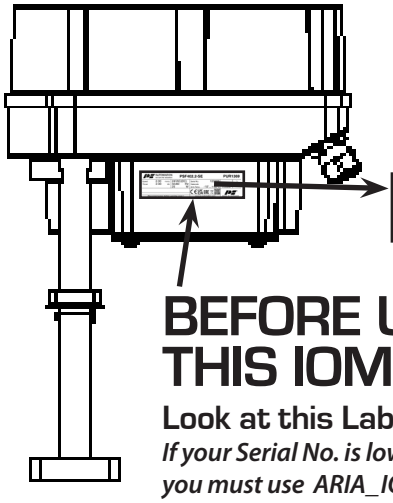
ARIA IOM

(IOM) Installation Operation and Maintenance Instructions
ARIA electric actuators for Warren Controls



BEFORE USING THIS IOM

Look at this Label

If your Serial No. is lower then 398072 then you must use ARIA_IOM_RevG_0523

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WARREN CONTROLS

ARIA_IOM_RevH_0624

92500143 RevH

FUNCTION

The ARIA Series actuators are designed as Spring-Fail-Safe upon Loss of- Power, or Loss-of-Signal. The actuator is mounted onto the control valve via pillars and mounting base and attached via a yoke locknut. The actuator stem and valve stem are connected as well.

Based on a brushless DC motor (BLDC) the generated torque is transmitted via a multi-stage spur gear onto a spindle nut. The spindle nut transmits the input torque into an axial thrust force via a spindle. The linear stroke is transmitted to the valve spindle by a coupling piece.

The stroke is measured and controlled by a linear 12 Bit Hall sensor. In case of mains power loss, the stroke movement is in OPEN or CLOSE direction by spring force. Electrical wiring is terminated at a terminal block under the actuator cover.

SYMBOLS AND SAFETY

GENERAL DANGERS OF NON-COMPLIANCE WITH SAFETY REGULATIONS

ARIA Series actuators are built at state-of the art technology and are safe to operate. Despite of this, the actuators may be hazardous if operated by personnel that has not been sufficiently trained or minimum instructed, and if the actuators are handled improperly, or not used as per specification.

THIS MAY

- cause danger to life and limb of the user or a third party,
- damage the actuator and other property belonging to the owner,
- reduce safety and function of the actuator.

To prevent such problems, please ensure that these operating instructions and this chapter in particular have been read and understood by all personnel involved in the installation, commissioning, operation, maintenance and repair of the actuators.

BASIC SAFETY NOTES

- The actuators may only be operated by skilled and authorized operating personnel.
- Make sure to follow all security advice mentioned in this manual, any national rules for accident prevention, as well as the owner´s instructions for work, operation and safety.
- The isolating procedures specified in these operating instructions must be followed for all work pertaining to the installation, commissioning, operation, change of operating conditions and modes, maintenance, inspection, repair and installation of accessories.
- Areas that can be under voltage have to be isolated before working on them.
- Ensure that the actuators are always operated in faultless condition. Any damage or faults, and changes in the operational characteristics that may affect safety, must be reported at once.

WARNING LABELS

CAUTION! There is a general risk of damage related to health and/or properties.

DANGER! Electrical voltages are present that may lead to death. Life threatening risks may occur due to electrical voltages!

DANGER! This sign warns of hazards posing a risk to health. Ignoring these instructions can lead to injuries.

OTHER NOTES

- The motor surface temperature may rise when maintaining, inspecting and repairing the actuator immediately after operation. There is a danger of burning the skin!
- Always consult the relevant operating instructions when mounting ARIA accessories or operating the actuator with ARIA accessories.
- Connections for signal in- and output are double isolated from circuits that can be under dangerous voltage

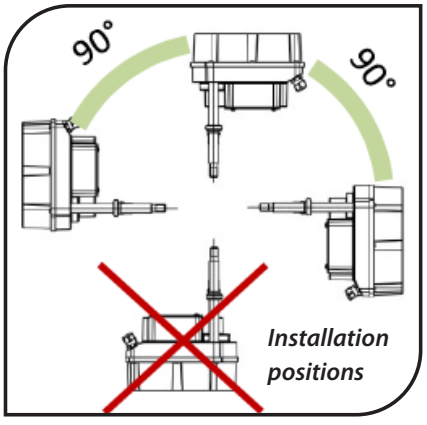
ARIA SERIES BASIC SPECIFICATIONS

MAX Thrust:	455 Lbf (2kN)
MIN Stoke:	0.2 In (5mm)
MAX Stroke:	1.38 In. (35mm)
Manual Override (electric):	via 2 push buttons when powered
Power Supply:	24 VAC/DC, optionally wide range PS (100-240 VAC)
Motor protection:	Electronic motor current monitoring with safety cut-off
Duty cycle as per IEC 60034-1,8:	S2 30 min/ S4 1200c/h-50% ED
Permitted ambient temperature:	-4ºF to 140ºF (-20ºC to +60ºC)
Internal fault monitoring:	Thrust, Control Signal, Temperature, Power Supply
Binary control:	24-230- VAC for ON/OFF service
Control Signal and Feedback:	0-20 mA, 4-20 mA, 0-10 V, 2-10 V selectable, plus split range
Mounting Position:	Any position, except cover pointing downwards
Conduit entries:	See options
Enclosure Rating. to EN 60529:	IP67
Fuse - HV Power Supply:	2 AMP, 5 x 20 mm, 250 VAC, Slow Blow
Fuse - 24 VAC / VDC	1.2 Amp, 5x20 mm, 250 VAC, Slow blow

POWER CONSUMPTION 25 WATTS, MAX CURRENT
1.8 A at 24 VAC / DC
0.36 A at 115 VAC
0.18 A at 230 VAC

	Spring-Fail
	ARIA
Stroke Speed	12 Secs/In., (2 mm/sec.), Fixed. Spring-Fail Speed: 2.3 mm/sec.
What happens under the condition of Loss of Power, under voltage or over voltage.	Actuator engages Spring Fail, to Open or Close, Depending on model.
What happens under the condition of Loss of Control Signal.	Actuator engages Spring Fail, to Open or Close, Depending on model. With control by binary inputs, actuator stops in position when event occurs.

