Content

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1 General

1.1 Can the EGO open the thermostatic valve periodically during summer operation to prevent the valve from sticking?

The question is only applicable for pure heating operation. The EGO can only open the valve if it is supplied with power from the room temperature controller. In combination with room temperature controllers that have a valve protection function, automatic periodic opening is therefore possible. If the room temperature controller does not have a valve protection function, we recommend opening the EGO manually with the lever during the summer time.

1.2 If the EGO is defective, can the cause of the failure be determined?

We can read out the internal memory in our laboratory. The historical data can provide information about the cause of failure.

1.3 Is it possible to save energy with the EGO?

With the EGO, energy consumption can be minimized. The EGO adaptively controls the flow rate of the heating water and adjusts it to the actual demand. This results in a lower water flow rate than in a statically or dynamically balanced system, which saves pump energy. Significant energy savings can be expected compared to a poorly or not at all balanced system. See also question 5.5.

1.4 Can the EGO also be used for surface cooling in addition to surface heating?

Yes. Since version V1.2.2, adaptive hydraulic balancing is also possible in summer with cooling water.

1.5 Can the EGO also be used exclusively for surface cooling?

No, because the heating operation in the cold months is required for the "teach-in" of the hydraulic minimum position. See also question 5.4. If an EGO is put into operation for the first time in summer for cooling, the hydraulic balancing will not yet be able to take place in the best possible way.

1.6 Where can I find the version number?

The version number is located on the back of the EGO. It starts with a V followed by 3 numbers. See also question 1.4.

1.7 What does the 10,8 mm closing dimension mean?

The closing dimension describes the distance between the top edge of the valve pin and the fitting surface of the EGO on a closed thermostatic valve. The closing dimension for most common valves is 11.8 mm. In case of the EGO, this dimension is measured between the edge of the attachment (located under the union nut) and the pressure pad (on the inside, where the valve pin will later be located). The closing dimension is therefore 1.0 mm smaller than that of a valve. This ensures that the valve is closed in every case, even within the permissible manufacturing tolerances of the manifold, valve insert, connecting nipple and EGO. See also question 7.2.

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2 Installation

2.1 Can the EGO be used with all types of room temperature controllers?

TThe EGO works with all room temperature controllers (230 V, 50 Hz, ON and OFF). Any design (bimetal, relay or IC as switching module), any switching hysteresis and any control characteristic (PI or PWM) are possible. With very short switching intervals (less than approx. 3 min) the controls can overlap.
Due to its capacitor power supply, the EGO represents a capacitive load. All upstream actuators (e.g. room controllers or terminal strips) must be suitable for this. See also question 2.3.
Switching intervals smaller than 10 seconds, however, lead to a manual initialization. These short intervals are therefore unsuitable for the EGO.

2.2 What must be considered with capacitive loads, such as the EGO represents?

We recommend always connecting electromechanical room temperature controllers with thermal feedback. In addition to lower room temperature fluctuations, residual voltage that could damage the EGO would be dissipated more quickly via the feedback resistor.
With electronic actuators, the blocking voltage of the switching element (e.g. triac incl. control) must be designed for at least 230 VAC. We recommend finding this out, as well as the suitability of the actuators for capacitive loads, in the technical data sheet or from the respective manufacturer. See also question 2.1.

2.3 Can the EGO be used without a room temperature controller?

Yes since version V1.2.2.
However, in this case the EGO lacks the information about the duration of the heating demand (and thus indirectly the current heat demand) of the considered room. This information also has/had an influence on the intended temperature difference.
The hydraulic balancing is also given without room temperature controller at any time. See also question 5.3.

2.4 Which room temperature controllers can be used for cooling?

In principle, all types of room temperature controllers can be used. However, the prerequisite is that the room temperature controller enables voltage to the EGO when rooms are too cold (heating mode) and when rooms are too warm (cooling mode). See also question 2.1.

