TORO®

Tempus Air RS4
Reactive Base Station

4G LoRa™-Gateway

Tempus Air RS4
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4G-LoRa™ Gateway

LoRa

Bluetooth®

USER'S GUIDE

PRESENTATION

Tempus Air RS4 is a 4G-LoRa™ gateway that allows data transmission between the MyToroTempus application or platform and Tempus Air modules (CT, MS, PS, MV). Tempus Air RS4 connects to the MyToroTempus, application or web platform, via Internet in 4G.
Tempus Air RS4 can communicate via LoRa™ (long range radio connection) with up to 25 modules between Tempus Air CT / MV / MS / PS. Using Tempus Air MS (Multi Sensor module) and Tempus Air PS (Pressure Sensor module), always allows the user to have field data feedback and safety threshold alerts. Tempus Air RS4 can be powered by a 230VAC power supply or a solar panel. It has a buffer battery to ensure the continuity of its operation for 3/4 days without any power supply (depending on the conditions of use).

INTRODUCTION

The frequency of 4G data communication:

Thanks to its SIM card, the Tempus Air RS4 communicates periodically over 4G with the MyToroTempus platform in order to:
 • Transmit the informations to Tempus Air CT, Tempus Air MV.
   (e.g.: irrigation programs, manual controls, ON / OFF, etc ...)
 • Feed back information from Tempus Air MS, Tempus Air PS
   (e.g.: battery level, water volumes, sensor alerts, etc.)

The frequency is 24 times per day. Communications are configured at hourly intervals.

To activate your SIM card, send the subscription request to the dealer, with the data of your Tempus Air RS4, the data of the Sim Card and the payment receipt

Once the payment has been received and the SIM card activated, the Tempus Air RS4 will be operational and will be able to connect to the MyToroTempus platform.

RECOMMENDATION

During the first installation or if a long time has passed without having had a charge / discharge cycle, it is necessary to charge the Tempus Air RS4 battery, turned off, for 24 hours with 230VAC power supply.
Follow the step 1 to wire the 230 VAC power supply for battery charging.

SPECIFICATION

Dimensions

Diameter: 115mm

Height: 307mm

Used frequency band:

Bluetooth®: [2400-2483.5]M hz

LoRa™ [868-868.6]Mhz

4G: [800-2600]Mhz

Power Supply:

Power pack: INPUT: 100-240V 50/60Hz

OUTPUT: 24Vdc 0.6A

Solar panel : 12V 20W

Battery:

Type : Li-ion

Nominal Voltage : 3.65V

Nominal Capacity : 4Ah

Use:

Permitted humidity: 90% (relative humidity)

Ambient temperature: -20°C 60°C

Warranty: 2 years

Step 1

INSTALLATION

TEMPUS AIR RS4 ELECTRICAL WIRING

Tempus Air RS4 is a 4G-LoRa™ gateway that allows data transmission between the MyToroTempus application or platform and Tempus Air modules (CT, MS, PS, MV). Tempus Air RS4 connects to the MyToroTempus, application or web platform, via Internet in 4G.

Regardless of the power supply or solar panel, the wiring is the same. The connection of the power cable is made by a 2-core cable for which there is no polarity.

• Remove the upper and lower part of the Tempus Air RS4 by rotating them.
• Insert the SIM card (If not already inserted)

During the first installation it is necessary to charge the Tempus Air RS4, turned off, for 24 hours with 230VAC power supply.

1.1 Power supply

• Drill the grommet located under the lower part of the Tempus Air RS4
• Pass the cable through the grommet.

• Connect the cable to the green connector.
(No polarity to respect)

**Power transformer connection and recommendations**

IMPORTANT SAFETY INSTRUCTIONS:

THIS PRODUCT MUST BE INSTALLAED IN ACCORDANCE WITH THE APPLICABLE INSTALLATION CODE AND LOCAL JURISDICTION BY A PERSON FAMILIAR WITH THE CONSTRUCTION, INSTALLATION AND OPERATION OF THE PRODUCT AND THE HAZARDS INVOLVED.