OPERATING CONDITIONS AND INSTALLATION POSITION



- Standard actuators may be operated at ambient temperatures according to the ARIA Series basic specifications.
- Operating modes correspond to IEC 60034-1, 8: S2 for short cycle and S4 for modulating operation.
- For protection against moisture and dust, the enclosure rating is IP67 according to EN 60529.
- When installing the actuators, leave enough space to allow cover removal.
- The actuator can be installed vertically or horizontally or any position in between. The actuator must not be installed with the cover pointing downwards.

Outdoor usage: When using the actuators in environments with high temperature fluctuations or high humidity, we recommend using the optional heating resistor.

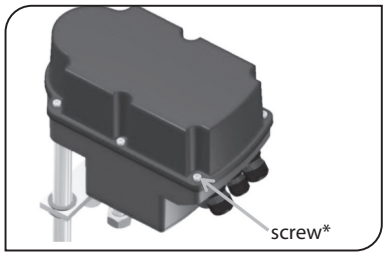
REMOVING / CLOSING THE COVER

OPEN: Loosen the screws by using a 3mm Hexdrive and unscrew them entirely out of the gear casing. The screws are captivated. Open the cover only in a dry environment.

CLOSE: Put the cover on the gear casing and press down slightly. Tighten the screws gently and then crosswise for even tightening.

DO NOT OVERTIGHTEN

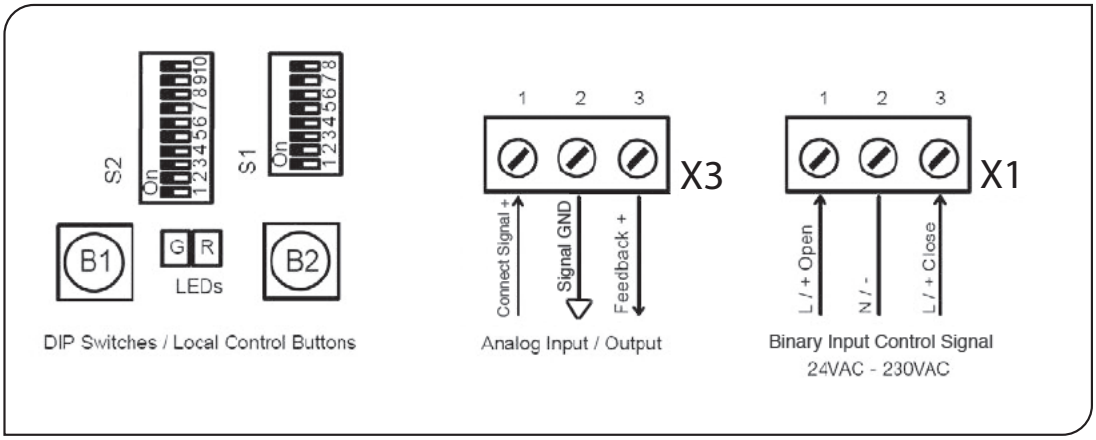
Open the cover only in a dry environment.



*Requires 3mm Hex Head

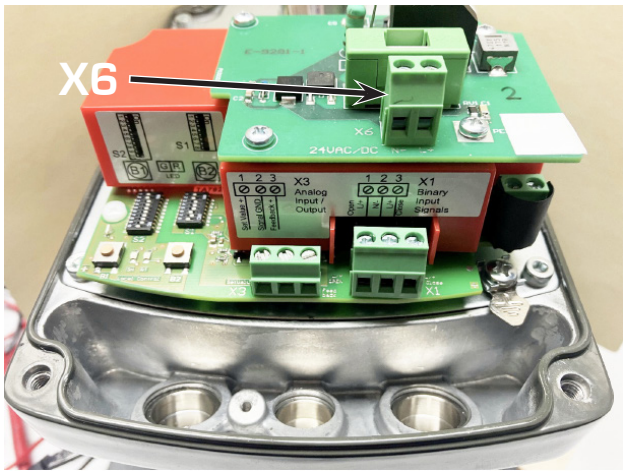
WIRING DIAGRAM

Wiring diagram indicates the electrical connections for standard actuators. The wiring diagram inside the actuator is binding for the specific actuator wiring. For any optional accessories, see the separate wiring diagram in the corresponding installation instructions on page 6.



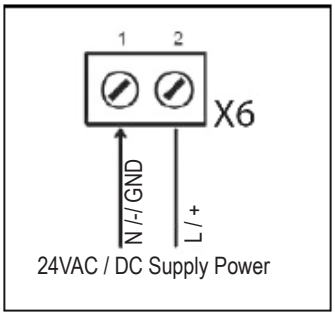
The ARIA comes with one of two different power supply types. Both are modular and ride atop the main printed circuit board. Both also connect wiring on these modules to the connector identified as X5 or X6. This is different from earlier versions of the ARIA, so make sure you are using the correct installation instructions for your version of the product. If unsure, contact the Warren Controls factory office.

24 VAC/VDC POWER SUPPLY INSTALL



Connect to Terminal X6 on the Power Supply Model, shown by the arrow.

Terminal overview wiring diagram for the 24 VAC/VDC Power Supply



Connection 1 is the Neutral on 24 VAC and the GND on 24 VDC.
Connection 2 is the Line on 24 Vac and the (+) on 24 VDC.

This circuit board has a replaceable fuse.
The Fuse is a 5mm x 20 mm, 1.2 Amp / 250V Slow Blow.

-If your install is adding the 24 VAC/VDC module to an older ARIA 24 VAC/VDC installation
Disconnect mains power. Remove the power wires connected to the (X2) terminations (this will no longer be used). Remove the four screws of the red protective cover but don't remove the cover. Place the 24 VAC/VDC power supply with the connecting pins carefully through the square opening of the red protective cover and secure it with the four screws. Wire the 24 VAC/VDC source to the (X6) terminations as shown on the 24 VAC/VDC power supply.

