Grid Solutions

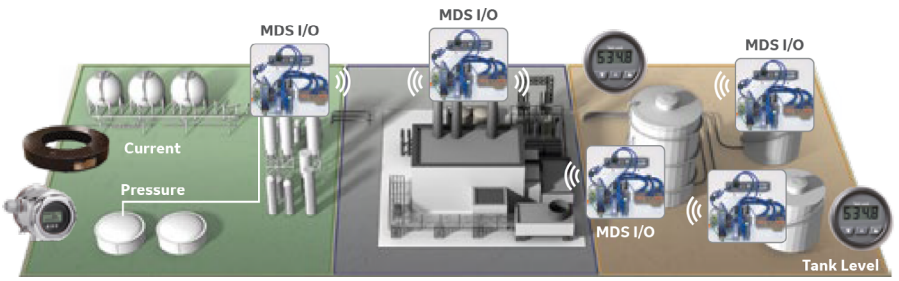
MDS I/O SOLUTIONS

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 with simple configurability in an easy to use web interface for setting up your I/O signals.

Push-In Technology to simplify field wiring of the I/O signals, including an RJ45 interface or an optional fiber interface for digital protocols. The MDS I/O Solutions portfolio includes ready to install, configurable options to meet different requirements. Easily install the wall mountable solution into an existing rack or indoor location. In the case of hard to reach places, an enclosure mounted solution may be installed into an existing enclosure or into a new customized MDS-designed enclosure.

Designed to integrate with the MDS Orbit Platform, MDS I/O Solutions can provide secure, reliable wireless communications of your I/O signals across LTE, Licensed, Unlicensed, or Wi-Fi. These turn-key solutions are communications-enabled for interfacing with a variety of SCADA or EMS systems using industry standard protocols such as Modbus, DNP3, MQTT and SNMP.



Diverse Solutions

Water Tank/Well Sites and Wastewater

- Suction/Discharge Pressure
- Flow Rate
- Alarms
- Effluent Monitoring
- Open Channel Flow
- Collection System Monitoring

Communications

- Door Alarms
- Temperature Monitoring
- Generator/Fuel Level

Tank Farm Monitorings

- Product Inventory
- Overspill Protection
- Temperature Monitoring

GE VERNOVA

Diverse Radio Configurations

- A diversity of 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 (single and MIMO a/b/g/n)
- 900 MHz FHSS enables low latency and high-throughput unlicensed networks with multipoint and store-and-forward
- Fiber Interface expansion with either single or multi-mode and ST or SC connector**

Configurable I/O

Selectable I/O types

- 16 DI/DO
- 8 Analog In
- 2 Analog Out

Configuration Simplicity

- Web interface for easy I/O configuration
- I/O solutions labeled with circuit diagram
- Push-In Technology for quick assembly

Communications Enabled

- Modbus TCP Base
- Additional protocols supported;
- MQTT
- SNMP
- DNP3
- OPC-UA
- EtherNET/IP™

Technical Specifications

ENCLOSURE MOUNTED I/O SOLUTION	
Dimensions	178 mm (H) x 178mm (D) x 368mm (W), 7.0" x 7.0" x 14.5"
Converter Option	With IO Converter Without IO Converter
IO Options	12 IO – 4 DI, 2 DO, 4 AI, 2 AO 26 IO - 16 DI/DO, 8 AI, 2 AO
Mounting	Designed to be installed into GE Vernova's MDS WSG-P70s or a similar sized enclosure or wall mountable

WALL MOUNTABLE I/O SOLUTION	
Dimensions	178 mm (H) x 457.0 mm (D) x 356.0 mm (W) 7.0" x 18.0" x 14.0"
Input Power Options	100-240 VAC 12, 24, and 48 VDC 110-300 VDC
Converter Options	With IO Converter Without IO Converter
IO Option	26 IO - 16 DI/DO, 8 AI, 2 AO
Radio Option	One (1) Orbit MCR

IOX-R AND IOX-T GENERAL SPECIFICATION	
Dimensions	152mm (H) x 133mm (D) x 40mm (W) 5.98" x 5.25" x 1.575"
Temperature	Storage: -40°C to +85°C / -40°F to 176°F Operation: -40°C to +70°C / -40°F to +158°F
Humidity	0-95%, non-condensing
Input Voltage	8-30 VDC (Using Analog Outputs: 9-30VDC)
Ethernet	Connector: RJ-45 Connector Speed: 10/100 MBits, Full Duplex with Auto-Negotiation (4 wires)
USB	Model: USB 2.0 Connector: USB type A female (socket) Speed: 480 MBits/sec
RS-232	2 Wire – TxD, RxD
RS-485	2 Wires – A+, B- 120Ω termination between A-B at both ends
Approvals/Standards	CE, FCC, CSA for USA + Canada, C-Tick, A-Tick, RoHS, Hazardous Area Class 1, Division 2, EN104, optional UL508
Warranty	5 years

