Addendum for Calibration and Functioning of the strain gauge converter Z-SG

MODE 1 - TO UTILIZE IF:

- THE USER DOES NOT HAVE A COMPUTER

- THE USER HAS A WEIGHT OF KNOWN VALUE TO ASSOCIATE TO THE MAXIMUM VALUE OF THE ANALOG OUTPUT.



= FS analog output

PREPARATION TO THE CALIBRATION

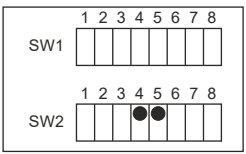
ATTENTION:

a - the gross weight (tare + known_weight) must not exceed the maximum capacity of the strain gauge to avoid damaging it;

b - do not consider the values provided by the analog output during the calibration phase.

1 - Disconnect the module's power supply.

2 - Set the **dip-switch SW2**:
4 ON and 5 ON as in the figure:



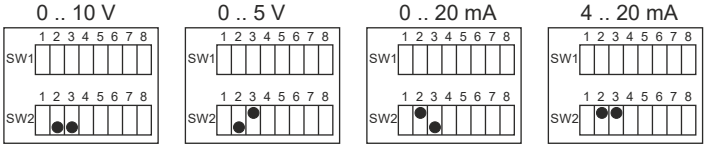
3 -Set SW2 dip-switches 6, 7 and 8 according to the following table:

STRAIN GAUGE SENSITIVITY	DIP 6 of SW2	DIP 7 of SW2	DIP 8 of SW2
> 0 mV/V & ≤ 1 mV/V	OFF	OFF	OFF
> 1 mV/V & ≤ 2 mV/V	OFF	OFF	ON
> 2 mV/V & ≤ 4 mV/V	OFF	ON	OFF
> 4 mV/V & ≤ 8 mV/V	OFF	ON	ON
> 8 mV/V & ≤ 16 mV/V	ON	OFF	OFF
> 16 mV/V & ≤ 32 mV/V	ON	OFF	ON
> 32 mV/V & ≤ 64 mV/V	ON	ON	OFF

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4 - Set the SW2-1 OFF; this operation is necessary to use the button present on the lateral side of the module, or the digital input, for the acquisition of the values during the calibration phase.

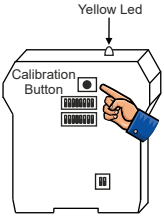
5 - Set the dip 2 and 3 of SW2 to select the type of the analog output as in the following figure:



6 - Power the Z-SG module.

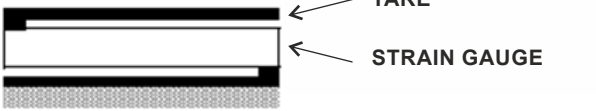
The module is now in manual calibration mode.

CALIBRATION OF THE START SCALE



7 - Press the calibration button (or give the command to the digital input) until the yellow LED lights on; so release the button. After some seconds the LED begins flashing.

8 - Place the tare in the weighing system (see figure):

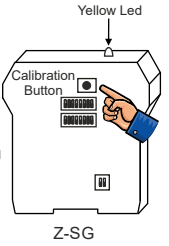


9 - Press again the calibration button (or give the command by the digital input) until the yellow LED switches off.

At this point the module has acquired the tare of the system.

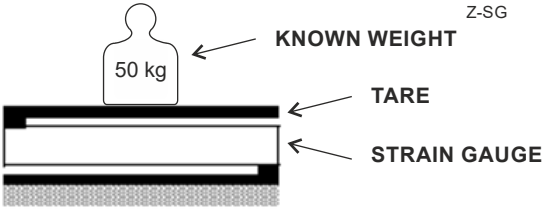
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CALIBRATION OF THE FULL SCALE



10 - Press the calibration button (or give the command to the digital input) until the yellow LED lights; so release the button. After some seconds the LED begins flashing.

11 - Place the known weight + the tare in the weighing system (see figure):

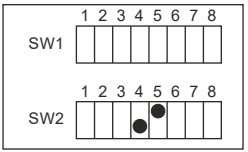


12 - Press the lateral button again (or give the command by the digital input) until the yellow LED switches off.

At this point the module has acquired the known weight.

13 - Disconnect the module's power supply.

14 - Set SW2 **DIP-switch 4 OFF and 5 ON** (see figure):



The system is ready for use.

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NOTES:

1 - Once the calibration procedure has been completed, it will be still possible to perform the system TARE by using the external command (after having configured the digital I/O, terminals 1 and 6, as digital input).
However this value of the tare will be lost at the next command of TARE given by the digital input or at the module power-off.
At module restart, the tare value acquired during the initial calibration will be loaded.

