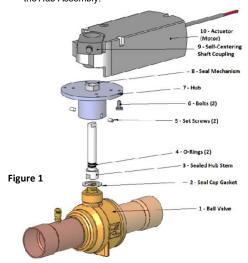


CYCLEMASTER® BALL VALVES

SERIES II & III ACTUATOR AND WEATHERPROOF ENCLOSURE INSTALLATION INSTRUCTIONS

ACTUATOR/HUB REMOVAL

- 1. Disconnect Actuator (10) from all electrical sources.
- 2. Remove Actuator from Sealed Hub Stem (3) by:
- a) Loosening the screw on the Shaft Coupling (9)
- b) Slide the Actuator off the Sealed Hub Stem.
- 3. Remove Hub Assembly (2-8) from Ball Valve (1) by
- a) Loosening the Set-Screws (5) on Hub (7)
- b) Remove Hub by placing wrench on flats of the Sealing Mechanism (8) and turn counter-clockwise.
- c) Unscrew Hub Assembly from valve
- d) Confirm that the Seal Cap Gasket (2) remains with the Hub Assembly.

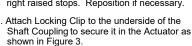


HUB INSTALLATION

- Remove Seal Mechanism (8) from Hub Assembly (2
 -8). Sealed Hub Stem (3) should remain partially installed in the Seal Mechanism. Ensure Stem and O-Ring Seals are well lubricated.
- Reinstall the Seal Mechanism into the Hub (7), handtight. Apply a small amount of lubricant to the threads if necessary.
- Assemble the hex-head Bolts (6) onto the Hub to go into actuator. Align Bolts with holes on underside of Actuator (10).
- 4. Partially install the Set-Screws (5) into the Hub.
- Make sure the brass sealing surface on top of the Ball Valve (1) is clean and free of debris.
- 6. Confirm that the PTFE Seal (2) is in place, then install the entire Hub Assembly (2-7) onto the valve neck, taking care that the slot in the Stem (3) aligns properly with the valve stem and the Seal is in place between the Seal Mechanism (8) and the top of the valve neck.
- Thread the Hub over the Seal Mechanism (8) and onto the valve as far as possible, stopping just short of bottoming out.
- Align the Hub so that the Actuator orientation will be as desired. With an Allen wrench, tighten the Set Screws (5) (Torque: 60-65 lb. –in.) on either side of the Hub so that Set Screws secure the Hub against the ball valve body.
- While holding the larger diameter, tighten the Seal Mechanism portion with a wrench approximately 1/4 to 1/2 turn until secure.
- Pull Stem upward away from Ball Valve to remove slack,

ACTUATOR INSTALLATION (No Enclosure)

- Get the Actuator (10), Self-Centering Shaft Coupling (9) and Locking Clip required for installation.
- 2. Assemble the Shaft Coupling (9) onto the Actuator as shown in Figures 1 & 2. Depress the manual override button on top of the Actuator and manually cycle the Shaft Coupling back-and-forth through the full 90° cycle to confirm that each actuator operates within the full range between the left and right raised stops. Reposition if necessary



- Depress the manual override button on top of the Actuator and match the full counter-clockwise position of the Shaft Coupling to the full counterclockwise rotation of the Ball Valve (1).
- Pull Stem (3) upward, away from Ball Valve until no additional space is between the Hub Assembly's Stem and Seal Mechanism (8).
- Place Actuator against the Hub (7), over the Stem taking care that the flange Bolts (6) align with the holes on the underside of the Actuator housing. Bottom of Actuator should be flush against the top of the Hub.
- While holding manual override switch the motor, align the Shaft Coupling and tighten against Stem. Series II – Torque ≈ 90-108 lb.- in. (10-12 N -m), Series III – Torque ≈ 100-130 lb. –in. (12-15 N- m).



