

# Special-Sensors for Automation



## Pressure-Level

- Compact model
- Programmable
- Analog output
- Two switching points
- Level measuring



ISO 9001  
certified

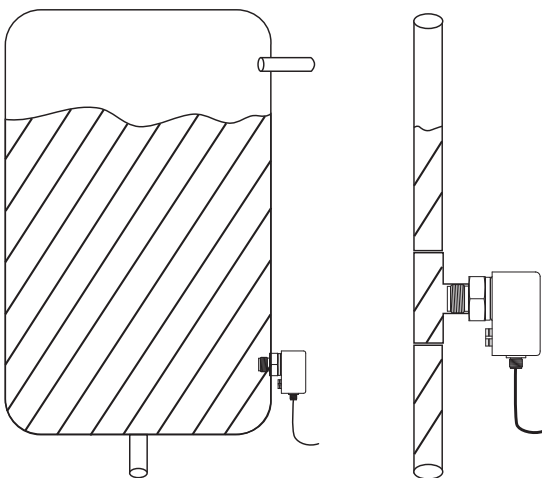
## Technology and application

### Usage

This high performance device monitors pressure levels in pipes and containers. However, the high accuracy of its capacitive ceramic gauge head makes it an effective fill level monitor as well. It can record fill levels with an accuracy of one centimeter in containers that stand five meters tall. Measurement instruments with a 1000 mbar measurement range have proven to be very useful for these types of applications. When measuring the fill level of water, 10 mbar of pressure corresponds to 10 cm water height. The instrument displays the pressure value digitally. The fill level measurement is not effected by foam on the liquid's surface. Suspended matter inside the container will not effect the measurement either - as long as the matter does not disturb the pressure distribution in the area surrounding the sensor membrane. The pressure sensor is a compact device that contains all the measurement and evaluation electronics. It is designed for use with 24 V DC. In addition to many programmable features, it also provides two PNP switch outputs and a 4 to 20 mA current output. Additionally we offer a model with 2 switching points and a rapid programming feature which can be used, for example, for minimum and maximum detection in a container. A model with one analog output only is also available.

### Functionality

The pressure sensor is designed to be screwed into the wall of a pressure container or a pipe. The medium contacts the sensor's ceramic gauge head directly. A pressure mediating fluid is not used. The dry capacitive gauge head provides a high level of overload stability. The medium pressure will cause the measurement membrane to deflect by a maximum of 0.03 mm. At maximum deflection, the membrane lies against the ceramic carrier, thereby enabling an instrument designed for a pressure range of 0 to 16 bar to withstand an overload or pressure spike of up to 64 bar without being damaged. When the overload passes, the membrane returns to its neutral position without exhibiting any hysteresis.



Installation of the pressure sensor

Deflection of the membrane against the ceramic carrier effects a capacity change that the integrated micro-processor-controlled evaluating electronics convert into a pressure-proportional DC signal of 4 to 20 mA. The measurement value is displayed on the four-digit LED display, whereby all values can be freely scaled to four digits with up to three decimal places.

The signal can be processed internally with buffering of up to 30 seconds, thereby making it possible to diminish pressure spikes in pipes.

Three buttons and a four-digit LED display enable the user to calibrate the sensor measurement range and to program the PNP switch outputs, and the buffering. Only a few button combinations are required to rapidly complete configuration.

Both integrated PNP switch outputs are freely programmable, allowing the user to adjust the limit value, hysteresis, and functionality type (normally closed or normally open) as needed. A LED signals the switching condition of the PNP switch outputs. The programmed data is stored in an EEPROM, providing security even in the event of power failure.

The sensors DN 752 GPP and DN 752 GA have a three-digit LED display and they allow a fast and easy programming for either two switchpoints or one analog output.

### Sealing materials

The sensor membrane must be resistant to the medium in which the sensor will be used. A fluoroelastomer (FPM) gasket is standard equipment.