-If your install is removing the 100-240 Wide Range Power Supply module to convert to an ARIA 24 VAC/VDC installation
Disconnect mains power. Remove the 100-240 VAC wide-range power supply. Disconnect wires from Terminal (X5) and remove them from the wire bundle. Remove the four screws securing the wide-range power supply converter to the red protective cover. Remove the 100-240 VAC wide-range power supply module by pulling it straight up, but don't remove the red protective cover. Carefully remove the "100-240VAC 50-60Hz" label from the TYPE plate of the actuator, as shown in the figure below. Route new 24 VAC/VDC power wires through the bundle.

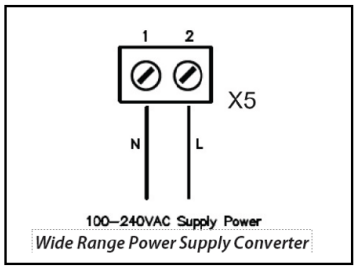
Place the 24 VAC/VDC power supply with the connecting pins carefully through the square opening of the red protective cover and secure it with the four screws. Wire the 24 VAC/VDC source to the (X6) terminations as shown on the 24 VAC/VDC power supply.

100-240VAC
50/60 Hz
25 W

Remove this overlay sticker.

100- 240VAC WIDE RANGE POWER SUPPLY INSTALL

Connect to Terminal X5 on the Power Supply Model, shown by the arrow



Connection 1 is the Neutral on 100 - 240 VAC
Connection 2 is the Line on 100 – 240 VAC

Terminal overview wiring diagram for the Wide Range Power Supply Converter

-If your installation is adding the Wide Range Power Supply to an older ARIA with 24 VAC/VDC
Disconnect mains power. Remove the power wires connected to the (X2) terminations (this will no longer be used). Remove the four screws of the red protective cover but don't remove the cover. Remove the 24 Volt wiring for the wire bundle and feed in the higher voltage AC wired through the conduit feeds. Carefully align the four-pin connection of the Wide Range Power Supply over the square hole of the red cover, inserting the pins into the connector below. Reinstall the four hold-down screws. Connect high voltage wiring as shown on X5 and earth ground.

-If your installation is adding the Wide Range Power Supply to a newer ARIA with 24 VAC/VDC
Disconnect mains power. Remove the power wires connected to the (X6) terminations (this will no longer be used). Remove the four screws holding down the 24 VAC/VDC module. Gently remove the module. Leave the red protective cover on the main assembly. Remove the 24 Volt wiring for the wire bundle and feed in the higher voltage AC wired through the conduit feeds. Carefully align the four-pin connection of the Wide Range Power Supply over the square hole of the red cover, inserting the pins into the connector below. Reinstall the four hold-down screws. Connect high voltage wiring as shown on X5 and earth ground.

Take the provided label "100- 240VAC 50-60Hz" and stick it on the type plate of the actuator as shown in the figure below.

100-240VAC
50/60 Hz
25 W

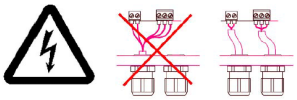
Add this overlay sticker.

ELECTRIC SUPPLY

Before connecting to the mains, ensure that the mains supply is isolated and secured against an accidental switching-on.

Remove the cover of the actuator in order to connect the electric supply.

The mains connecting cables must be suitably dimensioned to accept the max. current requirement of the actuator. The yellow-green colored cables may only be used for connecting to earth. When you insert the cable through the drive cable connector, ensure that the max. bending radius for the cable is observed.
ARIA Series electric actuators do not have an internal electrical power switch. A switch or power mains switch must be provided in the building installation. It should be positioned closely to the device and be easily accessible for the user and shall be labelled as the mains isolator switch for the actuator. The building installation must also provide power surge trips or fuses corresponding to standard IEC 60364-4-41 with protection class I resp. protection class III (24 VAC / 24 VDC) for the actuator connections. The high voltage power supply has it's own fuse.



Please protect all of the power supply and control cables in front of the terminals mechanically by using suitable measures against unintentional loosening. Never install the power supply and the control cables together in one line but instead please always use two different lines.

MOUNTING ADDITIONAL POSITION SWITCHES MECHANICAL & RELAYS

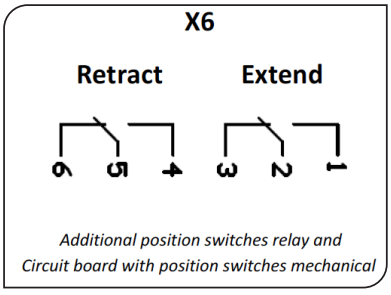
ADDITIONAL POSITION SWITCHES RELAY ❶

1 relay board, 1 connecting cable, 3 plastic screws, 3 spacers

CIRCUIT BOARD WITH POSITION SWITCHES MECHANICAL ❷

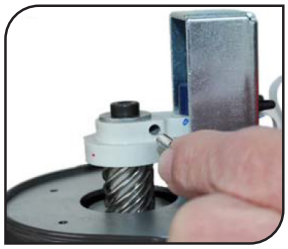
1 pre-assembled bracket with limit switch board, switching cams and lever, 1 ball pin, 3 screws

Standard switches 2WE: silver/nickel contacts, current: 0,1 A to 10 A, voltage: 24 V to 230 V. Optional 2WE gold: gold contacts, current 0, 1mA to 100 mA, voltage: 5 V to 24 V

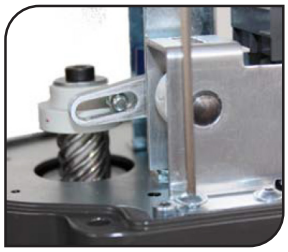


Additional position switches relay and Circuit board with position switches mechanical

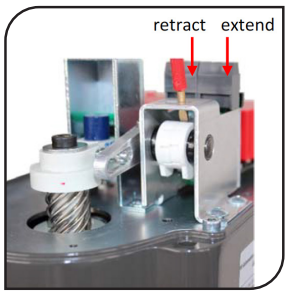
Terminal overview wiring diagram for the Additional Position Switches



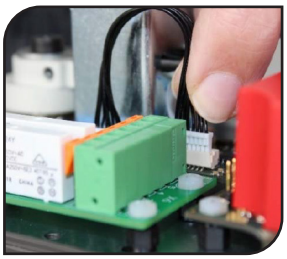
(1) Screw the ball pin in the drilled hole of the magnet holder by using an open-end wrench (size 5,5 mm).



