DINI ARGEO
Scales - Weighing systems

3590ET / 3590EGT

Touch screen indicator

CONNECTION DIAGRAMS

ENGLISH

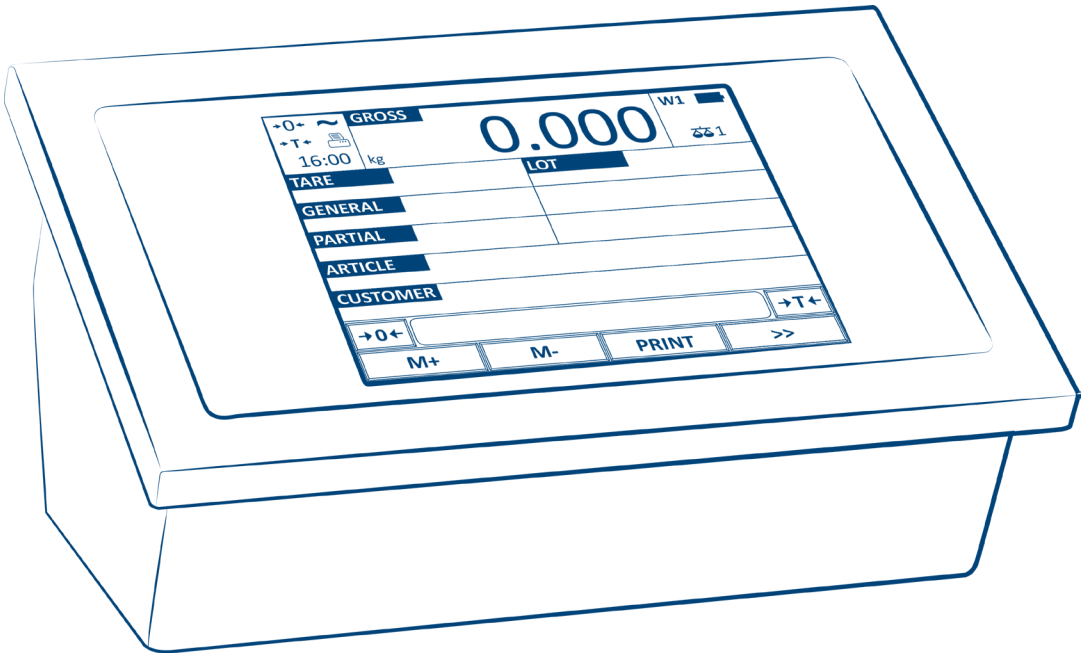


Table of contents

Introduction

Dear Customer,
Thank you for purchasing a DINI ARGEO product.

This manual contains all instructions for proper installation of the weight indicator with touch screen series 3590.
We thank you for purchasing this scale and we kindly ask you to take note of certain aspects of this manual:

This booklet provides useful information for proper operation and maintenance of the scale referred to herein. It is important to pay the utmost attention to all the sections that illustrate the simplest and safest way to operate the device.

All information herein is based on the data available at the time of publication. The Manufacturer reserves the right to make changes to its products at any time without notice and without incurring any penalty. We therefore recommend that you always check for any updates.

N.B.: The individual in charge of operating the scale must ensure that all safety regulations in force in the country of use are applied, ensuring that the appliance is used in accordance with the purpose it is intended for and to avoid any danger for the user.
The manufacturer declines any liability arising from any weighing operation errors.

We recommend carefully following the instructions when programming the weight indicator, as to do otherwise could jeopardise proper scale operation.

This manual was written with the utmost care but we always welcome feedback on any inaccuracies you may find.

The instrument is covered by warranty and MUST NOT BE TAMPERED WITH BY THE USER for any reason.
Any attempt to repair or modify the device could expose the user to the risk of electrical shock and will render all warranty conditions null, thus releasing the Manufacturer from all liability.

All problems with the unit or system must be communicated to the manufacturer or the dealer from which it was purchased. In any case, DISCONNECT POWER before any operations.

Electrical precautions

- Mains power supply adjusted within ± 10% of the nominal voltage
- Electrical protections (fuses, etc.) are to be provided by the installer.
- Comply with the minimum recommended distances between different categories of cables.
- The load cell or signal amplifier extension cables, which are used for serial port and analog output connection, must comply with the maximum permitted lengths.
- The load cell or signal amplifier extension cables, which are used for serial port and analog output connection, must be shielded and must also be inserted alone into the conduit or metal pipe.
- Cell or amplifier cable input into the electrical panel must be autonomous. If possible, they must be connected directly to the indicator's terminal board without passing through the conduit with other cables.
- Install an "RC" filter on coil contactors, solenoid valves and all devices that generate electrical interferences.
- If condensation can develop inside the scale's transmitter, it is recommended to keep the equipment running.
- With regard to all shielded and non-shielded cables (cell cable, PC cable, power supply cable, etc.) that are connected to the indicator, you must keep the cable as short as possible and make a minimum amount of the cables exit from the shield in order to be connected to the terminal board;
- If the indicator is situated inside an electrical panel, you must also use a shielded cable for power supply and must keep the cable as short as possible and far from the cables supplying coils, inverter, electromotive force, etc., and apply a de-coupling transformer to supply the indicator only.

Cable classification

The various cables are classified according to the signals they transmit:

Category I
- Fieldbus , LAN network (PROFIBUS, Ethernet, Devicenet...)
- Data shielded cables (RS232 ...)
- Shielded cables for analog digital signals < 25V (sensors, load cells.)
- Low-voltage power supply cables (<60V)
- Coaxial cables

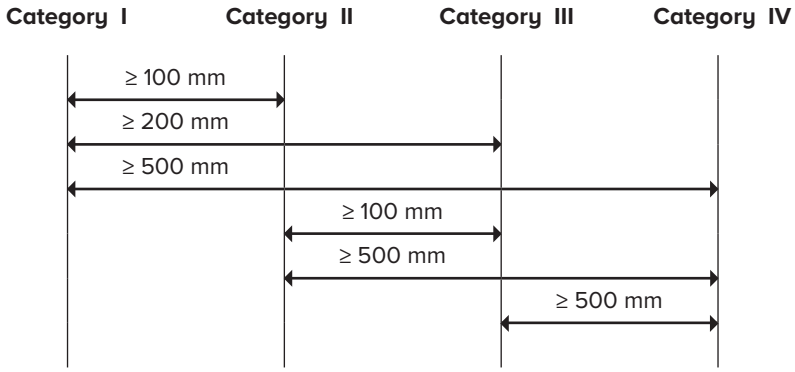
Category II
- DC power supply cables with >60V and <400V
- AC power supply cables with >25V and <400

Category III
- Power supply cables with >400V
- Telephone cable

Category IV
- Any cables subject to lightning hazards

Recommended distance between cables

- When cables are laid parallel, they must be at the distances specified in the figure below
- These distances are intended in the air and are reduced if the housings are separated by metal boards connected to the ground
- Cables from different categories can cross (90°)



Maximum permitted length of cables

LOAD CELL CONNECTION CABLE

The relative cable can reach the following maximum length from the line in order to connect the load cells:

- 50 metres with a 6 x 0.25 mm^2 cable
- 100 metres with a 6 x 0.5 mm^2 cable

RS232 CONNECTION CABLE

The relative cable can reach a maximum length of approximately 15 metres from the line for RS 232 connections, with a baud rate of up to 19200.

RS485 CONNECTION CABLE

The relative cable can reach a maximum length of approximately 1200 metres from the line with a baud rate of up to 9600.

ANALOGUE OUTPUT CONNECTION CABLE

The maximum length for current analog output is:

- 100 metres with a 2 x 0.25 mm^2 cable
- 150 metres with a 2 x 0.5 mm^2 cable
- 300 metres with a 2 x 1 mm^2 cable

The maximum length for voltage analog output is:

- 50 metres with a 2 x 0.25 mm^2 cable
- 75 metres with a 2 x 0.5 mm^2 cable
- 150 metres with a 2 x 1 mm^2 cable

Earthing system

For correct earthing and perfect system operation, you must connect the indicator, load cells, any junction boxes and weighing structure to earth.

INDICATOR
Connect the container's external earth terminal to earth with copper cables having a minimum dimension of 16 mm^2.

LOAD CELLS AND JUNCTION BOX
Earthing must be carried out by connecting the earthing cables to the earth bar; the cables must have a minimum dimension of 16 mm^2. Also, connect the earth bar to the earth pole with a minimum cable of 50 mm^2.

- If the load cells are connected to the indicator via a junction box, you must connect the cable shield from the indicator and the cell cable shields to the earth terminal of the junction box (refer to the junction box manual) and connect the latter to earth by means of a copper cable having a minimum dimension of 16 mm^2.
- If the load cells are connected directly to the indicator (without using a junction box), you must connect the cell cable shields to the earthing point (or earth bar) inside the container.
- If the weighing system is for a large and/or outdoor structure, such as a weighbridge, and the junction box is connected to the indicator with a cable longer than 10 m, or if there are interferences, connect the cable's braiding from the indicator to the earth terminal in the junction box and indicator and connect the two earth systems with an earth cable having a minimum dimension of 16 mm^2.

