

ML7420A/ML7425A,B

Electric Linear Valve Actuator

SPECIFICATION DATA



ML7420

ML7425

FEATURES

- Easy and quick installation
- No separate linkage required
- No adjustments
- Low power consumption
- Force-limiting end switches
- Spring return models
- Manual operator
- 0...10 Vdc or 2...10 Vdc signal input
- Position feedback signal
- Synchronous motor
- Direct / reverse action
- Stroke position on signal failure selectable
- Corrosion-resistant design
- Maintenance-free

GENERAL

The ML7420A / ML7425A,B actuators are for modulating control with controls providing an analog output of 0...10 Vdc or 2...10 Vdc. They operate Honeywell's standard valves in heating, ventilation, and air conditioning (HVAC) applications. The direction of movement is reversible by means of an internal selector plug.

SPECIFICATIONS

Temperature Limits

Ambient operating limits	-10...+50 °C at 5...95% r.h.
Ambient storage limits	-40...+70 °C at 5...95% r.h.
Medium valve temperature	Max. 150 °C (220 °C with High-Temperature kit)

Signals

Signal input voltage	y = 0...10 Vdc or 2...10 Vdc
$R_i = 100k\Omega$	
Signal source output resistance	1 k Ω max.
Position feedback signal	x = 2...10 Vdc
Load	1 mA max.

Safety

Protection class	II as per EN60730-1
Protection standard	IP54 as per EN60529
Flame retardant housing	V0 as per UL94 (with metal cable gland)

Wiring

Wiring terminals	1.5 mm ²
Cable entry	PG13.5. Two additional knock outs PG11 and PG13.5 for auxiliary switch and potentiometer accessories

Weight

non-spring return type	1.3 kg
spring return type	2.4 kg

Material

Cover	ABS-FR
Base	glass fiber reinforced plastic
Yoke	aluminum diecast

Model Number	ML7420A3006	ML7420A3014	ML7425A3005	ML7425B3004
supply voltage	24 Vac ±15%; 50/60 Hz			
power consumption	5 VA	7 VA	12 VA	
signal input 0(2) Vdc	Actuator stem retracted. Two-way valve:"open", three-way valve port A-AB:"closed" *			
signal input 10 Vdc	Actuator stem extended. Two-way valve:"closed", three-way valve port A-AB:"open" *			
stroke	20mm			
run time at 50 Hz	1 min	0.5 min	1.8 min	
close-off force	≥ 600 N			
spring return time	—		≈12 s	
spring return direction	—		actuator stem extends at power failure	actuator stem retracts at power failure

* Factory setting; can be reversed by repositioning jumper plug W3

OPERATION

General

The drive of a synchronous motor is converted into linear motion of the actuator stem via a spur gear transmission. The actuator stem is connected with the valve stem by a button-keyed retainer connection.

An integrated spring package limits the stem force to a factory-set value in either direction.

Installed microswitches switch off the actuator precisely when the specified stem force is reached.

Manual Operation

Actuators without spring return are equipped with a manual operator used in case of power failure. Manual operation is possible only after the power supply is switched off or disconnected.

To operate, push the manual operator knob down and turn clockwise to move the stem downward and counterclockwise to move the stem upward. If the actuator returns to automatic control, the manual operator knob unlocks automatically.

In the case of actuators with spring return, the manual operator is located under the cover.

Override Option

All actuators have an integrated override function (see also Fig. 2). When the override signal is applied, the actuator drives to the fully open or fully closed position, regardless of the controller signal.

Spring Return

The ML7425A,B spring return actuators provide a defined safety position of the valve in case of power failure.

The spring return actuators are shipped from the factory with a shipment stop (to lock the knob) in order to allow connection of the stem button retainer to the valve stem without power supply.

