Supercal 739

Compact thermal energy meter

The *Supercal 739* is an autonomous compact thermal energy meter consisting of a flow meter, a detachable calculator 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.

Main Features

- Available in qp0.6 to 2.5, with 110 or 130mm lengths and DN 15 or DN 20
- Capsules fits Allmess, Ista and Techem meter base
- Detachable calculator ideal for hard-to-reach installation
- Suitable for Horizontal / vertical
- Approved for fluid temperature from +5°C to +90°C
- Battery life up to 12+1 years
- LoRaWAN®, wM-Bus / OMS®, Sontex Radio, M-Bus communication
- Temperature sensors in Ø 5, Ø 5.2 or Ø 6 mm with 1.5m cable
- Optical interface enables fast and simple setup

Technical data

General	
Application	▪ Heating or ▪ Cooling or ▪ Heating/cooling
Temperatures	▪ Ambiant: +5°C...+55°C (< 95% relative humidity) ▪ Storage / transportation: -10°C...+60°C (⩽ 60% relative humidity)
Protection rating	▪ Calculator unit: IP65 ▪ Flow Sensor: IP65
Electromagnetic class	▪ E1
Mechanical class	▪ M1
Measuring accuracy class	▪ 3

Calculator unit	
Temperature measurement range	▪ 0 °C ... +110 °C
Temperature difference range ΔT	▪ Heat Meter: 3K - 75K ▪ Cold Meter: 3k - 75K ▪ Start of metering temperature difference: +/- 0.5K
Battery type	▪ Lithium, nominal voltage 3.0 V
Battery life	▪ 6+1 years or ▪ 12+1 years
Display	▪ LCD 8 Digits
Display units	▪ Energy: kWh - MWh - GJ ▪ Volume: m^3 ▪ Temperature: °C ▪ Δ Temperature: K ▪ Additional pulse inputs: Volume or pulses

Connection cable Calculator unit - flow sensor	▪ 0.6 m
Pulse input/output cable	▪ 1.5 m

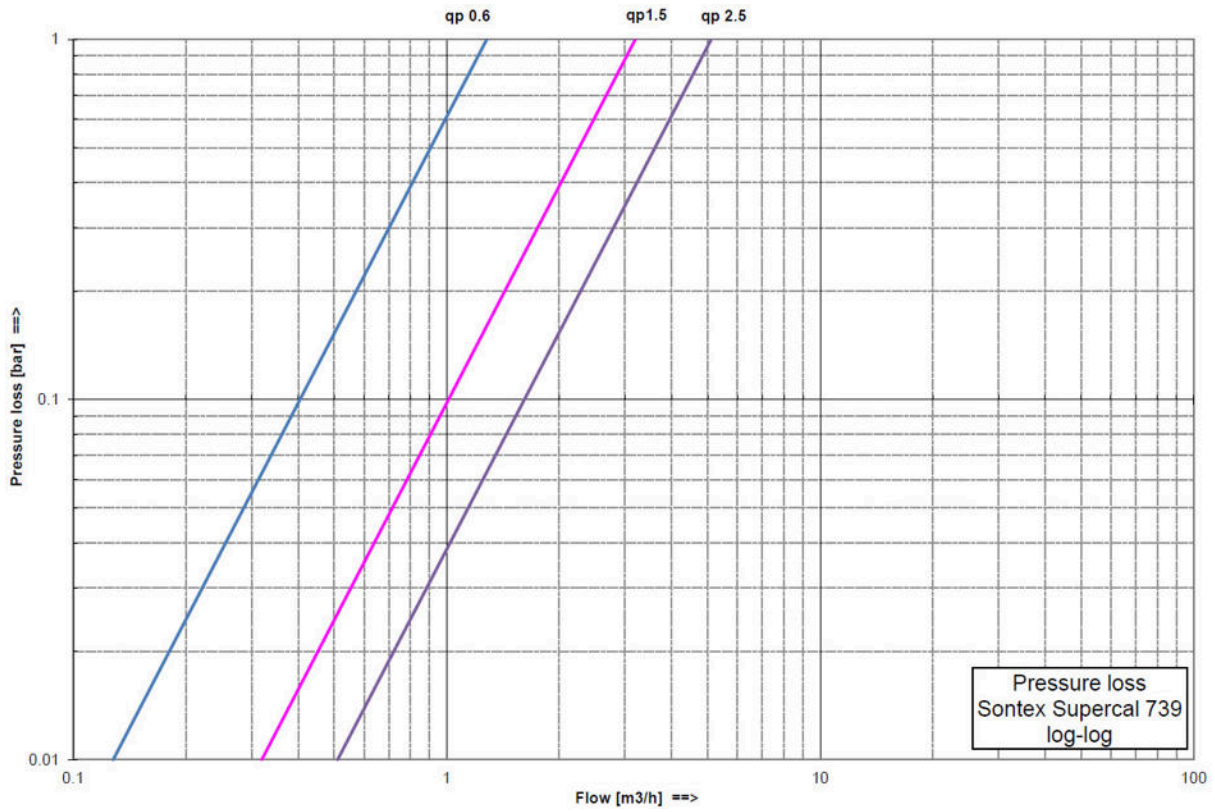
Interfaces	▪ Configuration:
	  ▪ Optical interface according to ISO/IEC 14443 Type A
	▪ Data Forwarding
	  ▪ wM-Bus / OMS®
	  ▪ LoRaWAN®
	  ▪ Sontex Radio
	  ▪ M-Bus
	▪ 2 pulse inputs (optional)
	▪ Two pulse outputs either heating or cooling energy consumption and volume, or heating and cooling energy consumption (optional)