WEIGHING STRUCTURE
Connect the weighing structure and any other structures that are not connected (for example silos that leave material on the weighing structure) to earth with cables having a minimum dimension of 16 mm^2.
You must also connect the upper part of each cell with the lower part of the cell with a copper braid having a minimum dimension of 16 mm^2. The upper part must be short circuited with the surface of the weighing structure and the lower part must be connected to earth with a copper braid having a minimum dimension of 16 mm^2.

SERIAL CABLES AND INSTRUMENTS CONNECTED
Connect the serial cable shield to the earthing point (or earth bar) inside the container (on the end part of the cable towards indicator) and to the earth terminal of the connected instrument (on the end part of the cable towards the instrument connected), and connect the earth terminal of the connected instrument to earth with copper cables having a minimum dimension of 16 mm^2.
To avoid undesired effects, the earthing references of the connection cable and power supply of the instrument connection and the indicator must have the same power.

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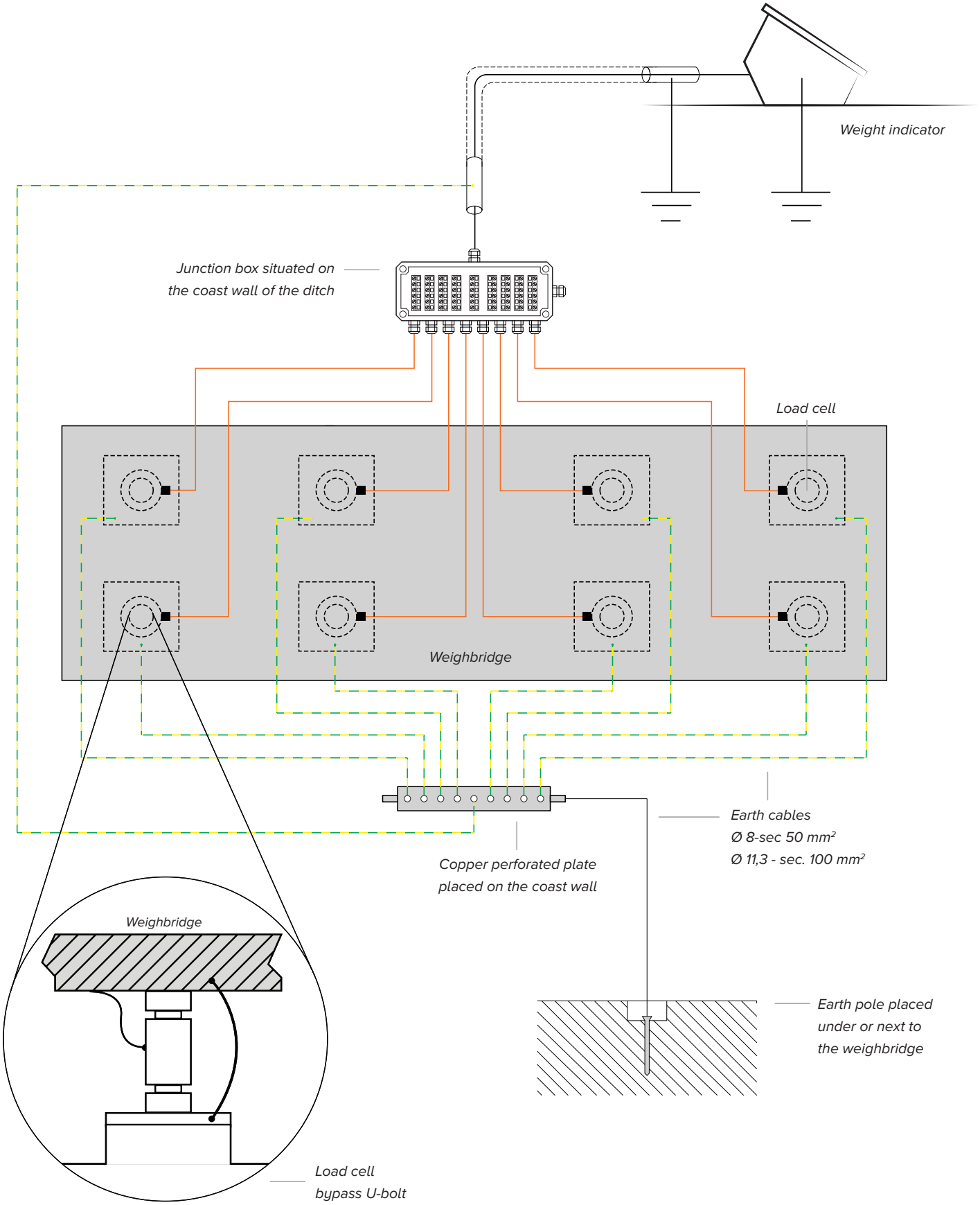
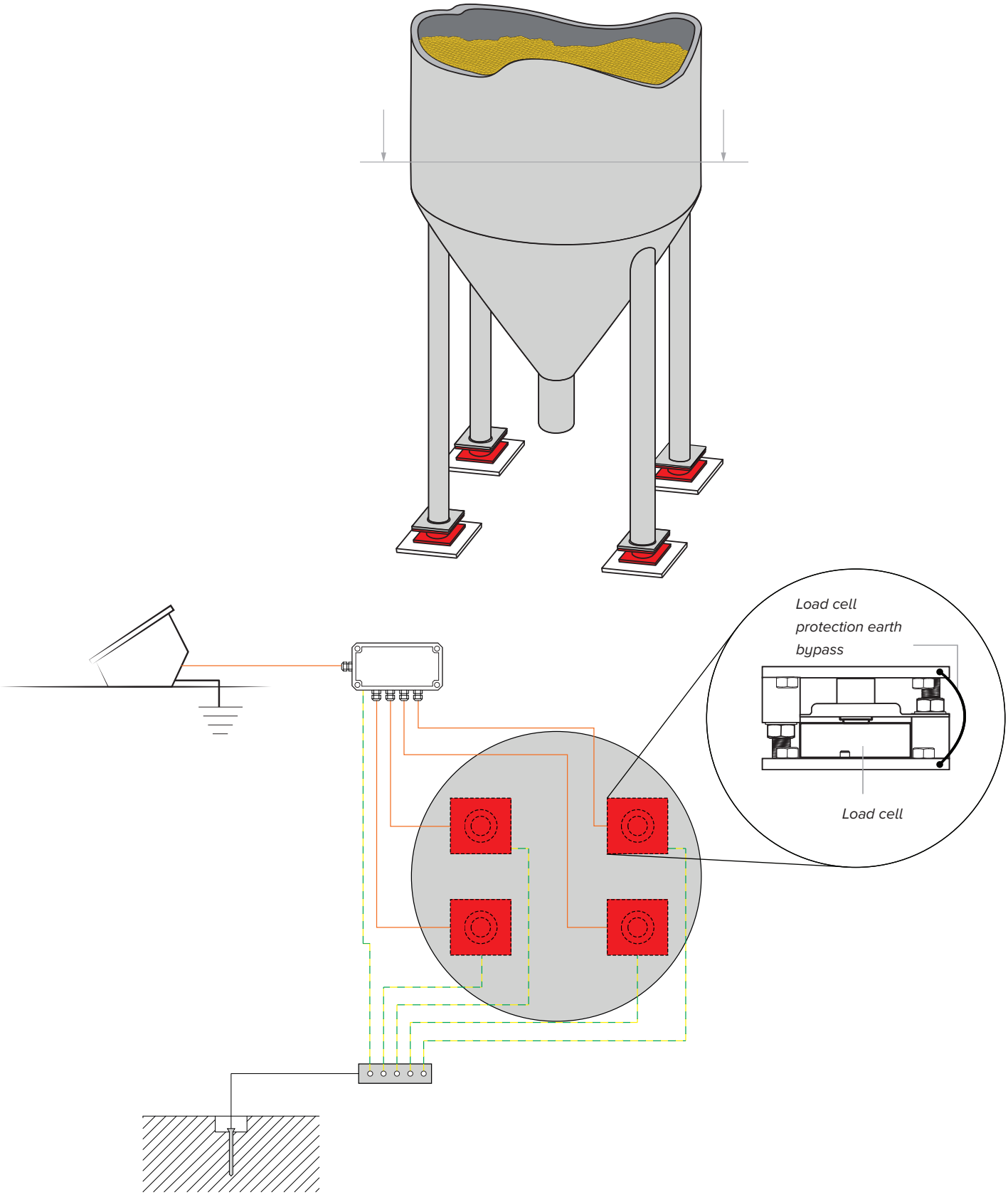
NOTES:

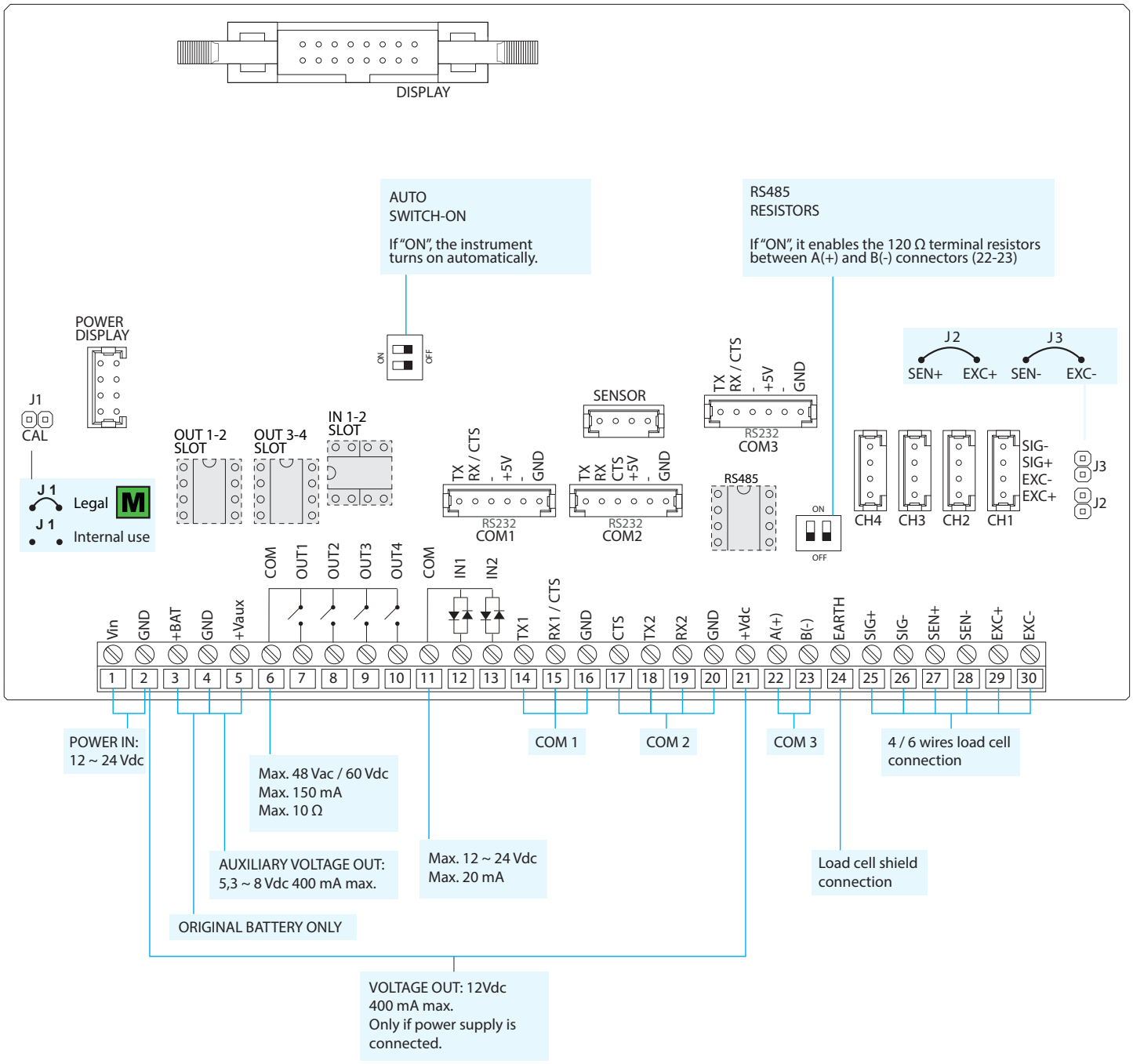
- ll earth cables must have a suitable length in order to obtain an **overall resistance of the earthing system below 1Ω**.
- With regard to large and/or outdoor weighing system structures, such as a weighbridge:
  - connection to earth must be carried out by connecting the earth cables to an earth bar, and the earth bar to an earth pole with a minimum cable of 50 mm^2.
  - The cables must be larger (e.g. 50 mm^2 instead of 16 mm^2 and 100 mm^2 instead of 50 mm^2) since the voltage involved is higher (e.g. lightning);
  - the earth pole must be situated at a minimum distance of 10 m from the weighbridge structure;
- You must open SENSE inside the indicator in order to compensate for the shift due to an increase in temperature.
- You must check and, if necessary, remove the connection between electrical installation earth and neutral.

Example of weighbridge earthing



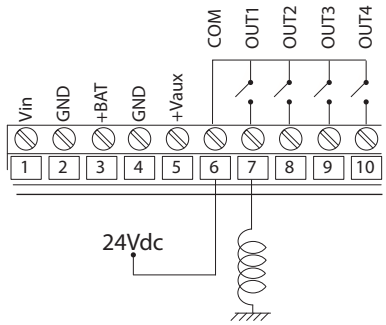
Example of silos earthing



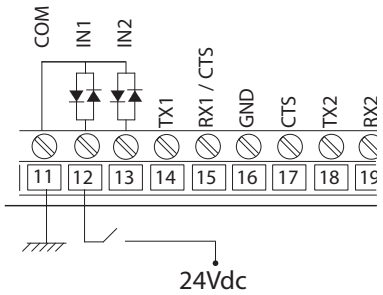


INPUT AND OUTPUT CONNECTION

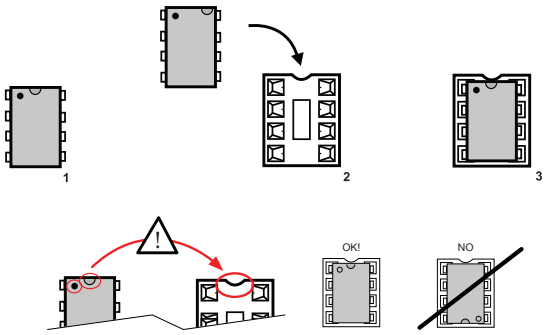
OUTPUT



INPUT



OUTPUT



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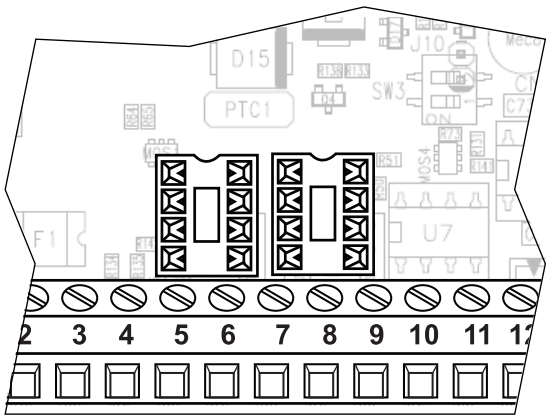
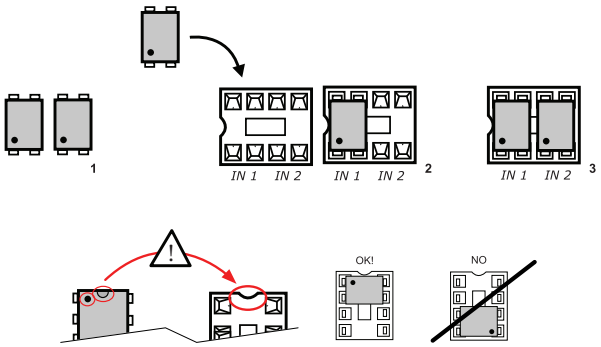


