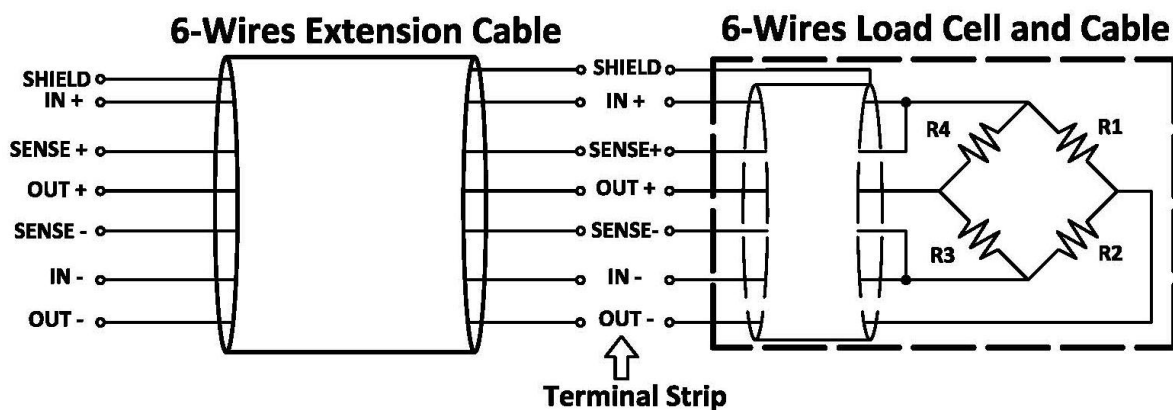


## EXTENSION OF THE LOAD CELL CABLE

The intent of this technical note is helping the user to perform a load cell cable extension; these can be of 4 or 6 wires. Afterwards, we will explain the electrical connections and why are performed in this way.

### 6-Wires extension cable for a 6-wires load cell

This is the easiest and the most intuitive connection; we only have to connect wire to wire between the load cell and the extension cable via a terminal strip, as shown in the figure below.



Color and signal matching for a 6-wires load cell:

Load Cell Signal	6-Wires UTILCELL Load Cell Color Code
SHIELD	-----
IN +	GREEN
SENSE +	BLUE
OUT +	RED
SENSE -	YELLOW
IN -	BLACK
OUT -	WHITE

### 6-Wires extension cable for a 4-wires load cell

The case shown below seems to be more complex for most of the users because involves the concept of the SENSE wires. SENSE wires are a voltage reference facilitated to the Analog Digital Converter (ADC) of the indicator, so that, when performing the weighing system calibration, we will have a conversion or correction factor to the power supply that reaches the load cells. SENSE wires help us to compensate internal fluctuations of the indicators power supply, as well as, to perform the compensation of the voltage variations caused by lengthen the load cell cable. By increasing the resistance introduced by the cable, the voltage supply that reaches the load cell decreases, also the nominal value of the resistance varies with temperature. SENSE wires help us to correct all these variations (power supply, cable resistance and resistance variation with temperature).

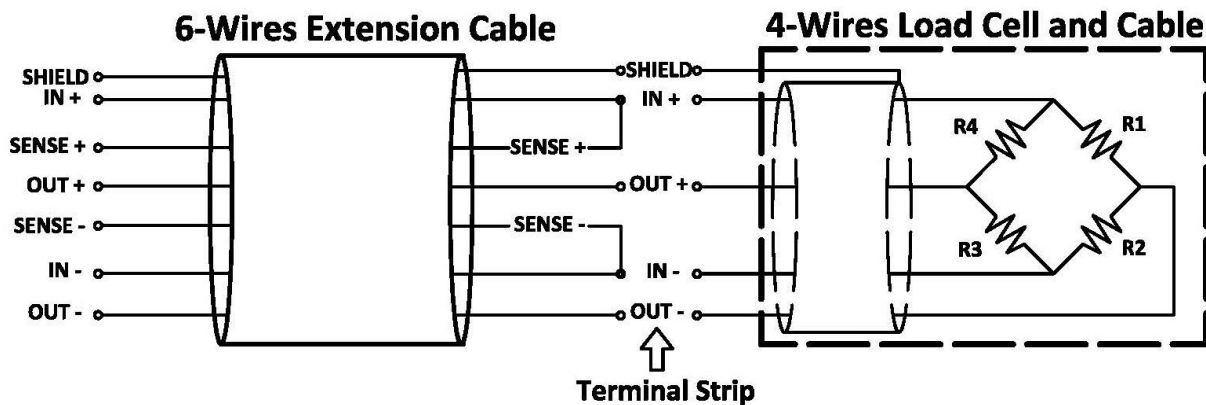
If the supply voltage to the load cell varies the ADC will be in charge of modifying the conversion factor, so then, our scale will weight well in any conditions.

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Then, according to this, **when making an extension cable for a 4 or 6-wires load cell, we have to use a 6-wires extension cable.**

To perform the physical connection of a 4-wires load cell with a 6-wires extension cable, we should make a bridge between Vin + and Sense + terminals and Vin – and Sense – from the 6-wires cable side and connect these terminals through a terminal strip, as shown in the figure below.



Color and signal matching for a 4-wires load cell:

Load Cell Signal	4-Wires UTILCELL Load Cell Color Code
SHIELD	----
IN +	GREEN
OUT +	RED
IN -	BLACK
OUT -	WHITE

All our 4 or 6-wires load cells are individually calibrated in factory with its own cable; all of them meets the specifications, do not exist any difference between a 4 or 6-wires load cell, there are no one better than the other or worse than the other, both has the same quality and reliability.

The only difference between them is that one has 4-wires and the other 6-wires. Technically behave the same, the only reason to choose 4-Wires or 6-Wires load cell would be if they were not calibrated at the factory with its cable, then it would be important to have 2 additional wires to compensate the cable length, as the case of cable etension.

From Utilcell hope this technical note can be of help in making an extension cable for a 4 or 6-wires load cell, only as a guideline and not serve as a contractual specification. We reserve the right to change the content of this technical note at any time without notice.

Remaining at your disposal for any further information.