

**Climate
Control**

IMI Heimeier

EMOtec, First-Open



Actuators

Thermal actuator for heating, ventilation, and air conditioning systems

EMOTec, First-Open

The EMOTec thermal actuator, First-Open with position indicator (NC), can be installed in temperature and/or time related 2-point control systems. The first-open function keeps the actuator open until the individual room control is commissioned.



Key features

Normally closed version with First-Open function

Simple functional testing by means of position indicator

Compact sizes especially suited to manifold cabinets

Trouble-free because it is silent and needs no maintenance

Technical description

Applications:

Designed for ON/OFF or PWM control.

Supply voltage:

24 VAC/VDC (+20%/-10%), 0-60 Hz.
230 VAC (+10%/-10%), 50-60 Hz.

Power consumption:

24 V:
Starting: ≤ 6 W (VA)
During operation: ≤ 2 W (VA)
230 V:
Starting: ≤ 70 W (VA)
During operation: ≤ 2 W (VA)

Operating cycle time:

~ 3 min

Adjusting force:

100 N $\pm 5\%$

Temperature:

Max. ambient temperature: 60°C
Min. ambient temperature: 0°C
Max. medium temperature: 100°C
Storage temperature: -25°C to +60°C

Enclosure class:

IP54 at any position.

Protection class:

24 V: III, EN 60730
230 V: II, EN 60730

Overvoltage protection:

Version 230 V according to EN 60730-1:
2,5 kV.

Certification:

CE, EN 60730

Cable:

Cable length: 1 m.
Connection cable: 2 x 0,50 mm².

Stroke:

4 mm

Connection to valve:

M30x1,5

Body:

Polyamide, grey

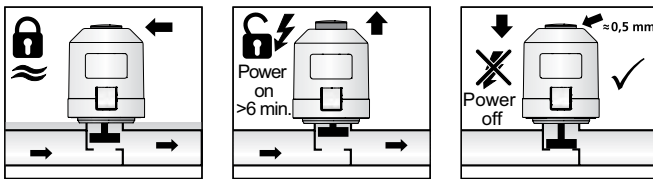
Function

Closed when currentless (NC model)

Initiating operating voltage heats up the expansion system of the actuator. After the time lag, a uniform opening process ensues.

If the voltage is cutoff, the actuator closes via the cooling of the expansion system after the time lag.

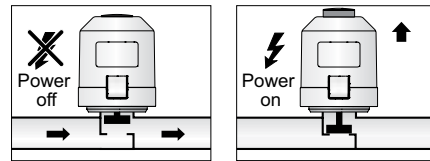
The first-open function keeps the actuator open until the individual room control is commissioned. This not only reduces the effort required during assembly, but also enables heating operation while the new building is drying. When the individual room control is started up for the first time, the first-open function is automatically unlocked after approx. 6 minutes and the actuator goes into normal operation.



Open when currentless (NO model)

Initiating operating voltage heats up the expansion system of the actuator. After the time lag, a uniform closing process ensues.

If the voltage is cutoff, the actuator opens via the cooling of the expansion system after the time lag.

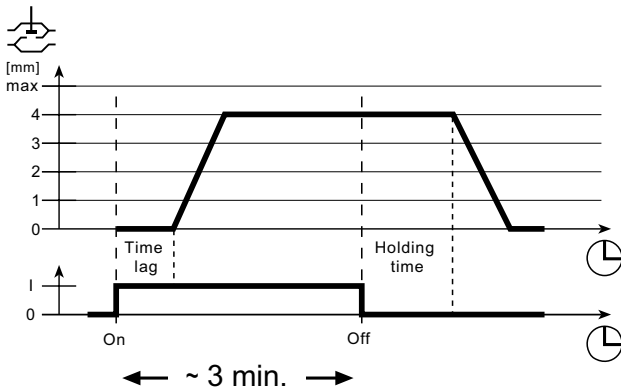


Note:

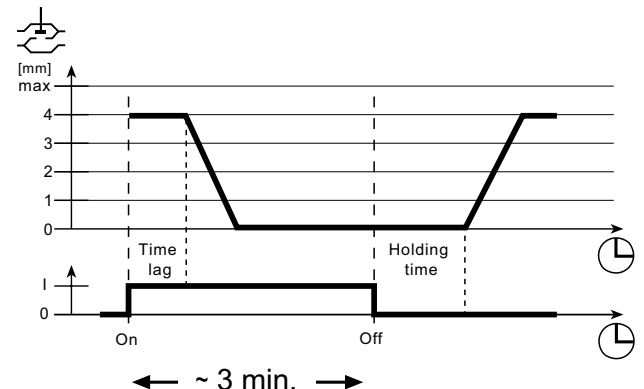
When conducting a performance test, be sure to check the time response (time lag)!
Opening and closing times are dependent on the ambient temperature.

