

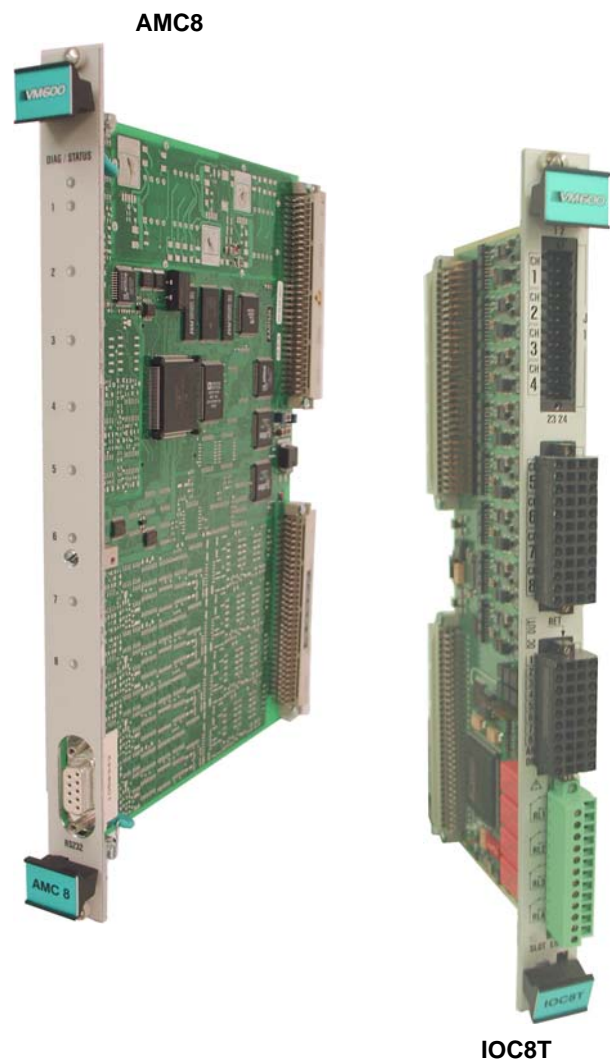


AMC8 and IOC8T

Analog monitoring card and input / output card

FEATURES

- » From the Vibro-Meter® product line
- » Two cards providing 8 channels of temperature and process monitoring for VM600 systems
- » 8 channels of software selectable functions: Thermocouple (TC), Resistance Temperature Detector (RTD), current and voltage inputs
- » Analog signal inputs in 0 to 25 mA and 0 to 10 V range on any channel
- » Cold Junction Compensation (CJC) sensor processing on two selectable channels
- » Current outputs (optionally, voltage outputs)
- » IOC8T card contains four relay outputs attributable to alarm signals under software control
- » Control outputs to RLC16 cards in the VM600 rack
- » Channel and board status indications by 3-color LEDs on front panel
- » Conform to CE standards for EMC
- » Live insertion and removal of cards (hot-swappable)



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DESCRIPTION

The AMC8 and IOC8T cards are designed for use in the VM600 series of machinery protection equipment, from Meggitt Sensing Systems' Vibro-Meter® product line. The AMC8 analog monitoring card is installed in the front of a VM600 (ABE04x) rack and the IOC8T input/output card is installed in the rear. Both cards connect directly to the rack's backplane via two connectors.

The cards provide eight channels of temperature monitoring, accepting both resistance temperature detector (RTD) and thermocouple (TC) temperature inputs, as well as process inputs. The source for each channel can be selected during the cards' configuration.

Cold junction compensation (CJC) sensor processing, used for the thermocouple temperature channels, is available on two of the eight channels and can be selected during the cards' configuration.

All inputs are conditioned and compared against user-programmable alarms, which can be defined using the MPS1 and MPS2 software configuration packages, also from Meggitt Sensing Systems' Vibro-Meter® product line.

Programming of the card set is possible using the RS-232 port located on the front panel of the AMC8 card ("standalone" method). The AMC8 card can also be accessed via the VME bus and a CPUM card present in slot 0 of the VM600 rack. These interfaces allow operators to configure the card set, access measurement results, view detailed board status, upload firmware updates and much more.

The AMC8 card can drive four local relays built into the IOC8T card, as well as any of the 16 relays on an RLC16 card using the VM600 rack's raw bus or OC bus.

The cards also provide current-based (0 to 25 mA) analog signal outputs. Optionally, voltage-based output is also possible.

