

Bear SSR3^{MK2}

Solid-State Actuator Controller

The Bear SSR3 is a solid state ¼ turn actuator controller that is designed to be used with Bear Actuators. Capable of driving 12 or 24 volts DC motors at 15 amps continuous with position feedback, it optimizes interfacing and control for your RTU.

Features:

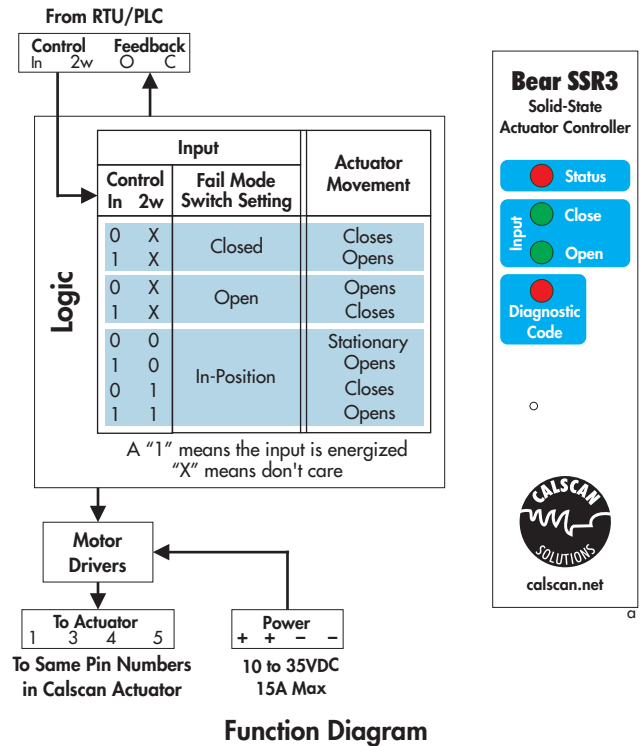
- Class I Div2 Certified
- Up to 15 Amps continuous drive capability
- Switchable Fail Position
- Actuator Fault Open and Close feedback
- Designed to work with the Bear FSC and UPS to provide true power fail safe operation
- Optional Close current limit for linear applications
- Low quiescent current for solar powered operation
- Wide 10 to 35 VDC Operating Range
- Positive or negative logic inputs and outputs
- Mounts on a 35mm DIN-rail

Typical Applications

- Separator Dump Valve control
- Pipeline



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Pin Function Description

Power Pins

Actuator 1,3,4,5

Connect these pins to the same numbers inside the Bear Actuator. They provide power for the motor as well as feedback to the SSR3.

Power (+ & -)

This is 12 to 24 AWG power supply connection. Each pin can handle up to the full 15amps. Two connections are provided for both the positive and negative pins. This can be used to reduce the wire resistance in the cases where there is excessive voltage drop from a long wire run.



Reverse voltage connection on the Power terminals without installing a external fuse will permanently damage the Bear SSR3

SSR Control Lines Pins

In

A non-energized connection will move the actuator to the Fail position as indicated on the front switch

2w

The second control line "2w" is used in conjunction with "In" to control valve opening in a throttling application when the SSR3 is configured for 2 wire control.

Feedback O & C

These two pins provide a feedback connection to the RTU/PLC when the valve is faulted open or closed. Combined with a timeout in the RTU enables the detection of failures like the valve being seized

Nominal Ratings

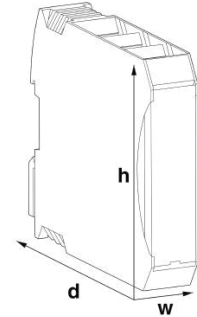
Recommended Operating Conditions	Min	Max	Unit
DC Supply Voltage	10	35	V
Operating and Storage Temperature	-40	50	°C

Module	Min	Max	Unit
Motor Drive Current		15	A
Quicent Current	Supply = 12 V Supply = 24 V	12 8	mA

Output Signal	Min	Max	Unit
Voltage Range	0	35	V
Sinking or Sourcing Current	0	50	mA

Input Signal	Min	Max	Unit
Voltage Range Energized	10	35	V
Voltage Range Off	-0.5	0.5	V
Input Drive Current	Supply = 12 V Supply = 24 V	1 2	mA mA

Mechanical



22mm wide x 99mm high x 115mm deep
35mm DIN-rail Connection
Wire Size 12 to 24 AWG and 90°C Minimum

Maintenance and Service

No serviceable parts inside the module or any module within the Bear Fail Safe System. Consult Calscan

Configuration Dip Switches



Dip Switch configuration is configured at the factory to match selected electric actuator and valve type.

