Distribution Grid Monitor

The accelerating proliferation of Distributed Generation (DG) and energy storage assets on the distribution system is driving a need for more points of monitoring and control along the feeder.

Built around the Bitronics® M661P3, the Distribution Grid Monitor (DGM) can be deployed at multiple locations on each distribution line to interface with Lindsey and other pole top sensors. The DGM provides operators with a voltage profile along the full length of line, helpful loading and fault information, and can support Distribution Automation applications.

The DGM calculates better than 0.5% accurate voltages, currents, power, energy, and fault data from raw sensor measurements. A typical DGM system consists of the M661P3 pole top monitor, a local PPXIITD detached display, a NEMA enclosure, and a shelf for utility supplied radio, all packaged as one offering with Lindsey GEN2 sensors and supporting cables. The DGM-60-02-3 is an existing design with the following features:

DGM-60-02-3 includes:
- Bitronics M661P3 in enclosure
- Lindsey GEN2 Sensors and interconnection cables
- Does not include radio

Lindsey GEN2 Post Insulator Sensors and Cables

- Less than 1/2 the weight of Lindsey Polysil-based sensors.
- Hotstick-friendly conductor keeper with washer-less bolts accommodates a wide range of conductor sizes.
- Glove friendly cable with bayonet-style waterproof connectors that “snap” when closed, eliminating over- and under-tightening.
- 0.5% voltage accuracy, with flat harmonic response, and no phase shift. 1% current accuracy with no phase shift.
- Voltage and current accuracy is independent of weather and conductor diameter.
- Safe, low voltage, very low current outputs.
- Hydrophobic cycloaliphatic epoxy construction provides superior performance in high pollution and wet environments.

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Bitronics DGM in Enclosure

- Bitronics M661P3 Pole Top Monitoring Transducer providing:
  - 12V dc power for radio (up to 12W).
  - 10V ac input for three-phase volts and currents.
  - Fault indication using a definite time overcurrent relay element (ANSI code 51).
  - Volts, amps, watts, VARs, VA, PF and peak fault current measurements.
- DNP3 output via radio, Ethernet or serial.
- Better than .5% accuracy.
- Connects to multicore Lindsey Sensors.
- Powder-coated steel ANSI 61 Gray 16”x14”x10” Nema 4 Enclosure with brackets with bolt holes for mounting to pole.
- Bitronics PPXIITD display to provide local indication of measurement values.
- Door switch connected to binary input on M661P3 to provide alarm on door opening.
- Provision for accommodating user-provided radio on shelf.

Applications

- End-of-Line (EOL) and Along-the-Line voltage monitoring
- Monitor pole-mounted cap banks and voltage regulators
- Volt-VAR Optimization (VVO)
- Conservation Voltage Reduction (CVR)
- Fault Indication using a definite time overcurrent relay element
- Capture and Report Peak Fault Current

Measurements

- Full measurement set including volts, amps, watts, kWh, demands, peaks and frequency
- Peak fault currents and time overcurrent pickup
- Voltage measurements: 0.2% of reading (3.5 to 20V rms)
- Current Measurements: 0.25% of full scale (200V rms input to transducer)
- Updated every cycle

Environmental

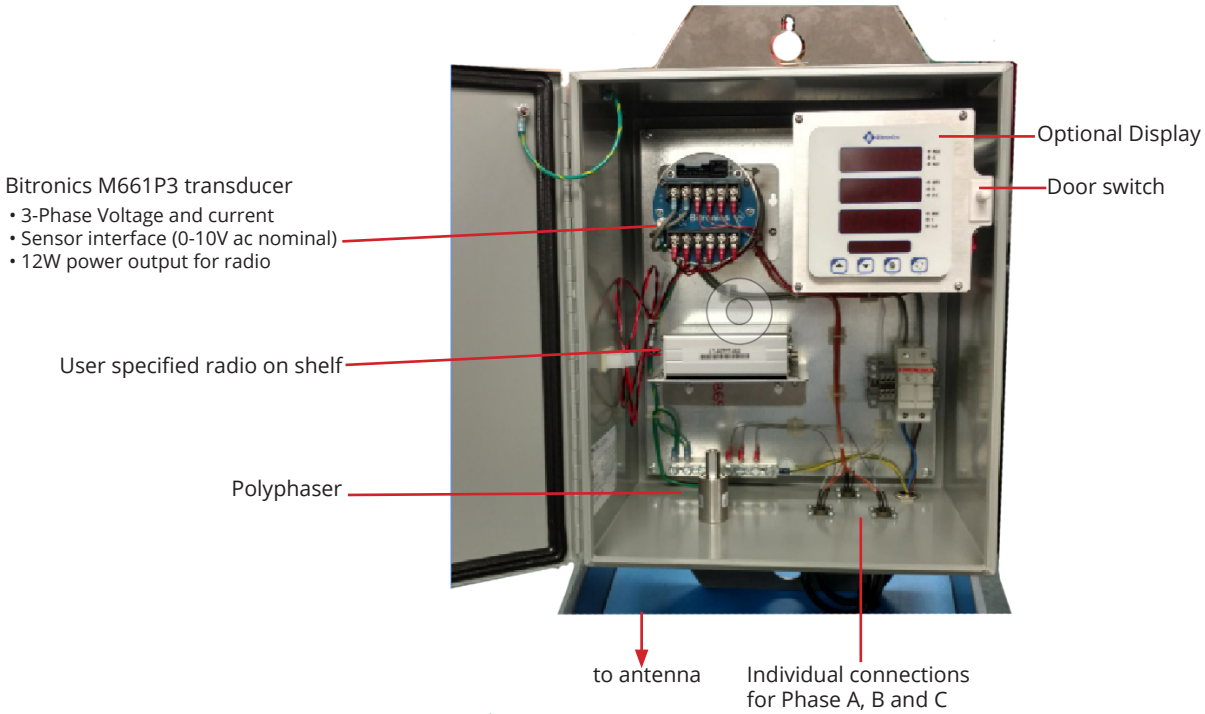
- Operating temperature range: -40° to +70°C, storage temperature -40° to +85°C
- Humidity: 0-95% non-condensing
- Surge withstand: ANSI/IEEE C37.90.1: 2002

Specifications (M661P3)

- Dimensions: 4” H x 5.25” W x 6.34” D (102mm H x 133mm W x 161mm D)
- Weight: 1.8 lbs. (.81 kg)
- Power Supply: 120V ac or 240V ac
- Voltage Inputs:
  - Four terminals (A, B, C, and Common)
  - Present 1MΩ load to the voltage sensor, up to 20V ac

Customization of the DGM-60-XX-X can be provided.

- Currents:
  - Three terminals
  - Input impedance > 10Kohm, nominal
  - Inputs are 10V rms (representing 600A rms)
    - ◊ Accommodates peaks of 200V rms for measuring fault currents
- Communication Ports:
  - RJ45 10BaseT/100BaseTX port for service port functions and protocols
  - Serial port RS-232/RS-485 four-wire
- Inputs:
  - One discrete input, used for door switch



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