

## 3A160 3-AXIS LOAD CELL (U.S. & METRIC)

### SPECIFICATIONS

ACCURACY – (MAX ERROR*)				
Nonlinearity – %FS				±0.2
Hysteresis – %FS				±0.5
Creep, in 30 min – %				±0.5
TEMPERATURE				
Effect on Zero – %RO / deg	°C			±0.02
Effect on Output – % /deg	°C			±0.02
Compensated Range	°C			-10 to +70
	°F			+14 to +158
Operating Range	°C			-10 to +85
	°F			+14 to +158
ELECTRICAL				
Rated Output (Nominal) – mV/V				±1
Max. Excitation Voltage – V				10
Zero Balance – mV/V				0.1
Input Resistance, x/y/z axis – Ω				740
Output Resistance, x/y/z axis – Ω				700
Insulation Resistance – Ω				> 5 × 10 <sup>9</sup>
Electrical Connection		3 m Cable with 37-PIN Connector. Includes Mating Connector.		
MECHANICAL				
Rated Capacity (FS)	kN	2, 5, 10	20	50
	lbf	450, 1.2K, 2.25K	4.5K	11.2K
Material		Nickel plated steel		
Deflection – Fx, Fy – mm	mm		0.08	
	in		0.003	
Deflection – Fz – mm	mm		0.16	
	in		0.006	
Total Weight – kg	kg		8.2	
	lbs		18.08	
Safe Overload – %RO			150	
Ultimate Overload – %RO			300	
Protection Level			IP54	
ECCENTRICITY AND MOMENT*				
Allowable Moment	Nm	1K	2K	
	lbf-in	8.85K	17.7K	
Crosstalk: x:y / y:x – %			±1	
Crosstalk: z:x/y – %			±2	
Crosstalk: x/y:z – %			±2	
Influence of Eccentric Load to FS – %FS / 500Nm			±1	

\* Nominal

U.S. dimensions and capacities are provided for conversion only. Standard product will be sold in kN and Metric dimensions. U.S. capacities available upon special request and at an additional cost.

### STANDARD CONFIGURATION



Model 3A160 (Shown)

### FEATURES & BENEFITS

- 3-Axis – Fx Fy Fz; independent bridges
- 2kN to 50kN (450 to 11.2K lbf) force range
- Compact size
- Low crosstalk
- IP67 Rating
- Temperature compensated

Interface's 3A160 3-axis load cell measures forces simultaneously in 3 mutually perpendicular axes: X, Y, and Z - tension and compression. Each axis provides a unique mV/V output and requires no mathematical manipulation. The 3-axis load cell is built to minimize eccentric loading effects and crosstalk between axes.

The 3A160 is ideally suited to many industrial and scientific applications, such as aerospace, robotics, automotive and medical research (orthopedics and bio-mechanical).

The load cell is provided in various capacity ranges and sizes with each of the three axes providing the same capacity.

We are happy to work with your design needs – providing a custom design if warranted for varying capacities (between X, Y, and Z), higher temperature capability, or OEM/private labeling if needed.

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### CHARACTERISTICS

Capacity	2kN	5kN	10kN	20kN	50kN
Fx (kN)	2	5	10	20	50
Fy (kN)	2	5	10	20	50
Fz (kN)	2	5	10	20	50
Max Bending Moment (Nm)	1	1	1	2	2
Torque Limit (Nm)	1	1	1	2	2
Breaking Force %FS	-	-	-	-	-
Material	Stainless Steel				
IP Rating	67				

### WIRING DIAGRAM

	Description	Wire Color	37-pin D-SUB	16-pin M23
Shield	Shield	Shield	1	N/C
X-Axis	+ Excitation	Brown	20	2
	- Excitation	White	27	1
	+ Output	Green	22	3
	- Output	Yellow	25	4
Y-Axis	+ Excitation	Pink	2	6
	- Excitation	Gray	9	5
	+ Output	Blue	4	7
	- Output	Red	7	8
Z-Axis	+ Excitation	Purple	11	10
	- Excitation	Black	18	9
	+ Output	Gray/Pink	13	11
	- Output	Red/Blue	16	12

