



THE EASTERN SPECIALTY COMPANY

TESCO TEST EQUIPMENT



Prepared by Tom Lawton

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3:00 PM

Group 4A



THE EASTERN SPECIALTY COMPANY

2990 DESKTOP METER TEST SYSTEM

2990

State-of-the-art meter accuracy testing in an affordable desktop configuration!

Tired of waiting for access to a production test board? Tired of wasting time going to another building to use test equipment? Need flexibility, state-of-the-art performance, and ease of use? If so, then **TESCO's 2990 Desktop Meter Test Station** is the answer to what you need.

The 2990 revolutionizes meter testing by providing full series parallel meter testing in a small, budget-friendly desktop package.

A fully ANSI compliant test board, the 2990 offers complete testing of all meters under the widest range of test conditions. The new waveform generator has all waveforms called out in ANSI C12.20-2015 (pub. 4/2017). All common electromechanical and solid state meters up to 50 amps can be tested with the 2990 using the single voltage and three isolated current sources.

For more than 110 years customers have trusted TESCO for accuracy and reliability. When you think metering, think TESCO.





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METER TEST BOARD

MTB-3050

Three Phase Meter Test Board (MTB-3050)

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 MTB-3050.

Features include:

- **THREE PHASE ACCURACY TEST BOARD**
- 0.04% accuracy
- Current Drive: Single range 0.01 to 50A(rms), 70A (peak)
 - with options to go up to 200 amps
- 30 to 350v phase to neutral and 50 to 600v phase to phase
- 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 MTB 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



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METER TEST BOARD 200A

MTB-3200

Run standard meter accuracy tests and complex meter accuracy tests under widely varying loading conditions with TESCO's **Meter Test Board (MTB-3200)**.

TESCO's **Three Phase Meter Test Board (MTB-3200)** 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-3200** 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





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MULTI-POSITION METER TEST BOARDS AND MQB-MTB HYBRID BOARDS

MQB-MTB Hybrid Board

Three Phase Meter Test Board

Of course we can take this three-phase test board and can make a multi-position of up to three sockets per cabinet which allows us to stock these modules and provide these test boards in just a few weeks once again allowing us to meet difficult end of year budget cycles.

But we can also mix and match our MTB's (Meter Test Boards) with our MQB's to better match testing time and better meet your budgeting requirements.

We can provide better cost per test socket and provide more of the lower cost sockets for tests that take longer to run and provide only one or two of the Three Phase Accuracy test sockets (standard 0.04% accuracy) allowing a far greater bang for your buck.





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TRAINING SYSTEMS

Training Systems

TESCO's Training Systems are built to your specifications to simulate various field conditions and aid in the training of field personnel in a full range of conditions and faults.

Fully customizable, TESCO's Training Systems can accommodate different meter forms and multiple meter sockets. These systems can be used to train new employees or refresh troubleshooting for senior meter technicians.

A typical Training System will include a number of meter enclosures, CT cabinets, and other hardware as specified by the customer that represents various meter forms and installations found in the field within the utility's coverage area.





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AMI METER FARM

AMI Meter Farm

Do you have new AMI meters going into the field? Or have you already deployed your new meters, but will have firmware upgrades soon?

The answer? The **TESCO AMI Meter Farm** will support your AMI Meter Deployment. The Meter Farm powers up banks of meters and runs a current load through each meter.

TESCO Meter Farms are designed to serve as a cost-effective method for testing communication, functionality and firmware upgrades from your meter manufacturer(s).

The AMI Meter Farm can be used as part of the qualification process prior to deployment, but has been more popular as a post deployment tool to allow large scale testing of all new releases of firmware over hundreds or even thousands of meter points prior to upgrading the entire system.

The AMI Meter Farm can also be used to perform long-term testing for new hardware releases prior to introducing later generation meters into the field. As with all of our products, the TESCO AMI Meter Farm is built with the tradition of reliability and ruggedness.





THE EASTERN SPECIALTY COMPANY

ISO 17025 CALIBRATION LAB

AC and DC Calibration Capabilities

At **TESCO**, we are dedicated to offering quality, accurate, accredited calibrations through our legendary customer service, that is flexible, consistent, and unparalleled. **TESCO** has the widest scope of accreditation in the industry that allows us to perform a variety of calibrations for your needs from simple hand held instruments to complex field and shop equipment of any manufacturer. Ask about our calibration plans today!