IOX-R-DIGITAL INPUTS	
Quantity	Up to 16 (Shares with Digital Outputs)
External Voltage to V+	DI only: 8 – 30 VDC DI and DO: 11 – 30 VDC
Voltage at Input	Typical: 12 VDC Max for a LOW Level: 2.0 VDC Min for a HIGH Level: 7.4 VDC Maximum: 30 VDC
Resistance at Input	>39kΩ

IOX-R-DIGITAL INPUTS	
Fast DI	Up to 3 Fast Digital Inputs
Counters	Up to 3 Counter Inputs (DI0, DI1, DI2) Maximum Frequency - 10 kHz with duty cycle 45-55%
Isolation	None

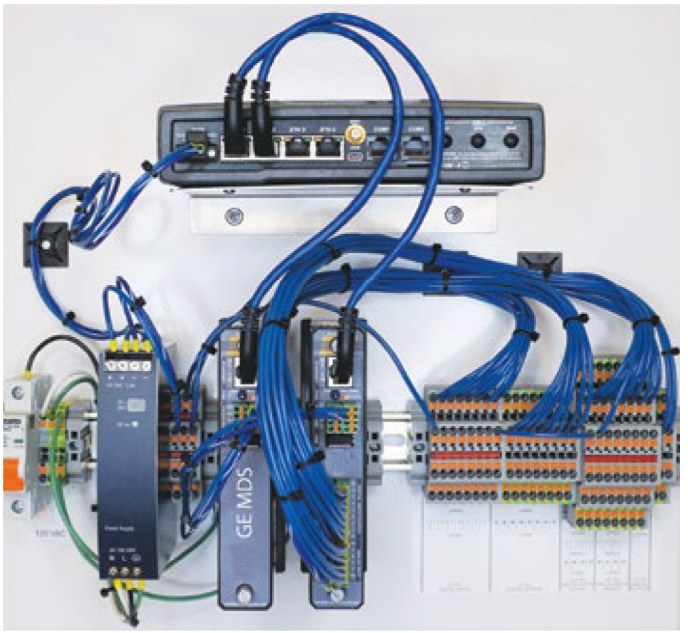
IOX-R – DIGITAL OUTPUTS	
Quantity	Up to 16 (Shares with Digital Inputs)
External Voltage to V+	11 – 30 VDC
Output Type	Current Sourcing
Voltage Per Output	Maximum: 30 VDC
Current Per Output	Maximum: 625 mA up to 60°C (200 mA between 60°C-70°C)
Short Circuit Current	Typical 1.4 A, Maximum 1.9 A
Protection	Overload – Max: 35 VDC
Isolation	None

IOX-R – ANALOG INPUTS	
Quantity	Up to 8
Options	Software configurable 4-20 mA, 1-5 VDC or 0-10 VDC
4-20 mA	Resolution: 16 bits Mode: Unipolar Model: Passive Input Precision: 0.1% @ 25°C, 0.2% over temperature range Input Impedance: 249 Ω (typical)
1-5 VDC	Resolution: 16 bits Mode: Unipolar Model: Passive Input Precision: 0.1% @ 25°C, 0.2% over temperature range Input Impedance: 60 kΩ (typical)
0-10 VDC	Resolution: 16 bits Mode: Unipolar Model: Passive Input Precision: 0.1% @ 25°C, 0.2% over temperature range Input Impedance: 60 kΩ (typical)
Isolation	None

IOX-R - ANALOG OUTPUTS	
Quantity	Up to 2
Options	4 – 20 mA
Resolution	16 bits
Mode	Unipolar
Mode	Active output
Precision	0.1% @ 25°C, 0.2% over temperature range
Voltage at Output	Vin (or Vbat) – 5 V
Current at Output	22 mA
Output Impedance Limit	$\leq \frac{\text{Vin - 5V}}{\text{22mA}}$
Isolation	No Isolation

IOX-T CONVERTER MODULE SPECIFICATIONS	
Protocol Options	Modbus, DNP3, MQTT, OPC-UA, Allen Bradley EtherNET/IP, SNMP

***10/100 Mbps with 2km or 30 km*



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

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