

PERSONAL COMPUTER HARDWARE

PERSONAL COMPUTER HARDWARE

The Circuit Board Division of VERO Electronics provides an extensive range of products enabling the electronics engineer to design and construct circuitry and to interconnect and package his personal computer systems.

The Circuit Board Division product range supporting the prototype engineer divides into two main areas: Personal Computer Hardware - covered in this section - and Prototyping Products, covering prototyping boards, non-Eurocard circuit boards, Eurocard bus systems, extender boards and accessories, which is detailed in Section 8.

In addition to the established microcomputer prototyping boards, extenders, adaptors, brackets and interface boards, keyboards and monitors the product range offered for microcomputer support includes 8, 12 and 14 Slot PC Microracks and three versions of the IBM PCI backplane.

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MANUFACTURING STANDARDS

All VERO Electronics backplanes are manufactured in accordance with quality assurance levels to BS9000, CECC 23000 and IECQ PCQ88, with systems approval in accordance with BS EN ISO9001



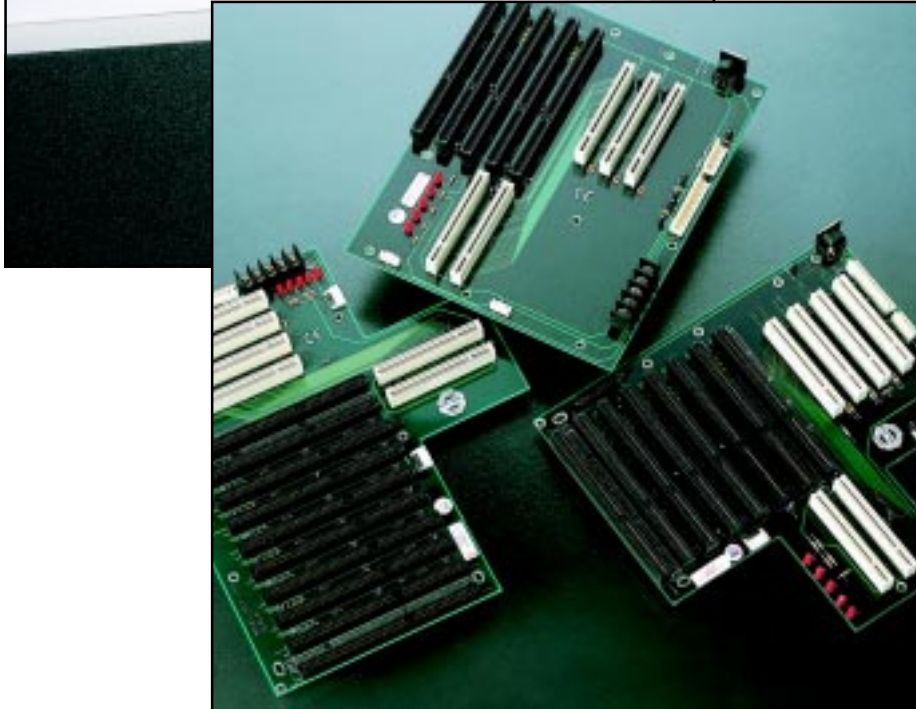
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BS 9761 BS 9762 BS 9763
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NEW PRODUCTS

▲ In line with its stated policy of constant product development VERO Electronics regularly introduces new or enhanced products. In this section of the Product Handbook new products in support of IBM Microcomputers, a range of ISA/PCI backplanes and IDE/SCSI hard drive mounting kits, can be found on page 7.08.

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PERSONAL COMPUTER HARDWARE

The range of products detailed in this section form only part of a set of compatible products that allow an industrial PC System to be configured, housed and powered in harsh environments.

Initially the PC should be housed in one of the eighteen standard versions of PC- μ Rack II which are available with or without backplane, wiring, power options and IP rated sealing. These are detailed on pages 7.05 - 7.06.

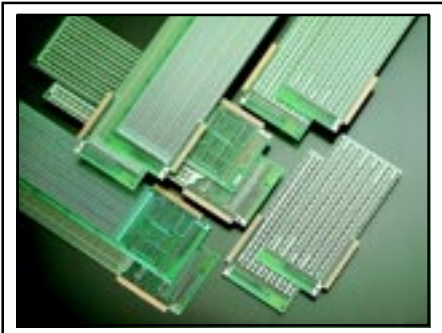
The configured system can be housed in an IMRAK enclosure (detailed in Section 2 of this publication) which are available in four basic versions for wall mounting, office use, IP rated for harsh environments or RFI screened for EMC applications.

The IMRAK is available in a variety of heights ranging from 12U to 47U and in a choice of enclosure depths. Also available are an extensive range of keyboards and keyboard housings which can be directly mounted into IMRAK. These are detailed on pages 7.14 - 7.16.

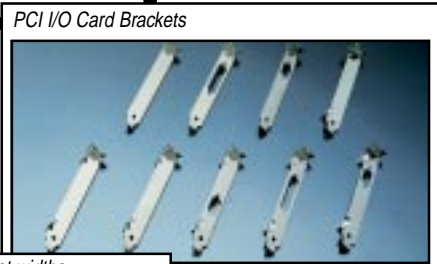
Systems used for sensitive applications such as shop floor data collection, as industrial PCs often are, require fault tolerant power which can allow programmed shut down of a system in the event of mains failure.

VERO has available a range of uninterruptible power supplies - in freestanding and rack mountable formats - which provide backup power via built-in or add-on battery packs and allow up to 22 hours* of run-time on battery power. Details of the range of the UPS range can be found in Sections 3 and 10.

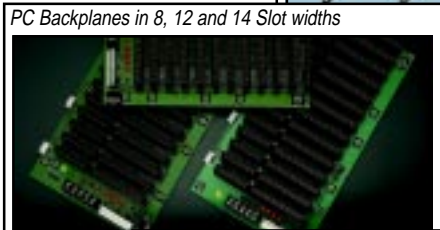
* Additional battery packs are required for UPS extended run-time.



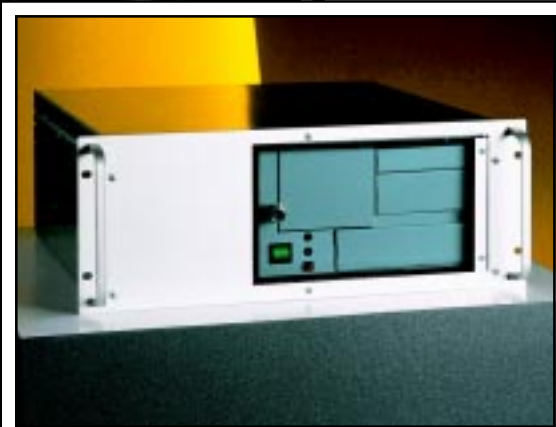
PCAT Prototyping Boards



PCI I/O Card Brackets



PC Backplanes in 8, 12 and 14 Slot widths



PC- μ Rack



Removable Hard Drive Mounting Kits



PC Compatible Keyboards



IMRAK



Uninterruptible Power Supply

PERSONAL COMPUTER HARDWARE

19" EMC PC-MICRORACKS - 8 OR 12 SLOT

FEATURES

- Strong and versatile EMC enclosure
- Positive pressure cooling system, IP21 rated - input fan with quick change air filter
IP54 rated - side ventilation with filter
- Front panel easily removable for customising
- Version for PC AXT Backplanes available
- Accepts PCAT (up to 486) style motherboards or 8 or 12-slot passive backplanes
- Hinged lockable acrylic or metal EMC front door sealed to IP54
- Anti-vibration mountings for all disk drives
- Easily removable disk drive mounting modules for 1 x 3½" and either 2 x 5¼" or 2 x 3½" disk drives
- The 3½" disk drive module accepts a 25mm or a 40mm hard disk
- UL, CSA, VDE and CE1995 approved 200W power supply
- Slide mount fixing positions provided on IP21 version
- Rear panel cutouts for keyboard connection and 4 x "D" sub-miniature connectors
- Unwired or completely wired version available

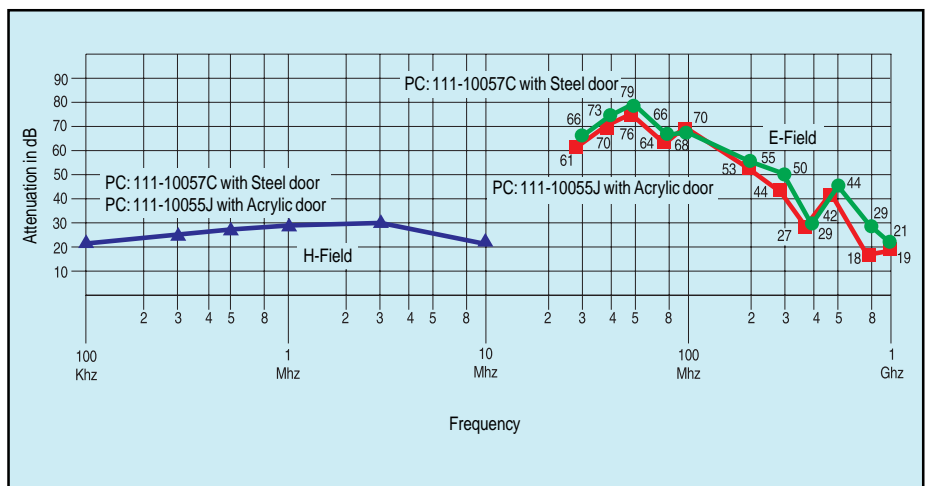
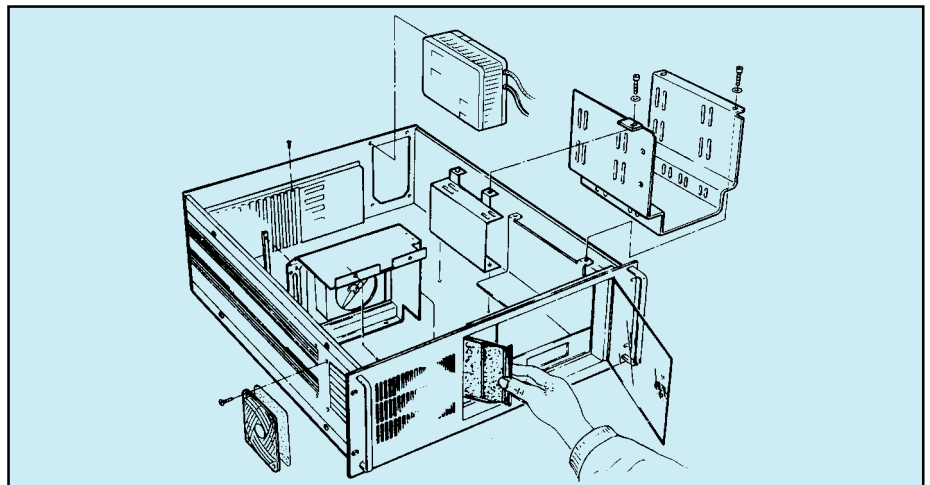
These completely revised PC Microracks are based on our PC-Microracks Version 1 - 4 that have been successful for a number of years. Constructive changes have been made - based on the relevant EMC regulations and customer needs - which means that the new PC Microrack series meets all the requirements of a PC for industrial use.

