TOPAS® ESW 2

Technical data sheet

Application



Ultrasonic water meter for detection and remote readout in the water supply.

The wireless M-Bus, M-Bus and Pulse interfaces meet all requirements in the field of smart metering and enable mobile read-out (walk-by, drive-by) or read-out via fixed network.

Features and customer benefits

- Compact system solution for smart metering;
- Real data communication;
- MID-approved with dynamic range up to R 800;
- Low start-up value (1.4 l/h at DN 15) reduces proportion of non billable water;
- Wireless OMS® radio (OMS generation 3);
- Display of error & alarm messages with leak detection;
- Manipulation detection;
- Modern ultrasonic technology;
- Robust lead-free brass housing;
- IP 68 can be used outdoors.

Product range

TOPAS® ESWR 2



- Static ultrasonic water meter with integrated interface for smart metering applications with real data communication;
- With SVGW approval;
- With MID approval, measuring ranges according to OIML R49, EN 14154 › Device is factory parameterized;
- Any installation position;
- Brass housing with threated connection;
- Nominal pressure 16 bar › No entry and exit distances required;
- Insensitive to deposits and suspended solids in water;
- Protection class IP 68;
- Battery life: EWR 2 16 years / ESWMP 216 years;
- Medium temperature 0.1 ... 70° C;
- Ambient temperature 1 ... 55° C;
- Transport and storage temperature -10 ... 70° C (> 35° C max. 4 weeks);
- DN 15 - DN 40 series with all common housing lengths.

TOPAS® ESWMP 2



Display

9 digits (6 digits before the decimal point, 3 digits after the decimal point)* with the displays:
**Exception DN 50 (7 digits before the decimal point, 2 digits after the decimal point).*

- Display Test;
- Total volume;
- Battery life;
- Firmware version / Checksum;
- Flow;
- Errors/Alarms;
- High-resolution total volume;
- Effective date / Effective date Total volume;
- Reverse volume.

Log memory for monthly values (periodic memory 1)

- 32 monthly values:
  - Date & Time
  - Total volume;
  - Forward volume;
  - Backward volume;
  - Last Max. Flow;
  - Last Min. Flow;
  - Water temperature °C;
  - Ambient temperature °C;
  - Hours of operation;
  - Error hours;
  - Error status.
- Event memory for 127 Events (alarms, errors).
- Event with date and time.

Log memory for daily values (periodic memory 2)

- In addition, 512 daily values content:
  - Date;
  - Total volume;
  - Medium temperature °C;
  - Ambient temperature °C;
  - Error status.
- Daily values can be traced back for about 1.4 years or 16.5 months.



TOPAS® ESWR 2	Version
Variant	Wireless M-Bus
Communication	Wireless 868 MHz according to OMS standard
Read out	Display on the device and remote readout via radio
Data readout	• *Total volume; • Effective Date; • Effective date of total volume; • Periodic memory 1 – date / time; • Periodic memory 1 – total volume.
Addressing	According to OMS protocol

* Factory setting



TOPAS® ESWMP 2	Version	
Variant	M-Bus with cable connection with cable length 1.5 m and / or 2 Pulse exits	
Communication	M-Bus according to EN 1434-3, 300/2400*) Baud and / or 2 Pulse exits	
Pin assignment	Color	
	Brown	Ground
	White	M-Bus 1
	Blue	M-Bus 2
	Yellow	Pulse 1
	Green	Pulse 2
Read out	Display on the device and remote readout via M-Bus interface or Pulse	
Data readout	• *Total volume; • Forward volume; • Backward volume; • Current flow; • Remaining battery life;	• Medium temperature; • Error flags, date and time; • Date (last reference date 1); • Total volume (Last effective date 1).

