User Manual compact static Heat Meter Superstatic 749

General
The compact thermal energy meter **Superstatic 749** is a precision measuring instrument approved for individual metering of heating systems and must be handled with care.

The Superstatic 749 is available in a heating or cooling version and determines the thermal or cold energy exchanged by a heat-bearing fluid in a heat exchanger circuit.

The Superstatic 749 complies with the requirements of the European Directive MID 2014/32/EU modules B and D and of the standard EN 1434 class 2.

Important!
The energy meter must be used within the conditions indicated on the meter; the metrological seals have to stay intact.

In the event non compliancy to these instructions, the manufacturer declines all liability, warranty and guarantee for correct metrology.

The manufacturer will not be liable in the event of any modification of the metrological data or of the measurement parameters if any of manufacturer's seals is damaged. The seals can only be applied by authorised people in conformity to national legislation related to legal metrology.

Use only the accessories provided by the manufacturer.

For cleaning, a moist cloth is sufficient. Do not use solvents.

Do not shorten the cable between the flow meter and the integrator and the cables for the temperature sensors or modify them in any way whatsoever.

Before installation
Check the installation data and compare them with the specific characteristics of the thermal energy meter.

The rules for installation and those relating to the project must be respected.

The environmental temperature range for the energy meter is 5...55 ºC.

Make sure that the meter and the labels can be read easily.

All connections must be made at a minimum distance of 300 mm from high frequency or high voltage cables. Avoid thermal radiation and interfering electrical fields near the integrator and connection cable.

As a rule, the integrator must be installed at a distance from pipes carrying refrigerating fluids.

Action must be taken to ensure that no condensation water can penetrate inside the integrator.

If there is any risk of vibrations, the integrator must be installed separately on the wall.

If the specific temperature of the fluid within the flow meter regularly reaches 90°C, the integrator must be installed separately from the flow meter.

It is advisable to drain the installation before fitting the flow meter. This will enable any foreign body to be withdrawn from the pipe.

Security with lithium batteries
3V lithium batteries are used. Certain security rules must be respected: the replacement of batteries or to add a second battery is not allowed.

During recycling, the following points must be respected:

Do not recharge or short-circuit, protect against humidity, do not expose to heat, do not throw batteries in fire, keep out of reach of children.

Advice on disposal:

In order to maintain and protect the environment, to reduce waste of natural resources and prevent pollution, the European Commission has established guidelines according to which manufactures must take back electrical and electronic devices in order to forward them to a regulated disposal or recycling system.

If you dispose of the batteries yourself, enquire about the possibilities of recycling in your region.

Installation
The prescriptions related in the standard EN1434-6 must be respected when the Superstatic 749 is installed.

In the standard version, the integrator is parameterised by default for installation on the "cold" pipe side. Installation on the "hot" pipe side must be specified with the order.

Depending on version and use (heat and/or cooling meter), the energy meter must be fitted on the "cold" or "hot" pipe side of the installation in compliance with the chosen configuration. If the device was ordered with the configuration option, some parameters can be changed using the "Config" menu during commissioning.

In a same installation, mixed mounting positions (horizontal and vertical) can be realized.

Place the flow meter correctly according to the direction of the fluid (an arrow ➔ can be seen on the flow meter).

Horizontal mounting with the integrator facing downwards is not permitted. Also avoid fitting in a position which may cause an air bubble to build up inside the mechanical meter.
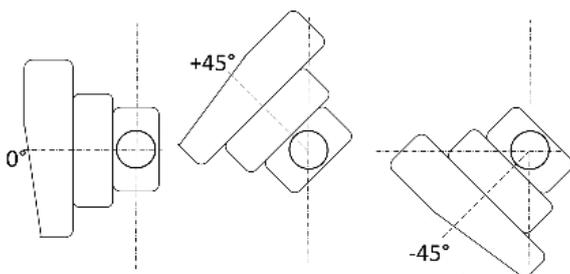
Horizontal Mounting position: The sensor head **MUST** be placed to the side **+/- 45°** in relation to the pipe axis to avoid influences of air inclusions (top) or dirt (bottom).
Vertical mounting position: Mounting in riser or down pipes possible.

