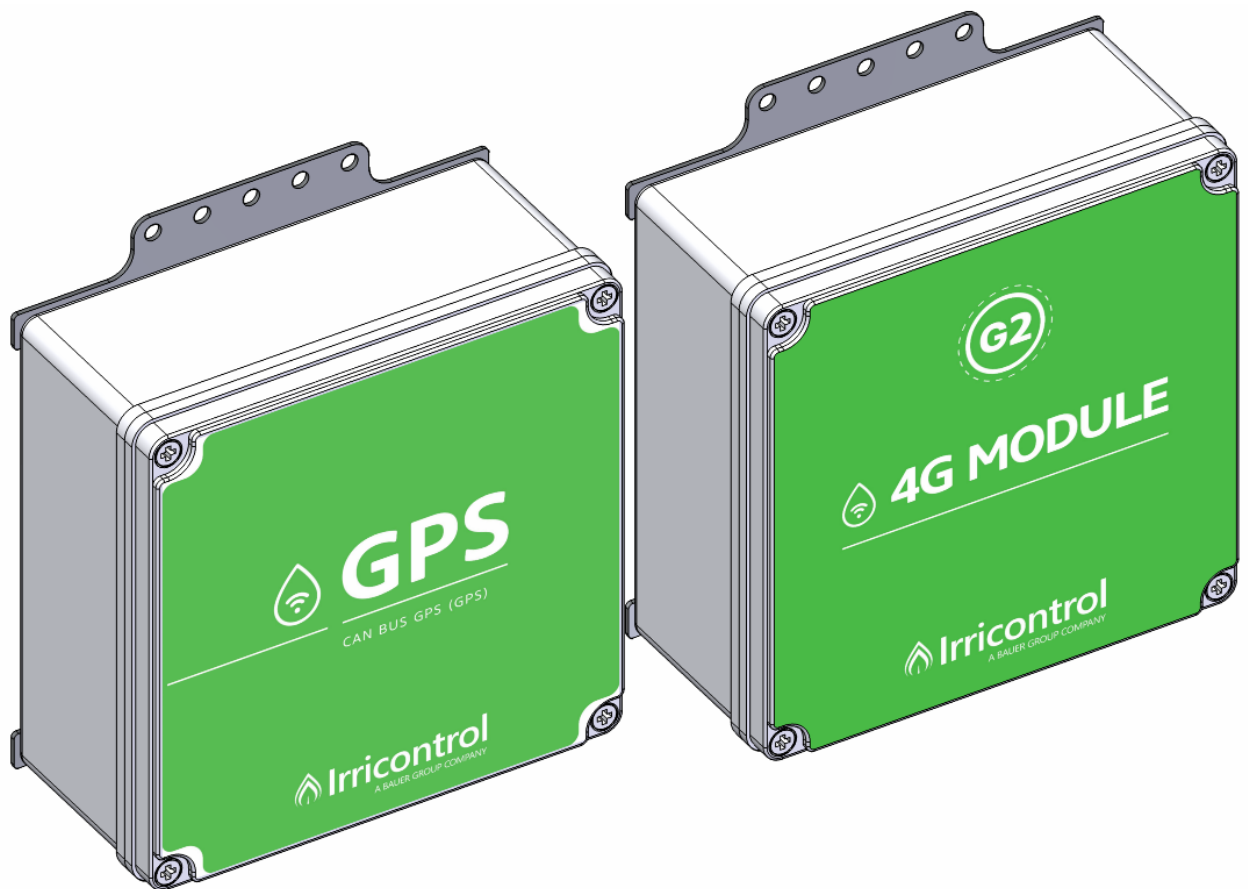


# Installation, Operation and Maintenance **MANUAL**



## 4G MODULE G2 and CAN GPS

v. 00

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---

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A dedicated section is also available on the **Irricontrol Knowledge Platform (Zendesk)**, where customers can access the digital version of this manual, additional product information, and possible updates.

Zendesk can be accessed through the following link:

<https://irricontrol.zendesk.com/hc/en-us>



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## NOTES

This document uses notes to organize and highlight critical information related to the operation and maintenance of the equipment. The notes are categorized according to their purpose, as described below:



**SUPPLEMENTARY NOTE** – Provides additional information that helps in understanding or performing a task but is not essential for the safety or functionality of the equipment.



**WARNING NOTE** – Draws attention to potential equipment damage or critical details that may impact system performance.



**DANGER NOTE** – Highlights situations that pose risks to the physical safety or life of the operator. These notes must be strictly followed to prevent serious injury or death.



**SCHEDULING NOTE** – Specifies recommended time intervals for tasks such as preventive maintenance or operational adjustments.

Pay attention to these notes throughout the manual, as they are designed to enhance understanding and ensure safety and efficiency when using the equipment.

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## 1. Introduction

This manual provides the necessary information for the installation, operation, and maintenance of the 4G Module G2 and CAN GPS, manufactured by Irricontrol. It is essential that all individuals involved in any of these stages carefully study this manual before starting any procedure. Keep it in a safe, known, and accessible location so that the entire team can consult it whenever needed.

All information contained in this manual is based on the most up-to-date data available for Irricontrol's product portfolio at the time of printing. Due to the continuous development of its equipment, the company reserves the right to modify the contents of this manual without prior notice and disclaims any responsibility for consequences arising from such changes. To keep customers informed, the company maintains a section on its knowledge base and on the Irricontrol/Zendesk Platform, where updates and other relevant information about the equipment are published.

The images included in this manual are for illustrative purposes only and may differ from the actual equipment. Their inclusion is intended to facilitate the understanding of the equipment and its operation.

To ensure clarity, and given the wide range of possibilities, this manual does not cover every conceivable situation related to operation and maintenance. Should further clarification be required, Irricontrol technical support may be contacted.

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## 2. Warranty

Irricontrol offers a warranty for its entire product line, covering manufacturing defects and malfunctions. In such cases, the company is committed to providing full support by performing repairs and/or replacements, either partially or fully, at Irricontrol's discretion.

For the warranty to be valid and enforceable, it is essential that all conditions and rules described and agreed upon in the **WARRANTY TERMS** are fully observed.

We recommend consulting the **PURCHASE AND SALE AGREEMENT** for further details and information regarding duration, coverage, claim procedures, exclusions, and the documentation required to initiate the warranty process.



It is recommended to properly file all documents related to the equipment purchase, such as the INVOICE and WARRANTY TERMS. This will expedite any warranty service process.



The information contained in this manual does not replace, add to, or modify any agreement established by the PURCHASE AND SALE AGREEMENT and/or WARRANTY TERMS.



Modifying or replacing any components of the product may cause malfunction and affect the product warranty. Therefore, it is always recommended to consult the manufacturer or an authorized representative before carrying out such interventions.



### 3. Technical Data Sheet

| DESCRIPTION                          | INFORMATION                                                                                                                                                                                                                                                                                                      |                 |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Product Name                         | 4G Module G2 and CAN GPS                                                                                                                                                                                                                                                                                         |                 |
| Manufacturer Code (SKU) <sup>1</sup> | 7992, 7993, 8011, 8012                                                                                                                                                                                                                                                                                           |                 |
| Short Description                    | Solution that enables 4G connectivity in G2 cabinets (Nexus G2 and SmartConnect G2). The 4G G2 Module is connected to the cabinet controller and communicates with the Irricontrol Platform via 4G, while the CAN GPS transmits position and pressure information from the pivot's last tower through a CAN bus. |                 |
| Protection Rating (IP)               | IP65                                                                                                                                                                                                                                                                                                             |                 |
| Materials and Finish                 | Plastic boxes with label.                                                                                                                                                                                                                                                                                        |                 |
| Dimensions (H × W × D) <sup>1</sup>  | 200 × 200 × 95 mm or 230 × 230 × 133 mm                                                                                                                                                                                                                                                                          |                 |
| Connector Type                       | WAGO connectors e USB.                                                                                                                                                                                                                                                                                           |                 |
| Installation Environment             | External                                                                                                                                                                                                                                                                                                         |                 |
| Included Accessories                 | 4G Module G2, CAN GPS, CAN Cable, 6-wire Cable, 3-wire cable, Wiring Harnesses, Support Kit, Mounting Kit and Manual.                                                                                                                                                                                            |                 |
| Optional Accessories                 | Pressure sensor, reducing tee, nipple, and thread seal tape.                                                                                                                                                                                                                                                     |                 |
| Communication                        | 4G and CAN BUS                                                                                                                                                                                                                                                                                                   |                 |
| Pressure Sensor                      | Sensor Type                                                                                                                                                                                                                                                                                                      | Piezoresistive  |
|                                      | Material                                                                                                                                                                                                                                                                                                         | Stainless steel |
|                                      | Measurement Range                                                                                                                                                                                                                                                                                                | 0-10 bar        |
|                                      | Output Signal                                                                                                                                                                                                                                                                                                    | 4-20 mA         |
|                                      | Power Supply                                                                                                                                                                                                                                                                                                     | 10-30 VDC       |
| Data SIM Card                        | Nano format                                                                                                                                                                                                                                                                                                      |                 |
| Data Plan                            | 100 MB/month                                                                                                                                                                                                                                                                                                     |                 |
| Packaging                            | Cardboard box (423 × 413 × 240 mm)                                                                                                                                                                                                                                                                               |                 |
| Manufacturer / Technical Contact     | Irricontrol Controle Inteligente de Irrigação LTDA / Luiz Roque                                                                                                                                                                                                                                                  |                 |
| ITEM                                 | 4G MODULE G2                                                                                                                                                                                                                                                                                                     | CAN GPS         |
| Input Voltage                        | 7 - 36 VDC                                                                                                                                                                                                                                                                                                       | 90 - 240 VAC    |
| Input Current                        | 1 A                                                                                                                                                                                                                                                                                                              | ~ 0.35 A        |
| Output Voltage                       | -                                                                                                                                                                                                                                                                                                                | 12 V            |
| Output Current                       | -                                                                                                                                                                                                                                                                                                                | ~ 1.3 A         |
| Output Power                         | -                                                                                                                                                                                                                                                                                                                | 15.6 W          |

<sup>1</sup> Depending on the region of commercialization.

## 4. Product Overview

The 4G Module G2 and the CAN GPS form an Irricontrol solution developed to enable 4G connectivity for the G2 cabinet family (Nexus G2 and SmartConnect G2). The solution may also optionally include a pressure sensor.

The 4G Module G2 is connected to the pivot controller installed in the pivot control cabinet and is responsible for mediating communication between the pivot and the Irricontrol Platform via the 4G network.

The CAN GPS, in turn, is a device installed on the last pivot tower, responsible for providing the precise real-time position of the center pivot. This data is transmitted to the 4G Module G2 through a CAN bus that connects the two modules. By combining the geographic coordinates of the pivot center with the position of the last tower, both obtained via satellite, it is possible to accurately calculate the pivot's rotation angle relative to its central point. This functionality enables detailed operational monitoring, the configuration of specific irrigations for different field sections (zones), angle-based indicators, and other applications.

The pressure sensor, installed on the last pivot tower, is responsible for monitoring the pressure at that tower. The data is received and transmitted by the CAN GPS, integrated into the pivot controller via the 4G Module G2, and sent to the Irricontrol Platform for control, analysis, and monitoring.



## **5. Limitations and Operating Conditions**

The solution was designed to operate under specific installation, usage, and environmental conditions. To ensure proper operation, it is essential to comply with the limitations and operating conditions described in this section. Operation outside these conditions may compromise system performance, cause damage to the equipment, and pose safety risks.

### **5.1. Pivot Characteristics**

The 4G Module G2 was designed for application in center pivots.

It can be installed on 360° pivots, i.e., pivots with unrestricted movement that fully cover the circular area defined by their radius, provided that the pivot is equipped with a 13-conductor collector ring, with two conductors available for routing the CAN cable that connects the 4G Module G2 to the CAN GPS.

Otherwise, the solution can only be installed on sector pivots, i.e., pivots with restricted movement that cover an area of less than 360°, eliminating the need for additional conductors in the collector ring.

