Electrak® HD – Technical Features

SMART

Standard Features

- Onboard electronics with many optional functions
- Static load up to 18 kN (4050 lbf)
- Dynamic load up to 16 kN (3584 lbf)
- Stroke up to 1000 mm
- Speed up to 71 mm/s (2.8 in/s)
- Protection class static IP67 / IP69K and dynamic IP66 and tested for 500 hour salt spray resistance

General Specifications

Screw type	ball
Nut type	load lock ball nut
Manual override	yes
Anti-rotation	yes
Static load holding brake	yes
Safety features	Electrak monitoring package: current monitoring voltage monitoring temperature monitoring load trip point calibration internal end-of-stroke limit switches(1) end-of-stroke dynamic braking
Electrical connections (2)	cable(s) with flying leads
Compliances	CE. UKCA, RoHS, REACH

(1) Dynamic braking is included at the ends of stroke for all Electrak HD actuators. Dynamic braking offered throughout the entire stroke length only on low-level switching and SAE J1939 options.
(2) There are one or two cables depending on the control option used. The cable(s) enters the actuator via a connector. The replacement of an actuator can be completed by unplugging the old actuator and plugging in the new one.

Optional Mechanical Features

Variety of front and rear adapters
Alternative adapter orientation

Optional Electronic Control Features

CANopen® CAN bus
SAE J1939 CAN bus
Synchronization option
Low-level switching
Programmable limit switches
Signal-follower
End-of-stroke indication output
Analog position output
Digital position output

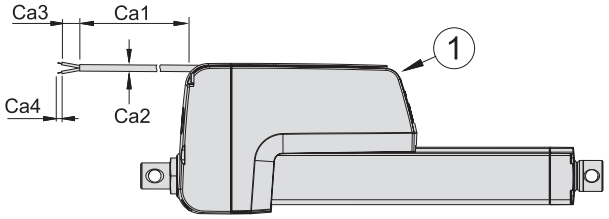
Control Option Combinations

EXX	Electrak Monitoring Package only
ELX	EXX + End-of-Stroke Indication Output
EXP	EXX + Analog Position Output
EXD	EXX + Digital Position Output
ELP	ELX + Analog Position Output
ELD	ELX + Digital Position Output
LXX	EXX + Low-Level Signal Motor Switching
LLX	EXX + LXX + End-of-Stroke Indication Output
LXP	EXX + LXX + Analog Position Output
LPS	EXX + LXX + Programmable Limit Switches + Signal-Follower
CNO	SAE J1939 CAN Bus Control + Open-Loop Speed Control
COO	CANopen CAN Bus Control + Open-Loop Speed Control
SY2	Synchronization Option

Accessories

Rod end front adapter
External slot-mounted limit switches

Cable Definitions



The drawing shows the cables exiting the cable slots at the end of the actuator housing, which is the shipping position. The user can adjust the exit point to be anywhere between the connector (1) in the front of the housing and the end of the cable slots.

Electrak HD – Technical Specifications

Mechanical Specifications

Parameter		Electrak HD
Max. static load [1]	[kN (lbs)]	18 (4050)
Max. dynamic load (Fx)	[kN (lbs)]	
HDxx-B017		1.7 (382)
HDxx-B026		2.6 (585)
HDxx-B045		4.5 (1012)
HDxx-B068		6.8 (1529)
HDxx-B100		10 (2248)
HDxx-B160		16 (3584)
Speed @ no load/max. load [2]	[mm/s (in/s)]	
HDxx-B017		71/58 (2.8/2.28)
HDxx-B026		40/32 (1.6/1.3)
HDxx-B045		24/19 (0.94/0.75)
HDxx-B068		18/14 (0.71/0.55)
HDxx-B100		11/9 (0.43/0.35)
HDxx-B160		7/5 (0.27/0.21)
Min. ordering stroke (S) length	[mm]	100
Max. ordering stroke (S) length [3]	[mm]	1000
Ordering stroke length increments	[mm]	50
Operating temperature limits	[°C (F)]	-40 – 85 (-40 – 185)
Full load duty cycle @ 25 °C (77 °F)	[%]	25 [4]
End play, maximum	[mm (in)]	1.2 (0.047)
Restraining torque	[Nm (lbs)]	0
Protection class - static (dynamic)		IP67/IP69K (IP66)
Salt spray resistance	[h]	500

[1] Max. static load at fully retracted stroke.
[2] For units with the synchronization option, the speed will vary slightly when synchronizing, but will typically remain close to the speed they are rated for at full load. See page ?? for more information on the synchronization option.
[3] 500 mm max. for 16 kN.
[4] For HDxx-B100 and HDxx-160 load, the duty cycle is 15%.
[5] Do not use PWM voltage for speed control to avoid damaging the onboard electronics.
[6] See previous page for cable definitions.

