

Installation Operation and Maintenance Instructions for ILEA electric actuators ILEA-F_x



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FUNCTION

The ILEA-F Series actuators are designed as either Spring-Fail-Safe upon Loss of- Power, or as Fail-In-Place on Loss-of-Power, (model dependent.) 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, or fails in place, model dependent. Electrical wiring is terminated at a terminal block under the actuator cover.

SYMBOLS AND SAFETY

GENERAL DANGERS OF NON-COMPLIANCE WITH SAFETY REGULATIONS

ILEA-F 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.

DANGER SIGNS



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.

- 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 ILEA accessories or operating the actuator with ILEA accessories.
- Connections for signal in- and output are double isolated from circuits that can be under dangerous voltage

USAGE AS PER SPECIFICATION

- ILEA-F Series actuators are exclusively designed to be used as electric valve actuators for rising stem globe control valves. They are meant to be mounted on control valves in order to run their motors.
- Any other use is considered to be non-compliant and the manufacturer 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 manufacturer.
- Read this document in its entirety as special precautions need to be taken before mounting and adjusting the actuator as well as servicing!
- 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.

ILEA-F SERIES BASIC SPECIFICATIONS

	UNITS	Spring -Fail	Fail-In-Place
		ILEA-F18-U/D	ILEA-FIA-M
Thrust / Force	(Lbf)	450	450
MAX Stroke	(Inches)	1.57	1.57
Pillar distance, C to C	(Inches)	4	4
Weight, approx. kg 5.6	(Lbs.)	12.3	11
Stroke Speed	(Secs / Inch)	Motor Operation 28	21
		Fail-Safe Operation 23	
Approximate Height	(Inches)	11	11
Approx.clearance above to remove cover	(Inches)	3.25	3.25
Manual Override		electrically via 2 push buttons	electrically via 2 push buttons or Handwheel
What happens under the condition of Overvoltage/Undervoltage on the power supply or loss of power.		Actuator engages Spring Fail, to Open or Closed, Depending on model.	Actuator Stops in Position when event occurs.
What happens under the condition of Loss of Analog Control Signal.		Actuator engages Spring Fail, to Open or Closed, Depending on model.	4-20mA or 2-10 VDC
			0-20mA or 0-10 VDC
Loss of Binary Inputs Control Signal		Actuator stops in position when event occurs	Actuator stops in position when event occurs
Loss of Binary Override		Actuator responds to Analog Control Signal	Actuator responds to Analog Control Signal

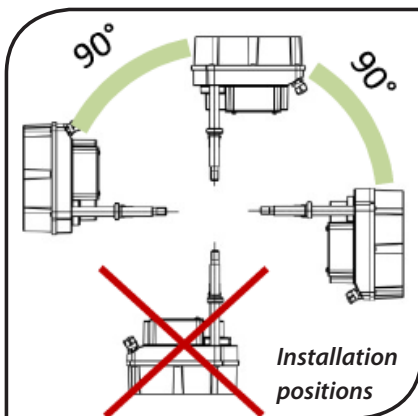
GLOBAL SPECIFICATIONS for ILEA-F18-U/D and ILEA-FIA-M

Power Supply:	24 VAC/DC+/-10%, 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:	-4°F to 140°F (-20°C to +60°C)
Internal fault monitoring:	Thrust, Control Signal, Temperature, Power Supply
Binary control:	24-230- VAC for ON/OFF service (minimum duration of pulse 1 sec.)
Control Signal and Feedback:	0-20 mA, 4-20 mA, 0-10 V, 2-10 V selectable
Mounting Position:	Any position, except cover pointing downwards
Conduit entries:	2 pcs. M 20 x 1.5 / 1 pc. M 16 x15
Cover material	Polycarbonate
Gear case materia	High quality aluminium die casting, powder-coated (60 µm thickness)
Enclosure Rating. to EN 60529:	IP65: Standard, IP67: Optional
Fuse - HV Power Supply:	1 AMP, 5 x 20 mm, 250 VAC, Slow Blow