THE USE OF OR INSTALLATION OF JUNCTION BOXES, CONDUIT BODIES, CONDUIT CONNECTIONS, AND FITTINGS SHALL BE FOR THE INSTALLATION AND INTENDED USE, AND IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODE. CONSULT WITH A QUALIFIED ELECTRICIAN AND LOCAL ELECTRICAL CODES BEFORE INSTALLING ANY ELECTRICAL PRODUCT.

DISCONNECT ALL POWER BEFORE SERVICING. ENSURE MAIN AC BREAKER IS OFF. FAILURE TO COMPLY MAY RESULT IS SERIOUS INJURY DUE TO ELECTRICAL SHOCK HAZARD.

Sheathed cable/flexible cord shall be Hard Service Cord, or Junior Hard Service Cords suitable for the application and in accordance with the local jurisdiction.

2x0,75 mm² outdoor wiring (18AWG)

230V main circuit
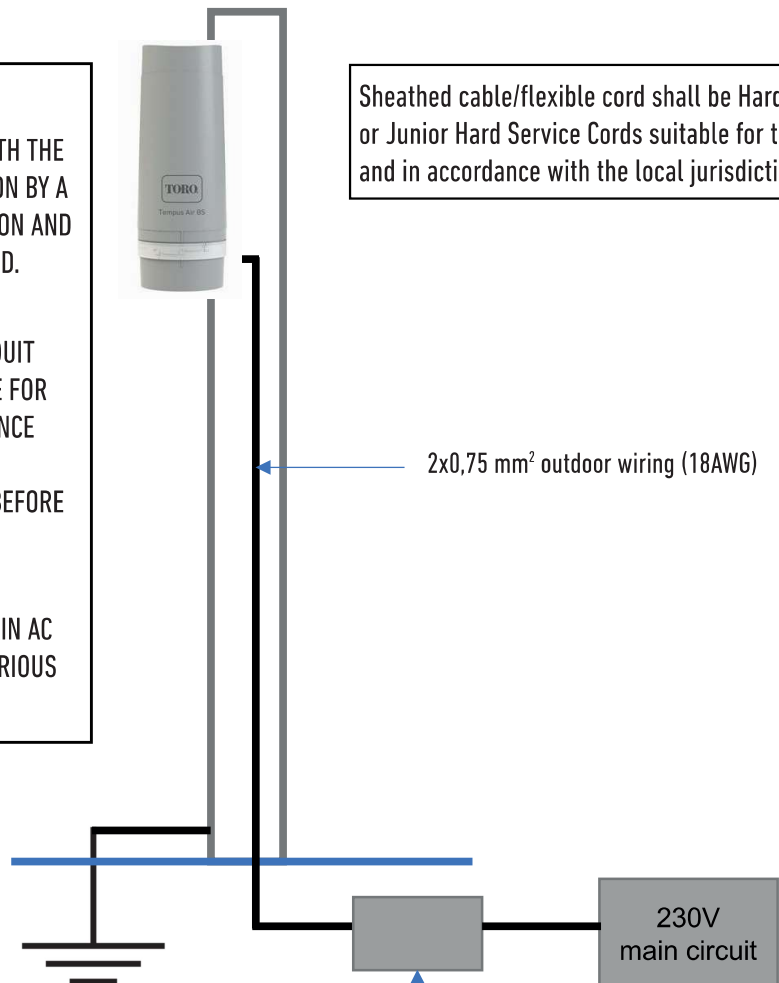
Waterproof box for electrical connections supplied by end user. Certified waterproof electrical junction body and conduit in accordance with local jurisdiction.

