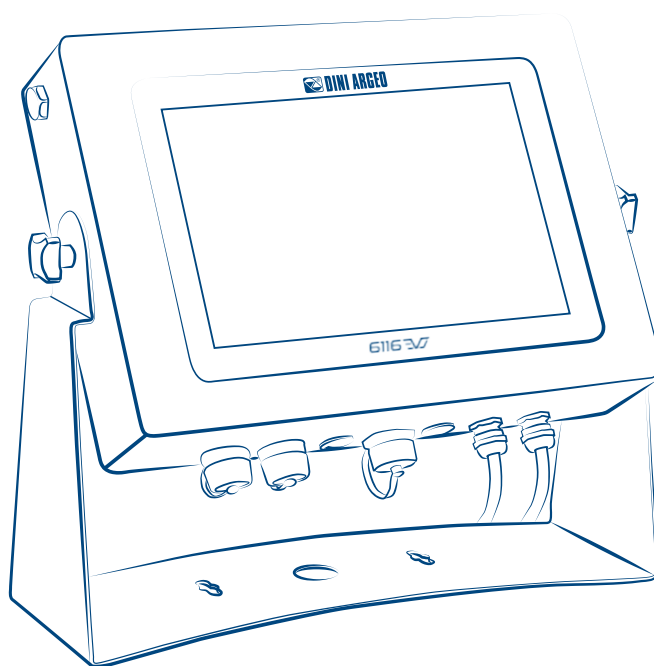


# 6116EVO

Industrial touchscreen PC with integrated scale input

USER MANUAL

ENGLISH





<b>Introduction</b>	<b>4</b>
<b>Installation</b>	<b>5</b>
Installation requirements	5
Electrical precautions	5
Earthing of the system	7
<b>Dimensional technical drawings</b>	<b>8</b>
6116EVO / 6116EVO-PC	8
6116EVO-DGT	9
<b>Wiring diagrams</b>	<b>10</b>
6116EVO	10
6116EVO-DGT	11
DGX4SP	12
DGT1	13
<b>Technical features</b>	<b>14</b>
<b>Load cell installation</b>	<b>15</b>
<b>Communication</b>	<b>17</b>

# Introduction

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

This manual contains all the instructions for the correct installation and commissioning of the 6116EVO industrial PC.  
While thanking you for purchasing this product, we would like to draw your attention to some aspects of this manual.

This booklet provides useful information for the correct operation and maintenance of the product to which it refers; it is, therefore, essential to pay the greatest attention to all those paragraphs that illustrate the simplest and safest way to operate.

The utmost care has been taken in compiling this manual, but reports of any inaccuracies are always welcome.

The instrument is covered by warranty and **MUST NOT BE TAMPERED WITH BY THE USER** under any circumstances.  
Any attempt at repair or modification may expose the user to the danger of electric shock and voids any warranty conditions, relieving the Manufacturer from all liability.

Any problem with the product must be reported to the manufacturer or to the retailer where it was purchased.  
In any case, always **TURN OFF THE POWER SUPPLY** before any installation or repair operation.

## Installation requirements

Observe the following conditions for correct installation of the industrial PC and of the load receiver:

- Flat, level support surface.
- Stability and absence of vibrations.
- Absence of aggressive dust and vapours.
- Absence of draughts.
- Make sure that the platform is levelled or that the load cells are evenly supported.
- Moderate temperature and humidity (15°C - 30°C and 40% - 70%).
- Do not install in an environment where there is a risk of explosion.
- All transmitter connections must be made in accordance with applicable regulations in the area and environment of installation. Observe the electrical precautions listed in the section “**Electrical precautions**”.
- Ensure that it is correctly earthed, see the relevant section “**Earthing of the system**”.
- Do not perform welding when the load cells have already been installed.
- If necessary, use watertight sheaths and fittings to protect the load cell cables.
- Any junction boxes must be watertight.
- Anything not expressly described in this manual constitutes improper use of the equipment.

## Electrical precautions

- Use a regulated mains supply within  $\pm 10\%$  of the rated voltage.
  - The electrical protections (*fuses, etc.*) are the responsibility of the installer.
  - Observe the recommended minimum distances between cables of different categories (see table on page 10).
  - The following cables must comply with the maximum permissible lengths (see table on page 10), they must be shielded and must be inserted alone in metal conduits or pipes:
    - the load cell extension cables;
    - the signal amplifier cables.
- The input of the cell and amplifier cables into the PC case must be independent. The cables must be connected directly to the transmitter terminal block.
- Fit the “RC” filters on all devices that produce electrical noise.
  - Connections to load cells and any external device must be as short as possible.
  - The cable ends (connectors, leads, terminals, etc.) must be installed correctly; the cable shielding must be kept intact until close to the connection point.

The sticker shown by the side is applied to the product to warn the user of the electrical hazard:

- - RISK OF ELECTRIC SHOCK
- - DO NOT DISASSEMBLE THE APPLIANCE
- - COMPLETELY DISCONNECT THE POWER SUPPLY TO THE APPLIANCE BEFORE PERFORMING ANY MAINTENANCE.