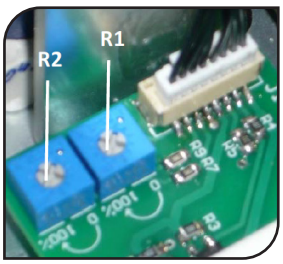
(2) Place the bracket with the lever over the ball pin and screw it tight.



(3) Connect the limit switches as NO or NC. Switch on power supply. Drive the actuator in manual operation until the required switch position is reached. Turn the switching cams with a screwdriver (blade width 4 mm) until the microswitches are heard to click. The operating directions "Extend" respectively "Retract" refer to the actuator stem.



(4) Clip the relay board with the spacers in the locating holes. Connect the main board with the connection cable. Connect according to the wiring diagram.



(5) Switch on power supply. Adjust the switch positions with the trimmers R1 (Retract) and R2 (Extend). The relay is switching when the switching position is reached or passed. The switching point can be adjusted from 0 to 100 %. The actuator doesn't need to be re-calibrated. X6: The operating directions "Extend" respectively "Retract" refer to the actuator stem.

DIP SWITCH FUNCTIONS & SETTINGS

S1 Dip Switches • Function	1	2	3	4	5	6	7	8
SIGNALS	Control Signal				Position Feedback			
Voltage (DC)	ON	ON	OFF	OFF	OFF	ON	OFF	ON
Milliamp (DC)	OFF	OFF	ON	ON	ON	OFF	ON	OFF

S2 Dip Switches • Function		1	2	3	4	5	6	7	8	9	10
ONLY RELEVANT WHEN AUTO - COMMISSIONING IS OPEN WITH STROKE	Cut Off by Force if the valve stem is up/out of the valve.	ON									
	Cut Off by Force if the valve stem is down/into the valve. <Default>	OFF									
Control Type	Control via Analog Control Signal. <Default>						ON				
	Control via Binary Inputs						OFF				
Control Action	Valve Stem Up and Out of Valve with Increasing Control Signal. <Default>					ON					
	Retract Valve Stem with Increasing Set Value					OFF					
Automatic Commissioning	Close with Force / Open with Force. <Default>			ON	ON					OFF	
	Close with Force / Open with Stroke			ON	OFF					ON	
	Close with Force / Open with 10 mm Stroke			OFF	ON					ON	
	Close with Force / Open with 15 mm Stroke			OFF	OFF					ON	
	Close with Force / Open with 20 mm Stroke			ON	ON					ON	
Manual Commissioning to specific stroke	Close with Force / Open with Required Stroke			ON	ON					ON	
Control Signal Ranges	Control Signal Range: 0-10V / 0-20 mA		ON					ON	ON		
	Control Signal Range: 2-10V / 4-20 mA. <Default>		OFF					ON	ON		
	Split Range HIGH Control Signal: 5-10 V / 10-20 mA		ON					ON	OFF		
	Split Range HIGH Control Signal: 6-10 V / 12-20 mA		OFF					ON	OFF		
	Split Range LOW Control Signal: 0-5 V / 0-10 mA		ON					OFF	ON		
	Split Range LOW Control Signal: 2-6 V / 4-12 mA		OFF					OFF	ON		
Signal vs Travel	Travel is LINEAR with Signal. <Default>										OFF
	Travel is Quick Opening with Signal										ON
< FACTORY DEFAULTS >		OFF	OFF	ON	ON	ON	ON	ON	ON	OFF	OFF

Notes:

1) "Open with force" refers **solely** to **automatic commissioning**. During operation the actuator will stop at the found position (see PG 10 &11).

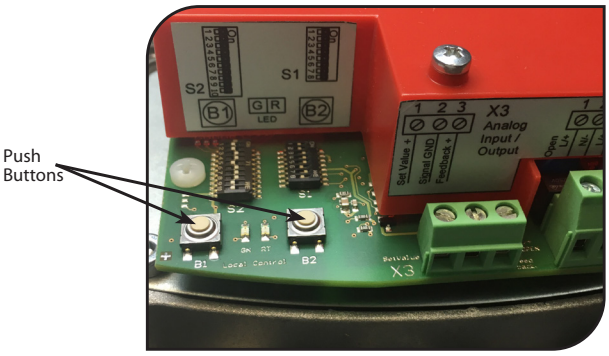
2) After changing the switches S2.3 and S2.4, perform re-calibration to activate the new calibration mode.

MANUAL OPERATION (ELECTRICALLY)

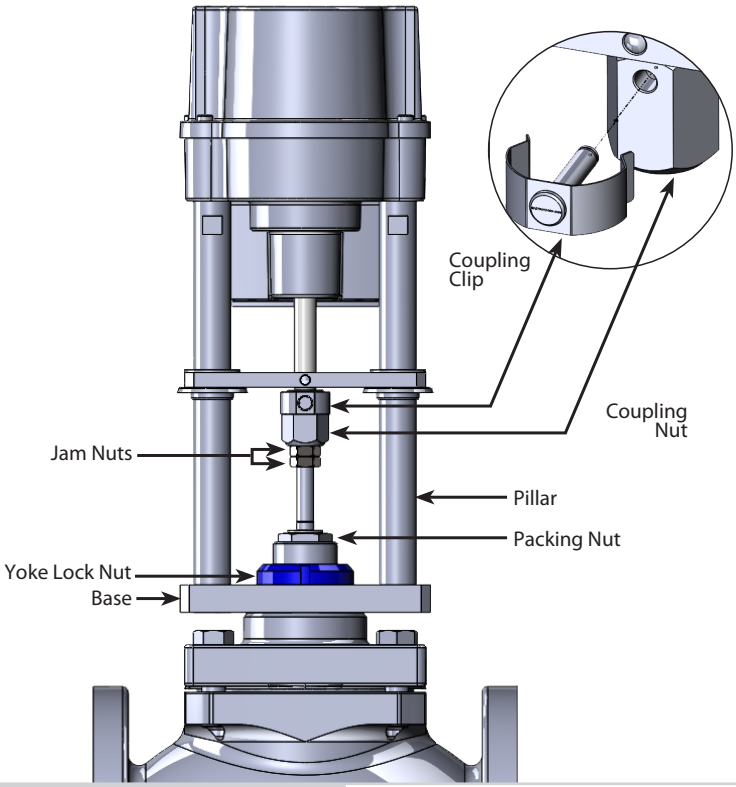
Two push buttons are available to drive the actuator for installation work such as mounting onto a valve, or setting the limit switches positions or manual mode troubleshooting.

