Intelligent relay card   IRC4

FEATURES

» From the Vibro-Meter® product line

» 8 relays can be combined as 4 DPDT or 8 SPDT

» Each relay is controlled by a specific logic equation, which can be a combination of AND, OR, NOT or VOTE (x between y) operators

» Each relay can be latched, with reset controlled by an external discrete signal interface (DSI) input or by a specific logic equation

» 64x raw bus lines, 16x OC bus lines and 6x external DSI inputs can be used as terms of the equations

» Each relay can be set to NE or NDE

» Delays can be set on each relay to ensure glitch-free operation

» 4 external DSI inputs can be used as general purpose inputs for the logic equations

» External AR and DB DSI inputs act as alarm (latch) reset and danger bypass

» Fully software configurable

» Non volatile configuration

» Screw terminal strip connectors (32 terminals)

» Ensures EMI protection for all inputs and outputs

» Live insertion / removal of cards (hot-swappable)
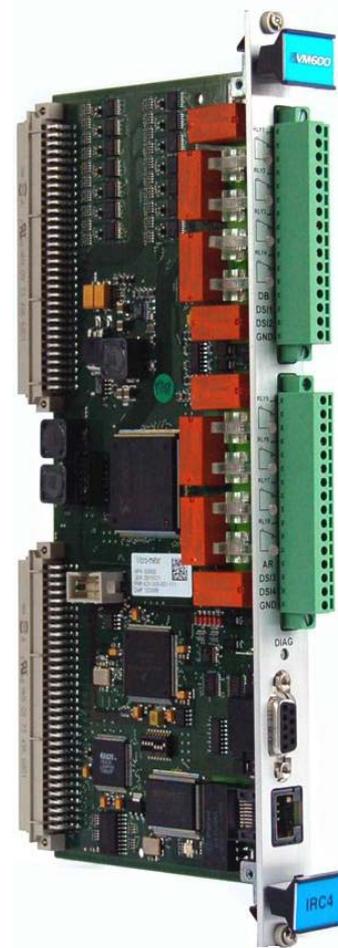
IRC4

DESCRIPTION

The IRC4 intelligent relay card is designed for use in the VM600 series of machinery protection systems and condition and performance monitoring systems, from Meggitt Sensing Systems' Vibro-Meter® product line. It is an optional card, for use when complex combinations of internal discrete outputs from MPC4 and/or AMC8 cards are required.

DESCRIPTION *(continued)*

The IRC4 is a jumperless card driven by a modern 16-bit microcontroller. This product can process complex equations with up to 86 discrete inputs coming from all the MPC4 and AMC8 cards installed in a VM600 rack. Its high level of configuration makes it ideal to manage 2oo3 (two-out-of-three) voting.

The IRC4 is installed in the rear of a VM600 (ABE04x) rack and connects directly to the rack backplane via a single connector.

The IRC4 contains eight relays with change-over contacts. Each relay is associated with three

terminals on a screw terminal strip accessible at the rear of the rack.

IRC4 cards are fully software configurable using "IRC4 Configurator", a dedicated Windows® program from Meggitt Sensing Systems with a graphical user interface. No jumpers are needed, since every parameter of an IRC4 is set using this software.

The IRC4 Configurator software uses the MPS file from the rack environment and a Microsoft® Excel® file that describes the required logic equations (the "VM signals list") as inputs.

