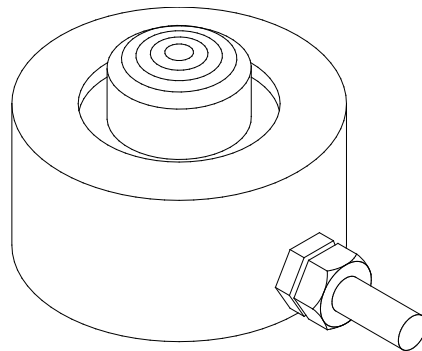


LOAD CELL 5910

INSTALLATION MANUAL



1. GENERAL INFORMATION	2
1.1. Leveling	2
1.2. Shocks	2
1.3. Electrical soldering	2
1.4. Lightning	3
1.5. Outer mechanical influences	3
1.6. Setting of the counter force	3
2. CABLING	4
2.1. Cable	4
2.2. Wiring	4
2.3. Parallel connection	5
2.4. Calibration	5
2.5. Measurement errors	5
2.6. Insulation test	6
2.7. Output impedance :	6
2.8. Input impedance	7
3. MOUNTING	7
3.1. Mounting with 3 load cells	8
3.2. Mounting with more than 3 load cells	8
4. EU DECLARATION OF CONFORMITY	9

Rev.	Date	Reason
1	26/04/2021	Insertion of an EU Declaration Of Conformity

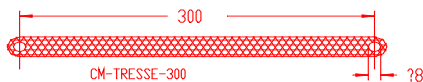
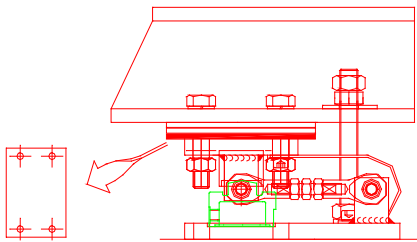
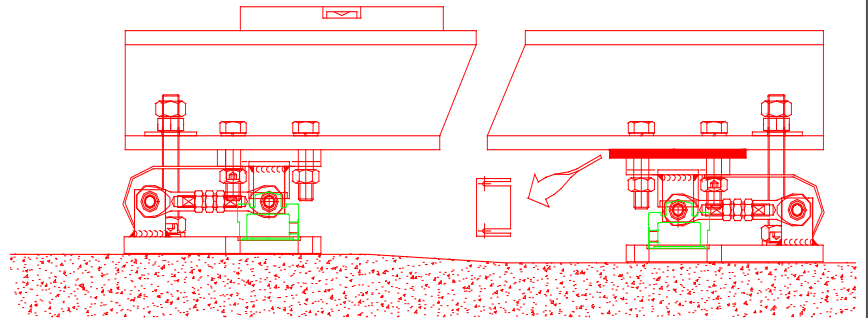
1. GENERAL INFORMATION

1.1. Leveling

This operation guarantees a good distribution of the loads, as well as the verticality of the effort.

It is advised to ensure that a good leveling of the cells and the support elements is carried out.

Use thickness chocks if necessary.



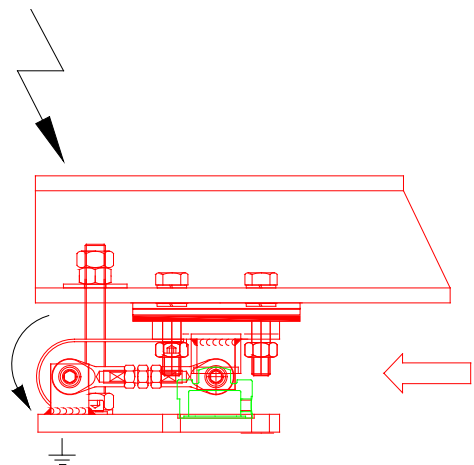
1.2. Shocks

An important shock may damage the cell when this shock corresponds to 1,5 to 3 times to the nominal load; it is in this case preferable to install a shock absorber between the load and the cell. (Ex: piling of rubber and metal plates)