EMC-SCREENING OF EMC-PC-MICRORACKS

Any reference in this section to attenuation figures is theoretical; results have been obtained with an empty enclosure under laboratory conditions only. Any modification to either the enclosure or its contents will have an effect upon its EMC-performance.

Tests were carried out with two EMC-PC's, sealed to IP21 with an acrylic and metal front door respectively. They were fitted with power supply, 12 Vdc fan, on/off switch, reset button, two LEDs and 8 I/O card blanking brackets.

The attenuation of the empty enclosures has been measured in an EMC chamber in accordance with VG-regulation 95373 part 15.



The PC Microracks and accessories shown on pages 7.03, 7.04 and 7.07 are available to special order only except in the German market. For further information contact VERO Electronics.

19" EMC-PC MICRORACK SPECIFICATIONS

GENERAL

Width: 483mm (19" rack mountable)
 Height: 177mm (4U)
 Depth: 450mm
 Chassis: to DIN 41494 part 1
 Side plates: Extruded aluminium alloy
 Top/bottom panels: Steel, zinc coated, painted light grey
 Front panel: 3mm aluminium alloy, painted RAL 7035
 Handles, door hinge: Aluminium, painted RAL 7042

IP-RATING FRONT PANEL

IP21/IP45: 5mm Acrylic panel, vertically hinged, with seal and keylock

EMC IP21/IP54: 5mm EMC-metal panel, vertically hinged, with seal and keylock
 Side ventilated with air filter

IP21 with front ventilation

IP54 with side ventilation

COOLING

1 Inlet fans
 Dimensions: 120mm x 120mm x 32mm
 Airflow rating: 56cfm (95m³/h)
 Voltage: 12VDC
 1 exhaust fan, mounted in power supply
 Airflow rating, temperature regulated: 21 cfm (36m³/h)

POWER SUPPLY FOR PCAT BACKPLANES

200W input voltage, 115/230 VAC switchable
 Outputs max:

+5V 20A

+12V 8A

-5V 0.3A

-12V 0.3A

Approvals: VDE 0805 (IEC 950);
 EN 60 950; UL: CSA; CE 1995

EMC: to VDE 0871 level B with resistive loads
 EN 55022 level B; EN 50082-2
 Electromagnetic compatibility to VDE 0878 level B
 DBP Vfg. 243/91

Connections for: 2 x 3¼" and 3 x 5½" disk drives,
 power connection for motherboard,
 wiring for switches, LEDs, fans, etc.

COMPONENTS

On/off-switch
 Reset button
 2 LED displays
 4 card guides
 Snap-in motherboard mounting supports

SLIDE MOUNTING

Recommended parts for PC-Microracks IP21

Two telescopic slides for 600/800 mm deep racks with two front, two rear slide mounting brackets and mounting kit
Order code 111-10100F

(This slide kit is designed to be compatible with a 600mm or 800mm deep IMRAK)

For further details contact VERO Electronics.

New to the Personal Computer Hardware range for 1997 are PC Microracks which are suitable for PC ATX Motherboards. Please see ordering table for information. For further details please contact VERO Electronics

EMC PC-MICRORACK IP21 VERSION WITH FRONT VENTILATION

Ordering information

Description	Order code	
	Acrylic glass door	EMC rated door
EMC PC-Microrack to suit 8 Slot backplane	111-10055J	111-10057C
EMC PC-Microrack to suit 12 Slot backplane	111-10056F	111-10058L
EMC PC with power supply, wiring to suit 8 Slot backplane	145-10105J	145-10107C
EMC PC with power supply, wiring to suit 12 Slot backplane	145-10106F	145-10108L
EMC PC-Microrack to suit ATX backplane	Special order only	
EMC PC with power supply, wiring to suit ATX backplane	Special order only	

Note: All EMC PC Microracks can be supplied with a silver anodised front panel and handles. All wired versions can be supplied with a 8 or 12 slot passive backplane - detailed on page 7.08 - on request. Please contact VERO Electronics for details.

19" EMC PC-MICRORACKS - VERSION IP21 AND IP54 - ACCESSORIES

5¼" DISK DRIVE BLANK

1 Cover for 5¼" disk drive

3½" DISK DRIVE BLANK

1 Cover for 3½" disk drive

EXPANSION CARD RETAINER

1 Adjustable, strong expansion card retainer for 8 or 12 ISA/PCI slots.
 Can be mounted directly in front of the power supply.

D-SUB BLANKING PANEL KIT

2 9 way D-sub blanking panels
 2 25 way D-sub blanking panels
 8 Fixing screws

REPLACEMENT FILTER KIT

5 Replacement filters

CONTROL AND INDICATOR KIT

1 On/off-switch with 4 Faston connectors
 1 Reset button with wired connections
 1 LED, red with wired connections
 1 LED, green with wired connections

THERMAL MANAGEMENT KIT

1 Fan, 12VDC, 119mm x 119mm x 32mm, airflow rating 56cfm (95m³/h), complete with mounting screws, rubber washers, etc.

200W POWER SUPPLY KIT FOR PCAT BACKPLANES

1 Power supply, 200W (115 - 230VAC) approved to UL, CSA, VDE 0805 and CE 1995
 1 Pack of mounting screws, nuts, etc.

250W POWER SUPPLY KIT FOR PCAT BACKPLANES

1 Power supply, 250W (115 - 230VAC) approved to UL, CSA, VDE 0805 and CE 1995
 1 Pack of mounting screws, nuts, etc.

EMC PC-MICRORACK IP54 VERSION SIDE VENTILATION

Ordering information

Description	Order code	
	Acrylic glass door	EMC rated door
EMC PC-Microrack to suit 8 Slot backplane	111-10059H	111-10061F
EMC PC-Microrack to suit 12 Slot backplane	111-10060J	111-10062C
EMC PC with power supply, wiring to suit 8 Slot backplane	145-10109H	145-10111F
EMC PC with power supply, wiring to suit 12 Slot backplane	145-10110J	145-10112C
EMC PC-Microrack to suit ATX backplane	Special order only	
EMC PC with power supply, wiring to suit ATX backplane	Special order only	

Note: All EMC PC Microracks can be supplied with a silver anodised front panel and handles. All wired versions can be supplied with a 8 or 12 slot passive backplane - detailed on page 7.08 - on request. Please contact VERO Electronics for details.



EMC PC-MICRORACKS ACCESSORIES

Ordering information

Description	Order code	Description	Order code
5¼" Disk drive blank	111-10063L	Replacement filters IP54	111-10033A
3½" Disk drive blank	111-10064H	Control/Indicator kit	145-10063G
Card retainer for 8 slot	111-10027D	Power supply kit 200W	145-10121B
Card retainer for 12 slot	111-10039E	Power supply kit 250W	145-10141E
D-Sub blanking panel kit	111-10051K	Fan kit	145-10099K
Replacement filters IP21	111-10032D		

PERSONAL COMPUTER HARDWARE

19" PC- μ RACK II - 8,12 AND 14 SLOT

The PC- μ Rack II is designed to meet the needs of customers requiring high levels of mechanical and electrical performance in a cost effective package. These racks offer an alternative to the racks detailed on pages 7.03 and 7.04.

FEATURES

- Zintec steel EMC screened enclosure
- Steel enclosure for rugged environments
- IP21 / IP54 rated front panel sealing
- Lockable Acrylic or metal front door
- Version for PC AXT Mainboard available
- Accepts PCAT style motherboards or 8, 12 or 14 slot passive backplanes
- Anti-vibration mountings for disk drives
- Accepts 1 x 5¼" and 2 (4) x 3½" disk drives in a removable housing
- Integral expansion card retainers for ISA/PCI
- Quick change air filter - during operation
- Slide mount fixing positions included
- Optimised positive pressure cooling system

This new robust 19" Microrack has been designed for industrial use, and has been developed to cater for rugged environmental conditions, offering on the one hand IP and EMC protection, and on the other hand a cost-effective solution.

The 6 mm thick smoked Acrylic lockable front door protects the components from the environment by means of an IP54 rated PVC seal. The new enclosure is constructed of Zintec steel, earth bonded for safety and EMC considerations. The use of positive pressure cooling provides optimum air flow for the rack. An input fan draws filtered air in through the front panel (IP21) or through the side panel (IP54). The warm air is expelled via the smaller power supply fan. The front air filter has been designed for easy removal and replacement whilst the system is in operation. The removable disk drive cage is mounted on anti-vibration pillars and is designed to accept 1 x 25mm and 1 x 40mm high disk drive. Alternatively, the unit can be used to house 2 x 25mm high drives.

