Sontex

Superaqua 3 Composite

Ultrasonic Meter for Domestic Water Networks

User Manual

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1. Contact of the Organization

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The figures and information in these instructions are subject to technical changes that become necessary to improve the product.

2. Safety rules and Precautions

2.1. Information on the User Manual rRelating to Legal Notice

This guide is intended for trained specialized personnel. For this reason, no basic working steps are included.

DANGER	
	**Danger** This safety warning indicates a high risk which will result in serious personal injury or death. Measures to avoid incidents

WARNING	
	**Warning** This safety warning indicates medium risk that could result in serious injury. Measures to avoid incidents

CAUTION	
	**Caution** This safety warning indicates a low risk which could result in minor injury or mechanical damage. Measures to avoid incidents

NOTICE	
	**Notice** Indicates an action or measure which, if performed incorrectly, may have an indirect effect on the operation of the device. Measures to avoid malfunctions

COMMENT	
	**Comment** Comment, provides information and recommendations for efficient and trouble-free operation. Measures to avoid malfunctions

REFERENCE	
	**Reference** Refers to additional sources

2.2. Handling, Transport and Storage

2.2.1. Manufacturer's Responsibility and Safety Measures

The manufacturer assumes no responsibility if safety instructions and precautionary measures are not observed. Unauthorized changes to the unit without prior written consent result in immediate expiration of product liability and warranty.

2.2.2. Qualified Personnel and Authorized Operation

Installation, operation, maintenance, and decommissioning must be performed by trained personnel authorized by the manufacturer, operator, or owner.
Compliance with all operating and installation instructions is mandatory.

2.2.3. Technical Compliance and Safety Checks

Verify all connections, settings, and technical data of peripheral devices. Prohibit opening housing or any of its parts.

2.2.4. Observance of Mechanical and Environmental Ratings

Adhere to specified classifications for mechanical loads (e.g., pressure, temperature) and protection class (IP). Operate the system within specified ambient conditions and installation positions.

2.2.5. Protection against Over-Voltage and Electrical Hazards

Safeguard the system against over-voltage, particularly preventing electrical welding.
Users remain responsible for system configuration assessment regarding functionality and operational safety.

2.2.6. Compliance with Local Regulations

Adhere to local labor and safety laws and regulations.
Local regulations may vary widely, so it is essential to consult and follow the specific requirements applicable to the installation location.
Failure to comply with local regulations may result in legal penalties, operational disruptions, or safety hazards, emphasizing the importance of thorough adherence.

2.2.7. Intended Use

The product is exclusively designed for the collection, analysis, presentation, and transmission of information. Use the product only for applications in accordance with specified technical data; any other use is prohibited.

2.3. Disposal Rules for Superaqua 3 Composite

WARNING

Warning
The device must not be opened. The battery is permanently installed and cannot be changed.

COMMENT

Comment
Pollution index for electrical equipment: Pollution degree 2

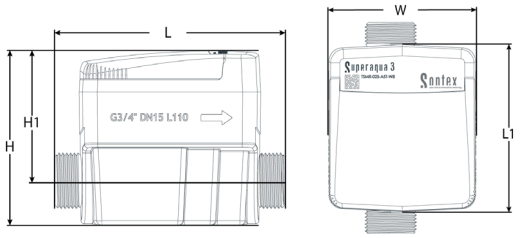
3. Technical Characteristics

3.1. Metrological Data

Metrological Data			
Dimensions	DN		15
	Thread		G3/4'' B
	Material		Composite
Pipe Length	L	mm	110
Continuous Flow Rate	Q_3	m^3/h	2.5
Overload Flow rate	Q_4	m^3/h	3.125
Transitional Flow Rate	Q_2	L/h	8
Min. Flow Rate	Q_1	L/h	5
Starting Flow Rate	Q_{START}	L/h	2.5
Measuring Rate	R	-	R 500
Pressure Drop Class @Q_3	ΔP	-	ΔP63

3.2. Dimensions

Dimensions	DN	15
	Thread	G3/4'' B
	Pipe Length	110
Height (H1)	mm	62
Total Height (H)	mm	82.57
Width (W)	mm	76.04
Housing Length (L1)	mm	87
Length (L)	mm	110



3.3. Power supply

Power Supply	
Type	SB-C02 from Vitzrocell, nominal capacity of 8500 mAh each, with 2x VSCS super capacitor 3F
Lifetime	Up to 15 Years*

*In normal operating conditions, in the communication configuration described in this document, and in mild climate conditions (proportion of time spent at each temperature: 10% at 0°C, 25% at 10° C, 30% at 20° C, 20% at 30° C, 10% at 40° C, 5% at 50° C). Depending on configuration (more details below («Configuration and lifetime» on page 11)).

