SOLEM

THE CONNECTED IRRIGATION EXPERT

LR-PM

Bluetooth® **LoRa™**

Contents

1 - Important instructions and reminders

ACCESS TO THE USER MANUAL

The user's manual is accessible in the application by clicking on the icon in the upper right corner at the beginning of the installation or in the settings page once the controller is installed at the beginning of the installation or in the settings page once the controller is installed.

1.   Before installing and operating the product, please read all the instructions in this manual carefully. Failure to follow these instructions may result in damage to equipment or personal injury. The safety instructions presented in this manual are not exhaustive.

2.   In case of failure, the responsibility of the manufacturer can not be engaged beyond the repair or replacement of the product under its legal warranty. The maintenance operations remain under the full responsibility of the user. Any deterioration of the product linked to a handling error cannot be attributed to a failure of the materials.

2 - General presentation

The LR-PM is a Bluetooth® / LoRa™ connected controller running on battery with an autonomy of about one year (autonomy variable depending on its programming). It can control a master valve or a pump (via a pump relay). It has a water meter input that can control the water flow of the same network of LR-AG agricultural controllers and transmit the information remotely through a LR-BST / LR-MB10-30 gateway or a Connected Irrigation Station.

The LR-PM controller can be remotely controlled through the association with a LR-MB gateway or a LR-BST / LR-BST REACT or a SOLEM Connected Irrigation Station.

This product works only in a cluster of LR-AG controllers. Its programming is done automatically according to the programs of the LR-AGs of the same network which are declared to it via the MySOLEM platform.
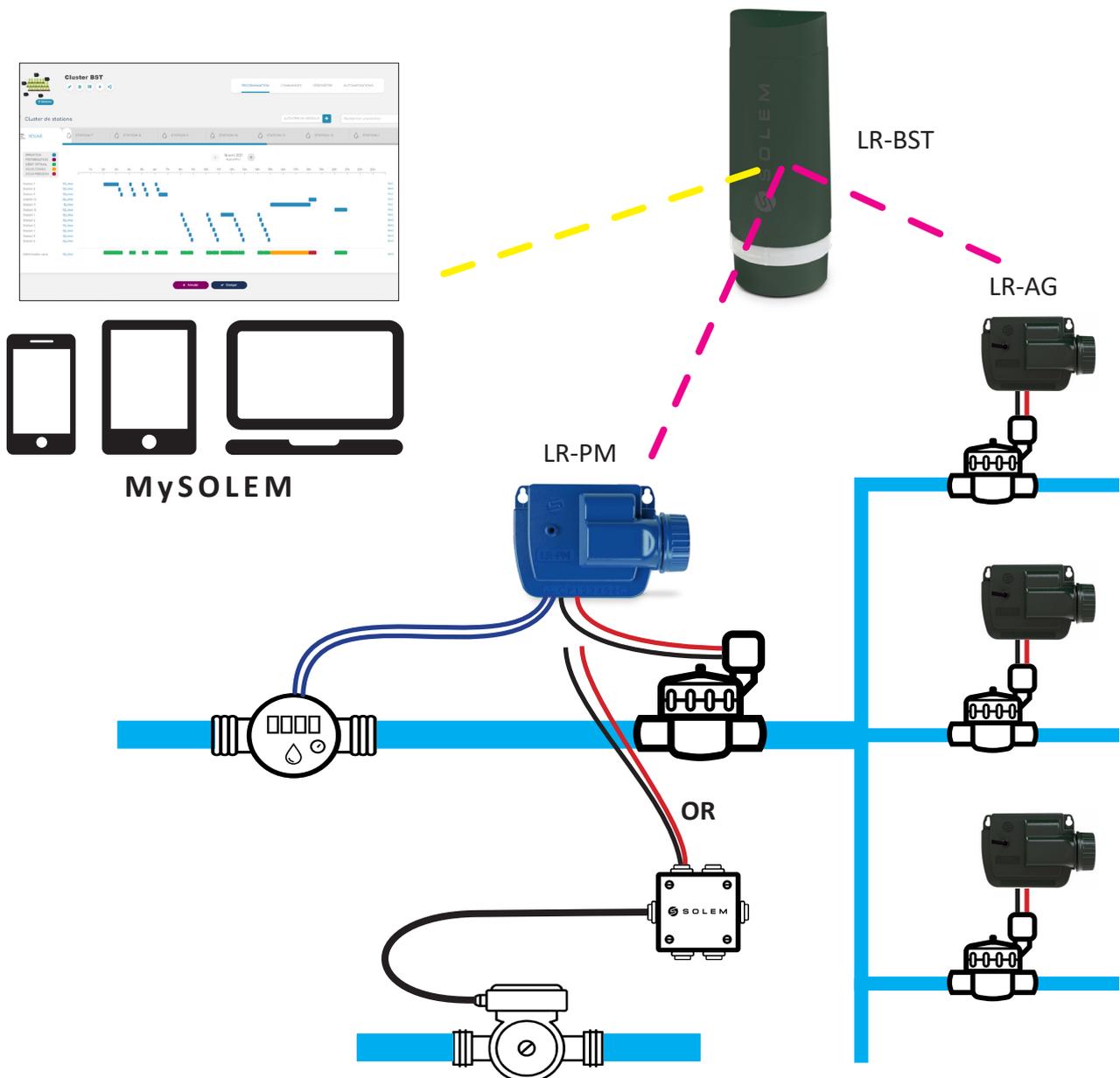
3 - Contents of the package

- 1 LR-PM
- 1 Installation guide

4 - LR-PM features

The LR-PM provides the following functionnalities :

- 9V solenoid valve control
- SOLEM pump relay control
- Water flow measurement
- Irrigation network connected in LoRa™ SOLEM

The control and analysis of the data measured by the LR-PM can be done from a smartphone or a tablet thanks to the MySOLEM application available for free on App Store and Google Play, or from a PC by connecting to the platform www.mysolem.com.