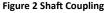
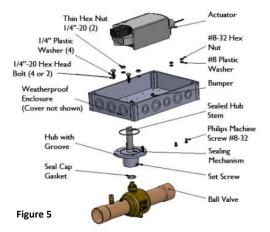




Figure 3 Shaft Coupling

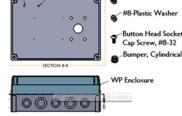


Figure 4 Locking Clip





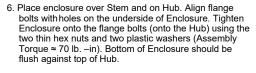




ACTUATOR INSTALLATION (with Enclosure)

Warning: Enclosures will not provide protection if water can intrude due to incorrect mounting.

- 1 Take the Enclosure and accessories out of the kit (In case of Act.- BV-Hub-Encl. kit, the kit includes the Ball Valve and the Actuator as well).
- 2. Disassemble cover by loosening plastic screws on enclosure.
- 3. Follow steps 4 through 10 of "HUB INSTALLATION". DO NOT REMOVE SEAL MECHANISM (already installed) or thread sealant between Hub and Seal Mechanism will be damaged.
- 4. Install O-Ring into Hub Groove. (Figure 6) If Hub does not have groove, use Hub from the new Enclosure Kit. Apply small amount of lubricant to O-Ring, if necessary.
- 5. Assemble two of the hex-head bolts onto the Hub (Figure 7). Align Bolts with holes on underside of Enclosure and Actuator.



- 7. From top of Enclosure, assemble the other two bolts (in case of series III, use the two cap screws), using the plastic washer, in the remaining 2 holes and tighten down the Enclosure onto the hub. (The heads of the bolts should be on the topside and the shaft of the body of the bolt protruding out of the underside of the hub see Figure 5)
- 8. Before installing the actuator into the enclosure, follow steps 1-5 of the "Actuator (Motor) Installation" stated above. NOTE: When installed in a Weatherproof Enclosure, the Shaft Coupling of the Actuator needs to be installed on the bottom side of the Actuator (Figure 10) instead of the top side (as mentioned in Step 2 - Figure 3).

- 9. Place Actuator against Enclosure, over the Stem, Align Flange Bolts with the holes on the underside of the Actuator housing. Bottom of Actuator should be flush against top of Enclosure.
- 10. While holding manual override switch on Actuator, align Shaft Coupling and tighten against the Stem. Series II, Torque ≈ 90-108 lb.
- -in (10-12 N-m), Series III, Torque ≈ 100-130 lb. in (12-15 N-m) – see standard Commissioning Instructions.
- 11 Install Enclosure using cover screws. (Torque ≈ 10 lb.in/1.2 N-m)

Notes:

- 1. Do not over-tighten the motor clamp.
- 2. Hub is tightened to Seal Mechanism, not to bottom of the valve neck. Seal Cap Gasket should be tight enough to seal valve surface.



Figure 6









Figure 7 Figure 8*

Figure 9 (Thin Hex Nuts)

Figure 10 *

* Illustrations using a Series III Enclosure





Series II

Series III

Actuator Features:

- Synchronous motor technology with stall protection
- Unique self-centering Shaft Coupling
- Manual override
- cUL and UL Listed, CE Certified
- Independently adjustable dual auxiliary switches available

Service Warnings/Cautions

DO NOT OPEN THE ACTUATOR. IF THE ACTUATOR IS INOPERATIVE, REPLACE THE UNIT.

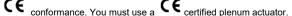


Do not wire different types of actuators in parallel with these models.

All six outputs of the dual auxiliary switch (A and B) must only be connected to: Class 2 voltage (UL/CSA),



Separated Extra-Low Voltage (SELV) or Protective Extra Low Voltage (PELV) (according to HD384-4-41) for



Installations requiring CE Conformance:

All wiring for CE certified actuators must only be separated extra low voltage (SELV) or protective extra low voltage (PELV) per HD384-4-41.

Use safety isolating transformers (Class III transformer) per EN61558. They must be rated for 100% duty cycle

Overcurrent protection for supply lines is maximum 10A.



Mixed Switching operation is not permitted to the switching outputs of both auxiliary switches (A and B)



Personal injury/loss of life may occur if a procedure is not performed as specified.



Not for use in condensing or wet applications.