SPECIFICATIONS

Sensor inputs

TC processing

- : Accepted thermocouple types and temperature ranges:
- *Type E (NiCr-CuNi): -270 to +1000°C (-454 to +1832°F)*
 - *Type J (Fe-CuNi): -210 to +760°C (-346 to +1400°F), API 670 standard*
 - *Type K (NiCr-NiAl): -270 to +1372°C (-454 to +2501°F)*
 - *Type T (Cu-CuNi): -270 to +400°C (-454 to +752°F)*
 - *User-defined (user entry of linearizing polynomial functions)*
- Accuracy: 0.3°C (0.54°F) or 0.3% of measuring range.
Resolution: 0.1°C (0.18°F).

RTD processing

- : Accepted RTD types:
- *Pt100, 100 Ω at 0°C, 3-wire and 4-wire platinum RTD (alpha = 0.00385): -200 to +850°C (-328 to +1562°F), API 670 standard*
 - *Pt100, 100 Ω at 0°C, 3-wire and 4-wire platinum RTD (alpha = 0.00392): -200 to +700°C (-392 to +1292°F)*
 - *Ni, 120 Ω, 3-wire and 4-wire nickel RTD: -80 to +260°C (-112 to +500°F)*
 - *Cu10, 10 Ω at 25°C, 3-wire and 4-wire copper RTD: -100 to +260°C (-148 to +500°F)*
 - *User-defined (user entry of linearizing polynomial functions)*
- Accuracy: 0.3°C (0.54°F) or 0.3% of measuring range, except for Cu10 (1°C (1.8°F) or 1% of measuring range).
Resolution: 0.1°C (0.18°F).
Accepted RTD wiring schemes: 2-, 3-, and 4-wire for any RTD type.

SPECIFICATIONS *(continued)*

DC current (process input)	<ul style="list-style-type: none"> • Total range 0 to 25 mA • Measuring resistor 50 Ω • Fuse-protected with 50 mA self-resetting fuse. Resistance seen from input: the sum of fuse and measuring resistor resistance is maximum 100 Ω, typically 55 Ω • Positive polarity input only • Accuracy: 0.5% of total range, that is, 125 μA
DC voltage (process input)	<ul style="list-style-type: none"> • Total range 0 to 10 V • Input resistance 100 kΩ • Positive polarity input only • Accuracy: 0.5% of total range, that is, 50 mV
CJC processing	<ul style="list-style-type: none"> • Uses any type of temperature sensor • External compensation for accuracy, that is, no on-board temperature sensor • Results can be sent to any other AMC8 / IOC8T card pairs in the VM600 rack
DSI control signal inputs	
Operating principle	: Detection of an open or closed circuit on the input
Alarm reset (AR)	: A closed contact between the AR and RET inputs resets latched alarms
Danger bypass (DB)	: A closed contact between the DB and RET inputs allows the operator to inhibit the danger relay outputs
Processing	
Time to refresh all relays, analog and VME outputs	: ≤ 100 ms
Functional checking	<ul style="list-style-type: none"> • Detection of sensor line failures • Built-in-test capability to detect abnormal operating modes and board failure • Slot coding ensures the AMC8 does not start processing with an IOC8T in the wrong slot • Cards can be inserted into or removed from a "hot" (powered) rack without disturbing cards in other VM600 slots
Single-channel processing (also referred to as time domain processing)	: Time parameter configurable to calculate any of the following: <ul style="list-style-type: none"> • Direct output (bypass) • Average over a period of time • Maximum value over a period of time • Minimum value over a period of time
Multi-channel processing	: Four simultaneous multi-channel processing functions are available to calculate: <ul style="list-style-type: none"> • Average of 2 to 8 temperatures • Temperature difference on two channels • Minimum of between 2 and 8 temperatures • Maximum of between 2 and 8 temperatures

SPECIFICATIONS *(continued)*

Alarm functions : The following alarm functions are programmable and freely attributable to any channel:

- *Detection of over-level (A+, D+) and under-level (A-, D-) switching*
- *Alarm levels*
- *Whether the alarm is latched/unlatched*
- *Alarm delay time*
- *Hysteresis value (within range)*
- *AND, OR and NOT logical operators, with majority voting logic*
- *Logical combinations, from 16 basic and 8 advanced functions*

Outputs

Alarm relays : The AMC8 card can drive the four local relays on the IOC8T card, as well as any of the 16 relays on an RLC16 card using the VM600 rack's raw bus or OC bus.
For IOC8T card relay features: see Relay characteristics.
For further information on the RLC16 relays, refer to the corresponding data sheet.