4. Installation

NOTICE

Notice
The meter must be installed in compliance with the requirements of ISO 4064 and the EC Type Examination Certificate. Medium: Water without additives.

REFERENCE

Reference
Detailed instructions can be found in the enclosed «Installation guide», which are enclosed with every package of the product.

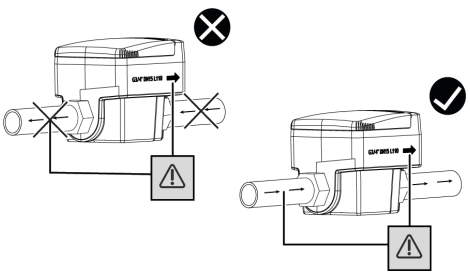
4.1. Environmental Conditions for the Installation

Temperature Guidelines	
Conditions	Temperature Range
Storage / Transport Temperature	Accidental authorized range: [-10 °C to 5 °C] and [35 °C to 70 °C] for no more than 72 consecutive hours, and 4 cumulated weeks
Operating Ambient Temperature	min -10 °C up to max +55 °C In case of negative ambient temperatures, it is imperative to either flush the water network upstream to protect the meter, or ensure is in its operating range and is circulating
Operating Water Temperature	min 0.1 °C up to max +50 °C

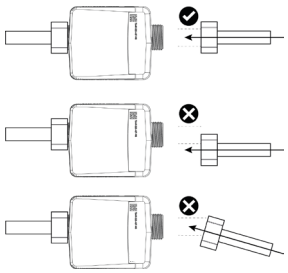
Environmental Considerations	
Pipe pressure	The pressure should not exceed 16 bar.
Protection index	Although the is IP 68, avoid an environment in which it would have to undergo prolonged or repeated immersions.
Humidity	0 - 98% RH
Altitude	< 2000m
Environment class	B (indoor installation) / 0 (outdoor installation)

4.2. Steps for Installing the Superaqua 3 Composite

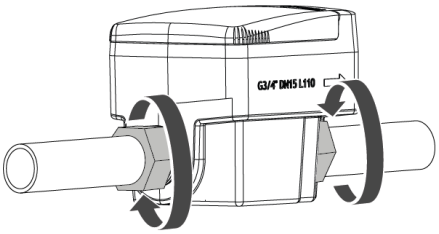
1. Thoroughly flush out the pipes before installing the meter.
2. The meter has to be installed so that the direction of the arrow on the meter housing corresponds to the direction of flow.



3. Remove old seals and clean sealing faces. The installation of the meter should not be done with force or strain, make sure that the meter is aligned.



4. Remove old seals and clean sealing faces.
5. Site-provided seals must be suitable for the purpose and comply with the local guidelines and directives. Only fit the newly supplied seals (the seals should not intrude into the pipeline). No liability is accepted for consequential damage resulting from the use of third-party seals such as corrosion to sealing surfaces and threads.
6. Simultaneously manually screw home the meter fittings on both sides and then tighten in opposing directions using a suitable tool (minimum torque 30 Nm, maximum torque 50 Nm).



7. Slowly fill the pipeline with water on completion of the installation. Avoid the collection of air bubbles in the meter during the installation process.