POWER CONSUMPTION 9 WATTS, MAX CURRENT

0.7 A at 24 VAC / DC
0.14 A at 115 VAC
0.07 A at 230 VAC

OPERATING CONDITIONS AND INSTALLATION POSITION



- Standard actuators may be operated at ambient temperatures according to the ILEA-F 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 IP65 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. IP67

REMOVING / CLOSING THE COVER

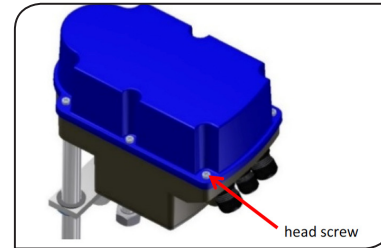


Open the cover only in a dry environment.

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

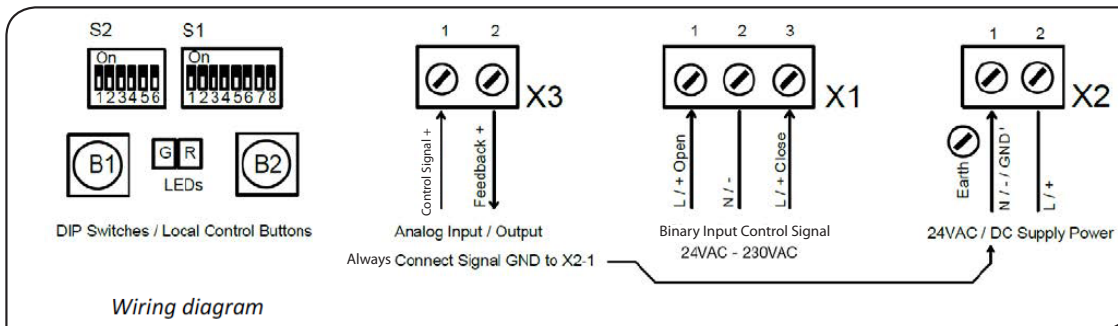
CLOSE: Put the cover on the gear casing and press down slightly. Tighten the screws gently and then crosswise for even tightening.

DO NOT OVERTIGHTEN



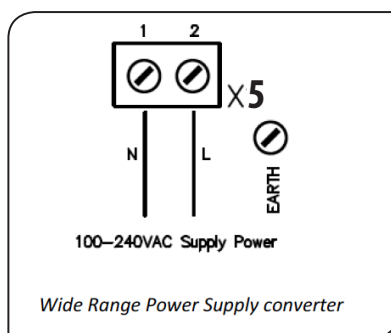
WIRING DIAGRAM

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, at the end of this document.



HIGH VOLTAGE POWER SUPPLY

Terminal overview wiring diagram for the Wide Range Power Supply Converter

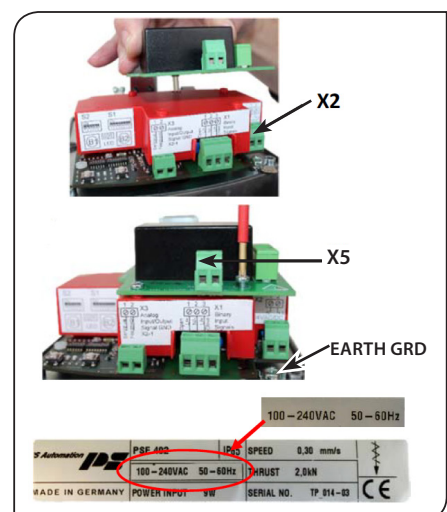


Disconnect the 24 VAC/VDC power (X2), if connected. Remove the screws of the protective cover but don't remove the cover.

Put the power supply board converter with the connecting pins carefully through the opening of the protective cover and fix it with the screws.

Wire the 100-240 VAC source to the power supply (X5) terminations as shown. On the high voltage power supply.

