Electrothermal head 0-10 V art. TE 3061

Command TE 3061 is an electrothermal actuator that opens or closes a valve proportionally to the applied control voltage. Voltage supply is 24 VAC and control signal is 0-10 VDC. Control signal is usually an output from room thermostat or, in most cases, from a system controller. Based on the control voltage, the actuator opens the valve proportionally to the detected stroke. The actuator can be snap-on mounted to the special M30×1.5 mm adapter that comes with the product, and that makes it perfectly compatible to every IVAR thermostatic valve.

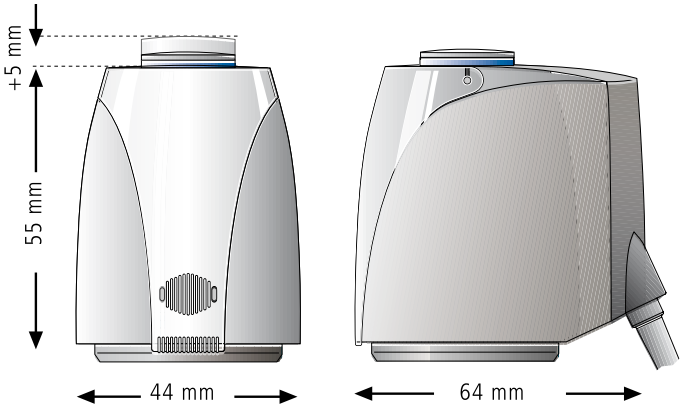
TECHNICAL FEATURES

Version: NC
Operating voltage: 24 VAC, -10%...+40%, 50-60 Hz
Max. inrush current: < 250 mA during 2 min max
Operating current: ∼80 mA
Operating power: 2 W
Control voltage: 0-10 VCC
Input resistance: 100 kΩ
Average actuation delay: 30 s/mm
Actuator travel: 4 mm (minus over-elevation); max 3.5 mm
Actuating force: 100 N ± 5%
Fluid temperature: 0÷100 °C
Storage temperature: -25°C÷65°C
Ambient temperature: 0÷60°C
Protection type: IP 54
Protection class: III
CE conformity according to: EN 60730
Connection cable: 3×0.22 mm^2
Cable length: 1 m

MATERIALS

Body: white PA
Connection cable: white PVC

DIMENSIONS

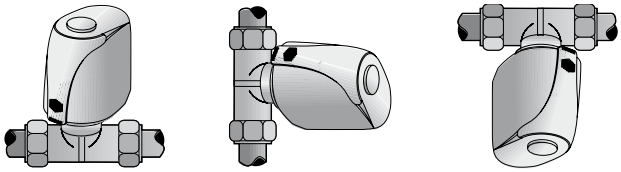


ST I_TE3061_EN
25/9/2013

OPERATING INSTRUCTIONS

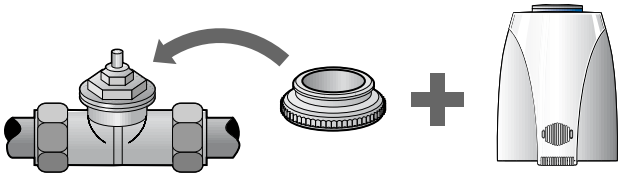
Installation

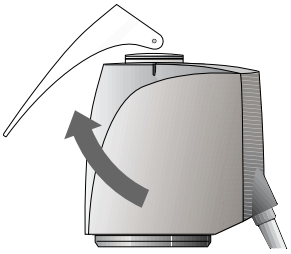
Preferred installation positions of the actuator are vertical (up) and horizontal. An upside-down installation may reduce product life in particular conditions (e.g. polluted water).



