GE
Grid Solutions

Multilin D20E Ethernet I/O Modules

Substation automation I/O module for your Smart Grid applications

Leveraging the latest technology in microprocessors, communications and applications, the D20E Ethernet I/O module is the next-generation input/output (I/O) module for substation automation and SCADA RTU applications. D20E can be deployed with a server (e.g, D20MX or D400) or with IEDs, provided the D20E is behind the server or IED (i.e, not directly connected to the substation LAN).This is important because the D20E is not considered an edge device; hence, it needs to be within an electronic security perimeter. The physical inputs and outputs connectors on the D20E I/O align pin-to-pin with that of the D20 I/O. The pin alignment and reliability makes the D20E I/O a more practical and cost-effective solution for D20 I/O and RTU upgrades, especially for users looking to extend the life of D20 assets with a reliable and proven GE I/O solution.

Next-Generation I/O Modules

The next generation of input/output modules for electrical utility automation

- Substation automation
- Primary equipment monitor
- Distribution automation

Application

- New substation RTU I/O deployment
- Legacy RTU I/O expansion and replacement
  - The D20E I/O module has the same termination connector and alignment as the existing D20 I/O; this makes the D20E I/O module an ideal retrofit option
- I/O modules for integrated substation control systems
- I/O modules for primary equipment monitoring
- I/O modules for distribution automation, e.g.:
  - On-Load Tap Changer (OLTC) interface
  - Capacitor bank interface
  - Voltage regulator interface

A reliable and cost effective I/O upgrade

- Future-proof state-of-the-art I/O with updated electronics
- 1 ms time stamp accuracy
- Simplified design for improved reliability, single module simplified design
- Similar form factor and terminal block alignment (pin to pin) with Multilin D20 IO Module
- Protection grade onboard relay 8A (300VDC / 4A continuous)
- No need for interposing relay

Open Server Protocols

- DNP3/IEEE1815
- IEC 61850

Four Module Types

- D20E-C (Combination) I/O Module including: 16 Digital Inputs, 16 Analog Inputs, 8 Control Outputs
- D20E-S (Status) I/O Module with 64 Digital Status Inputs
- D20E-A (Analog Inputs) I/O Module with 32 Analog Inputs
- D20E-K (Control) I/O Module with 32 Control Outputs

Simplified Configuration and Use

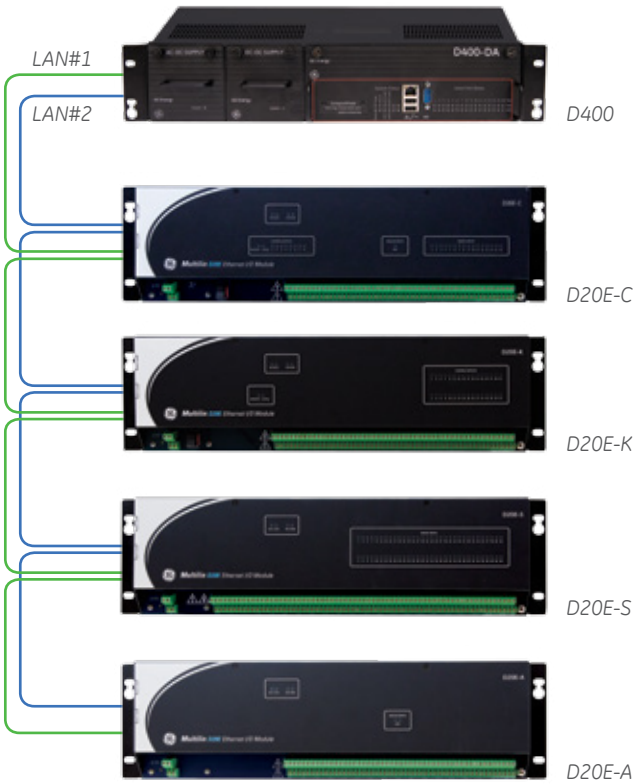
- DAPserver Studio: configuration and maintenance tool
- Local access - USB port
- Remote access - Ethernet LAN

