КАТАЛОГ

Sontex SA

Мы предоставляем инновационные измерительные системы для оптимального использования ресурсов – эффективную и профессиональную поддержку наших партнеров.

Домашняя автоматизация

В области “Затрат на энергию и воду” Sontex предоставляет риэлторам и владельцам множество способов точного и справедливого расчета подробных данных о потреблении арендаторов.

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Современная автоматизация зданий помогает оптимизировать энергопотребление и эксплуатационные расходы. Таким образом, продукты Sontex повышают ваше удобство.

Поставщики энергии

Являясь поставщиком измерительных технологий для систем отопления и охлаждения, компания Sontex гарантирует, что поставщики энергии могут извлечь выгоду из точных измерений и надежных данных.

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Supercal 5 I

Multifunctional Calculator

Application

The Supercal 5 I is Sontex's next-generation calculator, succeeding the well-known Supercal 531. This new series is characterised by state-of-the-art multi-functional technologies, is based on a user-friendly modular concept and fully meets customer specific needs as simplified system integration, tariff and data logger functions, universal data transfer and connection to system processors.

Because the design of the Supercal 5 I aim at a high degree of flexibility while keeping future standards in mind, it is ideally suited as a heat or cooling meter, as well as a combined heat/cooling meter. Its volume input can be combined with mechanical, magnetic-flow, ultrasonic or fluidic oscillators flow sensors. The additional pulse inputs allow the connection of hot or cold water, gas, oil, and electricity meters.

Thanks to its extensive range of options for data communication, as well as its flexibility for collecting and recording dynamic plant data, the Supercal 5 I also lend itself well to applications in district heating networks and industry installations.

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Innovations

- Optimisation of the housing for easier installation
- NFC technology for simplified and user-friendly configuration using Superprog Android.
- Large illuminated dot-matrix display (128 × 64) for improved navigation
- 2 LEDs indicate, in real time, the status of the calculator
- Fully customisable tariff and data logger functions
- Display menu position customizable by Superprog Windows Software
- Lifespan of 6+1 years without additional power supply module
- Expanded data storage for enhanced monitoring

Features

- Calculator for heat meters, cooling meters or combined heat/cooling meters
- Battery or mains powered for increased flexibility
- Exchangeable upper part (MET) while wiring remains in place
- Modules can be retrofitted or replaced at any time without affecting the approval
- Self-recognition of optional modules
- Native M-Bus interface according to EN 1434-3
- Optical interface according to IEC 62056-21:2002
- 2- or 4-wire temperarure sensors without any configuration
- 2 pulse/state inputs and 2 pulse/state open drain outputs
- User-friendly menu navigation

Optional Power Supply Modules

One plug and play power supply module can be retrofitted, either Ex Works or on site, or replaced at any time without affecting the approval of the calculator. The calculator recognises automatically the following types of power supplies:

- Lithium D battery 3,6 V
- Mains 24 VDC / 24 VAC (range 12 to 42 VDC / 12 to 36 VAC)
- 230 VAC - 50/60 Hz (range 90 VAC to 240 VAC)

Optional Modules

Up to two plug and play modules can be retrofitted, either Ex Works or on site, or replaced at any time without affecting the approval of the calculator. The calculator recognises automatically the following types of modules:

- Analog Output Module (0..20 mA, 4..20 mA, 0(2)..10 VDC)
- Input Module (state/pulse)
- Output Module (state/pulse)
- M-Bus Module
- BACnet/Modbus Module

Data Logger

The calculator's data logger is fully customisable and allows the following recordings:

- Up to 4 individual historic registers for recording energy, volume, input values
- Average values
- Peak values
- Event log

The only limitation is given by the available memory, which is 10 kB. Each value takes 4 bytes of storage except the maximum values and the event log values that take 8 bytes. Therefore, up to 2'175 values can be recorded.

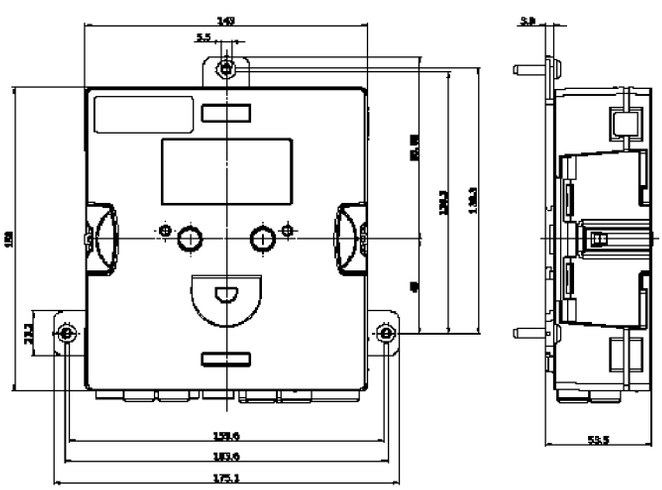
Optional Radio Communication

- Bidirectional SONTEX radio communication
  - Frequency: 433.82 MHz
  - Communication: Bidirectional
  - Protocol: Radian 0
  - Encryption: AES-128
  - Broadcasting performance: 10 mW (10 dbm)

- Unidirectional wM-Bus communication
  - Frequency: 868.95 MHz
  - Communication: Unidirectional
  - Protocol: Wireless M-Bus according EN 13757-4
  - Encryption: AES-128
  - Broadcasting interval: Standard 120 sec. (Mode T1/C1, encryption mode 5/7)
  - Broadcasting performance: 25 mW (14 dbm)

- LoRaWAN
  - Frequency: 868.95 MHz - EU868, normed by ETSI (EN300.220)
  - Communication: Bidirectional
  - Protocol: Radian – EN60870-5 (M-Bus)
  - Encryption: AES-128
  - Broadcasting performance: 25 mW (14dBm)
  - Cycle: Standard every 2 hours

Dimensions



Technical Data

Temperature Measurement	■ Type of temperatur sensor	Pt500 according to EN 60751
	■ Cabling	2- or 4-wires
	■ Absolute temperature range	– 20°C to 200°C
	■ Approved range	1°C to 200°C
	■ Homologation range	3 K to 150 K
	■ Response limit	0,2 K
	■ Temperature resolution t	0,1 K
	■ Temperature resolution Δt	0.01K
	■ Environmental class A	E1/M1
Temperature Measuring Cycle	■ Battery operated	10 s
	■ Mains operated	3 s
Medium Temperature	■ Operation	5°C to 55°C
	■ Storing and transport	–20°C to 70°C (dry environment)
Display	■ Illuminated dot-matrix	128 × 64 pixels
Display Units	■ Energy	kWh, MWh, MJ, GJ, kBtu, MBtu, Mcal, Gcal
	■ Volume	L, m^3, gal (US), kgal (US), ft^3
	■ Additional pulse inputs	Energy or volume
	■ Temperature	°C, °F
Lifespan Supply Modules	■ w/o supply	6 + 1 years (backup for metrological part)
	■ D battery	12 + 1 years
	■ Mains 230 VAC	-
	■ MAins 24 VAC / 24 VDC	-
Degree of Protection	■ IP-Code	IP 65 in accordance to IEC 60529
Pulse Inputs	**Frequencies**	
	■ Without supply	maximum 5 Hz
	■ D battery	maximum 200 Hz
	■ External Mains	maximum 200 Hz
	Input voltage	0 V to 30 V
Pulse Outputs	**Frequencies**	
	■ Without supply	maximum 5 Hz
	■ D battery	maximum 200 Hz
	■ External Mains	maximum 200 Hz
	Output voltage	0 V to 60 V
Optical Interface	■ Interface	according to IEC 62056-21:2002
NFC Interface	■ Interface	according to ISO/IEC 14443 Type A
M-Bus Interface	■ Interface	according to EN 13757-2/3
	■ Baud rate	300 to 9600 baud
	■ Galvanic isolation	3.75 kV

Compatibility Matrix

Fonction	w/o any [1] Power Supply	D Battery	Mains Operated
LCD display	✓	✓	✓
Backlight(LCD display)			✓ [2]
NFC interface	✓	✓	✓
Optical interface	✓	✓	✓
M-Bus interface	✓	✓	✓
Outputs	5 Hz	200 Hz	200 Hz
Inputs	5 Hz	200 Hz	200 Hz
Measurement cycle [3]	Slow	Fast	Fast
Energy measurement (temperatures and volume)	✓	✓	✓
Supply of the flow meter		✓	✓
Radio		✓	✓
Communication Modules [4]	✓	✓	✓
Life span (years)	6 + 1	12 + 1	[5]

[1] Only with backup battery.
[2] In case of power cut, the is no backlight.
[3] If SC5 is connected to Superstatic 440: Slow is between 10 second and 30 Seconds. Fast is between 3 seconds and 30 seconds. If SC5 is connected to other flow sensor: Slow is between 10 second and 120 Seconds. Fast is between 3 seconds and 120 seconds.
[4] M-Bus modules work always. Any other communication module requires an external main power supply.
[5] In the special case that Supercal 5 with an external main power supply connected to a Superstatic 440 suffers a power cut. The backup battery can keep the device working only up to 3 months.

Sontex ■ Thermal Energy ■ Flow Metering ■

Supercom 583

Radio Module for Allmess water meter

Application

The retrofittable radio module **Supercom 583** is suitable for Allmess GmbH water meters:

- System-V +m water meters.
- System-MK +m exchange single jet capsule.

It can be retrofitted at any time without impairing the calibration. The bidirectional SONTEX radio system allows the readout of the consumption data via a mobile radio modem Supercom 636 or via the radio concentrator Supercom 646.

Function

The battery-operated radio module **Supercom 583** scans the rotation of the modulator disc of the water meter, accumulates the rotation pulses and stores the consumption data in his internal memory.
The scan guarantees a precise and correct detection of the backward and forward modulation indicator motion.
The radio module is equipped with an optical manipulation protection. If the radio module is removed and/or opened, the electronic manipulation protection triggers an error message.

Stored Data

- Identification number (serial number of water meter).
- Medium: cold or warm water.
- Serial number (radio module address).
- Current time and date.
- Accumulated volume.
- Set day.
- Volume at set day.
- 15 monthly values.
- Operating hours of battery.
- Manipulation protection: date of the last manipulation and the accumulated duration of all manipulations in minutes.
- Pulse value.
- Number of counter resets.
- Error code.
- Firmware version.
- Commissioning date.
- Accumulated volume and date at the last programming of volume.
- Accumulated volume before the last programming of volume.

Programming data

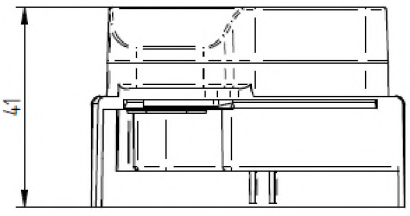
With the software Tools Supercom following parameters can be programmed:

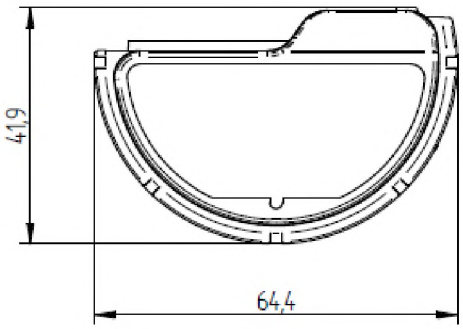
- Water meter ID.
- Medium: cold or warm water.
- Current date and time and set day.
- Initialisation of the totalizer, the set day value and of the 15 monthly values.
- Reset to delivery (sleeping) mode or set to operating mode.
- Password for the secured access to the programming.

Technical Data

General	Permanent flow	MID: Q_3 2.5 m^3/h - 4 m^3/h
	Nominal flow	EWG: Qn 1.5m^3/h - 2.5m^3/h
	Pulse value	1 l/Imp
	Operating temperature	5 to 55°C
	Storage temperature	-20 to 70°C
Housing	Protection class	IP65
Conformity	CE	acc. to RED 2014/53/EU
Radio	Method	FSK, bidirectional
	Frequency	433.82 MHz
	Protocol	Radian, EN60870-5 (M-Bus)
	Baud rate	2'400 Baud
	Range	approx. 30 m, depending on building structure
Data Memory	FRAM	Real time storage
Electronic Data	Main supply	Lithium Metal Battery (≤ 1g) 3VDC
	Service life	Maximum 10 + 1 years

Dimensional Drawing





Sontex ■ Thermal Energy ■ Flow Metering ■

Heat cost allocators

Sontex 565 / 566 / 868

The new **Sontex 565 / 566 / 868** heat cost allocators are replacing the Sontex 555 / 556 models. The latest generation offers maximum flexibility for parametrisation, significantly simplifies the installation and setup process and improves consumption data monitoring. The range is being expanded with the addition of the **Sontex 868**, which uses Wireless M-Bus to relay data. With their precision and their easy-to-read design, Sontex heat cost allocators guarantee the highly reliable transmission of energy consumption data, which can be relayed in several different ways.

Innovations

- Wireless M-Bus communication (**Sontex 868**).
- Automatic activation when installed on rail.
- Remote sensor plug-in device available for all heat cost allocator models.
- Password protection for parametrisation.
- AES-128 encryption for secure data transmission.
- Increased measuring range.
- Cumulative record of frauds.
- Up to 15 scrolling values can be displayed on the LCD.
- Up to 144 monthly readings and 18 fortnightly readings saved.
- 18 monthly maximum radiator temperature readings saved.

Sontex ▪ Thermal Energy ▪ Flow Metering ▪

Features

- Single or two-sensor measurement method.
- Unit or product scale, to be defined according to the billing method.
- Meets EN 834:2013.
- User-friendly operation by push button.
- Optical interface for readout and parametrisation.
- Several software tools available.
- Peel-off barcode sticker for easy device registration.
- Lithium battery with a typical lifespan of 10 + 1 years.
- Made in Switzerland.

Models

Sontex 565

- Display.
- Optical interface.

Sontex 566

- Display.
- Optical interface.
- Bidirectional radio communication SONTEX (433.82 MHz).

Sontex 868

- Display.
- Optical interface.
- Unidirectional radio communication Wireless M-Bus (868.95 MHz).

Sontex 565 X / 566 X / 868 X

These heat cost allocators have the same features as the **Sontex 565 / 566 / 868** models. The X models have a triangular sensor (as known from Kundo 201 / 202).

A remote sensor plug-in device is available for all heat cost allocator models. Once equipped with this sensor, the heat cost allocator will only work with a measurement method by remote sensor. The sensor cable is 2 metres long.

Parametrisation

Prog6 software

The Prog6 software enables you to parametrise **Sontex 565 / 566 / 868** allocators with up to 45 different parameters via a standardised optical interface. Only authorised users can modify these settings. In order to protect your devices from frauds, both the allocators and the Prog6 software have a password function. The factory-set “Installer” password can be changed for all heat cost allocators. Parametrisation prior to delivery greatly simplifies product handling.

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Readout

LCD (Sontex 565 / 566 / 868)

The **Sontex 565 / 566 / 868** heat cost allocators have a multi-purpose LCD display. The full display is shown below:

Display with all elements illuminated

Sontex 565 / 566 / 868 allocators are supplied with the LCD display switched off. Allocators can be supplied with a continuous switched on display on request.

Optical interface (Sontex 565 / 566 / 868)

In accordance with the M-Bus format (EN 13757-3), the standardised optical interface enables consumption data and saved parameters to be relayed directly to a PC. This data and these parameters may be viewed and parametrised using the optical interface and the Prog6 software.

SONTEX radio (Sontex 566)

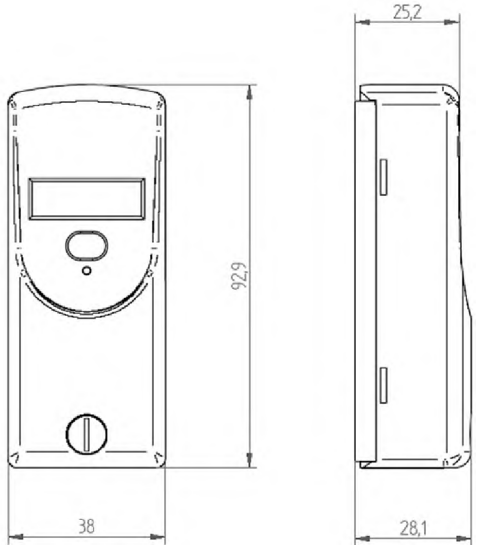
The SONTEX radio communication interface enables the heat cost allocator to communicate with Supercom radio products. The **Sontex 566** uses bidirectional radio technology, a reliable and effective solution for a remote data system (stationary or mobile). Consumption data and saved parameters may be viewed and parametrised using SONTEX radio communication and the Tools Supercom software. The **Sontex 566** can be accessed according to the customer's chosen parameters.

Wireless M-Bus radio (Sontex 868)

The Wireless M-Bus radio communication interface enables data readout using Wireless M-Bus radio protocol (EN 13757-4) and complies with open metering system (OMS) specifications version V3.0.1. The **Sontex 868** uses unidirectional radio technology and transmits the consumption data and saved parameters every 120 seconds for short (OMS) or long (walk-by) telegrams. The **Sontex 868**'s radio readout can be set to the following time periods:

- Short telegram (OMS): 24 hours a day, 7 days a week.
- Long telegram (walk-by): ≤ 12 hours a day, 7 days a week.

Dimensions



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Technical specifications

Measurement method:	Single or two-sensor
Scale:	Unit or product scale
Power supply:	3 V lithium battery
Typical lifespan:	10 + 1 years
Display:	LCD
Display size:	6 digits (000000–999999)
Interface:	Optical interface compliant with EN 60870-5
Storage temperature:	-25–70 °C

Use

Radiator power:	4–16,000 W
Measuring range:	0–105 °C 0–120 °C (remote sensor)
tmin:	35 °C (two-sensor) 55 °C (single-sensor)
tmax:	105 °C 120 °C (remote sensor)
Measurement start:	Parametrisable
Set day:	Parametrisable

Standards

Standard:	EN 834:2013
Certification:	HKVO A1.02.2015
CE compliance:	Compliant with Directive 2014/53/EU (RED)

SONTEX radio communication

Frequency:	433.82 MHz
Communication:	Bidirectional
Protocol:	Radian 0
Encryption:	AES-128

Wireless M-Bus radio communication

Frequency:	868.95 MHz
Communication:	Unidirectional
Protocol:	Wireless M-Bus
Encryption:	AES-128
Transmission standard:	EN 13757-4, mode T1
Broadcasting interval:	Short telegram (OMS): ≥ 120 s Long telegram (walk-by): ≥ 120 s
Data transmission periods:	Short telegram (OMS): 24 hours a day, 7 days a week Long telegram (walk-by): ≤ 12 hours a day, 7 days a week

Supercal 739

Compact Thermal Energy Meter

Single jet	Coaxial Multi-Jet Meter with G 2" thread	Coaxial Multi-Jet Meter with M77x1.5 thread	Coaxial Multi-Jet Meter with M62x2 thread

Application

The **Supercal 739** is an autonomous compact thermal energy meter consisting of a flow meter,
temperature sensors. It's used in home automation, local and district heating/cooling systems to measure the consumption of heating or/and cooling energy for individual billing. a detachable integrator with a wide range of communications options and a pair of

The **Supercal 739** is available in various models, measures the temperature within the range of 0°C to 110°C and meets the requirements of the European Measuring Instruments Directive (MID) 2014/32/EU and the standard EN 1434 class 3.

Standard features

- Configured as a heat meter MID with temperature sensors Ø 5, Ø 5.2 or Ø 6 mm with 1.5m cable.
- Optical interface for readout and 6+1 years battery life time
- Easy to operate and read
- Non-volatile EEPROM memory, that keeps stored data even in case of power failure
- 18 monthly energy values for heat energy and volume
- Self-monitoring and error display

Model

The **Supercal 739** is available in the following model:

- Mechanical flow meter for flows q_p 0.6 m^3/h, q_p 1.5 m^3/h, q_p 2.5 m^3/h with
  - Single jet flow sensor
  - Coaxial multi jet flow sensor with G2" or a M77x1,5 thread
  - Coaxial multi jet flow sensor with M62x2 thread for flows qp1.5 and qp2.5 m^3/h

Size

The **Supercal 739** single jet is available in the following sizes:

- Flow meter for qp 0.6 m^3/h, with a length of either 110 mm
- Flow meter for qp 1.5 m^3/h, with a length of either 110 mm or 130 mm
- Flow meter for qp 2.5 m^3/h, with a length of either 110 mm or 130 mm

Options

The Supercal 739 can be ordered with following options

- ∅ 5,2 mm or ∅ 6 mm temperature sensors
- 12+1 years battery
- One of the following communications options:
  - Self-powered M-Bus
  - Bidirectional Radio SONTEX interface
  - Wireless M-Bus
  - LoRaWAN
  - Two pulse outputs either heating or cooling energy consumption and volume, or heating and cooling energy consumption
- Two additional pulse inputs

Functions

- Measure and record energy consumption and volume of the flow in heat or cooling applications
- Optionally measure and record the second “energy consumption”, for heat/cooling applications
- If the two additional inputs were configured then record the provided values. The configuration can be done either through the optical interface, via M-Bus or by radio SONTEX.
- Display of consumption data depending on configuration:
  - 18 monthly energy heat, volume and, if configured, energy Tariff 1 (cooling energy)
  - 18 monthly values of additional pulse input 1 and 2 respectively
  - Set day values
- Display operating data including self-monitoring with error display

Temperature sensors

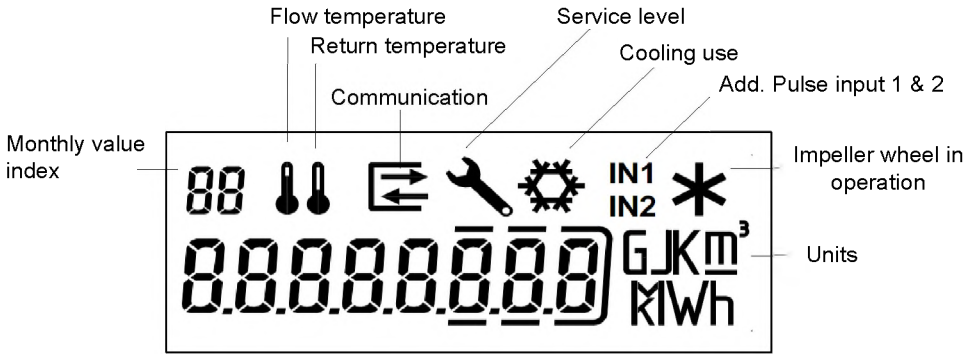
The pair of temperature sensors Pt 1'000 is connected to the integrator and is an integral part of the heat meter. The sensor with a colourless marking is mounted and sealed directly into the flow sensor. The temperature sensor with the orange marking must be mounted in the pipe “opposite” to the **Supercal 739**.
The temperature sensors mustn’t be changed or modified.

Integrator

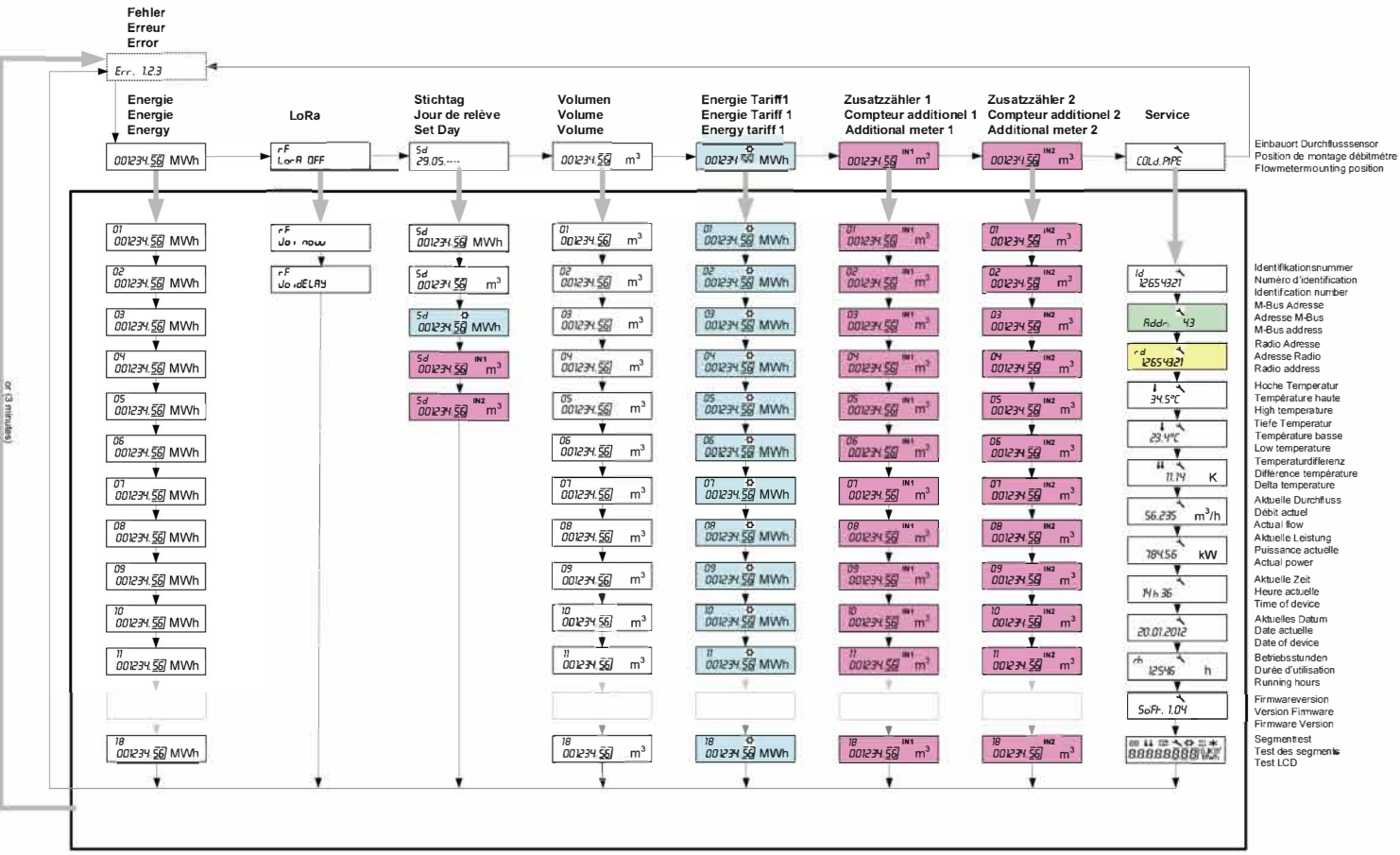
The integrator is equipped with a large 8-digits display and can be rotated by 360°.
The integrator can be separated from the flow sensor and be installed separately. A cable of 0,6 meter connects the integrator to the flow sensor.
The housing has a protection index of IP65 against dust and humidity.