Front panel LEDs : The AMC8 card provides the following LEDs on the front panel:

- *One red/yellow/green LED showing the board status*
- *Eight red/yellow/green LEDs showing the channel status*

Analog outputs

- *Current output is standard, voltage output can be preset at factory*
- *Current output: 0 to 25 mA range, with 440 Ω maximum resistor, 0 to 20 mA range with 500 Ω resistor*
- *Voltage output: 0 to 10 V range, minimum load resistance of 10 k Ω*
- *Output units may be different from input units*
- *Accuracy $\leq \pm 0.5\%$*
- *Linearity $\leq \pm 0.5\%$*
- *Weidmüller B2L 3.5/20F cage-clamp terminal strips (screw-secured) on IOC8T card's J3 connector*

Connections

- *J1 and J2: Weidmüller B2L 24 pin contact strip*
- *J3: Weidmüller B2L 20 pin contact strip*
- *J4: Phoenix FRONT-MC contact type MC1.5_12-GF-3.81*

Relay characteristics

Relay names : RL1 to RL4

Type : PE014005

Contact arrangement : 1 x COM, 1 x NC or 1 x NO contact/relay (user configurable).
All relay contacts are available on J4, the relay output connector.

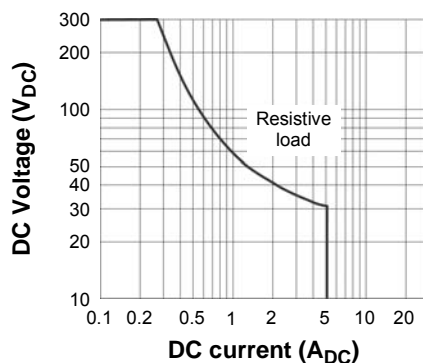
Nominal rated voltage : 250 V_{AC}

Nominal rated current : 5 A_{AC}

Maximum breaking capacity (without contact protection) : 1250 VA

SPECIFICATIONS *(continued)*

Maximum DC load breaking capacity curve:



Operate / release / bounce time	: Typically 8 / 8 / 6 ms
Dielectric strength test voltages	
• Between open contacts	: 1000 V _{AC}
• Between contact and coil	: 4000 V _{AC}
Mechanical life	: 15 x 10 ⁶ operations
Electrical life	: > 10 ⁵ operations

⚠ When used in a VM600 Slimline rack (ABE056) with a DC power supply, the relay contacts on a IOC8T card have a maximum switching voltage of 70 V_{DC} / 33 V_{AC} (RMS) (46.7 V_{AC} (PEAK)).

Digital interfaces

- Front-panel serial interface for stand-alone operation (without CPUM card in VM600 rack)
- Standard VME interface for access via the CPUM card, for access through network or fieldbus

Environmental

Operating temperature	: -25 to +65°C (-13 to +149°F)
Operating humidity	: 0 to 90% non-condensing
Storage temperature	: -40 to +85°C (-40 to +185°F)
Storage humidity	: 0 to 95% non-condensing
Electromagnetic compatibility (EMC) regulations	: EN/IEC61000-6-4 (EMC emission standard for industrial systems) EN/IEC61000-6-2 (EMC immunity standard for industrial systems) EN/IEC61010-1 (operator safety standard)
Vibration	: Compliant with the following IEC standards: <ul style="list-style-type: none"> • IEC 60255-21-1 (vibration response: Class 2, vibration endurance: Class 1) • IEC 60255-22-1 Class 3 (EMC standard for protective relays) • IEC 60255-22-4 Level 4 (EMC standard for protective relays)

Power supply to AMC8 / IOC8T

Consumption from +5 V _{DC} supply	: <5 W maximum (sum of AMC8 and IOC8T cards)
Consumption from ±12 V _{DC} supply	: <3 W maximum: 8x20 mA for the analog output on the +12V=2W, otherwise 40 mA maximum on +12 V and -12 V.

SPECIFICATIONS *(continued)*

Physical

AMC8

- *Height* : 6U (262 mm, 10.3 in)
- *Width* : 20 mm (0.8 in)
- *Depth* : 187 mm (7.4 in)
- *Weight* : 0.4 kg (0.88 lb)

IOC8T

- *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)

ORDERING INFORMATION

To order please specify

Type	Designation	Ordering number
AMC8	Analog monitoring card	
	Standard version	200-550-0SS-1Hh
	Separate circuits version, in accordance with IEC/CEI 60255-5	200-550-0SS-2Hh
IOC8T	Input / output card	
	Standard version	200-580-000-1Hh
	Separate circuits version, in accordance with IEC/CEI 60255-5	200-580-000-2Hh

Notes

“SS” represents the firmware (embedded software) version and “Hh” the hardware version.
 “H” increments for major modifications that can affect product interchangeability.
 “h” increments for minor modifications that have no effect on interchangeability.

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.



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