

IOM3.2

Input/output module

Data sheet

4921240640-D



Improve
Tomorrow



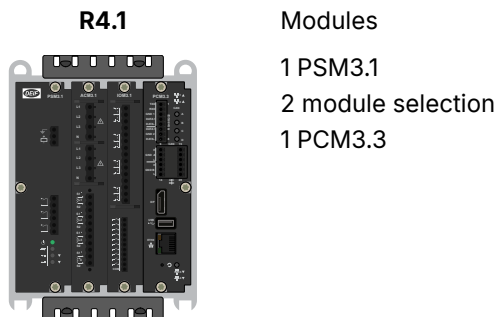
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1. Series 300

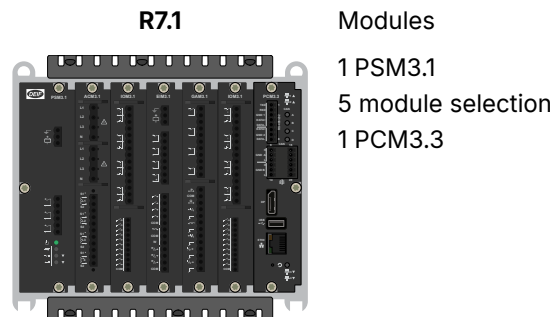
1.1 About the hardware modules

The hardware modules are printed circuit boards that slot in to either a R7.1 or R4.1 rack. Depending on the type of module, they can provide AC or other measurements, inputs, outputs and give communication indication.

Controller racks

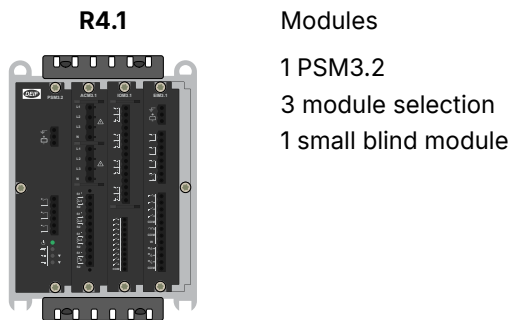


Modules
1 PSM3.1
2 module selection
1 PCM3.3

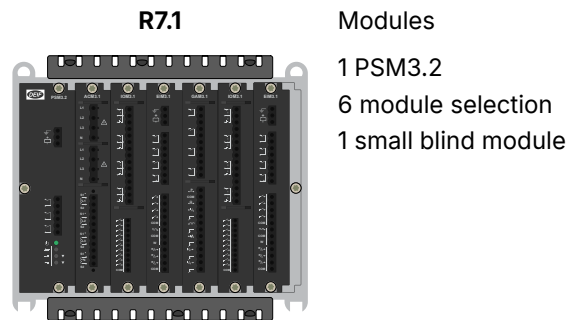


Modules
1 PSM3.1
5 module selection
1 PCM3.3

Extension racks (EtherCAT)



Modules
1 PSM3.2
3 module selection
1 small blind module



Modules
1 PSM3.2
6 module selection
1 small blind module

The hardware modules feature:

- Placement flexibility in the rack.
- Add, replace, or remove 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: Regulation *, operating information.

NOTE * Only available on certain types of controller.

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

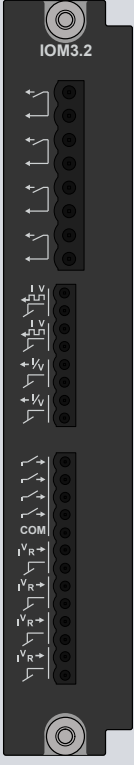





2. Technical specifications

2.1 Input/output module IOM3.2



The input output module has 4 relay outputs, 4 analogue multifunctional outputs (including 2 pulse width modulation PWM outputs), 4 digital inputs, and 4 analogue multifunctional inputs. These I/Os are all configurable.




Internal cold junction compensation is not available on IOM3.2

IOM3.2 terminals

Module	Count	Symbol	Type	Name
	4		Relay output	Configurable
	2		Analogue multifunctional output (mA, V DC, PWM)	Configurable
	2		Analogue multifunctional output (mA, V DC)	Configurable
	4		Digital input	Configurable
	4		Analogue multifunctional input (mA, V DC, RMI)	Configurable

IOM3.2 technical specifications

Category	Specification
Relay outputs 	Relay type: Solidstate relay Electrical rating and UL/cUL Listed: 30 V DC, and 6 A, resistive; B300, pilot duty (B300 is a power limit specification for inductive loads) Voltage withstand: ± 36 V DC
Analogue multifunctional outputs 	Current output: <ul style="list-style-type: none"> Range: Any custom range between -25 to 25 mA DC Accuracy: 1 % of range Resolution: 16 bits (< 2 uA / bit) Type: Active output (internal supply) Load: Maximum ± 25 mA \rightarrow 400 Ω Voltage output: <ul style="list-style-type: none"> Range: Any custom range between -10 to 10 V DC Accuracy: 1 % of range Resolution: 16 bits ($< 0,7$ mV / bit) Load: Minimum ± 10V \rightarrow 600 Ω

