

# BMETERING NFC CONFIG

## User Manual\_v1.3

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### 1. Introduction

The android application described in this manual is used to configure the new pulse emitter, wireless M-BUS, wired M-BUS, LoRaWAN devices.

It allows, through NFC technology, to read and write all the parameters necessary for the correct operation of the device, based on your needs.

What's NFC (Near Field Communication)? It's a technology that allows two devices, in close contact, to exchange data wireless. This module, available on all modern smartphones, tablets and all the devices that support this technology, allows the devices to communicate with each other in a simple and immediate way.

### 2. System requirements

- › Android 5 or higher
- › Support for NFC
- › Device display of 4.3" or higher

### 3. Installation

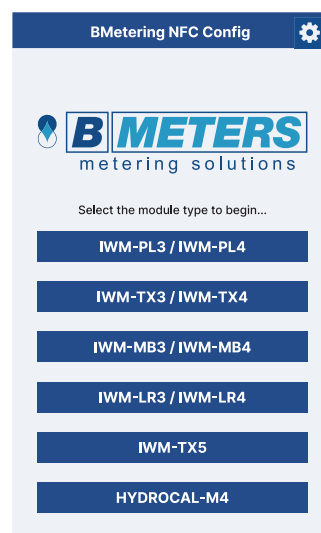
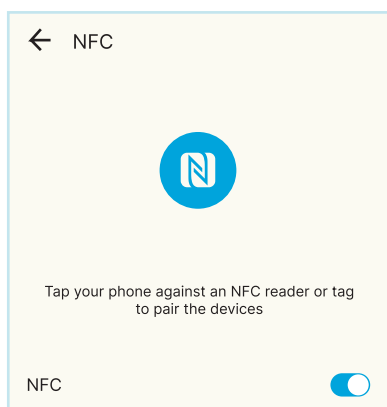
To install the app [click here](#) or scan the QR:



**Note:** if the android device does not support NFC, the app will not figure in the search results.

### 4. Main screen

In this page you can select the desired module to read. If the message "**NFC disabled. Enable NFC to proceed!**", appears on the main screen, please enable the NFC setting on your android device.




### 5. NFC tag positioning

To verify that the NFC antenna is working properly, put the android device in close contact with the module to allow the device to correctly detect the NFC TAG.



## 6. Fields description

 Allows to access the settings screen.

### Password NFC/ Password AES TX3,TX4,TX5 ed HYDROCAL-M4

Allows to set a password of 8 hex characters to protect the device configuration as well as the settings of the AES key for the WM-BUS modules.













**Note:** If the password is lost, the device will no longer be accessible while retaining the last settings. For the password recovery it is necessary to send the device to the manufacturer.

**Save encryption keys** - Allows to save and export or delete the encryption keys file.

### Saving configurations

Allows you to save the individual configurations of the selected modules.

It is also possible to export or delete the configurations for single models or export and delete them globally.

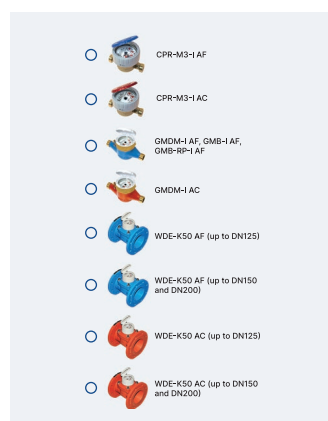
DELETE ALL CONFIGS	SHARE ALL CONFIGS
<input checked="" type="checkbox"/> PL3/PL4 save configs	 
<input checked="" type="checkbox"/> TX3/TX4 save configs	 
<input checked="" type="checkbox"/> MB3/MB4 save configs	 
<input checked="" type="checkbox"/> LR3/LR4 save configs	 
<input checked="" type="checkbox"/> TX5 save configs	 
<input checked="" type="checkbox"/> HC-M4 save configs	 

**Status** - This field shows the NFC connection status between the device and the smartphone with different messages and colors:

Reading done	All parameters set on the device have been read correctly.
Writing done	All the selected parameters have been written correctly.
Wrong values	Some parameters haven't been selected or haven't been inserted correctly.
TAG detected	The NFC TAG has been detected correctly; the android device has been correctly positioned on the module.
TAG lost	The NFC TAG has been lost. Better position the android device on the module, making sure that the antenna is centered in relation to the TAG (move away and bring the android device closer to the module).
Password written	The device has been correctly locked and/or unlocked using the LOCK/UNLOCK button.
Wrong password	The password saved on the first setting is not the one used to block the module.

