



# Superaqua 1

## Instruction for Use

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# 1. Notes to this document

This manual provides all the information required for the correct use of the equipment: From product identification, installation and commissioning to troubleshooting, maintenance and disposal.

## 1.1 Scope of validity

This documentation is valid for the Sontex Superaqua 1.  
The case of specific details for Superaqua 1 will be explained as a note in the current manual's different sections.

## 1.2 Target groups

This documentation is intended for the system operator and the installer.











## 1.3 Storage of the document

The system operator must ensure that this documentation is accessible to the responsible persons at all times. If the original document is lost, you can download an up-to-date version of this document from our Extranet (<https://sontex.ch/en/applications/home-automation/>)

## 1.4 Further information

Links to further information can be found at [www.sontex.ch](http://www.sontex.ch).

## 1.5 Symbols

Symbol	Significance
 <b>DANGER</b>	<b>DANGER!</b> Warning, the non-observance of which leads <b>directly</b> to death or serious injury.
 <b>WARNING</b>	<b>WARNING!</b> Warning, the non-observance of which may result in death or serious injury.
 <b>CAUTION</b>	<b>CAUTION!</b> Warning, the non-observance of which may result in minor or moderate injury.
 <b>NOTICE</b>	<b>NOTICE!</b> Warning, non-observance of which may result in damage to property.
	<b>Reference</b> Information that is important for a specific topic or goal, but not relevant to security.
	<b>Documentation</b> Reference to documentation.
	<b>Help</b> Help in case of problems.
	<b>Visual check</b> Check that the item is in order.
	<b>CE-Marking</b> The device meets the requirements of the European directives 2014/32/EU (MID) and RED 2014/53/EU.
	<b>Disposal</b> This symbol indicates that electrical and electronic equipment must be disposed of separately. Do not dispose of the water meter with household waste.

## 2. Security

### **WARNING**

Improper installation, pressure tests, modifications or incorrect operation can cause personal injury and damage to property.



Pressure surges in the pipeline can damage the meter!  
Existing air pockets falsify the measuring result.

- If the seal is damaged or removed, the water meter is no longer approved for legal metering legal measurement.
- Before installation, check water meter for transport damage.
- Do not drop, never hold on to the protective cover or the counter.
- If the water meter has been dropped, it must not be installed again.
- Only use suitable lubricants for EPDM seals.
- Water meters may only be installed after a pressure test.
- Water meters may only be installed in pipelines that have already been leak-tested, rinsed and must be well vented before commissioning.
- Ensure that the water meter is always fully filled with water.

### 2.1 Personnel qualification

The water meter may only be installed or replaced by qualified personnel for sanitary, heating and air-conditioning technology.

### 2.2 Intended use

Water meters are used for recording the consumption of drinking water, depending on the design for cold or hot water. Other applications that differ from these specifications must be approved in writing by Sontex SA.

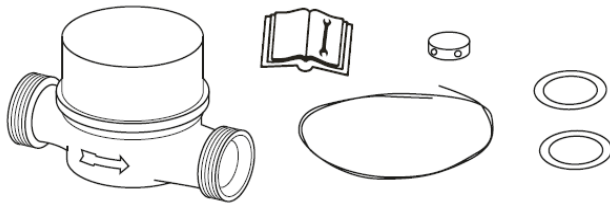
### **NOTICE**

Water meters are exclusively intended for the above-mentioned purpose. Any other use or modification of the water meters beyond this purpose is considered improper and is not permitted.

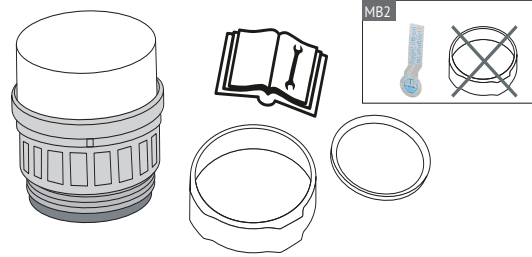
Warranty only after proven compliance with these regulations and the applicable technical rules.

- For the period of use, observe all valid national legal regulations in particular the calibration regulations.
- During installation, observe all specifications according to DIN EN 806 and DIN 1988, in particular hygiene regulations and ambient temperatures.
- Observe the nominal operating conditions according to the type examination certificate and the information on the devices.
- Keep these instructions with the measuring device.

