DATA SHEET

APR

Produal

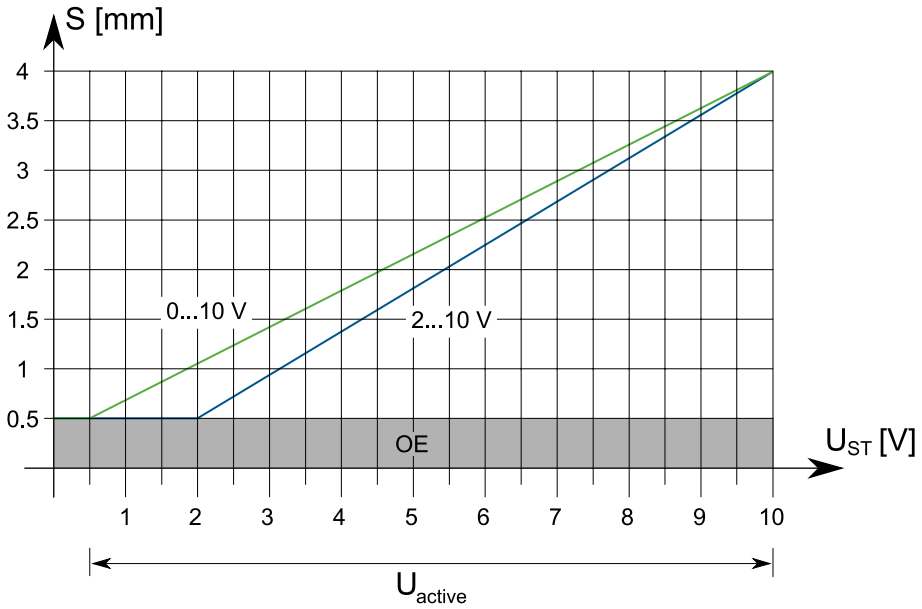
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APR 4x405 - Thermal actuators



APR 4x405 thermal actuators are designed for controlling control valves in HVAC automation systems. The actuators are controlled by 0...10 V control signal (APR 40405-00N00-0, APR 42405-00N00-0) or 2...10 V control signal (APR 40405-01N00-0) according to the following figure.



Value	Description
S	Stroke
U_{ST}	Control signal
U_{active}	Active control signal range. When the control signal is below the active control signal range, the actuator remains in a passive state to ignore ripple voltage occurring in long cables.
OE	Inactive travel area

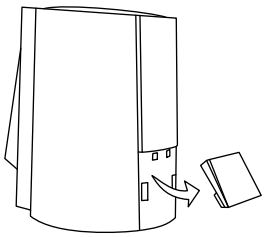
Important: Do not use materials or glues that contain ammonia near the thermal actuators.

The actuators are delivered in ”First open” status which leaves the valve slightly open after the actuator is installed. As a result, you can fill and flush the system even if the control system is not yet functioning. The thermal actuator starts normal operation after it is connected to the supply voltage for more than 6 minutes. You cannot activate the “First open” function again.

The actuators are mounted to NV2 control valves by using VA 80 adapter rings. Adapter rings are also available for other valve manufacturers’ valves.

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The actuator can be protected against unauthorized removal by removing the locking latch.



