Fluid.iO
SENSING FLUID EXCELLENCE

Pressure measurement

Pressure & differential pressure transmitters
Pressure limiters & pressure monitors
Safety pressure limiters

Reliable pressure measurement
Optimum process monitoring
Maximum safety

Fluid.iO
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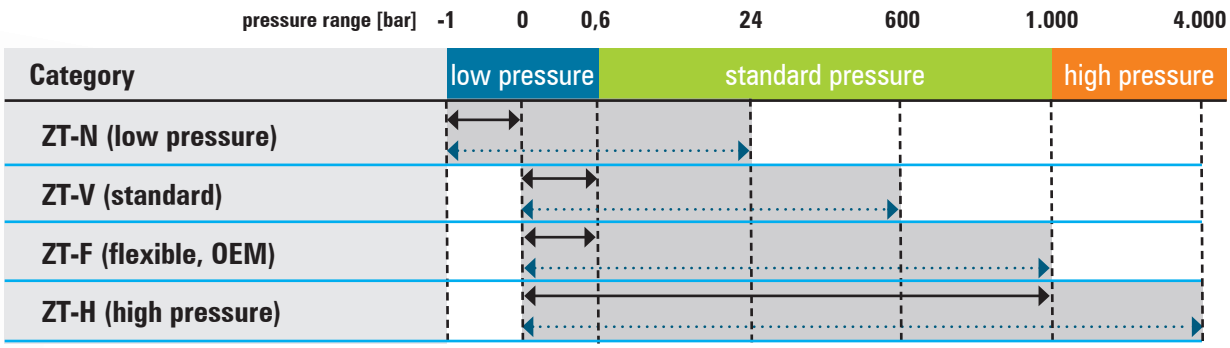
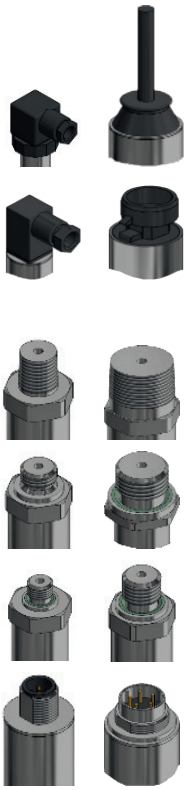
Pressure transmitters

Gauge and absolute pressure sensors

The ZT series: pressure transmitters - standardised, individual and versatile. Benefit from a wide range of selectable options so that you can find the right sensor for exactly your application.



Wide measuring range & various connection options



Category		ZT-V	ZT-N	ZT-F	ZT-H
pressure measurement range [bar]		0 …0,6 - 0 …600	-1 …0 - -1 …24	0 …0,6 - 0 …1.000	0 …1.000 - 0 …4.000
Output signal	0…10 V, 3-wire	✓	✓	✓	✓
	0…5 V, 3-wire	✗	✓	✓	✓
	0,5…4,5 V, ratiometric	✓	✓	✓	✓
	4…20 mA, 2-wire	✓	✓	✓	✓
	0…20 mA, 3-wire	✗	✓	✓	✓
Electrical connection (others on request)	DIN EN 175301-803 A	✓	✓	✓	✓
	DIN EN 175301-803 C	✓	✓	✓	✓
	Binder M12X1 (Series 713)	✓	✓	✓	✓
	Packard Metripack	✗	✓	✓	✓
	Cable (length on request)	✗	✓	✓	✓
Prozessanschluss (andere auf Anfrage)	G 1/2" Adapter	✗	✓	✓	✗
	G 1/4" DIN3852-2 (Male Form A)	✗	✓	✓	✗
	G 1/4" ISO 1179-2 (Male Form E)	✓	✓	✓	✗
	1/4" NPT	✓	✓	✓	✗
	1/8" NPT Male	✗	✓	✓	✗
	M10x1 ISO 9974-2 (Male Form E)	✗	✓	✓	✗
	M14x1.5 ISO 9974-2 (Male Form E)	✗	✓	✓	✗
	M16x1.5 Female with sealing cone	✗	✗	✗	✓
	M18x1.5 Male with sealing cone	✗	✗	✗	✓
	7/16" 20 UNF Male	✓	✓	✓	✗
	9/16" 18 UNF Male	✗	✓	✓	✗

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CANopen and differential pressure transmitters