### Water meter type

The first parameter to be set in the entire configuration (when present), it allows to automatically set the K index by selecting the correct water meter.



**K index** - Allows to select the inductive index value on water meter. The K index represents the ratio Liters/impeller rotation. The selection of the water meter forces the correct assignment of the value.

 Allows to consult the "Help" page.

Active



This button allows to activate or deactivate the module or meter data transmission without detecting 5 absolute litres.

☒ WALKBY ☐ AMR

Allows to select the preferred WMBus mode configuration.

**Transmit every** - Is a specific value that indicates the transmission interval (WALK-BY 60 seconds and AMR 200 seconds).

**Phone date and time** - Allows to check if the date and time of the android device are correct before updating the radio module.

**Transmit only in these hours** - It's a specific value that indicates the hours of transmission of the module during the week (from Monday to Friday) - (WALK-BY 6:00-20:00 and AMR 0:00-24:00).

**Historical acquirement day** - Allows to set the day of the month in which historical data is saved.

**Transmit during the weekend** - Allows the data to be sent during the weekend.


**Litres counter** - Allows to view the liters read from the module and modify them if needed.

### Data encryption

Not encrypted	data will not be encrypted.
Global encryption	data will be encrypted by global key (AES key password request).
Individual encryption	the data is encrypted using an automatically generated key (you can export them using the "Save Encryption Keys" function).

### Alarms

Magnetic Alarm	Active when a magnetic fraud is detected on the water meter.
Tamper Alarm	Active when removal of the external sensor module/perturbation of the inductive sensor is detected.
Wrong Pulse Setting	Active when an incorrect setting of the values related to the pulse output is detected. Note: check the pulse ratio and the pulse length with the water meter flow rate.
Low battery Alarm	Active when a battery voltage close to the minimum threshold is detected.
Sensor Alarm	Active when someone attempts to fraud the inductive sensor.
Water Loss Alarm	Active when extended water leakage is detected.
Reverse flow Alarm	Active when the reverse flow threshold is exceeded.
Qmax Overflow Alarm	Active after the meter works at a flow rate above Qmax for a few minutes.
NFC Tamper Alarm	Active when a NFC fraud is detected on the IWM-TX5 module.

**Block/Unblock** - Allows to block or unblock the module or meter configuration with the security password set in the settings  (recommended).

**Update** - Positioned near a single parameter, it allows to rewrite only that parameter without overwriting all the configuration.

**Read/Write** - Allows to write the selected parameters or read the module/counter data.

ONLY FOR: IWM-PL3 IWM-PL4

**Pulse ratio X** - Allows to select the value liter/pulse of the module's output (multiple of K only). You can select the following values: "Disabled" (the device doesn't send pulses), 1, 5, 10, 25, 50, 100, 250, 500, 1000. This index refers to the OUT1(white) cable and the OUT3 (green, excluding the dosing function).

**Pulse length** - Allows to enter the pulse length in ms (milliseconds) on OUT1 (white), OUT2 (yellow) and OUT3 (green). You can enter a value between 50 and 300 extremes included. If the pulse length is too long compared to the number of pulses (pulse overlap), the "Wrong pulse setting" alarm may occur. In this case it is advisable to lower the value of the pulse length (ms). It is advisable to keep the default value (100 ms).

**Pulse ratio Y** - Allows to insert the value liter/pulse of the dosing output. You can select a value between 1 and 65535. In this field you must insert only multiples of K: the value refers to the dosing function only.

**OUT3 Setting** - Allows you to select the OUT3 (green) cable function. It's possible to select one of the following functions:

<b>Absolute count</b>	Sends a pulse every (Pulse Ratio X / Index K) rotations considering the rotations in the opposite direction and subtracting them. It represents the litres actually passed through the water meter.
<b>Backward Flow Count</b>	Sends one pulse every (Pulse Ratio X / Index K) rotations in the opposite direction.
<b>Dosing</b>	Sends one pulse every (Pulse Ratio Y / Index K) rotations in the forward direction. It works only with the Pulse Ratio Y field.
<b>Disabled</b>	No pulses. Selecting this item completely disables the OUT3 behavior.

ONLY FOR: IWM-MB3 IWM-MB4

**Primary address** - Allows to set the primary address of the device (from 0 to 250).  
The secondary address is the serial number of the module.

ONLY FOR: IWM-TX5

**Qmax (m³/h)** - Allows to set the activation threshold of the maximum flow rate. The selection of the meter forces the default assignment of the value.

