MEGGiTT
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extreme environments

# ABE040 and ABE042

# VM600 system rack

## FEATURES

- From the Vibro-Meter® product line
- 19″ system rack with a standard height of 6U
- Robust aluminium construction
- Modular concept allows specific cards to be added for machinery protection and/or condition monitoring
- Cabinet or panel mounting
- Backplane supporting the VME bus, the VM600 system's raw signal, tacho and open collector (OC) buses, and power supply distribution
- Power supply check relay


**VM600 system rack (ABE04x)**

## DESCRIPTION

The VM600 system racks are used to house hardware for the VM600 series of machinery protection systems and condition monitoring systems, from Meggitt Sensing Systems' Vibro-Meter® product line.

Two types of rack are available: the ABE040 and the ABE042. These are very similar, differing only in the position of the mounting brackets. Both racks have a standard height of 6U and provide mounting space (slots) for up to 15 single-width VM600 series cards, or a combination of single-width and multiple-width cards. The racks are particularly suitable for industrial environments, where equipment must be permanently installed in 19″ cabinets or panels.

The rack has an integrated VME backplane which provides the electrical interconnections between the installed VM600 cards: power supply, signal processing, data acquisition, input/output, CPU and relay. It also includes a power supply check relay, available at the rear of the rack, which indicates that the installed power supplies are operating normally.

One or two RPS6U power supplies can be installed in a VM600 system rack. A rack can have two RPS6U units installed for different reasons: to supply power to a rack with many cards installed, non-redundantly, or to supply power to a rack with fewer cards installed, redundantly.

When a VM600 system rack is operating with two RPS6U units for power supply redundancy, if one RPS6U fails, the other will provide 100% of the power requirement and the rack will continue to operate,

## DESCRIPTION *(continued)*

thereby increasing the availability of the machinery monitoring system.

Various versions of the ABE040 and ABE042 exist, allowing a rack to be powered from external AC or DC mains supplies with a range of supply voltages.

VM600 processing cards are installed in the front of the rack and the associated input/output cards are installed in the rear. The input/output cards contain screw terminal strips or connectors for the connection of transducers and/or conditioners and for the input and output of various signals to an external control system, such as a DCS or PLC. Any rack slot (card position) not used by a VM600 card can be covered by a blank panel.

In general, VM600 system racks are configured in the factory before delivery so they are supplied ready-to-use. Optionally, each card can be reconfigured to meet the needs of a particular machinery monitoring application using the appropriate software package from Meggitt Sensing Systems: VM600 MPS1 or MPS2, or VibroSight®.

For specific applications, contact your nearest Meggitt Sensing Systems representative.

## SPECIFICATIONS

### General

| | |
|---|---|
| Housing | : Extruded aluminium frame and solid aluminium structural parts. Top and bottom plastic guide strips for the VM600 cards. |
| Power supply inputs | : The power supply inputs have an AC or DC connector (with an RFI filter) and an on/off switch. Refer to the *RPS6U rack power supply unit* data sheet for information on mains power supply leads (power cords). |
| Power supplies | : The required RPS6U power supply units supply the VM600 cards (processing, input/output or relay) with +5 $V_{DC}$ and ±12 $V_{DC}$. Racks are configured with either a single power supply unit (PS1) or two power supply units (PS1 and PS2):<br>• When more than nine slots of an ABE04x rack are used, two RPS6U units are required in order to supply power to the cards.<br>• When nine slots or fewer of an ABE04x rack are used, two RPS6U units can be used to supply power to the cards, redundantly. That is, the two RPS6U units operate as a redundant power supply system. |
| Backplane | : Uses VME bus and dedicated bus for communication between cards. Unused slot positions should be covered with blank panels. |
| Galvanic separation | : Galvanic separation units (GSI xxx) are available for accelerometer and proximity systems mounted in explosive atmospheres. These units cannot be supplied by the rack and require an external power supply. They must be mounted outside the rack in a remote housing or in a cabinet. |

