

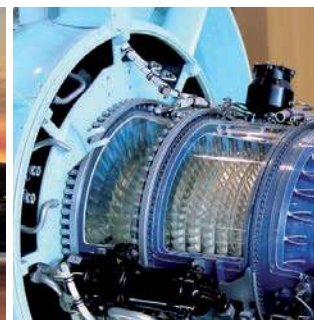


Measured quantities

- Relative pressure
- Absolute pressure
- Differential pressure
- Barometer reading
- Temperature
- Malfunction contacts (SSV, door, etc.)

Applications

- Monitoring in gas pressure control and measuring systems
- Monitoring in water pumping stations
- Stationary monitoring tasks



ESS3 S4



Data logger station with four sensors

ESS3 S4 overview

The devices of the ESS3 S4 series are used to record pressure and temperature in gas pressure control and measuring systems. The battery-powered devices are also suitable for recording measurements at any location where a power supply is not available and up to 4 measured values must be measured over the long term.

Battery-operated devices have a modular design and comprise an operator control unit (housing, processor, software, and display), battery, and up to four sensors. The data loggers are approved for use in hazardous areas (Zones 1 and 2) and are designed in protection class IP54.

The operator control unit stores the measured values supplied by the pressure and temperature sensors in non-volatile memory. The current measured values are continuously indicated on a display. The data is transferred to the PC by means of a non-contact optical IrDA interface (USB connection).

A lithium battery unit enables multiple years of operation under ordinary conditions. The battery status is continually monitored and the remaining battery life is indicated.

The TfsWin III software is used to configure the logger (measuring cycle, measuring location, etc.) and to read out and graphically display the measured data. The communication for this takes place over the non-contact optical IrDA interface. Alternatively, the device can be operated via buttons.

Application

In GPCM plants (gas pressure control and measuring systems), the input and output pressures (or other measured values such as gas temperature, SSV positions, etc.) are recording by a data logger in order to obtain information about the operational reliability of the system. This enables irregularities and malfunctions to be detected and eliminated early. In the course of condition-oriented maintenance according to DVGW G495, the testing intervals can be lengthened. All information is immediately available to maintenance personnel on-site on the data logger thanks to the TfsWin III evaluation software.

Properties

- Up to four configurable sensors for pressure and temperature
- Up to six inputs for malfunction contacts (e.g. SSV, odor, door contacts, etc.)
- Large data memory with data compression for efficient use allows data to be stored for many years
- Long battery life for multi-year operation without battery replacement
- Easy operation via device buttons/display
- Visual data interface to the PC
- Powerful PC evaluation software
- Explosion protection Zone 1

Technical data

Application	Measurement and storage of data (pressure and temperature) for monitoring gas pressure control systems
Sensor connections	Up to four sensor connections (M30) for accommodation of a pressure or temperature sensor. Up to six binary inputs (Reed, Namur)
Explosion protection class	Ex II 2G Ex ib IIC T4 Gb
Protection classes, enclosure	IP 54 W x H x D [mm]: 286 x 169 x 99 Weight [kg]: 3.5
Measuring ranges of pressure sensors	Rel. press.: 0 ... 100/250 mbar a. 0 ... 1/2.5/10/25/100 bar Diff. press.: 0 ... 100 mbar a. 0 ... 1/10 bar Other measuring ranges on request
Measuring ranges of temp. sensors	-10 °C ... +40 °C as well as -30 °C ... +150 °C Other measuring ranges on request
Measuring rate	500 msec ... 600 hours
Meas. precision	Dependent on the sensor (up to 0.05 % of full scale)
Resolution	Up to 0.004% FS
Communication interfaces	IrDA; Display; Keyboard
Operating data	Battery operation up to 10 years
Display	Actual value; Maximum and minimum value as well as differential value Memory utilization and battery status
Settings	Date and time; upper and lower alarm threshold; averaging (2 ... 600 values); resolution; measuring location name (29 characters); storage method (rolling / static)
Operation	Via keyboard using menu Via TfsWin III-software using IrDA-interface cable
Speicherung	2.000.000 date-time values / 512 kB
Typical operating span	2 years (through data compression)
Software	TfsWin III for parameter assignment, display, analysis and archiving of data

Table 1: ESS3 S4 (Operator control units)

Pressure sensor:

The sensor is the metrological link to the application. Performance and ease of use are therefore the central focus:

- A change of sensor by the user is possible and the new sensor is immediately ready for operation without calibration
- Stainless steel-enclosed, piezoresistive sensor with high long-term stability, resistant to corrosive media
- High resolution of measured values; multiple measuring ranges possible for one sensor
- Media temperature measurement
- High measuring rates through high self-resonant frequency
- High overpressure protection and high burst pressure
- Special versions, e.g., for O₂ measurement
- Appropriately-graduated fixed or customizable measuring ranges and various accuracy classes up to +/- 0.05 % of full scale

