Tender specification:

Oventrop electrothermal actuators as two point actuators, with “First-Open” function (except for actuators open with current “off”) and stroke index. Available as model closed with current “off” or open with current “off”. The actuators can be installed in any position. Simple plug-in connection to valve adapter.

Models 230 V:	**Item no.:**
Connection thread M 30 x 1.5	
“H NC” closed with current “off”	1012415
“H NO” open with current “off”	1012425
“H NC” closed with current “off” with integrated auxiliary switch	1012435
“H NC” closed with current “off”, cable 2 m long	1012452
“H NC” closed with current “off”, cable 5 m long	1012455
“H NC” closed with current “off”, cable 10 m long	1012459
Squeeze connection	
“H NC” closed with current “off”	1012418

Technical data:

Operating current:	230 V AC, ± 10 %, 50/60 Hz
Start up load:	< 550 mA for a max. of 100 ms
Continuous current:	4.5 mA
Closing/opening time:	about 5 min.
Piston stroke:	5 mm
Operating power:	> 90 N
Auxiliary switch, switching current:	5 A resistive load, 1 A inductive load with 230 V AC
Auxiliary switch, switching point:	about 2 mm
Protection:	IP 54 in any position
Protective system:	II according to EN 60730
Fluid temperature:	0... + 100 °C
Ambient temperature:	0... + 60 °C
Storage temperature:	-25... +60 °C
Connecting cable:	2 x 0.75 mm², 1 m long 4 x 0.75 mm² (item no. 1012435)

Models 24 V:	**Item no.:**
Connection thread M 30 x 1.5	
“L NC” closed with current “off”	1012416
“L NO” open with current “off”	1012426
“L NC” closed with current “off”, cable 2 m long	1012442
Squeeze connection	
“L NC” closed with current “off”	1012419

Technical data:

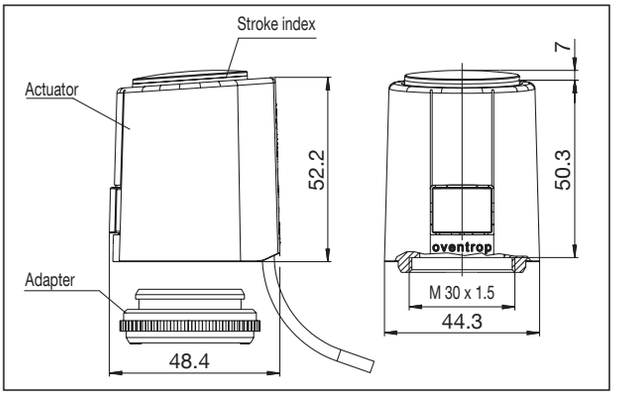
Operating current:	24 V AC/DC, +20...-10 %, 0...60 Hz
Start up load:	< 300 mA for a max. of 2 min.
Continuous current:	45 mA
Closing/opening time:	about 5 min.
Piston stroke:	5 mm
Operating power:	> 90 N
Protection:	IP 54 in any position
Protective system:	III according to EN 60730
Fluid temperature:	0... + 100 °C
Ambient temperature:	0... + 60 °C
Storage temperature:	-25... + 60 °C
Connecting cable:	2 x 0.75 mm², 1 m long

Installation and fitting:

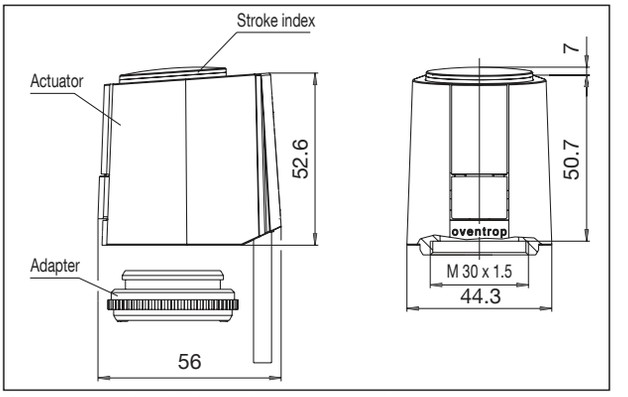
Electrical connections must be carried out in accordance with the requirements of the local Electricity Board.
Please observe: The brown cable must be connected to phase (L). It is recommended to fuse the electric circuit. The connecting cable must not come into contact with hot pipes or similar as excessive heat will accelerate the ageing of the cable insulation.
When choosing the switching contacts or network fuses, the start up load of the heating element has to be taken into consideration. The loss of potential must not exceed 10 % so that the indicated operating time is kept.



