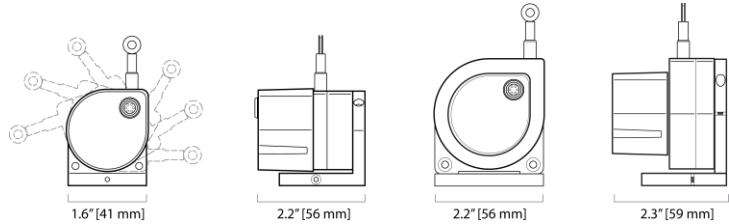


# MT2A

## Cable Actuated Sensor

### Test Applications • Voltage Divider

**Compact String Pot • Flight/Crash Test Applications**  
**Dual Axis 360° Mounting Bracket**  
**3, 9, 15, 30 and 50-inch Stroke Range Options**  
**Aluminum & Polycarbonate Enclosure • GAM Certification**

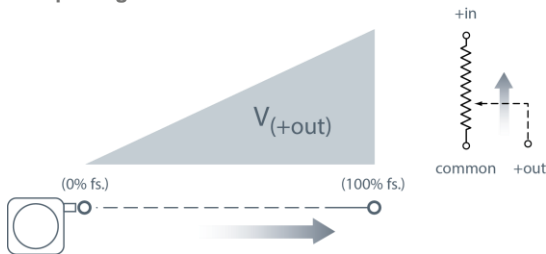


The MT2A is a member of our family of rugged, accurate miniature cable-extension position transducers designed specifically for test applications. One of the major benefits to this sensor is its 2-axis 360° rotating mounting bracket to allow for fast and simple installation in any direction.

The MT2A comes in 5 different measuring ranges: 0-3", 0-9", 0-15", 0-30", 0-50" and features a highly-tensioned heavy-duty measuring cable designed for the high-acceleration demands encountered in flight testing and automotive crash tests.

For extreme impact applications, a new rugged all aluminum sensor cover is now available!

#### Output Signal



#### General

<b>Full Stroke Range Options</b>	0-3, 0-9, 0-15, 0-30, 0-50 inches, min.
<b>Output Signal</b>	voltage divider (potentiometer)
<b>Accuracy</b>	± 1.1% to 0.15% full stroke (see ordering information)
<b>Repeatability</b>	± 0.02% full stroke
<b>Resolution</b>	essentially infinite
<b>Measuring Cable</b>	Ø.019-in. nylon-coated stainless steel
<b>Enclosure Material</b>	anodized aluminum
<b>Sensor Cover Options</b>	aluminum or polycarbonate
<b>Sensor</b>	conductive plastic-hybrid potentiometer
<b>Weight</b>	0.5 lb. max.

#### Electrical

<b>Input Resistance</b>	10K ohms (± 10%)
<b>Power Rating, Watts</b>	2.0 at 158°F (70° C), derated to 0 @ 255°F (125°C)
<b>Recommended Maximum Input Voltage</b>	30V (AC or DC)
<b>Electrical Stroke</b>	94% ±4% of input voltage
<b>Mating Plug</b>	LEMO FGG.OB.304.CLAD52