### 3. Scope of delivery



Single jet

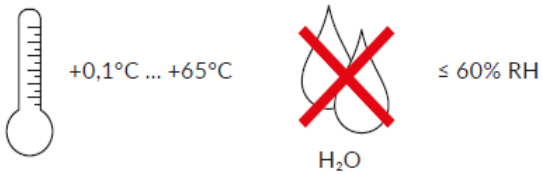


Measuring capsule

### Transport



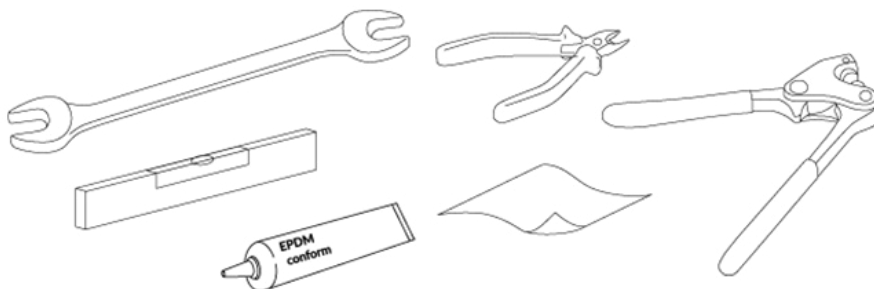
### Storage



### Cleaning

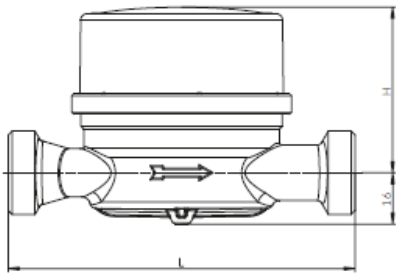


