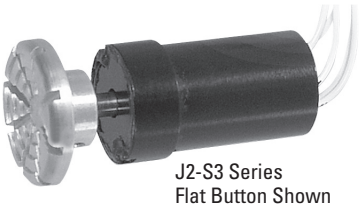
J2 SERIES

The J2 Series transducer takes a force input of up to 3 lbs. and converts it into a linear voltage output on a X and Y axis. Utilizing strain gauges in a Wheatstone bridge configuration, very small changes in force can be detected to produce a corresponding output voltage. Output voltages are ratiometric (proportional) to the supplied input voltage. Circuit type choices include full bridge, half bridge and isolated. We offer short travel, short travel with a pushbutton, long travel, and long travel with a pushbutton. Custom cases, buttons, and wires are available upon request. Tested to military standards, the J2 is used in aerospace, off-highway, military and other demanding applications.

J2-S1 Series
Conical Hat Shown

J2-S2 Series
Flat Button Shown



J2-S3 Series
Flat Button Shown

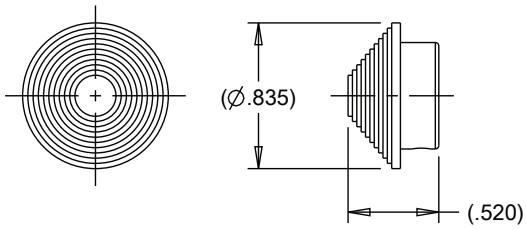
J2-S4 Series
Flat Button Shown

Features:

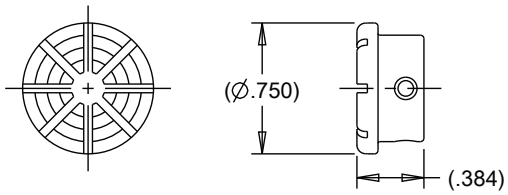
- **Short (.05 max) or long (.20 typ.) travel options**
- **Available with or without pushbutton**
- **Custom cases and buttons available**
- **Applications include:**
  - **Flight control grips**
  - **Cursor control**
  - **Target acquisition**
- **Small null hysteresis useful for applications requiring a consistent center voltage**

Series Standard Characteristics/Ratings:	
ELECTRICAL RATINGS: S1 – S2 – S3	
Insulation Resistance:	100MΩ min @ 50VDC
Null Hysteresis:	+/- 1% of full scale output within 1 second after release
Null Temp Coefficient:	+/- .08% full scale per degree C max
Sensitivity Temp Coefficient:	+/- 0.2% full scale per degree C
Resolution:	Infinite
Seal:	Enclosure dusttight per MIL-PRF-8805 Design 2
Operating Force:	3.0 lbs.
Operating Temp Range:	-40°C to +71°C
Storage Temp Range:	-55°C to +85°C
Travel:	To mechanical stop 0.05 inches max
MATERIALS:	
Button:	Thermoplastic or anodized aluminum
Wire:	MIL-W-16878/4, 12 inches min, 24 AWG
Hardware:	None provided