2 - If, during the calibration procedure, the module is powered-down, the calibration is lost. At the power-on, it will be necessary to start the operation from the beginning.

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MODE 2 - TO UTILIZE IF:

- THE USER DOES NOT HAVE A COMPUTER

- THE USER HAS AN STRAIN GAUGE CELL WITH DECLARED SENSITIVITY.

PREPARATION TO THE CALIBRATION

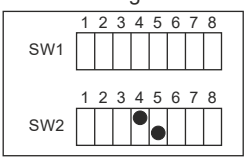
ATTENTION:

a - the gross weight (tare + known_weight) must not exceed the maximum capacity of the strain gauge to avoid damaging it;

b - do not consider the values provided by the analog output during the calibration phase.

1 - Disconnect the module's power supply.

2 - Set the **dip-switch SW2**:
4 ON and 5 OFF as in the below figure:



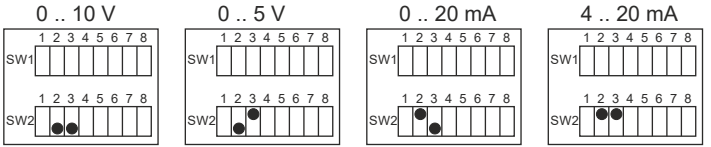
3 -Set SW2 dip-switches 6, 7 and 8 according to the following table:

STRAIN GAUGE SENSITIVITY	DIP 6 of SW2	DIP 7 of SW2	DIP 8 of SW2
> 0 mV/V & ≤ 1 mV/V	OFF	OFF	OFF
> 1 mV/V & ≤ 2 mV/V	OFF	OFF	ON
> 2 mV/V & ≤ 4 mV/V	OFF	ON	OFF
> 4 mV/V & ≤ 8 mV/V	OFF	ON	ON
> 8 mV/V & ≤ 16 mV/V	ON	OFF	OFF
> 16 mV/V & ≤ 32 mV/V	ON	OFF	ON
> 32 mV/V & ≤ 64 mV/V	ON	ON	OFF

4 - Set SW2-1 OFF; this operation is necessary to use the button present on the lateral side of the module, or the digital input, for the acquisition of the values during the calibration phase.

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5 - Set 2 and 3 of SW2 to select the type of analog output as in the following figure:

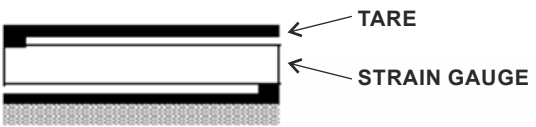


6 - Power the Z-SG module.

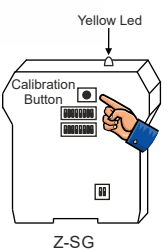
With the configuration of 4 and 5 of SW2 set as in point 2, it is possible to save the value of the system tare in eeprom by performing the following steps.

CALIBRATION OF THE START SCALE (= TARE OF THE SYSTEM)

7 - Place the tare in the weighing system (see figure):



8 - Press the calibration button (or give the command to the digital input) until the yellow LED lights.



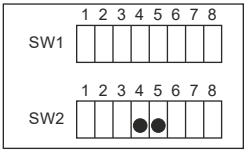
At this point the module has acquired the tare which will be used till the next calibration procedure.

The module stops waiting for a power-off.

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9 - Disconnect the module's power supply.

10 - Set SW2 **switch 4 and 5 OFF** as in figure:



The system is ready for use.

NOTES:

1 - Once the calibration procedure has been completed, it will be still possible to perform the system TARE by using the external command (after having configured the digital I/O, terminals 1 and 6, as digital input).
However this value of the tare will be lost at the next command of TARE given by the digital input or at the module power-off.
At module restart, the tare value acquired during the initial calibration will be loaded.

2 - If, during the calibration procedure, the module is powered-down, the calibration is lost. At the power-on, it will be necessary to start the operation from the beginning.

3 - With this mode, the FS of the analog output is associated to the FS of the strain gauge; however this will be possible only if the tare of the system is null, otherwise the allowed FS will be:

$$FS_{SYSTEM} = FSSTRAIN_GAUGE - TARE$$

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Example: If the strain gauge has a FS equal to 50 Kg, the tare is 10 Kg and the analog output is set as 0..10 V, the maximum FS of the system will be:

$$FS_{SYSTEM} = 50 - 10 = 40 \text{ Kg}$$

And in correspondence to this weight, the analog output is in percentage:

$$\frac{50 \text{ Kg} - 10 \text{ Kg}}{50 \text{ Kg}} \times 100 = 80 \%$$

Corresponding to a voltage value equal to 8 V.

ISO 9001:2008

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