long play machines and hi-fi sound systems are included as well as the digital techniques applying to servos and signal processing circuits. Common faults on many machines are discussed with possible solutions. A very comprehensive book which will prove invaluable to all owners of modern video recorders. The latest edition includes details of Video 8, VHS HQ, S-VHS, VHS-C, Camcorders etc. 1988. 230 pages. 245 x 188mm. illustrated.

Best. nr. 07 17 39   **Pris** 498.–

Of the 225 illustrations, fifty-four are off-screen photographs, and thirteen are fault-finding charts. A symptom index is included for easy reference to this storehoused of practical advice straight from the repair bench. 1989. 209 pages. 253 x 194mm. illustrated.

Best. nr. 07 17 36   **Pris** 439.–

Camcorder Video – Shooting & Editing Techniques
by Joan Merrill

For serious video enthusiasts or those who just want to make their tapes look more polished, this book offers practical and helpful suggestions and techniques for producing professional quality videotapes. The book is divided into four sections. Part one begins with an in-depth examination of the camcorder, its development, how it works, how to expand its capabilities, and how to properly maintain it. Part two examines shooting techniques, including shots and sequences, light, colour, and sound. Part three covers topics such as shooting special events (office presentations, weddings, athletic events) and special productions (family histories, music videos, time capsules). Part four discusses editing techniques, including equipment, and how to use a personal computer for video production. Being helpful and practical at this book's primary goal, but to be motivated is an objective as well. The camcorders an amazingly simple and yet sophisticated device, it can create whatonly a few years ago, was possible only with highly expensive, technically intimidating equipment. American book. N.B. This book makes reference to the American 525 line, 60Hz NTSC television system. 1992. 240 pages. 235 x 177mm. illustrated.

Best. nr. 07 17 42   **Pris** 389.–

Micro Interfacing Circuits – Book 1
by R.A. Penfold

It is now perfectly feasible for the average amateur electronics enthusiast to build reasonably simple add-ons for a microcomputer, and transform it into a versatile and sophisticated piece of equipment for measurement or control. This book will help those who, although having some previous knowledge of electronics, are unfamiliar with 'interfacing jargon'. It describes the basic principles of interfacing circuits to microprocessor equipment, but not just in a purely theoretical manner. The circuits are all practical ones using real devices. Subjects covered include address decoding parallel and serial interfacing, A to D and D to A converters etc.
1984. 98 pages. 178 x 111mm, illustrated.

Best. nr.	Pris
07 17 84	59.-

Micro Interfacing Circuits – Book 2
by R.A. Penfold

Following on from Micro Interfacing Circuits Book 1, above. Book 2 deals with practical applications beyond parallel or serial interfacing to the microprocessor. It is about 'real world' interfacing and includes such topics as speech and sound generators, temperature and optical sensors, motor control etc. As with Book 1, practical circuits using real devices are provided with circuit descriptions and any relevant background information, such that anyone with a reasonable knowledge of electronics should be able to use or adapt the provided circuits for their own particular applications.
1984. 90 pages. 178 x 110mm, illustrated.

Best. nr.	Pris
07 17 87	59.-

Experiments with EPROM's
by Dave Prochnov

This book provides fifteen fascinating hands-on 'EPROM experiments'. Each experiment comprises building different devices to use the EPROM's. These include a 'Boole sbox', used for determining the logic levels present on digital IC pins; a keyboard encoder which generates a digit and displays the character of the key pressed; Bit Smasher I and Bit Smasher II, extremely simple and more versatile EPROM programmers; 'Eprogrammer II', a versatile, portable, computer-based EPROM programmer; EP1-EPROM program tester, used to test and debug an EPROM's data before writing the data to the device; 'ROM Drive', and many more.
1988. 240 pages, 233 x 186mm, illustrated. American Book.

Best. nr.	Pris
07 17 90	279.-

Interfacing Standards for Computers
An IEEE Monograph
by A.C. Maine

This monograph serves as an introduction to the interfacing techniques and standards used by computers. Both computer standard buses and local area networks have been deliberately excluded from the text as due to their breadth, complexity and importance, each deserves a monograph in their own right. With communication being such a vital concept in computing systems, the opening chapter defines the need for, from restating, the basics of interfacing never hurt from restating. Today, even small instruments are based on microprocessor chips, and/or that reason these devices are considered in some detail.

There are three basic forms of computer mentioned. First there is the parallel type that is now the standard of the industry. But also covered are the Apple II computer and the Z80 chip. The book provides a practical, workbench basis for both electronics engineers and other technicians whose expertise is in fields other than electronics or computing.
1991. 462 pages, 227 x 150mm, illustrated. American book.

Best. nr.	Pris
07 17 72	329.-

Microcomputer Interfacing
A Practical Guide for Technicians, Engineers and Scientists
by Joseph J. Carr

The microprocessor has literally revolutionised the electronic instrument and coontrol system design fields, and has done so in record time. Where instrument designers were once exclusively analogue engineers, today's instrument designer has to be a synergist who can integrate the principles of sensor selection, analogue circuit design, computer hardware selection and/or design, and software design and operation. Today, even small instruments are based on microprocessor chips, and/or that reason these devices are considered in some detail.

There are three basic forms of computer mentioned. First there is the parallel type that is now the standard of the industry. But also covered are the Apple II computer and the Z80 chip. The book provides a practical, workbench basis for both electronics engineers and other technicians whose expertise is in fields other than electronics or computing.
1991. 462 pages, 227 x 150mm, illustrated. American book.

Understanding Computer Systems Architecture
The Complete Course Text
by M. Lacy

NEW

This book is aimed at those students entering high level computing courses with non-computing backgrounds and those students wishing to make full use of open access facilities, and the requirement for more self-study material. This book aims to provide for students in both of these groups, as well as catering for the person new to computing and wanting to find out more about the subject in general, in all its different forms. There are many books at an introductory level which will attempt to cover the whole of computing between the two covers. Then there are the higher level books which act as reference texts on specialist areas of computing. However, this book fills the gap between the two by covering the fundamentals in just one discipline, called Computer Systems Architecture. It starts at a general introductory level, providing the reader with the knowledge and skills which will enable him or her to consult the more advanced texts with confidence. The material covered comprises the essentials of various courses called Computer Systems, Computer Architecture and Computer Technology, as taught by the author to HND, degree and BCS level. The book assumes that the reader is already familiar with the representation and manipulation of numbers in various bases (binary, octal, hexadecimal, etc.), and has had some experience with writing simple programs in a high level language such as BASIC or Pascal.
1991. 478 pages, 246 x 188mm, illustrated.

Best. nr.	Pris
07 17 81	198.-

Microprocessor Interfacing
by R. Vears

Principally this book covers the BTEC level N III Microprocessor Interfacing syllabus U86/335, and can be regarded as a comprehensive textbook on the subject of interfacing microprocessors to external peripherals and sensors. The text concentrates on the widely used 6502, Z80 and 6800 6802 microprocessor families, and so is directly applicable to many 8-bit home microcomputers and 'breadboard' systems using these popular microprocessors. Basic details of typical interfacing devices for each of these are included in the text, but the reader is encouraged to obtain complete data sheets for such a device when the need arises to solve an interface problem. Copious amounts of detailed hardware and software examples are provided covering signal amplification and filtering to condition the output from external sensors and make them logic compatible, D-A and A-D conversion, data transfer techniques including STD and IEEE-488 bus protocols, parallel and serial I/O using the EIA-RS232 standard. Well recommended for anyone planning a home built microprocessor system, no matter how modest, to communicate with another computer or electronic peripherals including relays, motors, sensors and opto-isolators etc.
1990. 200 pages, 226 x 150mm, illustrated.

Best. nr.	Pris
07 17 75	198.-

Microprocessor System Design
A Practical Introduction
by Michael Spinks

NEW

This book introduces the essential concepts and techniques that underlie the design of useful electronic circuits, especially microprocessor boards and their peripherals.

No previous knowledge of electronics is assumed: new terms and ideas are explained as they arise, and maths and jargon are kept to a minimum, the book concentrates on helping the reader acquire and understand the few relatively simple elements and techniques from which complex circuits are built up. The book is not just about microprocessor systems. There is also plenty of information about other electronic circuits and devices, including op-amps. After an introduction to these electronic circuits, both analogue and digital components, op-amps and PALs, the book goes on to describe how microprocessors work and how they are used in bus-based systems. To conclude, some practical aspects of electronics design are examined.
1992. 247 pages. 247 x 186mm, illustrated.

Best. nr.	Pris
07 17 66	348.-

Microcomputer Interfacing
An Experimental Approach using the Z80
by Mike Cavenor & John Arnold

Adopts a highly practical approach in presenting the topic of microcomputer interfacing.

The material is based upon the Z80 MPU, an industry standard, and its support peripheral chips. While it is not the most modern microprocessor, the Z80 nevertheless is ideal for learning the fundamentals of this important subject. The subject is most effectively learned when ample opportunity is used to reinforce theoretical concepts with relevant real exercises. Full notes are provided for up to forty actual experiments. In the process, you will have to write much of the assembly language programs yourself, however, the book shows how to set about carrying out the construction of real hardware which includes a monophonic organ and pulse and waveform generators, seven segment displays, keyboard interface, digital storage oscilloscope, intruder alarm controller, serial communications and serial links.
1989. 382 pages. 234 x 170mm, illustrated.

Best. nr.	Pris
07 17 69	329.-

The Dishwasher Manual
A 'Haynes' Manual
by Graham Dixon

The householder's complete DIY guide to plumbing-in, maintaining and repairing domestic dishwashing machines. All popular makes and models, spanning at least a decade, are covered. As with Haynes well known car and motorcycle owner's workshop manuals, this book places great emphasis on the experience gained through actually doing the jobs on the machine in question and overcoming problems as they occur. The models covered include those by AEG, ASEA, Bauknecht, Beekay, Bendix, Blomberg, Bosch, Candy, Carlton, Colston, Creda, De Dietrich, Electrolux, Fagor, Hirundo, Hoover, Hotpoint, Husqvarna, Indesit, Jackson, Juno, Kelvinator, Kenwood, Miele, Neff, Philco, Philips, Prowoda, Samet, Servis, Siemens, Siltal, Smeg, Thomson-Brandt, Zanussi, Zerowatt. In fact this book is designed to help in the understanding, functioning, maintenance and repair of all domestic dishwashers, irrespective of their country of origin or maker's name. As with washing machines, dishwashers are produced in many countries and are exported worldwide, hence this book is invaluable for dishwasher owner sall over the world. There are chapters full of useful facts such as a table showing the hardness of water around the British Isles, a table of international symbols of the icon type now commonplace around the world (e.g. a picture of a wine glass meaning 'fragile') as mightbe found on a dishwasher to describe its capabilities, and a list of jargon words and their meanings.
1990. 112 pages. 276 x 214mm, illustrated.

Best. nr.	Pris
07 17 51	199.-

Troubleshooting and Repairing Power Tools
by Homer L. Davidson

Whether you are a woodworker, metalworker, machinist or general DIY'er, you need this time and money-saving guide to the repair of power tools, which will help you diagnose and repair virtually any tool in your workshop, from small hand-held drills, sanders, power screwdrivers to bench-top saws, grinders, routers and lathes. The only repair manual aimed specifically at domestic power tool users, this book covers everything you need to know to keep your tools in good working condition.

WARNING: this is an American book and there are repeated references to the US 120V mains standard. You should of course read these as 240V for appliances in the UK, and have a corresponding greater respect for the higher voltage level.
1990. 260 pages, 235 x 187mm, illustrated. American book.

Best. nr.	Pris
07 17 57	259.-

MICROPROCESSOR BOOKS
From Chips to Systems
by Rodnay Zaks & Alexander Wolfe

A basic text on micro processors discussing concepts and definitions; how the micro operates, techniques and components needed to implement memory and input/output functions; relative merits of major microprocessor chips; how to assemble the components into a system; application sand how to build for them; interfacing to standard peripherals; and simple programming. American book.
1987. 604 pages. 228 x 190mm, illustrated.

Best. nr.	Pris
07 17 60	398.-

The Home Electrical Appliance Manual
A Haynes Manual
by Graham Dixon

NEW

Each year sees an increase in the number and variety of small electrical appliances for use in the home and garden. All these appliances have one thing in common, at sometime the y will fail to function correctly. Often lack of maintenance is responsible for the failure of both new and old equipment. Although mass production and large volume sales have made many of these items very low cost, it may still be a practical proposition to effect a repair, even though the lack of spares outlets for these items makes it difficult. This book helps you understand how many of our household items work, and from this you can correctly identify when faults occur and how to prevent them.
1991. 182 pages. 276 x 212mm hardcover, illustrated.

Best. nr.	Pris
07 17 54	229.-

An Introduction to Microcomputer Systems
Architecture & Interfacing
by John Fulcher

Provides a thoroughly modern and up-to-date introduction to microcomputer interfacing, as well as a general introduction to the fundamentals of microcomputer architecture. Discussion of the hardware and software aspects of interfacing are woven together by reference to two industry standard 16-bit microprocessors: the Intel i8086 and the Motorola 68000.

Contains over 350 diagrams and written in a clear and friendly style, and packed with up-to-date specifications and data. Numerous programming examples are shown based on the two standard 16-bit microprocessors, with self-test objectives and summaries provided with each chapter. with self-assessment review questions.
Suitable for students of computer science and

The Transputer Handbook
by Ian Graham & Tim King

The Transputer Handbook describes the software and hardware implementation of transputer parallel processing systems, bringing together information from a multitude of sources in a readily accessible form.

Intended to act as a guide to the capabilities of the transputer family and transputer based systems, the book will show the reader the process of how software and hardware solutions are found for particular problems. Examples of transputer processors mentioned include the T225, T400 and T800 series. An introduction to the OCCAM programming language developed alongside the transputers introduced, but you will notice several examples alternatively written in 'C'. Notably any example hardware connection circuits provided but also the common transputer assembly language instruction set. If you want to know how transputers work and what they do, you must read this book!

1990. 210 pages, 234 x 172mm, illustrated.

Best. nr.	Pris
07 17 93	348.-

GENERAL COMPUTER BOOKS
Computer Studies

The Complete Course Text – Third Edition
by C.S. French

This book provides a sound foundation in computer studies to meet the needs of introductory examinations in computer studies. The text has been designed for use in independent studies or in conjunction with schools, colleges etc., and is of a level which meets GCSE, BTEC, RSA and City and Guilds standards, and includes questions and answers exercises.

This edition includes text on databases, 4GLs, software packages and methods of applications development.

1990. 531 pages, 245 x 189mm, illustrated

Best. nr.	Pris
07 17 96	139.-

Computing
An active learning approach
by P.M. Heathcote

The initial aim of this book is to provide the classroom support material needed for computing study courses. It has been designed as an interactive teaching and learning aid, eliminating the need for hand-outs or copious note-taking.

Apart from its value during a particular course, the book is also ideal for any reader wanting to get in on the ground floor of computer studies and around which he/she can build a learning programme.

There are ten sections covering an introduction to computers and business data processing, programming in Pascal, data structures, databases,

Hard Disk Pocket Book
by Mike Allen & Tim Kay

An increasing majority of software available today requires a hard disk if it is to be able to perform properly and effectively. The current trend for programs to get larger and more powerful shows no sign of diminishing, so superior hard disks, both in terms of size and performance, are now becoming an essential feature rather than a luxury.