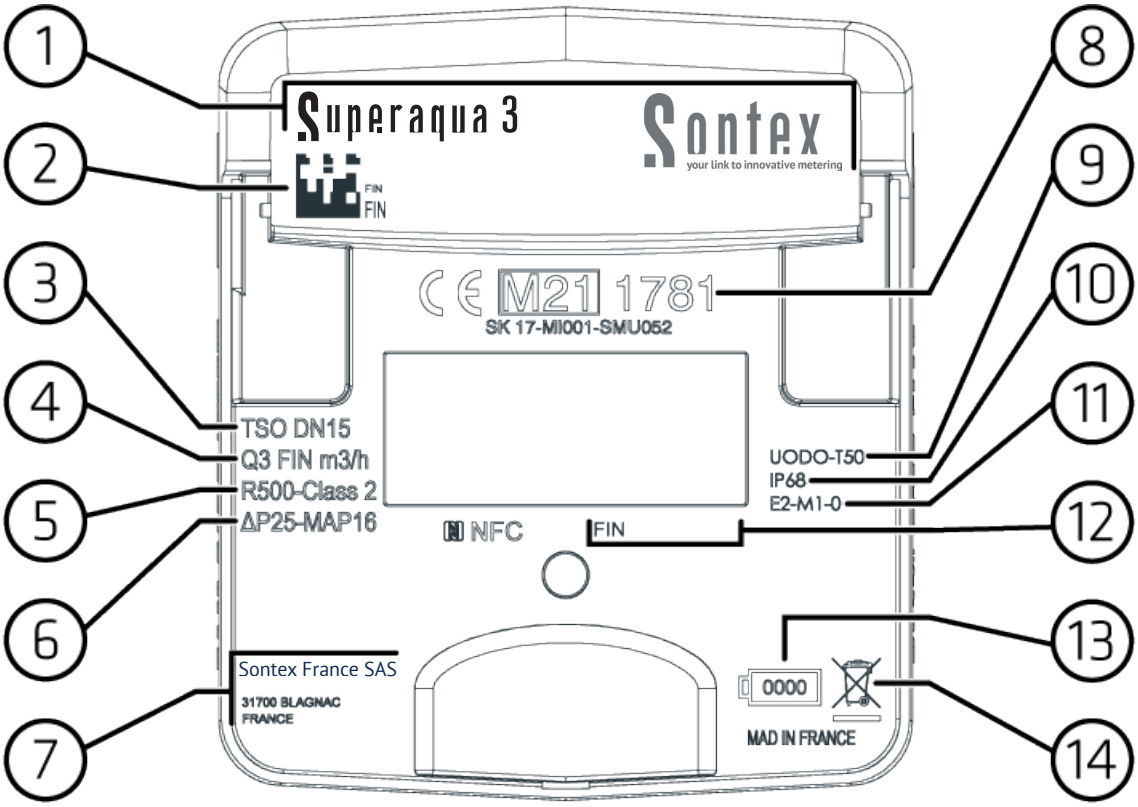
5. Maintenance and Cleaning

CAUTION

Caution
Do not clean it with solvents or abrasives as these may damage the plastic cover. If necessary, use a damp cloth or sponge.

6. Understanding the Superaqua 3 Composite Interface

6.1. Understand the Face Plate



Legend of the Face Plate			
1	Commercial name and manufacturer logo	8	CE Marking according to MID
2	Serial number, PN and associated datamatrix	9	Sensitivity class UODO and temperature class T50
3	MID name - diameter	10	IP68
4	Nominal flow Q^3	11	Environmental Class and AEMC Class E2
5	Ratio (Q^3 / Q^1), accuracy Class 2	12	Communication ID
6	Pressure loss class, MAP	13	Battery expiration date
7	Manufacturer, Address	14	Waste disposal mode

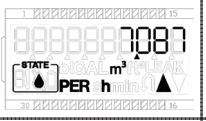
6.2. Screen Display Information

6.2.1. Display Sequence

To show the data read by the meter in the display, various windows have been created as functions that can display the assigned system information.

The LCD screen changes automatically to display the following information: net or forward volume, reverse volume, flow rate, events, firmware version, flow direction, meter state.
The basic display sequence is defined in two cycles, one main cycle and a secondary which launchesafter 120 seconds.

