



Australian Government
**National Measurement
Institute**

Bradfield Road, West Lindfield NSW 2070

Cancellation
Certificate of Approval
No 14/2/23

Issued by the Chief Metrologist under Regulation 60
of the
National Measurement Regulations 1999

This is to certify that the approval for use for trade granted in respect of the

Echelon Model EM-1023 83321-30**A Electricity Meter

submitted by Echelon Corporation
550 Meridian Avenue
San Jose, CA 95126
USA

has been cancelled in respect of new instruments as from 1 December 2011.

Signed by a person authorised by the Chief Metrologist
to exercise his powers under Regulation 60 of the
National Measurement Regulations 1999.

A handwritten signature in black ink, consisting of stylized cursive letters, positioned to the right of the signature text.



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Echelon Model EM-1023 83321-30**A Electricity Meter

submitted by Echelon Corporation
550 Meridian Avenue
San Jose, CA 95126
USA.

NOTE: This Certificate relates to the suitability of the pattern of the instrument for use for trade only in respect of its metrological characteristics. This Certificate does not constitute or imply any guarantee of compliance by the manufacturer or any other person with any requirements regarding safety.

This approval has been granted with reference to document NMI M 6, *Pattern Approval and Initial Verification of Electricity Meter and Associated Transformers: Definitions, Metrological and Technical Requirements*, July 2004.

CONDITIONS OF APPROVAL

This approval becomes subject to review on 1 October 2011, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked with approval number 'NMI 14/2/23' and only by persons authorised by the submittor.

It is the submitter's responsibility to ensure that all instruments marked with this approval number are constructed as described in the documentation lodged with the National Measurement Institute (NMI) and with the relevant Certificate of Approval and Technical Schedule. Failure to comply with this Condition may attract penalties under Section 19B of the National Measurement Act and may result in cancellation or withdrawal of the approval, in accordance with document NMI P 106.

The National Measurement Institute reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificate No S1/0/A.

DESCRIPTIVE ADVICE

Pattern: approved 5 September 2006

- An Echelon model EM-1023 83321-30**A poly phase Class 1 direct connected static watt hour meter used to measure electrical energy.

Variants: approved 6 November 2006

1. Certain other models of the EM-1023 series.
2. Certain models of the EM-2023 transformer (CT) connected series.

Technical Schedule No 14/2/23 describes the pattern and variants 1 & 2.

FILING ADVICE

The documentation for this approval comprises:

Certificate of Approval No 14/2/23 dated 7 November 2006
Technical Schedule No 14/2/23 dated 7 November 2006 (incl. Table 1,
and Test Procedure)
Figure 1 dated 7 November 2006

Signed by a person authorised by the Chief Metrologist
to exercise his powers under Regulation 60 of the
National Measurement Regulations 1999.

A handwritten signature in black ink, appearing to be 'J. H. T.', located to the right of the signature text.

TECHNICAL SCHEDULE No 14/2/23

Pattern: Echelon Model EM-1023 83321-30**A Electricity Meter
Submittor: Echelon Corporation
550 Meridian Avenue
San Jose CA 95126 USA

1. Description of Pattern

An Echelon model EM-1023 83321-30**A electronic poly phase Class 1 direct connected static watt hour meter (Figure 1 and Table 1) used to measure electrical energy.

1.1 Field of Operation

- Number of phases 3
- Number of wires 4
- Reference frequency 50 Hz
- Reference ambient temperature ranges:
 - specified range of operation -10 to 60°C
 - limit range of operation -40 to 70°C
- Rated voltage 240/415 V AC
- Rated currents: Basic current, I_b 5, 10, 15 or 20 A
Maximum current, I_{max} 60, 80 or 100 A
- Accuracy index 1

1.2 Features/Functions

- 3 elements.
- IEC 61107 optical interface (ANSI C12.18 communications protocol).
- Liquid crystal digital indicator having a maximum display of 999999.9 kW h.
- Import and export active energy measurement (Class 1).
- Import and export reactive energy measurement (Class 2).
- 4 time-of-use registers.
- Load profiling memory (log intervals of 5, 15, 30 and 60 minutes, or 1 day).
- Internal battery.
- Bottom connect rectangular base.

In addition, the pattern may be configured for:

- 1 phase/2 wire configuration.
- 2 phase/4 wire configuration.

1.3 Verification/Certification

Provision is made for the application of a verification/certification mark.

1.4 Sealing Provision

Provision is made for the calibration adjustments to be sealed by the application of a mechanical seal (Figure 1).

1.5 Descriptive Markings

Instruments are marked with the following data, together in one location, in the form shown at right:

Manufacturer's name or mark	...
Model designation	...
Serial number	...
Pattern approval mark	NMI 14/2/23
Number of phases	...
Number of wires	...
Reference frequency	... Hz
Temperature limits (if other than -10 to 60°C)	... to ...°C
Meter constant	...
Rated voltage	... AC
Rated currents:	I_b ... A (#) I_{max} ... A
Accuracy index	Class 1

(#) For EM-2023 series (CT) meters, Variant 2, 'Basic Current' is shown in the form ' I_n ... A'.

2. Description of Variants

2.1 Variant 1

Certain other models of the EM-1023 series of meters, with one or more of the optional features listed below, and identified using Table 1.

- 5 A control relay.
- 100 A disconnect relay.
- M-bus connection.
- S0 pulse output.

2.2 Variant 2

Certain models of the EM-2023 transformer (CT) connected series of meters, identified using Table 1. Instruments have the same features/functions as described above for the pattern, except that the model EM2023 may NOT be fitted with the 100 A disconnect relay.

Field of Operation

EM-2023 series (CT) meters have the same specifications as listed for the pattern in clause 1.1 **Field of Operation** except that the Basic Current is ' I_n 5 A' and the Maximum Current is ' I_{max} 20 A'.

TABLE 1

The table below explains approved model numbers which are in the form

'EM-1023 83321-30**A' (as for the pattern)

where:

-1023 83321	represents poly phase meters
-2023 83501	represents poly phase (CT) meters
-30	represents WITHOUT 100A disconnect relay
-33	represents WITH 100A disconnect relay
**	are reserved spaces for customer codes
A	represents WITHOUT any optional features
F	represents with optional 5A relay
AA	represents with optional M-bus
FA	represents with M-bus and 5A relay
G	represents with optional S0 output
H	represents with optional 5A relay and S0 output
GA	represents with optional S0 output and M-bus
HA	represents with optional 5A relay, S0 output and M-bus

TEST PROCEDURE

Instruments tested for initial verification shall comply with the certificate of approval and technical schedule, and the maximum permissible errors for initial and subsequent verifications/certifications at the operating conditions in effect at the time of verification.

TESTS

1. AC Voltage Test - at initial verification only.
2. Running With No Load - at subsequent verifications/certifications.
3. Starting.
4. Accuracy.

FIGURE 14/2/23 – 1



Echelon Model EM-1023 83321-30**A Electricity Meter