This book is a comprehensive guide to hard disks, covering every aspect from manufacture, drives and components, organisation, utilities and data security. The utilities include Disk Manager, Norton Utilities, PC Tools, SpinRite II, XTree, Windows and ProFinder. In addition floppy drives are introduced and followed by an investigation into what the future might hold for data storage. Also included is an extensive glossary of terms, acronyms and details associated with hard disks. If you either own one or are of thinking of procuring one this book is a must.

1990. 352 pages, 197 x 94mm hard cover, illustrated.

Best. nr.	Pris
07 18 02	229.-

Hard Disk Quick Reference
1992 Edition

A hard disk can be the most valuable component of your computer system, saving you time and making you more productive. A hard disk enables you to boot your computer and run programs without continually changing floppy disks. This book includes the quick reference information you need to use your hard disk effectively. Designed as a general guide, it tells you how to install and configure a hard disk, organise directories and manage files on a hard disk, and correct common hard disk errors. This hard disk quick reference guide provides general hard disk information and is not intended to replace the documentation provided by the hard disk manufacturers, nor any detailed information from other sources. Together with a large number of tips and techniques, this guide provides examples for multiple versions of MS-DOS up to and including DOS 5. Sample directory structures and hard disk error messages help you increase your PC's power through increased efficiency. A variety of solutions are provided on how to solve common hard disk problems. Main areas covered include: hard disk basics; partitioning and formatting; organising directories and managing files; backing up and restoring files; speeding up operations with batch files; and hard disk maintenance. American book.

1992. 160 pages, 203 x 122mm, illustrated.

Best. nr.	Pris
07 18 05	159.-

Data Communications Pocket Book
Second Edition
by Michael Tooley

Presenting, in as succinct a manner as possible, information for everyday relevance to the world of data communications.

Despite the apparent complexity of the subject, care has been taken to ensure that the book is meaningful to as wide a range of readers as possible. Tabulated reference material has been interspersed with brief explanatory text and relevant diagrams. Invaluable to anyone involved with the interconnection of computer systems: technicians and engineers involved with the installation, commissioning and maintenance of data communications equipment; executives and clerical staff as the end users of data communications related products; and managers involved with the specification and purchasing of such products and systems. Similarly, the book should also appeal to the growing number of enthusiasts for home management and leisure pursuits.

1992. 176 pages, 195 x 95mm hardcover, illustrated.

Best. nr.	Pris
07 18 08	198.-

Computer Hobbyists Handbook
R. A. & J. W. Penfold

How many times have you spent hours looking through computer books and magazines in an attempt to find some snippet of information? An ASCII code perhaps, or connection details for a computer port? The 'Computer Hobbyists Handbook' provides a range of useful reference material in a single source so that it can be quickly and easily located. The subjects covered include microprocessors and their register sets; interfacing serial, parallel, monitor, games and MIDI ports; numbering systems, MIDI codes; operating systems and computer graphics. There is also a useful glossary of computer terms, and appendices covering topics such as ASCII codes, Epson control codes and flowchart symbols. The reader is not simply presented with raw data, but in most cases there are useful explanations so that the information can be used by beginners as well as more experienced users. Although primarily aimed at the computer hobbyist, no doubt, this book will also prove to be very useful to those involved in computing professionally, as well as being a useful source of information for students.

1989. 120 pages, 264 x 195mm, illustrated.

Best. nr.	Pris
07 18 11	99.-

Computer Engineer's Pocket Book
Third Edition
by Michael Tooley

To be able to fully exploit the potential of microprocessors and microcomputers it is becoming increasingly necessary to abandon the old boundaries which have until now existed between what has been called 'hardware' and 'software', simply because it is becoming impossible to work exclusively with one without getting involved somehow with the other. The same is true of any home microcomputer where it is required to be interfaced to the outside world. Includes popular CPU instruction sets, character sets, CMOS and TTL IC pin-outs with internal schematic diagrams, logic symbols, connectors' wiring and a host of glossaries. In fact everything you need to quickly and accurately make up your Veroboard add-ons.

1991. 255 pages, 196 x 95mm, illustrated.

Best. nr.	Pris
07 18 14	229.-

The Protection of Computer Software – Its Technology and Applications
Edited by Derrick Grover

Many pieces of commercial software are represent the result of many thousands of hours of investment. It is therefore essential for the originator to protect this investment from piracy and corruption. Whilst the law provides certain protection it cannot provide a complete safeguard, and so technical means have emerged. This new edition incorporates chapters on both computer viruses and hacking, covers the state-of-the-art in the technology of software protection, and is intended to create a general awareness of the aims and possibilities of this technology. The book describes techniques which can be implemented to protect programs from being used or copied by the copyright infringer and the software pirate.

1992. 321 pages, 228 x 151mm, illustrated.

Best. nr.	Pris
07 18 17	299.-

Computer Viruses and Anti-Virus Warfare
by Jan Hruska

The virus danger is here to stay. In the U.S., the Far East and Africa it has already reached epidemic proportions, and it is only a matter of time before it becomes more common in the rest of the world. In just the three months of Spring 1989, the number of separately identifiable viruses increased from seven to seventeen. You must read this fascinating book, especially if you own a PC – some examples of the IBM DOS oriented viruses are horrifyingly simple to create and complete in their destructiveness. Read all about 'Trojan horses', 'logic bombs' and worms', to begin at the beginning.

1990. 130 pages, 241 x 167mm, illustrated.

Best. nr.	Pris
07 18 20	319.-

ASSEMBLY AND MACHINE LANGUAGE PROGRAMMING BOOKS

An Introduction to 6502 Machine Code
by R.A. & J.W. Penfold

The 6502 microprocessor is used in many popular home computers including the Electron, BBC models A and B, VIC-20, ORIC-1/Atmos and Atari models. This book illustrates how to use machine code programming with such machines, which enables a vast increase in running speed, instead of using a built-in high-level computer language such as BASIC. The programming does become somewhat more complex however, although it is not as difficult as might be supposed. The book includes some simple demonstration programs which will run on the above computers.

1984. 108 pages, 177 x 110mm, illustrated.

Best. nr.	Pris
07 18 23	59.-

Programming the 6809
by Rodnay Zaks & William Labiak

This book covers the 6809 inside and out. You will learn how signals are handled within the chip itself and how to get them to control all essential I/O functions.

Whether you are a first time or experienced programmer, this book will make it possible for you to use the 6809 to its fullest capacity.

1982. 362 pages, 227 x 151mm, illustrated.

Best. nr.	Pris
07 18 26	369.-

Assembly Language Subroutines for the 6809
by Lance Leventhal & Sally Cordes

This book serves as both a source and a reference for 6809 assembly language programs, containing a collection of useful subroutines described in a standard format, accompanied by an extensive documentation package covering parameters, results, execution time and memory usage. The collection emphasises common tasks that will be required in many applications including code conversion, array and bit manipulation, data structure management, I/O routines, sorting and searching, and routines handling common family chips such as parallel and serial interfaces and timers. This book will save you much time and effort by not having to write and debug your own standard routine library, instead just choose the specific routines required and get on with the main task of completing your programs. Each routine is provided with test data to verify correct assembly. Recommended.

1989. 365 pages, 235 x 171mm, illustrated.

Best. nr.	Pris
07 18 29	348.-

Assembly Language Subroutines for the 68000
Routines to Run on the 68000/010/020/030
by Lance Leventhal & Fred Cordes

This book is intended as both a source and reference for the 68000 assembly language programmer. It contains a collection of useful subroutines described in a standard format and accompanied by extensive documentation. The documentation covers the procedure, parameters, results, execution time, memory usage and each showing at least one example of execution which provide is known best data. The routines will also run on related microprocessors such as the 68008, 68010, 68020 and 68030.

The nature of the library emphasises common tasks that occur in many applications. These tasks include code conversion (integer/hex, decimal, BCD); array manipulation, 16-bit and BCD arithmetic, bit manipulation, shifting functions, string handling, data structure management, sorting and searching described.

1989. 416 pages, 235 x 170mm, illustrated.

Best. nr.	Pris
07 18 32	348.-

BASIC and PASCAL in Parallel
by S.J. Wainwright

This book takes the two languages and develops programs in both simultaneously. Emphasis is placed on structured programming by the systematic use of control structures, and modular program design is used throughout. Example programs are used to illustrate the program structures as they are introduced, and the reader can learn by example. As the title suggests the book is intended as a bilingual introduction to programming which can be used to learn both languages simultaneously, and to learn programming techniques which are compatible with both languages.

1983. 60 pages. 180 x 110mm, illustrated.

Best. nr.   **Pris**
07 18 71   29.–

BASIC and FORTH in Parallel
by S.J. Wainwright

Forth is a very different language from BASIC, but this book takes both languages and investigates how things are done in each of them. BASIC is used as a familiar 'handle' with which to grasp the various programming techniques.
A FORTH-Stack simulator program is included which runs on a 16K or 48K Spectrum computer. The Stack is central to the operation of FORTH and an understanding of the Stack is fundamental to the FORTH programmer.

1984. 95 pages. 178 x 110mm, illustrated.

Best. nr.   **Pris**
07 18 74   39.–

BASIC and FORTRAN in Parallel
by S.J. Wainwright & A. Grant

A novel book which can be used to learn FORTRAN or BASIC, or both! It is therefore a very useful language to learn. BASIC needs no introduction – this book covers the two languages, at a very reasonable price. An appendix includes a FORTRAN interpreter written in Sinclair-Spectrum BASIC, which supports most of the common features of the language and makes it possible to 'get the feel' of writing FORTRAN programs.

1984. 79 pages. 178 x 110mm, illustrated.

Best. nr.   **Pris**
07 18 77   39.–

BASIC Programming
NEW
Third Edition
by B.J. Holmes

The aim of this book is to present to the reader the many facets of the BASIC language, in the content of a college-based course on computer programming. The book has already proved to be very popular with those students studying for computer examinations, where BASIC is the preferred language.

In addition, the home-computer enthusiast who wishes to progress beyond the 'game-playing' stage will also find this text invaluable in understanding how to program a computer.

This book, however, has not been written for anyone dialect, but deliberately for use with any computer that uses Microsoft BASIC as used on the IBM PC and compatibles and the BBC/Electron BASIC are included by way of illustration. Throughout the book the emphasis is on structured program design from proper planning, and many programming examples are included. Well recommended.

1990. 287 pages. 245 x 190mm, illustrated.

Best. nr.   **Pris**
07 18 85   139.–

Understanding PC Software
by R.A. Penfold

The IBM and compatible PCs are now more or less the automatic choice for business computing applications, as well as some scientific, technical, and other applications. They are versatile computers backed up by an unrivalled range of applications software and specialist hardware devices. Within reason, a PC can handle any application. This book is concerned with the software side of PC computing, and it assumes that you have very little previous knowledge of computer software, but something about the hardware side of things, and that you can get the computer up and running. All main types of business computer software are covered in this book, including word processors, databases and spreadsheets. Once you understand the basis of these programs it becomes fairly obvious which are the best for you, and you can avoid costly mistakes that are almost certain to occur as a result of stumbling around in the software maze.

1991. 134 pages. 198 x 130mm, illustrated.

Best. nr.   **Pris**
07 18 59   89.–

PASCAL Programming
NEW
The Complete Course text
by B.J. Holmes

The aim of this book is to help the reader acquire and develop the skill of computer programming in a block-structured language and to alter an understanding of the related topics of data structures and data processing. It can be regarded as a complete text on programming and the use of data structures. The contents are sufficient to give confidence to any reader who is taking Computer Studies to GCE A, BTEC National and higher national awards, first year undergraduate level and British Computer Society Part 1 examinations.

The book is also ideally suited to those requiring a knowledge of programming, yet whose major course of study is not computing, for example engineering students and those requiring a self-study course. It should also serve as a primer for those who can already program in other languages, yet wish to learn Pascal in the shortest possible time. Pascal is essentially a language which has been designed to teach good programming principles, and as such has been much used in universities and other learning institutions and is often required to be used during computing and computer aided design studies.

All programs have been compiled and tested, using Borland's Turbo Pascal 5.5¹, on an IBM compatible PC. However, the reader is directed throughout the text to differences between this dialect and that of Standard Pascal, which conforms more to Standard Pascal. The purpose of this to enable all the programs appearing in the first sixteen chapters to be implemented in other dialects of Pascal that may resemble Standard Pascal.

1991. 463 pages. 243 x 190mm, illustrated.

Best. nr.   **Pris**
07 18 68   198.–

An Introduction to Z80 Machine Code
NEW
by R.A. & J.W. Penfold

Machine code programming is a means whereby the user can get to grips directly with the microprocessor using the binary numbers which the computer actually handles. This negates using a built-in high-level language such as BASIC, wherein instructions have of necessity a number of options which use up memory and time. Machine Code can be very much faster since only the function you want is the one that is executed; such instructions can easily be only a few machine cycles long. To use Machine Code effectively you have to become familiar with the microprocessor's architecture, its Instruction Set, use of The Stack, data storage etc, and be reasonably conversant with the hexadecimal binary numbering system. This book shows you how with the Z80 or faster Z80A, as used in many popular home computers such as the Sinclair ZX Spectrum and ZB1, the Memotech MTX500 and MTX512, and the Amstrad CP464. Some simple demonstration programs are included.

1984. 136 pages. 178 x 111mm, illustrated.

Best. nr.   **Pris**
07 18 53   59.–

BOOKS TEACHING PROGRAMMING

GW-BASIC for Beginners

This is GW-BASIC as provided for PC compatibles (but also identical in use to true IBM PC-BASIC), which are quite capable computers, and this book is intended to help you become an equally capable programmer. The BASIC adheres to the original Microsoft standard in principle and, although it has many extra commands to keep up with the PC, transporting similarly Microsoft standardised BASIC software from lesser 8-bit micros to a PC is perfectly feasible. The first few chapters begin by showing you the important fundamentals of program writing, such as good programming style, documentation, logic structure and breaking complex problems down into easier modules. In addition you will learn the theoretical and practical foundation of data processing. The copious use of 'flow-charts' illustrates the most important aspect of good program writing, planning the program on paper first, the essential prerequisite before touching the keyboard at all. Each section concludes with exercise problems to solve, going on to more complex problems and hence more complex programs, providing actual hands-on experience working with BASIC on your computer. The language is described in functional stages, commencing with simple input and printing, moving on to variables, arrays, subroutines, file management and disk operations etc.

1990. 322 pages. 228 x 178mm, illustrated. American book.

Best. nr.   **Pris**
07 18 56   288.–

PC BASIC Programming for IBM PC and Compatibles

Visual Basic
NEW
by Steven Holzner and Peter Norton

Visual Basic is a tremendous toolbox of programming resources. This book explains how to create your own screen display windows, beginning with the essentials, and following the natural course of Windows programming development starting with a simple blank window, and then adding colour, graphics, buttons and text boxes, which Visual Basic calls 'controls'. Dialogue boxes, messages and menus can also be added, going onto more advanced topics that real Windows applications deal with, the clipboard, bitmaps, icons and dynamic data exchange, allowing the user to communicate with other Windows applications like those from Microsoft. Getting Windows programs running and producing real results is simply a matter of designing what you want on screen and then letting Visual Basic handle the details.