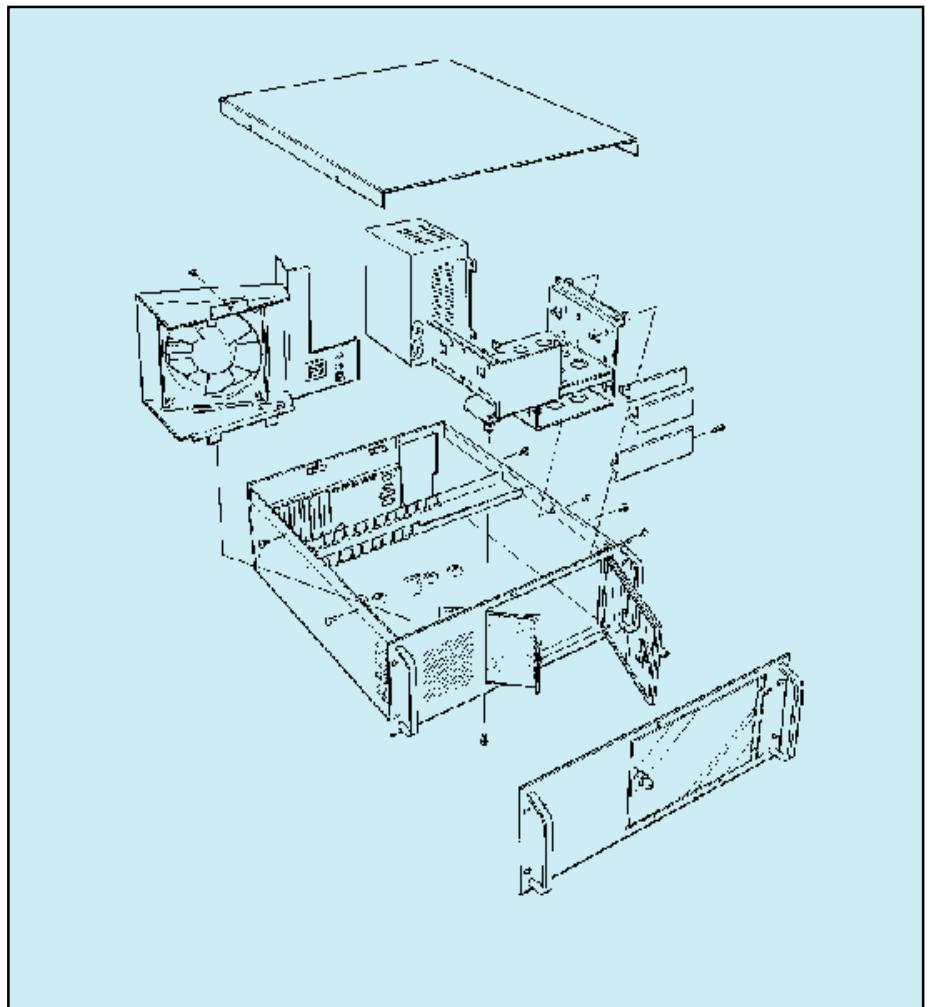
Should additional disk space be required, the optional hard disk mounting kit can be employed to house two extra hard drives (1 x 25mm and 1 x 40mm high or 2 x 25mm high drives).

The I/O panel can be supplied in either 8, 12 or 14 slot versions. This panel also contains cutouts for the keyboard connector, 2 x 9-way and 2 x 25-way "D" sub-miniature connectors on the 8 and 12 slot versions and 2 x 9-way on the 14 slot.

Motherboards and backplanes can be easily and securely mounted using the snap-in fixings and earthing screws supplied with the system. An integrated card retaining bracket, compatible with 24mm or 29mm high card guides, ensures positive location of ISA/PCI expansion cards to the PC motherboard.

The wired system includes a 200W VDE and UL approved power supply with integral fan, a DC input fan, an illuminated two pin on/off switch, a speaker, as well as a reset button and 2 LED indicators with connecting wiring. In addition the wired Microrack can be supplied with a passive 8, 12 or 14 slot PCAT 4-layer backplane.

New to the Personal Computer Hardware range for 1997 are PC μ -Racks which are suitable for PC ATX Mainboards.
For further details please contact VERO Electronics



19" PC-μRACK - SPECIFICATIONS

GENERAL

Width: 483 mm (19" rack mountable)
 Height: 177 mm (4U)
 Depth: 450 mm
 Chassis: to DIN 41494 part 1, Zintec steel
 Front panel: 3mm Aluminium alloy, silver anodised

IP RATING - FRONT PANEL

IP 21 and IP54: 6 mm Acrylic smoked panel, vertically hinged with PVC seal and keylock.
 IP 21 and IP54: 1 mm EMC steel panel, vertically hinged with PVC seal and keylock.

IP21 version has front ventilation
 IP54 version has side ventilation

POWER SUPPLY FOR PCAT BACKPLANES
 200 or 250W input voltage, 115/230 VAC switchable
 Outputs max: +5V 20A
 +12V 8A
 -5V 0,3A
 -12V 0,3A

Approvals: VDE 0805 (IEC 950);
 EN 60 950; UL; CSA: CE 1995

EMC: to VDE 0871 level B with resistive loads
 EN 55022 level B; EN 50082-2
 Electromagnetic compatibility to VDE 0878 level B
 DBP Vfg. 243/91

Connections for: 2 x 3¼" and 3 x 5½" disk drives,
 power connection for motherboard,
 wiring for switches, LEDs, fans, etc.

COOLING

Positive pressure system:
 1 inlet fan: dim. 120 mm x 120 mm x 32 mm
 Airflow rating: 56 cfm (95m³/h)
 Voltage: 12 VDC
 1 exhaust fan mounted in power supply:
 Airflow rating, temperature regulated: 21 cfm (36 m³/h)
 Voltage: 12 VDC

Air filter removable for cleaning whilst system is in operation (access via front door).

SLIDE MOUNTING

Recommended parts for PC-μRack II:
 Two telescopic slides for 600/800 mm deep racks with two front, two rear slide mounting brackets and associated fastenings
Order code 111-10100F

For further details contact VERO Electronics.

PC-μRack II FRONT VENTILATED IP21 SEALED FRONT PANEL Ordering information

Description	Order Code
PC-μRack II wired with PSU and 8 slot Backplane	145-10164K
PC-μRack II wired with PSU and 12 slot Backplane	145-10165G
PC-μRack II wired with PSU and 14 slot Backplane	145-10166D
PC-μRack II wired with PSU to suit 8 slot Backplane	145-10167A
PC-μRack II wired with PSU to suit 12 slot Backplane	145-10168J
PC-μRack II wired with PSU to suit 14 slot Backplane	145-10169F
PC-μRack II metalwork to suit 8 slot Backplane	111-10103H
PC-μRack II metalwork to suit 12 slot Backplane	111-10104E
PC-μRack II metalwork to suit 14 slot Backplane	111-10105B

Note: PCμRacks with painted front panels and EMC screened metal doors are also available

PC-μRack II SIDE VENTILATED IP54 SEALED FRONT PANEL Ordering information

Description	Order Code
PC-μRack II wired with PSU and 8 slot Backplane	145-10172A
PC-μRack II wired with PSU and 12 slot Backplane	145-10173J
PC-μRack II wired with PSU and 14 slot Backplane	145-10174F
PC-μRack II wired with PSU to suit 8 slot Backplane	145-10175C
PC-μRack II wired with PSU to suit 12 slot Backplane	145-10176L
PC-μRack II wired with PSU to suit 14 slot Backplane	145-10177H
PC-μRack II metalwork to suit 8 slot Backplane	111-10106K
PC-μRack II metalwork to suit 12 slot Backplane	111-10107G
PC-μRack II metalwork to suit 14 slot Backplane	111-10108D

Note: PCμRacks with painted front panels and EMC screened metal doors are also available

PC-μRACK II - ACCESSORIES

There is a wide range of accessories available for the new PC-μRack II including Power Supply Kits, Thermal Management Kits, 24mm and 29mm Card Holders, Filters, a Control and Indicator Kit, a Loudspeaker Kit, Power Supply Kits and 3½" and 5¼" Disk Drive Covers.



5¼" DISK DRIVE BLANK

1 Cover for 5¼" disk drive

3½" DISK DRIVE BLANK

1 Cover for 3½" disk drive

3½" 40mm DISK DRIVE BLANK

1 Cover for 40mm 3½" disk drive

HARD DISK DRIVE MOUNTING KIT

1 Mounting kit for additional 1 x 3½" 25mm and 1 x 40mm high hard disk drives

24mm AND 29mm CARD HOLDERS

10 Card holders

D-SUB BLANKING PANEL KIT

2 9 way D-sub blanking panels
 2 25 way D-sub blanking panels
 8 Fixing screws

REPLACEMENT FILTER KIT

5 Replacement filters

CONTROL AND INDICATOR KIT

1 Illuminated on/off-switch with 4 Faston connectors
 1 Reset button with wired connections
 1 LED, red with wired connections
 1 LED, green with wired connections

THERMAL MANAGEMENT KIT

1 Fan, 12VDC, 119mm x 119mm x 32mm, airflow rating 56cfm (95m³/h), complete with mounting screws, rubber washers, etc.

POWER SUPPLY KIT FOR PCAT BACKPLANES

1 Power supply (200 or 250W - specification as above)
 1 Pack of mounting screws, nuts, etc.

LOUDSPEAKER KIT

1 Loudspeaker in holder, 1 screw

PC-μRack II ACCESSORIES

Ordering information

Description	Order Code	Description	Order Code
5¼" Disk drive blank	111-10047G	Filters - pkt 5	111-10052G
3½" Disk drive blank 25mm	111-10048D	Control and indicator kit	145-10063G
3½" Disk drive blank 40mm	111-10109A	Power supply kit - 200W	145-10121B
3½" Panel kit	111-10110B	Power supply kit - 250W	145-10141E
Card holders - 24mm	111-10111K	Fan Kit	145-10099K
Card holders - 29mm	111-10112G	Loudspeaker kit	145-10100B
D-Sub. blanking panel kit	111-10051K		

PERSONAL COMPUTER HARDWARE

19" EMC PC-MICRORACK 8 SLOT WITH 5" VGA MONITOR

FEATURES

- IP21 rated front panel with 1 input fan and quick change air filter
- Front panel easily removable for customising
- Accepts PCAT motherboards or 8 slot passive backplane
- Hinged lockable acrylic front door, sealed to IP21
- Anti-vibration mounting for disk drives and monitor
- Removable disk drive mounting module for 2 x 3½" disk drives
- The 3½" disk drive module accepts a floppy disk as well as a 40mm hard disk
- UL and VDE approved 200W power supply and a separate power supply for the monitor
- Slide mounting fixing positions provided
- Rear panel cutouts for keyboard connection and 2 x 9 way and 2 x 25 way "d"-sub-miniature connectors
- Supplied completely wired with 5" VGA monitor

19"-PC-MICRORACKS SPECIFICATIONS

GENERAL

Width: 483mm (19" rack mountable)
 Height: 177mm (4U)
 Depth: 450mm
 Chassis: to DIN 41494 part 1
 Side plates: Extruded aluminium alloy
 Top/bottom/rear panels: Steel, painted RAL 704
 Front panel: 3mm aluminium alloy

IP-RATING FRONT PANEL

IP21: 5mm Acrylic panel, vertically hinged, with neoprene seal and keylock
 Front ventilated with changeable air filter

COOLING

1 Inlet fan
 Dimensions: 80mm x 80mm x 25mm
 Airflow rating: 56 cfm (95m³/h)
 Voltage: 12VDC
 1 exhaust fan, mounted in power supply
 Airflow rating, temperature regulated: 21cfm (36m³/h)

19" EMC PC-MICRORACK 8 SLOT WITH 5" VGA MONITOR ACCESSORIES

CARD RETAINER

- 1 Adjustable, strong expansion card retainer for 8 or 12 slots.
 Can be mounted directly in front of the power supply.

