



TESCO METERING

Built for Measurement Canada Compliance

How TESCO Meter Manager helps Canadian utilities meet S-S-06 reverification obligations — across TESCO, PMT, and WECO test consoles

A TESCO Metering Whitepaper

For Canadian electric utilities and meter shops

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Executive summary

For Canadian electric utilities, meter accuracy is not a matter of best practice — it is a legal obligation enforced by Measurement Canada under the Electricity and Gas Inspection Act. Every meter in revenue service must be verified, and its accuracy re-established on a defined reverification cycle. Utilities that manage large in-service populations rely on statistical sampling under specification S-S-06 to extend reverification periods, rather than testing every meter. Doing so correctly demands software that understands the Canadian regulatory model in detail.

TESCO Meter Manager™ is meter shop management software built to that standard. It implements the operational mechanics of Measurement Canada's statistical sampling and reverification framework — lot formation and homogeneity, random sampling, measurement uncertainty, conformity classification, seal-period extension, and reverification-date calculation — so that a Canadian Authorized Service Provider can run a compliant program from a single system of record.

By automating these calculations and workflows, TESCO Meter Manager helps utilities reduce manual effort, minimize compliance risk, and provide auditors with complete traceability.

Two things set this offering apart. First, **TESCO Meter Manager supports test consoles from multiple vendors** — TESCO, PMT™, and WECO™ — so a utility can standardize its software without replacing the test benches it has already invested in. Second, **TESCO Meter Manager is a proven North American platform, tailored specifically for Canada**: a mature meter shop system trusted by utilities for more than 15 years, extended with full Measurement Canada support — developed and supported by a TESCO company operating in Canada.

This paper outlines the Canadian compliance landscape, the specific capabilities TESCO has invested in to meet it, the multi-vendor console advantage, and a recent deployment that put these features into production.

At a glance

- Purpose-built for Measurement Canada S-S-06 in-service sampling and reverification.
- Multi-vendor test console support: TESCO, PMT, and WECO — unique in the market today.
- A proven North American platform, extended with deep Measurement Canada support by a TESCO company operating in Canada.
- Canadian-based deployment, configuration, training, and support;
- Proven in production by major Canadian utilities for more than seven years.
- Backed by TESCO Metering's ISO 9001, ISO/IEC 17025, and ISO/IEC 27001 programs.

The Canadian metering compliance landscape

Measurement Canada, part of Innovation, Science and Economic Development Canada, regulates the accuracy of devices used to buy and sell electricity. Its authority flows from the *Electricity and Gas Inspection Act* and its Regulations, which require that meters used to establish a charge be verified for accuracy and reverified on an ongoing basis.¹

A utility can meet its reverification obligation in one of two ways: reverify every meter in a population (100% inspection), or judge the whole population from a representative sample using Measurement Canada's statistical sampling specifications. For large, homogeneous, in-service populations, sampling is the practical path — but it is only lawful when performed exactly as specified. The relevant specifications form a coordinated family, tied together by bulletin S-02:

Specification	Purpose
S-S-01	Random sampling and randomization — how a valid sample is drawn.
S-S-02	Measurement uncertainty and meter conformity evaluation.
S-S-03	Prerequisites to the use of sampling inspection (process qualification).
S-S-04	Acceptance sampling of isolated lots and short series of lots.
S-S-06	Compliance sampling of isolated lots of meters in service.
S-02	Application schedule and scope for all of the above.

The distinction that matters most is between S-S-04 and S-S-06. **S-S-04 is acceptance sampling** — used to accept or reject newly produced or reworked lots, with the objective that good-quality lots are accepted.² **S-S-06 is compliance sampling** of meters already in service, with the objective that unacceptable lots have a high probability of rejection; passing it lets a utility extend a lot's reverification (seal) period.³ Per S-02, both regimes apply to electromechanical and electronic electricity meters.⁴

¹Electricity and Gas Inspection Act (R.S.C., 1985, c. E-4) and Electricity and Gas Inspection Regulations (SOR/86-131).

²Measurement Canada, S-S-04 — Sampling Plans for the Inspection of Isolated Lots and Short Series of Lots (rev. 2, 2009).

³Measurement Canada, S-S-06 — Sampling Plans for the Inspection of Isolated Lots of Meters in Service (rev. 3, effective 2023-02-17).

⁴Measurement Canada, S-02 — Application of specifications for statistical sampling and measurement uncertainty in the verification and reverification of electricity and gas meters (rev. 6, 2023).