The **TESCO** Calibration & Testing Laboratory is:

- ISO/IEC 17025:2017 Accredited
- ANSI/NCSL Z540-1-1994 Accredited (MIL-STD-45662A plus software control)
- Traceable reference standards maintained through national laboratories (e.g. NRC, NIST) in a diverse extended scope of accreditation

In-Lab Calibration

- We calibrate, upgrade or repair all **TESCO** or Knopp equipment or standards
- We can handle a wide spectrum of ANSI and UL testing
- Knopp transformers are the industry standard and we maintain a primary reference transformer standards at an economical price below national institutes
- Our Next Gen meter test equipment is fast becoming the choice of the industry
- This service offers you the best value

tescometering.com



On-Site Calibration

- This premium service offers you the flexibility of the same quality calibration, repair and upgrades you expect from our in-lab services
- Fully traceable and accurate
- We bring our lab to you for a cost competitive solution that matches your needs



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THE TESCO CALIBRATION & TESTING LABORATORY

ISO 17025:2017 Accredited

The TESCO Calibration & Testing Laboratory is ISO 17025:2017 Accredited by PJLA/ ILAC 101105 assuring measurement accuracy, traceability to known standards, national & International acceptance (NIST, NRC, SI etc.) and ACCURATE compliant industry written standards in our state-of-the-art facility.

Technical Competence In:

- **Calibrating/ Testing Watt-Hour Standards**
 - Calibrating/ Measuring AC Phase, Current, Voltage
 - Calibrating/ Measuring DC Current & Voltage
 - Calibrating/ Measuring Resistance
 - Calibrating/ Measuring Frequency
 - Measuring THD
- **Calibrating/ Testing Hand Held 3-1/2 Digital Multi-meters, Clamp Meters, Meggers, Mega ohm-meters**
- **Z540.1 Calibration of Industrial Current and Voltage Transformers**
 - Up to 8000 amps and 36,600 volts respectively





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METER MANAGER

With more than 100 years of industry knowledge and experience, TESCO Meter Manager Software Platform is seamlessly supporting IOUs, Municipalities and Cooperatives of all sizes. We have been successfully assisting utilities with their AMI Deployments and have deep understanding of how to integrate with meter/device manufacturers, legacy and ERPs, meter data management, head end, and workforce systems.

TESCO Meter Manager Software Platform is an out-of-the box, configurable, easy to use asset and inventory management platform. Designed with utilities in mind, Meter Manager enables cradle-to-grave processing of your assets. This includes AMR and AMI meters, network communications devices, CT/VT, pole and pad mounted transformers, volume correctors and sensors.

TESCO Meter Manager – Experienced and Trusted

- 40+ million assets under management
- Continued Year over year growth and successful implementations
- Connect to any meter test equipment and field devices
- Experienced and successful with AMI Deployments and ERP/Legacy and SAP integrations
- Configurable workflows matching your business operations
- Supporting hundreds of concurrent users
- Role based security with unlimited number of users and roles
- Robust reporting engine
- Secure and business continuity capable





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FIELD CLIENT

The ONLY metering-centric field tool that is built for utilities!

Whether you are exchanging meters, installing instrument transformers, doing site inspections and verifications, TESCO Field Client provides unmatched functionality and built-in error checking and validation.

With Field Client, you can streamline and standardize current data collection procedures, reduce errors and increase operational efficiency, achieve better quality and compliance, and identify unsatisfactory conditions, potential deficiencies and safety hazards.

Site Validation and Verification

- ✓ Supports compatible meter exchanges, flags differences in class and checks for compatible programs and measurement types
- ✓ Automatically calculates the billing multiplier, accounting for program changes
- ✓ Provides graphs for voltage, current vectors, power quality, and CT/PT accuracy with the parallelogram
- ✓ Automatically stores all the data from every test kit regardless of the equipment used
- ✓ Works with field test kits from TESCO and other manufacturers
- ✓ Test sequences are intelligently chosen based on the type of work and the meter type
- ✓ Use your current forms and checklists

[Watch an overview of Field Client](#)



Field Service Management Features include:

- Map-centric dispatching
- Skill-based work assignment
- Route optimization, including traffic considerations
- Real-time updates, including current GPS position for all field workers



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PRECISION MULTIRANGE CURRENT TRANSFORMER

P-5000 (and P-12000)

The P-5000 and P-12000 Precision transformers are laboratory standards. These unit's excellent accuracy and the Knopp One-to-One calibrating feature make these precision transformer well-suited as a standard for calibration work. These transformer Standards can provide a very accurate determination of the ratio and phase angle characteristics of current instrument transformers having ratios from 5 to 5,000 amperes for the P-5000 and up to 12,000 amps for the P-12000. These transformers can also accurately extend the range of a 5 ampere ammeter or wattmeter to cover all current values up to 5,000 and 12,000 amps respectively.

The P-500 provides eight self-contained primary ranges from 5 to 100 amperes. These ranges are brought out to binding posts on the top of the transformer. A 240 turn secondary is provided for use with these primary taps; other secondary taps are provided for other ranges. Ranges above 100 amperes are obtained by passing a primary conductor through the transformer window. Various primary ranges are obtainable by varying the number of through-turns and choosing from among the available secondary taps. The P-12000 operates in a similar fashion and all are traceable back through NIST.