SPARES KIT

- 1 Key for front door
 4 Card guides for full length expansion cards
 10 Snap-in motherboard fixings and earthing screws
 8 Card bracket screws for slot card mounting

REPLACEMENT FILTER KIT

- 5 Replacement filters

D-SUB BLANKING PANEL KIT

- 2 9 way "D"-sub blanking panels
 2 25 way "D"-sub blanking panels
 8 Fixing screws

3½" DISK DRIVE BLANK MOUNTING KIT

- 1 Cover mounting kit for 3½" disk drive and mounting screws

DISK DRIVE BLANK KIT

- 1 Cover for 3½" disk drive: colour RAL 7032

THERMAL MANAGEMENT KIT

- 2 Fans, 12VDC, 80mm x 80mm x 25mm, airflow rating 35m³/h, complete with mounting screws and rubber washers, etc.



19" EMC PC-MICRORACK 8 SLOT WITH 5" VGA-MONITOR

Ordering information

Description	Order code
EMC PC 8 Slot wired with power supply and 5" VGA monitor, anodised front panel	145-10101K
EMC PC 8 Slot wired with power supply and 5" VGA monitor, RAL 7035 painted front panel	145-10147J

POWER SUPPLY

200W input voltage, 115/230 VAC switchable
 Outputs max: +5V 20A
 +12V 8A
 -5V 0,3A
 -12V 0,3A

Approvals:

VDE 0805 (IEC 950);
 EN 60 950; CE 1993

EMC:

to VDE 0871 level B with resistive loads
 EN 55022 level B; EN 50082-2
 Electromagnetic compatibility to VDE 0878 level B
 DBP Vfg. 243/91

Connections for:

2 x 3¼" and 3 x 5½" disk drives,
 power connection for motherboard,
 wiring for switches, LEDs, fans, etc.

COMPONENTS

On/off-switch
 Reset button
 2 LED displays
 4 Card guides
 Snap-in motherboard mounting supports

SLIDE MOUNTING

Recommended parts for PC-Microracks

Two telescopic slides for 600/800 mm deep racks with two front, two rear slide mounting brackets and mounting kit
Order code 111-10100F

(This slide kit is designed to be compatible with a 600mm or 800mm deep IMRAK)

For further details contact VERO Electronics.

5" VGA BLACK AND WHITE MONITOR

Input voltage 12VDC max 1A
 Input signal TTL (pos)
 Bandwidth >25 Mhz
 Horizontal frequency 31,5 KHz



PC-MICRORACKS 8 SLOT with 5" VGA MONITOR ACCESSORIES

Ordering information

Description	Order code	Description	Order code
Card retainer for 8 slot	111-10027D	Mounting kit for 3½" blank	174-10206D
Spares kit	111-10119H	3½" Disk drive blank kit	111-10139L
Replacement filter	111-10032D	Fan kit	145-10099K
D-Sub-Cover	111-10051K		

Note: 8, 12 or 14 slot passive backplanes - compatible with this microrack and detailed on page 7.08 - are available

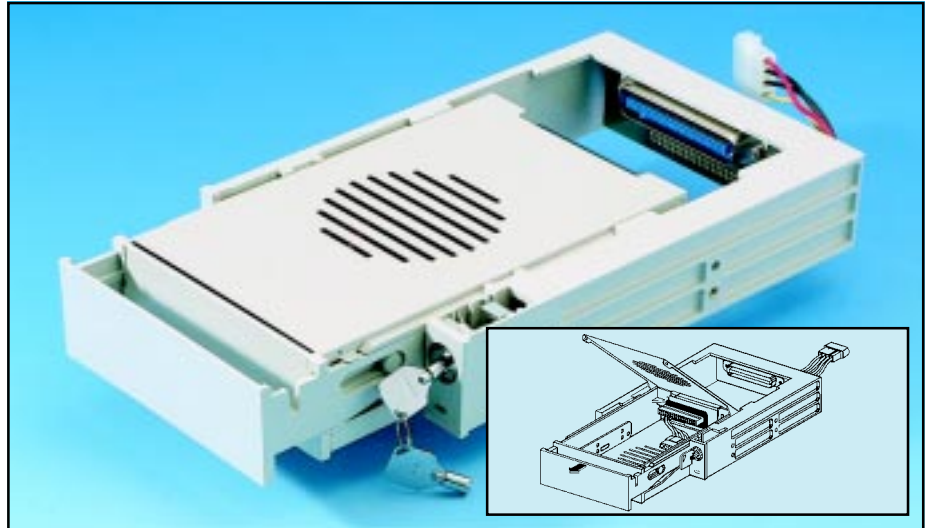
HARD DRIVE MOUNTING KITS

FEATURES

- Suitable for standard PC cases
- Occupies same space as 5¼" disk drive
- Flush fitting, retractable handle
- Integrated circuitry and security wiring allows "hot swapping" enabling drives to be changed whilst system is in use. Protection circuits ensure safe and reliable start-up
- Security lock
- Suitable for 1,0" or 1,625" high 3½" IDE or SCSI hard drives

HARD DRIVE MOUNTING KITS Ordering information

Description	Order Code
Mounting Kit - IDE	145-10139G
Mounting Kit - SCSI	145-10140H



PCAT MULTILAYER BACKPLANES

FEATURES

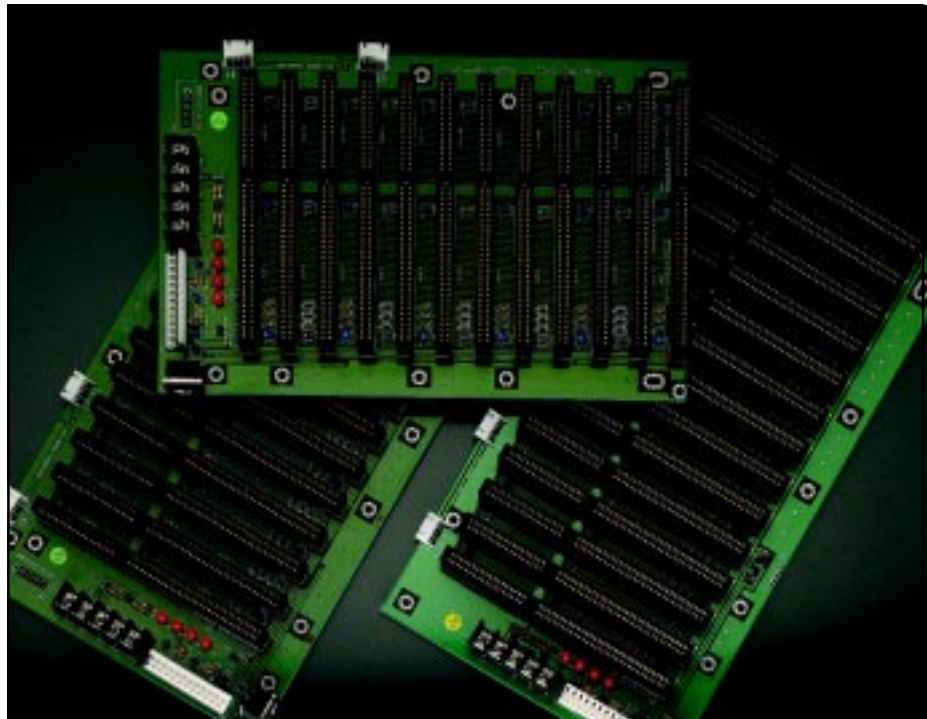
- 8, 12 and 14 slot widths
- 4 layer construction
- Fully populated - AT style connectors
- On-board voltage decoupling capacitors fitted, additional positions provided
- Fixing holes at standard PCAT positions
- LED power indicators
- Additional power positions provided

This new range of passive backplanes offers the user a high performance product at a cost-effective price.

The 4 layer fully populated backplane has on-board decoupling capacitors, a DIN keyboard connector, a 12-way power connector and power good LEDs. The backplane also features additional power connections and provision for resistance termination.

PC MOTHERBOARDS Ordering information

Description	Order Code
8 slot backplane	425-309909C
12 slot backplane	425-309911E
14 slot backplane	425-309913A



ISA/PCI MULTILAYER BACKPLANES

FEATURES

- Meets PICMG standard
- Two ISA/PCI CPU card slots
- Supports;
 - 14 slot - 10 x ISA, 4 x PCI slots
 - 12 slot - 8 x ISA, 4 x PCI slots
 - 8 slot - 5 x ISA, 3 x PCI slots
- Supports 3,3V
- LED power indicators for ±5V, ±12V and +3,3V
- Fully populated - ISA/PCI connectors
- Fixing holes as standard PCAT backplanes except one extra mounting hole below CPU slots
- Standard P8 and P9 connectors, +3,3V connector plus terminal block for ±5V and ±12V provided

ISA/PCI MOTHERBOARDS Ordering information

Description	Order Code
8 slot backplane (5 + 3)	425-315488D
12 slot backplane (8 + 4)	425-315489B
14 slot backplane (10 + 4)	425-315490F



INTRODUCTION

This range of IBM compatible prototyping boards from VERO Electronics has been specifically designed to allow system designers to quickly, easily and reliably construct their interfaces, control systems, data analysers or special function circuitry for use with the range of IBM microcomputers or compatibles.