### Resistance characteristics

Sign	FPM	EPDM	NBR	Kalrez
Trade name	Viton	Keltan	Perbunan	Kalrez
Water	++	++	++	++
Aromatic hydrocarbons	++	-	-	++
Halogenated solvents	+	-	-	+
Acid	++	+	-	++
Lye	-	++	+	++
Vegetable oil Animal fat	++	-	++	++
Fuel Lubricating oil Hydraulic oil	++	-	+	++

## Two switching points

Series DN 752

Monitoring sensor for gases and fluids

Fast and easy programming

Two independent switching points

7-segment display

Display rotatable



Design	DC PNP • G3/4	
Dimensions		
Sensing range [bar]	0...1 relative	0...16 relative
Output	2x  PNP NO	
ID-No.	P72014	P72015
Type	DN 752 GPP-01	DN 752 GPP-16
Supply voltage [V]	24 DC ±20%	
Switching current [mA]	200	
Current consumption [mA]	<50	
Ambient temperature [°C]	-20...+70	
Medium temperature [°C]	-20...+80	
Compressive strength [bar]	5	48
Sensor material	AISI 316 Ti	
Material gauge head	Ceramic	
Sealing material	FPM	
Housing material	PBT	
Protection [EN 60529]	IP 65	
Connection	M12 connector	
Accessories	Connecting cable Type SLG 4-2 (Z00445)	

## Analog output

### Series DN 752

Monitoring sensor for gases and fluids

Fast and easy programming

Analog output model

7-segment display

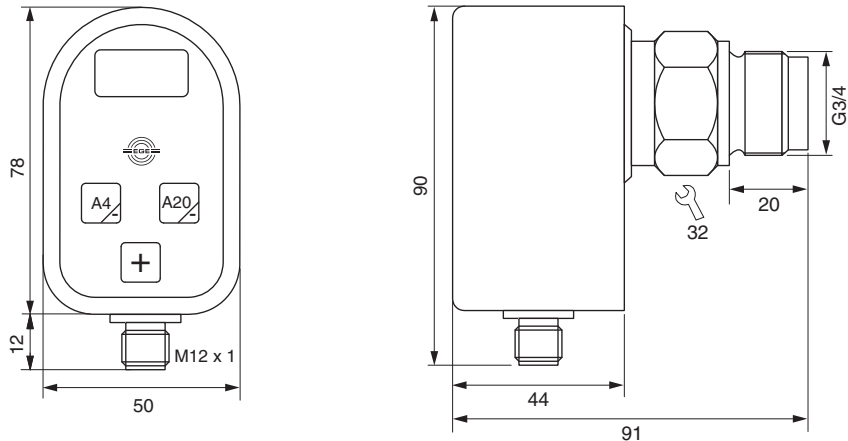
Display rotatable



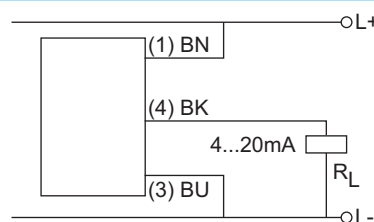
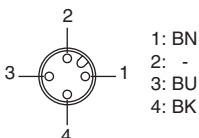
### Design

DC • G3/4

### Dimensions



Sensing range	[bar]	0...1 relative	0...16 relative
Output		4...20 mA	
ID-No.		P72016	P72017
Type		DN 752 GA-01	DN 752 GA-16
Supply voltage	[V]	24 DC ±20%	
Current output	[mA]	4...20 linear	
Load R <sub>L</sub>	[Ω]	200...500	
Current consumption	[mA]	<50	
Ambient temperature	[°C]	-20...+70	
Medium temperature	[°C]	-20...+80	
Compressive strength	[bar]	5	48
Sensor material		AISI 316 Ti	
Material gauge head		Ceramic	
Sealing material		FPM	
Housing material		PBT	
Protection	[EN 60529]	IP 65	
Connection		M12 connector	



### Accessories

Connecting cable Type SLG 3-2 (Z01076)

