



## Linear Actuators

# Electrak 1

12 and 24 Vdc - load up to 75 lbf



## Standard Features and Benefits

- Very compact and lightweight
- Integrated end of stroke limit switches
- Corrosion resistant housing
- Self-locking acme screw drive system
- Maintenance free
- Ideal for replacement of comparable size pneumatic and hydraulic cylinders

## General Specifications

Parameter	Electrak 1
Screw type	acme
Internally restrained	no
Manual override	no
Dynamic braking	no
Holding brake	no, self-locking
End of stroke protection	end of stroke limit switches
Mid stroke protection	no
Motor protection	auto reset thermal switch
Motor connection	flying leads and connector
Motor connector	Packard Electric Pack-Con male 8911773 with terminal 6294511. Mating connector: 8911772 with terminal 8911639 (p/n 9300-448-001)
Certificates	CE optional*
Options	none

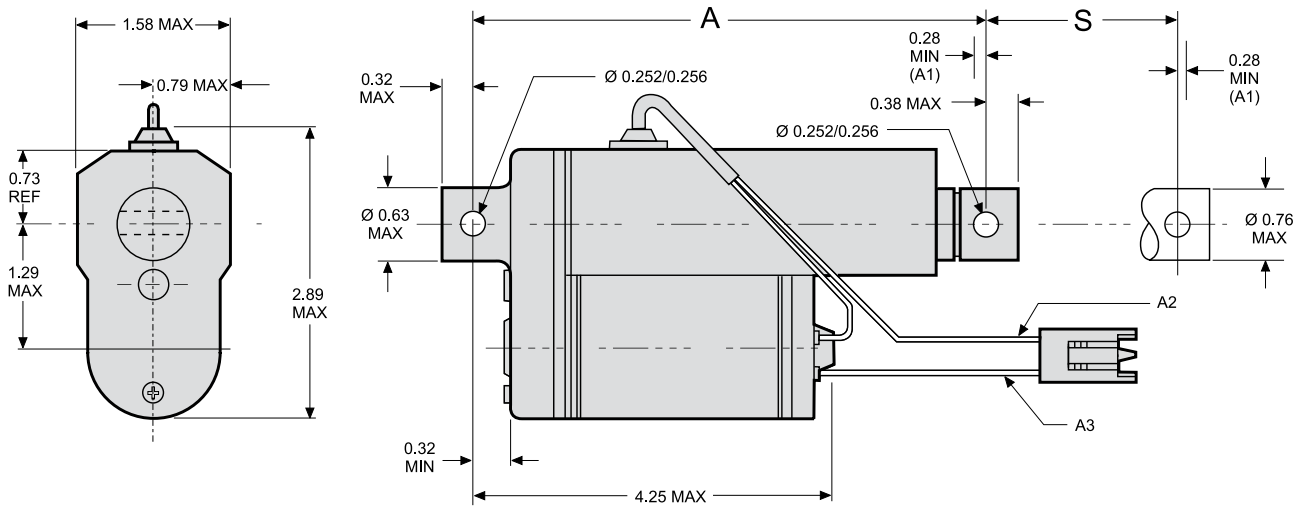
\* Contact customer support

## Performance Specifications

Parameter		Electrak 1
Maximum load, dynamic / static	[lbf]	25 / 300
S •• -09A4		75 / 300
S •• -17A8		
Speed, at no load / at maximum load	[in/sec]	3.00 / 2.10
S •• -09A4		1.00 / 0.65
S •• -17A8		
Available input voltages	[Vdc]	12, 24
Standard stroke lengths	[in]	2, 4, 6
Operating temperature limits	[°F]	-15 – +150
Full load duty cycle @ 77 °F	[%]	25
End play, maximum	[in]	0.036
Restraining torque	[lbf-in]	20
Lead cross section	[AWG]	18
Lead length	[in]	4.5
Protection class		IP66

# Electrak 1

12 and 24 Vdc - load up to 75 lbf

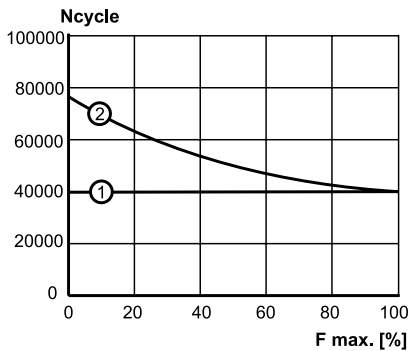


S: stroke  
 A: retracted length  
 A1: installation must include at least this much coast beyond limit switch shut off

<b>Ordering stroke</b>	[inch]	2	4	6
<b>Actual stroke (S)</b>	[inch]	1.8	3.8	5.8
<b>Retracted length (A)</b>	[inch]	6.3	8.3	10.3
<b>Weight</b>	[lb]	1.2	1.4	1.5

## Performance Diagrams

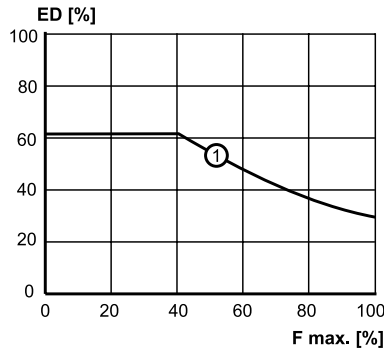
Life vs. Load



Ncycle: life in number of cycles  
 (one cycle = extend and retract)  
 F max: percent of maximum rated load

- 1: all models using the internal limit switches for end of stroke
- 2: all models when end of stroke is controlled externally

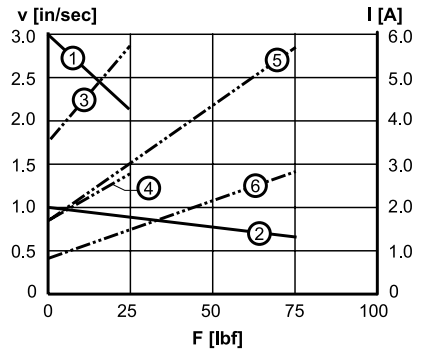
Duty Cycle vs. Load



ED: duty cycle in percent at 77° F  
 F max: percent of maximum rated load

- 1: all models

Speed and Current vs. Load



V: speed I: current F: load

- 1: speed 25 lbf
- 2: speed 75 lbf
- 3: current 25 lbf, 12 Vdc
- 4: current 25 lbf, 24 Vdc
- 5: current 75 lbf, 12 Vdc
- 6: current 75 lbf, 24 Vdc

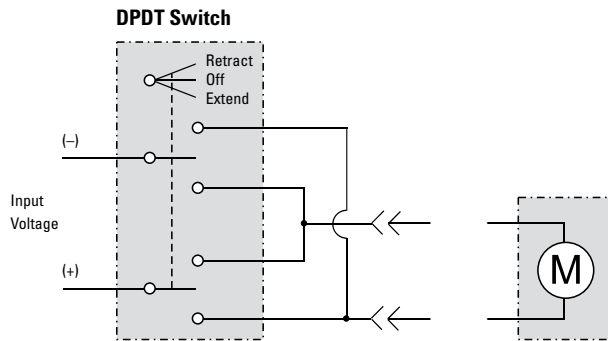
# Electrak 1

12 and 24 Vdc - load up to 75 lbf

## Ordering Key

1	2	3
S24 -	09A4 -	06
<b>1. Model and input voltage</b> S12 - = Electrak 1, 12 Vdc S24 - = Electrak 1, 24 Vdc	<b>2. Dynamic load capacity</b> 09A4 - = 25 lbf 17A8 - = 75 lbf	<b>3. Stroke</b> 02 = 2 inch 04 = 4 inch 06 = 6 inch

## Wiring Diagram



Connect the red lead to positive and yellow to negative to extend the actuator/rotate the output shaft in clockwise direction. Change polarity to retract the actuator/rotate the output shaft counterclockwise. Electrak 1 actuators should be protected from overload conditions by a customer provided fuse in the circuit (6 A for 12 Vdc and 3 A for 24 Vdc).



# Electrak 1SP

12 and 24 Vdc - load up to 75 lbf



## Standard Features and Benefits

- Very compact and lightweight
- Potentiometer feedback
- Corrosion resistant housing
- Self-locking acme screw drive system
- Maintenance free
- Internally restrained extension tube
- Ideal for replacement of comparable size pneumatic and hydraulic cylinders

## General Specifications

Parameter	Electrak 1SP
Screw type	acme
Internally restrained	yes
Manual override	no
Dynamic braking	no
Holding brake	no, self-locking
End of stroke protection	no
Mid stroke protection	no
Motor protection	auto reset thermal switch
Motor connection	flying leads and connector
Motor connector	Packard Electric Pack-Con male 8911773 with terminal 6294511. Mating connector: 8911772 with terminal 8911639 (p/n 9300-448-001)
Certificates	CE optional*
Options	none

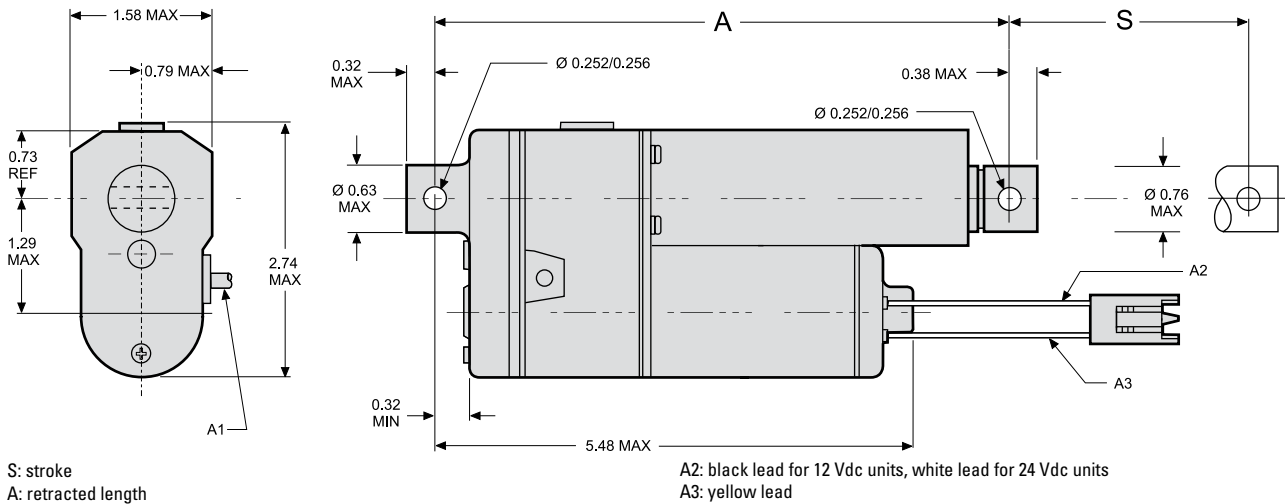
\* Contact customer support

## Performance Specifications

Parameter		Electrak 1SP
Maximum load, dynamic / static	[lbf]	25 / 300
SP •• -09A4		75 / 300
SP •• -17A8		
Speed, at no load / at maximum load	[in/sec]	3.00 / 2.10
SP •• -09A4		1.00 / 0.65
SP •• -17A8		
Available input voltages	[Vdc]	12, 24
Standard stroke lengths	[in]	2, 4, 6
Operating temperature limits	[°F]	-15 – +150
Full load duty cycle @ 77 °F	[%]	25
End play, maximum	[in]	0.036
Restraining torque	[lbf-in]	0
Lead cross section	[AWG]	18
Lead length	[in]	4.5
Protection class		IP66
Potentiometer	[kOhm]	10**