INPUT



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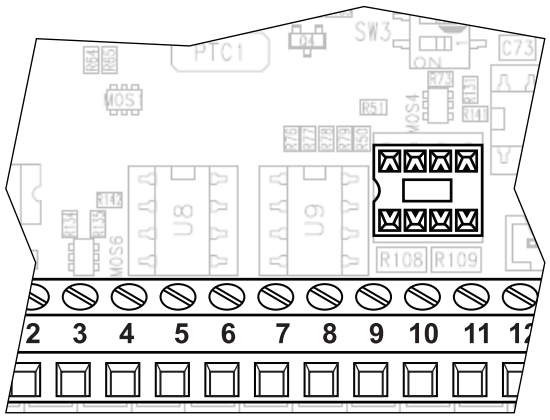
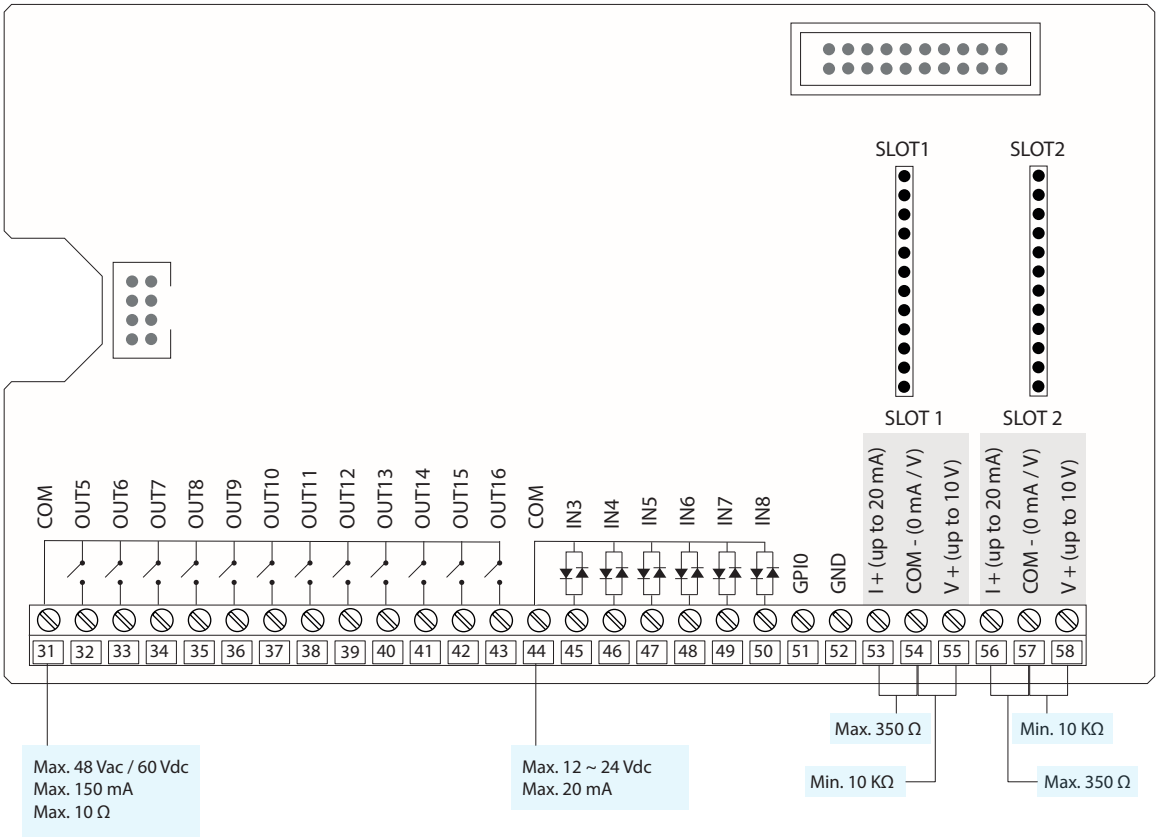
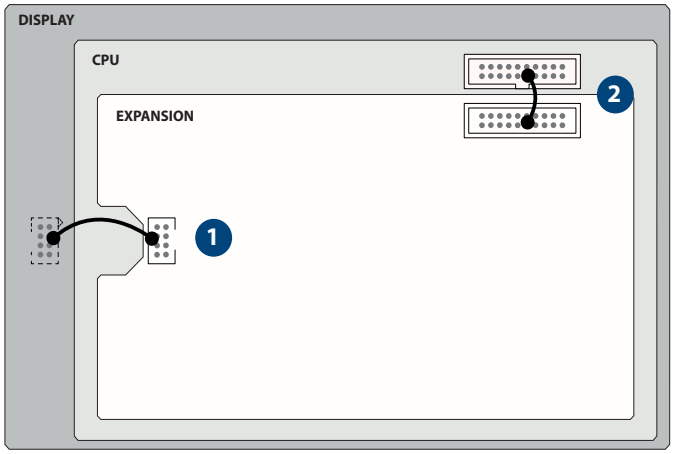


installation integrated inside the scale. 12 OUT and 8 IN; enables expansion of scale power supply up to 8-40Vdc.

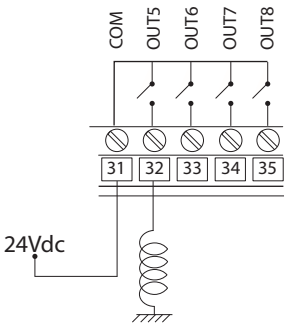


Connection:

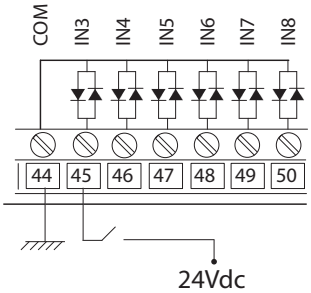


INPUT AND OUTPUT CONNECTION

OUTPUT

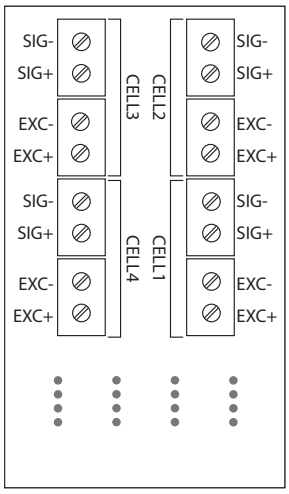


INPUT

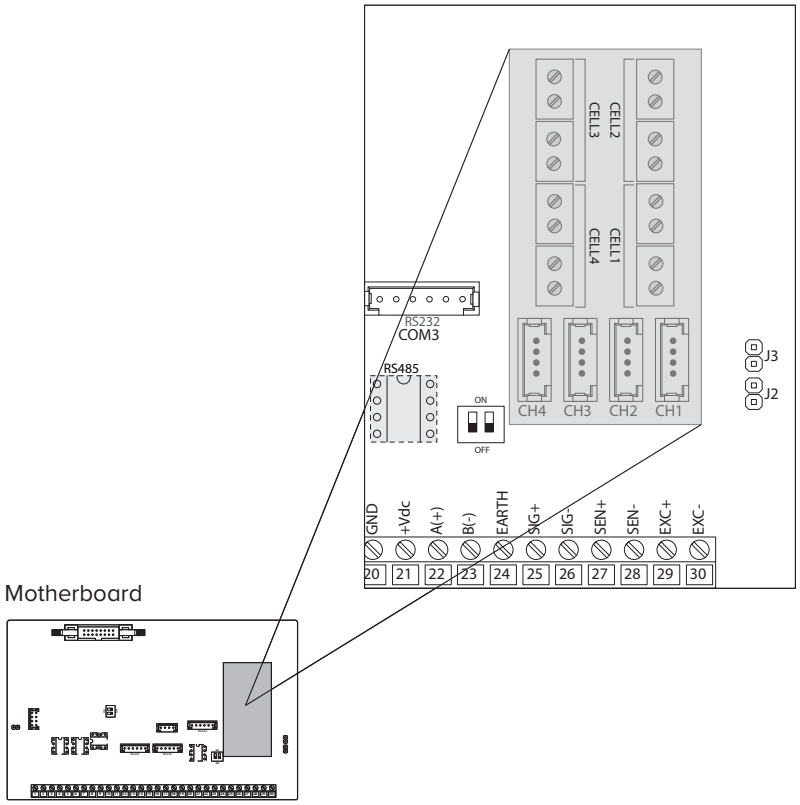


Optional internal board for rapid connection of multiple scales

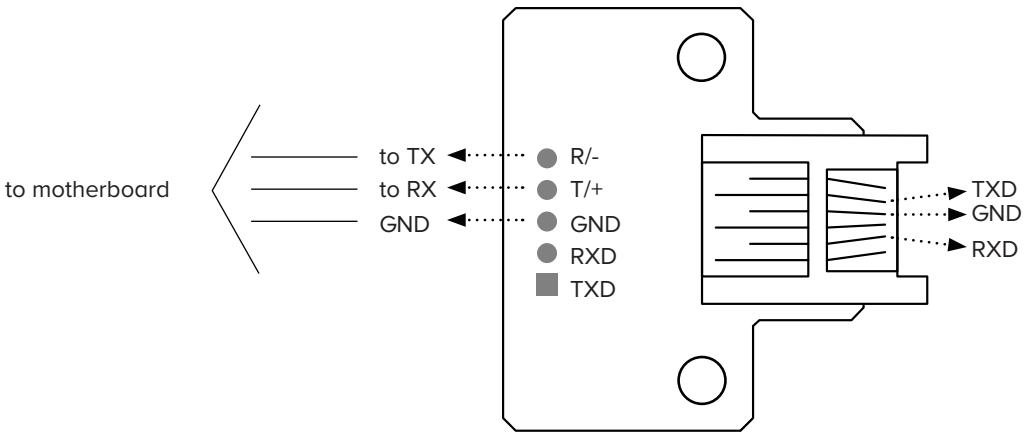
Multi-scale fitting board



Installation:

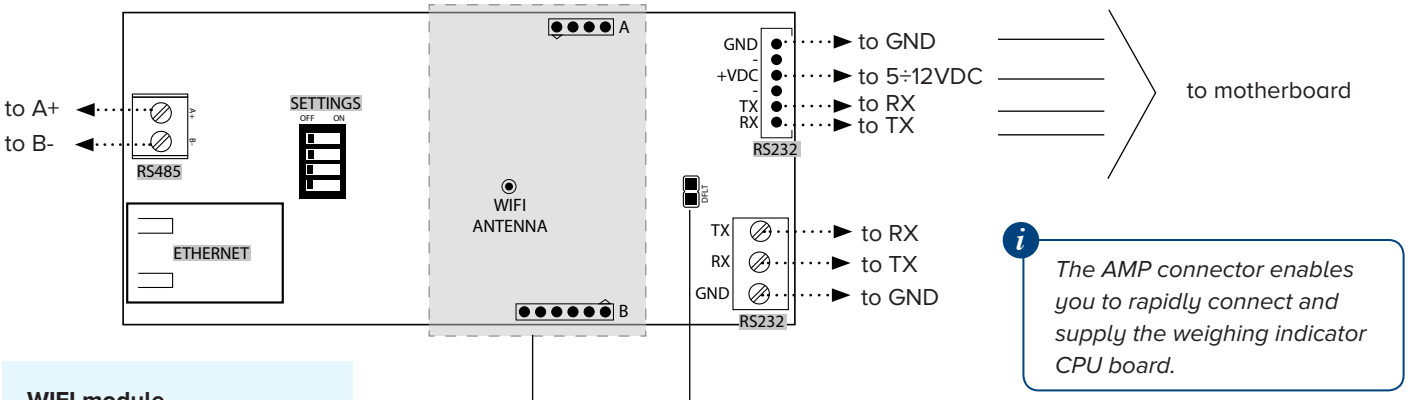


RJ45 RS232 connector board



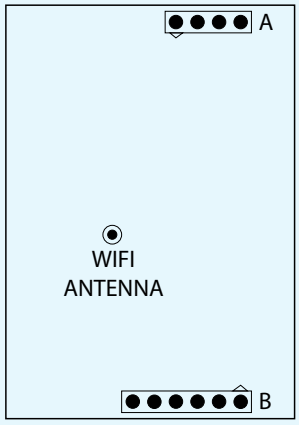
The AMP connector enables you to rapidly connect and supply the CPU board of the weighing indicator.

Installation integrated inside the scale.



i *The AMP connector enables you to rapidly connect and supply the weighing indicator CPU board.*

WIFI module

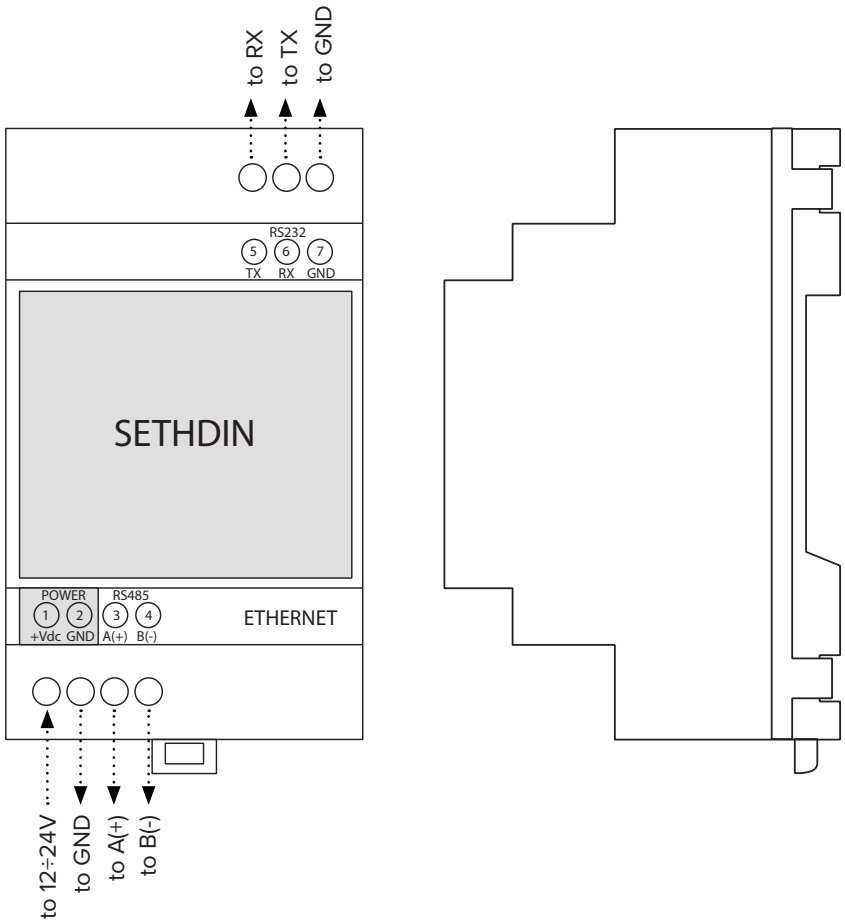


RESET Jumper

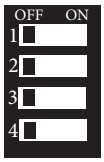
Closing the DFLT jumper resets default settings of the operating methods set via the dip switch:

- IP address: 192.168.16.205
- Subnet Mask: 255.255.255.0
- Baud rate and bit according to the type of combination of dip switches

Version for installation on a DIN bar

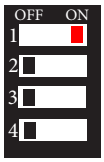


SETTINGS:



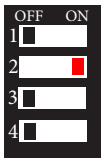
ETHERNET/WIFI conversion in «232/485» and vice-versa

WARNINGS:
RS232 and RS485 communication ports cannot be used simultaneously.
Set the serial ports to 9600 n-8-1.



Network between instruments on RS232

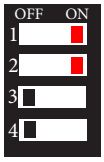
Port 485 available for simultaneous communication to other devices.
Set the serial ports to 115200 n-8-1.



Modbus RTU converter in Modbus TCP

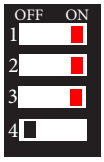
Convert Modbus RTU protocol to Modbus TCP.
RS232 and RS485 communication ports cannot be used simultaneously.
Set the serial ports to 9600 n-8-2.

i It enables you to rapidly connect and supply the weighing indicator CPU board.



RS232 converter in «RS485» and vice-versa

ETHERNET/WIFI port disabled.
Set the serial ports to 9600 n-8-1.

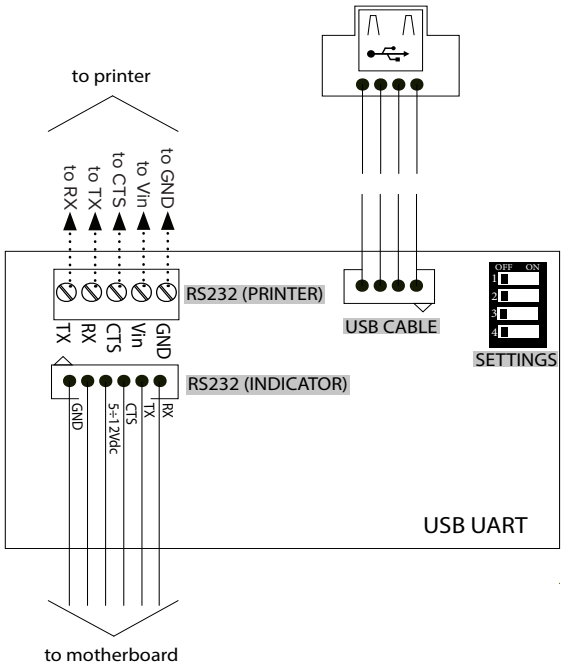


Enable the option to configure the ethernet/wifi board via browser

Set the serial ports to 9600 n-8-1

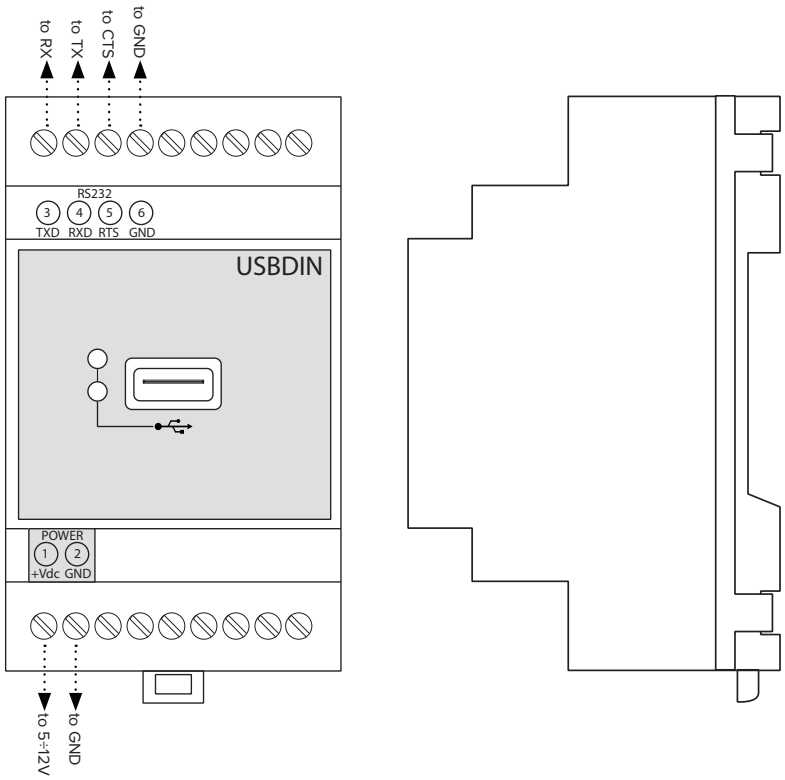
i Attention:
every time you change the operating mode, the board resets the standard default settings.

installation integrated inside the scale.

