ABB MEASUREMENT & ANALYTICS | DATA SHEET

9QGPS5100L

Tension load cell



Measurement made easy

Tension load cells combining sturdiness and easiness to install

Wide range of capacities: 2 t up to 100 t

Easy to install, compact design

IP rating IP 66

Material

- Stainless steel (5100L)
- Nickel plated steel (5105L)

Available options (non exhaustive list)

- ATEX intrinsic safety
- High service temperature (up to 180 °C [356 °F])
- IP rating IP 68 or special for marine environment
- Amplified output (V or mA) and digital output signal (RS-232C, RS-485, USB)

Applications

The load cells 5100L-5105L are perfectly designed to the following applications:

- Towing force measurement (marine)
- Force measuring on rigging
- Weighing of hanging load
- Tensile test benches

Capacities

1 - 2 - 3 - 5 - 7.5 - 10 - 15 - 20 - 30 - 50 - 75 - 100 t

Explosion protection (Option)

ATEX intrinsic safety:

- Ex II 1GD Ex ia IIC T6 or T4 Ga Ex ia IIIC T80°C Da

Materials

Model 5100L	Model 5105L
Stainless steel	Nickel plated alloy steel

Specification

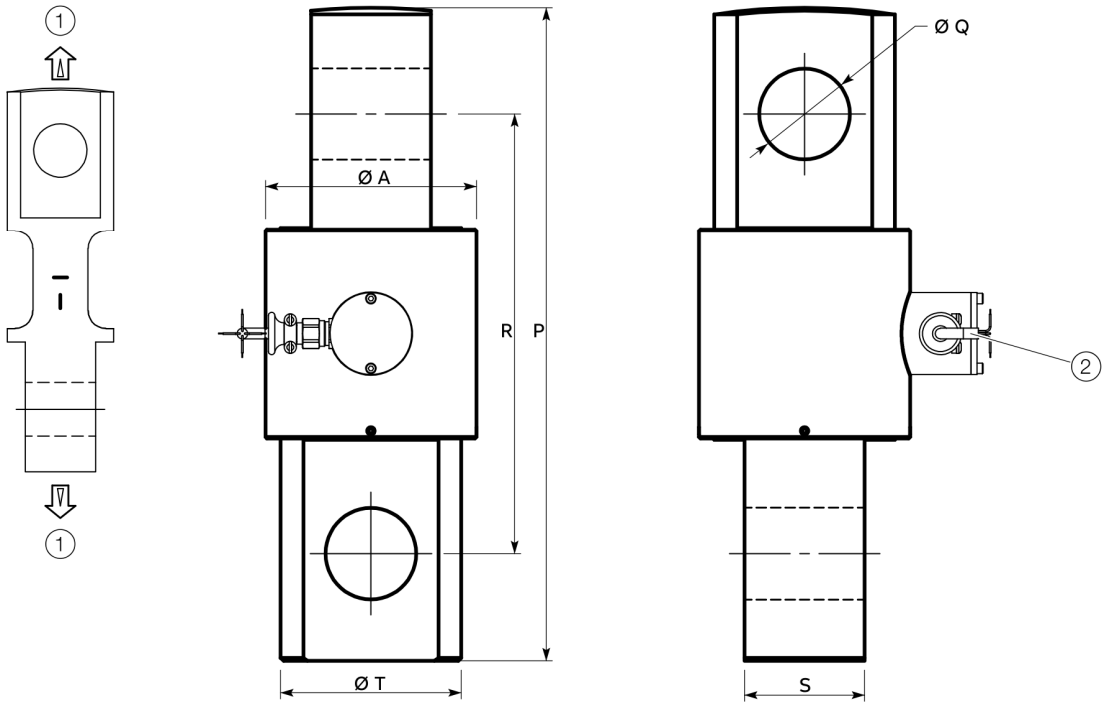
	SL - HOIST	0.25
Measuring accuracy		
Combined error (non-linearity + hysteresis)	< ±0.5 % F.S.	< ±0.25 % F.S.
Repeatability error	< ±0.25 % F.S.	< ±0.1 % F.S.
Creep error over 30 min.	< ±0.3 % F.S.	< ±0.1 % F.S.
Zero shift after loading	< ±0.05 % F.S.	< ±0.025 % F.S.
Sensitivity tolerance	< ±0.5 %	< ±0.3 %
Temperature coefficient of the sensitivity	< ±0.2 % F.S./10 °C	< ±0.05 % F.S./10 °C
Temperature coefficient of zero signal	< ±0.2 % F.S./10 °C	< ±0.035 % F.S./10 °C
Reference temperature		23 °C (73.4 °F)
Temperature data		
Nominal temperature range		−10 to 45 °C (14 to 113 °F)
Service temperature range		−25 to 70 °C (−13 to 158 °F)
Storage temperature range		−50 to 85 °C (−58 to 185 °F)
Electrical Data		
Input resistance		350 Ω ±2 Ω
Output resistance		350 Ω ±2 Ω
Insulation resistance (50 V)		> 5000 MΩ
Reference excitation voltage		10 V DC
Nominal range of excitation voltage		3 to 12 V DC
Zero balance		±0.02 mV/V
Nominal sensitivity	1 mV/V	1.5 mV/V
Load limits		
Safe load limit	200 % F.S.	150 % F.S.
Breaking load	> 500 % F.S.	> 300 % F.S.
Static lateral force limit	10 % F.S.	10 % F.S.
Permissible dynamic loading	75 % F.S.	40 % F.S.