**Water leakage threshold** - Allows to set the interval for the activation of the water leakage alarm.

**Reverse flow threshold** - Allows to set the threshold for the activation of the reverse flow alarm.

**Send date and time/Send historical** - Enables the internal date and time to be sent by the radio module. It is a mandatory option if individual or global encryption is enabled. Send Historical: allows to send the last 12 months historical data.

ONLY FOR: IWM-LR3 IWM-LR4



Association through **Over The Air Activation - OTAA**.

**DevEUI** - Is an IEEE unique identification code for the end device (64 bit). The field is not editable.

**AppEUI** - Allows to set a unique identifier for the application, used for the OTAA join (64 bit). E4-1E-0A-90-00-0F-FF-FF is the default value.

**AppKey** - Allows to set a securely generated authentication code (AES-128 bit). Preassigned field.

**Transmit every** - Allows to set the transmission frequency. Available options: 21600s (6h) or 43200s (12h).



Association through **ABP - Activation By Personalization**.

**DevAddr** - Allows to set the identification address of the device (32 bit).

**AppSKey** - Allows to set a session key for the end-to-end encryption of the application payload (64 bit).

**NwkSKey** - Allows to set a session key to encrypt and verify the integrity of packets (AES-128 bit).


## 7. Step-by-step guide for IWM-PL, LR, MB and TX modules

After checking the activation on the smartphone and the position on the module of the NFC antenna, proceed as follows:

1. Select your module on the main menu.
2. Read the module to load the configuration (refer to NFC TAG position table).
3. Modify the parameters to obtain the desired configuration.
4. Update date and time (optional).

**Note:** when configuring LoRa modules, be sure to READ the module you want to configure FIRST to avoid duplication of keys.

5. Update litres (optional).
6. Reset Alarms (optional).
7. Write configuration settings.
8. Recommended, make another read to check the correct configuration of the module.

 For more detailed information use the "Help" page which can provide specific tips on each screen of the app.

## 8. Step-by-step guide for HYDROCAL-M4

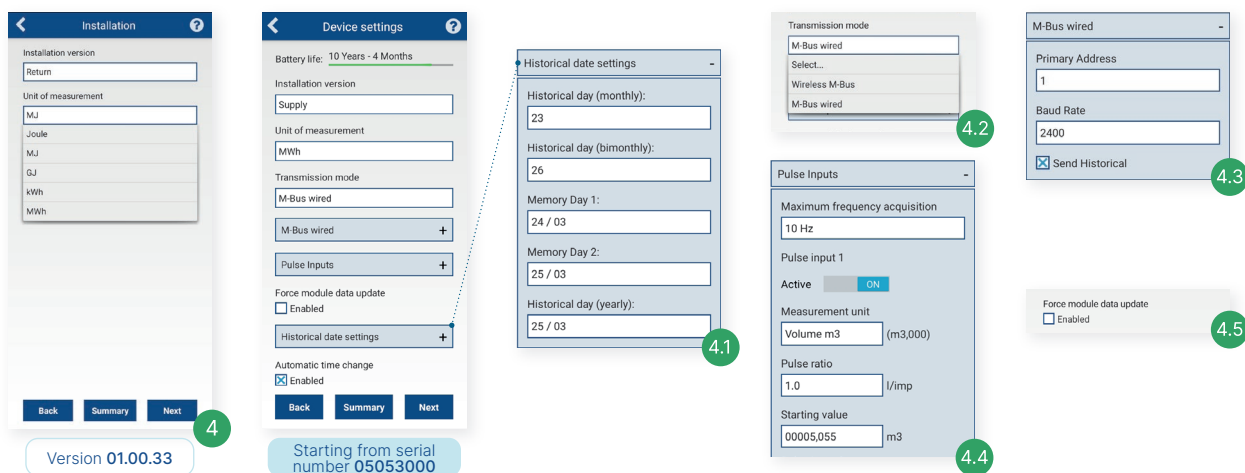


1) The first screen shows how to find the NFC on the device.

2) Prompt of NFC detected. If the tag is lost during the reading process reading, the app shows a message with instructions for finding the NFC tag.

2.1) Device with NFC password already enabled and not corresponding to the one set in the app (change the NFC password in the settings).

3) When the read is successful, the serial number of the device will appear at the bottom of the screen.



4) The first parameters to set are the installed version (supply or return) and the unit of measurement. **Note:** if the direction of the installed version has already been configured, it will not be possible to change the parameter.

4.1) Allows to select the configuration for historical and update the date and time.

4.2) Allows selection of data transmission mode between Wireless M-Bus and wired M-Bus.

