

Special-Sensors for Automation



Temperature Sensors

- Compact model
- Programmable
- 2 Switching points
- Analog output



ISO 9001
certified

Technology and application

Functionality

The compact models TN 552 GPP and TN 552/1 GPP have two independent adjustable switching points. The compact models TN 552 GAPP and TN 552/1 GAPP have one independent adjustable switching point and one scalable 4...20 mA analog output.

The detecting range for fluids is from $-40\text{ }^{\circ}\text{C}$ to $+120\text{ }^{\circ}\text{C}$, the tolerance is $0.3\text{ }^{\circ}\text{C}$ ($0\text{...}80\text{ }^{\circ}\text{C}$).

The compact models TN 552... offer a window function as an alternative to the standard limit monitoring. Additionally, the NO/NC output function is programmable. Transient temperature changes can be bridged with a switch-on / switch-off time delay.

The push-buttons on the front of the sensor are used for programming the sensor functions. The programmed switching point and parameters are displayed and set by keyboard request. This function is possible while the sensor is measuring.

Temperature sensor with threaded sleeve allowing for exchange during ongoing operations

The temperature sensor TN 553 can easily be exchanged during ongoing operations. This is made possible through the use of a special stainless steel (AISI 316 Ti) threaded sleeve that is mounted in the tank or pipe. In this way the compact device can at any time be removed without compromising the seal of the tank or pipe. The temperature sensor measures temperatures from $-40\text{ }^{\circ}\text{C}$ to $+120\text{ }^{\circ}\text{C}$ and offers, among other features, two programmable switching points, freely selectable hysteresis and a temperature window function. The device is available as a 24 V DC device with PNP or analog output as well as a 230 V and 115 V AC model with Opto-MOS. Various cable lengths and optional plug-in or hardwire connections allow the device to be installed in various configurations. The thread is a G1/2 gauge.

Installation

EGE temperature sensors can be installed in standard T-pieces or welded T-pieces. The packing is made with an additional flat seal or with other suitable materials. Please note the temperature and pressure resistance of the seals for increased process conditions. Fixing the sensor in the T-pieces is only allowed on the screw head of the sensor. After the installation the display can be turned through an angle of 330 ° for best reading. In applications with temperature over $+80\text{ }^{\circ}\text{C}$ the sensor should be mounted from the side into the pipe.

Application

The hysteresis function is for controlling a temperature value. A limiting value can be programmed in this mode. As soon as the measured temperature is higher than the programmed limiting value, the output signals are switched as programmed (NC or NO). The hysteresis value is the difference temperature for the switch-on and switch-off signal of the limiting value. An additional time delay for the switching signals can be programmed for each switching point.

In the frame function mode the switching function is set depending of a programmed temperature range. The temperature range starts with the programmed lower value and end with programmed upper frame value.

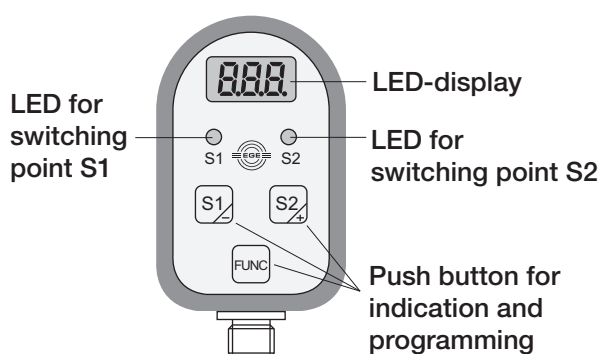
The time delay for the switching signal can also be used in this switching mode.

The analog output can be use for transmitting the temperature and getting the proportional current. For that you assign one temperature for the 4 mA first-value and one temperature for the 20 mA last-value in the programming mode. Between the temperature values it is permissible to have a minimal difference of $16\text{ }^{\circ}\text{C} / 29\text{ }^{\circ}\text{F}$.