Measuring range	Precision [% of FS ¹⁾		
	Standard ± 0,4 %	Premium ± 0,09 %	Select ± 0,05 %
0 ... 100 mbar relative	X	X	~
0 ... 100 mbar differential pressure	X	~	~
0 ... 250 mbar relative	X	X	~
0 ... 1 bar relative	X	X	X
0 ... 1 bar differential pressure	X	~	~
0 ... 2,5 bar relative	X	X	X
0 ... 2,5 bar absolute	X	X	X
0 ... 10 bar relative	X	X	X
0 ... 10 bar absolute	X	X	X
0 ... 10 bar differential pressure	X	~	~
0 ... 25 bar absolute	X	X	X
0 ... 100 bar absolute	X	X	X
100 mbar ... 14 bar relative ²⁾	X	X	X ³⁾
2,5 bar ... 200 bar absolute ²⁾	X	X	X ³⁾
100 mbar ... 35 bar differential pressure ³⁾	X	~	~
0 ... 200 bar - 0 ... 700 bar absolute ³⁾	X	~	~
Negative pressure	X	~	~

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

Table 2: Pressure sensors ESS3 S4

Media compatibility: All liquids and gases that are compatible with stainless steel 1.4301 and NBR seal material.

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



Figure 1: Pressure sensor

Temperature sensor

The temperature sensors are suitable for installation in thermowells. Other sensors on request.

Media compatibility: All liquids and gases that are compatible with stainless steel 1.4301

Process connection: G3/4 internal thread

Temperature sensor measuring range and type		Cabel sensor
-10 °C ... +40 °C	Thermowell 90 mm	x
-10 °C ... +40 °C	Thermowell 140 mm	x
-30 °C ... +150 °C ¹⁾	Thermowell 90 mm	x
-30 °C ... +150 °C ¹⁾	Thermowell 140 mm	x
Measuring accuracy		+/- 0,3 °C

1) Freely selectable measuring range within these limits

Table 3: Temperature sensor ESS3 S4

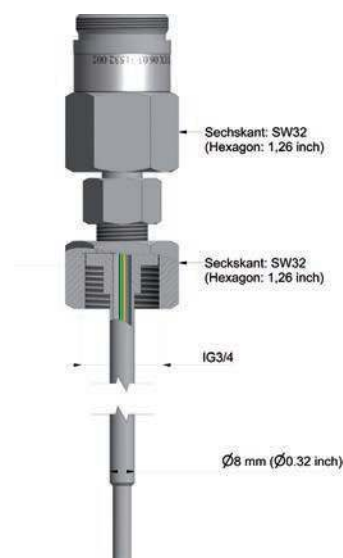


Figure 2: Temperature sensor, thermowell



About UNION Instruments

UNION Instruments GmbH, founded in 1919, is a specialized supplier of measuring instruments in the areas of calorimetry and gas composition. Its user and customer base includes biogas producers, the chemical industry, and energy and water suppliers. The company has its headquarters in Karlsruhe and a subsidiary in Lübeck. With 30 international distributors, UNION Instruments operates worldwide. The company's core businesses include development and production as well as maintenance, service, and support.

Our service performance



Support

The **UNION-hotline** helps to solve all inquiries and urgent issues fast and easy. Device specific concerns can be solved worldwide within minutes by direct communication via TEAMVIEWER.



Original spare parts

Original spare parts for the majority of UNION's products are on stock directly at site and ready for dispatch within a few hours.



Software

For read-out of measurement and calibration data a device-specific software is available for our clients. In addition to the graphic display of measurement data its export in several database formats is possible.



Training

UNION offers individual in-house training or on-site seminars for installation, use and maintenance of our devices even at the customer's premises. Training is individually adapted to the client's requirements.



Repair service

A global service for inspection, maintenance and repair of our devices and systems is provided directly by UNION and via its distributors.



Certification

Since 20 years we have implemented the ISO9001 system. UNION's products are certified to ATEX and UL/CSA directives accordingly. Industrial safety "**Safety with System**" is part of UNION's company policy.



Engineering

In the last decades UNION compiled a very high level to the state of the art that covers many market segments. So a wide range of possible solution approaches is on hand.



Calibration

As part of maintenance and service UNION provides the validation and re-calibration of measuring devices in conformity with certified custody transfer instruments and / or traceable perpendicular.

www.union-instruments.com

UNION Instruments GmbH ■ Zeppelinstraße 42, 76185 Karlsruhe, Germany
Phone: +49 (0) 721-68 03 81 0 ■ Fax: +49 (0) 721-68 03 81 33
E-Mail: info@union-instruments.com