

# aquastream®

Modular system  
for mechanical water meters

User manual



# Legal notice

## Document release index

Version	Date	Modification(s)
01	04.06.2019	First version
02	06.09.2019	Corrections/Improvements
03	02.12.2019	Adding AQS-W8 Wireless M-Bus module
04	22.08.2020	Adding AQS-MBOC Dual outputs module
05	27.04.2021	Corrections/Improvements
06	02.03.2022	Adding AQS-L8 LoRaWAN module
07	21.10.2022	Modifications for AQS-L8 (telegram content)
08	16.11.2023	Correction LoRa Stack

## Original instructions

### Publisher

INTEGRA Metering AG

Ringstrasse 75

CH-4106 Therwil

Switzerland

Phone: +41 61 725 11 22

[info@integra-metering.com](mailto:info@integra-metering.com)

[www.integra-metering.com](http://www.integra-metering.com)

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The figures and information in these instructions are subject to technical changes that become necessary to improve the product.

# Content

1.	Safety .....	5
1.1	Intended use .....	5
1.2	Indications on safety instructions and symbols .....	5
1.3	Safety instructions and preventive measures .....	5
1.4	About this manual .....	6
1.5	Handling, transport and storage .....	6
1.6	Return of the devices .....	6
2.	Scope of delivery and accessories .....	7
3.	Product description.....	7
3.1	Products variants.....	8
3.1.1	aquastream® M-Bus .....	8
3.1.2	aquastream® Radio W8 (Wireless M-Bus) .....	8
3.1.3	aquastream® M-Bus/Pulses .....	8
3.1.4	aquastream® Radio L8 (LoRaWAN).....	8
3.2	Dimensions .....	9
3.3	Identification aquastream® M-Bus.....	10
3.4	Identification aquastream® Radio W8 (Wireless M-Bus) .....	10
3.5	Identification aquastream® Radio L8 (LoRaWAN) .....	11
3.6	Identification aquastream® M-Bus/Pulses .....	11
3.6	QR-Code Format .....	12
4.	Storage .....	13
5.	Installation .....	13
6.	Connection.....	13
6.1	aquastream® M-Bus Connection.....	13
6.2	aquastream® M-Bus/Pulses Connection .....	13
6.2.1	M-Bus Output .....	14
6.2.2	Pulses Output .....	15
6.2.3	Pulses Output Schematics .....	16
6.3	Features.....	16
6.3.1	Leakage Alarm .....	16
6.3.2	Backflow Alarm .....	17
6.3.3	Burst Alarm .....	17
6.3.4	Over Load Alarm.....	18
6.3.5	Data Logger.....	18
7.	Configuration of the aquastream® modules.....	19
7.1	ParamApp Activation and Starting .....	19
7.1.1	Starting the configuration Software.....	19
7.1.2	Software Activation .....	20
7.2	Scanning aquastream® module .....	22
7.3	Different Information types .....	23
7.4	Display of values .....	24
7.4.1	Display of values aquastream® M-Bus .....	24
7.4.2	Display of Values aquastream® Radio W8 (Wireless M-Bus) .....	25
7.4.3	Display of Values aquastream® M-Bus/Pulses .....	26
7.4.4	Display of Values aquastream® Radio L8 (LoRaWAN).....	27
7.5	Events and Alarms .....	28
7.6	Historic (Data Logger).....	29
7.7	Modification of the values.....	29
7.7.1	aquastream® M-Bus modification .....	29
7.7.2	aquastream® Radio W8 (Wireless M-Bus) modification .....	32
7.7.3	aquastream® M-Bus/Pulses modification .....	35
7.7.4	aquastream® Radio L8 (LoRaWAN) modification.....	38
7.8	Apply your modifications .....	40
8	Technical data .....	41

8.1	aquastream® M-Bus.....	41
8.2	aquastream® M-Bus/Pulses.....	42
8.3	aquastream® Radio W8 (Wireless M-Bus/OMS) .....	43
8.4	aquastream® Radio L8 (LoRaWAN) .....	43
9	Maintenance.....	44
10	Waste disposal .....	44
11	Certification, regulation .....	45

## 1. Safety

### 8.1 1.1 Intended use

The aquastream® module is designed and intended exclusively for use as a communication module for the PMK (cold water) and PMW (hot water) water meter family.

Inappropriate or improper use may result in the operational safety of the device no longer being guaranteed. We accept no liability for any resulting damage.

### 8.2

### 8.3 1.2 Indications on safety instructions and symbols

The devices are designed to meet the latest safety requirements. They have been tested and delivered in a condition that guarantees safe operation. However, the devices can still be a source of danger if used improperly or not in accordance with their intended purpose. Therefore, always observe the safety instructions represented by the symbols in these operating instructions:

#### WARNING



**WARNING** indicates an action or measure, which, if not avoided, could result in death or serious injury. Always follow instructions and proceed with caution.

#### CAUTION



**CAUTION** indicates an action or measure which, if not carried out correctly, may result in minor injury and/or malfunction or destruction of the equipment. Always follow the instructions.

#### INDICATION



**INDICATION** indicates an action or measurement, which, if not carried out correctly, may indirectly affect the operation or cause an unexpected reaction of the equipment.

#### NOTE



**NOTE** provides instructions and recommendations for efficient and trouble-free operation.

#### REFERENCE



**REFERENCE** refers to other documents. If available, QR code.

### 8.4 1.3 Safety instructions and preventive measures

The manufacturer declines all responsibility for failure to observe the following safety instructions and precautions:

- › Any modification made to the unit without the prior written authorization of the manufacturer will immediately void the product liability and warranty.
- › Installation, operation, maintenance and dismantling of this appliance must be carried out only by qualified and trained personnel authorized by the manufacturer, the operator or the owner of the installation. Qualified personnel must have read and understood these operating and installation instructions in their entirety and must comply with the instructions contained herein.
- › Check all connections, settings and technical data of the peripheral devices.
- › Do not open the housing or parts of the housing.
- › The specified classifications for mechanical loads (e.g. pressure, temperature, protection class (IP), etc.) must not be exceeded.
- › Only operate the system under the specified ambient conditions and in the specified mounting positions.

- › Protect the system against overvoltage, e.g. by means of suitable fuses. In particular, electrical welding must be avoided on associated equipment.
- › None of the information contained in this manual or in other documents relieves planners, engineers, installers and operators from their own careful and thorough evaluation of the system configuration with regard to functionality and operational safety.
- › Local labour and safety laws and regulations must be observed.

## 8.5 1.4 About this manual

The manufacturer reserves the right to make changes to the technical specifications without prior notice. You can obtain the latest information and versions of these operating instructions from your local branch office as well as on the website.

