BiTRONICS M871

Single Line, Dual Bus Modular IED

Advanced measuring, recording and communications characteristics as well as utility-grade construction make the M871 ideal for applications in AC T&D systems.

A Complete Solution for Monitoring and Recording Substation

Applications

The M871 provides a low-cost entry into disturbance recording through a distributed approach. The M871 can be installed locally on a per-feeder basis. It can also be interconnected via peer-to-peer GOOSE messaging that allows cross-triggering to occur without the need to hard-wire the contacts - it thus provides a scalable approach to station-level recording.

The M871 complements relays by providing independent, high fidelity waveform capture. It provides 2 waveform recorders, 2 disturbance recording modes and trend recording - not typically found even in the most advanced digital relays. It also provides features such as fault location and SCADA communications that can automate a substation when electro-mechanical relays are used.

The M871 can replace conventional measuring instruments (measurement centres), as well as trend, sequence-of-event, disturbance and station fault recorders.

The ability to simultaneously support multiple physical links and protocols allows easy integration in retrofit applications or new substation automation projects. The M871 serves as a front-end to SCADA, while providing system-wide access to important substation data.

Measurement Features

- Ultra-fast RMS voltage and current updates each 1/4 cycle
- Full measurement set including: V, I, F, P, Pf, H (63), THD, K-factor, voltage and current unbalance, impedance and sequence components
- Available 0.2% revenue-class energy measurement (requires S11 or S12 signal input module)
- Highly accurate measurement (voltage and current better than 0.1% of reading)
- 6 AC voltage, 4 AC current and 2 auxiliary AC/DC measurement inputs
- Exceptional dynamic range - linear to 600 Vac and 100 A (requires S10 signal input module)
- Signal frequency from 15-70 Hz
- 128 samples/cycle sampling rate (256 for 7 channels)
- Accomodates 2, 2 1/2 and 3 element systems (field configurable) with field selectable CT and PT ratios

Measurement and Analysis Functions

The M871, with its multi-mode recording and high speed, high accuracy measurements, can measure and analyse:

- Network faults
- Reactions of protective devices
- Dynamic response of the network
- Long-term trends
- Revenue readings
- Substation equipment performance

Key Benefits

- Low-cost entry into substation automation monitoring and recording applications
- Monitor system stability with six simultaneous recorders and extensive non-volatile memory
- Synchronised records between multiple 70Series IEDs
- Flexible and easy interface with multiple protocols and physical links

Recording Features

- 2 waveform recorders can capture input signals at 128 samples/cycle (6.4/7.68 kHz) and up to 100 A symmetrical (S10 signal input option). Sampling rates of 32 or 64 samples/cycle, as well as 256 samples/cycle on a reduced number of channels can also be selected

- 2 separate disturbance recorders with selectable sample rates of 1-3600 cycles

- Long-term trend data of up to 230 selectable parameters

- Sequence of event recording of 5000 events, time stamped to 1 microsecond

- Automatic event notification via Ethernet or serial comms

- Extensive onboard non-volatile memory for recording

- Simultaneous recording of all recorders

- Triggering with hysteresis from any analogue threshold value, rate-of-change of analogue value, digital input, internal parameter, or "virtual" input (GOOSE messages)

- User selectable pre- and post-trigger times and three trigger modes

- GOOSE inputs stored in waveform and disturbance records

Communications Features

- 1 RS232 and 3 configurable RS232/RS485 ports supporting baud rates from 9600 to 38400. Ports can support protocols, display, or de-modulated IRIG-B signal. Modulated IRIG B adapter available

- 10BASE-T / 100BASE-T and optional 100 Mb (100BASE-FX) fibre-optic port

- Supports DNP3.0 Level 2, DNP3.0 TCP/IP, DNP3.0/UDP, Modbus RTU, Modbus TCP/IP, ZMODEM, FTP, Telnet, UCA2 (including GOOSE messaging), NTP and IEC 61850 protocols

- Optional detached display for local indication of 3-phase measured parameters

Design

The BiTRONICS M871 uses a modular design based on the CompactPCI® bus. The modular design allows the substation design engineer to specify or alter a configuration in order to meet the measurement and communications needs of a particular substation application. The rugged, aluminium housing is designed for mounting at the rear of AC switch-board panels.

There are three chassis sizes:

- Standard chassis (8.5", 216 mm wide)
- Intermediate chassis (11.65", 296 mm wide)
- Long chassis (13.45", 342 mm wide)

The standard chassis accomodates up to 2 optional modules, the inter-mediate chassis accommodates up to 4 optional modules and the long chassis accomodates up to 5 optional modules.

Standard Components

- Wide range universal power supply (20-300 Vdc/55-275 Vac)
- Signal input module linear to 100 A and 600 Vac
- Host/analog processors consisting of a 486 Processor 32-bit DSP, 16-bit A/D converter and extensive RAM and non-volatile memory

Optional Modules

- 1 A or 5 A nominal / 4 A or 20 A peak signal input module that allows the M871 to achieve 0.2% revenue accuracy (IEC 60687, ANSI C12-20-1998, EN62053-22)

- 2 different Ethernet choices: (10/100 copper, copper plus 100 Mb fibre)

- Transducer input module

- Digital I/O modules with either 8 inputs and 4 outputs or 16 inputs and 4 outputs

- P32 module allows GOOSE inputs to be recorded in waveform record

Software

A CD is provided with each M871 containing the self-installing 70 series software. The installation provides a single front-end from which all parts of the 70 series software can be launched.

The 70 series software provides Windows® based tools to manage the configuration and the analysis of the multiple data streams provided by the M871.

For more information please contact
GE
Grid Solutions

Worldwide Contact Center

Web: www.GEGridSolutions.com/contact
Phone: +44 (0) 1785 250 070

GEGridSolutions.com

Imagination at work