MIM6·1

4921240716-A

Multifunctional analogue input module

Data sheet

DEIF Improve Tomorrow

1. About the 600 series

1.1 About the hardware modules

The 600 series is a PLC-based programmable automation controller (PAC) suitable for land, marine, and wind power control applications. It is class approved, designed to marine specifications and can withstand very harsh operating conditions.

The controller is a highly flexible, modular PLC and I/O system that is designed for usage across a wide range of industrial applications. It is reliable, robust and flexible.

EtherCAT is used as native communication protocol both as the backplane communication and as interconnection between multiple 600 series racks via electrical or fibre optical connections. Other DEIF EtherCAT I/O modules or third party EtherCAT I/O modules can also be connected.

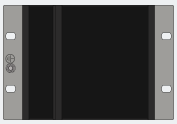
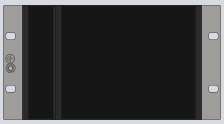
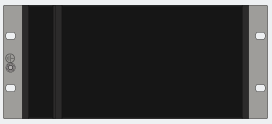
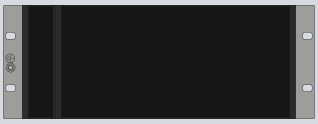
The hardware modules feature:

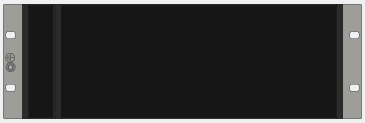
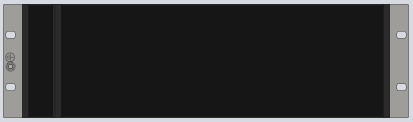
- Placement flexibility in the rack.
- Remove, replace, or add on-site.
- Automatically recognised.
- Configurable input and output functions (digital and analogue):
  - Digital input functions: Commands from operators or 3rd party equipment, changing configuration, operating information.
  - Digital output functions: Alarm status, commands to 3rd party equipment, operating information.
  - Analogue input functions: External set points, operating information, supervised binary inputs.
  - Analogue output functions: Operating information.

NOTE All slots must be covered during operation and blind modules can be used to cover unused slots.

Rack sizes

The controller rack is available in six different sizes:

Rack	Slots	Ground plate dimensions HxDxW (mm)	Weight (g)	Rack
Rack6·4	4	122.0 x 113.9 x 182.4	715	
Rack6·6	6	122.0 x 113.9 x 233.2	870	
Rack6·8	8	122.0 x 113.9 x 284.4	1020	
Rack6·10	10	122.0 x 113.9 x 334.8	1175	

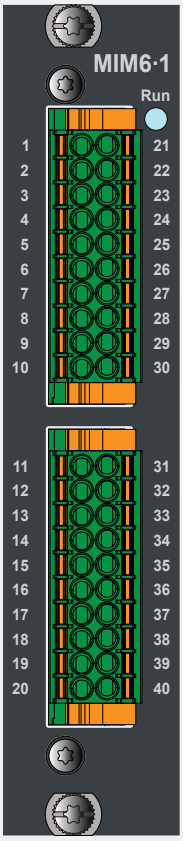
Rack	Slots	Ground plate dimensions HxDxW (mm)	Weight (g)	Rack
Rack6·12	12	122.0 x 113.9 x 385.6	1335	
Rack6·14	14	122.0 x 113.9 x 436.4	1500	

2. Technical specifications

2.1 MIM6·1 module specifications

MIM6·1 has 16 multifunctional analogue inputs or 8 completely isolated groups. The voltage and current modes for the inputs are individually software configurable. All the inputs are protected against 24 V DC connection failure and isolated from other potentials up to 500 V DC.

The MIM6·1 module provides flexible configuration of analogue input type. The module is designed for projects and installations where the specifications have not yet been finalised or change over time.

Multifunctional input module	
	
Power supply	From backplane using PDM6·1 module or PDM6·2 module
Backplane interfaces	1 x EtherCAT OUT (Port 1) - LVDS 1 x EtherCAT OUT (Port 2) – LVDS
8 analogue input groups	(See information below)
Size	25.40 mm
Weight	128 g (incl. connectors)
Power consumption	Typical 3.6 W
Connector, grip (included by default)	2 x 10 terminals: DFMC 1.5/10-ST-3.5-LR – 1790564
Connector, screw	2 x 10 terminals: DFMC 1.5/10-STF-3.5 – 1790373

8 analogue input groups

Multifunctional input module	
Digital input	High: +13 to +30 V or -13 to -30 V Low: +5 to -5 V with reference to common
Digital inputs	Dry contact inputs, 2.5 V/ 2 mA DC internal supply
1 x differential current input **OR** 2 x current input (common ground)	0 to 20 mA 0 to 24 mA 4 to 20 mA (NAMUR NE43) -20 to +20 mA -24 to +24 mA