5 - Precautions for use

- Change the battery once a year

6 - Download

Make sure that Bluetooth is activated before starting the commissioning

1. On your smartphone and/or tablet, go to your store

2. Download the MySOLEM application

7 - Create an account

o   Why creating a MySOLEM account ?

The possibility of remote connection of SOLEM products is not only linked to their connectivity (Wi-FI, 3G). In order to program your product remotely, you need a way to identify the product and the person using it. This is why the creation of an account allows you to be identified on the MySOLEM platform and to program only the product that belongs to you.

By creating your account on the MySOLEM.com platform or on the MySOLEM app, you will enrich your online experience and have access to many features such as permanent product backup in case of phone malfunction, alert reception, anti-theft function, CANOPY function and bulk orders, Cluster function for agriculture.

To use LR-PM, you must create an account.

o   Create an account.

1. To log in or create an account, launch the MySOLEM application from your smartphone and/or tablet.

2. Go to the «My Account» tab by clicking on the icon ⚙

3. Follow the steps described on the application.

8 - Anti-theft function

o   What is the anti-theft function ?

The anti-theft feature applies to all SOLEM products, even those already installed in the field. It allows to deactivate / reactivate remotely any device stolen by a third party. This function is available from version 5.15.3 of the MySOLEM application. It is linked to the bluetooth security key. Without this key, the thief will not be able to use the product even if he reboots it.

o   Activate the anti-theft function:

Each time you add a controller (see the module association section in the application), the MySOLEM application will ask you to activate or not the anti-theft function. Once activated, it will ask you to create a Bluetooth security key. You can activate the function after the association of the product by entering the product and then on the icon ✎
The 2 activated parameters (security key + anti-theft function) will not prevent theft but you will be able to block its use at a distance.

o   Blocking / reactivating the product:

To block the product you can do it in 2 different ways:
In the MySOLEM application: enter the product, click on the icon ✎ and scroll down to the anti-theft function then deactivate the product. On the mysolem.com platform: enter your account with your login and password, then enter the stolen product, click on the icon and report your stolen product. If the product is recovered (because it was simply lost), you can then use it again by reactivating it.

The objective of this function is to make the product unusable but also to avoid interest in stealing SOLEM products. (Impossibility to use or resell it).
The more this function is used, the more the interest to steal the product will decrease.

9 - LR-PM association in the MySOLEM application

Make sure that the Bluetooth of your smartphone is activated.
Go to the Bluetooth settings and momentarily turn off all Bluetooth devices (watch, earphones etc...)
that may interfere with the association. You will turn them back on at the end of the installation.
Check that your phone is at least SMART V4 Bluetooth compatible and that it is at least Android V4.4.2
or Ios 12.

1. Unscrew the cap of the LR-PM

2. Connect a 9V battery type 6LR61 or 6AM6 and screw the cap back on.

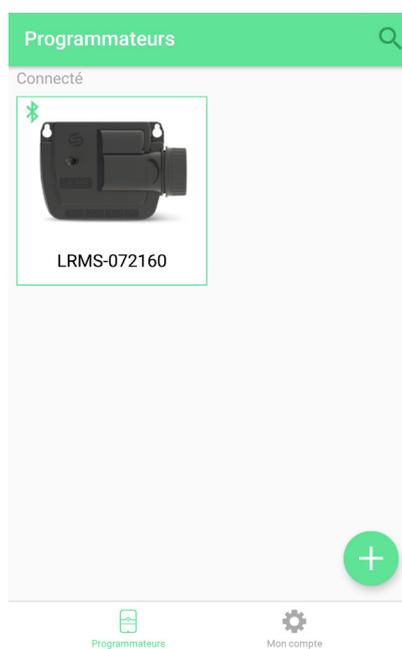3. Launch the MySOLEM application from your smartphone and/or tablet.
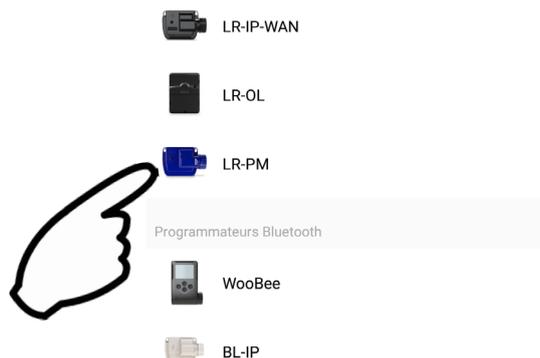
4. Press the   **Ajouter un programmateur**   or   +

No module
installed

Modules are already
already installed

5. Select the LR-PM from the product list.

6. Select the LR-PM from the list of available products under «Select LR-PM Controller». The number displayed corresponds to the «Default name» on its product label

Note:
For 2 minutes after the battery is inserted, the product is in installation mode and appears green in the list. In this mode, the product does not ask for the security key if it was entered during a previous installation.
If necessary, define a name and a security key for your LR-PM, and press the «validate» button.

