Multilin
D.20™ RIO

Distributed I/O Controller

The Multilin D.20™ RIO Distributed I/O Controller is a stand-alone, small form factor device designed to provide distributed I/O capabilities for easy connection to the Multilin D400™ substation automation gateway through the substation LAN. The D.20 RIO provides an interface to GE's Multilin D20 Series of I/O modules for a cost effective upgrade solution.

KEY BENEFITS

- Reduced copper wiring between I/O modules and substation controllers by adding I/O near the monitored device and communicating to the Multilin D400 over the substation LAN
- Easy installation of the small form factor D.20 RIO into existing control panels

- Cost effective deployment of new and retrofit substation automation projects through compatibility of Multilin D400 Substation Gateways and Multilin D20 Input / Output peripheral modules

APPLICATIONS

- The D20 module interface enables users to maintain and leverage existing engineering designs, processes and automation infrastructure

- Simplify implementation of distributed substation automation architectures by installing I/O where it's needed and reducing copper wiring between I/O and substation controller

FEATURES

Ease of Use

- No special configuration tools are required, the device is connected via Ethernet using a standard web browser
- The Multilin D400 automatically detects the D.20 RIO and establishes communications with the D20 modules
- Intuitive user interface integrates the D20 I/O modules within minutes
- Compatible with v3.X series of the D20 I/O PCommon code
- No Substation LAN? No problem. Connect the D.20 RIO to the built in D400 Ethernet switch

Hardware

- Product supplied with accessories for multiple mounting options (19" rack, DIN Rail, panel mount)
- Support for dual D.20 communication links
- Jumper configurable option for internal or external wetting of D20 peripherals

GE Energy

Cost Effective D20 RTU Upgrade Solution

Utilities have large investments in hard wired automation systems. Like everything else, this industrial equipment has a lifecycle that moves from infancy to normal operation, and eventually to the wear out stages. As a piece of equipment ages it fails more frequently, takes longer to repair, and eventually reaches the end of its life.
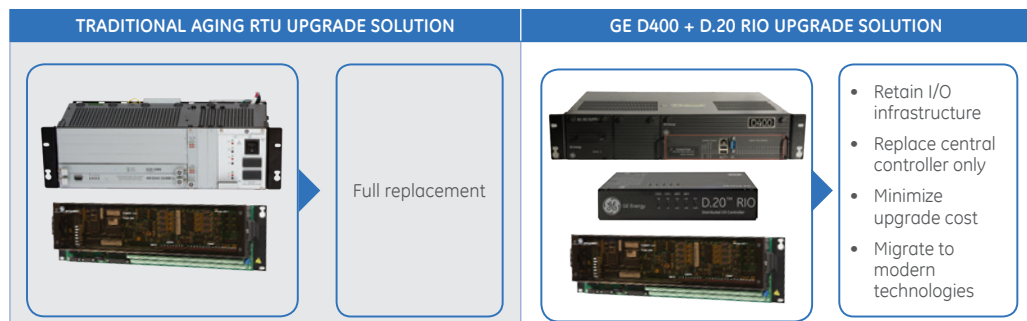
Re-design and forklift replacements require utilities to re-engineer substation designs, replace field wiring, and re-train staff to manage and maintain the system, which is a costly endeavor.

The Multilin D.20 RIO option with support for D.20 communications provides a cost effective alternative to upgrades of legacy D20 RTUs. Simply replace the failed or end of life Multilin D20 unit with a Multilin D400 Gateway and D.20 RIO module, plug the D.20 interface cable into the D.20

RIO, connect the D.20 RIO to the D400 or an Ethernet port in the substation LAN and you are ready to add modern functionality to the Multilin D400 series of Substation Gateways including:

- Cyber security features for integration into NERC® CIP environments
- Secure real time browser access
- Browser-based HMI interface
- Secure remote engineering access
- IEC® 61850 capabilities
- Automatic record retrieval (fault records, SOE, settings files, any other file available in the IED)