2.5 Can already mounted EGO’s be put on other heating circuits?

Yes, if the EGO's have not yet been supplied with voltage (they are then not yet initialized). If they have already been initialized, they must be initialized again manually on the "new" thermostatic valve insert after replacement (see operating instructions).

2.6 Is it necessary or possible to adjust something on the EGO?

No, the EGO is programmed for the physical conditions of surface heating and cooling. Further settings are not necessary.

2.7 How is the EGO electrically connected?

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The same way as normal actuators used to be connected. The electrical connection to the room temperature controller is usually made via an electrical terminal strip. However, there are no special requirements.

2.8 Can the EGO be used for a return temperature limitation (RTL)?

The EGO is not suitable for high temperature flow water above 60 °C, which usually flows into an RTL. The integrated maximum temperature limiter would close the valve. See also question 4.9.
An RTL slows down the volume flow at the heating circuit valve, if the current return flow temperature is getting closer to the fixed return flow temperature. Or respectively: The RTL closes the valve when the fixed return flow temperature is exceeded.
As the EGO works with variable spreads, it would also variably adjust the return flow temperature. This does not necessarily lead to a limitation or interruption of the heating volume flow. There would thus be a risk of exceeding the permissible surface temperature.

2.9 Do strong magnetic fields influence the EGO?

In order to know the current valve position at all times, the EGO is equipped with a position measuring system. This works with a small magnet.
Therefore, no magnets or strong magnetic fields should be in the immediate vicinity of the ego in order to avoid any interference.

3 Components

3.1 Can the cables of the temperature sensors be extended?

You shouldn't do that. There is a risk of electric shock because the temperature sensors are connected to the power supply via GND and the power supply is not electrically isolated from the mains. Extending the EGO with clamps, for example, can cause malfunctions that can limit the proper functioning of the EGO.

3.2 Does the EGO have a precision motor to position the valve stroke?

No, it works with an expansion element like a classic electrothermal actuator. This is supplemented by a position measuring system to enable valve positions to be approached and held precisely.

3.3 Are there adapters for valves that do not have an M30 x 1.5 connection thread?

Different adapters are available in the accessories trade (e.g. Heimeier adapter for thermostatic head M30 x 1.5 optionally for thermostatic valve Danfoss RAVL Ø 26 mm and RAV Ø 34 mm, Herz M28 x 1.5, Vaillant Ø 30 mm and Oventrop M30 x 1.0).

3.4 What is the lever used for?

The thermostatic valve is opened manually by flipping the lever forward. Water then flows, regardless of whether voltage is applied to the EGO or not. In this lever position, the EGO can also be mounted on a valve insert with little effort.
The lever then compresses the powerful spring inside the EGO, which is responsible for closing the thermostatic valve in the de-energised state.

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3.5 The temperature sensors are permanently under mechanical tension after being mounted to the heating pipe. Can this lead to breakage?

The plastic used does not contain any softening agents (plasticizers) that could evaporate. Its melting temperature is over 170 °C. The heat deflection temperature (1.80 MPa) is over 100 °C. The typical temperature spectrum of the clip on the pipe is below 60 °C.

4 Functioning

4.1 What influences the opening-closing time cycle?

The cycle time is influenced by the heat demand of the room. It is, independent of the EGO, exclusively determined by the control characteristics of the room temperature controller. Radio or PWM controllers, for example, can cause very short cycles between ON and OFF.

4.2 How does the EGO regulate when the temperature spread between flow and return flow is 0 K?

In this case, the EGO opens cyclically to a defined opening stroke to ensure water flow. In doing so, it waits for temperature changes at the sensors. If there is a meaningful spread for heating or cooling operation, hydraulic balancing starts again.
Equal flow and return flow temperatures are measured by the sensors if, for example: the sensors have not been mounted on the pipes, the heat generator is switched off, there is no water in the heating system yet or the pump is not running.