Equipment damage or loss of data may occur if the user does not follow a procedure as specified.



To avoid injury or loss of life, pay attention to any hazardous voltage when performing checks.

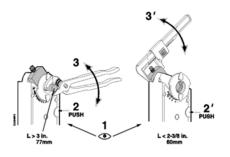
Manual Override

To move the valve and lock the position with no power present:

- 1 Hold down the PUSH button
- 2. Make adjustments to the valve position.
- 3. Release the PUSH button.

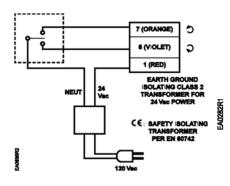
NOTE: If there is no load, the actuator will hold the new position. If load conditions exist, the actuator might not be able to hold.

Once power is restored, the actuator returns to the automatic control.



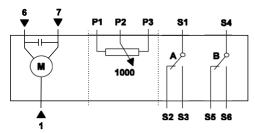
Wiring

All wiring must conform to NEC and local codes and regulations.



Use earth ground isolating step-down Class 2 transformers. Do not use auto transformers.

The sum of the VA ratings of all actuators and all other components powered by one transformer must not exceed the rating of the transformer. It is recommended that one transformer power no more than 10 actuators.



Standard Symbol	Function	Terminal Designation	Series I & III Color	
1	Supply (SP)	G	Red	
6	Control signal clockwise	Y1	Violet	
7	Control signal counterclockwise	Y2	Orange	
FACTORY INSTALLED OPTIONS				
S1	Switch A Common	Q11	Gray/Red	
S2	Switch A N.C.	Q12	Gray/Blue	
S3	Switch A N.O.	Q14	Gray/Pink	
S4	Switch B Common	Q21	Black/Red	
S5	Switch B N.C.	Q22	Black/Blue	
S6	Switch B N.O.	Q24 Black/Pink		

Figure 1. Standard Models

Figure 2. Auxiliary Switch Models

START UP/COMMISSIONING

- Check that the wires are connected correctly.
- Connect wires 1 (red) and 6 (violet) to a Digital Multimeter (DMM) with the dial set at Vac. Apply a control signal (24 Vac) to wires 1 and 6 to verify that the operating voltage is within range.
- Check that the direction of the rotation switch matches the rotation of the valve ball.
- Check the operation
 - a) Connect wire 1 (red) to the actuator.
 - b) Apply a control signal (24 Vac) to wires 1 (red) and 6 (violet). c) Allow the actuator shaft coupling to rotate from 0 to 90°.

 - d) Stop applying a control signal to wires 1 (red) and 6 (violet).
- Check the Auxiliary Switch
 - a). Set the DMM dial to Ohms (resistance) or continuity check.
 - b) Connect wires S1 and S3 to the DMM. The DMM should indicate an open circuit or no resistance.
 - c) Apply a control signal (24 Vac) to wires 1 (red) and 6 (violet). The DMM should indicate contact closure as the actuator shaft coupling reaches the setting of switch A.
 - d) Stop applying a control signal to wires 1 (red) and 6 (violet).
 - e) Connect wires S1 and S2 to the DMM. The DMM should indicate an open circuit or no resistance.
 - f) Apply a control signal (24 Vac) to wires 1 (red) and 7 (orange). The DMM should indicate contact closure as the actuator shaft coupling reaches the setting of switch A.
 - Check the Auxiliary Switch B.
 - a) Set the DMM dial to Ohms (resistance) or continuity check.
 - b) Connect wires S4 and S6 to the DMM. The DMM should indicate an open circuit or no resistance.
 - c) Apply a control signal (24 Vac) to wires 1 (red) and 6 (violet). The DMM should indicate contact closure as the actuator shaft coupling reaches the setting of switch B.

 - d) Stop applying a control signal to wires 1 (red) and 6 (violet).
 e) Connect wires S4 and S5 to the DMM. The DMM should indicate an open circuit or no resistance.
 - f) Apply a control signal (24 Vac) to wires 1 (red) and 7 (orange). The DMM should indicate contact closure as the actuator shaft coupling reaches the setting of switch B.