## RECOMMENDED DISTANCES AND CABLE CLASSIFICATION

	Category I	Category II	Category III	Category IV
<b>Distance</b>				
<b>Classification</b>	<p>Fieldbus, LAN network (PROFIBUS, Ethernet, Devicenet...).</p> <p>Shielded data cables (RS232...).</p> <p>Shielded cables for analog digital signals &lt; 25 V (sensors, load cells...).</p> <p>Low voltage power supply cables (&lt; 60 V).</p> <p>Coaxial cables.</p>	<p>DC supply cables with voltage &gt; 60 V and &lt; 400 V.</p> <p>AC supply cables with voltage &gt; 25 V and &lt; 400 V.</p>	<p>Power supply cables with voltage &gt; 400 V.</p> <p>Telephone cables.</p>	<p>Any cable subject to lightning danger.</p>

## MAXIMUM ALLOWED LENGTHS

Load cell	RS232	RS485	Analog output
<p>50 metres with 6 x 0,25 mm<sup>2</sup> cable;</p> <p>100 metres with 6 x 0,5 mm<sup>2</sup> cable.</p>	<p>15 m with baud rate up to 19200.</p>	<p>1200 m with shielded 2 x 24 AWG twisted pair with outer braid + aluminium strip.</p>	<p><b>CURRENT:</b> 100 metres with 2 x 0,25 mm<sup>2</sup> cable; 150 metres with 2 x 0,5 mm<sup>2</sup> cable; 300 metres with 2 x 1 mm<sup>2</sup> cable.</p> <p><b>VOLTAGE:</b> 50 metres with 2 x 0,25 mm<sup>2</sup> cable; 75 metres with 2 x 0,5 mm<sup>2</sup> cable; 150 metres with 2 x 1 mm<sup>2</sup> cable.</p>

# Earthing of the system

For correct earthing and optimal system operation, the load cells, junction box, if any, and weighing structure must be earthed.

## LOAD CELLS AND JUNCTION BOX

The connection must be made by connecting the earth wires to the earth bar (cables that must have a cross-section of at least 16 mm<sup>2</sup>); finally, connect the earth bar to the earth post with a cable having a cross-section of at least 50 mm<sup>2</sup>.

### EXAMPLES:

- If the load cells are connected to the board through a junction box, the cable shield from the board and the cell cable shields must be connected to the earth socket of the junction box (refer to the junction box manual) and the junction box must be earthed using a copper cable with a cross-section of not less than 16 mm<sup>2</sup>.
- If the load cells are connected directly to the board (without using the junction box), the cell cable shields must be connected to the earthing point (or earth bar).
- If the weighing system involves large and/or outdoor structures (weighbridges, silos, etc.) and the distance between the junction box and the weight board is greater than 10 m, connect the cell cable shields to the earth socket in the junction box.

## WEIGHING STRUCTURE

Earth the weighing structure and/or any unconnected structures (e.g. silos that release material onto the weighing structure) using cables with a cross-section of not less than 16 mm<sup>2</sup>.

Also connect the upper part with the lower part of each cell by means of a copper braid with a cross-section not less than 16 mm<sup>2</sup> (refer to the earthing examples on page 12 and page 13).

## SERIAL CABLES AND CONNECTED INSTRUMENTS

Connect the serial cable shield to the earthing point (or earth bar) inside the panel. To avoid any undesired effects, the earth reference of the connection cable, power supply and transmitter must be at the same potential.

## PC

The 6116EVO is earthed through the power cable.

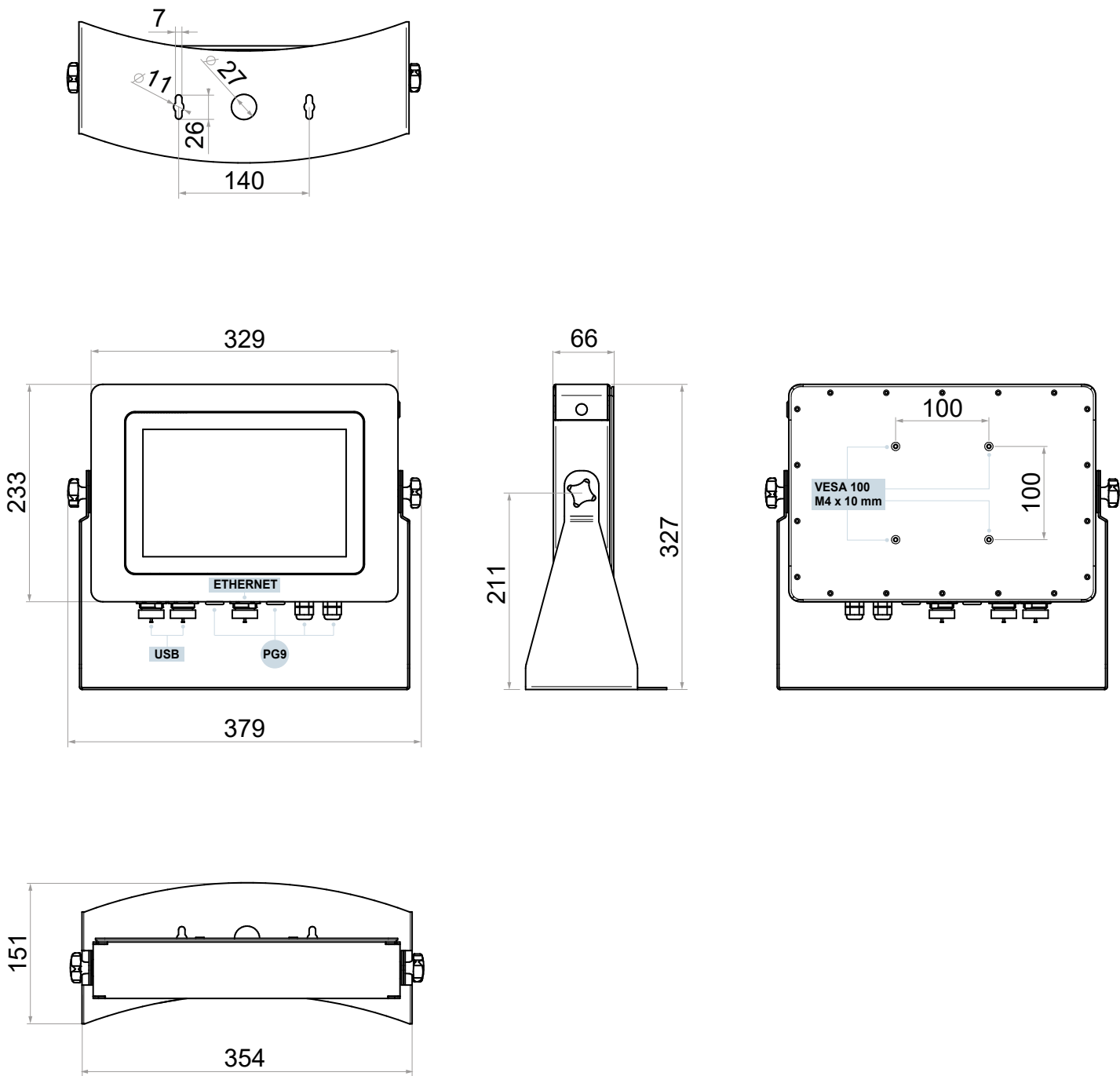
**WARNING:** Check that the power supply socket to which the 6116EVO Industrial PC will be connected has an earth line.