Data storage	▪ Set day (Energy, Volume, Energy cold, Input1, Input2) ▪ 18 monthly values (Energy, Volume, Energy cold, Input1, Input2)
Pulse output	▪ Open drain (MOS Transistor) Vccmax : 35 VDC ; Iccmax : 25 mA; 1 Hz, 500 ms
Pulse input with a dry contact	▪ Power supply internal: 2.3 VDC ▪ Rpull UP internal: 2 MΩ ▪ Pulse factor: 0...999.999 m3/pulse or without unit

Temperature Sensor	
Measuring element	▪ Pt1000
Diameter	▪ 5.0 mm ▪ 5.2 mm ▪ 6.0 mm
Temperature sensor cable length	▪ 1.5 m

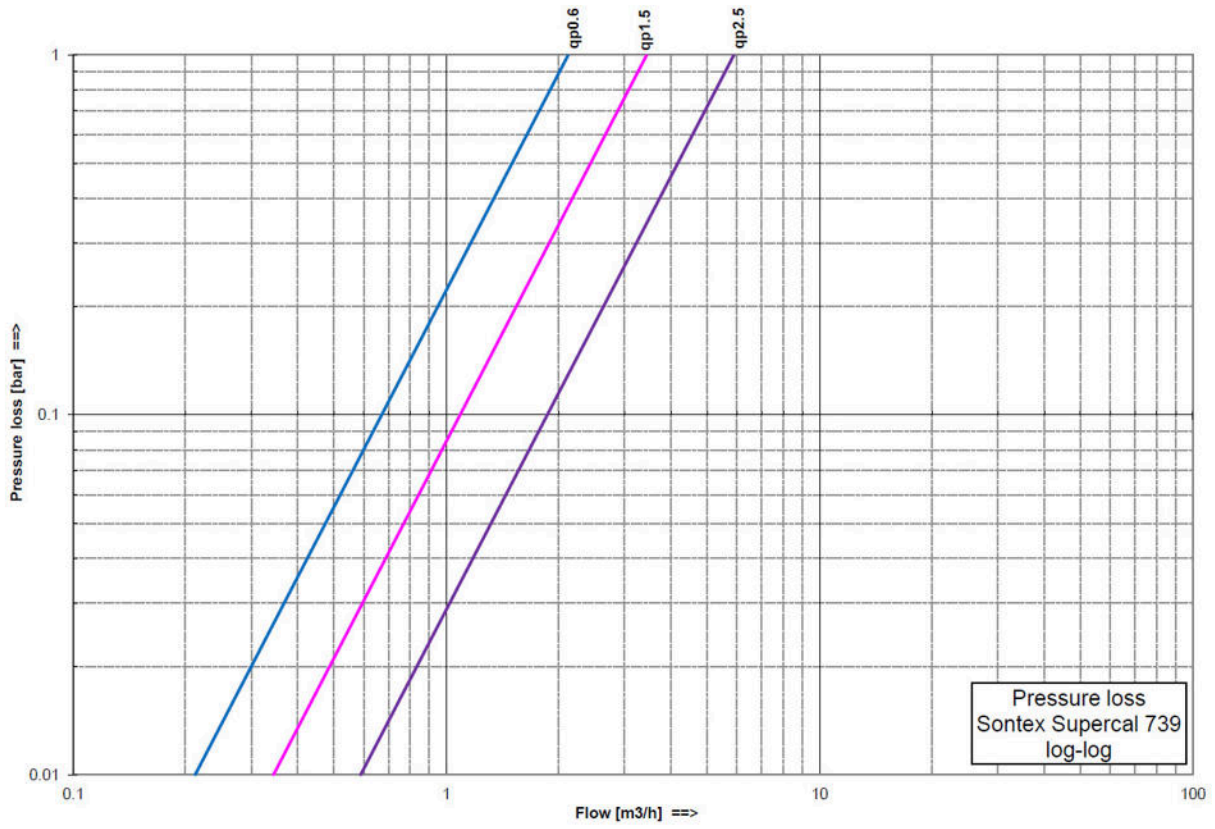
Single jet flow meter				
Nominal Flow Rate (qp) [m^3/h]	**0.6**	**1.5**	**1.5**	**2.5**
DN	15	15	20	20
Overall length [mm]	110	110	130	130
Connection	3/4"	3/4"	1"	1"
Material	Brass	Brass	Brass	Brass
Total meter weight [kg]	0.8	0.9	1.0	1.1
Temperature range as Heat meter [°C]	+5 ... +90	+5 ... +90	+5 ... +90	+5 ... +90
Temperature range as cold meter [°C]	+5 ... +90	+5 ... +90	+5 ... +90	+5 ... +90
Minimum flow qi [m^3/h] (h / v)*	0.012 / 0.024	0.03 / 0.06	0.03 / 0.06	0.05 / 0.1
Maximum flow qs [m^3/h]	1.2	3.0	3.0	5.0
Measuring accuracy class	3	3	3	3
Pressure loss at qp [mBar]	220	220	220	240
PN [Bar]	16	16	16	16
Upstream and downstream zone	U3 / D0	U3 / D0	U3 / D0	U3 / D0
* (h / v) horizontal / vertical mounting				