Electrical Specifications

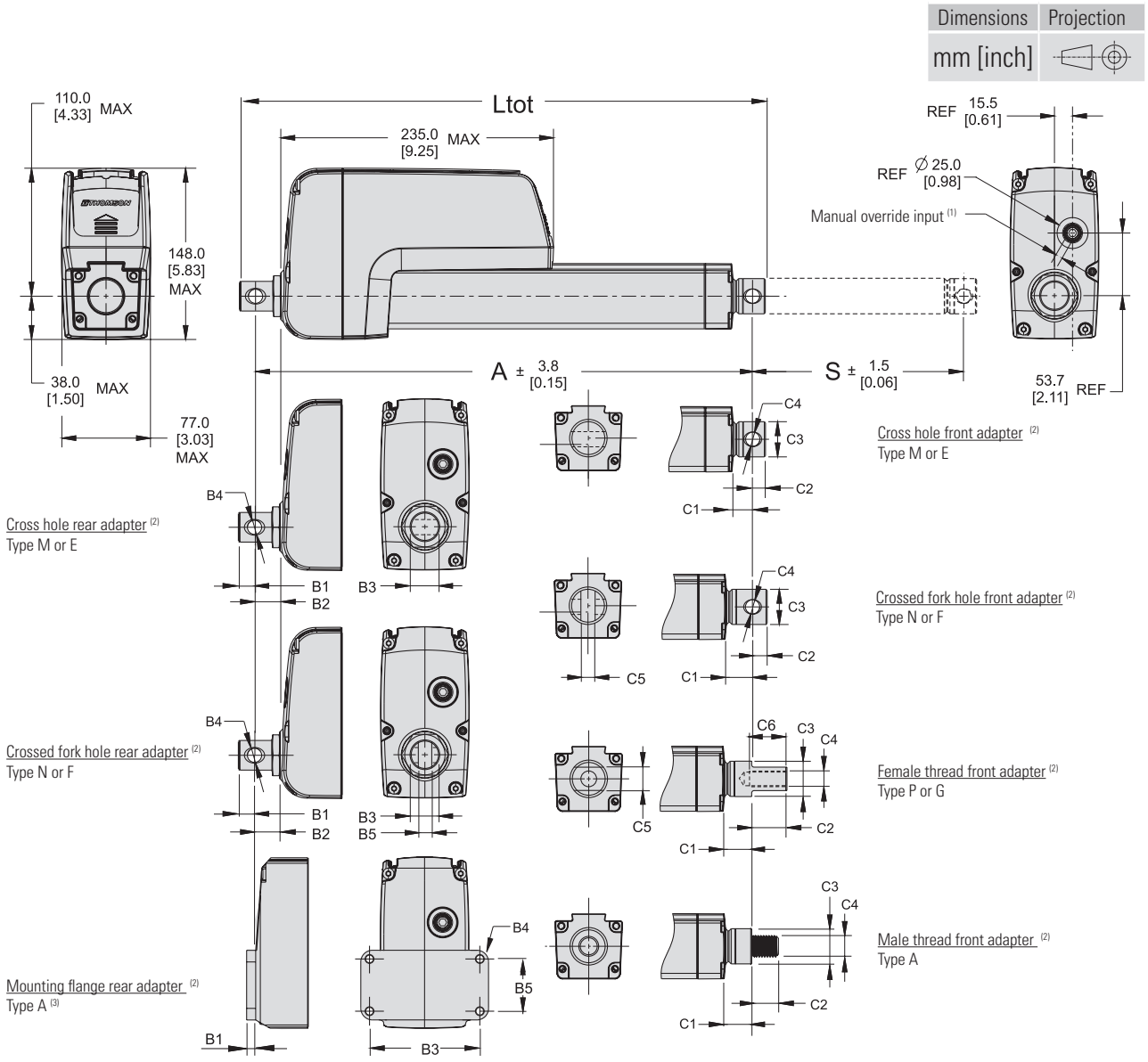
Parameter		Electrak HD
Available input voltages [5]	[Vdc]	12, 24, 48
Input voltage tolerance	[Vdc]	
HD12 (12 Vdc input voltage)		9 - 16
HD24 (24 Vdc input voltage)		18 - 32
HD48 (48 Vdc input voltage)		36 - 64
Current draw @ no load/max. load	[A]	
HD12-B017		3/18
HD24-B017		1.5/9
HD48-B017		0.75/4.5
HD12-B026		3/18
HD24-B026		1.5/9
HD48-B026		0.75/4.5
HD12-B045		3/18
HD24-B045		1.5/9
HD48-B045		0.75/4.5
HD12-B068		3/20
HD24-B068		1.5/10
HD48-B068		0.75/5
HD12-B100		3/18
HD24-B100		1.5/9
HD48-B100		0.75/4.5
HD12-B160		3/20
HD24-B160		1.5/10
HD48-B160		0.75/5
Motor leads cross section	[mm² (AWG)]	2 (14)
Signal leads cross section	[mm² (AWG)]	0.5 (20)
Standard cable lengths (Ca1) [6]	[m (in)]	0.3, 1.5, 5 (11.8, 59, 197)
Cable diameter (Ca2) [6]	[mm (in)]	7.5 (.295)
Flying lead length (Ca3) [6]	[mm (in)]	76 (3)
Stripped lead length (Ca4) [6]	[mm (in)]	6 (0.25)

Actuator Weight [kg]

Maximum Dynamic Load (Fx) [kN (lbs)]	Ordering Stroke (S) [mm]																		
	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
1.7 (382)	6.5	6.7	7.0	7.2	7.5	7.7	8.0	8.2	8.5	8.7	9.0	9.2	9.5	9.7	10.0	10.2	10.5	10.7	11.0
2.6 (585)	6.5	6.7	7.0	7.2	7.5	7.7	8.0	8.2	8.5	8.7	9.0	9.2	9.5	9.7	10.0	10.2	11.6	11.9	12.2
4.5 (1012)	6.5	6.7	7.0	7.2	7.5	7.7	8.0	8.2	8.5	8.7	9.0	9.2	10.4	10.7	11.0	11.3	11.6	11.9	12.2
6.8 (1592)	6.5	6.7	7.0	7.2	7.5	7.7	8.0	8.2	8.5	9.5	9.8	10.1	10.4	10.7	11.0	11.3	11.6	11.9	12.2
10 (2248)	6.7	7.0	7.2	7.5	7.7	8.0	8.2	9.1	9.4	9.7	10.0	10.3	10.6	10.9	11.2	11.5	11.8	12.1	12.4
16 (3584)	8.1	8.3	8.5	8.7	8.9	9.1	9.3	9.5	9.7										

Conversion Factors: Millimeter to inch: 1 mm = 0.03937 in, kilogram to pound: 1 kg = 2.204623 lbs

Electrak® HD – Dimensions



Rear and Front Adapter Dimensions [mm]

	Rear Adapter Types						Front Adapter Types						
	M	E	N	F	A (3)		M	E	N	F	P	G	A
B1	13.4	13.4	13.4	13.4	7.8	C1	see table on next page						16.5
B2	21.6	21.6	21.6	21.6	-	C2	10.9	10.9	12.9	12.9	30.0	30.0	20.0
B3	25.4	25.4	25.4	25.4	95.0	C3	see table on next page						
B4	12.2	12.8	12.2	12.8	6.6	C4	12.2	12.8	12.2	12.8	M12 × 1.75	1/2-20 UNF-2B	M16 × 2
B5	-	-	8.2	8.2	45.0	C5	-	-	8.2	8.2	19.0	19.0	-
						C6	-	-	-	-	35.0	35.0	-

(1) The input hole is covered with a plastic threaded plug. When removed, a 6 mm socket can be inserted and used as a crank.
(2) All adapters shown in the standard orientation.
(3) Rear mounting flange type A cannot be ordered with a higher maximum static load capacity than 10 kN or/and a maximum stroke of 300 mm.

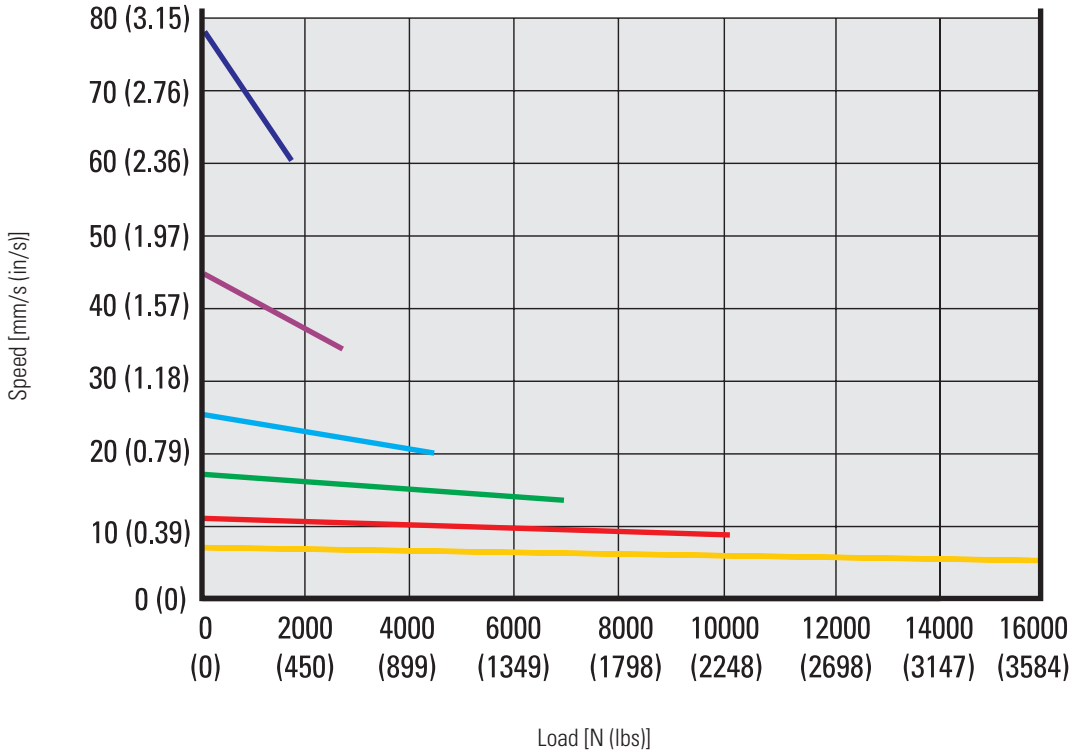
Maximum Dynamic Load and Stroke Relationships