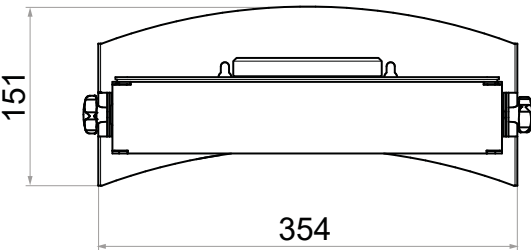
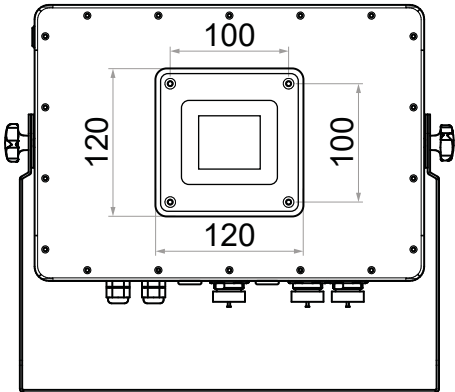
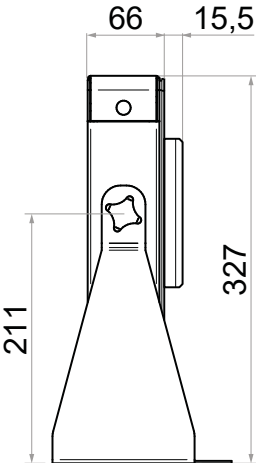
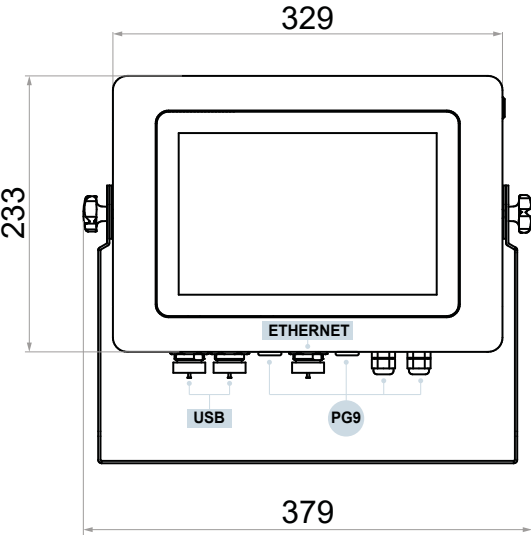
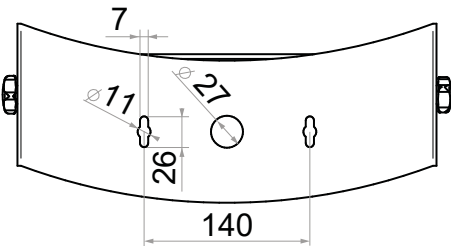
### GENERAL NOTES:

- All earth wires must be of suitable length, so as to obtain an overall resistance of the earthing system of less than 1 Ω.
- If the weighing system involves large and/or outdoor structures (weighbridges, silos, etc.):
  - the earth connection must be made by connecting the earth wires to an earth bar and the earth bar to the earth post with a cable having a cross-section of not less than 50 mm<sup>2</sup>;
  - the thickness of the cables must be greater (50 mm<sup>2</sup> instead of 16 mm<sup>2</sup> and 100 mm<sup>2</sup> instead of 50 mm<sup>2</sup>), because the voltages at stake are greater (e.g. lightning);
  - the earth post must be placed at a distance of at least 10 m from the structure.
- If the load receiver is more than 10 m from the transmitter, we recommend using the SENSE line and load cells equipped with a (SENSE) compensation circuit.