7. Your LR-PM is associated in the application and appears in the list of available controllers.

← Guide d'installation

1. Vérifiez que le bluetooth est activé sur votre appareil

2. Vérifiez que votre programmateur est alimenté

Sélectionnez le programmateur LR-PM

LRPM-084B39

Mode démonstration

Programmateurs

Connecté

LRPM-084B39

Programmateurs   Mon compte

Bluetooth dongle

The security key protects your controller by restricting access to your controller.

You can define it in 2 different ways:

- During the «LR-PM ASSOCIATION on MySolem App» Page 7.

- By accessing the product information, via the icon at the top right of your screen when you have entered your controller via Bluetooth.
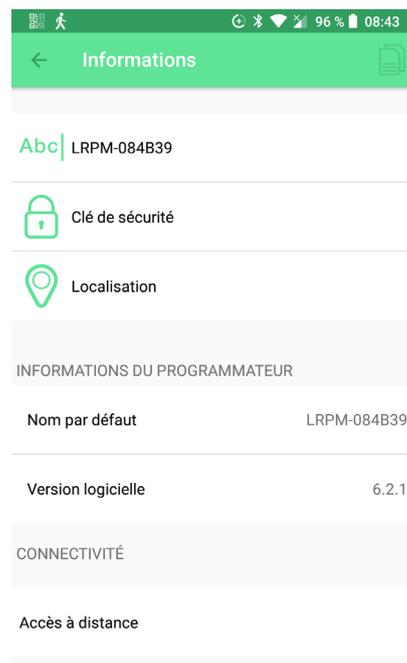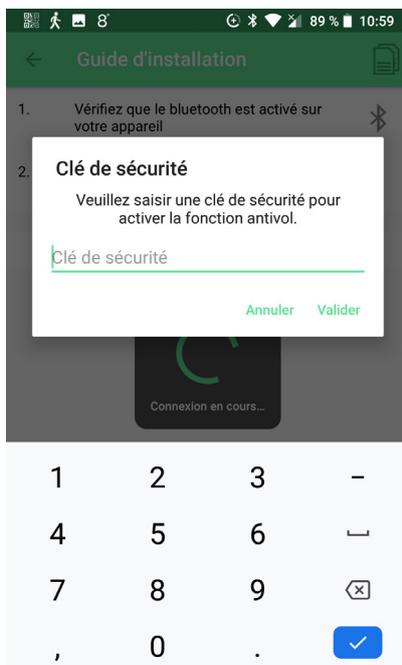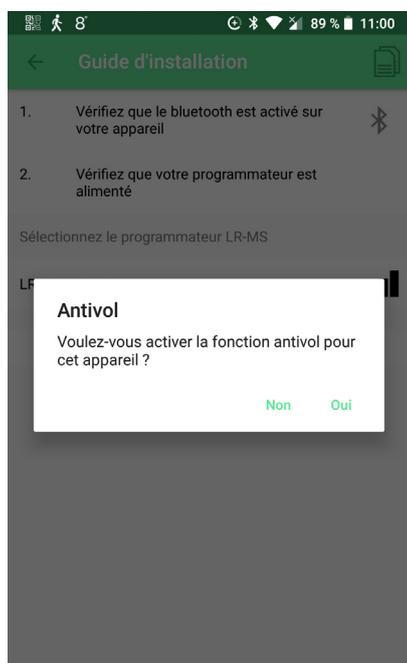
## 10 - Association of LR-PM with a gateway LR-BST-25 or LR-BST-REACT

The use of the LR-PM module requires a LR-MB10/30, LR-BST gateway or a Connected Irrigation Station to allow the transmission of data and immediate alerts on the MySOLEM platform and thus to alert you either by email and/or puch notification

In the case of the LR-MB, go directly to page 15.

1/ Position the LR-PM near the LR-BST (<10m).

2/ Go to the «Controllers» screen and select your LR-BST.

3/ Switch the LR-BST-25 to pairing mode.
   The LR-BST-25 gives you 1 hour in this mode to pair the LR-PM.
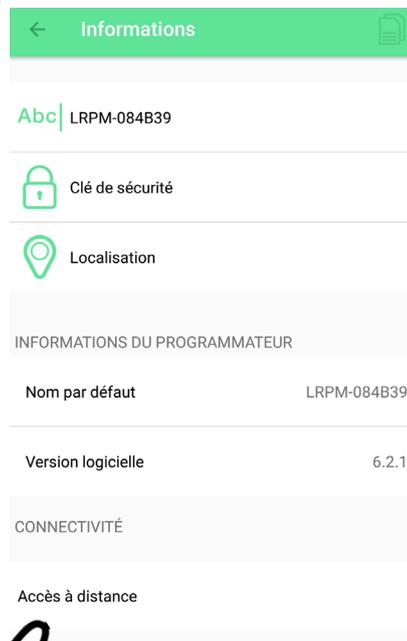   For the LR-BST-REACT go directly to point 4.
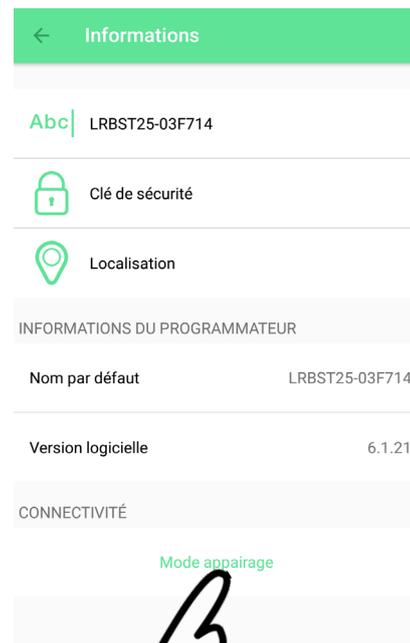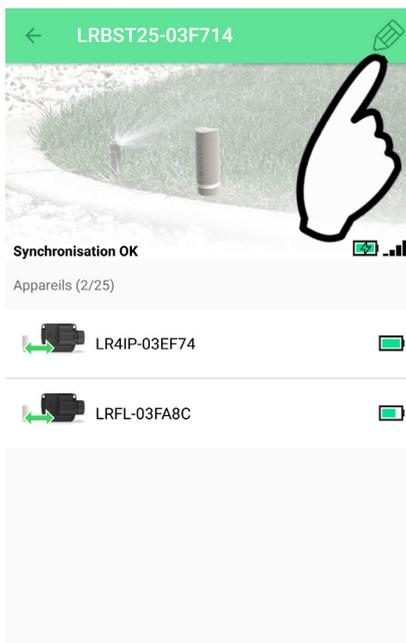
4/ Return to the application's home page.
   Select your LR-PM in the «Controllers» page.

