Superaqua 1

Electronic Water meter

Application

The **Superaqua 1** is an autonomous compact water meter portfolio consisting of single-jet and multi-jet measuring capsules. It's used in sub-metering, home automation, local and district water supply systems to measure the consumption of cold and hot water for individual billing.

The **Superaqua 1** is available in various models, it measures the water volume within the range of +0,1°C to +90° and meets the requirements of the European Measuring Instruments Directive (MID) 2014/32/EU and the International Organisation of Legal Metrology OIML R49.

Sontex
your link to innovative metering

Standard features

- Integrated radio flexible and programmable for Walk-by/ Drive-by/AMI/AMR
- Sontex Radio, OMS wM-Bus and LoRaWAN communication
- NFC interface (Near Field Communication) for readout and settings
- Individual or global 128 bits AES Key
- Easy to read with digital LCD Display with clear and informative presentation
- Battery Monitoring and Battery life up to 15 years
- Long term data logging storage of 1 due date value, 15 monthly values
- Starting flow value from 1 l/h (single jet), from 3 l/h (measuring capsule)
- Backflow- Leakage- No Flow- and Flow > Qmax- detection
- Temperature range up to 50 °C (Cold Water) and up to 90 °C (Warm Water)
- MID measurement range class (Q_3/Q_1) single jet up to R500 horizontal and R315 vertical (standard R160H/V)
- MID measurement range class (Q_3/Q_1) measuring capsule up to R250 horizontal and R200 vertical
- Measuring Class 2
- Protection Class IP68 (4 weeks, 1m under water)
- Switch to operation mode with a set volume value (Standard 10 l)

Measuring Principle

The water flows through the system and drives the impeller wheel. The rotational speed is scanned electronically using an inductive detection principle. The water meter can be mounted in a horizontal or vertical position.

The device parameters, as well as the cumulative values for volume monthly values, set day value, operating hours and error type are stored in the memory. Error messages are stored in a rolling list of the last 10 error messages. The parameters and the error messages are saved even in case of a power failure.

Model and Size

The Superaqua 1 is available in the following sizes:

- Single-Jet flow meter for Q_3 2.5 m^3/h, with a length 80, 110, 115, 130 or 165 mm
- Single-Jet flow meter for Q_3 4 m^3/h, with a length of 115, 130 or 190 mm
- Multi-Jet measuring capsule for Q_3 2.5 m^3/h, with a standard diameter D1 of 75 mm

Approvals and Certificates

EU-Type Examination Certificate acc. to 2014/32/EZ (MID)

EU-Type Examination Certificate acc. to 2011/65/EU (RoHS)

RED Conformity

OIML R49

EN 14154

OMS Conformity Gen. 4 Security Profil A/B

ACS (France)

KTW / W270 (Germany)

SVGW (Switzerland)

ÖVGW (Austria)

Options

The Superaqua 1 can be ordered with following options:

- Cold or Hot water meter
- 6+1, 12+1 and up to 15 years battery life
- One of the following communications options:
  - Without communication
  - Bidirectional Radio SONTEX interface
  - OMS Wireless M-Bus
  - LoRaWAN
- Various Applicable National Drinking Water Norms

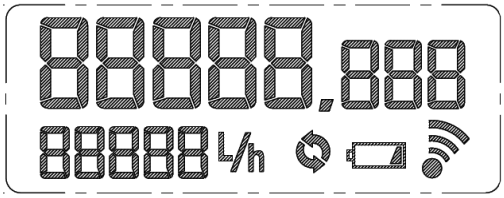
Functions

- Measure and record water volume of the flow in cold or warm water supply applications
- The configuration can be done either through the NFC inter face or by Radio SONTEX.
- Display the totalized consumption and optionally the total ized consumption at the set date
- Display operating data including self-monitoring with error display
- Prepared for full integration into the Sontex Sonexa open SW Platform
- Individual or global AES Key 128 bits

Digital Display

The Digital Display is equipped with a large 8-digits display and can be rotated by 360°. The housing has a protection index of IP68 against dust and humidity.

The LCD display of the Superaqua 1 has a large, clear design and high contrast, making it easy to read the data.



The totalized consumption of the display is displayed for 10 seconds and other parameters can be displayed on request and for a pre-programmed time.