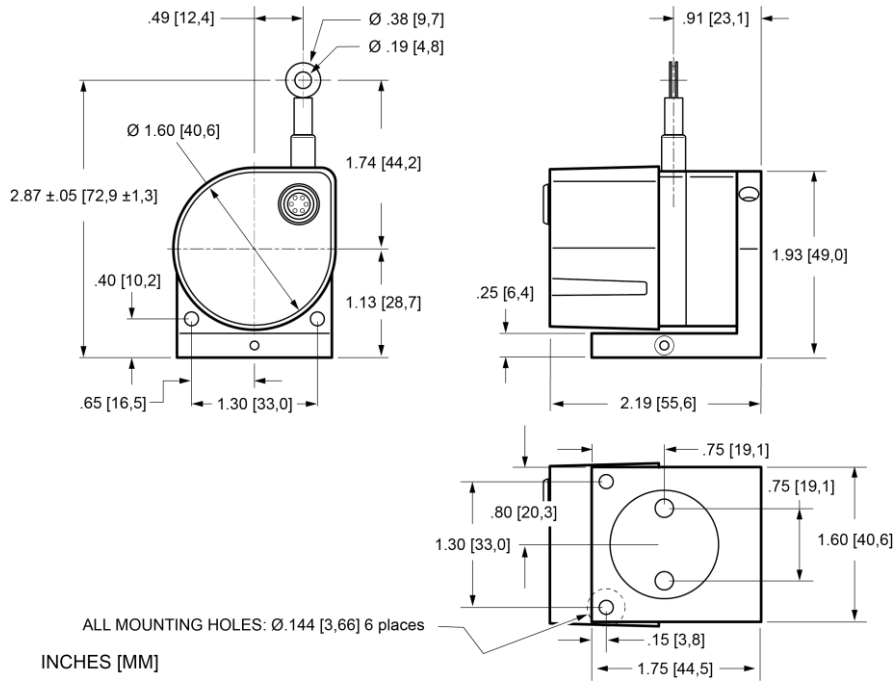
#### Mechanical

<b>Measuring Cable Tension Options</b>	see ordering information
<b>Maximum Measuring Cable Acceleration</b>	136 g

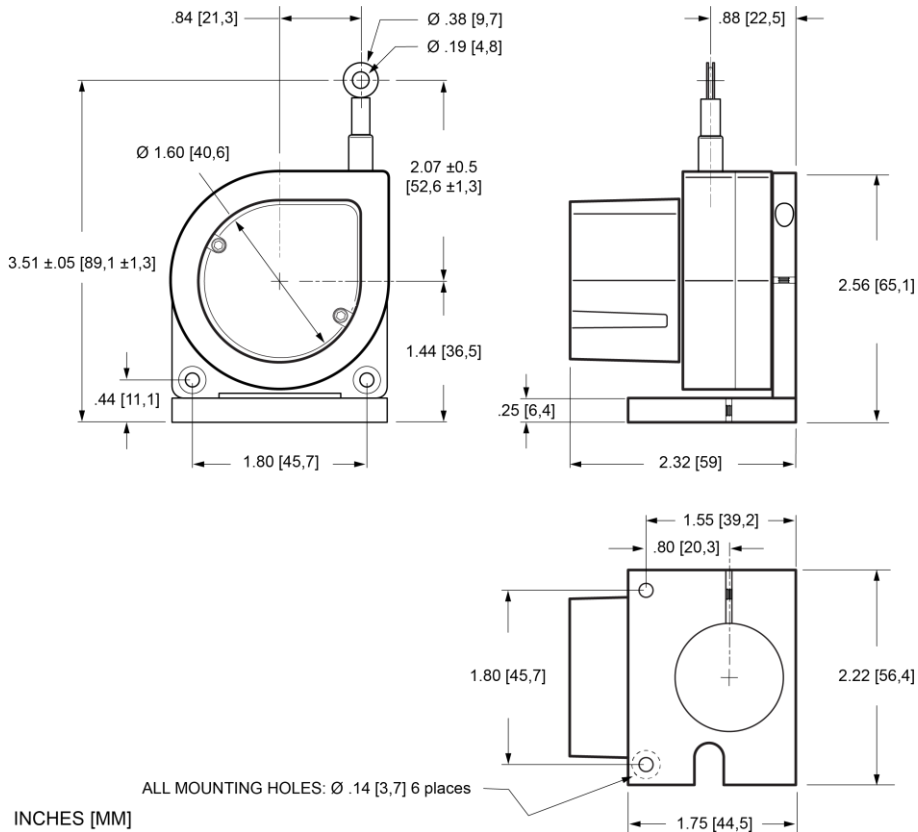
#### Environmental

<b>Operating Temperature</b>	-65° to 255° F ( -55° to 125°C)
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Outline Drawing (0-3 to 0-30 inch ranges)



