MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

VIBRO-METER

VM600 IOCN 200-566-000-112

CPUM INPUT AND OUTPUT CARD

Used with the applicable VM600 configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Vibro-Meter DS 268-031 version 15, interfaces and ordering table

SPECIFICATIONS *(continued)*

Fieldbus interfaces

Number of channels	: Multiple fieldbus interfaces (ports). Ethernet and/or serial: Modbus and/or PROFINET.
Data transfer	
• Modbus	: Up to 131072 registers/words and 131072 coils/bits total. That is, up to 2 × 65536 registers/words and 2 × 65536 coils/bits (holding and discrete).
• PROFINET	: Maximum slot size of 128 bytes. Note: PROFINET is supported by later versions of the CPUM card running firmware version 081 or later. It was originally only supported by earlier versions of the CPUM card running a special PROFINET version of firmware (version 801) that is no longer supported. Contact your local Meggitt representative or Meggitt SA for further information.

CPU module (CPUM PC/104 slot 1)

Note: The CPU module is fitted to all versions of the CPUM card.

Module type	: PFM-541I or equivalent
Processor type	: AMD Geode™ LX800
Processor Speed	: 500 MHz
Memory	: 256 MB DRAM
Power supply to module (input)	: 5 V_{DC}, <1.8 A
Operating system	: QNX

Communication interfaces – serial

Number	: 2
Primary serial interface	
• Network interface	: RS-232
• Data transfer rate	: Up to 115.2 kBaud
• Network topologies	: Point-to-point
• Protocols	: Meggitt TCP/IP proprietary protocol for communication with the VM600 MPSx software
• Function	: VM600 rack configuration and communications using the VM600 MPSx software
• Connector	: RS232 on CPUM card (see **Connectors on page 10**)
Secondary serial interface (requires IOCN card)	
• Network interface	: RS-232 or RS-485 (half-duplex (2-wire) or full-duplex (4-wire))
• Data transfer rate	: Up to 115.2 kBaud
• Distance between devices	: According to the relevant standard
• Network topologies	: Point-to-point for RS-232 links. Point-to-point or linear (daisy-chained) for RS-485 networks.
• Protocols	: Modbus RTU
• Function	: Fieldbus Modbus RTU communications
• Connector	: RS on IOCN card (see **Connectors on page 10**)
• RS-485 (fieldbus) isolation	: 500 V_{DC}

SPECIFICATIONS *(continued)*

Communication interfaces – Ethernet

Number	: 2
Primary Ethernet interface	
• Network interface	: 10/100BASE-TX – Ethernet / Fast Ethernet
• Data transfer rate	: Up to 100 Mbps
• Distance between devices	: Up to 100 m
• Protocols	: Meggitt TCP/IP proprietary protocol for communication with the VM600 MPSx software, Modbus TCP and/or PROFINET
• Function	: VM600 rack configuration and communications using the VM600 MPSx software, fieldbus Modbus TCP communications and/or fieldbus PROFINET communications
• Connectors	: NET on CPUM card or 1 on IOCN card (see **Connectors on page 10**)
Secondary Ethernet interface (requires IOCN card)	
• Network interface	: 10/100BASE-TX – Ethernet / Fast Ethernet
• Data transfer rate	: Up to 10 Mbps
• Distance between devices	: Up to 100 m
• Protocols	: Modbus TCP
• Function	: Fieldbus Modbus TCP communications
• Connector	: 2 on IOCN card (see **Connectors on page 10**)

Serial communications module (CPUM PC/104 slot 2)

Note: The serial communications module is optional and is only fitted to the serial redundant version of the CPUM card.

Module type	: AIM104-COM4 or equivalent
Power supply to module (input)	: 5 V_{DC}, <220 mA
Isolation	: >100 V_{DC}

Communication interfaces – serial

Number	: 2
Serial interfaces	
• Network interface	: RS-422 or RS-485 (half-duplex (2-wire) or full-duplex (4-wire))
• Data transfer rate	: Up to 115.2 kBaud
• Distance between devices	: According to the relevant standard
• Network topologies	: Point-to-point for RS-232 links. Point-to-point or linear (daisy-chained) for RS-422/ RS-485 networks.
• Protocols	: Modbus RTU
• Function	: Fieldbus Modbus RTU communications
• Connectors	: A and B on IOCN card (see **Connectors on page 10**)
• RS-485 (fieldbus) isolation	: 500 V_{DC}

Notes
Jumpers on the CPUM and IOCN cards are used to configure the required operation of serial and Ethernet interfaces and connectors. Refer to the *VM600 machinery protection system (MPS) hardware manual* for further information.

