

SENSiQ® PWS

Platform load cell 10...700 kg

- Very low corner load error
- Good cost-benefit ratio
- Available in accuracy 0.05 % and in able for legal-for-trade design
- Option PWS Plus – Improved protection against increased humidity
- ATEX and IECEx certification
- Optimized by exact calibration for parallel circuits
- Six-wire circuitry
- 100 % stainless steel



Application

SENSiQ PWS load cells convert proportionally the mechanical input variable force into the electrical variable voltage. They are ideal for use in platform scales, weighfeeders and bin weighers. The compact design facilitates planning into any given construction.

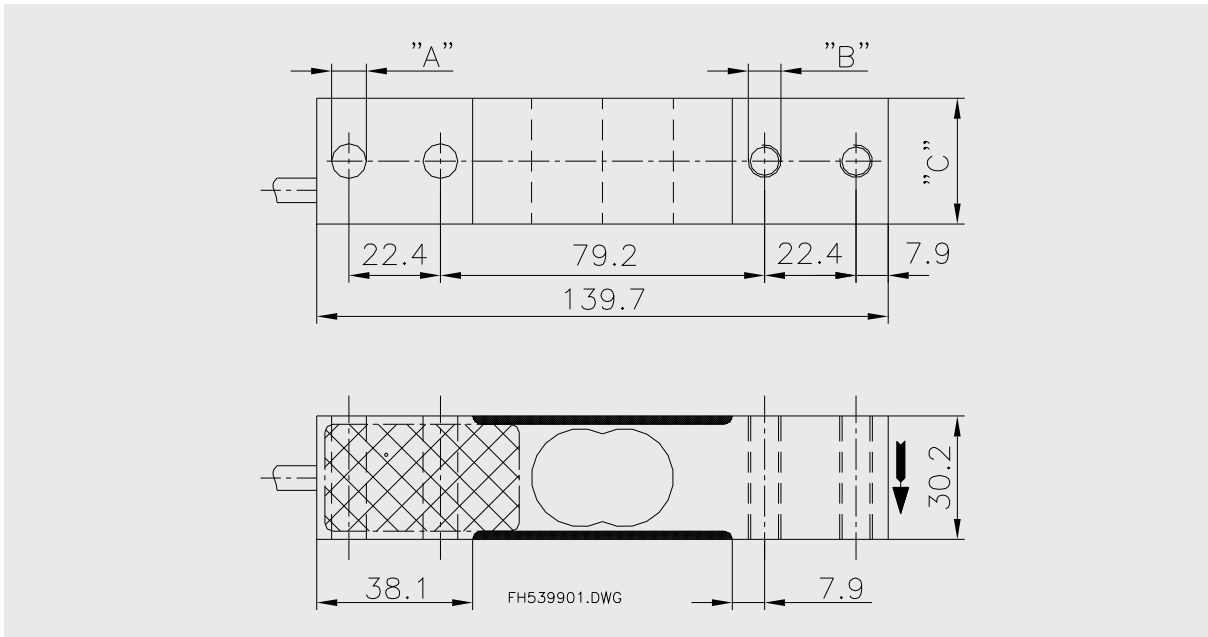
Construction

The PWS load cells are produced entirely from stainless steel. They are connected electrically by a high-quality, 6-wire screened PVC cable. The six-wire circuitry makes the measuring signal insensitive to differences in lengths of the connection cables.

Function

- High calibration accuracy which provides ideal conditions for the parallel arrangement of load cells
- High reproducibility of the measuring signals
- Extremely low interference by transverse loads of the measured values

Dimensions [mm]