Maximum Dynamic Load (Fx) - kN (lbf.)	Total Length (Ltot), Retracted Length (A) and Front Adapter Dimensions [mm]		Ordering Stroke (S) [mm]				
			50 – 500 (1)	550 – 600	650 – 700	750 – 900	950 – 1000
1.7 (382)	Ltot		A + B1 + C2				
	A		S + 150.9 + B2 + C1				
	C1	Type M, E	17.5				
		Type N, F	26.5				
		Type P, G	23.9				
	C3		30.2				
2.6 (585)	Ltot		A + B1 + C2				A + B1 + C2
	A		S + 150.9 + B2 + C1				S + 156.8 + B2 + C1
	C1	Type M, E	17.5				24.0
		Type N, F	26.5				27.0
		Type P, G	23.9				24.9
	C3		30.2				35.0
4.5 (1012)	Ltot		A + B1 + C2			A + B1 + C2	
	A		S + 150.9 + B2 + C1			S + 156.8 + B2 + C1	
	C1	Type M, E	17.5			24.0	
		Type N, F	26.5			27.0	
		Type P, G	23.9			24.9	
	C3		30.2			35.0	
6.8 (1529)	Ltot		A + B1 + C2		A + B1 + C2		
	A		S + 150.9 + B2 + C1		S + 156.8 + B2 + C1		
	C1	Type M, E	17.5		24.0		
		Type N, F	26.5		27.0		
		Type P, G	23.9		24.9		
	C3		30.2		35.0		
10 (2248)	Ltot		A + B1 + C2	A + B1 + C2			
	A		S + 180.9 + B2 + C1	S + 182 + B2 + C1			
	C1	Type M, E	17.5	24.0			
		Type N, F	26.5	27.0			
		Type P, G	23.9	24.9			
	C3		30.2	35.0			
16 (3584)	Ltot		A + B1 + C2	strokes not available for this model			
	A		S + 182 + B2 + C1				
	C1	Type M, E	24.0				
		Type N, F	27.0				
		Type P, G	24.9				
	C3		35.0				

(1) For a unit with 50 mm stroke, A and Ltot dimension are the same as for a unit with 100 mm stroke.

Electrak® HD – Performance Diagrams

Load vs. Speed [1]

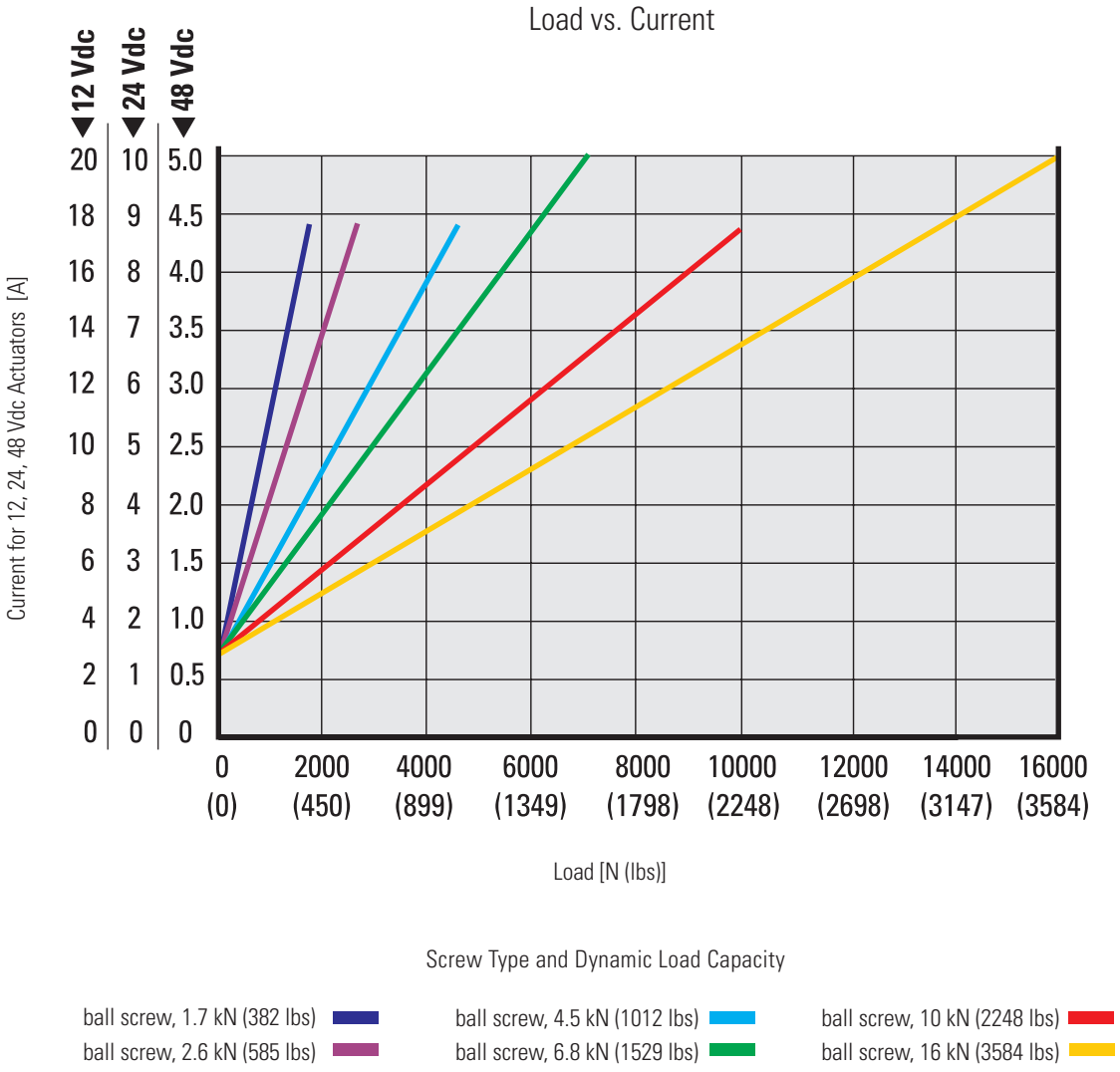


Screw Type and Dynamic Load Capacity

ball screw, 1.7 kN (382 lbs)
ball screw, 2.6 kN (585 lbs)
ball screw, 4.5 kN (1012 lbs)
ball screw, 6.8 kN (1529 lbs)
ball screw, 10 kN (2248 lbs)
ball screw, 16 kN (3584 lbs)

[1] Curves valid for all units except those with the synchronization option, where the speed may vary, but will typically remain close to the speed they are rated for at full load, even if they are running at a lower load.