The energy meter must be fitted between two shutoff valves. The flow meter must be installed ahead of any monitoring valves so as to avoid any potentially interfering influence. Waterproof will be checked at the various mounting points.

The heat conveying liquid must be equivalent to water without any additives according to standard FW510 of the AGFW (German District Heating Association). If additives are added to the water, the user must ensure the compatibility of the materials used in the thermal energy meter which are in contact with these additives.

Mounting of the integrator for a cooling application

Only the flow meter can be fully isolated. **Separate the integrator from the flow meter** and fix using the wall support aid.

It is recommended to separate the integrator from the flow meter and installed at a sufficient distance from the flow meter if:
- The meter has to be installed in a confined space
- The meter is in connection with mounting in condensing environments
- To prolong the battery life time

The pipes are generally free from air before the installation is brought into service. Follow the insulation instructions for cooling installations. Final commissioning must be performed and documented.

After mounting and before commissioning purge system > 10 min at qp to avoid air bubbles.

Wall-mounting of the integrator

The integrator can be separated from the flow meter and fixed against a wall using the wall fixture supplied with the energy meter. If possible, install the wall fixing component above the flow meter.

The wall fixing component, together with a double-sided adhesive tab, is delivered with the Superstatic 749 (Figure 1).
The wall fixing component can also be screwed on to the wall (screws are not supplied).
To separate the integrator from the flow meter press laterally with one hand on the two locking buttons, while pulling the integrator upwards (Figure 2).
Fix the integrator onto the wall fixing component taking care not to jam the cable which connects the integrator to the flow meter and stick the adhesive tab behind the wall component. Secure the assembly to the wall (Figure 3).
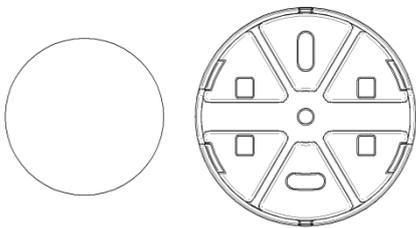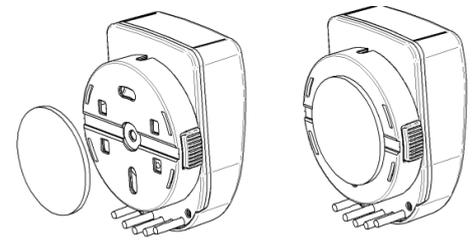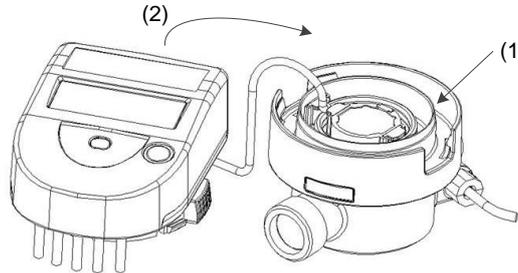
Figure 1	Figure 2	Figure 3

To remove the integrator from the wall support, it will be sufficient to press laterally on the two locking buttons while pulling the assembly towards you.
Rewind the connection cable at the position provided for this purpose on the flow meter (1) and re-insert the integrator (2).

(2)   (1)

Mounting the temperature sensors

The temperature sensor in the flow meter has a colourless marking.
The temperature sensor with the orange mark indicates that the sensor must be mounted in the pipe "opposite" to the Superstatic 749.

Example: If the flow meter is installed on the warm side (Hot Pipe), the temperature sensor with the orange mark will be mounted in the cold side (Cold Pipe).

The Superstatic 749 is delivered with a cable length of 1.5 m for the temperature sensors.
The temperature sensors form a sub-assembly matching the integrator. The temperature sensor cables must be neither shortened nor lengthened.
The temperatures of use shown on the label must be respected.

A temperature sensor may be fitted directly in the Superstatic 749 flow meter. The temperature sensors will preferably be fitted directly, in other words one temperature sensor will be fitted in the flow meter while the other sensor will be installed on the other side of the heat exchanging circuit.