### **5.2. Control Cabinet**

The 4G Module G2 was developed to operate exclusively with SmartConnect G2 and Nexus G2 pivot control cabinets. Irricontrol shall not be held responsible for malfunctions, equipment damage, or any losses resulting from the use of this solution with other cabinets.

### 5.3. Data SIM Card Plan

The 4G Module G2 uses a SIM card with an active mobile data plan to transmit data to the Irricontrol Platform. To ensure continuous system operation, the SIM card must have an active data plan with a recommended minimum allowance of 100 MB per month.

If the data plan limit is reached, communication with the platform may be interrupted, compromising remote monitoring of the equipment.



The loss of communication between the solution and the Irricontrol Platform does not compromise field operation of the equipment. The pivot and the GPS system can continue to operate through the pivot control cabinet.

### 5.4. 4G Coverage

Remote operation of the 4G Module G2 depends on the availability of a mobile network signal at the pivot installation site. The irrigated area must have stable 4G network coverage compatible with the installed SIM card operator in order to ensure continuous data transmission to the Irricontrol Platform.

### 5.5. Controller Firmware

To ensure better solution performance, the pivot controller installed in the pivot control cabinet (SmartConnect G2 or Nexus G2) must be updated to firmware version 6.9.1 or later.



## 6. Product Composition

The items that make up the 4G Module G2, the CAN GPS, and the pressure sensor are listed below.



Before starting the installation, all items must be checked, and any damage or missing parts must be immediately reported to the authorized dealer or directly to Irricontrol.

### • 4G Module G2:

| ITEM | CODE | DESCRIPTION                                               | QTY. |
|------|------|-----------------------------------------------------------|------|
| A    | -    | 4G MODULE G2                                              | 1.00 |
| B    | 2108 | UNSHIELDED MULTI-CORE CABLE 6 WIRES, 26 AWG               | 2 m  |
| C    | -    | CAN COMMUNICATION CABLE                                   | -    |
| D    | -    | WIRING HARNESS FOR POWER SUPPLY OF THE 4G MODULE G2       | 2.00 |
| E    | 7662 | [SMA 12 DBI] ANTENNA 4G/5G                                | 1.00 |
| F    | 7478 | ANTENNA BASE SUPPORT GLV                                  | 1.00 |
| G    | 7830 | 4G MODULE G2 MOUNTING BRACKET - SMARTCONNECT <sup>1</sup> | 1.00 |
| H    | 2377 | HEX HEAD BOLT, ZINC PLATED 6 × 20 (METRIC) <sup>1</sup>   | 4.00 |
| I    | 5409 | HEX LOCK NUT M6, ZINC PLATED <sup>1</sup>                 | 4.00 |
| J    | 2456 | HEX HEAD BOLT 3/8 × 1.1/2 RI ZB (IMPERIAL) <sup>1</sup>   | 2.00 |
| K    | 2159 | HEX NUT, ZINC PLATED 3/8" (IMPERIAL) <sup>1</sup>         | 2.00 |
| L    | 2156 | U-BOLT CLAMP <sup>2</sup>                                 | 3.00 |

<sup>1</sup> For SmartConnect G2 cabinets. <sup>2</sup> For Nexus G2 cabinets.



The length of the CAN COMMUNICATION CABLE is defined during the design phase and depends on the pivot length.

### • CAN GPS:

| ITEM | CODE | DESCRIPTION                                | QTY. |
|------|------|--------------------------------------------|------|
| A    | -    | CAN GPS                                    | 1.00 |
| B    | 2265 | FLEX PP CABLE - 3 CONDUCTORS 1MM           | 7 m  |
| C    | 2372 | GPS BRACKET - MODEL J                      | 1.00 |
| D    | 2377 | HEX HEAD BOLT, ZINC PLATED 6 × 20 (METRIC) | 2.00 |
| E    | 5409 | HEX LOCK NUT M6, ZINC PLATED               | 2.00 |
| F    | 2456 | HEX HEAD BOLT 3/8 × 1.1/2 RI ZB (IMPERIAL) | 1.00 |
| G    | 2159 | HEX NUT, ZINC PLATED 3/8" (IMPERIAL)       | 1.00 |
| H    | 5099 | NYLON CABLE TIE 7,6 × 390 UV               | 2.00 |
| I    | 2135 | NYLON CABLE TIE 2.5×160MM                  | 6.00 |

### • Pressure Sensor:

| ITEM | CODE | DESCRIPTION                         | QTY. |
|------|------|-------------------------------------|------|
| A    | -    | PRESSURE TRANSMITTER                | 1.00 |
| B    | 2274 | GALVANIZED REDUCING TEE - 3/4"-1/2" | 1.00 |
| C    | 2275 | GALVANIZED NIPPLE - 3/4"            | 1.00 |
| D    | 2276 | THREAD SEAL TAPE                    | 1.00 |



## 7. Installation

### 7.1. Mechanical Installation

This section describes the step-by-step procedure for the correct mechanical installation of the 4G Module G2, CAN GPS, and pressure sensor.



Tighten the bolts and nuts firmly, ensuring there are no gaps and that all mechanical components remain stable.



For markets where UL certification is required, the product's plastic boxes may present minor modifications. These changes do not affect the installation procedure.

#### 7.1.1. 4G Module G2

The 4G Module G2 must be installed on the pivot center tower, and its mounting varies according to the pivot control cabinet. On Bauer pivots, which use the SmartConnect G2 control cabinet, the equipment is mounted on the center tower structure using a mounting bracket. On other pivots, which use the Nexus G2 control cabinet for automation, the equipment is mounted on the cabinet's installation tube.



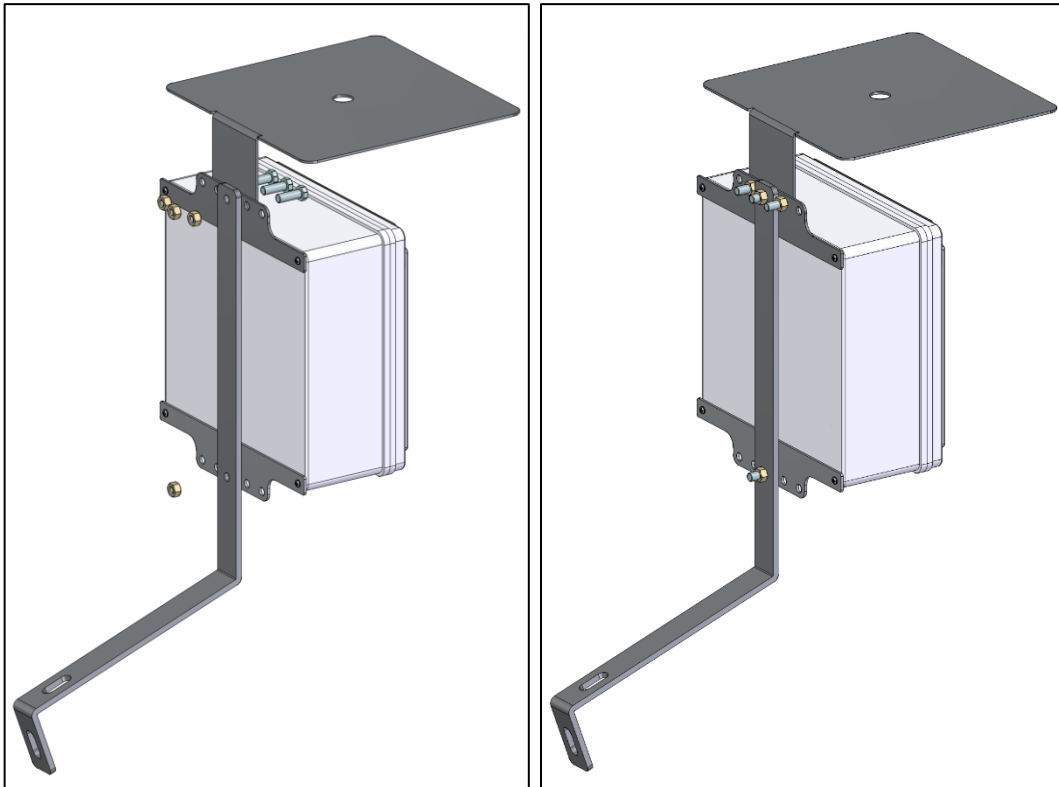
**Figure 1 - 4G Module G2 Installation on the center tower - SmartConnect G2 and Nexus G2.**





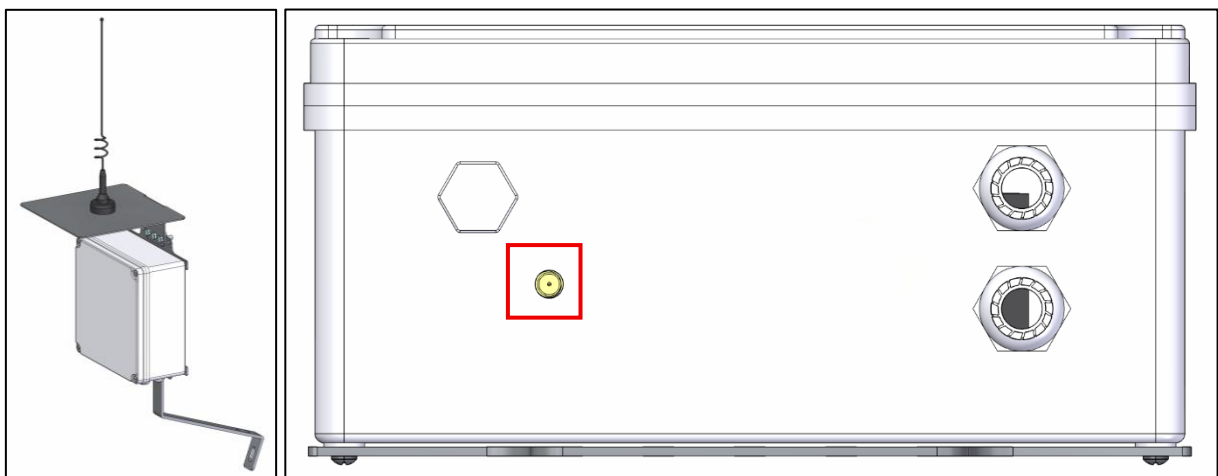
### 7.1.1.1. Pivots with SmartConnect G2

- A. Attach the 4G MODULE G2 MOUNTING BRACKET - SMARTCONNECT and the ANTENNA BASE BRACKET GLV to the 4G Module G2 plastic box, using 4 HEX HEAD BOLT, ZINC PLATED 6 × 20 (METRIC) and 4 HEX LOCK NUT M6, ZINC PLATED.



**Figure 2 - 4G Module G2 Mounting Bracket Installation (Pivots with SmartConnect G2).**

- B. Position the magnetic antenna on the bracket and connect its cable (male SMA connector) to the female SMA connector located on the bottom of the plastic box.



