

D20 Substation Automation Controller

The Business Case

The pressure has never been greater for electric utilities to reduce costs and maximize the use of existing assets. Utilities must also focus on improving substation electrical system performance, reliability, and security while ensuring the safe operation of their electrical system.

The D20 substation controller from GE Energy offers an industry-leading substation controller design embedded with high value substation automation applications that provide cost savings, increased reliability, and improved operational efficiencies in your substations. A large protocol library facilitates communication to most existing substation devices for improved visibility and remote control.

Product Overview

The D20 controller is the heart of GE's substation automation architecture, providing data server functionality in a substation-hardened package. The D20 device acts as the gateway to SCADA master stations for IEDs in the station, or for downstream substations or feeders. The distributed, expandable I/O architecture and mission-critical automation control applications reinforce why the D20 controller is being used in over 30,000 installations around the world.

Automation Applications

A full library of automation applications is available to increase system reliability and efficiency.

- Generation and transmission automation
- Distribution automation
- Communication services
- Data logging/storage
- Data reduction, summarization
- Data format conversion
- User programmable soft logic (IEC® 61131-3 and others)

Communication with Third Party Devices

A key differentiator of the D20 controller is its ability to talk to many different devices from many different manufacturers. We understand that you sometimes need a specialized device, or already have existing equipment installed that you need to communicate with. The D20 communication protocol library is second to none.

The D20 controller's large library of protocols facilitates communication with various existing substation IEDs and SCADA hosts.

- DNP 3.0
- IEC 60870-5-101/103/104
- IEC 61850 (Server)
- Modbus
- 8979
- Over 100 other protocols available

A built-in terminal server emulator allows pass-through connections to be initiated to any substation IED (relay, meter, RTU or other device). Once the connection is established, the local event records can be uploaded from the substation devices and viewed remotely.



Redundancy Options

Many redundancy options are available for the D20 main chassis, I/O, and communication paths.

Customer Benefits

- Leverage existing equipment investments using an industry leading data concentrator/protocol converter
- Increase system reliability and efficiency with the D20 substation automation applications library
- Defer capital expenditures with an expandable architecture
- Reduce operational costs with a flexible design
- Reduce your risk with a field-proven leader

Typical Applications

Data concentrator

Protocol converter

Local automation platform

Substation RTU retrofits

Hardware Overview

The core of the D20 architecture is the main chassis, and distributed I/O modules. The available options allow you to tailor each D20 controller to your specific needs, or build a fleet. Either way, you use the same tools and spares across your fleet.

D20 Main Chassis

The main chassis contains the central CPU(s) and communication ports and provides the data concentration, protocol conversion, and customizable local automation functionality.

Available D20 main chassis include:

- D20 main chassis – Single or 2 CPU options available
- D200 main chassis – Up to 7 CPUs

D20 I/O Options

A complete family of substation hardened I/O modules makes the D20 controller scalable to both large and small substations. A distributed architecture with both ring and star topologies allows for easy expandability and remote placement of I/O modules. The following I/O modules are available in a variety of models with I/O ranges up to 300VDC.

- D20S – 64 channel status input module
- D20A – 32 channel DC Analog input module
- D20K – 32 channel control output module
- D20KI – 8 external interposer relay pairs module
- D20C – 16 status input, 8 control output, optional 16 DC analog inputs or 8 analog inputs and 8 analog outputs
- D20AC – 15 channel direct AC input, 1 DC analog input module

Compliance to IEEE and IEC standards ensures reliable field visibility when other equipment may fail.

For more information please visit us on-line at

www.GEDigitalEnergy.com

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GEA-14466A (07/10)