8 analogue input groups

Multifunctional input module	
1 x differential voltage input **OR** 2 x voltage input	0 to 10 V -10 to +10 V 0 to 12 V -12 to +12 V Differential mode up to 30 V common mode
1 x resistance measurement input 3-wire, 4-wire (RMI)	0 to 4.5 kΩ
2 x resistance measurement inputs 2-wire (RMI): common reference	0 to 4.5 kΩ
1 x Pt100 (3-wire, 4-wire) 2 x Pt100 (2-wire)	-200 to 590 °C (default range) 0 to 850 °C (extended range) Cable error: Open inputs and short-circuit are detected (under range, over range and error signals in EtherCAT interface) Resolution: 0.1 °C
1 x Pt1000 (3-wire, 4-wire) 2 x Pt1000 (2-wire)	-200 to 590 °C (default range) 0 to 850 °C (extended range) Cable error: Open inputs are short-circuit detected (under range, over range and error signals in EtherCAT interface) Resolution: 0.1 °C
1 x thermocouple **OR** 2 x thermocouples	• E: -200 to +1000 °C • J: -210 to + 1200 °C • K: -200 to +1372 °C • N: -200 to +1300 °C • R: -50 to +1768 °C • S: -50 to +1768 °C • T: -200 to +400 °C Wire break or open inputs are shown as Error bit set, Under and Over range clear and value set to INT16_MAX (32767)

No compensation
 	
OR
 	
Internal cold junction compensation (CJC)
	Internal temperature sensor:
	• Range: 0 to 70 °C
	  ◦ Accuracy: ±1.0 °C
	• Range: -40 to 0 °C
	  ◦ Accuracy: ±2.0 °C

Impedance	Current mode: max. 50 Ω Voltage mode: min. 10 kΩ
Filter	250 Hz hardware low-pass filter
Sampling	< 2 ms - analogue voltage or current mode < 40 ms - temperature or RMI mode
Resolution	16 bit

Multifunctional input module	
Accuracy: Voltage and current	• 0.2 % of full range input (20 mA/ 10 V) at reference temperature • 0.4 % of full range input (20 mA/ 10 V) at operational temperature
Accuracy: RMI (3-wire, 4-wire)	• ±1.0 Ω ±0.25 % of actual reading at reference temperature • ±2.0 Ω ±0.25 % of actual reading at operational temperature

8 analogue input groups

Multifunctional input module	
Accuracy: RMI (2-wire)	• ±2.0 Ω ±0.25 % of actual reading at reference temperature • ±4.0 Ω ±0.25 % of actual reading at operational temperature
Accuracy: Pt100 (3-wire, 4-wire)	• ±1.0 °C ±0.25 % of actual reading at reference temperature • ±2.0 °C ±0.25 % of actual reading at operational temperature
Accuracy: Pt1000 (3-wire, 4-wire)	• ±0.5 °C ±0.25 % of actual reading at reference temperature • ±1.0 °C ±0.25 % of actual reading at operational temperature
Accuracy: Pt100 (2-wire)	• ±1.5 °C ±0.25 % of actual reading at reference temperature • ±2.5 °C ±0.25 % of actual reading at operational temperature
Accuracy: Pt1000 (2-wire)	• ±1.0 °C ±0.25 % of actual reading at reference temperature • ±1.5 °C ±0.25 % of actual reading at operational temperature
Accuracy: Thermocouples type E, J, K, N	• ±2 °C ±0.25 % of actual reading at reference temperature • ±4 °C ±0.25 % of actual reading at operational temperature
Accuracy: Thermocouples type R, S, T	• ±4 °C ±0.25 % of actual reading at reference temperature • ±8 °C ±0.25 % of actual reading at operational temperature
Isolation	8 groups isolated from other potentials, 500 V DC
Protections	Input circuits designed with protection against 24 V DC connection failure

3. Legal information

3.1 Disclaimer and copyright

Third party equipment

DEIF takes no responsibility for the installation or operation of any third party equipment, for example, a **genset**. Contact the **manufacturer** or third party equipment company if you have any doubt about how to install or operate the third party equipment.

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General warranty

The warranty period for the purchased product is defined in the contract and order acknowledgement. In general, DEIF's Terms and Conditions of Sale and Delivery apply.

The product continuously monitors the operating temperature and stores this information in a log file on the device. DEIF uses this information for service purpose and to validate if issues with the product are covered by the warranty.

The software packages supplied are believed to be of the highest quality. Due to the nature of the software development process, it is possible that there are hidden defects in the software which may affect its use, or the operation of any software or device developed with this software package.

DEIF does not undertake responsibility for determining whether this package is suitable for the application, nor for ensuring the correct operation of the application software and hardware.

The warranty does not cover product wear parts, such as:

- Internal flash disc
- If applicable, SD card (purchased separately)
- Replaceable coil-cell battery, used for the real-time clock (available as a spare part)

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