* Factory setting

Metrological data

DN 15 - 20

Nominal diameter	DN	mm	15	15	20	20	20	20	20
Article number ESWR 2 (Radio 868 MHz)	-	-	98398	98253	98255	98399		98254	
Article number ESWMP 2 (Wired M-Bus)	-	-	99045	99046	99047	99048	99049	99050	99051
Continuous flow	Q_3	m^3/h	2.5	2.5	4	4	2.5	4	4
Construction length	L	mm	110	165	105	130	190	190	220
Measuring range (standard)	-	-	400	400	400	400	400	400	400
Measuring range (max.)	-	-	800	800	400	800	800	800	800
Overload flow	Q_4	m^3/h	3,125	3,125	5	5	3,125	5	5
Transition flow	Q_2	l/h	5	5	16	8	5	8	8
Minimum flow	Q_1	l/h	3.13	3.13	10	5	3.13	5	5
Starting power threshold	-	l/h	1.4	1.4	3.0	2.5	1.4	2.5	2.5
Pressure loss at Q_3	-	bar	0.46	0.46	0.55	0.4	0.4	0.4	0.4
Pressure loss at Q_4	-	bar	0.72	0.72	0.86	0.63	0.63	0.63	0.63
Max. Flow*	Q_{high}	m^3/h	4.37	4.37	7	7	4.37	7	7
Kv ($\Delta P=Q_2/Kv2$)	-	-	3.69	3.69	5.39	5.39	3,95	5.39	5.39

*Outlet pressure at least 3 bar, maximum 100 hours per year, closed pipeline network.

DN 25 - 40

Nominal diameter	DN	mm	25	25	25	32	40	40
Article number ESWR 2 (Radio 868 MHz)	-	-	98257	98256		98258	98260	98259
Article number ESWMP 2 (Wired M-Bus)	-	-	99052	99053	99054	99056	99057	99058
Continuous flow	Q_3	m^3/h	6.3	6.3	10	10	16	16
Construction length	L	mm	150	260	260	260	200	300
Measuring range (standard)	-	-	400	400	400	400	400	400
Measuring range (max.)	-	-	400	400	800	800	800	800
Overload flow	Q_4	m^3/h	7.87	7.87	12.5	12.5	20	20
Transition flow	Q_2	l/h	25.2	25.2	20	20	32	32
Minimum flow	Q_1	l/h	15.8	15.8	12.5	12.5	20	20
Starting power threshold	-	l/h	5	5	5	5	8.7	8.7
Pressure loss at Q_3	-	bar	0.22	0.22	0.54	0.54	0.2	0.2
Pressure loss at Q_4	-	bar	0.34	0.34	0.84	0.84	0.78	0.31
Max. Flow*	Q_{high}	m^3/h	11.02	11.02	17.5	17.5	28	28
Kv ($\Delta P=Q_2/Kv2$)	-	-	13.43	13.43	13.43	13.43	36	36

*Outlet pressure at least 3 bar, maximum 100 hours per year, closed pipeline network.

Dimensions

DN 15 - 20

	DN	mm	15	15	20	20	20	20	20
Counter length	L1	mm	89	89	89	89	89	89	89
Width counter	B	mm	89	89	89	89	89	89	89
Overall length with screw connection	L2	mm	190	245	205	230	290	290	320
Connection thread on the meter	-	Duty	G 3/4 B	G 3/4 B	G1 B	G1 B	G1 B	G1 B	G1 B
Connection thread of the Screw fitting	-	Duty	R 1/2	R 1/2	R 3/4	R 3/4	R 3/4	R 3/4	R 3/4
Height	H1	mm	71	71	74	74	74	74	74
Weight without screw connection (approx.)	-	Kg	0.7	0.8	0.8	0.8	0.9	0.9	1.2
Height	H	mm	18	18	21	21	21	21	21

DN 25 - 40

	DN	mm	25	25	25	32	40	40
Counter length	L1	mm	89	89	89	89	96	96
Width counter	B	mm	89	89	89	89	89	89
Overall length with screw connection	L2	mm	270	380	380	380	340	440
Connection thread on the meter	-	Duty	G1 1/4B	G1 1/4B	G1 1/4B	G1 1/2 B	G2 B	G2 B
Connection thread of the Screw fitting	-	Duty	R1	R1	R1	R1 1/4	R1 1/2	R1 1/2
Height	H1	mm	78	78	78	78	82	82
Weight without screw connection (approx.)	-	Kg	1.0	1.4	1.4	1.5	1.8	2.6
Height	H	mm	27	27	27	30	36	36