D.20 RTU Upgrade Process

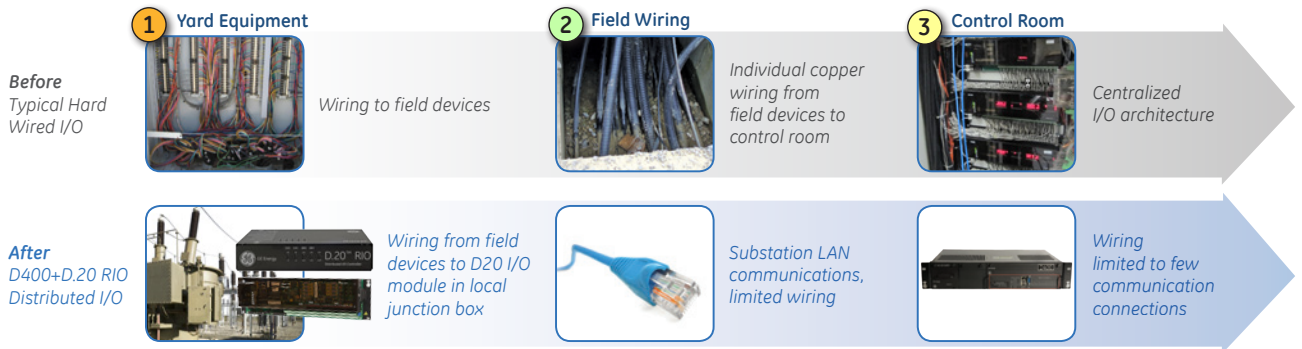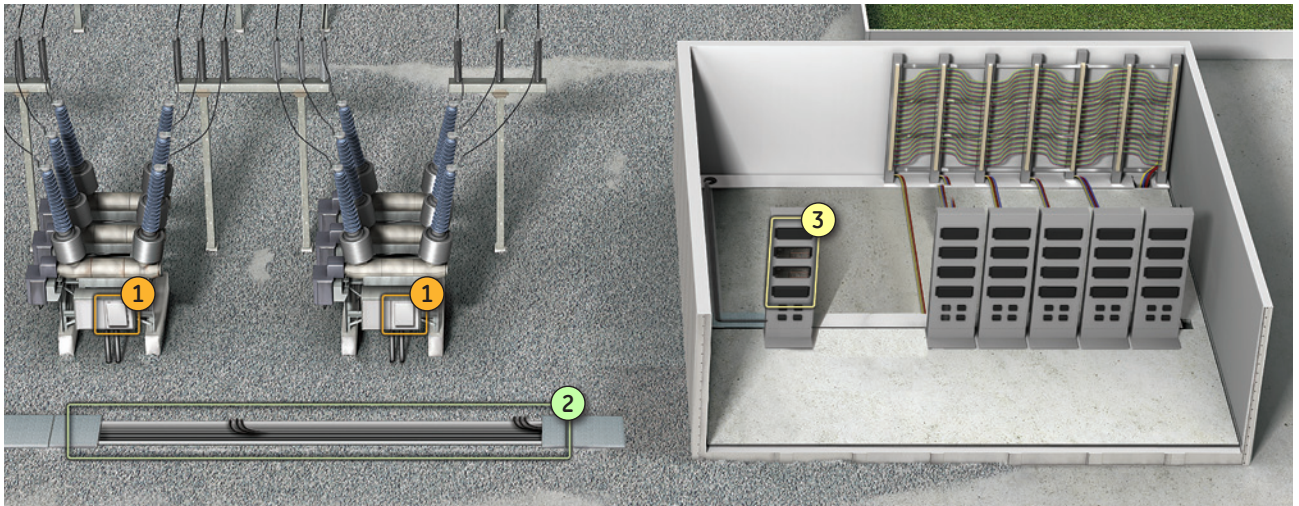|	TRADITIONAL AGING RTU UPGRADE SOLUTION	GE D400 + D.20 RIO UPGRADE SOLUTION	
	Full replacement		• Retain I/O infrastructure • Replace central controller only • Minimize upgrade cost • Migrate to modern technologies
INSTALLATION COST			
Modify field wiring	Yes	Not required	
Modify engineering drawings	Yes	Not required	
Building expansion	May be required	Not required	
Marshaling panels	May be required	Not required	
Outages	Yes	Minimal	
ADVANCED FUNCTIONALITY			
Advanced automation	?	✓	
Cyber security features	?	✓	
Optimized configuration methods	?	✓	
Non-operational data management tools	?	✓	

Remote I/O Where You Need It

The Multilin D.20 RIO Distributed I/O Controller is a small form factor stand-alone device that supports two D.20 link channels for communication with the D20 series of input / output modules.

- Interface with standard D20 I/O (status, analog input, control and combination input) peripheral modules
- Support for up to 30 I/O modules in a single D.20 RIO, or distributed over up to four D.20 RIO devices within the substation

- Small form factor with multiple mounting options for installation flexibility: 19" Rack, panel mount or DIN Rail

Use the Multilin D.20 RIO module to install input / output modules in the substation LAN. No substation LAN? No problem, connect the optional D.20 RIO device directly to the built-in D400 Ethernet switch.