Weatherproof Enclosure Kits - Series II

Includes Enclosure, Hub Kit and accessories; O-Ring (1), Bolts (4), Hex Nuts (2), Gaskets (4)



Weatherproof Enclosure Kits - Series III

Includes Enclosure, Hub Kit and accessories; O-Ring(1), Bolts(2), Cap Screws(2), Hex Nuts(2), Gaskets(4)



PRODUCT HAS BEEN MANUFACTURED TO BE CONSISTENT WITH NEMA3R SPECIFICIATIONS.

Assemble the kit in compliance with the Installation instructions provided, in order for the enclosure to perform its function.

The conduit hubs are to be connected to the conduit before being connected to the enclosure. Selected location must provide adequate wire bending space.

Weatherproof Enclosure Features:

All the Enclosures have drilled holes to accommodate the Heater kit except the Series I Enclosure.

Enclosure has Metric Knockouts for easy wiring.

Encl. Material: Polycarbonate (PC); Screw Cover; Opaque



NON-METALLIC ENCLOSURE DOES NOT PROVIDE GROUNDING BETWEEN CONDUIT CONNECTIONS. USE GROUNDING BUSHINGS AND JUMPING

AMBIENT TEMPERATURE: -25°F to 125°F (-40°F TO 125°F, IF USED WITH A **HEATER KIT)**



Enclosures will not provide protection if water can intrude due to incorrect mounting.