J2-S1 and J2-S2 Series

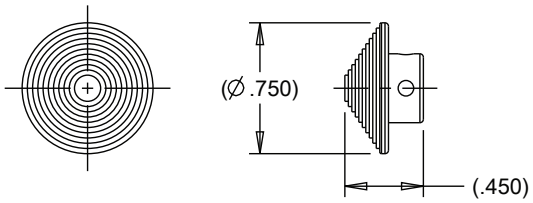


A. CONICAL HAT

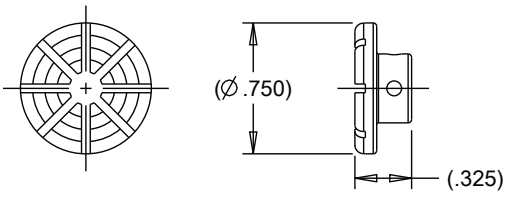


B. FLAT BUTTON

J2-S3 Series



A. CONICAL HAT

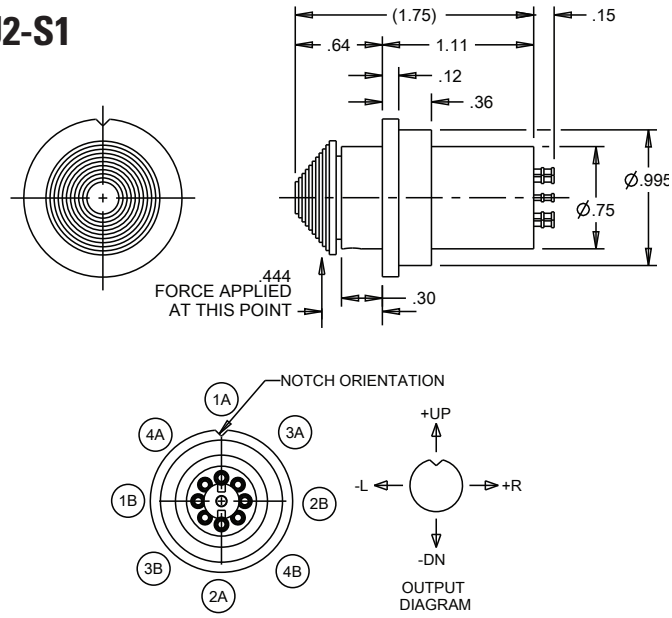


B. FLAT BUTTON

TRANSDUCER

STRAIN GAUGE,FLANGE MOUNT, SHORT TRAVEL

J2-S1

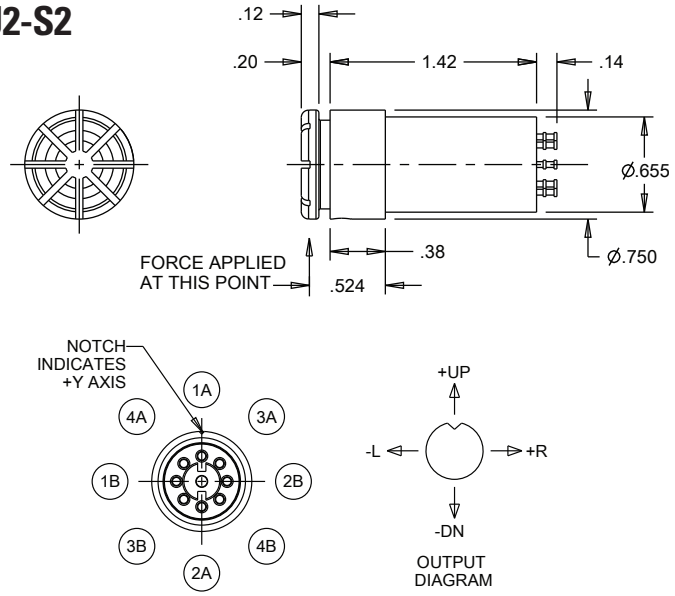


J2-S1 PART NUMBER CODE

J2-S1 X XX X XXX

Circuit Type	Electrical I/O (See Table)	Termination	Button Style and Color
A. Full Bridge	**B3.**	**1.** Wire Leads	**AP1.** Conical Hat, Red Thermoplastic
B. Half Bridge	**B4.**	**2.** Terminals	**AP2.** Conical Hat, Black Thermoplastic
C. Isolated	**B5.**		**AP8.** Conical Hat, Gray Thermoplastic
	B6.		**BBA.** Flat Button, Black Anodized Aluminum
	B7.		**BCA.** Flat Button, Clear Anodized Aluminum
	G3.		
	G4.		
	G5.		
	G6.		
	G7.		