This function is available only for when power is applied.

See: "MANUAL OPERATION PUSH BUTTON" on Page 10 & 11.



ACTUATOR PARTS IDENTIFICATIONS



ACTUATOR REMOVAL INSTRUCTIONS

STEP 1A:

(If the actuator is still functional, can accept power and stroke with either the control signal or manual commissioning push buttons, go to Step 1B)

For when the actuator is in complete failure, this model has the actuator spring providing the full force on the valve plug loaded into the valve seat. It is imporatnt to reduce this load before removing the coupling clip.

With the valve secure in the piping or in a vise, use a hammer and cold chisel to loosen the Yoke Lock Nut (counterclockwise) while making sure a partner holds on to the actuator in-place to prevent it from rotating (or this will score the plug and seat, ruining the valve trim).

As the yoke lock nut is loosened all the way off the bonnet threads, attempt to lift the actuator straight upwards as the actuator's base will bind some on the bonnet threads when you do. Once this base is moved up at least ¼", you should be able to work the Coupling Clip off of the Coupling Nut with your hand. With the clip removed, you should be able to lift the actuator completely off the valve.

Proceed to the ARIA Series IOM, Page 9, The Step called 'Third' (Spring Extend Actuator). Follow wiring instructions. Use commissioning buttons to reposition the actuator midstroke, Mount the actuator with the yoke lock nut, doing all steps from before in reverse.

Proceed to 'Final Steps' bottom of page 9.

STEP 1B:

Assuming the actuator is still functional, can accept power and stroke with either the control signal or manual commissioning push buttons, reposition the actuator that it is roughly at midstroke.

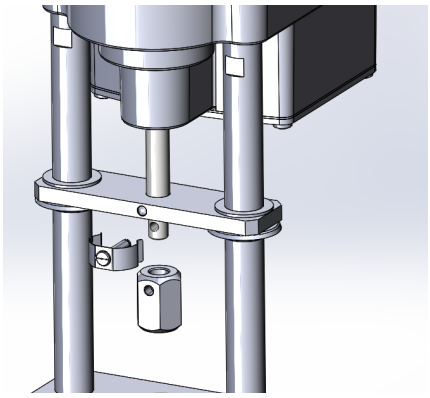
At this point, you should be able to work the Coupling Clip off of the Coupling Nut with your hand.

With the valve secure in the piping or in a vise, use a hammer and cold chisel to loosen the Yoke Lock Nut (counterclockwise).

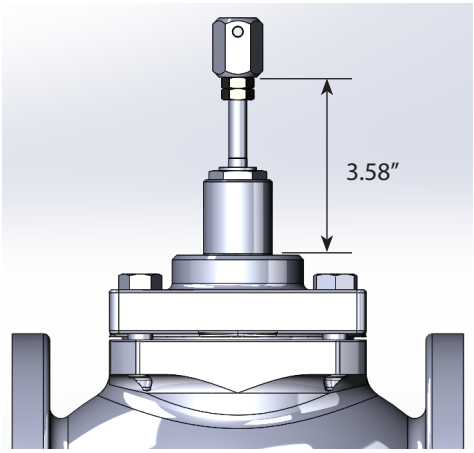
As the yoke lock nut is loosened all the way off the bonnet threads, attempt to lift the actuator straight upwards as the actuator's base will bind some on the bonnet threads when you do. With the clip removed, you should be able to lift the actuator completely off the valve.

Proceed to the ARIA IOM, Page 9, The Step called 'Third' (Spring Extend Actuator). Follow wiring instructions. Use commissioning buttons to reposition the actuator midstroke, Mount the actuator with the yoke lock nut, doing all steps from before in reverse.

Proceed to 'Final Steps' bottom of page 9.



FIRST: Remove coupling nut from actuator by removing coupling clip.
(In conjuction with Page 8)

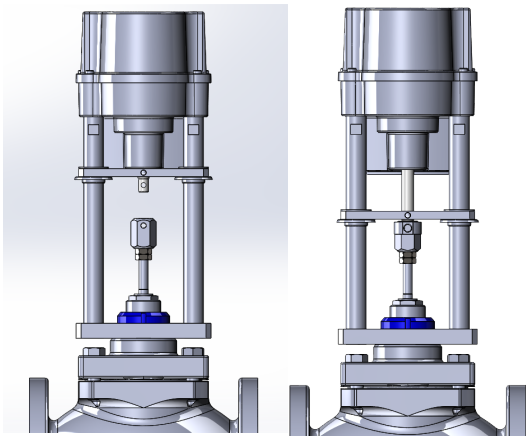


SECOND:

Push valve stem down into valve so plug is seated. Tighten the two Jam Nuts together to the distance shown (3.58" +/- 0.02").

Then proceed to thread on and tighten the coupling nut as shown.

THIRD: (follow the steps for your CORRECT Actuator)

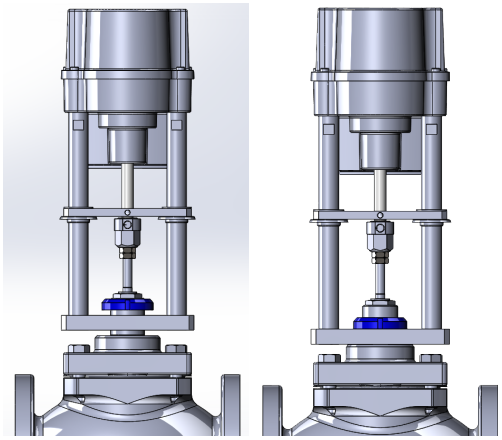


SPRING - FAIL-UP
(Spring Retract Actuator)

Mount Actuator onto Valve as shown. Thread yoke nut onto the valve bonnet and fasten in place.