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



PE earth connection has to be connected to gear casing at PE !



ELECTRIC SUPPLY

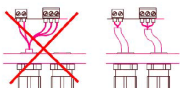
Before connecting to the mains, ensure that the mains supply is isolated and secured against an accidental switching-on.

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.

ILEA-F 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

1



ADDITIONAL POSITION SWITCHES RELAY 1

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

2



CIRCUIT BOARD WITH POSITION SWITCHES MECHANICAL 2

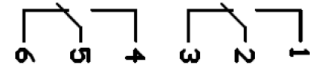
1 pre-assembled bracket with limit switch board, switching cams and lever, 1 ball pin, 3 screws

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

X6

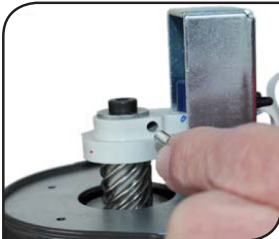
Retract

Extend

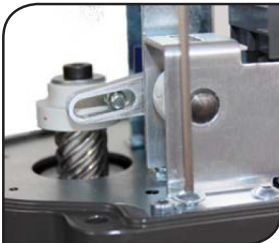


Additional position switches relay and Circuit board with position switches mechanical

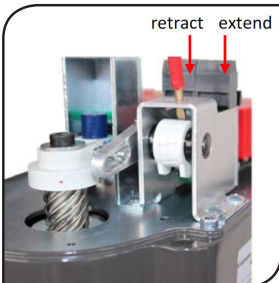
Terminal overview wiring diagram for the Additional Position Switches



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



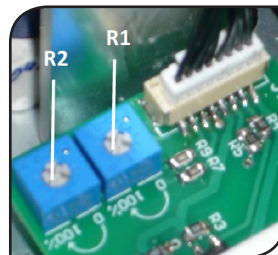
[2] Place the bracket with the lever over the ball pin and screw it tight.



[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
Signal	Control Signal				Position Feedback			
Voltage	On	On	Off	Off	Off	On	Off	On
Current (DEFAULT)	Off	Off	On	On	On	Off	On	Off

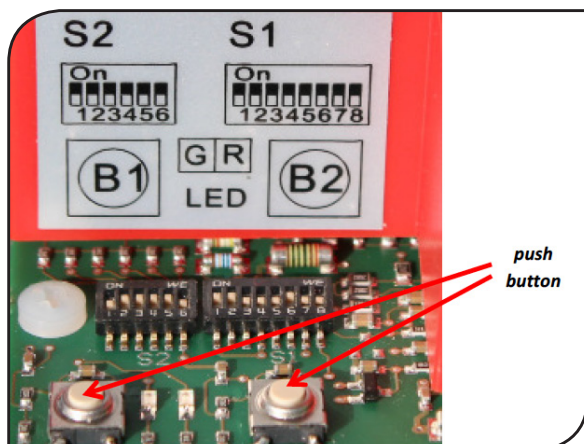
S2 Dip Switches Function	1	2	3 ²⁾	4 ²⁾	5	6
Control via analog Control Signal (Default)						On
Control via binary inputs						Off ³⁾
Valve stem up out of valve with increasing Control Signal (Default)					On	
Valve stem down into valve with increasing Control Signal					Off	
Automatic Commissioning	Close with force/Open with force ¹⁾		On	On		
	Do not use		On	Off		
	Do not use		Off	On		
	Do not use		Off	Off		
Manual Commissioning	Close with force/Open with required stroke		On	On		
Control Signal Range: 0-10 V/ 0-20 mA		On				
Control Signal Range: 2-10 V/ 4-20 mA (Default)		Off				
Cut-off by force if valve stem is in up / out of valve position	On					
Cut-off by force if valve stem is in down / into valve position (Default)	Off					

1) "Open with force" refers **solely** to automatic **commissioning**. During operation the actuator will stop at the found position (see PG 13. Operation)