## Two switching points and analog output

Series DN 752

Monitoring sensor for gases and fluids

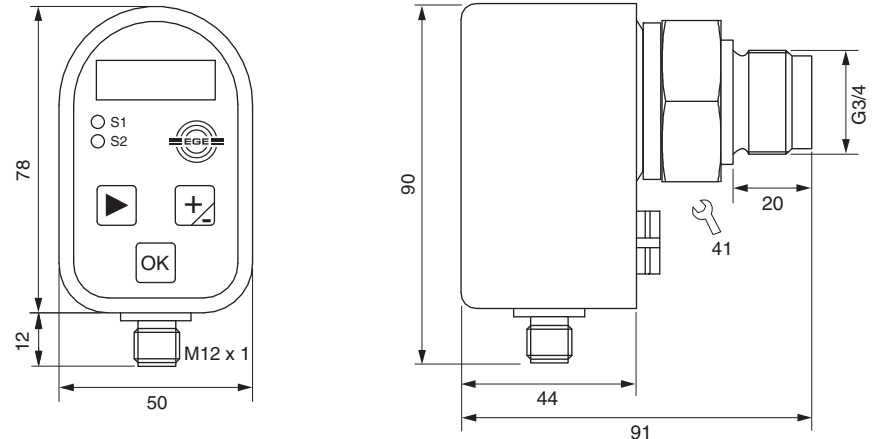


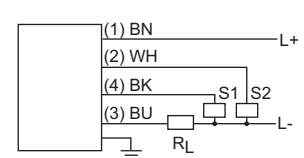
Linear current output 4...20 mA

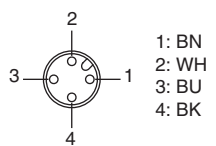
Two programmable switching points

NC/NO programmable

Display rotatable



Design	DC • G3/4	
Dimensions		
Sensing range [bar]	0...1 relative	0...16 relative
Output	2x  PNP NC/NO +  4...20 mA	
ID-No.	P72012	P72013
Type	DN 752 GAPP-01	DN 752 GAPP-16
Supply voltage [V]	24 DC ±10%	
Current output [mA]	4...20	
Switching current [mA]	200	
Load R <sub>L</sub> [Ω]	0...400	
Current consumption [mA]	20	
Ambient temperature [°C]	-20...+70	
Medium temperature [°C]	-20...+80	
Compressive strength [bar]	16	64
Sensor material	AISI 316 Ti	
Material gauge head	Ceramic	
Sealing material	FPM	
Housing material	PBT	
Protection [EN 60529]	IP 67	
Connection	M12 connector	
		
Accessories	Connection cable Type SLG 4-2 (Z00445)	



## Switching points and analog output

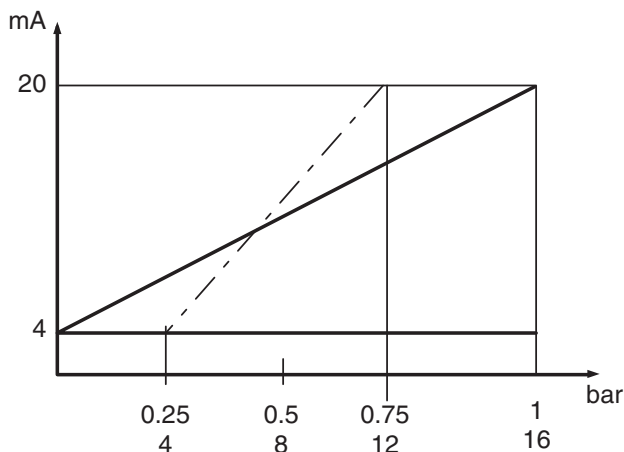
### Additional technical data DN 752 GAPP...

Output analog	4...20 mA	
Linearity	≤0.2%	of maximum value
Temperature drift	≤0.1% / 10 K	of maximum value
Long time drift	≤0.1% / Year	of maximum value
Influence of supply voltage	≤0.5% / 10 V	of maximum value
Input/output resolution	16 Bit	
Alignment range	zero point 0% - 95% / final point 3,3% - 100%	
Adjustment range of damping	0...30 seconds	

### Switching output

S1 / S2	PNP NO/NC programmable
Output voltage	+U <sub>B</sub> - 1.5 V
Time delay	< 8 ms
Rise time	< 400 μs with R <sub>L</sub> < 400 Ω or I <sub>L</sub> > 4.5 mA, respectively

### Characteristics



### Notice

Install signal and measurement wires separate from power-carrying wires. Use only shielded wires for signals and measurement. Ground the shield only on one side. Operate inductive loads like relays or auxiliary contactors (used to avoid voltage spikes) only with a recovery diode or a RC module.

