

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 klbf	1	3.2	5
Over range	2x	x1.5	X1.5

EL20-S458 Seat belt load cell

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 klb]
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

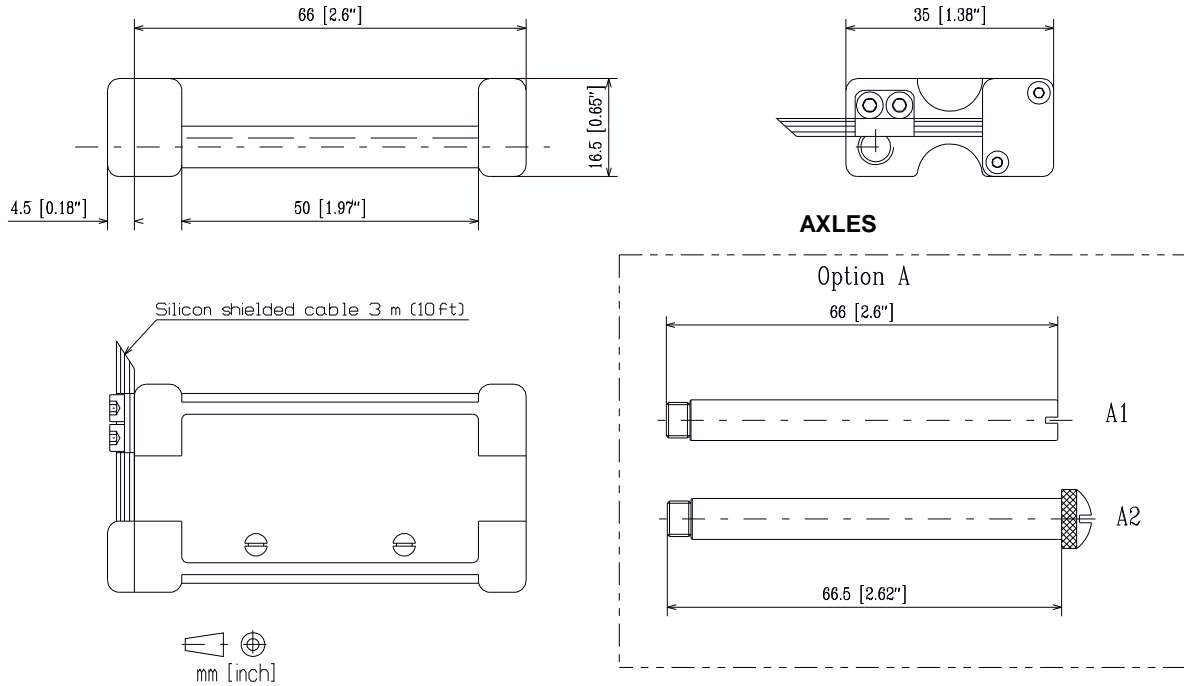
Model	EL20-S458	EL20-S458-x-/B	EL20-S458-x-/D
Supply Voltage	10Vdc	10Vdc	10Vdc
F.S. Output (5kN model)	1.5mV/V	1.5mV/V	4V ±5% F.S.
F.S. Output (>5kN model)	2mV/V	2mV/V	4V ±5% F.S.
Zero Offset	±2% F.S.	±2% F.S.	0.5V ±5% F.S.
Input Impedance/Consumption	350 Ω	<30mA	<30mA
Output Impedance	350 Ω	350 Ω	<1KΩ
Insulation under 50Vdc	≥100MΩ	≥100MΩ	≥100MΩ

Notes

1. Electrical Termination: 3m shielded cable length
2. Material: titanium.
3. Protection Index: IP50
4. CE conformance according to EN 61010-1, EN 50081-1, EN 50082-1