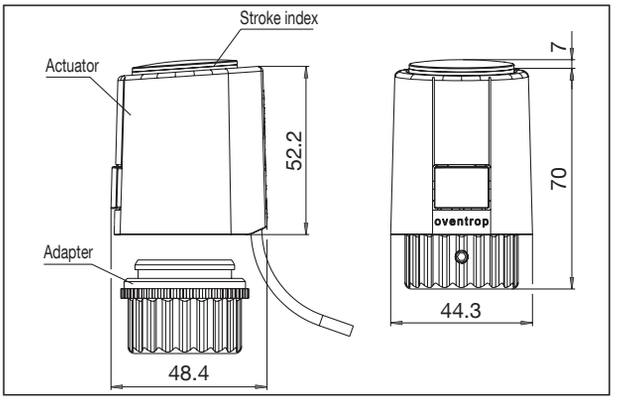
“Aktor T 2P”



Dimensions of actuators with connection thread M 30 x 1.5



Dimensions of actuator with auxiliary switch



Dimensions of actuators with squeeze connection

Max. length of cable for 1 actuator, with given wire cross sections (indication with a voltage drop of about 5 %, with 230 V voltage drop about 11.5 V, with 24 V voltage drop 1.2 V).

Wire cross section [mm²]	230 V max. length [m]	24 V max. length [m]
2 x 0.75	1051	202
2 x 1.00	1402	268
2 x 1.50	2102	402
2 x 2.50	3504	671

When installing several actuators, the indicated length of cable must be divided by the number of connected actuators. When using 24 V actuators, a safety transformer according to EN 61558-2-6 must always be used. Dimensioning of the transformer is determined by the start up load of the actuators.

Rule-of-thumb: $P_{Transformer}$ = 7.2 W x n
n = Number of actuators

The actuator is mounted with the help of the valve adapter, no tools are required. The valve adapter is manually screwed onto the valve and the actuator is fixed to the adapter by use of the plug-in connection.

Oventrop electrothermal actuators can be installed in any position but a vertical (stroke index pointing upwards) or horizontal installation is preferable. In case of vertical downward installation, special circumstances (e.g. dirt water) may reduce the service life.

Application:
The Oventrop electrothermal actuators with two point control are used for heating, ventilation and air-conditioning. In combination with the Oventrop thermostatic radiator valves or distributors/collectors for surface heating systems and the Oventrop room thermostats, the actuators allow for an individual room temperature control. The actuators are activated through controls with two point output or pulse-width modulation and can be combined with the following Oventrop valves with connection thread M 30 x 1.5:

- All thermostatic radiator valves (except for valves “ADV 9/ADV 6” and “KTB” with actuators closed with current “off”)
- Three-way conversion valves
- Distributors/collector for surface heating systems (please observe ambient temperature within the cabinet)
- Regulating valves “Cocon 2TZ”
- Pressure independent control valves “Cocon QTZ”
- Regulating valves “Hycocon ETZ/HTZ”
- Three-way diverting and mixing valves

Function:
The Oventrop actuators work with an expansion type working element which is heated electrically by a PTC heating element. A silent operation and low power consumption are thus guaranteed.