### WARNING



The manufacturer accepts no liability for failure to comply with the instructions and procedures described in this manual!

### INDICATION



These operating instructions are intended for qualified personnel and therefore do not contain any basic working steps. Before installing or commissioning the device, read and understand the installation instructions and these operating instructions in full. Please keep this manual for future reference!

## 8.6 1.5 Handling, transport and storage

Thank you for choosing this high quality electronic device. Please check all components and parts delivered immediately after receipt of the goods.

The scope of delivery is described on the delivery note and the contents are indicated on the packaging. Please check all components and parts delivered immediately after receipt of the delivery. Transport damage must be reported to the carrier immediately upon receipt of the goods!

Please note that the device must be protected against shock and vibration!

## 8.7 1.6 Return of the devices

The aquastream® modules contain lithium batteries; therefore transport must be carried out in accordance with the specific safety instructions for devices with lithium batteries.






### CAUTION



For aquastream® Radio modules (Wireless M-Bus & LoRaWAN), you must disable radio transmission with the ParamApp application before shipment.

## 2. Scope of delivery and accessories

The scope of delivery is described on the delivery note. Please check all components and parts delivered immediately upon receipt of the goods. Transport damage must be reported immediately!

Quantity	Description	Picture
1x	aquastream® module	
1x	Gel Connector (only for the M-Bus version)	
2x	Plastic rivets	
2x	Sealing labels	
1x	Installation guide	

## 3. Product description

The aquastream® module is the new generation of modules that has been designed to extend the water meter to an M-Bus, Pulse or radio reading solution for remote reading (Wireless M-Bus/OMS & LoRaWAN).

The aquastream® module range is available in several variants: version with M-Bus interface, dual M-Bus and pulse interfaces and also a version with wireless radio interface (Wireless M-Bus/OMS & LoRaWAN). These different versions are presented in detail in this document.

The different versions of the aquastream® module can be installed on all PMK (cold water) and PMW (hot water) water meters from DN15 to DN50.



## 8.8 3.1 Products variants

### 3.1.1 aquastream® M-Bus

The aquastream® M-Bus is designed to be connected to an M-Bus network with a 2-wire cable. During operation in the M-Bus network, the aquastream® M-Bus module is powered by the network and can provide information according to the M-Bus protocol EN 13757-2/3. An integrated battery ensures the operation of the measurement even in case of a prolonged power failure of the M-Bus network. At the same time, the battery ensures that the meter reading and configuration data are backup.

### 3.1.2. aquastream® Radio W8 (Wireless M-Bus)




The aquastream® Radio W8 (Wireless M-Bus/OMS) is designed for mobile playback applications with integrated radio interface. It complies with the OMS V4.0 standard and sends a frame every 16 seconds with several pieces of information that can be read by the software. The aquastream® radio W8 module comes with a built-in battery with a typical lifetime of 16 years (15 years operation + 1 year storage).

### 3.1.3. aquastream® M-Bus/Pulses


The aquastream® M-Bus/Pulses module is designed for simultaneous connection to an M-Bus network with a 2-wire cable and to a pulse collection system with a configurable 2 or 3-wire output. During operation in the M-Bus network, the aquastream® M-Bus/Pulses module is powered by the network and can provide information according to the M-Bus protocol EN 13757-2/3. An integrated battery ensures the operation of the measurement even in case of a prolonged power failure of the M-Bus network. At the same time, the battery ensures that the meter reading and configuration data are backup. The pulse output is fully configurable allowing several output modes (2-wire or 3-wire), pulse value selection and pulse duration.

### 3.1.4. aquastream® Radio L8 (LoRaWAN)

The aquastream® Radio L8 (LoRaWAN) is designed for fixed network applications with integrated radio interface. It complies with the LoRaWAN standard and sends a frame twice a days with several pieces of information that can be read by an LoRaWAN Gateway. The aquastream® radio L8 module comes with a built-in battery with a typical lifetime of 16 years (15 years operation + 1 year storage).

Version	Description	Picture
aquastream® M-Bus	M-Bus Interface M-Bus with cable (AQS-MB)	
aquastream® Radio W8 Wireless M-Bus/OMS 868MHz	Wireless Radio Interface (AQS-W8)	
aquastream® Radio L8 LoRaWAN® 868MHz	Wireless Radio Interface (AQS-L8)	

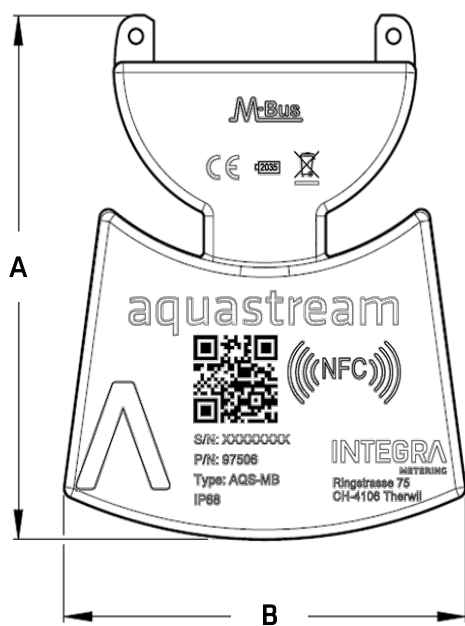


<p>aquastream® M-Bus/Pulses</p>	<p>Dual M-Bus and Pulses interfaces with cable (AQS-MBOC)</p>	
---------------------------------	---	---