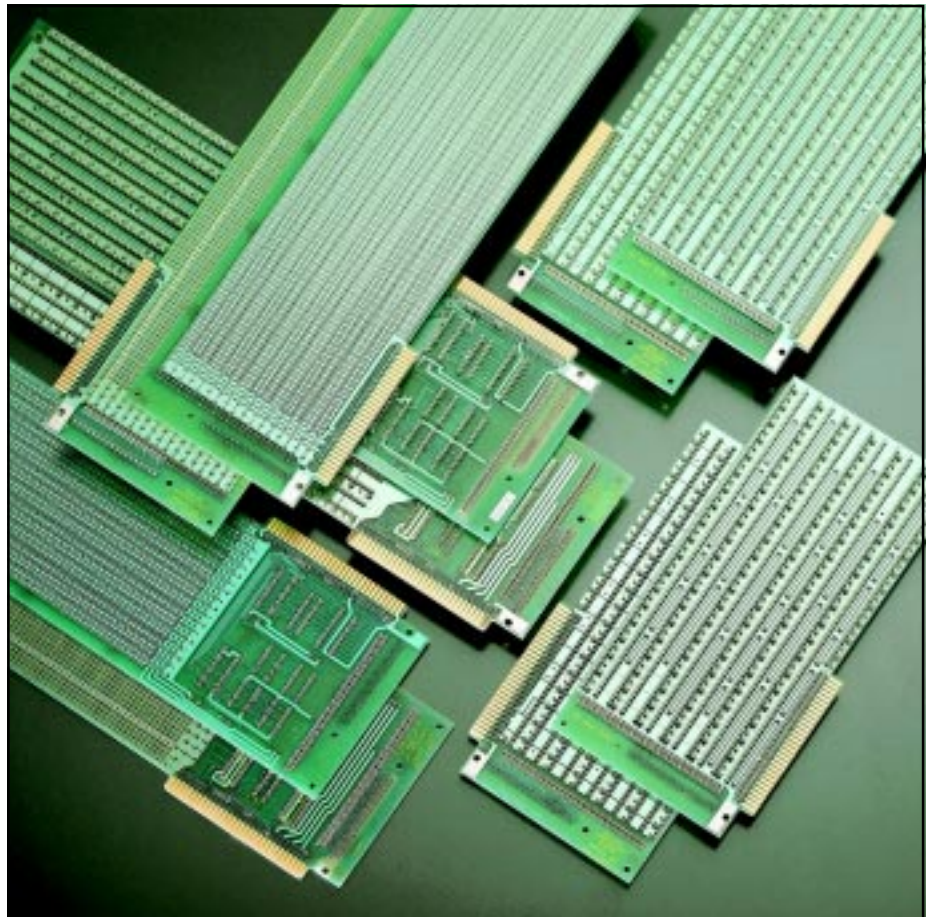
VERO prototyping cards are available which provide on-board track layout for the recommended interface logic.

INTERFACE LOGIC - PC, PCXT AND PCAT

It is recommended that the relevant data, address and control lines be buffered and decoded. Full details are provided in the VERO application notes supplied with each board.

VERO prototyping boards can be provided with on-board mounting positions and interconnecting tracks so that the user has only to provide a few LS logic IC's and decoupling capacitors to construct the recommended interface. This allows the designer to concentrate on the application problem without worrying about the interface.

Note: VERO Electronics does **not** provide the interface components. These are standard devices which are readily available from a number of other sources, or may be immediately to hand in many laboratories. The application notes give details of the devices required.



IBM PC AND PC XT PROTOTYPING BOARDS

APPLICATION

These boards have been specifically designed for high reliability applications in the IBM PC, PC XT and their equivalents. They provide a large microboard pattern area for circuit construction with provision for interconnection with the IBM expansion slot via 31/31 x 2,54 mm gold plated tongue. For additional input/output requirements to external circuitry there is provision for mounting a miniature D type connector (up to 37 ways) or a 40 way header on the rear edge of the board.

IBM PTH MICROBOARD

Available with on-board track layout for the recommended interface logic, or without on board interface for users requiring a larger prototyping area.

FEATURES

- IBM bus compatible
- Reliability of plated through holes
- Solder resist on both sides of board
- 12V, 5V, 0V, -5V, -12V power rails
- Full copper ground plane
- Simple interfacing by the addition of 11 commonly available components
- 1½ µm gold plated tongue
- Board position for 'D' type connector up to 37 ways for extra I/O

IBM SPEEDWIRE BOARD

Identical to the IBM PTH Microboard but with VERO's Speedwire insulation displacement wiring system which allows rapid construction and amendment of circuitry using the Speedwire SL wiring pen. In addition to the simple and rapid wiring procedure

Speedwire, unlike wirewrap, allows adjacent expansion slots to be used because of the low profile of the Speedwire terminals.

The Speedwire terminals also provide gold plated contacts for the insertion of component leads, thus avoiding the need to use component sockets on the board.

Un-populated Speedwire boards are also available.

IBM PC, PC XT Microboards

Ordering information

Description	Board size length x width (mm)	Order code
Board with interface circuitry	333 x 97	222-42697G
Board without interface circuitry	333 x 97	222-42936H

IBM PC, PC XT Speedwire Boards

Ordering information

Description	Board Size length x width (mm)	Order code
Board with interface circuitry	333 x 97	244-42768K
Board without interface circuitry	333 x 97	244-42937D

Speedwire Pen & Wire

Ordering information

Description	Order Code
Speedwire SL Wiring Pen	244-26213E
Speedwire Wire (4 mixed colours)	244-26227L

A range of boards and accessories are available for the Speedwire IDC wiring system. Details are on pages 8.24 - 8.27

IBM PC AT PROTOTYPING BOARDS

APPLICATION

These boards have been designed specifically for the IBM AT and its equivalents. They differ from boards for the PC range in providing an additional 18/18 2,54 mm gold plated edge connector which allows expansion boards to make full use of the extended data and address facilities offered by the AT's more powerful central processor.

(Note that boards for the IBM PC and PC XT can be used in the AT but cannot access the extra facilities of the AT processor.)

IBM AT PTH MICROBOARD

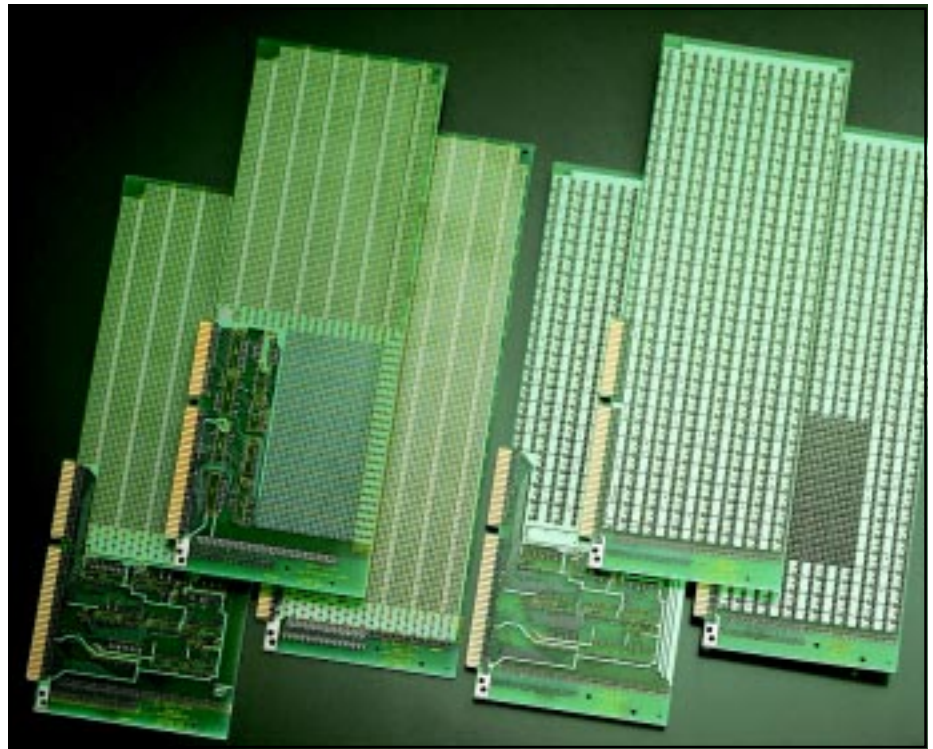
Provides the same facilities as the PC Microboard but with additional card edge connector for the additional AT bus structure and a larger prototyping area. Available with or without on-board interface track layout.

IBM AT PTH MICROBOARD WITH SQUARE PAD AREA. This board features condensed interface circuitry and a large square pad allowing PGA devices to be positioned close to the interface.

IBM AT SPEEDWIRE BOARD

Identical to the IBM AT PTH Microboard but with Speedwire terminals for rapid wiring. Available with or without interface circuitry, and also available with an area suitable for the insertion and interconnection of pin grid arrays. Un-populated Speedwire boards are also available.

Note: All PC and PCAT boards are supplied with a rear mounting bracket and an application note describing the bus and with an interface circuit diagram and block diagram



MULTILAYER IBM PC, PC AT EXTENDER BOARD

APPLICATION

Using multilayer technology this board has been designed to make measurement and fault analysis easier on PC and PCAT expansion boards.

This board plugs directly into any expansion slot on the motherboard thus positioning the expansion board above any adjacent boards, providing improved access to the boards circuitry. The expansion board can be held firmly in position by using the card guides - with ejector mechanism - which are provided.

Being a four layer construction, this extender board features patented 0V guard tracking to reduce cross talk on signal lines. This feature, combined with buried ground and power planes, ensures that this board is suitable for use in high speed applications. On-board provision is made for bus line interruption. This is achieved by breaking the tracks at the positions provided, enabling jumper links to be inserted to open circuit or close bus lines as required.

FEATURES

- High quality 4 layer multilayer board
- Patented 0V guard tracking on signal line
- Supports expansion board firmly above case of microcomputer
- Suitable for PC, PCXT or PCAT and equivalents
- 1½ µm gold plated connector tongue
- Solder resist coating and clear notation for ease of handling
- Facilities for fitting jumper links to allow bus lines to be interrupted.