Outline Drawing (0-50 inch range)



Ordering Information

Model Number:

**MT2A** -           -      - **10K** -       
*order code:*      **R**      **A**      **B**      **C**

Sample Model Number:

**MT2A - 9E - 33 - 10K - M1A**

- R** range: 9 inches
- A** measuring cable termination: eyelet
- B** measuring cable tension: 33 oz. (±6 oz.)
- C** electrical connection: end-mounted connector w/ aluminum sensor cover

Full Stroke Range:

<b>R</b> <i>order code:</i>	<b>3</b>	<b>9</b>	<b>15</b>	<b>30</b>	<b>50</b>
full stroke range, min:	3 inches	9 inches	15 inches	30 inches	50 inches
potentiometer cycle-life:	$2.5 \times 10^6$	$8.3 \times 10^5$	$5.0 \times 10^5$	$2.5 \times 10^5$	$2.5 \times 10^5$
accuracy (% of full stroke):	1.1 %	.25%	.20%	.15%	.15%

Measuring Cable Termination:

**A** *order code:*      **E**      **L**

Eyelet      Leader Cable (24 in. long)

Ø.190 in. (4,8 mm)

0.080 in. (4,3 mm)




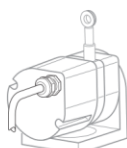
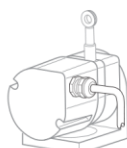

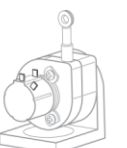
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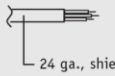
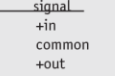
- 1-eyelet
- 1-snubber
- 5-crimps

Measuring Cable Tension:

<b>B</b> <i>order code:</i>	<b>9</b>	<b>14</b>	<b>33</b>
3, 9, 15, 30-in. range options:	9 (±2) oz.	14 (±4) oz.	33 (±6) oz.
max. cable acceleration:	99 g	136 g	136 g
<b>B</b> <i>order code:</i>	<b>9</b>	<b>22</b>	
50-in. range options:	9 (±2) oz.	22 (±6) oz.	
max. cable acceleration:	46 g	68 g	

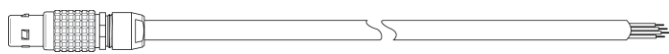
**Electrical Connection/ Sensor Cover:**

<b>ⓐ</b>	<b>order code:</b>	<b>M1</b>	<b>M1A</b>	<b>M2</b>	<b>M2A</b>	<b>M3</b>	<b>M3A</b>		
	sensor cover:	polycarbonate	aluminum	polycarbonate	aluminum	polycarbonate	aluminum		
	electrical connection:		end-mount connector*		side-mount connector*		top-mount connector*		
<b>ⓑ</b>	<b>order code:</b>	<b>C1</b>	<b>C1A</b>	<b>C2</b>	<b>C2A</b>	<b>C3</b>	<b>C3A</b>	<b>S</b>	
	sensor cover:	polycarbonate	aluminum	polycarbonate	aluminum	polycarbonate	aluminum	none**	
	electrical connection:		end-mount, instrumentation cable (15-ft. long, 24 ga., shielded)		side-mount, instrumentation cable (15-ft. long, 24 ga., shielded)		top-mount, instrumentation cable (15-ft. long, 24 ga., shielded)		solder terminals

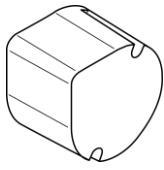
	<b>4-pin mating plug</b>	<b>pin#</b>	<b>signal</b>		<b>Instrumentation Cable</b>	<b>color</b>	<b>signal</b>		<b>Solder Terminals</b>
contact view	Lemo FGG.OB.304.CLAD52	1	+in	24 ga., shielded	Red	+in		CW	+in
		2	common		Black	common		CCW	common
		3	+out		Green	+out		S	+out

\*mating plug included \*\*blank cover available, see **Accessories** on next page

**Accessories**



<b>Part Number</b>	<b>Description</b>
9603957-0015	15 ft. long cordset. Includes mating connector with 15 ft., 24 gauge, shielded multiconductor cable



Additional blank sensor covers can be ordered separately. This cover comes without electrical wiring access holes so customer can drill to their requirements. Includes screws and gasket.