Pressure loss curve:



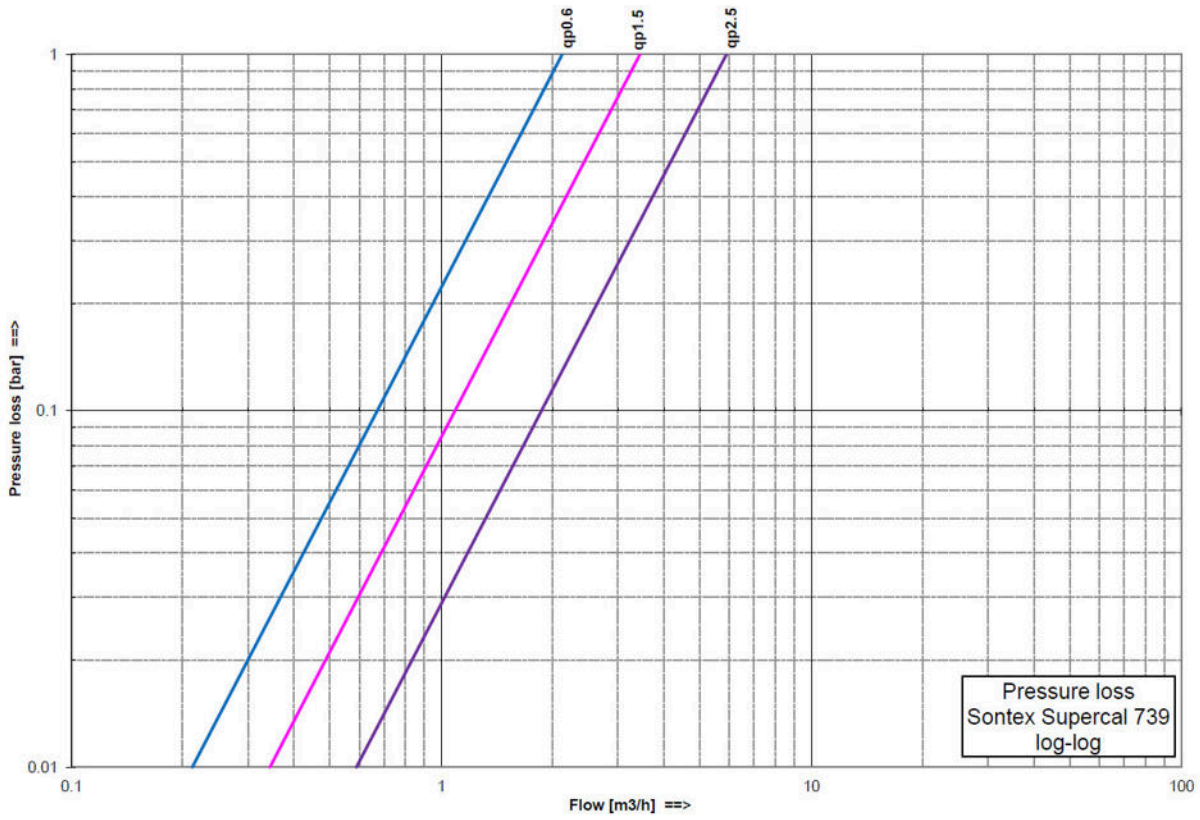
Coaxial multi jet meter with M77 x 1.5 connection (Version Allmess)				
Nominal Flow Rate (qp) [m^3/h]	**0.6**	**1.5**	**1.5**	**2.5**
DN (Base)	15	15	20	20
Overall length (Base) [mm]	110	110	130	130
Connection (Base)	3/4"	3/4"	1"	1"
Material	Brass	Brass	Brass	Brass
Total meter weight [kg]	0.8	0.8	0.8	0.9
Temperature range as Heat meter [°C]	+5 ... +90	+5 ... +90	+5 ... +90	+5 ... +90
Temperature range as cold meter [°C]	+5 ... +90	+5 ... +90	+5 ... +90	+5 ... +90
Minimum flow qi [m^3/h]	0.012	0.015	0.015	0.025
Maximum flow qs [m^3/h]	1.2	3	3	5
Measuring accuracy class	3	3	3	3
Pressure loss at qp [mBar]	80	190	190	230
PN [Bar]	16	16	16	16
Upstream and downstream zone	U0 / D0	U0 / D0	U0 / D0	U0 / D0

