MANUFACTURER DOCUMENT PACKAGE

# Manufacturer's Manual

Reference package for procurement and maintenance review

VIBRO-METER

## VM600 CMC16 200-530-022-014

**SIXTEEN CHANNEL CONDITION MONITORING CARD**

Used with the applicable VM600 machinery protection system configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

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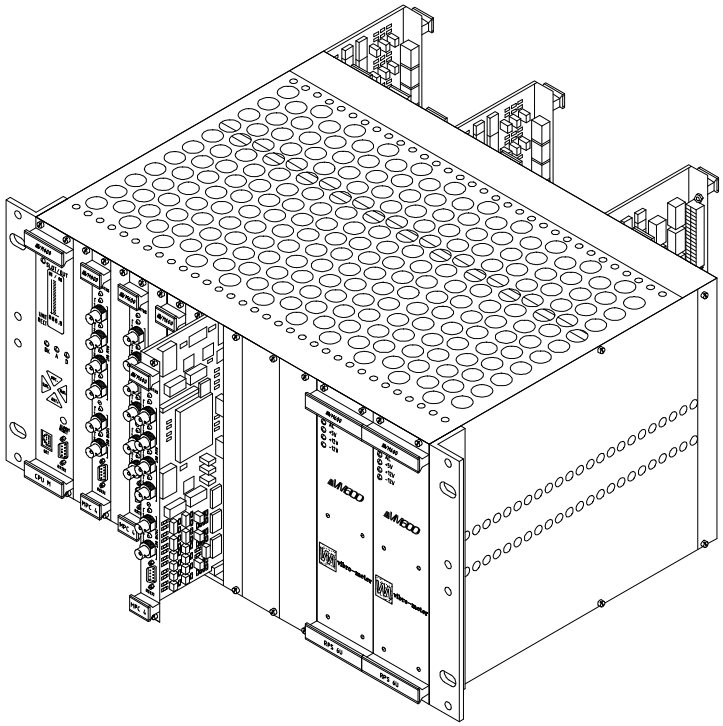
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MEGGITT

HARDWARE MANUAL

vibro-meter®

# VM600
# machinery protection system (MPS)
# – CSA version



C SP® US

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# 8 INSTALLATION

Before installing or otherwise working with a VM600 rack, it is important to refer to the information given in the Safety section of this manual, including:

- Electrical safety and installation on page xix
- Hazardous voltages and the risk of electric shock on page xx
- Heated and hot surfaces and the risk of burning on page xx
- Heavy objects and the risk of injury on page xxi
- Replacement parts and accessories on page xxi
- Appendix A: Environmental specifications.

## 8.1 Introduction

The VM600 MPS is a modular system with cards being installed in a 19" x 6U rack (type ABE040 or ABE042). ABE040 and ABE042 racks have 21 VME slots, designated slot 0 to slot 20 (from left to right, as seen from the front).

The front and rear card cages of the rack are partitioned by a backplane. Each side of the backplane is equipped with connectors allowing modules and cards to be quickly and easily installed.

The following elements are connected to the backplane by installing them from the front of the rack:

- RPS6U rack power supply
- MPC4 machinery protection card
- AMC8 analog monitoring card
- CPUM modular CPU card.

The following elements are connected to the backplane by installing them from the rear of the rack:

- IOC4T input/output card, for use with the MPC4
- IOC8T input/output card, for use with the AMC8
- IOCN input/output card, for use with the CPUM
- RLC16 relay card.

If the ABE04x rack is intended for use as a condition monitoring system (CMS) as well as an machinery protection system (MPS), it can contain additional hardware.

A condition monitoring system (CMS) using the VM600 CMS software from the Meggitt vibro-meter® product line can use the following hardware:

- CMC16 condition monitoring card
- IOC16T input/output card, for use with the CMC16.

**NOTE:** Further information on this CMS hardware can be found in the *VM600 condition monitoring system (CMS) hardware manual* (MACMS-HW/E).