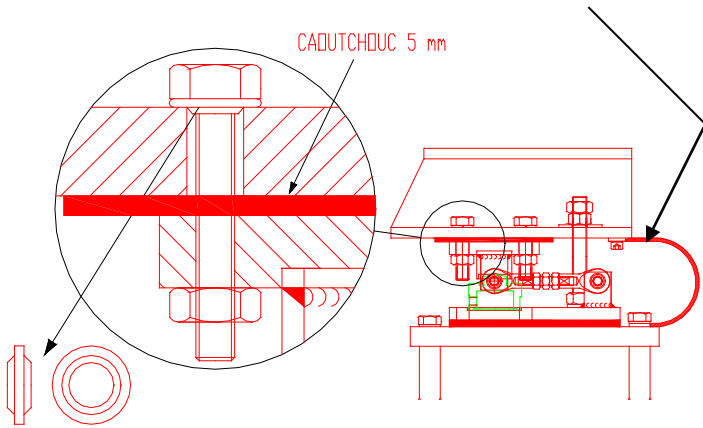
1.3. Electrical soldering

When arc welding must be done on the structure, we advise to install stranded ground wire, in order that the derived current does not pass through the cell, damaging it.

It is also advised to disconnect the cells from the measurement instrument.



Direct earthing of the structure through the electrical ground strap



1.4. Lightning

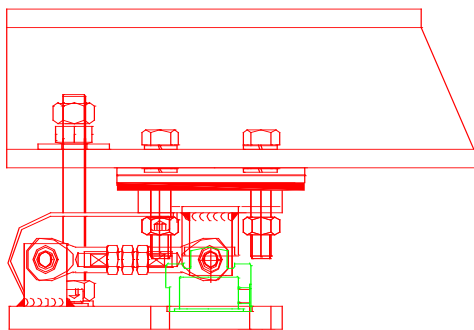
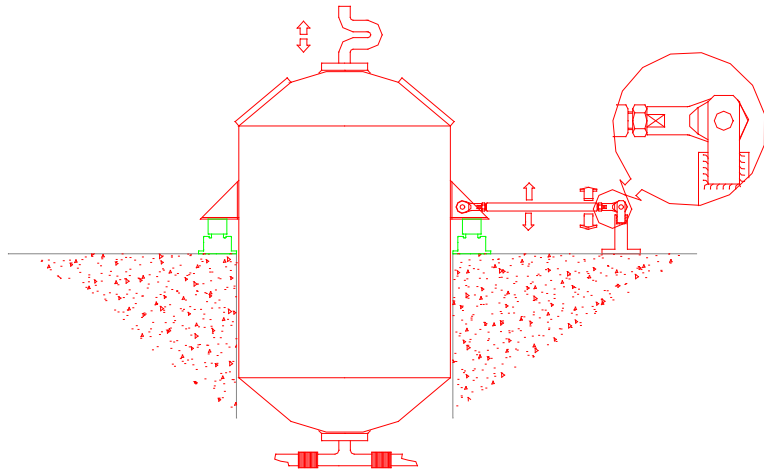
If there is a risk of lightning, it is advised to isolate the cell the best possible, and to derive the former by stranded wire.

To do that, place a rubber sheet under the sole and polyamide waterproof washers under the fixing screws.

1.5. Outer mechanical influences

In order to avoid measurement errors, the load to be weighed should not be subject to parasitic contributions: connecting pipes, cables and stops or draw-bolts. If there are any, they must be installed with the greatest flexibility.

Also ladders, bridges for access should be suitably articulated, etc. (Clamping).



1.6. Setting of the counter force

This setting must be done when the cell is UNLOADED.

With the hand, bring nut A at 1mm of the structure, then screw B against A.

Finally, using a wrench, block nut A upon nut B, so that no effort is exerted on the load cell.