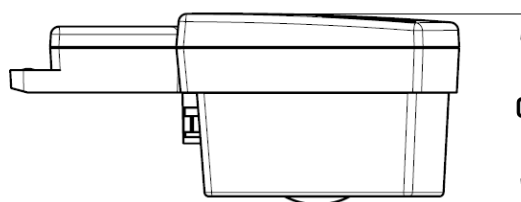
8.9

8.10

8.11 3.2 Dimensions

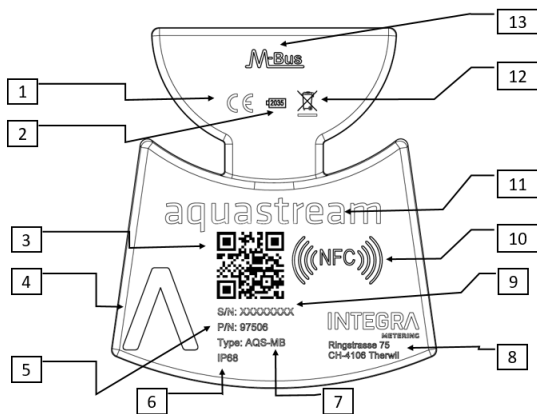


	mm
A	108
B	89
C	46



### 8.12 3.3 Identification aquastream® M-Bus

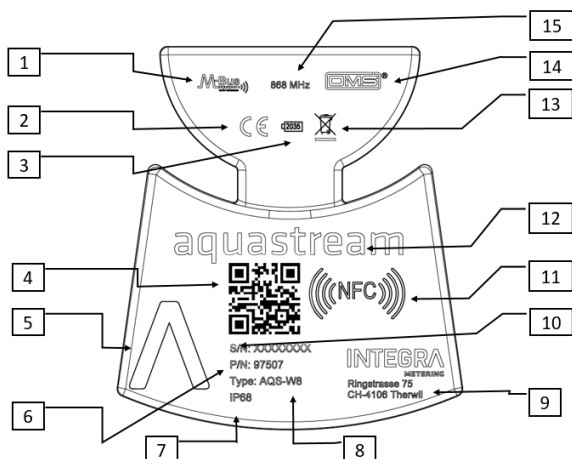
Various information is available on the front of the product, as described here.



N°	Description
1	CE Marking
2	Year of Battery end life
3	QR-Code
4	INTEGRA Metering Logo
5	Article number
6	Protection Class IP68
7	Module type (AQS-MB)
8	INTEGRA Metering Address
9	Module Serial number
10	NFC antenna
11	Product name
12	Recycling logo
13	Communication M-Bus protocol

### 8.13 3.4 Identification aquastream® Radio W8 (Wireless M-Bus)

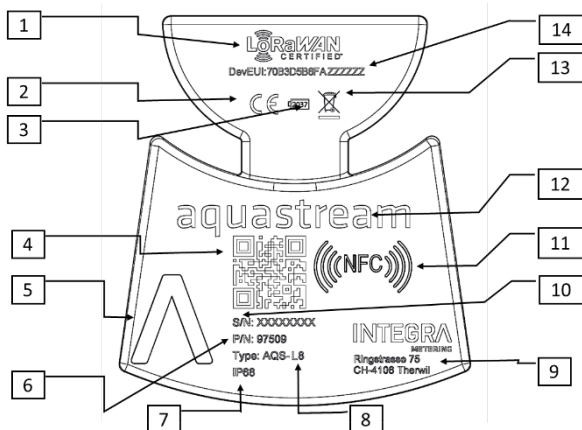
Various information is available on the front of the product, as described here.



N°	Description
1	Wireless Radio built-in
2	CE Marking
3	Year of Battery end life
4	QR-Code
5	INTEGRA Metering Logo
6	Article number
7	Protection Class IP68
8	Module type (AQS-W8)
9	INTEGRA Metering Address
10	Module Serial number
11	NFC antenna
12	Product name
13	Recycling logo
14	OMS Conform
15	Communication frequency - 868MHz

### 8.14 3.5 Identification aquastream® Radio L8 (LoRaWAN)

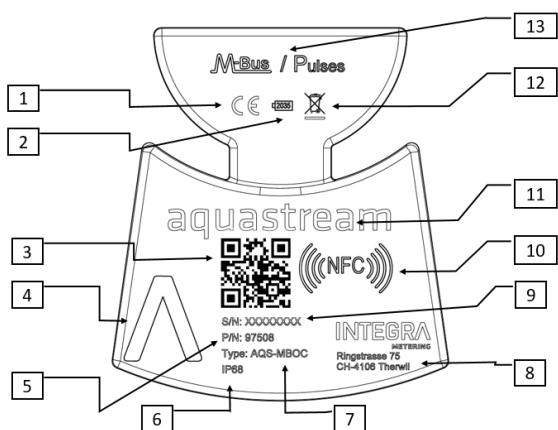
Various information is available on the front of the product, as described here.



N°	Description
1	LoRaWAN Radio built-in
2	CE Marking
3	Year of Battery end life
4	QR-Code
5	INTEGRA Metering Logo
6	Article number
7	Protection Class IP68
8	Module type (AQS-L8)
9	INTEGRA Metering Address
10	Module Serial number
11	NFC antenna
12	Product name
13	Recycling logo
14	LoRaWAN DevEUI identification

### 8.15 3.6 Identification aquastream® M-Bus/Pulses

Various information is available on the front of the product, as described here.



N°	Description
1	CE Marking
2	Year of Battery end life
3	QR-Code
4	INTEGRA Metering Logo
5	Article number
6	Protection Class IP68
7	Module type (AQS-MBOC)
8	INTEGRA Metering Address
9	Module Serial number
10	NFC antenna
11	Product name
12	Recycling logo
13	Communication Interface M-Bus and Pulses





8.16

### 8.17 3.6 QR-Code Format

The QR-Code used on the communication modules contains the following information:

- Serial number of the module
- Module type: AQS-MB, AQS-W8, AQS-L8 or AQS-MBOC
- Article number Integra Metering

It is constructed in the following way with semicolon separator:

aquastream® M-Bus	aquastream® M-Bus/Pulses
 <p data-bbox="389 759 751 792">XXXXXXXX; AQS-MB; 97506</p>	 <p data-bbox="815 759 1211 792">XXXXXXXX; AQS-MBOC; 97508</p>
aquastream® Radio W8	aquastream® Radio L8
 <p data-bbox="389 1142 751 1176">XXXXXXXX; AQS-W8; 97507</p>	 <p data-bbox="836 1142 1190 1176">XXXXXXXX; AQS-L8; 97509</p>

## 4. Storage

The product can be stored in a dry place at temperatures between -20 °C and +70 °C for up to one year.

### INDICATION



Longer storage at high temperatures can result in a considerable loss of battery life.

## 5. Installation

The aquastream® module must be correctly installed on the water meter.

### RÉFÉRENCE



You will find detailed instructions in the "Installation Instructions" enclosed with each product package.

After mounting the aquastream® module on the meter, the device must be configured.

### INDICATION



The product is not intended to be installed at a height of 2m or more.

