



TI-P321-13

CTLS Issue 7

EL3500 Series

Electric Actuators

Description

The EL3500 series actuators are suitable for on/off control, modulating control with valve motor drive controller or modulating control with its integral valve positioner electronics.

This actuator range can be used with the following valves:

2-port	SPIRA-TROL
	BX, BM, SB, KA, KB, KC and NS
3-port	TW

Operation

The drive of a synchronous motor is converted into a linear motion of the actuator stem by using a spur gear transmission. An integrated spring package limits the stem force to a 600 N thrust in both directions. Installed torque switches, switch off the actuator automatically, when the specified stem force is reached.

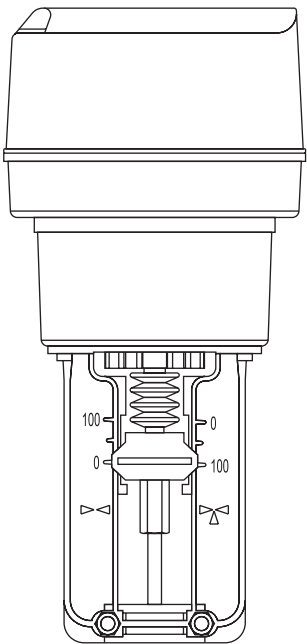
Available types

The EL3500 series actuators are available in the following configurations:

Spring reserve actuators have the suffix SR or SE appended to the basic actuator code e.g. EL3501SE. Where:

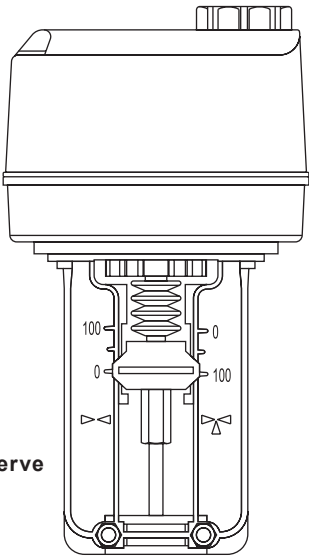
SR = Spring retract.

SE = Spring extend.



Actuators with spring reserve

(SR and SE)




Actuators without spring reserve

EL3501	230 Vac operating voltage for ON/OFF control or modulating control with external valve motor drive controller.
EL3502	24 Vac operating voltage for ON/OFF control or modulating control with external valve motor drive controller.
EL3501SE	230 Vac operating voltage for ON/OFF control or modulating control with external valve motor drive controller with the benefit of spring extend on power failure.
EL3502SE	24 Vac operating voltage for ON/OFF control or modulating control with external valve motor drive controller with the benefit of spring extend on power failure.
EL3512, EL3512SR, EL3512SE	24 Vac operating voltage with 0 to 10 Vdc, or 2 to 10 Vdc control signal. For 4 - 20 mA control signal use a 500 Ω resistance across the signal source, see Installation and Maintenance Instructions for full details. Modulating control from any controller providing this control signal.

Control systems
Electric actuators

Approvals

This equipment is  marked, and conforms to EN 50081-1 and 50082-2 (EMC), EN 60730-1 (safety), following the provisions of directives 89/336/EEC amended by 92/31/EEC and 93/68/EEC (EMC) and 72/23/EEC amended by 93/68/EEC.

Ambient limits

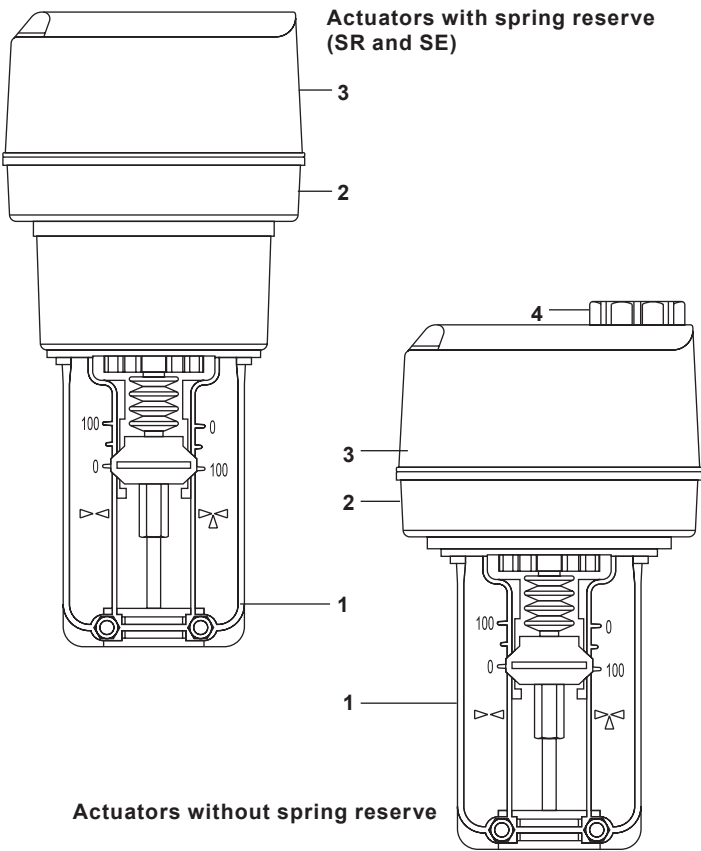
Storage temperatures	-40 to +70 °C at 5 to 95 % RH	
Operating temperatures	-10 to +50 °C at 5 to 95 % RH	* For temperatures up to 250 °C an EL3905 high temperature kit must be used.
Maximum valve medium temperature	+150 °C*	