Power Supply	Specifications		Series II Actuator	Series III Actuator		
Power Supply	Sizes		1 1/8 – 1 5/8	2 1/8 – 3 1/8		
Power Supply		Onerating Voltage				
Proveet Supply Power Construction Southing 3 V A / 3W 2,6 V A / 1,8 W			21 446 22070			
Modularing S VA / AW S	Power Supply		3 \/\(\Lambda\/\)	·		
Voltage linput			T.	·		
Control Signal Convirt Meadelened			3 VA / 4 V	·		
Redback Signal (low) for Madeualthing Notinge Cultiput Current Class 2 according to UL, CSA	Control Signal (Only for Modulating)	1				
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Rating Class 2 according to UL, CSA Auxiliary Restures Dual Auxiliary Switch Contact Rating Dual Auxiliary Switch Contact Rating Dual Auxiliary Switch Contact Rating Dual Auxiliary Switch Contact Rating Dual Auxiliary Switch Contact Rating Dual Auxiliary Switch Contact Rating Switch Rating Sw	Feedback Signal (Only for Modulating)					
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Duel Auxiliary Switch Contact Earling Switch Contact Earling Switch Contact Earling Switch Voltage 24 to 250 Var./ 12 to 30 Vdc 24 Var./ 1	Equipment Rating	Rating		according to oz, cort		
Rating but Auxiliary Switch Voltage 2 dt to 250 Vac/ 12 to 30 Vdc 2 dvc/ 12 to 30 Vdc 2 dt or 250 Vac/ 12 to 30 Vdc 2 dt or 250 Vdc 2 dt o	Auxiliary	Dual Auxiliary Switch Contact	ciass in per Encorso			
Dual Auxiliary Switch Voltage 24 to 250 Vac / 12 to 30 Vdc 24 Vac / 12 to 30 Vdc 24 Vac / 12 to 30 Vdc 34 Vac / 12 to 30 Vdc 35 Vdc 34 Vac / 12 to 30 Vdc 35 Vdc 34 Vac / 12 to 30 Vdc 35 Vdc 34 Vac / 12 to 30 Vdc 35 Vdc 34 Vac / 12 to 30 Vdc 3	-	·	6A resistive, 2A general purpose	4A resistive, 2A general purpose		
Rating 24 to 250 Vac / 12 to 30 Vac / 32 to 30 Vac	- catales	<u> </u>				
Switch Ange Switch A 0 00 90" with 5" intervals Accommended Range Usage 0 10 to 90" with 5" intervals Switch B 0 10 90" with 5" intervals Switch B 0 10 90" with 5" intervals Recommended Range Usage 45 to 90" Factory Setting 85" Switching Hysteresis 2" Torque 177 lbin (20 Nm) 310 lbin (35 Nm) Runtime for 90" Opening or 125 sec. @ 60 Hz Closing 150 sec. @ 50 Hz Ramman Angular Rotation 90" Maximum Angular Rotation 90" Maximum Angular Rotation 95" Material 0 lose Cast Aluminan Alloy Gear Lubrication Silicone Free Material 0 lose Cast Aluminan Alloy Gear Lubrication 10 Silicone Free Material 0 lose Cast Aluminan Alloy Gear Lubrication 10 Silicone Free Material 0 lose Cast Aluminan Alloy Gear Lubrication 10 Silicone Free Material 0 lose Cast Aluminan Alloy Gear Lubrication 10 Silicone Free Material 0 lose Cast Aluminan Alloy Gear Lubrication 10 Silicone Free Material 0 lose Cast Aluminan Alloy Gear Lubrication 10 Silicone Free Material 0 lose Cast Aluminan Alloy Gear Lubrication 10 Silicone Free Material 0 lose Cast Aluminan Alloy Gear Lubrication 10 Silicone Free Material 0 lose Cast Aluminan Alloy Gear Lubrication 10 Silicone Free Material 0 lose Cast Aluminan Alloy Gear Lubrication 10 Silicone Free Material 0 lose Cast Aluminan Alloy Gear Lubrication 10 Silicone Free Material 0 lose Cast Aluminan Alloy Gear Lubrication 10 Silicone Free Material 0 lose Cast Aluminan Alloy Gear Lubrication 10 Silicone Free Material 10 Lubrication 10 Silicone Free Material 10 Lubrication 10 Silicone Free Material 10 Lubrication 10 Silicone Free Maximum Alloy 10 Lubrication 10 Silicone Free Maximum Aluminan Alloy 10 Lubrication 10 Silicone Free Maximum Aluminan Alloy Gear Lubrication 10 Silicone Free Maximum Alloy 10 Lubrication 10 Silicone Free Maximum Aluminan 10 Lubrication 10 Silic		_	24 to 250 Vac/ 12 to 30 Vdc	24 Vac/ 12 to 30 Vdc		