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

3) Switch S2.6 Off (control via binary inputs) switch S2.5 on (Default)

MANUAL OPERATION (ELECTRICALLY)



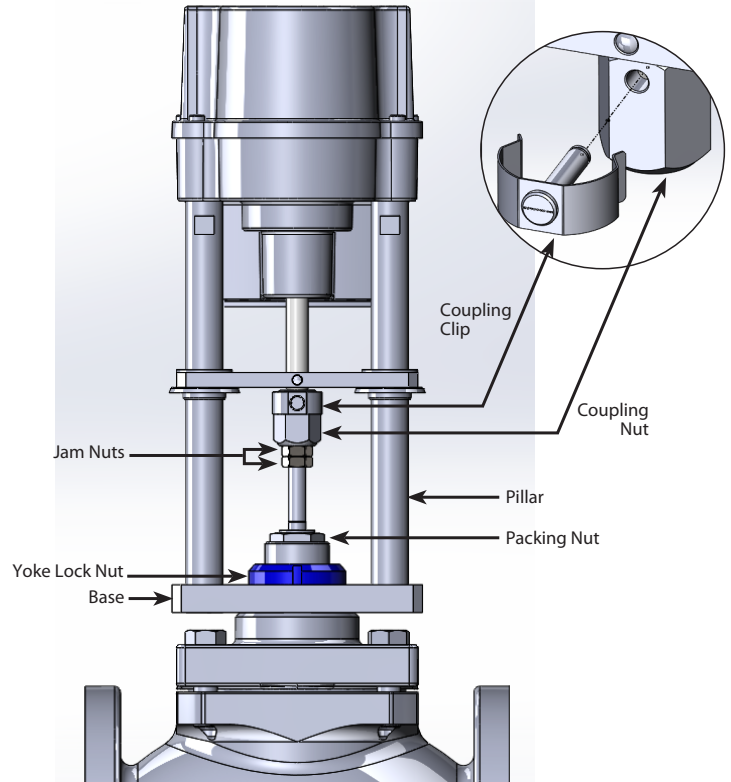
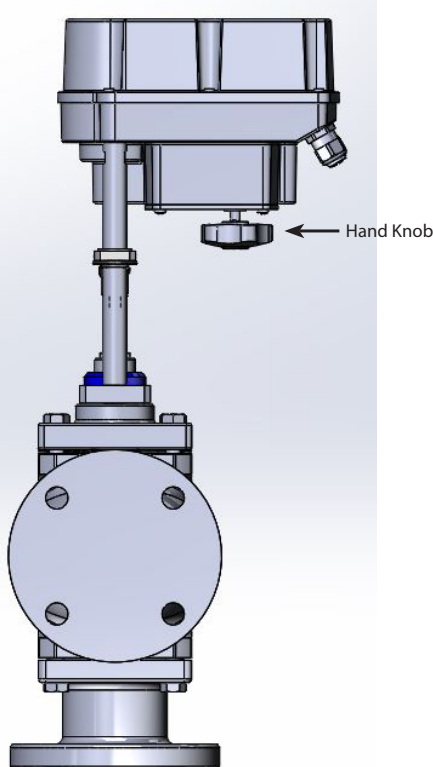
Two push buttons are available to drive the actuator for installation work such as mounting onto a valve, or setting the limit switches positions or manual mode troubleshooting.

This function is available in both Spring-Fail or Fail-In-Place Models, only for when power is applied.

See: "MANUAL OPERATION PUSH BUTTON" on Page 13.

ACTUATOR PARTS IDENTIFICATIONS

Fail-in-place Model



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, or if the actuator model has a hand knob override, 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 important 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).

STEP 1B:

Assuming the actuator is still functional, can accept power and stroke with either the control signal or manual commissioning push buttons, or has a hand knob to reposition the valve, choose your method and 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. Once this base is moved up at least $\frac{1}{4}$ ", 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 ILEA F-Series IOM, Page 8, 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.