**Figure 3 - Antenna connection (Pivots with SmartConnect G2).**

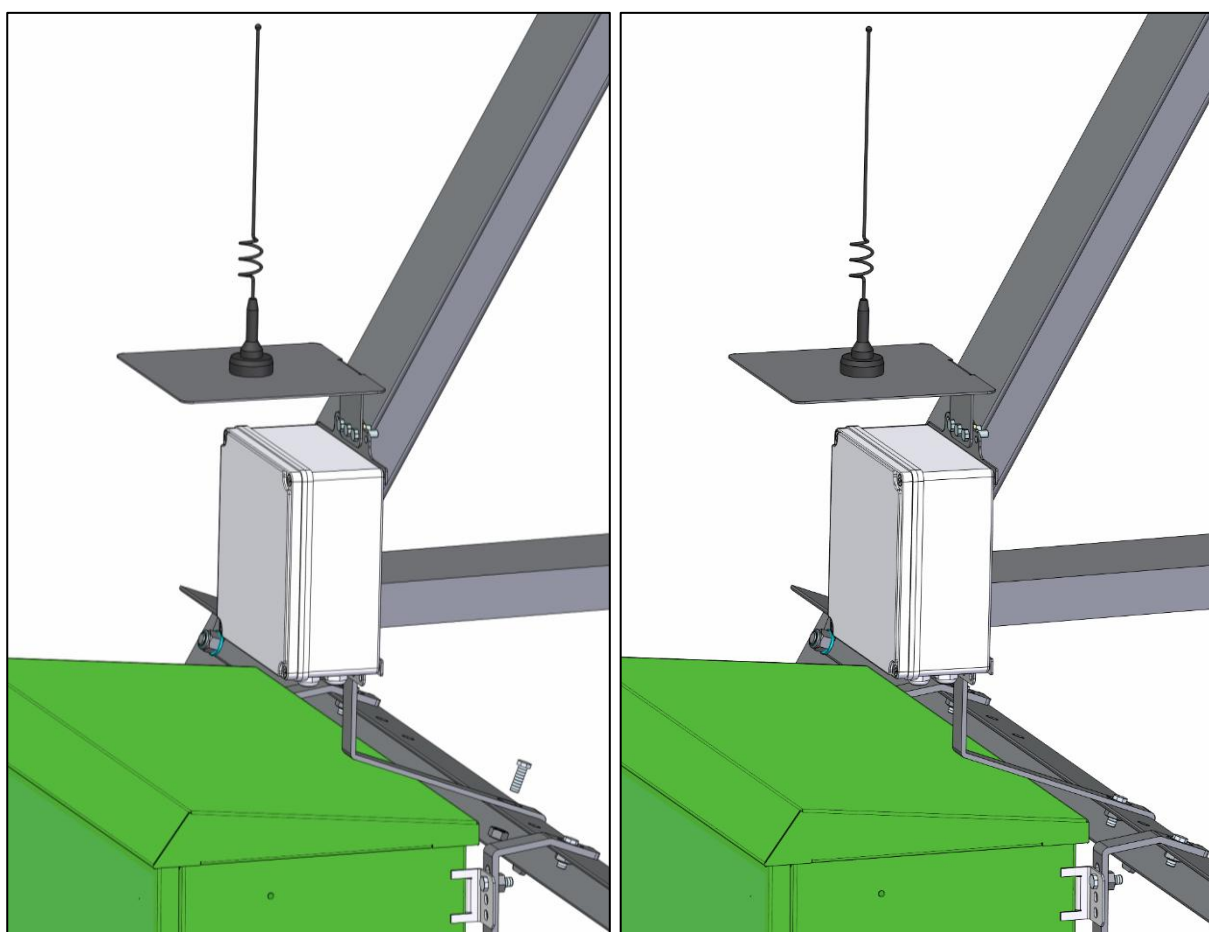


Keep metal or conductive objects away from the antenna and always ensure it is pointing upward.



Avoid sharp bends in the antenna cable and ensure that all connections are properly seated, without twisting or excessive tension, to prevent communication issues.

- C. Finally, secure the assembly to the upper mounting beam of the SmartConnect G2 control cabinet using one HEX HEAD BOLT  $3/8 \times 1.1/2$  RI ZB (IMPERIAL) and one HEX NUT, ZINC PLATED  $3/8$ " (IMPERIAL).

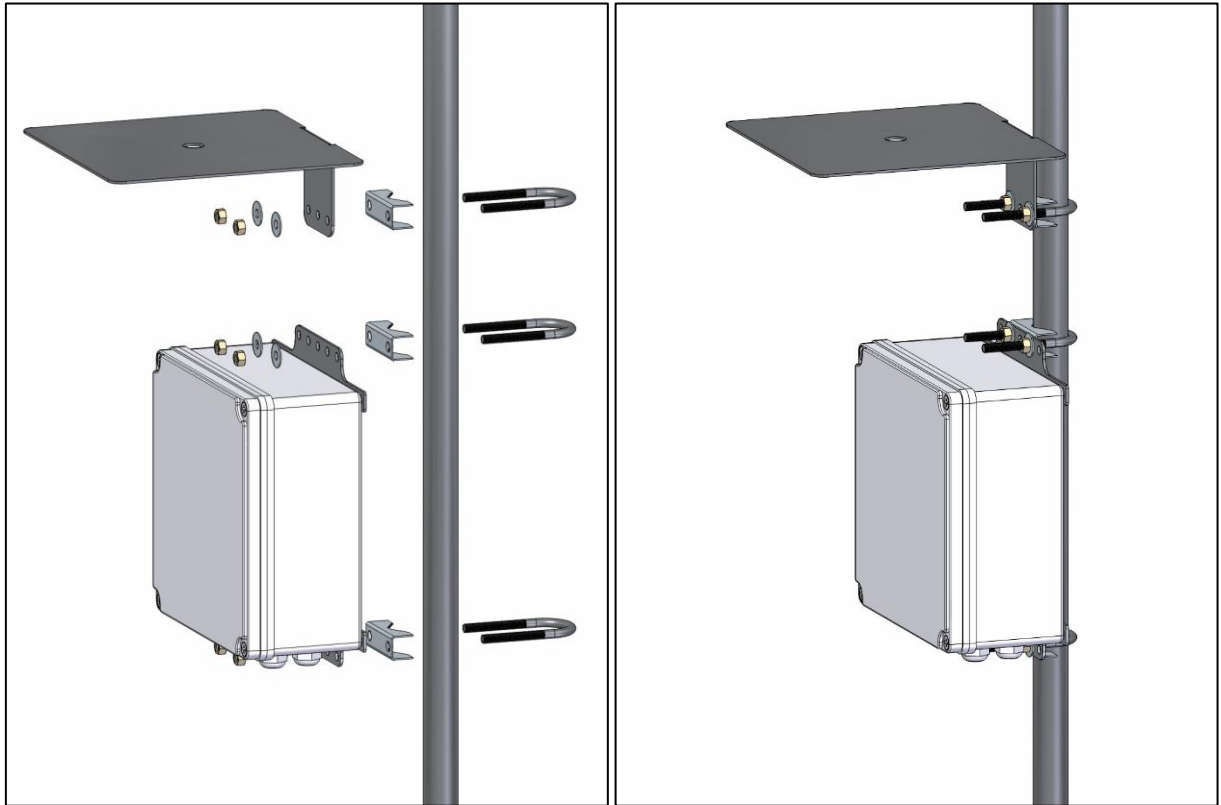


**Figure 4 - 4G Module G2 Mounting on the center tower (Pivots with SmartConnect G2).**



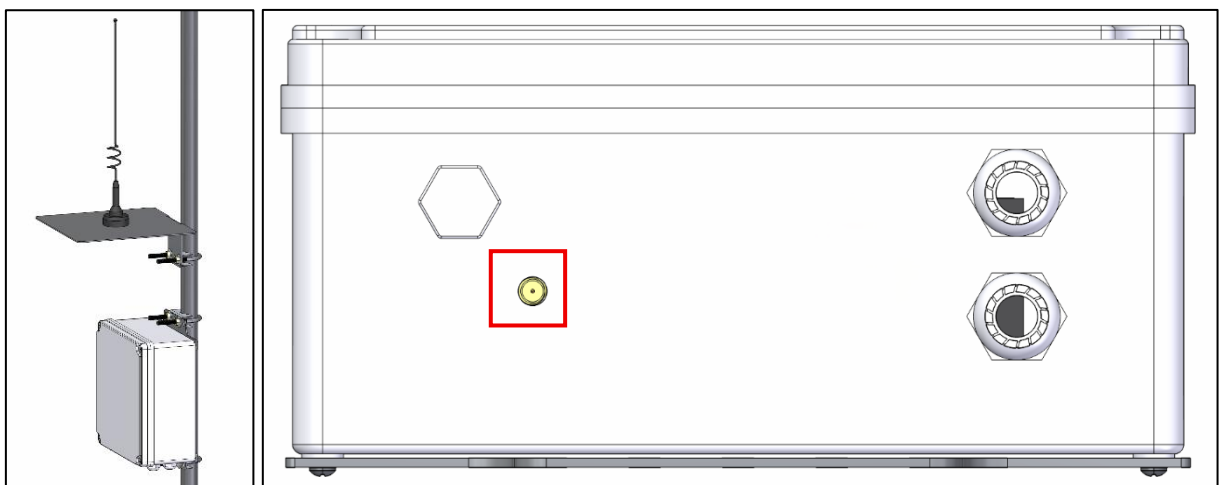
### 7.1.1.2. Pivots with Nexus G2

- A. Attach the 4G Module G2 plastic box and the ANTENNA BASE BRACKET GLV to the top of the Nexus G2 cabinet installation tube using three U-BOLT CAMPLES.



**Figure 5 - 4G Module G2 and Antenna Bracket Installation (Pivots with Nexus G2).**

- B. Position the magnetic antenna on the bracket and connect its cable (male SMA connector) to the female SMA connector located on the bottom of the plastic box.



**Figure 6 - Antenna connection (Pivots with Nexus G2).**

### 7.1.2. CAN GPS

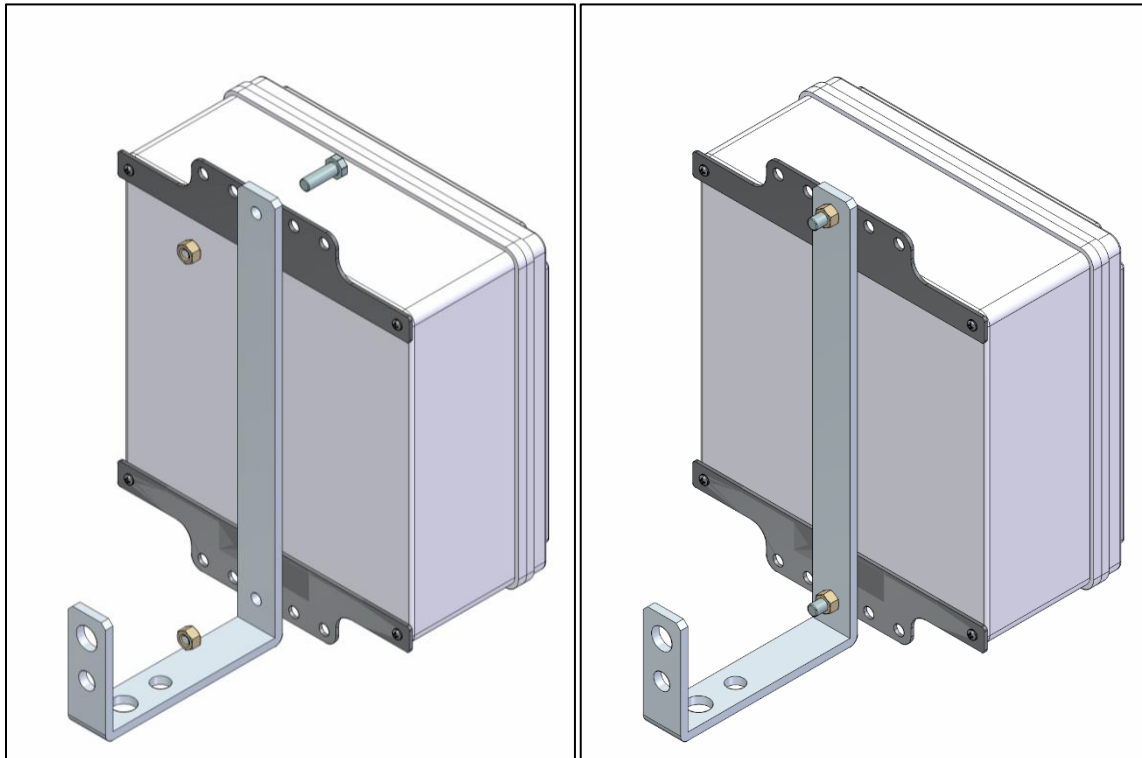
The CAN GPS must be installed on the structure of the last pivot tower, at the top and in a centralized position, as shown in Figure 7.



