

# Special-Sensors for Automation



## FLOW CONTROLLER

**Inline series SDN 552 + SDV 652**

- **Flow monitoring**
- **Flow measuring**
- **Flow indication**
- **Programmable functions**
- **Tube fittings Ø10 - Ø15 - Ø18**



**ISO 9001  
certified**

# FLOW CONTROLLER

## Brief Descriptions



### Flow monitoring and measuring

The EGE-inline flow controllers with digital display monitor flow rates in the range 1...40 l/min and display the flow rate digitally. The application area includes all areas of flow monitoring, in which a flow display is desired.

#### Series SDN 552 – thermal principle

The SDN 552 series is based on the thermodynamic principle, heat is created in a measuring pipe and absorbed by the passing medium. The dissipated heat quantity is a measurement for the flow speed. A microprocessor processes this data, calculates the flow rate quantity and displays the result in liters/minutes in a 3-digit, 7-segment display.

#### Series SDV 652 – vortex principle

The flow measurement devices Series SDV 652 are based on the vortex principle. They are well suitable for applications, where a good linearity and larger measurement precision is necessary. They are insensitive to quick temperature changes and the reaction time of the device is below one second. The vortex principle allows a flow measurement without moving parts: Behind a bluff body in the flow, vortices are generated which are detected by the device and yield the flow velocity.

### Applications

These devices are especially suitable for **flow rate monitoring in cooling systems** due to the greater functionality, as well as easy programming and installation.

These devices are characterized by short response times and robust display values, even if the medium is subject to large temperature fluctuations as to be found in **welding technology in the automotive industry**.

In the display, the flow rate value, which is continuously updated, is displayed in l/min. The person responsible for the plant or the machine has thus constantly the **information on the available cooling performance**.

**Industrial climate control units** are often operated with a **water-glycol mixture** in the secondary cycle due to the danger of freezing. The glycol fraction can be programmed in the SDN 552 menu in a couple of seconds to ensure a correct value is also displayed in the application.

### Dimensions

The EGE-inline flow controllers have an extremely robust and thick-walled housing, which is manufactured from the plastic PBT. Measuring 100 x 43 x 70 (L x W x H in mm), they have an extremely compact design and can be easily integrated into many applications. There are four threaded sockets at the housing bottom, which are intended for direct mounting or fixing the corresponding mounting plate. The mounting plate as well as the fastenings are available as accessories. The process connection is carried out using compression-type fittings for smooth pipes with an outside diameter of 10, 15 or 18 mm.

### Switching output

Two switching outputs for the ...GPP versions or one for the GAPP designs can, as the PNP transistor output, switch loads up to 200 mA. They are short-circuit proof and can be programmed as normally-closed contacts or normally-open contacts.

### Time delay

Flow breaks caused by air pockets or short-term falls in pressure are filtered out with a time-out and not output as a fault detection signal. For this, you have the option of separately programming a delay time for every switching output. This function is also available for flow rate increases.

### Signal filter

It often happens that fluids contain small gas bubbles or air bubbles which can result in erroneous measurements in the case of many measuring principles. A programmable signal filter can be used to greatly reduce these very short-term flow breaks as well as flow turbulences. The signal filter smoothes extreme values and avoids false alarms.

### Access code

Protection against unauthorized access to the programming functions provides an access code. Without this number combination, only the currently saved values for the switching points and further parameters can be displayed.

### Reference adjustment

The accuracy of the displayed flow rate quantity can be optimized with the CAL function using an exact reference flow rate meter. Here you have the option to modify the displayed flow rate value and adapt it to the reference value.

### Medium preselection SDN 552

Besides water, a water-glycol mixture is also often used as a heat carrier in cooling systems. Due to the changed thermal properties of the fluid through the incorporation of glycol, the accuracy of the displayed flow rate value is affected and the limit values are also changed. To correct this effect, the devices of the SDN 552 type series have a function for selecting the measurement medium. Glycol fractions up to 30% can be entered. The microprocessor working in the device then calculates the flow rate quantities considering the glycol fraction.

