

EL20-S458 Seat belt load cell



- Ranges from 5 to 25 kN
- Ultra rugged low-mass titanium design
- Seat belt restraint testing
- Tension only
- Replaceable cable

DESCRIPTION

Measurement Specialties has applied our decade of experience serving the automotive crash test industry to design the ultimate crash test seat belt restraint sensor.

The EL20-S458 provides a super low mass titanium structure to minimize $F=MA$ errors during the crash event. All exterior surfaces are smoothed to prevent snagging on dummy or air bag materials; smoothed exterior profiles protect your expensive crash test dummy from damage while eliminating drag and frictional error. The EL20-S458 is offered with optional ultra low mass slotted titanium axles and robust armoured cable exit from the device. The user-replaceable cable ensures that even if your cabling is damaged, replacement cables can be rapidly wired and your test facility remains in full operation at all times.

The low noise Wheatstone bridge consists of metal foil strain gages which provide full scale outputs of typically 2 mV/V of excitation. The EL20-S458 is also available with internal linearization (Option B) to provide +/- 0.5% FS maximum non-linearity. Option D provides linearization and high level output of 0.5 to 4.5 V. The EL20-S458 can be configured with a variety of options to fine tune the instrument to your application: select from several standard compensated temperature ranges, slotted or knurled axles, input voltages, lead lengths or specify unique combinations of these options.

The EL20-S458 belt tension load cell can be fine-tuned to meet your crash test or military test needs.

FEATURES

- Super low mass titanium design
- Ultra low mass slotted titanium axles available
- Low noise
- Optional linearized high level output

APPLICATIONS

- Automotive crash test
- Military payload delivery
- Sport and military parachute tether loads
- Automatic reserve chute deployment systems

STANDARD RANGES

Ranges in kN	5	16	25
Ranges in klf	1	3.2	5
Over range	2x	x1.5	X1.5

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PERFORMANCE SPECIFICATIONS

All values are typical at temperature 20±1° C

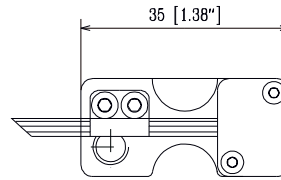
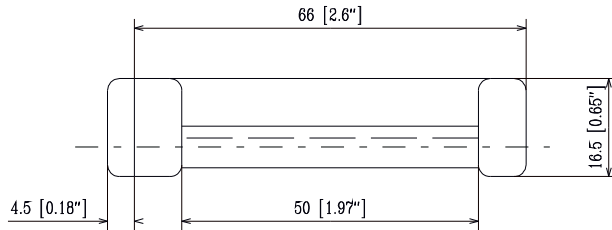
PARAMETERS	
Operating Temperature Range (OTR)	-40 to 120°C [-4 to 176°F]
Compensated Temperature Range (CTR)	0 to 60° C [32 to 140°F]
Zero Shift in CTR	<1% F.S. /50° C [100°F]
Sensitivity Shift in CTR	<1% of reading / 50° C [100°F]
Range (F.S.)	0-5 to 0-25 kN [0-1 to 0-5 kbf]
Weight	85 gr
Over-Range	
Without Damage	1.5 x F.S. (2x for the model 5 kN range)
Without Destruction	3 x F.S.
Accuracy	
Non-linearity without option	≤±3% F.S.
Non-linearity with option B or D	≤±0.5% F.S.

Electrical Characteristics

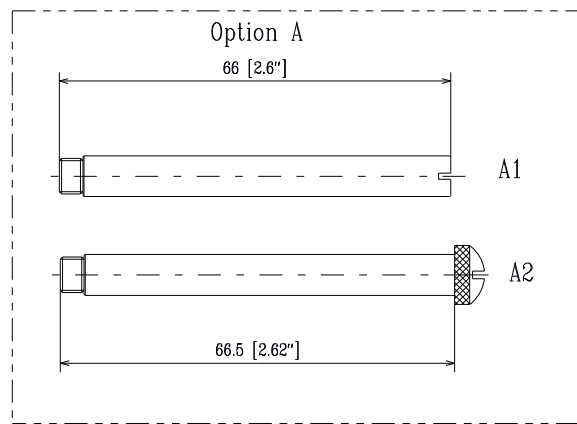
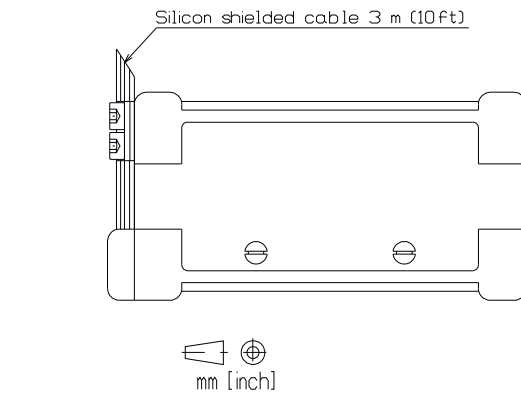
Model	EL20-S458	EL20-S458-x-/B	EL20-S458-x-/D
Supply Outage	10Vdc	10Vdc	10Vdc
F.S. Output (5kN model)	1.5mV/V	1.5mV/V	4.5V ±5%
F.S. Output (>5kN model)	2mV/V	2mV/V	4.5V ±5%
Zero Offset	±5% F.S.	±5% F.S.	0.5V ±5%
Input Impedance/Consumption	350 Ω	<30mA	<30mA
Output Impedance	350 Ω	350 Ω	<1KΩ
Insulation under 50Vdc	≥100MΩ	≥100MΩ	≥100MΩ