**Figure 7 - CAN GPS Installation on the Last Pivot Tower.**

To do this:

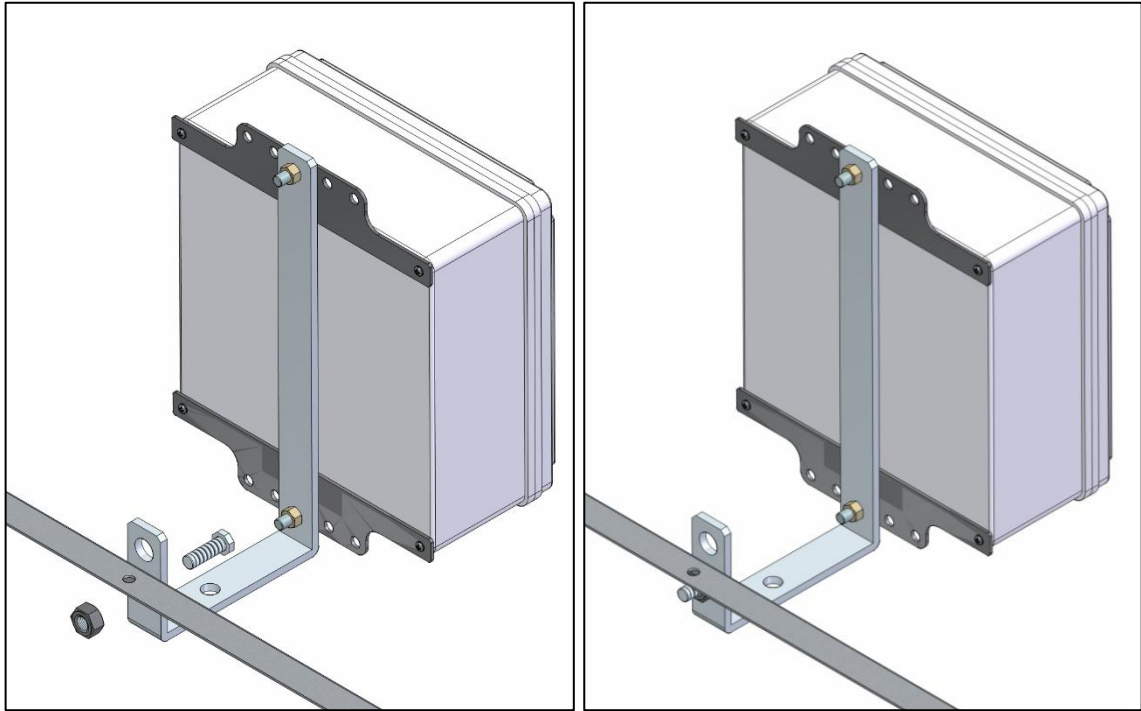
- A. A. Attach the GPS BRACKET - MODEL J to the CAN GPS plastic box using 2 HEX HEAD BOLT, ZINC PLATED 6 × 20 (METRIC) and 2 HEX LOCK NUT M6, ZINC PLATED.



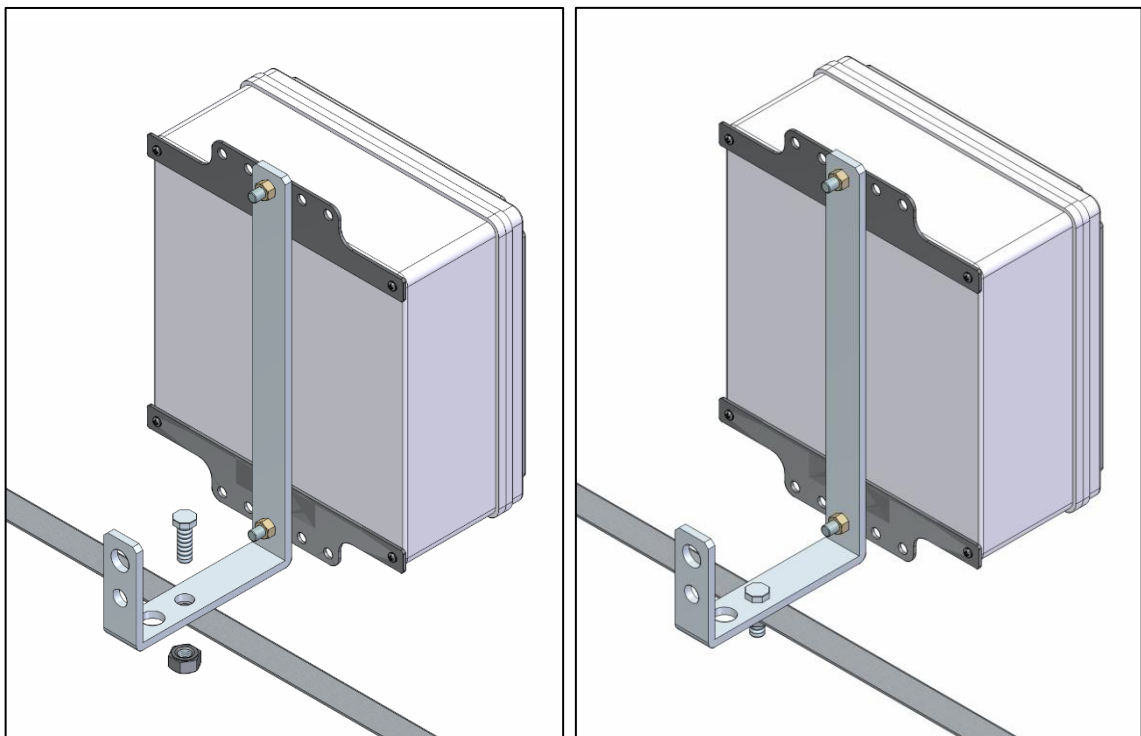
**Figure 8 - Mounting the J Bracket on the CAN GPS.**



- B. Finally, secure the assembly at the top and center of the last pivot tower structure. There are two mounting options depending on the type of hole in the beam: side or top. Use 1 HEX HEAD BOLT  $3/8 \times 1.1/2$  RI ZB (IMPERIAL) and 1 HEX NUT, ZINC PLATED  $3/8$ " (IMPERIAL).



**Figure 9 - CAN GPS Mounting on the Pivot Beam's Side Face.**

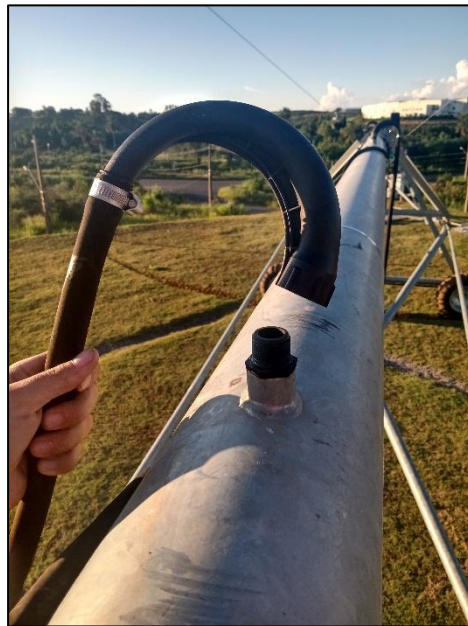


**Figure 10 - CAN GPS Mounting on the Pivot Beam's Top Face.**

### 7.1.3. Pressure Sensor

The pressure sensor must be installed next to the sprinkler elbow closest to the last tower, using a reducing tee for adaptation. To do this:

- A. Apply thread seal tape to the threads of the pressure sensor and the nipple.
- B. Locate the sprinkler closest to the last tower and disconnect the elbow that connects it to the pivot pipe.



***Figure 11 - Sprinkler closest to the last tower disconnected from the pivot pipe.***

- C. Apply thread seal tape to the thread that connects the sprinkler elbow to the pivot pipe.
- D. Connect one end of the reducing tee to the thread that attaches the sprinkler to the pivot pipe and the other end to the nipple.



***Figure 12 - Connection of the reducing tee and pressure sensor nipple to the pivot pipe.***



- E. Connect the sprinkler elbow to the nipple thread.



**Figure 13 - Connection of the sprinkler elbow to the nipple.**

- F. Connect the pressure sensor to the remaining end of the reducing tee.



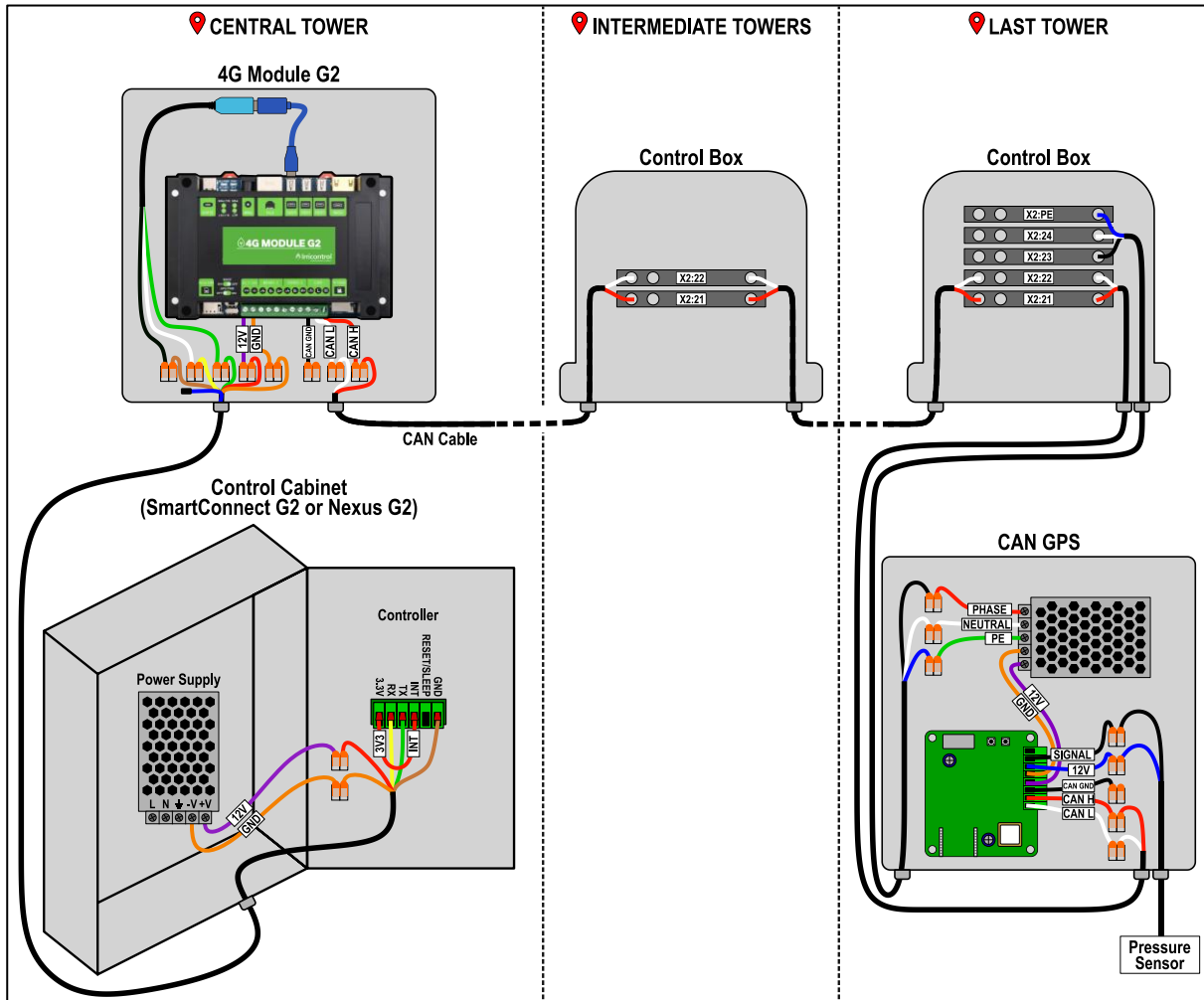
**Figure 14 - Mechanical Installation of the Pressure Sensor.**



Under no circumstances should objects be inserted into the pressure sensor hole. Doing so may permanently damage the sensor's sensitive element and compromise its operation.

## 7.2. Electrical Installation

The electrical installation of the 4G Module G2, the CAN GPS, and the pressure sensor are shown in the figure below and detailed in the following sections.