SPECIFICATIONS *(continued)*

System communications

Internal : VME bus interface (A24 / D16 master mode) for communication with protection cards (MPC4 and AMC8) via VM600 rack backplane

External : System communication interfaces (serial and Ethernet) for communication with VM600 MPSx software running on an external computer.
See **Communication interfaces – serial on page 6** and **Communication interfaces – Ethernet on page 7**.

External communication links/connections

- Connection to a computer/network : A serial communication interface (RS232 on CPUM card) can be used for connections/communications between a CPUM/IOCN card pair and a computer/network, using a standard serial cable.
See **Communication interfaces – serial on page 6** and **Connectors on page 10**.

  An Ethernet communication interface (NET on CPUM card or 1 on IOCN card) can be used for connections/communications between a CPUM/IOCN card pair and a computer/network, using standard cabling.
See **Communication interfaces – Ethernet on page 7** and **Connectors on page 10**.

- Connection to a fieldbus (third-party system) : A serial fieldbus communication interface (RS on IOCN card) can be used for connections/communications between a CPUM/IOCN card pair and serial-based fieldbuses (Modbus RTU).
See **Communication interfaces – serial on page 6** and **Connectors on page 10**.

  An Ethernet fieldbus communication interface (NET on CPUM card or 1 on IOCN card, or 2 on IOCN card) can be used for connections/communications between a CPUM/IOCN card pair and Ethernet-based fieldbuses (Modbus TCP).
See **Communication interfaces – Ethernet on page 7** and **Connectors on page 10**.

- VM600 MPSx software : Used for the configuration and operation of MPC4/IOC4T and AMC8/IOC8T card pairs (using the CPUM/IOCN card pair as a communications gateway)
- VibroSight® software : Used for the configuration of CPUM cards

Configuration

CPUM/IOCN card pair : Software configurable via Ethernet or serial, using a computer running the VM600 MPSx and CPUM Configurator software.
Note: Serial (RS-232 / RS-422 / RS-485) line configuration and Ethernet port to connector routing is determined by jumpers on the CPUM and IOCN cards.

SPECIFICATIONS *(continued)*

Time synchronisation

Time reference for CPUM	: Network time protocol (NTP) server or CPUM's internal real-time clock (RTC) with battery backup
Protocol used between VM600 cards and host computer	: Network time protocol (NTP)

Note: When VM600 system event and/or measurement event logging is used, the time and date must be configured for the CPUM in order for the timestamps in the event log files to be correct.

Environmental

Operating	
• Temperature	: −20 to 65°C (−4 to 149°F)
• Humidity	: 0 to 90% relative humidity, non-condensing
Storage	
• Temperature	: −25 to 80°C (−13 to 176°F)
• Humidity	: 0 to 90% relative humidity, non-condensing

Approvals

Conformity	: CE marking, European Union (EU) declaration of conformity. EAC marking, Eurasian Customs Union (EACU) certificate/ declaration of conformity.
Electromagnetic compatibility	: TR CU 020/2011
Electrical safety	: TR CU 004/2011
Environmental management	: RoHS compliant
Russian federal agency for technical regulation and metrology (Rosstandart)	: Pattern approval certificate CH.C.28.004.A N° 60224, dated 11.11.2015

Power supply (to CPUM/IOCN)

Source	: VM600 rack power supply
Voltage	: 5 V_{DC}
Power consumption	
• CPUM	: <10 W
• IOCN	: <2 W
Total power consumption (CPUM/IOCN card pair)	: ≤12 W

Control inputs (buttons)

CPUM

ALARM RESET	: Used to reset all latched alarms (and associated relays) for all protection cards in the VM600 rack (MPC4/IOC4T and AMC8/ IOC8T)
OUT+ and OUT−	: Used to select a measurement channel for the currently selected protection card (slot)
SLOT+ and SLOT−	: Used to select a slot (protection card) in the VM600 rack Note: OUT and SLOT button combinations are also used to enable or disable VM600 rack (CPUM) security, that is, limit the VM600 MPSx software to "read only" operations.

