

METER TEST BOARD

MTB3



THE EASTERN SPECIALTY COMPANY

*Run standard and complex **meter accuracy tests** under widely varying loading conditions.*

◆ **THREE PHASE, MULTI-POSITION ACCURACY TEST BOARD**

- ◆ Accuracy $\pm 0.04\%$ at unity power factor from 0.2A to 50A, $\pm 0.02\%$ typical (Optional 0.02% accuracy boards available upon request)
- ◆ Current drive: Single range 0.01 to 50A(rms), 70A (peak)
 - ◆ 100 amp and 200 amp options available
- ◆ Ability to check meter response to:
 - ◆ Varying loads over long periods of time to simulate brownout and surge conditions
 - ◆ Harmonic waveforms (can download custom harmonic waveforms through PC interface)
 - ◆ Meter power on/off cycling
 - ◆ Phasor Distortion

TESCO's Meter Test Board facilitates these meter shop functions:

- Full functional testing capability for all AMI/AMR meters
- Meter program updates
- Software revision checking for both the meter and the communications module
- Communications module troubleshooting
- Checking of problem meters for open/shorted elements



ADDITIONAL FEATURES

- ◆ Automated Meter Socket
- ◆ Meter Disconnect Switch Testing
- ◆ Power Line Communication Testing
- ◆ Electronically actuated socket
- ◆ Keypad and PC software interface
- ◆ Service disconnect testing through keypad and PC software interface
- ◆ Digital Waveform Generators (per phase)
- ◆ Integrated Reference Standard
- ◆ IR port, radio, and PLC communications testing can be verified for all meters loaded into the board.
- ◆ Convenient PC Software Interface to quickly select test sequences, meter elements, and all service types is installed on every MTB. Seamlessly save and export test results. Ask us about the option to interface and pass data to your system of record.

Additional details on the back of this brochure.

MTB3 ADDITIONAL INFO

DIGITAL WAVEFORM GENERATORS (per phase)

- ◇ Fundamental frequency adjustable from 45 to 60 Hz
- ◇ Waveforms
 - Defined by harmonic amplitudes
 - ◇ Harmonic indices (1 through 25)
 - ◇ Either amplitude and phase or Fourier coefficients (a, b)
 - ANSI C12.20-2015 test waveforms
 - Dropped cycle waveforms: 1:1, 2:2, 4:4 any combination m:n where m+n=8
 - Arbitrary waveforms: defined by an array of 4096 points representing 8 cycles

VOLTAGE DRIVE

- ◇ Three Channel, one side of each at ground
- ◇ 350V (rms) phase to neutral, 600V (848V PK) phase-to-phase
- ◇ Adjustment resolution: 0.01V
- ◇ Output power: 100VA at 240V, 0.6 amps peak
- ◇ No fuses, automatic recovery from overloads, even shorts

CURRENT DRIVE

- ◇ Three Channel, fully isolated
- ◇ Single range 0.01 to 50A (rms), 70A (peak)
- ◇ Adjustment resolution: 0.01A
- ◇ Accuracy: 0.5%
- ◇ Compliance voltage: 1.0V
- ◇ No fuses, automatic recovery from fault conditions

POWER LINE COMMUNICATIONS TESTING

- ◇ Meters are powered by a 240V autotransformer for disconnect and communications testing allowing powerline signals to easily be transmitted from the meter through the unit to the wall power circuit.

INTEGRATED REFERENCE STANDARD

- ◇ Three voltage and three current channels
- ◇ Measurements per ANSI C12.31 Definitions (C12.31 is in development)
- ◇ Measurement Accuracy:
 - **Voltage: $\pm 0.02\%$**
 - **Current: $\pm 0.02\%$**
 - **Active Power (Watts): $\pm 0.04\%$**
 - **Apparent Power (VA): $\pm 0.04\%$ ‡**
 - **Reactive Power (VAR): $\pm 0.04\%$ ‡**
 - **Active Energy (WHrs): $\pm 0.04\%$**
 - **Apparent Power (WAHrs): $\pm 0.04\%$ ‡**
 - **Reactive Power (VARHrs): $\pm 0.04\%$ ‡**
 - ‡ *Traceable only for sinusoidal waveforms*
- ◇ Other Measurements
 - Harmonics to 50th
 - Power Factor
 - Time domain and frequency domain measurements
 - KYZ connections available externally or can be used as meter pulses
 - Optional reference standard accuracy of .02%

AUTOMATED METER SOCKET

- ◇ Universal socket with automatic closure on insertion of device
- ◇ Four point detection of meter in place
- ◇ Detection of meter bypass in place
- ◇ Automatic routing of voltages to the correct stabs for the following meter forms:
 - 1S, 2S, 3S, 4S, 5S, 6S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 25S, 26S, 29S, 32S, 35S, 36S, 45S, 46S, 56S, 66S, 76S, 103S, 106S, 109S, 112S, 116S, 125S, 135S, 136S, 145S, 166S**
- ◇ Load side current disconnect



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METER DISCONNECT SWITCH TESTING

- ◇ Disconnect test mode powered by high current auxiliary transformer
- ◇ Test disconnect under any load current
- ◇ Disconnect mode indicator LED
- ◇ Voltage present LEDs for stab 2 and stab 4
- ◇ Software detection of voltage present on stab 2 and stab 4
- ◇ Ability to apply back voltage to stabs 2 and/or 4 for reconnect testing

PHYSICAL SPECIFICATIONS

- ◇ MTB systems are built up from standard subsystems mounted in a custom rack enclosure
- ◇ Rack Enclosure is 25.54"W x 25.62"D x 70.5"H and has a front work surface of 15" deep
- ◇ Each unit is equipped with four casters and four adjustable leveling feet

Electric power

- ◇ Each unit requires a 120V at 20A or less; *Note: These units contain large switching power supplies with high inrush currents*
- ◇ A minimum of 12 inches should be allowed behind the unit for proper ventilation

External Connections

- Power inlet (120V at 20A) Hubble L5-20S
- Ethernet connection to internal network segment
- Main power breaker
- Ethernet connection to internal network segment
- Duplex convenience outlet (2A max)



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