

# 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  /<br>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                                 |  |                |                |
| 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                   |  |               |   |
| 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                   |   |                                 | <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:  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<br>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:<br>Process-connection in PTFE<br>available |  |            |
| Accessories  | Connecting cable type SLG, mounting plate, adapter G1/2, adapter G1/4                      |            |



**EGE-Elektronik  
Spezial-Sensoren GmbH**

Ravensburg 34  
D-24214 Gettorf

Tel. +49 4346 / 41580  
Fax +49 4346 / 5658

**EGE-Elektronik world-wide** <http://www.ege-elektronik.com>



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



**EG-Special Sensorer 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



**Hidrospack, S. L.**  
Avda. Ricardo Mella, 121  
E-36330 Vigo (Pontevedra)  
Tel. +34 986 295979  
Fax +34 986 204575



**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



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



**Turck Automation România SRL**  
Str. Iuliu Tetrat nr. 18  
RO-011914 București  
Tel. +40 21 230 02 79  
Fax +40 21 231 40 87



**Countpulse 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 PTY Ltd.**  
5 Orangegrove Avenue  
AUS-Unanderra NSW 2526  
Tel. +61 242711300  
Fax +61 242718091



**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



**W. Arthur Fischer Ltd.**  
11 Te Apunga Place, Mt. Wellington  
NZ-Auckland  
Tel. +64 92700100  
Fax +64 92700900