Connect the actuator to an electrical supply. (ref "ELECTRICAL SUPPLY","WIRING DIAGRAM", Page 4 & 5")

Manually drive actuator stem to align holes for the connecting pin. Insert connecting pin.
(ref "MANUAL OPERATION PUSH BUTTON" page 10 & 11)



SPRING - FAIL-DOWN
(Spring Extend Actuator)

Mount Actuator onto Valve as shown. Begin to thread yoke nut onto the valve bonnet. Align the holes for the connecting pin. Insert connecting pin.

Connect the actuator to an electrical supply. (ref "ELECTRICAL SUPPLY" "WIRING DIAGRAM" Page 4 & 5")

Manually drive the actuator stem to seat the base of the actuator on the valve bonnet (ref "MANUAL OPERATION PUSH BUTTON" page 10 & 11)

Tighten Yoke lock nut

FINAL STEPS

Set the Dip switches as per requirements. Ref "SIGNALS / FUNCTIONS" page 7.
Complete automatic commissioning as per "COMMISSIONING / OPERATOR PUSH BUTTON" page 10 & 11.
Once commissioning is complete and successful the actuator is ready for operation.

COMMISSIONING

COMMISSIONING

Commissioning is the function of properly calibrating the electronics of the actuator to the mechanical control valve assembly so that the full control signal range matches each end of travel while meeting close-off requirements. All ARIA-Actuated control valve assemblies are pre-calibrated and commissioned at the factory. No further commissioning is required.

Replacement ARIA actuators are factory tested, then reset prior to shipping. Once mounted to a Warren Controls valve, Commissioning is required, and we strongly recommend Automatic Commissioning for this task. (See pages 8 & 9 for mounting first).

Page 7 identifies the required DIP Switch settings for each type of commissioning, while page 4 helps you identify the buttons you will be pressing and the LEDs you will be observing in the procedures that follow.

AUTO COMMISSIONING

This is the process of initiating calibration by pressing a series of circuit board buttons so the actuator can self-commission, running the actuator to find the ends of the stroke. This is the simplest and recommended method for Full Valve Travel or potentially shorter but defined 10, 15, or 20 mm stroke lengths (0.39, 0.59, or 0.79 in)

- Ensure secure connection between valve and actuator.
- To start the automatic commissioning push button B2 minimum 7 seconds. The actuator will automatically drive to the final open valve position via force, and back to the final closed valve position.
- After successful commissioning, the green LED is flashing 7 times.
- Push button B1 to return to normal operation. Hold for 1 second.
- After successful commissioning, check the found or adjusted stroke by comparing the control signal and the valve position.
- In case of unsuccessful commissioning the green LED is flashing quickly. Please check valve mounting.

MANUAL COMMISSIONING TO SPECIFIC STROKE

In most cases, Automatic commissioning should achieve whatever goal you need. However, manual commissioning allows the user to manually commission the exact, desired end of travel. This method has more steps and is only necessary if a very specific end of travel is required.

- Ensure secure connection between valve and actuator.
- To activate, press the individual commissioning push button B1 for minimum 7 seconds.
- Use push buttons B1 and B2 until the required open valve position is reached.
- Start commissioning of both positions and store them by simultaneously pushing the buttons B1 & B2 for minimum 3 seconds.
- After successful commissioning, the green LED is flashing 7 times.
- Push button B1 to return to normal operation.
- After successful commissioning, check the found or adjusted stroke by comparing the control signal and the valve position.
- In case of unsuccessful commissioning the green LED is flashing quickly. Please check valve mounting.
- The actuator must be able to perform a stroke of at least 5 mm.

MANUAL OPERATION PUSH BUTTON

Not a Commissioning method, rather, this is simply a troubleshooting utility to manually adjust the stroke of the actuator when a control signal is not readily available. Initiation is only via pushbutton sequences – no DIP Switch settings are required to access.

- Push button B1 and B2 simultaneously for minimum 3 seconds to change to manual operation mode.
- Push button B1 to position valve stem down into valve.
- Push button B2 to position valve stem up out of valve.
- Push button B1 and B2 simultaneously for minimum 3 seconds to exit from manual operation mode.

WARNING / CAUTION

At any time during your installation or commissioning, you are having problems or have questions that this document does not address, please contact the factory for free technical support at **+1 (610) 317-0800** or at **sales@warrencontrols.com**. Please share the S/N found on the top cover and a description of your symptoms, problem, or need.

DO NOT ATTEMPT ANY ADJUSTMENTS OR DISASSEMBLY OF ANY COMPONENTS THAT ARE NOT EXPLICITLY ADDRESSED IN THIS MANUAL OR IT WILL INVALIDATE YOUR WARRANTY!

Further, the ARIA actuator must be re-commissioned, any time the actuator is separated from the valve, for any reason. Failure to do so may result in damage to the actuator or the valve, voiding the warranty!

