

Data logger

ESS3 A1



Data logger with an axial sensor

The ESS3 A1 series devices measure pressure in water networks and are suitable for short-term measurements for fault localization as well as long-term monitoring. Further applications include the validation of pipeline network calculations and the documentation of leak tightness tests in accordance with DVGW W400-2.

The battery-powered, modular devices consist of an operating unit (housing, processor, software, display), a sensor, and a battery. They are suitable for underground hydrants and are waterproof to protection class IP68.

Measured values are stored in non-volatile memory and permanently displayed on the screen. Data transfer to a PC is performed contactlessly via the optical IrDA interface (USB).

A lithium battery enables multi-year operation; battery status and remaining service life are continuously monitored.

With the TfsWin III software, the logger is configured, data is read out, and displayed graphically. Alternatively, the device can be operated using the buttons.

Sensor

The sensor is the metrological interface to the application. Performance and ease of use are therefore key priorities:

- Sensor replacement by the user is possible and the device is immediately ready for operation without recalibration
- Stainless steel-encapsulated, piezoresistive sensor with high long-term stability, resistant to aggressive media
- High measurement resolution; multiple measuring ranges possible for a single sensor
- Measurement of the medium temperature
- High measurement rates due to high natural resonance frequency, making it ideal for detecting pressure surges
- High overpressure resistance and high burst pressure
- Sensibly graduated fixed measuring ranges as well as user-defined ranges and various accuracy classes up to ±0.05% of FS (full scale)

Measured parameters

- Absolute pressure
- Temperature

Applications

- Fault analysis in water distribution networks
- Long-term monitoring in water distribution networks
- Pipeline network calculation
- Leak tightness testing in accordance with W400-2

Technical data ESS3 A1

Application	Measurement and recording of pressures in water supply systems for monitoring and fault analysis Validation of pipeline network calculations
Sensor connections	A radial sensor connection (M30) for mounting a pressure sensor
Explosion protection class	Ex II 2G Ex ib IIC T4 Gb
Protection classes, housing	Depending on the sensor: IP 67 for gauge pressure, IP 68 for absolute pressure W x H x D [mm]: 108 x 108 x 134; Weight [kg]: 1.2
Measuring ranges – pressure sensors	Absolute pressure: 0 ... 2.5 / 10 / 25 / 100 bar Gauge pressure and additional measuring ranges available on request
Measuring ranges – temperature sensors	-20 °C ... +40 °C (internal temperature sensor)
Initial measurement accuracy	Depending on the sensor (up to 0.05 % FS)
Resolution	Up to 0.004 % FS
Communication interfaces	IrDA; display; keyboard
Operating data	Battery operation: up to 8 years Current value; maximum and minimum values, as well as differential value, memory usage, and battery status
Display indication	
Settings	Time and date; upper and lower alarm limits; averaging (2 ... 600 values); resolution; measurement location name (29 characters); storage method (rolling/static)
Operation	Via menu using keyboard Via TfsWin III software through IrDA interface cable
Data storage	250,000 date-time values / 512 kB
Typical range	2 years (with data compression)
Software	TfsWin III for configuration, visualization, analysis, and archiving of data

Pressure sensor

Media compatibility: All liquids and gases compatible with stainless steel 1.4301 and NBR sealing material.

Process connection:
G1/2 external thread,
G1/8 internal thread

Measuring range	Initial Accuracy % of FS ¹⁾		
	Standard ± 0,4 %	Premium ± 0,09 %	Select ± 0,05 %
0 ... 2,5 bar absolute	x	x	x
0 ... 10 bar absolute	x	x	x
0 ... 25 bar absolute	x	x	x
0 ... 100 bar absolute	x	x	x
2,5 bar ... 200 bar absolute ²⁾	x	x	x
0 ... 200 bar - 0 ... 700 bar absolute ²⁾	x	~	~
100 mbar ... 35 bar relative ²⁾	x	x	x ³⁾
Negative pressure	x	~	~

- 1) FS: Full-scale value
2) Customer-specific measuring range; freely selectable within these limits
3) On request

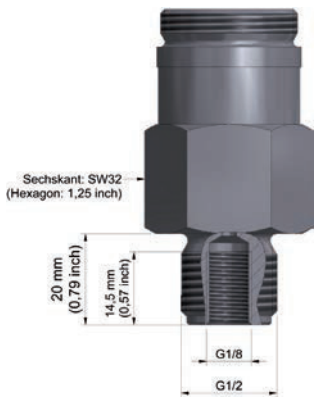


Figure 1: Pressure sensor

Temperature sensor

Internal temperature sensor (optional) that measures the media temperature at the pressure sensor.

Measuring range	Type	Threaded sensor
-20 °C ... +40 °C	Internal sensor	x
Initial measurement accuracy		±1 °C

Connection accessories

Various optional accessories are available for connection purposes:

- Bayonet adapter (DIN system) for installation in underground hydrants
- Bayonet adapter (Würtemberg system) for installation in chamber hydrants
- Bayonet adapter (Storz B/C) for connection to above-ground hydrants
- Adapter for hose connections

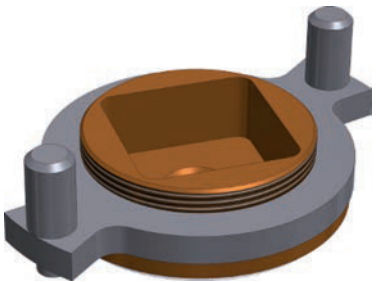


Figure 2: Bayonet adapter

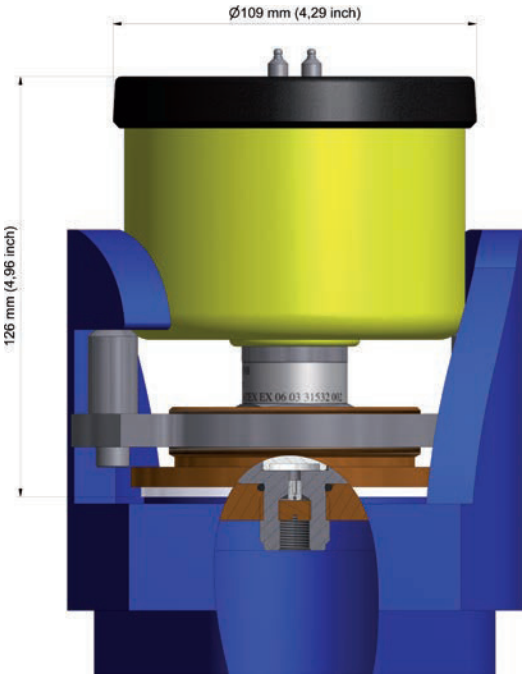


Figure 3: ESS3 A1 in underground hydrant



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