Press ✎ at the top right to access the product information page.

Programmateurs 🔍

Connecté

LRPM-084B39   LRBST25-03F714

STATION-07A301   LRMB-BEB005

Programmateurs   Mon compte

← **LRPM-084B39** ✎

✋ Commande manuelle

⏻ ON / OFF

AJOUTER UN CAPTEUR

5/ Press «Remote Access».

← **Informations** 🔋

Abc| LRPM-084B39

🔒 Clé de sécurité

📍 Localisation

INFORMATIONS DU PROGRAMMATEUR

Nom par défaut   LRPM-084B39

Version logicielle   6.2.1

CONNECTIVITÉ

Accès à distance

6/Select your LR-BST.

Accès à distance

Sélectionnez le relai que vous souhaitez utiliser.

LRBST25-03F714

7/ Press to confirm the operation.

Accès à distance

Sélectionnez le relai que vous souhaitez utiliser.

LRBST25-03F714
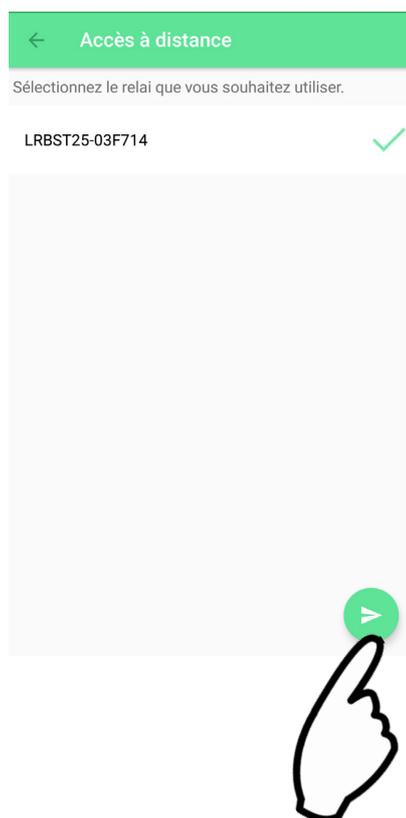
Your LR-PM is now associated, you can test the LoRa™ connection see page 17.
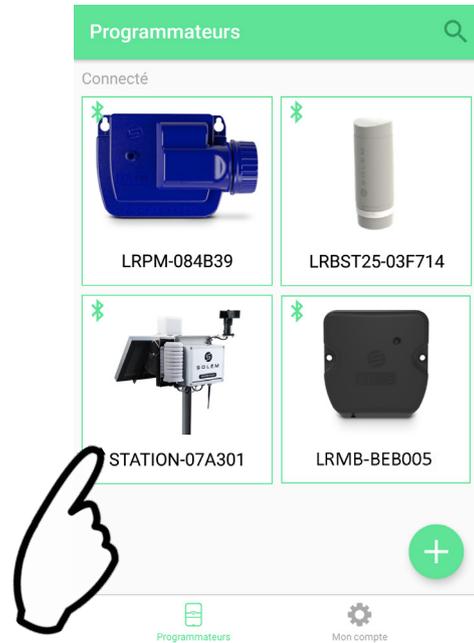
11 - Association of the LR-PM with a Connected Irrigation Station

First, you must have associated the Connected Irrigation Station with the MySOLEM application.
If you have not yet done so, please refer to the application's manual.

The following operations are done via Bluetooth with the MySOLEM application.

1/ Position the LR-PM near the Station (<10m)

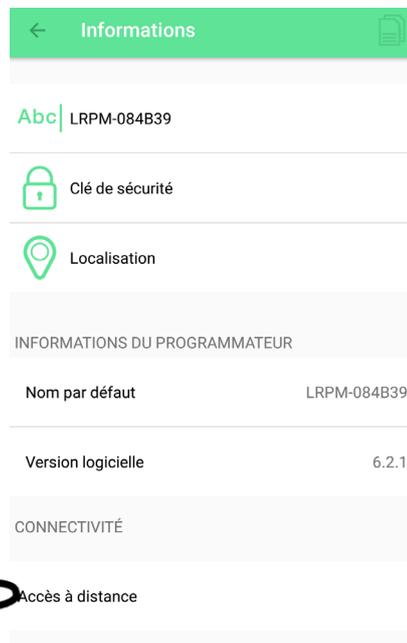2/ Go to the «Controllers» page and select your Station.

3/ Select your LR-PM in the «Controllers» page

Press at ✏ the top right to access the product information page.

4/ Press «Remote Access».