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Recommended Range Usage 0 to 45° Factory Setting 5° Switch B 0 to 90° with 5° intervals Recommended Range Usage 45 to 90° Factory Setting 85° Switching Hysteresis 2° Switching Hysteresis 2° Switching Hysteresis 177 lb-in (20 Nm) 310 lb-in (35 Nm) Runtine for 90° Opening or 155 sec. @ 60 Hz Closing Naminal Angle of Rotation 90° Maximum Angular Rotation 90° Maximum Angular Rotation 90° Maximum Angular Rotation 90° Maximum Angular Rotation 90° Material NEMA Type 1 NEMA 2 in vertical position to 90° to the left and and right of vertical IP54 according to EN00529 Material Die Cast Aluminum Alloy Material Die Cast Aluminum Alloy Material Die Cast Aluminum Alloy Storage and Transport 40° Ambient Temperature Conditions Operation 2.25° to 130°fc (32° to 155°C) Storage and Transport 4.40° to 158°fc (40° to 70°C) Ambient Humidity (non- Conditions 0.11 listing 0.11 listing 0.11 listing Material 0.11 listing 0.11 listing 0.11 listing 0.11 listing Material 0.11 listing 0.11 listing 0.11 listing 0.11 listing Material 0.11 listing 0.			0 to 000ith 50 internal			
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Switch B						
Recommended Range Usage						
Function Functi		Switch B	0 to 90° with 5° intervals			
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Function Runtime for 90" Opening or 125 sec. @ 60 Hz 150 sec. @ 50 Sec. @ 50 Hz 150 sec. @ 50 Sec. @ 50 Hz 150 sec. @ 50		Switching Hysteresis		2°		
Function Closing 150 sec. @ 50 Hz		Torque	177 lbin (20 Nm)	310 lbin (35 Nm)		
Naminal Angle of Rotation 90°		Runtime for 90° Opening or				
Maximum Angular Rotation Reflosure	Function		_			
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Actuator Housing Actuator Housing Actuator Housing Material Gear Lubrication Operation Operation Ambient Conditions Operation Operation And Material Gear Lubrication Gear Lubrication Gear Lubrication Operation Ambient Temperature Operation Operation Ambient Temperature Operation Operation Ambient Temperature Operation Operation Anticord Temperature Operation Operatio		Maximum Angular Rotation		95°		
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Actuator Housing Material Disc according to EN60529		Fields	NEMA Type 1	and		
Material Die Cast Aluminum Alloy Gear Lubrication Silicone Free Ambient Conditions Operation -25°F to 130°F (-32°C to 55°C) Storage and Transport -40°F to 158°F (-40°C to 70°C) Ambient Humidity (non- condensing) 95% rh Agency UL Listing UL60730 (to replace UL873) UL listed to UL873 Certification Canadian Conformance C-UL certified to Canadian Standard C2.2 No. 24-93 Canadian Conformance C-UL certified to Canadian Standard C2.2 No. 24-93 In Accordance With the Directive Set Forth by the European Union For Electromagnetic Compatibility (EMC) Low Voltage Directive 2006/95/EC Pre-Cabled Connection 18 AWG Cable Length 3 feet (0.9 m) Life Cycle 50,000 Full Strokes at rated Torque and Temperature Miscellaneous Meight 2.2 lbs. (1 kg.) 4.4 lbs. (2 kg.) A floating control signal controls the actuator. The actuator's angle of rotation is proportional to the length of time the signal is applied. A 24 vac or 24 vdc control signal to wires 1 and 6 (G-Y1) causes the actuator coupling to rotate clockwise. A 24 vac or 24 vdc control signal to wires 1 and 6 (G-Y1) causes the actuator coupling to rotate clockwise. A 24 vac or 24 vdc control signal to wires 1 and 7 (G-Y2) causes the actuator coupling to rotate clockwise. A 24 vac or 24 vdc control signal to wires 1 and 7 (G-Y2) causes the actuator coupling to rotate clockwise. A 24 vac or 24 vdc control signal to wires 1 and 6 (G-Y1) causes the actuator coupling to rotate clockwise. A 24 vac or 24 vdc control signal to wires 1 and 6 (G-Y1) causes the actuator coupling to rotate clockwise. A 24 vac or 24 vdc control signal to wires 1 and 6 (G-Y1) causes the actuator coupling to rotate clockwise. A 24 vac or 24 vdc control signal to wires 1 and 6 (G-Y1) causes the actuator coupling to rotate clockwise. A 24 vac or 24 vdc control signal to wires 1 and 6 (G-Y1) causes the actuator coupling to rotate clockwise. A 24 vac or 24 vdc control signal to wires 1 and 6 (G-Y1) causes the actuator coupling to rotate clockwise. A 24 vac or 24 vdc control signal to wires 1 and 6 (G-Y1) c		Enclosure		right of vertical		
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Ambient Conditions Operation Operat		Material	Die Cast Aluminum Alloy			
Conditions Operation -25°F to 130°F (-32°C to 55°C)	1	Gear Lubrication	Silicone Free			