Before installation, make sure that the sensor membrane's gasket is suitable for the medium you will use. Our factory provides a fluoroelastomer (FPM) gasket.

The sensor is delivered with pre-programmed default settings. You must first enter an access code if you wish to change the programmed parameters to meet your requirements. Please refer to the operating instructions manual for this code.

### Default setting

The pressure sensor is programmed at the factory to enable immediate use with a default setting for the analogue output. The digital display shows the current pressure value.

### Operational and display elements

The display has four digits and shows the current pressure during operation. The LEDs for the S1 (SP1) and S2 (SP2) switching points illuminate when the respective switch output is activated.

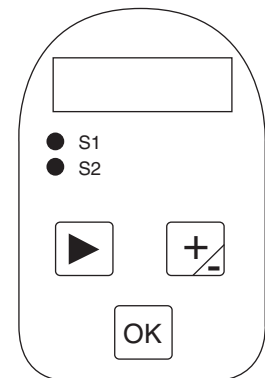
During the programming procedure, the LED display will show (alpha-numerically) either the numeral value just entered or the respective program step.

### Front view

7 segment Display

LED for each switching point

Keypad for programming



Program the sensor by means of the programming buttons:

**OK button:** Enter the submenu and accept the selected values.

**Arrow button:** Jumps from one spot in the menu to another. Changes the +/- button's direction of action. Changes the setting in a selection menu.

**+/- button:** Adjusts the displayed value. Hold this button depressed to run quickly through the values.

The operating instructions describe how to program the operational parameters.

## A selection

### Flow sensors

- Electronical monitoring of flow
- Lubrication monitoring
- Measuring range 1 ml/min...100 l/min
- Detection range 1...300 cm/s
- Reaction time 0.5 s

### Level sensors for Ex-applications

- For level monitoring in Ex areas
- For temperatures  $-35...+200\text{ }^{\circ}\text{C}$
- With PTFE connector cable
- Sensors for connection to amplifiers

### Level sensors

- For level monitoring  $-230...+230\text{ }^{\circ}\text{C}$
- Steam proof at a pressure of up to 30 bar
- For hot motor oil
- For liquid nitrogen
- For chemically aggressive media

### Ultrasonic sensors

- Switching distance up to 5000 mm
- Level monitoring
- Watertight housing
- Teach-in functions

### Temperature sensors

- Compact model with digital display
- Monitoring in pipes and containers
- Temperature  $-40...+120\text{ }^{\circ}\text{C}$  ( $\pm 0,3\text{ }^{\circ}\text{C}$ )
- Pressure up to 100 bar
- Multi use output NO/NC + analog

### Infrared detectors

- Measurement of temperature
- Monitoring of hot media
- Position control







**Headquarters  
EGE-Elektronik  
Spezial-Sensoren GmbH**

Ravensberg 34  
D-24214 Gettorf  
Tel. +49 (0) 4346 / 41580  
Fax +49 (0) 4346 / 5658

Internet: [www.ege-elektronik.com](http://www.ege-elektronik.com)



**EGE-Elektronik ApS**  
Forstallé 79  
DK-6200 Aabenraa  
Tel. +45 70207271  
Fax +45 70207272



**EGE-Specialsensorer AB**  
Box 137  
S-51223 Svenljunga  
Tel. +46 32512060  
Fax +46 32512064



**Stork AS**  
Brynsveien 100  
N-1352 Kolsås  
Tel. +47 67176400  
Fax +47 67176401



**Vision Systems OY**  
PL353  
FI-40101 Jyväskylä  
Tel. +358 (0)10 322 7100  
Fax +358 (0)10 322 7119



**Molex France**  
18 Parc Burospace  
F-91571 Bièvres Cedex  
Tel. +33 2 32 96 04 28  
Fax +33 2 32 96 04 21



**Cematic-Electric B.V.**  
Postbus 777  
NL-7550 AT Hengelo  
Tel. +31 742433422  
Fax +31 742913333



**ICM Ital Control Meters Srl**  
Via della Valle 67  
I-20048 Carate Brianza (Mi)  
Tel. +39 0362 8052 00  
Fax +39 0362 8052 01



