
Toplotni števci - Kontrolni seznam za dokumentiranje povezave med Direktivo 2004/22/ES (MID) in EN 1434:2007

Heat Meters - Checklist documenting the relationship between the Directive 2004/22/EC (MID) and EN 1434:2007

Wärmezähler - Prüfliste, die den Zusammenhang zwischen der Europäischen Messgeräte-Richtlinie 2004/22/EG und EN 1434:2007 darstellt

Compteurs d'énergie thermique - Liste des points de vérification des liens entre la directive 2004/22/EC (MID) et EN 1434:2007

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ICS:

17.200.20	Instrumenti za merjenje temperature	Temperature-measuring instruments
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English Version

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EN 1434:2007 darstellt

This Technical Report was approved by CEN on 31 May 2008. It has been drawn up by the Technical Committee CEN/TC 176.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	3
1 Scope	4
2 General explanations	4
3 Text of Annex ZA in EN 1434:2007	5
4 Table showing the correspondence between EN 1434 and MID.....	5
5 Table showing the correspondence between MID and EN 1434:2007	13

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Foreword

This document (CEN/TR 15760:2010) has been prepared by Technical Committee CEN/TC 176 "Heat meters", the secretariat of which is held by SIS.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

The 2007 edition of EN 1434 was written to be harmonized to MID. After the CEN consultant has given a positive assessment for this standard it is referred in the EU Official Journal (published 2007-07-14) as a standard harmonized to MID. The following checklist shows the most important explanations to this harmonisation work under the scope how the requirements coming from MID are complied by EN 1434:2007.

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CEN/TR 15760:2010 (E)**1 Scope**

This Technical Report constitutes a checklist to show the appropriate coverage of the relevant Essential Requirements for Heat Meters in the Measuring Instrument Directive 2004/22/EC with the technical solutions in EN 1434:2007.

The checklist indicates that in EN 1434 you have standardized solutions that:

- are one way of showing conformity to the MID;
- make it possible to combine sub-assemblies of different brands;
- make it possible to replace an installed sub-assembly with a sub-assembly of another brand.

2 General explanations

MID and EN 1434 have not only metrological requirements, but also other requirements that help the user to obtain a correct measuring result without unreasonable demands. In the MID this is expressed as essential requirements.

Following EN 1434 means that the signal interfaces and the relevant part of the dimensions between sub-assemblies are standardized to ensure that you can use a mixture of sub-assemblies from different manufacturers. It also means that you in an installation can replace a unit with a new unit from another manufacturer that follows EN 1434. In this sense this EN standard gives defaults about the conditions and technical contents for the compatibility between sub-assemblies from different manufacturers. This checklist shows with the tables under Clauses 4 and 5 how the compliance with the requirements according to Article 4(b) in MID are provided by following the EN standard.

If the meter does not follow that standardization in EN 1434, the EC type examination certificate must have another information about how the sub-assemblies are compatible and replaceable with other sub-assemblies.

This checklist is helpful for conformity assessments to ensure that the essential and specific requirements of the MID are fulfilled by the meter or its sub-assemblies, i.e.:

MID Annex I, 7.2

A measuring instrument shall be suitable for its intended use taking account of the practical working conditions and shall not require unreasonable demands of the user in order to obtain a correct measurement result.

MID Annex I, 7.5

A measuring instrument shall be robust and its materials of construction shall be suitable for the conditions in which it is intended to be used.

MID Annex B Clause 3

... This supporting evidence shall mention any relevant documents that have been applied, in particular where the relevant documents referred to in Article 13 have not been applied in full, ...

MID Annex B, 4.3

The notified body shall for the specimens carry out the appropriate examinations and tests, or have them carried out, to check whether, where the manufacturer has chosen not to apply the solutions in the relevant documents referred to in Article 13, the solutions adopted by the manufacturer meet the corresponding essential requirements of this Directive.

MID Annex B, 5.2

... The certificate or its annexes shall contain all relevant information for conformity evaluation and in-service control...

in the case of a sub-assembly, all necessary information to ensure the compatibility with other sub-assemblies or measuring instruments

MID Annex MI 004 Clause 7

The provisions for sub-assemblies may apply to sub-assemblies manufactured by the same or different manufacturers.

The following explanations show how the demands given by MID are complied by the EN 1434:2007 standard.

3 Text of Annex ZA in EN 1434:2007**Annex ZA****Relationship between this European Standard and the Essential Requirements of EU Directive 2004/22/EC, MID**

This European Standard has been prepared under a mandate given to CEN by the European Commission to provide a means of conforming to Essential Requirements of the New Approach Directive 2004/22/EC on measuring instruments.

Once this standard is cited in the Official Journal of the European Communities under that Directive and has been implemented as a national standard in at least one Member State, compliance with all the normative clauses in Parts 1, 2, 4 and 5 of this standard confers, within the limits of the scope of this standard, a presumption of conformity with the relevant Essential Requirements of that Directive and associated EFTA regulations.

WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

NOTE A corresponding Annex is included in EN 1434 Parts 1, 2, 4 and 5.

4 Table showing the correspondence between EN 1434 and MID

to ensure that the requirements of this EN standard are supported in MID

Clause(s)/subclause(s) of this EN standard	Requirements of MID	Qualifying remarks/Notes
PART 1	Articles, ANNEX I (ESSENTIAL REQUIREMENTS) = AI, Specific Requirements = MI-004	
3 Types of instrument 3.6 Equipment under test (EUT)	Article 5; MI-004 DEFINITIONS Article 9; MI-004	

CEN/TR 15760:2010 (E)

Clause(s)/subclause(s) of this EN standard	Requirements of MID	Qualifying remarks/Notes
4 Terms, definitions and symbols 4.9.5 Maximum permissible error, 9.2 Values of MPE	MI-004 DEFINITIONS MI-004 § 3, § 7, § 7.1	MI-004 § 7.1 has a limit of 5 % for class 1 flow sensors. This is equal to 3,5 % for the widest dynamic flow range $q_p/q_i = 250:1$ specified in EN 1434-1
5 Rated operating conditions 5.1 Limits of temperature range 5.2, 7.2 Limits of temp. difference 5.3 Limits of flow rate 5.4 Limits of thermal power 5.5 Max. adm. working pressure 5.9 Max. pressure loss	MI-004 §1 Rated operating cond. 1.1 Temperature of the liquid 1.1 Temperature differences 1.3 Flow rates 1.4 Thermal power P_s 1.2 Pressure of the liquid -/- (no counterpart)	
6 Technical characteristics 6.1 Materials and construction 6.1.4 Supplementary device 6.2 Req. outside limits of flow rate	AI § 7.5 AI § 8.1 AI § 7.3	
6.3 Display 6.3.1 Joules / Wh 6.3.2 Numerical stored 6.3.3 Easily read 6.3.4 Display figures > 4 mm 6.3.5 Decimal divider 6.3.6 Roller type 6.3.7 Overflow / resolution	AI § 10.5 AI § 9.7 AI § 9.5 AI § 10.2 AI § 10.2 AI § 10.2, AI § 9.7 AI § 10.2 AI § 10.2 AI § 4, AI § 7.2	In EN 1434-1 without overflows of indication at continuous operation for at least 3 000 h at upper limit of thermal power, the progress of accumulated energy in correspondence to at least one digit of the lowest significance of the display
6.4 Protection against fraud	AI § 7.1, AI § 8.1, AI § 8.2, AI § 8.3	
6.5 Supply voltage	AI § 7.2	
6.6 Qualifying immersion depth	AI § 7.2	
6.7 Pocket influence on temp. sensor	AI § 7.2	
7 Specified working range	MI-004 § 1	In MI-004 § 1.1 the minimal temp. difference is 3 K; in

Clause(s)/subclause(s) of this EN standard	Requirements of MID	Qualifying remarks/Notes
		EN 1434-1:2007, 7.2 the lowest value of min. temp. diff. is 1 K, but 3 K is the lowest value recommended for heating purposes.
8 Heat transmission formula	AI § 7.2	
9 Metrological characteristics		
9.1.1 Classes	MI-004 § 2	
9.2.1 MPE for complete meter	MI-004 § 3	
9.2.2.1 MPE for calculator	MI-004 § 7.3	
9.2.2.2 MPE for temp. sensor. pair	MI-004 § 7.2	
9.2.2.3 MPE for flow sensor	MI-004 § 7.1	In MI-004 § 7.1 is a limit to 5 % for class 1 flow sensors; in EN 1434-1 this real limit is 3,5 %, regarding to the widest dynamic flow range
9.3.1 "arithmetic sum"	MI-004 § 3	$q_p/q_i = 250:1$
10 Environmental classification		
10.2 A Domestic indoor	AI § 1.3.3: E1 & § 1.3.1	AI § 1.3.1 has other limits for upper and lower ambient temperatures (table); EN 1434-1 has 5 – 55 °C
10.3 B Domestic outdoor	AI § 1.3.3: E1 & § 1.3.1	resp. - 25 – 55 °C resp. 5 – 55 °C
10.4 C Industrial use	AI § 1.3.3: E2 & § 1.3.1	
11 Heat meter specification	AI § 7.2, § 9.3, MI-004 & § 6 & 7.5	Relevant parts of EN 1434-1:2007, Clause 11 can be used to ensure that the instrument is suitable for the intended use acc. to AI § 7.2
12 Info to be delivered with meter	AI § 9.3	

CEN/TR 15760:2010 (E)

