TORO.

TEMPUS-AG-MS
1-4 Sensor Inputs

TEMPUS-AG-MS

Multi Sensor device
1-4 Inputs

LoRa

INTRODUCTION

TEMPUS-AG-MS is a battery powered Bluetooth® / LoRa™, Multi Sensor device. This device allows the acquisition of measurements from sensors of temperature, humidity, flow, wind speed. TEMPUS-AG-MS transmits data via LoRa connection to aTEMPUS-AG-4G/WF gateway. TEMPUS-AG-MS available in two models: S4 with 4 inputs (3 sensor inputs and 1 temperature input) and S1 with 1 input (1 sensor input).

SPECIFICATION

DIMENSIONS
Width: 10,5 cm
Height: 4,8 cm
Depth: 11,6 cm

FEATURES
Bluetooth® Smart 4.0 Low Energy
LoRa™ radio communication
Permament programming memory

USE
Polution level 2
Maximum relative humidity of 80% for temperatures up to 31°C and linear decrease up to 50% of relative humidity at 40°C
Indoor and outdoor use
Use in humid environment IP68
(test conditions: 1h at 1m depth)
Operating temperature: from -20°C to 50°C
Altitude use up to 2000m

POWER SUPPLY
9V 6AM6 ou 6LR61 Alkaline battery
Not included

Current consumption : 0.1mA

INSTALLATION
1 (S1) or 3 (S4) configurable inputs to choose from:
• Dry contact (rain sensor, wind sensor, ...)
• Pulse (flowmeter, wind sensor, ...)
• Analog (0-3.5V) (moisture sensor, tensiometer, ...)
1 (S4 only) temperature acquisition input (type Pt100)
3V5 supply sensor
The voltage value assigned to each mounted terminals is 3.3V (red wire to each inputs).
Note: the referrenced sensors in this user manual are the ones recommended for the TEMPUS-AG-MS use.

Installing the wrong type of battery may cause an explosion or fire hazard.

INSTALLATION GUIDELINES

The TEMPUS-AG-MS is made for an outdoor use. You can place it in a buried valve box or set it on a wall (concrete, brick, cinder blocks) with 2 dowels and 2 countersunk screws of 4X40 not included.

In order to clean the TEMPUS-AG-MS, use soapy water with a sponge and then a soft cloth to wipe it off.

APP DOWNLOAD

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

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 use TEMPUS-AG-4G/CT/MS, you need to create your MyToroTempus account.

1. Launch MyToroTempus app from your smartphone and/or tablet

2. Select the "Registration" button.

3. Follow the steps described on the app

Note: if you already have an account on the MyToroTempusAG.com platform, you must use the same credentials

Step 2

ASSOCIATION

1. Unscrew the TEMPUS-AG-MS 's cap

2. Plug the 9V 6LR61 ou 6AM6 battery and screw the cap

3. Sign in with your MyToroTempus account

4. Launch Tempus AG app from your smartphone and/or tablet.

5. Click on the «Add a device» button or on the «+» button

6. Choose the TEMPUS-AG-MS from the availabe devices list.

7. To finish your TEMPUS-AG-MS pairing, follow the next steps described in the app.

Note: To identify your TEMPUS-AG-MS among the nearby devices, please refer to the «Default name» present on the product label.

Security key: The security key allows to protect your device. You can define it during the step 7 of the ASSOCIATION» or access to further information by clicking on the icon ⬧ at the top right of your screen.

Step 3

PAIRING WITH TEMPUS-AG-4G/WF

To optimize the LoRa™ radio connection between theTEMPUS-AG-4G/WF and the TEMPUS-AG-MS device, we advise to install the TEMPUS-AG-MS under 800 meters to theTEMPUS-AG-4G/WF. We also advise to associate all your Tempus AG device near the TEMPUS-AG-4G/WF before installing them.

