Grid Solutions

MDS I/O SOLUTIONS - I/O MIRRORING

Expanding the Possibilities for Data Acquisition

GE Vernova's MDS I/O Solutions offers field configurable I/O options with seamless interfacing to instrumentation, sensors, and I/O signals at any remote location. Simplicity and flexibility were at the forefront of this solution. Designed to integrate with the MDS Orbit platform's secure, reliable wireless communications across LTE, Licensed, Unlicensed, or Wi-Fi.

The IOX-M Series platform is designed as both a point-to-point or point-to-multipoint solution for high I/O count systems. The device allows connections of all remote digital and analog input signals from the IOX-R product and converts those signals into output signals to send over a wireless or fiber IP network. The IOX-M series also can I/O mirror up to 26 I/O points from a single location connected to a local Host, PLC or DCS controller at the control center or head end of any system. To reduce field deployment time, the IOX-M series ships preconfigured in 3 different I/O options and ready for install with minimal setup.

For applications that require I/O signal mirroring or splitting from different locations, the IOX-M series can provide the point-to-multipoint I/O mirroring connectivity to collect I/O signals from remote locations and then aggregate them to a single location. The IOX-M series can be custom configured for any I/O combination from any number of remote sites.

IOX OFFERING	IOX-MQ	IOX-MH	IOX-MF
Total Modules	4	6	8
Power Supply Module	1	1	1
CPU Module	1	1	1
Relay Module	1 (8 Relays)	2 (16 Relays)	3 (24 Relays)
Analog Output Module	1 (4 Analog Outputs)	2 (8 Analog Outputs)	3 (12 Analog Outputs)

MDS IOx Mirroring System Example

GE VERNOVA

Configurable I/O

A variety of solutions designed for each application with the following options:

- Quarter – 8 Relay Outputs, 4 AO
- Half – 16 Relays Outputs, 8 AO
- Full – 24 Relays Outputs, 12 AO
- Custom Configurations Available

Configuration Simplicity

- Web interface for easy I/O configuration
- IOx Module programmed for needs
- Push-In Technology for quick assembly
- Force I/O for digital testing
- Force analog inputs / outputs testing
- Communication Status Screen

Flexible Mounting

- DIN Rail
- Wall Mount
- Rack Mount

Diverse Radio Configurations

- 4G LTE and private cellular options for global coverage with GPS and Dual SIM
- Licensed technology with QAM, bi-directional adaptive modulation, FEC, and advanced compression maximizes efficiency on narrowband spectrum
- High-performance Wi-Fi (MIMO a/b/g/n)
- 900 MHz FHSS enables low latency and high-throughput unlicensed networks with multipoint and store-and-forward

Technical Specifications

POWER MODULES SPECIFICATIONS

	DC Module	AC Module
Input Voltage	+8...30 VDC or -60 ...-24 VDC	85...265 VAC (50/60 Hz) or 90...350 VDC
Input Current	Max: 2 A	Max: 1 A
Power	Input Max: 40W (+ Input), 50 W (- Input) Input at Overload/Short Max: 150 W (+ Input), 170W (-Input) Output Max: 30 W @ 50°C	Input Max: 40 W Input at Overload/Short Max: 100W Output Max: 30 W
Output Voltage	24 VDC	
Output Current	24 VDC Max: 1.5 A 3.3 VDC Max: 5 A @ 50°C	24 VDC Max: 1.25A @ 60°C 3.3 VDC Max: 5 A
Temperature Storage	-40°C to 85°C	
Temperature Active	-40°C to 70°C @ 20W -40°C to 65°C @ 25W -40°C to 60°C @ 30W	-40°C to 70°C
Humidity	15 to 95% without condensation	
Altitude Max	4000 m	
Dimensions (no connector)	150 × 83 × 29 mm (5.9 × 3.3 × 1.14 in)	
Weight	350 g	