**Figure 15 - Electrical Installation of the 4G Module G2 and the CAN GPS.**



The electrical connection diagrams presented in this manual are for illustrative purposes only. Cable routing and colors may vary depending on the batch and/or region of commercialization, without affecting the solution's operation, provided that the conductors are connected to the corresponding electrical points.



For the installation, open the plastic box covers of the 4G Module G2 and the CAN GPS by unscrewing the screws counterclockwise, and open the plastic covers of the control cabinets by releasing the side latches.



**Figure 16 - Opening of the plastic boxes and removal of the control cabinet cover.**



The opening must be done carefully to avoid damaging the screws. It is recommended to always use tools that are compatible with the model and size of the box screws.



The opening can be performed using either a Philips screwdriver or a power drill with a Philips bit. If a power drill is used, the torque and speed must be properly adjusted to prevent unwanted wear on the screws.



To close the plastic boxes, it is recommended to apply a torque of approximately **4 to 5 Nm** on the four screws. This value must not be exceeded to avoid premature thread wear and/or damage to the box itself.

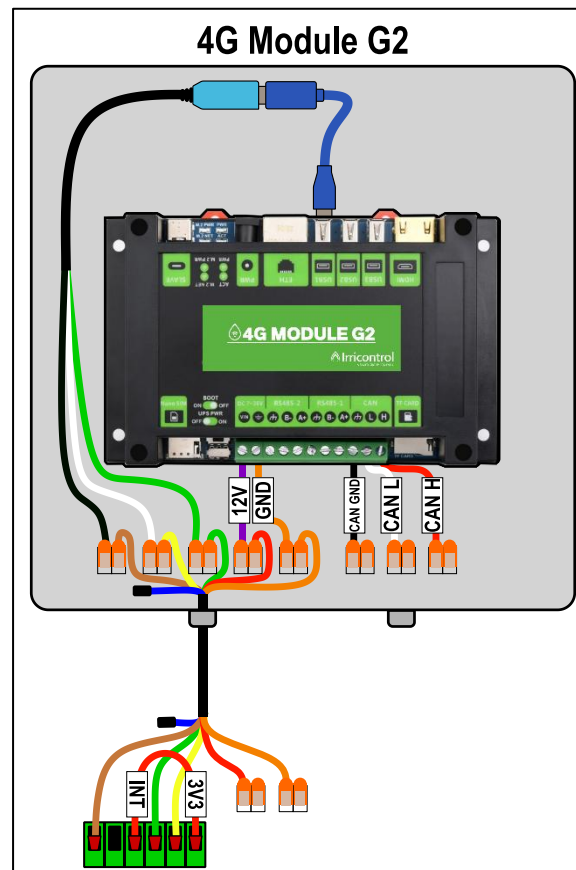


This torque setting is based on the parameters of the DeWalt screwdriver model DCD7781, adjusted to position 1 and speed 1.

### 7.2.1. 4G Module G2

The cable of the 4G Module G2 (UNSHIELDED MULTI-CORE CABLE 6 WIRES, 26 AWG) must be connected to the pivot controller and to the power supply of the pivot control cabinet.

- A. Verify that the conductors at the end of this cable are arranged as shown in the figure below:



**Figure 17 - Connection cable of the 4G Module G2 to the control cabinet.**



Ensure that three conductors are connected to a 6-position female terminal, two conductors are connected to 2-position WAGO connectors, and one conductor is insulated.

- B. Route this cable into the pivot control cabinet using one of the cable glands located at its bottom.



To route the cable through the cable gland, it is necessary to disconnect the conductors from the female terminal and reconnect them inside the cabinet. Ensure that this reconnection follows the provided wiring standard.



Incorrect reconnection of the conductors may compromise the equipment's operation. Irricontrol shall not be held responsible for malfunctions, damage, or improper operation resulting from connections made contrary to the specified wiring standard.

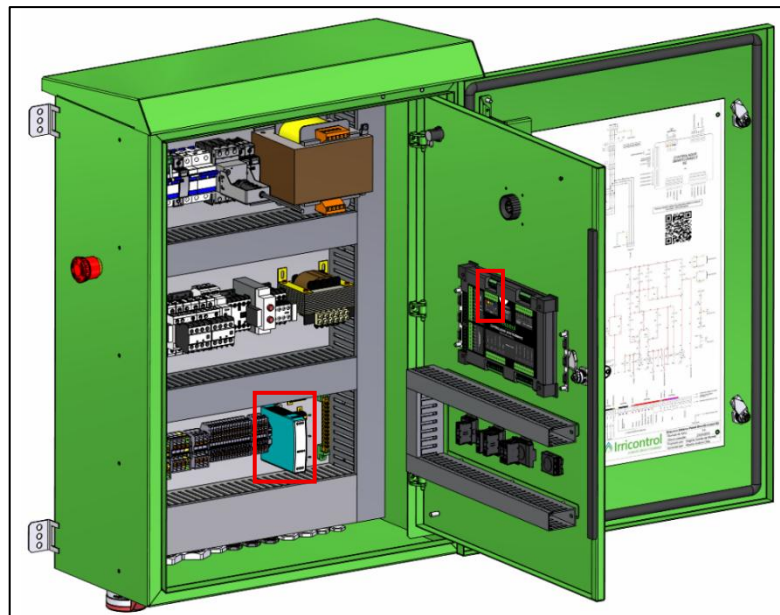


- C. Connect the **6-position female terminal** to the single **6-position male terminal located on the back of the pivot control cabinet controller**.
- D. Connect the **red conductor** to the **positive output terminal of the power supply**, using the electrical wiring harness for the 4G Module G2 power supply labeled “12V” to extend the length.
- E. Connect the **orange conductor** to the **negative output terminal of the power supply**, using the electrical wiring harness for the 4G Module G2 power supply labeled “GND” to extend the length.

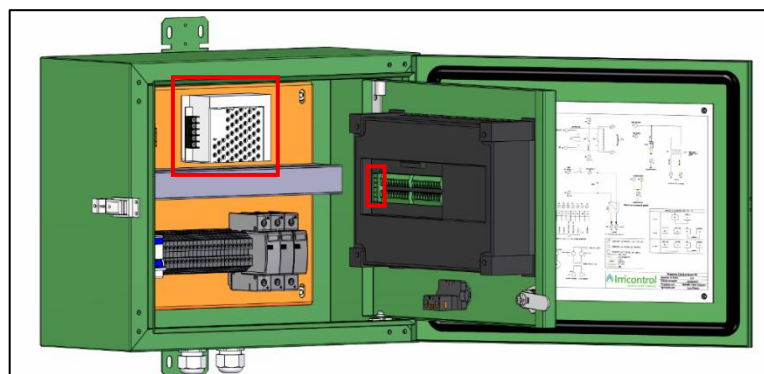


Connections to the positive and negative output terminals of the power supply must be made in parallel with the existing cables.

The figures below highlight the connection points of the 4G Module G2 cable on the SmartConnect G2 and Nexus G2 cabinets.



**Figure 18 - Connection points of the 4G Module G2 cable - SmartConnect G2.**



**Figure 19 - Connection points of the 4G Module G2 cable - Nexus G2.**

### 7.2.2. CAN Bus

Communication between the 4G Module G2 and the CAN GPS is carried out via a CAN bus connecting the two modules, with a CAN cable as the physical medium. This cable must run from the 4G Module G2, along the entire length of the pivot, passing through the intermediate control cabinets and the last tower, and finally be connected to the CAN GPS, as shown in Figure 15. To do this:

- A. Locate the CAN COMMUNICATION CABLE.
- B. Use sections of this cable to connect the 4G Module G2 to the CAN GPS, **passing through all pivot control cabinets**, as described below:

| CAN CABLE WIRE            | 4G MODULE G2 WIRE          | CONTROL BOXES         |                                                 | CAN GPS WIRE               |
|---------------------------|----------------------------|-----------------------|-------------------------------------------------|----------------------------|
|                           |                            | BAUER PIVOTS          | OTHER PIVOTS                                    |                            |
| Conductor 1               | "CAN L"<br>(White cable)   | Terminal X2:22        | Add additional terminals or use WAGO connectors | "CAN L"<br>(White cable)   |
| Conductor 2               | "CAN H"<br>(Red Cable)     | Terminal X2:21        | Add additional terminals or use WAGO connectors | "CAN H"<br>(Red cable)     |
| Shield<br>(if applicable) | "CAN GND"<br>(Black cable) | PE (Protective Earth) |                                                 | "CAN GND"<br>(Black cable) |



Cable sections must be long enough to accommodate the pivot's movement and facilitate any maintenance activities.



On 360° pivots, route the CAN cable through the pivot's collector ring.



If the CAN cable has a shield, connect it to the black "CAN GND" wires on the 4G Module G2 and the CAN GPS, and to the PE (Protective Earth) of the control cabinets.



If the pivot control cabinets do not have dedicated terminals for the CAN cable, install additional terminals or use WAGO connectors to connect the cable.



### 7.2.3. CAN GPS

- A. Locate the FLEX PP CABLE - 3 CONDUCTORS 1MM, intended for the CAN GPS power supply.
- B. Route one end of this cable into the plastic box of the CAN GPS and the other end into the control cabinet, using the available cable glands.
- C. Connect the cable wires according to the following table:

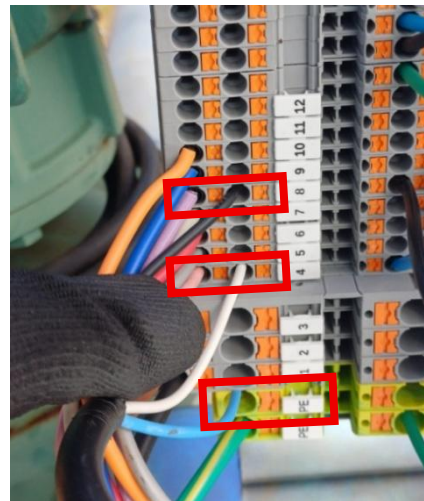
| CAN GPS POWER SUPPLY | CAN GPS WIRE    | CONTROL CABINET OF THE LAST TOWER |                        |
|----------------------|-----------------|-----------------------------------|------------------------|
|                      |                 | BAUER PIVOTS                      | OTHER PIVOTS           |
| Preto                | PHASE (Red)     | Terminal X2:23                    | Safety Return Terminal |
| Branco               | NEUTRAL (White) | Terminal X2:24                    | Neutral Terminal       |
| Azul                 | PE (Green)      | Terminal X2:PE                    | Ground Terminal        |



While some Bauer pivots have last-tower control cabinets with terminals dedicated to the CAN GPS power cable, on multi-brand pivots it is necessary to connect this cable to the Safety Return, Neutral, and Ground terminals of the last-tower control cabinet.

The table below shows the color correspondence for the Safety Return and Neutral wires for some pivot brands, and Figure 20 illustrates the connection of the power cable to the last tower's control box on a Bauer pivot.

| PIVOT BRAND               | CABLE                                                                                         |                                                                                              |
|---------------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
|                           | SAFETY RETURN                                                                                 | NEUTRAL                                                                                      |
| BAUER <sup>TM</sup>       | Purple<br> | Pink<br>  |
| IRRIGABRAS <sup>TM</sup>  | Brown<br>  | White<br> |
| VALLEY <sup>®</sup>       | Yellow<br> | White<br> |
| LINDSAY <sup>TM</sup>     | Brown<br>  | White<br> |
| CARBORUNDUM <sup>TM</sup> | Brown<br>  | -                                                                                            |
| KREBS <sup>TM</sup>       | White<br>  | Green<br> |



**Figure 20 - CAN GPS power cable connection to the Last Tower Control Box - Bauer pivot.**



The wire colors shown for some pivot brands may vary slightly depending on the equipment model and/or production batch.



Some pivot brands require the installation of a contactor in the last tower's control box for the CAN GPS installation. For more details, refer to **ANNEX 1 – INSTALLATION OF CONTACTOR IN THE**

#### 7.2.4. Pressure Sensor

The pressure sensor must be connected to the CAN GPS as shown in the following table:

| PRESSURE SENSOR WIRE | CAN GPS WIRE   |
|----------------------|----------------|
| Blue                 | Blue (12V)     |
| Black                | Black (SIGNAL) |



## 8. Parameter Configuration

The configuration of the 4G Module G2 includes inserting the SIM card, registering the 4G Module G2 number, entering the coordinates of the pivot center and last tower, and performing the configuration upload process to verify recognition of the 4G Module G2. These settings must be carried out on the Irricontrol Platform.