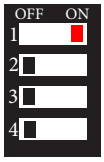


The AMP connector enables you to rapidly connect and supply the CPU board of the weighing indicator

Version for installation on a DIN bar

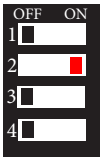


SETTINGS:



Configure the baud rate, parity, bit number and stop bit:

- ON = 38400-E-8-1
- OFF = 9600-N-8-1



Enable CTS for a connected printer:

- ON = CTS managed
- OFF = CTS not managed

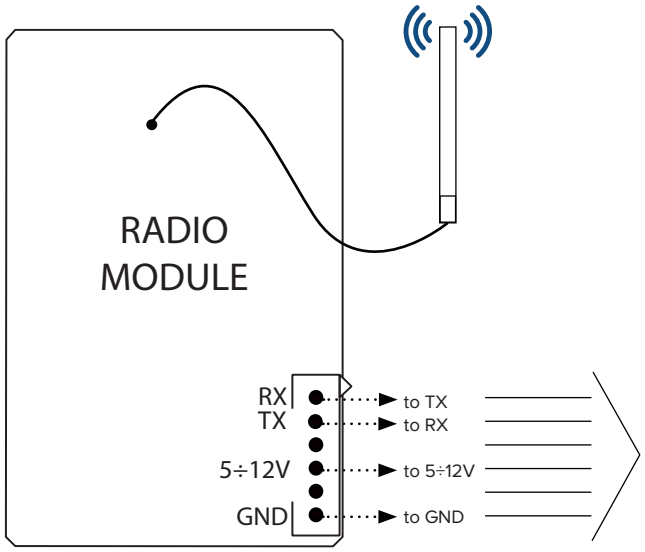
LED description:

RED LED:
ON = Print in progress
Flashing = USB not detected

GREEN LED:
Slow flashing = Ready
Quick flashing = USB or printer not detected

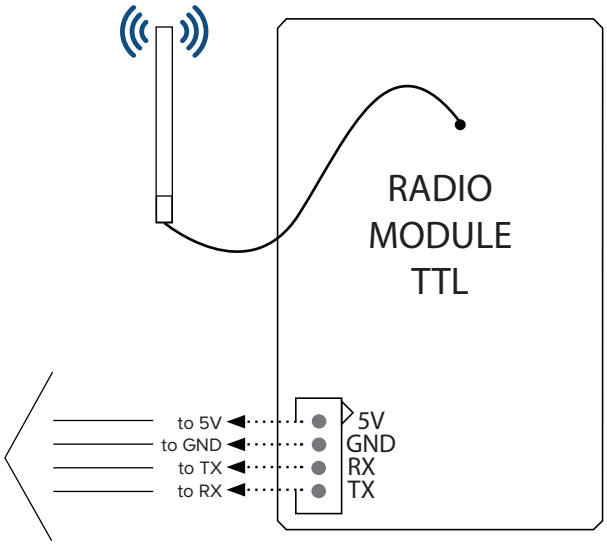
RADIO communication board

installation integrated inside the scale



to motherboard

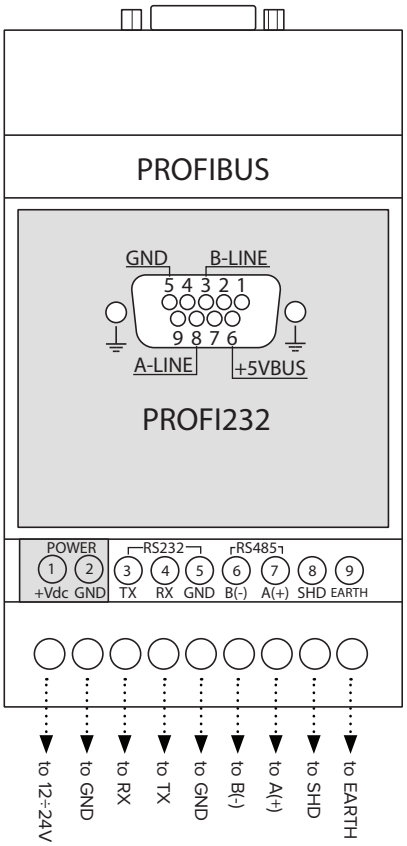
TTL version

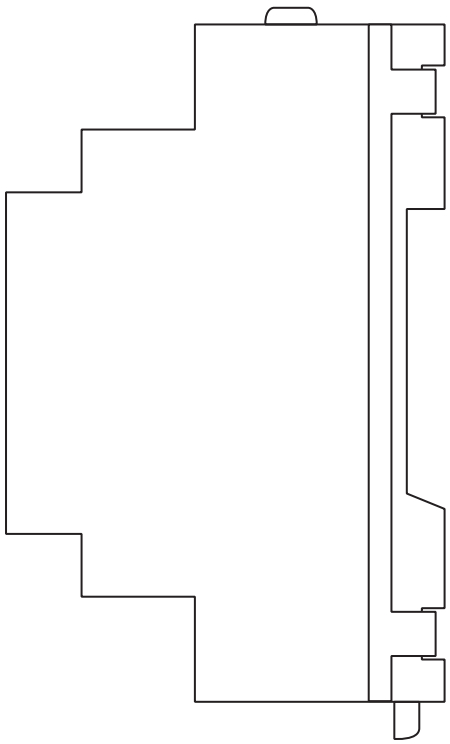


The AMP connector enables you to rapidly connect and supply the CPU board of the weighing indicator .

PROFIBUS communication board

Version for installation on a DIN bar

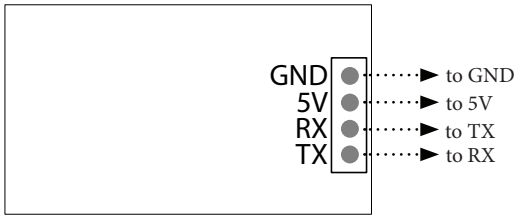




It is possible to connect the indicator to RS232 or RS485

BLUETOOTH communication board

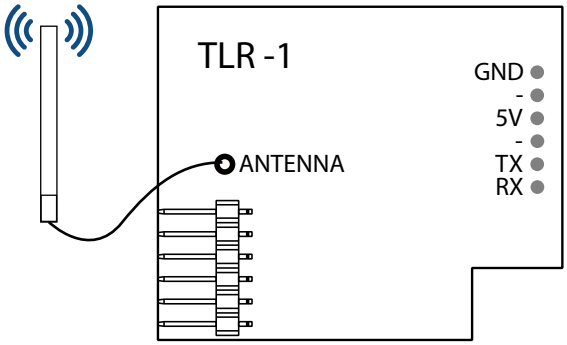
Installation integrated inside the scale.



The AMP connector enables you to rapidly connect and supply the CPU board of the weighing indicator.

RADIO REMOTE CONTROL board

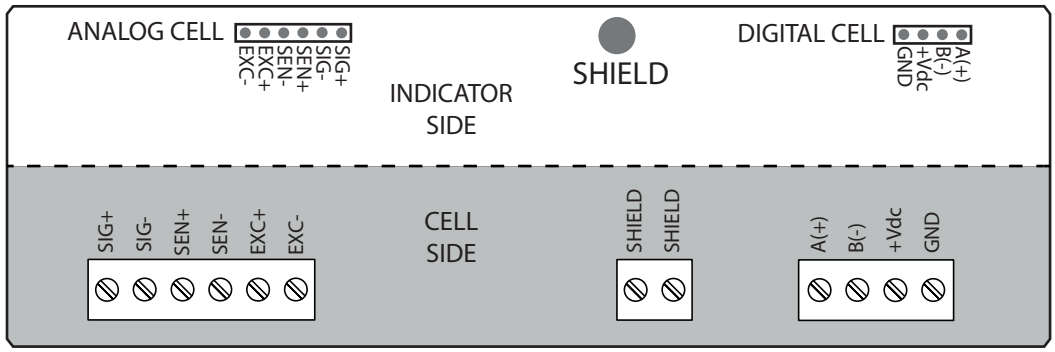
installation integrated inside the scale.