### Power supply

Refer to the *RPS6U rack power supply unit* data sheet

### Power supply check relay

| | |
|---|---|
| Nominal switching capacity (resistive load) | : 4 A / 250 $V_{AC}$, 3 A / 30 $V_{DC}$ |
| Maximum switching power (resistive load) | : 1000 VA, 90 W |
| Maximum switching voltage | : 250 $V_{AC}$, 48 $V_{DC}$ (30 to 48 $V_{DC}$ at less than 0.5 A) |
| Maximum switching current | : 4 $A_{AC}$, 3 $A_{DC}$ |

**SPECIFICATIONS** *(continued)*

## Environmental

According to IEC 60068-2 recommendations

Temperature

- *Operation* : −25 to +65 °C (−13 to +149 °F)
- *Storage* : −40 to +85 °C (−40 to +185 °F)

Humidity : Max. 95% non-condensing

Vibration : 10 to 55 Hz, 0.35 mm peak, 6 hours in each direction

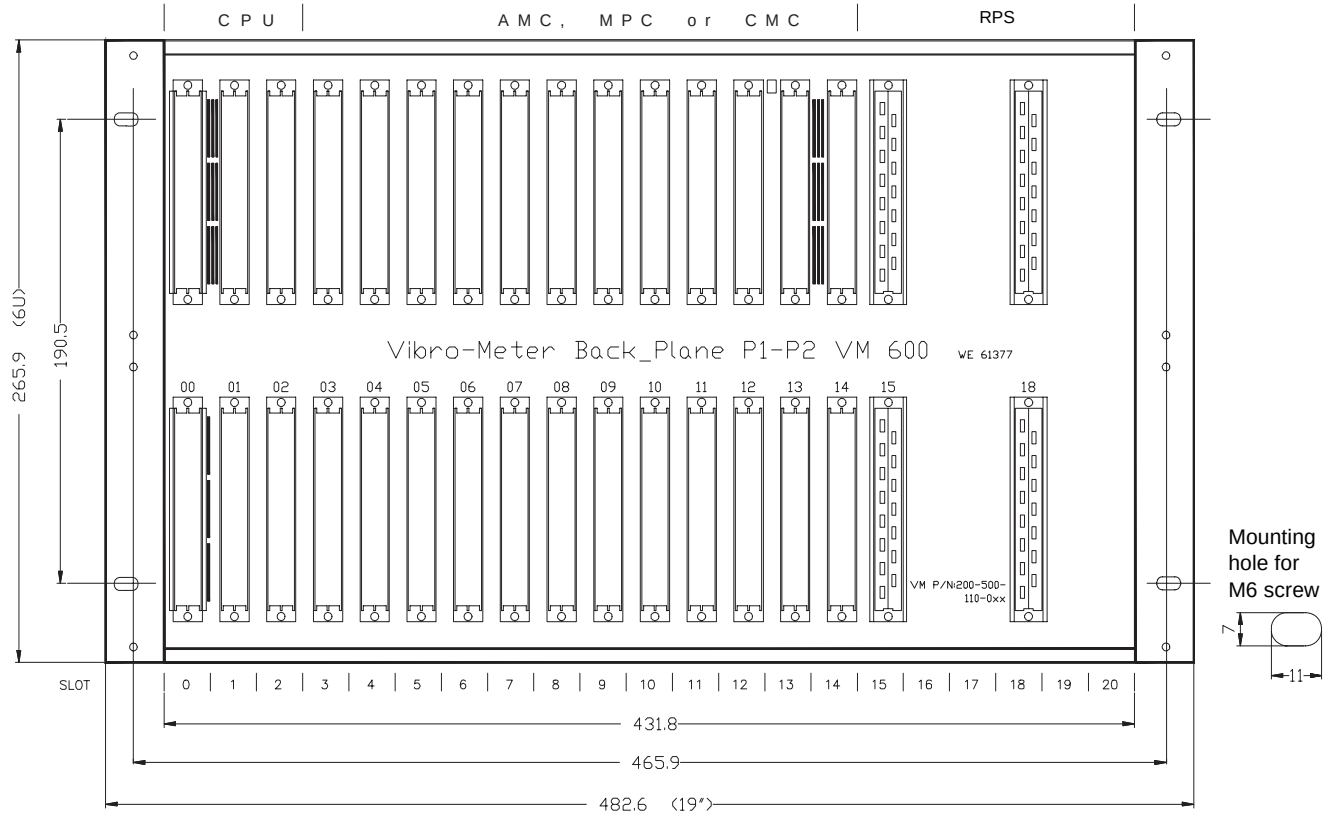
Shock : 15 g peak, 11 ms, half-sine pulse