The registration step on the platform must be carried out exclusively by authorized technicians and/or Irricontrol personnel.



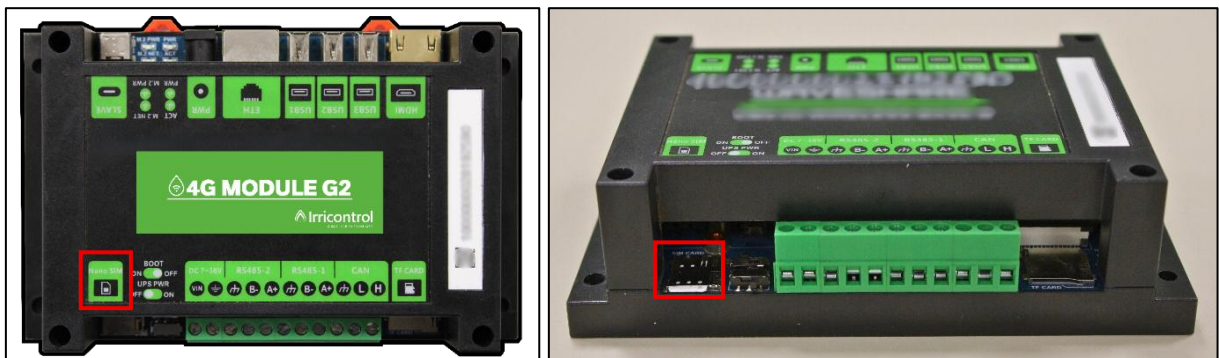
The screenshots shown in this manual refer to the web version of the Irricontrol Platform. The mobile version may present slight variations.



For more information about the operation of the Irricontrol Platform, refer to the support materials available on the Irricontrol Knowledge Platform (Zendesk).

### 8.1. Data SIM Card

- A. Disconnect the power supply of the 4G Module G2.
- B. Insert the SIM card into the “Nano SIM” slot until it is fully seated, indicated by a click.
- C. Reconnect the power supply of the 4G Module G2.



**Figure 21 - “Nano SIM” slot.**



This product is compatible with a nano-type SIM card.



The data SIM card is not included with the product and must be purchased separately. Both the acquisition and the selection and subscription of the internet data plan are the responsibility of the customer.





Irricontrol recommends using the 4G Module G2 in locations with 4G coverage for optimal performance and shall not be held responsible for communication instabilities resulting from use with 3G or earlier generations.



To facilitate SIM card insertion, temporarily remove the 4G Module G2 from the DIN rail.

## 8.2. Registering a New Farm

If the farm is not yet registered on the Irricontrol Platform, it must be registered before adding the 4G Module G2. To do this:

- A. Open the left-hand menu of the Irricontrol Platform, go to “Farms”, and click “New Farm”.
- B. Creating a new farm on the platform involves four steps: General, Billing, Contact, and Location. Fill in all fields in each step with the appropriate information.

The figure displays four sequential screenshots of the 'Nova Fazenda' (New Farm) registration process in the Irricontrol platform. The first screenshot shows the 'Geral' (General) step, where the checkbox 'A fazenda possui Central?' (Does the farm have a Central?) is highlighted with a red box. The second screenshot shows the 'Faturamento' (Billing) step. The third screenshot shows the 'Contato' (Contact) step. The fourth screenshot shows the 'Localização' (Location) step, which includes a map of the farm's location. A red box in the first screenshot also highlights the '+ Nova Fazenda' button in the left-hand menu.

**Figure 22 - Creating a new farm on the Irricontrol Platform.**



In the General step, it is important to uncheck the option “Does the farm have a Central?”, as farms using the 4G Module G2 on their pivots do not require a Central.



It is only possible to proceed to the next step after correctly filling in all the fields of the current step.





### 8.3. Registering the 4G Module G2

After registering the farm, the 4G Module G2 must be registered. This procedure is performed when adding a new pivot to the farm. To do this:

- A. Open the 4G Module G2 to obtain its number, which is available on the label shown in the figure below.



*Figure 23 - Label with the 4G Module G2 number.*

- B. On the platform, access the farm where the 4G Module G2 was installed.
- C. On the farm page, select “Register Equipment” and choose “SmartConnect or Nexus”.
- D. Fill in the fields with the appropriate information:
  - **Communication Type:** 4G.
  - **Gateway Number:** Number of the 4G Module G2.
- E. Select “CREATE”.

Equipment List

Search

+ Register Equipment

Register Equipment

SmartConnect or Nexus

SmartTouch

Central Pivot Monitor

Linear Pivot Monitor

Irripump

Repeater

Level Meter (Meter)

Register Equipment

SmartConnect or Nexus

Equipment Name

Brand model

Bauer

Panel Type

Nexus

Potency Unit

hp

Potency

hp

Performance

%

Converted Potency

kW

☐ Rain Gauge

Communication Type

4G

Gateway Number

CREATE

**Figure 24 - Registration of the 4G Module G2 on the platform.**



In the “Communication Type” field, select the “4G” option, which is the technology used by the 4G Module G2.



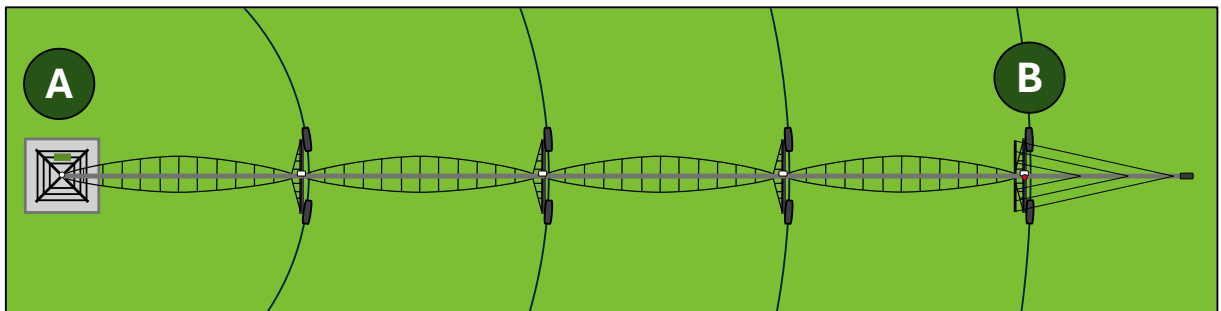
If it becomes necessary to change the 4G Module G2 number later, access the pivot’s edit page.



## 8.4. Coordinates of the Pivot Center and Start Reference

For the devices to operate correctly, it is necessary to enter the geographic coordinates (latitude and longitude) of the pivot center and the initial reference of the last tower (the “zero-degree” point) on the platform. To do this:

- A. Using a geolocation tool, obtain the geographic coordinates of the pivot center and the initial reference of the last tower, as illustrated in the figure below.



**Figure 25 - Pivot center (A) and start reference of the last tower (B).**

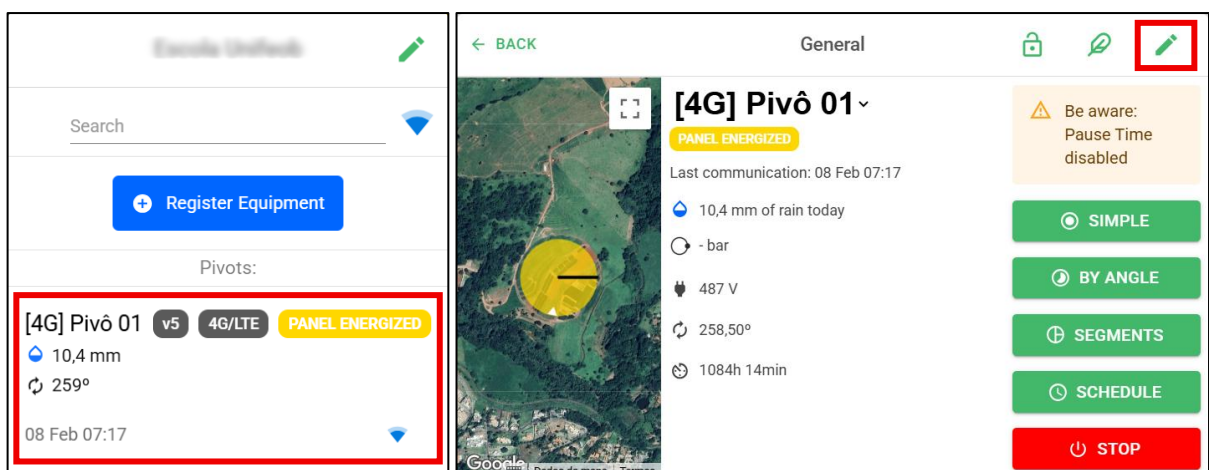


It is recommended to use Google Earth or similar tools to obtain geographic coordinates.



Even if the pivot is equipped with an end boom, the geographic coordinate of the start reference must be collected at the pivot's last tower.

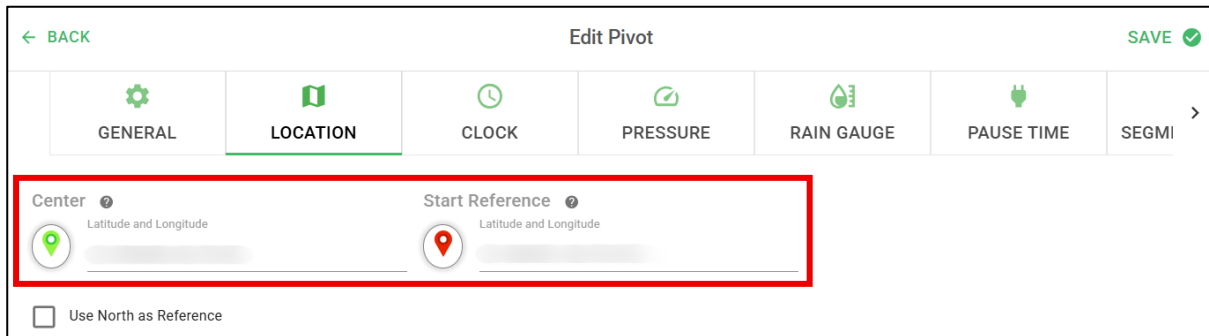
- B. Access the edit page of the pivot where the devices were installed.



**Figure 26 - Access to the pivot edit page.**



- C. On the LOCATION tab, fill in the “Center” field with the pivot center coordinates and the “Start Reference” field with the coordinates of the pivot’s last tower (the “zero-degree” point).



← BACK Edit Pivot SAVE ✓

GENERAL LOCATION CLOCK PRESSURE RAIN GAUGE PAUSE TIME SEGMI >

Center ● Start Reference ●

Latitude and Longitude Latitude and Longitude

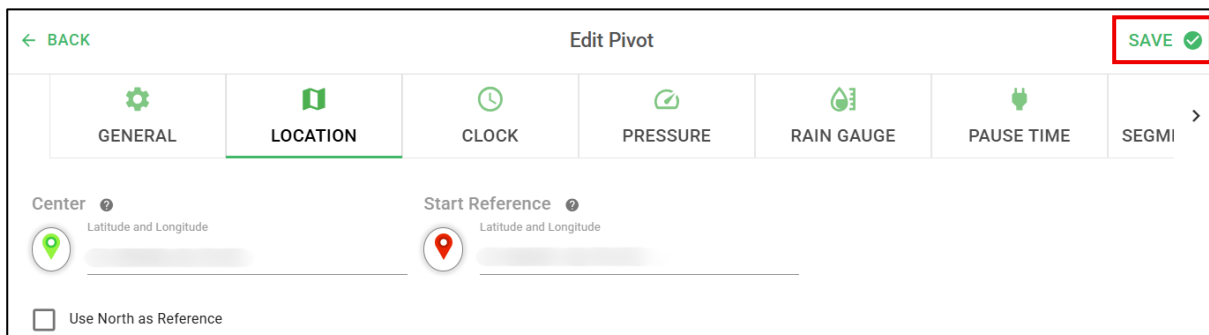
☐ Use North as Reference

**Figure 27 - Entering the pivot center and start reference coordinates.**



The “Use North as Reference” option, if selected, indicates that the northern coordinates will be used as the start reference coordinates.

