

# ICON CALIBRATION AND REBUILD INSTRUCTIONS



## GENERAL INFORMATION:

The **FasMate** is designed to provide a safe, reliable leak-tight seal and connection when properly maintained and used. A flat, smooth, sealing surface perpendicular to the connector axis is required around the female test port. Verify the connector seal mates well with the sealing surface. Improper mating with a test piece can result in poor sealing, leakage and risk of connector failure resulting in damage or injury.

## MAINTENANCE:

User must establish a regular interval for maintenance as determined by the user media and operational environment.

Periodically inspect the **FasMate** and its seal for wear, damage and proper operation. Inspect also for lubrication needs or corrosion. Repair or replace as required to assure proper sealing, function, and safety.

Difficulty of operation indicates a need for inspection, lubrication, repair or other maintenance.



### WARNING

Use only factory authorized replacement seals and parts. Use of unauthorized parts/seals can cause failure resulting in damage or injury.

Parts and instructions available through **FasTest** or your **FasTest** distributor.

NOTE: Any field modification of **FasTest** connectors voids Factory warranty.

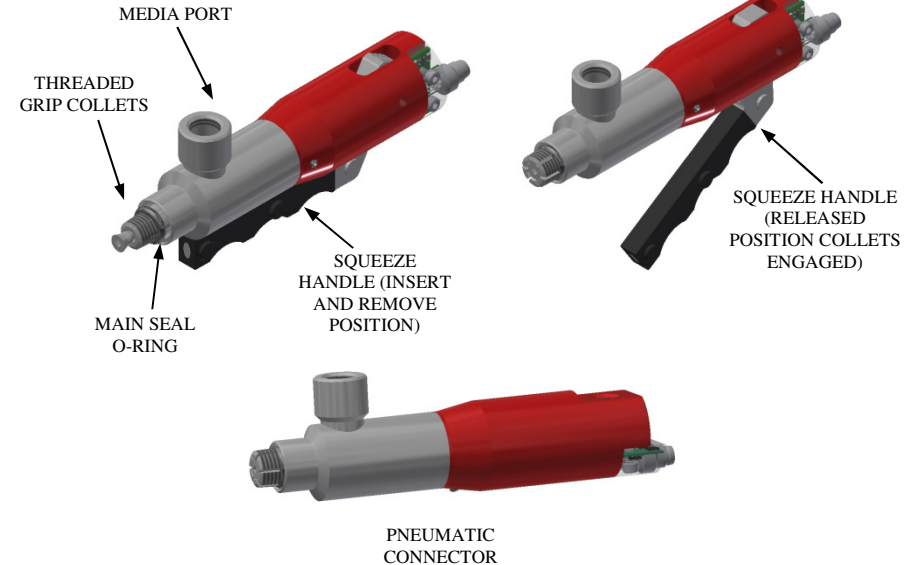
## FasTest, Inc. Product Warranty

FasTest, Inc. warrants its products against defects of workmanship and/or material for 12 months from the date of the sale by FasTest, Inc. This warranty is void if the product is misused, tampered with or used in a manner that is not in accordance with FasTest, Inc. recommendations and/or instructions. FasTest, Inc. is not liable for consequential or other damages including, but not limited to, loss, damage, personal injury, or any other expense directly or indirectly arising from the use of or inability to use its products either separately or in combination with other products. ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, WHETHER ORAL OR WRITTEN, INCLUDING BUT NOT LIMITED TO WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

Remedy under this warranty is limited to replacement of the product or an account credit in the amount of the original selling price, at the option on FasTest, Inc. All allegedly defective products must be returned prepaid transportation to FasTest, Inc. along with information describing the products performance, unless disposition in the field is authorized in writing by FasTest, Inc.

## **FasMate Series**

**Description:** Lever & Pneumatic operated Intelligent Connectors for Female Threads.



**FasMate** Connector provides a reliable leak-tight connection that grips and seals into female threads.

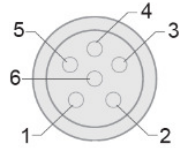
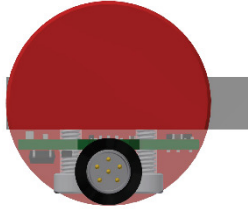
Please thoroughly read and understand these operating instructions prior to operating connector. The use of pressurized media for sealing and testing requires a thorough understanding of the **FasMate** Operating Instructions.