1   2   3   4   5   6
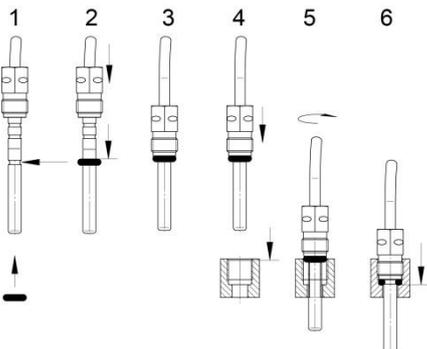
1. Check whether the O-ring is in the 3rd groove (arrow).
2. If not, push the O-ring into the corresponding groove.
3. Push the screw connection up to the O-ring.
4. Insert the temperature sensor into the tube fitting.
5. As soon as the O-ring is in contact with the thread, screw in the temperature sensor by hand up to the stop.
6. Then tighten with a maximum tightening torque of 1.4 Nm (corresponds to approx. one **½ turn**).

When sensor pockets are employed, these must be used specifically for the two temperature sensors and must correspond to the list set out below.

Asymmetrical mounting is also possible. In that case the temperature sensor having a cable marked with orange will be fitted in the other side of the heat exchanging circuit in a sensor pocket defined according to the table set out below.
To guarantee accuracy in this type of use, the following condition must be respected: at a flow rate $\leq$ 100 l/h, the temperature difference has to be equal or larger then 6K, $\Delta T_{min} \geq 6$ K.
Make sure that the sensors are mounted until they stall with the bottom of the sensor pocket.

Sensor pockets list

Temperature sensors	Versions	Pocket	Article number	Material	Temperature range
Ø 5x31 mm	Pt1000	M10x1	0460A212	Brass	0…100 °C
Ø 5x 31 mm	Pt1000	G3/8"	0460A213	Brass	0…100 °C
Ø 5x 31 mm	Pt1000	G1/2"	0460A214	Brass	0…100 °C
Ø 5.2x 31 mm	Pt1000	M10x1	0460A215	Brass	0…100 °C
Ø 5.2x 31 mm	Pt1000	G3/8"	0460A216	Brass	0…100 °C
Ø 5.2x 31 mm	Pt1000	G1/2"	0460A217	Brass	0…100 °C

Direct mounting in a T tube
The temperature sensor is on the same level and perpendicular to the pipe axis (DN15, DN20):
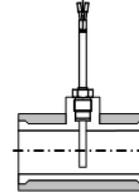
Fitting temperature sensors for refrigeration applications
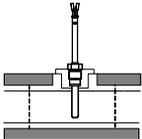
Insulation will only be provided as far as the fixing screw
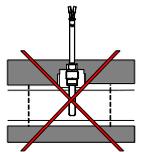
The temperature sensor fixing screw must not be covered by any kind of insulation. This likewise applies if the sensor is fixed directly in the flow meter.

Installation of the Superstatic 749

To install the Superstatic 749, the following steps must be respected :
- Flush out the installation pipes carefully in compliance with the DIN/EN standard specification.
- Close the shutoff valves before and behind the meter.
- Open the drainage valve to reduce the pressure and discharge the water contained in the pipe between the two shutoff valves.
- Consider the direction of flow circulation. Check the flow direction with the arrow figuring on the flow meter.
- Place a gasket on each side of the flow meter. Only use appropriate new gaskets.
- Make sure that the gaskets are carefully positioned in relation to the water pipe and flow meter unions.
- Tighten the fixing nuts firmly by hand. Then tighten up to the mechanical end stop using a mounting tool.
- Install the temperature sensor.
- Turn the display into the desired position for reading.
- Check the waterproof of the meter placed under pressure.
- Seal the flow meter and the temperature sensors.

Mounting cable for the pulse input function
The pulse inputs are built with SELV circuits (Safety Extra Low Voltage) and must be only connected with SELV circuits. The electrical characteristics are displayed on page 9.

Mounting cable for the pulse output function
The pulse outputs are built with SELV circuits (Safety Extra Low Voltage) and must be only connected with SELV circuits. The electrical characteristics are displayed on page 9.

Commissioning from the storage mode

Ex works the flow meter can be in the storage mode, that is to say, it does not count and the display shows "Disabled".
The storage mode is active as long as the meter is not sealed "Seal".