- D. Click “SAVE”.



← BACK Edit Pivot SAVE ✓

GENERAL LOCATION CLOCK PRESSURE RAIN GAUGE PAUSE TIME SEGMI >

Center ● Start Reference ●

Latitude and Longitude Latitude and Longitude

☐ Use North as Reference

**Figure 28 - Pivot center and start reference coordinates - SAVE.**

## 8.5. Configuration Upload

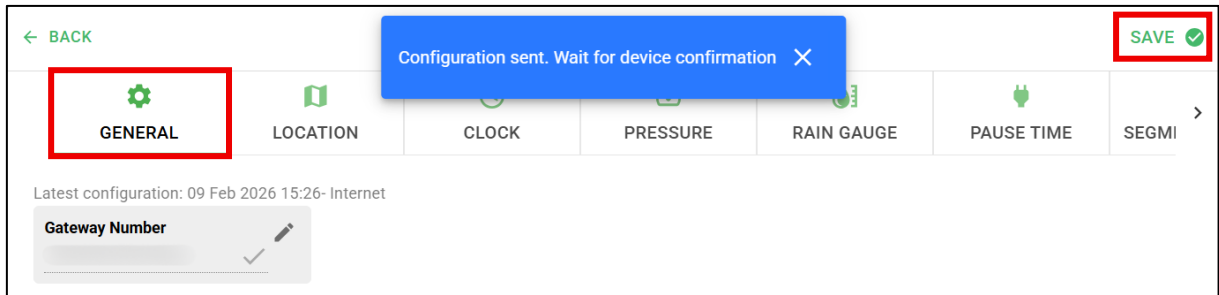
After registering the 4G Module G2 number, it is recommended to perform the configuration upload on the Irricontrol Platform, a process that establishes communication between the platform and the 4G Module G2.



If the pivot uses a SmartConnect G2 cabinet, ensure it is operating in digital mode to perform the configuration upload process. To do this, verify that the cabinet’s “DIGITAL/ANALOG” selector switch is set to “DIGITAL”.

- A. Access the pivot’s edit page.
- B. On the GENERAL tab, click “SAVE”.

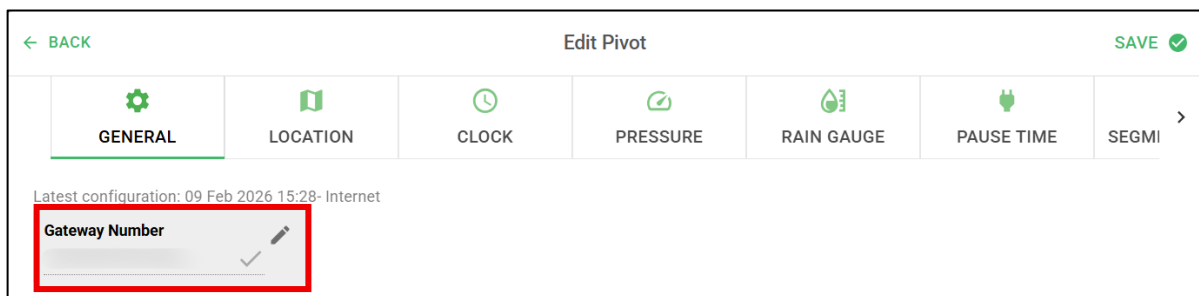




**Figure 29 - Configuration Upload - In Progress.**

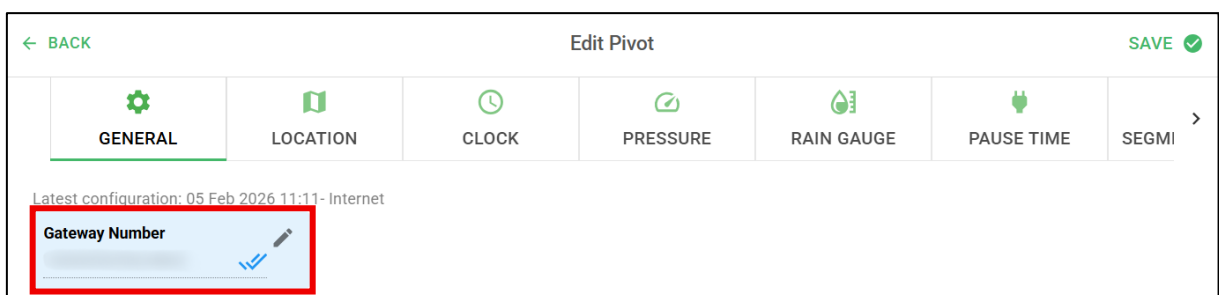
C. Wait and observe the status of the “Gateway Number” field:

- One check (✓): The configuration has been sent to the device, but the platform has not received confirmation of communication.



**Figure 30 - Configuration Upload Unsuccessful.**

- Two blue checks (✓✓): The configuration has been sent to the device, and the platform has received communication confirmation. This indicates that the 4G Module G2 and platform are communicating properly.



**Figure 31 - Configuration Upload Successful.**



If the configuration upload fails, refer to section **10. Failures and Possible Causes** for potential reasons and solutions.

D. E. After a successful configuration upload, keep the pivot in motion for at least 10 minutes until its coordinates/angle start being displayed on the Irricontrol Platform and the controller.

## 9. Tests

All products manufactured and sold by Irricontrol Controle Inteligente de Irrigação S/A undergo rigorous quality tests to ensure their full functionality. However, due to the characteristics of field installation and the need for integration with other devices, it is necessary that, after being installed and parameterized, the 4G Module G2 and CAN GPS undergo new tests.

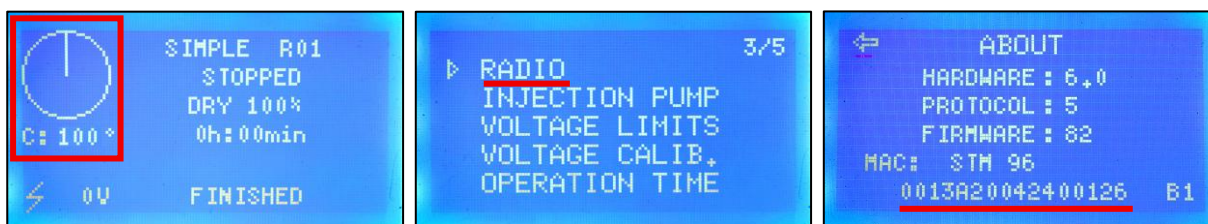
This section presents the recommended tests to verify that the 4G G2 Module and GPS CAN have been correctly installed and configured, and that the 4G G2 Module is being recognized by the Irricontrol Platform. It is recommended to perform these tests after product installation, whenever any modifications are made, and/or in case of malfunctions.

### 9.1. Installation Verification

The installation of the 4G Module G2 and the CAN GPS can be verified by checking the following points:

A. Verify the presence of the following elements on the controller interface:

- Circular icon displayed on the main screen.
- Angle displayed on the main screen is different from “NULL”.
- “RADIO” option visible in the parameters section.
- 4G Module G2 number visible in the “ABOUT” parameter.



**Figure 32 - Validation of the 4G Module G2 installation on the controller.**

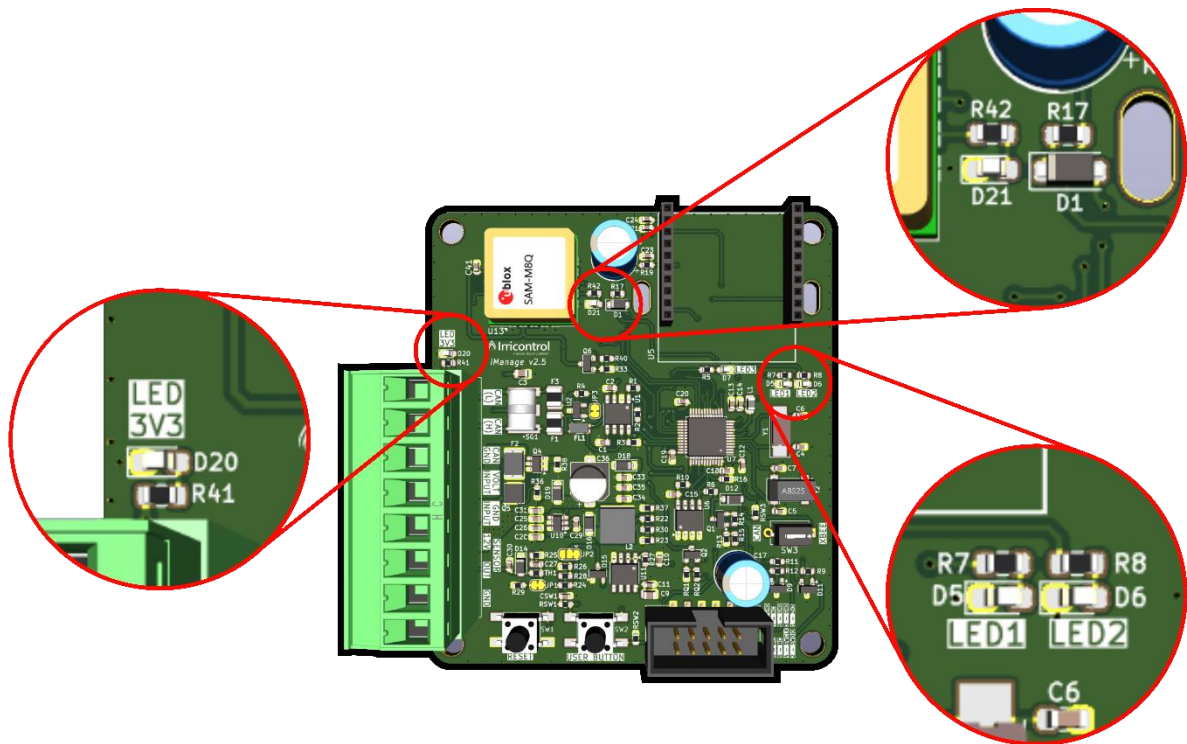


If these points are not verified, refer to Section 10. **Failures and Possible Causes** for potential reasons and solutions.



B. Observe the status of the LEDs on the CAN GPS electronic board:

- **LED 1:** Indicates the operation of the CAN GPS. Blinks during normal operation.
- **LED 2:** Indicates communication between the CAN GPS and the 4G Module G2. Blinks repeatedly when the CAN GPS sends a message to the 4G Module G2.
- **LED 3V3:** Indicates power supply to the electronic board. Remains continuously on while the board is powered.
- **LED 21:** Indicates the operation of the GPS module on the electronic board. Blinks repeatedly when the module is operating normally and receiving a valid satellite signal.