2. CABLING

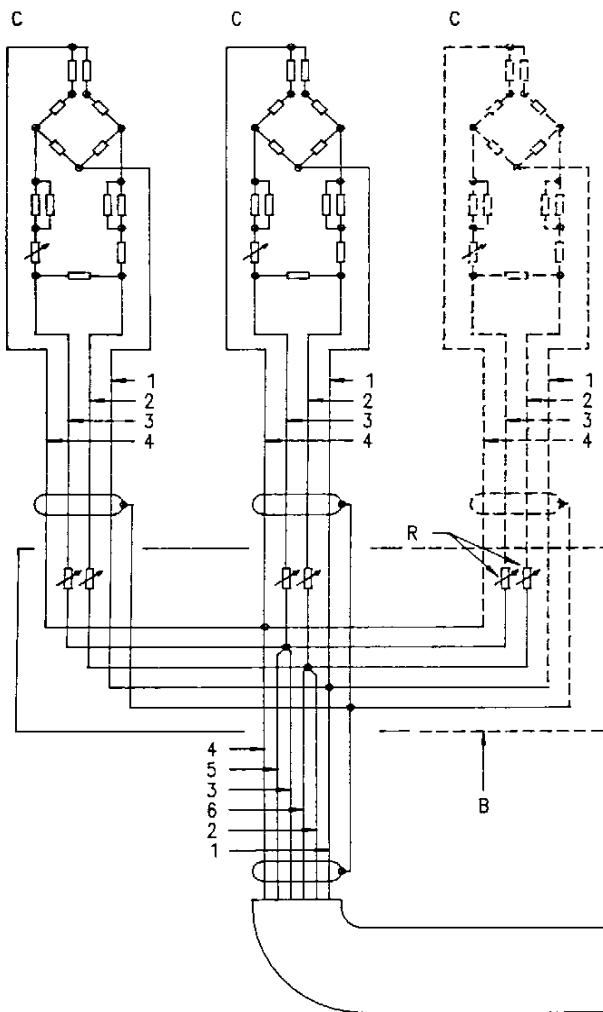
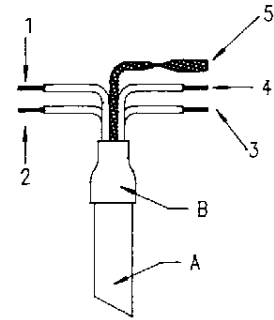
2.1. Cable

The cells are delivered with a 4-wire screened cable. The screen (shielded wire) cannot in any case be in contact with the ground, e.g; in metallic junction boxes, it is necessary to isolate the screen with a sheath (thermal).

The screen can only be connected to standardized earth.

It is advised to install a thermo-retractable sheath (retracted 4x) at the end of the cable (retracted 4x) with inside, a waterproof paste, to avoid any leak.

If there is any possible danger of damage along its wiring, it is necessary to use an additional cable protection, passing the cable through a pipe (steel, preferably).



2.2. Wiring

The cell wiring should be far away from power lines (motors, transformers), and placed in separate pipes. Soldered connections must be applied in the junction box, (preferably screwed connections).

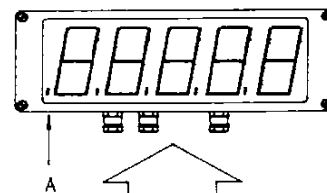
It is advised to place a bag of SILICA-GEL to keep dry inside the junction box.

SENSY can provide, upon request, a PVC junction box with a PG9 packing-gland – which could receive 4 or 6 parallel cells.

REF.: Junction Box

JBOX-4R (4 inputs - 1 output)

JBOX-6R (6 inputs - 1 output)



- A) Display (ex. dv680)
- B) Junction box
- C) Cell
- R) Adjustment resistance
- 1) Signal (out) - (white)
- 2) Excitation - (yellow)
- 3) Excitation + (brown)
- 4) Signal (out) + (green)
- 5) Ref. (sense) + (pink)
- 6) Ref. (sense) + (grey)

2.3. Parallel connection

The cells must be installed in parallel, with the stranded mass wire joined to itself. The sense must be joined to the cell supply before the points of parallel wiring and the stabilizing resistances.