SPECIFICATIONS *(continued)*

Status indicators (LEDs)

CPUM

DIAG	: Green LED used to indicate the status of the CPUM card: off, normal operation and status of VM600 MPS rack (CPUM) security
OK	: Green LED used to indicate the status of the OK system check (sensor OK link check) for the currently selected measurement channel
A (Alert)	: Yellow LED used to indicate the status of the alarm monitoring (Alert or Alert−) for the currently selected measurement channel
D (Danger)	: Red LED used to indicate the status of the alarm monitoring (Danger or Danger−) for the currently selected measurement channel

Note: In addition to the LED indicators, a front-panel display is fitted to all versions of the CPUM card.

Connectors

CPUM

• NET	: 8P8C (RJ45), female. Used for the primary Ethernet connection.
• RS232	: DE-9 (9-pin D-sub), female Used for the primary serial connection.

IOCN

• RS	: 6P6C (RJ12/RJ25), female. Used for the secondary serial connection.
• A	: Two 6P6C (RJ12/RJ25), female. Used for additional serial connections (requires the optional serial communications module).
• B	: Two 6P6C (RJ12/RJ25), female. Used for additional serial connections (requires the optional serial communications module).
• 1	: 8P8C (RJ45), female. Can be used for the primary Ethernet connection (instead of the CPUM connector (NET)).
• 2	: 8P8C (RJ45), female. Used for the secondary Ethernet connection.

Physical

CPUM

• Height	: 6U (262 mm, 10.3 in)
• Width	: 40 mm (1.6 in)
• Depth	: 187 mm (7.4 in)
• Weight	: 0.40 kg (0.88 lb) approx.

IOCN

• Height	: 6U (262 mm, 10.3 in)
• Width	: 20 mm (0.8 in)
• Depth	: 125 mm (4.9 in)
• Weight	: 0.25 kg (0.55 lb) approx.

ORDERING INFORMATION

To order please specify

Type	Designation	Ordering number (PNR)
CPUM	Different versions of the VM600 modular CPU card:	
	– Ethernet redundant Modular CPU card with a CPU module that supports two Ethernet interfaces and two serial interfaces. This CPUM supports Ethernet interfaces on the front panel (CPUM) and the rear panel (IOCN), a serial interface (RS-232) on the front panel (CPUM) and a serial interface (isolated RS-232/RS-485) on the rear panel (IOCN).	200-595-0Ss-33h (601-003-000-VVV\3\610-1CC-CCC when pre-configured See notes)
	– Ethernet redundant varnished Same as the (standard) Ethernet redundant version, with a conformal coating for additional environmental protection.	200-595-0Ss-33hl (601-003-000-VVV\3V\610-1CC-CCC when pre-configured See notes)
	– Serial redundant Modular CPU card with a CPU module that supports two Ethernet interfaces and two serial interfaces, and a serial communications module that supports additional serial interfaces. This CPUM supports Ethernet interfaces on the front panel (CPUM) and the rear panel (IOCN), a serial interface (RS-232) on the front panel (CPUM) and a serial interface (isolated RS-232/RS-485) on the rear panel (IOCN). It also supports two additional serial interfaces (RS-422/RS-485) on the rear panel (IOCN).	200-595-0Ss-53h (601-003-000-VVV\5\610-1CC-CCC when pre-configured See notes)
IOCN	Different versions of the input/output card for the CPUM:	
	– Ethernet redundant	200-566-000-1Hh
	– Ethernet redundant varnished Same as the (standard) Ethernet redundant version, with a conformal coating for additional environmental protection.	200-566-000-1HhL

Notes
Different versions of the CPUM card can be supplied pre-configured with different configurations, as denoted by the 9-digit code in the ordering number (610-1CC-CCC).
"1CC-CCC" represents the different configurations that can be used by a finished product. For example, 610-100-000 corresponds to the 'standard' configuration that is uploaded to a CPUM card (200-595-0Ss-HHh), if no other configuration is specified. For information on other configurations. Contact your local Meggitt representative or Meggitt SA for further information.
"Ss" represents the firmware (embedded software) version and "Hh" the hardware version of a card. "S/H" increments for major modifications that can affect product interchangeability and "s/h" increments for minor modifications that have no effect on interchangeability.
"VVV" represents the different firmware (embedded software) versions and hardware versions that can be used by a finished product.