- Operation
- General Information
- Maintenance
- Warranty

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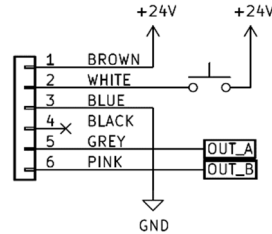


## WIRING DIAGRAM:



Pinout/Standard M8 Cables		
Pin Number	Wire Color	Description
1	BROWN	24 VDC
2	WHITE	CALIBRATION
3	BLUE	GROUND
4	BLACK	NC
5	GREY	SSR CONTROL A
6	PINK	SSR CONTROL B

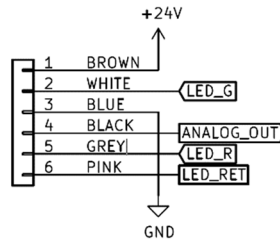
CV04SSR Pinout



CV04SSR Wiring Diagram

Pinout/Standard M8 Cables		
Pin Number	Wire Color	Description
1	BROWN	24 VDC
2	WHITE	LED GREEN
3	BLUE	GROUND
4	BLACK	ANALOG OUTPUT
5	GREY	LED RED
6	PINK	LED RETURN

CV04ANA Pinout



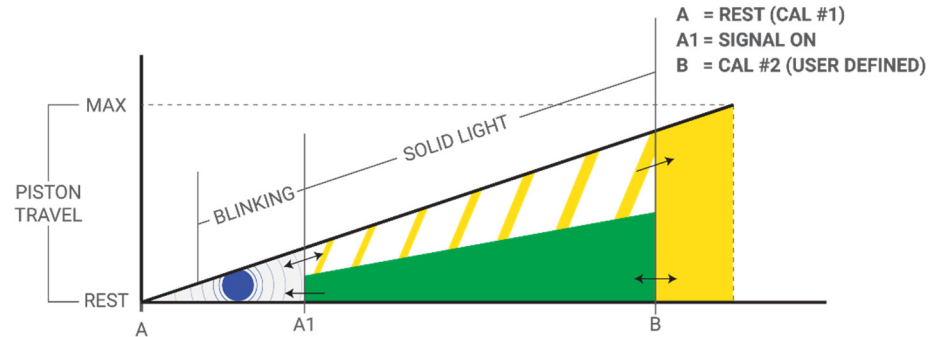
CV04ANA Wiring Diagram

## SSR MODULE CALIBRATION (LEVER HANDLE TYPE ONLY):

**Sure Seal™** enabled connectors need to be calibrated to each application. The FasMate connector retains stored limit(s) even when power is removed. Due to the fine sensor resolution and variations in seal height, limits may need to be set each time seals are replaced, or the connector is re-built.

1. Rotate the red, back body to the desired location and lock it in place with the set screw. It can be backed out up to one full turn.
2. Remove the main seal as shown in WP119.

### STOP! READ STEPS 3-6 BEFORE STARTING CALIBRATION.



**Note:** Point A1 is a preset distance from the rest position (A). As the shaft is extended from rest, it will begin flashing yellow within the good zone. A good connection is only indicated when the shaft retracts from beyond the upper limit (B). If a good connection is made and it's just to the right of Point A1, it could travel through point A1 once test pressure is introduced, and the light will change from green to flashing yellow. Cancel the test, reconnect, and try again.

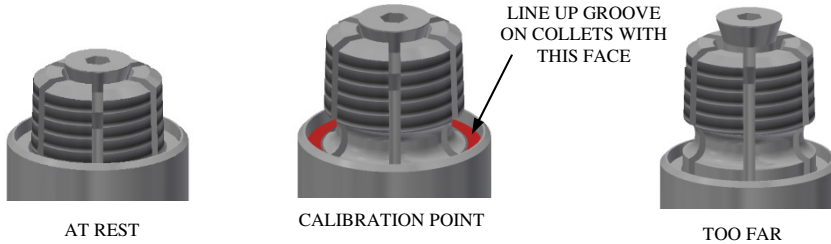
### STEPS 3-6 MUST BE COMPLETED WITHIN 30 SECONDS

3. The input is asserted by applying 24V. This can be accomplished by pressing the button on a FasTest Programming tool, or by using a 24V PLC signal or other 24V logic output.
3. Flash input 4 times quickly to enter programming mode. Connector will flash 3 times indicating programming mode. **Note: If the first calibration point is not set within about 30 seconds, the connector will return to operational mode.**
4. **Do not apply pressure to the handle.** Hold input line high until indicator begins to flash, about 2 seconds. The first calibration point will be recorded when the input is released.

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- Squeeze lever handle until the back of the main seal groove on the collet's lines up with the flat face of the front body. (See next section for pneumatic connectors)  
**Note: this location will change depending on thread size and fitting type.**

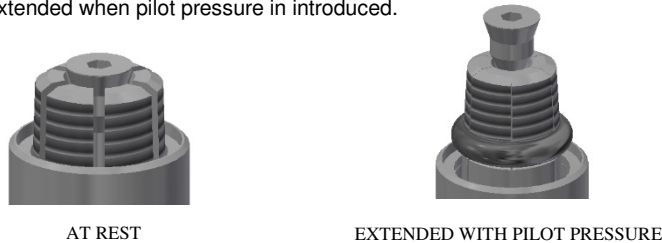


- Apply 24V signal to the input line until the indicator begins to flash, about 2 seconds. This will set point B on the graph above. Release the input line to record the second calibration point.
- Release the handle.
- Slowly squeeze the handle through its entire movement. Confirm that the proper output is achieved. Refer to the graph above to see the LED output.
- Re-install main seal.