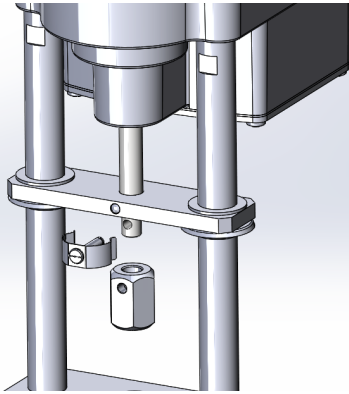
Proceed to 'Final Steps' bottom of page 8.

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.

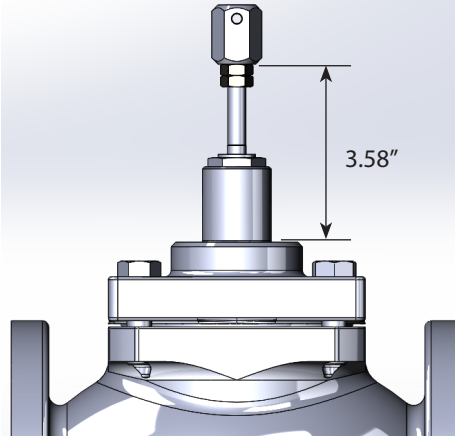
Proceed to the ILEA F-Series IOM, Page 8, The Step called 'Third' (Spring Extend Actuator). Follow wiring instructions. Use commissioning buttons to reposition the actuator midstroke, Mount the actuator with the yoke lock nut, doing all steps from before in reverse.

Proceed to 'Final Steps' bottom of page 8.

REMOVAL / REPLACING OF ACTUATOR



FIRST: Remove coupling nut from actuator by removing coupling clip.
(In conjunction with Page 7)

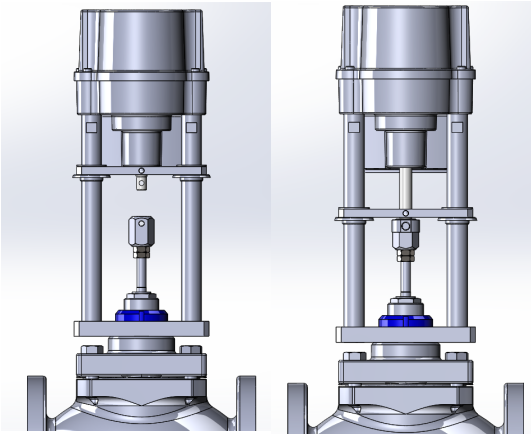


SECOND:

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)

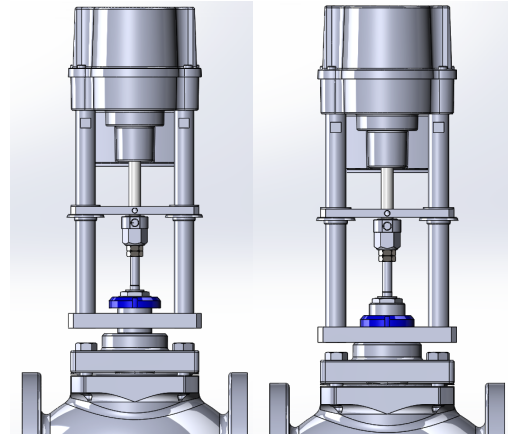


ILEA-F18-U (Spring Retract Actuator)

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 11)



ILEA-F18-D/ILEA-F1A-M (Spring Extend Actuator/ Fail in place)

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 11)

Tighten Yoke lock nut

FINAL STEPS

Set the Dip switches as per requirements. Ref "SIGNALS / FUNCTIONS" page 6.

Complete automatic commissioning as per "COMMISSIONING / OPERATION" page 11.