C	1	<input type="checkbox"/>	0	O	Pin 1: Fail Closed (C) or Fail Open (O)
L	2	<input type="checkbox"/>	N	B	Pin 2: Linear (L) or Ball (B) Valve
D	3	<input type="checkbox"/>	T	T	Pin 3: Dump (D) or Throttling (T) valve
	4	<input type="checkbox"/>			Pin 4: Reserved set to Off

Decoding Led's Indicators

Status	Indicator	Meaning
Solid Red	Operating correctly.	
Blinking Red	SSR3 is currently in a fault condition.	
Off	No power	

Input	Indicator	Meaning
Close	Blinking Green	Actuator is moving to the Open or Close position
Open	Solid Green	Actuator is at the Open or Close position

Diagnostic Code	Meaning
1 Blink	Fail Close time out
2 Blink	Fail Close stalled
3 Blink	Fail Open time out
4 Blink	Fail Open stalled

If Status indicator is Solid Red, the Diagnostic code is the last fault. If Status blinking, the code is the current fault

Configuration Jumpers



Inside the Bear SSR3 are configuration jumpers for features and to set the SSR3's input and output pins to either positive or negative logic. These jumpers facilitate interfacing to a separator control system.

Inputs

Logic In - Neg/Pos

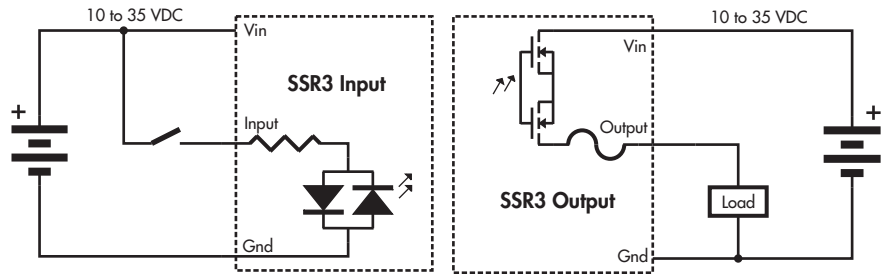
Set the input "In" and "2w" to negative or positive logic