In the storage mode, the transition 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.
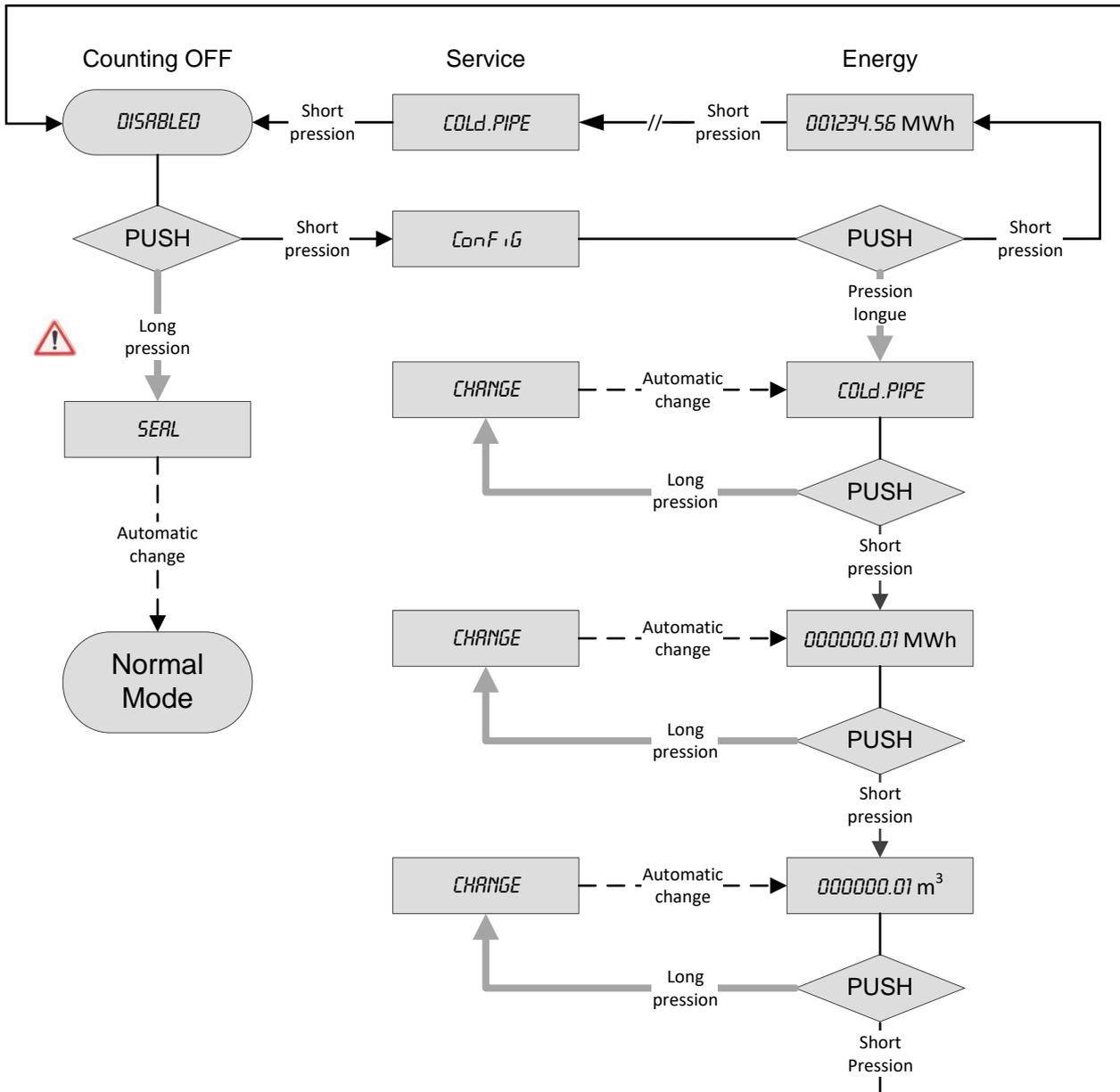
In the "Config" menu (optionally available), a long press will change the settings below:
- Flow meter mounting position in the installation. Hot (HOT PIPE) or cold side (COLD PIPE).
- Energy unit (0.1kWh, 1 kWh, 0.001MWh, 0.01MWh, 0.001GJ and 0.01GJ).
- Volume unit (0.01 m3 and 0.001m3).

In the "Config" menu any inaction (i.e. with no pressure on the navigation button) lasting 3 minutes causes the automatic exit and returns to "Disabled". If changes were made in the "Config" menu, the data remain stored.