Materials

No.	Part	Material
1	Yoke	Aluminium die casting
2	Base	Glass fibre reinforced plastic
3	Cover	ABS-FR
4	Handle	ABS-FR

Protection

IP rating	IP54
Insulation for EN 60730	Class II
Flame resistant to UL 94-V0 (with metal cable gland)	



Specifications

Model	EL3501	EL3502	EL3501SE	EL3502SE	EL3512	EL3512SE	EL3512SR
Supply voltage	230 Vac +10% -15% 50/60 Hz	24 Vac ±15% 50/60 Hz	230 Vac +10% -15% 50/60 Hz	24 Vac ±15% 50/60 Hz	24 Vac ±15% 50/60 Hz	24 Vac ±15% 50/60 Hz	24 Vac ±15% 50/60 Hz
Power consumption	6.5 VA	4 VA	12 VA	11 VA	5 VA	12 VA	12 VA
Actuator speed	0.32 mm/s	0.32 mm/s	0.19 mm/s	0.19 mm/s	0.32 mm/s	0.19 mm/s	0.19 mm/s
Control signal	VMD	VMD	VMD	VMD	0 - 10 Vdc	0 - 10 Vdc	0 - 10 Vdc
					2 - 10 Vdc	2 - 10 Vdc	2 - 10 Vdc
					(4 - 20 mA)	(4 - 20 mA)	(4 - 20 mA)
Spring reserve	NO	NO	YES	YES	NO	YES	YES
Manual handle	YES	YES	NO	NO	YES	NO	NO

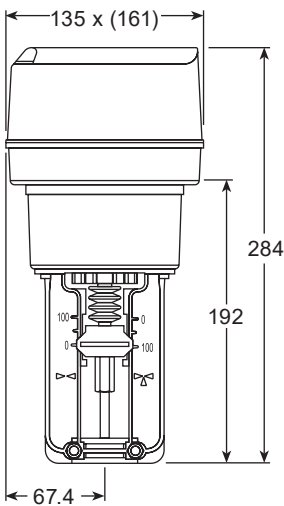
Maximum differential pressures (Δp) bar for SPIRA-TROL valves
(KE, LE, KEA and LEA with PTFE or graphite stem seal)

- Notes:
- 1) Refer to the valve TI for maximum valve operating pressures.
 - 2) The actuator differential pressures shown in the table below also apply to the spring reserve versions.

Valve size	DN15		DN20		DN25		DN32		DN40		DN50	
Valve travel	20 mm											
Kvs value	4		6.3		10		16		25		36	
EL3500 series actuator and derivatives	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite
Modulating duty* (metal-to-metal)	24.8	9.5	19.5	7.8	13.0	5.2	10.0	4.0	4.4	1.7	3.1	1.2
Class IV shut-off (metal-to-metal)	9.8	-	6.3	-	2.2	-	2.1	-	-	-	-	-
Class VI shut-off (soft seating)	24.4	9.5	19.3	7.5	12.8	5.0	9.9	3.8	4.2	1.6	3.0	1.1

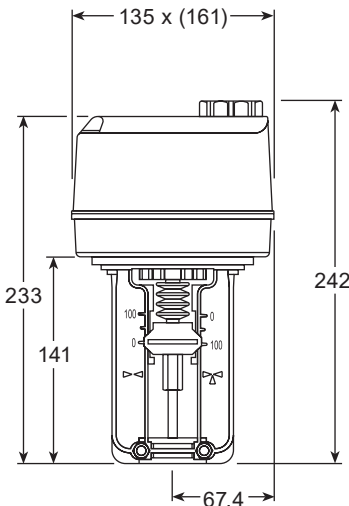
* **Modulating duty** - For pure control applications providing control across the full valve operating range but not guaranteeing shut-off to a greater level than the minimum flowrate based on the valve 50:1 turndown.