## Physical

Dimensions : See **Mechanical drawings** starting on page 4

Weight (approx.) : 6.5 kg (14.3 lb) without power supply units and cards

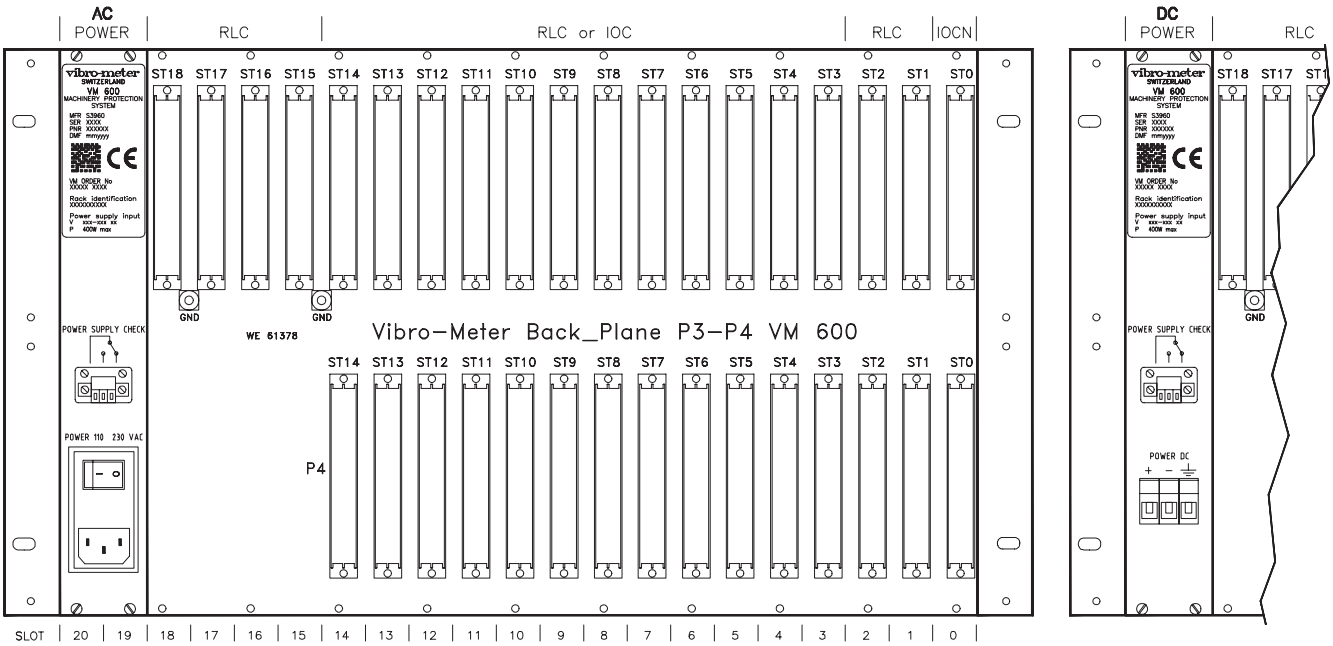
## MECHANICAL DRAWINGS – FRONT AND REAR VIEWS




