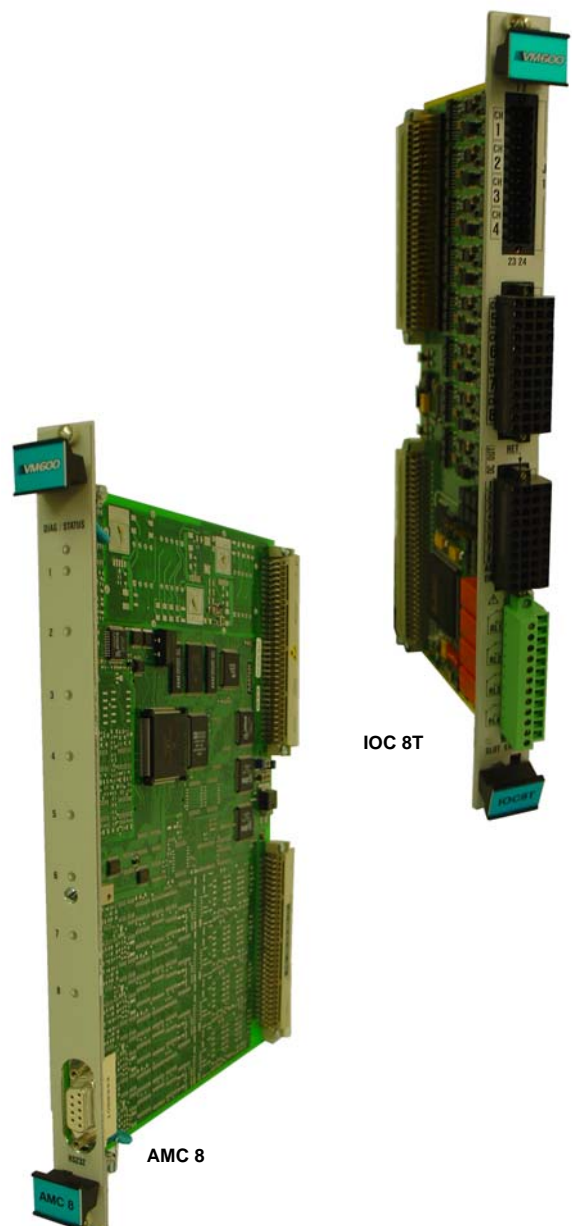


Analog Monitoring Card Type AMC 8 and Input / Output Card Type IOC 8T

FEATURES

- Two cards providing 8 channels of temperature and process monitoring for VM 600 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)
- IOC 8T card contains four relay outputs attributable to alarm signals under software control
- Control outputs to RLC 16 cards in the VM 600 rack
- Channel and board status indications by 3-color LEDs on front panel
- Live insertion and removal of cards possible
- Conform to CE standards for EMC



DESCRIPTION

The AMC 8 and IOC 8T cards are designed for use in Vibro-Meter's VM 600 series of machinery protection equipment. The AMC 8 analog monitoring card is installed in the front of the ABE 04X rack. The IOC 8T input/output card is installed in the rear of the rack. 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.

Programming of the card set is possible using the RS232 port located on the front panel of the AMC 8 card ("standalone" method). The AMC 8 card can also be accessed via the VME bus and a CPU-M module present in slot 0 of the VM 600 rack. These interfaces allow operators to configure the card set, access measurement results, view detailed board status, upload firmware updates, and much more.

The AMC 8 card can drive four local relays built into the IOC 8T card, as well as any of the 16 relays on an RLC 16 card using the VM 600 rack's Raw or OC bus.

The cards also provide current-based (0-25 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°C to +1000°C (-454°F to +1832°F)*
 - *Type J (Fe-CuNi): -210°C to +760°C (-346°F to +1400°F), API 670 Standard*
 - *Type K (NiCr-NiAl): -270°C to +1372°C (-454°F to +2501°F)*
 - *Type T (Cu-CuNi): -270°C to +400°C (-454°F to +752°F)*
 - *User-defined (user entry of linearizing polynomial functions)*
- Accuracy: 0.3°C (0.54°F) or 0.3% of measuring range, 0.1°C (0.18°F) resolution.

RTD processing

- : Accepted RTD types:
- *Pt100, 100 Ω at 0°C, 3-wire and 4-wire platinum RTD (alpha = 0.00385): -200°C to +850°C (-328°F to +1562°F), API 670 Standard*
 - *Pt100, 100 Ω at 0°C, 3-wire and 4-wire platinum RTD (alpha = 0.00392): -200°C to +700°C (-392°F to +1292°F)*
 - *Ni, 120 Ω , 3-wire and 4-wire nickel RTD: -80°C to +260°C (-112°F to +500°F)*
 - *Cu10, 10 Ω at 25°C, 3-wire and 4-wire copper RTD: -100°C to +260°C (-148°F 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), 0.1°C (0.18°F) resolution
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 μV
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 AMC 8/IOC 8T card pairs in the VM 600 rack

CONTROL SIGNAL INPUTS

Operating principle	: Detection of open or closed input circuit
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 disables all danger alarms

PROCESSING

Time to refresh all relays, analog and VME outputs	: \leq 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 AMC 8 does not start processing with an IOC 8T in the wrong slot. • Cards can be inserted into or removed from a "hot" (powered) rack without disturbing cards in other VM 600 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 AMC 8 card can drive the four local relays on the IOC 8T card, as well as any of the 16 relays on an RLC 16 card using the VM 600 rack's Raw or OC bus. Relay features:
- *Single Pole / Double Throw (SPDT)*
 - *Nominal current: 0.35 A DC / 5 A AC*
 - *Nominal voltage: 300 V DC / 250 V AC maximum*
- For further information on the RLC 16 relays, refer to the corresponding data sheet.

- Front Panel LEDs : The AMC 8 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 IOC 8T card's J3 connector*

- Connections
- *J1, 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*

DIGITAL INTERFACES

- *Front-panel serial interface for stand-alone operation (without CPU-M card in VM 600 rack)*
- *Standard VME interface for access via the CPU-M module, for access through network or field bus*

SPECIFICATIONS *(Continued)*

ENVIRONMENTAL

Operating temperature	: -25°C to +65°C (-13°F to +149°F)
Operating humidity	: 0 to 90% non-condensing
Storage temperature	: -40°C to +85°C (-40°F 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

Consumption from +5 V _{DC} supply	: < 5 W maximum (sum of AMC 8 and IOC 8T 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.

PHYSICAL

For AMC 8:

Height	: 6 U (262 mm, 10.31 in)
Width	: 21 mm (0.8 in)
Depth	: 187 mm (7.4 in)
Weight	: 0.4 kg (0.88 lb)

For IOC 8T:

Height	: 6 U (262 mm, 10.31 in)
Width	: 20.1 mm (0.79 in)
Depth	: 125 mm (4.92 in)
Weight	: 0.25 kg (0.55 lb)

ORDERING INFORMATION

To order please specify:

Type	Designation	Ordering Number
AMC 8	Analog Monitoring Card	
	- Standard version	200-550-0SS-1Hh
	- Separate circuits in accordance with IEC/CEI 60255-5 standard	200-550-0SS-2Hh
IOC 8T	Input / Output Card	
	- Standard version	200-580-000-1Hh
	- Separate circuits in accordance with IEC/CEI 60255-5 standard	200-580-000-2Hh

Note : "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.



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