Arrow on front board = Gauging force direction

Variants

| | E_{max} = Nominal load | Accuracy class | Material No. | "A" | "B" | "C" | Tightening torque | Nominal measured displacement | Design | ATEX category |
|----------|--------------------------------|----------------|--------------|------|------|--------|----------------------|-------------------------------------|--|-----------------------|
| PWS Plus | 10 kg | D1 | V058895.B01 | 8.5 | M8 | 23.8 | 32 N m | 0.30 mm | Normal | |
| | 30 kg | D1 | V058895.B02 | 8.5 | M8 | 30.7 | 32 N m | 0.35 mm | | |
| | 60 kg | D1 | V058895.B03 | 8.5 | M8 | 30.7 | 32 N m | 0.35 mm | | |
| | 100 kg | D1 | V058895.B04 | 8.5 | M8 | 30.7 | 32 N m | 0.45 mm | | |
| | 150 kg | D1 | V058895.B05 | 8.5 | M8 | 30.7 | 39 N m | 0.45 mm | | |
| | 300 kg | D1 | V058895.B06 | 8.5 | M8 | 30.7 | 39 N m | 0.50 mm | | |
| | 500 kg | D1 | V058895.B07 | 10.4 | M10 | 36.5 | 79 N m | 0.50 mm | | |
| | 700 kg | D1 | V058895.B08 | 10.4 | M10 | 36.5 | 79 N m | 0.50 mm | | |
| | 30 kg | D1 | V741556.B02 | 8.5 | M8 | 23.8 | 32 N m | 0.30 mm | Protection against increased humidity | |
| | 60 kg | D1 | V741556.B03 | 8.5 | M8 | 23.8 | 32 N m | 0.30 mm | | |
| | 100 kg | D1 | V741556.B04 | 8.5 | M8 | 23.8 | 32 N m | 0.30 mm | | |
| | 150 kg | D1 | V741556.B05 | 8.5 | M8 | 23.8 | 32 N m | 0.30 mm | | |
| | 300 kg | D1 | V741556.B06 | 8.5 | M8 | 23.8 | 32 N m | 0.30 mm | | |
| | 500 kg | D1 | V741556.B07 | 10.4 | M10 | 36.5 | 79 N m | 0.50 mm | | |
| | 700 kg | D1 | V741556.B08 | 10.4 | M10 | 36.5 | 79 N m | 0.50 mm | | |
| | 10 kg | C3 | V058896.B01 | 8.5 | M8 | 23.8 | 32 N m | 0.30 mm | | Increased accuracy |
| | 30 kg | C3 | V058896.B02 | 8.5 | M8 | 30.7 | 32 N m | 0.35 mm | | |
| | 60 kg | C3 | V058896.B03 | 8.5 | M8 | 30.7 | 32 N m | 0.35 mm | | |
| | 100 kg | C3 | V058896.B04 | 8.5 | M8 | 30.7 | 32 N m | 0.45 mm | | |
| | 150 kg | C3 | V058896.B05 | 8.5 | M8 | 30.7 | 39 N m | 0.45 mm | | |
| | 300 kg | C3 | V058896.B06 | 8.5 | M8 | 30.7 | 39 N m | 0.50 mm | | |
| | 10 kg | D1 | V058895.B31 | 8.5 | M8 | 23.8 | 32 N m | 0.30 mm | ATEX / IECEx | 1D/2G |
| | 30 kg | D1 | V058895.B32 | 8.5 | M8 | 30.7 | 32 N m | 0.35 mm | | 1D/2G |
| | 60 kg | D1 | V058895.B33 | 8.5 | M8 | 30.7 | 32 N m | 0.35 mm | | 1D/2G |
| | 100 kg | D1 | V058895.B34 | 8.5 | M8 | 30.7 | 32 N m | 0.45 mm | | 1D/2G |
| | 150 kg | D1 | V058895.B35 | 8.5 | M8 | 30.7 | 39 N m | 0.45 mm | | 1D/2G |
| | 300 kg | D1 | V058895.B36 | 8.5 | M8 | 30.7 | 39 N m | 0.50 mm | | 1D/2G |
| | 500 kg | D1 | V058895.B37 | 10.4 | M10 | 36.5 | 79 N m | 0.50 mm | | 1D/2G |
| 700 kg | D1 | V058895.B38 | 10.4 | M10 | 36.5 | 79 N m | 0.50 mm | 1D/2G | | |
| 10 kg | D1 | V058895.B41 | 8.5 | M8 | 23.8 | 32 N m | 0.30 mm | ATEX / IECEx | 3GD | |
| 30 kg | D1 | V058895.B42 | 8.5 | M8 | 30.7 | 32 N m | 0.35 mm | | 3GD | |
| 60 kg | D1 | V058895.B43 | 8.5 | M8 | 30.7 | 32 N m | 0.35 mm | | 3GD | |
| 100 kg | D1 | V058895.B44 | 8.5 | M8 | 30.7 | 32 N m | 0.45 mm | | 3GD | |
| 150 kg | D1 | V058895.B45 | 8.5 | M8 | 30.7 | 39 N m | 0.45 mm | | 3GD | |
| 300 kg | D1 | V058895.B46 | 8.5 | M8 | 30.7 | 39 N m | 0.50 mm | | 3GD | |
| 500 kg | D1 | V058895.B47 | 10.4 | M10 | 36.5 | 79 N m | 0.50 mm | | 3GD | |
| 700 kg | D1 | V058895.B48 | 10.4 | M10 | 36.5 | 79 N m | 0.50 mm | | 3GD | |