Display

The LCD display of the **Supercal 739** has a large, clear design and high contrast, making it easy to read the data.



Display sequences



Error messages

Err 1	Flow higher than 1.2 x qs or faulty flow sensor.
Err 2	Measured temperature out of range or faulty temperature sensor.

Measuring principle

The medium flowing through the system drives the impeller wheel and the rotational speed is scanned electronically using a magnet (single jet) or inductive (coaxial multiple jet) principle detection. The temperature difference in the supply and return line is measured with a pair of platinum temperature sensors (Pt 1'000).

Energy calculation

The flow sensor records the flow. The thermal energy consumption, respectively the heating and cooling energy are calculated by means of the temperature difference between hot and cold pipe, the recorded volume, and the heat coefficient. The latter takes into consideration the density, the viscosity and the specific heat of the liquid used. All these are dynamically adapted in function of the temperature.

Cooling energy

The cooling energy in combined heat/cooling applications is stored in another memory than the heat energy and will be cumulated only if the two following conditions are fulfilled:

- Temperature difference(Δt) > -0.5K
- Supply temperature < 18°C

The cooling energy has the same physical unit as the heat energy. The cooling power and the temperature difference are in this case displayed with a minus sign (-). If required it is possible to order the **Supercal 739** with another threshold than the 18°C.

Non-volatile memory

The device parameters, as well as the cumulative values for energy and volume, cooling energy, monthly values, set day values, values of the pulse input counters 1 and 2, operating hours and error type are stored in a non-volatile memory (EEPROM), where they are saved even in case of a power failure (e.g. changing batteries). Once an hour and in the event of battery failure, the cumulative values are updated in the EEPROM.

Monthly values

At the end of each month, the monthly values are stored.
Depending on the configuration a total of 18 monthly values of heat energy, volume, cooling energy and of the additional pulses inputs 1 and 2 are memorized in the integrator.

Pulse inputs

As an option the **Supercal 739** offers the possibility to integrate two additional pulse inputs such as from a hot water and a cold water meter.

Communication options

Several communication interfaces are available.
The configuration of the selected communication option of the **Supercal 739** can be carried out with the free software Prog7x9 from Sontex.

TECHNICAL DATA SUPERCAL 739

Temperature sensors

2 wire temperature sensor	Pt1'000
Diameter	Ø5.0; Ø5.2, Ø6.0 mm
Cables length	1.5 m

Measurement

Approved temperature range θ	0...110°C
Approved for long term operating temperature θq	5...90°C
Differential range ΔΘ	3...75 K
Response limit	0.5 K
Temperature resolution t (display)	0.1 °C
Temperature resolution Δt (display)	0.01 K
Temperature-measurement cycle at nominal flow	10 seconds

Integrator General

Environment class	C
Mechanics	M1
Electronics	E1
Battery protection class	III
Cable connection between flow sensor and integrator	0.6 m, fix
Integrator Protection index	IP 65
Operating temperature	5...55°C
Operating temperature with radio option	5...40°C
Storage and transport temperature	-10...60°C

Display & Display units

LCD with 8-digits	
Energy	kWh, MWh, GJ
Volume	m^3
Additional pulse inputs	Volume or pulses
Temperature	°C
Δ Temperature	K

Power supply

Lithium Metal Battery (≤ 1g) 3VDC	6+1 or 12+1 years

Powered by M-Bus line

1 device = 2 M-Bus charges (max 2 x 1.5mA)

Pulse output

Open drain (MOS Transistor)	1 Hz, 500 ms
Vcc_{max} : 35 V_{DC} ; Icc_{max} : 25 mA	

Pulse inputs with a dry contact

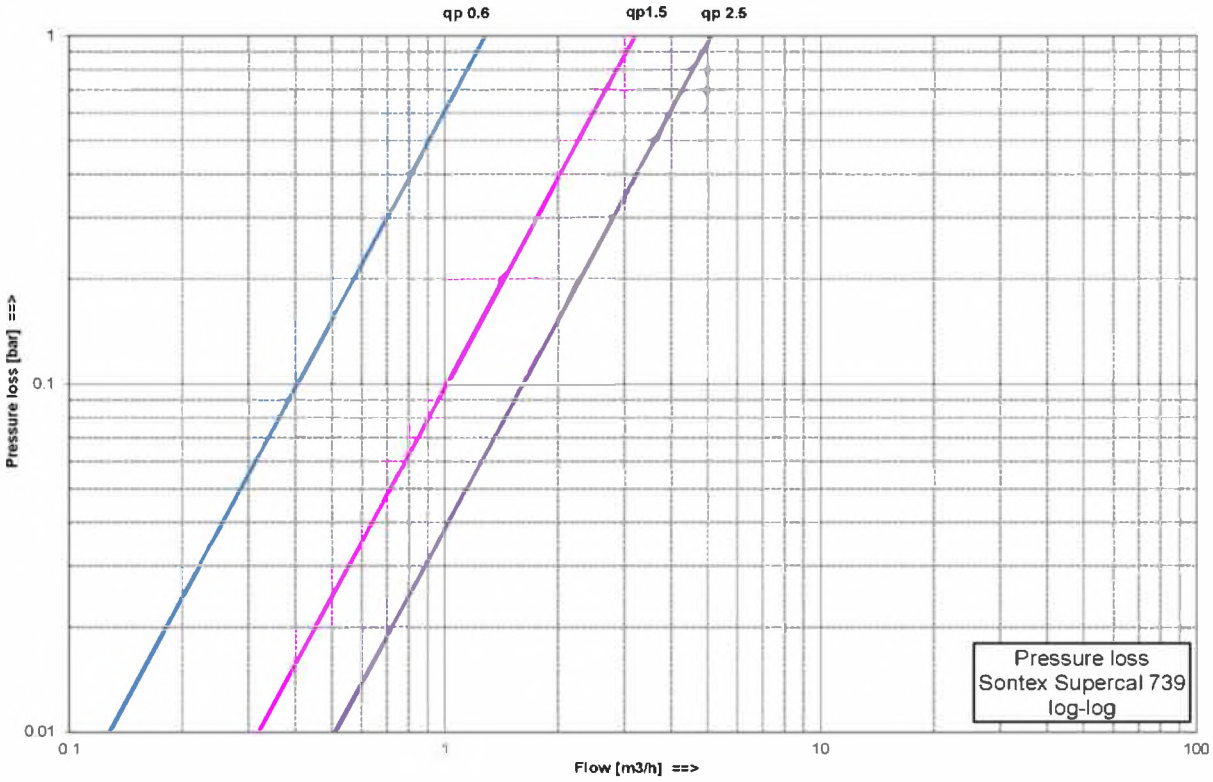
Power supply $_{internal}$	2.3 V_{DC}
$R_{pull\ UP\ internal}$	2 MΩ
Pulse factor	0...999.999 m^3/Imp or without unit

Single Jet Flow Sensor

qp	Threaded connection		Mounting length	Mat.	PN	Maximal flow qs	Minimal flow qi	Low flow threshold value (50°C)	Threaded hole for sensor	Total Meter Weight	Kvs value (20°C)	Pressure loss at qp
m^3/h	G"	DN	mm		bar	m^3/h	l/h	l/h		kg	m^3/h	bar
	(EN ISO 228-1)						*(h / v)					
0.6	3/4"	*(15)*	110	Br	16	1,2	12 / 24	3	Yes	0.8	1.3	0.22
1.5	3/4"	*(15)*	110	Br	16	3,0	30 / 60	3	Yes	0.9	3.2	0.22
1.5	1"	*(20)*	130	Br	16	3,0	30 / 60	3	Yes	1.0	3.2	0.22
2.5	1"	*(20)*	130	Br	16	5,0	50 / 100	8	Yes	1.1	5.1	0.24

*(h / v): Horizontal mounting / vertical mounting; Br: brass
16 bar = 1.6 MPa

Pressure loss curve



Metrological class

EN 1434 class 3

Mounting

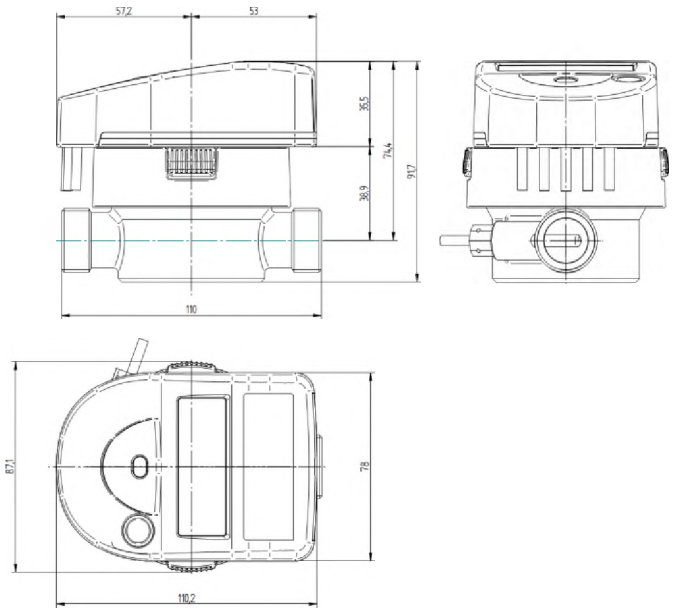
The Supercal 739 should not be mounted on the side where the continuous operating temperature of the liquid exceeds 90°C or is below 5°C.
Length of straight section fitted upstream/downstream of each flow meter (EN1434):
U3 / D0 for: L=110mm and L=130mm

Dimensions

Dimensions integrator	110.2 mm x 87.1 mm
Total Height	91.7 mm
Height from the axis of the tube	74.4 mm
Height without integrator	38.9 m

Supercal 739, single jet

(L: 110 mm)



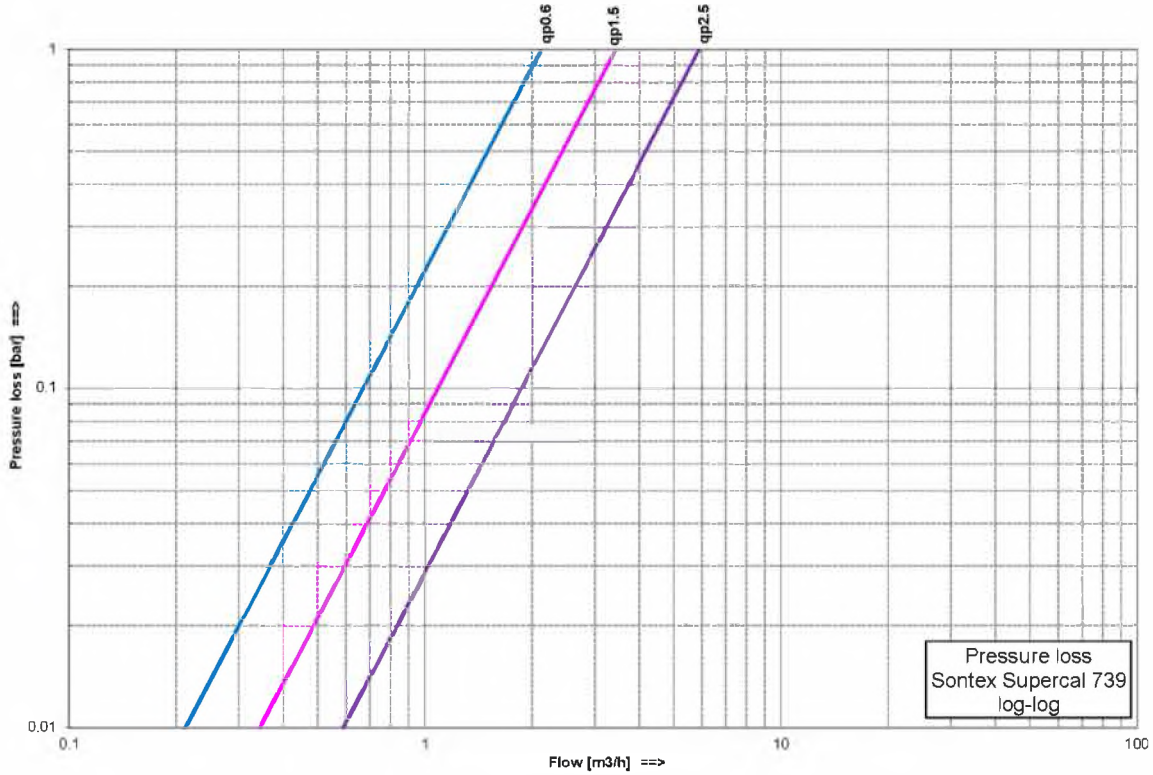
Coaxial Multiple Jet Flow Sensor with G2" connection

qp	Threaded connection *EAS		Mounting length	Mat.	PN	Maximal flow qs	Minimal flow qi	Low flow threshold value (50°C)	Threaded hole for sensor	Total Meter Weight	Kvs value (20°C)	Pressure loss at qp
m^3/h	G"	DN	mm		bar	m^3/h	l/h	l/h		kg	m^3/h	bar
	(EN ISO 228-1)											
0.6	3/4"	*(15)*	110	Br	16	1,2	12	8	Yes	0.6	1.7	0.08
1.5	3/4"	*(15)*	110	Br	16	3,0	15	10	Yes	0.6	3.4	0.19
1.5	1"	*(20)*	130	Br	16	3,0	15	10	Yes	0.6	3.4	0.19
2.5	1"	*(20)*	130	Br	16	5,0	25	17	Yes	0.7	5.9	0.18

*EAS: base; Br: brass

16 bar = 1.6 MPa

Pressure loss curve



Metrological class

EN 1434 class 3

Mounting

External thread of the coaxial part G2"

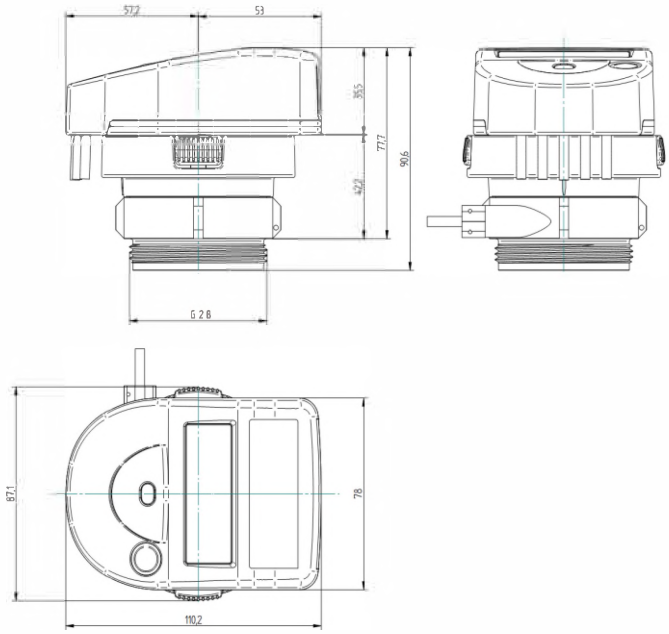
The Supercal 739 should not be mounted on the side where the continuous operating temperature of the liquid exceeds 90°C or is below 5°C.

Length of straight section fitted upstream/downstream of each flow meter (EN1434):
U0 / D0 for: L=110mm and L=130mm

Dimensions

Dimensions integrator	110.2 mm x 87.1 mm
Total height	90.6 mm
Height from the base	77.7 mm
Height without integrator	42.2 mm

Supercal 739, Coaxial Multiple Jet Flow Sensor with G2” connection



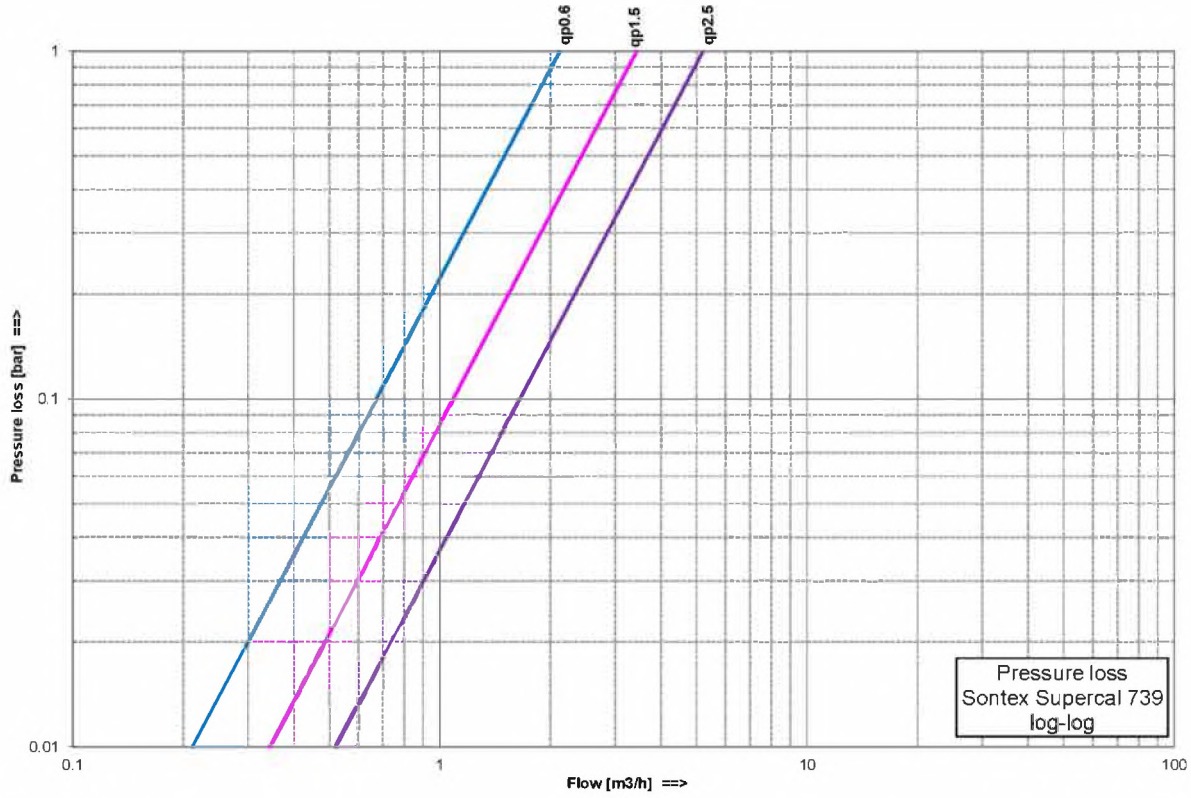
Coaxial Multiple Jet Flow Sensor with M77x1.5 connection

qp	Threaded connection *EAS		Mounting length	Mat.	PN	Maximal flow qs	Minimal flow qi	Low flow threshold value (50°C)	Threaded hole for sensor	Total Meter Weight	Kvs value (20°C)	Pressure loss at qp
m^3/h	G"	DN	mm		bar	m^3/h	l/h	l/h		kg	m^3/h	bar
	(EN ISO 228-1)											
0.6	3/4"	*(15)*	110	Br	16	1,2	12	8	Yes	0.8	1.7	0.08
1.5	3/4"	*(15)*	110	Br	16	3,0	15	10	Yes	0.8	3.4	0.19
1.5	1"	*(20)*	130	Br	16	3,0	15	10	Yes	0.8	3.4	0.19
2.5	1"	*(20)*	130	Br	16	5,0	25	17	Yes	0.9	5.2	0.23

*EAS: base; Br: brass

16 bar = 1.6 MPa

Pressure loss curve



Metrological class

EN 1434 class 3

Mounting

External thread of the coaxial part M77x1.5

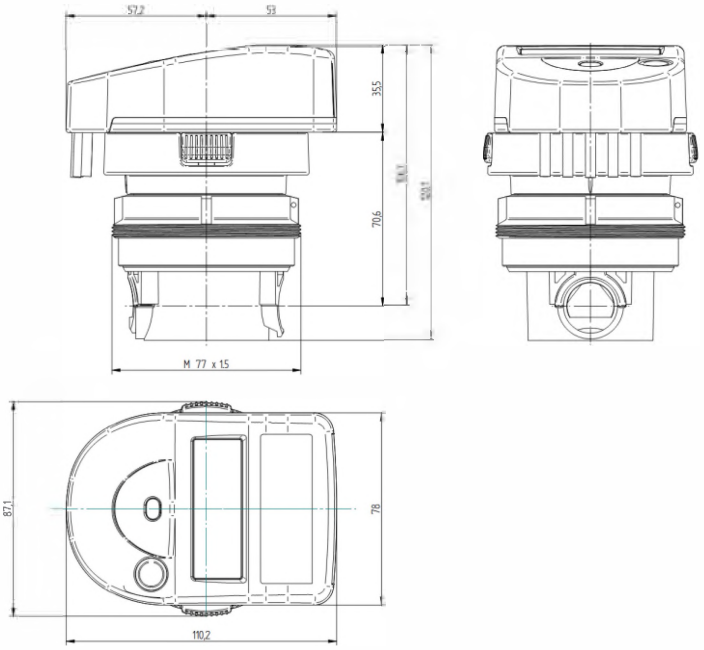
The Supercal 739 should not be mounted on the side where the continuous operating temperature of the liquid exceeds 90°C or is below 5°C.

Length of straight section fitted upstream/downstream of each flow meter (EN1434):
U0 / D0 for: L=110mm and L=130mm

Dimensions

Dimensions integrator	110.2 mm x 87.1 mm
Total height	120.1 mm
Height from the middle of the base	106.1 mm
Height without integrator	70.6 mm

Supercal 739, Coaxial Multiple Jet Flow Sensor with M77x1.5 connection



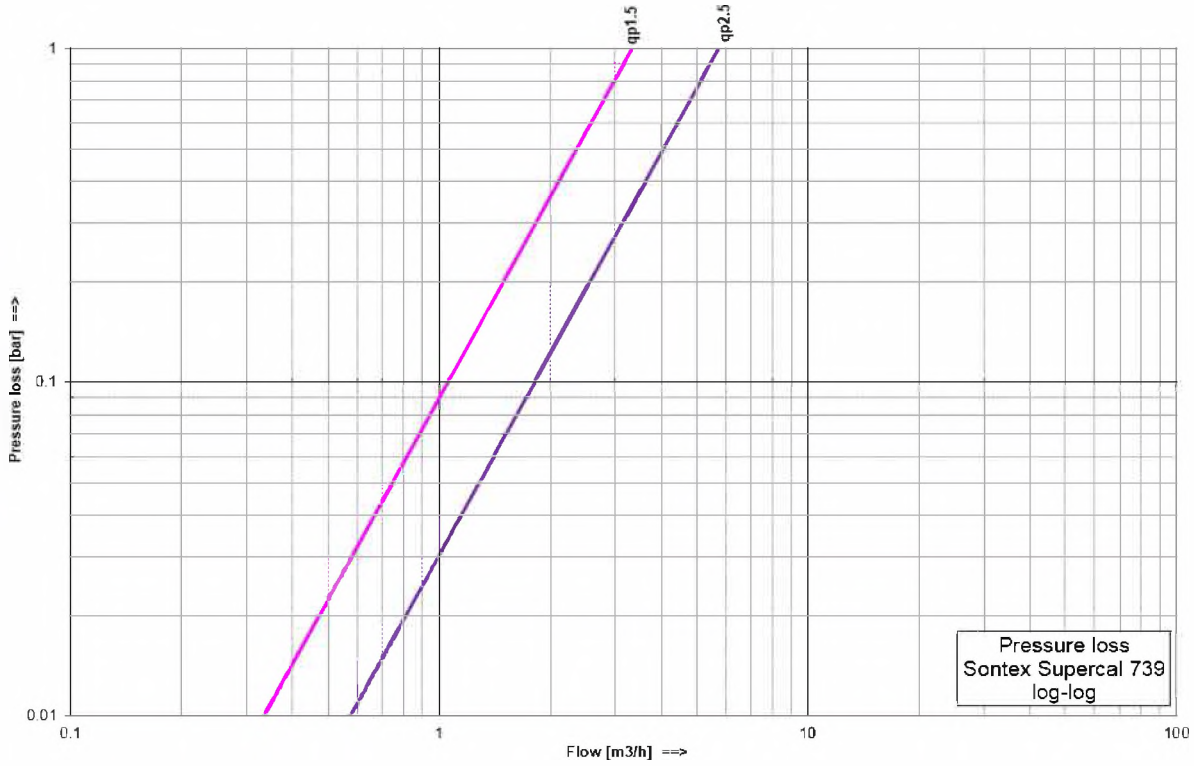
Coaxial Multiple Jet Flow Sensor with M62 x 2 connection

qp	Threaded connection *EAS		Mounting length	Mat.	PN	Maximal flow qs	Minimal flow qi	Low flow threshold value (50°C)	Threaded hole for sensor	Total Meter Weight	Kvs value (20°C)	Pressure loss at qp
m^3/h	G"	DN	mm		bar	m^3/h	l/h	l/h		Kg	m^3/h	bar
	(EN ISO 228-1)											
1.5	3/4"	*(15)*	110	Me	16	3,0	30	10	Ja	0.7	3.4	0.20
1.5	1"	*(20)*	130	Me	16	3,0	30	10	Ja	0.7	3.4	0.20
2.5	1"	*(20)*	130	Me	16	5,0	50	15	Ja	0.7	5.7	0.19

*EAS: base; Br: brass

16 bar = 1.6 MPa

Pressure loss curve



Metrological class

EN 1434 class 3

Mounting

External thread of the coaxial part M62x2

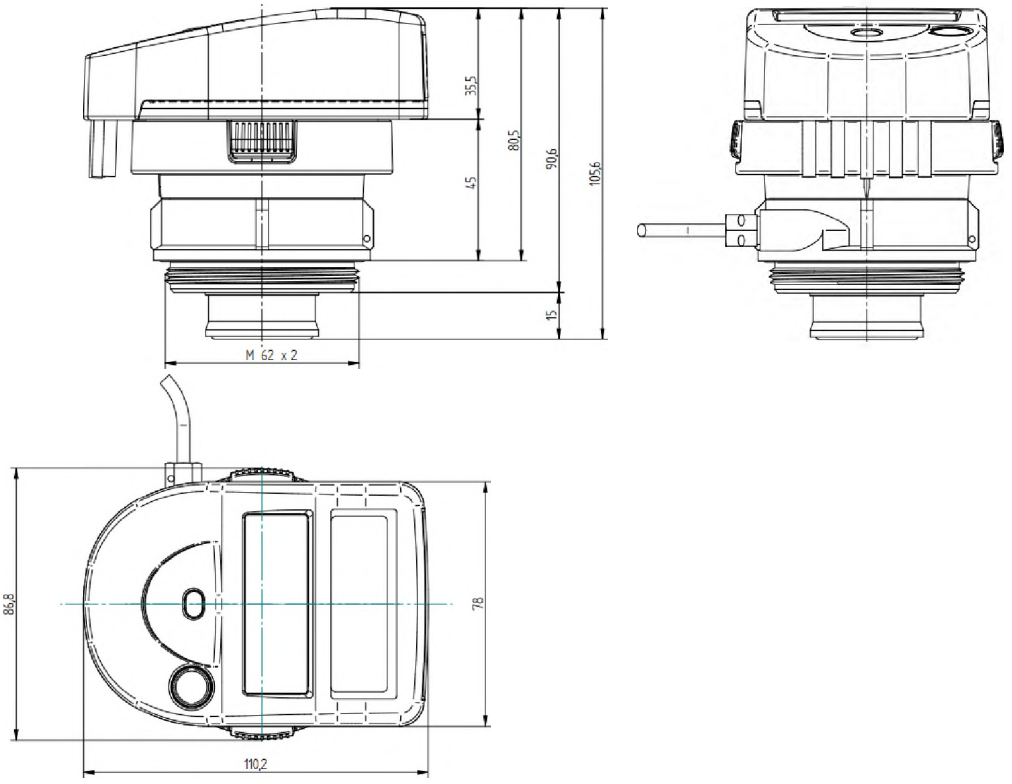
The Supercal 739 should not be mounted on the side where the continuous operating temperature of the liquid exceeds 90°C or is below 5°C.