Note! Curves were generated at an ambient temperature of 21°C (70°F). Different ambient temperature and individual actuator characteristics can produce slightly different values.



Note! Curves were generated at an ambient temperature of 21°C (70°F). Different ambient temperature and individual actuator characteristics can produce slightly different values.

Electrak® HD – Ordering Key

Ordering Key

1	2	3	4	5	6	7	8	9
HD12	**B026-**	**0300**	**LXX**	**2**	**M**	**M**	**S**	**D**

1. Model and input voltage
HD12 = Electrak HD, 12 Vdc
HD24 = Electrak HD, 24 Vdc
HD48 = Electrak HD, 48 Vdc

2. Screw type, dynamic load capacity
B017- = ball screw, 1.7 kN (382 lbf)
B026- = ball screw, 2.6 kN (585 lbf)
B045- = ball screw, 4.5 kN (1012 lbf)
B068- = ball screw, 6.8 kN (1529 lbf)
B100- = ball screw, 10 kN (2248 lbf)
B160- = ball screw, 16 kN (3584 lbf)

3. Ordering stroke length (1) (2)
0050 = 50 mm (3)
0100 = 100 mm
0150 = 150 mm
0200 = 200 mm
0250 = 250 mm
0300 = 300 mm
0350 = 350 mm
0400 = 400 mm
0450 = 450 mm
0500 = 500 mm
0550 = 550 mm
0600 = 600 mm
0650 = 650 mm
0700 = 700 mm
0750 = 750 mm
0800 = 800 mm
0850 = 850 mm
0900 = 900 mm
0950 = 950 mm
1000 = 1000 mm

(1) Other stroke lengths available upon request. Please contact customer support.
(2) 500 mm is the max. stroke length for 16 kN units.
(3) 50 mm stroke units will have same retracted length and envelope size as a 100 mm unit.
(4) Max. ordering stroke for the rear mounting flange type A is 300 mm.
(5) Max. dynamic load capacity for the rear mounting flange type A is 10 kN.

4. Electrak Modular Control System options

Options available for HD12 and HD24 only
EXX = Electronic Monitoring Package only
ELX = EXX + end-of-stroke indication output
EXP = EXX + analog (potentiometer) position output
EXD = EXX + digital position output
ELP = ELX + analog (potentiometer) position output
ELD = ELX + digital position output
LPS = EXX + LXX + programmable limit switches + signal-follower

Options available for HD12, HD24 and HD48
LXX = EXX + low-level signal motor switching
LLX = EXX + LXX + end-of-stroke indication output
LXP = EXX + LXX + analog (potentiometer) position output
CNO = SAE J1939 CAN bus + open-loop speed control
COO = CANopen CAN bus + open-loop speed control
SY2 = LXX + synchronization option

5. Cable length
1 = 0.3 m long cables
2 = 1.5 m long cables
3 = 5.0 m long cables

6. Rear adapter/mounting flange options
A = rear mounting flange (4) (5)
M = cross hole for 12 mm pin
E = cross hole for ½ inch pin
N = forked cross hole for 12 mm pin
F = forked cross hole for ½ inch pin

7. Front adapter options
A = metric M16 male thread
M = cross hole for 12 mm pin
E = cross hole for ½ inch pin
N = forked cross hole for 12 mm pin
F = forked cross hole for ½ inch pin
P = metric M12 female thread
G = inch 1/2-20 UNF-2B female thread

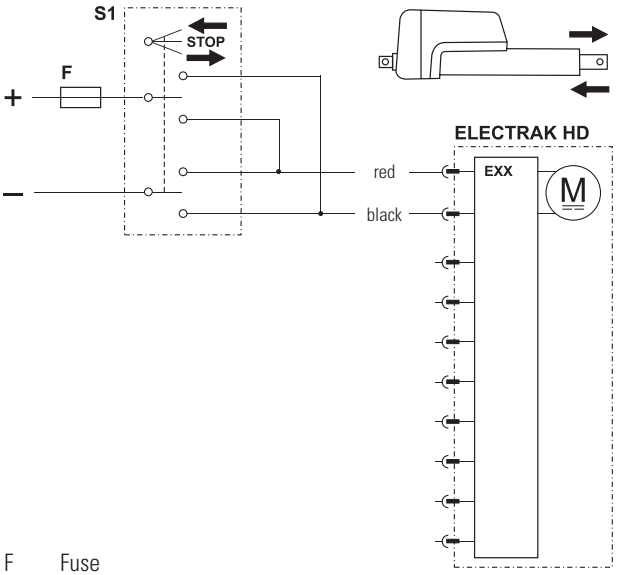
8. Adapter orientation
S = standard
M = 90 ° turned

9. Connection options
D = flying leads

Electrak HD – Electrical Connections

Option Type EXX

Actuator supply voltage	[Vdc]	
HD12		9 - 16
HD24		18 - 32
HD48		-

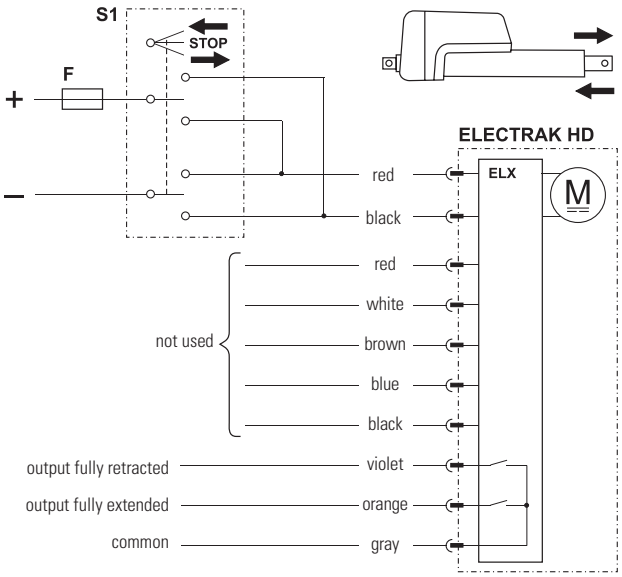


F Fuse
S1 Double pole double throw switch

Control option EXX contains Electrak Monitoring Package features, guaranteeing safe operation of the actuator and equipment. With control option EXX, the polarity of the motor voltage is switched by a customer-supplied switch (switch, relay, etc.) to make the actuator extend or retract. The switch, power supply, wiring and all other components must be able to handle the motor current for the actuator model and load being used, as well as the inrush current (up to three times the max. continuous current for the max. load being used for up to 150 milliseconds).