Prohibited connections
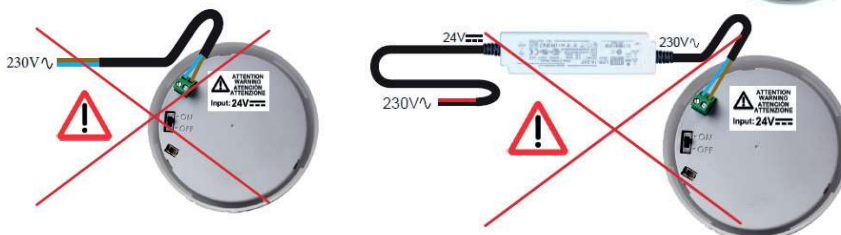
Recommendations of the power supply connection to the electricity network

• Use the power transformer supplied.
• Connect the 230Vac input of the transformer to the electrical network, protecting it with a 2A disconnecting circuit.
• Connect the 24Vdc output of the transformer to the Tempus Air RS4 using a sheathed cable type H05RN-F 2x0.75mm^2
• Place the transformer and circuit assembly in a Class II electrical box.

1.2 Battery connection

• Connect the battery.

• Set the switch to ON

During the first installation it is necessary to charge the Tempus Air RS4 battery for 24 hours with 230VAC power before turning it ON.
Upon startup, the Tempus Air RS4 LEDs will flash red. Pair the Tempus Air RS4, in the MyToroTempus App via Bluetooth, to your MyToroTempus account, following STEP 2. (We remind you that the SIM Card must be activated). The LEDs will turn green for one hour after pairing to indicate that the product is operational.
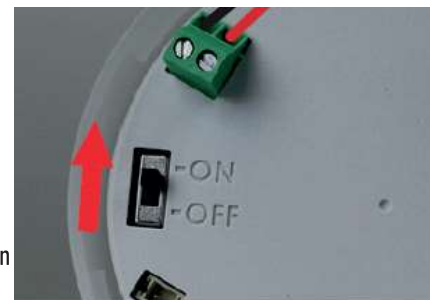
1.3 Reassembly the Tempus Air RS4

• Adjust the length of the cable by pulling on it.

• Fit the parts together by applying strong pressure and lock the 2 parts.

• Adjust the cable.

• Tighten the anti-traction.

Close the Tempus Air RS4
• Close the lower and upper parts using the locking pictograms

3

Step 2

MYTOROTEMPUS APP DOWNLOADING

1. On your smartphone or tablet, go to the «App Store» or to the «Play Store» app.

Download on the **App Store**   GET IT ON **Google Play**

2. Search for «The Toro Company» in the search bar.
   Developer
   The Toro Company

3. Once found, download the MyToroTempus App

4. Once installed, activate the Bluetooth® of your smartphone or tablet.

CREATE AN ACCOUNT

To benefit from all TemPus Air RS4 features, please create a MyToroTempus account.
1. Launch MyToroTempus app from your smartphone and/or tablet.
2. Go to «My account» by typing on icon. ⚙
3. Follow the steps described on the app.
Note: if you already have an account on the MyToroTempus.com platform, you must use the same credentials