I/O Where You Need It, Minimizing Wiring Costs

	1 Yard Equipment		2 Field Wiring		3 Control Room	
Before *Typical Hard Wired I/O*		*Wiring to field devices*		*Individual copper wiring from field devices to control room*		*Centralized I/O architecture*
After *D400+D.20 RIO Distributed I/O*		*Wiring from field devices to D20 I/O module in local junction box*		*Substation LAN communications, limited wiring*		*Wiring limited to few communication connections*

Technical Specifications

COMMUNICATIONS

Dual Ethernet 10/100 BaseT channels

2 × D.20 link channels

POWER INPUT

22-55 VDC (±10%)

Power supply P/N 580-3483: Input 100-240 VAC (±10%) 110-290 VDC (±20%) Output 24 VDC (18-29.5 VDC) @ 2.6 A at 70 °C

Power supply P/N 580-3484: Input 85-264 VAC 90-350 VDC Output 48 VDC (30-56 VDC) @ 3.75 A at 70 °C

DIMENSIONS

220 W ×146 D x 43.5 H (mm)

8.66 W x 5.75 D x 1.71 H (inches)

MOUNTING OPTIONS

Supplied with required accessories for:
19" rack mount, 54.5 mm DIN Rail or panel mount

ENVIRONMENTAL

Indoor use only

-40°C to 70°C, 5 to 95% RH

RELIABILITY

158,000 hours MTBF at 40C per MIL-217F

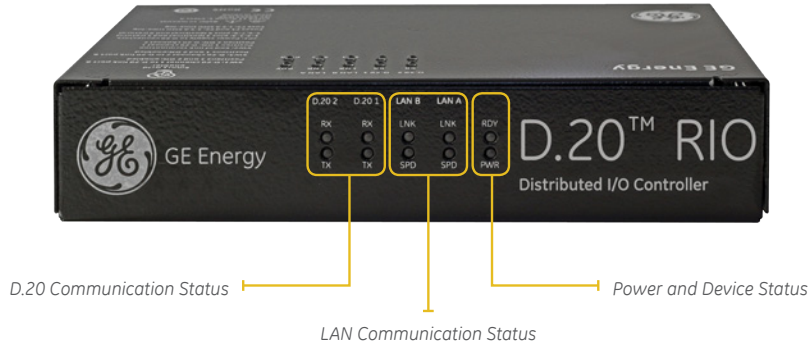### CONFIGURATION SOFTWARE

Built-in web browser based graphical user interface
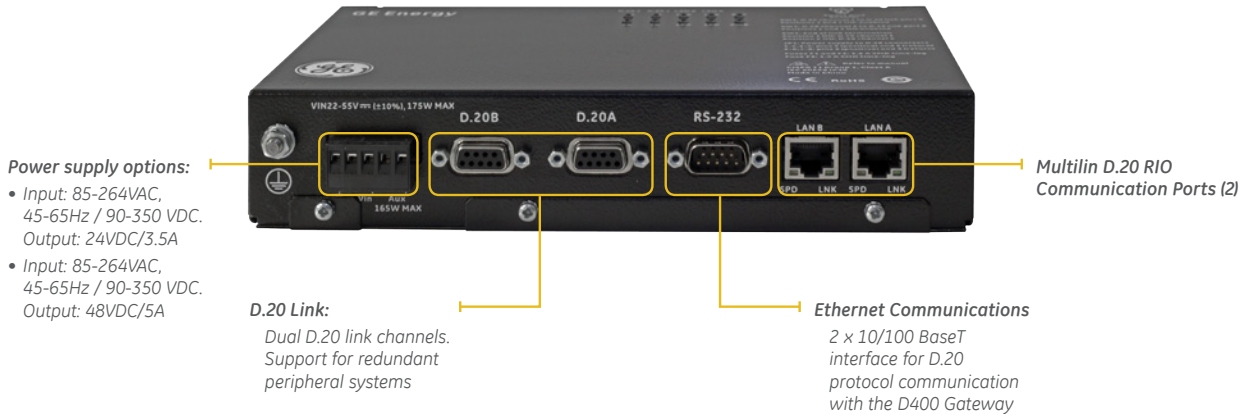
OTHER

Up to four (4) Multilin D.20 RIO units per D400 unit

Maximum number of D20 I/O modules per D.20 RIO: up to 30

Powered from D.20 RIO: 5 D20 I/O modules. For systems with more than 5 I/O modules, external power supply is required.

User Interface

Front Panel

D.20 Communication Status

LAN Communication Status

Power and Device Status

Back Panel

Power supply options:
- Input: 85-264VAC, 45-65Hz / 90-350 VDC. Output: 24VDC/3.5A
- Input: 85-264VAC, 45-65Hz / 90-350 VDC. Output: 48VDC/5A

D.20 Link:
Dual D.20 link channels. Support for redundant peripheral systems

Ethernet Communications
2 x 10/100 BaseT interface for D.20 protocol communication with the D400 Gateway

Multilin D.20 RIO Communication Ports (2)

Ordering

DPDA000029:

Multilin D.20 RIO with 100-240VAC/110-290VDC, Output 24 VDC Power Supply

DPDA000030:

Multilin D.20 RIO with 85-264 VAC / 90-350VDC, Output 48 VDC Power Supply

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imagination at work