# Electrak 1SP

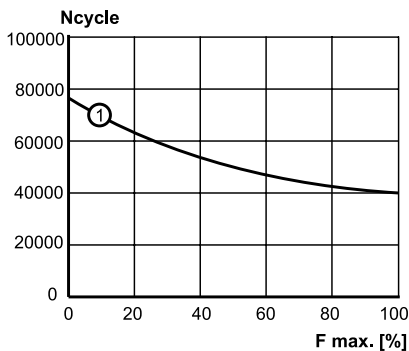
12 and 24 Vdc - load up to 75 lbf



Ordering stroke	[inch]	2	4	6
Actual stroke (S)	[inch]	2.3	4.5	6.8
Retracted length (A)	[inch]	7.8	10.0	12.2
Weight	[lb]	1.2	1.4	1.5
Potentiometer resistance change	[ohm/in]	2400	1200	800

## Performance Diagrams

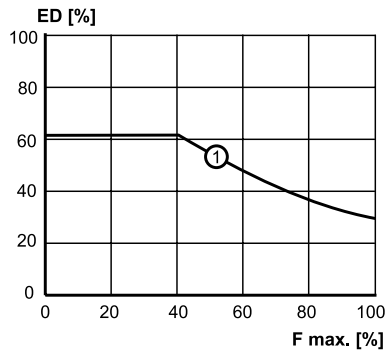
Life vs. Load



Ncycle: life in number of cycles  
 (one cycle = extend and retract)  
 F max: percent of maximum rated load

1: all models when end of stroke is controlled externally

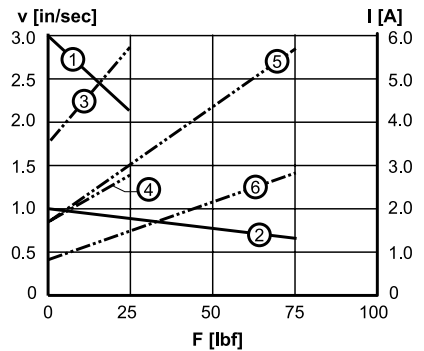
Duty Cycle vs. Load



ED: duty cycle in percent at 77° F  
 F max: percent of maximum rated load

1: all models

Speed and Current vs. Load



V: speed I: current F: load

- 1: speed 25 lbf
- 2: speed 75 lbf
- 3: current 25 lbf, 12 Vdc
- 4: current 25 lbf, 24 Vdc
- 5: current 75 lbf, 12 Vdc
- 6: current 75 lbf, 24 Vdc

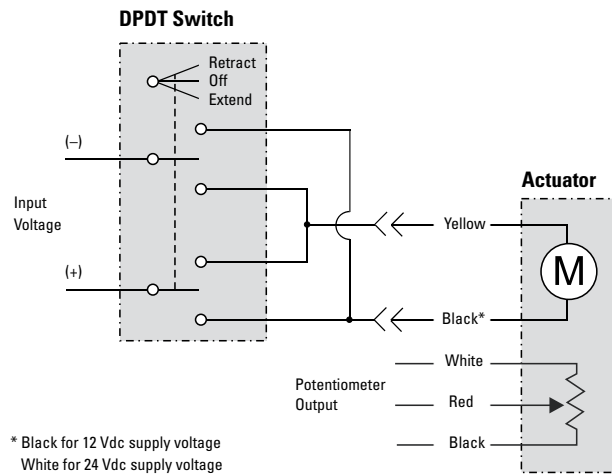
# Electrak 1SP

12 and 24 Vdc - load up to 75 lbf

## Ordering Key

1	2	3
SP24 -	09A4 -	06
<b>1. Model and input voltage</b> SP12 - = Electrak 1SP, 12 Vdc SP24 - = Electrak 1SP, 24 Vdc	<b>2. Dynamic load capacity</b> 09A4 - = 25 lbf 17A8 - = 75 lbf	<b>3. Stroke</b> 02 = 2 inch 04 = 4 inch 06 = 6 inch

## Electrak 1SP



Connect the black or white\* lead to positive and yellow to negative to extend the actuator. Change polarity to retract the actuator. The potentiometer output has 0 ohm between white and red when the actuator is fully retracted. The actuator should be protected from overload conditions by a customer provided fuse in the circuit (6 A for 12 Vdc and 3 A for 24 Vdc).





# Electrak 050

12, 24 and 36 Vdc - load up to 112 lbf



## Standard Features and Benefits

- Designed for office or medical applications
- Small, quiet and lightweight
- Very short retracted length
- Low cost
- Durable and corrosion free plastic housing
- Color molded into the plastic, no painting required
- End of stroke limit switches with dynamic braking
- Maintenance free
- Internally restrained extension tube
- Estimated life is minimum 40000 cycles
- Q-version for noise sensitive applications (24 Vdc only)

## General Specifications

Parameter	Electrak 050
Screw type	worm
Internally restrained	yes
Manual override	no
Dynamic braking	yes, at end of stroke
Holding brake	no, self-locking
End of stroke protection	internal limit switches
Mid stroke protection	overload clutch
Motor protection	auto reset thermal switch
Motor connection	flying leads and connector
Motor connector	Packard Electric Pack-Con male 8911773 with terminal 6294511 Mating connector: 8911772 with terminal 12040508
Certificates	CE optional* Non pot versions are RoHS compliant
Options	<ul style="list-style-type: none"> <li>• potentiometer 10 kOhm**</li> <li>• cross holes rotated 90°</li> <li>• white housing</li> </ul>

\* Contact customer support

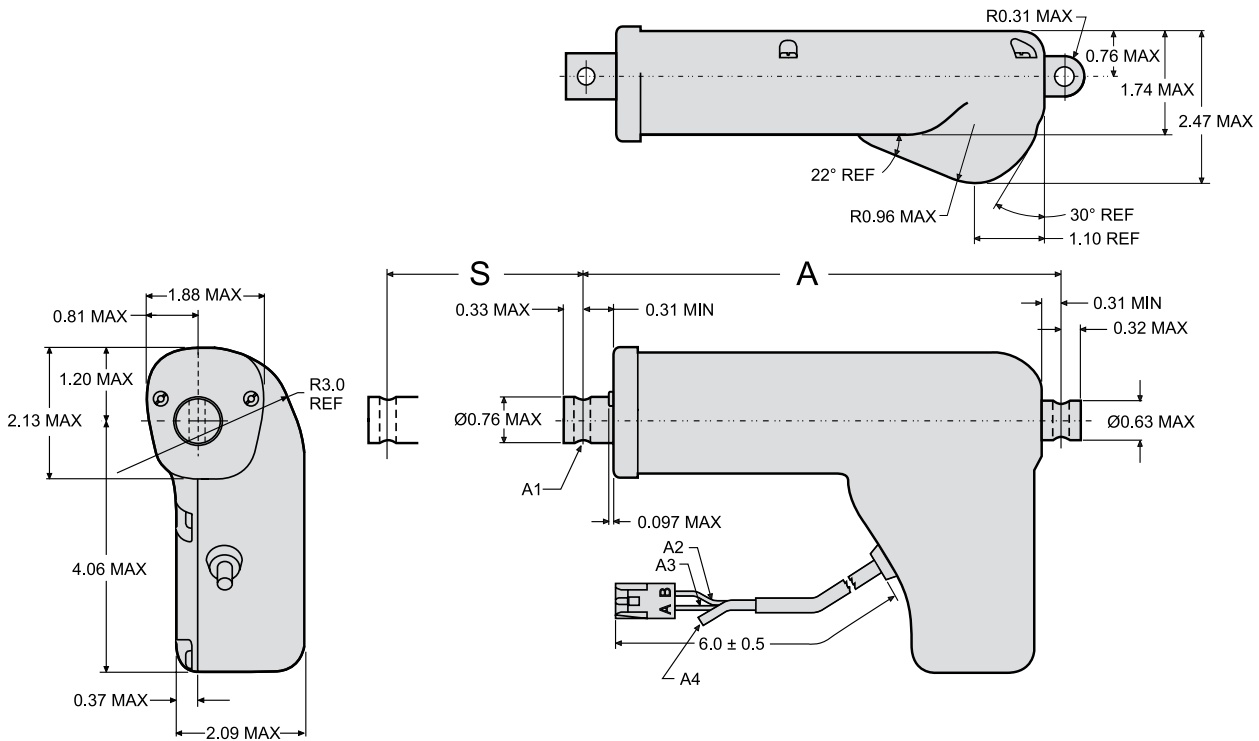
\*\* See performance specification table for resistance change per inch of travel.

## Performance Specifications

Parameter		Electrak 050
Maximum load, dynamic / static	[lbf]	
DE ••• 17W41		112 / 224
DE ••• 17W42		60 / 120
DE ••• 17W44		30 / 60
Speed, at no load / at maximum load	[in/sec]	
DE •• - 17W41		0.48 / 0.37
DE •• - 17W42		0.95 / 0.72
DE •• - 17W44		1.90 / 1.45
DE24Q17W41		0.36 / 0.30
DE24Q17W42		0.70 / 0.55
DE24Q17W44		1.50 / 1.20
Available input voltages	[Vdc]	12, 24, 36
Standard stroke lengths	[in]	2, 4, 6, 8
Operating temperature limits	[°F]	-30 – +180
Full load duty cycle @ 70 °F	[%]	25
End play, maximum	[in]	0.06
Restraining torque	[lbf-in]	0
Lead cross section	[AWG]	18
Lead length	[in]	6
Protection class		
standard version		IP66
Q-version		IP51
Potentiometer resistance change	[ohm/in]	
DE ••• 17W41		560
DE ••• 17W42		556
DE ••• 17W44		540

# Electrak 050

12, 24 and 36 Vdc - load up to 112 lbf



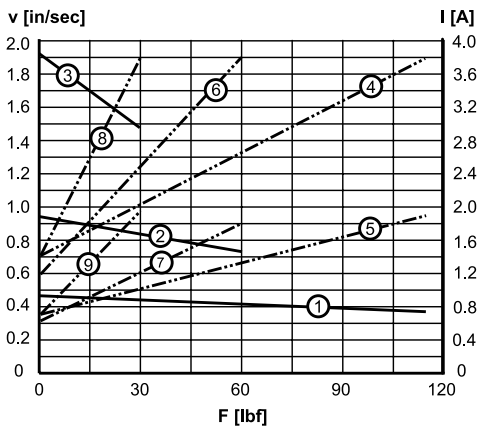
S: stroke  
 A: retracted length  
 A1: Ø 0.254 ± 0.003 mounting cross holes (2 ×) in standard position

A2: red lead  
 A3: yellow lead  
 A4: vent tube Ø 0.125 inch

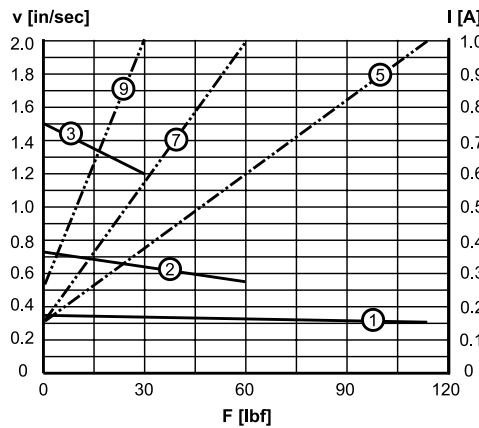
Stroke (S)	[inch]	2	4	6	8
Retracted length (A)	[inch]	5.5	7.5	9.5	11.5
Retracted length, with potentiometer (A)	[inch]	6.75	8.75	10.75	—
Weight	[lb]	1.4	1.6	1.8	2.0
Weight with potentiometer	[lb]	1.6	1.8	2.0	—

## Performance Diagrams

050, standard version  
 Speed and Current vs. Load



050, Q-version  
 Speed and Current vs. Load



V: speed I: current F: load

- 1: speed 112 lbf
- 2: speed 60 lbf
- 3: speed 30 lbf
- 4: current 12 Vdc, 112 lbf \*
- 5: current 24 Vdc, 112 lbf
- 6: current 12 Vdc, 60 lbf \*
- 7: current 24 Vdc, 60 lbf
- 8: current 12 Vdc, 30 lbf \*
- 9: current 24 Vdc, 30 lbf

\* 12 Vdc not possible for Q-version.