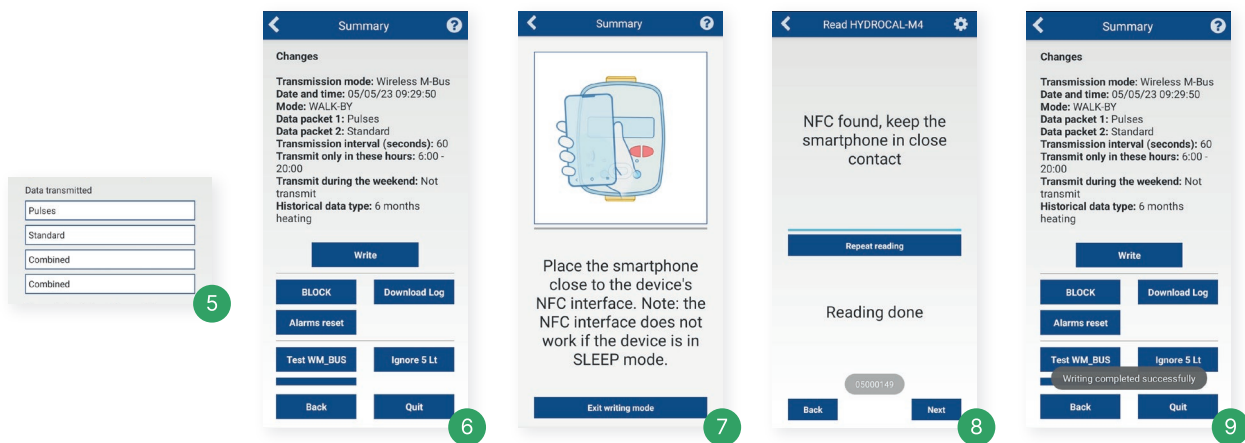
4.3) By selecting transmission via wired MBus, it is possible to set the primary address of the IR-MB-PULSE module, the Baud Rate communication and the meter historical to be sent.

4.4) Enabling and configuring pulse inputs. Through this menu it is possible to enable, disable, configure the pulse inputs individually and select the sampling frequency (10 or 25 Hz).

4.5) By enabling this function, the counter will "force" the writing of data on the IR-MB-PULSE external module, overwriting any previous values.

### List of alarms:

Leakage	<input type="checkbox"/>	Incorrect installation	<input type="checkbox"/>	Display Overflow	<input type="checkbox"/>	C1 pulses too frequent	<input type="checkbox"/>
Burst	<input type="checkbox"/>	Delta T non-compliant	<input type="checkbox"/>	No C1 consumption	<input type="checkbox"/>	C2 pulses too frequent	<input type="checkbox"/>
Reverse flow	<input type="checkbox"/>	Delta T too low	<input type="checkbox"/>	No C2 consumption	<input type="checkbox"/>	MBUS readings too frequent	<input type="checkbox"/>
No consumption	<input type="checkbox"/>	Delta T too high	<input type="checkbox"/>	Loss on C1	<input type="checkbox"/>	MBUS disconnected	<input type="checkbox"/>
Qmin underflow	<input type="checkbox"/>	Excessive temperature	<input type="checkbox"/>	Loss on C2	<input type="checkbox"/>		



5) Allows to set the type of transmission, data packages, transmission time and historical data.

<b>Standard</b>	Data of energy in heating and volume useful for accounting.
<b>Combined</b>	Standard data with the addition of optional energy and volume data in cooling for heating/cooling version.
<b>Pulses</b>	Standard data with the addition of optional data regarding pulse input 1 and 2 (if used).
<b>Instantaneous</b>	Standard data with optional data addition for all instant data.

6) Summary screen of the selected configuration and specific commands:

<b>Summary</b>	Settings or changes of previously configuration.
<b>Block/Unblock</b>	Allows to block/unblock the devices via NFC.
<b>Alarms reset</b>	Allows to reset all alarms.
<b>Test WM_BUS</b>	Allows to test W-MBus transmission (only before $\pm 5$ Litres).
<b>Ignore 5 Lt</b>	Allows to start transmission without the passage of $\pm 5$ Litres.
<b>Download Log</b>	Allows to download device Log file.
<b>Write</b>	Allows to WRITE the configuration (next screen).
<b>Radio reset</b>	Allow to reset the radio module.

7) The Writing screen will ask you to position the smartphone on the NFC tag of the device (you can also exit without writing the configuration by pressing the related button).

8) When the NFC is found, the configuration writing begins (any error screens displayed during the writing process are the same as the first reading of the module).

9) When the configuration is done correctly the app will return to the summary screen and a confirmation message will appear at the bottom of the screen.