NovaTech®
Bitronics • D/3 • Orion

M650

Bitronics® M650

Multifunction Meter

Bitronics has been providing excellence in digital metering for local indication and SCADA communications for over 15 years. The Bitronics 50 Series of SCADA meters continues this tradition of excellence, providing single function and multifunction solutions for 3-phase metering. The Bitronics M650 is a family of multifunction meters with a range of measurement capabilities. The M650 meters have an incomparable display, are simple to set up and use, and offer superior communications flexibility. There are two M650 models (B3 and M3) with the following features:

Display

- 3-line at once, easy-to-read, long-life LED displays that can be read from far away in all substation conditions including bright sunlight
- Ultimate precision with five digits per line
- Instant recognition of the displayed function from the trademark alphanumeric display of engineering units
- Easy setup and scrolling from front display with "Touch-Sense" buttons
- Ultimate flexibility by utilizing pre-set measurement screens or customizing screens including engineering units

Communications

- DNP3 or Modbus protocol available via configurable RS-232/RS-485 serial port
- No need for PC software - Ethernet service port provides access to web server in the instrument so meters can be interfaced with just a web browser for viewing and configuration
- Available Ethernet protocol support for DNP3 or Modbus TCP
- Optional fiber port that replaces standard Ethernet service port and includes Modbus and DNP3 Ethernet protocol support
- Optional transducer output to interface with older generation RTUs
- An option for both standard secondary "optimal resolution" or primary units makes communications with SCADA/RTU more flexible

Measurements

- Full basic measurement set with optional demand and harmonic values (M3)
- 0.2% revenue accuracy
- .001Hz accuracy
- Updates every 100ms

Built for the Substation

- Wide-range universal power supply for all substation installations
- Rugged aluminum case
- Reduce inventory cost as one model covers all wiring options
- Easy to mount with standard 4" round meter



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The M650 emphasizes simplicity. Primary settings can be programmed using the front display buttons. Simple and advanced settings are easily configured through the Ethernet service port. Pre-set register/point sets and display screens coupled with the universal power supply and universal wiring make it easy to go from the box to up and running in no time. The external, split core CTs option streamlines upgrade and retrofit applications as the CT circuit does not need to be interrupted.

Applications

- Digital front-end to SCADA systems
- Intelligent Electronic Device (IED) interfacing to RTUs and PLCs
- Local indication of substation conditions
- Plant equipment, line, power & energy monitoring
- Voltage control, power factor control, and load shedding

Specifications

Dimensions: 4.5" (w) x 4.5" (h) x 6.5"(d)

Weight: 1.8 lbs.

Power Supply: Universal 48-250V dc/55-240V ac nominal

Current Inputs: 1 or 5A nominal to maximum of 2A or 10A (2x overload)

Voltage Inputs: 120V ac nominal, 45-65Hz

Outputs:

- Optional Configurable RS-232/RS-485 port , configurable from 9600bps to 115.2kbps
- Standard RJ45 10BaseT/100BaseTX port for service port functions, optional Modbus or DNP3 TCP/IP support
- Optional MT-RJ 100Base FX fiber port with Modbus or DNP3 TCP/IP support

Optional transducer output: Three 0-1mA (active) or 4-20mA (loop powered, passive)

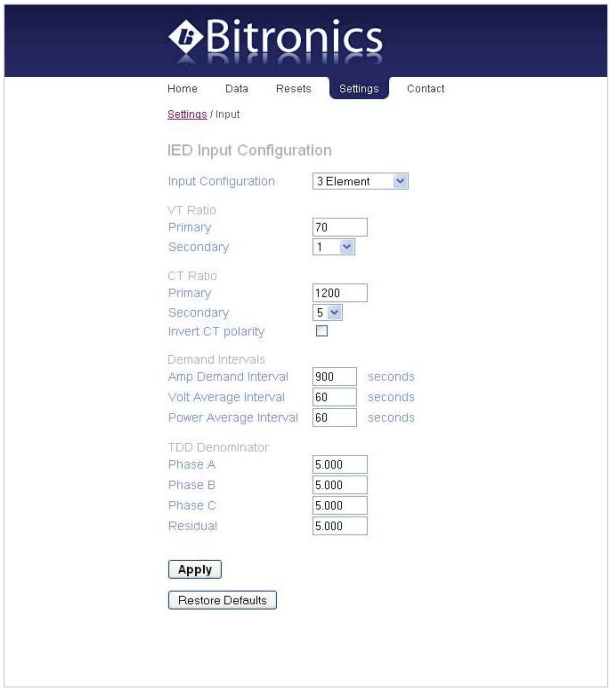
Environmental:

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

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Available Measurements		
Available Measurements	**M650 B3**	**M650 M3**
Amps A, B, C, Residual	x	x
Demand/Max. Amps A, B, C, Residual	x	x
Volts AN, BN, CN, NG, AB, BC, CA	x	x
Fundamental Frequency	x	x
Watts A, B, C, Total	x	x
VARs A, B, C, Total	x	x
VAs A, B, C, Total	x	x
Power Factor A, B, C, Total	x	x
Watt-Hrs Normal	x	x
Watt-Hrs Reverse	x	x
Watt-Hrs Net	x	x
VA-Hrs	x	x
VAR-Hrs Lag	x	x
VAR-Hrs Lead	x	x
Fund. Amps A, B, C, Residual		x
Fund. Volts AN, BN, CN, AB, BC, CA		x
Phase Angle Amps A, B, C		x
Phase Angle Volts AN, BN, CN, AB, BC, CA		x
K-factor Amps A, B, C, Residual		x
TDD Amps A, B, C, Residual		x
TDD Denominator A, B, C		x
THD Volts AN, BN, CN, AB, BC, CA		x
Demand/Max. Fund. Amps A, B, C, Residual		x
Average/Max./Min. VARs A, B, C, Total		x
Average/Max./Min. VAs A, B, C, Total		x
Average/Max./Min. Volts AN, BN, CN, NG, AB, BC, CA		x
Average/Max./Min. Watts A, B, C, Total		x
Displacement Power Factor A, B, C, Total		x



Configuration of the M650 can be done from a standard web browser. Measurement values can also be viewed remotely this way.



M650 offers five digits of precision and easy recognition of measured values via alphanumeric display. Most settings can be made using "touch sense" buttons on front.

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