> When "Disabled" is displayed, a long press on the navigation button validates the parameters of the flow meter. The indication "Seal" flashes four times on the display and it changes to "Normal" counting mode.
>
> From that moment, **the storage mode ("Disabled" and "Config") is not accessible anymore.**

Checking operation

Make sure that the measurements indicated by the meter are coherent using the orange button which you will find on the meter. The following values can be shown on the LCD display: flow, power, hot and cold temperatures. The communication arrows permit display of the controls (inputs) and responses of the instrument (outputs). **All the display parameters will be used to check and adjust the installation. In particular, you must make sure that the maximum flow rate of the installation does not exceed the maximum flow rate authorised for the meter. To complete the functional analysis, the commissioning protocol can be saved using the Prog7x9 software via the optical interface.**

Error codes

The Superstatic 749 integrator displays an error message with the 3 letters "Err" and a code. If several errors occur at the same time, the different codes are added together.

The error is displayed in the first position of the display menu. It will still be possible to select all the other display menus by pressing the navigation button.

If the navigation button is no longer pressed for a period of 3 minutes, the error code will automatically appear again in the first position of a display menu.

Display of an error automatically disappears when the error is no longer present.

Err 1:   Flow higher than 1.2 x qs or defective hydraulic sensor.

Err 2:   Measured temperature outside the homologated range or temperature sensor defective.

To make sure that the temperature sensors have not been cross during assembly, the temperature difference between the outward and return temperatures can be checked on the display. Depending on the use (thermal or refrigerating), this temperature difference may be either positive or negative.

Display

The Superstatic 749 LCD display has been designed to be large enough and perfectly readable by the user.
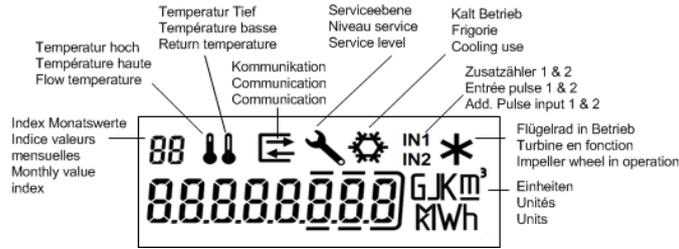
Display sequence

To display general data on the integrator, several windows have been created in the form of menu/sub-menu functions. Depending on the chosen version of the energy meter, some menus may be added.

The "Energy" window of the main menu is the basic display.

The navigation button enables the user to change from one menu to another and to access the different positions within a menu.

Short pressure on the navigation button permits transition from one menu to another or continuation to the next display while remaining in the same menu.

Long pressure (> 2 seconds) on the navigation button gives access to sub-menu within a menu or enables the "Energy" window to be displayed from within a menu.

After 3 minutes, the display automatically reverts to the basic "Energy" window.

Detailed display sequences in Normal Mode:

Energie
Energie
Energy

Kumulierte Energie
Energie cumulée
Cumulated energy
`001234.56` MWh

Letzter Monastwert Energie
Energie au mois dernier
Last monthly value energy
`01 001234.56` MWh

Energie Monat -2
Energie au mois -2
Energy month -2
`02 001234.56` MWh

Energie Monat -3
Energie au mois -3
Energy month -3
`03 001234.56` MWh

Energie Monat -4
Energie au mois -4
Energy month -4
`04 001234.56` MWh

Energie Monat -5
Energie au mois -5
Energy month -5
`05 001234.56` MWh

Energie Monat -18
Energie au mois -18
Energy month -18
`18 001234.56` MWh

LoRaWAN

LoRaWAN
`rF LorA OFF`

Join now
Join maintenant
Start Join jetzt
`rF Jo i now`

Join delayed
Join différé
Join mit Verzögerung
`rF Jo idELAY`

Stichtag
Jour de relève
Set Day

Datum Stichtag
Jour de relève
Date set day
`5d 29.05.----`

Energie Stichtag
Energie à la relève
Energy set day
`5d 001234.56` MWh

Volumen Stichtag
Volume à la relève
Volume set day
`5d 001234.56` m³

Energie Tariff 1 Stichtag
Energie Tarif 1 à la relève
Energy Tariff 1 set day
`5d 001234.56` MWh