EL20-S458 Seat belt load cell

DIMENSIONS



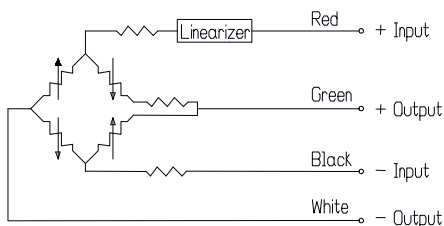
INSTALLATION

CONNECTIONS



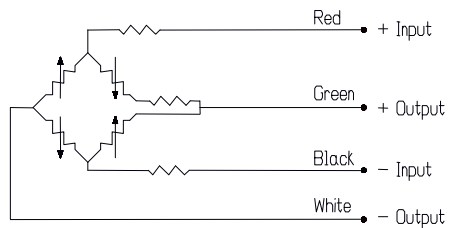
OPTION B

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



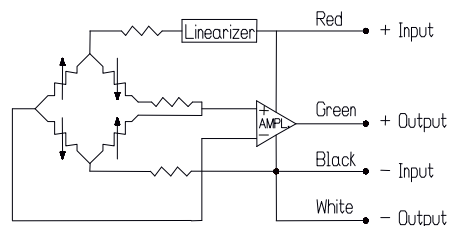
Standard

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



OPTION D

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

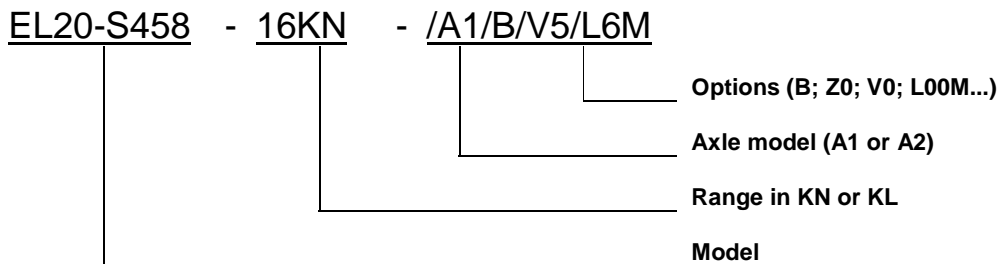


EL20-S458 Seat belt load cell

OPTIONS AND ACCESSORIES

A1: Flush, low mass titanium axle
A2: Hand grip, knurled titanium axle (standard).
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.
Z0: Compensated temperature range -40 to 20°C
Z1: Compensated temperature range -20 to 40°C
V0: Replace "0" with excitation between 2 to 9Vdc; Excitation 5Vdc minimum for option /B or /D
L00M: Special Cable Length, replace "00" with total length in meter
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
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.

ORDERING INFORMATION



NORTH AMERICA

Measurement Specialties, Inc.
Vibration Design Center
32 Journey - Suite 150
Aliso Viejo, CA 92656
United States USA
Tel: 1-949-716-0877
Fax: 1-949-916-5677
t&m@meas-spec.com

EUROPE

Measurement Specialties
(Europe), Ltd.
26 Rue des Dames
78340 Les Clayes-Sous-Bois,
France
Tel: +33 (0) 130 79 33 00
Fax: +33 (0) 134 81 03 59
cs.lcsb@meas-spec.com

ASIA

Measurement Specialties
(China), Ltd.
No. 26 Langshan Road
Shenzhen High-Tech Park (North)
Nanshan District, Shenzhen
518057
China
Tel: +86 755 3330 5088
Fax: +86 755 3330 5099
pfg.cs.asia@meas-spec.com

The information in this sheet has been carefully reviewed and is believed to be accurate; however, no responsibility is assumed for inaccuracies. Furthermore, this information does not convey to the purchaser of such devices any license under the patent rights to the manufacturer. Measurement Specialties, Inc. reserves the right to make changes without further notice to any product herein. Measurement Specialties, Inc. makes no warranty, representation or guarantee regarding the suitability of its product for any particular purpose, nor does Measurement Specialties, Inc. assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability, including without limitation consequential or incidental damages. Typical parameters can and do vary in different applications. All operating parameters must be validated for each customer application by customer's technical experts. Measurement Specialties, Inc. does not convey any license under its patent rights nor the rights of others.