Length of straight section fitted upstream/downstream of each flow meter (EN1434):
U0 / D0 for: L=110mm and L=130mm

Dimension

Dimensions integrator	110.2 mm x 86.8 mm
Total height	105.6 mm
Height from the middle of the base	90.6 mm
Height without integrator	45.0 mm

Supercal 739, Coaxial Multiple Jet Flow Sensor with M62x2 connection



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Supercom

Supercom 323

Radio Module for Ei Electronics® smoke detectors

Application

The radio module **Supercom 323** enables distant check of installed smoke detectors, and thereby could save costly inspections. The radio module is suitable for the following Ei Electronics® smoke detector:

- Ei650FA

Thanks to the bidirectional radio system SONTEX, it is possible to readout the stored data in the radio module via a mobile radio modem Supercom 636 or via a radio concentrator Supercom 646. The radio module can be retrofitted at any time without impairing the functioning of the smoke detector.

Function

The battery-operated radio module **Supercom 323**, plugged into an Ei Electronics smoke detector, stores status information of the smoke detector. The stored data can be accessed via the bidirectional radio communication SONTEX within the reception area of the readout device.

Parametrisation

Following parameters can be parametrised by radio with the software Tools Supercom:

- Date and time
- Password
- Reset of several stored data
- AES-128 encryption

Readout

Following parameters can be read out by radio with the software Tools Supercom:

- Smoke events (number and date of the last event)
- Battery status, dust level and sensor status
- Head removals (number, duration and date of the last event)
- Button tests (number and date of the last event)
- Automatic self-test (for the Ei650FA smoke detector, an automatic self-test of its sounder is performed during the readout)
- Date and time
- Module removals (date of the last event)

Accessibility

The radio module can be accessed by radio from 6h00 to 20h00, 7 days a week.

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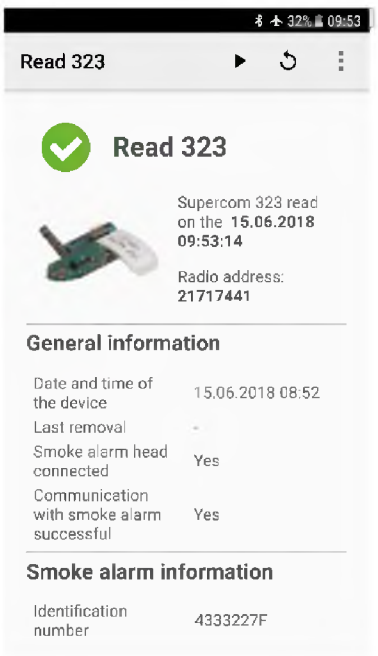
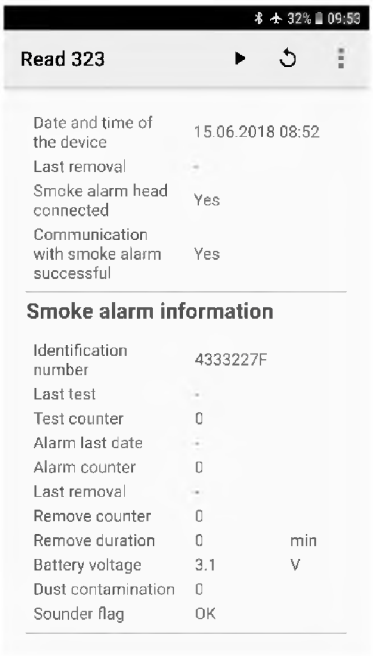
Supercom

Technical Data

General	Operating temperature Storage temperature Humidity range	0 °C to 40 °C -10 °C to 60 °C 15 % to 95 % RH non condensing
Radio		
	Frequency Output power Encryption	433.82 MHz max. 10 mW AES-128
Conformity	CE	**acc. to RED 2014/53/EU**
Data Memory		
	Flash memory	non-volatile storage
Power Supply		
	Main supply Lifespan	3 V lithium battery typically 10 + 1 years
Dimensions		
	Radio module Smoke detector	58.8 mm x 29.85 mm x 34 mm 115 mm (D) x 50 mm (H)

Readout Example





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Supercom 327

Radio Module for Ei Electronics® smoke alarms

Application

The radio module **Supercom 327** enables distant check of installed smoke alarms, and thereby could save costly inspections. The radio module is suitable for the following Ei Electronics® smoke alarm:

- Ei650FA

Thanks to the unidirectional radio system Wireless M-Bus (OMS), it is possible to readout the stored data in the radio module via a mobile radio modem or via a radio concentrator. The radio module can be retrofitted at any time without impairing the functioning of the smoke alarm.

Function

The battery-operated radio module **Supercom 327**, plugged into an Ei Electronics smoke alarm, stores status information of the smoke alarm. The stored data can be read out via the unidirectional radio communication Wireless M-Bus (OMS) within the reception area of the readout device.

Parametrisation

Following parameters can be parametrised Ex Works:

- Date and time
- Password
- Automatic self-test (date and time of the event)
- Radio transmission interval and radio transmission calendar
- Commissioning (automatic or by button)
- AES-128 encryption

Readout

Following parameters can be read out by radio with the software Tools Supercom:

Operating Mode

- Smoke events (number and date of the last event)
- Battery status, dust level and sensor status
- Head removals (number, duration and date of the last event)
- Button tests (number and date of the last event)
- Date of the last self-test
- Date and time
- Commissioning date
- Module removals (number, duration and date of the last event)

The radio module **Supercom 327** sends the data of the smoke alarm every 120 seconds (minimum), 12 hours a day, and 7 days a week.

Technical Data

General

Operating temperature	0 °C to 40 °C
Storage temperature	-10 °C to 60 °C
Humidity range	15 % to 95 % RH non condensing

Radio

Frequency	868.95 MHz
Output power	max. 12.5 mW
Encryption	AES-128
Transmission standard	EN 13757-4, mode T1
OMS (Open Metering System)	acc. to OMS generation 4, mode 5

Conformity

CE **acc. to RED 2014/53/EU**

Data Memory

Flash memory	non-volatile storage

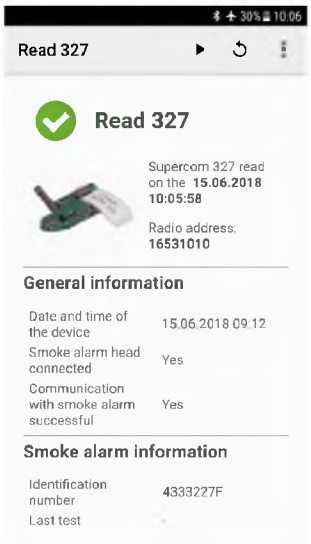
Power Supply

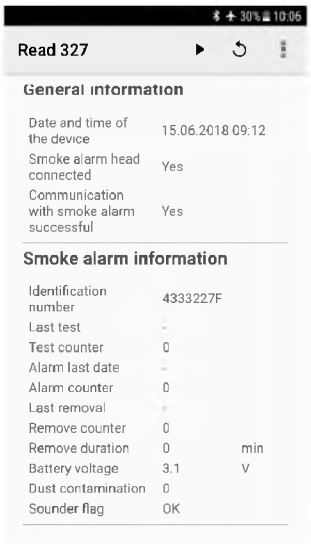
Main supply	3 V lithium battery
Lifespan	typically 10 + 1 years

Dimensions

Radio module	58.8 mm x 29.85 mm x 34 mm
Smoke alarm	115 mm (D) x 50 mm (H)

Readout Example





Radio module for Elster water meter

Application

Radio module **Supercom 580** to retrofit for the Elster multi-jet meter MO-A and MOZ-A as well as for the Elster-Picoflux-water meter EV-A.

The retrofit radio module for water meters can be retrofitted at any time without impairing the calibration. The bidirectional SONTEX radio system allows the readout of the consumption data via a mobile radio modem Supercom 636 or via the radio concentrator Supercom 646.
For the Elster multi-jet meters MO-A and MOZ-A, various housings for all types of pipe connections for flush or surface mounting and for valve connection are available. The great variety of adapters for installations from different manufacturers allows a cost-effective change-over to this technology at all metering points.

The battery-operated radio module **Supercom 580** scans the volume pulses of the water meter, accumulates them and stores the consumption data.
The radio module is equipped with a manipulation protection. If the housing of the radio module is removed and / or opened, the electronic manipulation protection triggers an error message.

Function

- Identification number (serial number of water meter)
- Medium: cold or warm water
- Serial number (radio module)
- Current time and date
- Accumulated volume
- 15 monthly values
- Operating hours of battery
- Manipulation protection; date of the last manipulation and the accumulated duration of all manipulations in minutes
- Magnetic contact detection in minutes and with date of the last magnetic contact detection
- Pulse value
- Number of counter resets

Stored Data

With the software Tools Supercom following parameters can be programmed:

Programming data

- Water meter ID and medium: cold or warm water
- Current date and time
- Initialisation of the totalizer and of the 15 monthly values
- Reset to delivery (sleeping) mode or set to operating mode

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Supercom 580

Technical Data

General

Pulse value	0.5 l/Imp
Operating temperature	5 to 55°C
Storage temperature	-20 to 70°C

Housing

Protection class	IP65

Conformity

CE acc. to RED 2014/53/EU

Radio

Method	FSK, bidirectional
Frequency	433.82 MHz
Protocol	Radian, EN60870-5 (M-Bus)
Baud rate	2'400 Baud
Range	approx. 30 m, depending on building structure

Data Memory

EEPROM (captive)	daily recording

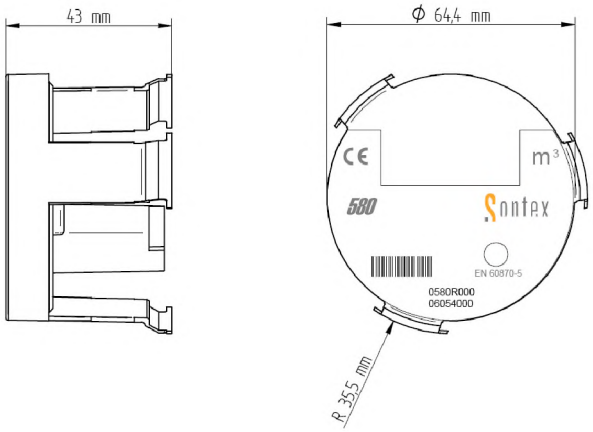
Electronic Data

Main supply	Lithium Metal Battery (≤ 1g) 3VDC
Service life	Maximum 10 years

Optical Interface

Protocol	EN60870-5 (M-Bus)
Baud rate	2'400 Baud

Dimensional Drawing



Radio Module for Wehrle Modularis water meter

Application

The retrofittable radio module **Supercom 581** is suitable for the large range of water meters of E. Wehrle GmbH:

- Modularis single-jet and multi-jet dry-rotor meters
- Modularis cylindrical piston meters
- and various versions of EAS-Modular measuring capsules

It can be retrofitted at any time without impairing the calibration. The bidirectional SONTEX radio system allows the readout of the consumption data via a mobile radio modem Supercom 636 or over the radio central Supercom 646.

Function

The battery-operated radio module **Supercom 581** scans the volume pulses of the water meter, accumulates them and stores the consumption data in this internal memory.
The scan guarantees a precise and correct detection of the backward and forward modulation indicator motion.
The radio module is equipped with an optical manipulation protection. If the housing of the radio module is removed and/or opened, the electronic manipulation protection triggers an error message.

Stored Data

- Identification number (serial number water meter)
- Medium: cold or warm water
- Serial number (radio module address)
- Current time and date
- Accumulated volume
- 15 monthly values
- Operating hours of battery
- Manipulation protection: date of the last manipulation and the accumulated duration of all manipulations in minutes
- Magnetic contact detection: with date of the last magnetic contact detection and the accumulated duration of all manipulations
- Pulse value
- Number of counter resets

Programming data

With the software Tools Supercom following parameters can be programmed:

- Water meter ID and medium: cold or warm water
- Current date and time
- Initialisation of the totalizer and of the 15 monthly values
- Reset to delivery (sleeping) mode or set to operating mode
- Password for the secured access to the programming

Sontex ■ Thermal Energy ■ Flow Metering ■

Supercom 581

Technical Data

General

Permanent flow	MID:	Q3 2.5 - 6.3 m^3/h
		Q3 10 - 25 m^3/h
Nominal flow	EWG:	Qn 1.5 - 3.5m^3/h
		Qn 6 - 15m^3/h
Pulse value		1 l/Imp
Operating temperature		5 to 55°C
Storage temperature		-20 to 70°C

Housing

Protection class	IP68 Maximum 7 days permanent Maximum 1 m of water depth static Temperature range 7°C – 35°C IP67 outside of the above mentioned conditions

Conformity

CE acc. to RED 2014/53/EU

Radio

Method	FSK, bidirectional
Frequency	433.82 MHz
Protocol	Radian, EN60870-5 (M-Bus)
Baud rate	2'400 Baud
Range	approx. 30 m, depending on building structure

Data Memory

EEPROM	Daily storing

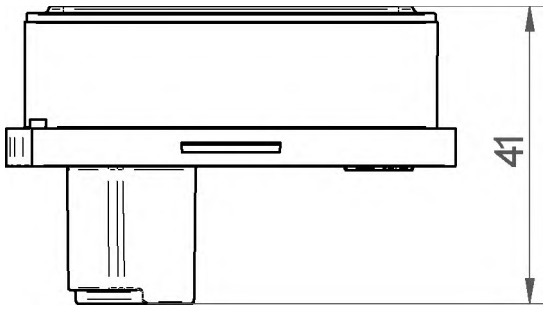
Electronic Data

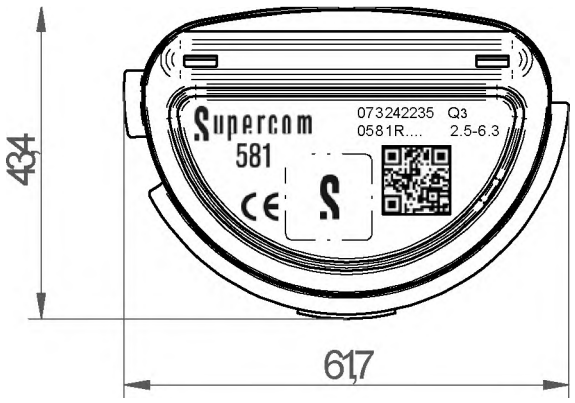
Main supply	Lithium Metal Battery (≤ 1g) 3VDC
Service life	Maximum 11 years

Optical Interface

Protocol	EN60870-5 (M-Bus)
Baud rate	2'400 Baud

Dimensional Drawing





Sontex Thermal Energy Flow Metering

Supercom 582

Radio Module for Elster water meter

Application

The retrofittable radio module **Supercom 582** is suitable for Elster Messtechnik GmbH (Honeywell) water meters:

- S110 PICOFLUX EF single-jet.
- M140 MODULMETER MOF for exchange multi-jet capsule.

It can be retrofitted at any time without impairing the calibration. The bidirectional SONTEX radio system allows the readout of the consumption data via a mobile radio modem Supercom 636 or via the radio concentrator Supercom 646.

Function

The battery-operated radio module **Supercom 582** scans the rotation of the modulator disc of the water meter, accumulates the rotation pulses and stores the consumption data in his internal memory.
The scan guarantees a precise and correct detection of the backward and forward modulation indicator motion.
The radio module is equipped with a magnetic manipulation protection. If the radio module is removed and/or opened, the electronic manipulation protection triggers an error message.

Stored Data

- Medium: cold or warm water.
- Serial number (radio module address).
- Current time and date.
- Accumulated volume.
- Set day.
- Volume at set day.
- 15 monthly values.
- Operating hours of battery.
- Manipulation protection: date of the last manipulation and the accumulated duration of all manipulations in minutes.
- Number of counter resets.
- Error code.
- Firmware version.
- Commissioning date.
- Accumulated volume and date at the last programming of volume.
- Accumulated volume before the last programming of volume.
- AES-128 encryption for secure data transmission.

Programming data

With the software Tools Supercom following parameters can be programmed:

- Medium: cold or warm water.
- Current date and time and set day.
- Initialisation of the totalizer, the set day value and of the 15 monthly values.
- Reset to delivery (sleeping) mode or set to operating mode.
- AES-128 encryption key for secure data transmission.
- Password for the secured access to the programming.

Technical Data

General

Permanent flow	MID: Q3 2.5 m^3/h – 6.3 m^3/h
Nominal flow	EWG: Qn 1.5m^3/h – 3.5m^3/h
Pulse value	1 l/Imp
Operating temperature	5 to 55°C
Storage temperature	-20 to 70°C

Housing

Protection class	IP65

Conformity

CE acc. to RED 2014/53/EU

Radio

Method	FSK, bidirectional
Frequency	433.82 MHz
Protocol	Radian, EN60870-5 (M-Bus)
Baud rate	2'400 Baud
Range	approx. 30 m, depending on building structure

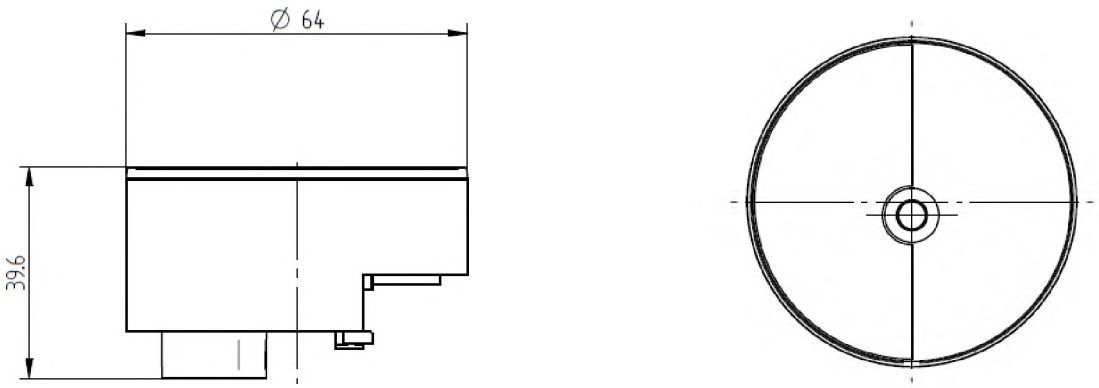
Data Memory

FRAM	Real time storage

Electronic Data

Main supply	Lithium Metal Battery (≤ 1g) 3VDC
Service life	Maximum 10 + 1 years

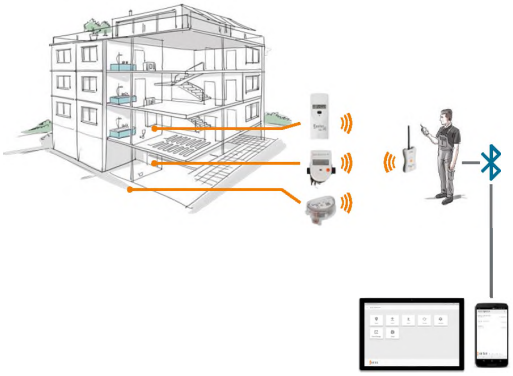
Dimensional Drawing



Sontex ▪ Thermal Energy ▪ Flow Metering ▪

Supercom

Supercom 636 Radio Modem



Application

The Supercom 636 radio modem is a transceiver (433 MHz) designed to remotely read out SONTEX radio devices. Thanks to its Bluetooth interface, it can easily connect to:

- An Android or Windows tablet
- An Android smartphone
- A Windows laptop

A meter reader, equipped with a Supercom 636 radio modem and a tablet (for example), can easily read out SONTEX radio devices without having to enter residences. Access to the property allows one to read out each device several times a year, if necessary.

In addition to the readout, the Supercom 636 radio modem allows the configuration of each device, thanks to the Tools Supercom software. The latter, equipped with an intuitive interface, makes data processing simple and fast. These can easily be integrated into a billing system.

Functions

- Remote readout of SONTEX radio devices (433 MHz).
- Remote configuration of SONTEX radio devices (433 MHz).

Features

- 433 MHz transceiver.
- Meets EN 60870-5.
- Class 2 Bluetooth interface (10 m).
- In accordance to 2014/53/EU (RED).
- External antenna improving transmission / reception performance.
- Compact design for a better grip.
- Robust and shock resistant industrial housing.
- Easy to use thanks to the integrated belt clip.
- Protection class IP 65.
- Rechargeable via USB.

Technical specifications

Operating temperature	5 to 55 °C
Storage temperature	-10 to 55 °C (dry environment)
Power supply	3.6 VDC (3 AAA NiMH batteries)
USB charger	230 VAC and 12 VDC
Housing dimensions	69 x 122 x 25 mm
Antenna size	142 mm
Weight	0.180 kg
Protection class	IP 65

Standards

Standard	
CE conformity	

Bluetooth communication

Power class	Class 2
Maximum Power	3 dBm
Typical range	10 m

Radio communication

Communication	Bi-directional
Frequency	433.82 MHz
Modulation	FSK
Radio Protocol	Radian 0
ERP	10 mW

Note

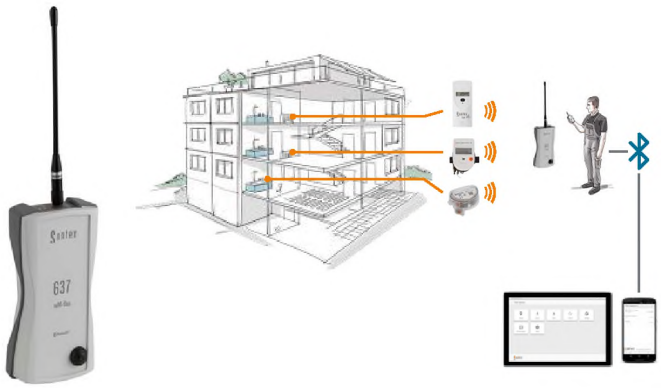
The housing of the radio modem Supercom 636 is protected against unauthorised intervention. Only authorised persons may open the housing. Any unauthorised intervention voids the warranty.

Scope of delivery

Sontex ■ Thermal Energy ■ Flow Metering ■

Supercom

Supercom 637 Radio Modem



Application

The Supercom 637 radio modem is a wM-Bus radio receiver (868 MHz) designed to remotely read out wM-Bus and OMS radio devices. Thanks to its Bluetooth interface, it can easily connect to:

- An Android or Windows tablet
- An Android smartphone
- A Windows laptop

A competent person, equipped with a Supercom 637 radio modem and a tablet (for example), can easily read out wM-Bus and OMS radio devices without having to enter the apartments. An access to the property allows him to read out each device several times a year, if necessary.