### Tools



## 4. Single jet water meter

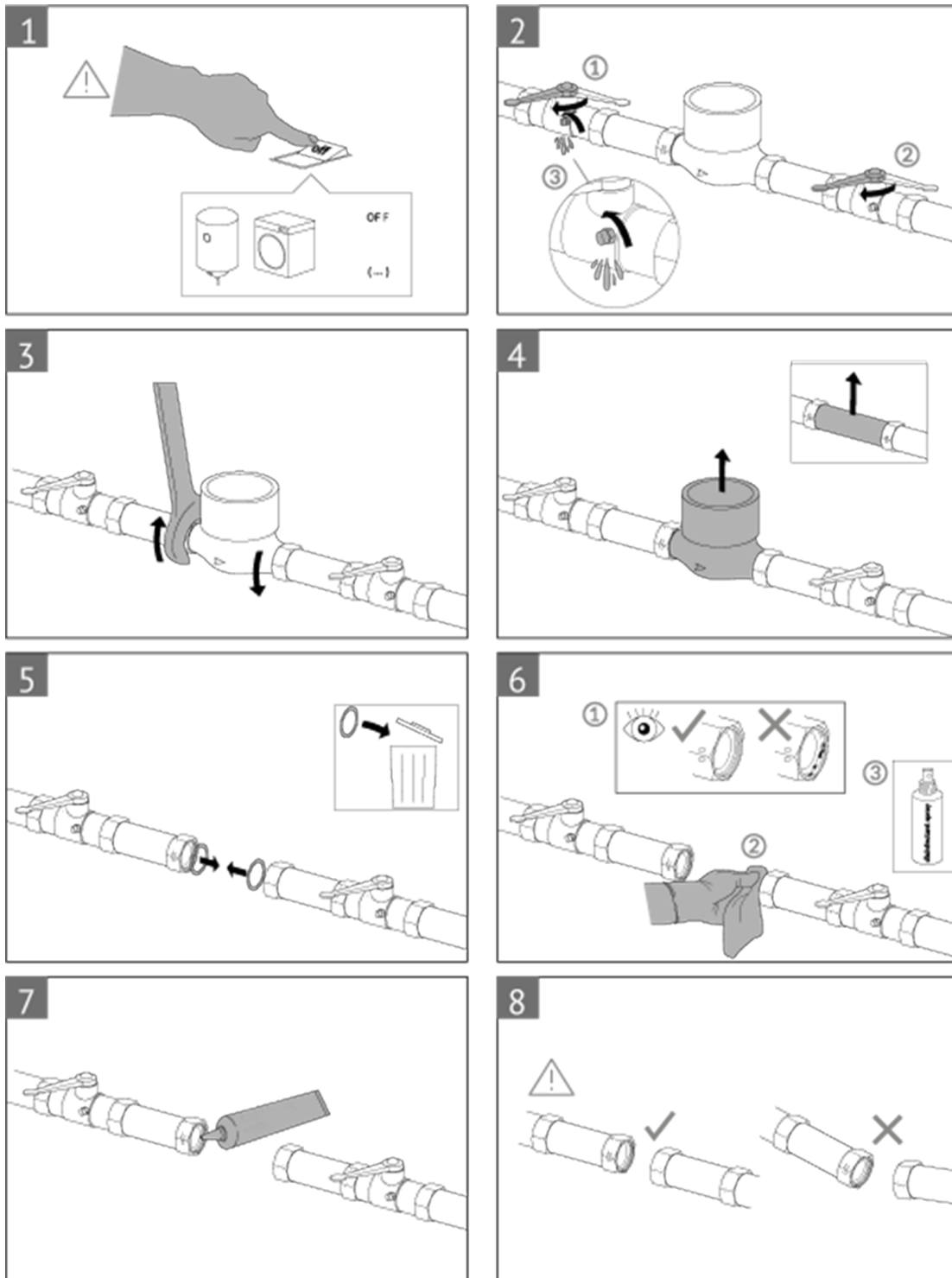
### 4.1 Dimension

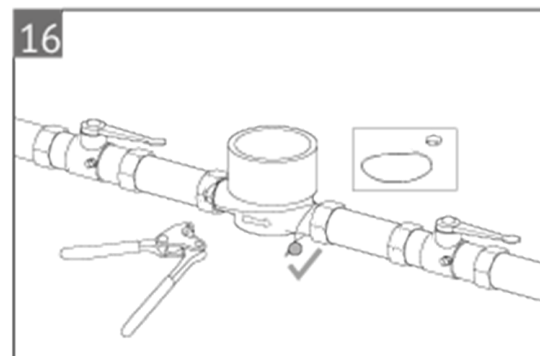
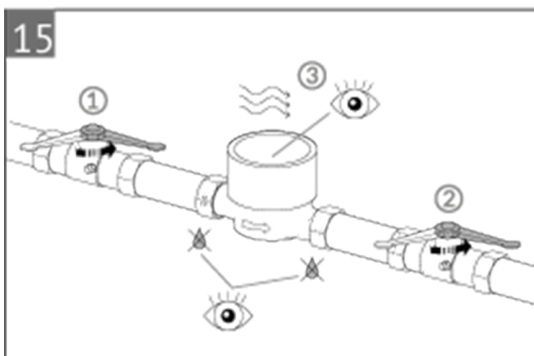
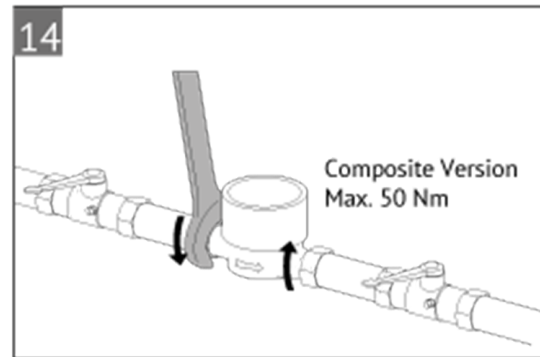