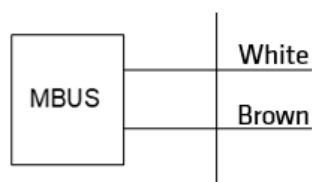
## 6. Connection

### 8.18 6.1 aquastream® M-Bus Connection



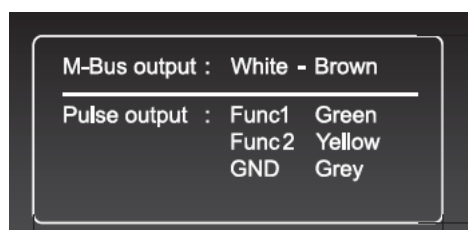
**M-Bus**

2 wires non-polarized  
- Brown  
- White



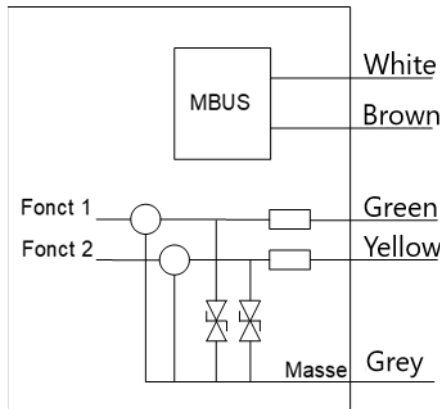
### 8.19 6.2 aquastream® M-Bus/Pulses Connection

A laser marking is available on the side of the AQS-MBOC module detailing the functions and wires.



The aquastream® M-Bus/Pulses module has a 5-wire cable for the interfaces: M-Bus and Pulses.

		<p>Five wires:                  - Brown                  - White                  - Green                  - Yellow                  - Grey</p>
--	--	---



**WARNING**

The M-Bus interface as well as the pulse interface work with low signals and voltages. Observe the connection instructions in terms of voltage, current and max. power: max. Power 36mW, max. Current 10mA, max. Voltage 3.6V. Errors in the connections could lead to the destruction of the device.

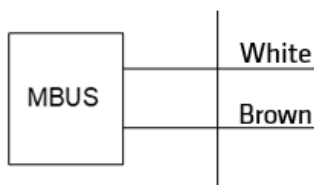
**CAUTION**

The M-Bus output and the pulse output are not galvanically isolated. If the pulse output and the M-Bus output are used simultaneously, it must be ensured that there is a galvanic separation between the 2 connected systems.

**6.2.1 M-Bus Output**

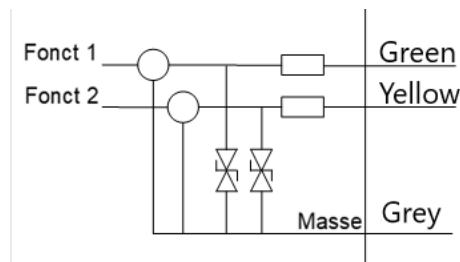
M-Bus Output is defined as following:

		<p>2 wires non-polarized                  - Brown                  - White</p>
--	--	--



### 6.2.2 Pulses Output

The pulse output is fully configurable using ParamApp as shown in the table below:



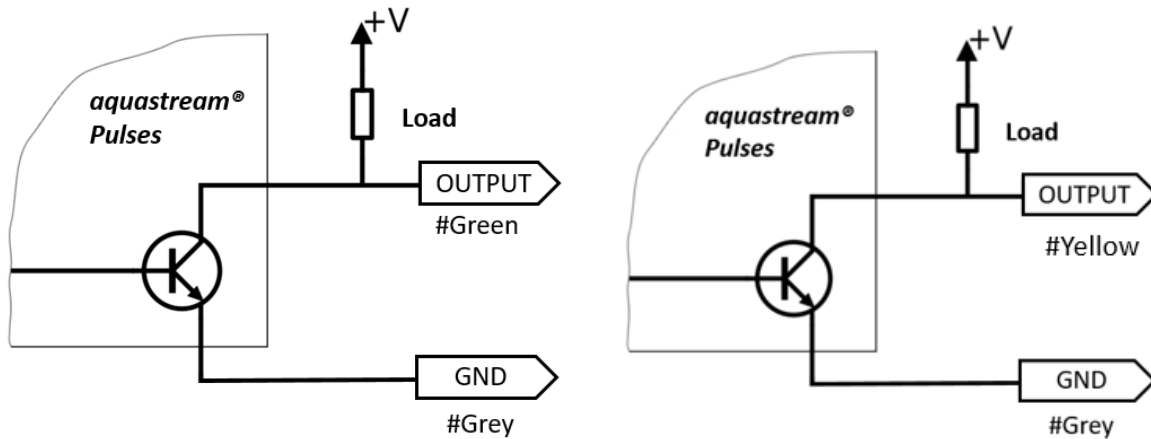
	<p>2 wires – with compensation</p> <ul style="list-style-type: none"> <li>- Green : PULSE</li> <li>- Grey : GND</li> </ul>
<p>Compensation mode: Compensated pulse output (return volume pulses are compensated by suppressing the same number of forward volume pulses).</p>	
	<p>3 wires – with direction wire</p> <ul style="list-style-type: none"> <li>- Green : PULSE</li> <li>- Yellow : DIRECTION</li> <li>- Grey : GND</li> </ul>
<p>Mode with direction: Direction of flow (a ground signal corresponds to a negative flow).</p>	
	<p>3 wires – Positive/Negative</p> <ul style="list-style-type: none"> <li>- Green : PULSE +</li> <li>- Yellow : PULSE -</li> <li>- Grey : GND</li> </ul>
<p>Positive/Negative Mode: Allows you to accurately count positive (normal direction) and negative (return water) water volumes.</p>	
	<p>3 wires – duplicate pulses output</p> <ul style="list-style-type: none"> <li>- Green : PULSE 1</li> <li>- Yellow : PULSE 2</li> <li>- Grey : GND</li> </ul>

### 6.2.3 Pulses Output Schematics

The pulses output is an Open Collector type with the following characteristics:

- Possible Voltage V: 3,6V to 48V max.
- Current max. 10mA
- RLoad (external - mandatory) ~ 1Kohms

Each output (Green and Yellow) shall be connected as following:



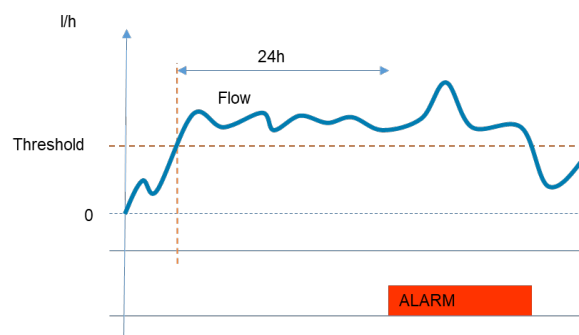
## 6.3 Features

### 6.3.1 Leakage Alarm

The module checks whether the average consumption over 30 minutes for 24 consecutive hours has always been higher than the threshold value (50 l/h for a DN15 meter).

The alarm is only activated if the threshold value has always been exceeded within 24 hours (otherwise, the module restarts the calculation of the 24 hours from the beginning).

Once the leak has been corrected, the alarm is automatically reset after 30 minutes.