The Supercom 637 radio modem together with the Software Tools Supercom which is equipped with an intuitive interface makes data processing simple and fast. These can easily be integrated into a billing system.

Functions

- Remote readout of Sontex wM-Bus and OMS radio devices (868 MHz).
- Remote readout of third parties wM-Bus and OMS radio devices (868 MHz).

Features

- 868 MHz receiver.
- Class 2 Bluetooth interface (10 m).
- In accordance to 2014/53/EU (RED)
- External antenna improving transmission / reception performance.
- Compact design for a better grip.
- Robust and shock resistant industrial housing.
- Easy to use thanks to the integrated belt clip.
- Protection class IP 64.
- Rechargeable via the delivered charger.

Sontex ■ Thermal Energy ■ Flow Metering ■

Supercom

Technical Data

Operating temperature:	5 to 55 °C
Storage temperature:	-20 to 45 °C (dry environment)
Power supply:	3.7 VDC (Lithium Ion batteries)
Charger:	Input 110-230 VAC / output 5 VDC
Housing dimensions:	80 x 160 x 45 mm
Antenna size:	180 mm
Weight:	0.300 kg
Protection class:	IP 64

CE Standards & Conformity

RED:	according to 2014/53/EU
EMC:	according to 2014/30/EU
LVD:	according to 2014/35/EU
RoHS:	according to 2011/65/EU
WEEE:	according to 2012/19/EU

Bluetooth communication

Version:	4
Power class:	Class 2
Maximum Power:	2 dBm

Radio communication

Communication:	wM-Bus unidirectional EN 13757-4 modes T1, C1
Frequency:	868.95 MHz

Note

The housing of the radio modem Supercom 637 is protected against unauthorised intervention. Only authorised persons may open the housing. Any unauthorised intervention voids the warranty.

Scope of delivery

Sontex ▪ Thermal Energy ▪ Flow Metering ▪ Supercom

Radio Central Supercom 646

Application

The radio central Supercom 646 is a remote data readout system, permanently installed, working with the bidirectional radio system Supercom of Sontex.
The radio central collects radio data supplied by radio devices that are saved in a non-volatile flash memory. With the different available interfaces of the radio central the data can be read at all times and used for the **dependent consumption measuring and billing**. The read out and the configuration of the radio central are done with the software Tools646 supplied with the radio central Supecom 646.

Functions

- Readout of all data stored in the radio central Superior 646 (heat meter, heat cost allocator, radio modules for water meters, radio pulse adapters, etc.)
- Program for different data collection dates with optional repetition.
- Memory for up to 1000 radio devices in a non-volatile flash-memory.
- Readout of the central radio by GSM/GPRS, M-Bus, USB, RS-232 interfaces.
- Data saved in xml file format with software Tools646.

Type

Versions Supercom 646		Battery			Main Power Supply			GSM		GPRS	
		USB	RS232 M-Bus	USB M-Bus	230 V USB	230 V, RS232 M-Bus	230 V, USB M-Bus	GSM, USB	GSM, RS232	GPRS USB	GPRS, RS232
Part number: 0646R..		x101	x112	x111	x201	x212	x211	x221	x222	x231	x232
Power Supply	Battery	▪	▪	▪							
	230 V				▪	▪	▪	▪	▪	▪	▪
Interface	Optical	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪
	USB	▪		▪	▪		▪	▪		▪	
	RS232		▪			▪			▪		▪
	GSM/GPRS							▪	▪	▪	▪
	M-Bus		▪	▪		▪	▪				

Sontex ▪ Thermal Energy ▪ Flow Metering ▪ Supercom

Operation

The radio central Supercom 646 consists of a SMD board equipped with a radio card of 433 MHz and an external antenna. A non-volatile flash memory stores the configuration parameters of the central, the list of radio devices, the data of the last reading as well the firmware version of the radio central Supercom 646. After each radio read out the current stored data will be replaced with the new data. If during a read out a problem occurs the old data will not be removed. Always the data of the last read out will be saved in the memory.
During a radio read out, the time and date of each radio device questioned by the central is automatically synchronized with the time and date of the radio central.
The time and date of the radio central must be adjusted to winter time.
The data collected during the radio read out are ready to use for the billing.

Software Tools646

The software Tools646 supplied with the radio central allows to read and configure the radio central and to export the data to a XML or Excel file.
The configuration can be done by optical probe, USB, RS-232, M-Bus or GSM/GPRS depending of the version.
The access to the configuration of the radio central is password protected.
The following parameters can be defined and modified by the Tools646 software:

- Identification number of the radio central.
- Time and date
- Time and date of the radio read out.
- Transmission speed depending on the type of interface
- Pin code of the GSM modem and call-back number for the call-back function if used.
- Password modification
- Updating the radio central firmware

Main features

- Independent way to read different types of radio consumption meters.
- Remote readout of the central via the integrated GSM/GPR module.
- Optimized properties for reception and sending
- For all Sontex products (Supercom radio system).
- Upgrades with new Sontex Supercom radio products guaranteed.
- Ready to use software Tools646
- Program for different data collection dates with optional repetition.
- Data backup in case of power loss.
- Excellent radio range thanks to Supercom radio technology of Sontex

Radio device data collection and periods

The radio central Supercom 646 can read the radio devices 7 days a week, 365 days a year.
Usually the radio central Supercom 646 is configured to read out during the night. During the day it is always possible to do an immediate radio read out of all radio devices during commissioning or for test purposes.

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Supercom

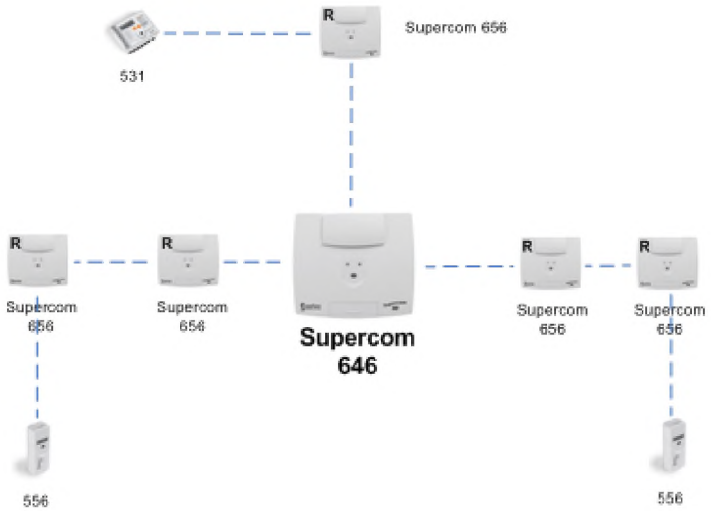
Repeater Supercom 656 R

Application

The repeater Supercom 656 R allows to expand the radio signal from the radio central Supercom 646. It is possible to cascade the repeaters to expand the remote radio signal up to the Radio central Supercom 646. The repeaters allow to read the radio remote devices farthest from the radio central

Functions

- Readout of all Sontex products who own the option remote radio
- Up to 6 repeaters can be cascaded one after the other in the same chain.
- The functionality is supported up to 6 chains.



Sontex ▪ Thermal Energy ▪ Flow Metering ▪ Supercom

Type

Types Supercom 656 R		Battery		Power network	
		USB	RS232	230 V USB	230 V RS232
Part number: 0656R..		x101	x112	x201	x212
Power	Battery	▪	▪		
	230 V			▪	▪
Interface	USB	▪		▪	
	RS232		▪		▪

Operation

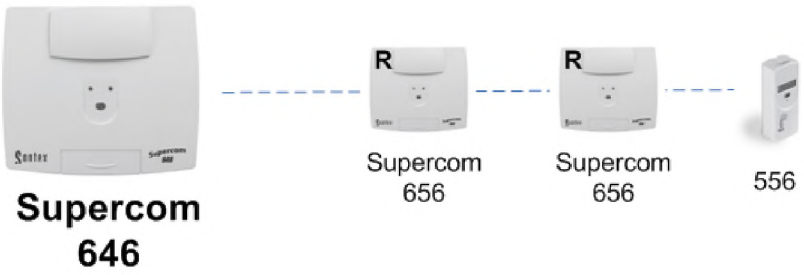
The repeater Supercom 656 R consists of a SMD board equipped with a radio card of 433 MHz and an external antenna. A non-volatile flash memory stores the functional parameters of the repeater as well as the firmware version.
The Supercom 656 R doesn't save data of radio devices read. All the data are saved in the non-volatile flash memory of the Supercom 646 Radio Central.
The Supercom 646 Radio Central must know all the repeaters.

Software Tools656

The software Tools656 supplied with the repeater allows configuring the firmware trough the interface USB or RS232.

Main features

- Independent way to read different types of radio remote consumption meters.
- Optimized properties for reception and sending
- For all Sontex products (Supercom radio remote system).
- Upgrades with new Sontex Supercom radio remote products guaranteed.
- Easy upgrades from the firmware with the software Tools 656.
- Excellent radio range thanks to Supercom radio technology of Sontex
- The main function of the repeater is to retransmit the received data. If the repeater is the last device of the string, it will read the last radio device and return the data.



Radio device data collection and periods

The repeater Supercom 656 R can read the radio remote devices 24 hours a day, 7 days a week and 365 days a year. It is accessible at every time from the radio central Supercom 646.

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Technical data of the radio central Supercom 646 and of the repeater Supercom 656 R

General	
Operating temperature	5 - 55°C
Storage temperature	-10 - 60°C (dry environment)
Weight	0.340 Kg
Cable holes	2 holes in the bottom of the lower part
External connector	Seal to lock the removable cover
Mounting of the central	
Wall mounted	4 holes in the bottom of the lower part.
DIN rail	Plastic clip for a DIN rail.
Housing	
Protection class	IP 40 (except the bottom for the passage of cables)
Dimensions	
Housing dimensions	180x154x46 mm
Interface Radio Central Supercom 646	
Optical	By default
RS232 DCE	
USB	
M-Bus	
GSM/*GPRS (*under way)	
Interface Repeater Supercom 656 R	
RS232 DCE	
USB	
Radio communication	
Communication	Bi-directional
Modulation	FSK
Frequency	433.82 MHz
Radio protocol	Radian 0
Data transmission	EN 60870-5 (M-Bus)
PER	10 mW
Range on free field	ca. 300 m
Range in buildings	approx. 30 m* (3-5 floors)

* Value depends on the structure of buildings. Due to physical conditions, the transmission and reception ranges may vary.

Electronic characteristics	
Mains power supply	110–230 VAC 50-60 Hz +back up: 3V Lithium Manganese Dioxide (Li-MnO2) $^{2}/_{3}$ A (soldered on the mother board)
Battery	3,6V Lithium Thionyl Chloride (Li-SOCl2) D cell + back up: 2 x 3V A cell (soldered on the mother board)

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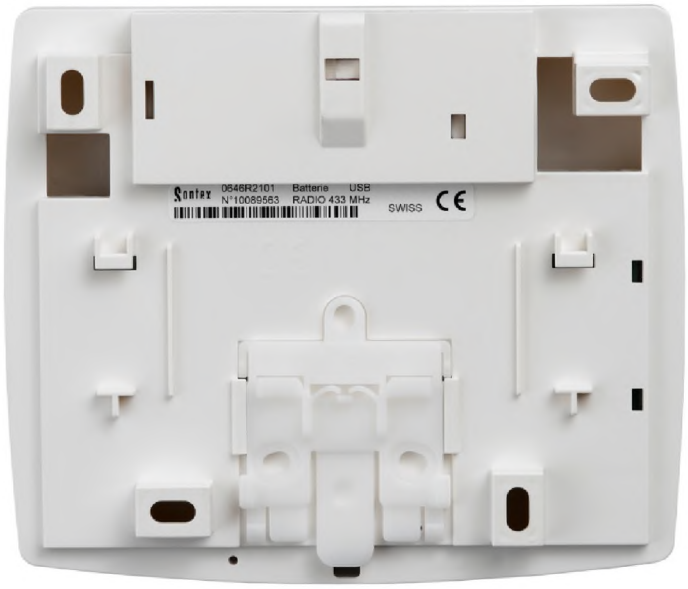
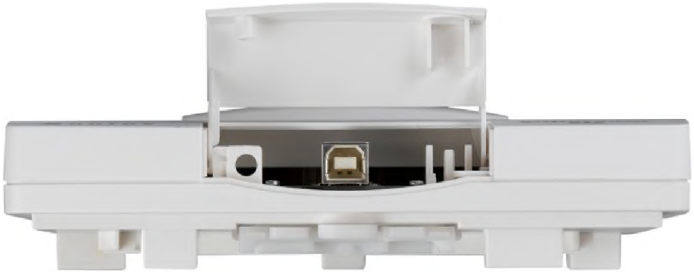
Supercom

Radio central Supercom 646 and Repeater Supercom 656 R



View from below with clip DIN rail



Front view with open access to wired interface

Supercom W2-L

LoRaWAN® Radio Module for Elster water meter

Application

The retrofittable radio module **Supercom W2-L** is suitable for Elster Messtechnik GmbH (Honeywell) water meters:

- S110 PICOFLUX EF single-jet.
- M140 MODULMETER MOF for exchange multi-jet capsule.

It can be retrofitted at any time without impairing the calibration. The bidirectional LoRa® radio allows the reading of the consumption data directly and safely (AES128 encoded) to your LoRaWAN network.

Function

The battery-operated radio module **Supercom W2-L** scans the rotation of the modulator disc of the water meter, accumulates the rotation pulses and stores the consumption data in his internal memory.
The scan guarantees a precise and correct detection of the backward and forward modulation indicator motion.
The radio module is equipped with a magnetic manipulation protection. If the radio module is removed and/or opened, the electronic manipulation protection triggers an error message.

Stored Data

- Medium: cold or warm water.
- Serial number (radio module address).
- Current time and date.
- Accumulated volume.
- Set day.
- Volume at set day.
- 15 monthly values.
- Operating hours of battery.
- Manipulation protection: date of the last manipulation and the accumulated duration of all manipulations in minutes.
- Number of counter resets.
- Error code.
- Firmware version.

- Commissioning date.
- Accumulated volume and date at the last programming of volume.
- Accumulated volume before the last programming of volume.
- AES-128 encryption for secure data transmission.

Programming data

With the software Tools Superprog (OS Android or Windows) following parameters can be programmed:

- Medium: cold or warm water.
- Current date and time and set day.
- Initialisation of the totalizer, the set day value and of the 15 monthly values.
- Reset to delivery (sleeping) mode or set to operating mode.
- AES-128 encryption key for secure data transmission.
- Password for the secured access to the programming.

Technical Data

General

Permanent flow	MID:	Q_3 2.5 m^3/h – 6.3 m^3/h
Nominal flow	EWG:	Qn 1.5m^3/h – 3.5m^3/h
Pulse value	1 l/Imp	
Operating temperature	5 to 55°C	
Storage temperature	-20 to 70°C	

Housing

Protection class	IP65

Conformity

CE acc. to RED 2014/53/EU

Radio

Method	LoRa®, bidirectional
Frequency	868 (863 MHz - 870 MHz)
Protocol	Radian, EN60870-5 (M-Bus)
Cycles	Standard every 2 hours
Range indoor	approx. 30 m, depending on building structure

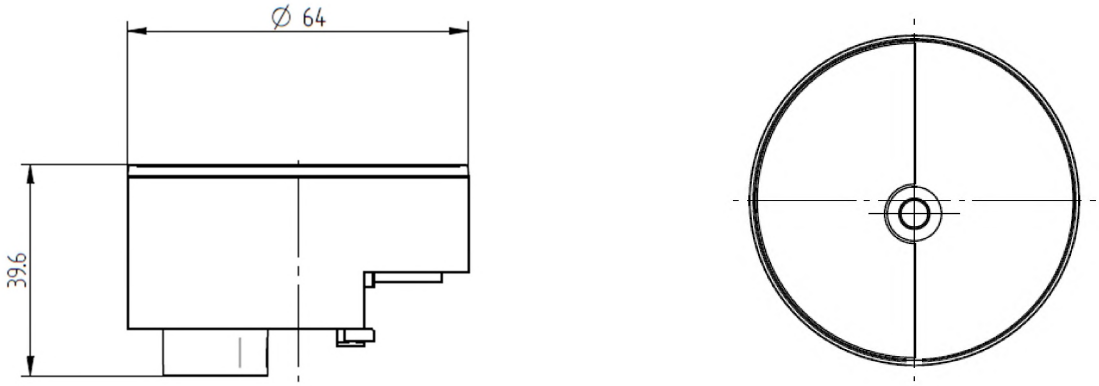
Data Memory

FRAM	Real time storage

Electronic Data

Main supply	Lithium Metal Battery (≤ 1g) 3VDC
Service life	Maximum 10 + 1 years

Dimensional Drawing



Supercal 749

Fluidic Oscillation Compact Heat Meter

Application

The **Superstatic 749** is an autonomous compact thermal energy meter consisting of a flow meter a detachable integrator with a wide range of communications options and a pair of temperature sensors.
It's used in home automation, local and district heating/cooling systems to measure the consumption of heating or/and cooling energy for individual billing.

The **Superstatic 749** is designed on the basis of the proven **fluid oscillation** principle used exclusively by Sontex. Thanks to the use of a static flow sensor, the heat meter **Superstatic 749** does not have any moving parts and thus no wear. The fluid oscillation principle guarantees a high stability and repeatability for a reliable and precise measurement of flow and thermal energy. It is optimally suited for glycol and other mixtures.

It's built for flows of qp 0.6 m^3/h, qp 1.5 m^3/h and qp 2.5 m^3/h and measures the temperature within the range of 0°C to 110°C. Through its two additional optional pulse inputs, it is possible to connect, e.g., two water meters (hot and cold) and read their values remotely via the heat meter.
The **Superstatic 749** meets the requirements of the European Measuring Instruments Directive (MID) 2014/32/EU and the standard EN 1434 class 2.

Benefits

Permanent flow detection thanks to the fluidic oscillation measuring principle

- Corrosion resistant materials
- No moving parts, thus no wear
- Not sensitive to dirt, air bubbles and liquids with changing viscosity
- Self-cleaning thanks to the fluidic oscillation pulse in the flow meter
- Long-term stability, accurate and reliable measurement

Standard features

The heat and cooling meters **Superstatic 749** are optimized for the measurement and calculation of energy consumption in district or local heating systems.

- Configured as a heat meter MID with temperature sensors Ø 5 mm, 1.5m
- Optical interface for readout and 6+1 years battery
- Easy to operate and read
- Non-volatile EEPROM memory, that keeps stored data even in case of power failure
- 18 monthly energy values for heat energy and volume
- Self-monitoring and error display

Sizes

The **Superstatic 749** is available in the following sizes:

- Flow meter for qp 0.6 m^3/h, with a length of either 110 mm
- Flow meter for qp 1.5 m^3/h, with a length of either 110 mm or 130 mm or 190 mm
- Flow meter for qp 2.5 m^3/h, with a length of either 130 mm or 190 mm

Options

The **Superstatic 749** can be ordered with following options

- ∅ 5,2 mm or ∅ 6 mm temperature sensors
- 12+1 years battery
- One of the following communications options:
  - Self-powered M-Bus,
  - Bidirectional Radio SONTEX interface,
  - Wireless M-Bus,
  - LoRaWAN,
  - Two pulse outputs either heating or cooling energy consumption and volume, or heating and cooling energy consumption.
- Two additional pulse inputs

Functions

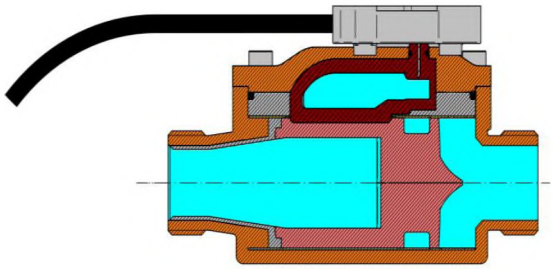
- Measure and record energy consumption and volume of the flow in heat or cooling applications
- Optionally measure and record a second “energy consumption”, for heat/cooling applications
- If two additional inputs were configured then record the provided values. The configuration can be done either through the optical interface, or via M-Bus or by radio SONTEX
- Display of consumption data depending on configuration:
  - 18 monthly energy and volume values
  - 18 monthly cooling energy values
  - 18 monthly values of additional pulse input 1
  - 18 monthly values of additional pulse input 2
  - Set day values
- Display operating data including self-monitoring with error display

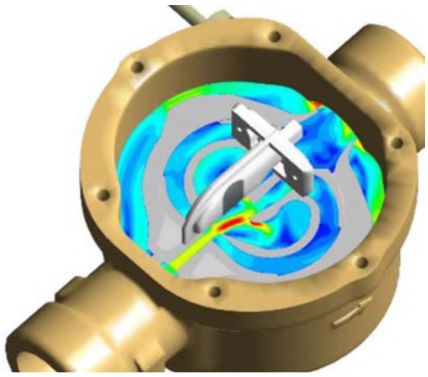
Fluid oscillation flow sensor: The principle

Picture1: The liquid passes through a special insert, the oscillator. Before passing the oscillator, the liquid is led to a nozzle and accelerated to a jet (oscillating jet). Opposite of the nozzle, the jet is redirected to the left or right into a channel. Due to the differential pressure generated in the channel, part of the liquid flows to the piezo-sensor above and part flows back to the pipe. The pressure of the liquid on the piezo-sensor generates an electrical pulse. Thus the liquid flows back to the pipe through a return loop and redirects the jet into the other channel. The liquid of this channel flows on the other side of the piezo-sensor and generates again an electrical pulse.

Picture 2: The animated top view on the oscillator shows the differences in velocity: The oscillation jet accelerated by the nozzle with the highest velocity and is visible in red. The jet that has slowed down is represented in blue.

The electrical pulses generated by the piezo-sensor with differential pressure correspond to the movement, the frequency of the jet. The electrical pulses are processed, amplified and filtered by the electronics. The electrical pulses are recorded by the integrator connected through a cable to the flow sensor and converted into flow. The frequency of the oscillation jet, i.e. the electrical pulse, is proportional to the flow.





Flow direction

Picture 1: Section through the flow sensor

Picture 2: Schematic of oscillator with oscillating jet (RED)

Temperature sensors

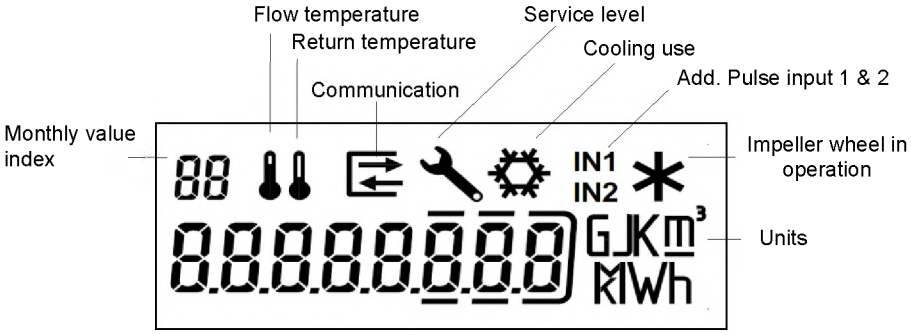
The pair of temperature sensors Pt 1'000 is connected to the integrator and is an integral part of the heat meter. The sensor with a colourless marking is mounted and sealed directly into the flow sensor. The temperature sensor with the orange marking must be mounted in the pipe "opposite" to the **Superstatic 749**. The temperature sensors mustn't be changed or modified.

Integrator

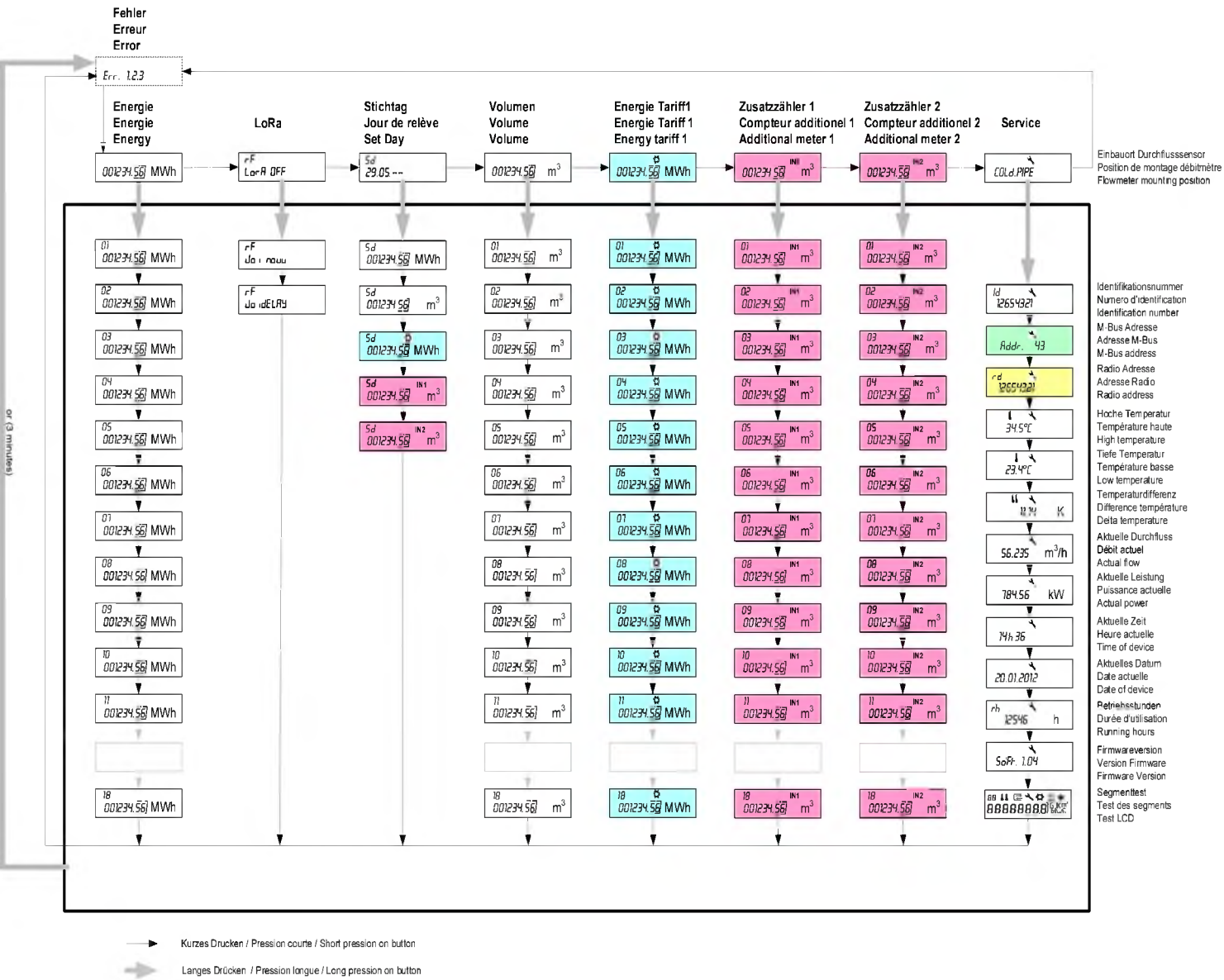
The integrator is equipped with a large 8-digits display and can be rotated by 360°. The integrator can be separated from the flow sensor and be installed separately. A cable of 0,6 meter connects the integrator to the flow sensor.
The housing has a protection index of IP65 against dust and humidity.