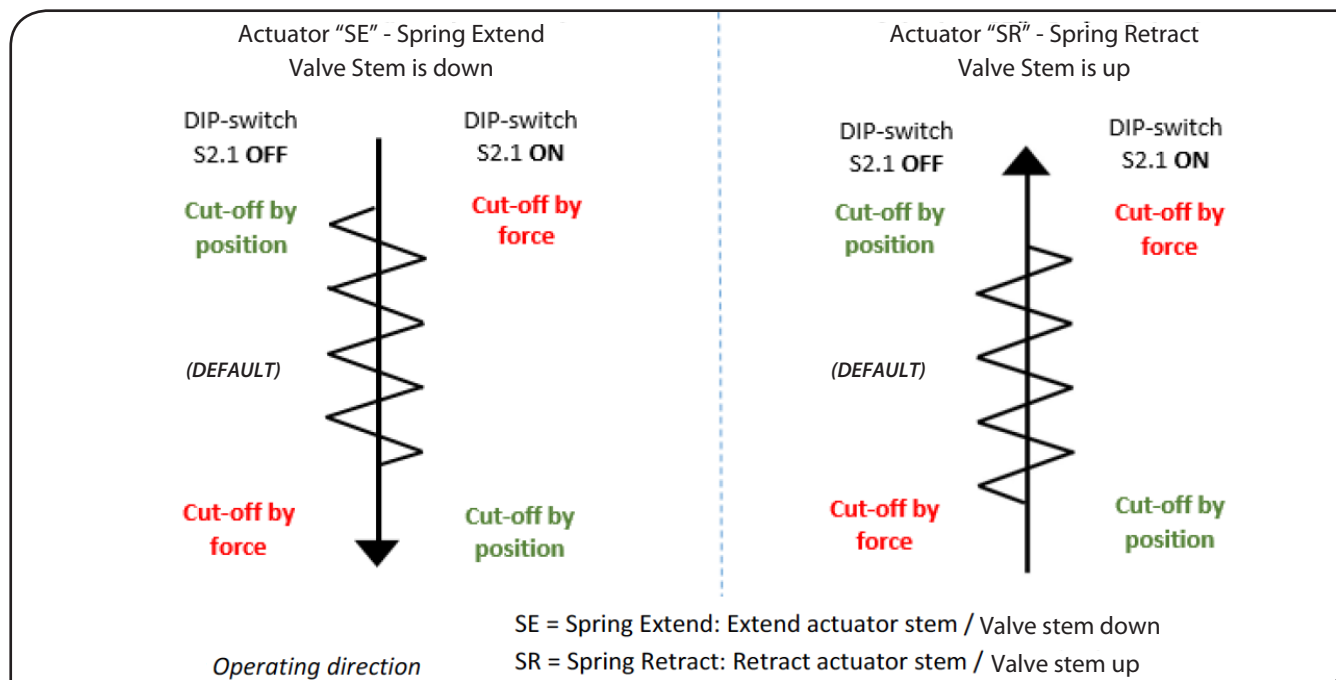
Once commissioning is complete and successful the actuator is ready for operation.

OPERATOR PUSH BUTTON

Function	Action	Push button B1	Push button B2	LED sequence
Manual operation	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	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 1x		Red or green LED is on
Manual Commissioning	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		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
Running speed (Does not apply to Spring-Fail Model)	Set ¹		Push 4 seconds	Red LED is flashing, green LED is on 100% 3x 75% 2x 50% 1x
	Change		Push 1 x to change the level	Red LED is flashing, green LED is on 100% 3x 75% 2x 50% 1x
	Accept	Push 1 x		

¹ If there's no other action, the actuator will leave this set function after 15 minutes automatically and will not change the setting.

OPERATING DIRECTION



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 by handwheel (FAIL IN PLACE MODEL ONLY)	is flashing	is flashing

*If Power Supply is 24 VAC, check to make sure it is within +/-10% (>21.6 VAC/<26.4 VAC)

**WARNING**

Actuator must be commissioned anytime the connection between the valve stem and actuator stem is changed. Failure to do so may result in damage to the actuator, voiding the warranty!