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CURRENT TRANSFORMER TESTING SYSTEM

KCTS-8000

The Knopp Current Transformer Testing System (Type KCTS-8000) is designed to measure the accuracy of instrument transformers having 1 or 5 ampere secondaries and primaries of up to 8000 amperes. The system uses a high accuracy multi-range current transformer as a reference standard. All ANSI standard burdens are included. The phase angle and ratio errors of the transformer-under-test (TUT) are measured by the built-in Knopp Automatic Transformer Comparator.





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CURRENT TRANSFORMER TESTING SYSTEM

KC-1500

The Knopp Type KC-1500 Current Transformer Testing System is designed to measure the accuracy of instrument transformers having 1 and 5 ampere secondaries and primaries of up to 1500 amperes. The KC-1500 is capable of testing transformers with 1 or 5 ampere secondaries. The system uses a high accuracy multi-range current transformer as a reference standard.

The system is well suited for utilities whose current transformer testing needs include primary currents up to and including 1500 amperes. The phase angle and ratio errors of the transformer-under-test (TUT) are measured by the built-in Knopp Automatic Transformer Comparator.





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AUTOMATIC TRANSFORMER COMPARATORS

The Knopp KATC Automatic Transformer Comparators (KATC series) provide the most convenient means available to measure instrument transformer ratio and phase angle errors. Some of the comparator features are:

- Reduced testing time - test results are typically available within three seconds
- Automatic operation (no manual "nulling" or adjustments required)
- Microprocessor control
- Auto ranging capability
- Digital display
- Calculation and display of ANSI accuracy class
- Fully protected circuitry
- RS-232C output
- Interchangeable with other Knopp comparators



KATC-C



KATC-C1

The KATC-C1 Automatic Transformer Comparator is an enhanced version of the popular KATC-C Comparator.

Features of the KATC-C1 include:

- The ability to test transformers with 1 or 5 ampere secondaries
- Automatic sensing of 50 or 60 Hertz current
- Improved data handling capabilities including the ability to be controlled by a remote computer
- Improved resistance to damage from excessive test current



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PRECISION MULTIRANGE VOLTAGE TRANSFORMER

This Type WP-14000 Transformer is primarily a laboratory standard. Its excellent accuracy and the Knopp one-to-one calibrating feature make it well-suited as a standard for precision calibrating work. This transformer makes possible very accurate determination of the ratio and phase angle characteristics of voltage instrument transformers having ratings from 120 to 14,400 volts. This transformer also makes it possible to accurately extend the range of a 120 volt voltmeter or wattmeter to cover all voltage values up to 14,400 volts.

The WP-1400 Transformer, like other Knopp Precision Multirange Transformers, has excellent ratio and phase angle characteristics with respect to both inter-range accuracy and overall accuracy. This is made possible through a properly engineered design and through exclusive, highly perfected compensating and winding methods.





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VOLTAGE TRANSFORMER TESTING SYSTEM

KVTS

The Knopp Voltage Transformer Testing System is designed to measure the accuracy of instrument transformers having 120 volt secondaries and up to 14,400 volt primaries (special order for up to 36,000 volt primaries is available). The system includes a control console which contains the control circuitry, ANSI standard burdens, and the Knopp Automatic Transformer Comparator. The Knopp precision and loading transformer set is also included (as pictured) and is connected to the console via a special cable.





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METER SEALS/DISCONNECT SLEEVES





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METER SITE ANALYZER

6330

TESCO's **Meter Site Analyzer** is the most versatile and complete tool for testing the entire functionality of transformer-rated metering installations in a convenient, portable, and ULTRA lightweight kit—only **17.8 lbs!**

As a utility, the vast majority of revenue comes from large customers who have transformer-rated services. At transformer rated sites the opportunity for something to go wrong is much greater than at a self-contained site. Studies have shown that at transformer-rated sites, the vast majority of issues are related to wiring, CTs, PTs and other issues. If you want to be sure that the customer is billed correctly and you are not losing revenue, you must test the whole site, not just the meter.

TESCO's all-in-one **6330 Meter Site Analyzer** gives you the most versatile site testing tool available in a small, lightweight package. No other test system has the functionality of:

- Complete Site Verification
- CT Testing (ratio with Burden, burden, admittance)
- Meter Testing
- Customer Load to 20A
- Load Box to 5A
- Accuracy, Demand, Timed Register, Timed Run, Energy Delivery
- "Fast Key" Anytime Data
- Metrology Data
- Phasor Diagrams
- Live Waveforms with Recording
- Harmonics





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UTILISHELF PORTABLE FIELD STATION



1060

The **Utilishelf Portable Field Station (Cat. 1060)** is a lightweight, easy-to-use tool that helps you easily bring equipment in and out of the field while also providing a portable work station on site.