What compliance demands in practice

Sampling under S-S-06 is precise work. A meter shop must get every one of the following right, on every lot, or the reverification extension it grants is not defensible. This is exactly the burden that purpose-built software is meant to carry.

Homogeneous lots

A lot may only be formed from meters that are homogeneous — same type, manufacturer and model, voltage or voltage range, current range, measurement functions, firmware version, form/configuration, service status, and seal year (same or two consecutive valid years). If a lot is not homogeneous, it does not qualify for a seal extension.

Random, auditable sampling

The sample must be drawn at random, without replacement, using authorized sampling software meeting S-S-01; systematic sampling is prohibited. The sample size must fall between the minimum (n_{min}) and maximum (n_{max}) values defined by the applicable plan, and every selected, tested, and excluded meter must be documented and reproducible for Measurement Canada review.

Measurement uncertainty

The accuracy of the test process itself must be accounted for. Under S-S-02, the combined standard uncertainty associated with performance test results is applied when assessing individual sample meters. A wrong uncertainty value silently changes pass/fail outcomes — so it must be configured correctly per meter model and carried through every calculation.

Conformity classification (C1 / C2)

Each sample meter is designated by its worst performance error at any required test point: a Type 1 (C1) marginally conforming meter exceeds $\pm 2.0\%$, and a Type 2 (C2) nonconforming meter exceeds $\pm 2.9\%$ (unless the meter's own reverification specification says otherwise). A C2 is also counted as a C1. The counts of C1 and C2 meters against the sample determine whether the lot qualifies, and at what level.

Seal-extension levels and reverification dates

Sampling plans are indexed by Limiting Quality into five levels. The extension a lot can earn depends on its sampling history and on time-on-test criteria tied to the meter's initial reverification period, yielding a seal-period extension in years. The reverification due date is then calculated from the year the first sample meter was removed from service plus the granted extension. Getting these calculations — and the resulting seal expiry — right is essential and error-prone by hand.

TESCO Metering's investment in Measurement Canada compliance

TESCO Metering has invested in translating the S-S-06 framework into working software — not a checklist, but the day-to-day mechanics a Canadian meter shop actually runs. The capabilities below are implemented in TESCO Meter Manager and are in production use today.

Regulatory requirement	TESCO Meter Manager capability
Homogeneous in-service lots (S-S-06 §5.1, Annex A)	Comprehensive support for MC Lots for their entire life cycle; population files uploaded per lot; homogeneity enforced by model, voltage, form, and seal year.
Random sample, n_{min} – n_{max} (S-S-06 §5.2)	Random sample generation; sample size (n_{max}) recorded and printed on the sample certificate; random-selection reporting. Full implementation of MC's standard random number generator, and storage of seed values for complete traceability and verification. Tracking of excluded meter, and automatic determination of which meters above N_{min} to include in the calculations.
Measurement uncertainty (S-S-02)	Uncertainty for both the test console and the meter model combined and carried into pass/fail evaluation automatically
Conformity classification (S-S-06 §5.5.3)	C1 ($>\pm 2.0\%$) and C2 ($>\pm 2.9\%$) counts computed and shown on results and certificates.
Seal management & reverification periods (§5.6–5.8)	Automated seal-expiry calculation; selectable initial and subsequent reverification periods; original-seal-year handling.
Reverification date calculation (§5.8)	Reverification due dates derived automatically per lot/group.
100% reverification alternative	Dedicated 100% reverification workflow and certificate, alongside statistical sampling.
Records & certificates (§5.3)	MC Lot records with serials and results; certificates carrying registration number, company/MSO address, and failure reasons.

Underlying these features is a broader quality and security investment. TESCO Metering operates under ISO 9001 (quality management), ISO/IEC 17025 (calibration and testing competence), and ISO/IEC 27001 (information security), and the Meter Manager development program is aligned to that ISO 27001 secure-development discipline. For a utility, that means the software enforcing your regulatory calculations is itself produced under audited controls.

Multi-vendor test console support

In a Canadian meter shop, the test console — the automated bench that applies voltage and current and measures a meter's error — is a major capital asset. Shops standardize on the consoles they trust and expect them to last for years. The vendors most commonly found in North American shops include TESCO's own test boards and stations, PMT (Power Measurement Technologies) calibration consoles, and WECO boards (Radian Research), which have been a fixture of utility meter shops for decades.

Most meter shop software is tied to a single console ecosystem. TESCO Meter Manager is deliberately different: **it drives and captures results across TESCO, PMT, and WECO consoles from one application.** That decoupling of software from hardware has direct consequences for a utility.

