



## MSA Series

### MAIN FEATURES

- Micro size
- Spring centering, single axis operation
- Proportional output
- IP67 above panel sealing
- 3 million lifecycles
- Return to center voltage +/-50mV



### DESCRIPTION

The MSA Series is a single axis, Hall effect thumb controller. Designed for both control grip and panel mount applications, the “micro” size allows for multiple MSAs to fit adjacent to one another. The MSA is available with a one piece elastomer actuator that offers a combination of premium user feel with IP67 above panel sealing. The MSA ships with an under panel mounting clip and a multi-conductor mating wire harness.

### SPECIFICATIONS\*

MECHANICAL SINGLE AXIS	
Angular travel:	50° total (25° each direction from center)
Expected life:	3 million operations
Centering:	Spring return
Mass/weight:	15 grams**
Maximum vertical load:	50 lbF
Maximum horizontal load:	50 lbF***

\* Specifications subject to change without notice  
 \*\* Approximate weight. Actual weight dependent on configuration  
 \*\*\* Measured 0.44" above surface

ELECTRICAL	
Technology:	Hall effect sensor, single or dual
Resolution:	12 bit
Supply voltage:	5.00VDC +/- 0.01VDC regulated, transient free
Supply current:	20mA max
Ratiometric output voltage:	See options
Return to center voltage tolerance:	+/-50mV
Transient overvoltage max:	20VDC
Reverse polarity max:	-10VDC
Output impedance:	2Ω
Start up time:	15ms max

ENVIRONMENTAL	
Operating temperature:	-40°C +85°C
Storage temperature:	-40°C +85°C
Above panel sealing:	IP67*
EMC immunity level:	EN61000-4-3** Compliance to 30A/m
EMC emissions level:	EN61000-6-3
ESD immunity level:	EN61000-4-2** Compliance to +/-15kV/+/-8kV
Vibration:	Per SAE J1455 Section 4.9 & MIL-STD810G 514.6
Mechanical shock:	Per SAE J1455 Section 4.10 & MIL-STD-202G

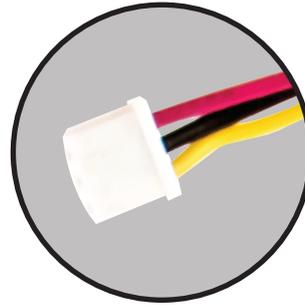
\* Above panel sealing. All configurations. Product is idle and not in use.  
 \*\* Extended testing levels

**SPECIFICATIONS**

MATERIALS	
Housing:	Mineral & glass filled nylon
Boots:	Silicone (with tear resistant additive)
Actuators:	Silicone or mineral & glass filled nylon

**CONNECTIONS**

PIN #*	WIRE COLOR**	DESCRIPTION	SINGLE OUTPUT
1	N/A	N/A	
2	YELLOW	SENSOR	
3	BLACK	GROUND	
4	RED	POWER (+5V)	



