

LINEAR ELECTRIC ACTUATORS WITH FAIL-SAFE FUNCTION Type ELR2.1, ELR2.2, ELR2.3

DESCRIPTION

Electric linear actuators ELR series for modulating and open-close duty of control and process technology to operate control valves.

The self-locking stem/stem nut is driven by an electric motor via a gearing. Load and limit switches define the stops for the end positions.

In case of power failure, the electric linear actuator runs spring driven into the respective fail-safe position (thrust rod either extended or retracted). In modulating duty, the end position seating is made via limit switches.

MAIN FEATURES

- Electric manual operation with OPEN/CLOSE buttons.
- Mounting to valve made via yoke or mounting flange DIN 3358. The design enables easy connection to all types of valves. Standard version is suitable for Adcatrol valves.
- Generating a defined closing force in the end position leads to constantly tight shut-off of the valve.
- The actuators are in enclosure protection IP 54 and are designed for rugged industrial use.
- Stall proof synchronous motors (or brake motors for higher positioning forces) ensure highest positioning accuracy.
- Mechanical stroke indication via anti-rotation bar.
- Exact, backlash-free measurement of actual valve stroke by direct coupling to the valve stem.
- Universally usable actuators due to control via 3-point-step controllers, analogue input signals (0...10 V, 0 (4)...20 mA).
- Easy supplement to actuator with optional devices due to modular design.
- Limit switches, easily adjustable, for stroke limitation or as signal for intermediate positions.
- Integrated, adjustable stroke setting to nominal stroke over the complete stroke range (without exchanging pinions, ...).





TECHNICAL DATA

Type	ELR 2.1	ELR 2.2	ELR 2.3
Positioning force (CLOSED) kN	≥ 0,9	≥ 2,2	≥ 2,2
Opening force (OPEN) kN	≥ 5,3	≥ 4,0	≥ 4,0
Max. stroke mm	35	35	46
Positioning speed modulating duty ¹⁾ mm/min (mm/s)	17,5 (0,29)	17,5 (0,29)	17,5 (0,29)
Positioning speed in case of power failure Fail-safe function mm/s	~4,1	~4,1	~4,1
Power consumption (230 V) motor W	8,5	8,5	8,5
Power consumption (230 V) magnet W	15	15	15
Type of motor ³⁾	syn		
Motor protection ⁴⁾	B	B	B
Supply voltages ²⁾	24 V / 115 V / 230 V 50/60 Hz		
Closing direction fail-safe function	extending thrust rod or retracting thrust rod		
Cable entry	2 x M16x1.5 and 2 dummy plug M20x1.5		
Type of duty acc. to IEC 34-1	S1 – 100% c.d.f., S4 – 30% c.d.f. 1200 c/h		
Electrical connection	Inside terminal board, terminal configuration according to electrical connection wiring diagram		
Switch off in end position	2 limit switches, max. 250 V AC, rating for resistive load, max. 10 A, for inductive load, max. 10 A		
Mounting position	as desired, however downward position not possible		
Ambient temperature	–20 °C to +50 °C		
Lubricant for gearing	Renolit AL-WIK 260 X		
Position indicator	by anti-rotation bar		
Manual adjustment	electrical adjustment via push buttons (only possible when voltage is present)		
Enclosure protection acc. to EN 60529	IP 54		
Connection type	EN ISO 5210 F05 (also refer to options)		
Test/approvals	actuator has been tested by the TÜV [German Technical control board] according to DIN 32730 (safety functions against excessive temperature in heating facilities)		
Weight kg	8,7	9,3	10

1) at 60 Hz, the positioning speeds and input power increase by 20%
2) other supply voltages on request

3) syn synchronous motor
asyn asynchronous motor
4) B stallproof motor
T thermoswitch for temperature monitoring

ACCESSORIES AND OPTIONS

Accessories for actuators

Yoke for adaptation to valves refer to dimension sheet.	STALA/ FLA
Version IP 65 (with round cover)	A-IP65
Elastic thrust rod coupling effective on both sides (use for thrust seating in both directions, e.g. three-way valve)	KUP-EL2
Special finish coating for use in the tropics "tropics coating" (version IP 65 required).	LA-TR
Version with bellows at thrust rod	A-FAB