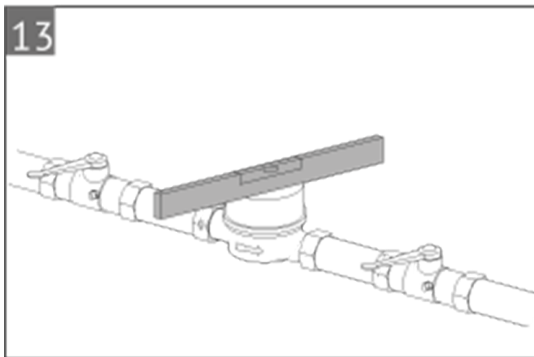
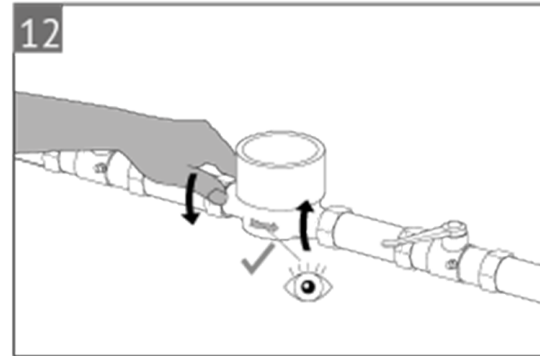
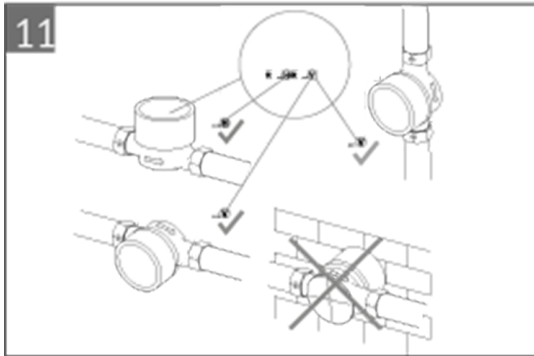
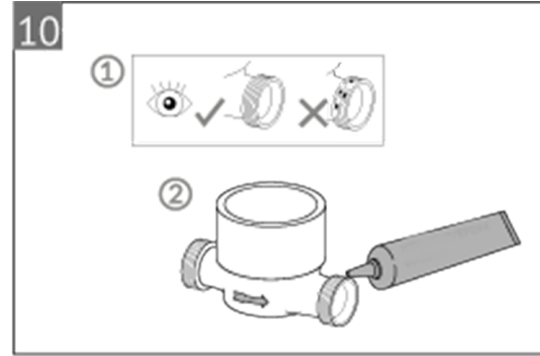
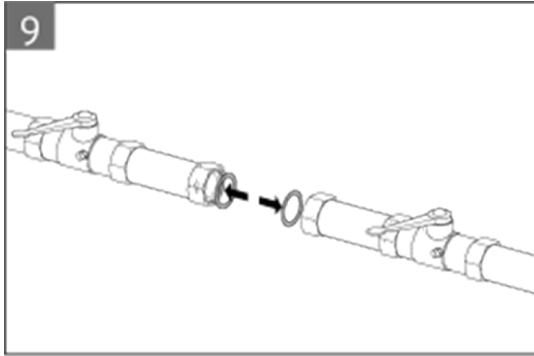