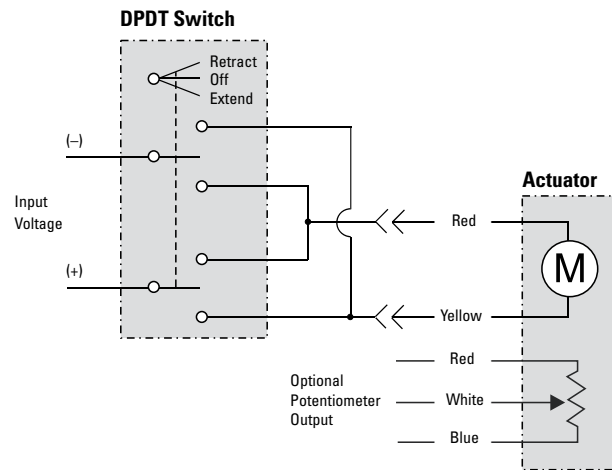
# Electrak 050

12, 24 and 36 Vdc - load up to 112 lbf

## Ordering Key

1	2	3	4	5	6
DE24 -	17W44 -	06	FN	HH	N
<b>1. Model and input voltage</b> DE12 - = Electrak 050, 12 Vdc DE24 - = Electrak 050, 24 Vdc DE36 - = Electrak 050, 36 Vdc DE24Q = Electrak 050, 24 Vdc, Q-version  <b>2. Dynamic load capacity</b> 17W41 - = 112 lbf 17W42 - = 60 lbf 17W44 - = 30 lbf		<b>3. Stroke</b> 02 = 2 inch 04 = 4 inch 06 = 6 inch 08 = 8 inch  <b>4. End of stroke limit switches and potentiometer</b> FN = limit switches and no potentiometer FP = limit switches and potentiometer <sup>1</sup>		<b>5. Rear and front mounting</b> HH = standard crosshole in both ends MH = crossholes rotated 90°  <b>6. Color</b> N = black housing W = white housing  <sup>1</sup> Not possible in combination with 8 inch stroke.	

## Electrak 050



Connect the yellow lead to positive and red to negative to extend the actuator. Change polarity to retract the actuator. The potentiometer output has 0 ohm between white and red when the actuator is fully retracted.



# Electrak 2

12 Vdc - load up to 250 lbf



## Standard Features and Benefits

- Economical and robust actuator for medium loads
- Stainless steel extension tube
- Self-locking acme screw drive system
- Overload clutch for mid and end of stroke protection
- Motor with thermal switch
- Maintenance free

## General Specifications

Parameter	Electrak 2
Screw type	acme
Internally restrained	no
Manual override	no, optional
Dynamic braking	no
Holding brake	no, self-locking
End of stroke protection	overload clutch
Mid stroke protection	overload clutch
Motor protection	auto reset thermal switch
Motor connection	flying leads and connector
Motor connector	Packard Electric 56 series 2984883 with terminal 2962987. Mating connector: 2973781 with terminal 2962573 (p/n 9100-448-001)
Certificates	CE optional*
Options	<ul style="list-style-type: none"> <li>• potentiometer*</li> <li>• manual override*</li> <li>• limit switches*</li> </ul>

\* Contact customer support

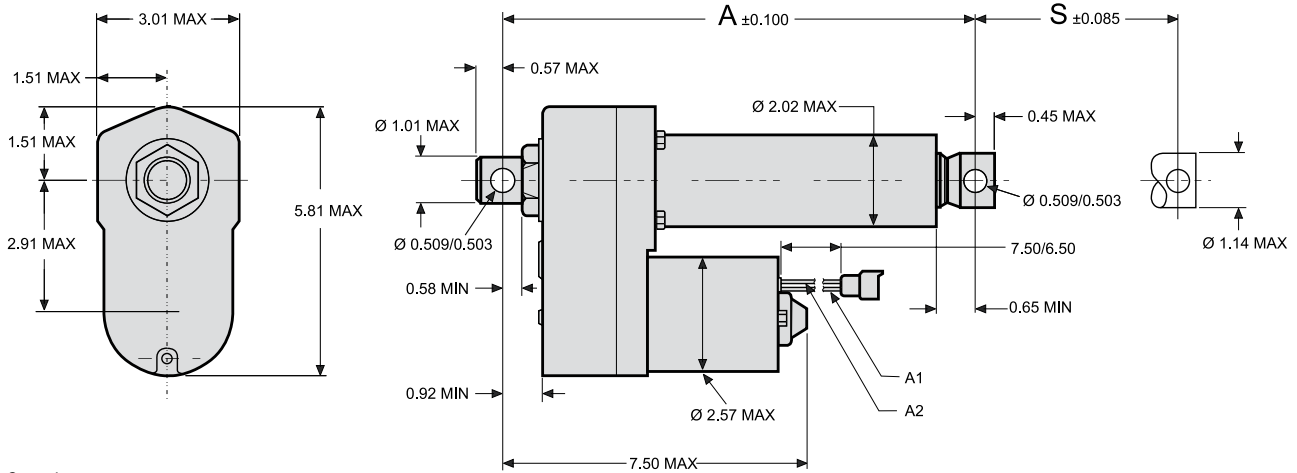
## Performance Specifications

Parameter		Electrak 2
Maximum load, dynamic / static	[lbf]	250 / 1000
Speed, at no load / at maximum load	[in/sec]	
D12-10A5 (high speed)		1.20 / 1.00
D12-20A5 (standard speed)		0.61 / 0.55
Available input voltages	[Vdc]	12
Standard stroke lengths	[in]	4, 8, 12, 18*, 24*
Operating temperature limits	[°F]	-15 – +150
Full load duty cycle @ 77 °F	[%]	25
End play, maximum	[in]	0.08
Restraining torque	[lbf-in]	65
Lead cross section	[AWG]	14
Lead length	[in]	7.5
Protection class		IP66

\* Contact customer support

# Electrak 2

12 Vdc - load up to 250 lbf

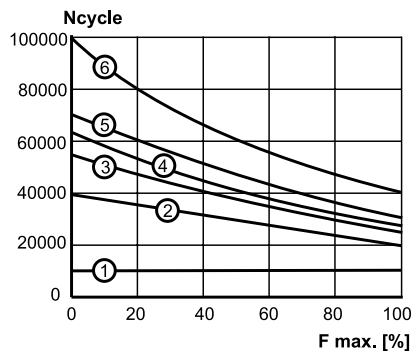


S: stroke  
 A: retracted length  
 A1: yellow lead  
 A2: red lead

<b>Stroke (S)</b>	[inch]	4	8	12
<b>Retracted length (A)</b>	[inch]	10.3	14.3	18.3
<b>Weight</b>	[lb]	10.0	10.7	11.4

## Performance Diagrams

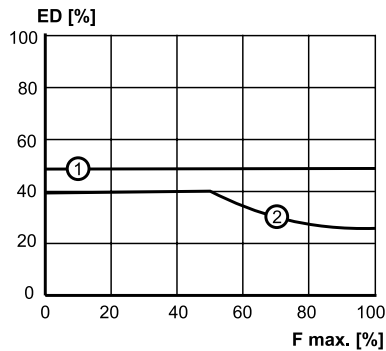
Life vs. Load



Ncycle: life in number of cycles  
 (one cycle = extend and retract)  
 F max: percent of maximum rated load

- 1: all models using the clutch at the end of stroke
- 2: standard speed model, 12 inch stroke
- 3: standard speed model, 8 inch stroke
- 4: high speed model, 12 inch stroke
- 5: high speed model, 8 inch stroke and standard speed model, 4 inch stroke
- 6: high speed model, 4 inch stroke

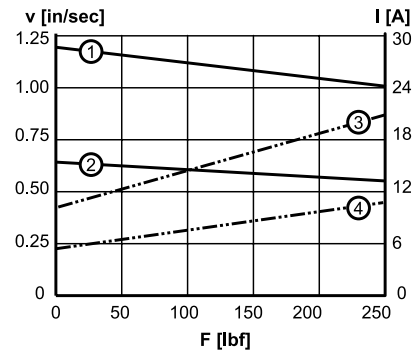
Duty Cycle vs. Load



ED: duty cycle in percent at 77° F  
 F max: percent of maximum rated load

- 1: standard speed model
- 2: high speed model

Speed and Current vs. Load



V: speed I: current F: load

- 1: speed high speed model
- 2: speed standard speed model
- 3: current high speed model
- 4: current standard speed model

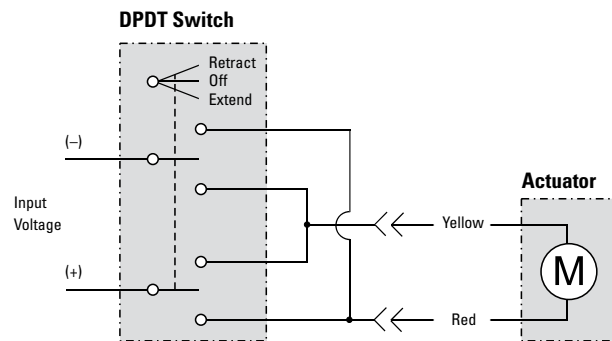
# Electrak 2

12 Vdc - load up to 250 lbf

## Ordering Key

1	2	3	4
D12 -	20A5 -	12	D
<b>1. Input voltage</b> D12 - = 12 Vdc  <b>2. Dynamic load capacity and speed</b> 10A5 - = 250 lbf, high speed 20A5 - = 250 lbf, standard speed	<b>3. Stroke<sup>1</sup></b> 04 = 4 inch 08 = 8 inch 12 = 12 inch	<b>4. Shipment version<sup>2</sup></b> D = distributor version  <sup>1</sup> Contact customer service for other stroke lengths.  <sup>2</sup> Contact customer support for OEM version.	

## Wiring Diagram



Connect the red lead to positive and yellow to negative to extend the actuator/rotate the output shaft in clockwise direction. Change polarity to retract the actuator/rotate the output shaft counterclockwise.