ANALOG MODULE SPECIFICATIONS

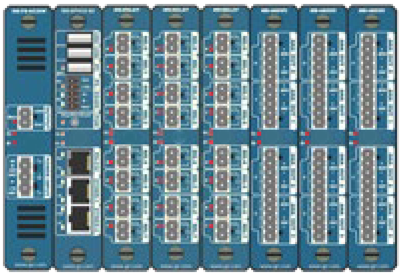
Quantity	4 Analog Outputs
Signals	4...20 mA or -10V...+10V
Mode	Current: Active Mode
Full Range	Current: 0 to 20 mA Voltage: 10V to + 10V
Resolution DA Converter	Current: 12 bits Voltage: 11 bits + sign
Resolution	Current: 5 μA Voltage 5 mV
Accuracy	0.1% Full Scale
Reactivity	Current: 25 msec Voltage: 1 msec
Isolation	Individually isolated – 500 Vrms between each output, 1500 Vrms between each output and Earth
Load impedance limit	Current: Max 1000Ω = 20 V Voltage: Min 3000Ω = 3.3 mA
Temperature Storage	-40°C to 85°C
Temperature Active	-40°C to 70°C
Humidity	15 to 95% without condensation
Altitude Max	5000 m
Dimensions (no connector)	150 × 83 × 29 mm (5.9 × 3.3 × 1.14 in)
Weight	300 g

RELAY MODULE SPECIFICATIONS

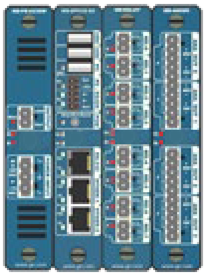
Quantity	8 outputs
Replacement	Hot insertable/removable
Arrangement	Normally Open (SPST Single Pole Single Throw) 1 FORM A
Voltage	With DC: Max - 30 VDC at 3A With AC: Max – 250 VAC
Current	3 A
Isolation	Resistance at 500 VDC = 1000 MΩ Voltage: 3KV
Temperature Storage	-40°C to 85°C
Temperature Active	-40°C to 70°C
Humidity	15 to 95% without condensation
Altitude Max	2000 m
Dimensions (no connector)	150 × 83 × 29 mm (5.9 × 3.3 × 1.14 in)
Weight	300 g

CPU MODULE SPECIFICATIONS

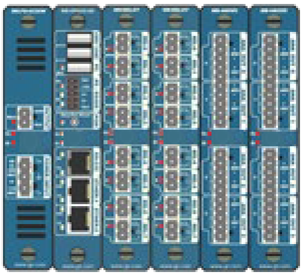
Processor	32-bits CPU module
Input Voltage	8...30 VDC or with Power Supply Module
Supply Current	Input Total Max: 2.5 A I on Vcc = 3.3V Max: 3 A
SD card	Optional, SDHC or micro SD, max 32 GB, FAT32
Communication Ports	1 x RS232 1 x RS485 2 x Ethernet 3 x USB
RS232	Connector: RJ45 Cabling: TxD, RxD, RTS, CTS, GND, DTR, DCD, RI Protocol: ModBus RTU Master/Slave
RS485	Connector; Spring Cage Terminal Block Cabling: 2 Wires (A+, B- and GND) Protocol: ModBus RTU Master/Slave
Ethernet	Connector: RJ45 Cabling: Auto MDI/MDIX, Full Duplex, 100 BASE-TX (4 wires) Protocols: ModBus TCP Master/Slave, SMTP, FTP, HTTP(S), NTP, IEC-60870-5-104, DNP3, SNMP, Ping, OpenVPN...
USB	Connector: USB type A female (socket) Model: USB 2.0 Current: 500 mA @ 60 °C per port
Safety	IEC 60950
Approvals / Standards	CE, FCC, UL, CSA, C-Tick, EN104, optional UL508
Temperature Storage	-40°C to 85°C
Temperature Active	-40°C to 70°C
Humidity	15 to 95% without condensation
Altitude Max	5000 m
Dimensions (no connector)	150 × 83 × 29 mm (5.9 × 3.3 × 1.14 in)
Weight	272 g



IOX-MF



IOX-MQ



IOX-MH

UL508 Certification available upon request.

For more information, visit
gevernova.com/grid-solutions

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English
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