L = 80 - 190 mm

H = ca. 53 mm

### 4.2 Mounting instruction for single jet water meter

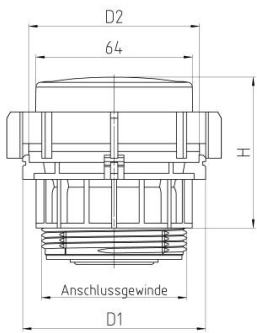






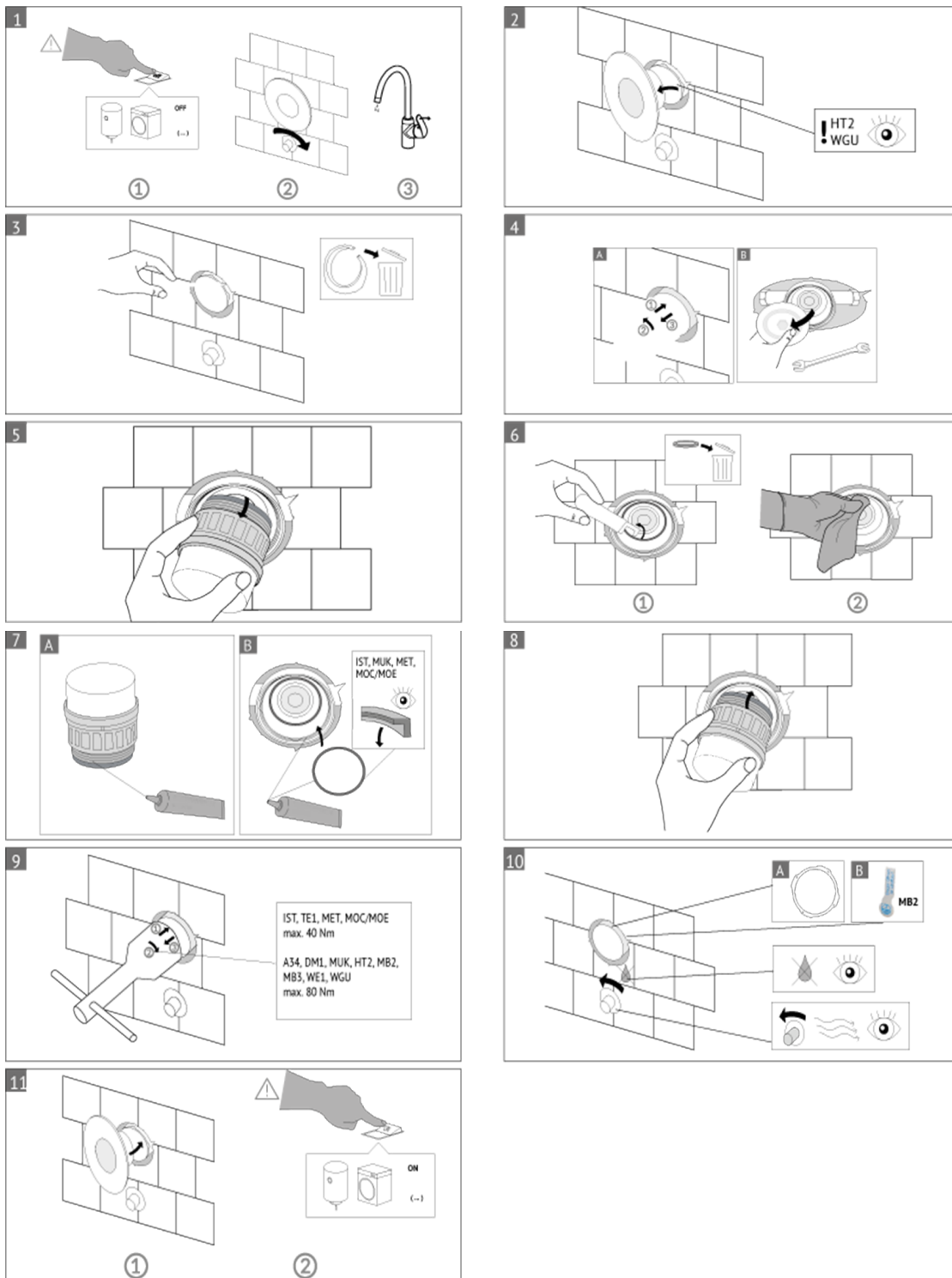
# 5. Multi jet measuring capsule

## 5.1 Dimension

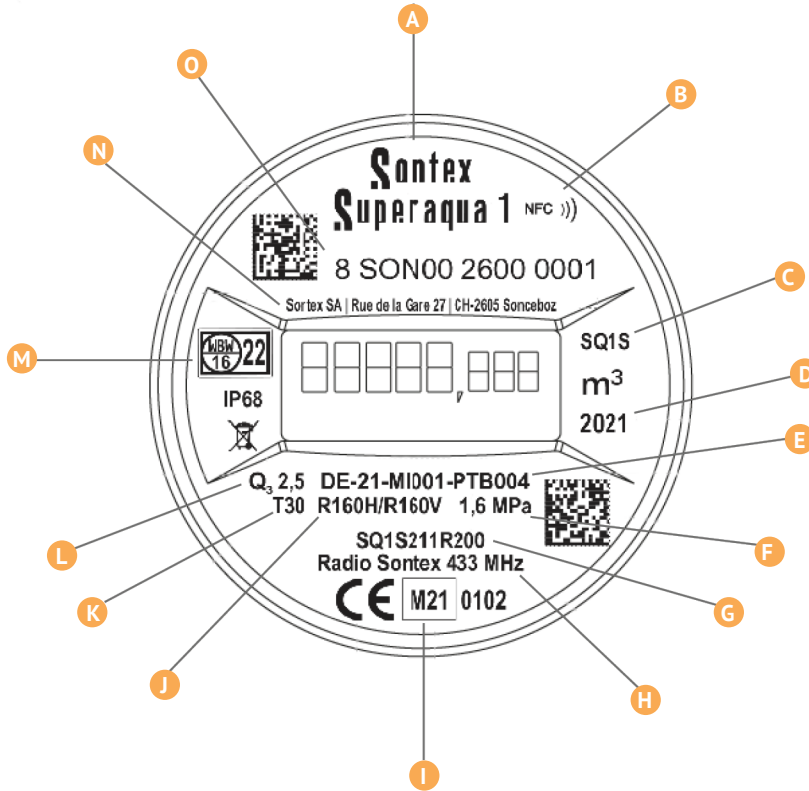


D1: 75 mm  
 D2: 70 mm  
 H: von ca. 35 bis 62 mm

## 5.2 Mounting instruction for multi jet measuring capsule



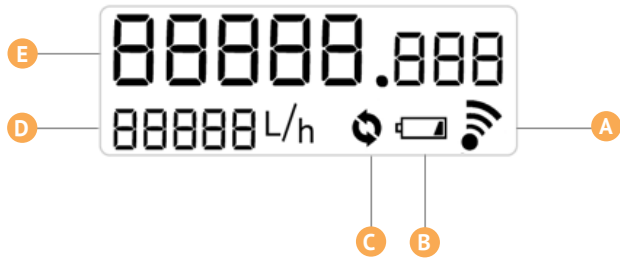
## 6. Device labelling



<b>A</b>	Product or/and customer logo
<b>B</b>	NFC interface
<b>C</b>	Typ of product (SQ1S = single jet ; SQ1M = measuring capsule)
<b>D</b>	Year of calibration
<b>E</b>	MID Homologation N°
<b>F</b>	Pressure range
<b>G</b>	Part N°
<b>H</b>	Radio communication (Sontex 433 MHz, wM-Bus 868 MHz, LoRaWAN 868 MHz)
<b>I</b>	CE marking and test laboratory N°
<b>J</b>	MID-Measuring range class
<b>K</b>	Temperature T30 or T90
<b>L</b>	Flow rate
<b>M</b>	Drinking water marking (country specific)
<b>N</b>	Producer address
<b>O</b>	ID and Serial N°

## 7. Display

### 7.1 Display overview



<b>A</b>	Radio activated
<b>B</b>	Battery warning symbol (device should be exchanged)
<b>C</b>	Flow
<b>D</b>	Current flow value (optional)
<b>E</b>	Main display (m <sup>3</sup> ), cumulated consumption with 3 decimal places (Liter)

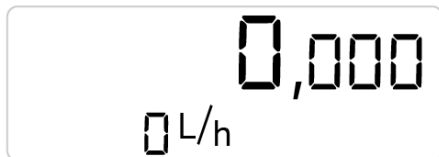
