



THE EASTERN SPECIALTY COMPANY

THREE PHASE METER TEST BOARD

MTB-3050

TEST BOARD

50 Amp

USE

Run standard meter accuracy tests and complex meter accuracy tests under widely varying loading conditions with TESCO's MTB-3050.

FUNCTIONALITY

TESCO's Three Phase Meter Test Board (MTB-3050) is an innovative meter accuracy test system offering unsurpassed functionality and ease of use. All of the features needed to test meters today and tomorrow are standard.

The MTB-3050 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

FEATURES

- Three Phase Accuracy Test Board
- Also available in a multi-position configuration
- 0.04% accuracy with options for 0.02% and 0.01%
- Current Drive: Single range 0.01 to 50A (rms), 70A (peak)
- Standard calibration up to 50A
- 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



MTB-3050 pictured with optional electromechanical arm and Cat. 1037-DTS Optical Pickup.

ADDITIONAL FEATURES

- Automated meter socket
- Meter disconnect switch 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 standard. Seamlessly save and export test results. Ask about the option to interface and pass data to your system of record.
- Optional accessories: **Cat. 1037 -ITRN** Top of Meter Optical Pickup; **Cat. 1037-DTS** Optical Pickup; Electromechanical Arm





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SPECIFICATIONS

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): $\pm 0.04\% \ddagger$**
- *‡ 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 MTB-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: 148 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.