Category	Specification
	<ul style="list-style-type: none"> Internal resistance, power ON: < 1 Ω Internal resistance, power OFF: > 10 MΩ <p>General information for all outputs:</p> <ul style="list-style-type: none"> Refresh rate (max): 50ms (input to output) Voltage withstand: ± 36 V DC
<p>Analogue multifunctional PWM outputs</p> 	<p>PWM output:</p> <ul style="list-style-type: none"> Frequency range: 1 to 2500 Hz ± 5 Hz Duty cycle accuracy (5 to 95 %): 0.5 % within reference temperature range Resolution: 12 bits (4096 steps) Voltage: Low level: < 0.5 V. High level: > adjustable 1 to 10 V. Maximum: 10.2 V Output impedance: 25 Ω <p>General information for all outputs:</p> <ul style="list-style-type: none"> Refresh rate (max): 50 ms (input to output) Voltage withstand: ± 36 V DC
<p>Digital inputs</p> 	<p>Negative or positive trigger inputs:</p> <ul style="list-style-type: none"> ON: -36 to -8 V DC, and 8 to 36 V DC OFF: -2 to 2 V DC <p>Minimum pulse length: 50 ms Impedance: 3.9 kΩ Voltage withstand: ± 36 V DC</p>
<p>Analogue multifunctional inputs</p> 	<p>Digital inputs with wire break detection:</p> <ul style="list-style-type: none"> Dry contact inputs, 3 V DC internal supply Wire-break detection with maximum resistance for ON detection: 100 Ω to 400 Ω <p>Current inputs:</p> <ul style="list-style-type: none"> From active transmitter: 0 to 20 mA, or 4 to 20 mA Accuracy: ± 10 uA ± 0.25 % of actual reading <p>Voltage inputs (DC):</p> <ul style="list-style-type: none"> Range: ± 10 V DC / 0 to 10 V DC Accuracy: ± 10 mV ± 0.25 % of actual reading <p>Resistance measurement inputs, 2 wire (RMI):</p> <ul style="list-style-type: none"> Resistance measurement: 0 to 4.5 kΩ Accuracy: ± 1 Ω ± 0.25 % of actual reading <p>Resistance measurement inputs, 1 wire (RMI):</p> <ul style="list-style-type: none"> Resistance measurement: 0 to 4.5 kΩ Accuracy: ± 2 Ω ± 0.25 % of actual reading <p>Pt100:</p> <ul style="list-style-type: none"> Range: -200 to 850 $^{\circ}$C Accuracy: ± 1 $^{\circ}$C ± 0.25 % of actual reading <p>Pt1000:</p> <ul style="list-style-type: none"> Range: -200 to 850 $^{\circ}$C Accuracy: ± 0.5 $^{\circ}$C ± 0.25 % of actual reading <p>Thermocouple type, range and accuracy:</p> <ul style="list-style-type: none"> E: -200 to 1000 $^{\circ}$C (± 2 $^{\circ}$C ± 0.25 % of actual reading) J: -210 to 1200 $^{\circ}$C (± 2 $^{\circ}$C ± 0.25 % of actual reading) K: -200 to 1372 $^{\circ}$C (± 2 $^{\circ}$C ± 0.25 % of actual reading) N: -200 to 1300 $^{\circ}$C (± 2 $^{\circ}$C ± 0.25 % of actual reading) R: -50 to 1768 $^{\circ}$C (± 2 $^{\circ}$C ± 0.25 % of actual reading) S: -50 to 1768 $^{\circ}$C (± 2 $^{\circ}$C ± 0.25 % of actual reading)

Category	Specification
	<ul style="list-style-type: none"> T: -200 to 400 °C (±2 °C ±0.25 % of actual reading) <p>Note: Twisted pair and shielded cable is recommended to achieve specification and optimisation of noise immunity.</p> <p>General information for all outputs:</p> <ul style="list-style-type: none"> Refresh rate (max): 50 ms (input to output) Voltage withstand: ±36 V DC All analogue multi-functional inputs have a common ground
Terminal connections	<p>Relay outputs: Terminals: Standard 45° plug, 2.5 mm² Wiring: 0.5 to 2.5 mm² (22 to 14 AWG), multi-stranded</p> <p>Other inputs: Terminals: Standard 45° plug, 1.5 mm² Wiring: 0.1 to 1.5 mm² (28 to 16 AWG), multi-stranded</p>
Torques and terminals	<p>Module faceplate screws: 0.5 N·m (4.4 lb-in)</p> <p>Connection of wiring to relay output terminals: 0.5 N·m (4.4 lb-in)</p> <p>Connection of wiring to digital input terminals: 0.25 N·m (2.2 lb-in)</p> <p>UL/cUL Listed: Wiring must be minimum 90 °C (194 °F) copper conductors only</p>
Galvanic isolation	<p>Between relay groups and other I/Os: 2210 V, 50 Hz for 60 s</p> <p>Between other input groups and other I/Os: 600 V, 50 Hz for 60 s</p>
Ingress protection	<p>Unmounted: No protection rating</p> <p>Mounted in rack: IP20 according to IEC/EN 60529</p>
Dimensions	L×H×D: 28 × 162 × 150 mm (1.1 × 6.4 × 5.9 in)
Weight	188 g (0.4 lb)

3. Legal information

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- 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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