

3A120 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 +185
ELECTRICAL	
Rated Output (Nominal) – mV/V	±0.5 ±1
Max. Excitation – 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 ⁹
Electrical Connection	3 m Cable with 37-PIN Connector. Includes Mating Connector.
MECHANICAL	
Rated Capacity (FS)	N 50 100 200 500 1K 1K** 2K 5K
	lbf 11.2 22.5 45 112 225 225 450 1.12K
Material	Aluminum Stainless steel
Deflection – Fx, Fy	mm 0.06 0.08
	in 0.002 0.003
Deflection – Fz	mm 0.12 0.16
	in 0.005 0.006
Total Weight	kg 1.1 2.0
	lbs 2.43 4.41
Safe Overload – %RO	150
Ultimate Overload – %RO	300
Protection Level	IP54 (option IP68)
ECCENTRICITY AND MOMENT*	
Allowable Moment	Nm 100 200 250 300
	lbf-in 885 1.77K 2.21K 2.66K
Crosstalk: x:y / y:x – %	±1
Crosstalk: z:x/y – %	±2
Crosstalk: x/y:z – %	±1
Influence of Eccentric Load to FS – %FS / 100Nm	±1

* Nominal

** Stainless Version denoted by 3A120S-1KN

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 3A120 (Shown)

FEATURES & BENEFITS

- 3-Axis – Fx Fy Fz; independent bridges
- 50N to 5kN (11.2 to 1.12K lbf) force range
- Compact size
- Low crosstalk
- IP66 Rating
- Temperature compensated

Interface's 3A120 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 3A120 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	50N	100N	200N	500N	1K	1K	2K	5K
Fx (N)	50	100	200	500	1K	1K	2K	5K
Fy (N)	50	100	200	500	1K	1K	2K	5K
Fz (N)	50	100	200	500	1K	1K	2K	5K
Max Bending Moment (Nm)	100	100	100	100	100	200	250	300
Torque Limit (Nm)	100	100	100	100	100	200	250	300
Breaking Force %FS	-	-	-	-	-	-	-	-
Material	Aluminium				Stainless Steel			
IP Rating	66							

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



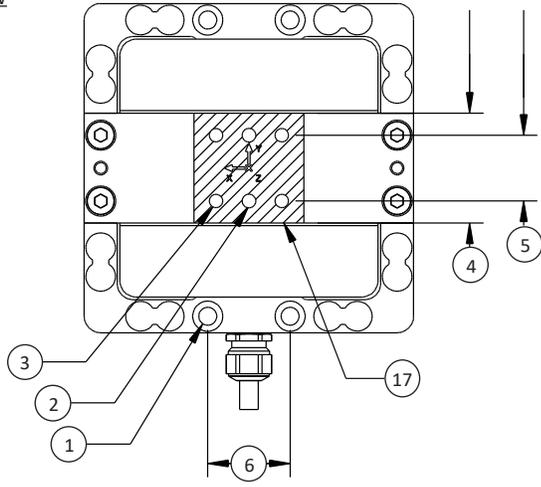
Model BX3-HD44-CAN (Shown)
3-Channel CANbus AND USB Strain Gage Amplifier



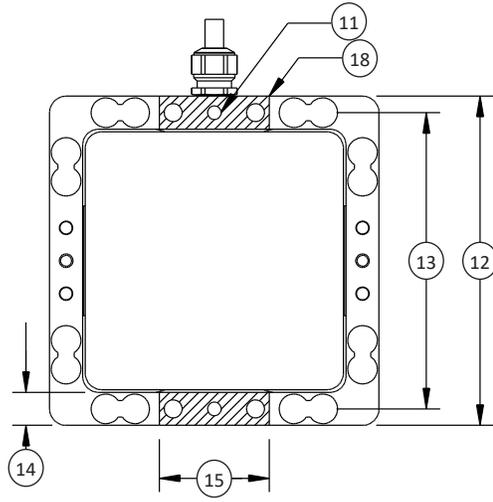
Model BSC4A (Shown)
4-Channel Analog Amplifier

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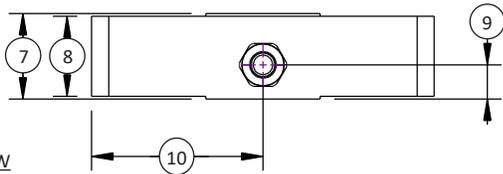
TOP VIEW



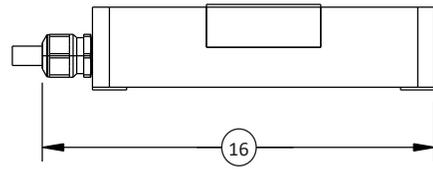
BOTTOM VIEW



FRONT VIEW



SIDE VIEW



DIMENSIONS

See Drawing	Metric	U.S.
	mm	in
(1)	4 x $\varnothing 6.6 \downarrow 29 \sphericalangle 118^\circ$, $\square \varnothing 11.0 \downarrow 22.5$	4 x $\varnothing 0.26 \downarrow 1.1 \sphericalangle 118^\circ$, $\square \varnothing 0.43 \downarrow 0.89$
(2)	2 x $\varnothing 5 \text{ E7} \downarrow 12$, $\sphericalangle 118^\circ$	2 x $\varnothing (0.1981/0.1976) \downarrow 0.5$, $\sphericalangle 118^\circ$
(3)	4 x (M6x1) $\downarrow 12$	4 x (M6x1) $\downarrow 0.5$
(4)	40	1.6
(5)	24	0.9
(6)	30	1.2
(7)	30	1.2
(8)	28	1.1
(9)	12	0.5
(10)	60	2.4
(11)	2 x $\varnothing 5 \text{ E7} \downarrow 3$	2 x $\varnothing (0.1981/0.1976) \downarrow 0.1$
(12)	120	4.7
(13)	108	4.3
(14)	12	0.5
(15)	40	1.6
(16)	137.5	5.4
(17)	Bolting Surface / Measuring Platform	
(18)	Bolting Surface	

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