To use the book properly, some familiarity with BASIC is required. Also needed are Windows V3.0 or later; a mouse; and a copy of the Visual Basic software, any version. The book includes over 100 ready-to-run programs.

1991. 449 pages. 235 x 187mm, illustrated. American book.

Best. nr.   **Pris**
07 18 62   398.–

An Introduction to 68000 Assembly Language
by R.A. & J.W. Penfold

The 68000 series microprocessor is currently in use in the Commodore Amiga, Atari ST, Apple Macintosh and Sinclair QL etc. This book explains the operation of the 68000 and its associated hardware and then details how to write its assembly language. Once learned, your programs will run at greatly enhanced speeds over high-level languages like BASIC.

1988. 112 pages. 178 x 110mm, illustrated.

Best. nr.   **Pris**
07 18 35   59.–

Assembly Language Subroutines for the 8086/186/286/386
Routines to Run on the 8086/186/286/386
by Lance Leventhal & Sally Cordea

This book is intended as both a source and reference for the 8086/8088 assembly language programmer. It contains a collection of useful subroutines described in a standard format and accompanied by extensive documentation. The documentation specifies the procedure, parameters, results, execution time, memory usage and each showing at least one example of execution which provides known test data. The routines from this book will also run on related microprocessors such as the 80188, 80186, 80286, 80376, 80386, and 80486, which are also popular processors for many PCs. The nature of the library emphasises common tasks that occur in many applications. These tasks include code conversion (e.g. integer/ASCII hex, integer/ASCII decimal, packed BCD); array manipulation, 16-bit and BCD arithmetic, bit manipulation, shifting functions, string handling, data structure management, sorting and searching. There are also examples of I/O, interrupt service and initialisation routines for common family chips such as parallel interfaces and timers. You should be able to use these in actual applications and such a library makes for the possibility of producing some complex and sophisticated complete programs written in assembly language.

1989. 410 pages. 235 x 170mm, illustrated.

Best. nr.   **Pris**
07 18 44   348.–

Programming the M68000
by Tim King & Brian Knight

This comprehensive guide explains how to program the M68000, which is one of the most advanced microprocessors available at the present time. It is written in a clear and readable manner and provides a wealth of information. The basic M68000 architecture is introduced and then each instruction is explained. Many practical programs are given and readers are encouraged to write effective programs. A complete small monitor program which will handle input and output, test programs etc. is also included. In the new edition the 68010 and 68020 are also covered.

1986. 288 pages. 235 x 156mm, illustrated.

Best. nr.   **Pris**
07 18 38   348.–

A Z80 Workshop Manual
by E.A. Parr, B.Sc., C.Eng., M.I.E.E.

The book details the Z80 instruction set and assembly language programming is discussed with examples. Hardware details of the Z80 and associated I/O devices are given. Z80 hex machine code and assembler instructions are given in tabular form along with I/O connections for the devices discussed.

1983. 184 pages. 178 x 110mm, illustrated.

Best. nr.   **Pris**
07 18 47   59.–

IBM PC Assembly Language and Programming
by Peter Abel

The spread of microprocessors has also caused a renewed interest in assembly language, because a program written in assembly requires considerably less memory space and execution time. Secondly, a knowledge of assembly language and its resulting machine code provides an understanding of the machine's architecture that no high level language, even such as Pascal or C, can possibly provide. This second edition book can act as both a tutorial and a permanent reference, including DOS feature through to version 4.01, information unique to the IBM PS/2 series, features of Borland's turbo assembler, features of Intel's 80386 and 80466 processors, the use of simplified segment (addressing) directives and later additional interrupts, memory management, program overlays and keyboard buffer details. American book.

1991. 560 pages. 234 x 176mm, illustrated.

Best. nr.   **Pris**
07 18 41   348.–

Programming the Z80
by Rodnay Zaks

A thorough introduction to machine language programming from basic concepts to advanced data structures and techniques. With detailed examples and numerous programs, the reader will gain not only an understanding of programming in the Z80 language, but also a detailed understanding of the way a microprocessor actually executes instructions.

1982. 626 pages. 228 x 150mm, illustrated.

Best. nr.   **Pris**
07 18 50   419.–

Structured Programming in COBOL
The Complete Course Text — Second Edition
by B.J. Holmes

As with others of its type, this book is primarily aimed at the student, however, it is equally relevant to the home computer enthusiast wanting to exploit alternative high level languages, in this case COBOL. This text can be used either as a first course in programming or for transferring from another high level language, such as BASIC. This book is written around two complementary themes: the design of structured computer programs based on the techniques from Jackson Structured Programming (JSP) and the methods available for coding these designs in the COBOL language. JSP has been adopted by many in the programming industry, as a standard for designing structured programs.

Standard COBOL-85 has been used in the translation of the JSP program designs. Because of the subset of the ANS 1974 standard, but if any older it maybe necessary to make very minor amendments to the code in the text. The nature of these, where applicable, are fully described.

Best. nr. 07 18 80   **Pris** 89.–

Learning to Program in C
by N. Kantaris

This book is a guide to C programming. C statements are introduced and explained with the help of simple, but completely working programs. Graded problems are set at the end of each chapter, some with a financial or scientific bent, so that the users can choose their own level of problem difficulty on which to practice with some additional choice in preference of the field of application. Full working solutions appear at the back of the book.

1989. 128 pages. 198 x 130mm, illustrated

Best. nr. 07 18 83   **Pris** 89.–

Mastering C Programming
by W. Arthur Chapman

This book is intended as a first course in C programming. It is equally suitable for anyone new to programming as it is for those already familiar with another language. Access to a computer running C is assumed, and, with this condition the text is conducive to self study, and all the examples have been tested using Turbo C V2.0 running on a PC, but the transportability of C should make them equally acceptable to other C compilers.

The main aim is to introduce C and to provide the essentials of the language. Throughout the book a number of rather more substantial programs are developed to provide an account for the use of C in rather larger projects, and each is discussed and developed from the start. Three main programs are dealt with in detail, these being a calculator, a line editor and a simple bridge tutor. As you work through the material you should develop a good understanding of C and C programming.

1991. 307 pages. 234 x 155mm, illustrated.

Best. nr. 07 18 86   **Pris** 99.–

SPECIALISED SOFTWARE BOOKS

A Concise Introduction to OS/2
by N. Kantaris

If you are a multi-tasking PC user and want to get the most out of your computer in efficiency and productivity, then you must learn its OS 2 operating system. With this Concise Introduction to OS 2 you will learn to do just that in the shortest and most efficient way. The more experienced user can start from any section. The book explains: How the OS 2 operating system is structured so that you understand what happens when you first switch on your computer. How to use the OS 2 commands to perform various house-keeping operations on your disk files. How directories and sub-directories can be employed to organise the way you keep files on your disk so that your system's efficiency is maximised. How to use the editor to fully configure your system by writing your own CONFIG.SYS, STARTUP.CMD and AUTOEXEC.BAT files. How to write batch files to automate the operation and use of your system. How to manage your system's environment. The book covers both the command-line mode of processing and the Presentation Manager of OS 2 Standard Edition 1.1 as implemented by IBM and Microsoft.

1989. 72 pages. 198 x 130mm, illustrated.

Best. nr. 07 18 89   **Pris** 59.–

A Concise Introduction to GEM
J. W. Penfold

If you have a computer which uses GEM, this book is designed to help you get the most from it. Though much of GEM is straightforward, you will find those parts which are not explained here. Not just written as an introduction for new users, it has also been structured to provide a convenient, compact source of reference for more experienced users, and serves to refresh the finer points for anyone who has not used GEM for sometime.

The book describes GEM and its capabilities, how it can be used for the housekeeping of both hard and floppy disk files, how to configure and run applications from the GEM desktop to the best advantage. All versions of GEM up to release 3.01 and including the versions supplied with the Amstrad PC and Atari ST machines are covered, and all the special features of GEM menus, graphics and other special features available to users within GEM applications programs.

1989. 80 pages. 195 x 130mm, illustrated.

Best. nr. 07 18 92   **Pris** 59.–

DOS 5 Made Easy
by Herbert Schildt

This book is for anyone who wants to learn how to use DOS version 5. No prior experience with computers is necessary for learning DOS using this book. If you have previous experience running an older version of DOS, you will be able to advance quickly through the first few chapters, concentrating mostly on the new features of DOS 5, and there are here.

DOS is a complex program with many commands and options. This book distils its most useful components and concentrates on getting you running DOS as quickly and easily as possible. After reading just the first three chapters, you will be able to begin using your application programs. By the time you finish this book, you will be running DOS like a professional user.

This book is a tutorial in nature and includes many hands-on examples. For best results you should work through each example using your own computer.

1991. 412 pages. 235 x 187mm, illustrated.

Best. nr. 07 18 98   **Pris** 279.–

Peter Norton's DOS 5 Guide
Fourth Edition
by Peter Norton

This book is about getting started with DOS — the disk operating system for the family of IBM and compatible personal computers — but it doesn't stop with DOS. This book also teaches you how to become an effective user of a small PC.

On the one hand this book tells you about DOS and how to make good use of the commands that are built into it. On the other, it also gives you information on such topics as how to choose intelligently among the hundreds of programs offered for sale. In these pages, you'll find out how to make your PC work for you. You'll learn what works and what doesn't, what to buy, what to use, and none of this advice is theoretical, but based on 25 years of experience working with computers from PCs to mainframes. Peter Norton has dedicated the last 10 years to PCs and this book is the result of that experience, and is based on sound common sense. Highly recommended for new users to DOS 5 or DOS in general.

1991. 498 pages. 234 x 187mm, illustrated.

Best. nr. 07 19 01   **Pris** 389.–

DOS for Dummies
A Reference book for the Rest of Us!

The basic idea of this book is very simple - you are an intelligent person, but don't know anything about DOS. What's more, you have absolutely no intention of becoming a DOS wizard. If you just want to be using your PC, then this is the book for you.

It covers 100% of all the things you will be doing with your computer. All the common activities, the daily chores, the painful things that go with living with a computer are all described here in English. The book is meant to be treated like a reference and is not read from cover to cover, although there's nothing to stop you doing so. In fact is a very amusing book to read. In spite of the author's proclamation about not bothering with 'useless' technical details, there are many separate text boxes containing more detailed information about the function, operation and sometimes history of various DOS commands. The book is essentially written for DOS 5, but is also relevant for earlier versions 4.0/1 and 3.3. There are six sections altogether, covering absolute basics (plugging in and switching on etc.), the Non-Nerd's Guide to PC Hardware', 'Same for software'; 'When it's time to toss in the towel', the Section of Tens (ten common mistakes, ten things you shouldn't ever do, etc.), and DOS references. A highly recommended American book.

1991. 320 pages. 234 x 188mm, illustrated.

Best. nr. 07 18 95   **Pris** 259.–

A Concise Introduction to Microsoft Works
by N. Kantaris and P.R.M. Oliver

Microsoft Works™ is an easy to use, integrated package for a PC which incorporates four modules: word processing, spreadsheet with graphics, database, and communications. The modules are downward compatible with earlier versions (version 2.0 is dealt with in this book). The package comes with its own front-end graphic interface and full documentation. This book was written to help the beginner, and the material is presented on a 'what you need to know first' basis, although the underlying structure is such that you don't need to start at the beginning. Experienced users can go to any of the self-contained sections for reference.

1991. 130 pages. 198 x 130mm, illustrated.

Best. nr. 07 19 10   **Pris** 89.–
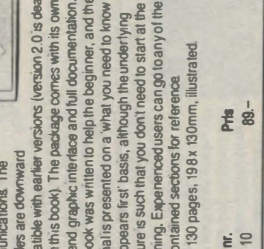
A Concise Introduction to Lotus 1-2-3
by N. Kantaris

If you are a PC user and want to get to grips with Lotus 1-2-3, then this book will teach you how to do just that in the shortest and most effective way. The book was written with the non-expert, busy person in mind and, as such, it has an underlying structure based on 'what you need to know first, appears first'. The more experienced user can start from any section. The book explains: how Lotus 1-2-3 can be used to build up simple spreadsheet examples, edit, save and retrieve them. How to format labels, enter and format numbers, change the default width of cells, enter formulae and Lotus 1-2-3's in-built functions, and print a worksheet. How to freeze titles on screen, use a non-continuous address range, insert, erase and move blocks, add graphs to a worksheet, add legends and titles to graphs, view and print graphs. How to set up a database management system, sort and search a database, use the find and extract commands to query information held in a database. How to create a simple macro. The book lists all Lotus 1-2-3 indicators, functions and macro commands so that it is self-contained and can be used as a reference book long after the reader becomes an expert in the use of the program.
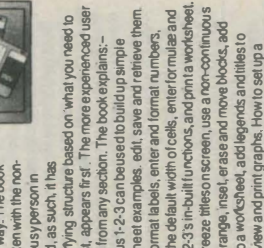
1989. 144 pages. 198 x 128mm, illustrated

Best. nr. 07 19 04   **Pris** 69.–

A Concise User's Guide to Lotus 1-2-3
by N. Kantaris and P.R.M. Oliver

Lotus 1-2-3 is a powerful and versatile software package which, over the last few years, has proved its usefulness, not only in the business world but also for scientists and engineers as well.

If you are a PC user and want to upgrade to Lotus 1-2-3 Release 3.1, then this book will teach you how to do just that in the shortest and most effective way. It was written with the existing spreadsheet user in mind, and has been designed so that you don't have to start at the beginning and go right through to the end. The more experienced user can start at any section as these were designed to be self-contained 3-dimensional worksheets and link files together; how to generate and add graphs to a worksheet, edit, preview and print worksheets; how to use the WYSIWYG add-in to produce top quality displays; how to set up a database management system, sort and search a database, use the find, extract and modify commands; how to create macros and custom menus, use macro keywords and debug a macro. The book lists all the Lotus 1-2-3 indicators, functions and macro commands so that it is self-contained and can be used as a reference long after you become an expert in the use of the program.

1991. 112 pages. 198 x 130pages, illustrated.

Best. nr. 07 19 07   **Pris** 69.–

A Concise Introduction to Windows 3.0
by N. Kantaris

If you are a PC user and want to get to grips with Microsoft's Windows 3.0 then this book will teach you how to do just that in the quickest and most effective way. The book was written with the busy, non-expert, person in mind. However, the more experienced user can begin at any section, as the sections were designed to be self-contained.

The book explains hardware requirements needed to run Windows 3.0 successfully, and how to install, customise and fine-tune the program; how to manipulate Windows screens and how to use the Windows Triple Management system, Program Manager, File Manager and Print Manager to advantage; how to use the word processor accessory Write to type, edit, format, print and save documents.

Also explained is the use of 'Paintbrush' and its tools to draw and edit drawings, and how to set up, sort and search a Cardfile database and exploit its autodial feature. How to use the Windows Calendar to enter appointments, add special times and alarms, and how to use the Terminal accessory to connect to remote systems.

1991. 128 pages. 198 x 130mm, illustrated.