Informations

Abc| LRPM-084B39

🔒 Clé de sécurité

📍 Localisation

INFORMATIONS DU PROGRAMMATEUR

Nom par défaut   LRPM-084B39

Version logicielle   6.2.1

CONNECTIVITÉ

Accès à distance

6/ Select your Station.

Accès à distance

Sélectionnez le relai que vous souhaitez utiliser.

STATION-07A301

7/ Press to confirm the operation.

Accès à distance

Sélectionnez le relai que vous souhaitez utiliser.

STATION-07A301   ✓

Your LR-PM is now associated, you can test the LoRa™ connection see page 17.

12 - Association of the LR-PM with a LR-MB 10/30 gateway

First, you must have associated the LR-MB with the MySOLEM application.
If you have not yet done so, please refer to the application's manual.
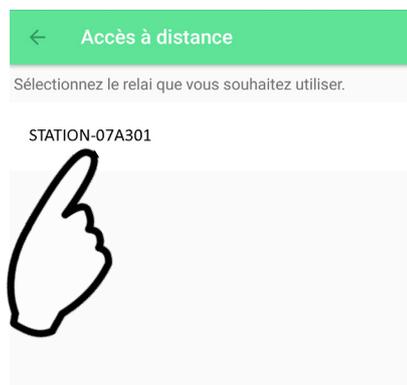
1/ Select your LR-PM in the «Controllers» page.

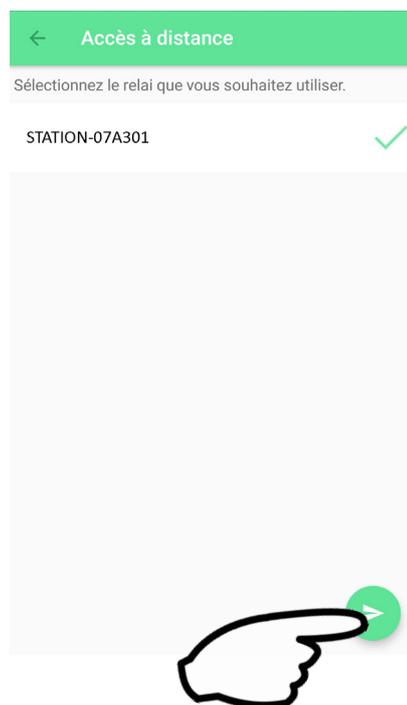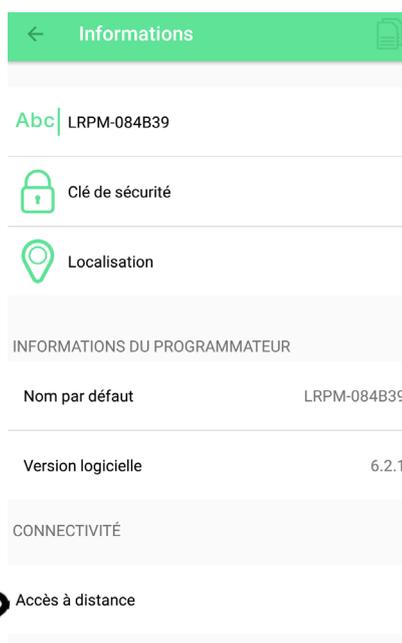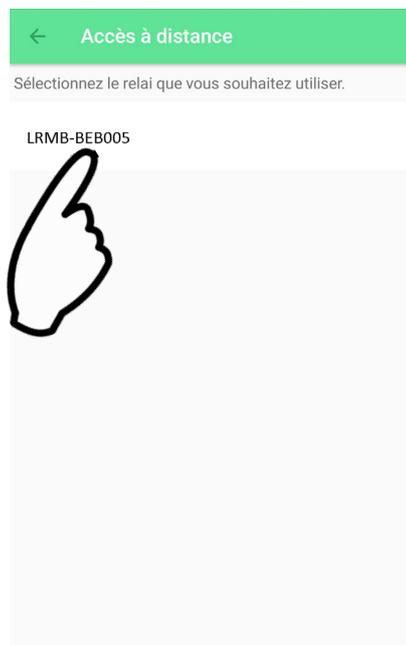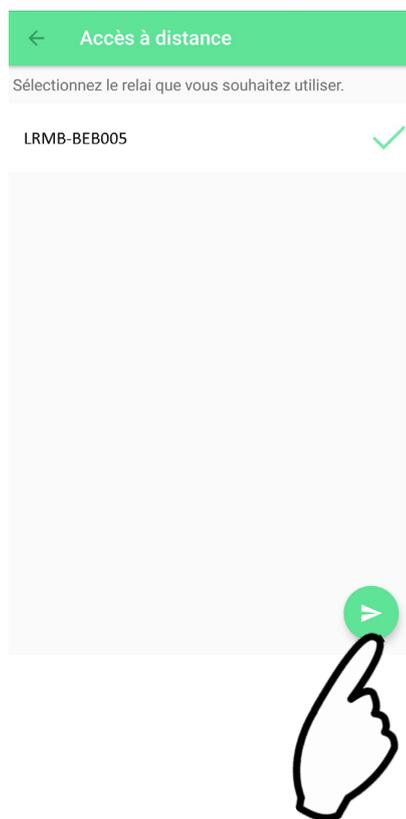Press at the top right to access the product information page.

2/ Press «Remote Access».

3/ Select your LR-MB.

4/ Press to confirm the operation.

Your LR-PM is now associated, you can test the LoRa™ connection see page 17.

13 - Test Connexion LoRa™

If the association of the modules is done before the installation of your products in their final location, this connection test can be used to validate the positioning of the LR-PMs in your installation.