Impulseingang 1 Stichtag
Val. Cumul. 1 à la relève
Pulse input 1 set day
`5d 001234.58` IN1 m³

Impulseingang 2 Stichtag
Val. Cumul. 2 à la relève
Pulse input 2 set day
`5d 001234.58` IN2 m³

Volumen
Volume
Volume

Kumulierte Volumen
Volume cumulé
Cumulated volume
`001234.56` m³

Letzter Monastwert Volumen
Volume au mois dernier
Last monthly value volume
`01 001234.56` m³

Volumen Monat -2
Volume au mois -2
Volume month -2
`02 001234.56` m³

Volumen Monat -3
Volume au mois -3
Volume month -3
`03 001234.56` m³

Volumen Monat -4
Volume au mois -4
Volume month -4
`04 001234.56` m³

Volumen Monat -5
Volume au mois -5
Volume month -5
`05 001234.56` m³

Volumen Monat -18
Volume au mois -18
Volume month -18
`18 001234.56` m³

… and continues …

Energie Tariff 1
Energie Tariff 1
Energy tariff 1

Kumulierte Energie Tariff 1
Energie cumuléeTariff 1
Cumulated energy Tariff 1
`001234.56` MWh

Letzter Monastwert Energie Tariff 1
Energie au mois dernier Tariff 1
Last monthly value energy Tariff 1
`01 001234.56` MWh

Energie Tariff 1 Monat -2
Energie Tariff 1 au mois -2
Energy Tariff 1 month -2
`02 001234.56` MWh

Energie Tariff 1 Monat -3
Energie Tariff 1 au mois -3
Energy Tariff 1month -3
`03 001234.56` MWh

Energie Tariff 1 Monat -4
Energie Tariff 1 au mois -4
Energy Tariff 1 month -4
`04 001234.56` MWh

Energie Tariff 1 Monat -5
Energie Tariff 1 au mois -5
Energy Tariff 1 month -5
`05 001234.56` MWh

Energie Tariff 1 Monat -18
Energie Tariff 1 au mois -18
Energy Tariff 1 month -18
`18 001234.56` MWh

Zusatzzähler 1
Compteur additionel 1
Additional meter 1

Kumulierte Wert
Valeur cumulée
Cumulated value
`001234.56` IN1 m³

Letzter Monastwert
Valeur au mois dernier
Last monthly value
`01 001234.56` IN1 m³

Wert Monat -2
Valeur au mois -2
Value month -2
`02 001234.56` m³

Wert Monat -3
Valeur au mois -3
Value month -3
`03 001234.56` IN1 m³

Wert Monat -4
Valeur au mois -4
Value month -4
`04 001234.56` IN1 m³

Wert Monat -5
Valeur au mois -5
Value month -5
`05 001234.56` IN1 m³

Wert Monat -18
Valeur au mois -18
Value month -18
`18 001234.56` IN1 m³

Zusatzzähler 2
Compteur additionel 2
Additional meter 2

`006079.13` IN2 m³

`01 006079.13` IN2 m³

`02 006079.13` IN2 m³

`03 006079.13` IN2 m³

`04 006079.13` IN2 m³

`05 006079.13` IN2 m³

`18 006079.13` IN2 m³

Service

`COLd.PIPE`
Einbauort Durchflusssensor
Position de montage débitmètre
Flowmeter mounting position

`Id 12654321`
Identifikationsnummer
Numéro d'identification
Identification number

`Addr. 43`
M-Bus Adresse
Adresse M-Bus
M-Bus address

`rd 12654321`
Radio Adresse
Adresse Radio
Radio address

`34.5°C`
Hoche Temperatur
Température haute
High temperature

`23.4°C`
Tiefe Temperatur
Température basse
Low temperature

`11.14 K`
Temperaturdifferenz
Différence température
Delta temperature

`56.235 m³/h`
Aktuelle Durchfluss
Débit actuel
Actual flow

`784.56 kW`
Aktuelle Leistung
Puissance actuelle
Actual power

`14h36`
Aktuelle Zeit
Heure actuelle
Time of device

`20.01.2012`
Aktuelles Datum
Date actuele
Date of device

`rh 12546 h`
Betriebsstunden
Durée d'utilisation
Running hours

`SoFF. 1.04`
Firmwareversion
Version Firmware
Firmware Version

`88888888`
Segmenttest
Test des segments
Test LCD

Legende
Légende
Legend

Standardanzeige
Position standard
Standard indication

Wird nur angezeigt wenn die Optionverfügbar ist
Affiché seulement si l'option est disponible
Only indicated if the option is available