Best. nr. 07 19 13   **Pris** 69.–

A Concise Introduction to MS-DOS
by N. Kantaris

All PC users who want to get the best out of their computer in terms of efficiency and productivity must learn its PC/MS-DOS operating system. This book will help you to do just that effectiveway. Written with the busy non-expert in mind, it has an underlying structure based on the idea that the things that you most need to know first are explained first. However you need not start at the beginning and go through to the end if you don't want to, more experienced users can go to any section.

The book provides enlightenment about such things as what turns your computer is first switched on, and the files it uses as it auto-boots from a system disk, how to use EDLIN.COM to write your own 'CONFIG.SYS' and 'AUTOEXEC.BAT' files (and also what to write!), and how to organise your disk storage using sub-directories. Covers all versions of 3.x and 4.x, of both PC-DOS and MS-DOS as implemented by IBM and other manufacturers of compatibles' including Amstrad. Since in reality your DOS manuals is little more than a reference manual or memory jogger, this book is essential reading for making sense of the manual and properly managing your system's environment.

1992. 98 pages. 198 x 128mm, illustrated.

Best. nr.	Pris
07 19 19	59.-

The New MS-DOS Primer
by Martin Thomson

MS-DOS, Microsoft's Disk Operating System, has become the world standard for microcomputers. It is the software that turns your machine into a functioning computer. Covering MS-DOS versions 3, 4 and 5, this book is written for the beginner. It uses simple straightforward language and everyday examples to teach the most frequently used features of MS-DOS.

The chapters are short and logically organised, each ending with a summary emphasising the main concepts covered. Perhaps most importantly of all, the book covers disk formating and the storage of files on disks, and gives details on how to copy, rename, delete and move files from disk to disk. The making of security copies is fully covered, so that you can insure against the loss of your valuable data. Guidance is given on how to avoid the destruction of your data by computer viruses, and what to do if your computer becomes infected.

With this book you will learn how to use MS-DOS and release the power of your computer.

1991. 223 pages. 215 x 135mm, illustrated.

Best. nr.	Pris
07 19 16	159.-

MS-DOS Beyond 640K
Working With Extended and Expanded Memory
by James Forney

Have you reached the 640K RAM limit of your IBM PC, or clone, machine when trying to run a large application? With some relatively inexpensive hardware and software investments you can give your computer expanded and/ or extended memory, and gain the ability to run larger applications, create multiple simultaneous work environments, maintain larger files, and more. This book will help you eliminate the guesswork in upgrading your machine, giving you a clear picture of all the alternatives and options available, and enabling you to get a better idea of what is right for you.

The book helps you determine whether extended or expanded memory, and how much of either, will meet your specific needs. This is the perfect guide to breaking through the 640K ceiling and exploring a new range of powerful applications and exciting capabilities. American book.

1989. 250 pages. 235 x 186mm, illustrated.

Best. nr.	Pris
07 19 22	329.-

MS-DOS Pocket Book
Second Edition
by I. Sinclair

Twenty million people worldwide use MS-DOS. This book aims to provide a useful and comprehensive guide to the MS-DOS operating system for computers of the PC class (using the 8088, 8086, 80286 or 80386 chips).

Enough information is included to ensure that the reader can confidently use a command even if he or she has never used it before. The bulk of the book concerns the users of DOS, assisting with the day-to-day business of file management. To this has been added some information on the inside workings of DOS for the user who may need to create short programs in assembly language or in higher level languages (Pascal, C or BASIC) and needs to know how these languages interact with MS-DOS. The book also covers the 'AUTOEXEC.BAT' file and the 'CONFIG.SYS' file; these important parts of the system are often omitted in other books that cover MS-DOS. The emphasis is on the use of a machine with a hard disk, but users of single floppy machines will also find much that is applicable. A good collection of clear, succinct information, well-illustrated with examples. Hardback.

1991. 131 pages. 198 x 95mm, illustrated.

Best. nr.	Pris
07 19 25	175.-

MS-DOS Tips and Tricks
by M. Tornsdorf and H. Tornsdorf

At last a collection of those useful tips so easily either missed or mislaid.

This book draws upon the experience of professionals using MS-DOS, and sets down some of their secrets. The techniques set out include: finding any file on a hard disk, copying data from BACKUP without the lottery of RESTORE, protecting data from unauthorised access and booting up from a batch file. The book lays out the tips as groups covering file management, user and data protection, printer tips, screen and keyboard routines, and updating and modifying DOS. There is also a large section of quick tips, which includes details on how to make better use of files such as AUTOEXEC.BAT and CONFIG.SYS. A well referenced, easily understood companion to the MS-DOS manual.

1990. 220 pages. 230 x 175mm, listings.

Best. nr.	Pris
07 19 28	278.-

A Concise Advanced User's Guide to MS-DOS
by N. Kantaris

If you are a PC user and are at ease with the routine usage of its PC/ MS-DOS operating system, but are looking for ways to improve your system's efficiency and productivity, while learning something new, then this book will help you to do just that, in the shortest and most efficient way. The book explains how to write both simple and advanced customised batch files which allow you to display what you want, and in the form you want it. How the ANSI.SYS display and keyboard commands can be used to position the cursor on any part of the screen, change the interensity of the displayed character's colour or change their colour, or re-define the keyboard keys so that by pressing such a key a complete command can be issued as if it were typed at the keyboard. How the EDLIN line editor can be used to enter ESCape (ANSI.SYS) commands in to a file so that simple menus can be built. How the DEBUG program can be used to create, see and change the contents of any file, including those of your way around the names and tasks of the CPU registers and the meaning of some simple assembler mnemonics. How to write programs in assembly code, using DEBUG, which can control your screen and keyboard. How to design and set up interactive professional looking menu screens so that you or others can run programs or applications packages easily. This book is relevant to both the PC-DOS and MS-DOS flavours of DOS, as implemented by IBM, and other manufacturers of 'compatible' 'micro-computers. It covers all versions of 2.x, 3.x and 4.x.

1989. 80 pages. 198 x 125mm, illustrated.

Best. nr.	Pris
07 19 31	49.-

dBase III Plus
A Short Course — Educational Software Included
by Dennis P. Curtin

From the innovative Computer Application Software Series (COMPASS), this educational book introduces the reader to dBase III Plus(R) on three levels: concepts, procedures and activities.

This short course is specifically written for instances where time is limited. The text is organised into self-contained topics covering concepts, which explains the principles of database management, and procedures, which describes, step-by-step, how to execute dBase commands. There is a hints and tips section dealing with advanced procedures and a tutorial section demonstrates, command-by-command, how to use the procedures explained in the topic.

Areas covered include how to enter and edit text, and move quickly around large documents. How to perform block operations including move, copy, delete, case change and printing. How to format text ready for printing including the use of advanced feature such as basic formatting, such as line spacing and setting margins. How to install printers and print out documents using various fonts and printing effects. How to use the mail-merge facilities to customise standard letters. How to exploit useful facilities such as the spelling checker, thesaurus and sort routine. Up to WordPerfect version 5.0 are covered.

The exercises provide additional opportunities to practice and gain experience with concepts and procedures, and a questions section tests your comprehension. An example database is shown in Part 2 of the book, comprising a project that analyses census data. The only requirement is that the reader understands such database activities as sorting and indexing records, querying a database and printing a report. The book comes with 2 5¼in. floppy disks with the example software and data to experiment with.

1991. 145 pages. 275 x 210mm, illustrated. American book.

Best. nr.	Pris
07 19 34	379.-

A Concise Introduction to WordPerfect
by R.A. Penfold

WordPerfect has now become the most popular word processor for the IBM PC range and the numerous "compatibles" currently in use around the world. The WordPerfect user has a tremendously powerful writing tool at his or her disposal. A word processor of this quality enables you to work quickly but still produce well formated and accurate documents. Although software of this complexity can be a bit daunting for the beginner, with the aid of this small book you will soon learn to master most aspects of WordPerfect. The book is aimed at beginners to word processing, and assumes a minimal amount of knowledge about computers and running applications programs.

1989. 106 pages. 198 x 125mm, illustrated.

Best. nr.	Pris
07 19 40	69.-

Using Word Perfect 5.0 on the IBM PC and Compatibles
by Roger Carter & Ann Gaulter

'WordPerfect' is fast becoming the industry standard word processing package. In the UK it has captured 25% of the market with 2,000 copies being sold per month. In the US around 50% of new WP users select WordPerfect. This book is a simple step-by-step guide to both the basic and the more advanced features. It will benefit the absolute beginner as well as those who want to advance further. A short activity follows each major topic, so that the reader can practice there is a major exercise which consolidates the main points. The book covers starting off, editing, saving and printing, managing documents, advanced word processing, merging and sorting, outlines, indices and summaries, and finally, graphics. 1989. 351 pages. 215 x 140mm, illustrated.

Best. nr.	Pris
07 19 43	259.-

Using WordStar
Second Edition
by Alan Balfe

WordStar Professional Release 5 is the latest edition in a long line of industry standard word processors from MicroPro International – an evolution that began in the founding days of personal computing and will continue into the future. WordStar, in all its variations, is the best selling word processor around the world. Using WordStar is a comprehensive guide to both the basic and advanced features. Intended primarily for those who are new to the program, it covers in depth all aspects from the initial installation through to producing complex documents and formats. In addition it includes separate in-depth chapters about each of the associated programs. Covers getting started, using WSCHANGE, starting the program, editing documents, printing effects, TelMerge, PC-Outline and ProFinder.

1990. 383 pages. 215 x 136mm, illustrated.

Best. nr.	Pris
07 19 37	259.-

WordPerfect 5.1 Made Easy
Covers Versions 5.0 and 5.1
by Melia Mincberg

This book is for the beginner or newcomer to WordPerfect(R) or the intermediate user, and covers version 5.0 and 5.1. In here you will find everything you need to complete your documents, from instructions for installation to directions for printing your text with fancy fonts and special characters.

WordPerfect version 5.0, released in May 1988, became a best-seller because of its ability to do the basics such as type, edit, and print documents with ease, along with its more advanced features, such as outstanding printer support and many desktop publishing capabilities. Version 5.1, released in November 1989, offers additional features to make the program even easier to use; mouse support, pulldown menus and new features enabling the user to create the correct layout for mathematical equations, produce tables and import spreadsheets. The capabilities of both versions are described in this book; those that refer to only one or the other version are clearly marked as such.

1990. 1071 pages. 234 x 185mm, illustrated. American book.

Best. nr.	Pris
07 19 46	348.-

BOOKS ABOUT DESKTOP COMPUTERS

An Introduction to Desktop Publishing
by R.A. & J.W. Penfold

Desktop publishing is one of the most exciting developments in computing in recent years. It puts all the facilities of document design and typesetting at the disposal of anyone with a suitable microcomputer. This opens up the field of written communications as never before.

The book introduces the software and hardware required for 'DTP', and shows what it does not necessarily require very expensive equipment, though they may be desirable for best results. It shows how a start can be made with modest computers and printers.

The book shows you how to create and layout documents, how to use fonts and typography, and how to add illustrations, both drawn and scanned graphics. Also included is an extensive glossary of DTP, computing and printing terms.

1991. 94 pages. 263 x 194mm, illustrated.

Best. nr.	Pris
07 19 49	99.-

A Practical Reference Guide to Word Processing on the Amstrad PCW8256 and PCW8512
by F.A. Wilson

With the PCW8256 and 8512 Amstrad have now brought word processing within the reach of everyone. These machines are capable of manipulating letters and words in practically every conceivable way, and what can be achieved with them is probably limited only by the user's ingenuity. This indispensible book includes easy to follow step by step charts to guide the inexperienced through many complex procedures. The book includes a comprehensive reference section for the manuals, and has itself been entirely prepared by the author for the final printed pages, using a PCW8256.
1986. 192 pages, 264 x 196mm, illustrated.

Best. nr. 07 19 52   **Pris** 99.–

Easy Add-On Projects for Amstrad CPC 464, 664, 6128 and MSX Computers
by Owen Bishop

Seventeen projects which can be used with the Amstrad CPC 464, 664, 6128 or MSX computers. The projects include a Picture Digitiser, Five-Key Pad, Model Controllers, Bleeper, Lamp Flasher, Magnetic Catch, Lap Sensor, Photo-Flash, Games Control, Data Selector and six more projects that make up a Weather Station. All of the projects are fairly simple and inexpensive to build, and a complicated Address Decoder does not need to be made first since the computer is accessed via its joystick or printer ports.
1988. 154 pages. 178 x 112mm, illustrated.

Best. nr. 07 19 55   **Pris** 59.–

Encapsulated PostScript
Application Guide for the Macintosh and PC
by Peter Vollenwelder

This book presents a detailed and clear introduction to the PostScript(R) language, including information on how text, graphics and images may be mixed at the PostScript level using the Encapsulated PostScript file (EPSF) format as an interchange standard: EPS files may be imported for example by Aldus PageMaker, or Xerox Ventura Publisher.

The contents of this book include detailed information on Adobe's latest version (2.0) of the Encapsulated PostScript file (EPSF) and version 3.0 of the document structuring convention specifications; includes a look at colour support, the HyperCard application, LearnPS, the Adobe TypeManager (ATM) and the Art Importer by Altsys; EPS effects by SmartArt and TypeAlign, and the PostScript

interpreter operating on the IBM mainframe; and concentrates on the mixing of PostScript files, and the PostScript-related Macintosh and IBM PC programs and provides information on networking PostScript based hardware.

This is a practical instruction book written for all desk top publishers, programmers, and those dealing with computer communications between minis, micros and mainframes with a graphics emphasis. Students of computing, graphics, art and design who are learning page description languages and PostScript as an introduction to programming will find the material contained within this book both easy to understand and enjoyable to use, and it will remain a quick and easy reference guide. In addition PostScript is important to anyone at all involved in DTP at any level, for whom this book will prove instructive.
1990. 243 pages, 235 x 173mm, illustrated. American book.

Best. nr. 07 19 56   **Pris** 329.–

PostScript Language Reference Manual
Second Edition
Adobe Systems Incorporated

The PostScript(R) language has fueled a revolution in the world of visual communications. This powerful and flexible language efficiently describes the appearance of text, sampled images, and graphics on a printed page or display. PostScript language interpreter have been incorporated into some of today's most innovative printers, typesetters, film recorders and computer display environments. This reference manual, from Adobe Systems Incorporated, who created the language, is the official reference to PostScript. This entirely new and up-to-date second edition offers the most comprehensive coverage of the entire PostScript language, including the recent advancements of PostScript Level 2.

This second edition of the PostScript Language Reference Manual contains the complete semantics of every PostScript language operator, the Display PostScript System, PostScript Level 1 (the original language), and PostScript Level 2, the first major revisions since its release in 1985. PostScript Level 2 incorporates recent extensions to the language and many new features.

PostScript is becoming part of the basic fabric of the printing, publishing and computing industries. If you have anything even remotely to do with any of these subjects, you ignore PostScript at your peril.
1990. 764 pages, 232 x 187mm, illustrated. American book.

Best. nr. 07 19 61   **Pris** 449.–

PostScript Language Tutorial and Cookbook
Adobe Systems Inc.

PostScript(R), a revolutionary, device-independent page description language, is quickly becoming the industry standard for printing high-quality integrated text and graphics. It is a powerful, flexible language that has

the ability to efficiently describe the appearance of text, images, and graphic material on the printed page. Already PostScript has been incorporated into some of today's most innovative printers, including the LaserWriter from Apple.