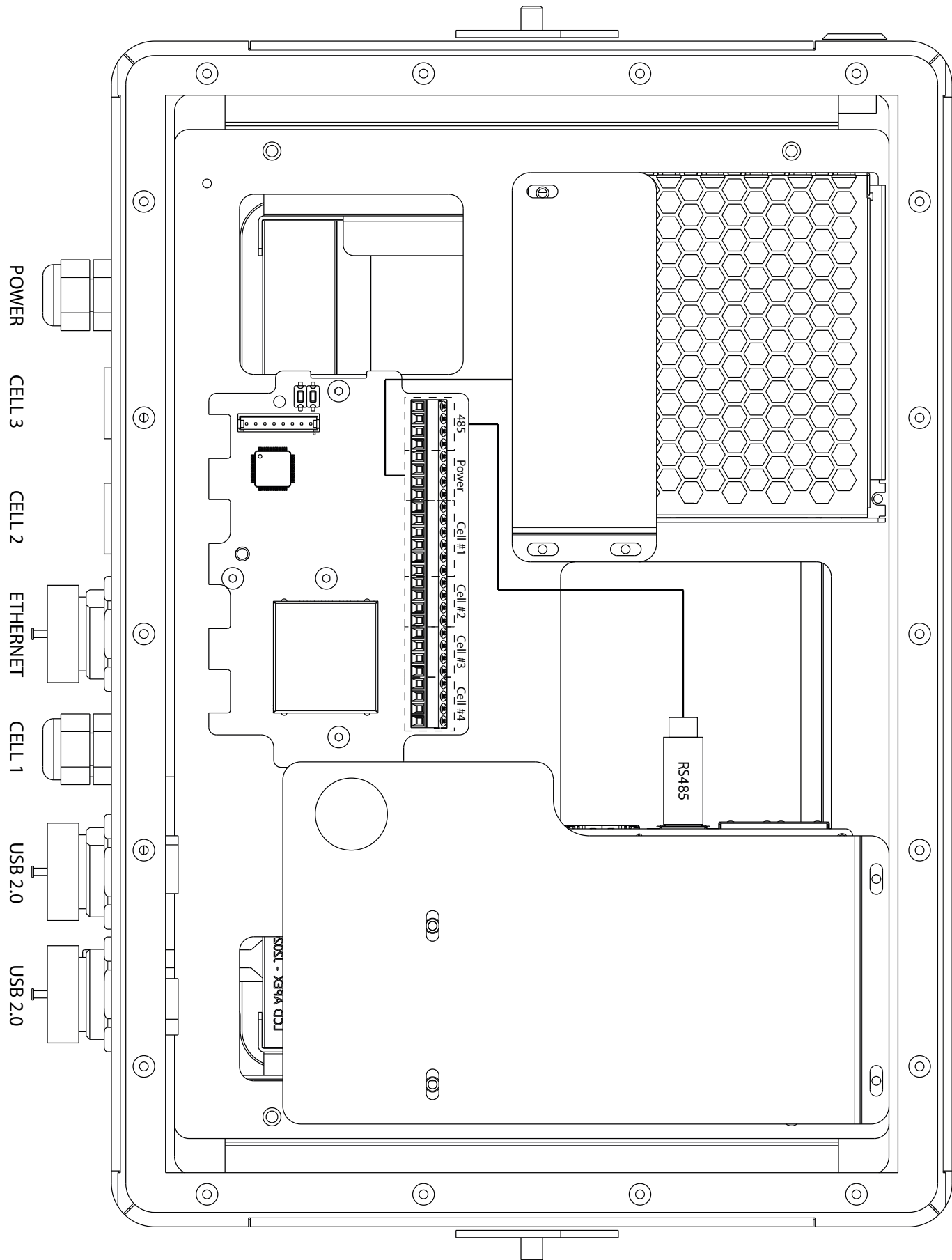
6116EVO / 6116EVO-PC

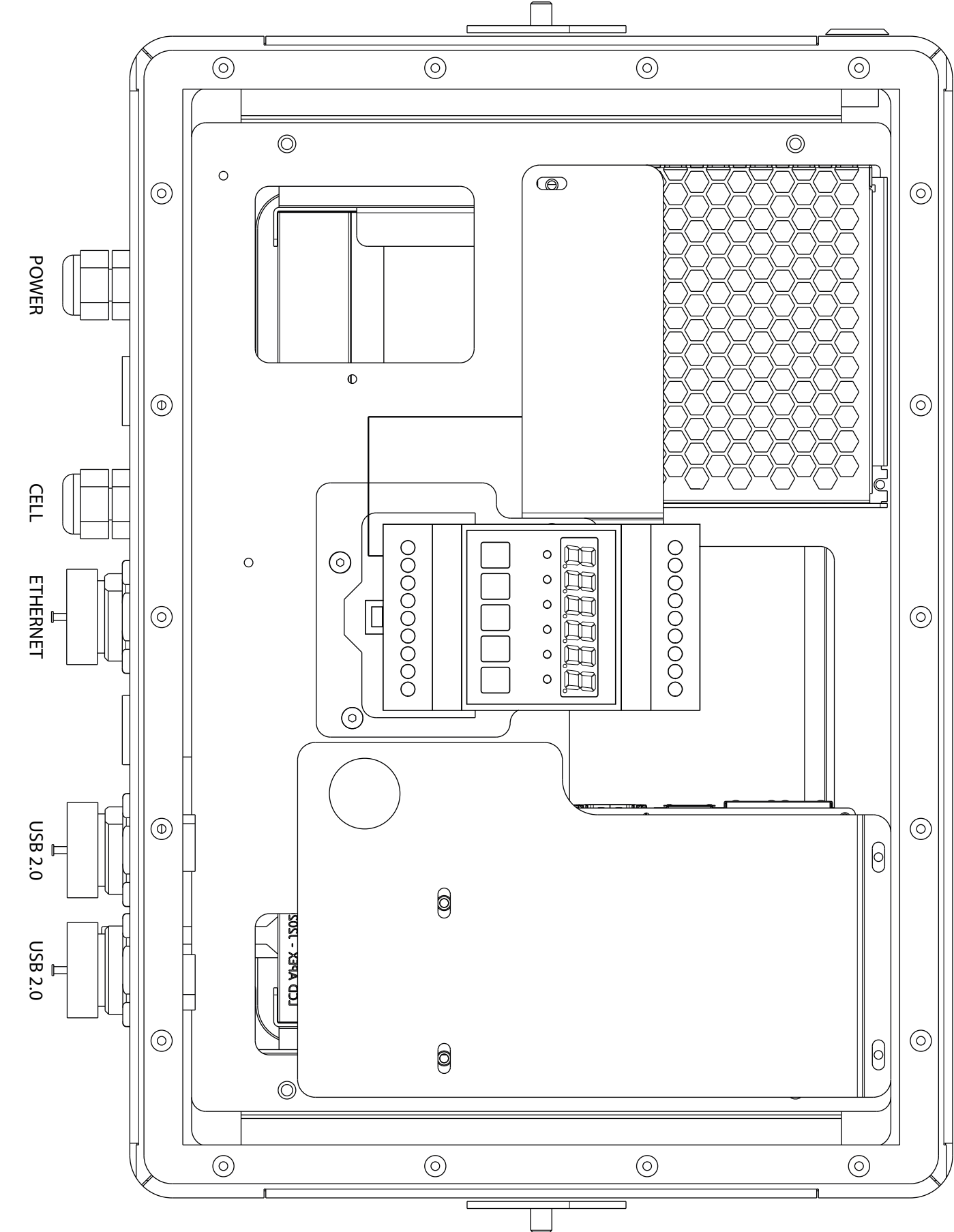


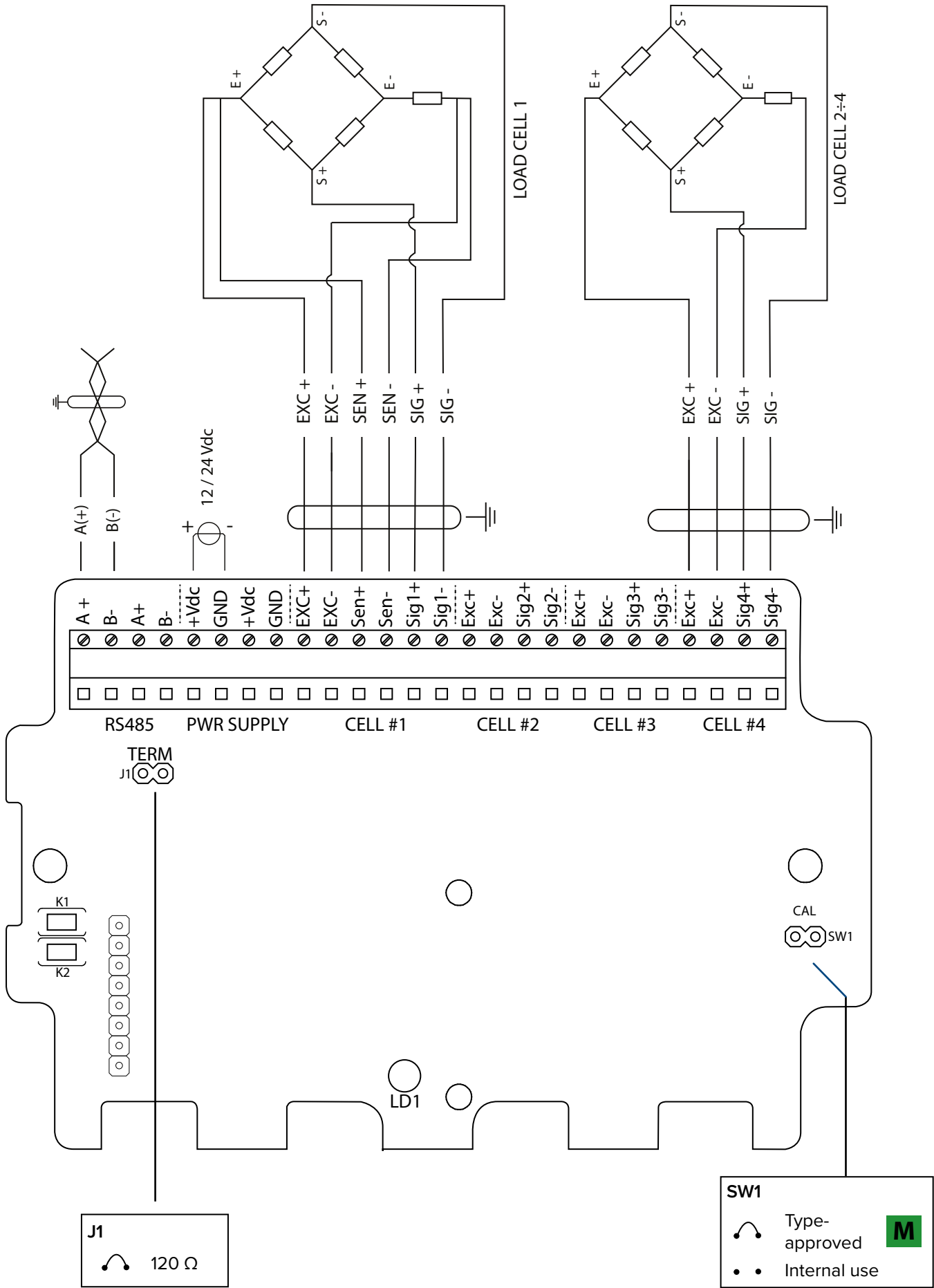


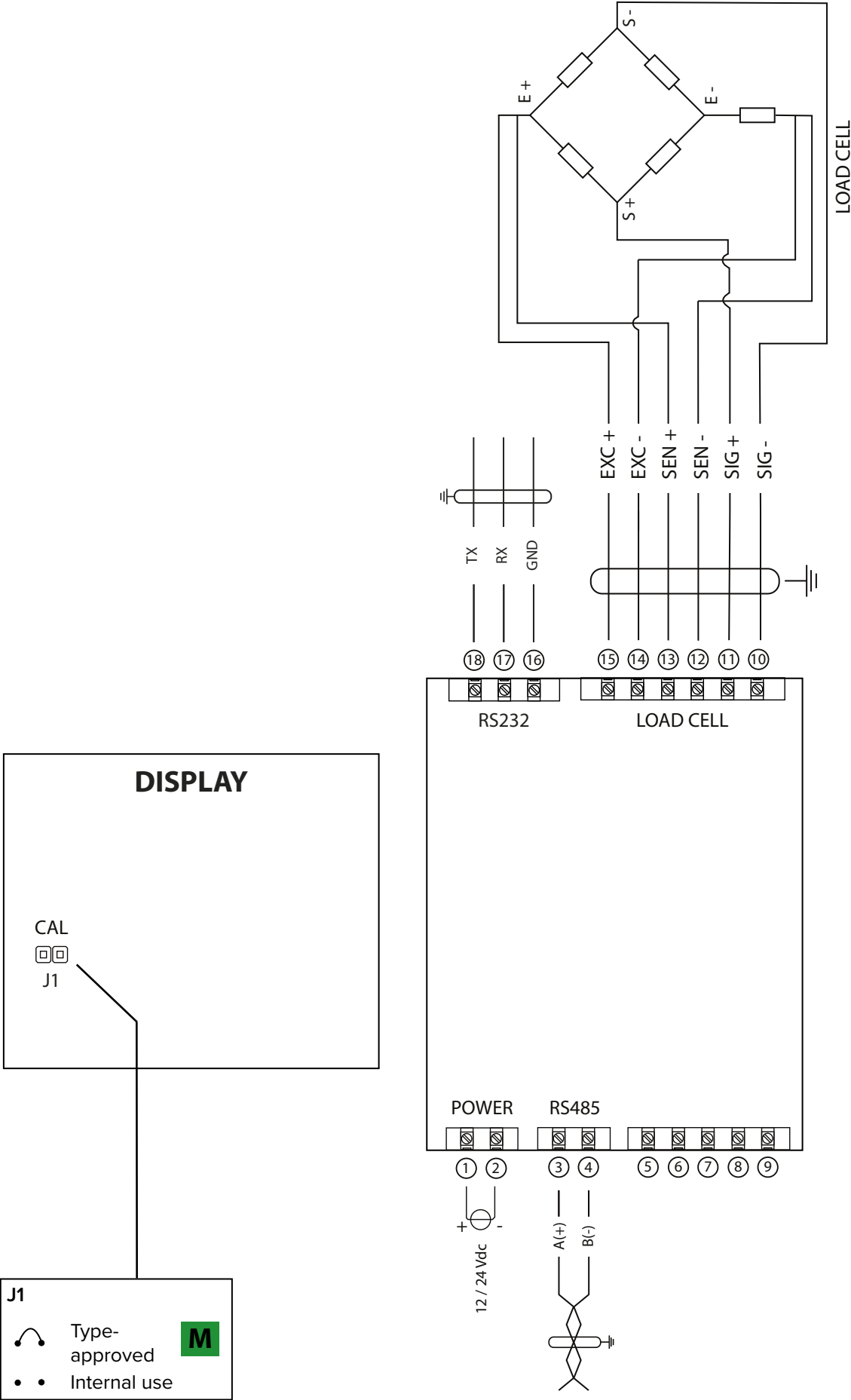


6116EVO









<b>PROCESSOR</b>	Intel Celeron N3350 DualCore 64bit, 2Mb L2 cache, up to 2.4GHz.
<b>GRAPHICS</b>	Intel HD Graphics 500
<b>OPERATING SYSTEM</b>	Windows 10 in English. (other languages optional) AF6116: software of your choice from AF01PC, AF02PC, AF03PC, AF04PC, AF05PC
<b>SCREEN</b>	Capacitive touchscreen Dimensions 10.1" Resolution 1280x800 px Brightness 800 cd/m2
<b>RAM</b>	4 Gb DDR3L
<b>STORAGE</b>	Internal Memory M.2 SSD 64 Gb
<b>COOLING</b>	Fanless technology
<b>CASE</b>	Stainless steel, AISI304 Bracket included for bench or wall mounting with tilt adjustment