\* Housing body: Molex four position PCB header: 53047-0410

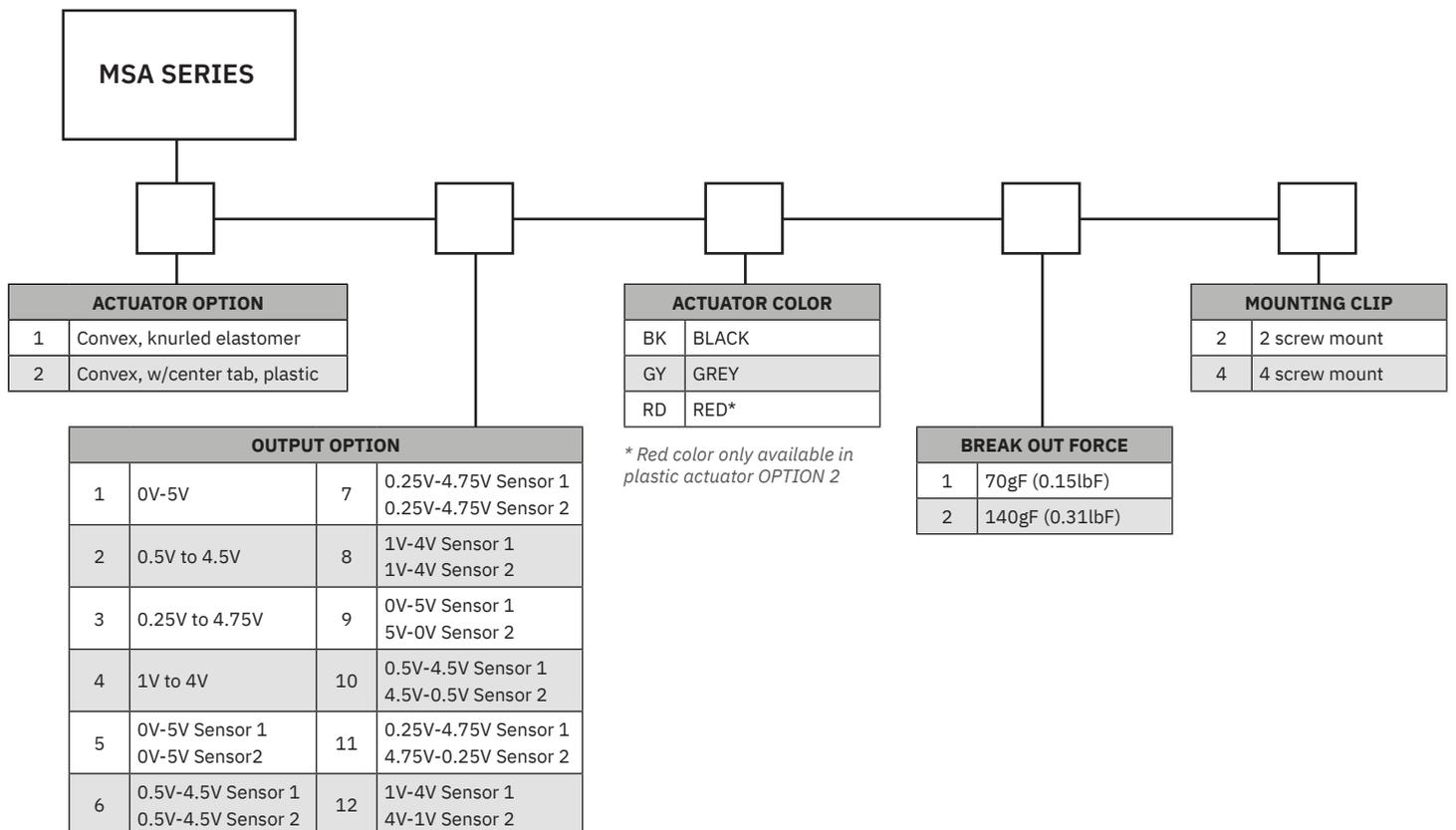
\*\* Mating wire harness: 10" 28AWG PTFE to four position connector housing: Molex: 0510210400

PIN #*	WIRE COLOR**	DESCRIPTION	DUAL OUTPUT
1	N/A	N/A	
2	RED	+5V SENSOR 1	
3	YELLOW	SENSOR 1	
4	PINK	+5V SENSOR 2	
5	BLACK	GROUND	

\* Housing body: Molex five position PCB header: 53047-0510

\*\* Mating wire harness: 10" 28AWG PTFE to five position connector housing: Molex: 0510210500