Electrical Installation

The actuators are delivered with a pre-installed cable gland PG13.5 and two additional knock-outs for PG11 and PG13.5. Max. cable length/diameter for field mounting:

- 200 m / 1.5 mm² or
- 100 m / 1.5 mm² (ML7420A3014)

NOTE: To avoid malfunction, it is necessary to connect 24 Vac power and ground (see Fig. 2 on page 5).

NOTE: In case of replacement, please note that the override switch has been changed (see Fig. 2 on page 5).

Input Signal Failure

By means of jumper plug W1 (see following note), the actuator can be adjusted such that in case of a signal input failure (e.g. a broken wire), the actuator will run to one of the three positions:

- 0%: actuator stem position for 0(2) Vdc
- 50%: actuator stem in central position
- 100%: actuator stem position for 10 Vdc

W1 is set by the factory to 50%.

Input Signal Range

The range of the analog input signal Y can be changed by repositioning jumper plug W2.

NOTE: Jumper plugs W1, W2 and W3 are accessible after the cover has been removed. They are located on the rear side of the protection sheet of the printed circuit board (see MU1B-0234GE51 and MU1B-0235GE51).

Action

The direction of action can be changed by repositioning jumper plug W3 (see note above). It is set by the factory such that the stem extends at increasing signal and retracts at decreasing signal.

Output Signal "POSITION"

An analog output signal 2...10 Vdc "POSITION" is available which represents the actual actuator position. It can be used for remote indication.

When the actuator stem is extended, the output signal is 10 Vdc.

Accessories

Auxiliary Switches

The actuators can be equipped on-site with an auxiliary switch unit with two switches. Their switching points are adjustable over the full length of the actuator stroke. The

switches can be used to switch pumps or provide remote indication of any stroke position.

A cable gland PG13.5 is delivered with the unit.

Part number: 43191680-005

Auxiliary Potentiometer

Auxiliary potentiometers are available for on-site mounting.

They can be used as feedback potentiometer and or to provide remote indication to the valve position. A cable gland PG13.5 is delivered with the unit.

Part number: 43191679-011 (10kΩ)

Part number: 43191679-012 (220Ω)

High Temperature Kit

(for applications >150°C medium temperature)

High Temperature Kit, Order Number	Valve	DN
43196000-001	V5011R/V5013R V5328A/V5329A	15 – 50 15 – 32
43196000-002	V5328A/V5329A V5049A V5050A V5016A/V5025A	40 – 80 15 – 65 15 – 80 15 – 80

CLOSE-OFF PRESSURE RATINGS in kPa

Stem Force		600 N							
Stroke		20 mm							
Valve Size	mm	15	20	25	32	40	50	65	80
	inch	½	¾	1	1 ¼	1 ½	2	2 ½	3
Valves		Close-Off Pressure Ratings							
V5011R		1600	1600	1000	700	460	260		
V5328A		1600/1000	1000	1000	600	350	200	120	50
V5095A			1600	1600	1600	1600	1600	1600	1600
V5016A		1600	1600	1600	1600	1600	1600	1600	1600
V5025A		2500	2500	2500	2500	2500	2500	2500	2500
V5049A		1600/1000	1000	1000	600	350	200	120	
V5013R		1600	1600	1000	700	460	260		
V5329C (PN6)		600	600	600	600	480	260	160	100
V5329A (PN16)		1000	1000	1000	790	480	260	160	100
V5050A		1000	1000	1000	600	350	200	120	50

For details on the valves, see following Specification Data No.:

V5011R	EN0B-0064GE51	V5328A/5049A	EN0B-0309GE51
V5011S	EN0B-0085GE51	V5329A/5050A	EN0B-0310GE51
V5016A	EN0B-0440GE51	V5025A	EN0B-0442GE51
V5095A	EN0B-0412GE51	V5013R	EN0B-0065GE51