**Front view of ABE040 and ABE042**

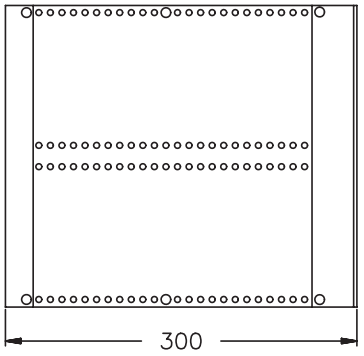
(a) With AC power supply

(b) With DC power supply

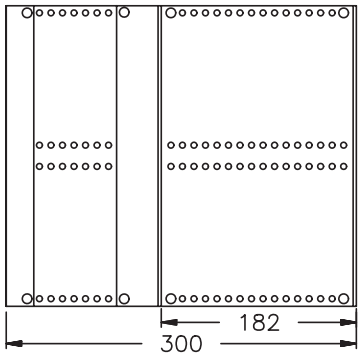



**Rear view of ABE040 and ABE042**

## MECHANICAL DRAWINGS – SIDE AND TOP VIEWS

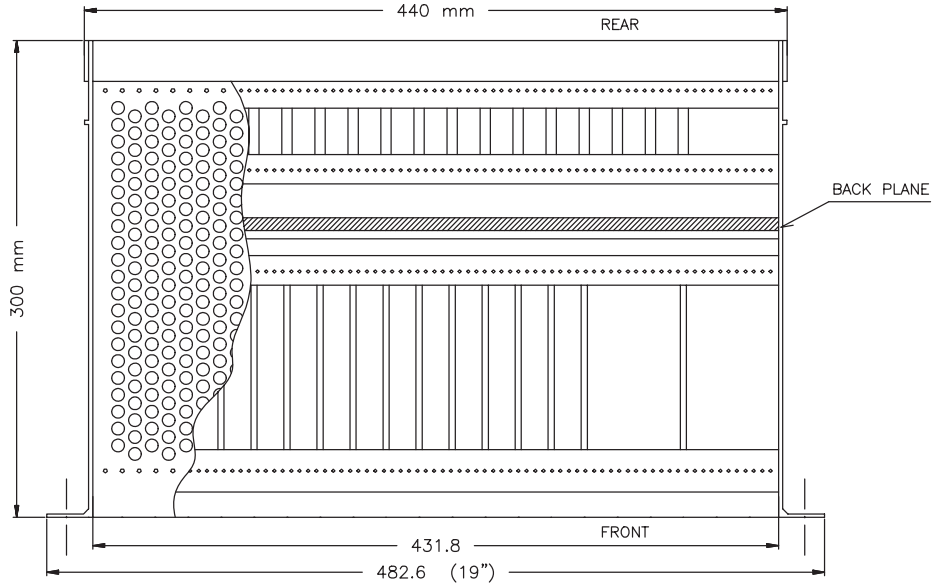



(a) Side view of ABE040

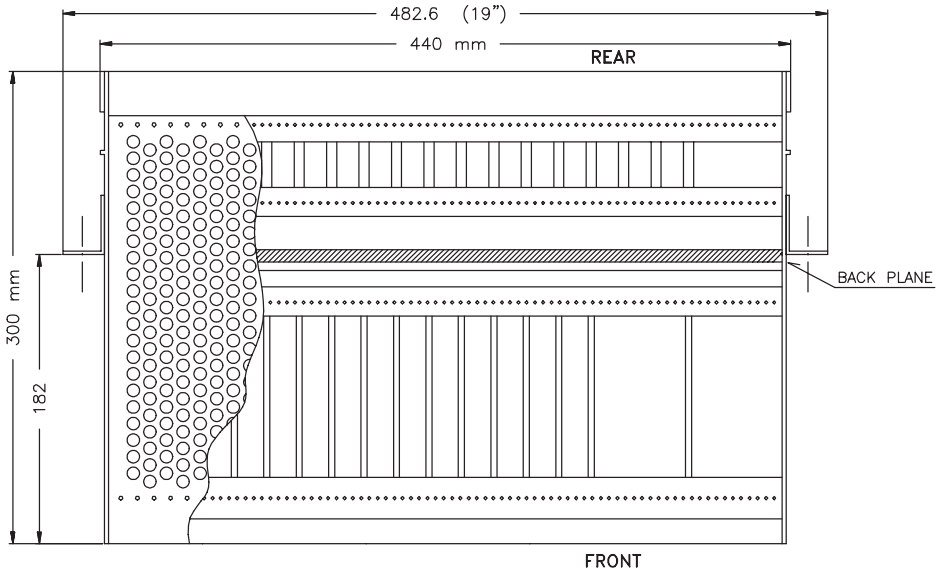



(b) Side view of ABE042

**Side views of ABE040 and ABE042**




**Top view of ABE 040**




**Top view of ABE 042**

## ORDERING INFORMATION

To order please specify

| Type | Designation | Ordering number |
|---|---|---|
| ABE040 or ABE042 | VM600 system rack: | |
| | – Unconfigured system<br>*or*<br>– Configured system | VM600SYS 611-000-000/Codes<br>*or*<br>VM600SYS 611-xxx-xxxY/Codes |