imagination at work

Designed for Substations

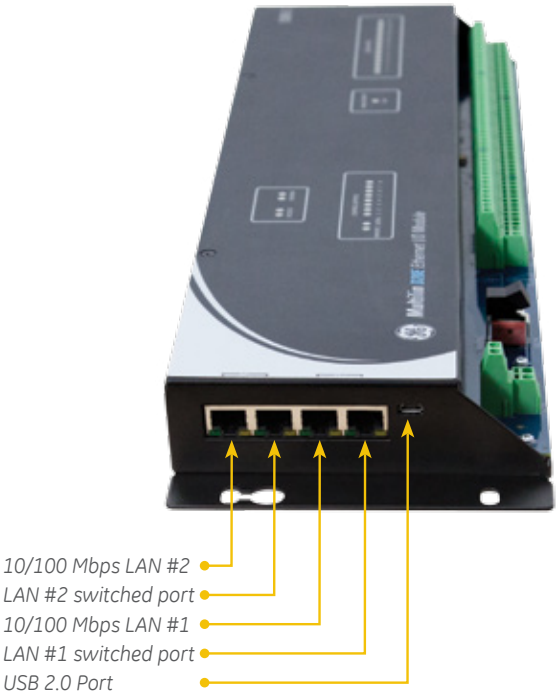
- IEEE 1613 communication networking devices
- IEEE C37.90 relays for electrical power apparatus
- IEEE 1686 cyber security
- Time synchronization source via NTP, SNTP, DNP
- IEEE 1815 DNP3 protocol
- IEC 61850 communication networks & systems in substations
- IEC 60870 telecontrol equipment and systems
- IEC TS 61000-6-5 immunity for power station & substation
- IEC 60255-5 relay insulation
- IEC 61010-1 safety
- UL/CSA safety
- CE electromagnetic compatibility & low voltage safety
- RoHS/WEEE/REACH
- -40 °C to +70 °C operating range

Daisy Chaining I/O Modules



Communication Interface

- Redundant 10/100 Mbps Ethernet-switched ports (RJ-45)
- Switched ports can be daisychained to other I/O modules
- DNP3 and IEC 61850 protocol support