## ANALOG CALIBRATION (LEVER HANDLE AND PNEUMATIC):

A FasMate will not make a good connection if cross-threaded or short-connected. If short-connected, the piston will sit near or at rest position, and the voltage will be smaller than the voltage for a good connection. If cross-threaded, the piston will be over-extended, and the voltage will be larger than for a good connection. To detect a good connection on an analog Sure Seal™ Fas-Mate, the voltage must be above the short-connect threshold voltage ( $V_{SC}$ ) and below the cross-thread detection voltage ( $V_{CT}$ ). This calibration procedure is a guideline for determining these two voltages, but exact values depend on the user application.

The pneumatic FasMate cannot be slowly moved into position like the lever handle. It is either at rest or fully extended when pilot pressure is introduced.

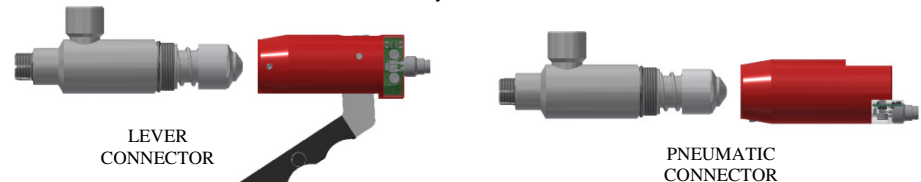


- Rotate the red, back body to the desired location and lock it in place with the set screw. It can be backed out up to one full turn.
  - Record the connector's voltage at rest. The short-connect voltage ( $V_{SC}$ ) will be approximately 0.8V larger than the voltage at rest but may vary depending on your application.
  - Activate connector by introducing pilot pressure. **Note the voltage output at max travel.**
  - Insert into test port and firmly hold it in place.
  - Remove pilot pressure to de-energize connector and verify that a good connection has been made. Record the output voltage.
  - Repeat steps 3-5 several times and record the connector's voltage. **Use the distribution of values to determine a cross-thread detection voltage ( $V_{CT}$ ) that is suitable for your process, e.g. 2 standard deviations above the mean., or the largest voltage observed for a good connection minus some safety margin.**
  - A good connection is indicated by the output voltage settling in the range between  $V_{SC}$  and  $V_{CT}$ .
  - Once the range is determined, a 24VDC signal may be applied to pins 2 and 5 to provide red/yellow/green LED indication of connection quality.
- \* When using Analog, please note that the shielded cable improves noise (single termination); 0-10VDC is used over operational range of the sensor.

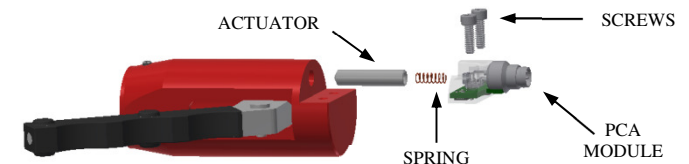
Each time the connector is actuated, the threads can grip in a slightly different position. Therefore, a range needs to be set during the calibration stage. It is suggested to try and short connect it several times after the range has been set to ensure the range rejects bad connections. If the connection falls outside of this range, the system can be setup to alert operators.

## REBUILD:

- Loosen set screw.
- Unthread back actuator from front body.



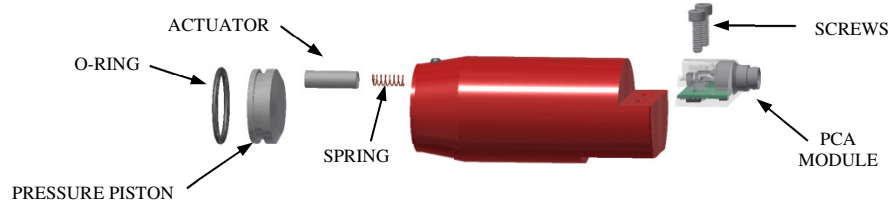
- Lever version:
  - Remove two screws securing PCA module.
  - Remove/replace PCA module, spring, and actuator.



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4. Pneumatic version:
  - a. Remove two screws and PCA module.
  - b. If needed, use a short blast of air at low pressure to remove the pressure piston. The spring and actuator are located behind that.



5. Reverse the above steps to reassemble the connector.
  - a. Use a petroleum-based lubricant on the pressure piston o-ring for the pneumatic version.
6. Apply Loctite 242 to the screws that hold down the PCA module and tighten them to 5 in-lbs.

## OTHER RESOURCES:

1. WP101: Operating Instructions
2. WP118: Rebuild Instructions
3. WP119: Main Seal Replacement Instructions

SURE SEAL™ WIRING DIAGRAM					
Operation	Output Specifications	Model Number	Timing Chart	Wiring Diagram	
Solid State Relay	SSR				
	SSR as NPN	xxxCV04SSR	Connector Status Connected (High pulse) Not Connected (Low)		
	SSR as PNP				
Analog	ANA	xxxCV04ANA			