BLOCK DIAGRAM
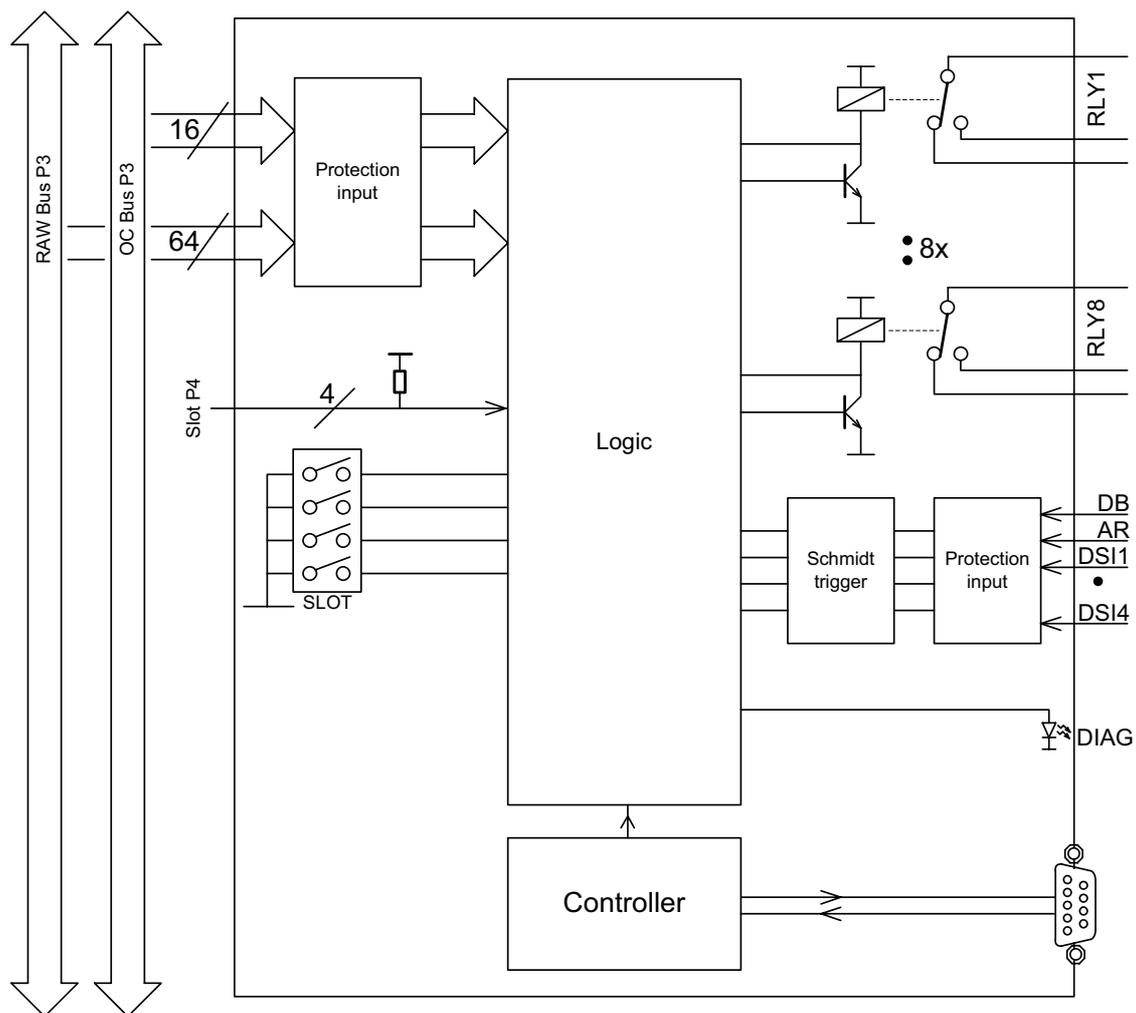
SPECIFICATIONS

Relay characteristics

|	
Relay names	: RL1 to RL8
Type	: PE014005
Contact arrangement	: 1 x NO / NC contacts per relay (SPDT). Relay contacts RL1-RL4 are available on the J1 connector and RL5-RL8 are available on J2 connector.
Nominal rated voltage	: 250 V_{AC}
Nominal rated current	: 5 A_{AC}
Maximum breaking capacity (without contact protection)	: 1250 VA

Maximum DC load breaking capacity curve:
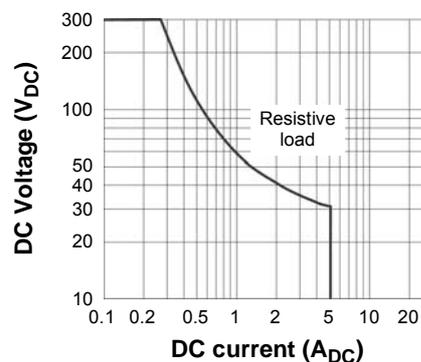
Operate / release / bounce time	: Typically 8 / 8 / 6 ms
Dielectric strength test voltages	
• *Between open contacts*	: 1000 V_{AC}
• *Between contact and coil*	: 4000 V_{AC}
Mechanical life	: 15 x 10^6 operations
Electrical life	: >10^5 operations

⚠ **When used in a VM600 Slimline rack (ABE056) with a DC power supply, the relay contacts on a IRC4 card have a maximum switching voltage of 70 V_{DC} / 33 $V_{AC (RMS)}$ (46.7 $V_{AC (PEAK)}$).**

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 GND 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

Discrete inputs

Number of inputs	: 64x raw bus, 16x OC bus, 4x general purpose DSI inputs, including DB and AR
Input impedance	: Raw bus and OC bus ≅ 1 MΩ. DSI ≅ 10 kΩ.
Raw bus and OC bus threshold level	: TTL
DSI threshold level	: Ground (true) ≤3.0 V. Open (false) ≥4.5 V (the IRC4 includes an internal pull-up to +12 V).

SPECIFICATIONS *(continued)*

Relay card characteristics

Presentation	: Eight 8 relay PCB
External connections	: Two 16-contact screw terminal strip connectors (J1 and J2)
Mounting	: Installs in the rear of a VM600 rack and connects to the rack's backplane via a connector

Power supply

Power supply to IRC4	: +5 V_{DC} / 0.50 A and +12 V_{DC} / 0.01 A

Environmental

Operating
- *Temperature* : −25 to +65 °C (−13 to +149 °F)
- *Humidity* : 0 to 90 % non-condensing

Storage
- *Temperature* : −40 to +85 °C (−40 to +185 °F)
- *Humidity* : 0 to 90 % non-condensing

Vibration and shock : See general rack specifications

Physical

Height	: 6U (262 mm, 10.3 in)
Width	: 20 mm (0.8 in)
Depth	: 125 mm (4.9 in)
Weight	: 0.30 kg (0.66 lb)

ORDERING INFORMATION

To order please specify

Type	Designation	Ordering number
IRC4	Intelligent relay card:	
	Standard – no configuration set	620-005-0Ss-1Hh
	Standard – specific configuration programmed	601-001-CCC-VVv

Notes
"Hh" represents the hardware version. "H" increments for major modifications that can affect product interchangeability. "h" increments for minor modifications that have no effect on interchangeability.
"Ss" represents the FW and Logic version. "S" increments for major modifications that can affect product interchangeability. "s" increments for minor modifications that have no effect on interchangeability.
"VVv" represents the IRC 4 version. "V" increments for major modifications that can affect product interchangeability. "v" increments for minor modifications that have no effect on interchangeability.
"CCC" is a specific configuration managed by Meggitt SA.

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.

Sales offices

Meggitt Sensing Systems has offices in more than 30 countries. For a complete list, please visit our website.

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