J2-S2



J2-S2 PART NUMBER CODE

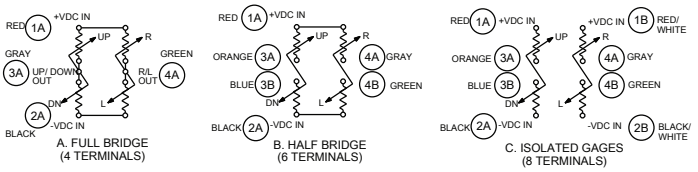
J2-S2 X XX X XXX

Circuit Type	Electrical I/O (See Table)	Termination	Button Style and Color
A. Full Bridge	**B3.**	**1.** Wire Leads	**AP1.** Conical Hat, Red Thermoplastic
B. Half Bridge	**B4.**	**2.** Terminals	**AP2.** Conical Hat, Black Thermoplastic
C. Isolated	**B5.**		**AP8.** Conical Hat, Gray Thermoplastic
	B6.		**BBA.** Flat Button, Black Anodized Aluminum
	B7.		**BCA.** Flat Button, Clear Anodized Aluminum
	G3.		
	G4.		
	G5.		
	G6.		
	G7.		

EXCITATION VOLTAGE TABLE FOR J2-S1 AND J2-S2

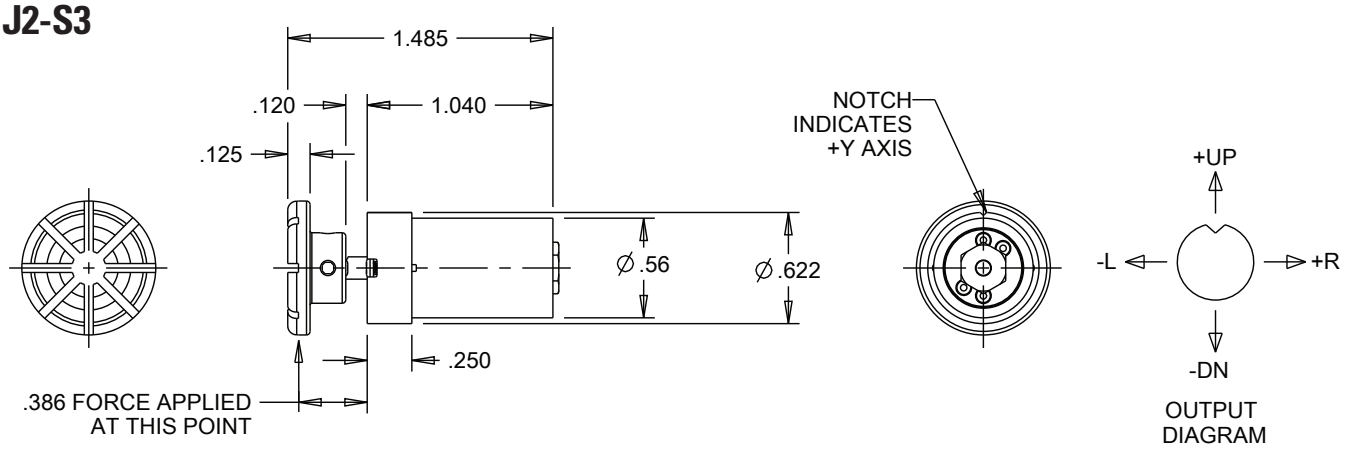
Circuit Configuration	Excitation Voltage (Units VDC)	Sensitivity Until Stop (Units VDC/lb. +/- 20%)	Max Output at Stop (Units VDC)	Null Output at 25°C Bipolar (Units VDC)	Null Output at 25°C Supply to Ground (Units VDC)	Full Scale Travel Cycles (Units x 10^6)
B3	+/- 7.5	+/- 0.45	+/- 1.62	+/- 0.10		0.2
G3	+ 15.0	+/- 0.45	+/- 1.62		7.5 +/- 0.10	0.2
B4	+/- 6.0	+/- 0.45	+/- 1.62	+/- 0.10		0.2
G4	+ 12.0	+/- 0.45	+/- 1.62		6.0 +/- 0.10	0.2
B5	+/- 6.0	+/- 0.33	+/- 1.19	+/- 0.06		1.0
G5	+ 12.0	+/- 0.33	+/- 1.19		6.0 +/- 0.06	1.0
B6	+/- 5.0	+/- 0.33	+/- 1.19	+/- 0.05		1.0
G6	+ 10.0	+/- 0.33	+/- 1.19		5.0 +/- 0.05	1.0
B7	+/- 5.0	+/- 0.25	+/- 0.90	+/- 0.05		1.0
G7	+ 10.0	+/- 0.25	+/- 0.90		5.0 +/- 0.05	1.0