Action chart

Currentless closed (NC)



Currentless open (NO)



Application

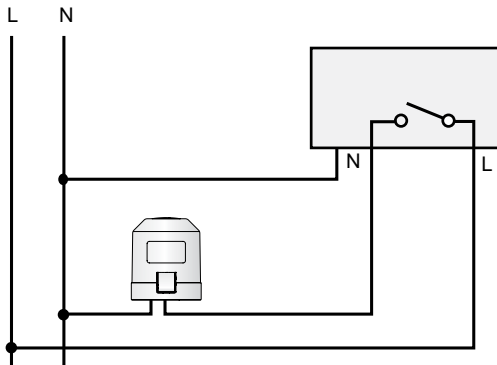
The EMOTec thermal actuator can be installed in temperature and/or time-related 2-point control systems, especially for floor heating.

The position indicator enables simple functional testing, e.g. during the mounting of the actuator on heating manifolds.

Depending on the operating conditions to be fulfilled, EMOTec can also be used in other applications in heating, ventilation and air-conditioning systems.

Connection diagram

24 VAC/VDC / 230 VAC



Planning notes

24 V transformer dimensioning

For operation with 24 V low voltage, a transformer is required which is in compliance with EN 60730 and possesses sufficient capacity.

For dimensioning transformer power, the value for the operating phase needs to be taken into account. The same applies to the layout of switching contacts of room temperature controllers.

The minimum transformer power supplied results from: the sum of the power consumed by the EMOTec 24 V (in the switch-on phase) plus the sum of the power consumed by the room thermostat.

Room temperature controller (art. no. 1946-00.500) needs not be taken into account.

24 V protective low voltage

With the required protective low voltage (SELV based on DIN VDE 0100) a safety isolating transformer in compliance with EN 61558 must be used.

Length of cable

In order to maintain the declared opening times for the actuators, the voltage loss (depending on length of cable and cross section) in the operating phase on the supply lines to the actuators may not exceed 4%.

For general dimensioning with copper lines, use the following standard formula:

$$L \text{ max.} = I / n$$

L max.: max. length of cable in [m] (see "Connection diagram")

I: table value in [m]

n: number of actuators

Line: Type/name	Cross section: A [mm ²]	I for each model:		Note: Application; comparison
		230 V [m]	24 V [m]	
LiY/twin flexible rod	0,34	-	38	only for 24 V; corresponds to ø 0.6 mm
Y(R)/bell wire	0,50	-	56	only for 24 V; model Y(R) 2 x 0.8
H03VVF/PVC mains cable	0,75	840	84	not to be concealed under plaster
NYM/house wiring cable	1,50	1680	168	also for NYIF 1.5 mm ²
NYIF/flat webbed house wire	2,50	2800	280	also for NYM 2.5 mm ²

Calculation example

Goal:

max. length of cable L max.

Given:

Voltage U = 24 V

Conductor cross section A = 2 x 1.5 mm²

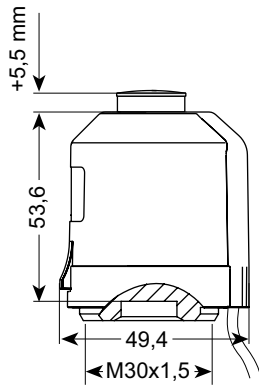
Value in table I = 168 m

Number of actuators n = 4

Solution:

$$I \text{ max.} = I / n = 168 \text{ m} / 4 = 42 \text{ m}$$

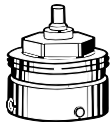
Articles



EMOTec, First-Open

Type	EAN	Article No
230 V		
Currentless closed (NC), First-Open	4024052038824	1806-15.500
Currentless open (NO)	4024052038923	1806-16.500
24 V		
Currentless closed (NC), First-Open	4024052039029	1806-17.500
Currentless open (NO)	4024052039128	1806-18.500

Accessories



Connecting to other brands

Adapter for mounting the EMOTec on valve bodies of other manufacturers. Threads M30x1.5 factory standard.

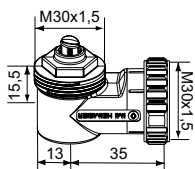
Manufacturer	EAN	Article No
Danfoss RA (Ø≈20 mm)	4024052297016	9702-24.700
Danfoss RAV (Ø≈34 mm)	4024052300112	9800-24.700
Danfoss RAVL (Ø≈26 mm)	4024052295913	9700-24.700
Vaillant (Ø≈30 mm)	4024052296019	9700-27.700
TA (M28x1,5)	4024052336418	9701-28.700
Herz (M28x1,5)	4024052296316	9700-30.700
Markaryd (M28x1,5)	4024052296514	9700-41.700
Comap (M28x1,5)	4024052296712	9700-55.700
Oventrop (M30x1,0)	4024052428519	9700-10.700
Giacomini (Ø≈22,6 mm)	4024052429714	9700-33.700
Ista (M32x1,0)	4024052511419	9700-36.700
Uponor (Velta)	4024052448111	9700-34.700
- Euro-/compact distributor or return valve 17		
Uponor (Velta)	4024052510917	9701-34.700
- Provario distributor		



Connecting to radiators with integrated valves

Adapter for mounting the EMOTec with M30x1.5 connection on thermostatic insert for **Series 2** or **Series 3** clamping joint. M30x1.5 threading, factory standard.

Model	EAN	Article No
Series 2	4024052297214	9703-24.700
Series 3	4024052313518	9704-24.700



Angle connection M30x1,5

EAN	Article No
4024052035724	7300-00.700



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