<b>Part Number</b>	<b>Description</b>
9604197-0000	Aluminum sensor cover
9603958-0000	Polycarbonate sensor cover

**GAM EG 13 Certification (0-3 to 0-30 inch ranges only)****QUALIFICATION LEVEL FOR CLIMATIC AND THERMAL ENVIRONMENT**

External Overpressure, operating (GAM EG 13 Fasc.21)

5 cycles: 1...4.5 Bar in 3 min., 4.5 Bar for 12 hours,  
4.5...1 Bar in 1 min.

1 cycle: 1...3.2 Bar in 7.5 min., 3.2 Bar for 2 min.,  
3.2...8 Bar in 5 sec., 8 Bar for 2 hours,  
8...1 Bar in 2 Bar/sec.

1 cycle: 1...4.5 Bar in 20 msec. 4.5 Bar for 5 sec,  
4.5...1 Bar in 20 msec.

Thermal Vacuum Transitory, operating (GAM EG 13 Fasc.10)  
Room pressure and temperature (1 Bar A; 20°C ±2°C)  
1...10-3 mBar in 100 seconds  
Vacuum (10-3 mBar) for 10 min.

Climatic Cycles (GAM EG 13 Fasc.8)  
Dry heat: 24 hours @ 70°C ±2°C Relative Humidity < 50%  
Wet heat: 24 hours @ 70°C ±2°C Relative Humidity = 50%  
Cold: 24 hours @ -10°C ±2°C Relative Humidity < 50%  
Wet heat: 24 hours @ 70°C ±2°C Relative Humidity = 100%

Dry Heat (Relative Humidity <50%)  
Room temperature to 70°C in 30 mins  
70°C for 5 hours, non-operating  
70°C for 5 hours, operating  
70°C to room temperature in 20 minutes

**QUALIFICATION LEVEL FOR MECHANICAL ENVIRONMENT**

Random Vibrations (GAM EG 13 Fasc.42 mod. Op1)  
20...2000 Hz, 3 min. per axis, operating, 34 g.  
20...2000 Hz, 20 sec. per axis, operating, 45 g.

Random Vibrations (GAM EG 13 Fasc.41 mod. Op3)  
Compensated Levels, short duration  
3...300 Hz @ .2 – .002 g<sup>2</sup>/ Hz.

Research Critical Frequency  
Logarithmic Run, 1 octave / min., 1...2000 Hz.

Steady Acceleration, operating (GAM EG 13 Fas.45)  
37 g, 3 min. per direction (2 directions per axis)

Sinusoidal Vibrations, operating (Gam EG 13 Fasc.41 mod. Op3)  
Logarithmic run, 1 octave/min. on 3 axis  
3...50 Hz. 9 hours per axis @0.6...1.25 g

Sinusoidal Vibrations, operating (Gam EG 13 Fasc.41 mod. Op3)  
Logarithmic run, 1 octave/min. on 3 axis  
5...2 KHz. 3 axis @12...25 g.

Average Shock (GAM EG 13 Fasc.43 Mode Op1)  
1 shock, 1/2 sinusoidal, 100g. 6 msec. operating,  
with longitudinal and back direction

Free Fall (GAM EG 13 Fasc.43 Mode Op4)  
6 consecutive drops on wood table, height = 100mm

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MT2A 12/01/2015