Pressure loss curve:



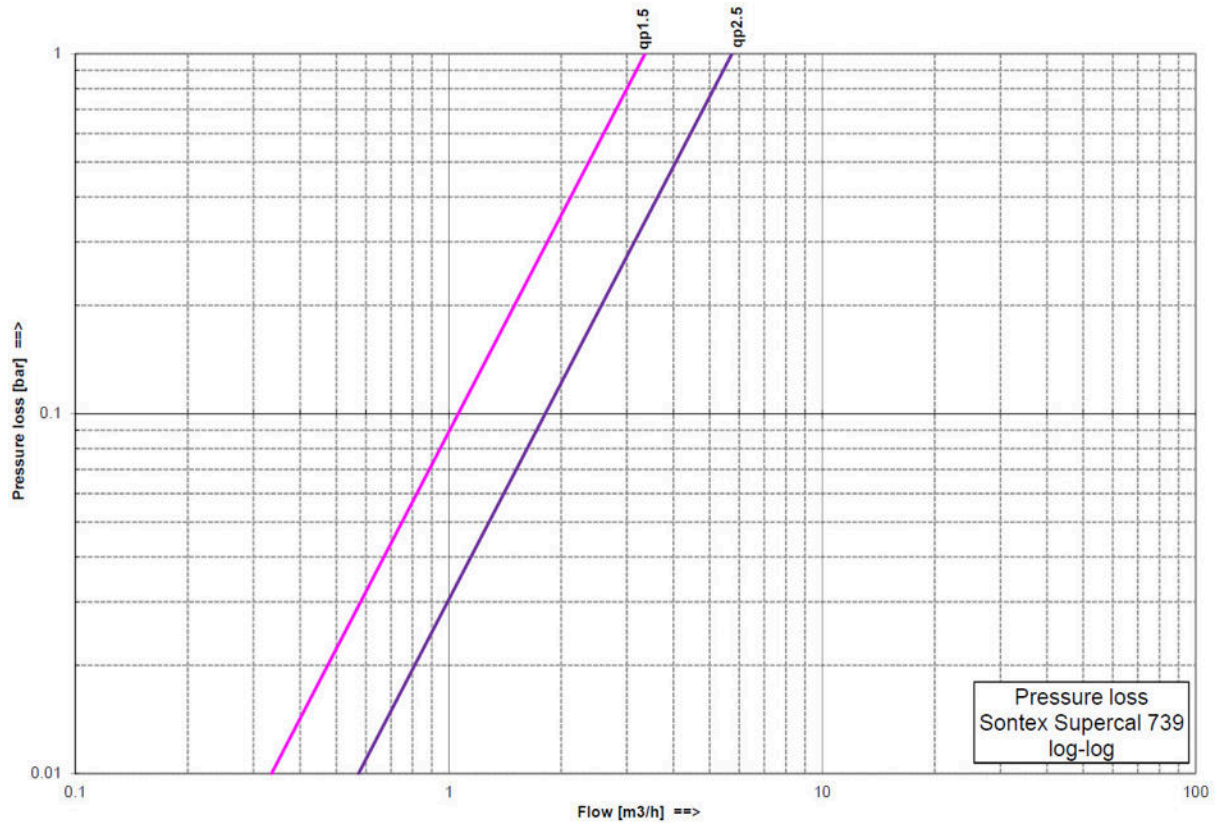
Coaxial multi jet meter with G2'' connection (Version Ista)				
Nominal Flow Rate (qp) [m^3/h]	**0.6**	**1.5**	**1.5**	**2.5**
DN (Base)	15	15	20	20
Overall length (Base) [mm]	110	110	130	130
Connection (Base)	3/4"	3/4"	1"	1"
Material	Brass	Brass	Brass	Brass
Total meter weight [kg]	0.6	0.6	0.6	0.7
Temperature range as Heat meter [°C]	+5 ... +90	+5 ... +90	+5 ... +90	+5 ... +90
Temperature range as cold meter [°C]	+5 ... +90	+5 ... +90	+5 ... +90	+5 ... +90
Minimum flow qi [m^3/h]	0.012	0.015	0.015	0.025
Maximum flow qs [m^3/h]	1.2	3	3	5
Measuring accuracy class	3	3	3	3
Pressure loss at qp [mBar]	80	190	190	180
PN [Bar]	16	16	16	16
Upstream and downstream zone	U0 / D0	U0 / D0	U0 / D0	U0 / D0