The connection test can also allow you to verify at any time the proper functioning of LoRaTM radio communication between your LR-PM and the LR-BST/Station/LR-MB.
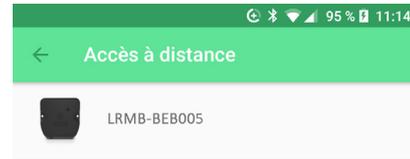(Example: the product has fallen into the manhole and no longer communicates with the gateway).

To test the LoRaTM connection, proceed as follows:

1/ Connect to the LR-PM via Bluetooth
2/ Then in the settings, press the icon ✏ .
3/ Press «Remote Access».
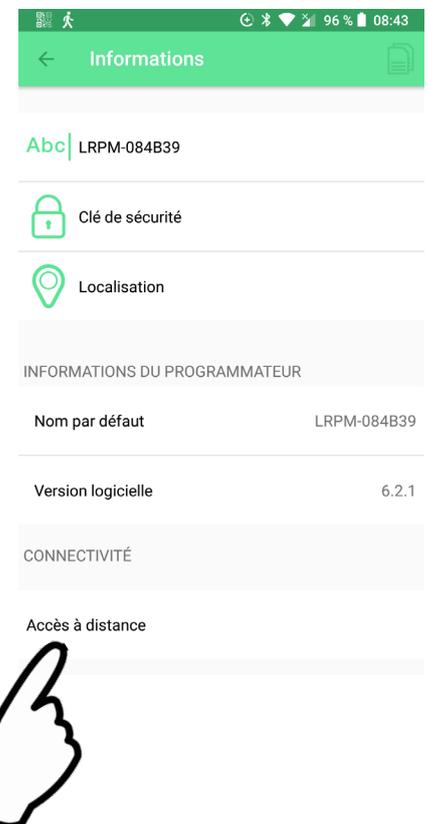
1/Test the LoRa^{TM} connection, press

2/The message indicates that
the LoRaTM connection between the LR-MB / LR-BST
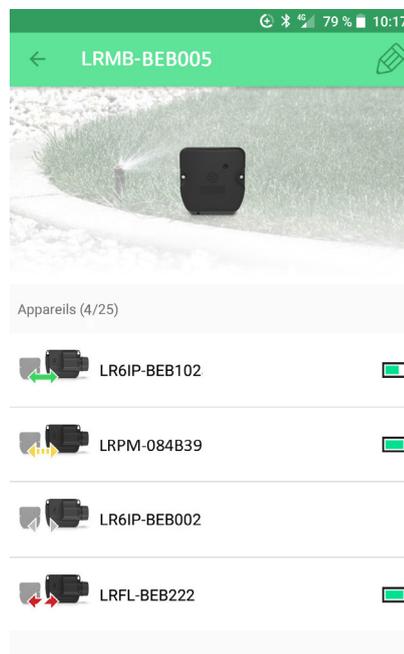Irrigation Station and the LR-PM is reliable.

Note :
- The message «Connection established»
  indicates that the connection is reliable.
- The message «No connection established»
  indicates that it is necessary to bring your
  your LR-PM to the LR-MB or vice versa.

In case the connection is not reliable, move the LR-PM closer to the LR-MB / LR-BST /
Connected Irrigation Station, and repeat the procedure.

These icons reflect the status of the last LoRa™ connection

Example: between the LR-MB and the LR-PM.

Connection < 5mn

5mn < Connection < 10mn

Connection > 10mn
Changes not transmitted

Connection never made
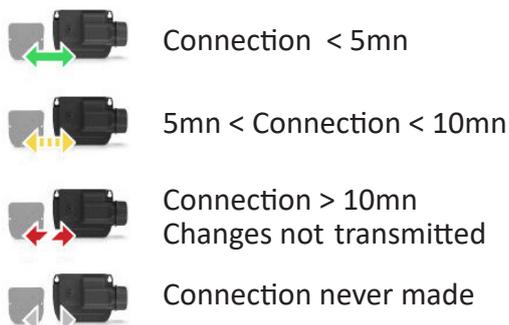
By pressing one of the icons you get a message giving the status of the LoRa™ connection.

Example :

LRPM-084B39

LRPM-084B39

La dernière communication entre votre contrôleur et son LR-MS s'est produite le 11 déc. 2017 11:50.

OK

LR6IP-BEB102a

19
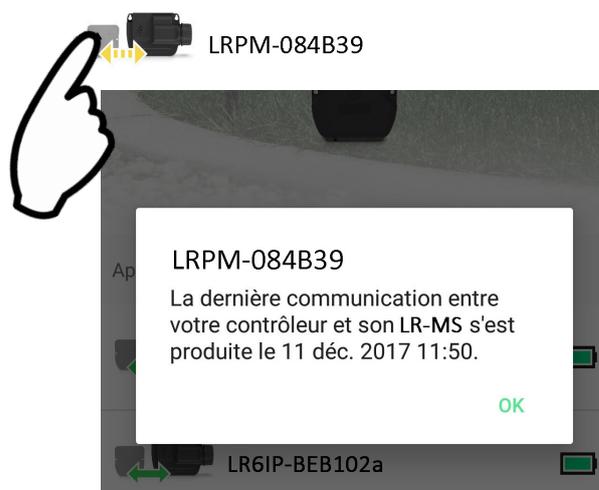
15 - Wiring the LR-PM

Connect your LR-PM to the solenoid valves as shown below.
Use solenoid valves with 9V pulse solenoids.