Dimensions/weights (approximate) in mm and kg



Actuator with spring reserve (SE and SR)

	Weight
Spring reserve (SE and SR)	2.4 kg



Actuators without spring reserve

	Weight
Non spring reserve	1.3 kg

Control systems

Electric actuators

Installation and wiring

The valve should be installed in the horizontal line. The position of the actuator will depend on the type of valve to which it is fitted and the temperature of the media. However, it is not recommended that the actuators be fitted directly below the valve or in a wet environment. Full Installation and Maintenance Instructions are supplied with the product.

Termination details

See Installation and Maintenance Instructions for more details.

Accessories

All EL3500 actuators are supplied (as standard) with a linkage kit suitable for LE/KE valves. However, the following optional extras are also available at extra cost:

EL3904 spare linkage kit	For LE/KE valves.
EL3906 spare linkage kit	For SPIRA-TROL control valves
EL3808 linkage kit	For the self-acting range of valves BX, BM, SB, KA KB, KC, NS and TW (DN15 to DN50 for TW only).
EL3809 linkage kit	For the self-acting range of valves TW (DN80 to DN100).
Auxiliary potentiometer	EL3901 (10kΩ) or EL3902 (220Ω) are available for mounting on site. They can be used as a feedback potentiometer and/or to provide remote indication of the valve position. A cable gland is supplied with this.
EL3903 auxiliary switches	Their switching points are adjustable over the full length of the actuator stroke. The switches can be used e.g. to provide remote indication of any stroke position. A cable gland is supplied with this.
EL3905 high temperature kit	Enables all EL3500 to be used for valve medium temperatures from 150 °C to 250 °C.

How to order

To receive this actuator for use with;	LE or KE valve, order:	1 - EL3501 actuator
	TW DN20 to DN50, or BX,	1 - EL3501 actuator and 1 - EL3808 linkage kit
	BM, SB, KA, KB, KC, NS valves, order:	
	TW DN80 to DN100 valve, order:	1 - EL3501 actuator and 1 - EL3809 linkage kit



TI-P358-14

CH Issue 4

EL7200 Series

Electric Actuators

Description

EL7200 series electric actuators are available for use with the following supply voltages: 230 Vac, 115 Vac and 24 Vac. This range of electric actuators has three user-configurable control modes as standard:

- (VMD) Valve Motor Drive,
- (0/4 - 20 mA) modulating control or
- (0/2 - 10 Vdc) modulating control.

When they have been fitted to a control valve they provide modulating control or on/off action.

EL7200 series electric actuators can be used with the following valves:

2-port	Spira-trol™	EL7200	Mounting flange (DN15 - DN50)	EL7021
	BX, BM, SB, KA, KB, KC and NS		Linkage LE, KE Series (DN15 - DN50)	EL7020
3-port	TW valves (DN20 - DN50)	Adaptor	For self-acting valves (DN15 - DN50)	EL7012
	QLD and QLM (DN15 - DN50)			

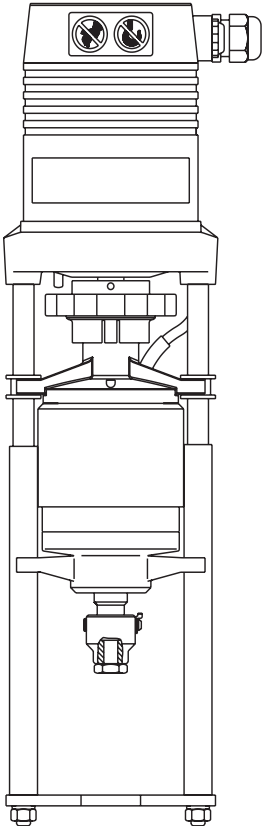
Operation

The drive mechanism consists of a stepper motor and a planetary gearbox that converts a rotary motion to a linear motion. An integrally installed contactless hall-sensor for permanent positioning control, switches off the motor in the maximum travel position of the valve.

Options and accessories

IP65 construction.