IBM PC Extender Board Ordering Information

Description	Order code
IBM Bus Extender Card	38-305763H
Jumper Links Red/10	188-29988E
Jumper Links Black/10	188-29989B
Wire Wrapping Pins/100	188-29990C

IBM AT Microboards

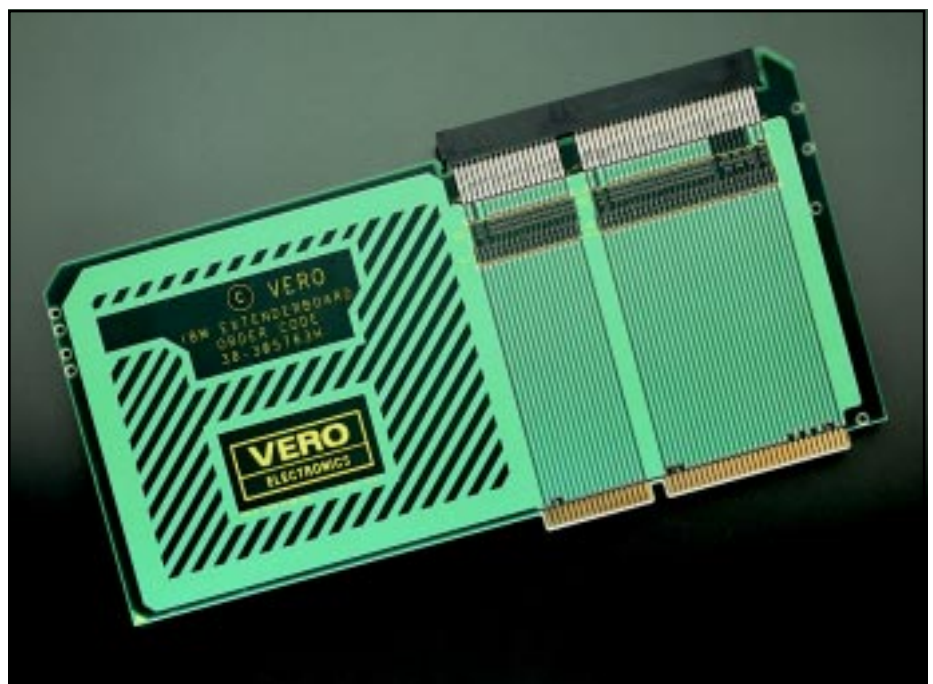
Ordering information

Description	Board Size length x width (mm)	Order code
Board with interface circuitry	333 x 114	222-53100K
Square pad interface board	333 x 114	222-301596E
Board without interface circuitry	333 x 114	222-52877J

IBM AT Speedwire Boards

Ordering information

Description	Board Size length x width (mm)	Order code
Board with interface circuitry	333 x 114	244-53101F
Board without interface circuitry	333 x 114	244-52878E
Board with PGA area (without interface circuitry)	333 x 114	244-52879B



PERSONAL COMPUTER HARDWARE

IBM PC ADAPTOR BOARD

FEATURES

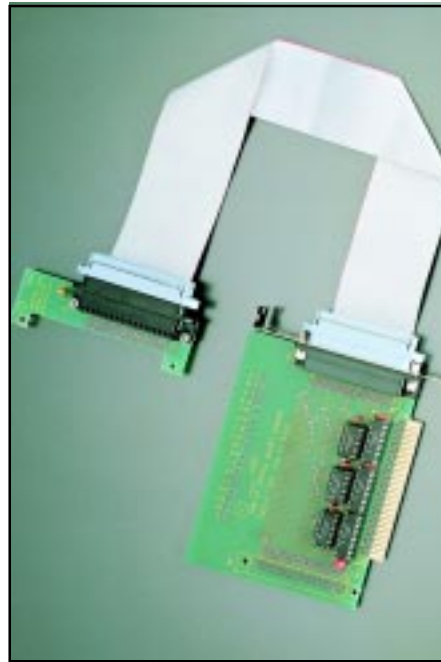
- Allows external development of circuitry
- Interface circuitry provided
- 1½ µm gold plated tongue
- Interface monitoring facility
- High quality fully assembled PTH board
- Remote ribbon cable and interconnection board

IBM PC ADAPTOR BOARD

Introduced to enable the engineer to develop and test circuitry outside the PC chassis, the board features the standard 8-bit PC interface which is tracked out to a 37 way "D" type rear mounted connector.

A mating ribbon cable assembly (supplied) has a special adaptor board, allowing the interface signals to be transferred to the external prototyping board. This feature allows the engineer the freedom to develop circuitry on any size of pcb.

Additional features are the interface signal lines which are tracked to the top of the adaptor board to provide monitoring facilities and the 37 way "D" type connector mounted on the front edge of the adaptor board to allow a completed prototype circuit to be plugged into the adaptor board located in the chassis (providing the development board is of a suitable size).



IBM PC ADAPTOR BOARD

BOARD SPECIFICATION

Board type	Epoxy glass
Plated through hole	BS4584 EP-GC-Cu FR4
Max. working temp.	155°C
Nom. board thickness	1,6mm
Laminated copper thickness	35µm or 1oz/ft ² or 305g/m ²
Plated copper	25µm
Tin lead	10µm
Total	70µm

Note: bare boards are UL 94 V-0 recognised components file number E116551. Bare boards are approved to BS9762

CONTENTS OF KIT

- IBM Adaptor board with interface components and I/O connector
- Remote ribbon cable assembly
- Ribbon cable to prototyping card interconnection board
- Instructions for use

Ordering information

Description	Board size (mm)	Order code
PC Adaptor board	107 x 135	109-303534L

DOUBLE HEIGHT PS/2 SQUARE PAD BOARD

FEATURES

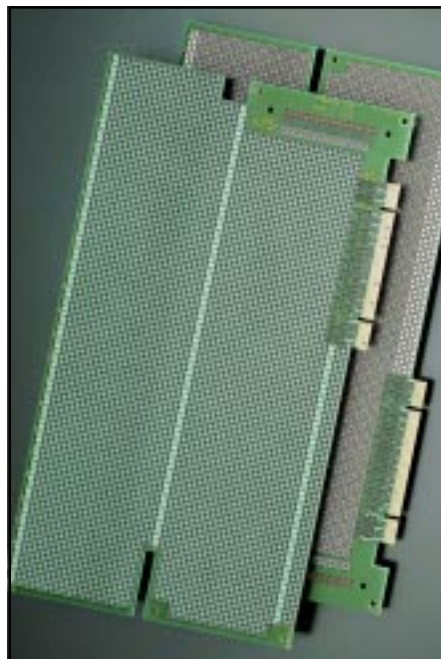
- Greatly enlarged prototyping area
- IBM Micro Channel bus compatible
- 4 layer construction
- +12V, +5V, 0V, -5V, -12V power planes
- Full copper internal ground and power planes
- 1½ µm gold plated tongue
- Board position for "D" type connector up to 37 ways for extra I/O
- Reduced 5V power fingers to ensure safe board insertion
- Video connector provided

DOUBLE HEIGHT PS/2 SQUARE PAD BOARD

This board has been developed to provide the maximum prototyping area on a PS/2 card. It has been designed to cater specifically for engineers developing prototype PS/2 circuitry who find the standard PS/2 card provides insufficient board area.

This multilayer board features the PTH square pad pattern on the solder side and a collander ground plane on the component side. The two internal layers provide full 0V and 5V power planes and power rails for auxiliary voltages.

The gold plated edge connector tongue conforms to the Micro Channel Architecture used on the IBM PS/2 machines. All +5V contacts have been reduced in length to ensure all other connections are made before power is introduced.



An optional Video Expansion connector is located adjacent to the Micro Channel connector, plus an additional input/output facility via a miniature "D" type connector (up to 37 ways) on the rear edge of the board is provided. The board is supplied with a card mounting kit comprising of a stainless steel I/O bracket (37 way "D" cut out), plastic card pusher and handle/guide.

Note: For IBM PS/2 model 30 use IBM PCAT boards

BOARD SPECIFICATION

Dielectric	Epoxy glass BS4584 EP-GC-Cu3 FR4
Nom. thickness	1,6mm
Base copper thickness	35µm
Finish	
Plated copper	25µm average
Tin lead	5µm nominal
Total	68µm outer layers only

Note: bare boards are UL 94 V-0 recognised components file number E116551. Bare boards are approved to BS9762.

DOUBLE HEIGHT PS/2 SQUARE PAD BOARD

Ordering information

Description	Board size (mm)	Order code
PS/2 square pad board	155 x 287	425-303664F

IBM PS/2 PROTOTYPING BOARDS

The VERO range of prototyping boards for the IBM PS/2 family of computers is available in either Microboard or Speedwire versions. Both boards are multilayer, the internal layers for power and ground, the outer having the VERO Microboard or Speedwire pattern. The gold plated edge connector tongue conforms to the Micro Channel Architecture used on the IBM PS/2 machines. All +5V contacts have been reduced in length to ensure all other connections are made before power is introduced. An optional Video Expansion connector, plus an additional input/output facility via a miniature 'D' type connector (up to 37 ways) on the rear edge of the board is provided. Each board is supplied with a card mounting kit comprising of a stainless steel I/O bracket (37 way 'D' cut out), plastic card pusher and handle/guide.

FEATURES

- IBM Micro Channel bus compatible
- 4 layer board construction
- +12V, +5V, 0V, -5V, -12V power planes
- 1½ µm gold plated tongue
- Board position for 'D' type connector up to 37 ways for extra I/O
- Reduced 5V power fingers to ensure safe board insertion
- Video connector provided

Note: For IBM PS/2 model 30 use IBM PCAT boards.

IBM PS/2 MULTILAYER EXTENDER BOARD

Designed for compatibility with the MCA range of boards, this six layer extender board features patented 0V guard tracking to minimise crosstalk on the signal lines. This feature, combined with buried ground and power planes, makes this board suitable for high speed applications. The board is held in the vertical plane for ease of interrogation and is supported in such a manner that there is no need to remove the I/O bracket or the connector mounted on the rear of the board.