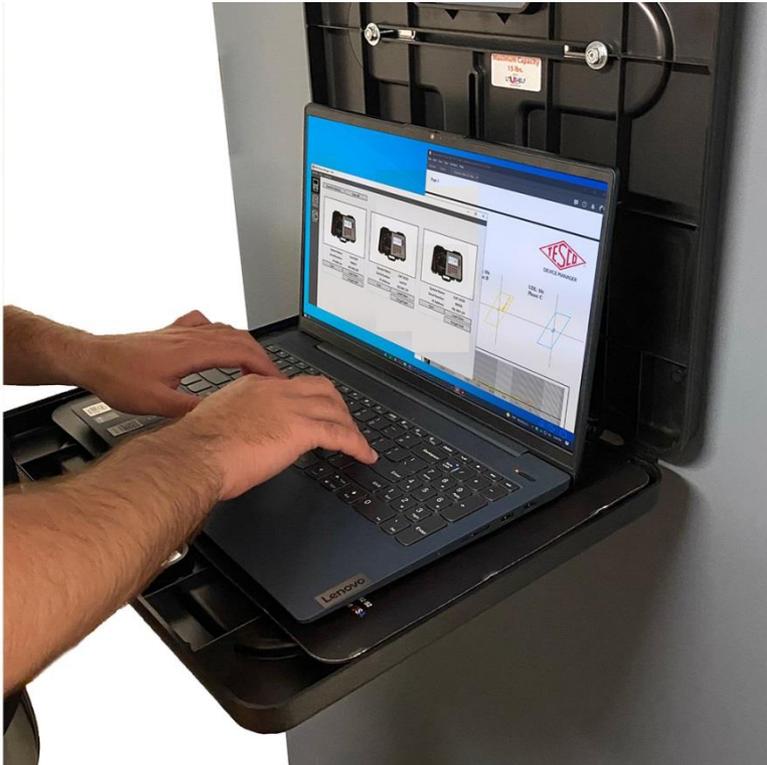
The Utilishelf Portable Field Station is used for large or small test equipment for the field, such as: Site Analyzers, Laptops, Power Quality Testers, EVSE equipment, and more.

Once you register your cart with us, you will receive the Cat. 1060-UMB, a heavy duty, rain-resistant, sun-resistant umbrella that easily attaches to your Utilishelf Portable Field Station.



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UTILISHelf



1061

UtiliShelf® (Cat. 1061) allows you to create a quick work station at a site. The UtiliShelf® is magnetic and will attach to any metal object (16 gauge or thicker for full magnet strength). No more worrying about where you'll be setting up your test equipment or laptop in the field!

The Cat. 1061 also includes **UtiliHooks®**. While out in the field, you may come across situations where you will not be able to find a metal surface to attach your UtiliShelf®. With UtiliHooks®, you no longer need to worry about that scenario! These hooks attach to the back of the UtiliShelf® and can be hung from aluminum substation panel doors at cell towers as well as CT box panels and non-metallic panels.



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SAFETY DISCONNECT & WIRELESS PROBE



1039-WP

Tired of taking multiple trips from the work truck to the meter site? TESCO's **Safety Disconnect and Wireless Probe** allows you to program meters from the convenience of your work truck.

TESCO's Wireless Optical Probe provides easy, two-way communication between a PC and meter with wireless convenience up to 1200 ft.

Specifications & Features:

- Communicate wirelessly to probe from any PC up to 1200 feet away
- 2.4 GHz radio frequency transmitter/receiver
- Robust and durable
- Portable and convenient
- USB interface
- Two-way communication to the meter
- Program and read meter settings
- FCC and IC approved communication





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TESCO's USERS GROUP

June 9-12, 2019

Philadelphia, PA

- Learn and discuss new TESCO technology and products through interactive sessions and hands-on training with TESCO engineers.
- NEW training sessions for the new Meter Shop and Lab Equipment
- Current AMI Topics and Practices for First Deployments
- Meter Manager Software sessions including asset management tracking, in-service testing, and kiosks.
- Tour of TESCO's facility
- Dinner with the founding fathers and tour of historic district





THE EASTERN SPECIALTY COMPANY

QUESTIONS AND DISCUSSION

Tom Lawton

President

tom.lawton@tescometering.com



TESCO – The Eastern Specialty Company

Bristol, PA

215-228-0500

This presentation can also be found under Meter Conferences and Schools on the TESCO website: tescometering.com

ISO 9001:2015 Certified Quality Company
ISO 17025:2017 Accredited Laboratory