Pressure loss curve:



Coaxial multi jet meter with M62 x 2 connection (Version Techem)			
Nominal Flow Rate (qp) [m^3/h]	**1.5**	**1.5**	**2.5**
DN (Base)	15	15	20
Overall length (Base) [mm]	110	130	130
Connection (Base)	3/4"	1"	1"
Material	Brass	Brass	Brass
Total meter weight [kg]	0.7	0.7	0.7
Temperature range as Heat meter [°C]	+5 ... +90	+5 ... +90	+5 ... +90
Temperature range as cold meter [°C]	+5 ... +90	+5 ... +90	+5 ... +90
Minimum flow qi [m^3/h]	0.030	0.030	0.050
Maximum flow qs [m^3/h]	3	3	5
Measuring accuracy class	3	3	3
Pressure loss at qp [mBar]	200	200	190
PN [Bar]	16	16	16
Upstream and downstream zone	U0 / D0	U0 / D0	U0 / D0

Pressure loss curve:



Data Collection Interfaces

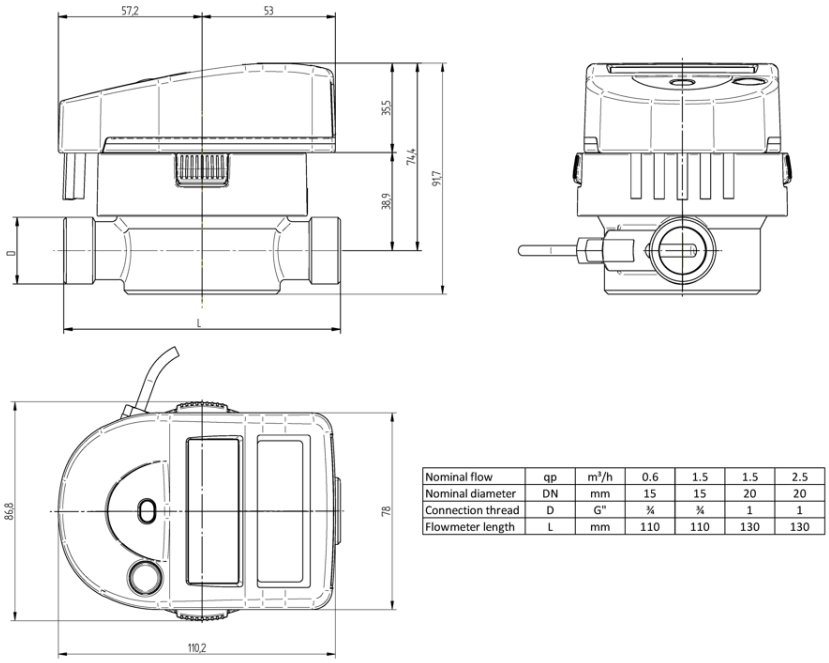
Radio communication			
	Sontex Radio	**wM-Bus / OMS®**	**LoRaWAN®**
Radio protocol	**Radian V1.0**	**EN 13757-4**	**Spec. V1.0.2**
Transmission mode / class	▪ N.a.	▪ T1 ▪ C1A	▪ Class A
Encryption mode	▪ AES-128 CBC	▪ AES-128 - Mode 5/7	▪ AES-128 - AppKey
Encryption options	▪ Individual key ▪ General key ▪ Unencrypted	▪ Individual key ▪ General key ▪ Unencrypted	▪ Individual key
Radio frequency	▪ 433.82 MHz	▪ 868.95 MHz	▪ ISM Frequency band EU863-870
Transmission power	▪ Max. 10 mW (10 dBm) ▪ Typ. -3 dBm	▪ Max. 25 mW (14 dBm) ▪ Typ. 5 dBm	▪ Max. 25 mW (14 dBm) ▪ Typ. 5 dBm