# Electrak 10

12, 24 and 36 Vdc - load up to 1500 lbf



## Standard Features and Benefits

- Robust, strong and reliable
- Withstands very harsh environments
- Stainless steel extension tube
- Highly efficient ball screw drive system
- Overload clutch for mid and end of stroke protection
- Motor with thermal switch
- Maintenance free

## General Specifications

Parameter	Electrak 10
Screw type	ball
Internally restrained	no
Manual override	no, optional
Dynamic braking	no
Holding brake	yes
End of stroke protection	overload clutch
Mid stroke protection	overload clutch
Motor protection	auto reset thermal switch
Motor connection	flying leads and connector
Motor connector	Packard Electric 56 series 2984883 with terminal 2962987. Mating connector: 2973781 with terminal 2962573 (p/n 9100-448-001)
Certificates	CE optional*
Options	<ul style="list-style-type: none"> <li>• potentiometer*</li> <li>• manual override*</li> <li>• limit switches*</li> </ul>

\* Contact customer support

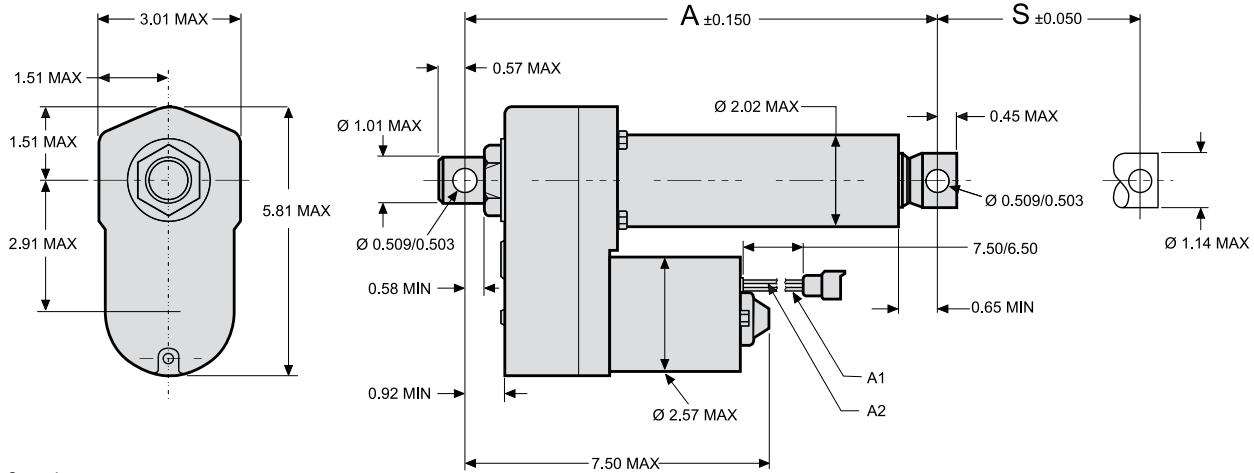
## Performance Specifications

Parameter		Electrak 10
Maximum load, dynamic / static	[lbf]	
D •• -05B5		500 / 3000
D •• -10(20)B5		1000 / 3000
Contact customer support		1500 / 3000
Speed, at no load / at maximum load	[in/sec]	
D •• -05B5		2.40 / 1.40
D •• -10B5 (high speed)		1.30 / 0.80
D •• -20B5 (standard speed)		0.60 / 0.45
Available input voltages	[Vdc]	12, 24, 36
Standard stroke lengths	[in]	4, 8, 12, 18*, 24*
Operating temperature limits	[°F]	-15 – +150
Full load duty cycle @ 77 °F	[%]	25
End play, maximum	[in]	0.04
Restraining torque	[lbf-in]	100
Lead cross section	[AWG]	14
Lead length	[in]	7.5
Protection class		IP66

\* Contact customer support

# Electrak 10

12, 24 and 36 Vdc - load up to 1500 lbf

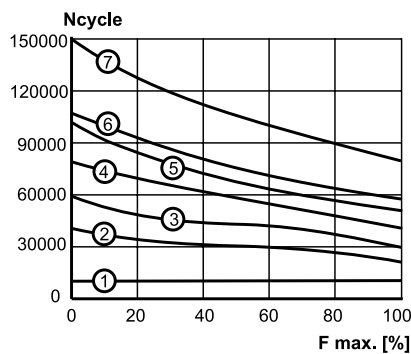


S: stroke  
 A: retracted length  
 A1: yellow lead  
 A2: red lead

Stroke (S)	[inch]	4	8	12
Retracted length (A)	[inch]	11.9	15.9	19.9
Weight	[lb]	11.3	12.0	12.7

## Performance Diagrams

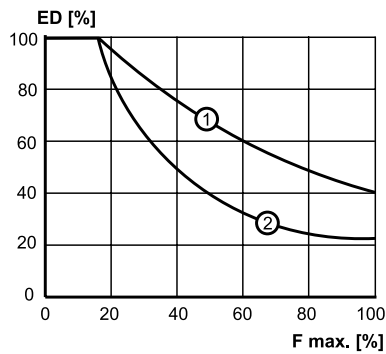
Life vs. Load



Ncycle: life in number of cycles  
 (one cycle = extend and retract)  
 F max: percent of maximum rated load

- 1: all models using the clutch at the end of stroke
- 2: 1000 lbf, 12 inch stroke
- 3: 1000 lbf, 8 inch stroke
- 4: 500 lbf, 12 inch stroke
- 5: 1000 lbf, 4 inch stroke
- 6: 500 lbf, 8 inch stroke
- 7: 500 lbf, 4 inch stroke

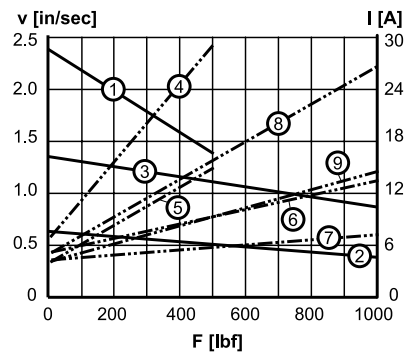
Duty Cycle vs. Load



ED: duty cycle in percent at 77° F  
 F max: percent of maximum rated load

- 1: 1000 lbf, standard speed
- 2: 500 lbf

Speed and Current vs. Load



V: speed I: current F: load

- 1: speed 500 lbf
- 2: speed 1000 lbf, standard speed
- 3: speed 1000 lbf, high speed
- 4: current 500 lbf, 12 Vdc
- 5: current 500 lbf, 24 Vdc
- 6: current 1000 lbf, 12 Vdc, standard speed
- 7: current 1000 lbf, 24 Vdc, standard speed
- 8: current 1000 lbf, 12 Vdc, high speed
- 9: current 1000 lbf, 24 Vdc, high speed

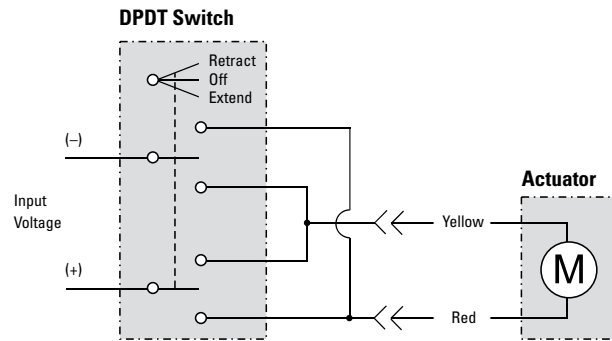
# Electrak 10

12, 24 and 36 Vdc - load up to 1500 lbf

## Ordering Key

1	2	3
D12 -	20B5 -	04
<b>1. Input voltage</b> D12 - = 12 Vdc D24 - = 24 Vdc D36 - = 36 Vdc	<b>2. Dynamic load capacity and speed</b> 05B5 - = 500 lbf 10B5 - = 1000 lbf, high speed 20B5 - = 1000 lbf, standard speed	<b>3. Stroke</b> 04 = 4 inch 08 = 8 inch 12 = 12 inch

## Wiring Diagram



Connect the red lead to positive and yellow to negative to extend the actuator/rotate the output shaft in clockwise direction. Change polarity to retract the actuator/rotate the output shaft counterclockwise.



# Electrak PPA-AC

115 and 230 Vac - load up to 1500 lbf



## Standard Features and Benefits

- Strong and versatile heavy duty actuator
- High duty cycle
- Highly efficient ball screw drive system
- Overload clutch for mid and end of stroke protection
- Stroke lengths up to 36 inch
- Motor with thermal switch
- Maintenance free
- Large range of options

## General Specifications

Parameter	Electrak PPA-AC
Screw type	ball
Internally restrained	no
Manual override	no, optional
Dynamic braking	no
Holding brake	yes
End of stroke protection	overload clutch
Mid stroke protection	overload clutch
Motor protection	auto reset thermal switch
Motor connection	flying leads
Motor connector	no
Certificates	RoHS compliant
Options	<ul style="list-style-type: none"> <li>• end of stroke limit switches</li> <li>• potentiometer</li> <li>• encoder</li> <li>• protective bellows</li> <li>• anti-coast brake *</li> <li>• electrical brake **</li> <li>• manual override***</li> </ul>

\* External capacitor, which is supplied with the actuator, is required to run actuators with anti-coast brake option. See page 47 for capacitor dimensions.

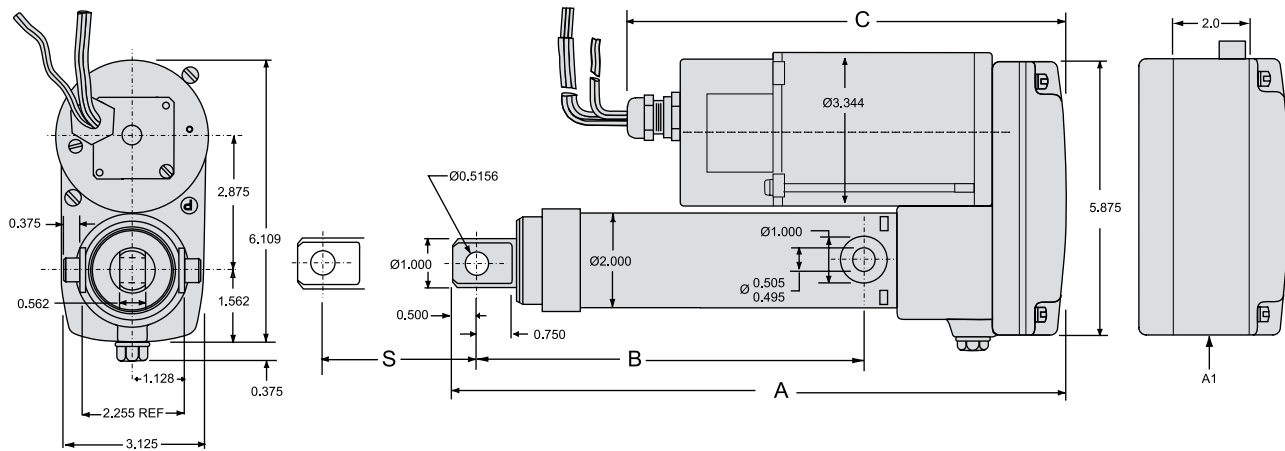
\*\* Only possible on 115 Vac models \*\*\* Contact customer support

## Performance Specifications

Parameter	PPA-AC
Maximum load, dynamic / static PPA •• -18B65 PPA •• -58B65	[lbf] 500 / 3000 1500 / 3000
Speed, at no load / at maximum load PPA11-18B65 PPA22-18B65 PPA •• -58B65	[in/sec] 0.63 / 0.60 0.55 / 0.50 0.17 / 0.17
Available input voltages Single phase	[Vac] 115, 230
Input frequency 1 × 115 Vac model 1 × 230 Vac model	[Hz] 50/60 50/60
Standard stroke lengths	[in] 4, 8, 12, 18, 24, 36
Operating temperature limits	[°F] -15 – +150
Full load duty cycle @ 77 °F	[%] 30
End play, maximum	[in] 0.040
Restraining torque PPA •• -18B65 PPA •• -58B65	[lbf-in] 100 200
Lead cross section	[AWG] 18
Lead length	[in] 19.5
Protection class	IP22