Reasons for Fluid.iO pressure transmitters from the ZT series

No O-ring & no silicone oil
+ Long-term tightness
+Long-term stability

Electronic calibration
+ low total error

compatible with all media
suitable for stainless steel

Hermetically welded
stainless steel diaphragm
+ Long-term tightness

Selectable pressure range
-1…4.000 bar

Modular design
+ wide range of connection options

Robust and compact design
+ high reliability

Piezoresistive measuring principle
+ Long-term stability

Pressure transmitter with CANopen interface

Ideal for the automotive sector as well as for (mobile) machines and test benches

Technical specifications

- ✓ Protocol: CANopen 2.0 A with LSS slave function
- ✓ Physical layer: according to DIN 11898
- ✓ Measuring grid: from 5 ms
- ✓ Measuring resolution: 10 bit
- ✓ Integrated sensor signal processing (CMOS)
- ✓ EMC and ESD tested: EN-50082-1 and EN 50082-2
- ✓ Operating temperature range: -40 °C … +80 °C
- ✓ Vibration resistance: 10 g at 20-1,000 Hz

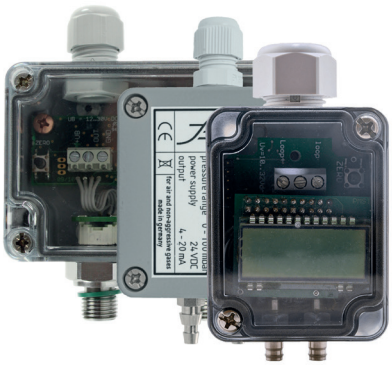
Product features

- ✓ Long-term stable, piezoresistive measuring principle
- ✓ High reliability, robust housing (IP65), vibration-resistant
- ✓ High accuracy, < 1.5 % FS total error
- ✓ Selectable measuring range up to 4,000 bar

The CANopen protocol uses the CAN bus as a transmission medium and defines the basic structures for network management, the use of the CAN identifier (message address), the temporal behaviour on the bus, the type of data transmission and application-related profiles. This ensures that CANopen modules from different manufacturers can be combined. Thanks to the high fault tolerance and powerful fault detection, the CAN bus can also be used in industrial environments with interference.

Differential pressure sensors for low and high pressures, ready for almost any fluid

- ✓ Excellent for measuring the smallest pressure differences
- ✓ Design in application-specific pressure ranges
- ✓ Robust housing designs with or without LCD display
- ✓ Measuring range switchover



Differential pressure transmitter for air, non-aggressive gases, oils & liquids

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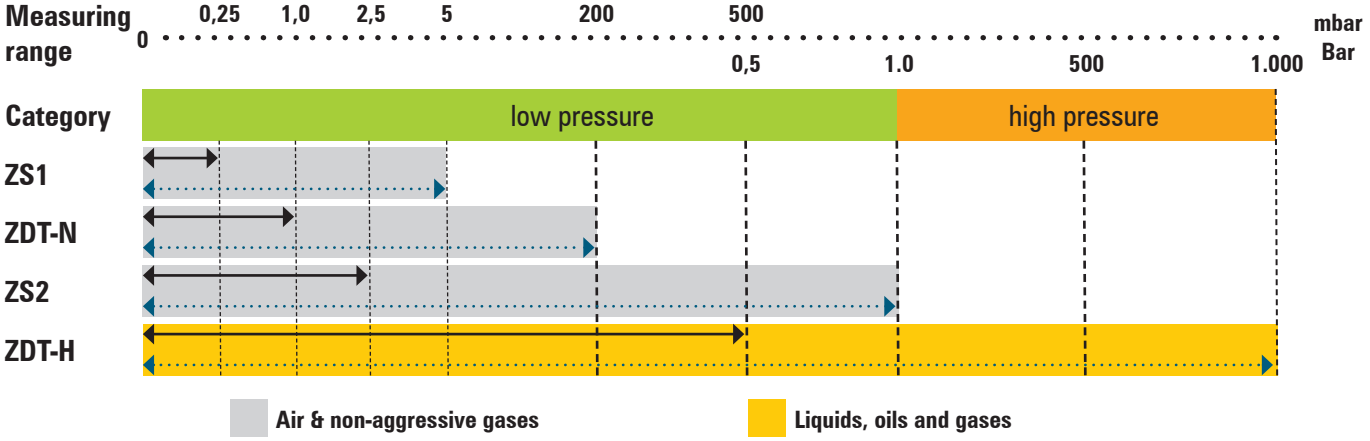
Differential pressure sensors

Overview of pressure ranges of Fluid.iO differential pressure sensors



Differential pressure sensors for air and non-aggressive gases

ZDT-N

Technical specifications & options

Output: optionally 0...10 V or 4...20 mA
Operating temperature range: -10 °C to +50 °C
Hose process connection: 3.5 mm or 5.5 mm
4-digit LCD display optionally available