Technical specifications

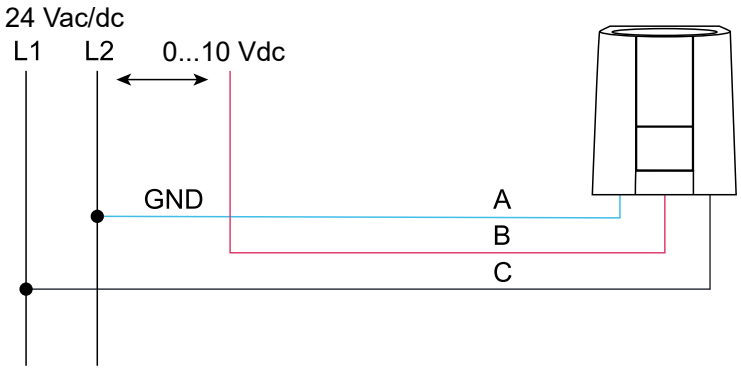
Property	Value
Supply	
APR 40405-00N00-0	24 Vac (22...28 V), 50/60 Hz
APR 40405-01N00-0	24 Vac (22...28 V), 50/60 Hz
APR 42405-00N00-0	24 Vdc (20...28 V)
Operating power	1 W
Start-up current	< 320 mA (max. 2 min.)
Control signal	
APR 40405-00N00-0	0...10 V, input impedance 100 kΩ
APR 40405-01N00-0	2...10 V, input impedance 100 kΩ
APR 42405-00N00-0	0...10 V, input impedance 100 kΩ
Stroke	4 mm
Actuating force	100...105 N
Actuating speed	30 s/mm
De-energized position	Closed (NC), actuator in lower position
Cable	
Type	3 x 0.22 m^2, PVC, removable
Colour	White
Available lengths	1 m, 2 m, 3 m, 5 m, 10 m, 15 m, 20 m
Appliance class (IEC 60664-1)	III
Mounting	Mounted using a valve adapter (sold separately). It is not recommended to install the actuator upside down.
Operating conditions	
Fluid temperature	0…100 °C
Ambient temperature	0…60 °C
Storage temperature	-25…60 °C
Protection class	IP54
Dimensions (w x h x d)	44.3 x 53 x 61.5 mm
Weight (with 1 m cable)	111 g

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Wiring

WARNING: Device wiring and commissioning can only be carried out by qualified professionals. Always make the device wirings in de-energised electricity network.

WARNING: This product is appliance class III product according to IEC 60664-1. The product may only be connected to SELV (safety extra low voltage) electricity network.



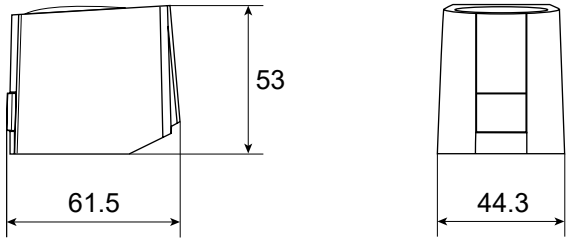
Wire	Wire colour	Description
A	Blue	0 V
B	Red	0...10 Vdc, control signal
C	Black	• 24 Vac (APR 40405 models) • 24 Vdc (APR 42405 models)

Ordering information

	Type	Product number	Description
	APR 40405-00N00-0	1210061	Thermal actuator, 24 Vac, 0…10 V control signal, NC, removable cable (sold separately)
	APR 40405-01N00-0	1210052	Thermal actuator, 24 Vac, 2…10 V control signal, NC, removable cable (sold separately)
	APR 42405-00N00-0	1210053	Thermal actuator, 24 Vdc, 0…10 V control signal, NC, removable cable (sold separately)
	BA-ALL.5.3.01	1220031	Removable cable, 1 m
	BA-ALL.5.3.02	1220032	Removable cable, 2 m
	BA-ALL.5.3.03	1220033	Removable cable, 3 m
	BA-ALL.5.3.05	1220035	Removable cable, 5 m
	BA-ALL.5.3.10	1220036	Removable cable, 10 m

	Type	Product number	Description
	BA-ALL.5.3.15	1220037	Removable cable, 15 m
	BA-ALL.5.3.20	1220038	Removable cable, 20 m

Dimensions



Supported standards, directives and regulations

Standard	Description
2014/30/EU	Electromagnetic Compatibility (EMC).
2014/35/EU	Low Voltage Directive (LVD).
2011/65/EU	Restriction of Hazardous Substances (RoHS2) Directive.
(EU) 2015/863	Commission Delegated Directive, amending Annex II to Directive 2011/65/EU.
S.I. 2016 No. 1091	Electromagnetic compatibility regulations
S.I. 2016 No. 1101	The electrical equipment (safety) regulations
S.I. 2012 No. 3032	The restriction of the use of certain hazardous substances in electrical and electronic equipment regulations
EN 60730-1:2011	Automatic electrical controls - Part 1: General requirements.
EN 60730-2-14:1997 + A1:2001 + A11:2005 + A2:2008	Automatic electrical controls - Part 2-14: Particular requirements for electric actuators
EN 50419:2006	Marking of electrical and electronic equipment in accordance with Article 11(2) of Directive 2002/96/EC (WEEE)

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