The PostScript Language Tutorial and Cookbook is a thorough and clearly written guide to PostScript that outlines the features and capabilities of the language and shows practical ways to create useful PostScript programs. Using numerous annotated examples and short programs, the tutorial provides a step-by-step guided tour of PostScript, highlighting those qualities that make it such a unique and powerful language. The cookbook offers a collection of some of the most useful techniques and procedures available to PostScript programmers.

The book is a companion to the PostScript Language Reference Manual (WZ04E). PostScript is fast becoming an international standard for DTP and publishing generally. American book.
1985. 243 pages, 234 x 187mm, illustrated.

Best. nr. 07 19 64   **Pris** 298.–

PostScript Language Program Design
Adobe Systems Inc.

The PostScript language has become the industry standard for printing high-quality language and text. This powerful language has the ability to describe efficiently the appearance of text, images and graphics on a printed page. The PostScript language is currently incorporated into over 30 different products, including phototypesetters and high-speed laser printers from many well-known computer systems vendors.

From Adobe Systems Incorporated, the inventors of the PostScript language, here is the definitive guide to designing efficient PostScript programs. It teaches the programming principles that are unique to the PostScript language and examples of efficient code. In this book, programmers learn techniques for such tasks as setting text, constructing graphics, writing emulators, debugging programs and more. The sample programs are also available on a disk directly from Adobe Systems.

The book is a companion volume to the two other books written by Adobe Systems, the PostScript Language Reference Manual (WZ04E) and the PostScript Language Tutorial and Cookbook (WZ3P). American book.
1988. 238 pages, 233 x 187mm, illustrated.

Best. nr. 07 19 67   **Pris** 350.–

Adobe Type 1 Font Format
Version 1.1
Adobe Systems Incorporated

The PostScript(R) language has become the industry standard for imaging high quality graphics and text for all kinds of professional publications. This powerful language has the ability to efficiently describe the appearance of text, sampled images and graphics on a printed page or display. Since letters are used so frequently in the description of a page, more flexible and special facilities to handle collections of letter shapes conveniently and efficiently. These collections are called fonts.

Written by Adobe Systems, the inventors of the PostScript language, this is the official specification for the Type 1 font format. This new, updated version describes the syntax of the Adobe Type 1 font format, including complete information regarding font and character level hints, character outline encoding, new flex procedure (V1.1), 'eexec' encryption, charstring encryption, and New Expansion Factor hint (V1.1). Companion volumes by Adobe Systems are also available through Maplin, including the 'PostScript Language Reference Manual (WZ04E), a definitive guide to the language; the 'PostScript Language Tutorial and Cookbook' (WZ13P), a practical and accessible introduction to the language and its capabilities with examples, while 'PostScript Language Program Design' (WZ14Q) is the proven guide to designing efficient PostScript programs.
1990. 108 pages, 231 x 187mm, illustrated.

Best. nr. 07 19 70   **Pris** 239.–

The ABCs of IBM PCs and Compatibles
Third Edition
by John Lasselle and Carol Ramsay

This book provides a quick and painless method for gaining skill and confidence with your new PC. It's an engaging, hands-on guide written especially for beginners, now in an up-to-date third edition featuring the latest in hardware and software. This popular tutorial covers everything from starting up the system to really coping with unexpected results, all in an easy-to-follow, jargon free style, including lessons which you can master in minutes.

Some of the topics dealt with include PC essentials; Disk do's and don'ts; Floppy and hard disks; DOS 5 and Windows 3; All about applications, what they are and how to use them, plus step-by-step, sample work sessions with WordPerfect 5.1 and Lotus 1-2-3 Release 3.1; Troubleshooting in detail: find out exactly what to do if something goes wrong – with troubleshooting tips throughout the text, and extensive problem-solving checklists.

You will also find a look at the world of add-ons; from fancy monitors and printers to communications equipment, some coverage on the special capabilities of the 386 computers, and more.
1991. 247 pages. 226 x 193mm, illustrated. American book.

Best. nr. 07 19 76   **Pris** 288.–

Understanding PC Specifications
by R.A. Penfold

If you require a microcomputer for business applications or a high quality home computer, an IBM PC or compatible is often the obvious choice. They are competitively priced and are backed up by an enormous number of applications programs, hardware add-ons, etc. The main difficulty for the uninitiated is deciding on the specification that will best suit his or her needs. It would be very easy to choose a PC system that is inadequate to run your particular applications efficiently, or one which goes beyond your needs, and consequently represents poor value for money. While explaining PC specifications in detail, subjects covered include: differences between types of PC (XT, AT, 80386 etc.); maths co-processors; input devices (keyboards, mice, and digitisers); memory, including both expanded (EMS) and extended RAM; RAM disks and disk drives caches; floppy disk drive formats and compatibility; hard disk drives (including interleave factors and access times); display adaptors, including all standard PC types (C.G.A., Hercules, Super V.G.A., etc.). Contains everything you need to know if you can't tell your E.M.S. from your E.G.A.!
1990. 104 pages, 198 x 128mm, illustrated.

Best. nr. 07 19 82   **Pris** 69.–

Inside the IBM PC and PS/2
Fourth Edition
by P. Norton

This best-seller has been thoroughly updated to include every model of the IBM microcomputer family. Detailed in content yet brisk in style. The book reviews fundamentals and then moves on to discover new ways of using your microcomputer to its fullest potential. Definitive in all respects. Includes a detailed look at all of the special features of the IBM PC family, its 'icones' and their compatibility, the fundamentals of the 80286, 386 and 486 microprocessors, plus the DOS operating system versions 1-1 to 4-0 and BIOS. Programming examples to show how each feature works in BASIC, Pascal, and Assembly Language are included, plus disk drive operation and data storage techniques, how ROM is allocated and much more. American book.
1991. 398 pages, 233 x 189mm, illustrated.

Best. nr. 07 19 85   **Pris** 389.–

PC User's Pocket Book
by Jim Reid

This book is an invaluable compilation of reference data, short tutorials and sample programs. Explaining the internal workings of the PC, the book analyses the computer's main components, detailing their operation and describing practical applications. For each topic there is a wealth of tips and techniques that will benefit the advanced PC user.

The book is based on the IBM PC range, including the 8086, 80286, 80386 and 80486 models, and is also relevant to the PS/2 range. The information in the book is relevant to all true IBM-compatibles: anywhere that incompatibilities may cause problems is highlighted. Versions of DOS up to and including DOS 4 are also covered.

Contents include the basics of assembly language programming, instruction sets, ROM BIOS and DOS interrupts, keyboard and screen operation, date and time services, sound generation, disk architecture, DOS file handling, directories and communications. As well as providing instruction in the programming of the machine, it should appeal to all programmers and computer enthusiasts and since most commercial programs are written or adapted for the PC compatibles, its relevant to programmers at all levels.
1991. 352 pages. 197 x 93mm hardcover, illustrated.

Best. nr. 07 19 79   **Pris** 229.–

Musical Applications of the Atari ST's
by R. A. Penfold

The Atari ST computer range are now firmly established as the computers to use in electronic music applications. The range and sophistication of these machines may not be fully realised or understood by most people – this book aims to correct these misunderstandings and present the Atari ST as a useful tool in developing your musical talents. A wide selection of the topics are covered – the internal sound chip, the AY-3-8910; MIDI, (musical instruments digital interface); applications programs such as sequencing and score writing etc.; simple but useful add-on projects for MIDI programming. Much of the material is usable by anyone who understands no more than just the basics of an ST, and who doesn't possess a great deal of electronics expertise. A great many screen photographs of actual programs (Lengeling/Adam, Hybrid Arts Inc.) are given to assist the reader. All the subjects are covered in much detail with particular relevance to the ST computers. Whatever your interest in music and the ST computer, this book will provide plenty of interesting and practical ideas for you to develop your interest and musical talents to the full.
1988. 90 pages, 263 x 192mm, illustrated.

Best. nr. 07 19 73   **Pris** 99.–

The Concise PC Notebook and Laptop User's Guide
NEW
by Dan Gookin

Portable computers are rapidly becoming the computer choice for many people who prefer the convenience and flexibility of laptops and 'notebook' computers that weigh less than six pounds. This book brings together all the information you need in order to buy and use a laptop, from setting up a portable with software to communicating with primary desktop PCs. The book is divided into four sections: buying a laptop; includes a brief look at a handheld organisers and palmtop DOS machines; setting up your laptop covers organising DOS and applications on a floppy-only, hard disk, or silicon-drive laptop system, and tricks and techniques for paring down programs; using a laptop covers applications designed to work best in a laptop environment, the laptop on the road', prolonging the life of laptop batteries, and information on peripherals; telecommunications covers selecting a modem and software, various methods of transferring files between laptop and desktop systems. The book comes with its own handy laptop diskette (3½in). On the disk there are dozens of utilities, batch files, and shareware programs, ideally suited for use on a laptop. If you are a laptop owner, or you are thinking of buying one, then this book will help you take full advantage of your laptop system. American book includes 3½in floppy disk.
1992. 296 pages. 234 x 187mm, illustrated.

Best. nr.   **Pris**
07 19 88   298.–

The PC Configuration Handbook
NEW
A Complete Guide to Troubleshooting, Enhancing and Maintaining Your PC
Second Edition
by John Woram

Newly revised and updated, this is the only book you'll need to keep your PC, XT, AT, or state-of-the-art 386 or 486 machine running trouble-free. The handbook gathers into one place all the relevant facts hidden in the manufacturers' technical reference manuals and translates them into simple English. The result is a problem-solving book that's essential reading for anyone trying to configure, reconfigure or troubleshoot a PC. The handbook covers all switch and jumper settings; compatibility issues; how to install and troubleshoot expansion cards, disk drives, modems etc; peripherals; the BMPS/2 line; 386- and 486-based system, and memory configurations; DOS 5; MCA and EISA bus architecture. Even if you would prefer not to make any repairs yourself, your ability to make a well-informed diagnosis will go a very long way toward helping to get your computer back up and running quickly. Whatever diagnostics you can do yourself will likely save a service engineer's time and your money. Packed full of detailed information, this book is recommended. American book.
1990. 744 pages. 235x 175mm, illustrated.

Best. nr.   **Pris**
07 19 91   469.–

PC Troubleshooter
by Ian Sinclair

Many problems that computer owners and users encounter have remarkably simple solutions. Some arise simply from misunderstandings with manuals or because some manuals are inadequate. Others arise from software faults, and only a very few are traceable to faults that require a soldering iron to be applied to any part of the computer's circuitry. This book is based on the amount of trouble-shooting that any PC owner/user can carry out short of soldering work. This means, in practice, about 90% of the faults that are mentioned in letters to magazines and to authors of books on computing. It is confined to the type of PC machine using 8088, 8086, 80286 or 80386 processors, and described as being IBM compatible, but excluding some of the most recent PS/2 models. Topics covered include: video, disks and drives, keyboard and mouse, printers, serial ports, MS-DOS, programming. PC expansion and many other problems.
1990. 194 pages, 230 x 151mm, illustrated.

Best. nr.   **Pris**
07 19 94   229.–

How to Expand, Modify and Repair PC's and Compatibles
NEW
by R.A. Penfold

Not only are PC's and compatibles very expandable, but before long many users actually wish to take advantage of that expandability and upgrade their PC systems. Some aspects of this can be a bit confusing, but this book provides advice and guidance on the popular forms of internal PC expansion, and should help to make things reasonably straightforward and painless, and little knowledge of computing or computer hardware is assumed. All you need is to have and be able to operate a PC of some description. Topics include a PC overview, memory upgrades, how to add a hard drive, how to add a extra floppy drive, display adaptors and monitors, fitting a maths co-processor, keyboards, ports, mice and digitisers. All are covered in detail with emphasis on practical advice rather than theory. The final two chapters deal with maintenance (including the preventive kind) and repairs and the increasingly popular subject of DIY PC's.
1990. 176 pages. 198x 130mm, illustrated.

Best. nr.   **Pris**
07 19 97   89.–

The PC Upgrader's Manual
How to Build and Extend Your System
by Gilbert Held

Although it may not be obvious, most personal computers can provide you with a long and useful service. For the same reasons that most of us would not buy a new car every time there is a model change, so also most of us do not buy a new computer each time a new advance in microprocessor technology occurs. In recognition of this, this book focuses on how to prolong the useful life of the original IBM PC series and compatible computers with techniques to improve performance of members of the IBM PC series, and upgrades to the more recently introduced family of IBM PS/2 computers. So whether you purchased the original PC, PS/2 or compatible or you acquired one of these at a later date, this book will assist you in maximising its potential. Because the utility of a PC is based to a great degree on the techniques used to maximis its performance, information to assist the reader isolate and resolve problems is also provided, should they occur. American Book.
1991. 356 pages, 234 x 190mm, illustrated.

Best. nr.   **Pris**
07 20 00   398.–

Getting the Most from your PC's Hard Disk
by J. W. Penfold

A hard disk is fast becoming an essential part of any computer which is to be used for serious purposes. It gives you the convenience of having all your applications and data files ready to hand as soon as you switch on, and gives fast loading of programs and files alike.
For those thinking of adding a hard disk, this book gives the basic information on how a disk is fitted, and how to format it for use. The information on interleave factors and installing DOS may also be useful to those who already have a hard disk.
For those with hard disks, this book gives advice on arranging files into subdirectories so that they are easy to find, and also on making your applications easy to use. Information and advice on back-up and security procedures is also included, plus a section with technical details of hard disk operations under DOS. A hard disk is not simply a large and last version of a floppy disk. It needs a wholly different approach to gain the most benefit from it. This book will show you how.
1990. 90 pages, 198 x 130mm, illustrated.

Best. nr.   **Pris**
07 20 03   69.–

ROBOTICS BOOKS

Electronic Circuits for the Computer Control of Robots
by R.A. Penfold

Probably one of the most interesting combinations of home computing and electronics for the hobbyist to experiment with is in the world of robotics. This 'science' need not be over-complicated nor the hardware too expensive, since all that is entailed is to provide some form of interactive machine control by a microprocessor – how complex the function is entirely up to you, and there are robotics kits and a wide range of mechanical components now available for a variety of machines, and many home computers are well suited to the task.
1986. 92 pages. 177 x 110mm, illustrated.

Best. nr.   **Pris**
07 20 06   59.–

The Robot Builder's Bonanza
NEW
99 Inexpensive Robotics Projects
by Gordon McComb

This book offers you a complete and unique collection of tested and proven project modules that you can mix and match to create an almost endless variety of highly intelligent and workable robots. By using the modular approach there is plenty of leeway for your imagination. 99 different experiments are provided which, in different combinations, enable you to create robots of all shapes and sizes and abilities. There are rolling robots, walking robots, talking robots, robots which can vacuum the floor, serve drinks, teach the kids, protect the family against fire and intruders, in fact almost anything is possible using these modules and a little ingenuity, as none of the projects are very expensive. The book is aimed at both the novice and intermediate robotics enthusiast; the projects include all the necessary information you need to construct the essential building blocks that go into the typical personal robot.
In addition to the abundance of illustrations, schematics, diagrams and parts lists, there is also a listing of tools and equipment required, and computer programs for supplying your creation with more than switches for control.
1987. 335 pages, 234 x 187mm, illustrated.