CAUTION

PRESSING B2 for only 4 seconds will invoke the speed change procedure when done on the FAIL-In-PLACE MODEL

AUTOMATIC COMMISSIONING

- 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.
- 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.
- For commissioning a stroke of at least 1 mm in direction "close with force" is required before the actuator has reached its mechanical stop. Furthermore, the actuator must be able to perform a stroke of at least 5 mm.

MANUAL COMMISSIONING

- Ensure secure connection between valve and actuator.
- To activate the individual commissioning push button B1 for minimum 7 seconds.
- For manual operation 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.
- For commissioning, a stroke of at least 1 mm in direction "close with force" is required before the actuator has reached its mechanical stop. Furthermore, the actuator must be able to perform a stroke of at least 5 mm.

MANUAL OPERATION PUSH BUTTON

- 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.

MANUAL HAND WHEEL

- Push the handwheel towards the gear casing: the motor is deactivated.
- Push handwheel towards gear case. Looking down on the top of the actuator turn the handwheel:
 - Clock Wise: the valve stem is moving downwards into valve.
 - Counter Clock Wise: the valve stem is moving upwards out of valve.
- Release the handwheel: the handwheel is out of function, the motor is reactivated after 5 seconds.

COMMISSIONING / OPERATION

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.

CUT-OFF IN END POSITIONS

During operation the cut-off in end positions is realized for the one end position at the position found/chosen and for the other end position via force depending on the settings for the DIP switch S2.1 (see page 6).

**FAIL-IN-
PLACE
MODEL
ONLY**

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 7.



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.

ILEA-F SERIES

USAGE

- ILEAF-Series actuators are exclusively designed to be used as electric valve actuators. They are meant to be mounted on 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.

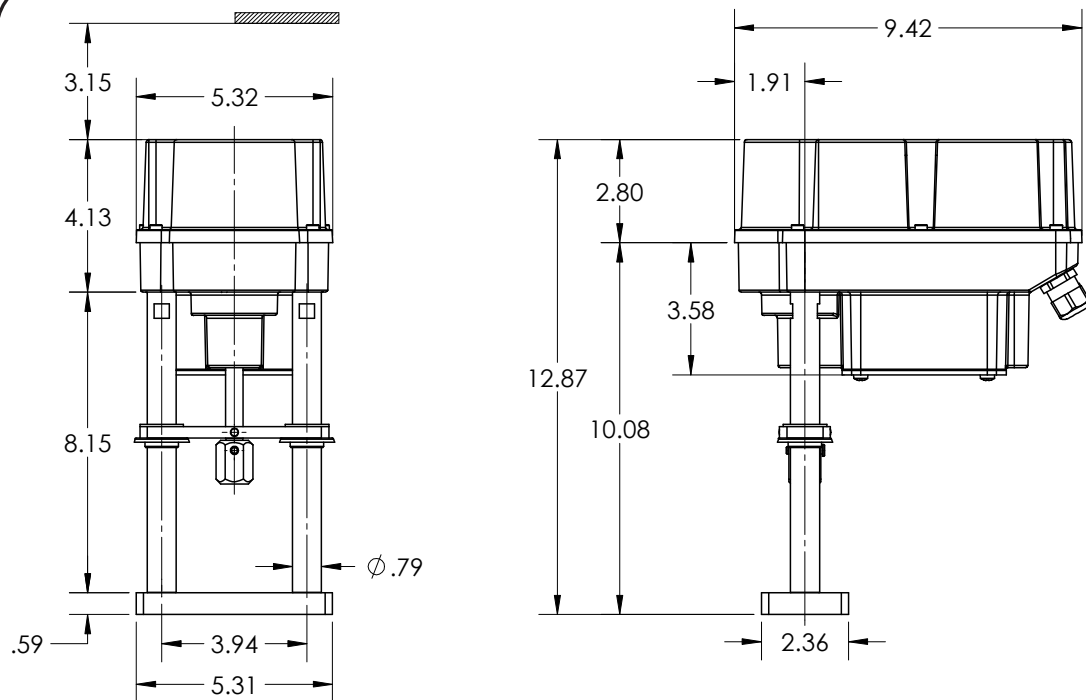
ACCESSORIES OPTIONS

Various options are available in order to adapt the actuators to the various service conditions.