1. On the MyToroTempus mobile App, select yourTEMPUS-AG-4G/WF, and enter pairing mode on the information screen. (You must be connected via Bluetooth)

2. Select the TEMPUS-AG-MS device previously installed.

3. Click on the top right icon ⬧ to access to the product's informations.

4. Click on «Remote Access».

5. Select theTEMPUS-AG-4G/WF you want to pair the device with.

6. Click on the button «Send» ➤ on the bottom of your screen to validate.

Once the pairing finished, you can test the connection between yourTEMPUS-AG-4G/WF and your TEMPUS-AG-MS

7. Go back to «Remote access» screen.

8. Click on the button 📶 to start the test.

Note:

- The message «Connection established» means that the connection is reliable.

- The message «No connection established» means that it is necessary to bring the TEMPUS-AG-MS closer to the TEMPUS-AG-4G/WF or viceversa.

Step 4

SENSOR INSTALLATION

To ease the sensor installation we advise to follow the MyToroTempus mobile application instruction.

1. Get closer than 10 meters from TEMPUS-AG-MS and make sure your smartphone's Bluetooth is turned on.

2. Launch MyToroTempus app from your smartphone or tablet.

3. Select the TEMPUS-AG-MS previously installed. (The two devices, smartphone and MS device, must be connected via Bluetooth)

4. Click on "Add a sensor"

5. Select the type of sensor you want connect to your TEMPUS-AG-MS.

6. Select the sensor you want connect to your TEMPUS-AG-MS.

7. To properly connect the wiring and complete the sensor installation, follow the next steps described in the app.

WIRING

−   +   ⚡
Data   3,5V

Temperature sensor input.
*PT100 Standard (not present in S1 model)*
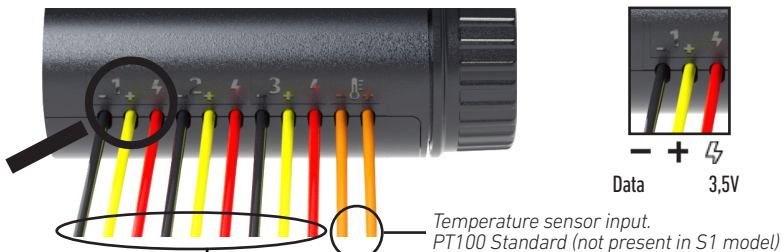
Configurable acquisition inputs (3 inputs for S4 model, 1 input for S1 model)

• Dry contact (rain sensor, anemometer, ...)
• Pulsive (flowmeter, ...)
• Analog 0-3.5V (humidity sensor, solar radiation...)

Red wires: 3.5V power supply

Note: The Tempus-AG-S1 has only 1 configurable acquisition input (three-wire entry) and it doesn't have temperature sensor input (two-wire entry).

Configurable sensor inputs (3 for S4, 1 for S1)
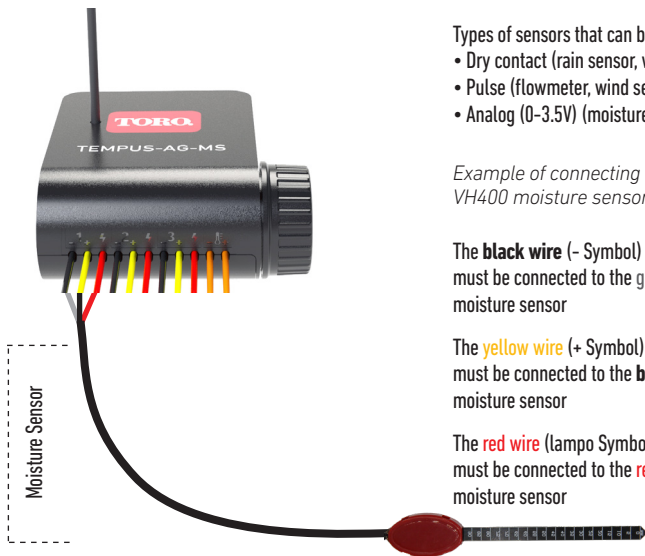
Types of sensors that can be connected:
• Dry contact (rain sensor, wind sensor, ...)
• Pulse (flowmeter, wind sensor, ...)
• Analog (0–3.5V) (moisture sensor, solar radiation ...)