Best. nr.   **Pris**
07 20 09   259.–

CRAFT BOOKS

The Wonderful World of Whirligigs and Wind Machines
NEW
by Alan and Gill Bridgewater

Whirligigs and wind machines are woodworked wind-driven sculptures – a curious hybrid of windmills and weathervanes. Like many folk arts practised by the skilled artisans of centuries past, the creation of whirligigs and wind machines is enjoying renewed interest among craftsmen. This book describes how you can produce your own wind-driven projects using a challenging combination of modern and traditional tools and techniques, even beginners can create faithful replicas with only the most elementary woodworking skills. The book covers fifteen different projects and is profusely illustrated with drawings. The projects are not arranged in order of increasing complexity, you can start with any project and each one has been designed to stand alone. Each project has its own project picture, working drawings, section, details, and a step-by-step 'hands-on' illustrations. American book.
1990. 208 pages, 234 x 187mm, illustrated.

Best. nr.   **Pris**
07 20 12   198.–

Marquetry & Inlay – 18 Decorative Projects
NEW
by Alan & Gill Bridgewater

The art of using marquetry and inlay to decorate wood and other objects is centuries old. This book describes the art and includes a wide range of decorative projects. Fully illustrated with step-by-step directions, each project includes an explanation of the techniques, a materials list, working grids, an evaluation of the design, and a conclusion of helpful hints' for each project. The book describes how you can create unique designs on many household items, including: bookends, jewellery boxes, clock cases, tables and mirrors, picture frames and chopping boards. The book also provides a special section of patterns to inspire the reader to create other projects, and a completely illustrated glossary that defines terms, woodtypes, and various marquetry and inlay techniques. American book.
1991. 175 pages, 235 x 186mm, illustrated.

Best. nr.   **Pris**
07 20 15   229.–

Stenciling Made Easy
NEW
by Wanda Shipman

For the beginner, a craft should be enjoyable, as headache-free as possible, and it should not demand a lengthy initiation into complicated means, methods, and materials before it can be enjoyed. This book takes a fresh look at this revived decorating craft and explains how you can easily and quickly master its techniques to create a bright new look throughout your home. Stenciling is quick, easy, affordable and versatile. This book opens with important guidelines in choosing colours and designs that will complement the style and decor of your home, separate chapters address how to stencil walls, floors, wood, tinware, fabric and paper. Facts, helpful tips and advice abound on topics such as brush selection, types of paint, custom colours, border designs, spot stenciling, corrections and more. American book.
1989. 115 pages. 232 x 188mm, illustrated.

Best. nr.   **Pris**
07 20 18   248.–

Decorative Fish Carving
NEW
by Rick Beyer

Carving fish offers the widest possible range for artistic originality and expression for the woodcarver. This book is an excellent guide to the craft for those just starting out and an inspiration to all woodcarvers. The book explains which tools and wood types to use for specific pieces and provides explicit instructions for carving fish, paying careful attention to fish anatomy, fin movement and attack positions. Numerous close-up photographs are included along with detailed procedures for achieving special colour effects with paint. The author covers the important concept of design and balance and tells how to mount the completed work. American book.
1990. 128 pages, 235 x 188mm, illustrated.

Best. nr.   **Pris**
07 20 21   199.–

Through The Telescope
– A Guide for the Amateur Astronomer
NEW
by Michael R. Porcellino

This book offers an introduction to what can be a richly satisfying new hobby as an amateur astronomer. The book provides information on viewing the skies through binoculars, as well as through a telescope; practical guidance on the various types of amateur telescopes including advantages and disadvantages, information on lenses, mounts, and filters, and tips on proper usage. If you already own a telescope, there are practical suggestions for making your own equipment to enhance telescope performance: aperture masks to help resolve the images of unequal double stars, setting circles for star hopping, and a device to help collimate your system. Details are provided on observing the moon, the planets, comets, and meteors, as well as in-depth guidance on viewing the stars. You will learn how to see and identify double stars, variable stars, and deep-sky objects such as star clusters, nebulae, and supernovae. Special techniques for safely observing the sun are also provided. The author has included several appendices that contain the different charts and statistics you need to help find your way round the sky in this well illustrated book. American book.
1989. 350 pages, 233 x 185mm, illustrated.

Best. nr.   **Pris**
07 20 24   299.–

VI ER 10 ÅR!

Arngren Electronics feirer 10-års jubileum i 1993. Vi ønsker å dele dette med deg, og du får derfor kjøpe de følgende produkter til sterk reduserte priser. OBS! Begrenset antall.

Ønsker du mer informasjon om produktene, se da i hovedkatalogen for 1992. Har du ikke denne, kan du bestille denne hos oss. Katalogen er på 300 sider i A4, med over 10.000 produkter. Best. nr. 0001. Pris kr. 20.–

Bærbar kassettradio

Mark W10273 Stereo FM/AM-radio og dobbel kassettspiller. Kontinuerlig avspilling, kopiering med to hastigheter. Innebygd mikrofon og tilkobling for hodetelefoner. Kan kjøres på 220V eller med 6 R14-batterier.

Best.nr.	Førpris	Ny pris
05 00 07	800.–	598.–

Lommedisco med radio

Mark SK-52 Stereo kassettspiller med autostopp. FM/AM stereo radio med automatisk frekvenskontroll (AFC). Bassbooster. Leveres med belteklemme og hodetelefon.

Best.nr.	Førpris	Ny pris
05 00 17	400.–	299.–

Stereo lommeradio

Realistic SZA139 FM/AM radio med innebygd høytaler og uttak for hodetelefoner. Leveres med øretelefoner, som har innebygd antenne.
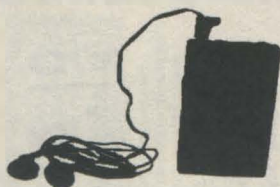
Best.nr.	Førpris	Ny pris
05 00 13	322.–	250.–

Bærbar radio

Crown C150 Mono FM/AM radio med toneregulering. Robust utførelse med bærehåndtak. Bruker 220V eller 4 UM-3 batterier.

Best.nr.	Førpris	Ny pris
05 00 05	214.–	150.–

Best.nr	Beskrivelse	Side	Før	Nå
09 01 81	Infrarød detektor 24×3m 4 stråler PIR-9038L	65	340.–	199.–
09 01 13	Solcelle utelampe m/fast panel, dimmer og stativ	214	335.–	199.–
09 01 17	Solcelle patiolampe formet som en smijemslykt	214	699.–	399.–
09 01 21	Solcelle panel komplett 12V 120mA	215	398.–	199.–
09 01 25	Solcellevifte bil/båt med batterilader	214	99.50	39.–
09 01 27	Solcelle nødlykt med batterilader	214	99.50	39.–
09 01 31	Solcelle joggelys	214	69.50	29.–
09 01 33	Solcelle nødlykt	214	69.50	29.–
09 01 35	Solcelle bilbatterilader 12V 80mA	215	149.50	69.–
09 01 37	Solcelle bilbatterilader 12V 200mA	215	399.50	199.–
09 01 39	Solcelle batterilader og strømforsyning 3,6,9V multiplugg	215	89.50	39.–
09 01 47	Sweepgenerator 8205A 0,02Hz–2MHz	47	2200.–	998.–
09 01 49	Audio generator 8204A 20Hz–200kHz	47	2073.–	1299.–
09 01 51	Digitalt bordmultimeter 4½ siffer V, A, W	47	2279.–	1399.–
09 01 53	Spektrum Analysator 7802 1–1000MHz	47	37576.–	28000.–
09 01 77	Digitalt autorange multimeter 3½ siffer, datahold, 10A	41	540.–	299.–
09 01 97	Digital clamp meter HC-400D	18	650.–	399.–
09 02 09	TEKO-boks plast 145×85×61mm med batterilomme	203	59.50	39.–
09 02 15	TEKO-boks plast 148×85×55mm med batterilomme	203	89.50	49.–
09 02 41	TEKO-boks plast 145×85×38mm	203	89.50	49.–
09 02 39	TEKO-boks plast 145×85×31mm med batterilomme	203	79.50	49.–
09 04 71	TEKO-boks metall UHF 13×29×21mm	—	24.50	15.–
09 04 73	TEKO-boks metall UHF 16×29×21mm	—	26.50	15.–
11 10 05	TEKO-boks plast aluminiumfront 145×85×38mm	202	54.50	29.–
11 10 09	TEKO-boks plast aluminiumfront 111×199×56mm	202	74.50	39.–
11 10 30	TEKO-boks aluminium sort sølvfront 122×118×53/88mm	—	69.50	39.–
11 10 37	TEKO-boks aluminium sort sølvfront 58×210×65mm	—	97.–	59.–
13 59 50	Digitalt lommemultimeter med bæreveske HC-920R	43	320.–	199.–
73 55 07	Testledningssett rød og sort	347	19.–	9.–
13 84 28	IC-klype rød	170	5.50	2.–
13 84 36	IC-klype sort	170	5.50	2.–
13 85 34	Phono veggkontakt med plate	177	3.50	1.–
13 85 38	Dobbel phono veggkontakt med plate	177	4.50	2.–
18 45 00	IR sender LED CQY-99	251	14.50	6.–
18 46 16	LED firkant n rød 8×8mm	187	4.50	2.–
18 47 06	LED rund l orange 5mm	187	2.50	1.–
18 47 21	LED firkant n grønn 4×4mm	187	3.50	1.–
18 47 48	LED firkant n grønn 8×8mm	187	4.50	2.–
18 48 16	LED trekant s grønn 3×4,6mm	187	3.50	1.–
18 48 53	LED trekant s rød 3×4,6mm	187	3.50	1.–
18 48 70	LED trekant s gul 3×4,6mm	187	3.50	1.–
18 49 18	LED rund l gul 3mm	249	2.50	1.–
18 49 19	LED trekant s grønn 3×4,6mm	187	3.50	1.–
18 49 26	LED firkant n gul 4×4mm	187	3.50	2.–
18 49 42	LED firkant n gul 8×8mm	187	4.50	2.–
18 83 95	Kjøleelement 46×46×30mm	—	12.–	5.–
18 84 84	Kjøleelement 50×12×100mm	—	32.–	19.–
18 86 11	Kjøleelement 97×25×37mm	—	19.50	9.–
18 86 38	Kjøleelement 97×25×10mm	—	39.50	9.–
18 87 00	Kjøleelement 132×50×100mm	—	49.50	9.–
18 94 72	IC-sokkel 6 ben	186	1.50	0.50
18 95 02	IC-sokkel 8 ben	186	1.50	0.50
18 95 10	IC-sokkel 14 ben	186	1.50	1.–
18 95 29	IC-sokkel 16 ben	186	2.–	1.–
18 95 37	IC-sokkel 18 ben	186	3.50	1.–
18 95 45	IC-sokkel 20 ben	186	2.50	1.–
18 95 53	IC-sokkel 22 ben	186	4.–	2.50
18 95 61	IC-sokkel 24 ben	186	3.–	1.–
18 95 70	IC-sokkel 28 ben	186	3.50	1.50
18 95 88	IC-sokkel 40 ben	186	4.–	2.–
18 95 89	IC-sokkel 42 ben	186	4.50	2.–
18 95 96	IC-sokkel 64 ben	186	14.–	9.–
19 47 60	Solcellepanel 95×65mm 3V 80mA	—	79.–	39.–
25 03 41	Sigarettenner plugg	181	5.50	4.50
25 26 54	BNC adapter BNC hun/UHF han	182	19.50	9.50
25 26 55	BNC adapter BNC han/UHF han	182	24.50	10.–
25 26 56	BNC sjassis-plugg	182	19.50	10.–
28 70 40	Mikrofonkontakt 4 pol hun	171	10.50	7.–
30 52 51	Mikser 4 kanaler med ekko 5–90ms	—	755.–	399.–
30 05 44	Cannon mikrofon og gitarkabel	184	99.50	49.–
32 25 55	Bilforsterker 2×150W	106	2476.–	1998.–

Best.nr.	Beskrivelse	Side	Førpris	Ny pris
51 78 01	Spenningsomformer 12VDC–220VAC 400VA	—	3074,–	1998,–
52 26 60	Plastboks	—	32,–	19,–
52 68 19	Wearoboard 400 hull 55x84x9,5mm	186	49,50	29,–
52 68 27	Wearoboard 630 hull 36x166x9,5mm	186	79,50	39,–
52 68 35	Wearoboard 830 hull 55x166x9,5mm	186	89,50	49,–
53 39 20	Sikringsholder for printmontasje 5,2x20mm sikring	176	2,50	1,–
60 71 34	Datakabel skjermet 32-leder (pr. meter)	273	51,50	29,–
60 71 42	Datakabel skjermet 40-leder (pr. meter)	273	74,–	39,–
61 55 01	Batteriholder 1xbaby (C, UM2), loddes	275	6,50	2,50
61 55 44	Batteriholder 3xmignon (AA, UM3), loddes	275	4,50	2,50
61 56 25	Batteriholder 2xmignon (AA, UM3), trykknapp	184	5,50	2,50
61 56 26	Batteriholder 2xmicro (AAA, UM4), loddes	184	7,50	2,50
61 56 28	Batteriholder 8xmicro (AAA, UM4), loddes	184	14,50	7,–
61 56 79	Batteriholder 4xmignon (AA, UM3), trykknapp	184	19,–	9,50
61 56 80	Batteriholder 10xbaby (C, UM2), loddes	184	19,–	9,50
61 56 92	Oppladbar lykt	—	304,–	98,–
65 00 05	Telefonkontakt, hun for veggmontasje	—	28,–	19,–
65 01 38	Telefon forlengelsesledning, modulpluggere 2xhun, 1xhan	174	39,–	19,–
65 01 50	Telefon spiralkabel 7,5m han/hun	173	49,–	29,–
65 01 90	Telefonledning 2,5m 4leder med kabelsko	174	14,50	7,–
65 01 92	Telefonledning 2,5m 4leder spiral med kabelsko	174	20,–	7,–
70 11 65	Bryter 1pol 2veis med midtstilling 250V 3A	—	20,–	15,–
70 11 68	Vippebryter 2pol 250V 10A	175	24,–	15,–
70 11 74	Vippebryter 2pol 120V 5A	175	14,–	6,–
70 11 77	Vippebryter 3pol 120V 5A	175	34,–	19,–
70 83 30	Skyvebryter 2pol 125V 6A	176	6,50	2,50
71 12 09	DSUB 15pin metalldeksel	18	11,–	4,50
71 84 33	Rød potmeterknott for 4mm akse	187	5,50	3,50
71 84 34	Gul potmeterknott for 4mm akse	187	5,50	3,50
71 84 35	Blå potmeterknott for 4mm akse	187	5,50	3,50
71 84 36	Grønn potmeterknott for 4mm akse	187	5,50	3,50
72 65 16	Lyspære 6V 2W for sokkel E10	189	10,50	2,50
72 65 24	Lyspære 12V 2W for sokkel E10	189	9,50	2,50
72 68 18	Signallysfatning med sokkel E5,5	188	16,–	5,–
72 69 23	Signallys 220V med pære 6,8mmÆ	188	14,50	4,50
72 73 34	LED grønn 5mm med kromfatning	187	8,50	4,50
72 73 42	LED gul 5mm med kromfatning	187	8,50	4,50
73 12 85	Liten høyttaler vinkel plugg	—	13,50	7,50
73 15 36	Phonoplugg hun sort	177	4,50	1,50
73 15 60	Phonoplugg han rød	177	4,50	1,50
73 24 51	Høyttalerkontakt hun skrufeste	180	3,50	2,50
73 28 34	Jack 2,5mm mono hunkontakt	178	5,50	2,50
73 30 40	Jack 6,5mm stereo hunkontakt	178	6,50	3,–
73 31 99	DC-kontakt for sjassismontasje 2,5mm hun	179	5,50	2,50
73 32 00	DC kontakt for sjassismontasje 2,1mm hun	—	6,–	2,50
73 32 01	DC kontakt for sjassismontasje 2,5mm hun	—	5,50	2,50
73 57 95	Jackplugg 3,5mm plast	—	5,50	2,50
73 66 60	Krokodilleklemme sort 20A	177	7,50	4,50
73 66 43	Krokodilleklemme sort 10A	177	4,50	3,50
73 66 61	Krokodilleklemme rød 30A	177	9,50	4,50
73 66 62	Krokodilleklemme sort 30A	177	9,50	7,50
73 75 77	DIN plugg hun 7 pinner	180	6,50	3,50
73 81 58	DIN plugg hun 5 pinner sjassis	180	6,50	3,50
73 81 47	DIN plugg han 5 pinner	180	7,50	3,50
73 83 10	Høyttalerplugg han lodding	180	3,50	1,50
74 08 38	BNC plugg han sjassis	182	19,50	9,50
74 09 26	UHF reduksjonsstykke UG175	181	3,50	1,50
74 09 42	UHF plugg hun sjassis	181	12,50	6,50
74 09 44	UHF han til RCA (phono) hun overgang	181	14,50	6,50
74 10 35	UHF plugg PL259 for tynn kabel (RG58)	181	9,50	6,50
74 20 58	Centronics hun 36 pinner	185	31,50	14,50
74 26 35	Print kantkontakt 25x2 pinner	185	21,50	9,50
74 29 45	Flatkabel printkontakt 20 pinner	186	16,–	4,50
75 05 14	Kojak alarmsirene 12VDC 20W	70	215,–	150,–
75 16 69	Piezokeramisk høyttaler 24x4mm	71	14,50	9,50
75 18 80	Mini summer 90dB 24VDC 17,5–17,5–32mm	187	16,50	9,50
75 18 98	Mini summer 90dB 6VDC 17,5–17,5–32mm	187	14,50	9,50
75 30 17	Alarm magnetkontakt par 200V 0,5A	75	75,50	39,–
97 48 11	Bilantenne plugg hun sjassis	180	5,50	2,50
PC 2267	PC-kasse desktop med monteringsmatriell	25	485,–	199,–
20 02 71	Verdensradio 10 bånd, tar f.eks. inn NRK i hele Europa	92	500.-	299.-
77 08 33	Programmerbar teknisk kalkulator 128 prog.steg 20 tekn. funk.	162	299.-	179.-