A condition monitoring system (CMS) using the VibroSight® software from the Meggitt vibro-meter® product line can use the following hardware:

- XMC16 extended monitoring card for combustion
- XMV16 extended monitoring card for vibration
- XMVS16 extended monitoring card for vibration
- XIO16T extended input/output card, for use with the XMC16, XMV16 or XMVS16.

**NOTE:** Further information on this CMS hardware can be found in the *VibroSight* help (VibroSight.chm).

## 8.2 Attribution of slots in the rack

Table 8-1 show the installation restrictions that apply to the ABE040 and ABE042 racks.

**Table 8-1:** Attribution of slots in an ABE04x rack

| Rack (VME) slot no. | Card/system component accepted in front card cage | Card/system component accepted in rear card cage |
|---|---|---|
| 00 | Reserved for CPUM | Reserved for IOCN |
| 01 | | RLC16 |
| 02 | Reserved for VME 32 card | RLC16 |
| 03 to 14 | MPC4, AMC8, CMC16, XMC16, XMV16 or XMVS16 | Associated IOC4T, IOC8T, IOC16T or XIO16T. Or RLC16. |
| 15 | Reserved for RPS6U (Power supply 2, PS2) (Width of RPS6U = 3 slots) | RLC16 |
| 16 | | RLC16 |
| 17 | | RLC16 |
| 18 | Reserved for RPS6U (Power supply 1, PS1) (Width of RPS6U = 3 slots) | RLC16 |
| 19 | | Reserved for rear panel associated with the rack power supply (one or two RPS6Us) |
| 20 | | |

Notes

An MPC4 card must have an IOC4T card installed directly behind it in the rack.

An AMC8 card must have an IOC8T card installed directly behind it in the rack.

A CMC16 card must have an IOC16T card installed directly behind it in the rack.

An XMC16, XMV16 or XMVS16 card must have an XIO16T card installed directly behind it in the rack.

In a VM600 system rack (ABE04x), one or two RPS6U rack power supplies can be installed. the rack can have two RPS6U rack power supplies installed for different reasons: in order to support rack power supply redundancy (2.9.5 Racks with two RPS6U rack power supplies in order to support rack power supply redundancy) or in order to supply power to the cards (2.9.6 Racks with two RPS6U rack power supplies in order to supply power to the cards).

Accordingly, to determine the maximum operating temperature for a VM600 rack:
1. Use the following table to calculate the VM600 rack's power consumption:

| | INDIVIDUAL POWER CONSUMPTION (W) | QTY | POWER CONSUMPTION (W) | MAX. QTY | MAX. POWER CONSUMPTION (W) |
|---|---|---|---|---|---|
| **BACKPLANE AND POWER SUPPLY (1 OR 2)** | 5.3 | 1 | 5.3 | 1 | 5.3 |
| **AMC8 / IOC8T** | 8.0 | | | 12 | 96 |
| **CPUM / IOCN** | 10.5 | | | 1 | 10.5 |
| **RLC16** | 4.0 | | | 6 | 24 |
| **MPC4 / IOC4T** | 18 | | | 12 | 216 |
| **CMC16 / IOC16T** | 11 | | | 12 | 132 |
| **VM600** | | | | | 330 |

Note: A VM600 rack power consumption calculator tool (spreadsheet) is also available to help calculate the power consumption for a particular VM600 rack configuration. Contact Meggitt for further information.

2. Use the following graph (Figure A-1) and the calculated value for the VM600 rack's power consumption to determine the maximum operating temperature – by using the forced-air cooling / ventilation curve that is most appropriate to the application.