Display

The LCD display of the **Superstatic 749** has a large, clear design and high contrast, making it easy to read the data.



Display sequences



Error messages

Err 1	Flow higher than 1.2 x qs or faulty flow sensor.
Err 2	Measured temperature out of range or faulty temperature sensor.

Energy calculation

The flow sensor counts up the volume of the liquid flowing through the sensor. The thermal energy consumption, respectively the heating and cooling energy are calculated by means of the temperature difference between hot and cold pipe, the recorded volume, and the heat coefficient. The latter takes into consideration the density, the viscosity and the specific heat of the liquid used. All these are dynamically adapted in function of the temperature.

Solar-, cooling and other installations

The standards allow for approvals using water as heating and or cooling liquid and the **Superstatic 749**, while having received all according approvals, ensures also a precise measurement with other liquids.
The calculator contains the data for many different special liquids and, by means of the free software Prog7x9, it is possible to select the liquid, its level of concentration if so defined and be set to calculate properly the energy consumption.

Cooling energy

The cooling energy in combined heat/cooling applications is stored in another memory than the heat energy and will be cumulated only if the two following conditions are fulfilled:

- Temperature difference (Δt) > -0.5K
- Supply temperature < 18°C

The cooling energy has the same physical unit as the heat energy. The cooling power and the temperature difference are in this case displayed with a minus sign (-). If required it is possible to order the **Superstatic 749** with another threshold than the 18°C.

Non-volatile memory

The device parameters, as well as the cumulative values for energy and volume, cooling energy, monthly values, set day values, values of the pulses input counters 1 and 2, operating hours and error type are stored in a non-volatile memory (EEPROM), where the are saved even in case of a power failure (e.g. changing batteries). Once an hour and in the event of battery failure, the cumulative values are updated in the EEPROM.

Monthly values

At the end of each month, the monthly values are stored.
Depending on the configuration a total of 18 monthly values of heat energy, volume, cooling energy and of the additional pulses inputs 1 and 2 are memorized in the integrator.

Pulse inputs

As an option the **Superstatic 749** offers the possibility to integrate two additional pulse inputs such as from a hot water and a cold water meter.

Communication options

Several communication interfaces are available.
The configuration of the communication option of the **Superstatic 749** can be carried out with the free software Prog7X9 available from Sontex.

TECHNICAL DATA SUPERSTATIC 749

Temperature sensors

2 wire temperature sensor	Pt1'000
Diameter	Ø5.0; Ø5.2, Ø6.0 mm
Cables length	1.5 m

Measurement

Approved temperature range	0...110°C
Approved for long term operating temperature θq	5...90°C
Differential range	3...75 K
Response limit	0.5 K
Temperature resolution t (display)	0.1 °C
Temperature resolution Δt (display)	0.01 K
Temperature-measurement cycle at nominal flow	10 seconds
Flow-measurement cycle	**Permanent**

Integrator General

Environment class	C
Mechanics	M1
Electronics	E1
Battery protection class	III
Cable connection between flow sensor and integrator	0.6 m, fix
Integrator Protection index	IP 65
Operating temperature	5...55°C
Operating temperature with radio option	5...40°C
Storage and transport temperature	-10...60°C

Display & Display units

	8-digits LCD
Energy	kWh, MWh, GJ
Volume	m^3
Additional pulse inputs	Volume or pulses
Temperature	°C
Δ Temperature	K

Power supply

Lithium Metal Battery (≤ 1g) 3VDC	6+1 or 12+1 years

Powered by M-Bus line

1 device = 2 M-Bus charges (max 2 x 1.5mA)

Pulse output

Open drain (MOS Transistor)	1 Hz, 500 ms
Vcc_{max} : 35 V_{DC} ; Icc_{max} : 25mA	

Pulse inputs with a dry contact

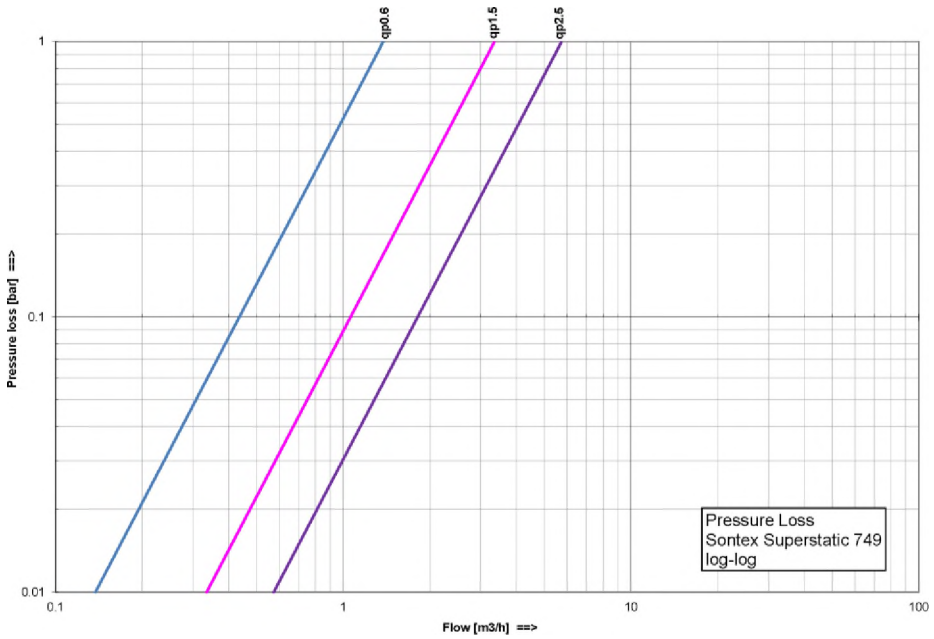
Power supply $_{internal}$	2.3 V_{DC}
$R_{pull\ UP\ internal}$	2 MΩ
Pulse factor	0...999.999 m^3/Imp or without unit

Fluidic Oscillation Flow Sensor

qp	Threaded connection		Mounting length	Mat.	PN	Maximal flow qs	Minimal flow qi	Low flow threshold value (50°C)	Threaded hole for sensor	Total Meter Weight	Kvs value (20°C)	Pressure loss at qp
m^3/h	G"	DN	mm		bar	m^3/h	l/h	l/h		kg	m^3/h	bar
	(EN ISO 228-1)											
0.6	3/4"	*(15)*	110	Brass	16	1,2	6	4	Yes	1.2	1.4	0.19
1.5	3/4"	*(15)*	110	Brass	16	3	15	10	Yes	1.3	3.4	0.2
1.5	1"	*(20)*	130	Brass	16	3	15	10	Yes	1.4	3.4	0.2
1.5	1"	*(20)*	190	Brass	16	3	15	10	Yes	1.6	3.4	0.2
2.5	1"	*(20)*	130	Brass	16	5	25	17	Yes	1.4	5.7	0.19
2.5	1"	*(20)*	190	Brass	16	5	25	17	Yes	1.6	5.7	0.19

16 bar = 1.6 MPa

Pressure loss curve



Metrological class

EN 1434 class 2

Mounting

The Superstatic 749 should not be mounted on the side where the continuous operating temperature of the liquid exceeds 90°C or is below 5°C.

Length of straight section fitted upstream/downstream of each flow meter (EN1434):
U3 / D0 for: L=110 mm
U0 / D0 for: L=130 mm and L=190 mm

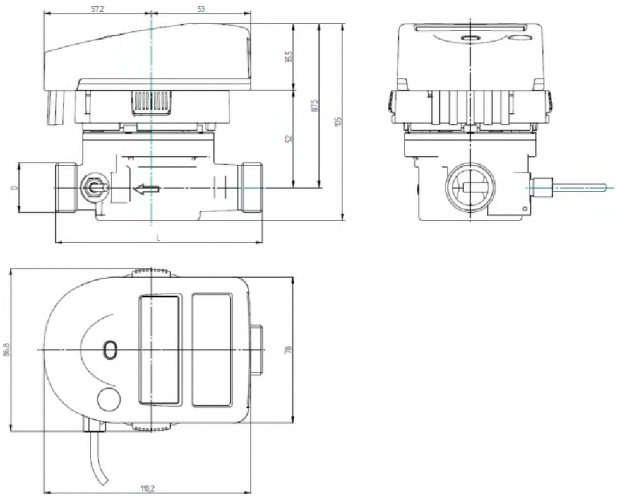
Flow sensor protection index

IP 68

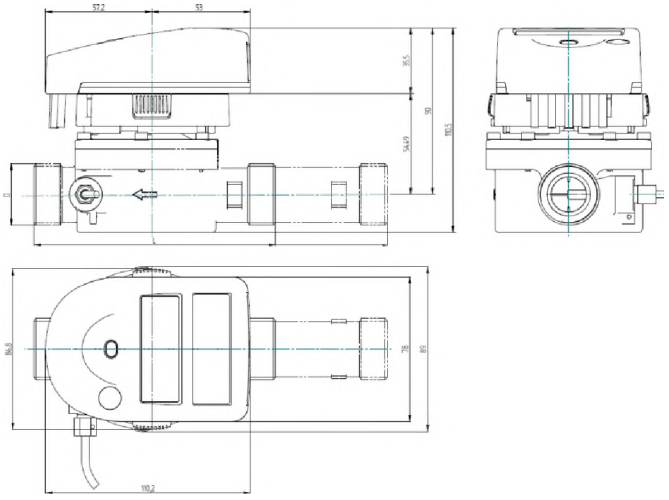
Dimensions

	qp 0.6 m^3/h	qp 1.5 m^3/h	qp 2.5 m^3/h
Mounting length [L]	110 mm	110/130/190 mm	130/190 mm
Integrator	110.2 x 86.8 mm	110.2 x 86.8 mm	110.2 x 86.8 mm
Total height	105.0 mm	110.5 mm	108.0 mm
Height from the axis of the tube	87.5 mm	90.0 mm	87.5 mm
Height without integrator	52.0 mm	54.5 mm	52.0 mm

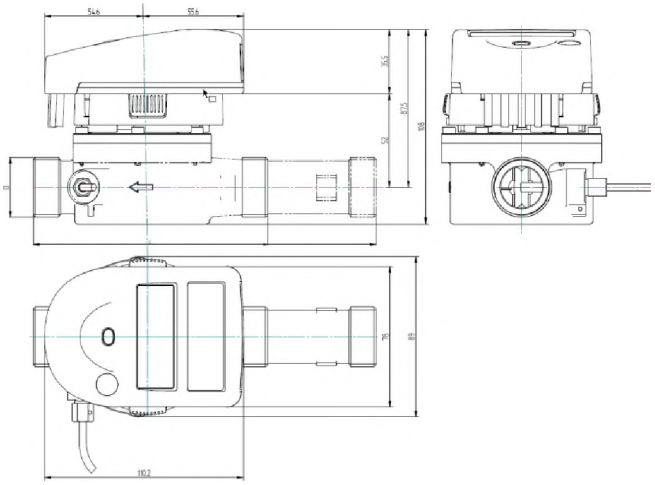
Superstatic 749 qp 0.6 m³/h
(L: 110 mm)



Superstatic 749 qp 1.5 m³/h
(L: 110/130/190 mm)



Superstatic 749 qp 2.5m³/h
(L: 130/190 mm)



Superstatic 749, qp1.5, 190 mm

Superstatic 440

Static Heat Meter, Static Cooling Meter

Application

The Superstatic 440 is a static heat or cooling meter according to standard EN1434 class 2 based on the fluid oscillation principle, covering a wide range of flows for all applications in district heating and cooling or building automation. The fluid oscillation principle guarantees a high stability and repeatability for a reliable and precise measurement of flow and thermal energy.

Design

The heating and cooling meter Superstatic 440 meter consists of the fluid oscillator flow sensor, the integrator Supercal 531, battery or mains powered, and a pair of temperature sensors Sontex 460. Consumption values can easily be read over the display or various data interfaces like optical probe, bidirectional radio SONTEX, M-Bus, LON, BACnet, Modbus, GSM and so on.

Temperature sensor pair

The temperature sensors and the integrator Supercal 531 in combination with the Superstatic flow sensor are available as Pt 500 or Pt100 version. The temperature sensors are paired. They are always supplied in pairs and must not be separated, extended or shortened. In the case of temperature sensor pairs with a cable longer than 3 m, we recommend the exclusive use of screened temperature sensor pairs.

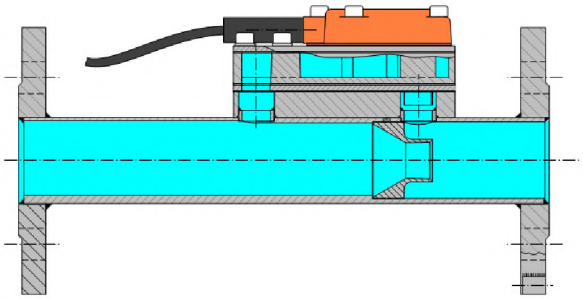
Measurement technique

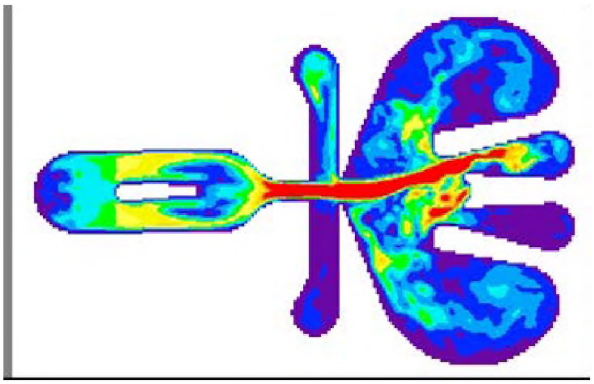
The integrator Supercal 531 with mains power supply records every 3 seconds the supply and the return temperature, with battery power every 30 seconds (D-type battery). The recording of the flow is dependent of the pulse value of the flow sensor and is constantly updated. With the mean flow rate, the temperature difference and the heat coefficient the energy is calculated of the captured medium and displayed on the 8-digit LCD display.

Sontex ■ Thermal Energy ■ Flow Metering ■ Superstatic

Fluid oscillator flow sensor: The principle

Picture 1: The main part of the flow passes through a Venturi nozzle in the pipe, creating the differential pressure to bypass the other part of the flow through the fluid oscillator.
In the oscillator the liquid is led to a nozzle and accelerated to a jet. Opposite of the nozzle the jet is redirected to the left or right into a channel that leads upwards to the sensor head equipped with a piezo sensor. The pressure of the liquid on the sensor creates an electrical pulse. The liquid flows back to the pipe through a return loop and redirects the jet into the other channel where the action is repeated and fluid oscillation is created. The frequency of this oscillation is linear proportional to the volume flow. A supplementary benefit is the self cleaning effect due to the oscillating character.
Picture 2: The animated top view on the oscillator shows the differences of velocity of the liquid. The jet accelerated by the nozzle with the highest velocity in red, slow velocity in blue.





Flow direction

Picture 1: Section through the flow sensor

Picture 2: fluidic oscillation with jet (RED)

Main features

The heat meters Superstatic 440 are optimized for the measurement and calculation of energy consumption in district heating systems. They are also extremely well suited to use purely as volumetric flow meters for various media.

- Interchangeable measuring head
- Complete range of pipes 1 – 1500 m^3/h
- Purchase and maintenance costs are reasonable compared with other static flow sensors
- Corrosion resistant materials
- Protection degree of flow sensor IP68
- Threaded and flange fittings
- No straight section necessary up to DN40
- No moving parts, therefore no wear
- Not sensitive to dirt
- Stable
- For horizontal, upstream and downstream pipes, independent mounting position
- Common spare parts 1qp 1 – 1500 m^3/h
- Dynamic range: 1 : 100 at qp 1 – 25 m^3/h
  1 : 50 at qp 40 – 400 m^3/h
  1 : 25 at qp 800 – 1500 m^3/h
- Direct pick-up of voltage pulses without reflectors
- Measurement independent of medium
- Long-term, stable, accurate and reliable measurement, even with poor water quality

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Integrator

The Supercal 531 integrator is suitable for connecting Pt 500 or Pt 100 temperature sensor pairs with 2 or 4-conducting wire techniques. Volume inputs can be combined with mechanical, magnetic-inductive, ultrasonic or fluidic oscillators flow sensors with a maximum nominal flow rate of 10'000 m^3/h. The factor of the pulse value is defined in the flow meter unit. The volume input value is defined when the unit is produced. The additional pulse inputs allow the connection of hot water, cold water, gas, oil and electricity meters. Consumption values can easily be read on the LCD display, via the optical interface, RS-232, M-bus, bidirectional radio SONTEX, M-Bus, LON, BACnet, Modbus or modem.

Power supply module

The flexible power supply concept of the Supercal 531 allows the following combinations

- 10 + 1 year battery, D type
- 220...240V alternating voltage 50/60 Hz
- 110...240V alternating voltage 50/60 Hz
- 12...24V alternating voltage 50/60 Hz
- 12...24V DC voltage

Communication module

All versions can be ordered with two optional galvanically separated communication modules or the two communication modules can also be equipped later on when the integrator is in operation and this without compromising verification:

- Optical (default)
- RS 232
- Combined : 1 x RS-232, 3 x relay output, 4 x analogue output
- RS 232 with two additional relay outputs
- Relay module
- M-Bus module (factory assembly or post-assembly)
- M-Bus module two additional relay outputs
- Analogue module 2 outputs 4-20 mA
- Analogue module 2 inputs 0-20 mA or 4-20mA or 0-10V
- Bidirectional radio SONTEX module, 433 MHz (factory assembly)
- GSM
- LON module
- BACnet module
- Modbus module

Data storage

The Supercal 531 has in case of power failure two non-volatile EEPROMs for extensive data safety storage. In both EEPROMs the data are updated every hour. The first non-volatile memory is located inside on the printed circuit board of the relevant calibration and measurement part of the integrator and stores the following data:

- Parameters of the integrator and configuration parameter
- Cumulated energy
- Cumulated volume
- Customer specific tariff
- 15 monthly values
- 32 maximum values
- 32 average values
- Two set day
- Cumulated energy or volume on the set day
- Operating hours
- Date and time
- MET serial number (integrator upper part, calibration and measurement part)
- pulse value of the flow meter

The second non-volatile EEPROM is located on the printed circuit board in the integrator base part and stores the following parameters:

- MIO serial number (integrator base part, printed circuit board
- identification number and customer number
- pulse value of additional meters 1 and 2
- cumulated values of additional meters 1 and 2
- unit of additional meters 1 and 2
- M-Bus or radio address (primary and secondary)
- radio address
- baud rate (M-Bus)
- pulse value of the pulse output
- parameter setting of the analogue outputs
- alarm and threshold value

This EEPROM ensures a smooth exchange of the calibration and measurement relevant part, without a new entering of the configuration of the communication.

Supply and return temperature

The Temperatures are displayed with one decimal. Temperatures under 0°C are shown with a – (minus) sign. The display range is –20…200°C. The temperature indication, can upon request, also be displayed in °F.

Set day values

The Supercal 531 has two set days. On set day the cumulated energy, volume, tariff values and additional pulse inputs are stored with date.

Solar- and cooling installations

The integrator units, calibrated for water ensure also with glycol mixtures a precise measurement, as the average mixing ratio can customized over the optical interface. The Supercal 531 processes and computes also negative temperatures. The dust proof and splash water-protected housings, IP65, is especially suitable for cooling installations. For these customized mixing ratios no official approvals are possible. The integrator Supercal 531 has programmed more than 70 different cooling medium and countless coolant-water mixtures can also be defined by software.

Cooling energy

The cooling energy in combined heat/cooling applications is stored in another memory than the heat energy and will be cumulated only if the two following conditions are fulfilled:

- (Δt) temperature difference > -0.2K,
- as well as the supply temperature < 18°C

The threshold value of the temperature is set at the factory at 18°C. The threshold value can be changed in steps of 1°C via the optical interface. The cooling energy has the same physical unit as the heat energy. If the integrator unit is used for the combined heating and cooling measurement, then cooling power and the temperature difference with a minus (-) displayed and the appropriate values are assigned to the tariff 1.

For detailed information on the integrator Supercal 531, please refer to the manual:
Data Sheet Supercal 531 EN.

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Superstatic

TECHNICAL DATA SUPERSTATIC 440

Dimensions fluid oscillator flow sensor

Dimensions brass pipes (DN 15 – DN 40)

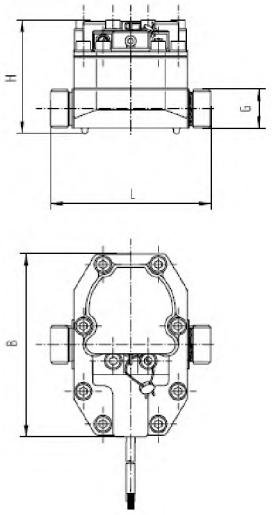

Fig1

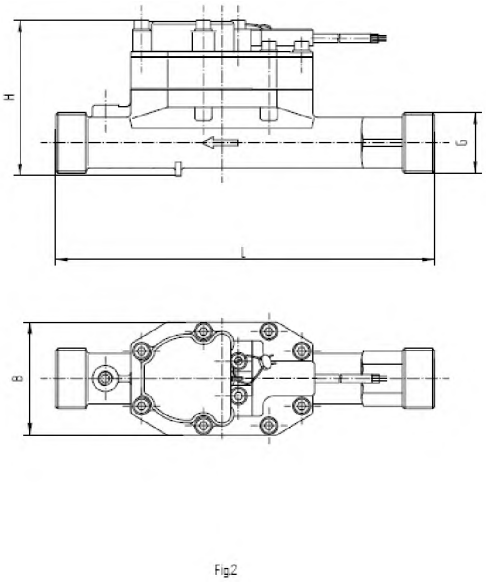

Fig2

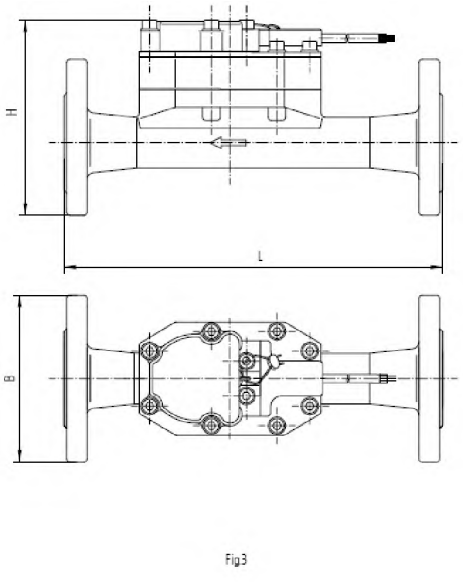

Fig3

qp	DN	G	PN	Fig.No	B (mm)	H (mm)	L(mm)	h (∅ mm)	# bolts (M)
1 m^3/h	---	¾"	16 / 25	1	125	79	110		-
1 m^3/h	---	1"	16 / 25		125	79	190		-
1.5 m^3/h	---	¾"	16 / 25		125	79	110		-
1.5 m^3/h	---	1"	16 / 25		125	79	190		-
2.5 m^3/h	---	1"	16 / 25		125	79	190		-
3.5 m^3/h	---	1 ¼"	16 / 25	2	78	105	260		-
3.5 m^3/h	25	---	16 / 25	3	115	134	260	∅ 85	4 (M 12)
6 m^3/h	---	1 ¼"	16 / 25	2	78	105	260		
6 m^3/h	25	---	16 / 25	3	115	134	260	∅ 85	4 (M 12)
10 m^3/h	---	2"	16 / 25	2	78	122	300		-
10 m^3/h	40	---	16 / 25	3	150	157	300	∅ 110	4 (M 16)

