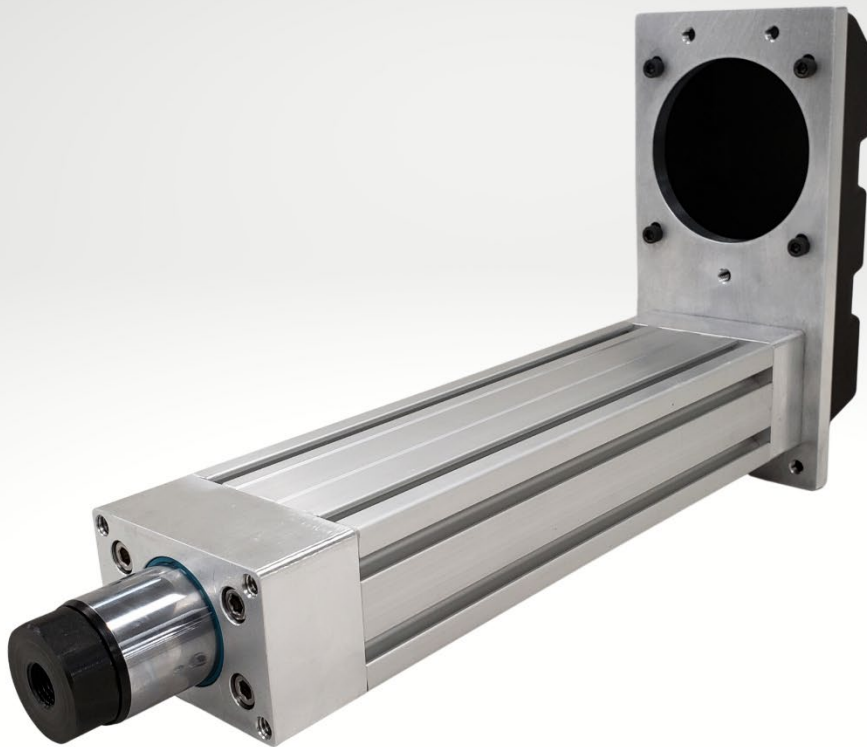




SERVICE GUIDE

UA Series™



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Engineering Assistance

Joyce/Dayton Corp
3300 S. Dixie Dr.
Kettering, OH 45439
sales@joycedayton.com

Repair Service

Request RMA from:
sales@joycedayton.com
Please include serial number with request.

Phone: 937.294.6261

Website: www.joycedayton.com/edrive

For warranty information please refer to www.joycedayton.com/edrive

Important Information for Users

Installation and Operation

EDrive Linear Actuators must be installed and operated in such a way that all applicable safety requirements are met. As an installer, it is your responsibility to identify and comply with all relevant safety standards. Severe personal injury as well as equipment damage may result from any failure to heed this warning. Read and understand this entire manual before installation and operation of this equipment.

The installation and maintenance of this actuator should only be performed by personnel who have been appropriately trained. Such persons should be familiar with the potential hazards associated with electrical and mechanical equipment. The individual or group having overall responsibility for this equipment must ensure that operators are adequately trained.

Under no circumstances will Joyce/Dayton be liable for any incidental, consequential, or special damages resulting from use or misuse of this equipment or this manual.

Safety Warning

Motion equipment is capable of rapid movement and very high forces. Unexpected motion may occur at any time. KEEP CLEAR of any machinery until the on-site supervisor has determined that all sources of electrical or mechanical potential energy have been disabled or otherwise “locked out”. Avoid contact or physical proximity to the actuator while it is in operation.

This product is sold, as a component, to be installed in a complete system using good engineering practices.

Joyce/Dayton continually strives to improve its products, therefore we reserve the right to modify equipment and service guides without prior notice.

Product Description

EDrive Linear Actuators are based on a high efficiency anti-friction ball screw, supported in bearings, and rotated by a motor. The nut is attached to the piston rod. By constraining the piston from rotating, the rotary movement of the motor is converted into linear motion of the piston rod. The motor may be directly coupled or include a gear belt drive or a third-party gear reducer.

Mechanical and performance specifications can be found on our web site or by contacting Joyce/Dayton at sales@joycedayton.com, or 937.294.6261. All inquiries should include the actuator serial number located on the label.

Safety Considerations

In any situation where safeguards and control systems do not prevent accidental contact between personnel and the actuator, the machine builder/installer must provide suitable warnings.

Installation Considerations

In mounting any actuator, the following issues need to be considered:

- Avoid distortion of the actuator body.
- Proper alignment of the actuator must be relative to the load travel.
- Prevent side loading of the piston rod.
- Limit linear acceleration and deceleration, which should not exceed 386 in/sec².
- The load, velocity, and motor input torque should not exceed catalog specifications.

As with any ball bearing device, special care must be taken to avoid impact. Any impact will jeopardize actuator life. Before energizing the motor install over - travel limit switches and connect them to control circuitry. This is a necessary step to reduce the possibility of damage through accidental extension or retraction beyond the limits of the actuator.

Motor Pulley should be in line with the ball screw pulley within 1/32 inch. Fasten pulley to motor shaft with the supplied set screw or taper lock bushing.

Gear Belt should be properly tensioned. Gear belt drives should not be tightened to the same extent as other belt drives (i.e. V-belt, Poly-V, Flat belt, etc.). If the gear belt tension is too great, it imposes excessive and unnecessary

loading on the bearings. When the gear belt is too loose, the belt may jump teeth (particularly on high torque applications).