Option Type ELX

Actuator supply voltage	[Vdc]	
HD12		9 - 16
HD24		18 - 32
HD48		-
Output contact type		potential free
Max. output voltage	[Vdc/ac]	30/120
Max. output current	[mA]	100



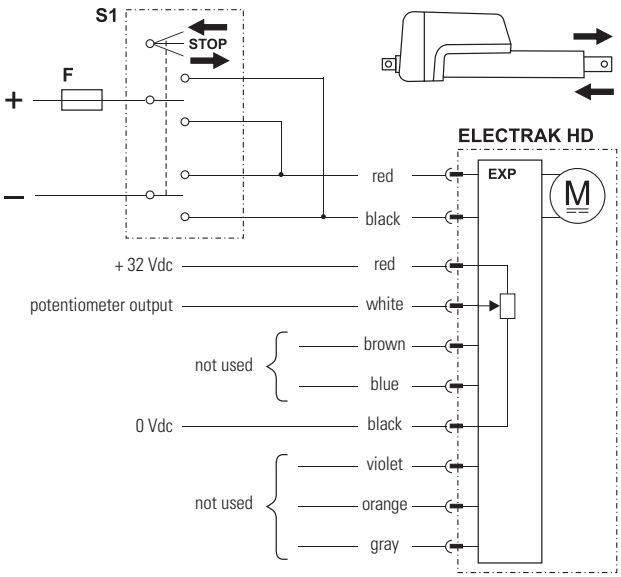
F Fuse
S1 Double pole double throw switch

Control option ELX works as option EXX but also has two outputs that indicate when the extension tube is in its fully extended or retracted position.

Electrak® HD – Electrical Connections

Option Type EXP

Actuator supply voltage	[Vdc]	
HD12		9 - 16
HD24		18 - 32
HD48		-
Potentiometer type		wire-wound
Potentiometer max. input voltage	[Vdc]	32
Potentiometer max. power	[W]	1
Potentiometer linearity	[%]	± 0.25
Potentiometer output resolution	[ohm/mm]	
50 - 100 mm stroke		65.6
150 - 250 mm stroke		32.8
300 - 500 mm stroke		19.7
550 - 1000 mm stroke		9.8

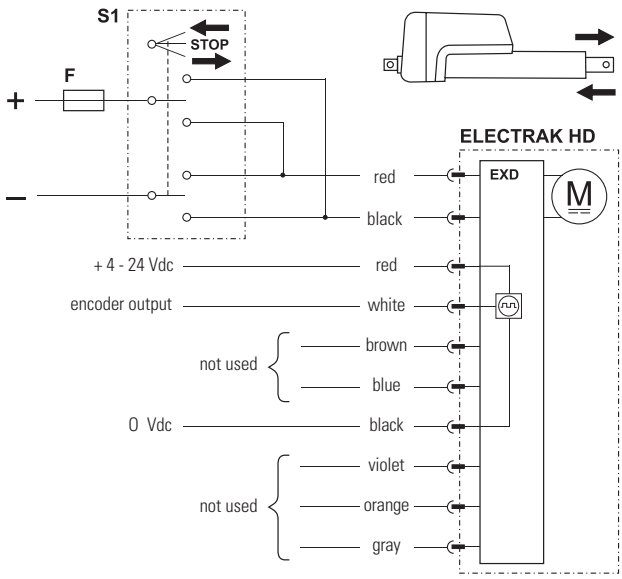


F Fuse
S1 Double pole double throw switch

Control option EXP works as option EXX but also has an analog (potentiometer) output that will provide feedback on the extension tube position.

Option Type EXD

Actuator supply voltage	[Vdc]	
HD12		9 - 16
HD24		18 - 32
HD48		-
Encoder type		hall effect
Encoder input voltage	[Vdc]	4 - 24
Encoder output voltage levels	[Vdc]	
low (logical zero), typical / max.		0.1 / 0.25
Encoder resolution	[mm/pulse]	
HDxx-B017		0.28
HDxx-B026		0.15
HDxx-B045		0.09
HDxx-B068		0.07
HDxx-B100		0.04
HDxx-B160		0.03

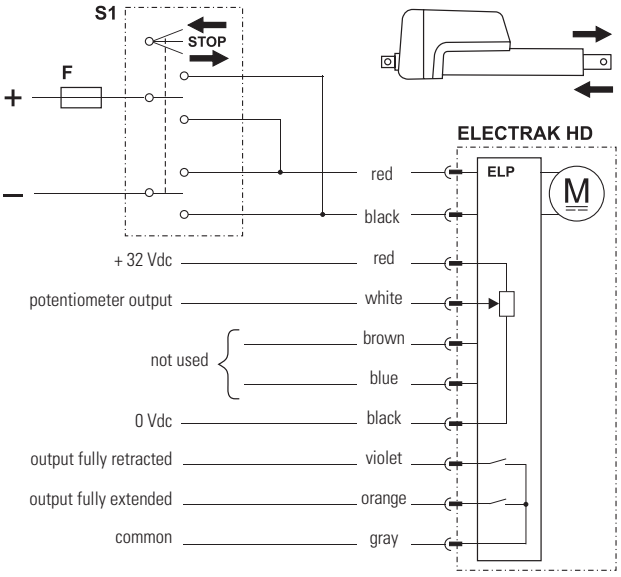


F Fuse
S1 Double pole double throw switch

Control option EXD works as option EXX but also has a single-channel encoder output that will provide feedback on the extension tube position.

Option Type ELP

Actuator supply voltage HD12 HD24 HD48	[Vdc]	 9 - 16 18 - 32 -
Output contact type		potential free
Max. output voltage	[Vdc/ac]	30/120
Max. output current	[mA]	100
Potentiometer type		wire-wound
Potentiometer max. input voltage	[Vdc]	32
Potentiometer max. power	[W]	1
Potentiometer linearity	[%]	± 0.25
Potentiometer output resolution 50 - 100 mm stroke 150 - 250 mm stroke 300 - 500 mm stroke 550 - 1000 mm stroke	[ohm/mm]	 65.6 32.8 19.7 9.8

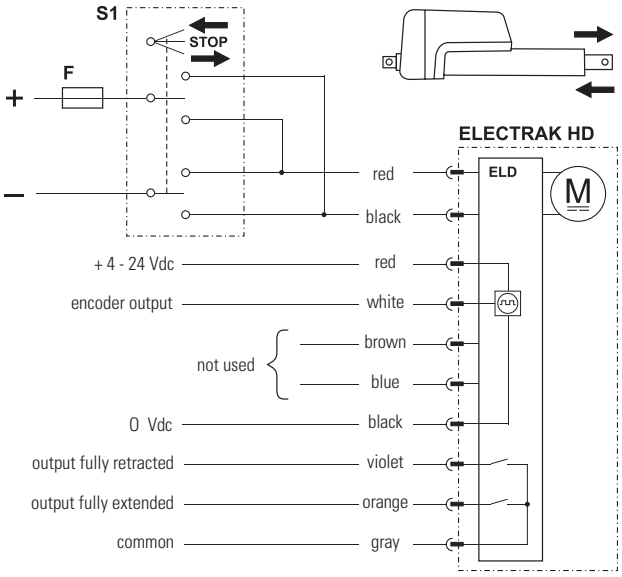


F Fuse
S1 Double pole double throw switch

Control option ELP works as option EXP but also has two outputs that indicate when the extension tube is in its fully extended or retracted position.