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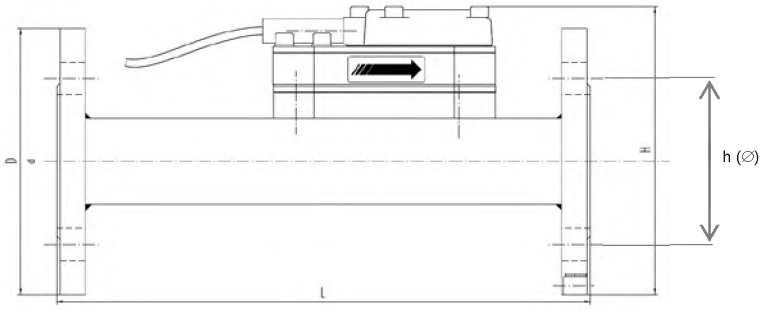
Dimensions:
Stainless steel pipes (DN 50 – DN 250)
Spheroidal cast iron pipes (DN 50 – DN 150)
Steel pipes (DN 350 – 500)



qp	DN	PN	L (mm)	D (mm)	H (mm)	h (∅ mm)	# bolts (M)
15 m^3/h	50	16, 25	270	165	171	∅ 125	4 (M 16)
25 m^3/h	65	16, 25	300	185	189	∅ 145	8 (M 16)
40 m^3/h	80	16, 25	225	200	203	∅ 160	8 (M 16)
40 m^3/h	80	16, 25	300	200	203	∅ 160	8 (M 16)
60 m^3/h	100	16	250	220	226	∅ 180	8 (M 16)
60 m^3/h	100	25	250	235	235	∅ 190	8 (M 20)
60 m^3/h	100	16	360	220	226	∅ 180	8 (M 16)
60 m^3/h	100	25	360	235	235	∅ 190	8 (M 20)
100 m^3/h	125	16	250	250	254	∅ 210	8 (M 16)
100 m^3/h	125	25	250	270	270	∅ 220	8 (M 24)
150 m^3/h	150	16	300	285	286	∅ 240	8 (M 20)
150 m^3/h	150	25	300	300	300	∅ 250	8 (M 24)
150 m^3/h	150	16	500	285	286	∅ 240	8 (M 20)
150 m^3/h	150	25	500	300	300	∅ 250	8 (M 24)
250 m^3/h	200	16	350	340	340	∅ 295	12 (M 20)
250 m^3/h	200	25	350	360	360	∅ 310	12 (M 24)
400 m^3/h	250	16	450	405	405	∅ 355	12 (M 24)
400 m^3/h	250	25	450	425	425	∅ 370	12 (M 27)
800 m^3/h	350	10	500	505	505	∅ 460	16 (M 20)
800 m^3/h	350	16	500	520	520	∅ 470	16 (M 24)
1500 m^3/h	500	10	500	670	670	∅ 620	20 (M 24)
1500 m^3/h	500	16	500	715	715	∅ 650	20 (M 30)

Flanges according to standard DIN-EN 1092-1 / DIN 2501 / ISO 7005-1

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Superstatic

Technical Data Flow Sensor Superstatic 440

qp	Threaded connection	Flanged connection	Length	Mat.	PN	Maximal flow qs	Minimal flow qi	Low flow threshold value (50°C)	Threaded hole for sensor	Weight.	Kvs value (at 20°C)	Pressure loss at qp
m^3/h	G"	DN	mm		PN	m^3/h	l/h	l/h		kg	m^3/h	bar
	(EN ISO 228-1)	(ISO 7005-3)										
1	3/4"	*(15)*	110	Brass	16/25	2	10	4	Yes	1.8	2.09	0.20
1	1"	*(20)*	190	Brass	16/25	2	10	4	Yes	2.3	2.09	0.20
1.5	3/4"	*(15)*	110	Brass	16/25	3	15	10	Yes	1.8	2.06	0.25
1.5	1"	*(20)*	190	Brass	16/25	3	15	10	Yes	2.3	5.44	0.09
2.5	1"	*(20)*	190	Brass	16/25	5	25	10	Yes	2.3	5.21	0.25
3.5	1 1/4"	*(25)*	260	Brass	16/25	7	35	15	Yes	1.96	7.46	0.16
3.5		25	260	Brass	16/25	7	35	15		1.96	7.46	0.16
6	1 1/4"	*(25)*	260	Brass	16/25	12	60	30	Yes	1.96	13.4	0.16
6		25	260	Brass	16/25	12	60	30		2.9	13.4	0.16
10	2"	*(40)*	300	Brass	16/25	20	100	50	Yes	6.1	20.9	0.25
10		40 *(ISO 7005-1)*	300	Brass	16/25	20	100	50		7	20.9	0.25
15		50	270	SS/CI	16/25	30	150	75		12.2	31.6	0.25
25		65	300	SS/CI	16/25	50	250	125		12.8	51.8	0.25
40		80	225	SS	16/25	80	800	400		11.5	142	0.09
40		80	300	SS/CI	16/25	80	800	400		12.2	142	0.09
60		100	250	SS	16/25	120	1200	600		14	210	0.10
60		100	360	SS/CI	16/25*	120	1200	600		14.6	210	0.10
100		125	250	SS/CI	16/25*	200	2000	1000		16	343	0.10
150		150	300	SS/CI	16/25*	300	3000	1500		26	514	0.10
150		150	500	SS	16/25	300	3000	1500		23	514	0.10
250		200	350	SS	16/25	500	5000	2500		30	857	0.10
400		250	450	SS	16/25	800	8000	4000		57	1372	0.10
						m^3/h	m^3/h	m^3/h				
800		350	500	Steel	10/16	1600	32	16		90/105	2667	0.10
1500		500	500	Steel	10/16	3000	60	30		130/195	5000	0.10

SS: Stainless Steel; CI: Spheroidal cast iron *: PN 25 only SS

Degree of protection

Standard	IP68

Ambient Temperatures

Operation	5...55°C
Storing and transport	-25...70°C

Measurement

Approved temperature range	5...130°C

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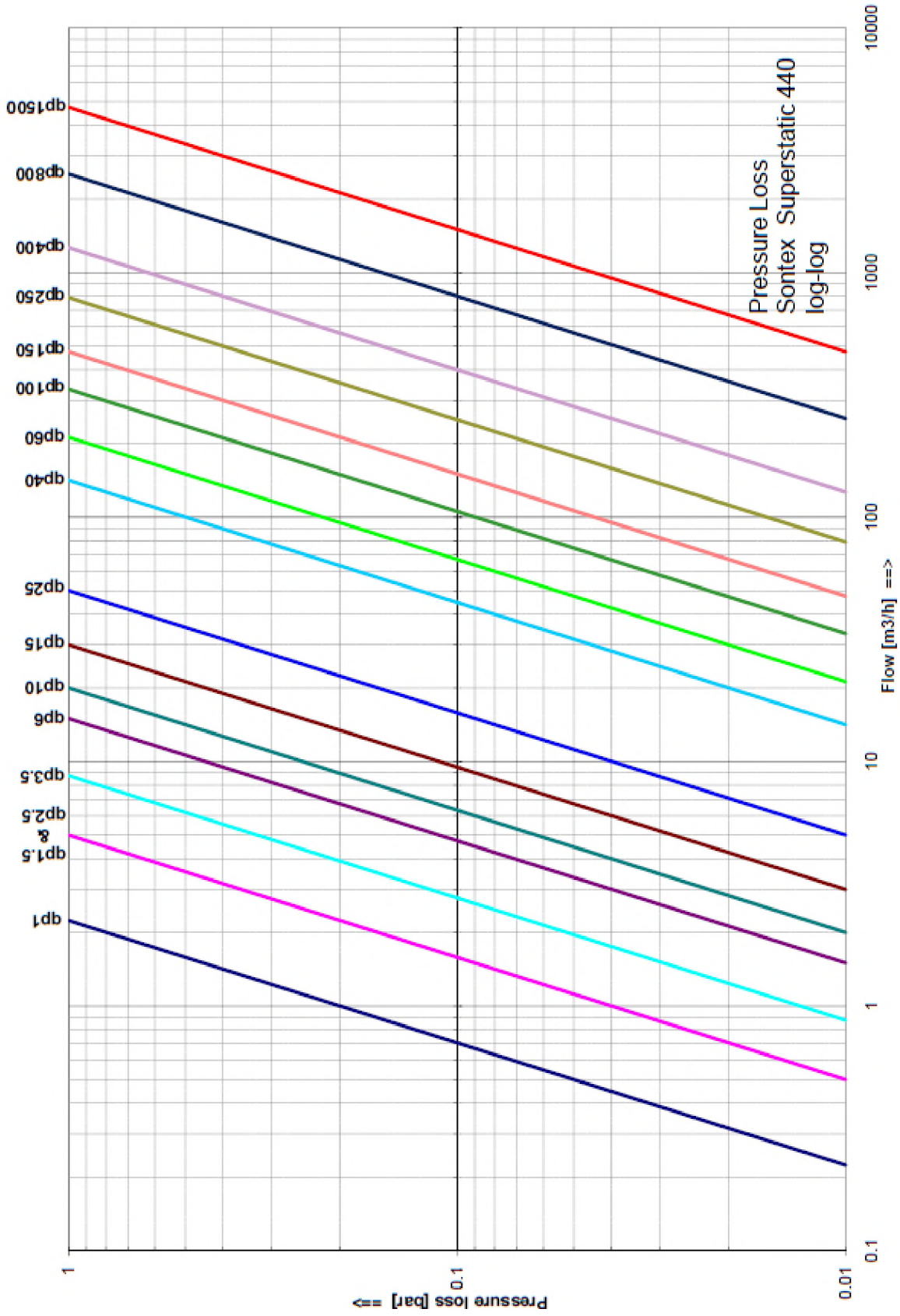
Superstatic

Pressure Loss



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Integrator Supercal 531

Temperature measurement

Pt100 or Pt500	
2- and 4-wire	
Absolute temperature range	-20...200°C
Approved range	2...200°C
Absolute temperature difference	1...150K
Homologation range	3...150K
Response limit	0.2 K
Temperature resolution t (display)	0.1°C
Temperature resolution Δt (display)	0.01 K
Measuring	precision better than EN1434-1 request

Measuring cycle Temperature measurement:

30 seconds when battery operated (Type D)
3 seconds when mains operated

Ambient Temperature

Operation	5...55°C
Storing and transport	-25...70°C

Display

8 digits LCD-Display

Display units

Energy	kWh, MWh, GJ, MJ, BTU
Volume	m^3, Gallon
Additional pulse inputs	volume or energy
Temperature	°C, °F or K

Voltage supply modular optional

Battery type D	10 + 1 year
Mains	110...240VAC or 220…240VAC – 50/60 Hz
Mains	12…24VAC 50/60 Hz or 12…24VDC

Degree of protection

Flow sensor	IP68
Integrator	IP65

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Superstatic

Supercal 789

Compact Static Heat Meter of High-Tech Composite

principle used

Application

The **Superstatic 789** is a lightweight and robust compact heat meter consisting of a high-tech composite flow meter, a detachable integrator with a wide range of communications options and a pair of temperature sensors.
It's used in home automation, local and district heating/cooling systems to measure the consumption of heating or/and cooling energy for individual billing.

The **Superstatic 789** is designed on the basis of the proven **fluid oscillation** exclusively by Sontex. Thanks to the use of a static flow sensor, the heat meter **Superstatic 789** does not have any moving parts and thus no wear. The fluid oscillation principle guarantees a high stability and repeatability for a reliable and precise measurement of flow and thermal energy. It is optimally suited for glycol and other mixtures.

It's built for flows of qp 1.5 m^3/h and qp 2.5 m^3/h and measures the temperature within the range of 0°C to 110°C. Through its two additional optional pulse inputs, it is possible to connect, e.g., two water meters (hot and cold) and read their values remotely via the heat meter.
The **Superstatic 789** meets the requirements of the European Measuring Instruments Directive (MID) 2014/32/EU and the standard EN 1434 class 2.

Benefits

Permanent flow detection thanks to the fluidic oscillation measuring principle

- **Flow meter of High-Tech Composite lightweight and robust**
- Corrosion resistant materials
- No moving parts, thus no wear
- Not sensitive to dirt, air bubbles and liquids with changing viscosity
- Self-cleaning thanks to the fluidic oscillation pulse in the flow meter
- Long-term stability, accurate and reliable measurement
- **LoRaWAN technology as optional communication interface**

Standard features

The heat and cooling meters **Superstatic 789** are optimized for the measurement and calculation of energy consumption in district or local heating systems.

- Configured as a heat meter MID with temperature sensors Ø 5 mm, 1.5m
- Optical interface for readout and 6+1 years battery
- Easy to operate and read
- Non-volatile EEPROM memory, that keeps stored data even in case of power failure
- 18 monthly energy values for heat energy and volume
- Self-monitoring and error display

Sizes

The **Superstatic 789** is available in the following sizes:

- Flow meter for qp 1.5 m^3/h, with a length of either 110 mm or 130 mm,
- and qp 2.5 m^3/h 130 mm

Options

The **Superstatic 789** can be ordered with following options

- ∅ 5,2 mm or ∅ 6 mm temperature sensors
- 12+1 years battery
- One of the following communications options:
  - Self-powered M-Bus
  - **LoRaWAN technology**
  - Bidirectional Radio SONTEX interface.
  - Wireless M-Bus.
  - Two pulse outputs either heating or cooling energy consumption and volume, or heating and cooling energy consumption
- Two additional pulse inputs

Functions

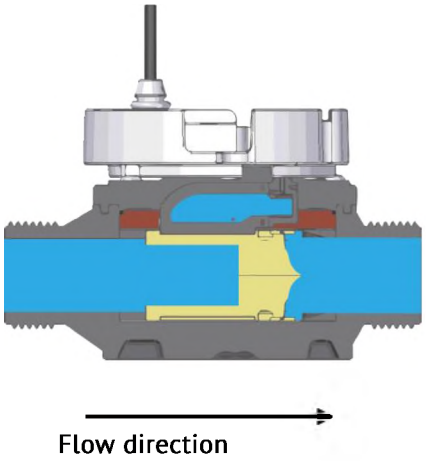
- Measure and record energy consumption and volume of the flow in heat or cooling applications
- Optionally measure and record a second “energy consumption”, for heat/cooling applications
- If two additional inputs were configured then record the provided values. The configuration can be done either through the optical interface, or via M-Bus or by radio SONTEX
- Display of consumption data depending on configuration:
  - 18 monthly energy and volume values
  - 18 monthly cooling energy values
  - 18 monthly values of additional pulse input 1
  - 18 monthly values of additional pulse input 2
  - Set day values
- Display operating data including self-monitoring with error display

Fluid oscillation flow sensor: The principle

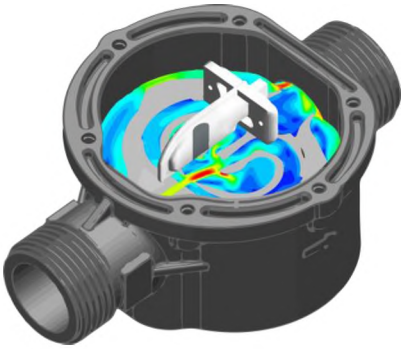
Picture1: The liquid passes through a special insert, the oscillator. Before passing the oscillator, the liquid is led to a nozzle and accelerated to a jet (oscillating jet). Opposite of the nozzle, the jet is redirected to the left or right into the channel. Due to the differential pressure generated in the channel, part of the liquid flows to the piezo-sensor above and part flows back to the pipe. The pressure of the liquid on the piezo-sensor generates an electrical pulse. Thus the liquid flows back to the pipe through a return loop and redirects the jet into the other channel. The liquid of this channel flows on the other side of the piezo-sensor and generates again an electrical pulse.

Picture 2: The animated top view shows the oscillating jet and its differences in velocity: The oscillation jet accelerated by the nozzle has the highest velocity and is visible in red. The jet that has slowed down is represented in blue.

The electrical pulses generated by the piezo-sensor with differential pressure correspond to the movement, the frequency of the jet. The electrical pulses are processed, amplified and filtered by the electronics. The electrical pulses are recorded by the integrator connected through a cable to the flow sensor and converted into flow. The frequency of the oscillation jet, i.e. the electrical pulse, is proportional to the flow.



Picture 1: Section through the flow sensor



Picture 2: Schematic of oscillator with oscillating jet (RED)

Temperature sensors

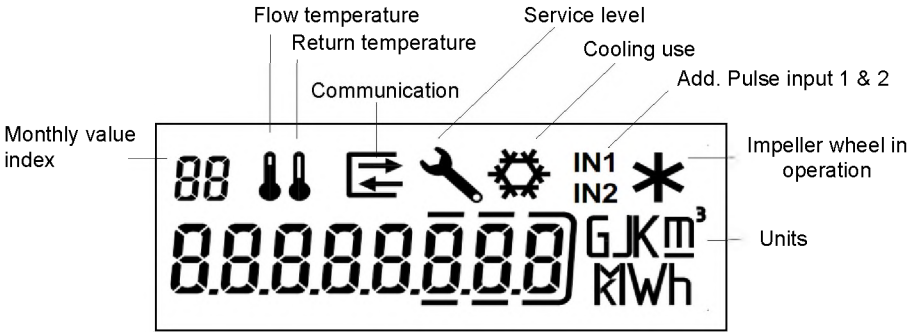
The pair of temperature sensors Pt 1'000 is connected to the integrator and is an integral part of the heat meter. The sensor with a colourless marking is mounted and sealed directly into the flow sensor. The temperature sensor with the orange marking must be mounted in the pipe “opposite” to the **Superstatic 789**. The temperature sensors mustn’t be changed or modified.

Integrator

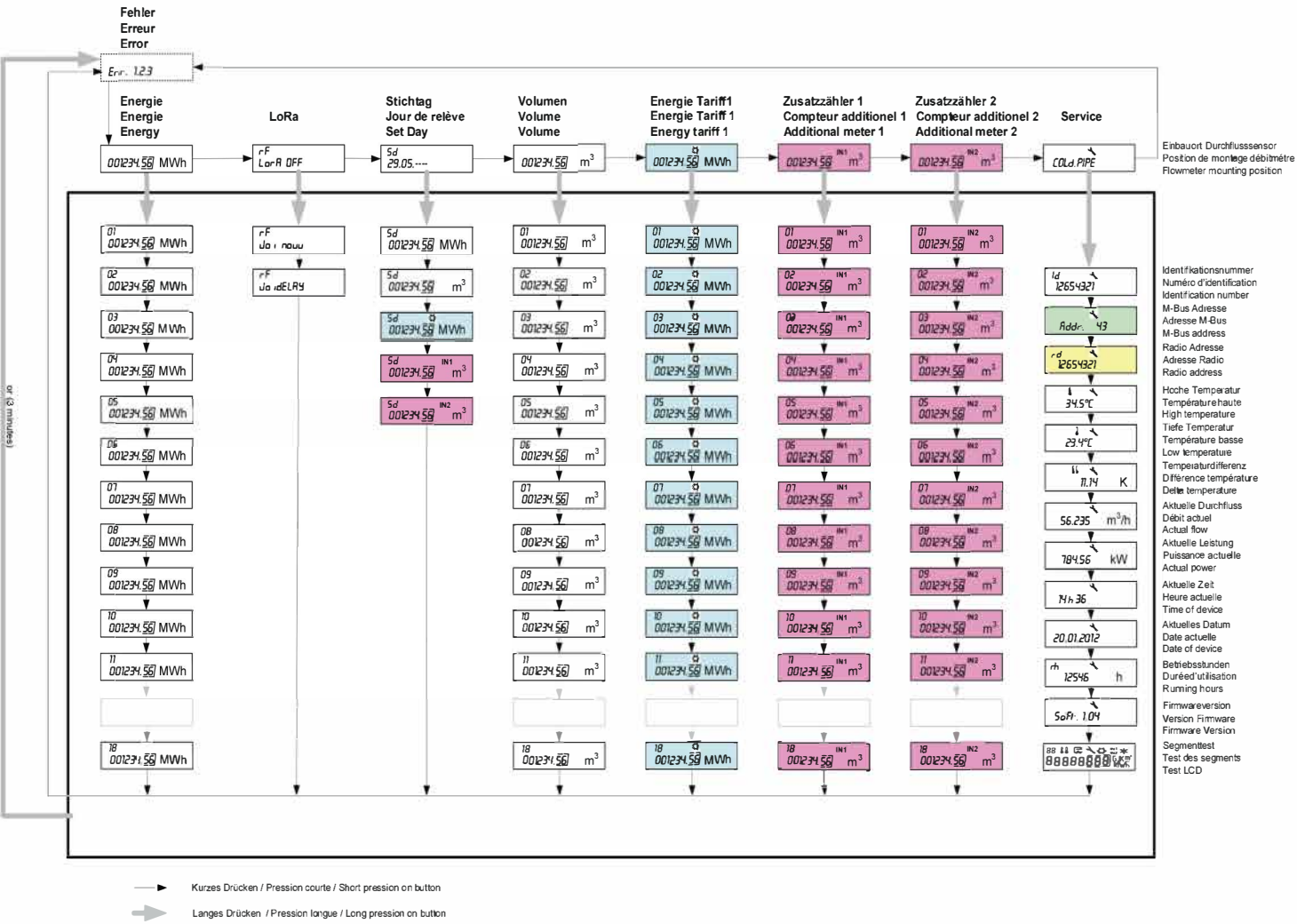
The integrator is equipped with a large 8-digits display and can be rotated by 360°. The integrator can be separated from the flow sensor and be installed separately. A cable of 0,6 meter connects the integrator to the flow sensor.
The housing has a protection index of IP65 against dust and humidity.

Display

The LCD display of the **Superstatic 789** has a large, clear design and high contrast, making it easy to read the data.



Display sequences



Error messages

Err 1	Flow higher than 1.2 x qs or faulty flow sensor.
Err 2	Measured temperature out of range or faulty temperature sensor.

Energy calculation

The flow sensor counts up the volume of the liquid flowing through the sensor. The thermal energy consumption, respectively the heating and cooling energy are calculated by means of the temperature difference between hot and cold pipe, the recorded volume, and the heat coefficient. The latter takes into consideration the density, the viscosity and the specific heat of the liquid used. All these are dynamically adapted in function of the temperature.

Solar-, cooling and other installations

The standards allow for approvals using water as heating and or cooling liquid and the **Superstatic 789**, while having received all according approvals, ensures also a precise measurement with other liquids.
The calculator contains the data for many different special liquids and, by means of the free software Prog7x9, it is possible to select the liquid, its level of concentration if so defined and be set to calculate properly the energy consumption.

Cooling energy

The cooling energy in combined heat/cooling applications is stored in another memory than the heat energy and will be cumulated only if the two following conditions are fulfilled:

- Temperature difference(Δt) > -0.5K
- Supply temperature < 18°C

The cooling energy has the same physical unit as the heat energy. The cooling power and the temperature difference are in this case displayed with a minus sign (-). If required it is possible to order the **Superstatic 789** with another threshold than the 18°C.

Non-volatile memory

The device parameters, as well as the cumulative values for energy and volume, cooling energy, monthly values, set day values, values of the pulse input counters 1 and 2, operating hours and error type are stored in a non-volatile memory (EEPROM), where they are saved even in case of a power failure (e.g. changing batteries). Once an hour and in the event of battery failure, the cumulative values are updated in the EEPROM.

Monthly values

At the end of each month, the monthly values are stored.
Depending on the configuration a total of 18 monthly values of heat energy, volume, cooling energy and of the additional pulses inputs 1 and 2 are memorized in the integrator.

Pulse inputs

As an option the **Superstatic 789** offers the possibility to integrate two additional pulse inputs such as from a hot water and a cold water meter.

Communication options

Several communication interfaces are available.
The configuration of the selected communication option of the **Superstatic 789** can be carried out with the free software Prog7X9 from Sontex.

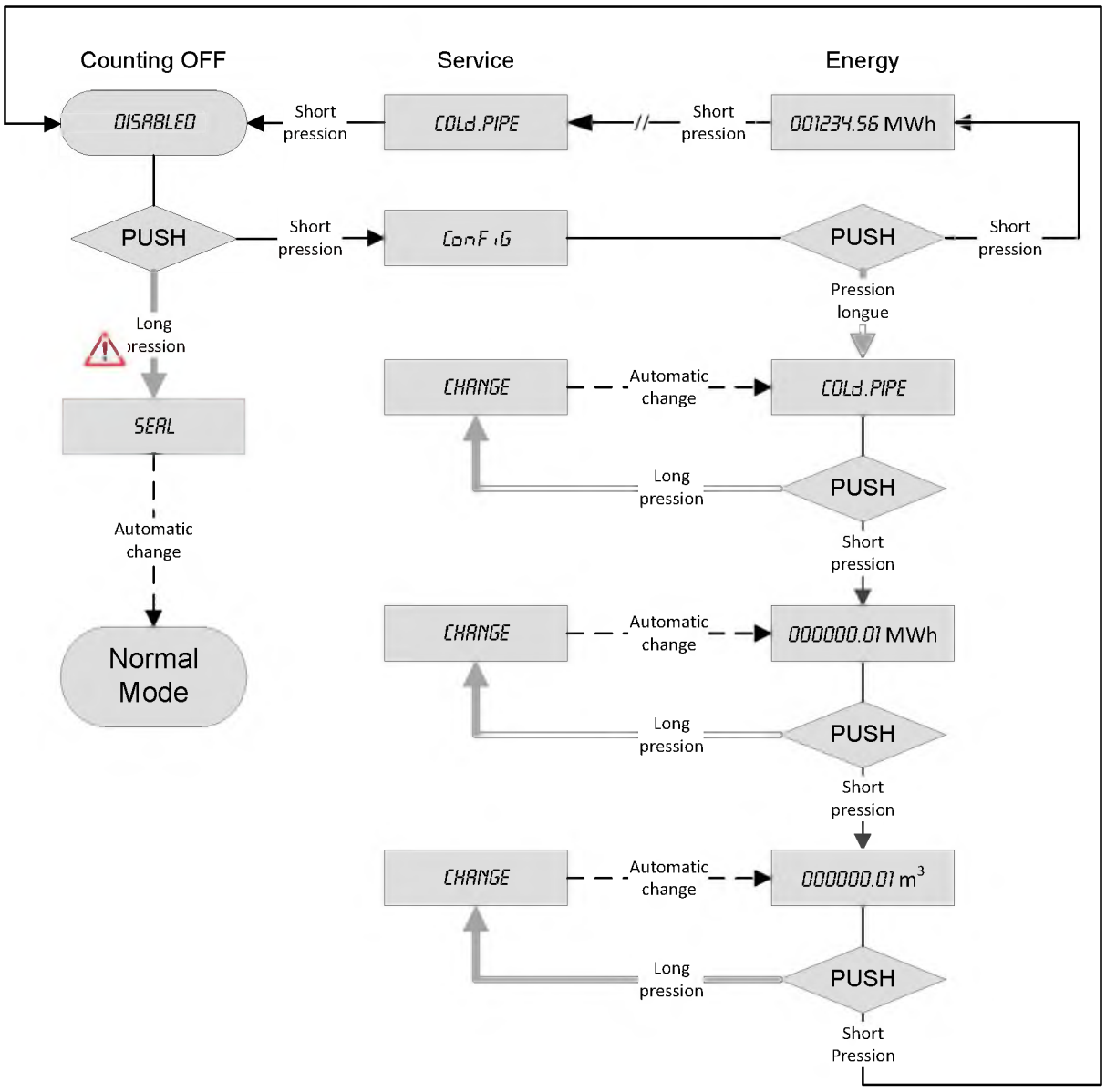
Configuration

The heat meter is delivered ex works in the “storage” mode, it means it does not count and the display shows "Disabled". The storage mode is active as long as the meter is not sealed "Seal".