# Electrak PPA-AC

115 and 230 Vac - load up to 1500 lbf



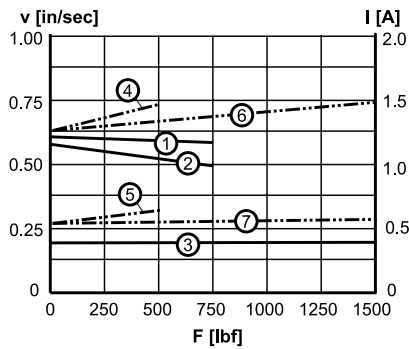
S: stroke  
A: retracted length  
B: retracted length to trunnions

C: motor length  
A1: housing dimensions for limit switch, encoder or potentiometer options

<b>Stroke (S)</b>	[inch]	4	8	12	18	24	36
<b>Retracted length (A) without options</b>	[inch]	13.7	17.7	21.7	29.7	35.7	47.7
<b>Retracted length (A) with limit switch, encoder or potentiometer</b>	[inch]	15.7	19.7	23.7	31.7	37.7	49.7
<b>Retracted length (B)</b>	[inch]	8.8	12.8	16.8	24.8	30.8	42.8
<b>Motor length (C) without brake</b>	[inch]	9.5	9.5	9.5	9.5	9.5	9.5
<b>Motor length (C) with anti-coast brake</b>	[inch]	7.5	7.5	7.5	7.5	7.5	7.5
<b>Motor length (C) with electrical brake</b>	[inch]	11.0	11.0	11.0	11.0	11.0	11.0
<b>Weight</b>	[lb]	13.2	14.8	16.5	19.1	21.6	27.0
<b>Weight with electrical brake</b>	[lb]	14.6	16.2	17.9	20.5	23.0	28.4
<b>Add on weight for limit switch, encoder or potentiometer</b>	[lb]	1.7	1.7	1.7	1.7	1.7	1.7

## Performance Diagrams

### Speed and Current vs. Load



V: speed I: current F: load

- 1: speed 500 lbf, 115 Vac
- 2: speed 500 lbf, 230 Vac
- 3: speed 1500 lbf
- 4: current 500 lbf, 115 Vac
- 5: current 500 lbf, 230 Vac
- 6: current 1500 lbf, 115 Vac
- 7: current 1500 lbf, 230 Vac

# Electrak PPA-AC

115 and 230 Vac - load up to 1500 lbf

## Ordering Key

1	2	3	4	5	6	
PPA22 -	18B65 -	18	SB	XX	C	
<b>1. Model and input voltage</b> PPA11 - = Electrak PPA-AC, 1 × 115 Vac PPA22 - = Electrak PPA-AC, 1 × 230 Vac  <b>2. Dynamic load capacity</b> 18B65 - = 500 lbf 58B65 - = 1500 lbf		<b>3. Stroke</b> 04 = 4 inch 08 = 8 inch 12 = 12 inch 18 = 18 inch 24 = 24 inch 36 = 36 inch  <b>4. Brake option<sup>1</sup></b> N - no brake option SB = anti coast brake EB = electrical brake <sup>2</sup>		<b>5. Feedback option</b> XX = no feedback option LS = end of stroke limit switches PO = potentiometer <sup>3</sup> HS = encoder HL = encoder + end of stroke limit switches  <b>6. Bellows option</b> X = no bellows C = bellows <sup>4</sup>  <sup>1</sup> See "Brake" in the Glossary section on page 57 for more information. <sup>2</sup> Only possible for 1 × 115 Vac models. <sup>3</sup> Not available with limit switches. <sup>4</sup> Only possible on 12 inch stroke or longer.		

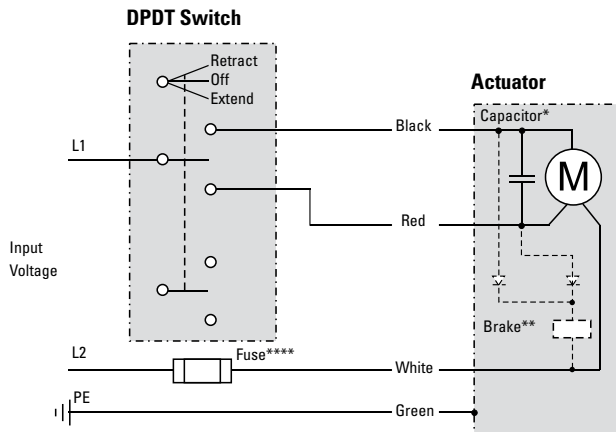


# Electrak PPA-AC

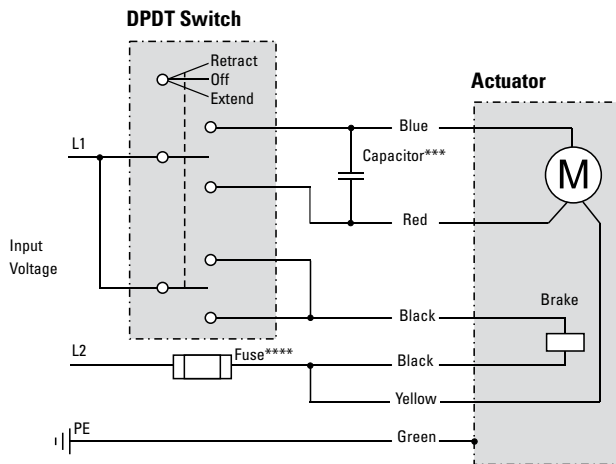
115 and 230 Vac - load up to 1500 lbf

## Wiring Diagram

Without brake or with electrical brake (dotted wiring)



With anti coast brake



- \* The actuator comes with prewired capacitor from factory.
- \*\* Electrical brake only possible on 115 Vac models.
- \*\*\* The capacitor is supplied with the actuator but needs to be fitted by the customer externally.
- \*\*\*\* Supplied by customer.

For versions without brake or with electrical brake, connect the red lead to L1 and yellow to L2 to extend the actuator. Change L1 from red to black lead to retract the actuator. If the actuator is equipped with an electrical brake the internal wiring automatically lifts the brake when the motor is energized. For versions with anti coast brake, connect the red lead to L1 and yellow to L2 to extend the actuator. Change L1 from red to blue lead to retract the actuator. Release the anti-coast brake by connecting black leads to L1 and L2.

# Electrak 5

115 and 230 Vac - load up to 1500 lbf



## Standard Features and Benefits

- Robust, strong and reliable
- Stainless steel extension tube
- Highly efficient ball screw drive system
- Overload clutch for mid and end of stroke protection
- Heavy duty motor with thermal switch
- Anti-coast brake for repeatable positioning
- Maintenance free

## General Specifications

Parameter	Electrak 5
Screw type	ball
Internally restrained	no
Manual override	no, optional
Dynamic braking	no
Holding brake	yes
End of stroke protection	overload clutch
Mid stroke protection	overload clutch
Motor protection	auto reset thermal switch
Motor connection	flying leads
Certificates	UL, CSA, CE optional*
Options	<ul style="list-style-type: none"> <li>• potentiometer*</li> <li>• manual override*</li> <li>• limit switches*</li> </ul>

\* Contact customer support

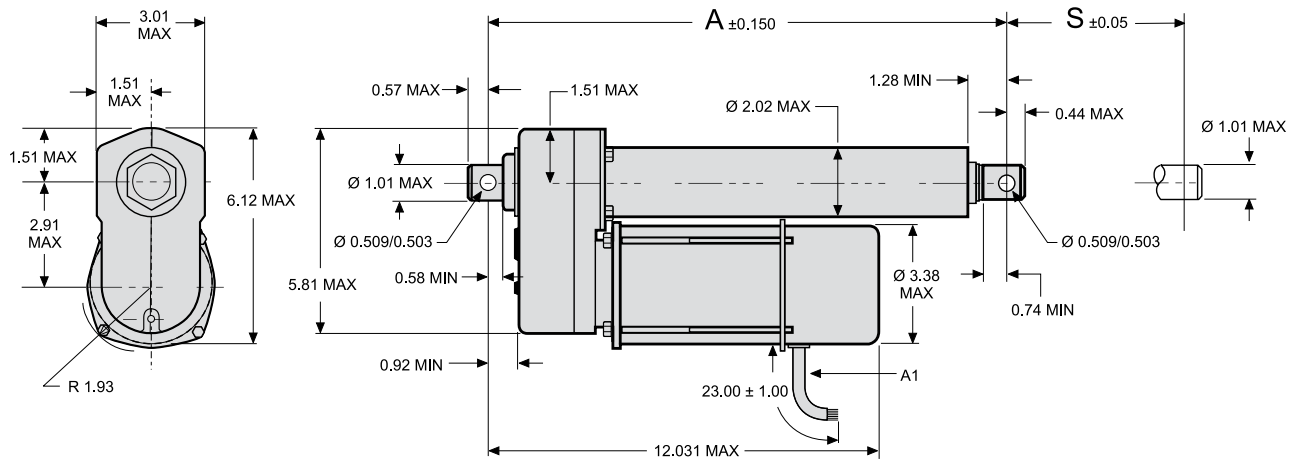
## Performance Specifications

Parameter	Electrak 5
Maximum load, dynamic / static [lbf]	
A •• -05B5	500 / 2500
A •• -10B5	1000 / 2500
Contact customer support	1500 / 2500
Speed, at no load / at maximum load [in/sec]	
A •• -05B5	2.10 / 1.70
A •• -10B5	1.10 / 1.00
Available input voltages** [Vac]	
Single phase	115, 230
Input frequency [Hz]	
1 × 120 Vac model	60
1 × 230 Vac model	50/60
Standard stroke lengths [in]	4, 8, 12, 18, 24
Operating temperature limits [°F]	-15 – +150
Full load duty cycle @ 77 °F [%]	25
Maximum on time [sec]	45
End play, maximum [in]	0.04
Restraining torque [lbf-in]	100
Lead cross section [AWG]	18
Cable length [in]	23
Protection class	IP55

\*\* Capacitor required to run the actuator. 115 Vac = 35 µF, p/n 9200-448-002, 230 Vac = 10 µF, p/n 9200-448-003.