DIMENSIONS

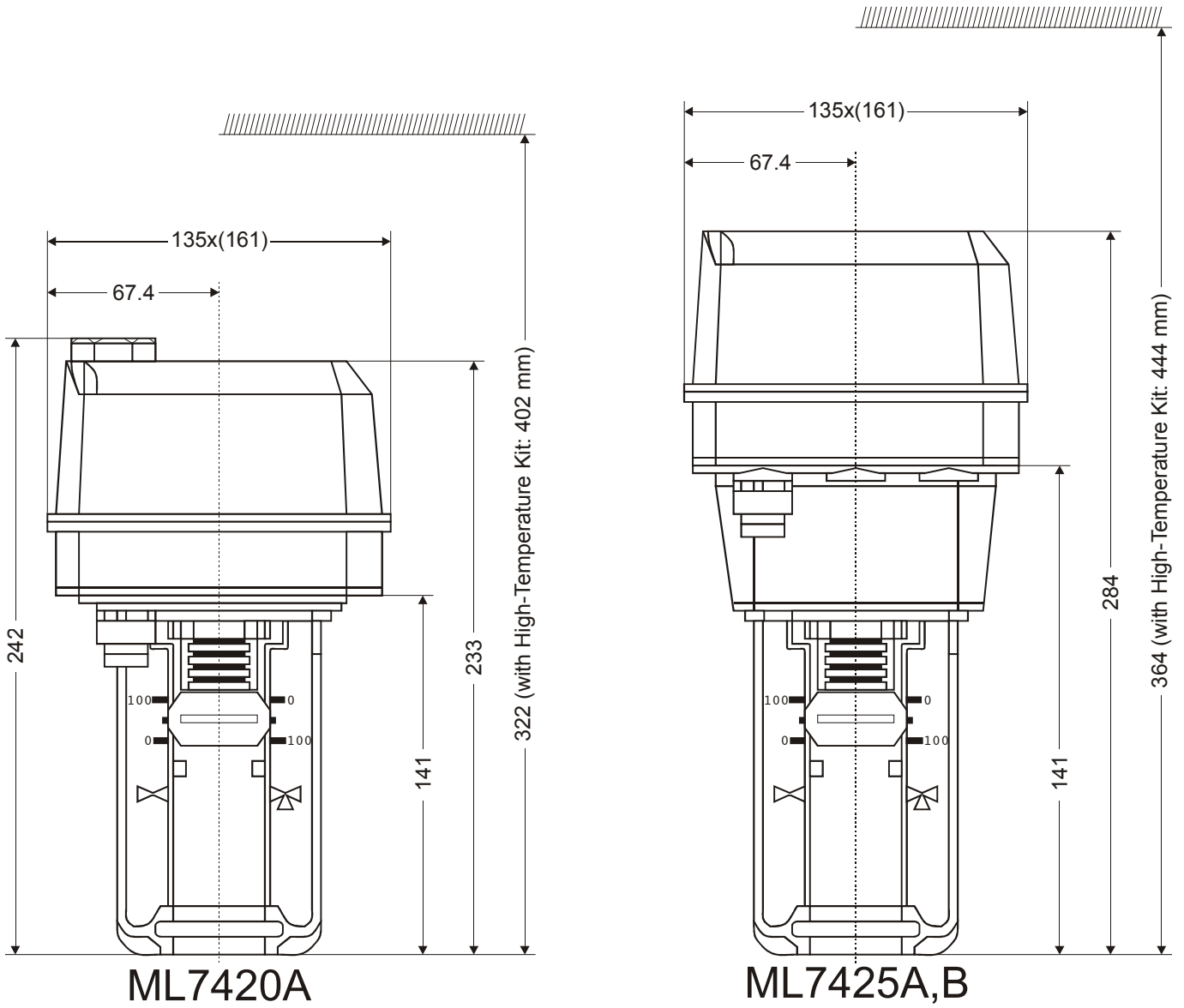


Fig. 1. Dimensions (in mm)