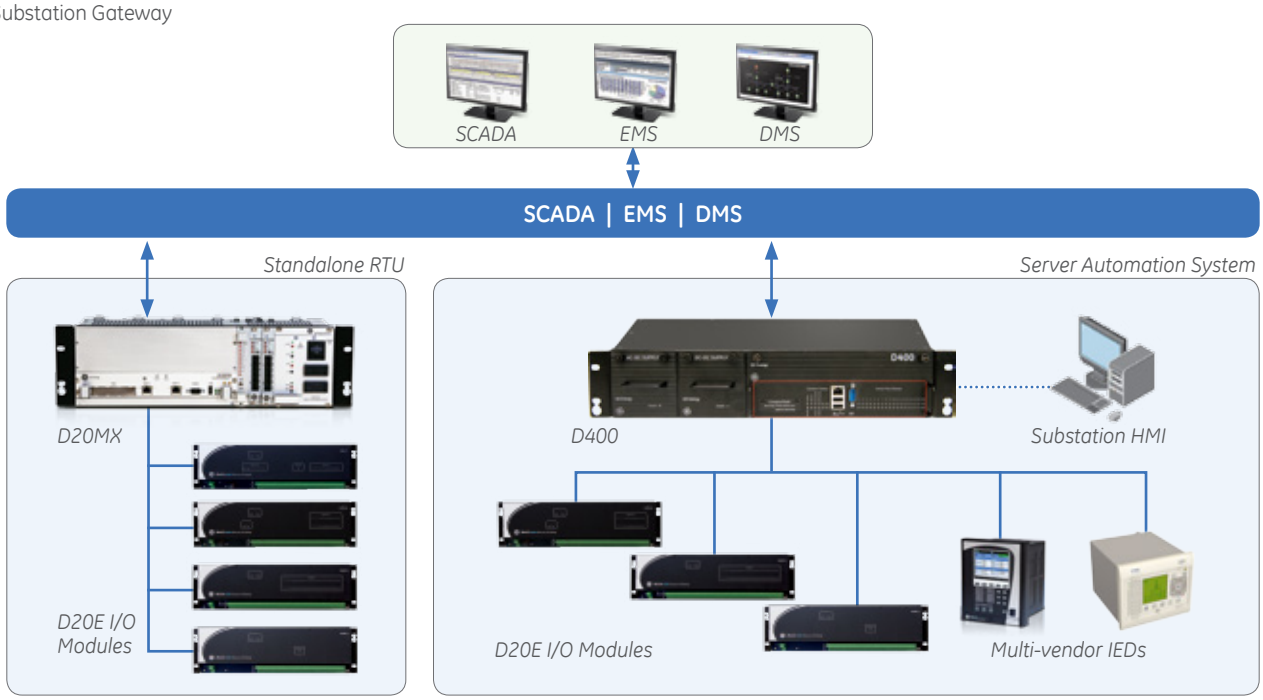


APPLICATION / FEATURES	D20E SUPPORT	DETAILS
Substation Server/Computer Plug-in	•	DNP3 / IEEE1815 & IEC 61850 10/100 Mbps LANs
D20 I/O Retrofit & Upgrade	•	Upgrades are easier due to the same number and location of field inputs as the legacy D20A, S, K, C IO modules; new life-cycle; 3U height, 41 mm depth; DAPserver Studio; Flash memory
Technology & Design for Manufacturing	•	Meets IEEE / IEC subsation standards; CE marking
Insulation & Isolation	•	2800 VDC; meets IEEE / IEC substation standards
Safety	•	IEC 61010-1; CE mark; UL / CSA future
Environmental	•	-40°C to +70°C, humidity, vibration, shock & drop standards
Control Output Relays	•	Protection-grade relay (8A carry rating); As a result, there is no need for interposer relay types of control modules

D20E I/O Modules in a SCADA Network

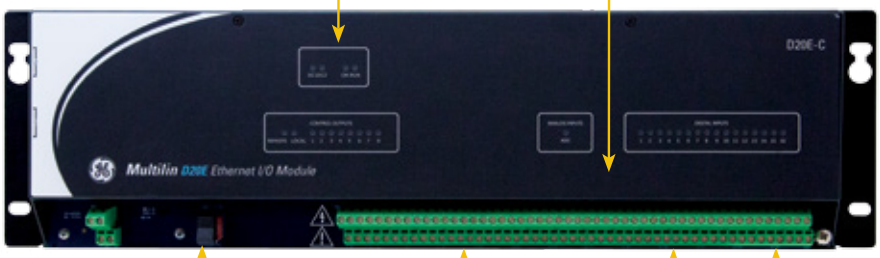
D20E Ethernet I/O modules can be connected to any of the following GE Grid Solutions devices or other substation controllers or gateways:

- D20MX Substation Controller
- D400 Substation Gateway



D20E Ethernet I/O Module - Front Panel Features

3U rack/panel compact profile



Digital Inputs

- *Positive/negative polarity*
- *20 to 60 Vdc (5 mA). 90 to 290 Vdc (2 mA)*
- *1 ms time-stamp event*

Analog Inputs

- *1 to 20 mA current inputs (0.1%)*
- *±5 Vdc voltage inputs (0.05%)*

Control Outputs

- *Trip/close control outputs*
- *Form C control outputs*
- *Raise/lower control outputs*
- *Dual-polarity (DPST) control outputs*