12V satelittanlegg

Tar ned alle TV-kanaler fra Astra-satelittene. Perfekt til hytte, campingvogn etc. 60cm aluminiumantenne tar inn bra bilder fra Trøndelag og sydover. Innebygd akustisk satelittfinder. Kan også brukes i hjemmet med utvendig strømforsyning (best.nr. 09 02 67 kr. 348.–).

Best.nr.	Førpris	Ny pris
28 86 59	4998.–	3998.–

Profesjonell miksepult

Robust 9-kanalers miksepult for profesjonelt bruk. Forgylte phonokontakter for optimal lydkvalitet. Innganger: 2 DAT, 2 CD, 3 phono, 2 mic, tape og aux. Utganger: 2 master, 3 tape samt line out. Regulerbar monitorutgang for hodetelefoner. Frekvensomr. 30Hz–30kHz, kanalseparasjon 60dB, utgang 775mV. Leveres med NEMKO-godkjent utvendig strømforsyning.

Best.nr.	Førpris	Ny pris
30 79 20	7421.–	4998.–

Høyttalervelger

For opptil fire sett høyttalere. Nå kan du ha ekstrahøyttalere på kjøkkenet, i peisestua etc. Max 200W.

Best.nr.	Førpris	Ny pris
31 14 72	539.–	399.–

12V varmeanlegg

For bil, båt campingvogn etc. Komplett sett med vifte/varmeapparat, relé, bryter, konsoll og kabler. 300W varmespole, støyskjermet. Bruker 12V DC. Mål 225x60mmØ.

Best.nr.	Førpris	Ny pris
84 14 12	1226.–	799.–

Memoblokk for bil

Festes med sugekopp på frontruten. Alltid for hånden, velegnet til å føre bensinforbruk, avstander, adresser etc.

Best.nr.	Førpris	Ny pris
84 93 96	42.50	29.–

2 stk. ekstrablokker

Best.nr.	Pris
83 94 00	19.50

Solcellekalkulator

I kredittkortformat, kun 2.5mm tykk. Med +, –, ×, ÷, %, √ og minne. Lettlest LCD-panel med 14mm høye tall.

Best.nr.	Førpris	Ny pris
77 10 15	50.–	29.–

Comet utendørspumpe

Vannavkjølt veskepumpe (ikke selvsugende) for utedørs bruk. Kan suge opptil 10 liter i minuttet, og løfte opptil 5.7m. Monteres 20cm under sugeåpningen. Trenger 12V DC, 1.5A. Leveres med en meter strømledning.
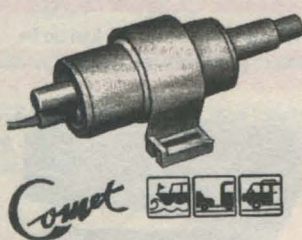
Best.nr.	Førpris	Ny pris
57 02 65	215.–	169.–

IC monteringsverktøy

For å ta ut og sette inn 20–124 pinners IC'er i PLCC-sokler.
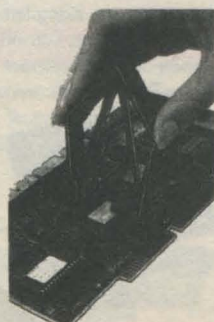
Best.nr.	Førpris	Ny pris
14 94 70	148.–	99.–

ROMcorder

Med dette byggesettet kan man lagre audiosignaler av enhver art i ROM. Tale, musikk eller lydeffekter kan avspilles om og om igjen. Max inspillingstid 16 sekunder per krets, og flere kretser kan kaskadekobles. Lyden holder seg i ROM i minst 10 år, og forsvinner ikke hvis strømmen går. Båndbredde 3.4kHz (fast avspillingsfrekvens 8kHz). Høyttalerutgang 8–16Ω, 100mW. Bruker 5V DC, max 28mA. Byggesett med utførlig tysk bruksanvisning.
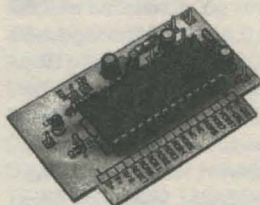
Best.nr.	Førpris	Ny pris
19 27 40	430.–	299.–

Styringskort for ROMcorder

Gjør det mulig å lagre flere lyder på ROMcorderen. 8-pols DIP-switch for innstilling av adressen man vil lagre på. KAn ogås brukes til å styre flere ROMcordere i kaskade. Byggesett med utførlig tysk bruksanvisning.
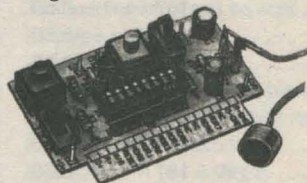
Best.nr.	Førpris	Ny pris
19 27 32	139.50	99.–

RAMcorder

Kan brukes til å lagre alle mulige lyder. Disse blir digitalisert og lagret i 1 megabit DRAM (kan bygges ut til totalt 4Mb). Max inspillingstid 90 sekunder per Mb RAM. Valgfri avspillingshastighet på 11, 16, 22 eller 32kb/s, som gir god lydkvalitet. Kondensatormikrofon følger med. Innebygd 1W forsterker for 8Ω høyttaler. Bruker 9–15V DC, max 15mA. Byggesett med utførlig tysk bruksanvisning.
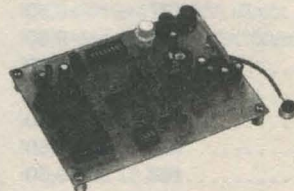
Best.nr.	Førpris	Ny pris
19 18 76	551.–	499.–

Styrekort for RAMcorder

Gjør at man ved hjelp av brytere eller reléer kan styre 10 forskjellige lydpassasjer direkte på samme RAMcorder. Byggesett med utførlig tysk bruksanvisning.
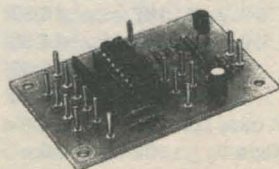
Best.nr.	Førpris	Ny pris
19 26 86	99.50	79.–

Kobler for parabolantenner

Gjør at man kan ha to parabolantenner koblet til en tuner, eller to tunere til en antenne. Brukes til f.eks. vår TeleX-antenne, som skal kobles parallelt med eksisterende antenne.

Best.nr.	Førpris	Ny pris
28 46 37	431.–	299.–

Koffertalarm

Med innebygd elektronisk sirene. Varsler med en høy pipetone når noen prøver å stikke av med kofferten. Avsikres med kodelås. Ligner til forveksling et vanlig navneskilt, og kan monteres på alle typer kofferter og vesker. Bruker 2 LR-44 klokkebatterier (medfølger).

Best.nr.	Førpris	Ny pris
75 38 58	107.–	79.–

Viftekort til PC

Sikker beskyttelse mot overoppheting av PCer. Meget støysvak, kun 32dB. Trekker 0.7m³/min per vifte. Bruker 12V DC (0.2A) som kobles med ledning fra strømforsyningen.

Viftekort med en vifte

Best.nr.	Førpris	Ny pris (inkl. mva)
99 87 45	447.–	299.–

Viftekort med to vifter

Best.nr.	Førpris	Ny pris
99 87 88	548.–	399.–

486-33 hovedkort

Med 33MHz 486DLC (DX) prosessor, som har funksjoner som gjør grafikkoperasjoner raskere enn andre prosessorer. Med matteprosessor og to banker for opptil 32MB SIMM RAM.
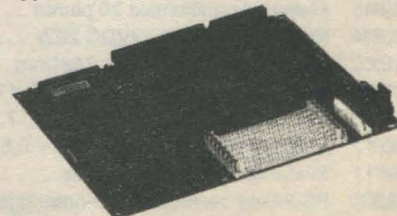
Best.nr.	Førpris	Ny pris (eks. mva)
PC 1177	3657.–	2499.–

TELEFONPLUGG DOBB.KONT STFN 28
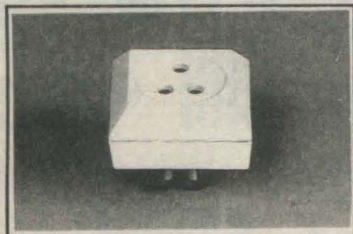
Gjør det mulig å koble to telefoner til en veggkontakt. Med knivkontakter for hurtigkobling.
Best.nr. 65 01 75
kr. 29,50   10 st. 19,50   50 st. 11,50

TELEFONPLUGG DOBB.KONT. STFN 29 (6/3)
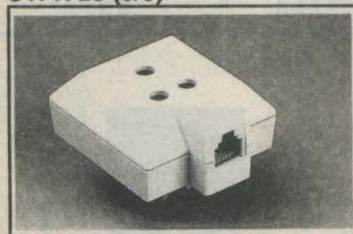
To telefoner kan kobles til samme veggkontakten. Omformer en Amerikansk modulplugg om til Norsk telefonplugg. Med knivkontakter for hurtigkobling.
Best.nr. 65 01 76
kr. 34,-   10 st. a 24,50   50 st. a 16,50

VEGGKONTAKT STFN 10
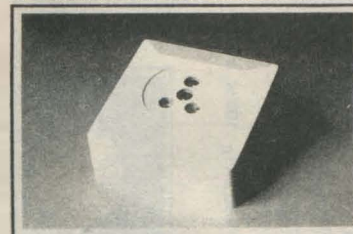
For utenpå montasje, med skrufeste til ledningene.
Best.nr. 65 01 55
kr. 19,-   10 st. a 13,50   50 st. a 9,50

TELEFON FORLENGELSES KIT STFN 22
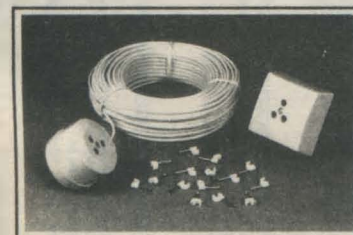
Gjør det selv pekke: 15 m ledning, dobbelplugg, veggkontakt, og festebraketter.
Best.nr. 65 01 78
kr. 99,-   10 st. a 69,50   25 st. a 49,50

SKJØTE LEDNING STFN 30
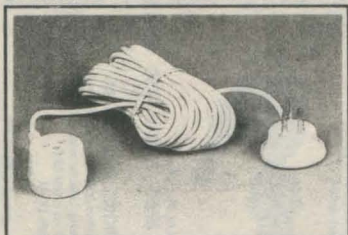
Plugg til kontakt (Han/Hun). 3 m ledning.
Best.nr. 65 01 77
kr. 39,-   10 st. a 27,50   25 st. a 19,50

SPIRAL SKJØTELEDNING STFN 6
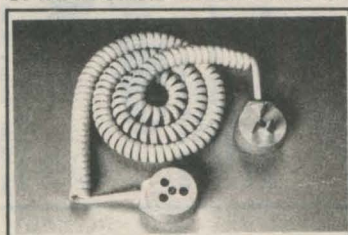
Plugg til kontakt (Han/Hun). 7,5 m ledning.
Best.nr. 65 01 50
kr. 49,-   10 st. a 39,50   25 st. a 29,50

OMFORMERLEDNING STFN 21 (6/4)
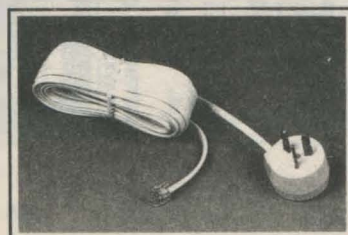
Amerikansk kontakt til Norsk telefonplugg. Passer til alle telefoner. 3 m ledning.
Best.nr. 65 01 60
kr. 29,-   10 st. a 19,50   25 st. a 12,50

SKJØTELEDNING STFN 31
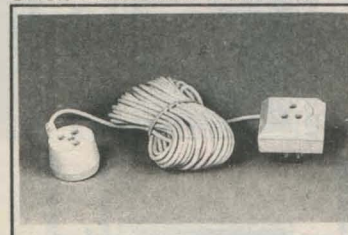
Dobbel veggplugg til kontakt (Han/2xHun). 3 m ledning.
Best.nr. 65 01 71
kr. 49,-   10 st. a 34,50   25 st. a 24,50