<b>PERIPHERAL DEVICES</b>	Communication ports with IP67 protection <ul style="list-style-type: none"> <li>• 2 x USB 2.0 type B</li> <li>• 1 x LAN</li> </ul> Internal communication ports <ul style="list-style-type: none"> <li>• 2 x USB 3.0 type B (<i>one port is occupied on the 6116EVO model</i>)</li> <li>• 1 x LAN</li> </ul>
<b>IP CLASS</b>	IP67 with valve for humidity control
<b>WORKING TEMPERATURE</b>	0 / 60°C, 0 / 40°C for type-approved applications (6116EVO-DGT only)
<b>DIMENSIONS</b>	Refer to the dimensional technical drawings
<b>POWER AND CONSUMPTION</b>	110 / 240 Vac, max 75 W.

<b>OIML SCALE INPUT (6116EVO-DGT)</b>	<ul style="list-style-type: none"> <li>• Electronic part of the scale: Weight indicator with built-in Alibi Memory and CE-M EN 45501 certification, OIML R-76, OIML R-61 (MID), OIML R-51 (MID), Australian approval (NMI S788). Rear viewable scale display.</li> <li>• Weight reading inputs: 1.</li> <li>• Operating mode: Single scale.</li> <li>• Connectable load cells: up to 8 of 350 Ω.</li> <li>• Selectable sampling rate: up to 400 conv./sec.</li> <li>• Communication protocol: <ul style="list-style-type: none"> <li>– ASCII standard;</li> <li>– ASCII with continuous transmission;</li> <li>– Modbus RTU;</li> </ul> </li> </ul>
---	---

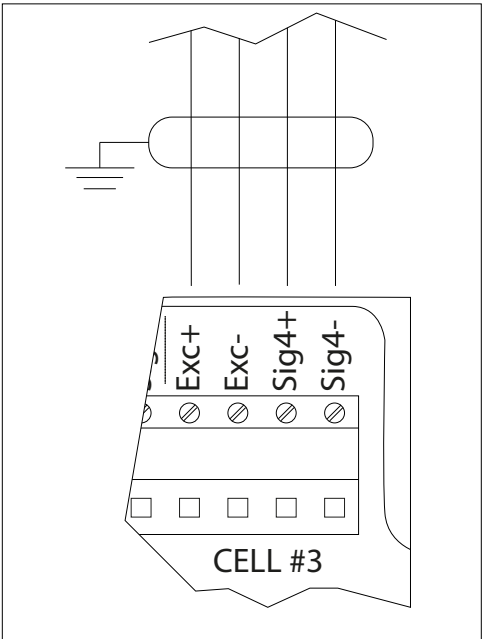
<b>XCORE SCALE INPUT (6116EVO)</b>	<ul style="list-style-type: none"> <li>• Electronic part of the scale: Integrated XCore converter.</li> <li>• Weight reading inputs: 3.</li> <li>• Operating modes: <ul style="list-style-type: none"> <li>– Digital junction box (up to 3 load cells);</li> <li>– Single scale.