4.3 Does the EGO always fully open the thermostatic valve when the room temperature controller requests heat or cooling?

No, it only opens up to a variable valve position, which it either holds or changes during control, depending on the calculated setpoint specification. Even if the heating or cooling load to be applied is higher than the design load, the valve is not fully opened.

4.4 Does the EGO always regulate to a fixed setpoint temperature spread?

No, the setpoint spread is variable. The EGO adapts it to the respective flow temperature and evaluates historical data (e.g. heating times) for calculation.

4.5 How are the water volume flow rates adjusted?

The EGO opens or closes the thermostatic valve just enough to ensure that exactly as much water flows as is required to achieve the calculated spread. For this purpose, the EGO with its electrothermal expansion element can assume and also hold virtually any stroke position on the valve insert between closed and open.

4.6 How large is the permissible range of temperature spreads?

We allow temperature spreads between 3 and 8 K. See also question 4.4.

4.7 Can the EGO still control when it no longer receives power from the room temperature controller?

Like conventional NC actuators, the EGO closes the thermostatic valve without current.

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Control is not possible without current.

4.8 How does the EGO store important operating parameters at the moment of shutdown by the room temperature controller?

The energy required for memorizing is stored in a capacitor. At the moment of voltage interruption, the energy is then used to write the data to the non-volatile memory. Afterwards, the remaining energy in the capacitor is discharged (the LED flashes green briefly and then goes out).

4.9 How does the maximum temperature limitation work?

If a value > 60 °C is measured at one of the two temperature sensors, the EGO closes the valve for 15 minutes. It then opens again and checks the temperature values.

4.10 How does the EGO regulate if the temperature sensors have been swapped?

In this case, the return flow temperature would be the reference variable for the "teach-in" and for the calculation of the setpoint spread. Correct hydraulic balancing is not possible in this case. See also questions 4.12 and 5.4.

4.11 What happens if a temperature sensor becomes detached from the pipe or has been forgotten to clamp?

The control behaviour will be as described in question 4.10.
In the long run, you will not get a correct hydraulic balancing with an oversupplied or undersupplied heating circuit, which the user will notice and correct the error.

4.12 Is the correct assignment of the temperature sensors on the flow and return flow mandatory?

Yes, absolutely. The temperature value at the flow sensor is required for the correct calculation of the setpoint spread and also for "teaching-in". See also questions 4.10 and 5.4.

4.13 How does the EGO know whether it has to operate in heating or cooling mode?

The EGO generates this information itself. It receives this information exclusively from the temperature measured at the red-black coloured flow sensor. The permissible target spread band is calculated accordingly. An external "changeover signal" is not necessary on the EGO.

5 Hydraulic

5.1 Is it necessary to install flow balancing valves or other flow balancing devices in the heat distribution system?

Depending on the hydraulic properties of the piping network, this may be necessary. The EGO hydraulically balances the surface heating circuits of a manifold and is not suitable for the hydraulic balancing of several heating circuit manifolds or heating pipes among each other.

5.2 Are flow indicators still required in combination with the EGO?

No, control valves or simple shut-off valves would also be sufficient according to EN 1264-4. However, you can at least see a water flow in operation on the indicators. The flow

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indicators remain fully open in heating or cooling mode and no longer require any presetting. The STRAUB flow indicators matching the EGO now only have a min-max display and are only intended for shutting off.

5.3 Can the EGO also carry out the flow balancing during function heating or laying heating?

There are either no room temperature controllers yet or they are set to the highest setpoint temperature. This gives the EGO continuous voltage. Since version V1.2.2, the EGO recognizes this special operating mode. If it is not yet taught, it simulates the cyclic shutdown as it would occur by a room temperature controller in normal operation. The hydraulics are not yet controlled in the best possible way, but hydraulic balancing is ensured at all times. Once the teach-in is complete, the EGO also controls the hydraulics perfectly in continuous operation.