Optionally, the “Config” menu can be ordered in addition. The transition from “storage” mode to "Config" menu is made with a short press on the orange navigation button. Another short press gives access to the whole sequence of the "Normal" mode.

In the "Config" menu, a long press on the button will change the below settings:

- Flow meter mounting position in the installation. Hot (HOT PIPE) or cold side (COLD PIPE).
- Energy unit (0.1kWh, 1 kWh, 0.001MWh, 0.01MWh, 0.001GJ and 0.01GJ).
- Volume unit (0.01 m3 and 0.001m3).



TECHNICAL DATA

Temperature sensors

2 wire temperature sensor	Pt1'000
Diameter	Ø5.0; Ø5.2, Ø6.0 mm
Cables length	1.5 m

Measurement

Approved temperature range	0...110°C
Approved for long term operating temperature θq	5...90°C
Differential range	3...75 K
Response limit	0.5 K
Temperature resolution t (display)	0.1 °C
Temperature resolution Δt (display)	0.01 K
Temperature-measurement cycle at nominal flow	10 seconds
Flow-measurement cycle	**Permanent**

Integrator General

Environment class	C
Mechanics	M1
Electronics	E1
Battery protection class	III
Cable connection between flow sensor and integrator	0.6 m, fix
Integrator Protection index	IP 65
Operating temperature	5...55°C
Operating temperature with radio option	5...40°C
Storage and transport temperature	-10...60°C

Display & Display units

	8-digits LCD
Energy	kWh, MWh, GJ
Volume	m^3
Additional pulse inputs	Volume or pulses
Temperature	°C
Δ Temperature	K

Power supply

Lithium Metal Battery (≤ 1g) 3VDC	6+1 or 12+1 years

Powered by M-Bus line 1 device = 2 M-Bus charges (max 2 x 1.5mA)

Pulse output

Open drain (MOS Transistor)	1 Hz, 500 ms
Vcc_{max} : 35 V_{DC} ; Icc_{max} : 25mA	

Pulse inputs with a dry contact

Power supply $_{internal}$	2.3 V_{DC}
$R_{pull\ UP\ internal}$	2 MΩ
Pulse factor	0...999.999 m^3/Imp or without unit

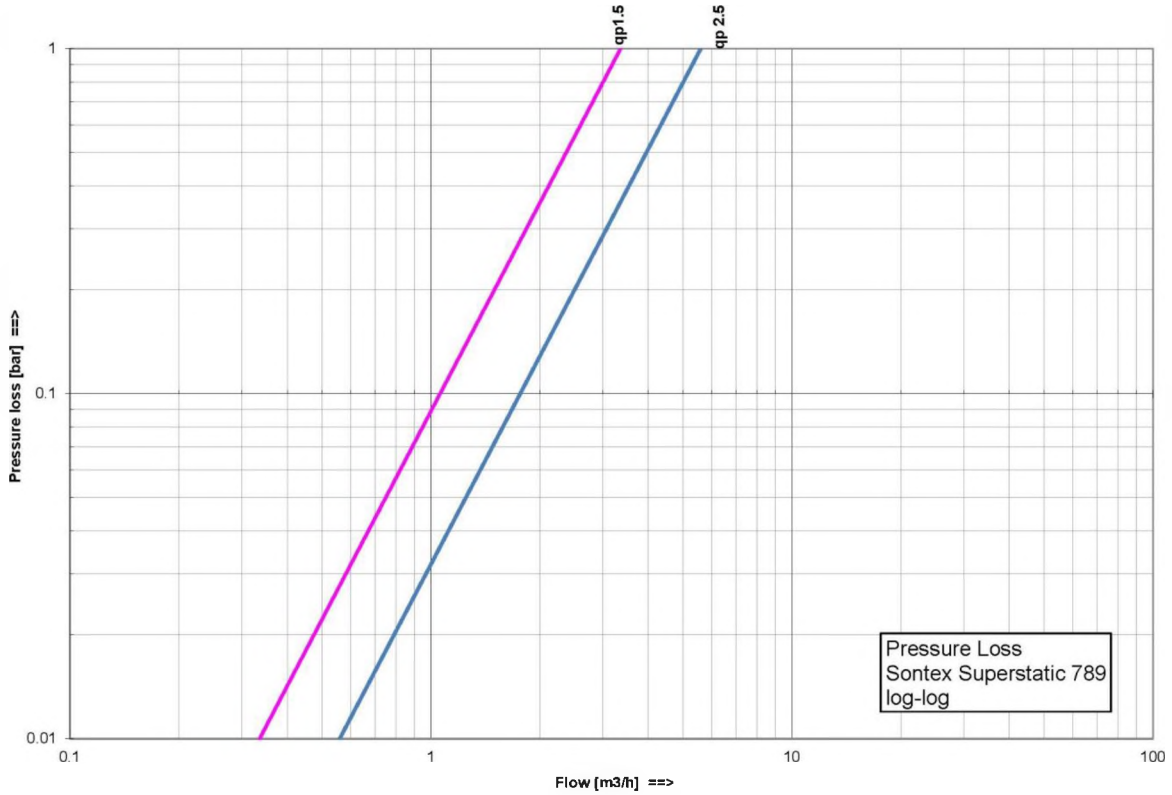
Fluidic Oscillation Flow Sensor

qp	Threaded connection		Mounting length	Mat.	PN	Maximal flow qs	Minimal flow qi	Low flow threshold value (50°C)	Threaded hole for sensor	Total Meter Weight	Kvs value (20°C)	Pressure loss at qp
m^3/h	G"	DN	mm		bar	m^3/h	l/h	l/h		kg	m^3/h	bar
1.5	3/4"	*(15)*	110	Comp	16	3	15	10	Yes	0.72	3.4	0.2
1.5	1"	*(20)*	130	Comp	16	3	15	10	Yes	0.74	3.4	0.2
2.5	1"	*(20)*	130	Comp	16	5	25	17	Yes	0.75	5.5	0.2

Comp = High-Tech Composite

16 bar = 1.6 MPa

Pressure loss curve



Metrological class

EN 1434 class 2

Mounting

The Superstatic 789 should not be mounted on the side where the continuous operating temperature of the liquid exceeds 90°C or is below 5°C.

Length of straight section fitted upstream/downstream of each flow meter (EN1434):

U3 / D0 for: L=110mm

U0 / D0 for: L=130mm

Flow sensor protection index

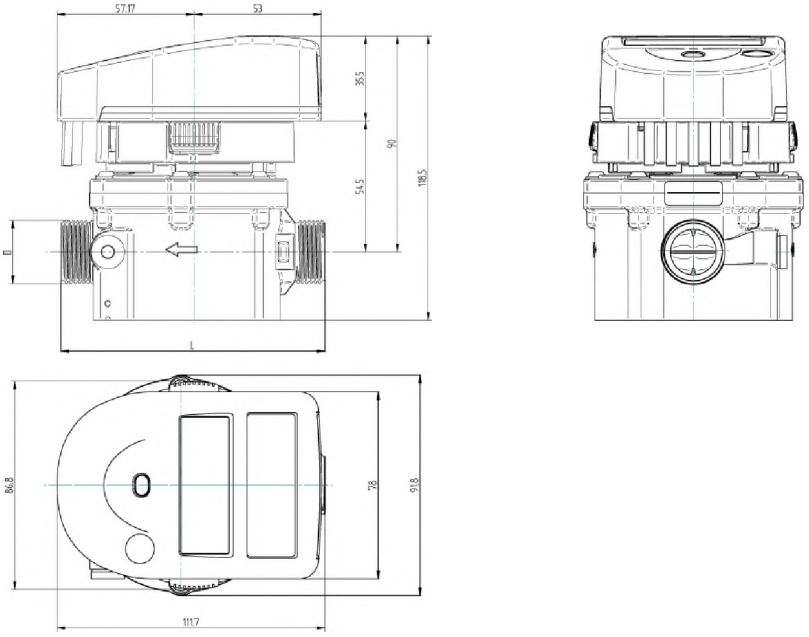
IP68

Dimensions

	qp 1.5 m^3/h	qp 1.5 m^3/h	qp 2.5 m^3/h
Mounting length [L]	110 mm	130 mm	130 mm
Integrator	110.2 x 86.8 mm	110.2 x 86.8 mm	110.2 x 86.8 mm
Total height	118.5 mm	118.5 mm	113.4 mm
Height from the axis of the tube	90.0 mm	90.0 mm	87.3 mm
Height without integrator	54.5 mm	54.5 mm	52 mm

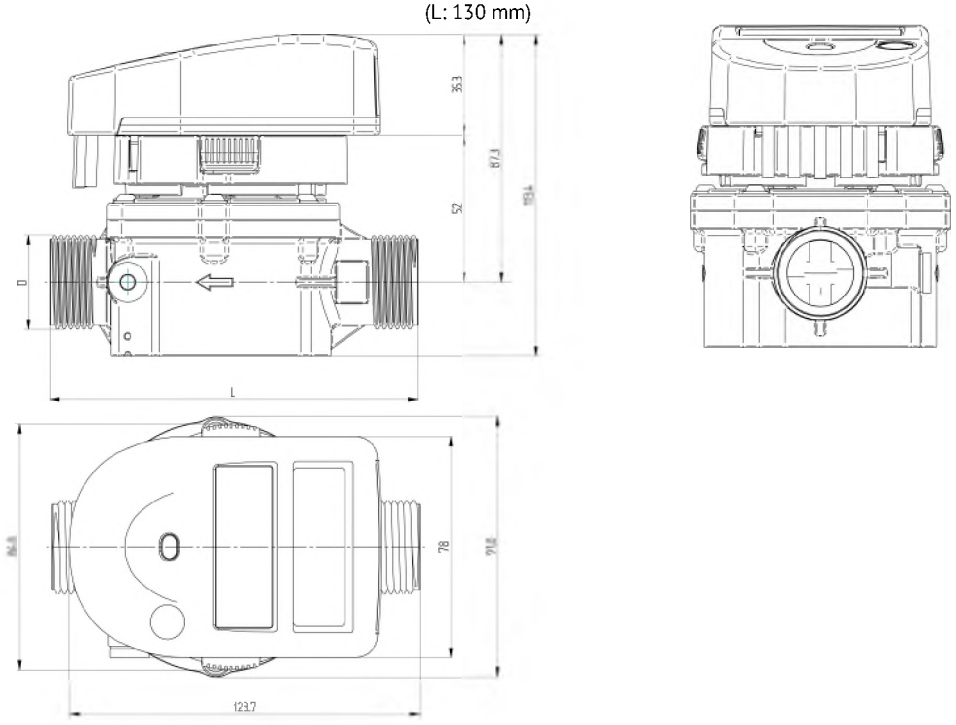
Superstatic 789, qp 1.5 m³/h

(L: 110 mm / 130 mm)



Superstatic 789, qp 2.5 m³/h

(L: 130 mm)



Smoke detector Type C
Ei6500-SA2-R / Ei6500-SA2-O

Application

The Supercom Ei6500-SA2-R or -SA2-O is a smoke detector for remote inspection in accordance with the inspection method C defined in DIN 14676-1. The smoke detector works on the scattered light principle and triggers an alarm as soon as smoke has entered the optical smoke chamber. The built-in piezo-electronic horn alarms with a sound level of at least 89 dB(A) at a distance of three meters.
As soon as there are no more smoke particles in the smoke chamber, the smoke detector is automatically reset and the alarm is switched off.

Feature

The remote inspection of the detector SA2-O is done with the unidirectional wM-Bus radio or via the bidirectional Sontex radio for the SA2-R. Both radio transmissions send the following status information of the detector:

- Device type, serial number of the radio module, manufacturer ID
- Commissioning date
- Obstacle detection system status, detector removed, installation and environmental status, battery, sound generator and sensor status
- Distance to the next obstacle during the last installation
- Time and date of the system
- Dirt level of the smoke chamber
- Date of the last sound generator test
- Incidents since the last readout: test button activated, real alarm, dismounting (frequency and duration)

Dirt compensation

The smoke detector has an automatic dirt compensation feature. This means that the sensitivity of the smoke chamber adapts to its degree of dirt and thereby significantly reduces the probability of false alarms.

Power-Up LED

During commissioning (turning the detector onto the baseplate), an LED indicates that the warning indicator has been successfully switched on. Installation is complete when the green LED flashes 30 seconds after the test button is pressed (for 2 minutes, every 8 seconds, 5 times in succession).

Mute function

False alarms can be muted for a period of 10 minutes using the test button. A beep sound indicating a malfunction can also be muted for 12 hours.

Self-monitoring with error display

The smoke detector automatically checks the functionality of its sensors, battery and electronics every 48 seconds. All detected faulty states are indicated by a combination of yellow LED error display and acoustic beep.

Monitoring of the sound generator

The sound generator of the detector is regularly and automatically checked for full functionality.

Monitoring of the smoke inlets

The Ei6500-SA2R /O is equipped with ultrasonic obstacle detection. This system regularly checks the smoke vents of the unit for dirt. It also monitors the area around the unit for obstacles within a radius of up to 0.5 meters that could prevent or slow down the smoke entering the detector. The occlusion and obstacle detection meet the requirements of DIN 14676-1, but the detection performance of the system is limited and depends on the size, shape, density and material of the objects present. The detection radius is automatically calibrated during installation to the location selected by the responsible installer.

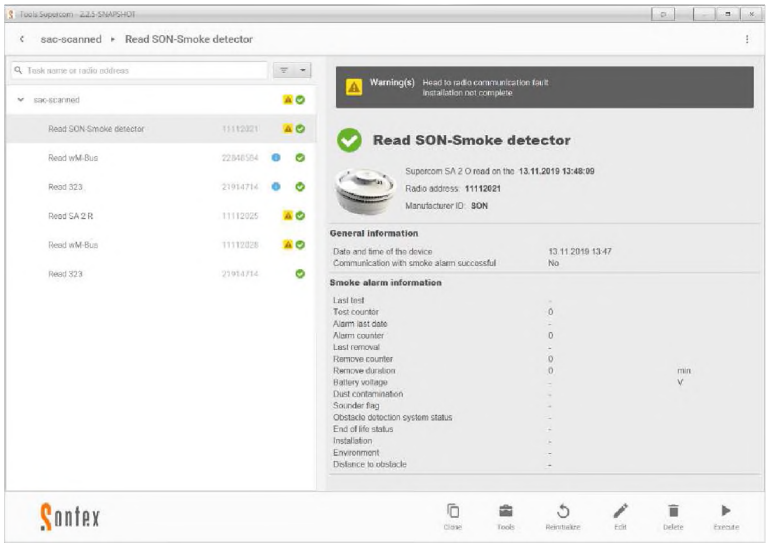
Suitable for bedrooms

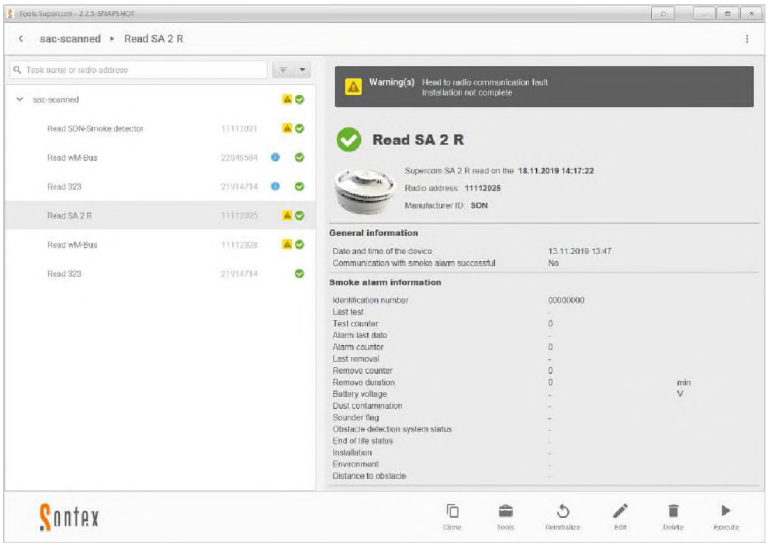
During normal operation, there are no active, visible or audible indicators that could disturb the residents. The smoke detector is therefore particularly suitable for installation in bedrooms and children's rooms.

Technical Data

Sensor type	Scattered light
Mains power	3V-Lithium-Battery
Battery permanently installed	yes
Battery life time	min. 10 Years
Piezo sound level	89 dB(A) at 3 m
Test / Mute button	yes
Reduced test volume	yes
Networking possibility - wired - radio	 no no
Mute in case of false alarm	yes, 10 Minutes
Dirt compensation	yes
Automatic self-monitoring	yes
Ready for use	Power-Up LED during commissioning, afterwards without optical display
Remote inspection	Method C
Communication Sontex Radio Accessibility: Frequency:	 bidirectional (from 06:00 to 18:00 +1h in the night according to serial number, 7 days per week) 433.82 MHz
Communication wM-Bus OMS Accessibility: Frequency:	 unidirectional (data transmission every 120 seconds, 12 hours per day, 7 days per week) 868,95 MHz
Encryption	AES-128 (Sontex Radio Mode 5, OMS Mode 5 or Mode 7). Individual AES key downloadable from Sontex Exchange Platform
ID-N°	Unique ID per detector
Operating / Storage temperature	0 to + 40° Celsius / - 10 to + 40° Celsius
Humidity	15 % to 95 % rel., no condensation
Weigth	320 g
Dimension	Diameter 136 mm x 66 mm
Housing material	Plastic polystyrene (HB-classified according to UL94, self-extinguishing)
Degree of protection	IP 20
Mounting	Mounting base with dowels and screws (included in delivery)
Monitoring area	⩽ 60 m²
Transmission standard	EN 13757-4
Standards	EN 14604: 2005 + AC: 2008, DIN SPEC 91388:2019
Approvals	Kriwan 1772-Q-181135 / 1772-Q-191253

Readout example with Software Tools Supercom





Radio Module for Allmess water meter

Application

The retrofittable radio module **Supercom 583** is suitable for Allmess GmbH water meters:

- System-V +m water meters.
- System-MK +m exchange single jet capsule.

It can be retrofitted at any time without impairing the calibration. The bidirectional SONTEX radio system allows the readout of the consumption data via a mobile radio modem Supercom 636 or via the radio concentrator Supercom 646.

Function

The battery-operated radio module **Supercom 583** scans the rotation of the modulator disc of the water meter, accumulates the rotation pulses and stores the consumption data in his internal memory.
The scan guarantees a precise and correct detection of the backward and forward modulation indicator motion.
The radio module is equipped with an optical manipulation protection. If the radio module is removed and/or opened, the electronic manipulation protection triggers an error message.

Stored Data

- Identification number (serial number of water meter).
- Medium: cold or warm water.
- Serial number (radio module address).
- Current time and date.
- Accumulated volume.
- Set day.
- Volume at set day.
- 15 monthly values.
- Operating hours of battery.
- Manipulation protection: date of the last manipulation and the accumulated duration of all manipulations in minutes.
- Pulse value.
- Number of counter resets.
- Error code.
- Firmware version.
- Commissioning date.
- Accumulated volume and date at the last programming of volume.
- Accumulated volume before the last programming of volume.

Programming data

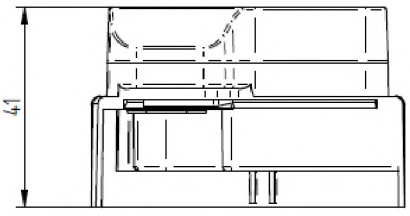
With the software Tools Supercom following parameters can be programmed:

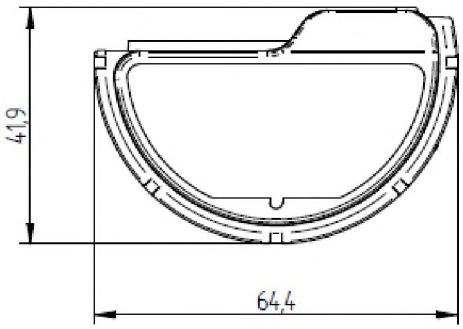
- Water meter ID.
- Medium: cold or warm water.
- Current date and time and set day.
- Initialisation of the totalizer, the set day value and of the 15 monthly values.
- Reset to delivery (sleeping) mode or set to operating mode.
- Password for the secured access to the programming.

Technical Data

General	Permanent flow	MID: Q_3 2.5 m^3/h - 4 m^3/h
	Nominal flow	EWG: Qn 1.5m^3/h - 2.5m^3/h
	Pulse value	1 l/Imp
	Operating temperature	5 to 55°C
	Storage temperature	-20 to 70°C
Housing	Protection class	IP65
Conformity	CE	acc. to RED 2014/53/EU
Radio	Method	FSK, bidirectional
	Frequency	433.82 MHz
	Protocol	Radian, EN60870-5 (M-Bus)
	Baud rate	2'400 Baud
	Range	approx. 30 m, depending on building structure
Data Memory	FRAM	Real time storage
Electronic Data	Main supply	Lithium Metal Battery (≤ 1g) 3VDC
	Service life	Maximum 10 + 1 years

Dimensional Drawing





Sontex ■ Thermal Energy ■ Flow Metering ■

Supercom

Supercom 323

Radio Module for Ei Electronics® smoke detectors

Application

The radio module **Supercom 323** enables distant check of installed smoke detectors, and thereby could save costly inspections. The radio module is suitable for the following Ei Electronics® smoke detector:

- Ei650FA

Thanks to the bidirectional radio system SONTEX, it is possible to readout the stored data in the radio module via a mobile radio modem Supercom 636 or via a radio concentrator Supercom 646. The radio module can be retrofitted at any time without impairing the functioning of the smoke detector.

Function

The battery-operated radio module **Supercom 323**, plugged into an Ei Electronics smoke detector, stores status information of the smoke detector. The stored data can be accessed via the bidirectional radio communication SONTEX within the reception area of the readout device.

Parametrisation

Following parameters can be parametrised by radio with the software Tools Supercom:

- Date and time
- Password
- Reset of several stored data
- AES-128 encryption

Readout

Following parameters can be read out by radio with the software Tools Supercom:

- Smoke events (number and date of the last event)
- Battery status, dust level and sensor status
- Head removals (number, duration and date of the last event)
- Button tests (number and date of the last event)
- Automatic self-test (for the Ei650FA smoke detector, an automatic self-test of its sounder is performed during the readout)
- Date and time
- Module removals (date of the last event)

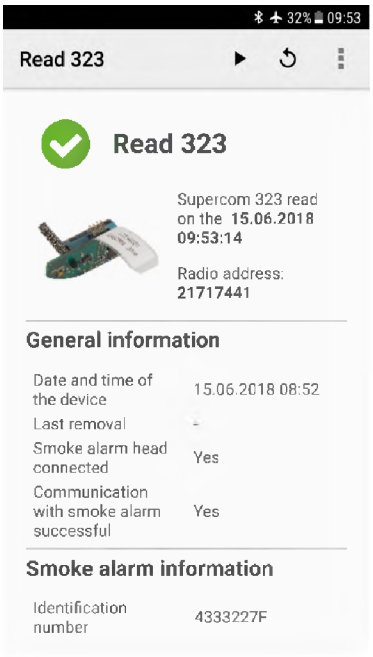
Accessibility

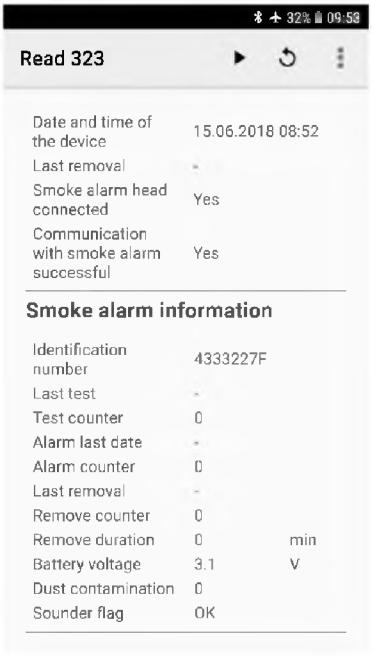
The radio module can be accessed by radio from 6h00 to 20h00, 7 days a week.

