

Three Phase Meter Test Board

MTS-3050



THE EASTERN SPECIALTY COMPANY

*An innovative meter **ACCURACY** test system offering unsurpassed functionality and ease of use. All of the features you will need to test meters today and tomorrow are standard.*

Run standard meter **accuracy** tests and complex meter **accuracy** tests under widely varying loading conditions with TESCO's MTS-3050. Features include:

- ◇ **THREE PHASE ACCURACY TEST BOARD**
- ◇ 0.04% accuracy with options for 0.02% and 0.01%
- ◇ Current Drive: Single range 0.01 to 50A(rms), 70A (peak)
- ◇ 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

The MTS 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
- ◇ Ability to write software to control board with Json based communications protocol
- ◇ 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 MTS-3050. 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.

MTS-3050 SPECIFICATIONS



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DIGITAL WAVEFORM GENERATORS (per phase)

⇒ Synthesizer

1. Fundamental frequency adjustable from 45 to 60 Hz
2. 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

1. Three Channel, one side of each at ground
2. 350V (rms) phase to neutral, 600V (848V PK) phase-to-phase)
3. Adjustment resolution: 0.01V
4. Accuracy: 0.5%
5. Output power: 100VA at 240V
6. No fuses, automatic recovery from overloads, even shorts

⇒ Current Drive

1. Three Channel, fully isolated
2. Single range 0.01 to 50A (rms), 70A (peak)
3. Adjustment resolution: 0.01A
4. Accuracy: 0.5%
5. Compliance voltage: 1.0V
6. No fuses, automatic recovery from fault conditions

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): $\pm 0.04\% \ddagger$**
 - **Reactive Power (VAR): $\pm 0.04\% \ddagger$**
 - **Active Energy (WHrs): $\pm 0.04\%$**
 - **Apparent Power (WAHrs): $\pm 0.04\% \ddagger$**
 - **Reactive Power (VARHrs): $\pm 0.04\% \ddagger$**
 - \ddagger 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% and .01%

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

POWER LINE COMMUNICATIONS TESTING

- ◇ Meters can be 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.

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

- ◇ The MTS-3050 meter test system is built up from standard subsystems mounted in a custom table top enclosure.
- ◇ MT-14 Table Top Enclosure
- ◇ Size: 25.54"W x 25.62"D x 18.6"H
- ◇ Weight: 144 lbs.

Electric power

- ◇ Each unit requires a 120V at 8A 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

Rear:

- Power inlet (120V IEC connector)
- Ethernet connection to internal network segment

Front:

- Main power breaker
- Ethernet connection to internal network segment
- Duplex convenience outlet (2A max)

Contact your TESCO representative for more information.



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