Connect the module to the indicator's COM2 via a strip connector situated on the board with a wire or directly to the CPU board with a tulip connector situated under the board.

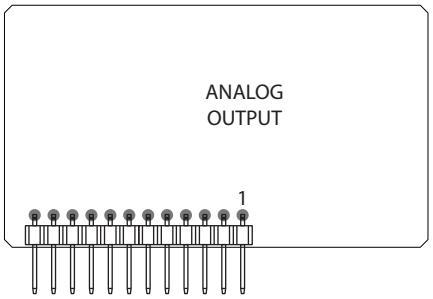
Circuit breaker against electrostatic loads

Installation integrated inside the scale.



Analog output

Installation integrated inside the scale. 0-4mA/0-10Vdc.
Assemble the board facing towards the indicator's CPU.



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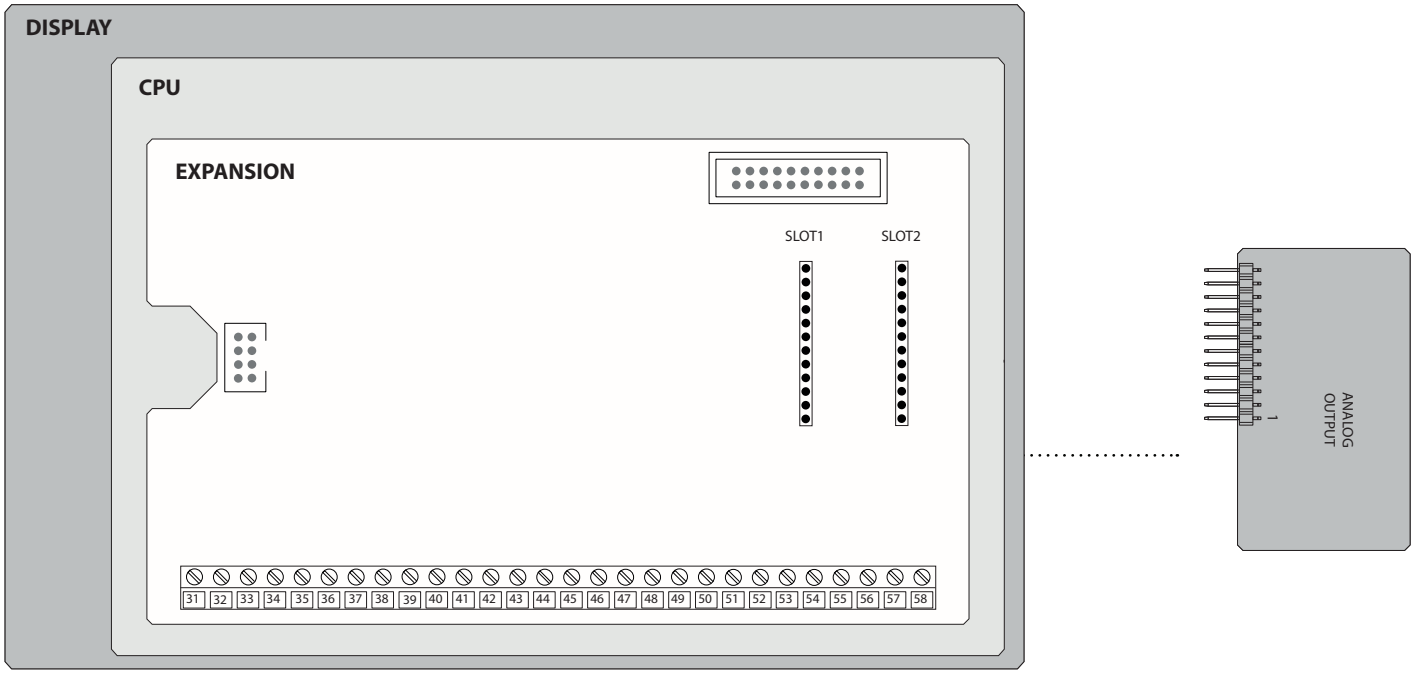

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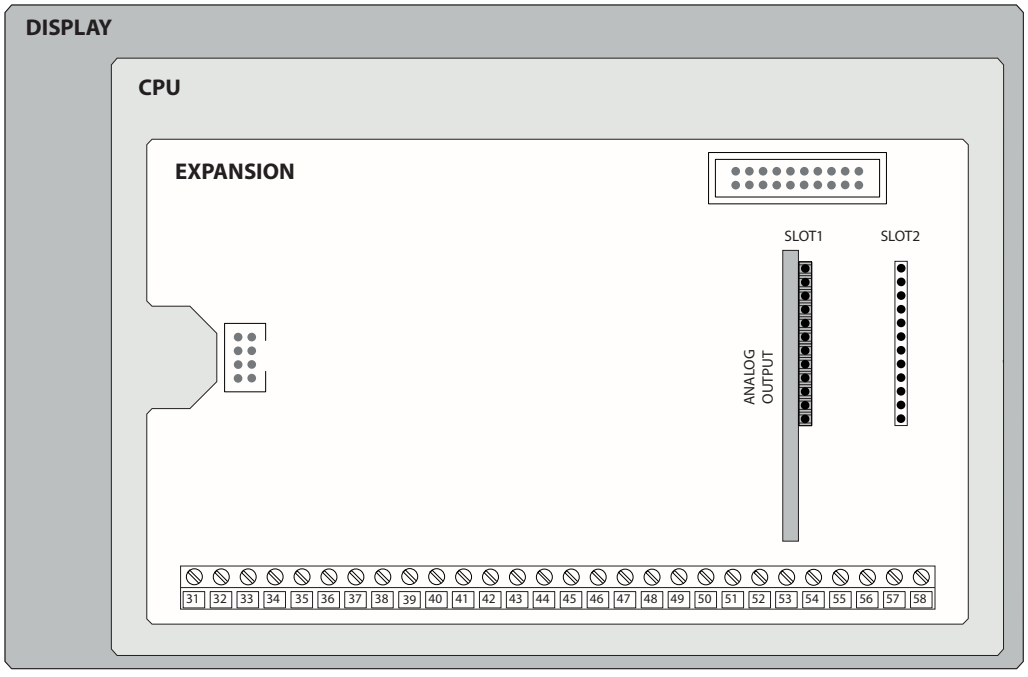
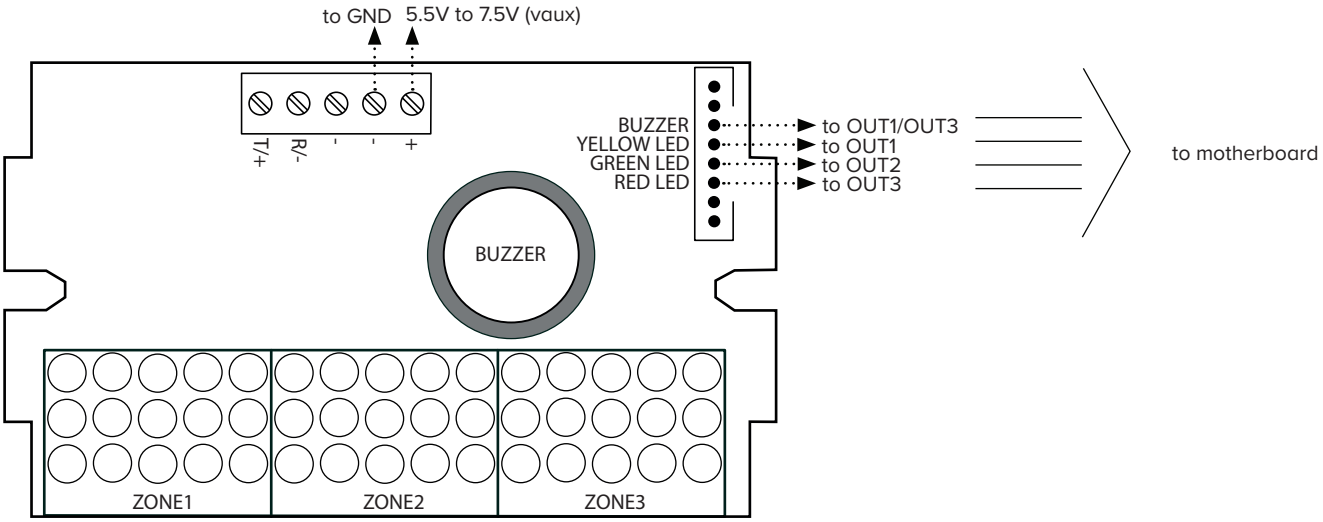
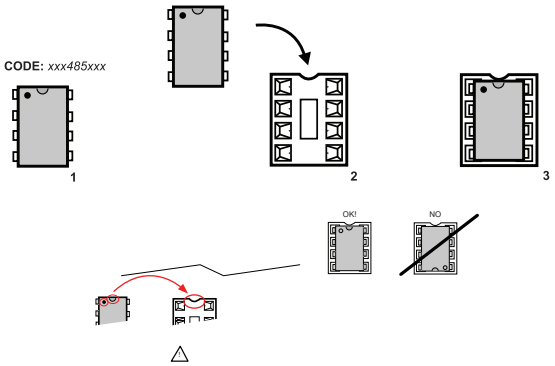