Communication	▪ Bidirectional	▪ Unidirectional	▪ Bidirectional
Radio telegrams	▪ Current values ▪ Current values - Monthly energy ▪ Current value - Monthly volume ▪ Current value - Monthly energy - Monthly volume	▪ Telegram S (Short - OMS) ▪ Telegram L (Long - walk-by)	▪ Telegram S (SF10-12) ▪ Telegram L (SF7-9)
Transmission intervals	▪ When calling (after wake-up)	▪ Standard 120 sec. 7/7 ▪ 24/24h or ▪ 12/24 (walk-by)	▪ 1 - 8h, on demand
Radio activity	▪ Non configurable	▪ Configurable via calendar function	▪ Configurable via calendar function
Radio activity standard	▪ Daily, 06:00 up 19:59 h	▪ Telegram S: ▪ 24 h/day ▪ 7 Days a week ▪ Telegram L: ▪ max. 14 h/day (06:00 - 19:59 h) ▪ 7 Days a week	▪ Periodic dispatch according to transmission intervals
Type of reading			
Mobile (Walk-by)	▪ Radio modem *Supercom 636*	▪ Radio modem *Supercom 637*	▪ N.a.
Automatic Meter Reading (AMR)	▪ Data concentrator *Supercom 646* ▪ Gateway *Superlink C*	▪ Data concentrator *Supercom 647* ▪ Gateway *Superlink C*	▪ Commercially available LoRaWAN® Gateway

Certifications			
		▪ OMS certified generation 4 ▪ Security profile A	▪ LoRaWAN Certified® (acc. to Specification V1.0.2) ▪ LoRaWAN™ Swisscom IoT Qualified Product

Wired communication
▪ 1 device = 2M-Bus charges; max 2 x 1.5 mA

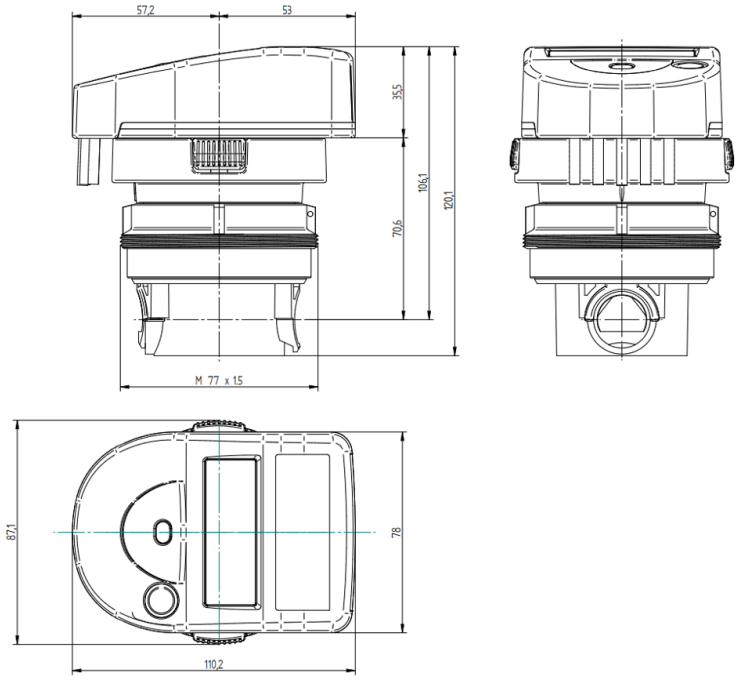
Mechanical Data (Dimensions)