### 7.2 Delivery mode



SLEEP mode is the regular delivery state of the meter. In this state, the meter is already counting consumption, but radio transmission is not yet activated to save power during transport until installation.

Note: The end customer/installer can be sure that the meter is a new device when the word SLEEP is displayed. The counter is initialized to zero when it comes out of Sleep mode.

### 7.3 Switching to the operating mode and activating the radio



Opening a water tap for a few seconds triggers the switchover of the water meter to the operating mode. The device display changes and only then the radio is also started. A standard minimum volume of 10 l is required (e.g. turn on the water tap completely for a short time), but the value can be set.

When switching from SLEEP mode to operation mode, the commissioning date is set, the volume is reset and the error log is deleted. The device can also be switched to operating mode via the NFC interface using the Software Superprog on an Android or Windows device.

### 7.4 Radio activation during commissioning

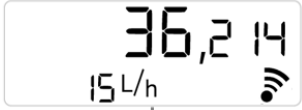

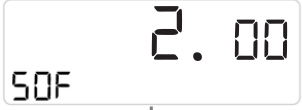

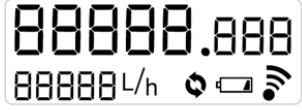
If you have triggered the radio after installing the meter, you can use it to check the radio reception. During the first hour after commissioning, the sending interval is 30 seconds. The configured interval will be effective after this time.