The basic display sequence:

LCD screen	Description	Display time
	Net volume	10s
	Flow rate	2s
	Events (if events are set)	2s
	Service (if service errors are set)	2s

The second sequence of the display every 120s:

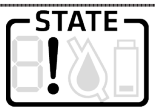
LCD screen	Description	Display time
	Display all segment ON	2s
	Display all segment OFF	2s
	Display metrology FW version and CRC	2s

6.2.2. Display Characteristics

Display Indication	LCD 10 digits
Units	m3, L, Hour, Minute, Second
Displayed Values	Volume, flow, reverse flow, display test, events and alarms Status, F/W version
Events and Alarms	Reverse flow, low battery, leakage, air bubbles, burst, frost, heat, dry, over, temperature, no consumption

6.3. Understand the Events on the LCD Screen

6.3.1. Set LCD Display Symbols

Name	Symbol	Information
Flow Direction		Instant flow is positive.
		Instant flow is negative.
Index Indicator		Set when the screen is displaying the positive index (forward volume), (with or without water in the pipe).
		The display shows the net volume (with or without water in the pipe).
		Set when the screen is displaying the negative index.
Water Detection		This symbol is displayed when the meter detects water.
		This symbol is displayed when the meter does not detect water.
Reverse Flow		If a defined volume is detected in the opposite direction.
Leakage		This symbol is displayed when there is high consumption for a long time.
Exclamation Mark		This symbol is displayed when a service event or error occurs.
Low Battery		This symbol is displayed when the battery is low.
Test Mode		The meter is in test mode.
Idle Mode		Display segment off.

6.3.2. Understanding Display Codes

This summary shows all possible events which require attention by the user.

Display Codes	Events	Conditions
E1	Reserved	
E2	Air Bubbles	Air is detected in the pipe.
E3	Burst	A leak is detected.
E4	Overload	High instantaneous flow
E5	Frost	Low water temperature
E6	Heat	High water temperature
E7	Over temperature	High ambient temperature
E8	No consumption	Water no longer circulates
S	Service	Please contact the service

NOTICE

Notice
If error condition is still active after the clearing delay it, it will not be cleared.

7. Communication Systems

The *Superaqua 3* Composite is available in different communication systems, below you can find an overview of it.

7.1. Global View of Communication Systems

Naming	Wireless	Band/Frequency	Power
LW8	MultiCom: simultaneous LoRaWAN 868 MHz and wM-Bus 868 MHz	868 MHz	14 dBm
LW	LoRaWAN EU 868 MHz 1.0.3	868 MHz	14 dBm
W8	wM-Bus 868 MHz	868 MHz	14 dBm
NFC	Use with our ParamApp® application	13.56 MHz	

7.2. Configuration and Lifetime

Configuring the sending frequency	Payload Type	LW Messages per day	Lifetime
Wireless M-Bus ever 16 seconds	Long	4	13 years
Wireless M-Bus ever 18 seconds	Short	4	15 years

NOTICE

Notice
In normal operating conditions, in the communication configuration described in this document, and in mild climate conditions (proportion of time spent at each temperature: 10% at 0 °C, 25% at 10 °C, 30% at 20 °C, 20% at 30 °C, 10% at 40 °C, 5% at 50 °C).

8. ParamApp® Android Application

8.1. Presentation of ParamApp®

ParamApp® is a powerful and user-friendly Android application developed by Sontex France SAS dedicated to commissioning, configuration and diagnostics of smart devices or smart meters directly on site, with a smartphone and through NFC.

8.1.1. Features

With a full range of possibilities, you can configure and diagnose your setup:

- Modification of radio modules
- Pulse configuration (pulse weight, pulse length)
- Reading out the events for detailed inspections on site
- Setup of alarms detection (threshold parameters, durations)

8.1.2. Datalog

Various history data can be extracted from the meter:

- Temperature (minimum, average, maximum)
- Flowrate (minimum, average, maximum)
- Volume (minimum, average, maximum)
- Events and alarms

The time granularity can be chosen for a precise analysis (hourly, daily, monthly, yearly), and data can be exported in CSV format.

8.2. Installation ParamApp® Android Application

ParamApp is a powerful and user-friendly software tool developed by Sontex France SAS dedicated to the commissioning, installation and configuration of smart devices or smart meters directly on site. With a full range of possibilities, you can configure and configure your live devices. Download our application on Google Play.

9. Certifications and Regulations

Certificates and celarations of conformity are available at www.sontex.com

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