Single jet flow meter

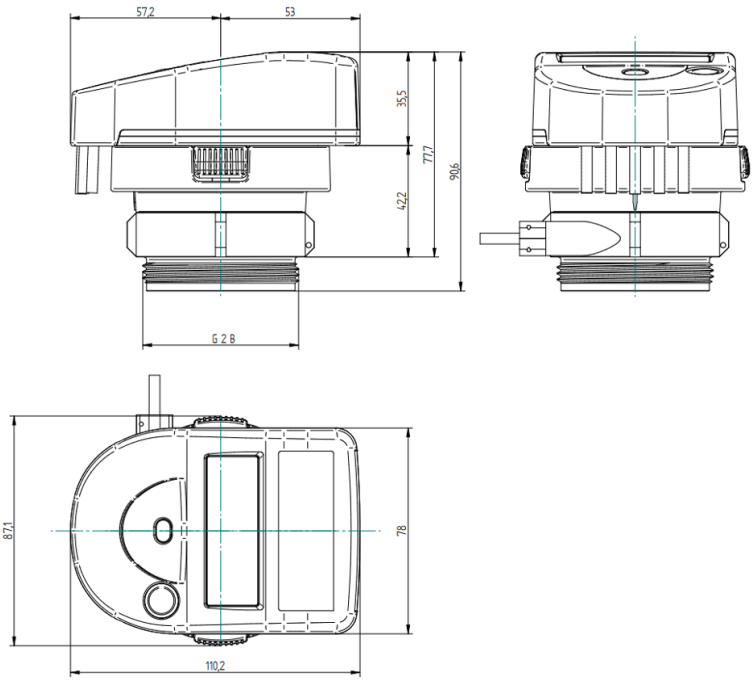


Nominal flow	qp	m³/h	0.6	1.5	1.5	2.5
Nominal diameter	DN	mm	15	15	20	20
Connection thread	D	G"	¾	¾	1	1
Flowmeter length	L	mm	110	110	130	130

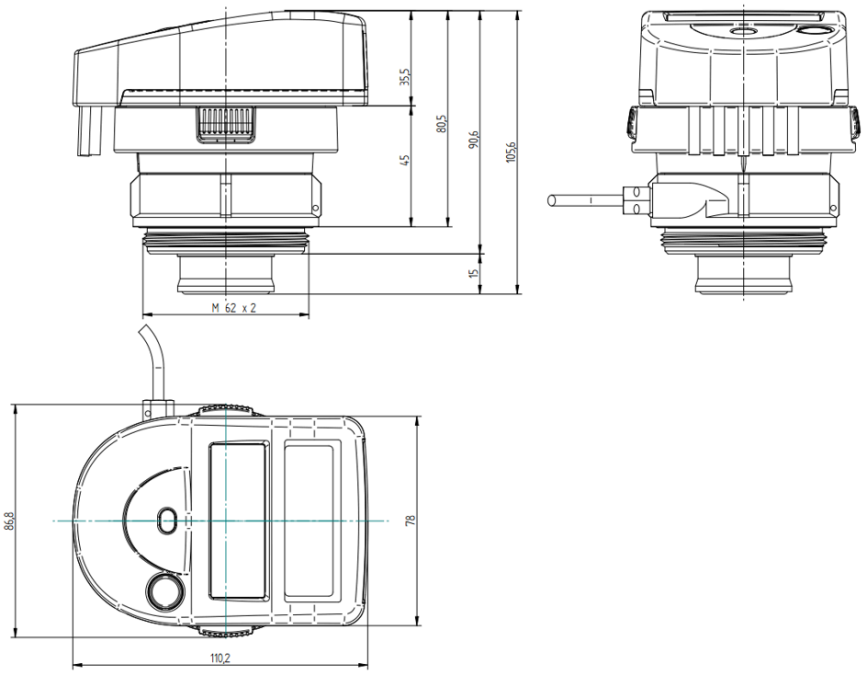
Coaxial multi jet meter with M77 x 1.5 connection (Version Allmess)