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DIMENSIONS



AXLES

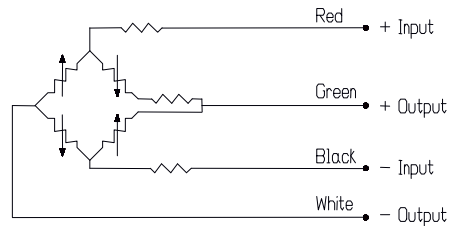


INSTALLATION

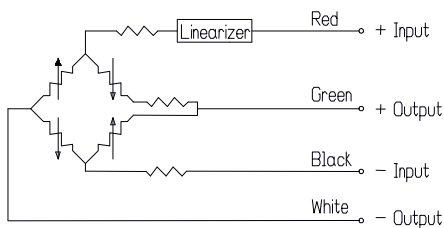
CONNECTIONS



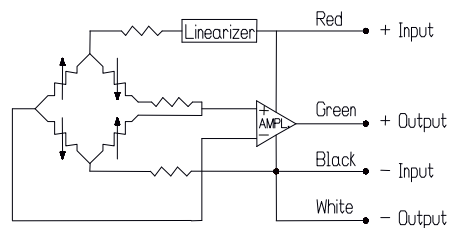
Standard
 FSO (5KN): 1.5mV/V Electrical in : 350 Ohms nom.
 FSO (16KN): 2mV/V Electrical out : 350 Ohms nom.
 NL : $\pm 3\%$FSO



OPTION B
 FSO (5KN): 1.5mV/V Electrical in : 30mA max.
 FSO (16KN): 2mV/V Electrical out : 350 Ohms nom.
 NL : $\pm 0.5\%$FSO



OPTION D
 FSO : 0.5 to 4.5V Electrical in : 30 mA max.
 NL : $\pm 0.5\%$FSO Electrical out : short circuit protected



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OPTIONS AND ACCESSORIES

Z0: Compensated temperature range -40 to 20°C
Z1: Compensated temperature range -20 to 40°C
L00F: Special Cable Length, replace "00" with total length in feet (Specified only on units with lbf range.)
L00M: Special Cable Length, replace "00" with total length in meter (Specified only on units with N range.)
B: Linearized (unamplified) output (NL : ±0.5% FS).
D: Linearized (NL: ±0.5% FS) high level output 0.5 to 4.5 V ±5% span trim.
A1: Flush, low mass titanium axle
A2: Hand grip, knurled titanium axle (standard).
SL1: Sleeve adapter for 38/42 mm (1.5 /1.65) strap width.
SL2: Sleeve adapter for 28/32 mm (1.1 /1.26) strap width.
SL3: Sleeve adapter for 24/28 mm (0.95 /1.1) strap width.
CL7x: Wiring of Lemo FGG-1B-307 at cable end
CT7x: Wiring of Lemo FDG-1B-307 and Dallas DS2401 at cable end
CC: Wiring of connector to be supplied by customer according to wiring diagram

ORDERING INFORMATION

Model	-	Body	-	Range & Unit		-	/Options
EL20	-	S458	-	5 KN	1 KL	-	/A1 or A2
				16 KN	3.2 KL		/B or D
				25 KN	5 KL		/Z0, Z1 or Z*
							/L00F or L00M
							/SL1, SL2 or SL3
							/AL
							/CL7x or CT7x or CC

Example of model construction: EL20-S458-16KN-/A1/B/L9M

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