ASSOCIATION

1. Verify that the Bluetooth® is activated on the settings of your smartphoner.

2. Launch MyToroTempus App from your smartphone and/or tablet.

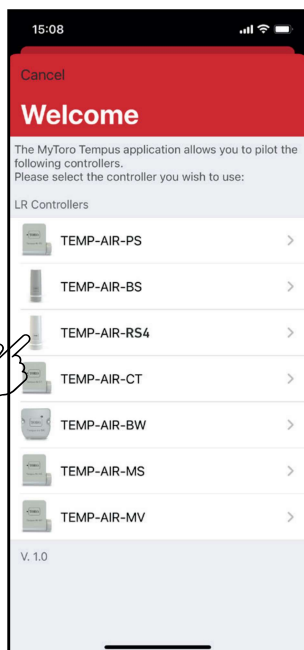**3.** Click on the «Add a module» button or on the «+» button
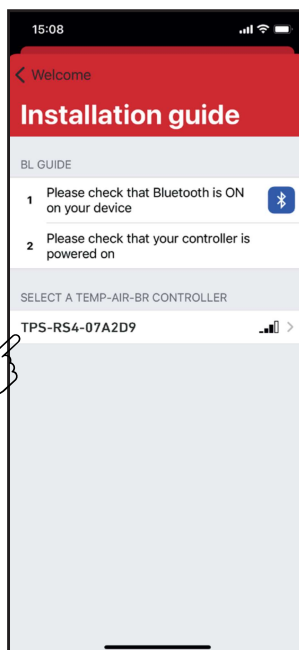

OR
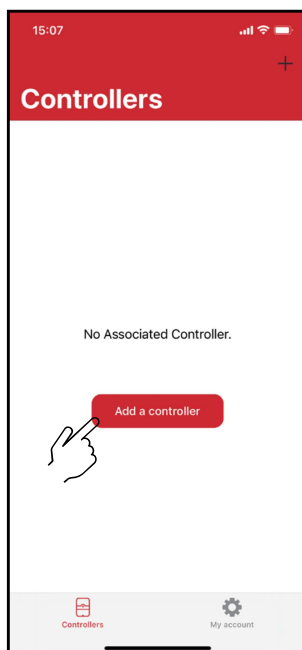
No module already installed   Modules are already installed
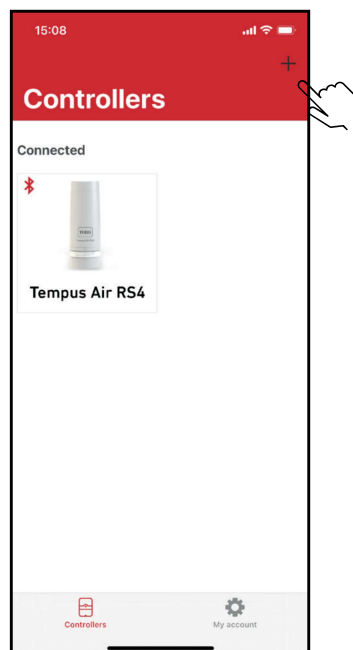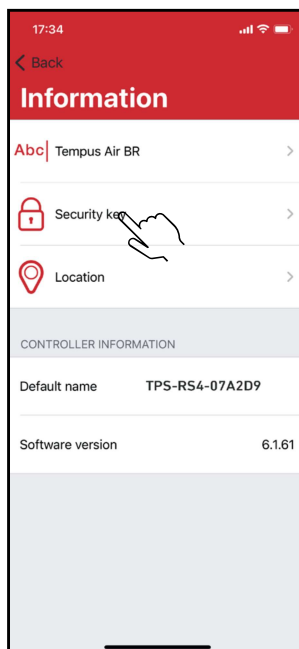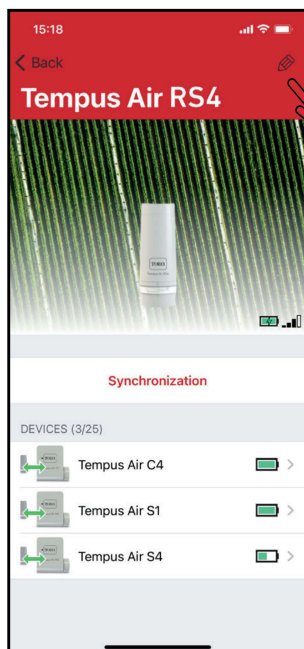
4. Select the Tempus Air RS4 picture from the modules list

5. Select the required Tempus Air RS4 to be installed from the list of the available modules

Note: To identify your Tempus Air RS4 among the nearby RS4 gateways, please refer to the «Default name» present on its product label.