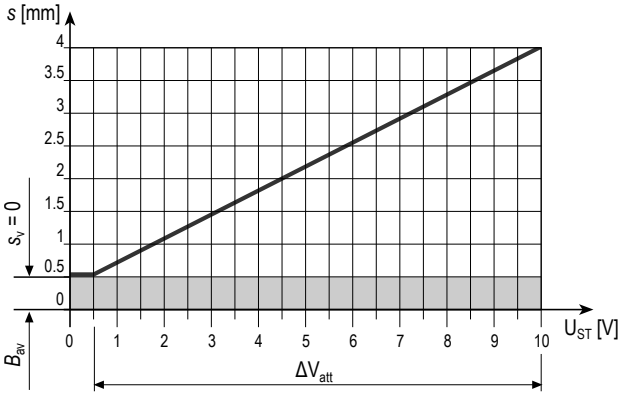
Mounting on the valve

The coupling to the valve is achieved through a plastic adapting nut. After screwing the the adapter to the valve, mount the actuator with a slight pressure on the top. A spring device locks the element to the adapter, allowing to rotate the actuator to ease its orientation. The actuator can be protected by unauthorised access by removing the visor, which is necessary to snap off the component.





Characteristic curves



s = stroke
s_v = valve travel
B_{av} = valve adapter edge
ΔV_{att} = active voltage control range
Grey zone: over-elevation range

Operation

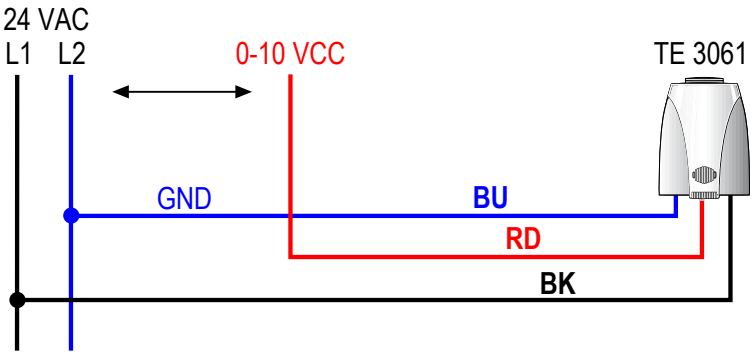
The actuator mechanism of the actuator uses a PTC resistor-heated wax element and a compression spring. The wax element is heated by applying the operating voltage and moves the integrated piston. The force generated by this movement is transferred to the piston, thus opening or closing the valve. At the beginning of the first cycle, the valve is opened once by 0.5 mm and then closed again, after applying the 24 VAC operating voltage: at this stage, the “first open” function is unlocked and the valve closing point is detected. This ensures a perfect match between the actuator and the specific valve. If a control voltage of 0.5-10 VDC is applied after the calibration process, the actuator piston opens the valve – after the dead time has elapsed – with the piston movement, evenly and permanently corresponding to the valve travel. An internal optical path measurement controls the temperature required for the maximum stroke of 4 mm (minus over-elevation) and consequently the energy intake of the wax element. No excess energy is stored inside the wax element. If the control

voltage is reduced, the electronic control system immediately adapts the heat input to the wax element. In the range of 0-0.5 V the actuator remains in a quiescent state in order to ignore ripple voltage occurring in long cables (U_{min}). After the waiting time has elapsed, the valve is closed evenly with the closing force of the compression spring. The closing force of the compression spring keeps the valve closed when de-energised.

Stand-by operation

The wax element is maintained at stand-by temperature 20 minutes after the control voltage has dropped below U_{min}.

Wiring diagram



Legend
BU = blue; **RD** = red; **BK** = black.
GND = common (*ground*).

For further information on wiring, please refer to the instructions reported on the packaging. The installation and electrical connections of these devices must be performed only by skilled and qualified personnel.

NOTES

TE 3061 actuator features a “first open” function, that is to say, the actuator is supplied in a “normally open” condition. This makes the installation of the actuator easier and allows to wash and fill the circuits even if the electrical connections are still to be performed. At the start-up, powering the actuator for more than 6 min causes the “first open” function to be unlocked and brings the device to the operating conditions.

I.V.A.R. S.p.A.
Via IV Novembre 181
25080 Prevalle (BS)
Tel. +39 030 68028
Fax +39 030 6801329
www.ivar.eu - info@ivar.eu

I.V.A.R. S.p.A. reserves the right to make enhancements and changes to products and relative documentation at any time without prior notice. All rights reserved. Reproduction, even partial, is forbidden without prior permission by the copyright owner.