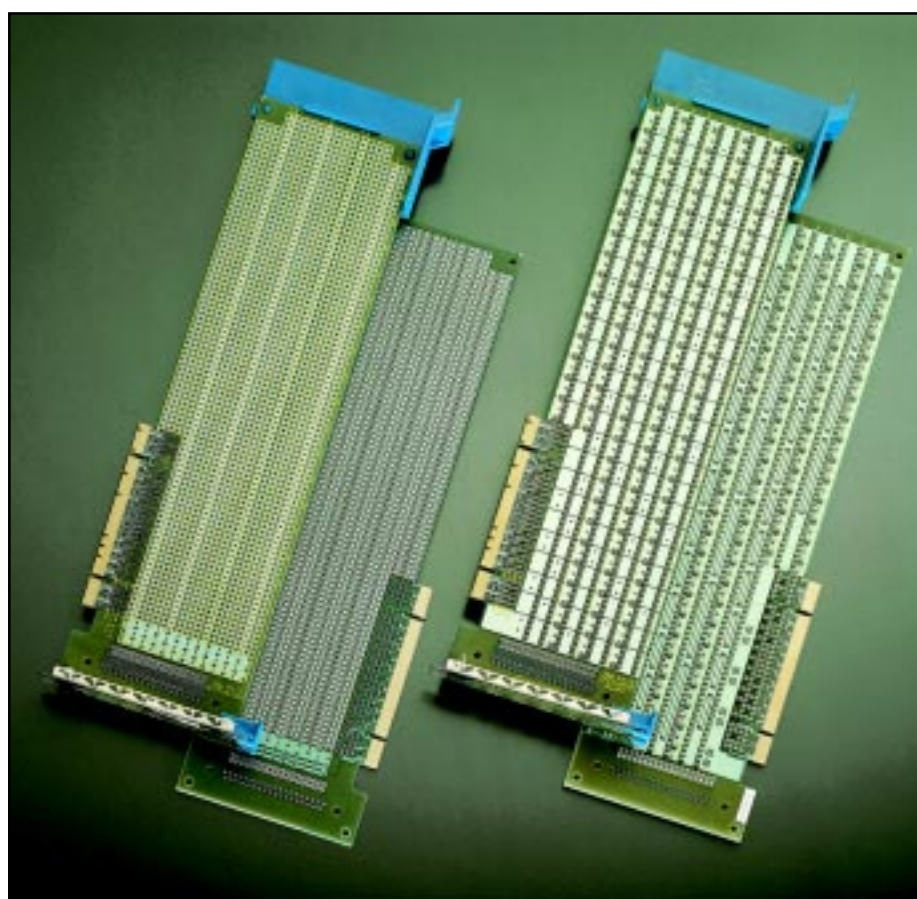
On-board provision has been made for bus line interruption by means of track breaks. This enables jumper links to be inserted, opening or closing bus lines as required. The extender is supplied complete with a card guide and a blank I/O bracket.

FEATURES

- High quality 6 layer multilayer board
- Suitable for PS/2 machines and equivalents
- Patented 0V guard tracking on signal lines
- Facilities for fitting jumper links to allow bus line interrupt
- 1½ µ gold plated tongue
- Solder resist coating to prevent solder bridging and finger staining

IBM PS/2 Extender Board **Ordering information**

Description	Order code
IBM PS/2 Extender Board	38-305777C
Jumper Links Red/10	188-29988E
Jumper Links Black/10	188-29989B
Wire Wrapping Pins/100	188-29990C



IBM PS/2 Prototyping Boards

Ordering information

Description	Board size length x width (mm)	Order code
Microboard	292 x 88	425-61354F
Speedwire board	292 x 88	244-61356K



PERSONAL COMPUTER HARDWARE

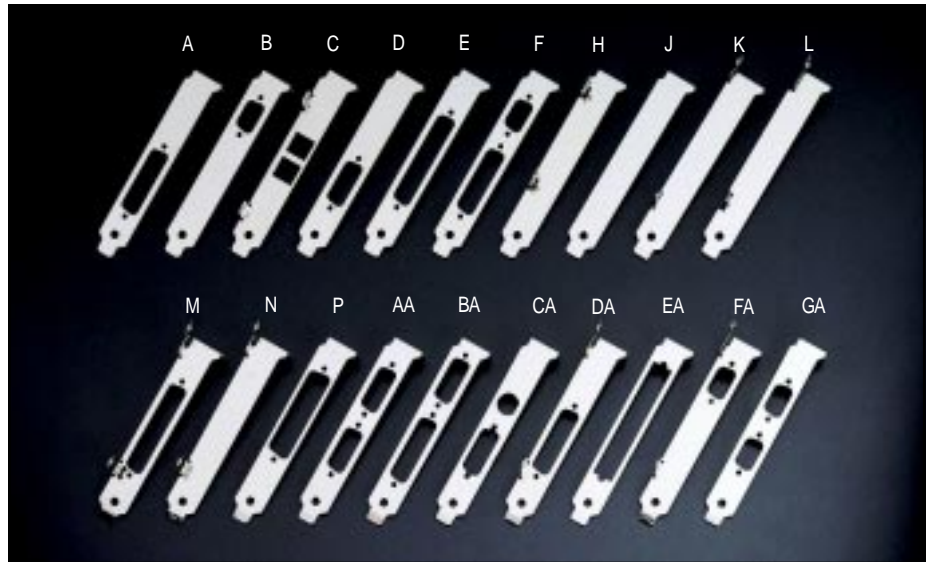
I/O CARD BRACKETS

As an extension to the range of IBM PC, PCXT and PCAT (and equivalents) prototyping boards VERO Electronics now have available a range of brackets suitable for fitting to the rear of IBM expansion boards.

IBM brackets are available in various forms, with or without board fixing 'ears' with provision for different types of connector I/O, and are designed for fitting on either the component or solder side of the board. 20 bracket types are available ex-stock covering the most widely used applications.

MATERIAL SPECIFICATION

All brackets are manufactured from 0,80mm thick steel and finished in bright nickel plate.



IBM PC I/O CARD BRACKETS

Ordering information

Type	Description	PCB mtg. centres	Order code	Type	Description	PCB mtg. centres	Order code
A	25 way 'D' type	-	427-59693J	M	37 way 'D' type-solder side mounted	90,8 mm	427-59703G
B	9 way 'D' type	-	427-59692A	N	Blank panel - solder side mounted	90,8 mm	427-10036D
C	Twin phone type	73,7mm	427-59694F	P	50 way D type	-	427-10023F
D	15 way 'D' type	-	427-59695C	AA	15 way & 15way D type	-	427-10027F
E	37 way 'D' type	-	427-59696L	BA	15 way & 25 way D type	-	427-10037A
F	9 way & 25 way 'D' types	-	427-59697H	CA	15 way D type & BNC ϵ 12,8mm	-	427-10038J
H	Blank panel-component side mounted	61,0mm	427-59699B	DA	25 way D type - solder side mounted	90,8 mm	427-10039F
J	Blank panel-no PCB mounting	-	427-59700E	EA	50 way Centronics	-	427-10040G
K	Blank panel-solder side mounted	88,9mm	427-59701B	FA	9 way D type - solder side mounted	90,8 mm	427-10032E
L	Blank panel-component side mounted	88,9mm	427-59702K	GA	9 way & 9 way D type	-	427-10041D

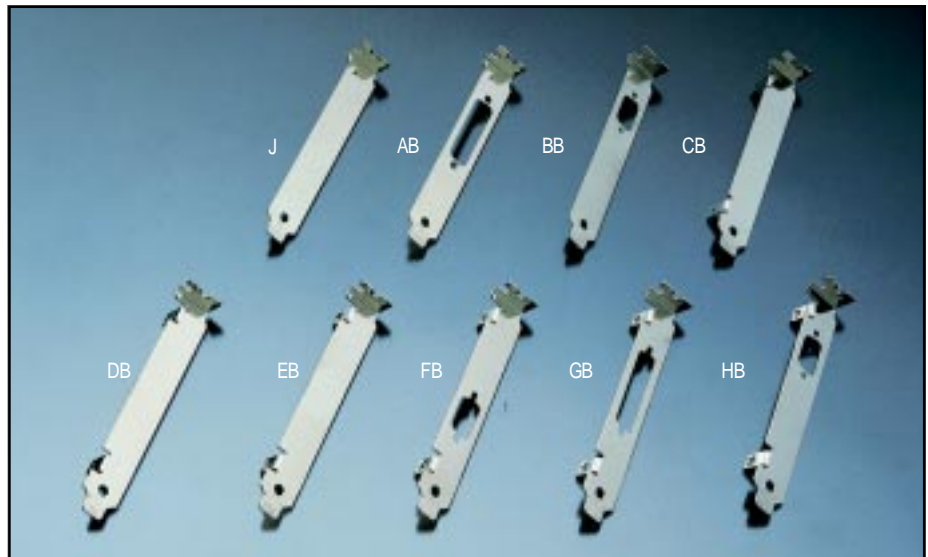
PCI I/O BRACKETS

To support the emerging PCI products that are being introduced into the marketplace, VERO Electronics is offering a range of PCI brackets.

Nine brackets are available to cover the most widely used applications.

MATERIAL SPECIFICATIONS

All brackets are manufactured from 0,80mm thick steel and finished in bright nickel plate



PCI I/O CARD BRACKETS

Ordering information

Type	Description	PCB mtg. centres	Order code
J	Blank bracket - no PCB mounting	-	427-59700E
AB	25 way 'D' cut-out - no PCB mounting	-	427-314431L
BB	9 way 'D' cut-out - no PCB mounting	-	427-314432J
CB	Blank bracket - PCB mounting	85,39 mm	427-314433G
DB	Blank bracket - with 4-40 PCB mounting	85,39 mm	427-314434E
EB	Blank bracket - with M3 PCB mounting	85,39 mm	427-314435C
FB	9 way 'D' cut-out - with 4-40 PCB mounting	85,39 mm	427-314436A
GB	25 way 'D' cut-out - with 4-40 PCB mounting	85,39 mm	427-314437K
HB	9 way 'D' cut-out - with 4-40 PCB mounting	85,39 mm	427-314438H

CHERRY 19" KEYBOARD FOR IBM PCAT AND PS/2

FEATURES

- Particularly suitable for use with personal computers mounted in 19" enclosures
- Gold crosspoint contacts for improved individual key durability on G80 and G84 versions
- High MTBF for G81-1800 membrane versions
- IBM PCAT and PS/2 21 key numeric keypad available to special order
- Compact 83 key PCAT and PS/2 compatible keyboard with or without trackball
- Available in International and German language versions
- Colour coded function keys
- Keyboard status identified by LED illumination
- Compatible with 19" keyboard drawer shown on page 7.15
- G84-4400 can be supplied with an adaptor to convert 6 pin mini-D connectors to 1 x 5 pin DIN and 1 x 9 pin mini-D



CHERRY KEYBOARDS FOR PCAT AND PS/2

Ordering information

Description	Dimensions (mm)	Supply voltage/Output current	Output connector	Order code
Keyboard G84-4100 (International)	281,5 x 131,5 x 23,5	3,3-5Vdc, <10mA	5 pin DIN	898-10045B
Keyboard G84-4100 (German)	281,5 x 131,5 x 23,5	3,3-5Vdc, <10mA	5 pin DIN	898-10046K
Keyboard G84-4400 (International - with built-in trackball)	370 x 138,5 x 20	+5Vdc, 18mA	2 x 6 pin mini-DIN	898-10047G
Keyboard G84-4400 (German - with built-in trackball)	370 x 138,5 x 20	+5Vdc, 18mA	2 x 6 pin mini-DIN	898-10048D
PS/2 D-Sub Adaptor for G84-4400	From 6 pin mini-DIN to 9 pin D-Sub			898-10051K
PS/2 Adaptor for G84-4400	From 6 pin mini-DIN to 5 pin DIN			898-10052G