Security key
The security key allows to protect your Gateway. You can define it during the «ASSOCIATION» or access to further information by clicking on the icon "Pencil" at the top right of your screen.

LED STATUS

The LEDs are functional for one hour when starting the Tempus Air RS4
Beyond this period the Tempus Air RS4 goes into standby mode.

- **Green LED:** normal operation
- **Flashing green LED:** LoRa™ communication
- **Red LED flashing 3 times:** Loss of GSM network.
- **Red LED flashing twice**: Hour alarm:
 The Tempus Air RS4 is out of date. If your product is connected to the MyToroTempus platform, the time update will be automatic. Otherwise connect to the Tempus Air RS4 from the MyToroTempus application and verify that the message "Synchronization OK" is displayed.
- **Flashing white LEDs:** Searching for the best network.
- **Flashing blue LEDs:** Platform communication

Step 3

PARING MODULES

Example of a radio association between an Tempus Air module module and the Tempus Air RS4:
You must first have associated your Tempus Air module with your account in MyToroTempus application before proceeding with the association of the module on your Tempus Air RS4 gateway. Refer to the user manual to associate it and then perform the following steps.

1. Select the product in the list of modules. .(Remember that you must be connected to your module via Bluetooth).
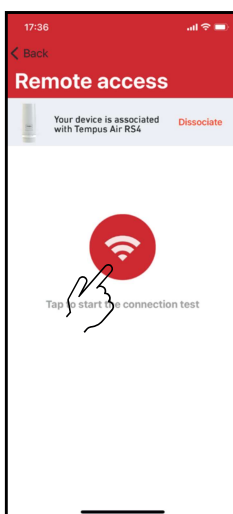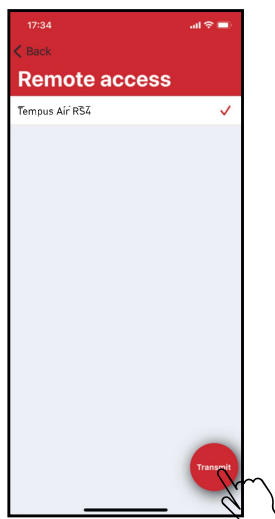
Push on ✎ on the top right of the screen to access to information of the products. (Example with a Tempus Air CT)

2. Push on « Remote access »

3. Select your Tempus Air RS4 (Refer to the «Default name» present on its product label)
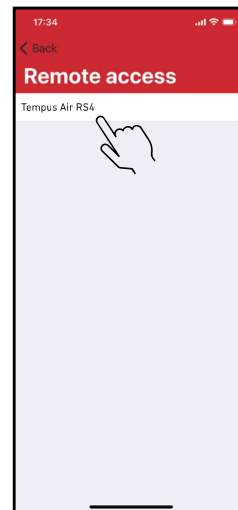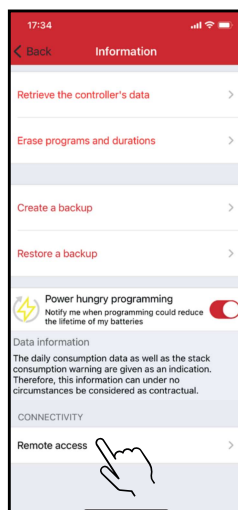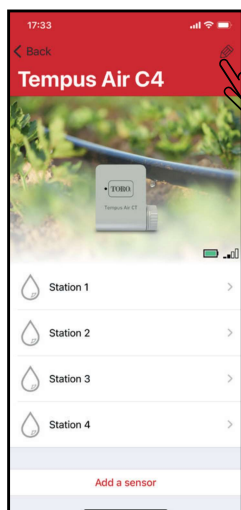
4. Push on Transmit to validate the operation.

5. Your Tempus Air RS4 is now associated. (Push red button to test it)

Step 4

LoRa™ TEST CONNECTION

If the association of the modules is carried out before the final installation of the Tempus Air RS4, this connection test can be used to validate the positioning of the latter by going to temporarily install the Tempus Air RS4 in its intended location then by going to position a module in each of the manholes to verify good communication with the Tempus Air RS4.

