Type Examination Certificate No CH-MI004-13018-00_e

Translation

Applicant	**Sontex SA** Rue de la Gare 27 2605 Sonceboz-Sombeval Switzerland
Requirements	Directive 2004/22/EC of the European Parliament and of the Council of 31 March 2004 on measuring instruments (MID) and the instrument-specific annex MI-004 Conformity standards: EN 1434: Edition 2007 OIML R75 : Edition 2002
Type of instrument	**Compact heat meter**
Type designation	**SUPERCAL 739**
Accuracy class(es)	3 (according to the EN1434)
Characteristics	q_p: 0.6 ... 2.5 m^3/h q_p/q_i: 50 ... 100 Nominal pressure: 1.6 MPa Nominal diameter: DN15 to DN20
Certificate valid until	30 July 2023

CH-3003 Bern-Wabern, 31 July 2013

Notified body	Conformity Evaluation Body METAS-Cert No 1259
For the test	
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1 Name and type of instrument

Compact heat meter, composed of a flow sensor, a calculator and a temperature sensor pair building a unit.

Type: Supercal 739

2 Type description

The Supercal 739 is a battery or M-Bus supplied compact heat meter composed of a flow sensor, a calculator and a temperature sensor pair building a unit.

2.1 Construction

The Supercal 739 is a battery or M-Bus supplied compact heat meter composed of a flow sensor, a calculator and a temperature sensor pair building a unit. The compact heat meter is available as single-jet meter (Figure 1) and multi-jet measurement capsule meter (Figure 2 and Figure 3) for the flow rates q_p 0.6 m^3/h, q_p 1.5 m^3/h and q_p 2.5 m^3/h and for the temperature range from 5º C to 90º C. The calculator is removable from the flow sensor.

The flow sensor in the version as single-jet and multi-jet meter has in its downstream outlet a socket for a directly immersing temperature sensor. The temperature sensors are designated for the optional mounting at the flow or return of a heat-exchange circuit system, preferable for a symmetric mounting of the temperature sensor pair.

Optionally, conformity assessed pockets can be used with the temperature sensors (see table below).

Optionally, the heat meter can also be used for non-symmetric installation circumstances of the temperature sensor pair. In this case, the following rated operating conditions have to be respected: $\Delta T_{min} \geq 6$ K with $q \leq 100$ l/h. In this version, one temperature sensor is always directly immersing mounted in the flow sensor.

Thread size	**Diameter of the temperature sensor's probe**	
	5 mm	**5.2 mm**
M10x1	0460P129 (0460A212)	0460P145 (0460A215)
G3/8‘‘	0460P013 (0460A213)	0460P146 (0460A216)
G1/2‘‘	0460P158 (0460A214)	

0460Axxx: Manufacturer's Article number

2.2 Measurement unit

The flow sensor is available as single-jet and as multi-jet measurement capsule meter. The temperature sensor pair is available as Pt1000.

2.3 Indicating devices

Accumulated volume, flow rate, accumulated energy as well as the flow and return temperatures are indicated by the calculator.

2.4 Measurement value processing

The flow sensor transfers a pulse signal to the calculator that processes and uses this signal to compute the quantity of heat taking into account the measured flow and return temperatures.

2.5 Software / Firmware

The approved firmware versions are:

Firmware Version	Rev. Cert.[1]
1.x.x	00

The firmware version can be read on the display (according to the instructions in the user manual) or from the M-Bus telegram. The checksum is made up of the metrology and application part of the whole firmware. The checksum (CRC16) can be read out with the parameterization software Prog739-749.

2.6 Optional equipment and functions subjected to MID requirements

None

3 Technical data

3.1 Rated operating conditions

Nominal pressure MAP	(MPa)	1.6
Pressure loss at q_p	(MPa)	0.023
Accuracy class		3
Environmental class		C: M1, E1, T_{Amb} = 5 °C … 55 °C
Sensitivity to flow profile Single-jet flow sensor		U6/D6
Sensitivity to flow profile Multi-jet measurement capsule flow sensor		U0/D0
Medium		Water
Temperature range, flow sensor	(°C)	5 … 90
Temperature range	(°C)	0 … 110, display resolution 0.1
Temperature difference	(K)	3 … 75, display resolution 0.01
Degree of protection of enclosure		IP 65

[1] Number of the revision of the type examination certificate

3.2 Technical data

Single-jet flow sensor

q_p	**m^3/h**	**0.6**	**1.0**	**1.5**	**1.5**	**2.5**
q_i	m^3/h	H: 0.012 V: 0.024	H: 0.010 V: 0.020	H: 0.015 V: 0.030	H: 0.015 V: 0.030	H: 0.025 V: 0.050
q_s	m^3/h	1.2	2.0	3.0	3.0	5.5
q_p/q_i		25 V 50 H	50 V 100 H	50 V 100 H	50 V 100 H	50 V 100 H
Meter thread	Inch	¾	¾	¾	1	1
Nominal widths	DN	15	15	15	20	20
Installation lengths	mm	110	110	110	130	130

Multi-jet measurement capsule flow sensor for connection part G2“

q_p	**m^3/h**	**1.5**	**1.5**
q_i	m^3/h	H: 0.015	H: 0.015
q_s	m^3/h	3.0	3.0
q_p/q_i		100 H/V or 50 H/V	100 H/V or 50 H/V
Connection thread EAS*	Inch	¾	1
Nominal widths	DN	15	20
Installation lengths	mm	110	130

* EAS: monotube connection part

Multi-jet measurement capsule flow sensor for connection part M77x1.5

q_p	**m^3/h**	**1.5**	**1.5**
q_i	m^3/h	H: 0.015	H: 0.015
q_s	m^3/h	3.0	3.0
q_p/q_i		100 H/V or 50 H/V	100 H/V or 50 H/V
Connection thread EAS*	Inch	¾	1
Nominal widths	DN	15	20
Installation lengths	mm	110	130

* EAS: monotube connection part

3.3 Technical documents

All of the documents and drawings used for the conformity assessment have been submitted to METAS-Cert.