The factory setting is defined as following:

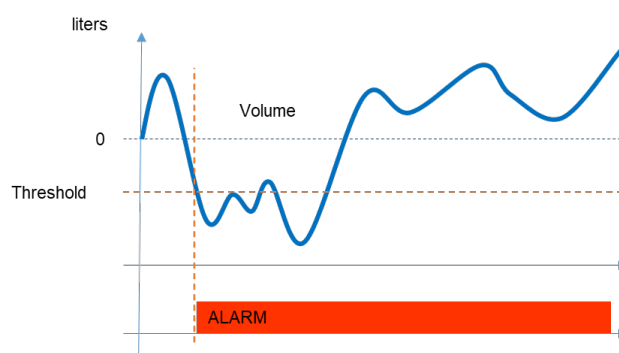
DN15	DN20	DN25	DN32	DN40	DN50
50 l/h	80 l/h	126 l/h	200 l/h	320 l/h	500 l/h



### 6.3.2 Backflow Alarm

The module analyses the direction of water flow. If it detects a consecutive negative water volume below the threshold value (13 l for a DN15 meter), the alarm is activated.

The alarm can only be reset via NFC using the ParamApp application.



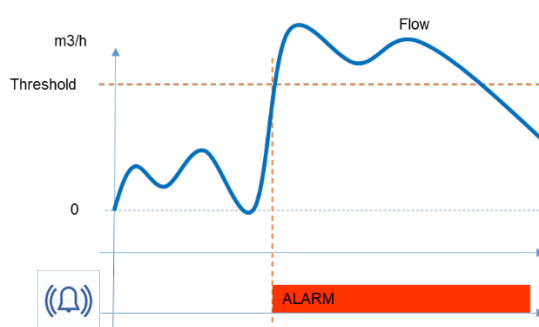
The factory setting is defined as following:

DN15	DN20	DN25	DN32	DN40	DN50
13 liters	20 liters	32 liters	50 liters	80 liters	125 liters

### 6.3.3 Burst Alarm

The module analyses the instantaneous flow rate. If it detects a high and fast flow rate (peak flow) above the threshold value (3 875 l/h for DN15), the alarm is activated immediately.

The alarm can only be reset via NFC using the ParamApp application.



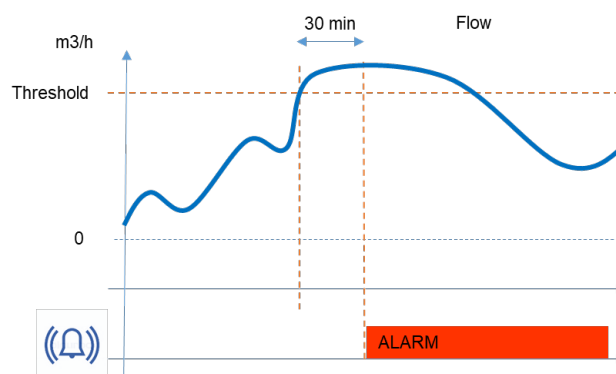
The factory setting is defined as following:

DN15	DN20	DN25	DN32	DN40	DN50
3 875 l/h	6 200 l/h	9 765 l/h	15 500 l/h	24 800 l/h	38 750 l/h

### 6.3.4 Over Load Alarm

The module analyses the instantaneous flow rate. If it detects a flow rate higher than the threshold value (3125 l/h for DN15) for more than 30min, the alarm is activated.

The alarm can only be reset via NFC using the ParamApp application.



The factory setting is defined as following:

DN15	DN20	DN25	DN32	DN40	DN50
3 125 l/h	5 000 l/h	7 875 l/h	12 500 l/h	20 000 l/h	31 250 l/h

### 6.3.5 Data Logger

The aquastream® modules are equipped with a memory for storing values automatically.

It allows the management of the following histories:

- Start and end of event and alarms (date + event type)
- Index values (index and date) : yearly, monthly, daily and hourly

The capacity of the Datalogger memory are the following:

Version	Capacity
AQS-MB	12 monthly values (end of month)
AQS-MBOC	16 yearly values (end of year) – 48 monthly values (end of month) – 460 daily values (end of day) – 24 hourly values (last 24 hours)
AQS-W8	16 yearly values (end of year) – 48 monthly values (end of month) – 460 daily values (end of day) – 24 hourly values (last 24 hours)
AQS-L8	16 yearly values (end of year) – 48 monthly values (end of month) – 460 daily values (end of day) – 24 hourly values (last 24 hours)

These values can be read and downloaded with ParamApp.

## 7. Configuration of the aquastream® modules

Initial configuration or any subsequent modifications to the aquastream® range of modules must be carried out with the Android ParamApp configuration software via the NFC sensor.

### 8.20 7.1 ParamApp Activation and Starting

ParamApp® software must be properly installed on your Android smartphone. It is available under Google Play and can be downloaded there directly and freely.

#### REFERENCE



ParamApp configuration software can be downloaded directly by clicking on the following link :



<https://play.google.com/store/apps/details?id=com.integrametering.paramapp>

#### REFERENCE



For more information on ParamApp software, please refer to the ParamApp User Guide available on our website.