- ✓ Measuring ranges, 4 variants with 0...1 mbar up to 0...500 mbar as well as additional measuring range switchover
- ✓ Long-term stable, piezoresistive measuring principle
- ✓ High accuracy, ± 1.5 % FS
- ✓ Small measuring error, zero point adjustment after installation

- ✓ variable measuring range
- ✓ high reliability
- ✓ maintenance-free
- ✓ media-compatible
- ✓ high long-term stability

Differential pressure sensors for air and non-aggressive gases

- ✓ Measuring ranges, variants from 0...2.5 mbar up to 0...1,000 mbar
- ✓ High reliability, robust aluminium housing (IP65)
- ✓ Long-term stable, piezoresistive measuring principle
- ✓ High accuracy at very low pressures
- ✓ Excellent EMC properties

ZS1 / ZS2

Technical specifications & options

Output: optionally 0...10 V or 4...20 mA	Hose process connection: 4 mm or 6 mm
EMC and ESD tested: EN 50082-1 and EN 50082-2	Operating temperature range: -20 °C to +50 °C

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Pressure switches, pressure limiters & safety pressure limiters

Differential pressure transmitter for liquids, oils and gases

ZDT-H

- ✓ Measuring range 0.5...1,000 bar incl. measuring range switchover
- ✓ Long-term stable, piezoresistive measuring principle
- ✓ Robust housing, protection class IP65
- ✓ Low measurement error, zero point correction after installation
- ✓ 4-digit LCD-Display optional (IP55)

Technical specifications

- ✓ Output: optionally 0...10 V or 4...20 mA (2- and 3-wire)
- ✓ Maximum total error of < 2.5% FS
- ✓ G ¼ inch process connection (others on request)
- ✓ Operating temperature range: 0 °C to +50 °C

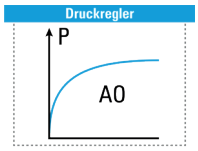
High-precision monitoring and limitation of pressures

Electronic pressure switches, pressure limiters and safety pressure limiters in accordance with the Pressure Equipment Directive PED 2014/68/EU

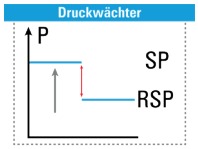
The products of the ES family are electronic safety switching devices for pressure monitoring with comprehensive self-diagnostic functions and fail-safe design.

ES-2.. ELECTRONIC SAFETY SWITCHING DEVICE FOR PRESSURE MONITORING

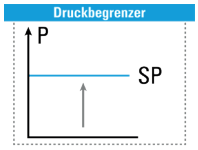
Overview of the safety functions



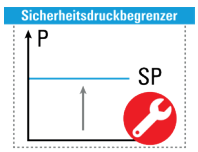
Pressure regulator
The response of the device to pressure changes can be freely defined by entering parameters, e.g. two-point controller, PID controller, etc. Additional functions can be added at the customer's request.



Pressure monitor (PSH, DWK)
Setting a switching point and a reset point (hysteresis)
Das Gerät wird automatisch zurückgesetzt bzw. entriegelt.



Pressure limiter (PZH, DBK)
Einstellung eines Schaltpunktes
Resetting and unlocking is done manually on the device (without tools).



Safety pressure limiter (PZHH, SDBK)
Einstellung eines Schaltpunktes
Resetting and unlocking is done manually with a tool directly on the device.

Norms & Approvals

- ✓ Type-tested in accordance with the Pressure Equipment Directive PED 2014/68/EU
- ✓ DIN EN 12263:1998 (Refrigerating systems and heat pumps - Safety switching devices for pressure limitation - Requirements and tests; Category IV)
- ✓ DIN EN 378:2020 (Refrigerating systems and heat pumps - Safety and environmental requirements)
- ✓ DIN EN 61508: 2011 (SIL2)

