NovaTech®
Bitronics • D/3 • Orion

M571

Bitronics® M571

Compact Single Line, Dual Bus IED

The Bitronics M571 IED provides a complete solution for monitoring and recording in substation applications. The advanced measuring, recording, and communications characteristics and utility-grade construction make it suitable for applications in AC distribution and transmission systems.

Applications

The Bitronics M571 can be used in a number of applications including:

- Digital front-end to SCADA systems (communicating measurement center)
- Intelligent Electronic Device (IED) interfacing to RTUs and PLCs
- Measurement server for substation automation
- Plant equipment monitoring
- Sequence of Event Recording
- Power and energy monitoring
- Voltage control, power factor control, and load shedding
- Front-end for synchro-check and synchronizing between two power sources and lines
- Long-term trending for system planning
- Recording system disturbances like voltage sags and swells and frequency deviations
- Fault recording (waveform capture) and fault location capability

As with other 70 Series IEDs, the Bitronics M571 is an excellent choice to provide additional functionality such as distance-to-fault and SCADA communications where electro-mechanical relays are still being employed.

It also provides an excellent complement to digital relays, providing superior monitoring and recording and verifying the protection system operation. Additionally, the Bitronics M571 provides enterprise-wide access to important event files without jeopardizing the security of the protection system or necessitating re-commissioning of the relay when the common event of setting triggers occurs.

The ability to support multiple physical links and protocols simultaneously allows easy integration in retrofit applications or newer substation automation projects. While serving as a front-end to SCADA, the Bitronics M571 also provides system-wide access to important substation data.

Bitronics M571

Functional Summary

- Over 2000 high accuracy measurements
- Distance to fault measurements
- Supports multiple protocols simultaneously
- One set of 3-phase current inputs
- Two sets of 3-phase voltage inputs
- Wide-range universal auxiliary power supply
- Two waveform recorders
- Two disturbance recorders
- Sequence of Events Recorder
- Nonvolatile memory for recording
- Optional digital inputs and digital outputs
- Optional transducer inputs with IRIG-B input with BNC connector
- One RS-232 and two configurable RS-232/RS-485 ports
- Optional Ethernet, copper or copper and fiber optic
- Optional IRIG-B input with BNC connector
- Other optional accessories are: M570DA and M870D detached displays, and Analog Output Converters

Feature Summary

- One model for 2, 2½ or 3-Element systems with selectable CT and PT ratios
- ¼ to 1-cycle measurement update rate
- Input frequency range of 40-70Hz
- Voltage and current accuracy better than 0.1% of reading
- 0.2% revenue-class energy measurement
- Assignable Modbus registers and DNP3 analog points
- Simultaneous recording for all recorders
- Event triggering with logic includes hysteresis from any analog threshold value, rate-of-change of analog value, digital input, or "virtual" input (GOOSE message)
- IEC 61850 Compliant
- Automatic event notification

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Specifications

Measurement and Signal Inputs

- Measurements including volts, currents, power, energy, frequency, demand, individual and total harmonics, K-factor, current & voltage unbalance, flicker, impedance and symmetrical components
- Current input for the S50 Signal Input module has a nominal range of 0 - 5A ac, linear to 100A ac symmetrical rms at all rated temperatures
- Current input for the S51 Signal Input has a range 0 - 1 A ac or 0 - 5A ac, linear to 20A ac symmetrical rms at all rated temperatures and compliant to IEC 60687 and ANSI C12-30-1998 revenue class accuracy of 0.2%
- The AC voltage inputs are intended for use on nominal system voltages up to 480V ac rms phase-phase (277V ac RMS phase-neutral)
- Transducer input option that provides four inputs in 0-1mA, 4-20mA or 0-10V ranges and includes IRIG-B modulated or demodulated input

Recording

- Waveform recorders have up to 14 assignable analog channels with adjustable sampling rates of 32 or 64 and 128 samples per cycle. The sampling rate can increase to 256 samples per cycle if only seven channels are connected. Pre-trigger and post trigger size is assignable. Digital inputs can be included in the recording. Stored in COMTRADE format.
- The Disturbance recorders have up to 64 assignable measurement channels with a selectable time resolution from one cycle to sixty seconds. Pre-trigger and post-trigger size is assignable. Stored in COMTRADE format.
- The trend recorders have up to 230 selectable parameters with time resolution of one minute to twelve hours. Choice of instantaneous or min, max and average.
- Sequence of Event recording has 5,000 event record storage with events time stamped to 1 microsecond. Stored in Text format.
- All triggers have three trigger modes

Communications

- One RS-232 and two configurable RS-232/RS-485 ports supporting baud rates from 9600 to 38400
- Optional 10BaseT/100BaseTX or added 10Mb or 100Mb fiber-optic port (10BaseFL or 100BaseFX)
- Supports protocols: DNP3 Level 2, DNP3 TCP/IP, DNP3/UDP, Modbus RTU, Modbus TCP/IP, ZMODEM, FTP, telnet, UCA2 (including GOOSE messaging), IRIG-B, SNTP and IEC 61850
- An IRIG-B port with BNC connector is available that accepts either modulated or demodulated signals
- Automatic event notification via Ethernet or serial media

Compact Design

The M571 uses a compact design. Each M571 will have the following:

- VD13 universal power supply module, rated 21-300V dc/55-275V ac.
- A host and analog processor consisting of a 486 Processor, 32-bit DSP, 16-bit A/D converter and RAM and nonvolatile memory
- The signal inputs will be either an S51 for 20A max current inputs or an S50 for 100A max current inputs.
- The S50 has an 11.5" wide case.
- The S51 has an 8.5" wide case

The optional choices are:

- E1, E2 or E3 Ethernet Port
- D4 Digital I/O 4 DI/4 DO
- IR1 IRIG B port with BNC, or IR1-T4 IRIG B port with four transducer inputs

Refer to ORDER GUIDE 206

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