AVAILABLE CIRCUITS

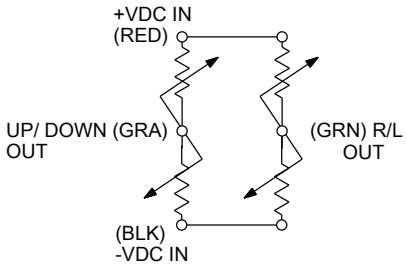


STRAIN GAUGE,FLANGE MOUNT, SHORT TRAVEL

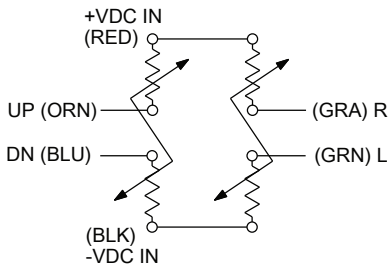
J2-S3



AVAILABLE CIRCUITS



A. FULL BRIDGE
(4 WIRES)



B. HALF BRIDGE
(6 WIRES)

J2-S3 PART NUMBER CODE

J2-S3 X XX X XXX

Circuit Type

A. Full Bridge
B. Half Bridge

Electrical I/O (See Table)

B1.
B2.
B3.
B4.
B5.
G1.
G2.
G3.
G4.
G5.

Termination

1. Wire Leads

Button Style and Color

AP1. Conical Hat, Red Thermoplastic
AP2. Conical Hat, Black Thermoplastic
AP8. Conical Hat, Gray Thermoplastic
BBA. Flat Button, Black Anodized Aluminum
BCA. Flat Button, Clear Anodized Aluminum

EXCITATION VOLTAGE TABLE FOR J2-S3

Circuit Configuration	Excitation Voltage (Units VDC)	Sensitivity Until Stop (Units VDC/lb. +/- 20%)	Max Output at Stop (Units VDC)	Null Output at 25°C Bipolar (Units VDC)	Null Output at 25°C Supply to Ground (Units VDC)	Full Scale Travel Cycles (Units x 10_6)
B1	+/- 7.5	+/- 0.45	+/- 1.62	+/- 0.10		0.3
G1	+ 15.0	+/- 0.45	+/- 1.62		7.5 +/- 0.10	0.3
B2	+/- 6.0	+/- 0.45	+/- 1.62	+/- 0.10		0.2
G2	+ 12.0	+/- 0.45	+/- 1.62		6.0 +/- 0.10	0.2
B3	+/- 6.0	+/- 0.33	+/- 1.19	+/- 0.06		1.0
G3	+ 12.0	+/- 0.33	+/- 1.19		6.0 +/- 0.06	1.0
B4	+/- 5.0	+/- 0.33	+/- 1.19	+/- 0.05		1.0
G4	+ 10.0	+/- 0.33	+/- 1.19		5.0 +/- 0.05	1.0
B5	+/- 5.0	+/- 0.25	+/- 0.90	+/- 0.05		1.0
G5	+ 10.0	+/- 0.25	+/- 0.90		5.0 +/- 0.05	1.0

TRANSDUCER

FULL BRIDGE CIRCUIT TYPE, SHORT TRAVEL

The J2-S4 Series of strain gauge based force transducers provides analog output proportional to the force applied to the button. The J2-S4 bottom mount transducer offers short travel, full bridge circuit, a flat button style, and 1 million cycle life.

The strain gauge transducer compensates for outside influences, like temperature, allowing the transducer to maintain accuracy even in the most demanding environments.

The J2-S4's threaded bushing case offers a secure switch retention method for a wide range of panel thicknesses.