Terminology: see our main booklet „Flow controllers and air flow controllers“.

# FLOW CONTROLLER

## Inline-Compact with digital display



Series SDN - thermal principle

Flow- and temperature monitoring  
of water and water-glycol mixtures

Programmable

2x PNP output



Design	SDN 552...		
Dimensions			
Medium	water / glycol (0, 5, ..., 25, 30%)		
Working range [l/min]	1...10	2...20	4...40
Outer diameter pipe [mm]	10	15	18
Pipe connection	tube fittings for steel tubes according to DIN 2391 / ISO 3304		
Output	2x PNP  /  2x PNP NO/NC, programmable		
ID-No.	P11293	P11294	P11295
Type	SDN 552/1 GPP	SDN 552/2 GPP	SDN 552/3 GPP
Switching current [mA]	200		
Supply voltage [V]	24 DC ±10%		
Current consumption [mA]	<100		
Ambient temperature [°C]	0...60		
Medium temperature [°C]	-10...90		
Temperature gradient [K/min]	400		
Start-up time [s]	6...10		
Reaction time [s]	1...8		
Programmable functions	switching point, hysteresis, switching output, time on/off delay, glycol percentage, adjustable to reference, averaging, access code		
Temperature control [°C]	-10...90 (alternative switching point S2)		
Compressive strength [bar]	20		
Display flow	7-Segment / 3-digits		
Material	housing: PBT sensor: AISI 316 Ti / FKM		
Protection [EN 60529]	IP 65		
Connection	M12 connector		
Accessories	Connecting cable type SLG, mounting plate, adapter G1/2, adapter G1/4		

# FLOW CONTROLLER

## Inline-Compact with digital display



### Series SDN - thermal principle

Flow- and temperature monitoring  
of water and water-glycol mixtures

Programmable

Analog- and PNP output



Design	SDN 552...		
Dimensions	<p style="text-align: right;">optional: Mounting plate (Z01178)</p>		
Medium	water / glycol (0, 5, ..., 25, 30%)		
Working range [l/min]	1...10	2...20	4...40
Outer diameter pipe [mm]	10	15	18
Pipe connection	tube fittings for steel tubes according to DIN 2391 / ISO 3304		
Output	PNP NO/NC, programmable                  4...20 mA, linear		
ID-No.	P11296	P11297	P11298
Type	SDN 552/1 GAPP	SDN 552/2 GAPP	SDN 552/3 GAPP
Switching current [mA]	200		
Load $R_L$ [ $\Omega$ ]	200...500		
Supply voltage [V]	24 DC $\pm 10\%$		
Current consumption [mA]	< 100		
Ambient temperature [ $^{\circ}\text{C}$ ]	0...60		
Medium temperature [ $^{\circ}\text{C}$ ]	-10...90		
Temperature gradient [K/min]	400		
Start-up time [s]	6...10		
Reaction time [s]	1...8		
Programmable functions	Switching point, hysteresis, switching output, time on/off delay, glycol percentage, adjustable to reference, averaging, access code		
Temperature control [ $^{\circ}\text{C}$ ]	-10...90 (alternative switching point S)		
Compressive strength [bar]	20		
Material	housing: PBT sensor: AISI 316 Ti / FKM		
Protection [EN 60529]	IP 65		
Connection	M12 connector		
Accessories	Connecting cable type SLG, mounting plate, adapter G1/2, adapter G1/4		