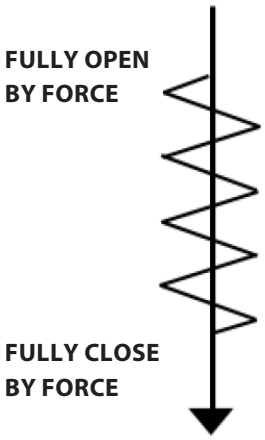
MANUAL OPERATION PUSH BUTTON			
Action	**Push button B1**	**Push button B2**	**LED sequence**
Activate	Push > 3 seconds	Push > 3 seconds	Both LED's are flashing alternately
Valve stem Down/ Into Valve	Push		Green LED is flashing
Valve stem UP/ Out of Valve		Push	Red LED is flashing
Stop			Both LED's are flashing alternately
Exit	Push 3 seconds	Push 3 seconds	Red or green LED is on (actuator is commissioned), Red LED flashing quickly (actuator is not commissioned)

AUTOMATIC COMMISSIONING			
Action	**Push button B1**	**Push button B2**	**LED sequence**
Start		Push 7 seconds	Both LED's are on
Commissioning finished			Green LED is flashing 7x (if commissioning is successful), Green LED is flashing quickly (if commissioning failed)
Exit	Push and hold for 1 second.		Red or green LED is on

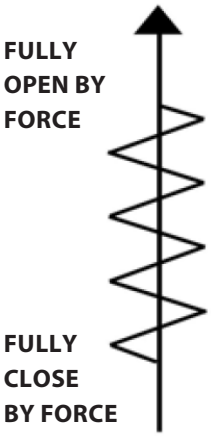
MANUAL COMMISSIONING TO SPECIFIC STROKE			
Action	**Push button B1**	**Push button B2**	**LED sequence**
Activate	Push 7 seconds		Both LED's are flashing alternately
Valve stem Down/ Into Valve	Push		Green LED is flashing
Valve stem UP/ Out of Valve to Desired Stroke		Push	Red LED is flashing
Start	Push 3 seconds	Push 3 seconds	Both LED's are on
Exit	Push 1 x		Red or green LED is on

OPERATING DIRECTION

Actuator "SE" - Spring Extend
Valve Stem is down



Actuator "SR" - Spring Retract
Valve Stem is up



Operating direction

SE = Spring Extend: Extend actuator stem / Valve stem down
SR = Spring Retract: Retract actuator stem / Valve stem up

STATUS DISPLAY

STATUS	GREEN LED	RED LED
Actuator not commissioned	Off	is flashing quickly
Normal operation/ actuator running	On	Off
Normal operation/ actuator stationary	Off	On
Manual mode active	is flashing alternately	is flashing alternately
Manual mode: valve stem UP/ Out of Valve	Off	is flashing
Manual mode: valve stem Down/ Into Valve	is flashing	Off
Automatic commissioning running	On	On
Automatic and manual commissioning successful	is flashing 7x - 1.5 seconds off	On
Automatic commissioning failed	is flashing quickly	On
Overvoltage	is flashing 1 x -1.5 seconds off	On
Undervoltage	is flashing 2 x -1.5 seconds off	On
Memory error	is flashing 3 x -1.5 seconds off	On
Control Signal error (<1 V, < 2 mA)	is flashing 4 x -1.5 seconds off	On
Torque error	is flashing 5 x -1.5 seconds off	On
Under-/ Overtemperature	is flashing 6 x -1.5 seconds off	On

OPERATION

All internal parameters, like required motor torque, actual position, functional status, etc., are being permanently monitored during operation for the actuator. This ensures that the actuator positions with optimal accuracy, and always closes the valve tightly.

DURING COMMISSIONING

- Open the cover put the actuator on the valve, connect the electric supply.
- Perform automatic or manual commissioning.
- Close the cover.

MAINTENANCE

CAUTION !
During maintenance and repair the actuator must not be operated electrically.

The actuators are maintenance-free if used under the operating conditions as designated in the data sheet. The gearboxes are lubricated for life and do not require further lubrication.

CLEANING

The actuators should be cleaned dry. Do not use abrasive cleaning agents or cleaning products containing solvents as the labelling of the safety stickers and the type plate might become illegible. Do not operate the actuator during the cleaning process.

MAINTENANCE

Spring Fail actuators have a pre-tensioned spring inside, the gearbox housing must not be opened. Defective actuators should be returned to our plant, or to our representatives, to be checked for damages and their possible causes.

SPARE PARTS

Damaged actuators should be returned to our plant, or to our representatives, to be checked for damages and their possible causes.

DECOMMISSIONING AND DISPOSAL

- Disconnect the mains supply and ensure that it is secured against an accidental switching-on.
- Open the cover.
- Remove external electrical connections.
- Take off the actuator from the valve, page 8.

DISPOSAL
For its disposal, the product should be treated as waste containing electrical and electronic equipment and should not be disposed of as household waste. The actuators have a pre-tensioned spring inside. For disassembly please contact our plant.

USAGE AND STORAGE

ARIA SERIES

USAGE

- ARIA Series actuators are exclusively designed to be used as electric valve actuators. They are meant to be mounted on Warren Controls, control valves in order to run their motors.
- Any other use is considered to be non-compliant and the Warren Controls cannot be held liable for any damage resulting from it.
- The actuators can only be used within the limits laid out in the data sheets, catalogues and other documents. Otherwise, the manufacturer cannot be held liable for any resulting damage.
- Usage as per specification includes the observance of the operating, service and maintenance conditions laid down by the Warren Controls.
- Not to be regarded as usage as per specification are mounting and adjusting the actuator as well as servicing. Special precautions have to be taken while doing this!
- The actuators may only be used, serviced and repaired by personnel that is familiar with them and informed about potential hazards. The specific regulations for the prevention of accidents have to be observed.
- Damages caused by unauthorized modifications carried out on the actuators are excluded from the manufacturer's liability.
- Supply voltage may only be switched on after the proper closure of the main cover or terminal box.