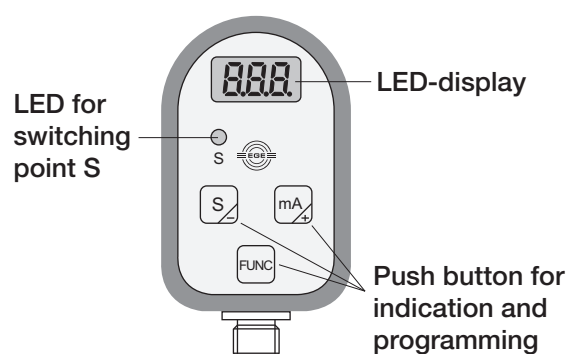
Color code:

BK = black BN = brown BU = blue WH = white

TN 552... GPP
TN 553... GPP/WP



TN 552... GAPP
TN 553... GAPP



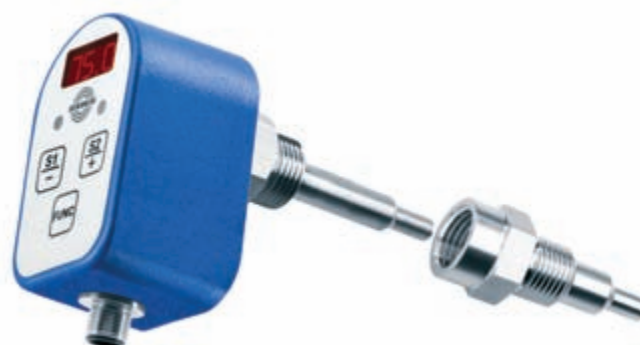
Two switching points and analog output

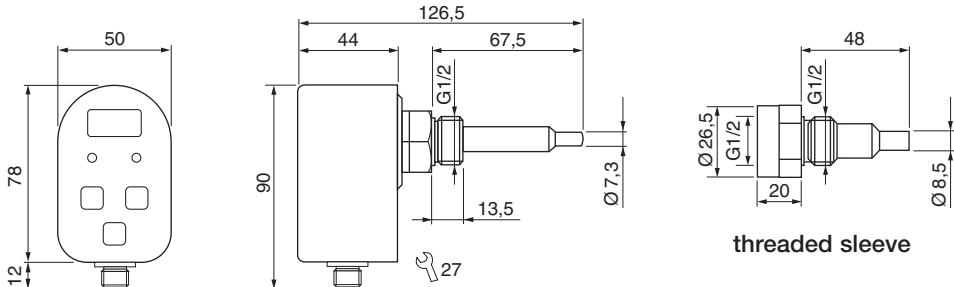



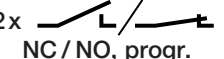
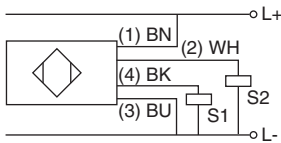
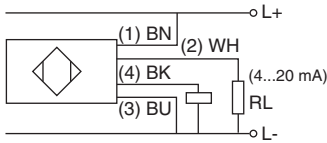
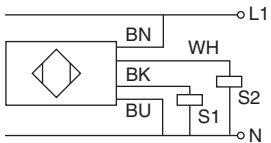
Series TN 553

Exchangeable during ongoing operations through use of threaded sleeve

Measuring range $-40...+120\text{ }^{\circ}\text{C}$

Two switching points, hysteresis and temperature window easily programmable



Design	DC • G1/2		AC • G1/2
Dimensions			
Detection range [°C]	-40...+120		
Output	2x  PNP NC/NO	 +  4...20 mA	2x  NC/NO, progr.
ID-No.	P71021	P71022	P71023
Type	TN 553/1 GPP	TN 553/1 GAPP	TN 553/1 WP
Supply voltage [V]	24 DC $\pm 10\%$	24 DC $\pm 10\%$	230 AC $\pm 10\%$
Current consumption [mA]	60	60	20
Voltage drop [V]	<2.5	<2.5	<10
Ambient temperature [°C]	-20...+60		
Medium temperature [°C]	-40...+120		
Response time [s]	typ. 10...30		
Resolution display [°C]	0.1		
Range limit values [°C]	-39...+120 (0.5 / 1 Step)		
Range hysteresis [°C]	0.5...99 (0.5 / 1 Step)		
Range window [°C]	0.5...99 (0.5 / 1 Step)		
Time delay [s]	0...50 (0.5 / 1 Step)		
Programmable functions	two switching points, hysteresis/window, switching output NC/NO, MIN-/MAX- memory function		
Compressive strength [bar]	20		
Housing material	housing: PBT sensor and sleeve: AISI 316 Ti		
Protection [EN 60529]	IP 65		
Connection	M12 connector	1/2"-20UNF, 5-pol.	
Accessories	2x flat gasket, threaded sleeve, heat conducting paste		
			