SKJØTELEDNING STFN 15
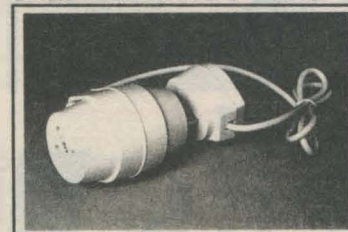
Veggplugg til dobbel kontakt (Han/2xHun). 15 m ledning.
Best.nr. 65 01 59
kr. 79,-   10 st. a 54,50   25 st. a 39,50

TROMMEL SKJØTELEDNING STFN 12
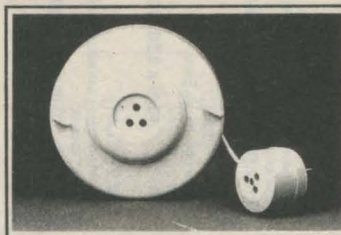
Skjøteledning på rull; 12 m For veggmontering og løs (Han/2xHun).
Best.nr. 65 00 02
kr. 99,-   10 st. a 79,-   25 st. a 49,50

SKJØTEKABEL ST 9 (6/4)
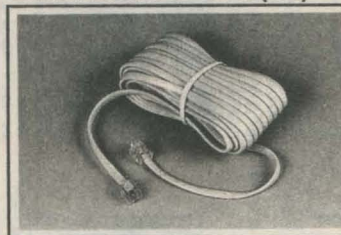
Amerikansk plugg (6/4) i begge ender. 6/4 betyr: Bredde 6 og 4 kontakter. (Telefon forlenger). L: 0,6 m.
Best.nr. 65 01 21
kr. 7,50   10 st. a 5,00   25 st. a 3,50
Lengde: 2,50 m:
Best.nr. 65 01 20
kr. 15,-   10 st. a 10,-   25 st. a 7,50

SPIRAL SKJØTEKABEL ST 10
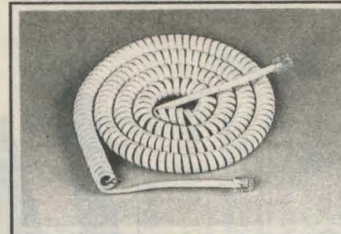
Amerikansk plugg (6/4) i begge ender. (Telefon forlenger). Lengde: 8 m.
Best.nr. 65 01 29
kr. 29,-   10 st. a 17,-   25 st. a 12,50

SPIRAL SKJØTE KABEL ST 11 (4/4)
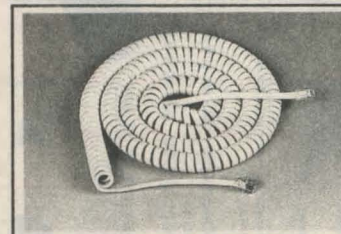
Amerikansk plugg (4/4) i begge ender. (Håndsett forlenger). Lengde: 6 m
Best.nr. 65 01 35
kr. 29,-   10 st. a 17,-   25 st. a 12,50

SKJØTEKABEL ST 12 (6/4)

Han (6/4) til Hun (6/4). Lengde: 0,6 m.
Best.nr. 65 01 40
kr. 15,00   10 st. a 9,50   25 st. a 6,50

TELEFONKABEL (FLAT)

Elfenbensfarget flatkabel. ST 18 2 leder; rød og grønn.
Best.nr. 65 01 90
kr. 2,50 10 m a 2,00 100 m a 1,00

ST 19 (FLAT)
4 leder; rød, sort, gul, grønn.
Best.nr. 65 01 81
kr. 3,- 10 m a 2,50 100 m a 1,50

ST 21 (FLAT)
8 leder; blå, orange, sort, rød, grønn, gul, sort, hvit
Best.nr. 65 01 82
kr. 4,50 10 m a 4,00 100 m a 3,50

TELEFONKABEL ST 80 (RUND)

Farge: hvit, 4 leder; rød, sort, gul, grønn.
Best.nr. 65 01 85
kr. 3,50 10 m a 2,50 100 m a 1,50

SPIRAL SKJØTEKABEL ST 634
Leder, med hestesko terminaler i begge ender. L: 2,50 m.
Best.nr. 65 01 92
kr. 19,- 10 st. a 13,- 50 st. a 7,50

SPIRAL SKJØTEKABEL ST 13 (6/4)

Han (6/4) til Hun (6/4). (Telefon forlenger). Lengde: 8 m
Best.nr. 65 01 25
kr. 29,- 10 st. a 19,- 25 st. a 14,50

SKJØTEKABEL ST 14 (6/4)

Han (6/4) til 2xHun (6/4). (Telefon fordeler). L: 8 m
Best.nr. 65 01 31
kr. 29,- 10 st. a 19,- 25 st. a 14,50

SPIRAL SKJØTEKABEL ST 15 (6/4)
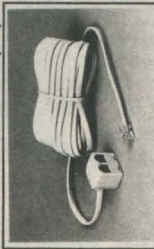
Han (6/4) til 2xHun (6/4). (Telefonforlenger). L: 6 m.
Best.nr. 65 01 38
kr. 39,- 10 st. a 29,- 25 st. a 19,50

SKJØTEKABEL OMFORMER ST 16 (6/4)

Modulplugg (6/4) i den ene enden og hestesko kontakter i den andre. Lengde: 6,00 m
Best.nr. 65 01 46
kr. 19,50 10 st. a 14,50 25 st. a 9,50

SKJØTEKABEL ST 624

Leder, med hestesko terminaler i begge ender. L: 2,50 m.
Best.nr. 65 01 90
kr. 14,50 10 st. a 9,50 50 st. a 6,50

BRYTERE

NØKKEL BRYTER 1A
Nøkkelen ut i både AV og PÅ.
(90grader) stillingene.
Zink legering. Leveres med ekstra nøkkel.
125V 1A (250V 0,5A)
B0800; AV-PÅ.
Best.nr. 7011 04B
kr. 29,50 10 st.a 19,50 50 st.a 14,50

NØKKEL BRYTER 4A
Nøkkelen ut i A V (90 grad) stilling.
Messing. Leveres med ekstra nøkkel.
125V 4A (250V 2A).
B0800; AV-PÅ
Best.nr. 70 11 05B
kr. 59,- 10 st.a 49,50 25 st.a 34,50

NØKKEL BRYTER 1A
Nøkkelen ut i PÅ-AV-PÅ
(120grad) stillingene.
Zink legering. Leveres med ekstra nøkkel.
125V 1A (250V 0,5A)
B0801; AV-PÅ-AV (3pinner).
Best.nr. 70 11 06B
kr. 39,- 10 st.a 29,- 25 st.a 19,50

NØKKEL BRYTER 1A
Nøkkelen ut i AV-PÅ
(90grad) stillingene.
Zink legering. Leveres med ekstra nøkkel.
125V 1A (250V 0,5A)
B0800; AV-PÅ (2pinner)
Best.nr. 70 11 07B
kr. 39,50 10 st.a 29,50 25 st.a 19,50

NØKKEL BRYTER 4A
Nøkkelen ut i PÅ-PA
(90grad) stillingene.
Zink legering. Leveres med ekstra nøkkel.
125V 4A (250V 2A).
B0941; PÅ-PA (3pinner)
Best.nr. 70 12 00B
kr. 49,50 10 a 39,50 25 a 29,50

KRYMPETANG ST 54 (4/4,6/4)

Denne tangen brukes til å montere (4/4, 6/4) modul plugger på modul kabelen. Ingen lodding.
Best.nr. 65 00 09
kr. 49,- 10 st. a 34,- 25 st. a 29,50

KRYMPETANG ST 55 (8/8)
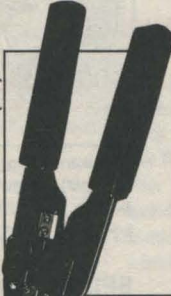
Brukes til å montere (8/8) modul plugger på 8 leders flat kabel. Ingen lodding; pluggene klemmes fast i
Best.nr. 65 01 17B kr. 499,50

KRYMPETANG ST 56 (6/6)
Best.nr. 65 01 18 kr. 499,50

TELEFONPLUGG STFN 1

Med skruefeste til ledningene.
Best. 65 00 04
kr. 14,- 10 st. a 10,50 100 st. a 5,50

TELEFONPLUGG STFN 27
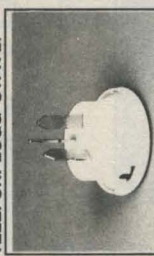
Lavprofil. Med "vklær inn" feste til ledningene. (Kniv/kontakter for hurtigkobling).
Best.nr. 65 01 70
kr. 15,- 10 st. a 11,- 100 st. a 6,50

TELEFONUTSTYR (inkl. mva.)

MODULPLUGG ST 1 (4/4)

Passer til televerkets "nye" telefonutstyr. Denne passer til håndsettet. 4/4 (bredde/kontakter). Kan brukes sammen med kabelen; ST19-4 og Krympeverktøyet; ST 54.
Best.nr. 650100
kr. 2,50 50 st. a 2,00 100 st. a 1,50

MODULPLUGG ST 1 (6/4 og 6/6)

Best.nr. 650101
(6/6) Best.nr. 65 01 02
kr. 3,50 50 st. a 2,00 100 st. a 1,50

SKJØTEKONTAKT ST 3 (6/4 eller 6/6)
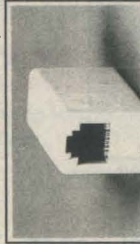
Kobler to modulkontakter sammen. Med en 6/4 eller 6/6 hun kontakt i hver ende. (6/4)
Best.nr. 65 01 11 kr. 12,50 10 st. a 8,50 100 st. a 4,50
(6/6) Best.nr. 65 01 14 kr. 14,50 10 st. a 12,50 100 st. a 6,50

SKJØTEKONTAKT ST 72 (8/8)
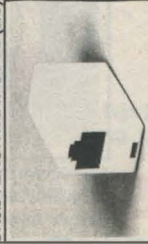
Kobler to modulkontakter sammen. Med en 8/8 kontakt i hver ende.
Best.nr. 65 01 15
kr. 19,50 10 st. a 14,50 50 st. a 9,50

MODULPLUGG ST 1 (8/8)

Passer til kontakten i telefonen som går til linjen veggen. 8/4 (bredde/kontakter). Kan brukes sammen med Krympeverktøyet ST 54. Samt; STFN 3, STFN 29, ST 2, ST 3, ST 4, ST 12, ST 13, ST 14, ST 15, ST 72. (6/4)
Best.nr. 65 01 03
kr. 7,50 10 st. a 4,50 100 st. a 3,50
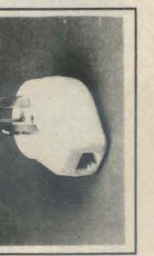
VEGGKONTAKT ST 4 (6/4)

Med 6/4 kontakt i den ene enden og skruterminal i den andre enden. Dekselet er med 'snap in' feste.
Best.nr. 65 01 12
kr. 19,50 10 st. a 12,50 100 st. a 6,50

VEGGKONTAKT ST 42 (8/8)
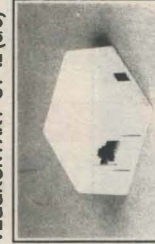
Med 8/8 kontakt i den ene enden og skruterminal i den andre enden. Dekselet er med 'snap in' feste.
Best.nr. 65 01 13
kr. 29,50 10 st. a 19,50 50 st. a 12,50

DOBBELKONTAKT ST 2 (6/4)

Kan brukes sammen med veggkontakten ST 42 og ledningsskjøter ST 72, samt Krympeverktøy ST 55. Passer også til televerkets nye (ISDN) veggkontakter.
Best.nr. 65 01 10
kr. 19,50 10 a 12,50 100 a 6,50

TELEFONPLUGG STFN3 (6/4)

Gjør om fra Amerikansk til Norsk system. (8/4); bredde 8 og 4 kontakter.
Best.nr. 65 00 04
kr. 19,- 10 st. a 13,50 100 st. a 9,50

Omformer en enkel modulplugg om tl en dobbel utgang. To telefoner kan kobles til samme kontakten i veggen. 6/4 (bredde/kontakter)

Bestillingskupong

Best. nr.	Antall	Varebeskrivelse	Stk. pris	Totalpris
0010		1 års (4 nr) Abonnement på Data & Elektronikk Magasinet	50.–	
0001		1992 Hovedkatalogen; 292 sider (A4), med 25.000 produkter	20.–	
0023		Velleman katalogen i farger; 150 spennende byggesett	0.–	
APR93			Sum:	

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APR93			Sum:	

STEREO MIXER W/EQUALIZER & ECHO
MODEL NO. LMX-907

MAIN FUNCTION

- 5 BAND EQUALIZER
- EHCO EFFECTS
- SOUND EFFECTS W/SPEED CONTROL
- DJ MIKE AUTO-TALK
- VOICE CHANGER
- REMOVEABLE FADER
- RACK MOUNT
- POWER SUPPLY BY AC ADAPTOR 12V

SPECIFICATIONS

INPUT SENSITIVITY/INPUT IMPEDANCE:

DJ MIKE	1.5 mV/10 mV 10k ohms
MIKE	1.5 mV/50 mV 10k ohms
MAGNETIC PHONO @1 kHz	3.0 mV/120 mV 47k ohms
LINE (CD/TAPE/AUX)	150 mV/7.2V 27k ohms
RECOMMENDED MIKE	LOW IMPEDANCE, UP TO
MATCHING IMPEDANCE	1000 ohms
OUTPUT:	
NORMAL	1V (0 dBu)
MAXIMUM (@ CLIPPING)	7.2V

FREQUENCY RESPONSE:

MIKE	20-20k Hz $\pm$ 3 dB
HIGH-LEVEL INPUTS	20-20k Hz $\pm$ 3 dB
MAG. PHONO INPUTS	30-20k Hz $\pm$ 1 dB

SIGNAL-TO-NOISE RATIO:

DJ MIKE	60 dB
MIKE	53 dB
PHONO	62 dB
LINE (CD/TAPE/AUX)	69 dB
STEREOPHONE OUTPUT/	5 mW/4 ohms
IMPEDANCE	10 mW/8 ohms

ECHO CIRCUIT:

TYPE	B.B.D.
DELAY	100ms (MAX)

EQ: TONE CONTROL $\pm$ 12dB @ 60, 250, 1k, 4k,
RANGE @ CENTER PREQS. 12kHz

Best. nr. 060200 Pris kr. 1998.–

Cyrix 486 DLC 33MHz hovedkort

Dette hovedkortet bruker 33MHz prosessoren fra Cyrix. Den gjør at hovedkortet går raskere ved grafiske operasjoner enn et tilsvarende Intel 486DX 33MHz-kort. Det har AMI BIOS og 7 kortplassser. Opptil 32MB RAM kan monteres i de 8 SIMM-slotene. 1K intern "writeback" cache og 128K ekstern cache. 'Writeback' betyr at prosessoren også bruker cachen når den skriver til minnet, noe som Intels ikke gjør.

Best. nr.	Pris
PC 1177	2499.–

Naturelite lysanlegg

Soldrevet lysanlegg med bevegelsesdetektor, som automatisk slår på lyset i 90 sekunder når den registrerer bevegelse innen 25m. Fotocelle deaktiverer anlegget under dagslys, mens solpanelet lader op batteriene (6V). Lett å installere.

Best. nr.	Pris
09 00 65	899.–

Bulbs included

Sky Commuter

Se side 6

N 2001C