The connection test can also allow you to verify at any time the correct operation of the LoRa™ radio between your module and the Tempus Air RS4.

(Example: the product fell into the upside-down manhole and no longer communicates with the Tempus Air RS4).

To test the LoRa™ connection, do the following:
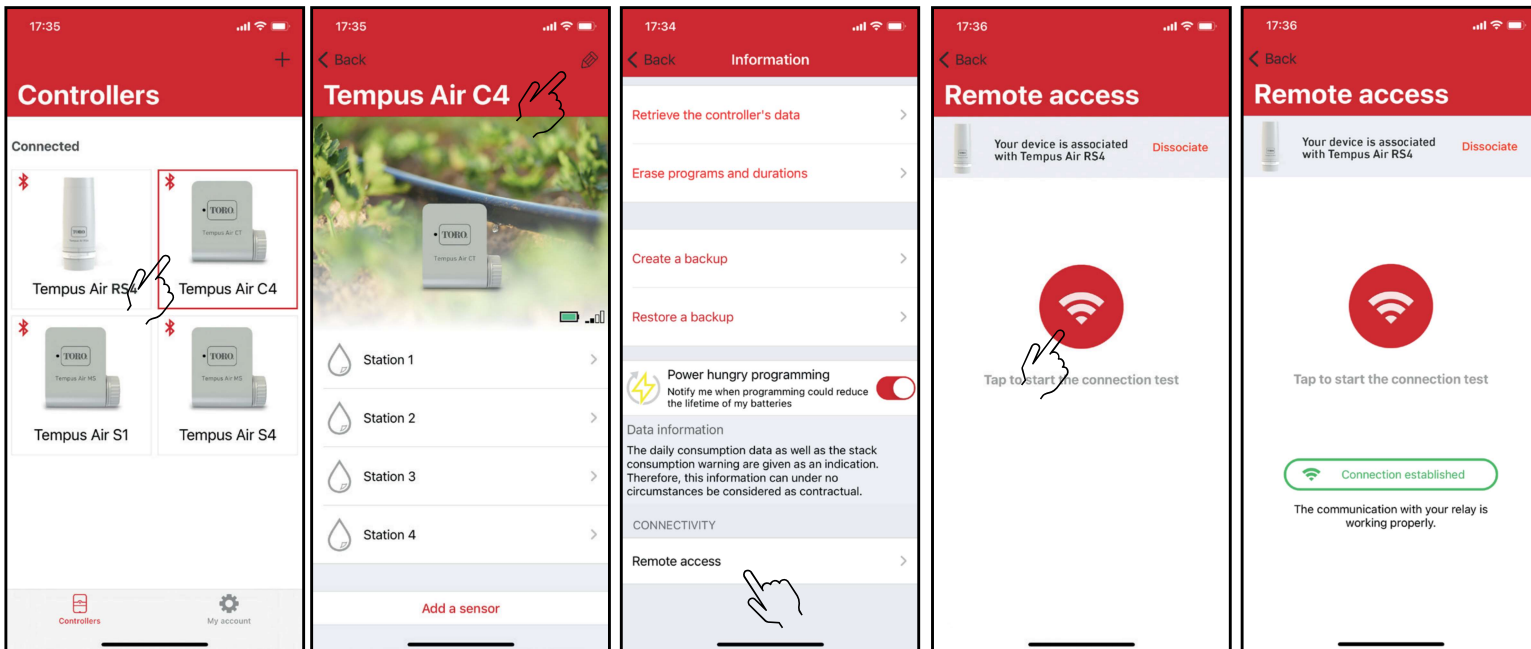
1. Enter the Tempus Air module in Bluetooth®

Then in the parameters (small pencil at the top right)