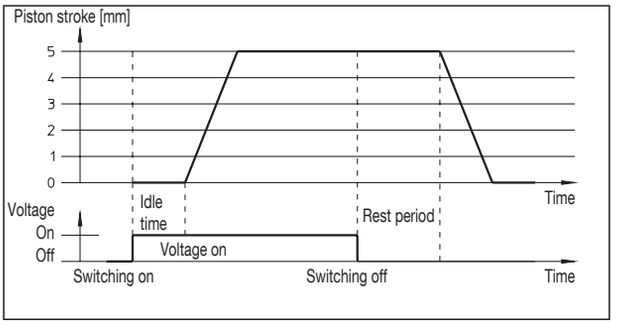
As for the model closed with current “off”, the valve is opened constantly by the lift of the push rod each time the operating current is switched on – after termination of the idle time (stroke index in extended position). By switching off the operating current and after termination of the rest period, the valve is closed constantly by the closing pressure of the pressure spring (stroke index in retracted position).

The function of the actuators open with current “off” is reversed, the valve is closed if the actuator is energized (piston stroke in extended position) and it is opened when the operating current is switched off (stroke index in retracted position).

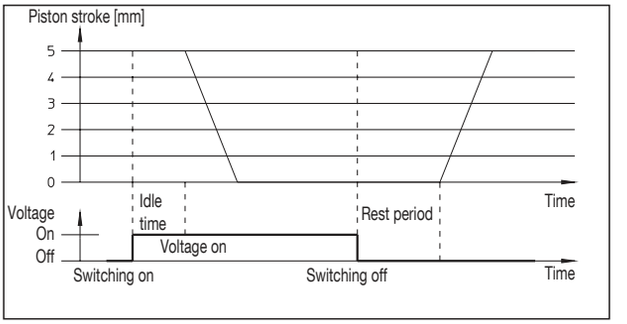
Due to the First-Open function, the actuators (only the models closed with current “off”) are supplied open with current “off”. This allows for the operation of the heating system during construction work even if the electric wiring of the individual room temperature control has not yet been terminated. During commissioning, the First-Open function is released automatically by switching the operating current on (more than 6 min.) and the actuator is ready for operation.

If the Oventrop actuators are used for room temperature control, it is recommended to carry out the room temperature setback via the room thermostat, e.g. the Oventrop room thermostat-clock (see technical data sheet “Individual room temperature control”).

If for some reason a setback of the flow temperature is required during night hours or at other times, a setback of the room temperature via the room thermostat should be carried out additionally.

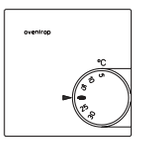


Characteristic line, closed with current “off”

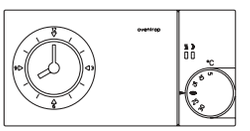


Characteristic line, open with current “off”

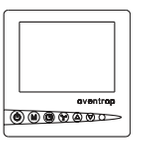
Accessories:	**Item no.:**
Room thermostat 230 V (heating)	1152051/71
Room thermostat 24 V (heating)	1152052/72
Room thermostat-clock 230 V, with daily setting (heating)	1152551
as above, 230 V, with weekly setting (heating)	1152552
as above, 24 V, with weekly setting (heating)	1152554
Room thermostat 230 V (heating or cooling)	1152451
Room thermostat 24 V (heating or cooling)	1152452
Valve adapter, connection thread M 30 x 1.0	1012890
Reinforcing cap	1012450
Valve adapter, high model (+ 11 mm), connection thread M 30 x 1.5	1012462



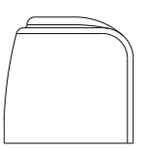
Room thermostat (heating)
for electric individual room temperature control.
Optional temperature setback via external time switch (item no.: 1152551/52/54) (not with actuator open with current “off”).



Room thermostat-clock (heating)
for electric individual room temperature control and central temperature setback.



Room thermostat (heating or cooling)
for electric individual room temperature control, adjustable temperature setback and fan drive.



Reinforcing cap
to protect the electrothermal actuators against vandalism.
Suitable for actuators, item no. 1012415/25/16/26/35/42/52/55/59.



Subject to technical modifications without notice.

Product range 1
ti 231-EN/10/MW
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