Coaxial multi jet meter with G2'' connection (Version Ista)



Coaxial multi jet meter with M62 x 2 connection (Version Techem)



Variant Overview

Part number: 0739**AABCDEFG*****

Flow sensor (AA): Single Jet: **RJ**: qp0.6 m^3/h, 110 mm, G ¾", DN 15 **RL**: qp1.5 m^3/h, 110 mm, G ¾", DN 15 **RM**: qp1.5 m^3/h, 130mm, G 1", DN 20 **RN**: qp2.5 m^3/h, 130mm, G 1", DN 20 Multi Jet Coaxial: **SJ**: M77 x 1.5 (Version Allmess), qp0.6 m^3/h **SL**: M77 x 1.5 (Version Allmess), qp1.5 m^3/h **SN**: M77 x 1.5 (Version Allmess), qp2.5 m^3/h **TJ**: G 2" (Version Ista), qp0.6 m^3/h **TL**: G 2" (Version Ista), qp1.5 m^3/h **TN**: G 2" (Version Ista), qp2.5 m^3/h **UL**: M62 x 2 (Version Techem), qp1.5 m^3/h* **UN**: M62 x 2 (Version Techem), qp2.5 m^3/h* * Only with temperatures sensor Ø 5 mm or Ø 5.2 mm.	**Temperature sensor (B):** **1**: Ø 5 mm, one sensor mounted in the flow meter **2**: Ø 5.2 mm, one sensor mounted in the flow meter **3**: Ø 5 mm with one pocket SCTW4A2, G3/8" **4**: Ø 5.2 mm with one pocket SCTW4A5, G3/8" **5**: Ø 5 mm, both sensors mounted in the pipes **6**: Ø 5.2 mm, both sensors mounted in the pipes **8**: Ø 6 mm, both sensors mounted in the pipes **9**: Ø 6 mm, one sensor mounted in the flow meter	**Display (LCD) (C):** **1**: 0.1 kWh; 0.001 m^3 **2**: 0.1 kWh; 0.01 m^3 **3**: 1 kWh; 0.001 m^3 **4**: 1 kWh; 0.01 m^3 **5**: 0.001 MWh; 0.001 m^3 **6**: 0.001 MWh; 0.01 m^3 **7**: 0.01 MWh; 0.001 m^3 **8**: 0.01 MWh; 0.01 m^3 **9**: 0.001 GJ; 0.001 m^3 **A**: 0.001 GJ; 0.01 m^3 **B**: 0.01 GJ; 0.001 m^3 **C**: 0.01 GJ; 0.01 m^3
Power supply (D): **1**: Battery 6+1 **2**: Battery 12+1	**Communication (E):** **S**: Standard, Optical interface **P**: Two pulse outputs **M**: M-Bus, power supply over M-Bus line (only 1 battery 6+1) **R**: Sontex Radio **W**: wM-Bus / OMS® **L**: LoRaWAN®	**Calculator configuration (F):** **1**: Heat meter **2**: Heat meter with two pulse inputs **3**: Cooling meter **4**: Cooling meter with two pulse inputs **5**: Double tariff meter (Heating/Cooling) **6**: Double tariff meter (Heating/Cooling) with two pulse inputs
Homologation & Mounting configuration (G): **1**: MID, Cold pipe **2**: MID, Hot pipe **A**: MID, Cold pipe + test report **B**: MID, Hot pipe + test report **3**: PTD DE-M, Cold pipe **4**: PTD DE-M, Hot pipe **C**: PTD DE-M, Cold pipe + test report **D**: PTD DE-M, Hot pipe + test report **E**: MID / DE-M, Cold pipe + test report **F**: MID / DE-M, Hot pipe + test report	**Customer-specific type code (***)**	

Accessories & Software Tools

- *Prog7X9* Configuration Tool
- *Tools Supercom* for on-site read-out

Legal and Compliance Information

Hereby, Sontex declares that the product is in compliance with Directive 2014/53/EU, 2014/32/EU and 2011/65/EU.

The full text of the CE Declaration of Conformity can be found on our website.

Support & Warranty Information

- For technical support, please contact your local agent.
- Warranty and guarantee claims are only valid if the device has been used in accordance with their intended use and if the technical requirements and any applicable technical regulations have been observed.
- Links to online documentation, declaration of conformity, manuals, or support forums:

your link to innovative metering

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