</li> <li>– Multi-scale up to 3 scales;</li> </ul> </li> <li>• Connectable load cells: up to 8 of 350 Ω.</li> <li>• Selectable sampling rate: up to 2600 conv./sec. (1 channel)</li> <li>• Communication protocol: Modbus RTU;</li> </ul>
--	---

# Load cell installation

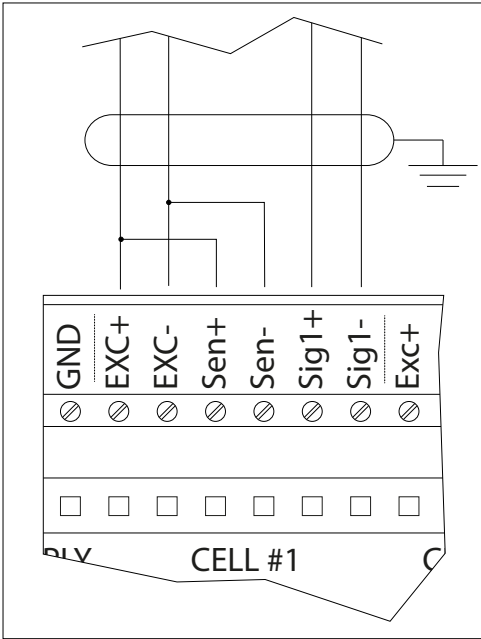
## 6116EVO

The transmitter has one channel (CELL#1) for 6-wire connection to load cells (using the SENSE), while for the remaining channels (CELL#2, CELL#3) only 4-wire connection is allowed.

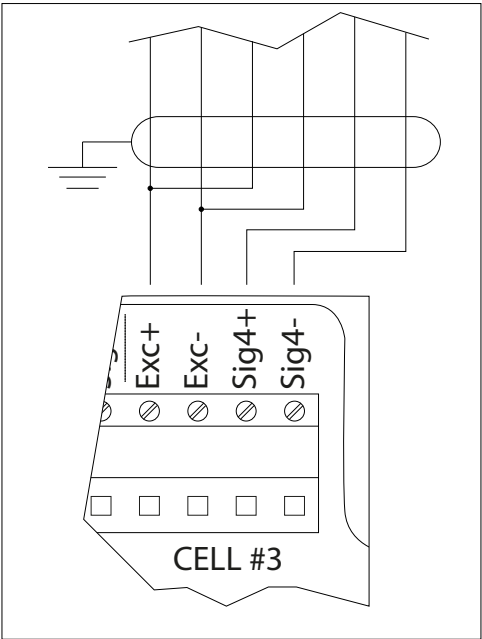
The SENSE allows you to compensate for any voltage drop on the section of the cable connecting the board to the load receiver. It is especially useful when the distance between the board and the load receiver is more than 10 metres long.