2.4. Calibration

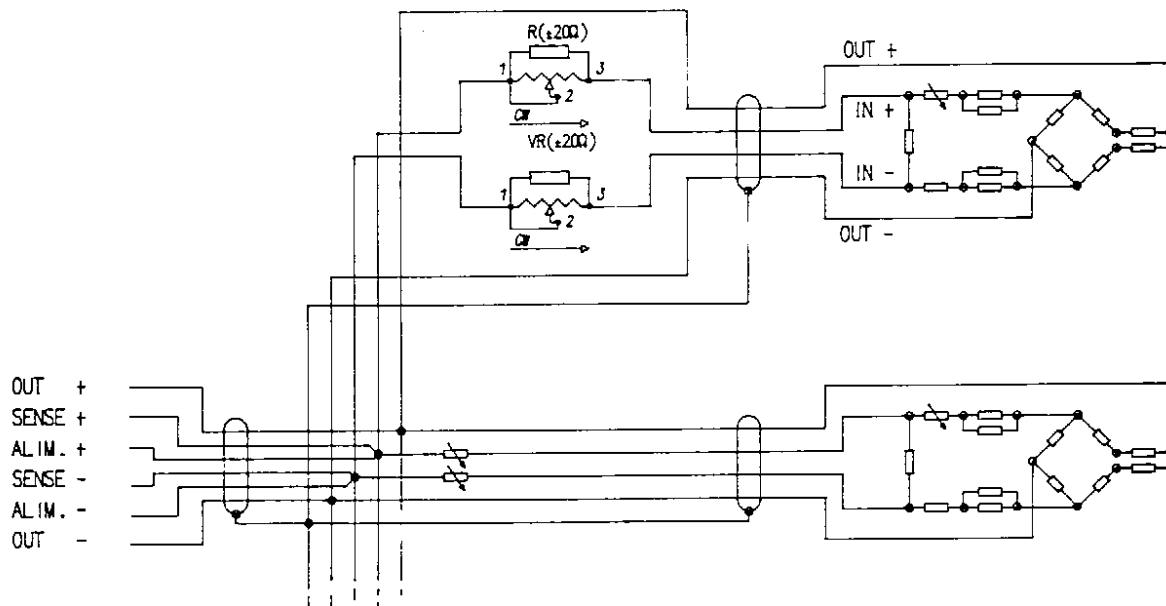
It must be done after the sensor has been turned on for a while (10-15 minutes) to obtain a uniform temperature of the installation.

The cells do not usually need to be adjusted with each other.

However, when greater precision is needed, it is sometimes necessary to stabilise the cells individually with the resistances in the junction box. Those resistances are of several ohms (± 10) and are installed in the supply circuit. A parallel adjustable resistance is mounted with a fixed resistance.

The most sensitive cell will have its input resistance increased and the least sensitive will have its lowest input resistance. You will see that it is preferable to work on both supply cables: schematic mounting is given for your information and allows a variation of 0 to 20 ohms in series on the input impedance (2×10 ohms).

Note: A well known weight of more than 20% of the nominal load of the system can be expected. The calibration error is always much higher than the error made on the evaluation of the load.



2.5. Measurement errors

When the calibration is difficult and measurement errors are observed, it is necessary to check the installation. Mechanically, the cells must be free in the direction of the load and well positioned. Electrically, the connections must be secure, the junction boxes exempt from humidity and the cables intact. If there is no fault to be seen, it is necessary to verify the internal circuit.

SENSY can help to diagnose based on the associated diagnosis sheet provided in the appendix and filled in beforehand.

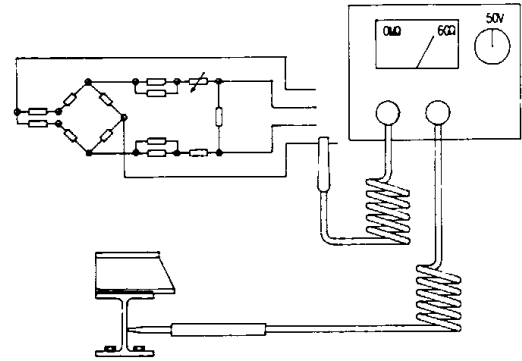
2.6. Insulation test

The measuring of the insulating resistance is done with a multimeter. The standardized testing voltage is 10 V. It is applied to a conductor.

It can be determined by disconnecting the measuring instrument and applying voltage between one of the conductors and the metallic mounting structure - or individually, cell by cell, to locate the leakage with precision.

The insulation must not, in any case, be lower than 2 GΩ for a 10 V voltage. This insulation default will generate measurement errors if the insulation resistance is lower than several hundred MΩ.

Insulation default can also be generated by environmental conditions (temperature, humidity).