CHERRY 19" KEYBOARD FOR IBM PCXT, PCAT AND PS/2

FEATURES

- Small overall size (405 mm x 180 mm x 37 mm)
- Particularly suitable for use with personal computers mounted in 19" enclosures
- Gold crosspoint contacts for improved individual key durability on G80-1800 version
- High MTBF for G81-1800 membrane versions
- Available in International and German language versions
- Function keys colour coded
- Keyboard status identified by LED illumination
- 5 pin DIN connector with spiral lead
- Keyboard layout conforms to DIN 2137
- Compatible with 19" keyboard drawer shown on page 7.15
- Approved to UL, CSA, GS, DBP, FCC, VDE and CE standards



For details of Windows 95 compatible keyboard please contact VERO Electronics

CHERRY KEYBOARDS FOR PCAT AND PS/2

Ordering information

Description	Dimensions	Supply voltage/Output current	Order code
Keyboard G80-1800 (International)	404 x 180 x 37	+5Vdc, 200 mA	898-10013J
Keyboard G80-1800 (German)	404 x 180 x 37	+5Vdc, 200 mA	898-10012A
Keyboard G81-1800 (International)	404 x 180 x 37	+5Vdc, 200 mA	898-10041C
Keyboard G81-1800 (German)	404 x 180 x 37	+5Vdc, 200 mA	898-10042L

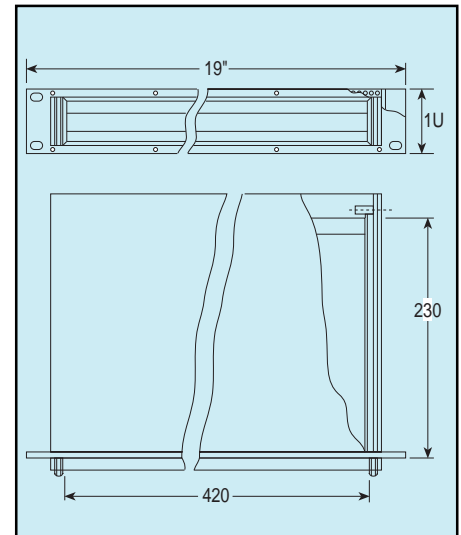
PERSONAL COMPUTER HARDWARE

RACK MOUNTABLE KEYBOARD HOUSING DRAWER UNITS

These drawer units, which are 1U or 2U in height depending on version, are designed specifically to provide a neat, compact method of keyboard presentation.

KEYBOARD DRAWER FOR 19" RACKS AND CABINETS

- Secure and space effective keyboard installation
- Designed for ergonomically correct keyboard operation
- Easily attached, hidden keyboard slides
- Keyboard screened within aluminium case



KEYBOARD DRAWER WITH TOUCH SENSITIVE KEYBOARD

- For use in harsh environments
- Touch sensitive keys
- Contoured key area
- Sealed to IP 54 or IP 65



KEYBOARD DRAWER FOR 19" RACKS AND ENCLOSURES

Ordering information

Description	Dimensions H x W(+20) x D	Order code
Drawer with Cherry G 80 - 0777 IBM PCAT / PS/2 International Keyboard	1U x 440 x 275	898-10001H
Drawer with Cherry G 80 - 0778 IBM PCAT / PS/2 German Keyboard	1U x 440 x 275	898-10005G
Spiral cable - PCXT/PCAT compatible		898-10019B

KEYBOARD DRAWER WITH TOUCH SENSITIVE KEYBOARD

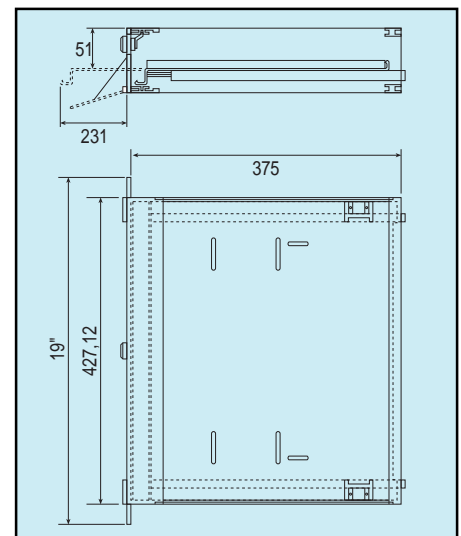
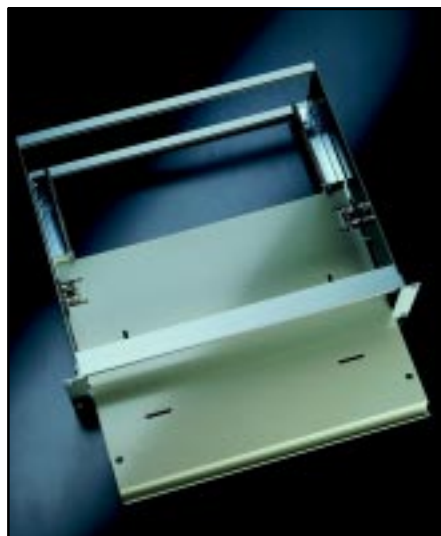
Ordering information

Description	Dimensions H x W(+20) x D(+70)	Order code	
		IP 54	IP 65
Drawer with touch sensitive IBM PCAT / PS/2 International Keyboard	1U x 440 x 250	898-10025K	898-10026G
Drawer with touch sensitive IBM PCAT / PS/2 German Keyboard	1U x 440 x 250	898-10015C	898-10016L

2U KEYBOARD DRAWER

- Used for installation of Cherry keyboards or compatibles
- Keyboard screened within aluminium case
- Keyboard mounted on positive stop retractable runners
- 2U front panel painted RAL 7035
- Hinged, lockable front panel to prevent unauthorised access

Note: Cherry keyboard requires an additional mounting kit - please contact VERO Electronics for further details



2U KEYBOARD DRAWER

Ordering information

Description	Dimensions H x W x D	Order code
2U drawer	2U x 465.5 x 375	802-556070J
Velcro mounting kit - Cherry keyboard		802-562178C

COMPUTER MONITORS

Two monitors, one 5" and one 9", are available. With options of green, amber or black and white screen display and, on certain versions, full IBM and VGA compatibility these monitors are suitable for use in environments where a free-standing monitor would be vulnerable to damage.

Both monitors are supplied mounted in robust DIN 41494 19" standard cassette modules.

5" MONITOR - CASSETTE MOUNTED

FEATURES

- 5" (140mm) screen - measured diagonally
- DIN 41494 module - 30HP x 3U x 218mm
- Input signal Analogue/TTL (or IBM and VGA compatible)
- Input voltage +12V/1A max.
- Resolution 950 lines (within image area)
- Bandwidth >20MHz, >25MHz on VGA
- Signal input voltage 1 - 5Vpp Analogue
- Horizontal frequency 15,75 kHz (18,5 kHz IBM compatible version, 31,5 kHz VGA compatible version)



5" MONITOR MODULE

Ordering information

Description	Screen colour	Order code
5" Monitor	Green	145-10001D
5" Monitor	Amber	145-10016G
5" Monitor	Black and White	145-10019J
5" Monitor - IBM compatible	Green	145-10040B
5" Monitor - IBM compatible	Black and White	145-10041K
5" Monitor - VGA compatible	Black and White	145-10102G
Analogue Interface		145-10002A

9" MONITOR - CASSETTE MOUNTED

FEATURES

- 9" (252mm) screen - measured diagonally
- DIN 41494 module - 54HP x 6U x 260mm
- Input signal TTL (IBM compatible)/VGA
- Bandwidth: >25MHz
- Horizontal frequency:
 - 18,5 kHz - IBM compatible version
 - 31,5 kHz - VGA version
- Input voltage: +12V/1A



9" MONITOR MODULE

Ordering information

Description	Screen colour	Order code
9" Monitor - IBM-compatible	Green	145-10032L
9" Monitor - VGA compatible	Black and White	145-10091A

Housings are available for 14", 15" and 17" monitors. Please contact VERO Electronics for further details

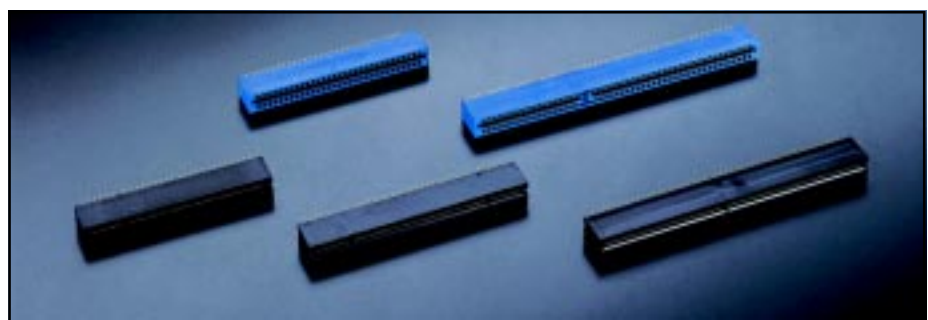
IBM PC CONNECTORS

One-piece direct connectors are available for the PCXT/PCAT and the PS/2 microcomputers.

SPECIFICATIONS

PCXT/PCAT 2,54 MM PITCH CONNECTORS

- Current rating: 3A
- Working voltage: 250 Vac
- Proof voltage: 750 Vac
- Operating temperature: -55°C to +125°C
- Contact resistance: 12 mΩ max.
- Moulding material: Glass reinforced polyester UL 94 V-0
- Colour: Black
- Contact material: Phosphor Bronze
- Contact plating: 0,2µm gold over 2µm nickel



IBM PCXT/PCAT 2,54 mm PITCH CONNECTOR

Ordering information

Description	No. of contacts	Pitch	Termination	Order code
IBM PCXT	31-way	2,54 mm	Solder tail	14-10000B
IBM PCAT	31-way + 18-way	2,54 mm	Solder tail	14-10001J