Display Sequences

Position	Type	Displayed
0	Default: 1 second per error	Error code, only in case of errors
1	Default: 10 seconds	Totalizer and Flow Rate
2	Optional	Set day
3	Optional	Firmware version + Postcard + Totalizer stored at set day
4	LCD Test: 1 sec ON 1 sec OFF	LCD Test

Error Messages

Code	Message	Displayed
Err01	System Error	Default
Err02	Battery low	Default
InF03	Manipulation	Default
InF04	Radio Error	Default
InF05	Pipe break	Default
InF06	Leakage	Default
InF07	Flow > Qmax	Default
InF08	Backflow	Default
Err09	Device EOL (Germany / Austria)	Optional
InF10	No Flow	Default

Radio Connections

- **Sontex Radio**
  Frequency: 433 MHz, bidirectional
  Transmission power: 10dBm (10mW)

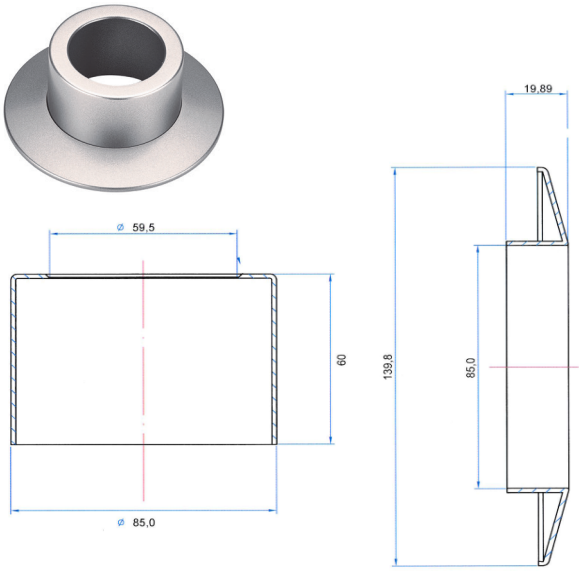
- **wM-Bus OMS**
  Frequency: 868 MHz, unidirectional
  Mode 5 or 7
  Radio telegram C1 or T1
  Transmission power: 14dBm (25mW)

- **LoRaWAN**
  Frequency: 868 MHz, bidirectional
  Transmission power: 14dBm (25mW)

Communication options

Several communication interfaces are available. For the daily operational read out of the water meter values the Superaqua 1 can be ordered with either Radio Sontex, OMS or LoRaWAN communication. The standard settings can be changed by the use of the free Software SuperProg from Sontex and the NFC (Near Field Communication) interface on the water meter.

Optional In-wall Rosette to Multi-Jets measuring capsule



Existing chrome-plated rosettes of Supercom 281 and water meters with Supercom 581 / 587 can still be used. However, due to the high chrome content, a reduced radio range must be expected. Existing original rosettes from Minol and Techem cannot be used.

Technical Data

Dimension	■ Single Jet lenght L height H	 80, 110, 115, 130, 165 or 190 mm approx. 52 mm (approx. 56 mm by the 190 mm version)
	■ Multi-Jets measuring capsule Diameter D1 Diameter D2 height H	 75 mm 70 mm from 35 to 62 mm
Measurement	■ Approved temperature Cold water ■ Approved temperature Warm water ■ Volume measurement cycle at nominal flow	+0.1°C ... +50°C +0.1°C ... +90°C 0.5 seconds
Digital Register	■ Environment class ■ Mechanics ■ Electronics ■ Battery protection class ■ Protection class ■ Operating temperature (electronic circuit) ■ Storage and transport temperature	B M1 E1 III IP68[1] (4 weeks under 1m water) 5...55°C -10...60°C (dry environment)
Display & Display Units	■ LCD ■ Volume resolution (display) ■ Volume ■ Flow ■ Flow symbol ■ Battery status ■ Radio	8 digits 0.001 m^3 l/h
Power Supply	■ Lithium Battery (< 1 g) 3 VDC	up to 15 years
Pressure	■ Nominal pressure ■ Maximum pressure	PN16 16MPa or 16 bar

[1] Protection code IP68 - Suitable for all types of installation (except for pit installation)