*Example of connecting an analog input sensor: VH400 moisture sensor*

The **black wire** (- Symbol) of your TEMPUS-AG-MS must be connected to the gray wire of the VH400 moisture sensor

The yellow wire (+ Symbol) of your TEMPUS-AG-MS must be connected to the **black wire** of the VH400 moisture sensor

The red wire (lampo Symbol) of your TEMPUS-AG-MS must be connected to the red wire of the VH400 moisture sensor

Note: the Tempus AG S1 has only one configurable sensor input.

Temperature sensor (S4 only)
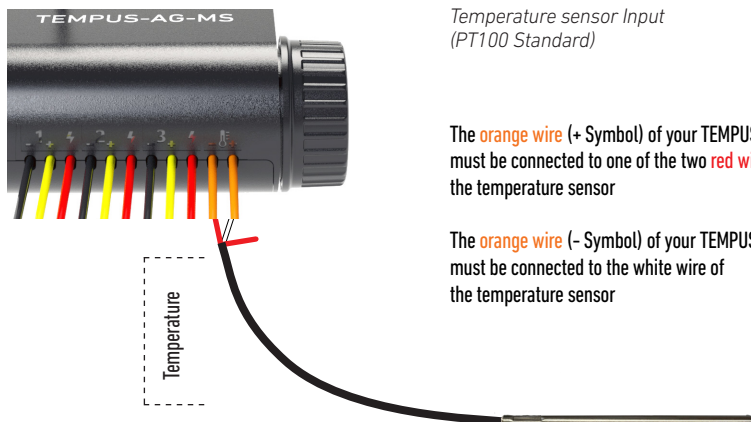
Temperature sensor Input (PT100 Standard)

The orange wire (+ Symbol) of your TEMPUS-AG-MS must be connected to one of the two red wires of the temperature sensor

The orange wire (- Symbol) of your TEMPUS-AG-MS must be connected to the white wire of the temperature sensor

Note: the Tempus AG S1 doesn't have temperature sensor input.

GENERAL INFORMATION

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

CE 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.

In case of contrary use to the indications given in this user manual, the device protection may be compromised.

This symbol indicates that the product is shock resistant.

This symbol indicates that the product is resistant to ultra violet.

This symbol indicates that the product is waterproof.

This symbol indicates that the supply voltage is a direct voltage.

TEMPUS-AG-MS
1-4 Sensor Inputs

For Technical Assistance:
service.wb.emea@toro.com

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FCC/IC STATEMENT TEMPUS-AG-MS

This product contain a modular approval with FCC ID : YWW-BLEMOD, T9JRN2903 and IC : 9319A-BLEMOD, 6514A-RN2903

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution : the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note : this equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful inteference to radio or television reception which can be determined by tunning the equipment off and on ,the user is encouraged to try to correct interference by one or more of the following measures :

• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

This device contains licence-exempt transmitter(s)/receiver(s) that comply with innovation, science and Economic development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions : (1) this device may not cause interference, and (2) This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/recepteur exempt de license contenu dans le présent appareil est conforme aux CNR d'innovation, Science et Dévelopement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux condtions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est suceptible d'en compromettre le fonctionnement.

This device complies with FCC and ISED RF radiation exposure limits set forth for general population. This device must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Le present appareil est conforme aux niveaux limites d'exigences d'exposition RF aux personnes définies par ISDE. L'appareil doit être installé afin d'offrir une distance de séparation d'au moins 20cm avec les personnes et ne doit pas être installé à proximité ou être utilisé en conjonction avec une autre antenne ou un autre émetteur.

TEMPUS-AG-MS
1-4 Entrées de capteur

Pour une assistance technique :
service.wb.emea@toro.com

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