WIRING

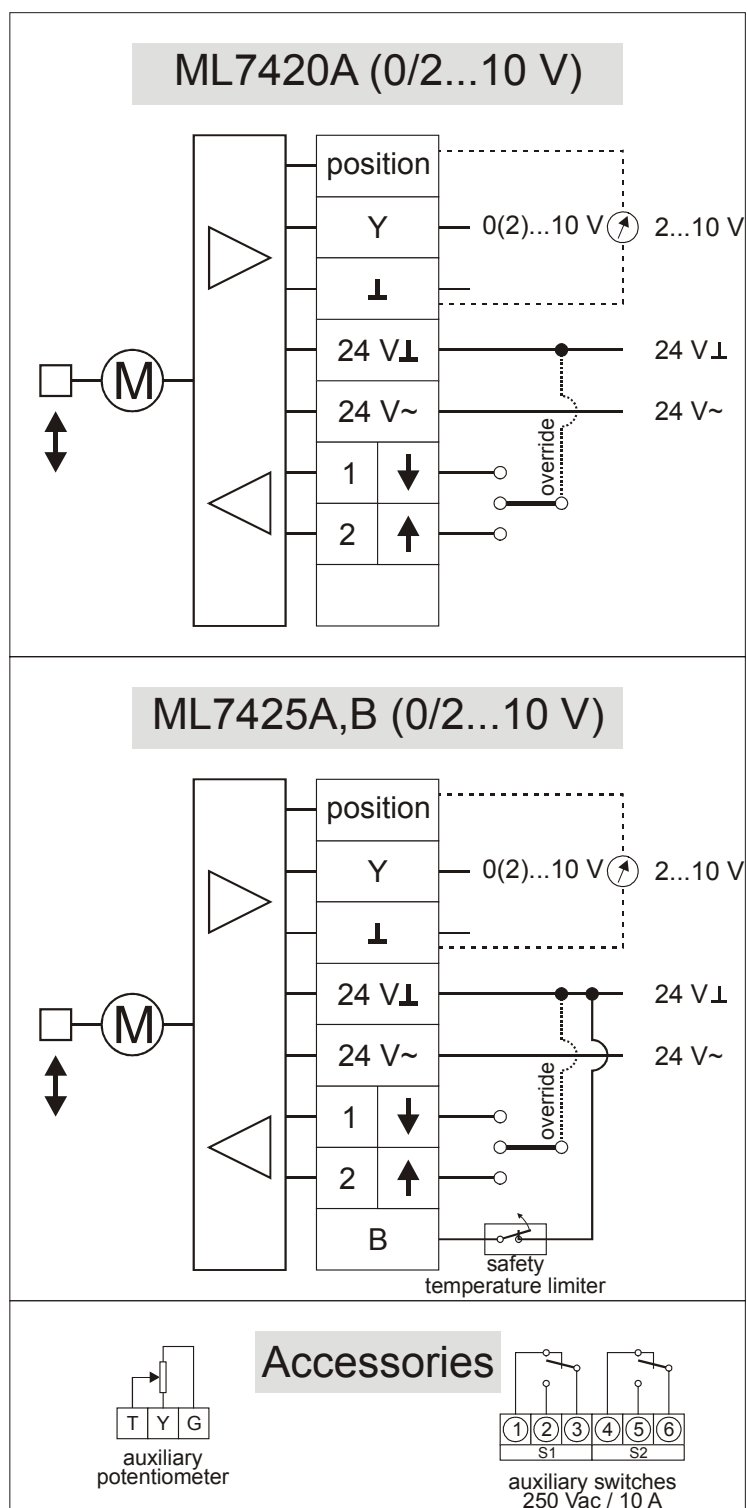


Fig. 2. Wiring

Honeywell

Automation and Control Solutions

Honeywell AG
Böblinger Straße 17
D-71101 Schönaich
Phone: (49) 7031 63701
Fax: (49) 7031 637493
<http://europe.hbc.honeywell.com>

Subject to change without notice. Printed in Germany

EN0B-0261GE51 R0403

Manufacturing location certified to **DIN EN ISO
9001/14001**