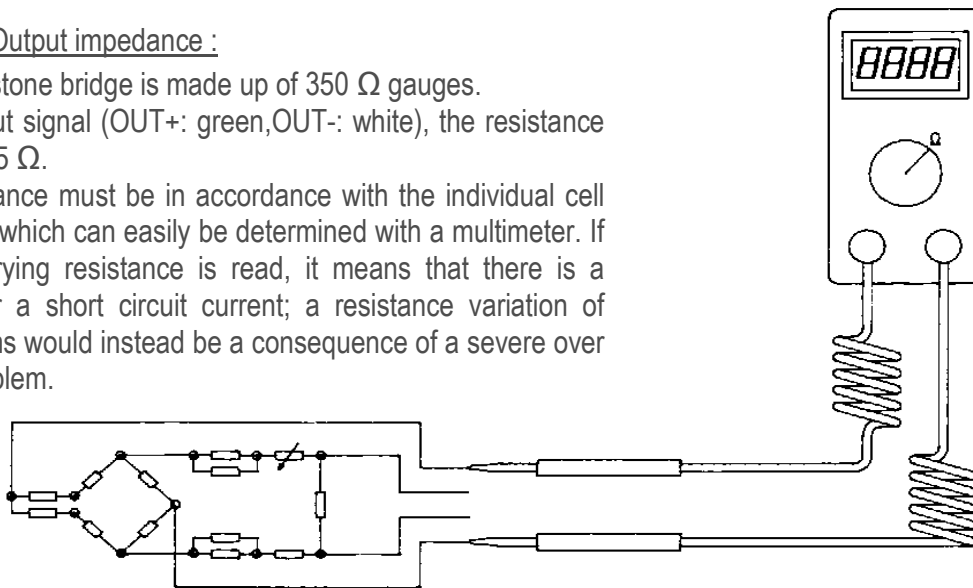


2.7. Output impedance :

The Wheatstone bridge is made up of 350 Ω gauges.

At the output signal (OUT+: green,OUT-: white), the resistance is 700 Ω ± 5 Ω.

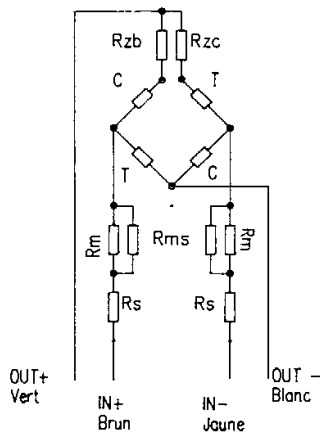
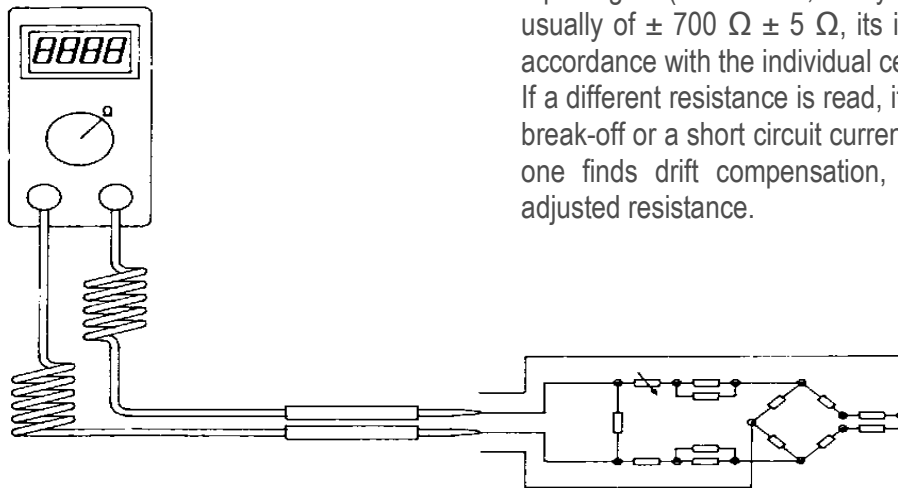
This impedance must be in accordance with the individual cell data sheet, which can easily be determined with a multimeter. If a wider varying resistance is read, it means that there is a break-off or a short circuit current; a resistance variation of several ohms would instead be a consequence of a severe over voltage problem.



2.8. Input impedance

Input signal (IN+: brown, IN-: yellow): its resistance is usually of $\pm 700 \Omega \pm 5 \Omega$, its impedance must be in accordance with the individual cell data sheet.

