

Connection of potentiometer (optional)

LA1	<input checked="" type="checkbox"/>	black		Stroke	R	POTENTIOMETER DATA
LA5	<input type="checkbox"/>	white		1 – 2"	940 ohm/cm	Max. power: 1.5 W
LA10	<input type="checkbox"/>	red		3 – 4"	470 ohm/cm	Resistance tolerance: ± 5 %
LA14	<input type="checkbox"/>			5 – 6"	315 ohm/cm	Resistance linearity: ± 0.25 %
LA24	<input type="checkbox"/>					
FA14	<input type="checkbox"/>					
IA14	<input type="checkbox"/>					
GX AC	<input type="checkbox"/>					
GX DC	<input type="checkbox"/>					

0 ohm between white and red when fully retracted.
min. stroke = 0 ohm → ohm = R × cm

LA1	<input type="checkbox"/>	grey		Stroke	R	POTENTIOMETER DATA
LA5	<input checked="" type="checkbox"/>	yellow		0 – 10"	390 ohm/cm	Max. power: 2 W
LA10	<input checked="" type="checkbox"/>	green		11 – 20"	200 ohm/cm	Resistance tolerance: ± 5 %
LA14	<input checked="" type="checkbox"/>			21 – 40"	100 ohm/cm	Resistance linearity: ± 0.25 %
LA24	<input checked="" type="checkbox"/>					
FA14	<input checked="" type="checkbox"/>					
IA14	<input type="checkbox"/>					
GX AC	<input checked="" type="checkbox"/>					
GX DC	<input checked="" type="checkbox"/>					

0 ohm between yellow and grey when fully extended.
ohm = R × cm ← max. stroke = 0 ohm

Position of magnet for reed switch sensors

LA1	<input type="checkbox"/>	Magnet position with extension tube fully retracted	Magnet position with extension tube fully extended
LA5	<input type="checkbox"/>		
LA10	<input type="checkbox"/>		
LA14	<input checked="" type="checkbox"/>		
LA24	<input checked="" type="checkbox"/>		
FA14	<input checked="" type="checkbox"/>		
IA14	<input checked="" type="checkbox"/>		
GX AC	<input type="checkbox"/>		
GX DC	<input type="checkbox"/>		

Actuator type	Actuator designation	L1 (mm)	L2 (mm)
LA14, LA24, FA14	xAxx-xxAxx	32	35
LA14, LA24, FA14, IA14	xAxx-xxBxx	92	20

The reed switch sensors should normally be placed about 25 mm before these position in order to compensate for the distance needed for deceleration.

LA1 with integrated end stroke limit switches

LA1	<input checked="" type="checkbox"/>	
LA5	<input type="checkbox"/>	
LA10	<input type="checkbox"/>	
LA14	<input type="checkbox"/>	
LA24	<input type="checkbox"/>	
FA14	<input type="checkbox"/>	
IA14	<input type="checkbox"/>	
GX AC	<input type="checkbox"/>	
GX DC	<input type="checkbox"/>	

If using a LA1 actuator with integrated end stroke limit switches (designation Sxx-xxAxx-xxxx), make sure to switch off the power to the motor if the extension tube can not extend or retract fully. Otherwise the motor will keep running which may cause damage to the actuator.

Switch off power! → max. stroke ← min. stroke

CAUTION!

Always turn power off before working on the actuator or the wiring.

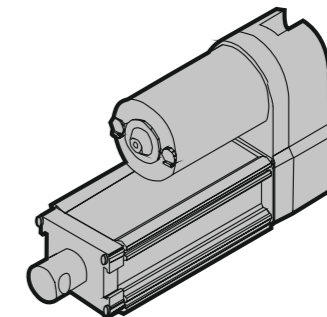
Technical data

	LA1	LA5/GX AC	LA10/GX DC	LA14	LA24	FA14	IA14	
DC-motor with automatic reset thermal switch *								
12 VDC (10 – 16 V) **	yes	–	yes	yes	–	–	–	
24 VDC (20 – 32 V) **	yes	–	yes	yes	–	–	–	
36 VDC (30 – 40 V) **	yes	–	yes	yes	–	–	–	
48 VDC **	–	–	yes	–	–	–	–	
90 VDC ***	–	–	yes	–	–	–	–	
Only accepts battery or full wave smoothed rectified voltage	yes	–	–	–	–	–	–	
Accepts battery, full wave smoothed or unsmoothed rectified voltage	–	yes	yes	yes	–	–	–	
AC-motor with automatic reset thermal switch *								
1 115 VAC (102 – 130 V) **	–	yes	–	–	yes	–	–	
1 230 VAC (212 – 240 V) **	–	yes	–	–	yes	–	–	
3 400 VAC (360 – 420 V) **	–	–	–	–	yes	–	–	
Capacitor necessary	–	yes	–	–	yes	–	–	
Max. current (A)	see actuator label						–	–
Duty cycle @ full load 25°C (%)	25	25	25	25	25	–	–	
Max. on time (s)	****	45	****	****	45	–	–	
Restraining torque (Nm)	2.3	11.3	11.3	0	0	0	0	
End play max. (mm)	0.9	1	1	1	1	1	1	
Ambient temperature (°C)	– 25 – + 65							
Lubrication	for life							
Anti backdriving mechanism	yes							
Slip clutch	–	yes (set to 1.2 – 1.5 × max. dynamic load)				–	–	
Protection class	IP65	–	IP65	IP65	–	–	–	
End stroke limit switches	yes	–	–	–	–	–	–	
Options								
Feedback potentiometer	yes						–	
Electrically released brake	–	yes	–	–	yes	–	–	
Reed switch sensors	–	–	–	yes			–	
Pins	yes							
Pin holders	–	–	–	yes			–	
Trunnion	–	–	–	yes			–	
Trunnion holders	–	–	–	yes			–	

* Do not use the thermal switch as overload protection
 ** CE complaint model
 *** Non CE compliant model
 **** One full cycle at full load

We recommend to always install fuse or thermal breaker between motor and power supply to protect actuator, wiring and other items.