# Electrak 5

115 and 230 Vac - load up to 1500 lbf

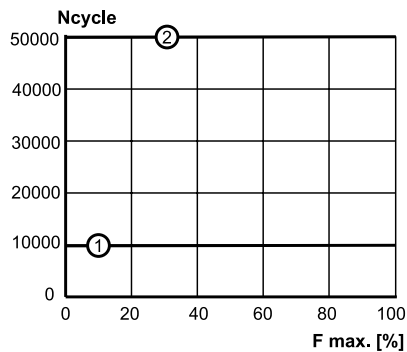


S: stroke  
A: retracted length  
A1: cable

Stroke (S)	[inch]	4	8	12	18	24
Retracted length (A)	[inch]	15.0	19.0	23.0	29.0	35.0
Weight	[lb]	14.4	15.2	16.1	17.3	18.6

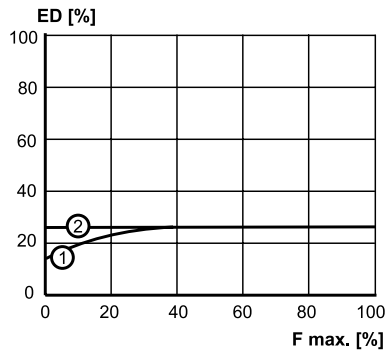
## Performance Diagrams

Life vs. Load



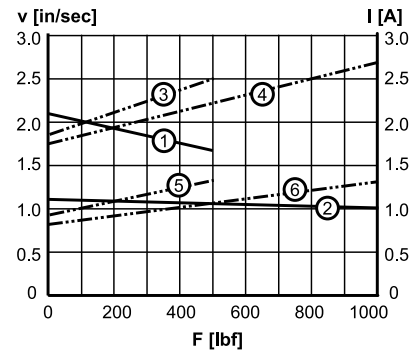
Ncycle: life in number of cycles  
(one cycle = extend and retract)  
F max: percent of maximum rated load  
1: all models using the clutch at the end of stroke  
2: all models using the anti-coast brake at the end of stroke only

Duty Cycle vs. Load



ED: duty cycle in percent at 77° F  
F max: percent of maximum rated load  
1: 50 Hz input frequency  
2: 60 Hz input frequency

Speed and Current vs. Load



V: speed I: current F: load  
1: speed 500 lbf  
2: speed 1000 lbf  
3: current 500 lbf, 115 Vac  
4: current 1000 lbf, 115 Vac  
5: current 500 lbf, 230 Vac  
6: current 1000 lbf, 230 Vac

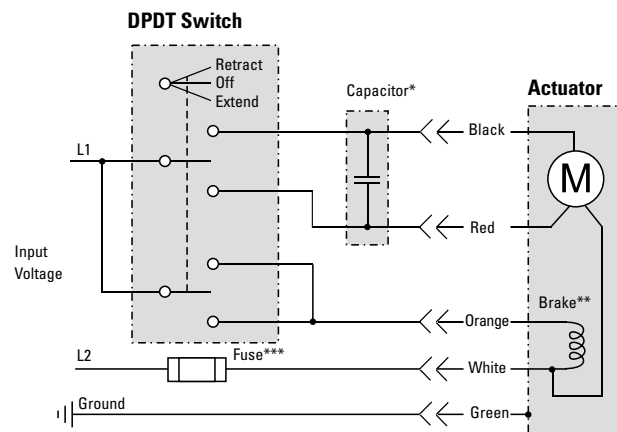
# Electrak 5

115 and 230 Vac - load up to 1500 lbf

## Ordering Key

1	2	3	4
A12 -	05B5 -	04	D
<b>1. Model and input voltage</b> A12 - = Electrak 5, 1 × 115 Vac A22 - = Electrak 5, 1 × 230 Vac	<b>2. Dynamic load capacity</b> 05B5 - = 500 lbf 10B5 - = 1000 lbf	<b>3. Stroke</b> 04 = 4 inch 08 = 8 inch 12 = 12 inch 18 = 18 inch 24 = 24 inch	<b>4. Shipment version<sup>1</sup></b> D = distributor version  <sup>1</sup> Leave position blank for OEM version.

## Electrak 5



\* Capacitor required to run the actuator. 115 Vac = 35  $\mu$ F, p/n 9200-448-002, 230 Vac = 10  $\mu$ F, p/n 9200-448-003.

\*\* Anti coast brake.

\*\*\* Supplied by customer.

Connect the red lead to L1 and white to L2 to extend the actuator. Change L1 from red to black lead to retract the actuator. Release the anti coast brake by connecting orange lead to L1.



# Electrak 205

115 and 230 Vac - load up to 1500 lbf



## Standard Features and Benefits

- Robust, strong and reliable
- Stainless steel extension tube
- Highly efficient ball screw drive system
- Electrical brake for accurate positioning
- Motor with thermal switch
- Adjustable end of stroke limit switches
- Potentiometer
- Universal mounting clamp for tube mounting available
- Maintenance free

## General Specifications

Parameter	Electrak 205
Screw type	ball
Internally restrained	no
Manual override	no
Dynamic braking	no
Holding brake	yes
End of stroke protection	adjustable limit switches
Mid stroke protection	no
Motor protection	auto reset thermal switch
Motor connection	terminal strip in the housing
Cable entrance	1/2" NPT
Certificates	none
Options	none

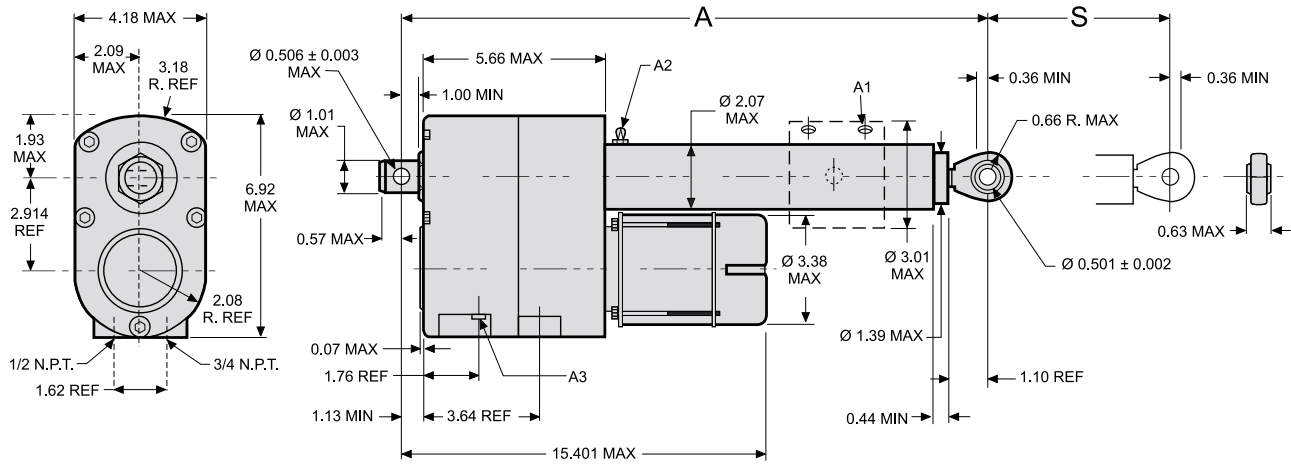
## Performance Specifications

Parameter		Electrak 205
Maximum load, dynamic	[lbf]	
ALP •• -05		500
ALP •• -10		1000
Contact customer support		1500
Maximum load, static tension	[lbf]	
ALP •• -••		4000
Maximum load, static compression	[lbf]	
ALP •• -•• (stroke under 24 inch)		4000
ALP •• -•• (24 inch stroke)		2500
Speed, at no load / at maximum load	[in/sec]	
ALP •• -05		2.05 / 1.75
ALP •• -10		1.10 / 0.90
Available input voltages*	[Vac]	
Single phase		115, 230
Input frequency	[Hz]	
1 × 120 Vac model		60
1 × 230 Vac model		50/60
Standard stroke lengths	[in]	4, 8, 12, 18, 24
Operating temperature limits	[°F]	-15 – +150
Full load duty cycle @ 77 °F	[%]	25
End play, maximum	[in]	0.035
Restraining torque	[lbf-in]	100
Max. terminal strip lead cross section	[AWG]	14
Protection class		IP55
Potentiometer	[kOhm]	10
Potentiometer resistance change	[ohm/in]	385

\* Capacitor required to run the actuator. 115 Vac = 35 µF, p/n 9200-448-002,  
230 Vac = 10 µF, p/n 9200-448-003.  
Universal mounting kit. 9200-448-006

# Electrak 205

115 and 230 Vac - load up to 1500 lbf

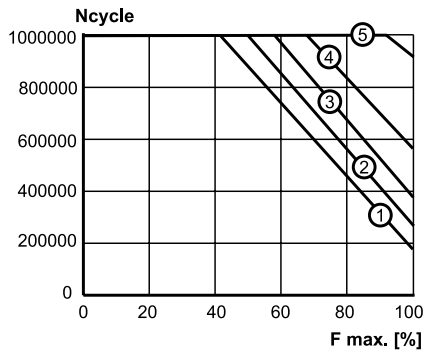


S: stroke  
 A: retracted length  
 A1: universal mounting clamp  
 A2: grease fitting  
 A3: limit switch adjustment

Stroke (S)	[inch]	4	8	12	18	24
Retracted length (A)	[inch]	22.2	26.2	30.2	36.2	42.2
Weight	[lb]	25.5	27.5	29.5	32.5	35.5

## Performance Diagrams

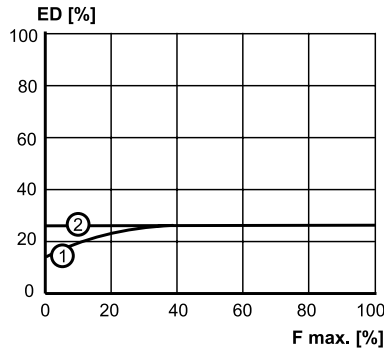
Life vs. Load



Ncycle: life in number of cycles  
 (one cycle = extend and retract)  
 F max: percent of maximum rated load

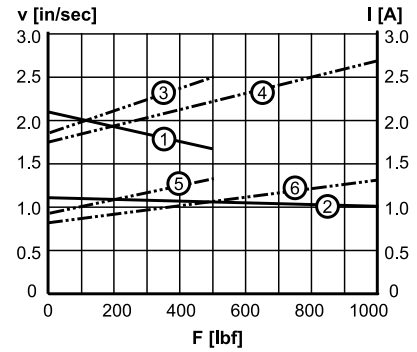
- 1: 1000 lbf, 24 inch stroke
- 2: 1000 lbf, 18 inch stroke
- 3: 1000 lbf, 12 inch stroke
- 4: 1000 lbf, 8 inch stroke
- 5: 1000 lbf, 4 inch stroke

Duty Cycle vs. Load



ED: duty cycle in percent at 77° F  
 F max: percent of maximum rated load  
 1: 50 Hz input frequency  
 2: 60 Hz input frequency

Speed and Current vs. Load



V: speed I: current F: load  
 1: speed 500 lbf  
 2: speed 1000 lbf  
 3: current 500 lbf, 115 Vac  
 4: current for 1000 lbf, 115 Vac  
 5: current 500 lbf, 230 Vac  
 6: current 1000 lbf, 230 Vac

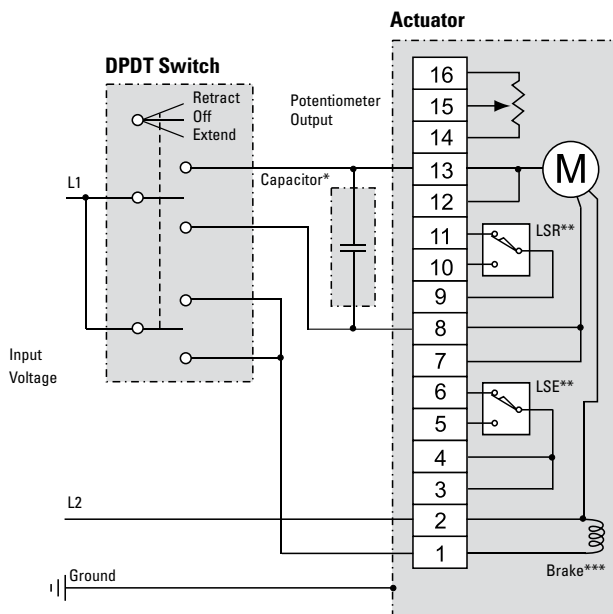
# Electrak 205

115 and 230 Vac - load up to 1500 lbf

## Ordering Key

1	2	3	4
ALP22 -	10B5 -	04	
<b>1. Model and input voltage</b> ALP12 - = Electrak 205, 1 × 115 Vac ALP22 - = Electrak 205, 1 × 230 Vac	<b>2. Dynamic load capacity</b> 05B5 - = 500 lbf 10B5 - = 1000 lbf	<b>3. Stroke</b> 04 = 4 inch 08 = 8 inch 12 = 12 inch 18 = 18 inch 24 = 24 inch	<b>4. Shipment version<sup>1</sup></b> D = distributor version  <sup>1</sup> Leave position blank for OEM version.