**Bibus Spain, S. L.**  
Rúa do Arroncal, Vial C – Nave 4A  
ES-36350 Nigran  
Tel. +34 986 247286  
Fax +34 986 209247



**Powelectrics Limited**  
Sandy Hill Park, Sandy Way  
Amington, Tamworth  
GB-Staffordshire B77 4DU  
Tel. +44 1827310666  
Fax +44 1827310999



**Bachofen AG**  
Ackerstraße 42  
CH-8610 Uster  
Tel. +41 449441111  
Fax +41 449441233



**VWR International GmbH**  
Graumannsgasse 7  
A-1150 Wien  
Tel. +43 1 97 002 - 0  
Fax +43 1 97 002 - 600



**Countapulse Controls (PTY) LTD.**  
P.O.B. 40393  
ZA-2022 Cleveland  
Tel. +27 116157556  
Fax +27 116157513



**HITECH Ltd.**  
1-35-2 Simouma, Setagaya,  
JPN-Tokyo 154-0002  
Tel. +81 35430 2301  
Fax +81 35430 2302



**Micromax S&A P/L**  
Unit 2 106-110 Beaconsfield Street  
AUS-Silverwater NSW 2128  
Tel. +61 1300 362626  
Fax +61 1300 017100



**Protek Teknik Elektrik Ticaret ve Sanayi Ltd. Sti.**  
Okçumusa Cad. Kismet Han 94/2  
TR-80020 Karaköy/Istanbul  
Tel. +90 2122377982  
Fax +90 2122354609



**IAC & Associates**  
2180 Fasan Drive  
Oldcastle  
CDN-Ontario N0R 1L0  
Tel. +1 519 7370311  
Fax +1 519 7370314  
TF +1 800 711 1900



**Yuden-Tech Co., Ltd.**  
5F., No. 121, Lide St.,  
Zhonghe City, Taipei County 235,  
Taiwan (R.O.C.)  
Tel. +886 2 8221 2958  
Fax +886 2 8221 2492



**Shanghai Beishidietian Business Trade Co., Ltd.**  
4F, No. 88-1, Lane 7039,  
Zhongchun Rd., Minhang Area  
Shanghai City  
Tel. +86 21 54887307  
Fax +86 21 54887305



**CSE-W. Arthur Fischer Ltd.**  
15 Polaris Place, Greenmount  
NZ-East Tamaki, Auckland  
Tel. +64 9271 3810  
Fax +64 9265 1362



**Kolektor Synatec d.o.o.**  
Vojkova ul. 8b,  
PO Box 57  
SI-5280 Idrija  
Tel. +386 5 3720650  
Fax +386 5 3720660



**Introl Sp. z o.o.**  
ul. Kościuszki 112  
40-519 Katowice  
Tel. +48 32 789 00 00  
Fax +48 32 205 33 77



**Bibus Portugal, Lda**  
Rua 5 de Outubro, 5026  
4465-079 S.M. Infesta,  
Porto  
Tel. +351 22 906 50 50  
Fax +351 22 906 50 53



**Futron Electronics PTE Ltd.**  
1004 Toa Payoh North  
#04-08/09/10  
Singapore 318995  
Tel. +65 6250 2456  
Fax +65 6250 6592



**Useong Electrade Co.,**  
D-1006, Technopark  
No. 1345, Soha-dong, Gwangmyeong-si  
Gyeonggi-do,  
Korea  
Tel. +82 (0) 2 2686 7314  
Fax +82 (0) 2 2686 7316