Water meter

9V solenoid

OU

Control relays

Pump
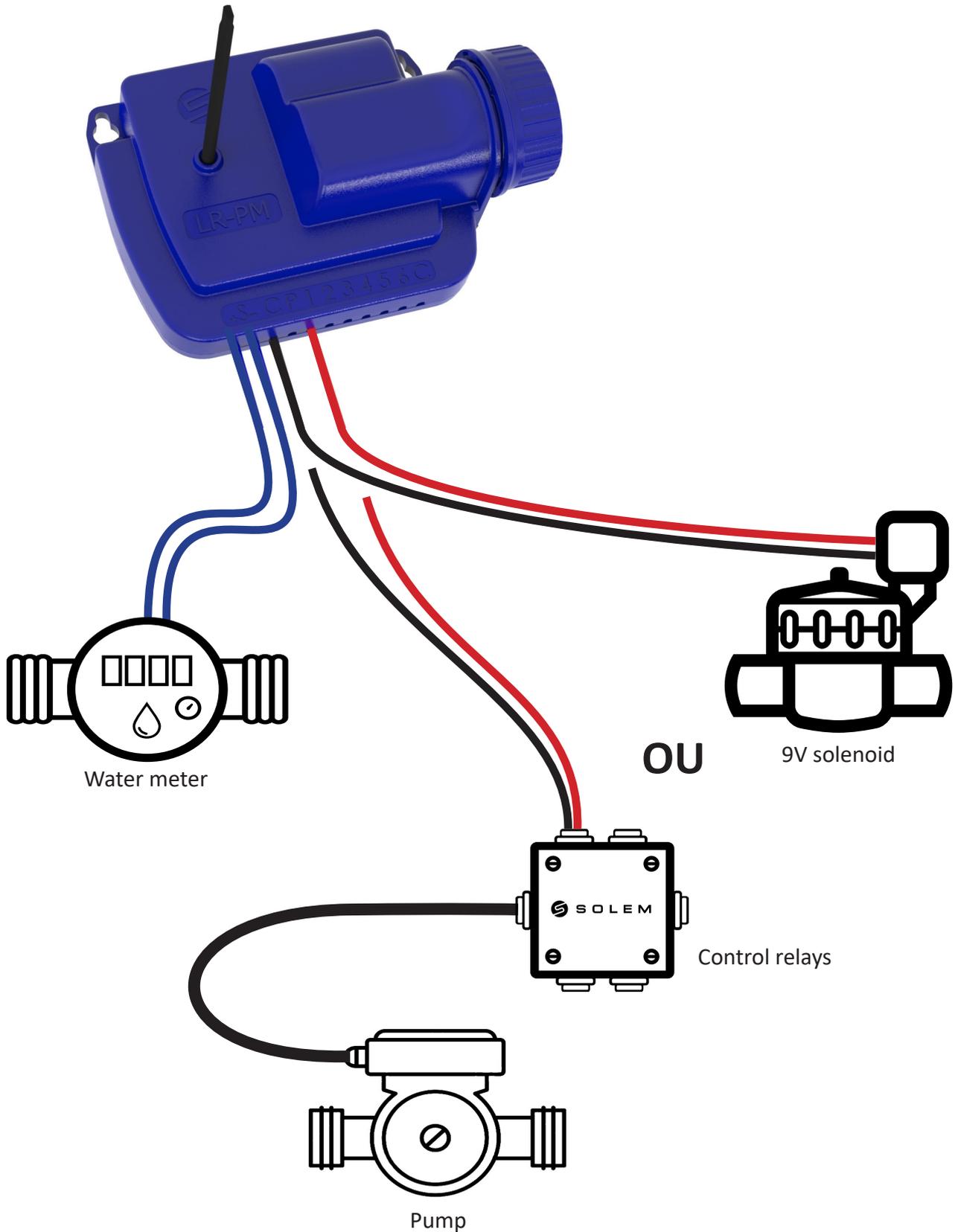
16 - Sensor configuration

⚠️ **WARNING, by default no sensor is configured at the start of the product.**

The LR-PM has a + S - sensor input to which you can connect a rain sensor or a pulse/water meter sensor or a pressure switch after cutting the blue wire. Once the sensor is connected, it is necessary to configure it in the application.

1. Connect to your LR-PM..

2. Press «Add Sensor».

3. Select your sensor type and follow the instructions given by the application to complete the installation of your sensor.

+ S -
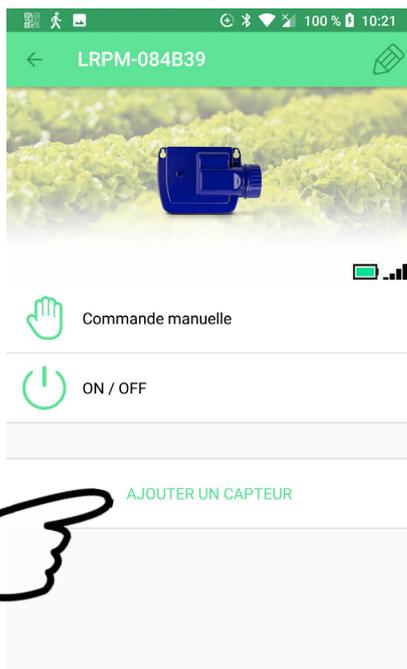
Case of a pulse sensor for the water meter:
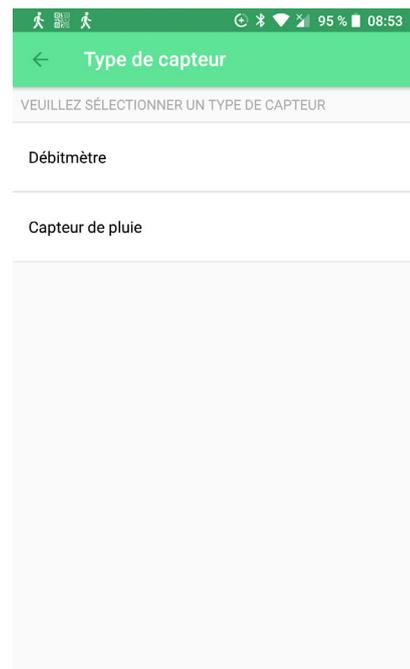The connection is usually indicated in the instruction manual of the impulse sensor. Just make sure that the polarity + S - is correct.