2. Push on « Remote access »

3. Push the red button to test the connection LoRa™

4. The message indicate that the LoRa™ connection between the Tempus Air RS4 and the module is reliable.

If the connection is not established, a "No connection established" message appears. Repeat this test several times to confirm that the connection cannot be made. In this case, the distance between the Tempus Air RS4 and the Tempus Air module will need to be reduced.
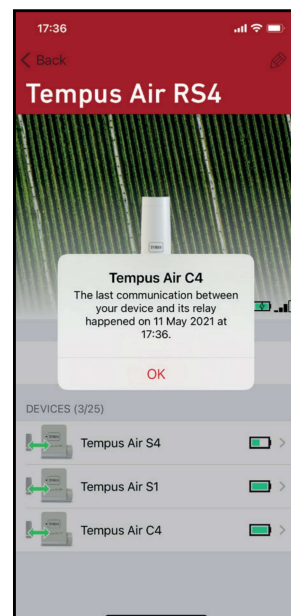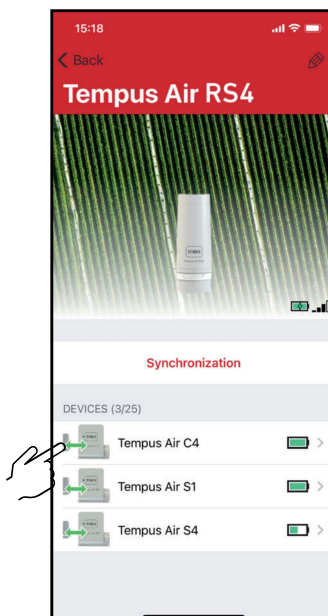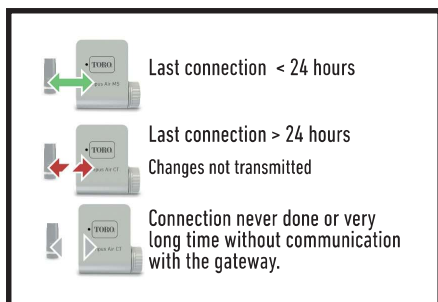
LoRa™ STATUS CONNECTION

During the first installation it is necessary to charge the Tempus Air RS4 battery for 24 hours with 230VAC power before turning it ON.
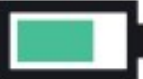
Preamble :
    • **The communication periodicity in LoRa™ mode** :
The communication interval of the LoRa™ radio between the Tempus Air modules and Tempus Air RS4 is approximately 3 minutes. You can see the Tempus Air RS4's power mode and its battery charge status in the table on the next page.
    • **Status of LoRa™ radio communication between the modules and the Tempus Air RS4.** These icons indicate when the Tempus Air RS4 was last connected to a module via LoRa™.

Last connection < 24 hours

Last connection > 24 hours
Changes not transmitted

Connection never done or very long time without communication with the gateway.

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LoRa™ COMMUNICATION PERIODICITY AND BATTERY STATUS

| Power supply mode	Battery Status	Periodicity	
		LoRa™	4G Plateform (Internet)
230VAC Power supply or Solar panel	Ended Charge	A connection every 3 minutes	A connection every hour. 24 comunications per day
230VAC Power supply or Solar panel	Batterry charging		
Battery			
Battery			
Battery			
Battery			
Battery		Out of service until the battery has regained a sufficient voltage level	
Battery			

Step 5

POLE MOUNTING

• Prepare the RS4acket with the 2 collars.

• Prepare the 2 Gateway supports with the 2 collars.
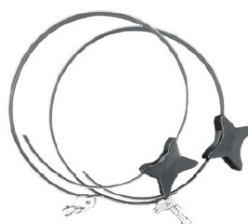
• First fix the bracket on the pole.

• Then fix the 2 Tempus Air RS4 supports on the pole with the 2 collars.
• Do not fully tighten the collars to permit the positioning of the Tempus Air RS4.