Kurzes Drücken / Pression courte / Short pression on button

Langes Drücken / Pression longue / Long pression on button

Pict. 1 LCD sequence diagram

Communication interface and options
The communication interfaces are installed and preset in the factory. When ordering, you must specify the interface type: remote powered M-Bus, Radio SONTEX, Wireless M-Bus (OMS), LoRaWAN or pulse outputs.

Pulse input function
The Superstatic 749 offers the possibility of integrating up to two further pulse input from other meters, for instance a hot water and a cold water meter. The value of the pulse factor is programmable via the Prog7X9 software. By default, the pulse factor will be 1 Pulse/Unit for each pulse input.

The meter data are aggregated separately in totalizers and can be shown on the display as IN1 and IN2; they can also be transferred via the communication interface which is installed in the integrator. The Superstatic 749 is delivered with a cable length of 1.5 m for the input pulse signals.

Pulse output function
If ordered the Superstatic 749 offers the possibility of integrating two open collectors pulse outputs which can represent hot energy, cold energy or volume.
Energy Meter – heating or cooling application:
- Output S1 = Heating or cooling energy
- Output S2 = Volume

Mixed application heating and cooling:
- Output S1 = Heating energy
- Output S2 = Cooling energy

Whenever the smallest energy unit (hot or cold) and/or volume displayed on the screen is incremented, 1 pulse will then be transmitted on the corresponding output cable S1/S2.

Example for energy:
Display 12345678 kWh   ==> output pulse value for energy = 1 kWh / pulse
Display 12345,678 MWh   ==> output pulse value for energy = 0.001 MWh / pulse
Display 123456,78 GJ   ==> output pulse value for energy = 0.01 GJ / pulse

Example for volume:
Display 12345,678 m^3 ==> output pulse value for volume = 0.001 m^3 / pulse
Display 123456,78 m^3 ==> output pulse value for volume = 0.01 m^3 / pulse

The Superstatic 749 is supplied with a cable length of 1.5 m for pulse outputs.
Electrical characteristics of the pulse outputs: open collector 1 Hz 500 ms.

Optical interface
The optical interface is installed by default on each Superstatic 749.
Communication between the Prog7X9 software and Superstatic 749 can be done by means of an optical coupler.
The Prog7x9 software is mainly used to configure the non-metrological parameters and for readout.
The transmission speed is set at 2400 bauds and cannot be changed.
We recommend the use of optical couplers supplied by: www.petechnik.de
Should communication problems occur, please refer to the document User Guide Prog7X9 (integrated as PDF in the software).

For the optical probe listed below, we have noted the filters needed to permit correct communication with Prog7X9 software:

Optical probe	Filter
P+E Technik : "K1-98" or "K1-06"	No filter
P+E Technik : "K01-USB"	No filter

SONTEX Radio
The SONTEX Radio communication interface supports communication between all Sontex products having this interface. It must be specified when ordering. The radio module will then be installed and configured in the factory.
The SONTEX Radio interfaces make use of a bi-directional radio technology which is a highly reliable and performant solution for a remote metering system (fixed or mobile). The technology employed is based on MFD and Radian 0 protocols and works at a frequency of 433.82 MHz.
The products fitted with this Radio module can be accessed 365 days a year from 06:00 to 20:00.
The radio address is displayed in the Service menu if it corresponds to the serial number of the Superstatic 749.
Technical data of the radio communication system:
Bi-directional communication; FSK Modulation; Frequency 433.82 MHz; Radian 0 radio protocol.

The life cycle is calculated for normal metering. Factors such as: the environmental temperature during use, the number of readings taken etc. influence the battery service life.

Wireless M-Bus Radio
The Wireless M-Bus module is used to transfer data according to the wM-Bus (EN13757-4) radio communication protocol and in compliance with the OMS (Open Metering System) Release V3.0.1. To have this interface provided in the Superstatic, it is necessary to specify when ordering. The Wireless M-bus module will be installed and configured at the factory. A specific notice will be added to the standard documentation.