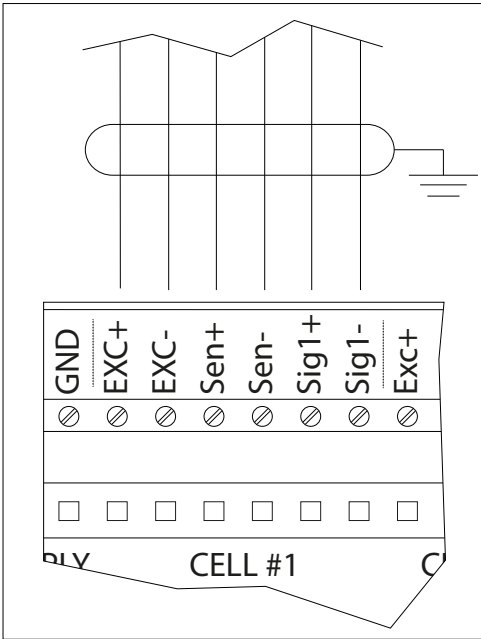
4-WIRE CONNECTION  
CELL2 / CELL3



4-WIRE CONNECTION  
CELL1

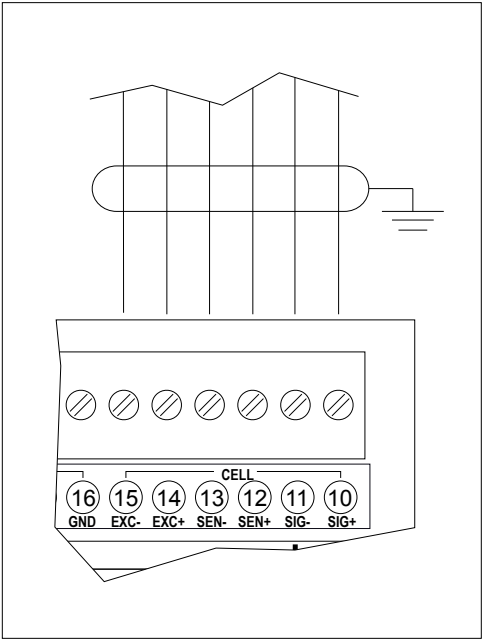


6-WIRE CONNECTION  
CELL2 / CELL3

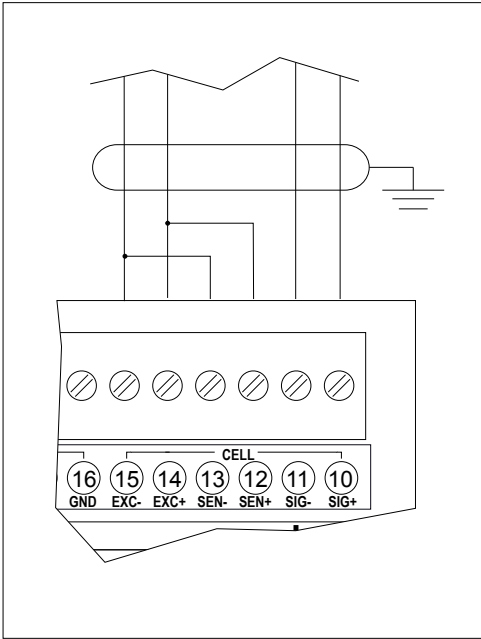


6-WIRE CONNECTION  
CELL1

The transmitter has a channel (CELL) for connection to 6-wire load cells (with the use of SENSE).  
The SENSE allows you to compensate for any voltage drop on the section of the cable connecting the transmitter to the load receiver.  
It is especially useful when the distance between the transmitter and the load receiver is more than 10 metres.



6-WIRE CONNECTION




4-WIRE CONNECTION



The communication with the scale takes place through ASCII serial protocol or Modbus RTU.

Check the serial port to be used for communication using the Windows “Device Manager” program in the Ports (COM & LPT) submenu.

-  For more information on communication protocols, refer to the weight transmitter manuals:
- DGT1 (6116EVO-DGT)
  - DGX4SP (6116EVO)

## Notes

[illegible]

This publication, or any part of it, may not be reproduced without written permission from the Manufacturer. All information in this manual is based on the data available at the time of its 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 updates. The person responsible for the use of the scale must ensure that all safety regulations in force in the country of use are applied, ensure that the scale is employed in accordance with the intended use and avoid any dangerous situation for the user. The Manufacturer declines all responsibility for any weighing errors.





A RICE LAKE WEIGHING SYSTEMS COMPANY

#### **HEAD OFFICE**

Via Della Fisica, 20  
41042 Spezzano di Fiorano, Modena - Italy  
Tel. +39 0536 843418 - Fax +39 0536 843521

#### **SERVICE ASSISTANCE**

Via Dell'Elettronica, 15  
41042 Spezzano di Fiorano, Modena - Italy  
Tel. +39 0536 921784 - Fax +39 0536 926654

**[www.diniargeo.com](http://www.diniargeo.com)**

Stamp of the authorized service centre