Option Type ELD

Actuator supply voltage HD12 HD24 HD48	[Vdc]	 9 - 16 18 - 32 -
Output contact type		potential free
Max. output voltage	[Vdc/ac]	30/120
Max. output current	[mA]	100
Encoder type		hall effect
Encoder input voltage	[Vdc]	4 - 24
Encoder output voltage levels low (logical zero), typical / max.	[Vdc]	 0.1 / 0.25
Encoder resolution HDxx-B017 HDxx-B026 HDxx-B045 HDxx-B068 HDxx-B100 HDxx-B160	[mm/pulse]	 0.28 0.15 0.09 0.07 0.04 0.03



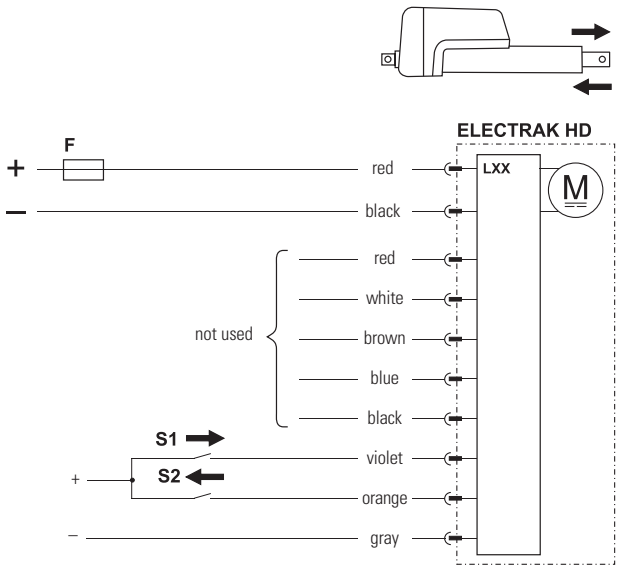
F Fuse
S1 Double pole double throw switch

Control option ELD works as option EXD but also has two outputs that indicate when the extension tube is in its fully extended or retracted position.

Electrak® HD – Electrical Connections

Option Type LXX

Actuator supply voltage HD12 HD24 HD48	[Vdc]	 9 - 16 18 - 32 36 - 64
Extend / retract input voltage HD12(24) HD48	[Vdc]	 9 - 32 12 - 64
Extend / retract input current	[mA]	6 - 22

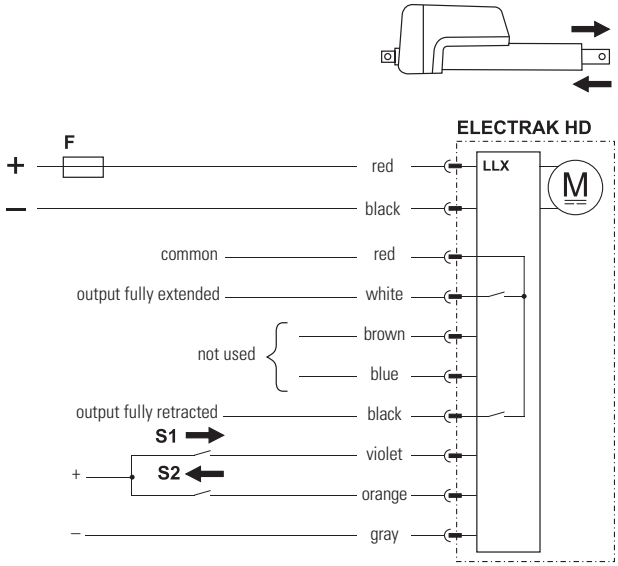


F Fuse
S1 Extend switch
S2 Retract switch

Control option LXX has all the basic Electrak Monitoring Package features included in control option EXX, but the polarity of the motor voltage is switched by the onboard electronics instead. The customer-supplied switches used to command the actuator to extend or retract only need to handle low-level signals. However, the power supply and wiring that supply the actuator must be able to handle the motor current for the actuator model and load being used, as well as the inrush current (up to one and a half times the max. continuous current for the max. load being used for up to 150 milliseconds).

Option Type LLX

Actuator supply voltage HD12 HD24 HD48	[Vdc]	 9 - 16 18 - 32 36 - 64
Output contact type		potential free
Max. output voltage	[Vdc/ac]	30/120
Max. output current	[mA]	100
Extend / retract input voltage HD12(24) HD48	[Vdc]	 9 - 32 12 - 64
Extend / retract input current	[mA]	6 - 22

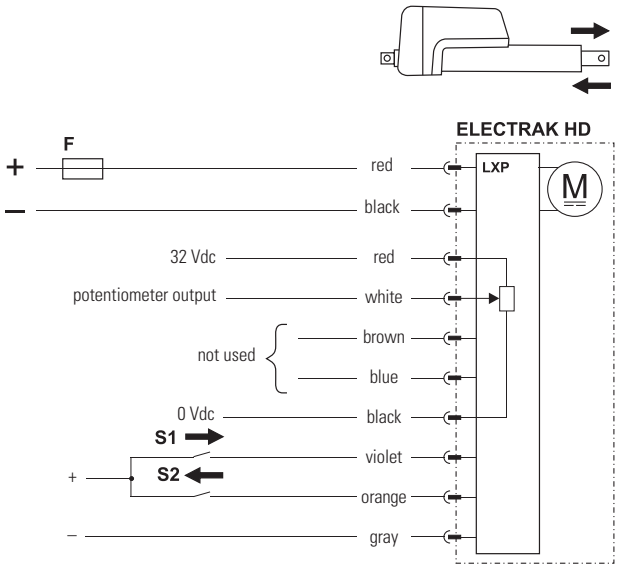


F Fuse
S1 Extend switch
S2 Retract switch

Control option LLX works as option LXX but also has two outputs that indicate when the extension tube is in its fully extended or retracted position.