Two switching points

Series TN 552

Measuring range

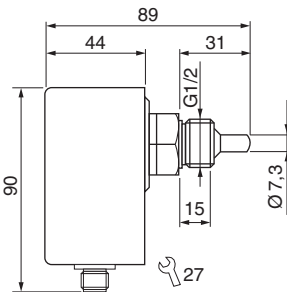
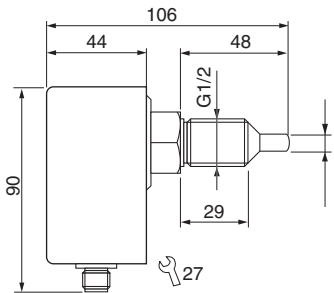

-40 °C...+120 °C / -40 °F...+248 °F

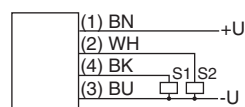
Two switching points, hysteresis and temperature window easily programmable

Rotable display

Switch-over °C - °F



Design	DC • G1/2 • L= 31 mm	DC • G1/2 • L= 48 mm
Dimensions		
Detection range [°C/°F]	-40...+120 °C (-40...+248 °F)	
Output	2x  PNP NC/NO	
ID-No.	P71017	P71018
Type	TN 552 GPP	TN 552/1 GPP
Supply voltage [V]	24 DC ±10%	
Current consumption [mA]	<100	
Voltage drop [V]	<2.5	
Switching current [mA]	200	
Ambient temperature [°C]	-20...+60	
Medium temperature [°C]	-40...+120	
Response time [s]	typ. 10	
Resolution display [°C/°F]	0.1 / 0.5	
Range limit values [°C/°F]	-39...+120 / -39...248	(0.5 / 1 Step)
Range hysteresis [°C/°F]	0.5...99 / 1...179	(0.5 / 1 Step)
Range window [°C/°F]	0.5...99 / 1...179	(0.5 / 1 Step)
Time delay [s]	0...50	(0.5 / 1 Step)
Programmable functions	two switching points, hysteresis/window, switching output NC/NO, MIN-/MAX- memory function	
Compressive strength [bar]	100	
Housing material	housing: PBT sensor: AISI 316 Ti	
Protection [EN 60529]	IP 65	
Connection	M12 connector	



Switching point and analog output

Series TN 552

Measuring range

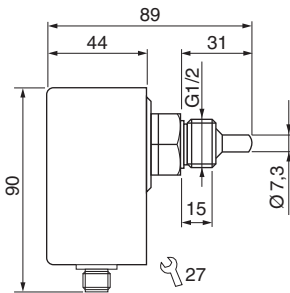
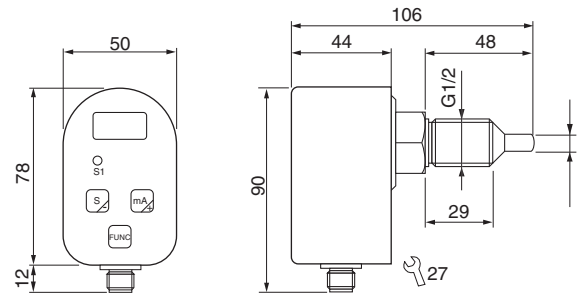

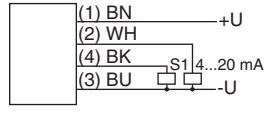
-40 °C...+120 °C / -40 °F...+248 °F

Switching point and analog output, hysteresis and temperature window easily programmable

