



MA

TENSION WEIGH MODULE

applications

- Tension/Compression Measurements
- Level and Inventory Monitoring
- Tank, Bin and Hopper Weighing
- Dynamometers
- Tensile Testing

features

- 100 to 20,000 lbs. Capacities
- Excellent Performance
- Load Introduction Hardware
- Steel or Stainless Steel
- 0.02% Accuracy Class-NTEP
- IP67 Environmental Sealing or
- IP66 Hermetic Sealing
- Output Matched For Single Or Multiple Load Cell Applications
- Two Year Warranty

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NIST H-44 NTEP CERTIFIED "LEGAL-FOR-TRADE"

- CLASS III: 5,000D/Single and CLASS IIIIL: 10,000D/Single
- 100 Through 20,000 lbs. ZB Series Load Cell in Steel or Stainless Steel

The MA Series is a high performance, tension weigh module constructed of mild steel (MA1), stainless steel (MA3) or hermetically sealed stainless steel (MA4). The MA Series is designed to accurately measure tension loads in capacities ranging from 100 lbs. to 20,000 lbs. The companion ZB Series load cell's integrated loading brackets reduce sensitivity to off-center and side loading effects, while making the load cell readily adaptable to in-line measurements. The load cell is environmentally sealed to a rating of IP67 (ZB1 & ZB3 are thoroughly sealed against airborne particles and the effects of water immersion up to 1 meter.) or IP66 (ZB4 tolerates strong jets of water also.) using proprietary, multi-redundant environmental barriers, including welded seals to protect the strain gage area. The MA Series output signal is calibrated to a close tolerance to facilitate use with summing/junction devices in multiple load cell applications. The cable is a durable PE/PVC DuoWrap®-jacketed cable with a tinned-copper braided shield for mechanical protection and to minimize the effects of RFI and EMI. The attributes of the MA Series make it an ideal choice for measurements in the laboratory, manufacturing and process applications, and for general force measurements and weighing situations where a dependable, versatile, high performance load cell solution is needed.



ZB1 Steel Load Cell



ZB3 Stainless Load Cell

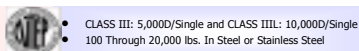


ZB4 Hermetic Load Cell

Innovative Measurement Solutions



performance



Rated capacities ⁽¹⁾ ⁽²⁾ (lbs.):	100, 150, 200, 250, 500, 750, 1K, 1.5K, 2K, 2.5K, 3K, 5K, 10K, 15K & 20K
Rated output (FSO)	3 mV/V ± 10 %
Combined error	≤ 0.03 % FSO
Non-linearity	≤ 0.02 % FSO
Hysteresis	≤ 0.02 % FSO
Non-repeatability	≤ 0.01 % FSO
Creep (20 minutes)	≤ 0.03 % of load
Zero balance	≤ 1 % FSO
Zero return (20 minutes)	Better than 0.01 % FSO

⁽¹⁾ "K" = thousand. ⁽²⁾ Stainless Steel MA Series Weigh Module capacities are 500 lbs. to 5K lbs. only. However, stainless steel load cells are available with steel module hardware.

mechanical

Material:	Alloy tool steel (MA1) 17-4ph Stainless steel (MA3/MA4)
Finish:	Electroless nickel (MA1) Electro-polished (MA3/MA4)
Safe overload	Compression: 150% FSO Tension: 150% FSO
Ultimate overload	Compression: 300% FSO Tension: 300% FSO
Weight	See Table Below

electrical

Input impedance	385 ± 5 ohms
Output impedance	350 ± 3 ohms
Insulation resistance	>5000 Megohms @ 50VDC
Excitation Voltage	10 V AC/DC (15 V maximum)
Cable Color code:	+ Excitation (red) - Excitation (black) + Output (green) - Output (white) Shield (bare)
Cable type	4-conductor, 22 AWG, tin-copper braided shield, polyurethane jacket
Cable termination	Finished conductors

environmental



Temperature, operating	4 to +140 °F (-20 to +60°C)
Temperature, compensated	14 to +104 °F (-10 to +40°C)
Temperature effects:	Zero < 0.0015% FSO/°F < 0.0026% FSO/°C Output < 0.0008% of Rdg./°F < 0.0014% Rdg./°C
Sealing	IP67 (MA1/MA3); IP66 (MA4)

options

Module hardware, Shunt calibration, Special cable lengths, MS connectors, control instrumentation and high temperature operation.

dimensions



DIMENSIONAL TAB BLOCK

CAPACITY (LB)	"A"	"B"	"C"	"D" (nom)	WEIGHT (LB)
100 - 250	2.00	1.81	3/8 - 16 NC 1/2 - 13 NC	7.00	2.5
500 - 2.5K	2.68	2.68	1/2 - 13 NC 5/8 - 11 NC 3/4 - 10 NC	9.50	4.0
3K - 10K	3.37	3.37	3/4 - 10 NC 1 - 8 NC	12.25	6.5
15K	4.00	4.12	1-1/4 - 7 NC	18.00	13.0
20K	5.00	4.12	1-1/2 - 6 NC	20.00	30.0