Similarly, the radio is on 24/24h until the 3rd midnight crossing. After this time, the radio calendar is used.

## 7.5 Radio setting

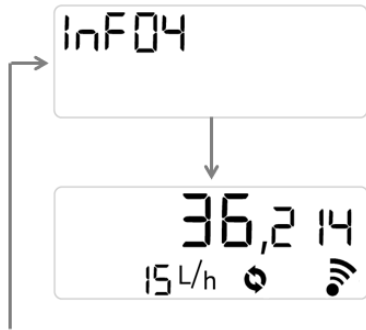
If other transmission times and/or a different radio telegram are required, these can be configured using an NFC read/write head or a NFC compatible smartphone and the Software Superprog, see chapter "Radio settings configuration". The water meter can also be programmed with other radio settings ex works on customer request.

## 7.6 Device display loop

Display	Display time	Example
	10 s	Consumption 36.214 m <sup>3</sup> Current flow rate 15 l/h
	1 s optional	Set day value 175 m <sup>3</sup> Check number c85 Set day 01.01
	Min. 1 s (can be extended)	Firmware Version
	1 s minimum	Segment test all OFF
	1 s minimum	Segment test all ON

Depending on the delivered device configuration, the display runs through different contents. Here is a typical example with the display of the set day value. The display of the "set day value" can optionally be switched off using the Software Superprog as well as the display of the "current flow rate".

## 7.7 Event and error messages



If an event or error occurs in the counter, this is indicated by a message on the display. The display of the event message is included in the display loop for 1 second. All the events are transmitted in the radio telegram.

### Overview of event and error messages

For various analyses it is very helpful to examine the chronological course of events. To make this possible, a rolling event log with max. 10 entries is integrated in the water meter: If many temporary events occur in succession, older important messages may fall out.

Code	Message	Actions	Standard LCD Display	Standard radio information
Err01	System error	Replace device	Yes	Yes
Err02	Low battery	Replace device	Yes	Yes
InF03	Manipulation	Water meter no longer valid for billing	Yes	Yes
InF04	Radio error	Check device	Yes	Yes
InF05	Pipe rupture	Check pipe network	Yes	Yes
InF06	Leakage	Check pipe network for leaks	Yes	Yes
InF07	Qmax-Error	Check water meter and pipe network	Yes	Yes
InF08	Backflow error	Check water meter installation	Yes	Yes
Err09	No flow	Check pipe network	Yes	Yes
InF10	End of device life reached	Replace device	No	Yes

## 7.8 Battery life time



To indicate the end of the device life, the battery warning symbol is activated in the display (permanent display) and the error message Err 02 is set. This occurs in a time-controlled manner when the "Time to battery warning symbol" stored in the device for this purpose has expired. This warning symbol is also displayed in addition with error Err02 in the event of an unexpected earlier voltage drop of the battery.

**Attention. The device must be replaced**

## 8. NFC interface



Note: to ensure a right communication place your NFC Read device directly on the NFC sign of the water meter

The NFC interface is located above the display on the upper right side of the casing's top. The interface is bidirectional, operates at a frequency of 13.57MHz and complies with ISO/IEC 15693. The maximum transmission rate that can be archived is 26 kbit/s.

The NFC chip on the water meter uses energy harvesting. Power can only be supplied by the NFC reader. So it remains completely powerless without the reader, the NFC chip is passive. The NFC chip does not send a signal on its own.

The Software Superprog on an Android or Windows device can be used to configure the device and switch it into operating mode.

There are 3 access rights:

- Consumer (read only)
- Installer (read and change settings)
- Verifier (read and change metrological parameters)

The installer password is 0x1234. The installer password can be changed or disabled

## 9. Volume stored data

The current volume is stored in the device every 15 minutes. The volume at the set day is also stored in the device and displayed. At the beginning of a new month, the current volume value is stored. The volume values of the last 15 months are saved.

## 10. High resolution mode



For the purpose of metrological verification of the meter by an approved laboratory, the consumption display on the device can be changed to a high-resolution display for a maximum of 24 hours. Instead of the usual  $m^3$ , the display switches to milliliters. This mode is indicated on the device display by the stylized word "HIGH". At the midnight transition at the latest, the display is automatically reset to the standard  $m^3$  display.