Rotable display

Switch-over °C - °F

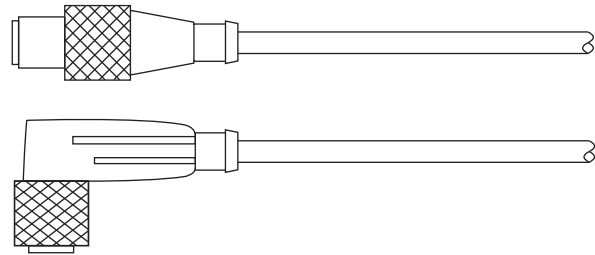


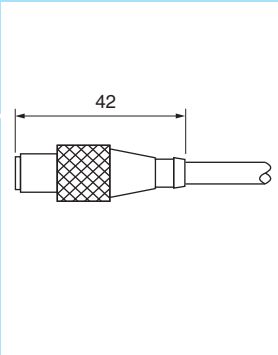
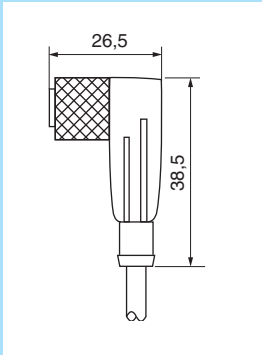
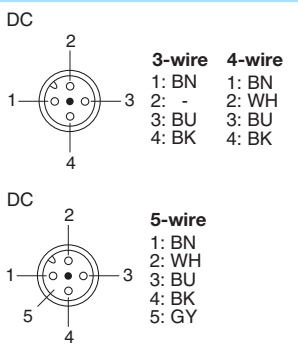
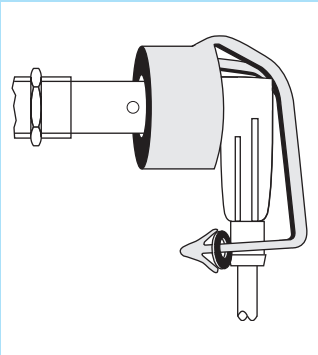
Design	DC • G1/2 • L= 31 mm	DC • G1/2 • L= 48 mm
Dimensions		
Detection range [°C/°F]	-40...+120 °C (-40...+248 °F)	
Output		
ID-No.	P71019	P71020
Type	TN 552 GAPP	TN 552/1 GAPP
Supply voltage [V]	24 DC ±10%	
Current consumption [mA]	<200	
Voltage drop [V]	<2.5	
Analog output [mA]	4...20, scalable, Detection range min. 16 °C / 29 °F	
Switching current [mA]	200	
Ambient temperature [°C]	-20...+60	
Medium temperature [°C]	-20...+120	
Response time [s]	typ. 10	
Resolution display [°C/°F]	0.1 / 0.5	
Range limit values [°C/°F]	-39...+120 / -39...248	(0.5 / 1 Step)
Range hysteresis [°C/°F]	0.5...99 / 1...179	(0.5 / 1 Step)
Range window [°C/°F]	0.5...99 / 1...179	(0.5 / 1 Step)
Time delay [s]	0...50	(0.5 / 1 Step)
Programmable functions	one switching point, hysteresis/window, switching output NC/NO, MIN- / MAX- memory function	
Compressive strength [bar]	100	
Housing material	housing: PBT sensor: AISI 316 Ti	
Protection [EN 60529]	IP 65	
Connection	M12 connector	
		
Accessories	see page 7.06	

Accessories

M12 connector System SL

Finished cable plug casing Self locking screw plug Protection IP 67



Cable plug housing straight	Cable plug housing angular	Pin-assignment	Plug-lock
		<p>DC</p>  <p>3-wire 1: BN 2: - 3: BU 4: BK</p> <p>4-wire 1: BN 2: WH 3: BU 4: BK</p> <p>5-wire 1: BN 2: WH 3: BU 4: BK 5: GY</p>	
SLG...	SLW...	DC	PL-M12