Coupling (inline only) Determine the correct position to equally engage both the motor shaft and the ball screw shaft into the coupling. Fasten the coupling to the motor shaft and install the motor into the coupling housing. Use the access hole in the housing to tighten the clamping bolt on the ball screw side of the coupling. Caution: Avoid excess axial loading on the ball screw shaft.

End Effectors Caution should be exercised when attaching any device to the end of the piston rod. Use the wrench flats on the piston end to prevent rotation while attaching the end effector. Any substantial torque applied to the piston rod may damage the internal anti-rotation system.

Ball Screw Pulley In the event this pulley is removed or replaced – DO NOT use the fully retracted or fully extended rod position to counteract the applied wrench torque.

Lubrication

UA Series Actuators are lubricated for life. No lubrication maintenance is necessary. The standard lubrication is Mobil SHC-32.

Maintenance

1. Ball bearings are greased for life and require no maintenance.
2. Gear belts require periodic (6 months approx.) inspection for possible wear and for proper tension settings.

The successful operation and longevity of this actuator is based on superior components, precise manufacturing, and extreme cleanliness. Unless your maintenance personnel are thoroughly familiar with this type of construction, any attempt to perform “field” repairs may aggravate rather than resolve your problem.

If you have any questions regarding performance or possible explanations for symptoms – we encourage early contact with Joyce/Dayton (sales@joycedayton.com) to help define the problem and determine the most appropriate resolution. For answers to common questions, you may check the FAQ page of our website, www.joycedayton.com/edrive.

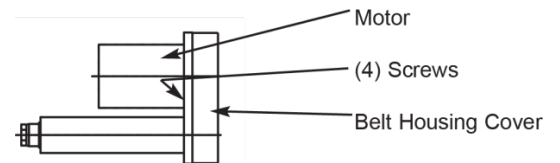
When contacting Joyce/Dayton for service or support, it is most helpful if you have the actuator serial number available.

Gear Belt Installation/Tensioning

Remove the belt housing cover. Loosen the (4) screws in the motor but DO NOT remove them. This will allow you to slide the motor toward the actuator or body. Install the gear belt. Then re-assemble with the correct tension and alignment.

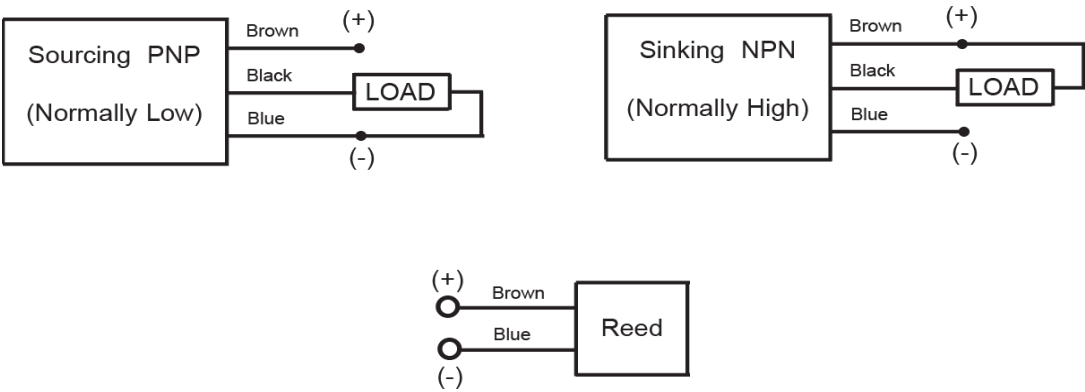
Gear belt drives do not need to be tightened to the same extent as other belt drives (i.e. V-belt, Poly-V, Flat belt, etc.). If the gear belt tension is too great, it imposes excessive and unnecessary loading on the bearings. The chart below shows the correct deflection and force values for proper belt tensioning.

UA Series	UA2	
Reduction Ratio	1:1	2:1
Belt Deflection	0.06 inch	0.06 inch
Deflection Force	2 lbs.	2 lbs.
Gear Belt Number	5MR-375-15	5MR-375-15
Number of teeth (driver)	36	24
Number of teeth (driven)	36	48



Switch Wiring

Supplied Hall Effect or Reed type switches are for “home” sensing and over travel protection only. They should not be used as position switches.



	Configuration	State	Voltage (VDC Typ.)	Current (mA Max.)	Type	Part Number	H					
							1	2	3	4	5	6
A	Hall Effect, Sourcing	N.O.	5-24	500	PNP	K06-UAS			1	2	2	1
A	Hall Effect, Sourcing	N.C.	5-24	500	PNP	Q06-UAS						
B	Hall Effect, Sinking	N.O.	5-24	500	NPN	G06-UAS						
B	Hall Effect, Sinking	N.C.	5-24	500	NPN	J06-UAS	1	2			1	2

	Configuration	State	Contact Rating (VA)	Switching Voltage (Max.) V(AC/DC)	Switching Current (Max.) (mA)	Carry Current (Max)	Part Number
C	Reed	N.O.	10	100	500	1 A	D06-UAS
C	Reed	N.C.	3	30	200	500 mA	T06-UAS

- Cable - PVC Jacket; 24 AWG 105 strand
- Brown (+), Blue (-), Black (load)
- Switch response: 0.01 mS
- Operating temperature: -10 to 60° C
- Shock resistance: 50 g Hall; 30 g Reed
- Vibration resistance: 30 g
- Magnetic field required: 40 gauss minimum, no upper limit