



Government
of Canada

Gouvernement
du Canada

[Home](#) → [Measurement Canada](#)

S-E-05—Specification for approval of type of electronic meters—net metering

Category: Electricity

Specification: S-E-05 (rev. 1)

Distribution date: 2008-05-06

Effective date: 2008-07-01

Supersedes: S-E-05

Table of contents

- [1.0 Scope](#)
 - [2.0 Authority](#)
 - [3.0 References](#)
 - [4.0 Terminology](#)
 - [5.0 Technical and metrological requirements](#)
 - [5.1 General](#)
 - [5.2 LMB-EG-07, section 3: Additional requirements](#)
 - [5.3 Requirements for net metering of legal units of measure](#)
 - [5.3.1 General](#)
 - [5.4 LMB EG-07, section 6: General and additional requirements](#)
 - [6.0 Administrative requirement—notice of approval](#)
 - [7.0 Revision](#)
-

1.0 Scope

These specifications apply to all electronic energy meters submitted for type approval of net metering.

2.0 Authority

These specifications are issued under the authority of section 12 of the Electricity and Gas Inspection Regulations.

3.0 References

3.1 Electricity and Gas Inspection Act (R.S. 1985, c. E-4), s. 28(1).

3.2 Electricity and Gas Inspection Regulations (SOR/86-131), s. 13, 14.

3.3 Measurement Canada, LMB-EG-07 (1986): Specification for the Approval of Type of Electricity Meters, Instrument Transformers and Auxiliary Devices.

3.4 Bulletin E-20, Test Provision for Electronic Meters

4.0 Terminology

Bi-directional Meter

A bi-directional meter is a meter that has the capacity to meter delivered energy or received energy and to record them in separate registers.

Delivered Energy

Delivered energy is the energy measured when current flows through the meter from the electricity grid to the load.

Net Metering

Net metering is the ability to measure delivered and received energy and to register the difference (net) between the two. If received energy exceeds delivered energy the net value is negative. If delivered energy exceeds received energy the net value is positive.

Net Meter

A net meter is a meter that is used to perform net metering.

Net Register

A net register is a register, which records the difference (net) between the value of the delivered and of the received energy quantities measured by the meter.

Received Energy

Received energy is the energy measured when current flows through the meter from the load side of the service back to the electricity grid.

5.0 Technical and metrological requirements

5.1 General

5.1.1 Electronic energy meters capable of net metering shall comply will all of the applicable requirements of LMB-EG-07, and the additional requirements contained in this specification.

5.1.2 Performance requirements of LMB-EG-07 are applicable in both forward and reverse directions for net metering.

5.1.3 Electronic meters which sum the total registration of the delivered plus received energy quantities shall not be assessed by Measurement Canada or be deemed to be an approved billing function.

5.2 LMB-EG-07, section 3: Additional requirements

5.2.1 Meters approved for net metering shall have a register which increments energy accumulation positively when the energy flow is in a positive direction (delivered energy), and shall also decrement the same register when the direction of energy flow is in a negative direction (received energy).

5.2.2 Where registration is decrementing down to a zero value and the energy flow is in the negative direction, the meter register shall continue to register down to zero and continue decrementing from the meters full count value (99999 for a meter with the minimum five digit display).

5.2.3 For net metering, the direction of energy flow shall indicate when energy is being received or delivered.

5.3 Requirements for net metering of legal units of measure

5.3.1 General

5.3.1.1 Net metering of voltampere hours is not permitted.

5.3.1.2 The following are the phasing relationships that shall be used for establishing the direction of flow for watthours and varhours:

- a. Watthours delivered: Phase angle between voltage and current is between 0° and 90° (quadrant I), and between 270° and 360° (quadrant IV).

- b. Watthours received: Phase angle between voltage and current is between 90° and 180° (quadrant II), and between 180° and 270° (quadrant III).
- c. Varhour delivered: Phase angle between voltage and current is between 0° and 90° (quadrant I), and between 90° and 180° (quadrant II).
- d. Varhour received: Phase angle between voltage and current is between 180° and 270° (quadrant III), and between 270° to 360° (quadrant IV).

5.4 LMB EG-07, section 6: General and additional requirements

5.4.1 A meter with net metering shall provide provisions for testing the delivered and received energy quantities. (Reference Bulletin E-20 for additional clarification on test provision for electronic meters). (LMB-EG-07 reference; 6-2.2 Testing).

5.4.2 The word "Net" shall be indelibly and distinctly marked or electronically displayed on the meter. (LMB-EG-07 reference 6-3 Marking).

6.0 Administrative requirement—notice of approval

A notice of approval established for a meter with a net metering function shall state that the net metering function has been approved for the purpose of net metering, and indicate any applicable conditions or limitations.

7.0 Revision

The purpose of this revisions is to clarify the type approval display requirements for received energy in section 5.2 and 5.3, and to establish that MC does not approve net energy voltampere hour quantity. Approval of net metering for voltampere hour is not being permitted at this time since there is no industry standard which clearly defines direction for voltampere hour energy.

Date modified:

2017-03-28