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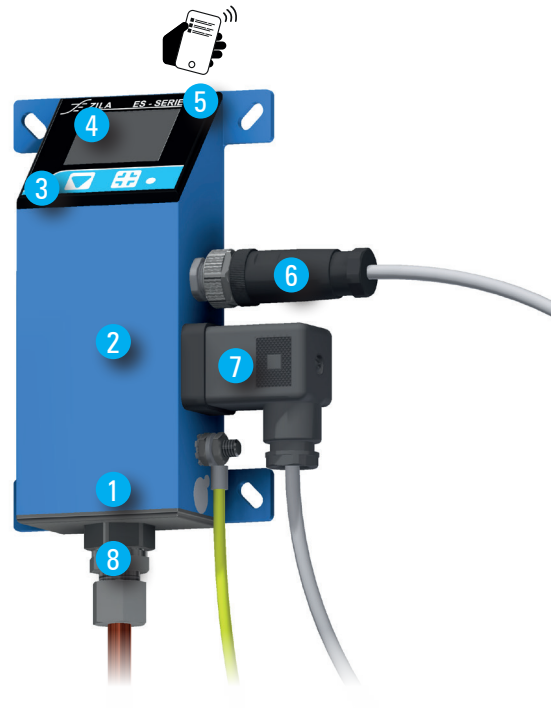
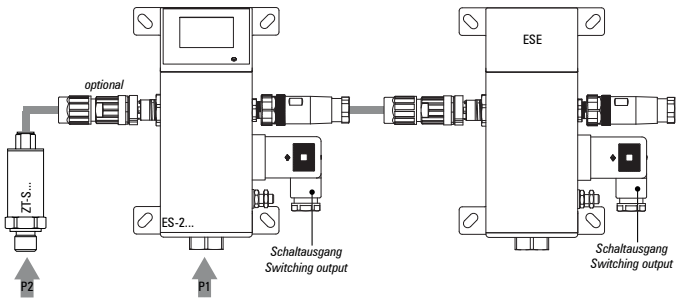
Pressure monitoring and safety pressure devices

#	Device setup
1	Pressure monitoring in redundant design
2	Electronic components and switching relay
3	Buttons for device operation and manual unlocking
4	Display for measured values, alarm & status indication
5	Bluetooth for device connection with smartphone app
6	Power supply; analogue & digital signals
7	Connection of the switching channels
8	Process connection



Switching- & measuring channel extension



Technical specifications

Features	
Housing	Aluminium (anodised)
Dimensions	150 x 60 x 42 mm (L x W x H)
Operating voltage	16...32 V DC (max. 5,9 W)
Protection class	IP65
Operating conditions	
Parts in contact with media	Stainless steel
Pressure type	Gauge pressure Differential pressure
Media temperature	-40…+125 °C
Ambient temperature	-20…+65 °C
Process connection	
Version gauge pressure	G ¼“ internal thread
Version differential pressure	G ⅛“ Internal thread
Adapter for process connection	6mm; 8mm or 10mm others on request
Electrical connections	
Analogue current output	1x 4…20 mA
Digital inputs/outputs	Configurable as 2x alarm or 1x alarm and 1x remote unlocking
Load capacity of the switching contacts	DC1: 16 A (24 V) DC13: 1,5 A (24 V) AC1: 16 A AC3: 10 A AC15: 7 A
Measuring ranges	
Gauge pressure (nominal pressure)	variably selectable between -1...500 bar
Differential pressure (nominal pressure)	variably selectable between 0...1 mbar and 0...1,000 mbar
Setting accuracy	0.1 % of nominal pressure
System extension	
Switching channel extension	Depending on ES device via extension unit ESE
Measuring channel extension	depending on ES device up to 3 additional pressure sensors ZT-S

Compatible with all common refrigerants in accordance with DIN EN 378 Para. 3.7.1, e.g:

R290 - Propane **R717 - Ammonia** **R744 - CO2**

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ES-2x series: Device variants & functions

ES-2x series: Overview of device variants & functions

Product feature	ES20	ES21	ES22
Certifications			
SIL-2	✓	✓	✓
DGRL 2014/68/EU (type-tested)	✗	✓	✓
Safety functions			
Selectable safety functions	freely selectable	1	2
Pressure regulator	✓	✗	✗
Pressure monitor	✓	✓	✓
Pressure limiter	✓	✓	✓
Safety pressure limiter	✓	✗	✓
Measuring principle			
Gauge or absolute pressure	✓	✓	✓
Differential pressure	✓	✗	✗
Additional & comfort functions			
Wireless app communication	✓	✓	✓
4..20mA Signal output	✓	✓	✓
Measuring channel extension	✓	✗	✓
Switching channel extension	✓	✗	✓
Alarm output	✓	✓	✓
Remote unlocking	✓	✓	✓
Description	Customised safety functions for demanding applications & system applications	Pressure monitor or pressure limiter for individual applications with high customer benefits thanks to versatile comfort functions	Two combined safety functions in one device as well as all comfort functions for maximum safety and maximum user benefit

Overview of the expert and convenience functions

- Integrated data logger
- Leak test with test report
- Retrieve settings-, test- & activity logs from the device
- Self-diagnosis & fail-safe design
- Bluetooth connectivity & smartphone app

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Subject to technical changes.

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