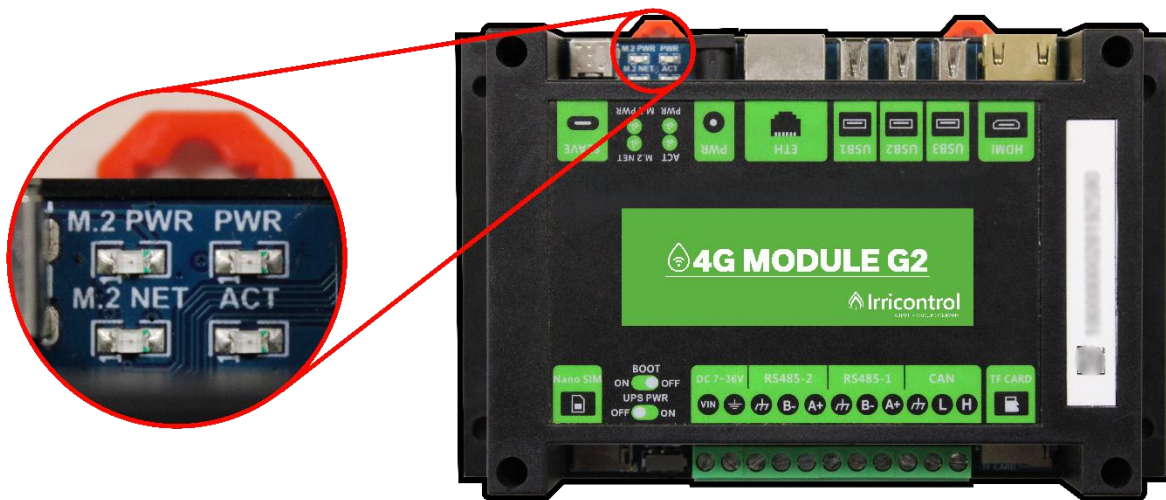


**Figure 33 - CAN GPS LEDs.**



C. Observe the status of the LEDs on the 4G Module G2:

- **PWR (red):** Indicates the power supply of the 4G Module G2. Remains continuously on when powered.
- **M.2 NET (green):** Indicates the operating status of the 4G Module G2. Blinks when connected to the cellular network and remains continuously on when searching for the network.



*Figure 34 - 4G Module G2 LEDs.*

## 9.2. Configuration Upload

Configuration Upload, as described in section **8.5. Configuration Upload**, is a way to verify if the 4G Module G2 is communicating with the platform.

As shown, this communication is confirmed if the “Gateway Number” field on the pivot edit page displays two blue check marks. Otherwise, refer to possible causes/solutions in section **10. Failures and Possible Causes**.

## 10. Failures and Possible Causes

Due to the technical characteristics of the 4G Module G2 and CAN GPS and the environment in which they are installed, the equipment is subject to various factors that may cause operational failures. These can occur due to local conditions, operational errors, or, in exceptional cases, product-related issues.

This section lists the most common failures, their causes, and how to resolve them.



If it is not possible to identify the causes of the failures and/or if the error persists, please contact Irricontrol Technical Support for further assistance.

### 10.1. Solution Does Not Communicate with the Irricontrol Platform

The Irricontrol Platform does not receive confirmation from the 4G Module G2 during the configuration upload (only a check in the “Gateway Number” field on the pivot’s edit page).

| POSSIBLE CAUSES                                       | SOLUTION                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| De-energized control cabinet (controller display off) | <ul style="list-style-type: none"> <li>- For SmartConnect G2 cabinets, check if the “DIGITAL/ANALOG” selector switch is set to “DIGITAL”, which powers the controller.</li> <li>- Verify that the cabinet is properly energized and that its components are functioning correctly.</li> </ul>                                                                 |
| 4G Connection Failure                                 | <ul style="list-style-type: none"> <li>- Check the status of the M.2 NET LED on the 4G Module G2, as detailed in section <b>9.1. Installation Verification</b>.</li> <li>- Verify whether the data plan limit has been reached.</li> <li>- Contact the mobile internet provider responsible for the SIM card to check for any network instability.</li> </ul> |
| Incorrect/inadequate electrical connections           | <ul style="list-style-type: none"> <li>- Review all electrical connections of the GPS.</li> <li>- Tighten the connectors.</li> </ul>                                                                                                                                                                                                                          |
| Antenna improperly positioned or defective            | <ul style="list-style-type: none"> <li>- Check if the antenna is in a vertical position.</li> <li>- Check if the antenna cable is properly screwed into the 4G Module G2 box.</li> <li>- Replace the antenna with a spare or from another properly functioning device for testing.</li> <li>- Contact Irricontrol Technical Support.</li> </ul>               |
| Issues with 4G Module G2                              | <ul style="list-style-type: none"> <li>- Contact Irricontrol Technical Support.</li> </ul>                                                                                                                                                                                                                                                                    |



## 10.2. Pivot angle not updated on the Irricontrol Platform

During pivot movement, the angle is not updated with each CAN GPS update received by the 4G Module G2 and subsequently by the platform.

| POSSIBLE CAUSES                                | SOLUTION                                                                                                                                                                              |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Incorrect/inadequate electrical connections    | <ul style="list-style-type: none"><li>- Review all electrical connections of the GPS.</li><li>- Tighten the connectors.</li></ul>                                                     |
| Cable damaged by rodents and/or birds          | <ul style="list-style-type: none"><li>- Replace the damaged cable.</li></ul>                                                                                                          |
| CAN GPS failure                                | <ul style="list-style-type: none"><li>- Clear the GPS memory: press the “USER BUTTON” on the GPS board for approximately 5 seconds and wait for the LEDs to blink.</li></ul>          |
| Last pivot tower jammed: tower spinning freely | <ul style="list-style-type: none"><li>- Check the operation of the pivot’s last tower.</li></ul>                                                                                      |
| Burned Power Supply                            | <ul style="list-style-type: none"><li>- Measure the output voltage of the power supply (should be 12 VDC).</li><li>- Contact Technical Support for replacement of the item.</li></ul> |
| Issues with the CAN GPS Electronic Board       | <ul style="list-style-type: none"><li>- Contact Irricontrol Technical Support.</li></ul>                                                                                              |

## 10.3. Absence of pressure information on the Irricontrol Platform

The can GPS does not transmit to the 4G Module G2 the data obtained by the pressure sensor.

| POSSIBLE CAUSES        | SOLUTION                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CAN GPS failure        | <ul style="list-style-type: none"><li>- Clear the GPS memory: press the “USER BUTTON” on the GPS board for approximately 5 seconds and wait for the LEDs to blink.</li></ul>                                                                                                                                                                                                                          |
| Pressure sensor issues | <ul style="list-style-type: none"><li>- Use a signal generator to analyze the integrity and operation of the sensor.</li><li>- Check for leaks in the pivot piping or at the pivot sprinkler elbow (sprinkler cable).</li><li>- Replace the sensor with a spare sensor or one from another properly functioning unit for testing purposes.</li><li>- Contact Irricontrol Technical Support.</li></ul> |
| Pumping system issues  | <ul style="list-style-type: none"><li>- Verify the pump operation and the condition of the electrical connections.</li><li>- Check for leaks, blockages, or air intake in the pipelines.</li><li>- Confirm that the water level is adequate for pump operation.</li></ul>                                                                                                                             |



## 11. Additional Information and Precautions

This section contains essential additional information and precautions for the use and maintenance of your equipment. These guidelines are crucial to ensure not only optimal performance but also durability and safety. Attention to these complementary details contributes to a better user experience and maximizes the benefits of your investment.

### 11.1. Product Serial Number

The equipment's serial number is essential for product control and traceability. It allows the individual identification of the unit, facilitating technical support, maintenance history records, and possible warranty processes.

The serial number label is located on the product packaging (cardboard box) and on the outside of the 4G Module G2 and CAN GPS plastic boxes, near the cable glands.



**Figure 35 - Location of the labels with the Serial Number.**

This number must always be provided when opening after-sales service requests, requesting technical support, or addressing any matter related to the product.

## 11.2. Product Storage

To preserve the integrity of the equipment until installation, it is essential to ensure proper storage and handling. Always follow the instructions provided on the equipment packaging.

- Keep away from heat and moisture.
- This side up.
- Handle with care - Fragile.



**Figure 36 - Product Storage Instructions.**



The boxes should be stored in a dry, well-ventilated, and preferably covered area, following all instructions provided on the packaging. Failure to comply with these guidelines may compromise the integrity of the equipment.

### 11.3. Disposal of the Product and/or Components

At the end of the product's life cycle, or in the event of component replacement, proper environmentally responsible disposal must be ensured in accordance with current legislation (e.g., National Solid Waste Policy – Law No. 12,305/2010).

- **Electronic items (boards, cables, modules, power supplies, connectors):** Must be taken to authorized collection points or companies specialized in electronic waste recycling to prevent soil and water contamination by heavy metals.
- **Batteries and accumulators:** Should never be disposed of in regular trash. Take them to designated battery collection points in accordance with CONAMA Resolution No. 401/2008.
- **Plastics and polymer materials (cabinets, supports, connectors):** Should be separated and sent for recycling according to material classification.
- **Metals (supports, screws, fasteners):** Can be directed to scrap metal recycling.
- **Packaging:** Should be disposed of in selective collection, whenever available, according to the material type (cardboard, plastic, etc.).



Improper disposal of electronic components can cause significant environmental impacts and is subject to legal penalties.

### 11.4. Periodic Maintenance

Performing periodic maintenance is essential to maintain the product's good performance and ensure its durability and safety. This section provides guidance on when to perform maintenance, which procedures to follow, and how to ensure all components are in perfect working condition. Adopting this maintenance routine contributes to system longevity, prevents unexpected failures, and guarantees operational continuity.

### 11.4.1. Cleaning the Interior of the Equipment

The inside of the equipment must remain free of dust, moisture, and debris to prevent damage to internal components, avoid short circuits, and extend its service life. Use a soft, dry cloth to remove dirt, and avoid applying chemical products, water jets, or metallic objects.



The frequency of this procedure should be defined according to the local conditions where the equipment is installed (level of exposure to dirt) and the availability of qualified personnel. It may also be performed whenever system maintenance is carried out.

### 11.4.2. Checking the Silica Gel

All Irricontrol modules are supplied with silica gel inside, responsible for absorbing internal moisture and preventing condensation and damage to electronic components.

Therefore, always keep the silica gel inside the equipment. In addition, periodically check whether it is still active and replace it as necessary to ensure continued moisture absorption.



The frequency of this procedure must be established according to the local conditions where the equipment is installed (level of exposure to moisture and condensation). It may also be performed whenever system maintenance is carried out.

### 11.4.3. Checking the Seals

To prevent the entry of moisture, dirt, animals, or other contaminants that could damage the equipment, it is important to ensure that the plastic boxes of 4G Module G2 and CAN GPS are properly sealed.

Whenever the boxes are opened, check that the external covers are properly closed, ensuring the correct tightening of the screws. Additionally, ensure that all cable glands are securely fastened.





## ANNEX 1 – INSTALLATION OF CONTACTOR IN THE LAST TOWER FOR CAN GPS

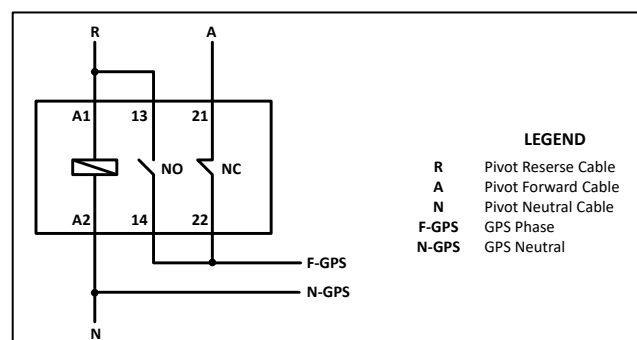
In some pivots, the safety signal returns to the control cabinet as neutral. In these cases, it is necessary to add a contactor in the control box of the last tower for CAN GPS installation.

This contactor must be 110 V for 110 V pivots and 220 V for 220 V pivots. In addition, it must have at least one normally open (NO) contact and one normally closed (NC) contact. For 110 V pivots, the CWCA0-22-00V15 contactor is recommended.

To do this:

- A. Remove the plastic cover of the control box of the last tower to access its interior by releasing the side latches.
- B. Mount the contactor inside the control box of the last tower, positioning it according to the available internal space.
- C. Connect the pivot reverse cable to contacts A1 and 13 (NO) of the contactor.
- D. Connect the pivot forward cable to contact 21 (NC) of the contactor.
- E. Connect the pivot neutral cable to contact A2 of the contactor.
- F. Connect the GPS phase cable to contacts 14 and 22 (NC) of the contactor.
- G. Connect the GPS neutral cable to contact A2 of the contactor.
- H. Reinstall the plastic cover of the control box of the last tower, securing it using the side latches.

The following figure shows the schematic of these connections.



**Figure 37 - Schematic of the contactor installation in the last tower for the CAN GPS.**



For Bauer pivots, this step is not required, as the system already meets the installation requirements of the CAN GPS.



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