4 Integrated equipment and functions not subject to MID requirements

Optional, no interacting interfaces:

- M-Bus Module, with M-Bus supply
- Supercom-Radio Module
- Wireless M-Bus (OMS)
- 2 pulse outputs
- 2 pulse inputs

A hot water and a cold water meter can be readout or remote readout with the two additional, optional pulse inputs via the heat meter.

5 Conditions for the market introduction

The compact heat meter shall be marked with the following information:

- Name of the product
- Brand or name of the manufacturer
- Year of manufacture (the first two digits of the serial number correspond to the year of manufacture) and serial number
- CE and metrology marking according to the directive 2004/22/EC, section 7
- Type examination certificate number (CH-MI004-13018)
- Temperature limits
- Temperature difference limits
- Flow limit
- Accuracy class
- Indication of flow direction
- Max. operating pressure
- Environmental class
- Installation location for the flow sensor: flow or return

6 Requirements for production, commissioning and utilization

6.1 Production requirements

The compact heat meter is tested at the end of the production in accordance with the EN 1434-5:2007.

6.1.1 Information accompanying the heat meter

The manufacturer undertakes to provide information and instructions for use (operating instructions) with the devices placed on the market as this allows the users to connect the measurement device safely and according to the intended purpose.

6.2 Commissioning requirements

See the assembly and operating instructions.

The installation of inlet and outlet sections is defined in chapter 3.1.

Single-jet flow sensor:
At the installation location, a straight inlet section of 6D and a straight outlet section of 6D are required.

Multi-jet measurement capsule flow sensor:
At the installation location, an inlet section and an outlet section are not required.

6.3 Requirements for use

See the assembly and operating instructions.

7 Control of devices in operation

7.1 Testing equipment

The test equipment must satisfy the test requirements in accordance with the EN 1434-5:2007.

7.2 Identification

The type designation is shown on the type plate (Figure 8).

8 Sealing

The flow sensor of the single-jet meter is secured either with a sticker (Figure 4) or non-destructively removable as of its type of installation (Figure 5). The temperature sensors are sealed by means of stickers (Figure 4 and Figure 5).

The flow sensor of the multi-jet meter can't be removed non-destructively and the temperature sensors are sealed by stickers (Figure 6).

The enclosure of the calculator is sealed by means of a sticker (Figure 7).

9 EC conformity markings and descriptive plate

The name-plate (Figure 8) must be visible on the compact heat meter with the listed information in chapter 5.

The CE marking and supplementary metrology marking (together with the CE marking, this shows conformity with the fundamental requirements of the Directive 2004/22/EC) must both be directly inscribed on the compact heat meter (Figure 8).

The number of the Type Examination Certificate on the descriptive plate can be written without the revision number as follows: **CH-MI004-13018**

10 Certificate history

Version	Date	Description
CH-MI004-13018-00_e	31 July 2013	- Initial type examination certificate

11 Pictures and drawings

Figure 1 – Compact heat meter SUPERCAL 739, single-jet meter

Figure 2 – Compact heat meter SUPERCAL 739, multi-jet measurement capsule meter for connection parts with G 2“ thread

Figure 3 – Compact heat meter SUPERCAL 739, multi-jet measurement capsule meter for connection parts with M77x1.5 thread

Figure 4 – Flow sensor (single-jet meter) and temperature sensors are sealed by means of stickers

Figure 5 – Flow sensor (multi-jet measurement capsule meter) can’t be removed non-destructively and the temperature sensors are sealed by stickers

Figure 6 – Flow sensor (multi-jet measurement capsule meter) can’t be removed non-destructively and the temperature sensors are sealed by stickers

Figure 7 – Securing of the calculator by means of a sticker

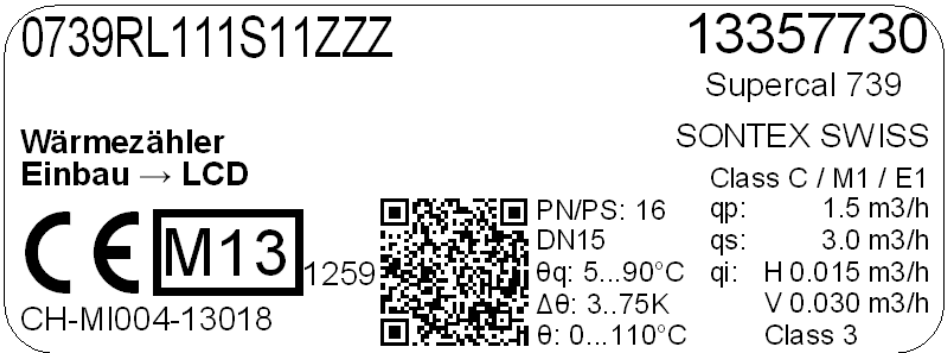

Figure 8 – Example of a descriptive plate