Powered remote M-Bus
The powered remote M-Bus communication interface is a serial interface which permits communication between different M-Bus devices via a central M-Bus station. It must be specified when ordering. The powered remote M-Bus module will hence be installed and configured in the factory.
By default, the primary address will be configured with the address 0 and the secondary address will correspond to the serial number of the Superstatic 749. To change the value of the secondary address, you must use the Prog7X9 software or send M-Bus specific orders. The secondary address corresponds to the identification field ID. The primary address is displayed in the Service menu with the indication [Addr:].
Technical data for the M-bus communication system:
M-Bus protocol compliant with standard EN 1434-3; free potential interfacing without polarity (the voltage measured on the last device must exceed 36VDC); transmission speed 300/2400 Baud; variable data structure. **A M-bus device is seen as two M-Bus charges by the Master.**
Type of cable recommended: telephone cable JYStY N*2*0.8 mm^2.

LoRaWAN

A LoRa-enabled device can be identified as such if the product label bears the "LoRa" marking. First and foremost LoRa device must be registered with a LoRaWAN (Prog7x9). The actual admission of the device will happen with the JOIN procedure, which can be started from the Prog7x9 GUI software, or initiated on the device via the LCD.

The sequence can be checked in the picture Pict. 1 LCD sequence diagram, or follow the following pictures:

A LoRa-enabled device can be identified as such if the product label bears the "LoRa" marking

With short presses of the orange button browse for "LorA OFF" (LoRa OFF):
…

Press long to confirm and …

… get to choose either the option "Joi now" (JoinNow):
…

Press long to confirm …

… or if you want to start the Join procedure with a delay press again to get to "JoidELAY" (Join-Delay):
…
Press long to confirm.

Security seals

As sealing varies from country to country, local regulations must be followed. To protect the system against all unauthorised manipulations, the energy meter, the connection screws, the temperature sensors and the sensor pockets must all be sealed. The seals may only be removed by authorised persons. In the event of failure to comply with this instruction, the guarantee obligation will lapse. It is important for the wire seal to be as short as possible so that it is slightly taut. This is the only way of preventing malicious interference.

A factory seal (2) will be applied to the temperature sensor mounted in flow meter. To mount the temperature sensor on the other side of the installation,

the Sontex seal (S written in black on a grey background). or wire seal supplied with the meter must be used.

The detector support fitted on the flow sensor can't be removed without being damaged or broken.

Position of the seals:
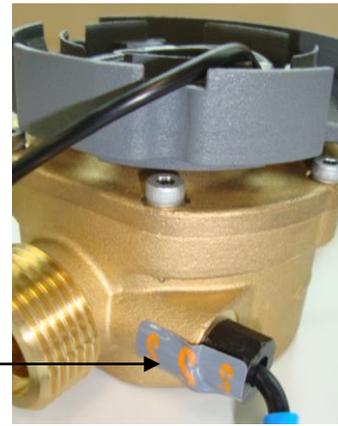
Seals installed in the factory (1) on flow meter and temperature sensor of the Superstatic 749

Seal installed in the factory on the integrator

Technical data Superstatic 749

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
m³/h	G"	DN	mm		bar	m³/h	l/h	l/h		kg	m³/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   L. Mounting length

The flow sensor Superstatic 749 can be operated from 0,8 bar in the pipe.

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=110mm
U0 / D0 for: L=130mm
U0 / D0 for: L=190mm

Temperature sensors

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

Measurement

Approved temperature range	0…110°C
Differential range	3…75 K
Response limit	0.5 K
Temperature resolution (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 version	5…40°C
Storage and transport temperature	-10…60°C

Power supply

Lithium battery 3V	6+1 or 12+1 years

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 m³/Imp or without unit

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

Metrological class   EN 1434 class 2

CE conformity according to   Directive 2014/32/EU (MID)
                                                                              RED 2014/53/EU

Type Examination Certificate (Heating)   **CH-MI004-13019**
Type Examination Certificate (Cooling)   **DE-16-M-PTB-0084**

Technical support
For technical support, please contact your local Sontex agent of Sontex SA directly.
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Detailed declarations of conformity can be found on our homepage: www.sontex.ch
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