



TESCO METERING



925 Canal St., Bristol, PA 19007
215.228.0500
tescometering.com

Technical Article

Why Utilities Perform Field Testing of Self-Contained Electric Meters

Introduction

Electric utilities are responsible for maintaining confidence in the accuracy of the meters used for customer billing. While meter testing has traditionally been performed in a meter shop environment, many utilities also perform field testing to verify meter performance without removing the meter from service.

Field testing provides a practical method for evaluating meter operation, investigating customer concerns, and verifying newly installed equipment while minimizing service disruption.

Why Perform Meter Testing in the Field?

Field testing allows utility personnel to assess meter performance at the point of installation. This can be particularly useful when investigating billing inquiries, verifying meter operation after installation, or conducting routine meter audits.

By testing a meter while it remains in service, technicians can often determine whether additional investigation is necessary before removing the meter and transporting it to a meter shop.

Benefits of Field Meter Testing

Utilities commonly use field testing to:

- Verify meter accuracy at the service location
- Investigate customer billing concerns
- Confirm proper operation of newly installed meters
- Support routine meter auditing programs
- Reduce unnecessary meter removals
- Improve technician productivity

Field testing can provide immediate information about meter performance, allowing utilities to make informed decisions regarding next steps.

The Role of Phantom Load Testing

One challenge associated with field testing is that customer load conditions are constantly changing. To address this, many portable meter testing systems use phantom load generation.

Phantom load testing allows technicians to apply controlled voltage and current conditions to the meter independent of the customer's actual energy usage. This provides a repeatable testing environment and allows meter performance to be evaluated under known operating conditions.

Self-Contained vs. Transformer-Rated Meter Testing

Field testing requirements vary depending on the meter installation.

Self-contained meters carry service current directly through the meter and are commonly found in residential and light commercial applications.

Transformer-rated installations utilize current transformers (CTs) and, in some cases, potential transformers (PTs) to measure higher electrical loads. These installations often require additional testing procedures and diagnostic equipment beyond traditional self-contained meter testing.

Understanding the type of installation is an important first step in selecting the appropriate testing methodology.

Conclusion

Field testing remains an important part of many utility meter maintenance and verification programs. By evaluating meter performance at the point of installation, utilities can gather valuable information, improve operational efficiency, and make more informed decisions regarding meter removal, replacement, or further investigation.

As metering technologies continue to evolve, field testing remains a practical tool for supporting billing accuracy, customer confidence, and overall system reliability.