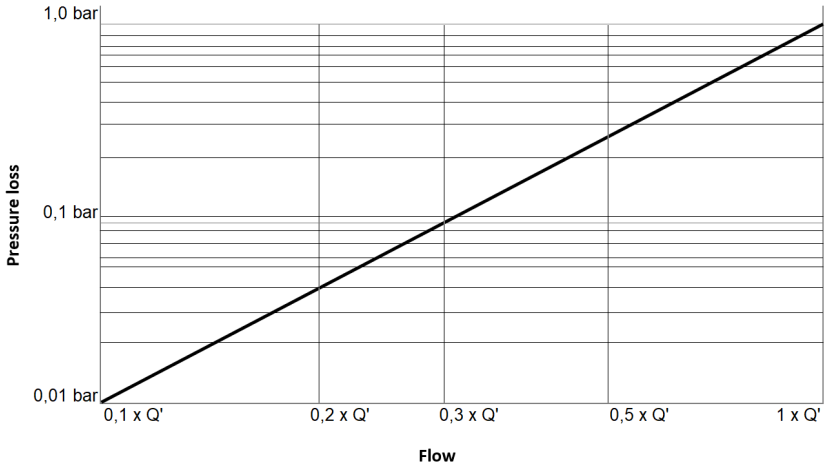
Single-Jet

Installation	Lenght	Part N°	Height H (Approx.)	Nominal Flow Q_3	Nominal width DN	Threaded connection	Typical Starting flow value *	Flow rate Q (Approx.)	Weight (Approx.)
H / V	mm		mm	m^3 / h	mm	Inch	l / h	l / h	Kg
H	80	SQ1S1	52	2.5	15	G3/4B	1-2	3300	0.4
H	110	SQ1S2	52	2.5	15	G3/4B	1-2	3300	0.4
H	115	SQ1S3	52	2.5	13	G7/8 - G3/4B	1-2	3300	0.4
H	115	SQ1S4	52	2.5	15	G3/4B	1-2	3300	0.4
H	115	SQ1S5	52	4	20	G1B	1-2	5100	0.5
H	130	SQ1S6	52	2.5	15	G3/4B	1-2	3300	0.5
H	130	SQ1S7	52	2.5	20	G1B	1-2	3300	0.5
H	130	SQ1S8	52	4	20	G1B	1-2	5100	0.5
H	165	SQ1S9	52	2.5	15	G3/4B	1-2	3300	0.7
H	190	SQ1SA	56	4	20	G1B	1-2	5100	0.8

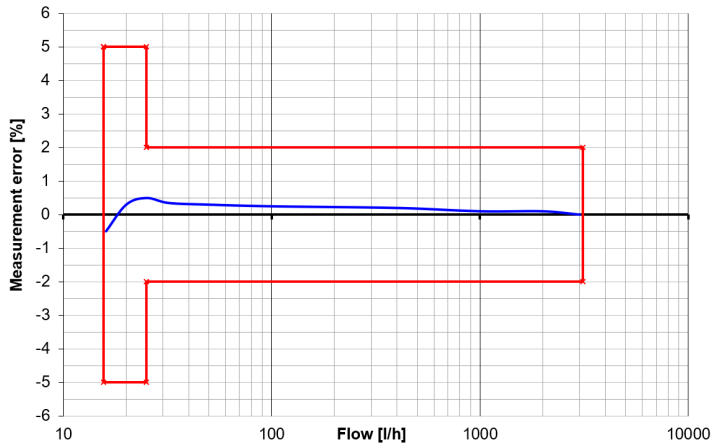
* Typical values in horizontal installation position

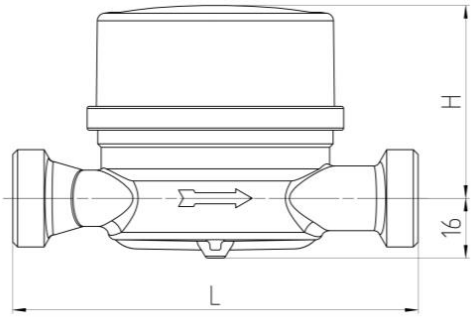
The meter does not require any upstream or downstream straight length (U0/D0).