#### 7.1.1. Starting the configuration Software

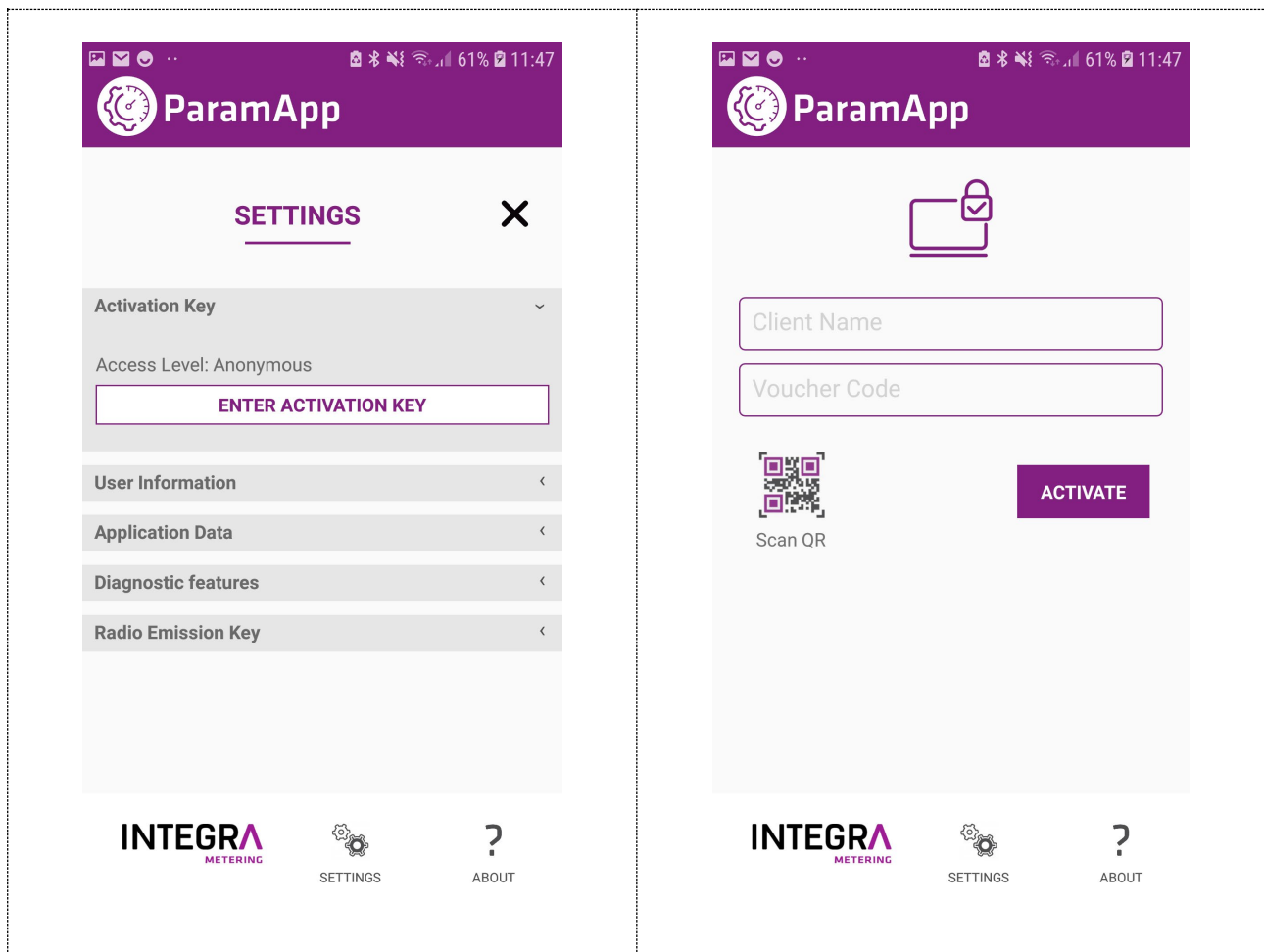
Click on the following icon to start the Android configuration software "ParamApp".



### 7.1.2. Software Activation

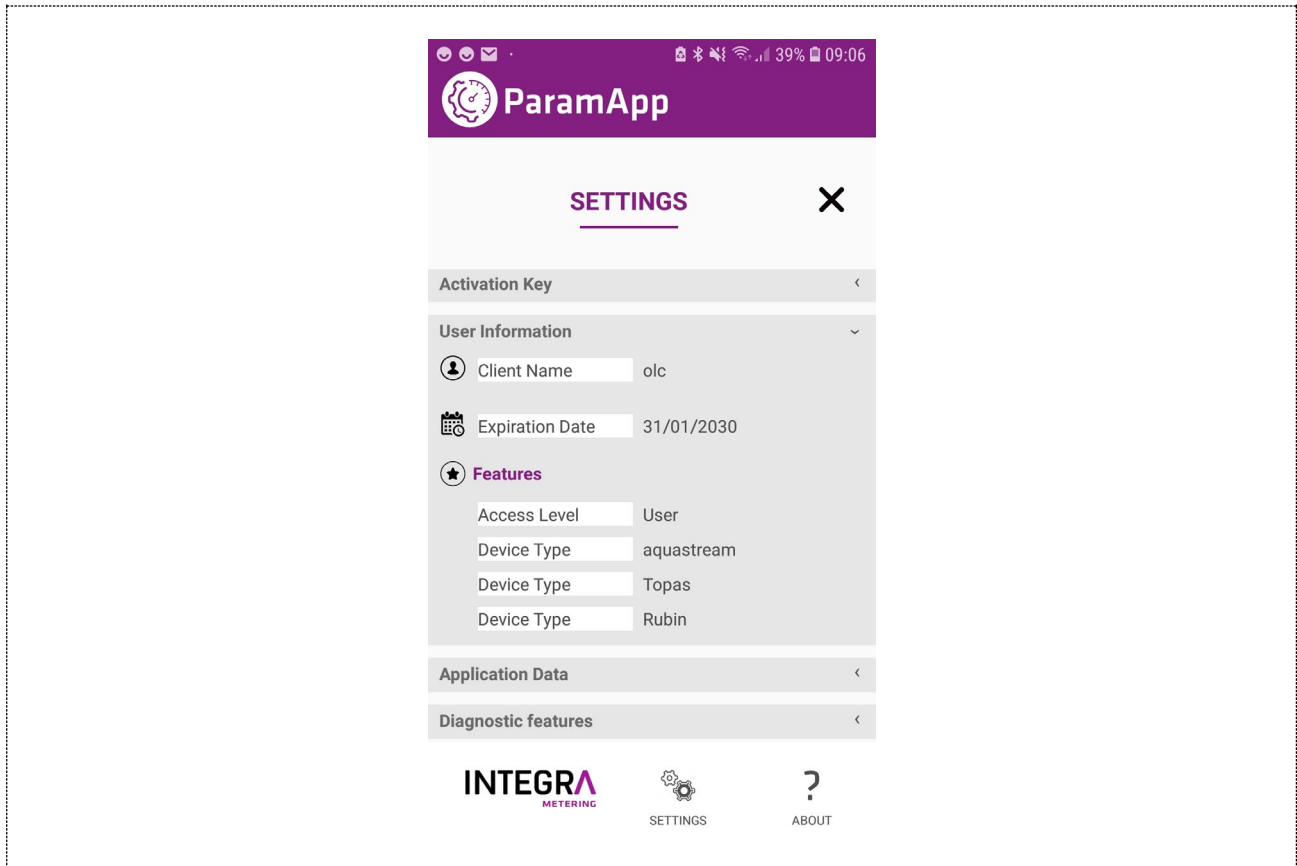
To activate the software and access the configuration features, you must enter your activation key.