Ordering

D20E	- *	*-****-*00	*	*	* - *	*	*	* - *	*	Description
D20E Type	K									Control (Digital Outputs) I/O Module
	S									Status (Digital Inputs) I/O Module
	A									Analog Inputs I/O Module
	C									Combination output/Input I/O Module
	I									Interposer Relay Termination Panel
Peripheral Options	K	1-100-000								Control Peripheral, Compression disconnect, Trip/Close, 20 to 60 VDC, 2x10/100 Base-T (517-0504LF, 508-0501LF)
	K	0-100-000								Control Peripheral, Standard Compression, Trip/Close, 20 to 60 VDC, 2x10/ 100 Base-T (517-0503LF, 508-0501LF)
	K	2-100-000								Control Peripheral, DB25, Trip/Close, 20 to 60 VDC, 2x10/100 Base-T (517- 0505LF, 508-0501LF). D20E-K (DB25) interface connects to WESTERM D20KI 517-0143 with cable 977-0069
	S	0-000-100								Digital Inputs Peripheral, Standard Compression, 20 to 60 VDC LVDI, 20 to 60 VDC, 2X10/100 Base-T (517-0506LF, 507-0501LF)
	S	0-000-200								Digital Inputs Peripheral, Standard Compression, 90 to 290 VDC HVDI, 20 to 60 VDC, 2X10/100 Base-T (517-0507LF, 507-0501LF)
	S	1-000-100								Digital Inputs Peripheral, Compression disconnect, 20 to 60 VDC LVDI, 20 to 60 VDC, 2X10/100 Base-T (517-0508LF, 507-0501LF)
	S	1-000-200								Digital Inputs Peripheral, Compression disconnect, 90 to 290 VDC HVDI, 20 to 60 VDC, 2X10/100 Base-T (517-0509LF, 507-0501LF)

Ordering (contined)