Typical pressure loss curve



Typical error curve Q_3 2.5 R160H/V



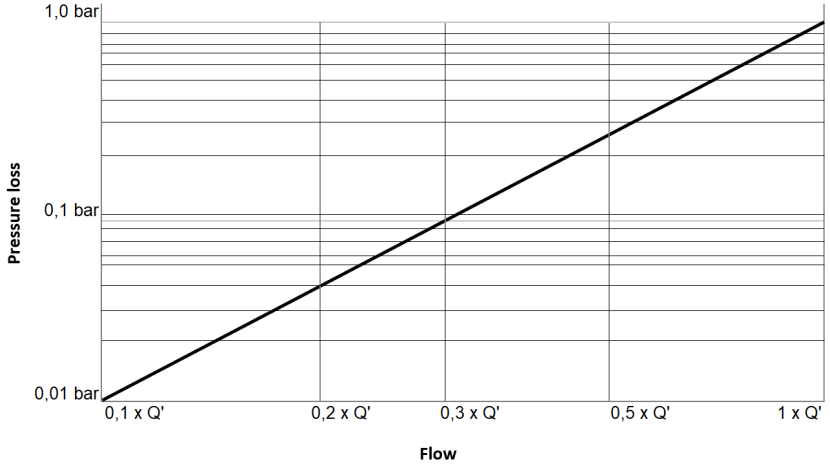


Multi-Jet Measuring Capsule

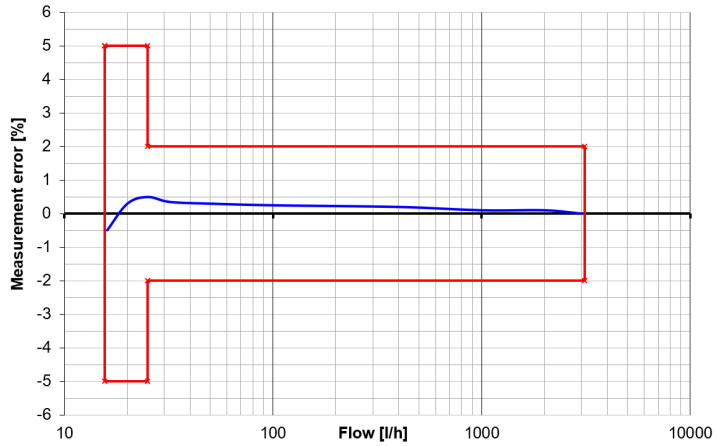
Compatible to	Part N°	Type	Height (Approx.)	D1	D2	Nominal Flow Q_3	Threaded connection	Typical Starting flow value *	Flow rate Q (Approx.)	Weight (Approx.)
			mm	mm	mm	m^3 / h		l / h	l / h	Kg
ISTA EAS-N	SQ1M1	IST	62	75	70	2.5	G2"	3	3400	0.2
Elster/ABB MO-E/ EAS-H	SQ1M2	MOE	35	75	70	2.5	M65x2	3	3400	0.2
AllmessUP6000	SQ1M3	A34	43	75	70	2.5	M77x1.5	3	3400	0.5
Techem UPTE1	SQ1M4	TE1	40	75	70	2.5	M62x2	3	3400	0.2
Metrona/ BrunataHT3	SQ1M5	MET	35	75	70	2.5	M64x2	3	3400	0.2
DeltamessTRK	SQ1M6	DM1	55	75	70	2.5	M60x2	3	3400	0.4
Metrona307/1	SQ1M7	HT2	51	75	70	2.5	M66x1	3	3400	0.4
SPX/Spanner Pollux Pollomuk	SQ1M8	MUK	35	75	70	2.5	G2 1/4"	3	3400	0.3
WEHRLE Unterputz	SQ1M9	WE1	45	75	70	2.5	M78x1.5	3	3400	0.6
Wasser-Geräte WGU	SQ1MA	WGU	51	75	70	2.5	M66x1.25	3	3400	0.4
Minol MB3	SQ1MB	MB3	47	75	70	2.5	M76x1.5	3	3400	0.5
Minol MB2	SQ1MC	MB2	50	-	-	2.5	-	3	2800	0.5

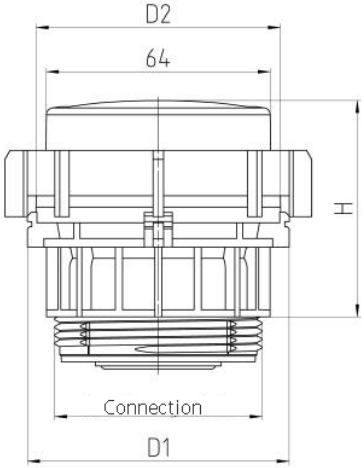
* Typical values in horizontal installation position

Typical pressure loss curve



Typical error curve Q_3 2.5 R160H/V





CE Conformity

according to L 96/149, 29.3.2014 (MID)
according to L 153/62, 22.5.2014 (RED)
according to L 96/79, 29.3.2014 (EMC)
according to L 174/88, 1.7.2011 (RoHS)
according to L 197/38, 24.7.2012 (WEEE)
according to L 396/1, 30.12.2006 (Reach)

Technical Support

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

Sontex Hotline

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Specifications are subject to change without notice.

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