STORAGE

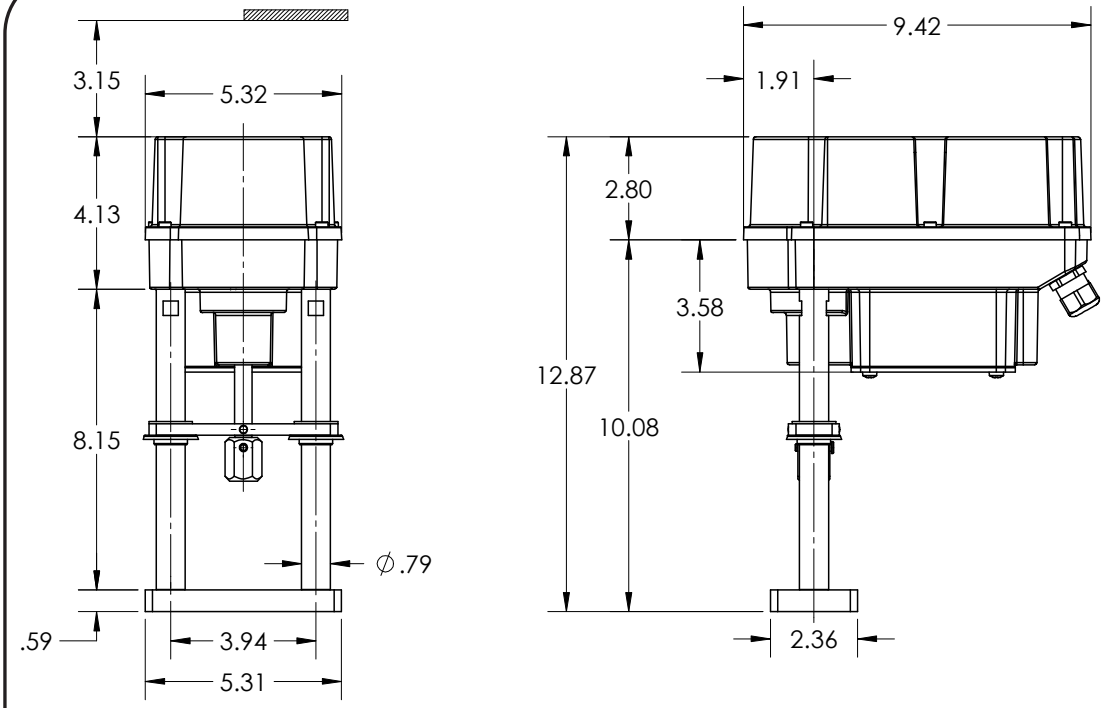
For appropriate storage, the following instructions have to be met:

- Only store the actuators in ventilated, dry rooms.
- Store the actuators on shelves, wooden boards, etc., to protect them from soil moisture.
- Cover the actuators with plastic foil to protect them from dust and dirt.
- Protect the actuators against mechanical damage.

ACCESSORIES OPTIONS

Various options are available in order to adapt the actuators to the various service conditions.
For technical data, please refer to the respective data sheets.

			AVAILABILITY
ACCESSORIES/OPTIONS	**Position signal switches, mechanical 2WE**	2 potential-free position switches, mechanical, with silver-plated changeover contacts 24V to 230 V AC/DC @ 0.1A- 5A	**STOCKED**
	Position signal switches gold, mechanical 2WE gold	2 potential-free position switches, mechanical, with gold-plated changeover contacts 5V to 30 V AC/DC @ 1mA- 100mA; contact resistance 30 mOhm	**NOT STOCKED**
	Position signal relays	2 position signal relays with changeover contacts, calibrated automatically to valve stroke 24V to 230 V AC/DC @ 0.1A- 1A Switching point adjustable 0-100 % of the stroke using potentiometers	**NOT STOCKED**
	Heating resistor HR	Heating resistor to prevent condensation	**STOCKED**
	Wide range power supply	For 100-240 VAC 1~ supply voltage	**STOCKED**



Spring-Fail Model Installation Dimensions (Measurements in Inches)

DECLARATION

The Warren Controls, ARIA F-Series Actuators comply with the requirements of the following directives.

2014/30/EU	Electromagnetic Compatibility (EMC)
2006/95/EC	Low Voltage (LVD) (valid until 05/19/2016)
2014/35/EU	Low Voltage (LVD) (valid from 05/20/2016)

and have been successfully tested in accordance with the following harmonized standards

EN 61000-6-2: 2005	Electromagnetic compatibility (EMC), Generic standards-Immunity for industrial environments
EN 61000-6-3: 2007	Electromagnetic compatibility (EMC), Generic standards-Emission standard for residential, commercial and light-industrial environments
EN 61010-1: 2010	Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory use

TROUBLESHOOTING TIPS

- Actuator has power but does not operate as expected.
  -Open Cover, observe LED's and See page 12 for status display conditions.

- If the Actuator won't calibrate
  - Start by checking the jam nut height (see page 9)
  - If this didn't work, check dip switches (see page 7)

- Control signal is correct but actuator is not stroking.
  -Check DIP Switch Block "SW1" Settings on Page 7
  -Check wiring diagram connections on Page 4 & 5.

NOTES

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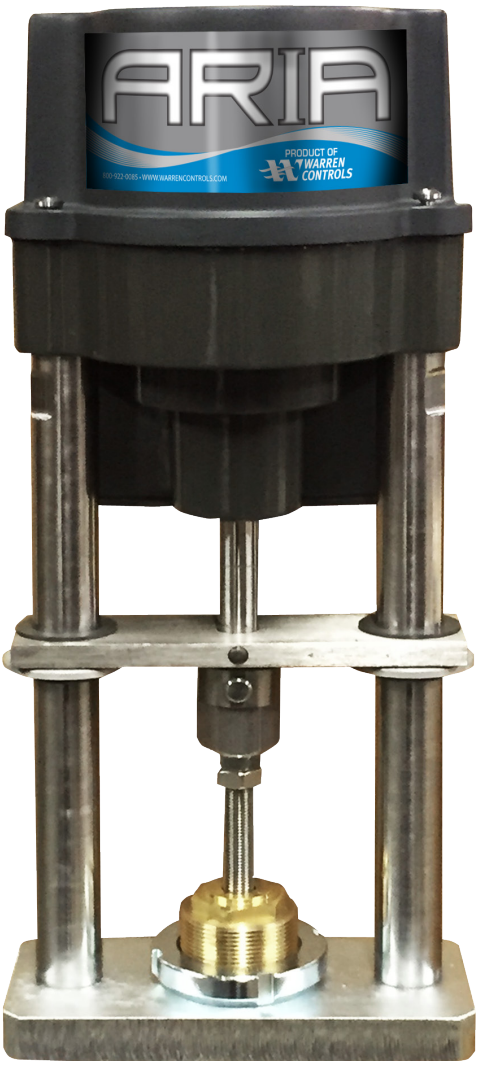
NOTES



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