**MSA SERIES PART NUMBER CODE**



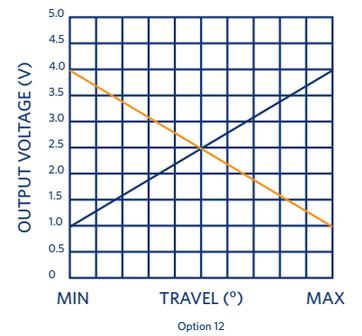
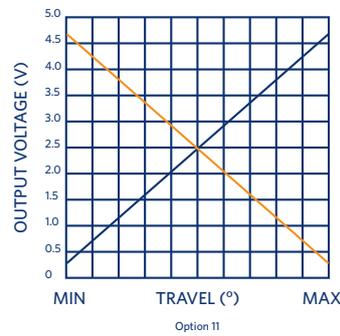
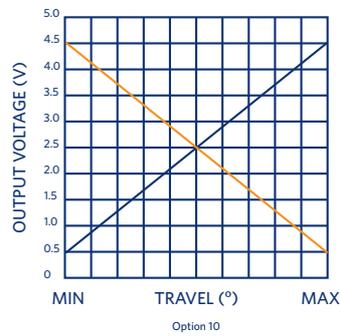
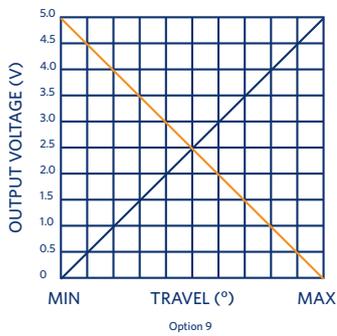
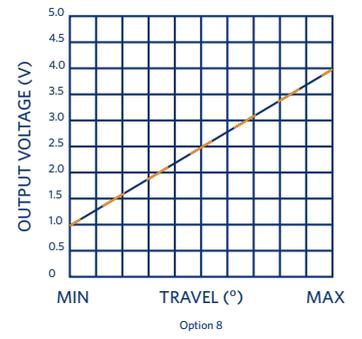
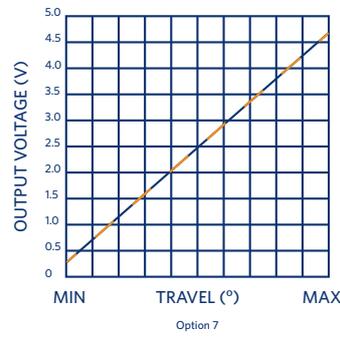
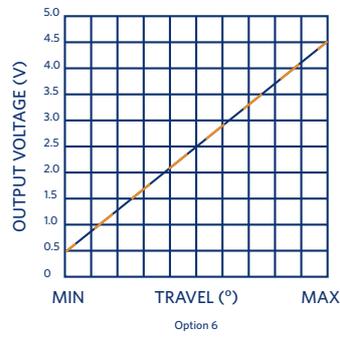
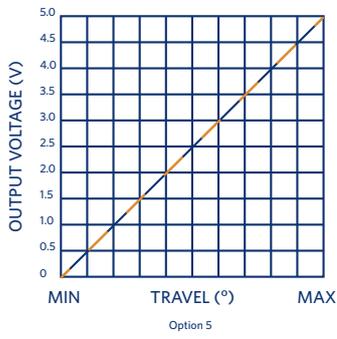
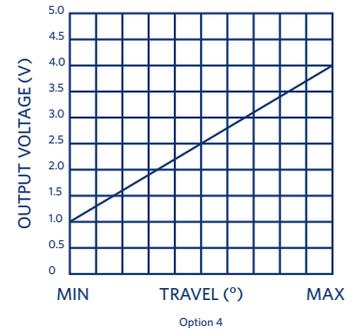
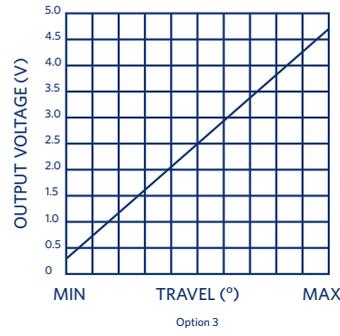
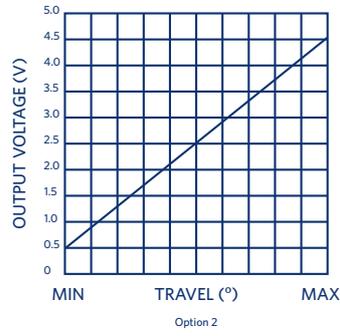
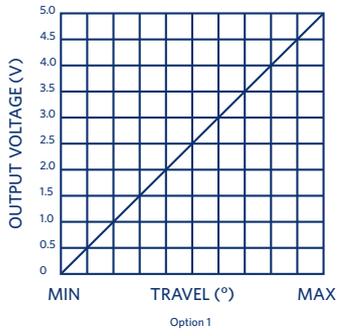
■ ACTUATOR OPTION