## Electrak 205



\* Capacitor required to run the actuator. 115 Vac = 35  $\mu$ F, p/n 9200-448-002, 230 Vac = 10  $\mu$ F, p/n 9200-448-003.

\*\* LSR = end of stroke limit switch in retracted position, LSE = end of stroke limit switch in extended position.

\*\*\* Electrical brake.

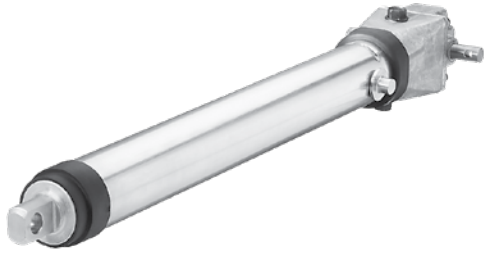
The terminal strip is accessed by opening the rear cover of the actuator housing. Connect terminal 8 to L1 and terminal 2 to L2 to extend the actuator. Change L1 from terminal 8 to 13 to retract the actuator. Release the anti coast brake by connecting terminal 1 to L1. The potentiometer output is connected to terminals 14, 15 and 16.





# Electrak Non-driven Actuator PPA-M

Load up to 1500 lbf



## Standard Features and Benefits

- Actuator with double input shafts to which a customer supplied motor or/and an intermediate shaft can be mounted
- Can be operated manually
- Robust and versatile
- Withstands very harsh environments
- Highly efficient ball screw drive system
- Holding brake prevents back driving
- Trunnion to clevis mounting
- Maintenance free

## General Specifications

Parameter	Electrak PPA-M
Screw type	ball
Internally restrained	no
Manual override	no*
Holding brake	yes
End of stroke protection	no
Mid stroke protection	no
Certificates	–
Options	protective bellows

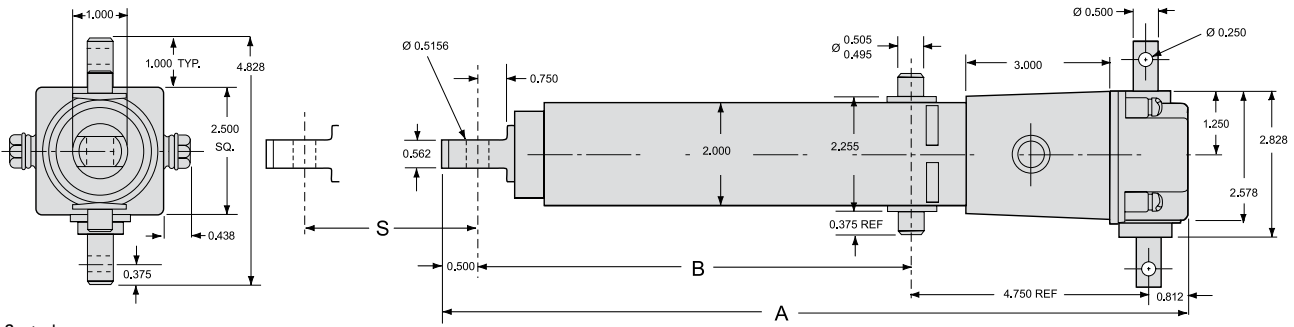
\* Either of the two input shafts can be used for manual operation if both shafts are not connected to a motor or an intermediate shaft.

## Performance Specifications

Parameter		PPA-M
Maximum load, dynamic / static	[lbf]	1500 / 3000
Maximum speed at max. load	[in/sec]	0.33
Maximum input torque	[lbf-in]	80
Maximum input speed	[rpm]	100
Standard stroke lengths	[in]	4, 8, 12, 18, 24, 36
Operating temperature limits	[°F]	-15 – +150
End play, maximum	[in]	0.04
Restraining torque	[lbf-in]	200

# Electrak Non-driven Actuator PPA-M

Load up to 1500 lbf



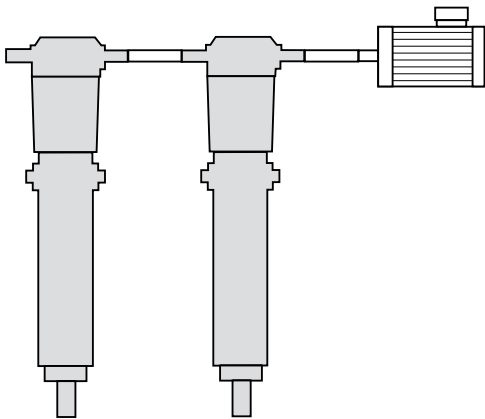
S: stroke  
 A: retracted length  
 B: retracted length to trunnions

<b>Stroke (S)</b>	<b>[inch]</b>	4	8	12	18	24	36
<b>Retracted length (A)</b>	<b>[inch]</b>	14.8	18.8	22.8	30.8	36.8	48.8
<b>Retracted length to trunnions (B)</b>	<b>[inch]</b>	8.8	12.8	16.8	24.8	30.8	42.8
<b>Weight</b>	<b>[lb]</b>	7.6	9.2	10.6	13.5	16.0	21.4

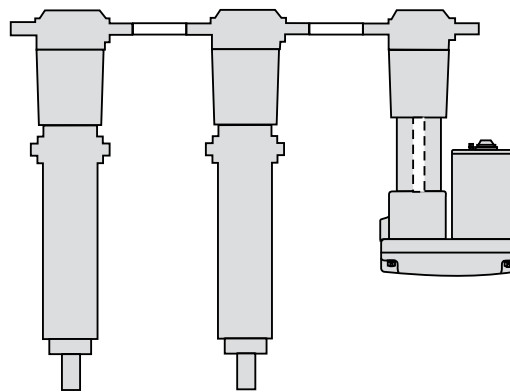
## Synchronous Operation

Two or more PPA-M actuators can easily be mechanically linked for synchronous operation. They can either be driven directly by motor (1) or by the PPA synchronous operation kit (2). Intermediate shafts, couplings and motors (white details) are supplied by the customer. For more information about the PPA synchronous operation kit, see Accessories and Spare Parts on page 46.

### 1. With motor



### 2. With PPA synchronous operation kit



# Electrak Non-driven Actuator PPA-M

Load up to 1500 lbf

Ordering Key			
1	2	3	4
PPA00 -	01B65 -	24	N-XXX
<b>1. Model</b> PPA00 - = Electrak PPA-M	<b>2. Dynamic load capacity</b> 01B65 - = 1500 lbf	<b>3. Stroke</b> 04 = 4 inch 06 = 6 inch 08 = 8 inch 12 = 12 inch 18 = 18 inch 24 = 24 inch 36 = 36 inch	<b>4. Bellows option</b> N-XXX = no bellows N-XXC = bellows



# Rotary Actuator DGB

12, 24 and 36 Vdc - load torque up to 100 lbf-in



## Standard Features and Benefits

- Rotary actuators for industrial and outdoor use
- Easy and fast clevis mounting
- Overload clutch
- Thermal protected motor
- Manual override or dual output shafts as option

## General Specifications

Parameter	DGB
Manual override	no
Dynamic braking	no
Holding brake	yes
Overload protection	overload clutch
Motor protection	auto reset thermal switch
Motor connection	flying leads and connector
Motor connector	Packard Electric 56 series 2984883 with terminal 2962987. Mating connector: 2973781 with terminal 2962573 (p/n 9100-448-001)
Certificates	CE optional*
Options	<ul style="list-style-type: none"> <li>• manual override</li> <li>• dual output shafts</li> <li>• other speeds*</li> </ul>

\* Contact customer support

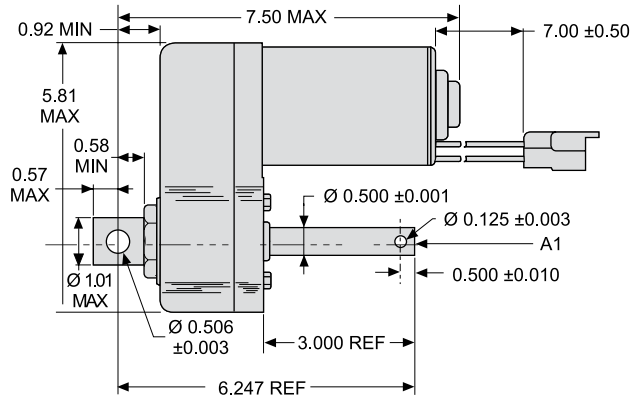
## Performance Specifications

Parameter		DGB
Maximum load torque	[lbf-in]	100
Speed, at no load / at maximum load	[rpm]	200 / 80
D •• -21GB		140 / 75
D •• -30GB <sup>1</sup>		
Available input voltages	[Vdc]	12, 24, 36
Weight	[lb]	
D •• - •••• - XXCL		7.7
D •• - •••• - XXMO		7.7
D •• - •••• - XXDS		7.7
Operating temperature limits	[°F]	-15 – +150
Full load duty cycle @ 77 °F	[%]	25
Lead cross section	[AWG]	14
Lead length	[in]	7.0
Protection class		IP56

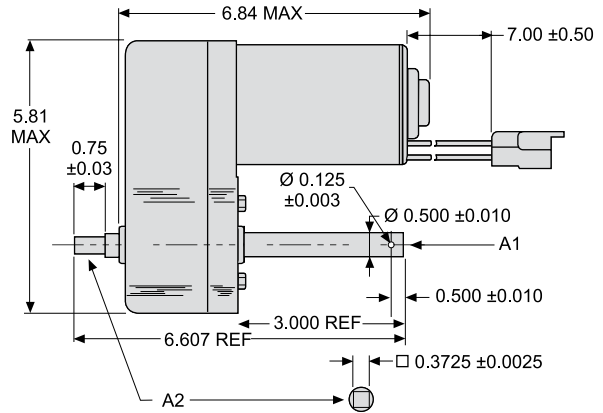
# Rotary Actuator DGB

12, 24 and 36 Vdc - load torque up to 100 lbf-in

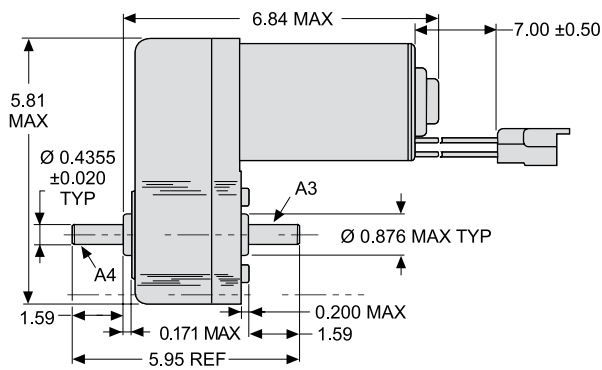
D •• - 21GB-XXCL, D •• - 30GBXXCL (clevis mount)