Storage and Transport Ambient Humidity (non- condensing) Agency UL Listing UL Goradian Conformance C-UL certified to Canadian Standard C2.2 No. 24-93 In Accordance With the Directive Set Forth by the European Union For Electromagnetic Compatibility (EMC) Conformity Low Voltage Directive Pre-Cabled Connection Cable Length Solone Ill Strokes at rated Torque and Temperature Dimensions Weight A floating control signal controls the actuator. The actuator's angle of rotation is proportional to the control voltage, the actuator holds its position. In the event of a power failure or write 10 and to the control signal is lost, the actuator returns to the "0" position. Overload Protoction In the event of a blockage in the damper, the actuator is overload protected over the full range to prevent damage to the actuator. An improperly tuned loop will cause excessive repositioning that will shorten the life of the actuator. Just the control the proportion of the actuator overload the full range to prevent damage to the actuator for out of the damper motor. In the event of a power failure, the actuator holds its position. A mimproperly tuned loop will cause excessive repositioning that will shorten the life of the actuator. Just the control the full range to prevent damage to the actuator overload provered the full range to prevent damage to the actuator out. Just the control signal is lost, the actuator returns to the "0" position in the will shorten the life of the actuator. An improperly tuned loop will cause excessive repositioning that will shorten the life of the actuator.	Ambient					
Ambient Humidity condensing) Agency Certification Canadian Conformance C-UL certified to Canadian Standard C.2.2 No. 24-93 In Accordance With the Directive Set Forth by the European Union For Electromagnetic Compatibility (EMC) Conformity Low Voltage Directive Pre-Cabled Connection Cable Length Life Cycle Dimensions A 3/8 H x 3 1/4 W x 2 2/3 D	Conditions	Operation	-25°F to 130°F (-32°C to 55°C)			
Ambient Humidity condensing) Agency Certification Canadian Conformance C-UL certified to Canadian Standard C2.2 No. 24-93 In Accordance With the Directive Set Forth by the European Union For Electromagnetic Compatibility (EMC) Conformity Low Voltage Directive Pre-Cabled Connection Cable Length Cable Length Dimensions 8 3/8 H x 3 1/4 W x 2 2/3 D (300 x 100 x 68) Weight A floating control signal controls signal controls the actuator. The actuator's angle of rotation is proportional to the length of time the signal is actuator holds its position. Operation Operation A continuous 0 to 10 Vdc signal from a controller to wire 8 (Y) operates the damper actuator. The angle of rotation is proportional to the event of a power failure or with no control voltage, the actuator control signal is lost, the actuator returns to the "0" position. Overload In the event of a blockage in the damper, the actuator is overload protected over the full range to prevent damage to the actuator. Life Miscollance UL ST3) UL listed to UL listed to UL listed to UL ST3 UL listed to UL listed to UL listed to UL standard C2.2 No. 24-93 UL listed to UL listed to UL standard C2.2 No. 24-93 UL listed to UL listed to UL standard C2.2 No. 24-93 2004/108/EC 2004/108/EC 2004/108/EC 2004/108/EC 2004/108/EC 2004/108/EC 2004/108/EC 2004/108/EC Pre-Cabled Connection 18 AWG 3 feet (0.9 m) 11 13/16 × 3 15/16 × 2 11/16 21 13 13/16 × 3 15/16 × 2 11/16 21 13 13/16 × 3 15/16 × 2 11/16 21 13 13/16 × 3 15/16 × 2 11/16 21 13 13/16 × 3 15/16 × 2 11/16 21 13 13/16 × 3 15/16 × 2 11/16 21 14 18 AWG 3 feet (0.9 m) 11 13/16 × 3 15/16 × 2 11/16 21 13 13/16 × 3 15/16 × 2 11/16 21 13 13/16 × 3 15/16 × 2 11/16 21 13 13/16 × 3 15/16 × 2 11/16 21 13 13/16 × 3 15/16 × 2 11/16 21 13 13/16 × 3 15/16 × 2 11/16 21 13 13/16 × 3 15/16 × 2 11/16 21 13 13/16 × 3 15/16 × 2 11/16 21 13 13/16 × 3 15/16 × 2 11/16 21 13 13/16 × 3 15/16 × 2 11/16 21 13 13/16 × 3 15/16 × 2 11/16 21 13 13/16 × 3 15/16 × 2 11/16 21 13 13/16 × 3 15/16 × 2 1		Storage and Transport	-40°F to			
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Life Cycle S0,000 Full Strokes at rated Torque and Temperature Dimensions	Miscellaneous	Cable Length	3 feet (0.9 m)			
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