To do this, scan the activation key you received and enter your associated First and Last Name.  
In the menu: Settings → Activation key → Enter activation key



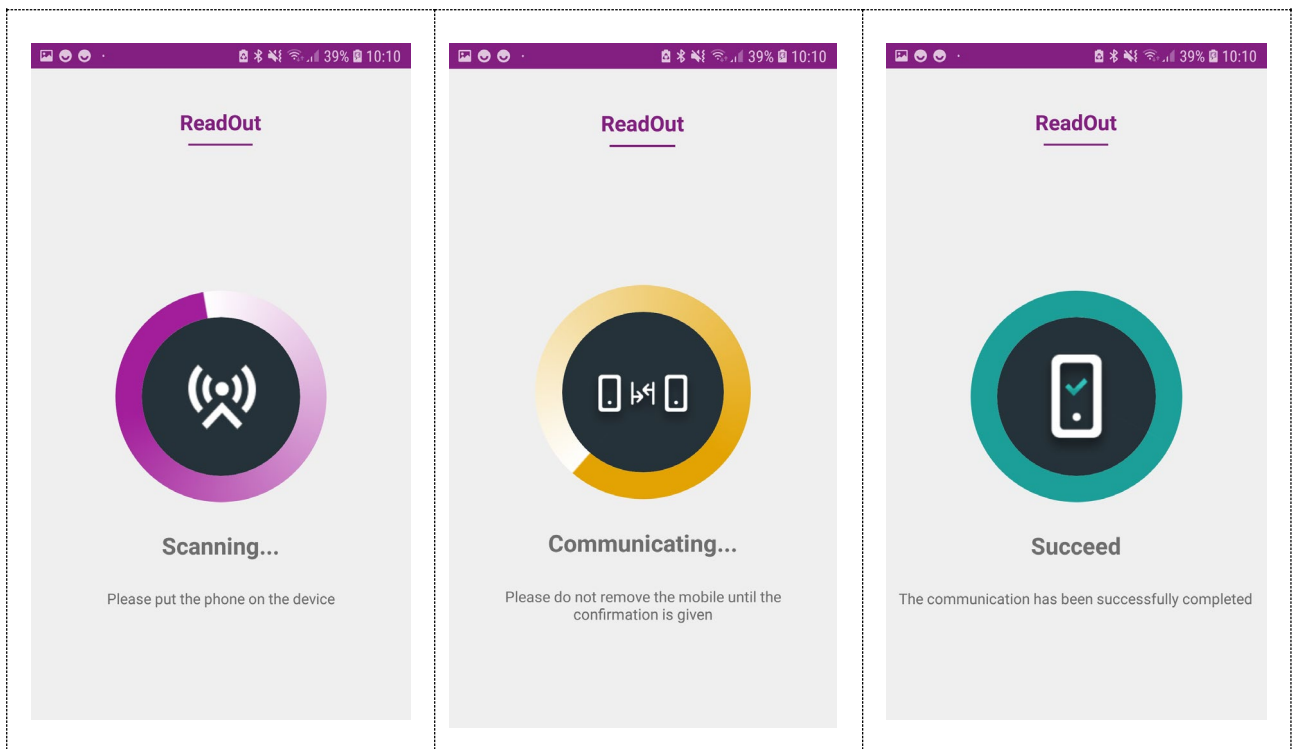
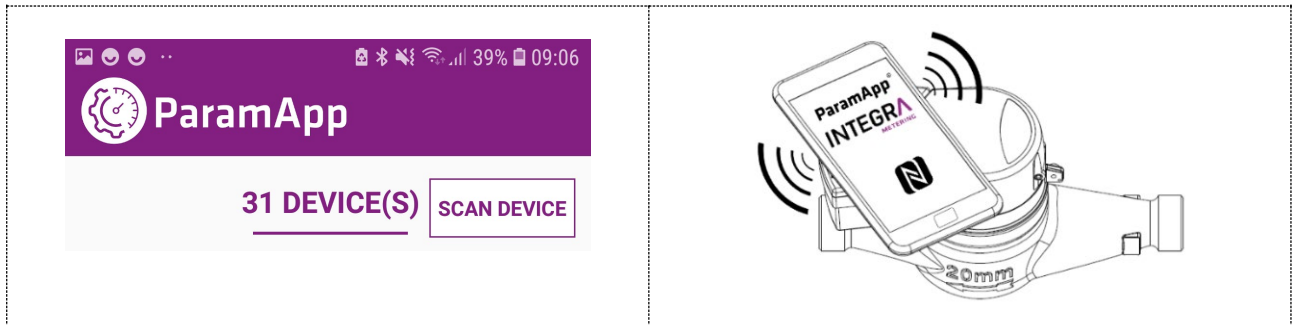
Enter your name followed by your company and then click the "Scan QR" button. In this case, you must authorize access to the camera to start the QR-Code scan. Then click on the "Activate" button.

The summary concerning your license can be viewed in "User Information".



### 8.21 7.2 Scanning aquastream® module

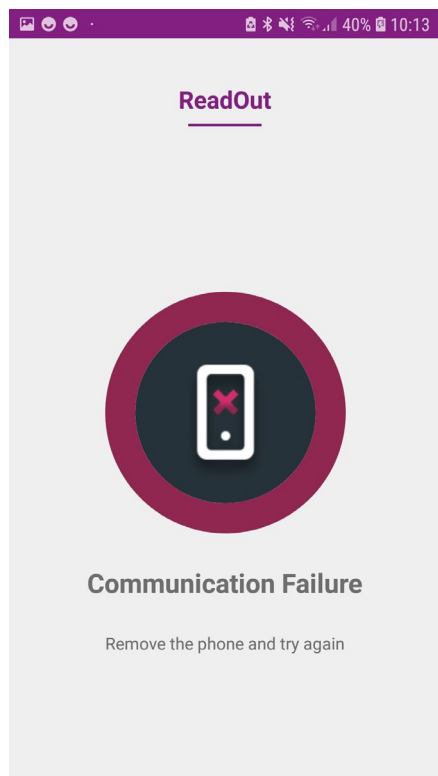
Click the "Scan Device" button to start an NFC scan, and then place your smartphone in the location of the NFC antenna.



**NOTE**



It is necessary to know the location of the NFC interface of your smartphone to have a good communication between the device to be configured and the smartphone.



In the case of the "Communication failure" message, you must remove the smartphone and then put it back on to restart the scan.

Verify:

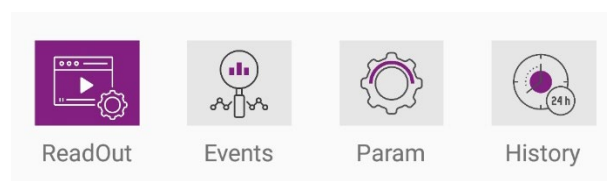
- The position of your Smartphone/NFC in relation to the meter/module

### 8.22 7.3 Different Information types

On the main screen, different types of information are accessible, such as:

- Main values,
- Events,
- The data history.

Depending on the type of meter/module, its version as well as the communication interface, the displayed and available data may vary more or less.



### 8.23 7.4 Display of values

Click on the "Reading" menu to access the different information of the meter and the communication module.