• Place the Tempus Air RS4 on the RS4acket and secure it with the clamps. If necessary readjust the height of the 2 plastic supports as well as the position of the square.

• Once properly positioned, correctly tighten all clamps cut off the excess collar.

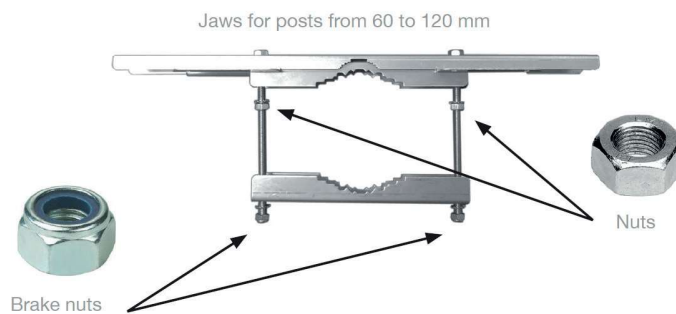NOTE: Tempus Air RS4 can also be wall mounted.

Step 6

SOLAR PANEL ASSEMBLY

The solar panel can be mounted on the wall or on a pole 40 to 60 mm in diameter, or with the addition of jaws on a pole of 60 to 120 mm.

FOR THE DETAILS OF THE ASSEMBLY OF THE PANEL AND THE FLANGES, REFER TO THE INSTRUCTIONS PROVIDED IN THE BOX OF BINDINGS

Jaws for posts from 60 to 120 mm

Nuts

Brake nuts

Solar Panel Connection

During the first installation, before connecting the solar panel, it is necessary to charge the Tempus Air RS4 battery, turned off, for 24 hours with 230 VAC power supply.
After 24h of charging, disconnect the transformer and connect the solar panel.

24V

Prohibited connections

230V∿   24V
230V∿
24V
ATTENTION
WARNING
ATENCION
ATTENZIONE
Input: 24V
ON
OFF

SOLAR PANEL ASSEMBLY HIGH WIND FIXATION

The Solar panel has another type of attachment sold apart from the so-called "high wind" for exposures of the solar panel to winds above 50km / h.

FOR THE DETAILS OF THE ASSEMBLY OF THE PANEL AND THE FLANGES, REFER TO THE INSTRUCTIONS PROVIDED IN THE BOX OF BINDINGS

GENERAL INFORMATION

This symbol indicates that the product uses a LoRa™ technology radio.

This symbol indicates that the product uses a Bluetooth® technology radio.

The symbol «CE» indicates that this device complies with the European standards on safety, health, environment and user protection. Devices with the symbol «CE» are intended for sale in Europe.

This symbol indicates that these types of electrical and electronic equipment must be disposed of separately in European countries. Do not dispose of this device with your household waste.
Please use the collection and recycling points available in your Country when you no longer need this device.

DECLARATION OF CONFORMITY

The Toro Company declares that TEMPUS AIR RS4 conforms to the following directives and standards:

Directive 2014/53/UE (RED)
BLE standard : ETSI EN 300 328 v2.2.2
RADIO standard : ETSI EN 300 220-2 v3.1.1 & ETSI EN 300 220-1 v3.1.1
4G standard: ETSI EN 301 908-1 V13.1.1
EMF standard : EN 62311 (2008)
and the recommendation 1999/519/CE
EMC standard : EN 301 489-1 v2.2.3 & EN 301 489-3 v 2.1.1 & EN 301 489-17 v3.2.4
Safety standard : EN 62368-1 (2014) and A11 (2017) & EN 60950-22 ed 2 (2017)

RoHS Directive 2011/65/EU & Directive amendment (EU)2015/863

This declaration has been issued under the sole responsibility of the manufacturer.
The object of the declaration is in conformity with relevant Union harmonization legislation.

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TEMPUS AIR RS4
4G-LoRa™ Gateway

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TORO®