Technical Data

| | D1 | C3 |
|--|-------------------|--|
| Nominal characteristic value | 2 ±0.002 mV/V | |
| Compound error | 0.05 % *) | 0.02 % *) |
| Temperature coefficient of the characteristic value, TK _c | 0.045 % / 10 K *) | 0.018 % / 10 K *) |
| Temperature coefficient of the zero point, TK _o | 0.045 % / 10 K *) | 0.014 % / 10 K *) |
| Zero signal tolerance | ≤ 2.0 % *) | |
| max. number of digits | - | n = 3000 |
| min. load | - | B _{a.min.} = 42 % (at 3000 d) |
| min. increment value ***) | - | $V_{min\ Ic} = \frac{\text{Nominal load}}{7143}$ |
| Operating temperature, complete | -10 °C ... +40 °C | |
| operating temperature | -40 °C ... +70 °C | |
| Explosion-proof design | -30 °C ... +70 °C | |
| Storage temperature | -50 °C ... +85 °C | |
| Supply voltage max. | 15 V | |
| Input resistance | 390 ±10 Ω | |
| Output resistance | 350 ±2 Ω | |
| Insulation resistance | > 5000 MΩ | |
| Maximum capacity, based on nominal load | 150 % | |
| Breaking load, based on nominal load | 300 % | |
| Corner deviation at 50 % nominal load | 0.05 % / 100 mm | |
| Corner deviation at 50 % nominal load **) | 0.5 % / 100 mm | |
| Material | Stainless steel | |
| Type of protection | IP65 | |
| Explosion-proof design | IP67 | |

*) Error based on nominal characteristic value

**) for nominal load 500 kg and 700 kg

***) **Example: PWS 100 kg**

min. load B_{amin} = 42 kg

min. increment value:
$$V_{min\ Ic} = \frac{\text{Nominal load}}{7143} = 14\text{ g (theoretical sizes)}$$

I.e. increment value of the control electronics is the next possible increment value 20 g

Connecting cable: PVC, 6 wires + screen, 5 m long

| Conductor color: | |
|--------------------|---|
| Input voltage + | green |
| Input voltage – | Black |
| Measuring signal + | white |
| Measuring signal – | red |
| Sensor line + | orange |
| Sensor line – | blue |
| Shielding | yellow, connection wire insulated along the entire length |

The screen on the connecting cable **does not** have a connection to the measuring element. Earthing of the load cell, therefore, has to be via the connecting structure, for example.

Option — ATEX/IECEX approval

Intrinsically safe explosion-proof design according to ATEX category 1D/2G and IECEx EPL Da, Gb

Gas Ex II 2G Ex ia IIC T4 Gb (Zone 1)
 Dust Ex II 1D Ex ia IIIC T125 °C Da, IP67 (Zone 20)

Attention: The verification of intrinsically safe circuit must be verified. New barriers are provided in particular for new systems. Verifications of intrinsically safe circuit are available for all load cells and barriers. Load cells marked as intrinsically safe - Ex "i" - are also operated intrinsically safely irrespective of the zone.

Not intrinsically safe explosion-proof design according to ATEX category 3GD and IECEx EPL Dc, Gc

Gas Ex II 3G Ex nA IIC T4 Gc (Zone 2)
 Dust Ex II 3D Ex tc IIIC T125 °C Dc, IP67 (Zone 22)

Option PWS Plus – Improved protection against increased humidity

A PWS version is available as an option, in which the strain gauge is protected against high humidity with an additional aluminum layer. This version should be used wherever high humidity can occur. This option is available **only in accuracy D1** and **not** as ATEX/IECEX version.

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