Outputs

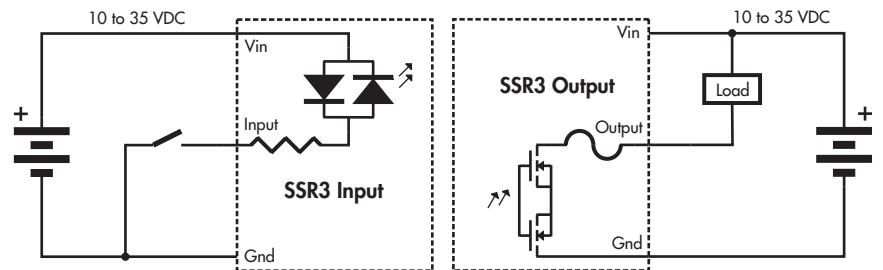
Logic Out - Neg/Pos

Set the two fault outputs to negative or positive logic

Positive Logic

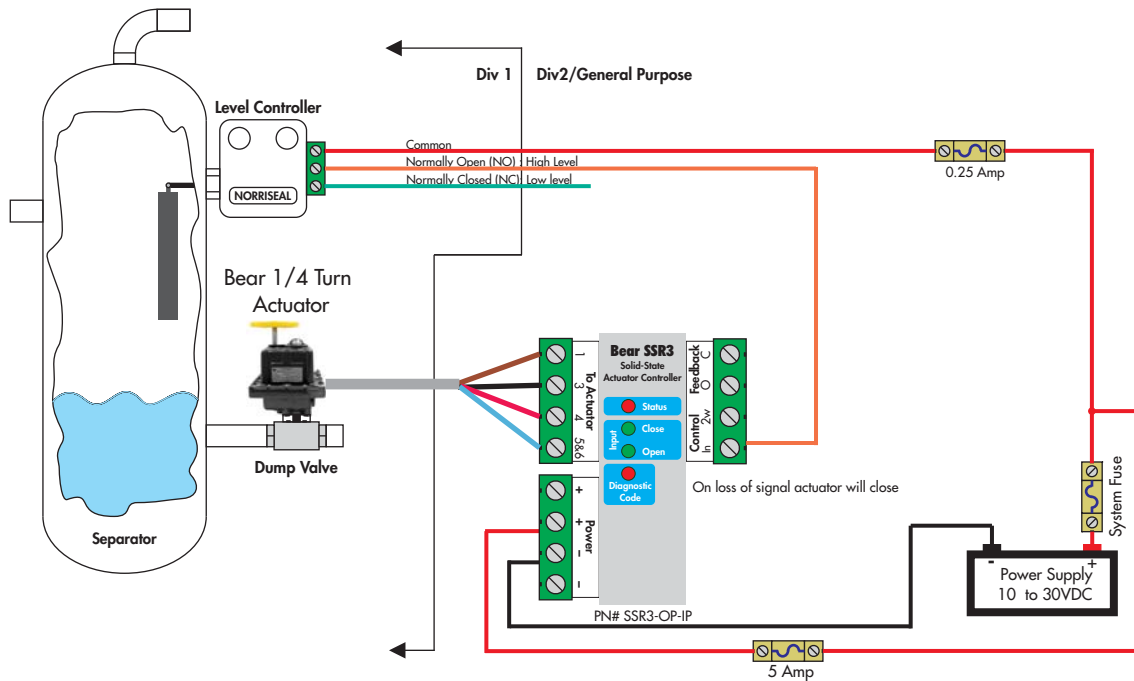


Negative Logic



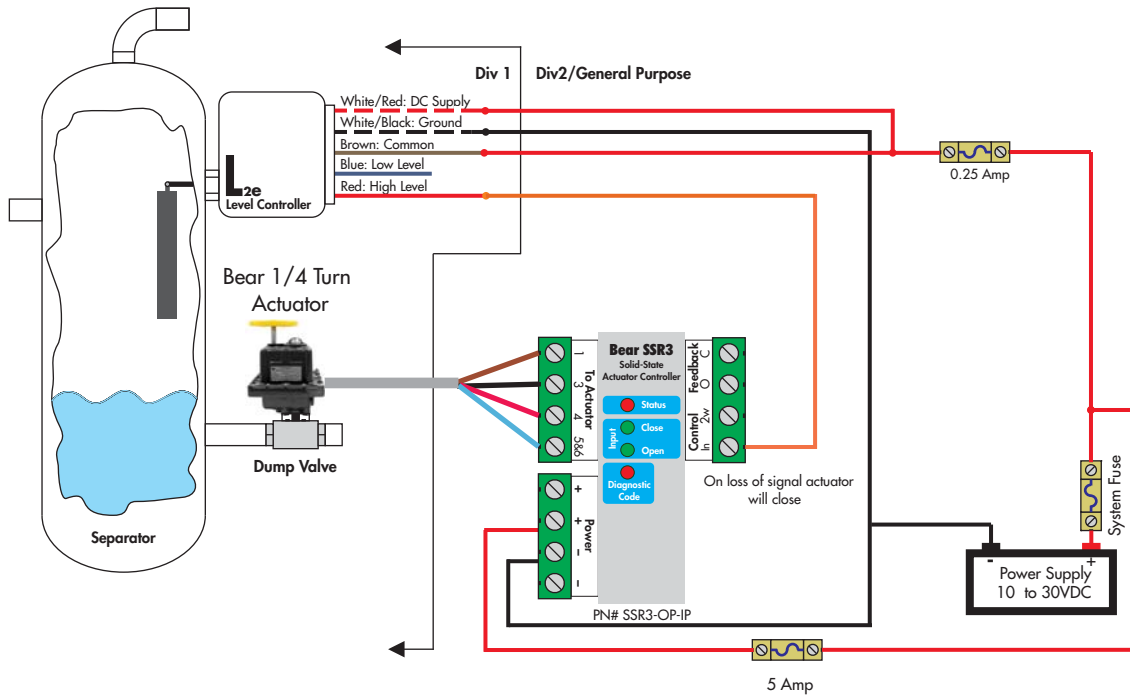
Wiring Example 1

Bear SSR3 Interfaced Directly To Norriseal Level Controller

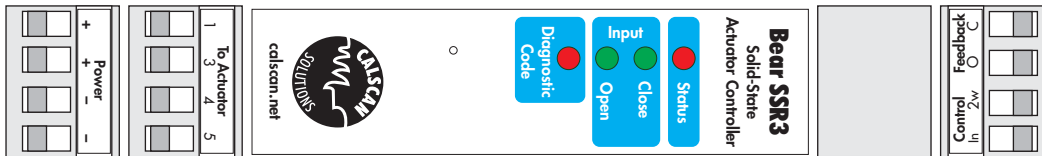


Wiring Example 2

Bear SSR3 Interfaced Directly To Ficher L2E Level Controller



Terminal Block Placement



Certification

Class I, Division 2, Groups C&D T3C
 Class I Zone 2 Group IIB T3C
 Ambient Temperature: $-40^{\circ}\text{C} \leq T_a \leq 50^{\circ}\text{C}$

Certified to CAN/CSA Std. C22.2 No. 213, 61010-1 and 61010-2-201
 Conforms to UL Std. 121201, 61010-1 and 61010-2-201

This module shall be installed and DIN railed inside an approved outdoor rated enclosure



Ordering Information

SSR3	INPUT LOGIC	OUTPUT LOGIC	CLOSE CURRENT LIMIT
-IN	= Input Negative Logic	-ON	- "XX"
-IP	= Input Positive Logic	-OP	00 = None
			xx = Current in Decamps
			Factory Set Option

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