If a different resistance is read, it means that there is a break-off or a short circuit current. It is at the input that one finds drift compensation, slope and sensitivity adjusted resistance.



Rm	Sensitivity drift compensation (compensation de dérive de sensibilité)
Rms	Sensitivity drift ajustement (ajustement de dérive de sensibilité)
Rs	Sensitivity calibration (réglage de sensibilité)
Rzb	Zéro calibration (réglage de zéro)
Rzc	Zéro drift compensation (compensation de dérive du zéro)

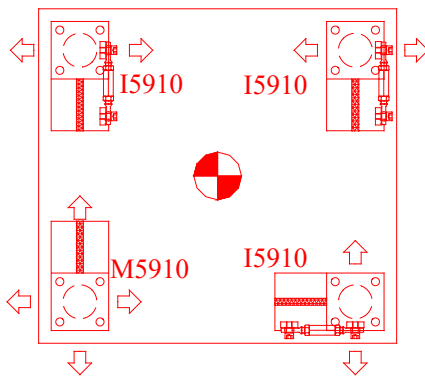
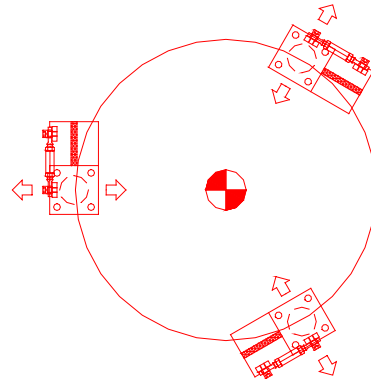
3. MOUNTING

The EASY MOUNT integrates the fixing plates, the support elements, as well as the anti-reversing and the anti-rotation (shifting) in one direction.

This kit with knee joint absorbs forces up to 20 kN in the X-direction and lets enough movement space in the Z-direction for the dilatations.

3.1. Mounting with 3 load cells

This mounting offers the best load repartition properties and movement space for the element to weigh.



3.2. Mounting with more than 3 load cells

When using more than 3 load cells, each element must be placed at the same level, to obtain an optimal distribution of the loads. The output signals of each cell with the element to weigh, empty, must be identical (case of a symmetrical element).

In order not to clamp the movements (dilatation) of the element to weigh, a maximum of three I5910 used together must be respected. For the other cells, use the mounting kit M5910. In cases for which the dimension variations are slight, the use of a mounting system with four I5910 is authorized – which offers the best characteristics as far as the resistance against parasitic efforts are concerned.

Remark: the characteristics of the cells are guaranteed between -10°C and 45°C without thermal gradient at the level of the cell and quick temperature variation, use of protecting screen and an isolated element to form a barrier between the warmth source and the cell (sun, wind, thermal striking, conduction).

4. EU DECLARATION OF CONFORMITY

Manufactured by: **SENSY SA**
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B – 6040 JUMET
Phone: +32 71 25.82.00
Fax: +32 71 37.09.11
Website: <http://www.sensy.com>

CONCERNED ITEMS: 5910, see calibration certificate related to model and serial number.

SENSY S.A. certify that the items described here above have been duly designed, manufactured and tested for use in accordance with the essential requirements defined in the European Directives listed here under.

2014/30/EU Electro-Magnetic Compatibility Directive

2011/65/EU Restriction of the use of certain hazardous substances in the electrical and electronic equipment (RoHS)
amended by
directive
2017/2102 / EU

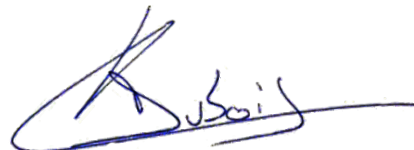
2014/35/EU Safety / low voltage directive

Conception and compliance of this equipment is made according to all of part of the following standards:
EN 61326 (2006)

If designed, manufactured and tested safety ref. D-DP SIL3 READY (option):
see specific and separate certificate according to ISO 13849-1 and/or EN 62061

If designed, manufactured and tested for use in potentially explosive atmospheres (option):
see specific and separate certificate.

Jumet,
April 26th, 2021



Augustin DUBOIS
Product Development Division