24 Vdc motor for rectified ac.



EL7211A-SE

Technical data

Model	EL7211A-SE	EL7212A-SE	EL7213A-SE
Supply voltage	230 Vac	115 Vac	24 Vac
Frequency Hz	50 / 60 Hz ± 5%		
Travel	20 mm		
Power consumption VA	20 VA	25 VA	20 VA
Enclosure rating	IP54		
Actuator speed	0.17 - 0.25 mm/s		
Actuator thrust	1.0 kN		
Ambient limitations	-10 °C to + 60 °C		
Motor	Stepper motor		
Terminations	1.5 mm		
Conduit entries	1 x M16 x 1.5 1 x M20 x 1.5		
Control signal	0 - 10 Vdc 2 - 10 Vdc 4 - 20 mA VMD		
Spring reserve	Yes		
Manual override	Yes		

4

Control systems
Electric actuators

Maximum differential pressures for Class IV shut-off (metal-to-metal)

KE, LE, KEA and LEA with PTFE or Graphite stem seal

Valve size			DN15		DN20		DN25		DN32		DN40		DN50	
Kv			4.0		6.3		10		16		25		36	
Valve travel			20 mm											
Valve type	Actuator type	Voltage	Differential pressure (bar)											
			PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite
KE 2-port and LE 2-port	EL7211A-SE	230	29.7	14.8	22	10	12	4.8	10.3	4.2	2.6		1.2	
	EL7212A-SE	115	29.7	14.8	22	10	12	4.8	10.3	4.2	2.6		1.2	
	EL7213A-SE	24	29.7	14.8	22	10	12	4.8	10.3	4.2	2.6		1.2	

Maximum differential pressures for Class VI shut-off (soft seal)

KE, LE, KEA and LEA with PTFE or Graphite stem seal

Valve size			DN15		DN20		DN25		DN32		DN40		DN50	
Kv			4.0		6.3		10		16		25		36	
Valve travel			20 mm											
Valve type	Actuator type	Voltage	Differential pressure (bar)											
			PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite
KE 2-port and LE 2-port	EL7211A-SE	230	40	29.7	35	23.2	23	15.5	18	11.9	7.7	5.1	5.5	3.6
	EL7212A-SE	115	40	29.7	35	23.2	23	15.5	18	11.9	7.7	5.1	5.5	3.6
	EL7213A-SE	24	40	29.7	35	23.2	23	15.5	18	11.9	7.7	5.1	5.5	3.6

Maximum differential pressures for Modulating duty only

QLD and QLM 3-port valves with PTFE or Graphite stem seal

Valve size			DN15		DN20		DN25		DN32		DN40		DN50	
Kv			4.0		6.3		10		16		25		36	
Valve travel			20 mm											
Valve type	Actuator type	Voltage	Differential pressure (bar)											
			PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite
QLD 3-port and QLM 3-port	EL7211A-SE	230	26.6	12	26.6	12	15.3	6.4	9.2	3.7	5.6	2	3.2	1
	EL7212A-SE	115	26.6	12	26.6	12	15.3	6.4	9.2	3.7	5.6	2	3.2	1
	EL7213A-SE	24	26.6	12	26.6	12	15.3	6.4	9.2	3.7	5.6	2	3.2	1

Materials

No.	Part	Material
1	Actuator case	Glass filled Polymer
2	Handwheel	POM
3	Cable inlet	PA
4	Pillar	Steel BZP passivated
5	Linkage	
6	Mounting flange	

Dimensions / weights (approximately) in mm and kg

Actuator range	A	B	C*	Weight
EL7211A-SE	471	100	140	3.0
EL7212A-SE	471	100	200	3.0
EL7213A-SE	446	100	200	3.0

* Actuator cover removal distance

EL7200 series selection guide

Ordering a control valve

Type	EL = Electric	EL
Series	7 = 7000 series	7
Actuator thrust	2 = 1.0 kN	2
Actuator travel	1 = 20	1
Voltage	1 = 230 Vac	1
	2 = 115 Vac	
	3 = 24 Vac	
Control mode	A = 0/4 - 20 mA + 0/2 - 10 Vdc + VMD	A
Failure mode	SE = Spring extend	SE

How to order

Example: 1 off EL7211A-SE 230 Vac electric actuator with spring extend.

Spares

Spare parts are available as indicated. No other parts are available as spares.

Linkage (DN15 to DN50)	5
Mounting flange (DN15 to DN50)	6

How to order spares

Always order spares by using the description given above and state exactly which product they are for.

Example: 1 - Mounting flange for a EL7211A-SE 230 Vac electric actuator.