D20E	- *	*-***-*00	*	*	* - *	*	*	* - *	*	Description
Peripheral Options	A	1-001-000								Analog Inputs Peripheral, Compression disconnect, 5 V Analog Input, 20 to 60 VDC, 2x 10/100 Base-T (517-0502LF, 511-0501LF)
	A	0-002-000								Analog Inputs Peripheral, Standard Compression, 20 mA Analog Input, 20 to 60 VDC, 2x 10/100 Base-T (517-0514LF, 511-0501LF)
	A	0-001-000								Analog Inputs Peripheral, Standard Compression, 5 V Analog Input, 20 to 60 VDC, 2x 10/100 Base-T (517-0501LF, 511-0501LF)
	C	1-101-100								Combination I/O Peripheral, Compression disconnect, Trip/Close, 5 V Analog Input, 20 to 60 VDC LVDI, 20 to 60 VDC, 2x10/100 Base-T (517-0512LF, 509- 0501LF)
	C	0-101-100								Combination I/O Peripheral, Standard Compression, Trip/Close, 5 V Analog Input, 20 to 60 VDC LVDI, 20 to 60 VDC, 2x10/100 Base-T (517-0510LF, 509-0501LF)
	C	0-102-100								Combination I/O Peripheral, Standard Compression, Trip/Close, 20 mA Analog Input, 20 to 60 VDC LVDI, 20 to 60 VDC, 2x10/100 Base-T (517-0515LF, 509- 0501LF)
	C	1-102-100								Combination I/O Peripheral, Compression disconnect, Trip/Close, 20mA Analog Input, 20 to 60 VDC LVDI, 20 to 60 VDC, 2x10/100 Base-T (517-0516LF, 509- 0501LF)
	C	1-101-200								Combination I/O Peripheral, Standard Compression, Trip/Close, 5V Analog Input, 90 to 290 VDC HVDI, 20 to 60 VDC, 2x10/100 Base-T (517-0513LF, 509-0501LF)
	C	0-101-200								Combination I/O Peripheral, Standard Compression, Trip/Close, 5V Analog Input, 90-290VDC HVDI, 20 to 60 VDC, 2x10/100 Base-T (517-0511LF, 509-0501LF)
	I	0-000-000								Interposer Relay Termination Panel, Standard Compression (517-0146)
	I	1-000-000								Interposer Relay Termination Panel, Compression Disconnect (517-147LF)
D20-E Interposer Relay Options	I		0							None
	I		1							Momentary KUEP 10A 150V - 1X - 24V (410-0016[16])
	I		2							Momentary KUEP 5A 150V - 2A - 24V (410-0056[16])
	I		3							Momentary KUEP 3A 150V - 2C - 24 V (410-0053[16])
	I		4							Momentary KUP 10A 28V - 2C - 24V COIL (410-0039[16])
	I		5							Latching KUL 10A 28V - 2C LATCH - 24V (410-0043[8])
	I		6							Momentary KUEP 10A 150V - 1X - 48V (410-0041[16])
	I		7							Momentary KUEP 5A 150V - 2A - 48V (410-0092[16])
	I		8							Momentary KUP 10A 28V - 2C - 48 V (410-0044[16])
	I		9							Latching KUL 10A 28V - 2C LATCH - 48V (410-0045[8])
D20-E RJ-45 Cables				U						Not required
				A						Cable, UTP Patch Cord Standard, 24 inch (GE part number,977-0209/24)
				B						Cable, UTP Patch Cord Standard, 48 inch (GE part number,977-0209/48)
				C						Cable, UTP Patch Cord Standard, 60 inch (GE part number,977-0209/60)
				D						Cable, UTP Patch Cord Standard, 72 inch (GE part number,977-0209/72)
				E						Cable, UTP Patch Cord Standard, 84 inch (GE part number,977-0209/84)
				F						Cable, UTP Patch Cord Standard, 96 inch (GE part number,977-0207/96)
D20-E USB Cable					U					Not required
					A					Cable Assembly USB 2m 28AWG USB Type A to Micro-USB Type B M-M Bag (GE part number, 580-3767)
D20-E Interposer Cables	I					U				Not required
	I					1				D20K Interconnect Cable 24 inch (977-0069/24)
	I					2				D20K Interconnect Cable 30 inch (977-0069/30)
	I					3				D20K Interconnect Cable 36 inch (977-0069/36)
	I					5				D20K Interconnect Cable 48 inch (977-0069/48)
	I					9				D20K Interconnect Cable 72 inch (977-0069/72)
	I					B				D20K Interconnect Cable 96 inch (977-0069/96)
	I					C				D20K Interconnect Cable 120 inch (977-0069/120)
	I					E				D20K Interconnect Cable 240 inch (977-0069/240)
	I					F				D20K Interconnect Cable 300 inch (977-0069/300)
	I					G				D25-KI Interconnect Cable, 30 inch (977-0208/30)
	I					H				D25-KI Interconnect Cable, 36 inch (977-0208/36)
	I					I				D25-KI Interconnect Cable 48 inch (977-0208/48)
	I					J				D25-KI Interconnect Cable 72 inch (977-0208/72)
	I					K				D25-KI Interconnect Cable, 96 inch (977-0208/96)
						L				D25-KI Interconnect Cable, 240 inch (977-0208/240)
D20E Power Supply							U			Not required
							A			DIN Mount Power Supply: Input 85 to 264VAC or 90 to 350VDC, output 24VDC at 5A (580-3466)
							B			DIN Mount Power Supply: Input 85 to 264VAC or 90 to 350VDC, output 48VDC at 3.75A (580-3484)
Duct Panel Options								U		Not Required
								1		Cable Duct Panel, Tie Wrap Connections (560-0046)
								2		Two Cable Duct Panels, tie wrap connections (560-0046[2])
								3		Cable Duct Panel, no through holes (560-0008)
								4		Two Cable Duct Panels, no through holes (560-0008[2])
								5		Cable Duct Panel, through holes at each end (560-0009)
								6		Two Cable Duct Panels, through holes at each end
Power Cord Options									A	Not Required
									O	Power Cord With North America Plug (977-0547/108)
Firmware Options										A Firmware - 6.2.0-4
										O D20E Firmware, Latest Release
Documentation Options										U Not required
										B SAS Product Documentation CD

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