# Bitronics® 60 Series

The Bitronics 60 Series advanced panel meters continue Bitronics 20 year tradition of excellence, providing solutions for 3-phase metering. The Bitronics 60 Series are multifunction meters with a range of measurement capabilities. The three display options include the M660 (single three-line plus alphanumeric display); the M663, (three-at-once displays); and the M661(no display). The 60 Series Meters are simple to set up and use, and offer superior communications flexibility. They emphasize simplicity. Primary settings can be programmed using front display buttons (M660 and M663). 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 CT option streamlines upgrade and retrofit applications as the CT circuit does not need to be interrupted.

The 60 Series Meters have the following features:


Bitronics M660

### Display (M660 and M663)

- 3-line at once, easy-to-read, long-life LED displays can be read from far away in all conditions including bright sunlight (three-at-once for the M663)
- Ultimate precision with five digits per line
- Instant recognition of the displayed function from trademarked 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

- 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 (except for IEC 61850 Configuration)
- Direct import of IEC 61850 CID files generated by off-the-shelf system configurator tools (SCTs)
- Fully-configurable Unbuffered or Buffered report generation for communication to other equipment
- Ethernet protocol support for IEC 61850, DNP3, Modbus TCP and EtherNet/IP
- Optional 100 Mbs fiber port with LC connector that adds to standard Ethernet service port and includes IEC 61850, Modbus, and DNP3 Ethernet protocol support (only 1 Ethernet connection supported)
- DNP3 or Modbus protocol available via configurable RS-232/ RS-485 serial port
- Option for standard secondary "optimal resolution" or primary units makes communications with SCADA/RTU more flexible

### Measurements & Recording

- Full basic measurement set with demand and harmonic values
- 0.2% revenue accuracy
- .001Hz accuracy
- Updates every 100 ms
- Option to monitor power supply voltage
- Transformer and Line Loss Compensation
- Optional trend recording
- Optional KYZ pulse outputs for energy consumption monitoring and meter verification

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### 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

### 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
- Trend: transformer loads and voltages in E/M relay substations, battery voltage, Total Harmonic Distortion

### Specifications

**Dimensions:** 4.5" (w) x 4.5" (h) x 6.5"(d) for M660; 19" (w) x 5.25" (h) x 6.5"(d) for M663 rack mount; 14" (w) x 4.5" (h) x 6.5" (d) M663 panel mount; 5.25" (w) x 4.5" (h) x 6.5" (d) for M661

**Weight:** 1.8 lbs. (3.5 lbs for M663)

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

**Compliance:** Edition 1 and Edition 2 IEC 61850

**Current Inputs:**

- 1 or 5A nominal to maximum of 2A or 10A (2x overload)
- Optional 5A nominal external split-core CT

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

**Outputs:**

- Standard RJ45 10BaseT/100BaseTX port for service port functions, IEC 61850, Modbus or DNP3 TCP/IP support
- Optional additional LC 100Base FX fiber port with IEC 61850, Modbus or DNP3 TCP/IP support
- Optional Configurable RS-232/RS-485 port , configurable from 9600bps to 115.2kbps
- Optional KYZ outputs (4 with common return)

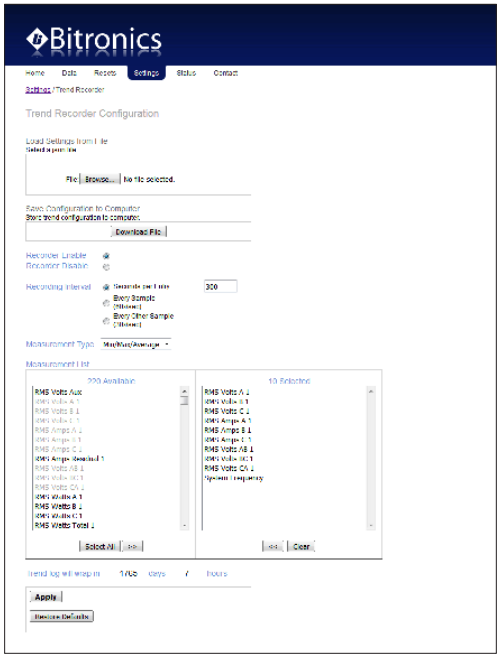
**Environmental:**

- Operating temperature range -40° to 70°C, storage temperature -40° to 85°C
- Humidity 0-95% non-condensing
- Surge withstand to ANSI/IEEE C37.90.1: 2002
- UL/CSA Recognized, File Number E164178, CE Marked

| Available Measurements | |
|---|---|
| Available Measurements | M66x |
| Amps A, B, C, Residual | x |
| Demand/Max. Amps A, B, C, Residual | x |
| Volts AN, BN, CN, NG, AB, BC, CA | x |
| Fundamental Frequency | x |
| 3-Phase Avg. Amps | x |
| 3-Phase Avg. L-N Volts | x |
| 3-Phase Avg. L-L Volts | x |
| Watts A, B, C, Total | x |
| VARs A, B, C, Total | x |
| VAs A, B, C, Total | x |
| Uncompensated Watts, Total | x |
| Uncompensated VARs, Total | x |
| Power Factor A, B, C, Total | x |
| Watt-Hrs Normal | x |
| Watt-Hrs Reverse | x |
| Watt-Hrs Net | x |
| VA-Hrs | x |
| VAR-Hrs Lag | x |
| VAR-Hrs Lead | 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 |

Now third-party certified
for compliance with
IEC 61850 Editions 1 and 2!


Configuration of the 60 Series can be done from a standard web browser. Measurement values can also be viewed remotely this way.




Web-based setup of trend recorder

M663 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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