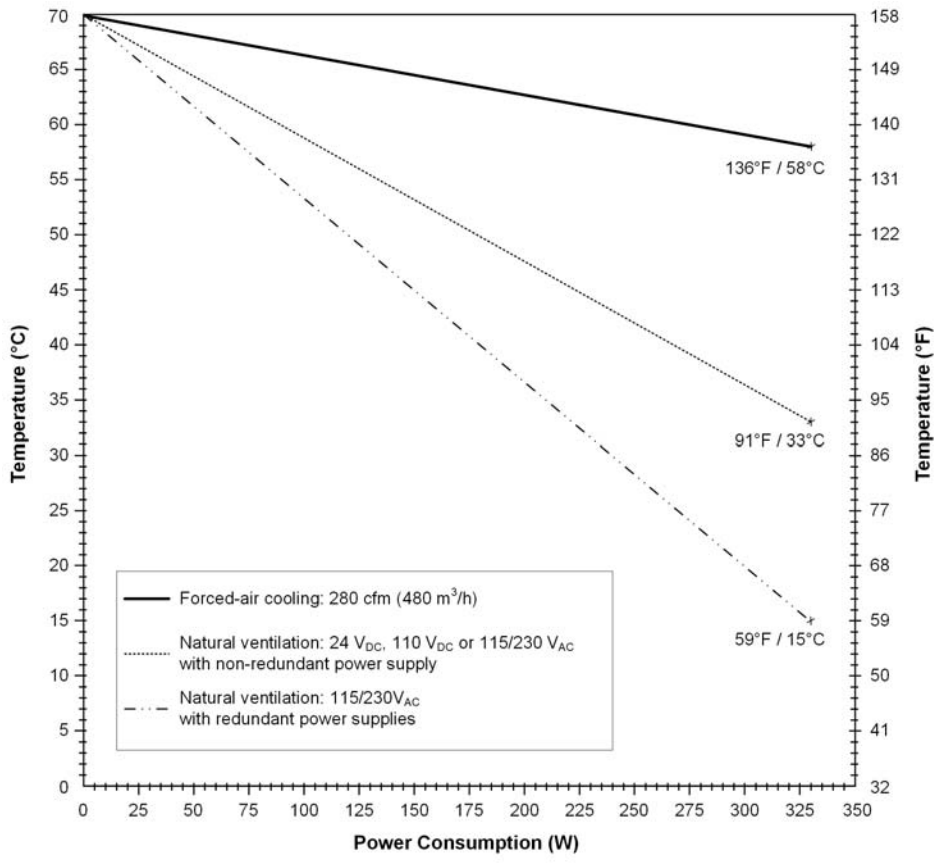



**Figure A-1:** Maximum operating temperature vs. power consumption

**Table D-1:** Abbreviations and symbols (continued)

| Abbreviation | Definition |
|---|---|
| CMC | Condition monitoring card (CMC16). See also XMC and XMV. |
| CMRR | Common-mode rejection ratio |
| CMS | Condition monitoring system |
| CMV | Common-mode voltage |
| COM | Common |
| CPU | Central processing unit |
| | Canadian standards association |
| DAC | Digital-to-analog converter |
| dB | Decibel |
| DB | Danger Bypass |
| DC | Direct current |
| DCS | Distributed control system |
| DFT | Discrete fourier transform |
| DHE | Differential housing expansion (= MPS processing function) |
| DMF | Dual mathematical function (= MPS processing function) |
| DPDT | Double-pole double-throw (type of relay) |
| DQSP | Delta (or differential) quasi-static pressure (= MPS processing function) |
| DQST | Delta (or differential) quasi-static temperature (= MPS processing function) |
| DSI | Discrete signal interface |
| DSP | Digital signal processor |
| EC | Eccentricity (= MPS processing function) |
| EEPROM | Electrically erasable programmable read-only memory |
| EMC | Electromagnetic compatibility |
| EMI | Electromagnetic interference |
| EN | European standard |
| EPROM | Erasable programmable read-only memory |
| F | Farad (unit of electric capacitance) |
| FLASH | Type of memory (sometimes called flash EEPROM) |
| FFT | Fast fourier transform |
| FW | Firmware (embedded software) |