Console vendor	What TESCO Meter Manager provides
TESCO test boards & stations	Native integration with TESCO single- and multi-position boards.
PMT calibration consoles	Result capture and control across PMT automated calibration consoles.
WECO (Radian Research) boards	Support for WECO test boards common in existing Canadian shops.

The practical benefits: utilities protect existing capital by keeping proven benches in service; they avoid a disruptive rip-and-replace to adopt modern compliance software; they can standardize a single Measurement Canada-compliant workflow across mixed fleets and multiple sites; and they retain freedom to choose future console vendors on merit rather than on software lock-in. This breadth of console support combined with Measurement Canada sampling compliance is unique in the market at this time.

Proof point: Ontario

These capabilities are not theoretical. TESCO Metering deployed Meter Manager into production at one of Ontario's largest electric utilities and metering service providers managing over 2 million meters.

The deployment exercised the Measurement Canada feature set end to end in a real meter shop: forming MC Lots and loading meter populations; generating statistical samples and printing sample certificates showing sample size and conformity counts; running 100% reverification with its own certificate; applying measurement uncertainty to test results; and calculating seal expiry and reverification periods across the fleet. Data was converted from legacy systems, and the shop's existing test benches were interfaced directly to Meter Manager.

Why it matters

A live Ontario deployment demonstrates that TESCO Meter Manager's S-S-06 implementation works under the operational realities of a large Canadian utility — legacy data, mixed meter models and manufacturers, multi-channel meters, and the exacting certificate and calculation requirements that Measurement Canada compliance imposes.

A proven platform, built in Canada, supported in Canada

TESCO Meter Manager is a mature meter shop platform, proven over years of use by utilities across North America. Building on that established foundation, TESCO Metering made a deliberate investment to bring full Measurement Canada support to Canadian utilities — work developed and supported by a TESCO company operating in Canada. Canadian customers therefore get the best of both worlds: the stability of a widely deployed North American product, together with a Measurement Canada capability set purpose-built for the Canadian market, in which MC Lots, C1/C2 conformity, seal years, reverification periods, and S-S-06 sampling are fully supported.

That commitment extends to how the software is delivered. TESCO Metering's Meter Manager deployment and technical support team is based in Canada, so system installation, configuration, training, and testing support for Canadian utilities are handled by Canadian resources who work within the Measurement Canada framework every day.

TESCO Metering has served utilities across North America for over 120 years and brings that metering domain depth to its software. The combination — a long-standing metering company, dedicated Canadian resources, and a product proven across the continent — means Canadian utilities work with a partner that understands both the meter shop floor and the Measurement Canada rules that govern it.

Why this is unique

Canadian utilities evaluating meter shop software typically face a compromise: adopt compliance-aware software that forces a specific console ecosystem or keep their existing benches and manage Measurement Canada sampling through spreadsheets and manual calculation. TESCO Meter Manager removes that compromise.

- **It combines** a purpose-built S-S-06 sampling and reverification engine, so compliance calculations are automated and auditable;
- **with** multi-vendor console support across TESCO, PMT, and WECO, so hardware investment is protected;
- **and** a proven North American platform with deep, purpose-built Measurement Canada support, developed and supported by a TESCO company operating in Canada.

No other commercially available product brings all three together today. TESCO Metering intends to continue investing in this area, including future support for additional Measurement Canada sampling rules such as S-S-04 acceptance sampling.

Conclusion and next steps

Measurement Canada compliance is a hard requirement for Canadian utilities, and statistical sampling under S-S-06 is the practical way to manage large in-service meter populations — provided it is done exactly as specified. TESCO Meter Manager exists to make that achievable: a proven North American platform with purpose-built Measurement Canada support, protecting

existing test-console investment across TESCO, PMT, and WECO, and proven in production at multiple Canadian utilities.

To see how TESCO Meter Manager would fit your meter shop and console fleet, TESCO Metering can arrange a walkthrough of the Measurement Canada workflow and a discussion of your reverification program.

About TESCO Metering

TESCO Metering has been a trusted source of meter testing instruments, equipment, and accessories for electric utilities across North America since 1904. Its offerings span test boards and stations, field and transformer testing, meter shop tooling, and metering software including TESCO Meter Manager. TESCO Metering operates under ISO 9001, ISO/IEC 17025, and ISO/IEC 27001 programs.

Contact: www.tescometering.com

References

Regulatory sources are cited in footnotes throughout. Primary documents are published by Measurement Canada (Innovation, Science and Economic Development Canada) and are available at ised-isde.canada.ca. "Unique in the market" reflects TESCO Metering's market assessment at the time of writing.