Option Type LXP

Actuator supply voltage HD12 HD24 HD48	[Vdc]	 9 - 16 18 - 32 36 - 64
Potentiometer type		wire-wound
Potentiometer max. input voltage	[Vdc]	32
Potentiometer max. power	[W]	1
Potentiometer linearity	[%]	± 0.25
Potentiometer output resolution 50 - 100 mm stroke 150 - 250 mm stroke 300 - 500 mm stroke 550 - 1000 mm stroke	[ohm/mm]	 65.6 32.8 19.7 9.8
Extend / retract input voltage HD12(24) HD48	[Vdc]	 9 - 32 12 - 64
Extend / retract input current	[mA]	6 - 22



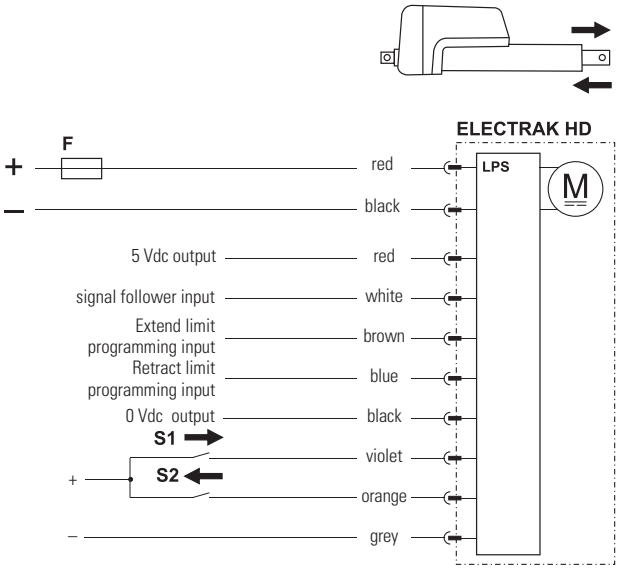
F Fuse
S1 Extend switch
S2 Retract switch

Control option LXP works as option LXX but also has an analog (potentiometer) output that will provide feedback on the extension tube position.

Option Type LPS

Actuator supply voltage HD12 HD24 HD48	[Vdc]	 9 - 16 18 - 32 -
Signal-follower input voltage	[Vdc]	0.5 - 4.5
Signal-follower max. current	[A]	0.8
Signal-follower movement	[mm/Vdc]	stroke* [mm] / 4
Signal-follower repeatability	[± mm]	0.1
Programming inputs voltage HD12(24) HD48	[Vdc]	 9 - 32 -
Extend / retract input voltage HD12(24) HD48	[Vdc]	 9 - 32 -
Extend / retract input current	[mA]	6 - 22

* ordering stroke of the actuator or the stroke between any set programmable extend or retract limits.



F Fuse
S1 Extend switch
S2 Retract switch

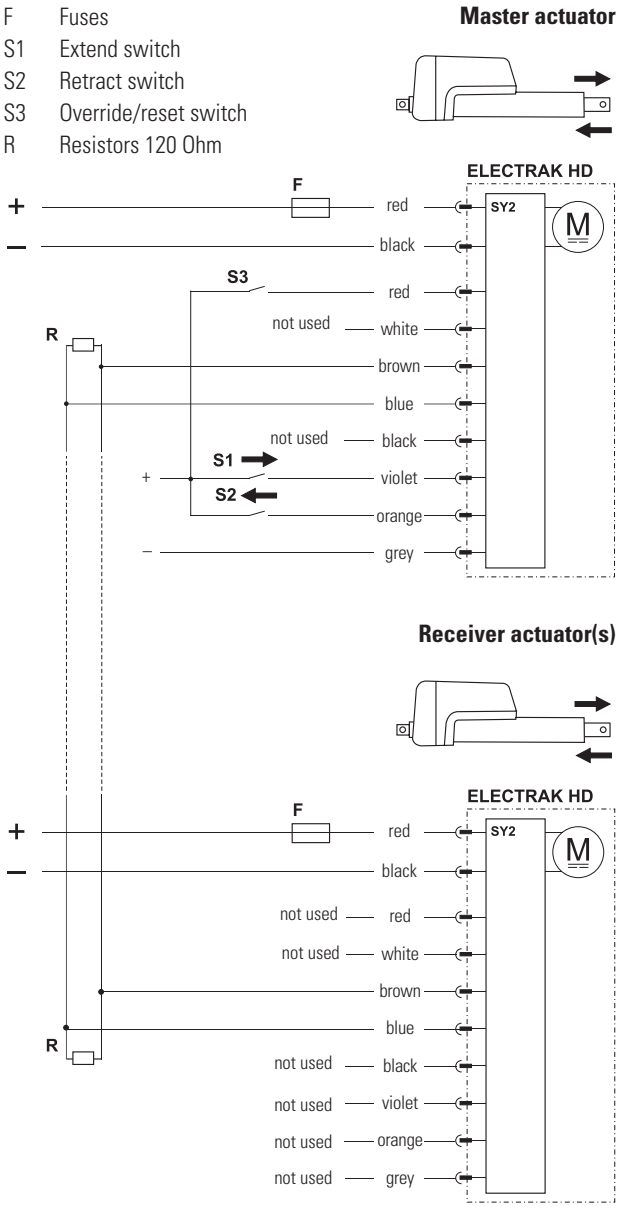
Control option LPS works as option LXX but also has programmable mid-stroke software extend and retract limits as well as a signal-follower input that allows the extension tube position to be controlled from a potentiometer or other voltage control. Both functions can be used at the same time.

Electrak® HD – Electrical Connections

Option Type SY2		
Actuator supply voltage HD12 HD24 HD48	[Vdc]	 9 - 16 18 - 32 36 - 64
Actuator current draw	[A]	see page 19
Extend / retract input voltage HD12(24) HD48	[Vdc]	 9 - 32 12 - 64
Extend / retract input current	[mA]	6 - 22
Number of synchronized actuators		2 - 8
Max. actuator speed difference	[%]	25
Hold and wait distance HDxx-B017 HDxx-B026 HDxx-B045 HDxx-B068 HDxx-B100 HDxx-B160	[mm]	 25.0 15.0 10.0 7.5 5.0 2.5

Control option SY2 works as option LXX but also has a synchronization feature, allowing up to eight actuators having the SY2 option to run in integrated motion. When using the low-level extend and retract inputs on the master actuator, the receiver(s) will follow. If there is a need to run an actuator individually, it is possible to put it into an override state by closing a switch (S3) connected to the red lead as shown in the wiring diagram.

F Fuses
S1 Extend switch
S2 Retract switch
S3 Override/reset switch
R Resistors 120 Ohm