Essential requirements (ERs) of MID	Clause(s)/subclause(s) of EN 1434:2007	Qualifying remarks/Notes
PART 2		
3 Temperature sensors 3.1 General 3.2 Mechanical design 3.3 Platinum temperature sensors 3.3.1 Spec.def. for 2-wire sensors 3.3.2 Resistance characteristics 3.3.3 Signal leads 3.3.4 Temp. sensors for 2-wire meth. 3.3.5 Temp. sensors for 4-wire meth. 3.3.6 Thermal response time 3.4 Other temperature sensors	AI § 7.2, AI § 7.5 AI § 7.2, AI § 7.5 AI § 7.2, AI § 7.5 AI § 7.2, AI § 7.5 AI § 7.2, AI § 7.5 AI § 7.2, AI § 7.5 AI § 7.2, AI § 7.5 AI § 7.2, AI § 7.5 AI § 7.2, AI § 7.5 AI § 7.2, AI § 7.5	Relevant parts of EN 1434-2:2007, Clause 3 can be used to ensure that the instrument is suitable for the intended use acc. to AI § 7.2 and that it is suitable for the conditions in which it is intended to be used acc. to AI § 7.5
4 Flow sensor 4.1 Max.adm. working pressure 4.2 Sizes and dimensions 4.3 Test signal output 4.4 Adjusting device	SIST-TP CEN/TR 15760:2011 MI-004 § 1.2 AI § 7.2 AI § 7.6, AI § 12	Relevant parts of EN 1434-2:2007, Clause 4 can be used to ensure that the instrument is suitable for the intended use acc. to AI § 7.2
5 Calculators 5.1 Mechanical dimensions 5.2 Terminals – spec. and identific. Batteries Dynamic behaviour Test signal output 24 h interruption in supply	AI § 7.2 AI § 7.2 AI § 7.2 AI § 7.2 AI § 7.6, AI § 12 AI § 6	Relevant parts of EN 1434-2:2007, Clause 5 can be used to ensure that the instrument is suitable for the intended use acc. to AI § 7.2
6 Complete meter	AI § 7.2	
7 Interfaces between sub-assembly	AI § 7.2	
8 Marking & security seals		

Essential requirements (ERs) of MID	Clause(s)/subclause(s) of EN 1434:2007	Qualifying remarks/Notes
8.1 Marking 8.1.2 Temp. sensor pair Supplier Type [year] (incl. Ptxxx) Temp limits Temp. diff limits Max adm. working pressure Flow or return sensor if needed	AI § 9 AI § 9.1 AI § 9.1, MI-004 § 7.5 MI-004 § 7.5 MI-004 § 7.5 AI § 7.2 AI § 7.2	AI § 9.1 addit. demands EC-type examination certificate number resp. EC-design examination number
8.1.4 Flow sensor Supplier Type, (year) id Meter factor Limits of temperature Limits of flow rate Direction of flow g), h) Max adm. and nomin. pressure i) Accuracy class j) Environmental class k) Liquid if other than water j) Voltage level for external power supply	AI § 9.1 MI-004 § 7.5 MI-004 § 7.5 MI-004 § 7.5 MI-004 § 7.5 MI-004 § 7.5 MI-004 § 7.5 AI § 9.1 AI § 9.1 AI § 9.1	AI § 9.1 addit. demands EC-type examination certificate number resp. EC-design examination number
8.1.5 Calculator Supplier Type, (year,) serial number Type of temp. sensors Limits of temperature Limits of temp.diff	AI § 9.1 AI § 9.1 MI-004 § 7.5 MI-004 § 7.5 MI-004 § 7.5	AI § 9.1 addit. demands EC-type examination certificate number resp. EC-design examination number

CEN/TR 15760:2010 (E)

Essential requirements (ERs) of MID	Clause(s)/subclause(s) of EN 1434:2007	Qualifying remarks/Notes
Meter factor for flow sensor	MI-004 § 7.5	
Flow sensor in flow or return	MI-004 § 7.5	
Environmental class	AI § 9.1	
Liquid if other than water	AI § 9.1	
j) Voltage level for external power supply	AI § 9.1	
8.1.4 Complete meter		
Supplier	AI § 9.1	
Type, (year,) serial number	AI § 9.1	
Limits of temperature	MI-004 § 6	AI § 9.1 addit. demands EC- type examination certificate number resp. EC-design examination number
Limits of temp. diff	MI-004 § 6	
Limits of flow rate	MI-004 § 6	
In flow or return	MI-004 § 6	
Direction of flow	MI-004 § 6	
h), i) Max adm. and nomin. pressure	AI § 9.3	
j) Accuracy class	MI-004 § 6	
k) Environmental class	AI § 9.1	
l) Liquid if other than water	AI § 9.1	
m) Voltage level for external power supply	AI § 9.1	
8.2 Sites for marking	AI § 8.2, AI § 8.3, AI § 9.1	Components may be electronic devices and software storages
8.3 Security seals	AI § 8.2, AI § 8.3, AI § 9.1	
PART 4		
4 Requirements	AI § 1.1, AI § 1.2, MI-004 § 3, § 4, § 5, § 7.1, § 7.2, §	