For VM600 systems with a known configuration, Meggitt SA can perform configuration management and provide a pre-configured system. Ordering numbers starting with 611-000-000 are for unconfigured VM600 systems and ordering numbers starting with 611-xxx-xxxY are for configured VM600 systems (where xxx-xxx is the configuration PNR and Y indicates the variant to use, if any).
Use the codes below to specify order options in the format 611-xxx-xxx(Y)/Bx-C4xx-Dx-Ex-Fxxx-Gxx-Hxx-Axx-Bxx-Cxx-Zxx.
For example, an unconfigured standard VM600 system rack with an AC mains power supply with standard rear panel and European mains lead, standard CPUM/IOCN, 4 x MPC4/IOC4T, 1 x XMV16/XIO16T, 1 x RLC16 and front and rear blank panels gives the following ordering number: 611-000-000/B0-C40S-D5-E0- F100-G01-HEU-AA4-BB1-ZA1-ZT7-ZU2-ZX6-ZY3.

| Code | Feature | Value | Description |
|---|---|---|---|
| B | Type of configuration<br>(see note 1 on page 9) | 0 | None – no configuration |
| | | 1 | Exact copy of an existing configuration |
| | | 2 | Similar to an existing configuration |
| | | 3 | New configuration |
| C | Rack | 40S | ABE040 system (6U) – standard version |
| | | 40C | ABE040 system (6U) – CSA version |
| | | 40I | ABE040 system (6U) – separate circuits version in accordance with the IEC/CEI 60255-5 standard |
| | | 40V | ABE040 system (6U) – varnished version with a conformal coating for additional environmental protection |
| | | 42S | ABE042 system (6U) – version with mounting brackets positioned at the rear of the rack |
| D | RPS6U power supply (PS1), installed in slots 18 to 20 | 2 | 24 $V_{DC}$ |
| | | 3 | 48 $V_{DC}$ (270 W) |
| | | 5 | 120/230 VAC |
| | | 6 | 110 $V_{DC}$ |
| E | RPS6U power supply (PS2), installed in slots 15 to 17<br>(see note 2 on page 9) | 0 | None – no second RPS6U power supply unit |
| | | 2 | 24 $V_{DC}$ |
| | | 3 | 48 $V_{DC}$ (270 W) |
| | | 5 | 120/230 VAC |
| | | 6 | 110 $V_{DC}$ |

**ORDERING INFORMATION** *(continued)*

| Code | Feature | Value | Description |
|---|---|---|---|
| F | Rear panel for RPS6U power supply (see note 3 on page 9) | 100 | AC input (120 / 230 VAC), 1x mains socket, on/off switch, common input to RPS6Us |
| | | 101 | F100 with ASPS |
| | | 110 | AC input (120 / 230 VAC), 1x screw-terminal connector, on/off switch, rear-panel fuses, common input to RPS6Us |
| | | 111 | F110 with ASPS |
| | | 120 | AC input (120 / 230 VAC), 1x screw-terminal connector, rear-panel fuses, common input to RPS6Us |
| | | 121 | F120 with ASPS |
| | | 150 | AC input (120 / 230 VAC), 2x screw-terminal connectors, on/off switches, rear-panel fuses, individual inputs to RPS6Us |
| | | 151 | F150 with ASPS |
| | | 160 | AC input (120 / 230 VAC), 2x screw-terminal connectors, rear-panel fuses, individual inputs to RPS6Us |
| | | 161 | F160 with ASPS |
| | | 200 | DC input, 1x screw-terminal connector, common input to RPS6Us |
| | | 220 | DC input, 1x screw-terminal connector, common input to RPS6Us, special earth terminal (M.A.L.T.) |
| | | 600 | AC input (230 VAC only), 2x mains sockets, on/off switches, common input to RPS6Us.<br>Supports redundant external power-supply systems. |
| | | 601 | F600 with ASPS |
| | | 620 | AC input (120 VAC only), 2x mains sockets, on/off switches, common input to the RPS6Us.<br>Supports redundant external power-supply systems. |
| | | 621 | F620 with ASPS |
| | | 630 | AC input (120 / 230 VAC), 2x mains sockets, on/off switches, individual inputs to RPS6Us |
| | | 631 | F630 with ASPS |
| | | 700 | AC input (120 / 230 VAC) and DC input, 1x mains socket with on/off switch and 1x screw-terminal connector, individual inputs to RPS6Us |
| | | 701 | F700 with ASPS |
| | | 900 | DC input, 2x screw-terminal connectors, common input to RPS6Us.<br>Supports redundant external power-supply systems. |
| | | 930 | DC input, 2x screw-terminal connectors, individual inputs to RPS6Us |