### ACCESSORIES



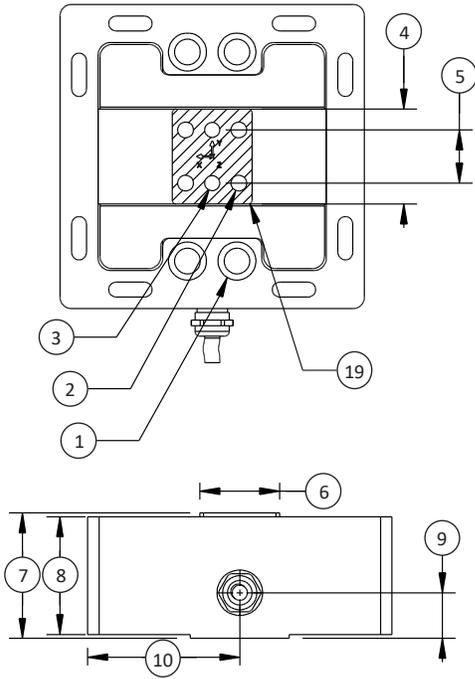
**Model BX3-HD44-CAN (Shown)**  
3-Channel CANbus AND USB Strain Gage Amplifier



**Model BSC4A (Shown)**  
4-Channel Analog Amplifier

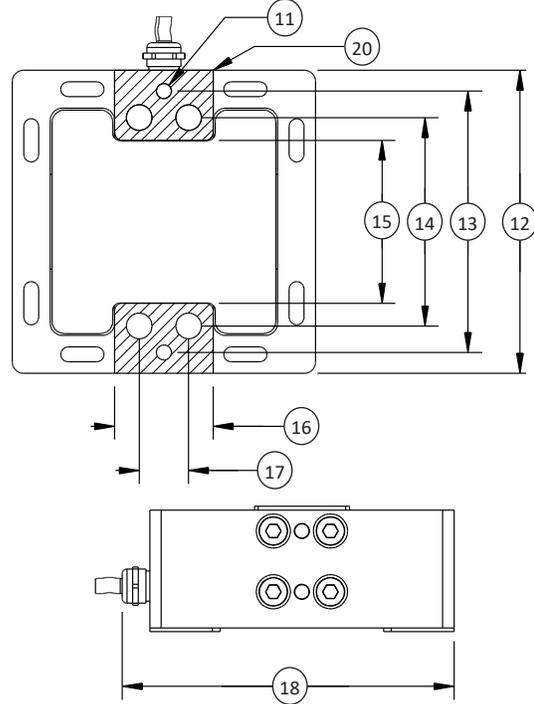
## 3A160 3-AXIS LOAD CELL (U.S. & METRIC)

TOP VIEW



FRONT VIEW

BOTTOM VIEW



SIDE VIEW

### DIMENSIONS

See Drawing	Metric	U.S.
	mm	in
(1)	4 x $\varnothing 14$ THRU, $\sqcup \varnothing 20 \downarrow 13$	4 x $\varnothing 0.6$ THRU, $\sqcup \varnothing 0.8 \downarrow 0.5$
(2)	4 x (M10x1.5) $\downarrow 15, \sphericalangle 118^\circ$	4 x (M10x1.5) $\downarrow 0.6, \sphericalangle 118^\circ$
(3)	2 x $\varnothing 8$ H7 $\downarrow 15, \sphericalangle 118^\circ$	2 x $\varnothing(0.3156/0.3150) \downarrow 0.6, \sphericalangle 118^\circ$
(4)	50	2.0
(5)	28	1.1
(6)	42	1.7
(7)	66	2.6
(8)	62	2.4
(9)	24	0.9
(10)	80	3.1
(11)	2 x $\varnothing 8$ H7 $\downarrow 5, \sphericalangle 118^\circ$	2 x $\varnothing(0.3156/0.3150) \downarrow 0.2, \sphericalangle 118^\circ$
(12)	160	6.3
(13)	138	5.4
(14)	110	4.3
(15)	86	3.4
(16)	52	2.0
(17)	26	1.0
(18)	174.5 (+1)	6.9 (+0.04)
(19)	Bolting Surface / Measuring Platform	
(20)	Bolting Surface	

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