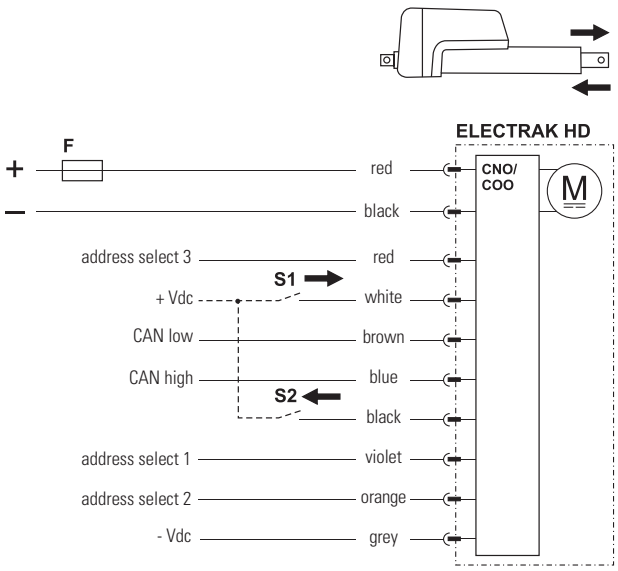


Important Design Notes

- All actuators' supply voltages must be within ±10% of each other.
- While uneven loads can be supported, it is suggested that loads be distributed as evenly as possibly to avoid overloading a single actuator within the system.
- The speed of the actuators will typically remain close to the speed they are rated for at full load, even if running at a lower load.
- If a unit detects that it is 1 mm further ahead of any other in the network, it will reduce its speed slightly to allow the other to catch up. If the positional difference between an actuator and the rearmost actuator exceeds the hold and wait distance specified in the table above, the unit will stop until the rearmost actuator catches up.
- If one actuator encounters an overload condition or detects that the measured position isn't updating while running the motor, it will trip the overload protection and send a signal to each actuator on the network to stop. The units can be immediately reversed (unless they bind up the system), or they can continue in the same direction after a power reset.
- Each actuator tracks the total number of actuators that are connected to the system. No synchronous motion will be allowed if any actuator detects that fewer than the minimum number of required actuators are connected. This allows the whole system to stop if the power or communication is lost to any actuator in the system.
- Activating the override/reset signal on any of the actuators will reset the minimum number of required actuators that must be connected to the system to 0. If more actuators are connected at any point, the minimum number of required actuators will be updated to the number of actuators that are currently connected.
- In order to give the master and receiver(s) enough time to communicate, a 250 ms delay will be enforced following any motion and before any subsequent motion is allowed.

Option Type CNO and COO

Actuator supply voltage HD12 HD24 HD48	[Vdc]	 9 - 16 18 - 32 36 - 64
Command data includes: • position • speed • current		
Feedback data includes: • position • speed • current • other diagnostic information		
Extend / retract input voltage HD12(24) HD48	[Vdc]	 9 - 32 12 - 64
Extend / retract input current	[mA]	6 - 22



F Fuse
S1 Manual extension switch (optional)
S2 Manual retraction switch (optional)

Control option CNO has a SAE J1939 CAN bus control interface, COO has a CANopen control interface that control and monitor the actuator. Extend and retract commands are sent via CAN messages on the CAN low and CAN high pins. Address select 1, 2 and 3 pins can be used as a binary encoded decimal (BCD) adder to the default address. This can be used when multiple CAN bus actuators are located on a single bus. The actuator can be manually forced to extend or retract by using the inputs on white and black wires. When the manual control inputs are used, CAN bus control messages are ignored, but the unit will still provide CAN bus feedback messages. When the inputs are left floating, CAN bus functionality for control messages is restored.

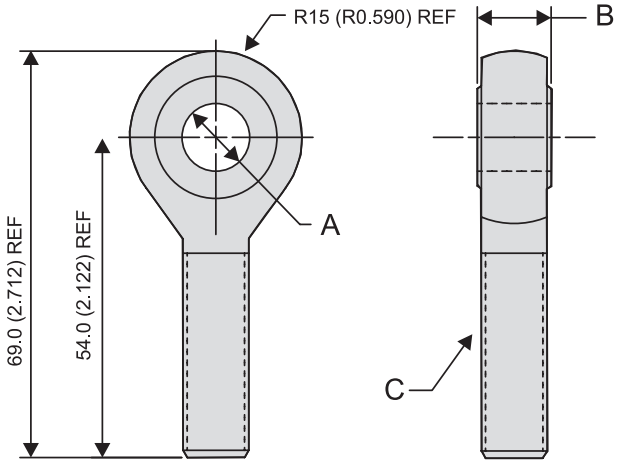
Electrak® HD – Accessories

Rod End Front Adapter

Type	metric	inch
Material	Cadmium-plated steel	
Dimensions A B C	 12.0 ± 0.1 mm 16.0 ± 0.1 mm M12	 0.5 in 0.625 in 1/2-20 UNF
p/n	756-9021	756-9007

Dimensions

Dimensions
mm (in)



The rod end front adapter comes in one metric and one imperial version. The metric adapter can be mounted to the front of the extension tube if the actuator is equipped with the metric female thread front adapter option (type P), while the inch adapter requires the inch female thread option (type G).

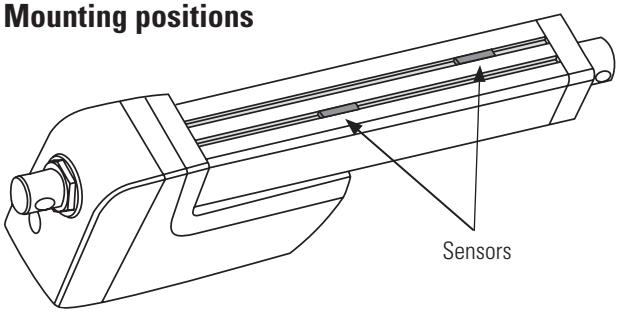
Wire Harness Kits

Part Number	Description
954-9364	0.3 m Power Only (EXX)
954-9365	1.5 m Power Only (EXX)
954-9366	5.0 m Power Only (EXX)
954-9367	0.3 m Power and 8-Wire Signal (ELX, ELP, ELD, LXX, LLX, LXP, CNO, COO, SYN)
954-9368	1.5 m Power and 8-Wire Signal (ELX, ELP, ELD, LXX, LLX, LXP, CNO, COO, SYN)
954-9369	5.0 m Power and 8-Wire Signal (ELX, ELP, ELD, LXX, LLX, LXP, CNO, COO, SYN)
954-9370	0.3 m Power and 3-Wire Signal (EXP, EXD)
954-9471	1.5 m Power and 3-Wire Signal (EXP, EXD)
954-9372	5.0 m Power and 3-Wire Signal (EXP, EXD)

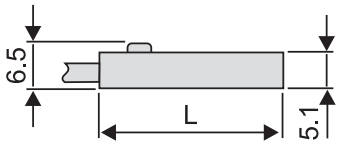
Limit Switches for Cover Tube Mounting

Sensor type		solid state	reed switch
Contact type		normally open (N.O.)	
Output type		PNP	contact
Voltage	[VDC/AC]	10 - 30 / –	5 -115 / 5 -115
Max. current	[mA]	100	
Hysteresis	[mm (in)]	1.5 (0.06)	1.0 (0.04)
Operating temperature	[°C]	- 20 to + 70	- 20 to + 70
Lead cross section	[mm²]	3 × 0.14	2 × 0.14
Length (L)	[mm (in)]	25.3 (1.0)	30.5 (1.2)
Protection class		IP69K	IP67
LED indicator		yes	
Connection		2 m cable with flying leads	
p/n		840-9131	840-9132

Mounting positions



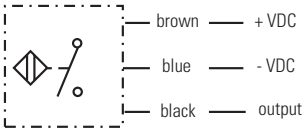
Dimensions



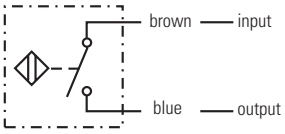
Dimensions
mm

Connection

Solid state



Reed switch



The limit switches are mounted in the cover tube slots and will be switched by a magnet mounted inside of the actuator on the extension tube.