Case of a rain sensor:
no connection recommendation necessary because the rain sensor is a dry contact and can be connected in any direction.

You will need to enter the conversion factor (K factor) of the pulse sensor in the MySOLEM application at the time of installation. If you can't find it, please refer to your dealer - installer or manufacturer.

17 - Flowmeter configuration

1. Vérifiez la **«Valeur instantanée»**.
   <u>Function usable in Bluetooth only</u>

Instant Value: Allows to make sure that the volume consumed indicated on the meter is the same as the volume displayed on the application. If a discrepancy is found, check the wiring (polarity) or adjust the «COEFFICIENT» value.

2. Fill in the remaining fields.

High threshold (daily volume): maximum consumption (in liters) that you do not want to exceed over a 24-hour period.
If you exceed this target, you will be alerted immediately (by e-mail and smartphone and/or tablet notification).

Low threshold (daily volume): minimum consumption (in liters) that you wish to reach over a 24-hour period. In case of non-attainment, you will be alerted the next day at 7am (by e-mail and smartphone and/or tablet notification).

Leakage alert volume: threshold volume of water (in liter) from which you want to be alerted.
Flow rate of the stations: for each station, read the flow meter at time T (Cpt1), then at time T + 5mn (Cpt2).Make the calculation (Cpt2 - Cpt1)/5 = > Flow (L/min) In the application, fill in the results.

High Threshold (Station Flow Alerts): Maximum consumption alert threshold as a % of the channel's calibrated flow rate.
The «High Threshold» alert is immediate as soon as it is crossed.

Low threshold (Station flow alerts): Minimum consumption alert threshold as a % of the calibrated flow rate of the channel.

The «High Threshold» alert is immediate as soon as it is crossed. For each station flow rate alert you can define the type of action required:

- **No action:** continuous watering.

- **OFF permanent:** the station concerned, resuming watering requires a manual ON command (in the application on the ON command (in the application on the controller concerned).

- **Inhibit output:** stops the station concerned, requires the acknowledgement of the alert (in the application on the concerned controller) to reactivate the station.

Stabilization time:
Time required before the water flow is stable during the start-up and shut-down of the station.
It allows to get rid of the flow peak (start) or of a leak (stop). The time is common to all stations.

During this period, consumption is not taken into account for alerts or actions.

18 - Features available on the MySOLEM platform

Grouping of stations from several LR-AG (Cluster)

- Each LR-AG can be integrated into a cluster of stations, allowing all the solenoid valves of several LR-AGs to be grouped together and LR-AGs and to program them in the same block.

- If this cluster is managed by a pump or a master valve, an LR-PM can be defined as the master valve of the cluster

- One of the stations of a LR-AG can also be considered as the fertigation station.

- The flow rate of each solenoid valve can be entered as well as that of the master valve.

- Each station of the cluster can be programmed alone or in a graphic summary to directly modify the programming and to realize an overflow or underflow of the of the master valve or the pump.

Dashboard of your installation

You can check at any time and at a glance if your installation is working properly.

- Check battery status and low battery alerts

- Check the daily water consumption

- Check for leaks or abnormal flow rates

- Check if the modules and gateways are communicating properly

19 - FAQ

What features are required for the Bluetooth® product to work ?
Android 4.4.2 and higher phones and tablets with Bluetooth Smart 4.0 and higher. Apple iPhone or iPad with iOS 12.0 and higher equipped with Bluetooth Smart 4.0 and higher.

What is the purpose of the S input (blue wire) on the controller ?
You can connect a water meter connected to the S input for this you need to cut the blue wire.

How can I resume the association process?
To resume an association procedure, simply short-circuit the 2 pins of the battery pressure (remove the battery beforehand) for at least 30s.

If my device runs out of battery, do I lose my programs ?
No, they are never lost, they are automatically saved.

I would like to reset the programming of my device. How do I do this?
Open the application, enter the product and then open the Settings and select «Delete programs and durations».

Use:

Compatibility: minimum Bluetooth SMART V4 compatibility of your phone and minimum Android V4.4.2 or Ios 12 version
Humidity rating: 100% (IP68)
Ambient temperature of use of the product: -20°C to 60°C
Warranty : 2 years

Dimensions :

Width 14 cm x Height 9 cm x Depth 5.5 cm

Power supply :

9V alkaline battery 6AM6 or 6LR61

Frequency band used and maximum transmitted power:

Bluetooth® : [2400-2483.5]Mhz, 1mW
LoRaTM : [868-868.6]Mhz, 25mW
Range LoRaTM : 800m (variable range depending on the environment)

Sensors:

Water meter (max 330Hz)

Ce symbole indique que le produit utilise une radio de technologie Bluetooth®

This symbol indicates that the product uses LoRaTM technology radio.

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

This symbol indicates that these types of electrical and electronic devices 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.