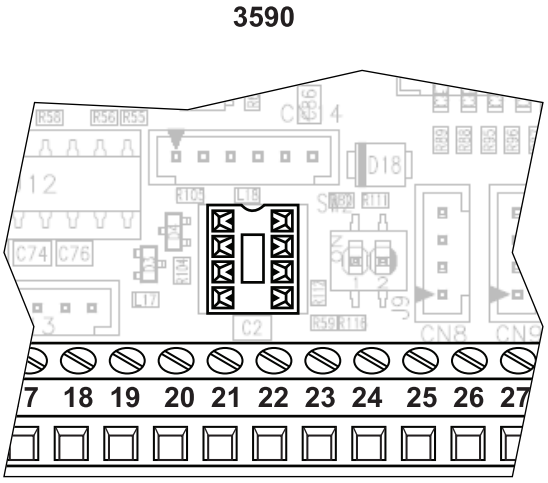
Traffic light

Integrated and indicator

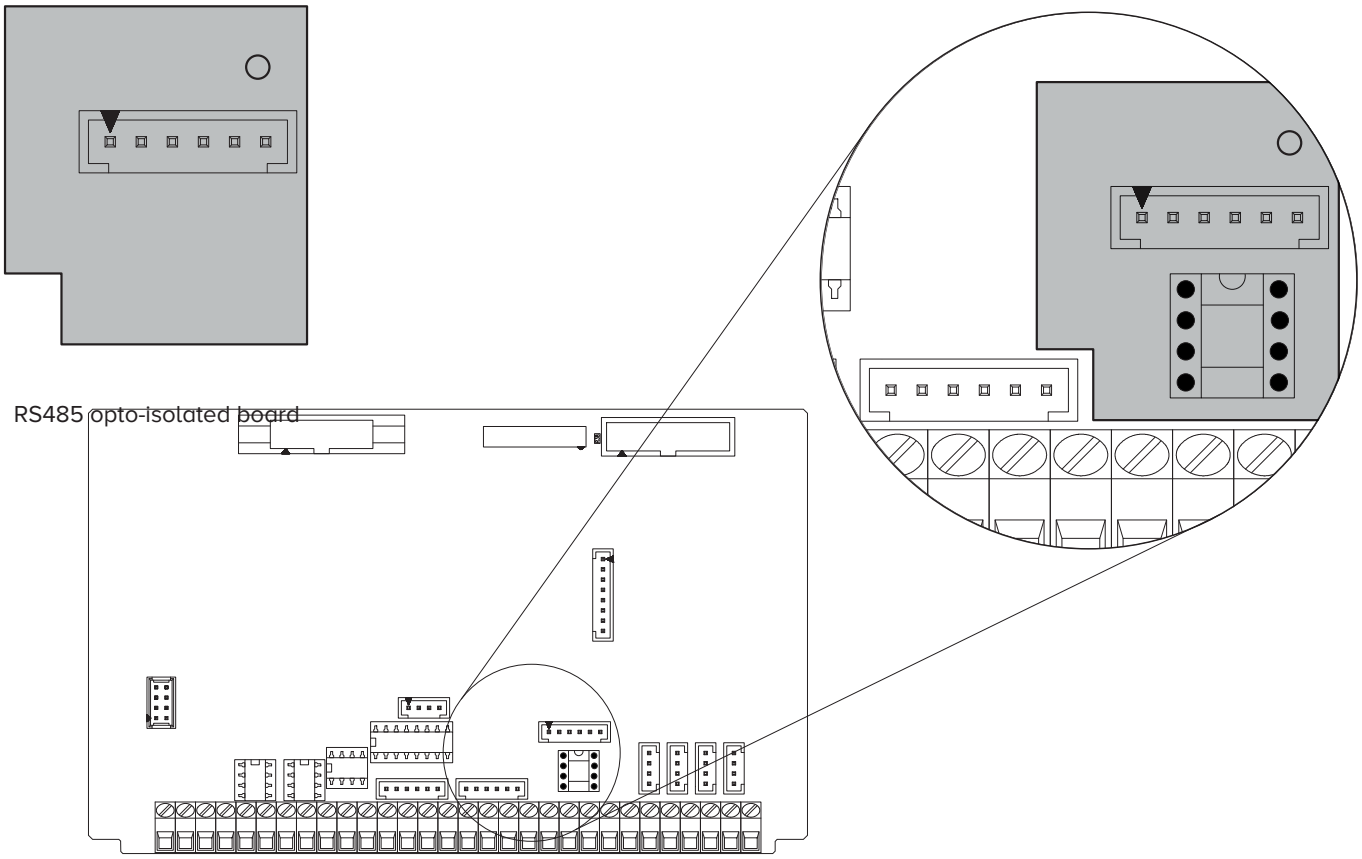


Chip 485

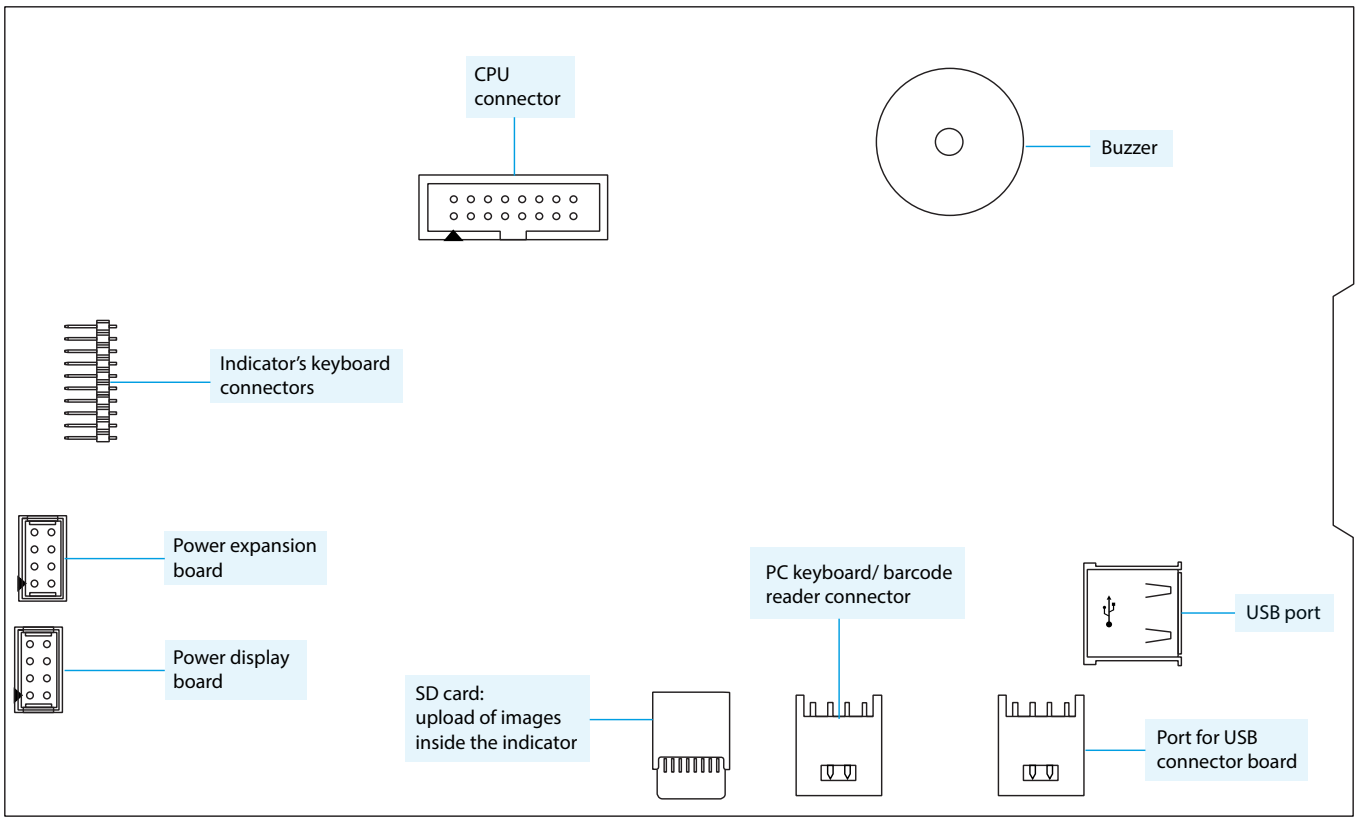




RS485 opto-isolated board



Display board



Notes

Notes

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