**ORDERING INFORMATION** *(continued)*

| Code | Feature | Value | Description |
|---|---|---|---|
| G | CPUM or CPUR main processor card pair (see note 4 on page 9) | 00 | None – no main processor card |
| | | 01 | CPUM / IOCN with one Ethernet interface and one serial interface (standard CPUM version) – 1 x Modbus TCP + 1 x Modbus RTU |
| | | 02 | CPUM only with one Ethernet interface and one serial interface (standard CPUM version) – 2 x Modbus TCP + 1 x Modbus RTU (front of rack) |
| | | 03 | CPUM / IOCN with two Ethernet interfaces and one serial interface (Ethernet redundant CPUM version) – 2 x Modbus TCP + 1 x Modbus RTU |
| | | 04 | CPUM / IOCN with one Ethernet interface and two serial interfaces (Serial redundant CPUM version) – 1 x Modbus TCP + 2 x Modbus RTU |
| | | 05 | CPUM / IOCN with one Ethernet interface, one serial interface and one PROFINET interface – 1 x Modbus TCP + 1 x Modbus RTU + 1 x PROFINET |
| | | 06 | CPUM / IOCN with one Ethernet interface, one serial interface and one PROFIBUS interface – 1 x Modbus TCP + 1 x Modbus RTU + 1 x PROFIBUS |
| | | 07 | CPUM / IOCN with two Ethernet interfaces, one serial interface and one PROFIBUS interface – 2 x Modbus TCP + 1 x Modbus RTU + 1 x PROFIBUS |
| | | 08 | CPUM / IOCN with one Ethernet interface, two serial interfaces and one PROFIBUS interface – 1 x Modbus TCP + 2 x Modbus RTU + 1 x PROFIBUS |
| | | 10 | One CPUR / IOCR |
| | | 20 | Two CPUR / IOCRs for redundant operation |
| H | Mains power supply lead (power cord) (see note 5 on page 9) | 00 | None – no mains lead (cable) |
| | | 01 | No plug – flying lead with wire-end ferrules |
| | | CH | J plug as per SEV 1011 (Switzerland) |
| | | EU | E+F plug as per CEE7/VII (Europe, Russia, Ukraine) |
| | | UK | G plug as per BS 1363 (UK, Hong Kong, Malaysia, Singapore) |
| | | JP | B plug as per JIS 8303 (Japan) |
| | | US | B plug as per IEC 60906-2 (US and CA) |
| Ax | Number of machinery protection card pairs | AA | MPC4 / IOC4T |
| | | AB | MPC4SIL / IOC4T |
| | | AC | AMC8 / IOC8T |
| | | AD | MPC1 / IOC4T |
| Bx | Number of condition monitoring card pairs | BA | CMC16 / IOC16T |
| | | BB | XMV16 / XIO16T |
| | | BC | XMVS16 / XIO16T |
| Cx | Number of combustion monitoring card pairs | CA | XMC16 / XIO16T |