Technical Data

General	Operating temperature	0 °C to 40 °C
	Storage temperature	-10 °C to 60 °C
	Humidity range	15 % to 95 % RH non condensing
Radio		
	Frequency	433.82 MHz
	Output power	max. 10 mW
	Encryption	AES-128
Conformity	CE	**acc. to RED 2014/53/EU**
Data Memory	Flash memory	non-volatile storage
Power Supply		
	Main supply	3 V lithium battery
	Lifespan	typically 10 + 1 years
Dimensions		
	Radio module	58.8 mm x 29.85 mm x 34 mm
	Smoke detector	115 mm (D) x 50 mm (H)

Readout Example





Sontex ▪ Thermal Energy ▪ Flow Metering ▪ Supercom

Supercom 327

Radio Module for Ei Electronics® smoke alarms

Application

The radio module **Supercom 327** enables distant check of installed smoke alarms, and thereby could save costly inspections. The radio module is suitable for the following Ei Electronics® smoke alarm:

- Ei650FA

Thanks to the unidirectional radio system Wireless M-Bus (OMS), it is possible to readout the stored data in the radio module via a mobile radio modem or via a radio concentrator. The radio module can be retrofitted at any time without impairing the functioning of the smoke alarm.

Function

The battery-operated radio module **Supercom 327**, plugged into an Ei Electronics smoke alarm, stores status information of the smoke alarm. The stored data can be read out via the unidirectional radio communication Wireless M-Bus (OMS) within the reception area of the readout device.

Parametrisation

Following parameters can be parametrised Ex Works:

- Date and time
- Password
- Automatic self-test (date and time of the event)
- Radio transmission interval and radio transmission calendar
- Commissioning (automatic or by button)
- AES-128 encryption

Readout

Following parameters can be read out by radio with the software Tools Supercom:

- Smoke events (number and date of the last event)
- Battery status, dust level and sensor status
- Head removals (number, duration and date of the last event)
- Button tests (number and date of the last event)
- Date of the last self-test
- Date and time
- Commissioning date
- Module removals (number, duration and date of the last event)

Operating Mode

The radio module **Supercom 327** sends the data of the smoke alarm every 120 seconds (minimum), 12 hours a day, and 7 days a week.

Sontex ■ Thermal Energy ■ Flow Metering ■

Supercom

Technical Data

General

Operating temperature	0 °C to 40 °C
Storage temperature	-10 °C to 60 °C
Humidity range	15 % to 95 % RH non condensing

Radio

Frequency	868.95 MHz
Output power	max. 12.5 mW
Encryption	AES-128
Transmission standard	EN 13757-4, mode T1
OMS (Open Metering System)	acc. to OMS generation 4, mode 5

Conformity

CE **acc. to RED 2014/53/EU**

Data Memory

Flash memory	non-volatile storage

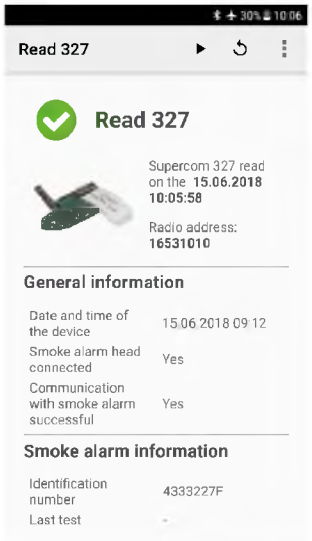
Power Supply

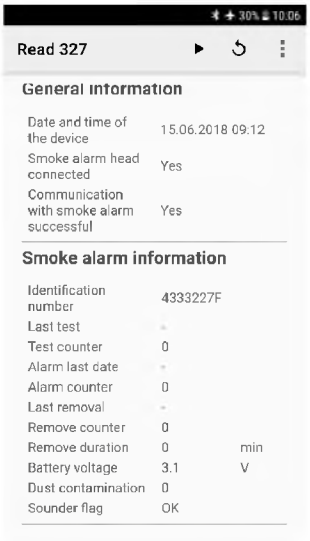
Main supply	3 V lithium battery
Lifespan	typically 10 + 1 years

Dimensions

Radio module	58.8 mm x 29.85 mm x 34 mm
Smoke alarm	115 mm (D) x 50 mm (H)

Readout Example





Radio module for Elster water meter

Application

Radio module **Supercom 580** to retrofit for the Elster multi-jet meter MO-A and MOZ-A as well as for the Elster-Picoflux-water meter EV-A.

The retrofit radio module for water meters can be retrofitted at any time without impairing the calibration. The bidirectional SONTEX radio system allows the readout of the consumption data via a mobile radio modem Supercom 636 or via the radio concentrator Supercom 646.
For the Elster multi-jet meters MO-A and MOZ-A, various housings for all types of pipe connections for flush or surface mounting and for valve connection are available. The great variety of adapters for installations from different manufacturers allows a cost-effective change-over to this technology at all metering points.

Function

The battery-operated radio module **Supercom 580** scans the volume pulses of the water meter, accumulates them and stores the consumption data.
The radio module is equipped with a manipulation protection. If the housing of the radio module is removed and / or opened, the electronic manipulation protection triggers an error message.

Stored Data

- Identification number (serial number of water meter)
- Medium: cold or warm water
- Serial number (radio module)
- Current time and date
- Accumulated volume
- 15 monthly values
- Operating hours of battery
- Manipulation protection; date of the last manipulation and the accumulated duration of all manipulations in minutes
- Magnetic contact detection in minutes and with date of the last magnetic contact detection
- Pulse value
- Number of counter resets

Programming data

With the software Tools Supercom following parameters can be programmed:

- Water meter ID and medium: cold or warm water
- Current date and time
- Initialisation of the totalizer and of the 15 monthly values
- Reset to delivery (sleeping) mode or set to operating mode

Sontex ■ Thermal Energy ■ Flow Metering ■

Supercom 580

Technical Data

General

Pulse value	0.5 l/Imp
Operating temperature	5 to 55°C
Storage temperature	-20 to 70°C

Housing

Protection class	IP65

Conformity

CE acc. to RED 2014/53/EU

Radio

Method	FSK, bidirectional
Frequency	433.82 MHz
Protocol	Radian, EN60870-5 (M-Bus)
Baud rate	2'400 Baud
Range	approx. 30 m, depending on building structure

Data Memory

EEPROM (captive)	daily recording

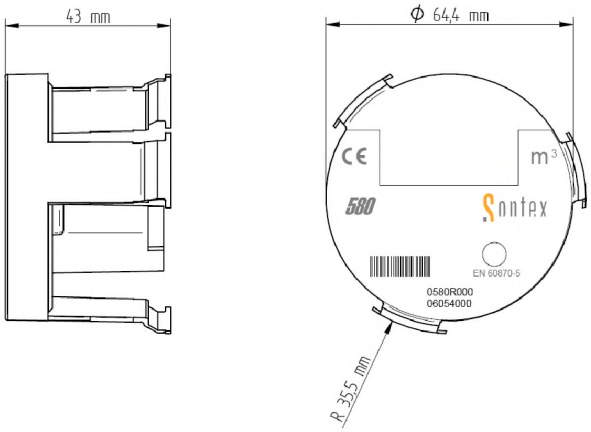
Electronic Data

Main supply	Lithium Metal Battery (≤ 1g) 3VDC
Service life	Maximum 10 years

Optical Interface

Protocol	EN60870-5 (M-Bus)
Baud rate	2'400 Baud

Dimensional Drawing



Radio Module for Wehrle Modularis water meter

Application

The retrofittable radio module **Supercom 581** is suitable for the large range of water meters of E. Wehrle GmbH:

- Modularis single-jet and multi-jet dry-rotor meters
- Modularis cylindrical piston meters
- and various versions of EAS-Modular measuring capsules

It can be retrofitted at any time without impairing the calibration. The bidirectional SONTEX radio system allows the readout of the consumption data via a mobile radio modem Supercom 636 or over the radio central Supercom 646.

Function

The battery-operated radio module **Supercom 581** scans the volume pulses of the water meter, accumulates them and stores the consumption data in this internal memory.
The scan guarantees a precise and correct detection of the backward and forward modulation indicator motion.
The radio module is equipped with an optical manipulation protection. If the housing of the radio module is removed and/or opened, the electronic manipulation protection triggers an error message.

Stored Data

- Identification number (serial number water meter)
- Medium: cold or warm water
- Serial number (radio module address)
- Current time and date
- Accumulated volume
- 15 monthly values
- Operating hours of battery
- Manipulation protection: date of the last manipulation and the accumulated duration of all manipulations in minutes
- Magnetic contact detection: with date of the last magnetic contact detection and the accumulated duration of all manipulations
- Pulse value
- Number of counter resets

Programming data

With the software Tools Supercom following parameters can be programmed:

- Water meter ID and medium: cold or warm water
- Current date and time
- Initialisation of the totalizer and of the 15 monthly values
- Reset to delivery (sleeping) mode or set to operating mode
- Password for the secured access to the programming

Sontex ■ Thermal Energy ■ Flow Metering ■

Supercom 581

Technical Data

General

Permanent flow	MID:	Q3 2.5 - 6.3 m^3/h
		Q3 10 - 25 m^3/h
Nominal flow	EWG:	Qn 1.5 - 3.5m^3/h
		Qn 6 - 15m^3/h
Pulse value		1 l/Imp
Operating temperature		5 to 55°C
Storage temperature		-20 to 70°C

Housing

Protection class	IP68 Maximum 7 days permanent Maximum 1 m of water depth static Temperature range 7°C – 35°C IP67 outside of the above mentioned conditions

Conformity

CE acc. to RED 2014/53/EU

Radio

Method	FSK, bidirectional
Frequency	433.82 MHz
Protocol	Radian, EN60870-5 (M-Bus)
Baud rate	2'400 Baud
Range	approx. 30 m, depending on building structure

Data Memory

EEPROM	Daily storing

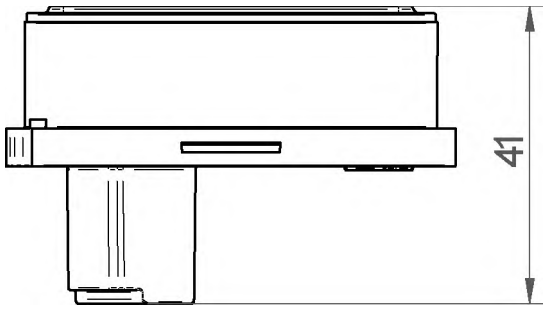
Electronic Data

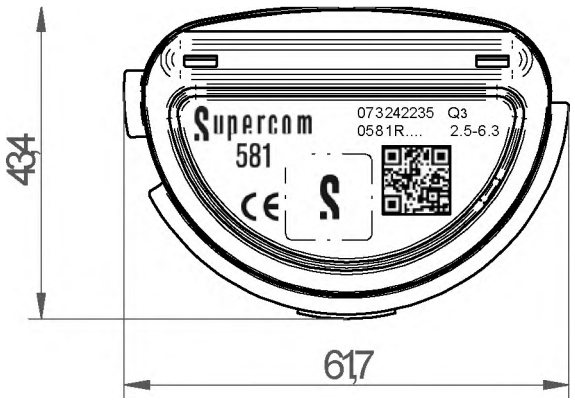
Main supply	Lithium Metal Battery (≤ 1g) 3VDC
Service life	Maximum 11 years

Optical Interface

Protocol	EN60870-5 (M-Bus)
Baud rate	2'400 Baud

Dimensional Drawing





Sontex ▪ Thermal Energy ▪ Flow Metering ▪ Supercom 582

Radio Module for Elster water meter

Application

The retrofittable radio module **Supercom 582** is suitable for Elster Messtechnik GmbH (Honeywell) water meters:

- S110 PICOFLUX EF single-jet.
- M140 MODULMETER MOF for exchange multi-jet capsule.

It can be retrofitted at any time without impairing the calibration. The bidirectional SONTEX radio system allows the readout of the consumption data via a mobile radio modem Supercom 636 or via the radio concentrator Supercom 646.

Function

The battery-operated radio module **Supercom 582** scans the rotation of the modulator disc of the water meter, accumulates the rotation pulses and stores the consumption data in his internal memory.
The scan guarantees a precise and correct detection of the backward and forward modulation indicator motion.
The radio module is equipped with a magnetic manipulation protection. If the radio module is removed and/or opened, the electronic manipulation protection triggers an error message.

Stored Data

- Medium: cold or warm water.
- Serial number (radio module address).
- Current time and date.
- Accumulated volume.
- Set day.
- Volume at set day.
- 15 monthly values.
- Operating hours of battery.
- Manipulation protection: date of the last manipulation and the accumulated duration of all manipulations in minutes.
- Number of counter resets.
- Error code.
- Firmware version.
- Commissioning date.
- Accumulated volume and date at the last programming of volume.
- Accumulated volume before the last programming of volume.
- AES-128 encryption for secure data transmission.

Programming data

With the software Tools Supercom following parameters can be programmed:

- Medium: cold or warm water.
- Current date and time and set day.
- Initialisation of the totalizer, the set day value and of the 15 monthly values.
- Reset to delivery (sleeping) mode or set to operating mode.
- AES-128 encryption key for secure data transmission.
- Password for the secured access to the programming.

Technical Data

General

Permanent flow	MID: Q3 2.5 m^3/h – 6.3 m^3/h
Nominal flow	EWG: Qn 1.5m^3/h – 3.5m^3/h
Pulse value	1 l/Imp
Operating temperature	5 to 55°C
Storage temperature	-20 to 70°C

Housing

Protection class	IP65

Conformity

CE acc. to RED 2014/53/EU

Radio

Method	FSK, bidirectional
Frequency	433.82 MHz
Protocol	Radian, EN60870-5 (M-Bus)
Baud rate	2'400 Baud
Range	approx. 30 m, depending on building structure

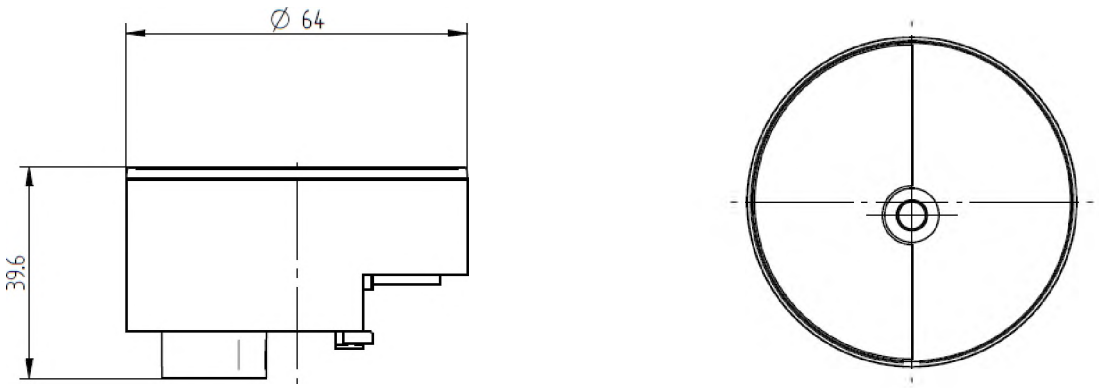
Data Memory

FRAM	Real time storage

Electronic Data

Main supply	Lithium Metal Battery (≤ 1g) 3VDC
Service life	Maximum 10 + 1 years

Dimensional Drawing



Supercom W2-L

LoRaWAN® Radio Module for Elster water meter

Application

The retrofittable radio module **Supercom W2-L** is suitable for Elster Messtechnik GmbH (Honeywell) water meters:

- S110 PICOFLUX EF single-jet.
- M140 MODULMETER MOF for exchange multi-jet capsule.

It can be retrofitted at any time without impairing the calibration. The bidirectional LoRa® radio allows the reading of the consumption data directly and safely (AES128 encoded) to your LoRaWAN network.

Function

The battery-operated radio module **Supercom W2-L** scans the rotation of the modulator disc of the water meter, accumulates the rotation pulses and stores the consumption data in his internal memory.
The scan guarantees a precise and correct detection of the backward and forward modulation indicator motion.
The radio module is equipped with a magnetic manipulation protection. If the radio module is removed and/or opened, the electronic manipulation protection triggers an error message.

Stored Data

- Medium: cold or warm water.
- Serial number (radio module address).
- Current time and date.
- Accumulated volume.
- Set day.
- Volume at set day.
- 15 monthly values.
- Operating hours of battery.
- Manipulation protection: date of the last manipulation and the accumulated duration of all manipulations in minutes.
- Number of counter resets.
- Error code.
- Firmware version.

- Commissioning date.
- Accumulated volume and date at the last programming of volume.
- Accumulated volume before the last programming of volume.
- AES-128 encryption for secure data transmission.

Programming data

With the software Tools Superprog (OS Android or Windows) following parameters can be programmed:

- Medium: cold or warm water.
- Current date and time and set day.
- Initialisation of the totalizer, the set day value and of the 15 monthly values.
- Reset to delivery (sleeping) mode or set to operating mode.
- AES-128 encryption key for secure data transmission.
- Password for the secured access to the programming.

Technical Data

General

Permanent flow	MID:	Q_3 2.5 m^3/h – 6.3 m^3/h
Nominal flow	EWG:	Qn 1.5m^3/h – 3.5m^3/h
Pulse value	1 l/Imp	
Operating temperature	5 to 55°C	
Storage temperature	-20 to 70°C	

Housing

Protection class	IP65

Conformity

CE acc. to RED 2014/53/EU

Radio

Method	LoRa®, bidirectional
Frequency	868 (863 MHz - 870 MHz)
Protocol	Radian, EN60870-5 (M-Bus)
Cycles	Standard every 2 hours
Range indoor	approx. 30 m, depending on building structure

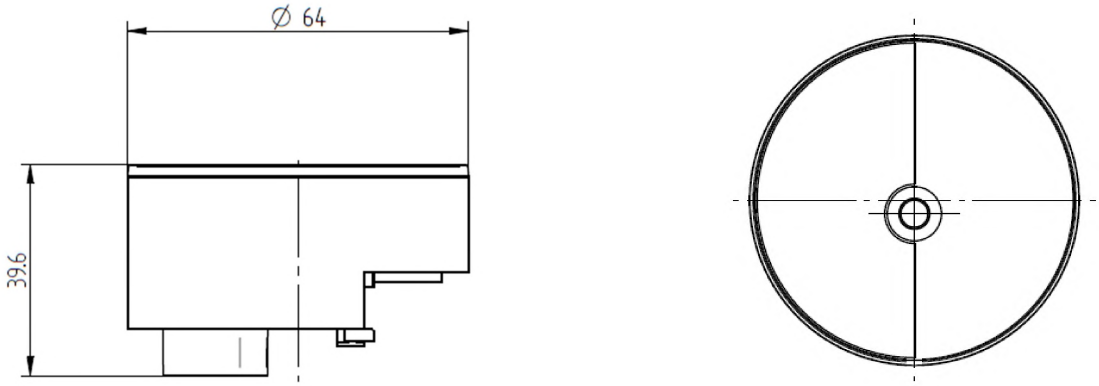
Data Memory

FRAM	Real time storage

Electronic Data

Main supply	Lithium Metal Battery (≤ 1g) 3VDC
Service life	Maximum 10 + 1 years

Dimensional Drawing



Smoke detector Type C
Ei6500-SA2-R / Ei6500-SA2-O

Application

The Supercom Ei6500-SA2-R or -SA2-O is a smoke detector for remote inspection in accordance with the inspection method C defined in DIN 14676-1. The smoke detector works on the scattered light principle and triggers an alarm as soon as smoke has entered the optical smoke chamber. The built-in piezo-electronic horn alarms with a sound level of at least 89 dB(A) at a distance of three meters.
As soon as there are no more smoke particles in the smoke chamber, the smoke detector is automatically reset and the alarm is switched off.

Feature

The remote inspection of the detector SA2-O is done with the unidirectional wM-Bus radio or via the bidirectional Sontex radio for the SA2-R. Both radio transmissions send the following status information of the detector:

- Device type, serial number of the radio module, manufacturer ID
- Commissioning date
- Obstacle detection system status, detector removed, installation and environmental status, battery, sound generator and sensor status
- Distance to the next obstacle during the last installation
- Time and date of the system
- Dirt level of the smoke chamber
- Date of the last sound generator test
- Incidents since the last readout: test button activated, real alarm, dismounting (frequency and duration)

Dirt compensation

The smoke detector has an automatic dirt compensation feature. This means that the sensitivity of the smoke chamber adapts to its degree of dirt and thereby significantly reduces the probability of false alarms.

Power-Up LED

During commissioning (turning the detector onto the baseplate), an LED indicates that the warning indicator has been successfully switched on. Installation is complete when the green LED flashes 30 seconds after the test button is pressed (for 2 minutes, every 8 seconds, 5 times in succession).

Mute function

False alarms can be muted for a period of 10 minutes using the test button. A beep sound indicating a malfunction can also be muted for 12 hours.

Self-monitoring with error display

The smoke detector automatically checks the functionality of its sensors, battery and electronics every 48 seconds. All detected faulty states are indicated by a combination of yellow LED error display and acoustic beep.

Monitoring of the sound generator

The sound generator of the detector is regularly and automatically checked for full functionality.

Monitoring of the smoke inlets

The Ei6500-SA2R /O is equipped with ultrasonic obstacle detection. This system regularly checks the smoke vents of the unit for dirt. It also monitors the area around the unit for obstacles within a radius of up to 0.5 meters that could prevent or slow down the smoke entering the detector. The occlusion and obstacle detection meet the requirements of DIN 14676-1, but the detection performance of the system is limited and depends on the size, shape, density and material of the objects present. The detection radius is automatically calibrated during installation to the location selected by the responsible installer.

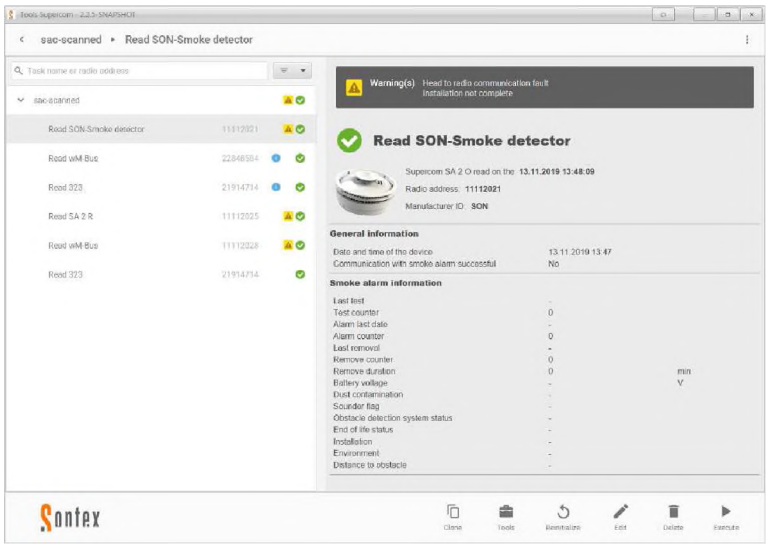
Suitable for bedrooms

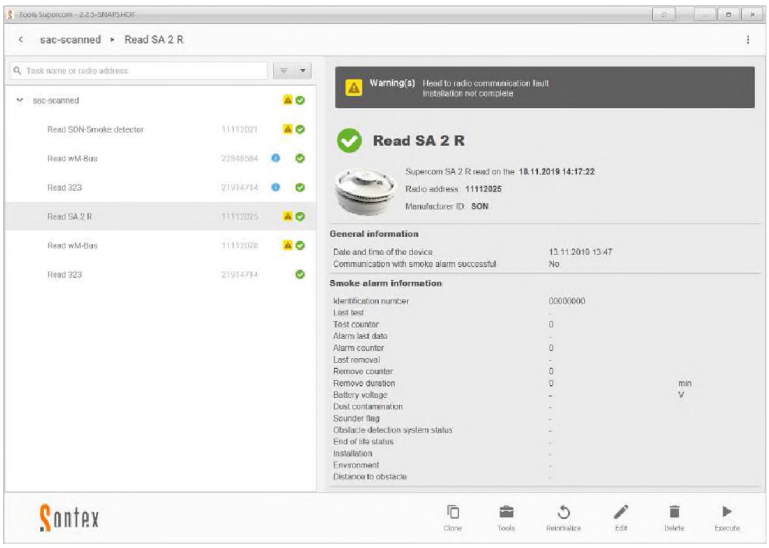
During normal operation, there are no active, visible or audible indicators that could disturb the residents. The smoke detector is therefore particularly suitable for installation in bedrooms and children's rooms.

Technical Data

Sensor type	Scattered light
Mains power	3V-Lithium-Battery
Battery permanently installed	yes
Battery life time	min. 10 Years
Piezo sound level	89 dB(A) at 3 m
Test / Mute button	yes
Reduced test volume	yes
Networking possibility - wired - radio	 no no
Mute in case of false alarm	yes, 10 Minutes
Dirt compensation	yes
Automatic self-monitoring	yes
Ready for use	Power-Up LED during commissioning, afterwards without optical display
Remote inspection	Method C
Communication Sontex Radio Accessibility: Frequency:	 bidirectional (from 06:00 to 18:00 +1h in the night according to serial number, 7 days per week) 433.82 MHz
Communication wM-Bus OMS Accessibility: Frequency:	 unidirectional (data transmission every 120 seconds, 12 hours per day, 7 days per week) 868,95 MHz
Encryption	AES-128 (Sontex Radio Mode 5, OMS Mode 5 or Mode 7). Individual AES key downloadable from Sontex Exchange Platform
ID-N°	Unique ID per detector
Operating / Storage temperature	0 to + 40° Celsius / - 10 to + 40° Celsius
Humidity	15 % to 95 % rel., no condensation
Weigth	320 g
Dimension	Diameter 136 mm x 66 mm
Housing material	Plastic polystyrene (HB-classified according to UL94, self-extinguishing)
Degree of protection	IP 20
Mounting	Mounting base with dowels and screws (included in delivery)
Monitoring area	⩽ 60 m²
Transmission standard	EN 13757-4
Standards	EN 14604: 2005 + AC: 2008, DIN SPEC 91388:2019
Approvals	Kriwan 1772-Q-181135 / 1772-Q-191253

Readout example with Software Tools Supercom





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