D •• - 21GBXXMO (manual override)



D •• - 21GB-XXDS (dual output shafts)



A1: output shaft

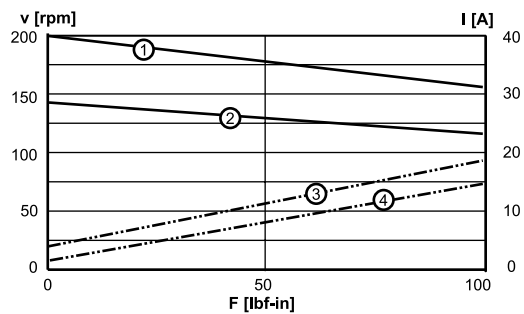
A2: shaft for manual override

A3: first output shaft

A4: second output shaft

## Performance Diagrams

### Speed and Current vs. Load



V: speed I: current F: load

1: speed D12-21GB

2: speed D12-30GB

3: current D12-21GB

4: current D12-30GB

Contact customer support for data on 24 and 36 Vdc models (D •• -30GB is not available for 36 Vdc).

www.thomsonlinear.com

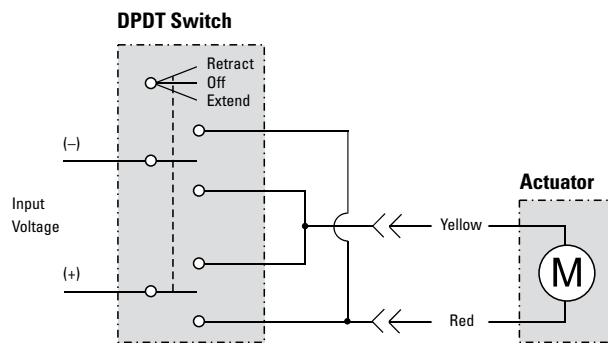
# Rotary Actuator DGB

12, 24 and 36 Vdc - load torque up to 100 lbf-in

## Ordering Key

1	2	3
D36 -	21GB -	XXCL
<b>1. Input voltage</b> D12 - = 12 Vdc D24 - = 24 Vdc D36 - = 36 Vdc	<b>2. Load torque capacity and no load speed</b> 21GB - = 100 lbf-in, 200 rpm 30GB - = 100 lbf-in, 140 rpm <sup>1</sup>	<b>3. Version</b> XXCL = one output shaft + clevis mount XXMO = one output shaft + manual override XXDS = dual output shafts  <sup>1</sup> Not possible with 36 Vdc input voltage.

## Wiring Diagram



Connect the red lead to positive and yellow to negative to extend the actuator/rotate the output shaft in clockwise direction. Change polarity to retract the actuator/rotate the output shaft counterclockwise.





# Actuator Controls

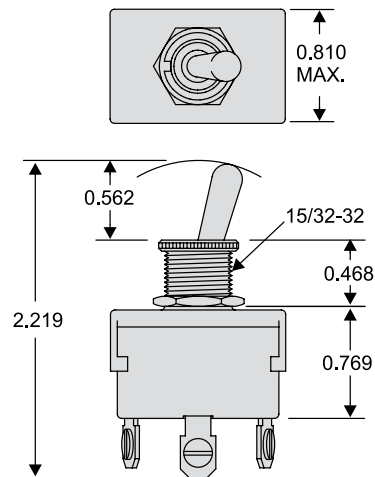
## Switches

### DPDT Switch



- Robust switch
- Double pole, double throw (DPDT)
- 15 A rating at 270 Vac
- Center "off"
- Two momentary contacts
- Wiring diagram on label

### Dimensions



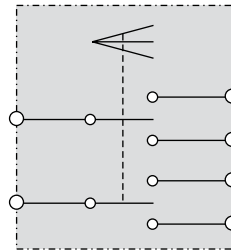
### Specifications

Parameter		DPDT Switch
Maximum voltage	[Vac]	270
Maximum current	[A]	15
Part number		830-8004-016

### Actuator Compatibility

Electrak 1, Electrak 1SP, Electrak 050, Electrak 2, Electrak PPA-DC, Electrak 10, Electrak Pro, Electrak PPA-AC, Electrak 5, Electrak 205, DGB

### Wiring Diagram



# Actuator Controls

## Switches

### DPDT Switch Box



- Robust rocker switch mounted in an enclosure
- Double pole, double throw (DPDT)
- 15 A rating at 270 Vac
- Center "off"
- Two momentary contacts
- Mounting bracket included
- Wiring diagram on label

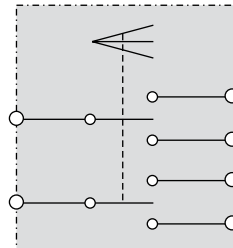
### Specifications

Parameter		DPDT Box
Maximum voltage	[Vac]	270
Maximum current	[A]	15
Protection class		NEMA 1
Part number		6932-101-054

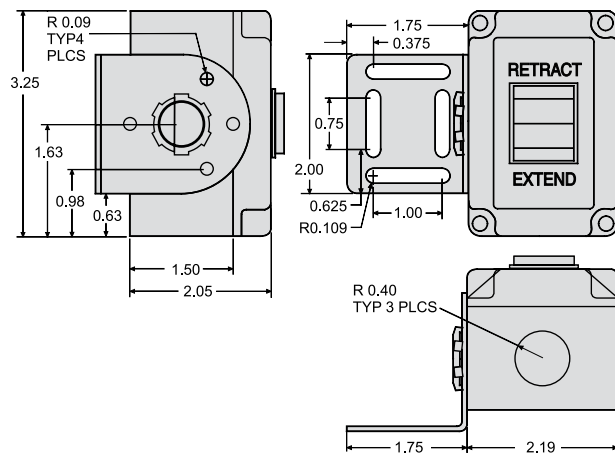
### Actuator Compatibility

Electrak 1, Electrak 1SP, Electrak 050, Electrak 2, Electrak PPA-DC, Electrak 10, Electrak Pro, Electrak PPA-AC, Electrak 5, Electrak 205, TC16, DMD, DMA, LM80-H, LM80-V, DGB

### Wiring Diagram



### Dimensions



**!** Note: some AC actuators require a capacitor in the wiring to run. This capacitor will not fit in this box due to space limitations.

# Actuator Controls

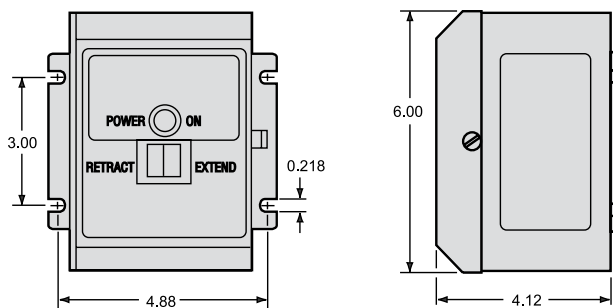
## Electronic Controls

### Control MCS-2041



- Robust and compact metal enclosure with a front panel extend and retract rocker switch
- Prewired internal capacitor
- Fuse protects actuator in case of stalling caused by overload
- “Power On” light illuminates whenever power applied to the control
- Terminal strip for easy electrical connection
- The switch controls both the actuator motor and its anti coast brake to provide optimum performance

### Dimensions



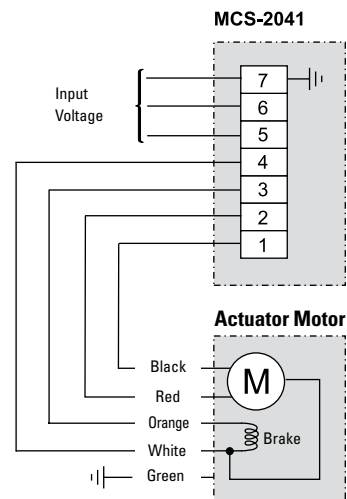
### Specifications

Parameter		MCS-2041
Input voltage	[Vac]	1 × 115
Input frequency	[Hz]	50/60
Output voltage	[Vac]	1 × 115
Maximum output current	[A]	15
Protection class		NEMA 1
Part number		6932-448-010

### Actuator Compatibility

Electrak 5

### Wiring Diagram



# Actuator Controls

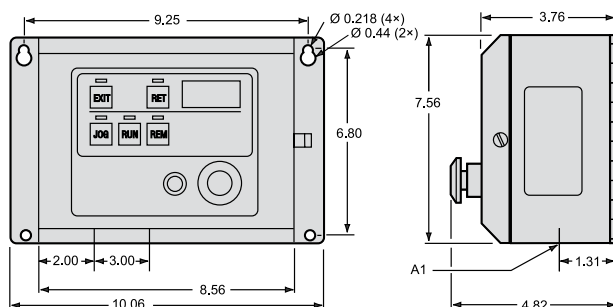
## Electronic Controls

### Control MCS-2051



- Control designed to operate an Electrak 205 actuator
- Robust metal enclosure with front cover mounted membrane switches and LED indicator lights for extend, retract, jog, run and remote control
- Emergency stop/off pushbutton remains in position when activated
- LCD display shows the extension tube position
- Internal "Run" mode jumper which causes the actuator to reverse automatically upon reaching the extend end of stroke limit switch. Reverse motion continues until reaching the retract end of stroke limit switch
- The control provides an analog output signal for an external customer provided control/meter
- Inputs for external extend and retract switches
- Inputs for two external end of stroke limit switches
- Dynamic braking
- Terminal strip for easy electrical connection

### Dimensions



A1: Cable entrance, 1/2 inch standard conduit (2 x)

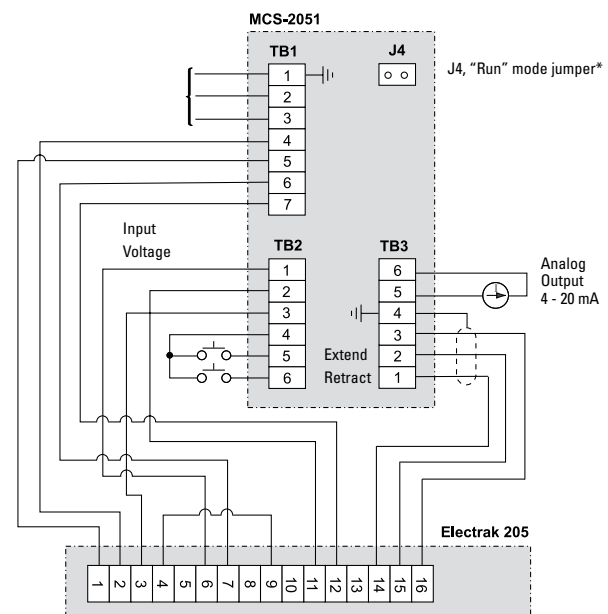
### Specifications

Parameter		MCS-2051
Input voltage	[Vac]	1 × 115
Input frequency	[Hz]	50/60
Output voltage	[Vac]	1 × 115
Maximum actuator output current	[A]	8
Analog output signal	[mA]	4 - 20
Protection class		NEMA1
Part number		6932-448-015

### Actuator Compatibility

Electrak 205

### Wiring Diagram



\* Inserting jumper J4 causes the actuator to reverse automatically upon reaching the extend end of stroke limit switch. Reverse motion continues until reaching the retract end of stroke limit switch.

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