CSA GROUP™

CSA C900.1:21
(EN 1434-1:2015+A1:2018, MOD)
National Standard of Canada

CSA C900.1:21
Thermal energy meters — Part 1: General requirements
(EN 1434-1:2015+A1:2018, MOD)

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Thermal energy meters — Part 1: General requirements

(EN 1434-1:2015+A1:2018, MOD)

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CSA Preface

This is the third edition of CSA C900.1, *Thermal energy meters — Part 1: General requirements*, which is an adoption, with Canadian deviations, of the identically titled CEN (European Committee for Standardization) Standard EN 1434-1 (edition 3:2015 consolidated with Amendment 1:2018). It supersedes the previous edition, published in 2013 as CAN/CSA-C900.1 (adopted EN 1434-1:2007), *Heat meters — Part 1: General requirements*.

For brevity, this Standard will be referred to as "CSA C900.1" throughout.

This Standard is one of a group of Standards on *Thermal energy meters* being adopted by CSA Group, which consists of the following:

a) CSA C900.1 (adopted EN 1434-1) — *Part 1: General requirements;*
b) CSA C900.2 (adopted EN 1434-2) — *Part 2: Constructional requirements;*
c) CSA C900.3 (adopted EN 1434-3) — *Part 3: Data exchange and interfaces;*
d) CSA C900.4 (adopted EN 1434-4) — *Part 4: Pattern approval tests;*
e) CSA C900.5 (adopted EN 1434-5) — *Part 5: Initial verification tests;* and
f) CSA C900.6 (adopted EN 1434-6) — *Part 6: Installation, commissioning, operational monitoring and maintenance.*

This Standard is considered suitable for use for conformity assessment within the stated scope of the Standard.

This Standard was reviewed for Canadian adoption by the CSA Technical Committee on Thermal Energy Meters, under the jurisdiction of the CSA Strategic Steering Committee on Fuels and Appliances, and has been formally approved by the Technical Committee.

This Standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

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European foreword

This document (EN 1434-1:2015+A1:2018) has been prepared by Technical Committee CEN/TC 176 "Thermal energy meters", the secretariat of which is held by SIS.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2019, and conflicting national standards shall be withdrawn at the latest by May 2019.

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This document includes Amendment 1, approved by CEN on 2018-07-18.

This document supersedes A1 EN 1434-1:2015 A1.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive.

For relationship with EU Directive, see informative Annex ZA, which is an integral part of this document.

EN 1434, A1 *Thermal energy meters* A1 consists of the following parts:

— *Part 1: General requirements*

— *Part 2: Constructional requirements*

— *Part 3: Data exchange and interfaces*[1)]

— *Part 4: Pattern approval tests*

— *Part 5: Initial verification tests*

— *Part 6: Installation, commissioning, operational monitoring and maintenance*

In comparison to EN 1434-1:2007, the following changes have been made:

— special cases for combined A1 bifunctional thermal energy meters A1 are added;

— additional functionality for smart metering applications are added;

— metrological requirements for smart metering applications are added;

— definitions and requirements for the cooling meter are added;

— tariff meters are added;

1) EN 1434-3 is maintained by CEN/TC 294.

— terms and definitions, requirements for registration devices and cooling meters are added;

— requirements for fast response meters are added (informative Annex C).

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies the general requirements for [A1] thermal energy meters [A1]. [A1] Thermal energy meters [A1] are instruments intended for measuring the energy which in a heat-exchange circuit is absorbed (cooling) or given up (heating) by a liquid called the heat-conveying liquid. The [A1] thermal energy meter [A1] indicates the quantity of heat in legal units.

Electrical safety requirements are not covered by this European Standard.

Pressure safety requirements are not covered by this European Standard.

Surface mounted temperature sensors are not covered by this European Standard.

This standard covers meters for closed systems only, where the differential pressure over the thermal load is limited.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

[A1] EN 1434-2:2015+A1:2018, *Thermal energy meters — Part 2: Constructional requirements* [A1]

[A1] EN 1434-4:2015+A1:2018, *Thermal energy meters — Part 4: Pattern approval test* [A1]

EN 60751, *Industrial platinum resistance thermometers and platinum temperature sensors (IEC 60751)*

EN 61010-1, *Safety requirements for electrical equipment for measurement, control and laboratory use — Part 1: General requirements (IEC 61010-1)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
response time
$\tau_{0,5}$
time interval between the instant when flow or temperature difference is subjected to a specified abrupt change and the instant when the response reaches 50 % of the step value

3.2
fast response meter
meter suitable for heat exchanging circuits with rapid dynamic variations in the exchanged heat

Note 1 to entry: See also Annex C.

3.3
rated voltage
U_n
voltage of the external power supply required to operate the [A1] thermal energy meter [A1], conventionally the voltage of the AC mains supply

3.4
rated operating conditions
conditions of use, giving the range of values of influence quantities, for which the metrological characteristics of the instrument are within the specified maximum permissible errors