5.4 What is meant by "teach-in"?

After initialization (see question 6.1), the position measuring system must still determine the position at which the thermostatic valve starts to let water flow. This is the hydraulic minimum position. The more precisely the EGO knows this position, the smaller the flow rates it can regulate and the better the hydraulic balancing. Teach-in takes place completely without manual intervention from outside during heating operation from approx. 30 °C flow temperature (based on an ambient temperature of 20 °C) and does not impair heating operation. See also question 1.5.

5.5 What does adaptive hydraulic balancing mean?

In static or dynamic hydraulic balancing, the calculated volume flows are permanently set at the respective balancing valves. In contrast, with adaptive hydraulic balancing, the volume flows are adapted to the changing operating conditions in the system according to demand and in a self-learning manner.

6 Initialization

6.1 What happens during initialization?

The EGO has an integrated position measuring system, which allows it to move to defined opening positions. These positions are dependent on the valve on which it is mounted. During initialization, the EGO stores the position at which the valve is (mechanically) completely closed (lowest accessible waypoint on this valve).

6.2 What happens during a manual initialization?

The operating data learned after the last initialization is deleted and the EGO starts with its factory setting. Important historical data is not deleted.

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6.3 Can the initialization also be activated automatically?

Yes, there are three cases:

a) when the EGO is put into operation for the first time.
b) when the EGO is removed from the valve after initialization process and is supplied with voltage again in this state (yellow flashing)
c) if the lowest valve position stored during initialization has changed (e.g. due to "settle" of the valve sealing disc).

6.4 How long does the initialization take?

It is already completed after the first blue flash. The LED flashes blue for another 4 minutes so that, in the event of manual initialization, e.g. at the room temperature controller, the installer also has the time to see that initialization has been carried out successfully.

7 LED Flashing

7.1 Although the EGO is not mounted on a valve, it flashes green or blue when voltage is applied. Why?

If the EGO is not mounted and the lever is closed, it should actually flash yellow. If it flashes green or blue, voltage was already applied to the EGO shortly before. Its expansion element is still heated up as a result. Therefore, the EGO is still "open". This leads to a supposed recognition "I am mounted on a valve".
In this case, de-energise the EGO for at least 5 minutes. During this time the expansion element will cool down and the EGO will "close". Then it will flash yellow when voltage is applied.

7.2 Although the EGO is mounted on a valve, it flashes yellow when voltage is applied. Why?

Mounted on a valve and with closed lever, it should actually flash blue or green. If it flashes yellow, the valve pin is not long enough to reach the EGO pressure pad. The closing dimension of this valve is probably less than 10.8 mm.
In this case the valve pin must be "extended". The EGO must be removed from the valve. Then a round, self-adhesive metal plate (strawa Huberhöhungs-Set für Thermostatventile, 10 pcs in package, Item no. 55-035004)) is glued to the centre of the pressure pad from below. Now the EGO is remounted and the lever is closed. If then voltage is applied, the LED will flash blue.

7.3 What does the EGO do when it flashes red evenly and is on "fault"?

In this case, there is a function-relevant hardware problem (e.g. sensor cable broken; circuit board, expansion element or position measuring system defective) and it cannot perform hydraulic balancing. As long as the power supply to the expansion element and the element itself are OK, the EGO works like a normal actuator and opens the heating circuit when heat is requested. This maintains an "emergency operation mode" for room heating, which is intended to prevent areas of the system from cooling down or freezing, especially in winter. A manual initialization (see operating instructions) can be used to try to correct the problem. If the attempt fails, the EGO must be replaced.

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8 Flushing

8.1 When and how is the flush function activated?

The EGO has a summation counter for its open times. The flush function is activated every 55 hours. If it is activated, purging is performed during the next control cycle. During purging, the EGO flashes blue for 4 minutes.

8.2 Does a manual initialization influence the flush interval?

A manual initialization has no influence on the flush interval, because the total counter for the opening time continues to run absolutely uninfluenced.

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