F.S.: Full scale

Dimensions

Load cells model 9QGPS5100L (stainless steel), 9QGPS5105L (alloy steel)

Range 2 to 100 t
All dimensions in mm (in)



(1) Force Direction

(2) Cable length (CL): see table below

Figure 1: Standard dimensions

Capacities t		Ø A	P	Ø Q	R	S	Ø T	CL	Weight
Hoist	Force							m (ft)	kg (lb)
> 500 % *	> 300 % *								
1 to 2	2 to 3	50 (1.97)	144 (5.67)	18 (0.71)	108 (4.25)	20 (0.79)	35 (1.38)	3 (9.84)	±1.5 (3.31)
3	5	60 (2.36)	160 (6.30)	24 (0.94)	112 (4.41)	30 (1.18)	45 (1.77)		±2 (4.41)
4 to 7.5	7.5 to 10	80 (3.15)	240 (9.45)	35 (1.38)	170 (6.69)	44 (1.73)	64 (2.52)		±5.5 (12.13)
10 to 15	15 to 20	100 (3.94)	310 (12.20)	42 (1.65)	226 (8.90)	52 (2.05)	86 (3.39)	6 (19.68)	±12.8 (28.22)
20 to 30	30 to 50	139 (5.47)	430 (16.93)	58 (2.28)	290 (11.42)	78 (3.07)	109 (4.29)		±25 (55.12)
40 to 75	75 to 100	180 (7.09)	520 (20.47)	80 (3.15)	348 (13.70)	100 (3.94)	149 (5.87)	12 (39.37)	±65 (143.30)

* Breaking load (% full scale)

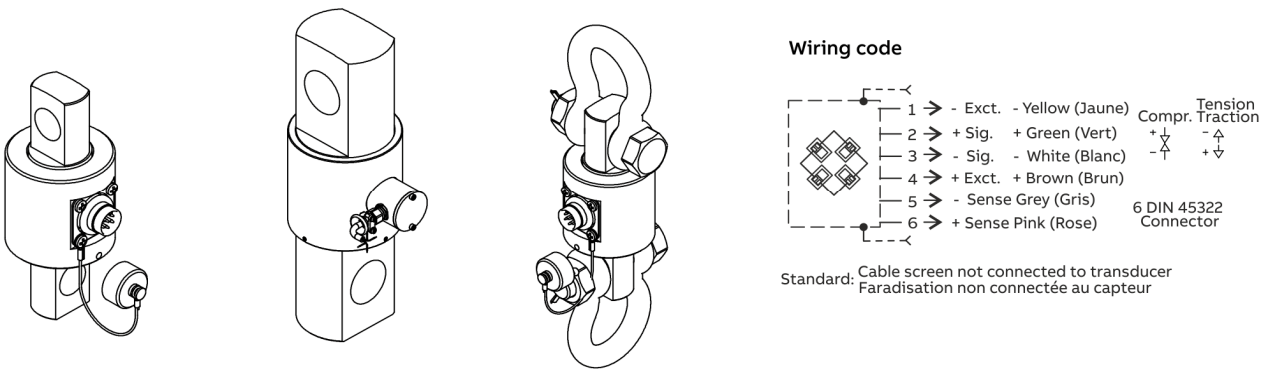


Figure 2: Cable connection options

Notes

Notes

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