Installation manual for LA1, LA5, LA10, LA14, LA24, GX DC, GX AC, FA14 and IA14 actuators



<p>LA1</p> <p>12 VDC 24 VDC 36 VDC</p>	<p>LA14</p> <p>12 VDC 24 VDC 36 VDC</p>
<p>LA10, GX DC</p> <p>12 VDC 24 VDC 36 VDC 48 VDC 90 VDC</p>	<p>LA24</p> <p>115 VAC 230 VAC 400 VAC</p>
<p>LA5, GX AC</p> <p>115 VAC 230 VAC</p>	<p>FA14, IA14</p>

Basic mounting rules

LA1 LA5 LA10 LA14 LA24 FA14 IA14 GX AC GX DC

OK

LA1 LA5 LA10 LA14 LA24 FA14 IA14 GX AC GX DC

OK

LA1 LA5 LA10 LA14 LA24 FA14 IA14 GX AC GX DC

Only mount actuator in these points!

LA1 LA5 LA10 LA14 LA24 FA14 IA14 GX AC GX DC

Restraining torque
Torque needed to prevent extension tube from rotating.

LA1	2.3 Nm
LA5/GX AC	11.3 Nm
LA10/GX DC	11.3 Nm

LA1 LA5 LA10 LA14 LA24 FA14 IA14 GX AC GX DC

Only mount actuator in these points!
* Trunnion (option), p/no. D603 022 (2x)
Correct tightening torque = 44 Nm.

LA1 LA5 LA10 LA14 LA24 FA14 IA14 GX AC GX DC

Only use solid pins!

LA1	LA5, LA10, GX
LA10	LA5, LA10, GX
LA14	LA5, LA10, GX
LA24	LA5, LA10, GX
FA14	LA5, LA10, GX
IA14	LA5, LA10, GX
GX AC	LA5, LA10, GX
GX DC	LA5, LA10, GX

LA1 $\phi = 6.35$ mm p/no. D603 034 (2x)
LA5, LA10, GX $\phi = 12.7$ mm p/no. D603 028 (2x)
LA14, LA24, FA14, IA14 $\phi = 12$ mm p/no. D603 023 (2x)

LA1 LA5 LA10 LA14 LA24 FA14 IA14 GX AC GX DC

Trunnion holders (option)
p/no. D603 030 (2x)

LA1 LA5 LA10 LA14 LA24 FA14 IA14 GX AC GX DC

Pin holders (option)
p/no. D603 029 (2x)

Basic mounting rules

LA1 LA5 LA10 LA14 LA24 FA14 IA14 GX AC GX DC

Only mount actuator in these points!
□ Foot mount (standard)
* Trunnion (option) p/no: D603 022 (2x)

LA1 LA5 LA10 LA14 LA24 FA14 IA14 GX AC GX DC

Motor flange
Drill hole and make key way in the coupling to fit your motor shaft. The coupling accepts holes between $\phi 10 - 19$ mm.

Wire cross section

LA1 LA5 LA10 LA14 LA24 FA14 IA14 GX AC GX DC

U
12 VDC
24 VDC
36 VDC

L(m)	mm ²
0 - 10	1.5
11 - 20	2.5

LA1 LA5 LA10 LA14 LA24 FA14 IA14 GX AC GX DC

U
115 VAC
230 VAC
400 VAC

L(m)	mm ²
0 - 20	1.5

LA1 LA5 LA10 LA14 LA24 FA14 IA14 GX AC GX DC

U
12 VDC
24 VDC
36 VDC

12 VDC				24 VDC				36 VDC	
Current (A)	mm ²			Current (A)	mm ²			Current (A)	mm ²
	L = 3 m	L = 6 m	L = 10 m		L = 6 m	L = 10 m		L = 10 m	
0 - 15	1.5	2.5	4	0 - 10	1.5	1.5	0 - 12	1.5	
16 - 20	2.5	4	6	11 - 15	2.5	2.5			
21 - 28	4	6	10						
29 - 34	6	6	10						

The tables are based on ambient temperature = 30°C or less.

Connection of motor

LA1 LA5 LA10 LA14 LA24 FA14 IA14 GX AC GX DC

A = S12, S24, S36 B = SP12 C = SP24, SP36

LA1 LA5 LA10 LA14 LA24 FA14 IA14 GX AC GX DC

230 and 115 Vac supply without brake (A22-xxxx-xxxxNxxxx, AA22-xxxxMxxxxNxxxx)

LA1 LA5 LA10 LA14 LA24 FA14 IA14 GX AC GX DC

230 and 115 Vac supply with brake (A22-xxxx-xxxxBxxxx, AA22-xxxxMxxxxBxxxx)

LA1 LA5 LA10 LA14 LA24 FA14 IA14 GX AC GX DC

* Capacitor: 115 VAC = 35 microF, p/no. D900-448-002 / 230 VAC = 10 microF, p/no. D900-448-003

3 x 400 Vac supply without brake (A42-xxxxMxxxxNxxxx, AA42-xxxxMxxxxNxxxx)

LA1 LA5 LA10 LA14 LA24 FA14 IA14 GX AC GX DC

3 x 400 Vac supply with brake (A42-xxxxMxxxxBxxxx, AA42-xxxxMxxxxBxxxx)

LA1 LA5 LA10 LA14 LA24 FA14 IA14 GX AC GX DC