# FLOW CONTROLLER

## Inline-Compact with digital display



### Series SDN - thermal principle

Flow- and temperature monitoring  
of water and water-glycol mixtures

Programmable

2x PNP output flow

2x PNP output temperature



Design	SDN 554...		
Dimensions			<p>optional: Mounting plate (Z01178)</p>
Medium	water / glycol (0, 5, ..., 25, 30%)		
Working range [l/min]	1...10	2...20	4...40
Outer diameter pipe [mm]	10	15	18
Pipe connection	tube fittings for steel tubes according to DIN 2391 / ISO 3304		
Output	flow: 2x  2x PNP NO/NC, programmable		temperature: 2x  2x PNP NO/NC, programmable
ID-No.	P11313	P11314	P11315
Type	SDN 554/1 GPP	SDN 554/2 GPP	SDN 554/3 GPP
Switching current [mA]	100		
Supply voltage [V]	24 DC ±10%		
Current consumption [mA]	100		
Ambient temperature [°C]	0...60		
Medium temperature [°C]	-10...90		
Temperature gradient [K/min]	400		
Start-up time [s]	6...10		
Reaction time [s]	1...8		
Programmable functions	switching point, hysteresis, switching output, time on/off delay, glycol percentage, adjustable to reference, averaging, access code		
Temperature control [°C]	-9,8...90, 2 switching points		
Compressive strength [bar]	20		
Display flow	7-Segment / 3-digits		
Material	housing: PBT sensor: AISI 316 Ti / FKM		
Protection [EN 60529]	IP 65		
Connection	M12 connector		
Accessories	Connecting cable type SLG, mounting plate, adapter G1/2, adapter G1/4		

# FLOW CONTROLLER

## Inline-Compact with digital display



### Series SDN - thermal principle

Flow- and temperature monitoring  
of water and water-glycol mixtures

Programmable

Analog output flow

Analog output temperature



Design	SDN 552...		
Dimensions			
Medium	water / glycol (0, 5, ..., 25, 30%)		
Working range [l/min]	1...10	2...20	4...40
Outer diameter pipe [mm]	10	15	18
Pipe connection	tube fittings for steel tubes according to DIN 2391 / ISO 3304		
Output	flow:  4...20 mA, linear	temperature:  4...20 mA, linear	
ID-No.	P11316	P11317	P11318
Type	SDN 552/1 GAA	SDN 552/2 GAA	SDN 552/3 GAA
Load R <sub>L</sub> [Ω]	200...500		
Supply voltage [V]	24 DC ±10%		
Current consumption [mA]	100		
Ambient temperature [°C]	0...60		
Medium temperature [°C]	-10...90		
Temperature gradient [K/min]	400		
Start-up time [s]	6...10		
Reaction time [s]	1...8		
Programmable functions	glycol percentage, adjustable to reference, averaging, access code		
Compressive strength [bar]	20		
Material	housing: PBT sensor: AISI 316 Ti / FKM		
Protection [EN 60529]	IP 65		
Connection	M12 connector		
Accessories	Connecting cable type SLG, mounting plate, adapter G1/2, adapter G1/4		

# FLOW MEASURING DEVICE

## Inline-Compact with digital display



### Series SDV - vortex flow measuring device

Flow measuring of water

Precision: 2 %

Programmable

Analog- and PNP output



Design	SDV	
Dimensions	<p style="text-align: right;">optional: Mounting plate (Z01178)</p>	
Working range	[l/min]	2...20
Maximal flow	[l/min]	25
Precision	15...50 °C <2%, 5...60 °C <4%	
Outer diameter pipe	[mm]	10
Pipe connection	tube fittings for steel tubes according to DIN 2391 / ISO 3304	
Output	PNP NO/NC, programmable       4...20 mA, linear	
ID-No.	P11319	
Type	SDV 652/1 GAPP	
Switching current	[mA]	200
Load R <sub>L</sub>	[Ω]	200...500
Supply voltage	[V]	24 DC ±10%
Current consumption	[mA]	<100
Ambient temperature	[°C]	0...60
Medium temperature	[°C]	5...60
Start-up time	[s]	4,5...8
Reaction time	[s]	0,5...4
Programmable functions	switching point, hysteresis, Switching output, time on/off delay averaging, access code	
Compressive strength	[bar]	10
Material	housing: PBT sensor: PVDF, connection AISI 316 TI	
Protection	[EN 60529]	IP 65
Connection	M12 connector	
Notice:	Process-connection in PTFE available <div style="text-align: right; margin-top: 10px;"> </div>	
Accessories	Connecting cable type SLG, mounting plate, adapter G1/2, adapter G1/4	



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