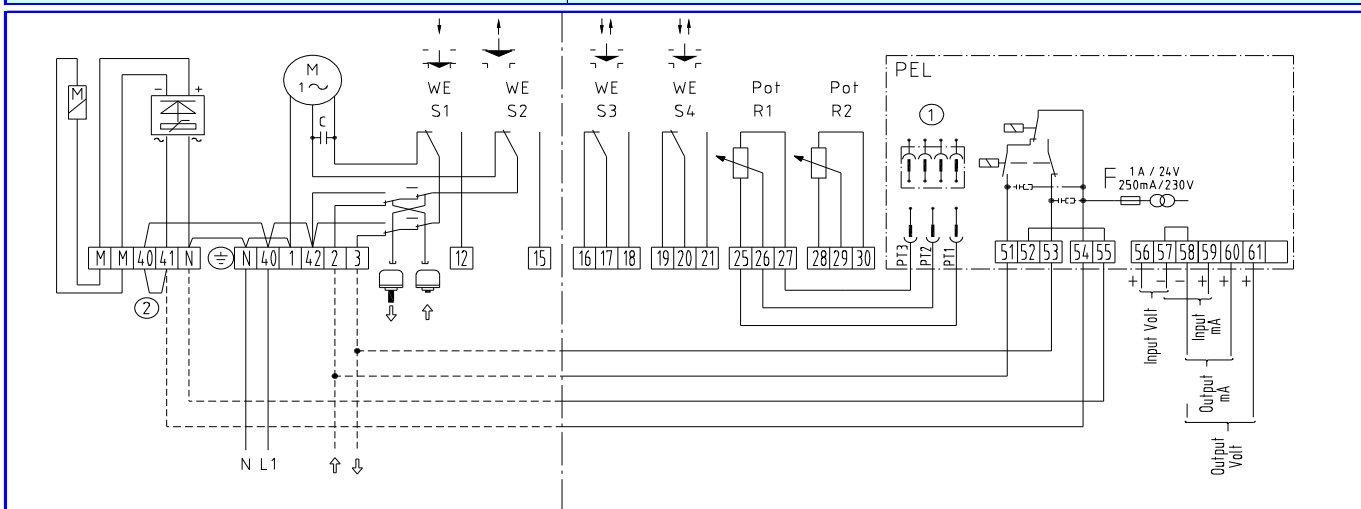
Options for actuators

Additional limit switches for signalling end positions or intermediate positions, freely adjustable, max. 250 V AC, rating for resistive load max. 10 A, for inductive load max. 5 A, max. 2 switches	WE
Additional limit switches for signalling end positions or intermediate positions, freely adjustable, with gold-plated contacts for low voltage, max. 30 V AC, rating for resistive load max. 0.1 A, max. 2 switches	WE-G
Potentiometer 100/130/200/500/1000/5000 Ohms or 10 kOhms Linearity error $\leq 0.5\%$, max. 1.5 W, contact current 30 mA max. 2 pieces	POT
Electronic position feedback 2-/3-/4-wire system output 0 (4)...20 mA Connection 24 V DC	ESR
Positioning electronics for actuator control Input 0...10 V, 0 (4)...20 mA, output 0...10 V, 0 (4)...20 mA Supply voltage 24, 115, 230 V 50/60 Hz	PEL

ELECTRICAL CONNECTION

Basic wiring diagram

Options



- WE Limit switch
- HZ Heater with thermostwitch
- POT Potentiometer
- ESR Electronic position feedback
- PEL Positioning electronics

ACTUATOR DIMENSIONS

Actuator ELR2.x according to EN ISO 5210 F05	Actuator ELR2.x with yoke	Dimensions			
		Type	ELR2.1	ELR2.2	ELR2.3
		a	315	333	354
		a 1)	352	370	390
		S	110		
		H	refer to technical data		
		1) Dimensions with PEL (positioning electronics)			
		Yoke without bottom flange			

Actuator selection for two way valves type EV16G

Actuator Type	Stroke [mm]	Differential pressure (bar)										
		DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150
ELR2.1	20	22,8	22,8	12,2	6,5	3,7	1,7	-	-	-	-	-
ELR2.2	20	-	-	41	24,2	15,2	8,7	-	-	-	-	-
ELR2.2	30	-	-	-	-	-	-	3,6	2,2	1	-	-
ELR2.3	20	-	-	47	28	17,7	10,3	-	-	-	-	-
ELR2.3	30	-	-	-	-	-	-	4,7	3	1,4	-	-
ELR2.3	40	-	-	-	-	-	-	-	-	-	0,58	0,27

Remarks: V-rings stem packing.

Actuator selection for two way valves type EV25G, EV40S

Actuator Type	Stroke [mm]	Differential pressure (bar)										
		DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150
ELR2.1	20	22,8	22,8	12,2	6,5	4,1	1,7	-	-	-	-	-
ELR2.2	20	-	-	41	24,2	16,6	8,7	-	-	-	-	-
ELR2.2	30	-	-	-	-	-	-	3,9	2,6	1	-	-
ELR2.3	20	-	-	47	28	19,3	10,3	-	-	-	-	-
ELR2.3	30	-	-	-	-	-	-	5,1	3,5	1,6	-	-
ELR2.3	40	-	-	-	-	-	-	-	-	-	0,59	0,27

Remarks: V-rings stem packing.



ORDERING CODES EL - ELR

ACTUATOR CODES (Electric)		E.							
Group Designation									
EL Series electric linear actuator		E.							
Valve Model									
V16G, V16I			16						
V25G, V25S, V25I			25						
V40S, V40I, WV40I			40						
V253G			23						
Valve Size									
DN15 to DN50				D.					
DN65 to DN100				J.					
DN125 to DN200				M.					
Actuator Type									
EL12							12		
EL20							20		
EL45							40		
EL45.1							41		
EL45.2							42		
EL80							60		
EL80.1							61		
EL80.2							62		
EL120							70		
EL120.1							71		
EL120.2							72		
EL250							80		
EL250.1							81		
EL250.2							82		
ELR2.1							2A		
ELR2.2							2B		
ELR2.3							2C		
Actuator Voltage									
230 VAC								1	
115 VAC								2	
24 VAC								3	
24 VDC								4	
400 V3~								5	
Control Signal									
Actuator without positioner (standard)									(2)
4 - 20 mA with positioner PEL (not for DC)									3
0 - 10 V with positioner PEL (not for DC)									4
Positioner PEL (DC)									5

→ To be introduced on ".X.", if supplied in combination with the valve.

Example:

V16G valve model EQP soft plug, PTFE/GR stem sealing DN50 complete with 230V electric actuator EL20 with positioner for 4-20mA signal.

Code: EV.16G11L50.2013

REMARKS:

(2)- Omitted if the standard actuator is selected.

ADCATROL control valves are identified by a serial number on a nameplate, located on the actuator yoke. Always order spares by using that serial number. If the valve has non-standard extras the serial number has also an E (extras).