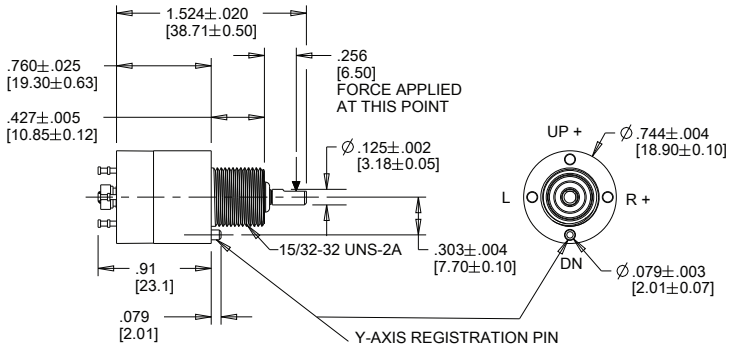
Applications include flight control, operating ground vehicles, and cursor control or target acquisition.

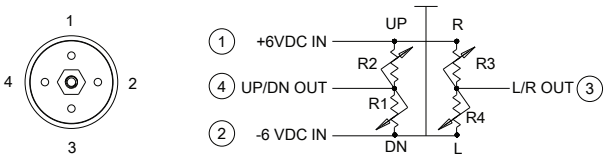
Features:

- **Full bridge circuit type**
- **1 million cycle life**
- **Short travel in each direction**
- **Watertight to IP68S**
- **Shorter behind panel**
- **Multiple button types available**

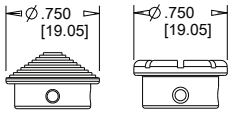
J2-S4 Transducer

Standard Characteristics/Ratings:	
ELECTRICAL RATINGS (+/- 6 VDC):	
Sensitivity	.50 Volts per lb. typical
Insulation Resistance:	100MΩ min @ 50VDC
Null Temp Coefficient:	+/- .08% full scale per degree C max
Null Hysteresis:	+/- .006 VDC within 1 second after release
Sensitivity Temp Coefficient:	+/- .2% full scale per degree C
Null Output:	0VDC +/- .100VDC
Resolution:	Infinite
Element Resistance:	1000Ω +/- 15%
Seal:	IP68S Watertight
Operating Force:	3.0 lbs. typical
Operating Temp Range:	-54°C to +71°C
Storage Temp Range:	-57°C to +85°C
Travel:	.05" max travel each direction
Cycle Life:	1,000,000 cycles; 1 cycle = max travel & return
MATERIALS:	
Button:	Anodized aluminum or plastic
Case:	Black anodized aluminum
Hardware:	Lockwasher, hex nut and button set screws

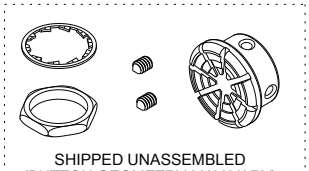




A. FULL BRIDGE



A. CONICAL HAT B. FLAT BUTTON



SHIPPED UNASSEMBLED
(BUTTON GEOMETRY MAY VARY)

J2-S4 PART NUMBER CODE

J2-S4 X XX X XXX

Circuit Type	Electrical I/O (See Table)	Termination	Button Style and Color
A. Full Bridge	**B6.**	**2.** Terminals	**AP2.** Conical Hat, Black Thermoplastic **BBA.** Flat Button, Black Anodized Aluminum **BCA.** Flat Button, Clear Anodized Aluminum

EXCITATION VOLTAGE					
CIRCUIT CONFIGURATION	EXCITATION VOLTAGE (UNITS VDC)	SENSITIVITY UNTIL STOP (UNITS VDC/LB. ±20%)	MAX OUTPUT AT STOP (UNITS VDC)	NULL OUTPUT AT 25°C BIPOLAR (UNITS VDC)	FULL SCALE TRAVEL CYCLES (UNITS x10^6)
B6	±6.0	±0.50	±1.80	±0.10	0.2