**OPTION 1**  
Convex, knurled elastomer

**OPTION 2**  
Convex, w/center tab, plastic

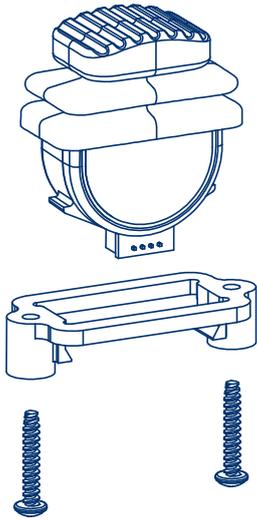
**VOLTAGE OUTPUT OPTION**



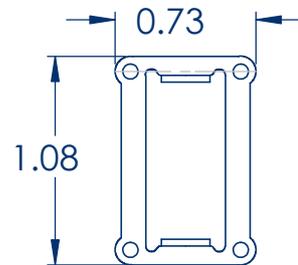
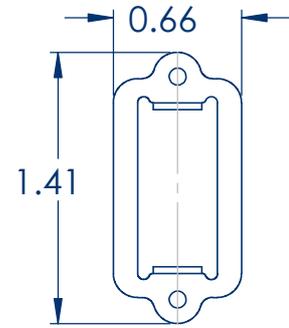
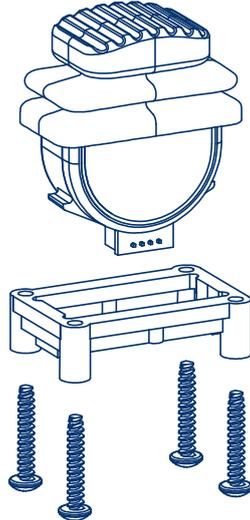
■ MOUNTING PANEL DIMENSIONS

**CONVEX, KNURLED  
ELASTOMER ACTUATOR**

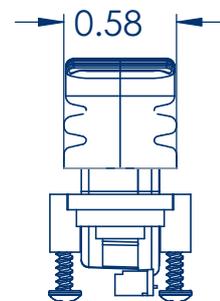
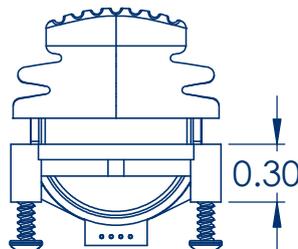
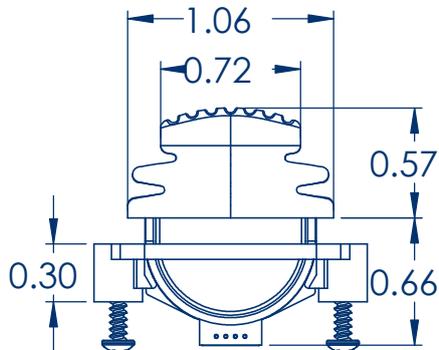
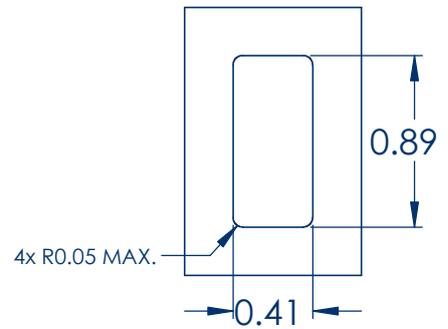
2 SCREW MOUNTING CLIP



4 SCREW MOUNTING CLIP



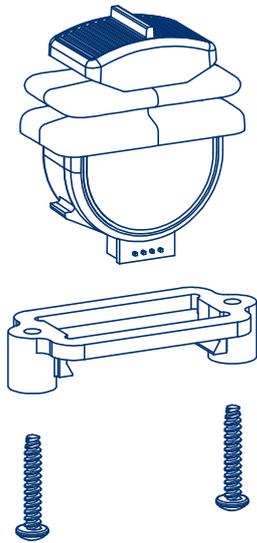
PANEL CUTOUT DIMENSIONS  
(PANEL THICKNESS UP TO 0.125")



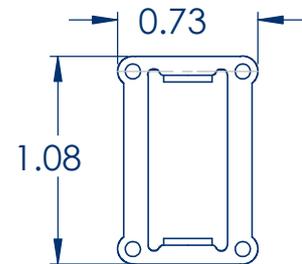
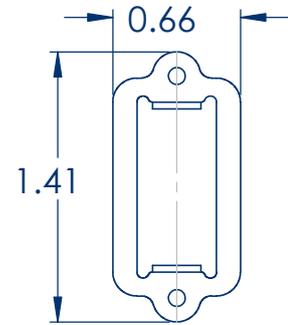
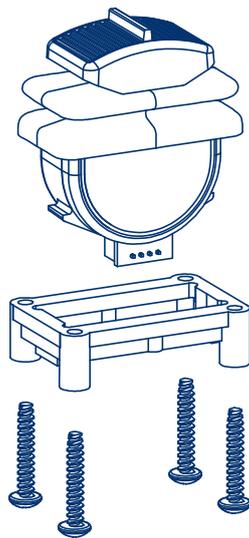
■ MOUNTING PANEL DIMENSIONS

**CONVEX, KNURLED  
PLASTIC ACTUATOR**

2 SCREW MOUNTING CLIP



4 SCREW MOUNTING CLIP



PANEL CUTOUT DIMENSIONS  
(PANEL THICKNESS UP TO 0.125")