## 11. Standard factory settings Radio OMS

Term	OMS settings
Encryption	Mode 5
AES128 key	None
wM-Bus	OMS short telegram
wM-Bus transmission mode	T1
Radio calendar	Mo-Fr, 6.00 to 19.00, Jan-Dec.
Transmission interval	1 Min.
End of device life reached (DE/AT)	No
Display flow rate	Yes
Leackage	Yes

### 11.1 Radio settings configuration

To configure the radio settings you can use the parameterization software Superprog. You will find instructions for setting the radio parameters in the help menu of the Superprog software.

### 11.2 Radio versions

- **Sontex Radio**  
 Frequency: 433 MHz, bidirectional, transmission power: 10 dBm (10 mW)
- **wM-Bus OMS**  
 Frequency: 868 MHz, unidirectional, Mode 5 or 7, Radio telegram C1 or T1, transmission power: 14 dBm (25 mW)
- **LoRaWAN**  
 Frequency: 868 MHz, bidirectional, transmission power: 14 dBm (25 mW)

## 12. Technical data

<b>Dimension</b>	<span style="color: #c00000;">■</span> Single Jet length L height H	80, 110, 115, 130, 165 or 190 mm approx. 52 mm, 56 mm by 190 mm
	<span style="color: #c00000;">■</span> Multi-Jets measuring capsule Diameter D1 Diameter D2 height H	75 mm 70 mm from 35 to 62 mm
<b>Measurement</b>	<span style="color: #c00000;">■</span> Approved temperature Cold water <span style="color: #c00000;">■</span> Approved temperature Warm water <span style="color: #c00000;">■</span> Volume measurement cycle at nominal flow	+0.1°C ... +50°C +0.1°C ... +90°C 0.5 seconds
<b>Digital Register</b>	<span style="color: #c00000;">■</span> Environment class <span style="color: #c00000;">■</span> Mechanics <span style="color: #c00000;">■</span> Electronics <span style="color: #c00000;">■</span> Battery protection class <span style="color: #c00000;">■</span> Protection class <span style="color: #c00000;">■</span> Operating temperature (electronic circuits) <span style="color: #c00000;">■</span> Storage and transport temperature	B M1 E1 III IP68 (4 weeks under 1m water) 5...55°C -10...60°C (dry environment)
<b>Display &amp; Display Units</b>	<span style="color: #c00000;">■</span> LCD <span style="color: #c00000;">■</span> Volume resolution (display) <span style="color: #c00000;">■</span> Volume <span style="color: #c00000;">■</span> Flow <span style="color: #c00000;">■</span> Flow symbol <span style="color: #c00000;">■</span> Battery status <span style="color: #c00000;">■</span> Radio	8 digits 0.001 m <sup>3</sup> l/h
<b>Power Supply</b>	<span style="color: #c00000;">■</span> 3 VDC Lithium Battery (< 1 g)	up to 15 years

## 13. Maintenance, disposal, return

The water meter is maintenance free

### Disposal



Dispose of the water meter in accordance with the applicable local environmental and disposal regulations.

For electronic water meters that contain electronics and a lithium battery:

- Never dispose of the devices in household waste.
- If required ask for test certificates for the batteries used from Sontex SA.
- Store lithium batteries protected from moisture, do not heat above 100 °C or throw into fire.
- Do not short-circuit, open, damage or charge lithium batteries.
- Always keep lithium batteries out of the reach of children.

### Return

Send water meters with the goods return form exclusively in suitable packaging to the supplier (distributor).

<https://sontex.ch/wp-content/uploads/2019/10/sontex-product-return-form-en.pdf>

## 14. Declaration of Conformity



Sontex hereby declares that the Superaqua SQ1S or SQ1M complies with MID 2014/32/EU and RED 2014/53EU.

The full text of the EU Declaration of Conformity is available at the following link:







## Technical support

For technical support contact your local Sontex agent or Sontex SA directly.

### Hotline Sontex:

[support@sontex.ch](mailto:support@sontex.ch)

+41 32 488 30 04

Technical modifications subject to change without notice