SLOVENSKI STANDARD
SIST EN 1434-2:1997/A1:2002

01-november-2002

Toplotni števci - 2. del: Konstrukcijske zahteve

Heat meters - Part 2: Constructional requirements

Wärmezähler - Teil 2: Anforderungen an die Konstruktion

Compteurs d'énergie thermique - Partie 2: Exigences de fabrication

Ta slovenski standard je istoveten z: **EN 1434-2:1997/A1:2002**

ICS:

17.200.10 Toplota. Kalorimetrija Heat. Calorimetry

SIST EN 1434-2:1997/A1:2002 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1434-2:1997/A1

September 2002

ICS 17.200.10

English version

Heat meters - Part 2: Constructional requirements

Compteurs d'énergie thermique - Partie 2: Prescriptions de fabrication

Wärmezähler - Teil 2: Anforderungen an die Konstruktion

This amendment A1 modifies the European Standard EN 1434-2:1997; it was approved by CEN on 1 July 2002.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This amendment exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

Foreword

This document (EN 1434-2:1997/A1:2002) has been prepared by Technical Committee CEN/TC 176 "Heat meters", the secretariat of which is held by DS.

This Amendment to the 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of an identical text or by endorsement, at the latest by March 2003, and conflicting national standards shall be withdrawn at the latest by March 2003.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this Amendment to the European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

This amendment to EN 1434-2 is divided into 2 main areas. The first being the new clauses – i.e. clauses which are not present in the 1997 version. The second being the amended clauses, where the entire clause – not only the changes – is presented.

It has been prepared in such a way that it can be cut and pasted into the old version.

A new descriptor has been added: cooling meters.

1 New clauses

5.6 24 hours interruption in supply voltage

The calculator shall be able to handle interruptions in the supply voltage for periods of up to 24 hours, without a change more than one digit in the energy display.

NEW ANNEX C

Annex C
(informative)

Low voltage Power Supply for heat meters and their sub-assemblies

C.1 Remote Supply

C.1.1 Voltage (DC or AC)

Recommended nominal levels 24 V

Tolerance DC: 18 V to 41 V

If the remote supply lines are also used for data transmission (e.g. M-Bus, see EN 1434-3) these values shall be maintained during any data transmission.

Tolerance AC: ± 30 %

C.1.2 Current available

Peak value	to be specified by the supplier
Long term mean value	to be specified by the supplier
Total available energy	to be specified by the supplier

C.1.3 Cabling requirements

Max. cable length >10 m - restricted only by voltage drop

Shielded cable a possible requirement to be specified by the supplier

Twisted cable a possible requirement to be specified by the supplier

C.2 Local external DC supply

C.2.1 Voltage

Recommended nominal levels 6 V, 3,6 V, 3 V

C.2.2 Other Data

Table C1 - Standardized levels for external powering

Nominal voltage	6 V	3,6 V	3 V
Max. average current	100 mA	10/20/50/100/200 µA	10/20/50/100/200 µA
Tolerance at average current	5,4 to 6,6 V	3,4 to 3,8 V	2,8 to 3,3 V
Peak current	100 mA	10 mA	5 mA
Min. voltage at peak current	5,4 V	3,2 V	2,7 V

C.3 Power supply specification

The supplier should make available data sheets containing at least the following information:

- supplier;
- type identification;
- external or remote power supply;
- nominal voltage level;
- available current (peak and long term mean value);
- total available energy (if battery);
- cabling requirement (maximum cable length and possible requirement for shielded or twisted cable)

2 Amended clauses

NEW TEXT

1 Scope

This European Standard applies to heat meters, that is to instruments intended for measuring the heat which, in a heat-exchange circuit, is absorbed or given up by a liquid called the heat-conveying liquid. The heat meter indicates the quantity of heat in legal units.

Electrical safety requirements are not covered by this standard.

Pressure safety requirements are not covered by this standard.

Surface mounted sensors are not covered by this standard.

Part 1 specifies general requirements.

NEW TEXT *(amend original clause **7** and add **7.1**)*:

7 Interfaces between sub-assemblies

7.1 Definitions for pulse device interfaces

The type of signals between the calculator, the temperature sensors and the flow sensor shall be clearly defined by the supplier.

The definition shall include all relevant data, e.g. type of signal, voltage and current levels and limitations.

7.1.1 Electrical connection

The electrical connection of a pulse device has two terminals. Both terminals shall be isolated from ground (e.g. pipes or casing) with an insulation resistance greater than 100 MΩ measured at 100 V DC under reference conditions.

The possible shielding connection shall be designed to the rules of the electromagnetic compatibility.

7.1.2 Classification of pulse output devices.

Class OA: electromechanical switch.

Typical examples of a class OA device is the Reed contact and the electronic switch.

The ”ON” state is defined by the closed switch, the ”OFF” state by the open switch.

A characteristic feature of the electromechanical switch is bouncing of the mechanical contacts.

Class OB: passive electronic current sink with slow pulses; high current.

Typical example for a passive electronic current sink class OB is the ”open collector” with a Darlington transistor. Class OB devices replace the typical models of class OA devices by an electronic solid state solution. These devices do not bounce and need an auxiliary power supply and electronic control signal to switch the current source ”ON” and ”OFF”.

Class OC: passive electronic current sink with slow pulses; low current.

Typical example for a passive electronic current sink class OC is also the ”open collector” or ”open drain” device. These devices do not bounce and need an auxiliary power supply and electronic control signal to switch the current source ”ON” and ”OFF”. This device has lower voltage drop than Class OB.

Class OD: passive electronic current sink with fast pulses.

Class OD devices differ from class OC devices by a shorter pulse length.

7.1.3 Timing and electrical parameters for pulse output devices (other than test signals)

Table 7 - Timing and electrical parameters

Parameter	**Class OA**	**Class OB**	**Class OC**	**Class OD**
Example	Reed or electronic switch	(Darlington) open collector	open collector	open collector or active
Polarity reversal	Possible	Not possible	Not possible	Not possible
Pulse length	≥ 100 ms	≥ 30 ms	≥ 100 ms	≥ 0,1 ms
Pulse pause	≥ 100 ms	≥ 100 ms	≥ 100 ms	≥ 0,1 ms
Bounce time	≤ 1 ms	--	--	--
Max. input voltage	30 V	30 V	**6 V**	**6 V**
Max input current	27 mA	27 mA	0,1 mA	0,1 mA
”ON” voltage drop	≤ 2,0 V at 27 mA	≤ 2,0 V at 27 mA	≤ 0,3 V at 0,1 mA	≤ 0,3 V at 0,1 mA
“OFF” resistance	≤ 6 MΩ	≤ 6 MΩ	≤ 6 MΩ	≤ 6 MΩ

7.1.4 Classification of Pulse input devices

Class IA:

In a typical example, the actuating coil drives an electromechanical relay or an electromechanical counter - In combination with a fixed voltage source (specified DC voltage: 3 V, 12 V and 24 V), these devices work with class OA and OB pulse output devices.

Class IB:

A typical example is a micro controller CMOS input with a low pass filter for protection against and suppression of bouncing parts of the pulse signal.

A pull-up resistor to stabilize the CMOS input is used as current source for class OC pulse output devices.