TYPE	ID-NO.	DESIGN	
SLG 3-2	Z01076	Cable plug housing M12 DC, straight	2 m PVC-cable 3x0.34 mm ²
SLG 3-5	Z01077	Cable plug housing M12 DC, straight	5 m PVC-cable 3x0.34 mm ²
SLW 3-2	Z01078	Cable plug housing M12 DC, angular	2 m PVC-cable 3x0.34 mm ²
SLW 3-5	Z01079	Cable plug housing M12 DC, angular	5 m PVC-cable 3x0.34 mm ²
SLW 3-2-LED	Z00052	Cable plug housing M12 DC, angular	2 m PVC-cable 3x0.34 mm ² PNP with LED
SLG 4-2	Z00445	Cable plug housing M12 DC, straight	2 m PVC-cable 4x0.25 mm ²
SLG 4-5	Z00449	Cable plug housing M12 DC, straight	5 m PVC-cable 4x0.25 mm ²
SLW 4-2	Z00446	Cable plug housing M12 DC, angular	2 m PVC-cable 4x0.25 mm ²
SLW 4-5	Z00450	Cable plug housing M12 DC, angular	5 m PVC-cable 4x0.25 mm ²
SLW 4-2-LED	Z01157	Cable plug housing M12 DC, angular	2 m PVC-cable 4x0.25 mm ² PNP with LED
SLG 5-2	Z01150	Cable plug housing M12 DC, straight	2 m PVC-cable 5x0.34 mm ²
SLW 5-2	Z01151	Cable plug housing M12 DC, angular	2 m PVC-cable 5x0.34 mm ²
PL-M12	Z01182	Plug-lock for sensors in Ex areas	

TECHNICAL DATA

Protection	IP 67	Rated voltage	250 VDC
Contact resistance	≤ 5 mΩ	Insulation resistance	>10 ⁹ Ω
Switching resistance	4A (CSA=3A)	Testing voltage	2.0 KV eff.
Temperature range	-25...+80 °C		

Note

Sensors with NC output are connected to 4 pole cable plug housings. In this case, the break output is connected to the white lead (connection 2).

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 $-230...+230\text{ }^{\circ}\text{C}$
- For hot motor oil
- For liquid nitrogen
- For leakage detection
- For chemically aggressive media

Ultrasonic sensors

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

Pressure sensors

- Monitoring in pipes and containers
- Pressure up to 16 bar
- Level up to 10 m ($\pm 1\text{ cm}$)
- Compact models
- Programmable

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



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



Opto-Control OY
Yrittäjätie 2 B
FI-01800 Klaukkala
Tel. +358 108309100
Fax +358 108309101



Woodhead Connectivity s.a.
57, Rue Jacquard - Z.I.
F-77400 Lagny Sur Marne
Tel. +33 164309136
Fax +33 164309105



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.
Avda. Ricardo Mella, 117D
ES-36330 Vigo
Tel. +34 986 247286
Fax +34 986 209247



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



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



**Trenka Industriebedarf
Handelsgesellschaft mbH**
Czeija-Nissl Gasse 7
A-1211 Wien
Tel. +43 12782130-0
Fax +43 12782130-41



EMS Electronics Ltd.
Ballycarney, Green Road
IRL, Carlow
Tel. +353 599141768
Fax +353 599137988



**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
5 Orangegrove Avenue
AUS-Unanderra NSW 2526
Tel. +61 2 4223 7600
Fax +61 2 4271 8091



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



Sircon Controls Ltd.
5359 Timberlea Blvd., Unit 36,
Mississauga
CDN-Ontario L4W 4N5
Tel. +1 9052389505
Fax +1 9052388380



YUDEN ELECTRIC CO., LTD
No. 161, Sec. 2. Wen-Huah Rd.,
Panchiao City
Taipai County, Taiwan 22049
Tel. +886 2 2255 3721
Fax +886 2 2250 6016



CSE-W. Arthur Fischer Ltd.
15 Polaris Place, Greenmount
NZ-East Tamaki, Auckland
Tel. +64 9 271 3810
Fax +64 9 265 1362



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