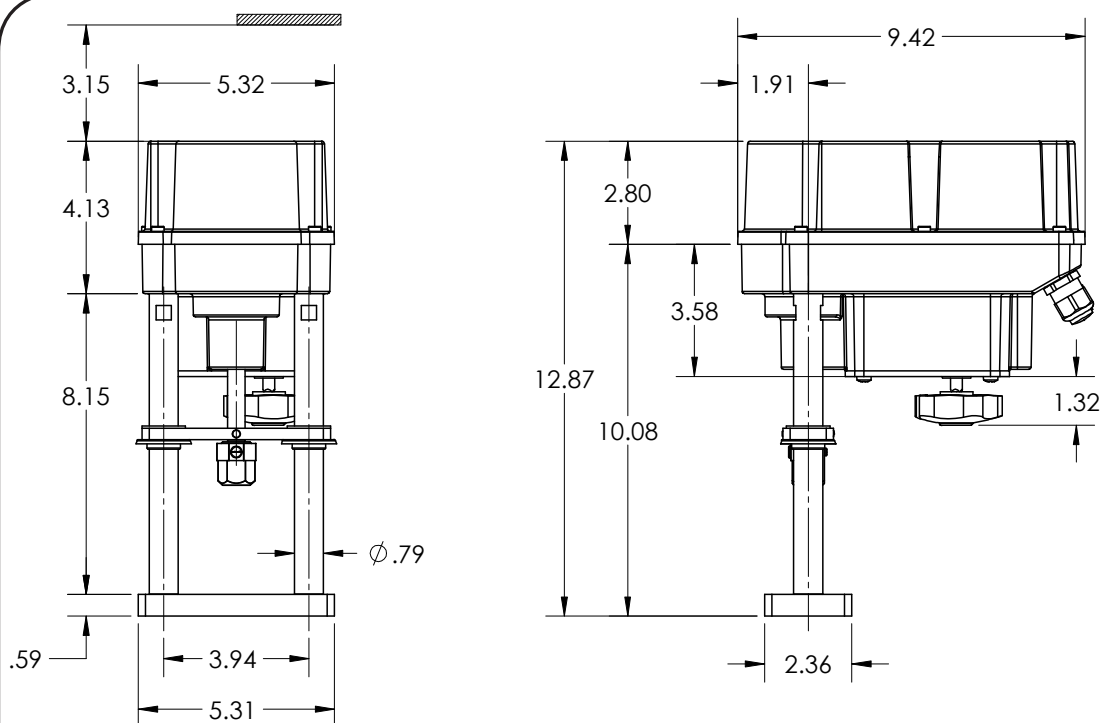
For technical data, please refer to the respective data sheets.

				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
	Increased enclosure	IP	Increase of enclosure to IP67	NOT STOCKED

DIMENSIONAL DATA



Spring-Fail Model Installation Dimensions (Measurements in Inches)



Fail-in-Place Model Installation Dimensions (Measurements in Inches)

The Warren Controls, ILEA 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 10 for status display conditions.
- If the Actuator won't calibrate
- Start by checking the jam nut height (see page 8)
- If this didn't work, check dip switches (see page 6)
- Control signal is correct but actuator is not stroking.
-Check DIP Switch Block "SW1" Settings on Page 6
-Check wiring diagram connections on Page 4.



ILEA-F_IOM_RevD_0218

92500138 Rev D



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