## ORDERING INFORMATION *(continued)*

| Code | Feature | Value | Description |
|---|---|---|---|
| Zx | Number of relay cards | ZA | RLC16 |
| | | ZB | IRC4 |
| Zxx | Number of blank panels (see note 6 on page 9) | ZT | Front blank panel – 1 slot wide / 4 HP (TE) |
| | | ZU | Front blank panel – 2 slots wide / 8 HP (TE) |
| | | ZV | Front blank panel – 4 slots wide / 16 HP (TE) |
| | | ZX | Rear blank panel – 1 slot wide / 4 HP (TE) |
| | | ZY | Rear blank panel – 2 slots wide / 8 HP (TE) |
| | | ZZ | Rear blank panel – 4 slots wide / 16 HP (TE) |

Notes

1. The B2 order option should be used for a configuration similar to an existing configuration but with minor changes, such as network interface (IP) settings, tags (names), signal processing, the removal of cards or the addition of a single card.

2. A second RPS6U power supply (PS2) can be installed in an ABE04x system rack for one of two reasons: to operate non-redundantly and supply power when many cards are installed in the rack or to operate redundantly and ensure continued operation of the machinery monitoring system if one of the power supplies fails.

3. AC input power supplies with a mains socket have an IEC type C14 connector (IEC 60320) that mates with the plug (type C13) used by one end of the supplied mains power supply lead. See the Mains power supply lead (power cord) order option codes (Hxx).

4. The G02 order option is the only CPUM main processor card pair order option code that does not include an IOCN input/output card. All CPUR main processor card pair order option codes include an IOCR input/output card.
The PROFIBUS interface for a CPUM / IOCN card is implemented using a VME-based PROFIBUS interface card that is installed in a slot in the front of the ABE04x system rack.
The CPUR/IOCR card pair is the next generation of main processor card for an ABE04x system rack that will replace the CPUM/IOCN card pair. Contact Meggitt Sensing Systems for additional information.

5. The AC input power supply is supplied with a mains power supply lead (however, no lead (cable) is supplied with the DC input power supply).

6. If order options ZZ0 to ZT0 are specified, unused slots in a VM600 system rack will be populated with 1 slot wide / 4 HP (TE) blank panels. (The width of a 19″ rack is measured in horizontal pitch (HP) units of 5.08 mm (0.2″), also known as standard width (TE) units. For the ABE04x rack, a one slot wide (one card position) blank panel corresponds to 4 HP (TE), a two slot wide blank panel corresponds to 8 HP (TE) and a four slot wide blank panel corresponds to 16 HP (TE).)

## RELATED PRODUCTS

| | | |
|---|---|---|
| ABE056 | VM600 slimline rack | : Refer to corresponding data sheet |
| ASPS | Auxiliary sensor power supply | : Refer to corresponding data sheet |
| RPS6U | Rack power supply unit | : Refer to corresponding data sheet |

Headquartered in the UK, Meggitt PLC is a global engineering group specializing in extreme environment components and smart sub-systems for aerospace, defence and energy markets.

Meggitt Sensing Systems is the operating division of Meggitt specializing in sensing and monitoring systems, which has operated through its antecedents since 1927 under the names of ECET, Endevco, Ferroperm Piezoceramics, Lodge Ignition, Sensorex, Vibro-Meter and Wilcoxon Research. Today, these operations are integrated under one strategic business unit called Meggitt Sensing Systems, headquartered in Switzerland and providing complete systems, using these renowned brands, from a single supply base.

The Meggitt Sensing Systems facility in Fribourg, Switzerland was formerly known as Vibro-Meter SA, but is now Meggitt SA. This site produces a wide range of vibration and dynamic pressure sensors capable of operation in extreme environments, leading-edge microwave sensors, electronics monitoring systems and innovative software for aerospace and land-based turbo-machinery.



In this publication, a dot (.) is used as the decimal separator and thousands are separated by thin spaces. Example: 12345.67890.

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## Your local agent

## Head office

**Meggitt SA**
Route de Moncor 4
PO Box 1616
CH - 1701 Fribourg
Switzerland

Tel: +41 26 407 11 11
Fax: +41 26 407 13 01

**www.meggittsensingsystems.com**
**www.vibro-meter.com**