**INDICATION**



The parameters displayed in this menu depend on the type of modules (M-Bus, Radio W8, Radio L8 or M-Bus/Pulses) being scanned.

#### 7.4.1 Display of values aquastream® M-Bus

The available data are organized by group as shown in the examples below.

#### Module information

▼ aquastream	
NFC Tag Id	48894CA8E5180
aquastream SN	1000080
Device Name	aquastream wired M-BUS
Operation Time (days)	146.18:01:25
Device Time	04/08/2020 10:17
Battery life time (years)	15.60
Firmware Version	111

#### Meter information

▼ Meter	
Meter SN	123
Index (m3)	0.000
Reverse Index (m3)	0.000
Flow (l/h)	0
Max Flow (l/h)	0
Customer text field	
Diameter <sup>(i)</sup>	Unspecified

#### M-Bus output information

▼ MBus	
Primary Address	0
Index Unit	l
Baudrate	2400

#### Alarms information

▼ Alerts	
Tamper <sup>(i)</sup>	No Alarm
Overload <sup>(i)</sup>	No Alarm
Leakage <sup>(i)</sup>	No Alarm
Low Battery <sup>(i)</sup>	No Alarm
Reverse Flow <sup>(i)</sup>	No Alarm
Burst <sup>(i)</sup>	No Alarm




### 7.4.2 Display of Values aquastream® Radio W8 (Wireless M-Bus)


The available data are organized by group as shown in the examples below.

📧 📷 📶 ..
📶 🔋 46% 10:44


## DEVICE




ReadOut



Events




Param



History

**Latest Read Date: 04/08/2020 10:43:06**

- ▶ aquastream
- ▶ Meter
- ▶ Wireless MBus
- ▶ Alerts



#### Module information

▼ aquastream

NFC Tag Id	44795CA8E5180
aquastream SN	10000123
Device Name	aquastream wireless M-BUS
Operation Time (days)	249.22:40:25
Device Time	02/08/2020 21:35
Battery life time (years)	15.32
Firmware Version	63

#### Radio interface information

▼ Wireless MBus

RF Status	On
Index Unit	l

#### Meter information

▼ Meter

Meter SN	11111111
Index (m3)	1.366
Reverse Index (m3)	0.000
Flow (l/h)	0
Max Flow (l/h)	300
Diameter <sup>(i)</sup>	DN 20

#### Alarms information

▼ Alerts

Tamper <sup>(i)</sup>	No Alarm
Overload <sup>(i)</sup>	No Alarm
Leakage <sup>(i)</sup>	No Alarm
Low Battery <sup>(i)</sup>	No Alarm
Reverse Flow <sup>(i)</sup>	No Alarm
Burst <sup>(i)</sup>	No Alarm



### 7.4.3 Display of Values aquastream® M-Bus/Pulses

The available data are organized by group as shown in the examples below.

	<h4>Module Information</h4> <table border="1"> <thead> <tr> <th colspan="2">▼ aquastream</th> </tr> </thead> <tbody> <tr> <td>NFC Tag Id</td> <td>45F8AD2CD5280</td> </tr> <tr> <td>aquastream SN</td> <td>10011719</td> </tr> <tr> <td>Device Name</td> <td>aquastream wired</td> </tr> <tr> <td>Operation Time (days)</td> <td>26.23:28:57</td> </tr> <tr> <td>Device Time</td> <td>04/08/2020 09:17</td> </tr> <tr> <td>Battery life time (years)</td> <td>15.93</td> </tr> <tr> <td>Firmware Version</td> <td>67</td> </tr> <tr> <td>Hardware Version</td> <td>1</td> </tr> </tbody> </table>	▼ aquastream		NFC Tag Id	45F8AD2CD5280	aquastream SN	10011719	Device Name	aquastream wired	Operation Time (days)	26.23:28:57	Device Time	04/08/2020 09:17	Battery life time (years)	15.93	Firmware Version	67	Hardware Version	1						
▼ aquastream																									
NFC Tag Id	45F8AD2CD5280																								
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Firmware Version	67																								
Hardware Version	1																								
<h4>Meter information</h4> <table border="1"> <thead> <tr> <th colspan="2">▼ Meter</th> </tr> </thead> <tbody> <tr> <td>Meter SN</td> <td>0</td> </tr> <tr> <td>Index (m3)</td> <td>0.000</td> </tr> <tr> <td>Reverse Index (m3)</td> <td>0.000</td> </tr> <tr> <td>Flow (l/h)</td> <td>0</td> </tr> <tr> <td>Max Flow (l/h)</td> <td>0</td> </tr> <tr> <td>Customer text field</td> <td></td> </tr> <tr> <td>Diameter</td> <td><sup>(i)</sup> Unspecified</td> </tr> </tbody> </table>	▼ Meter		Meter SN	0	Index (m3)	0.000	Reverse Index (m3)	0.000	Flow (l/h)	0	Max Flow (l/h)	0	Customer text field		Diameter	<sup>(i)</sup> Unspecified	<h4>M-Bus output information</h4> <table border="1"> <thead> <tr> <th colspan="2">▼ MBus</th> </tr> </thead> <tbody> <tr> <td>Primary Address</td> <td>1</td> </tr> <tr> <td>Index Unit</td> <td>l</td> </tr> <tr> <td>Baudrate</td> <td>2400</td> </tr> </tbody> </table>	▼ MBus		Primary Address	1	Index Unit	l	Baudrate	2400
▼ Meter																									
Meter SN	0																								
Index (m3)	0.000																								
Reverse Index (m3)	0.000																								
Flow (l/h)	0																								
Max Flow (l/h)	0																								
Customer text field																									
Diameter	<sup>(i)</sup> Unspecified																								
▼ MBus																									
Primary Address	1																								
Index Unit	l																								
Baudrate	2400																								

Pulses output information	Alarms information																		
<div style="border: 1px solid #ccc; padding: 5px;"> <p><b>▼ Pulse output</b></p> <table border="1"> <tr> <td>Output Mode</td> <td>PULSE / GND (Compensation)</td> </tr> <tr> <td>Pulse weight (l)</td> <td>1</td> </tr> <tr> <td>Pulse Length (ms)</td> <td>30</td> </tr> </table> </div>	Output Mode	PULSE / GND (Compensation)	Pulse weight (l)	1	Pulse Length (ms)	30	<div style="border: 1px solid #ccc; padding: 5px;"> <p><b>▼ Alerts</b></p> <table border="1"> <tr> <td>Tamper</td> <td>(i) No Alarm</td> </tr> <tr> <td>Overload</td> <td>(i) No Alarm</td> </tr> <tr> <td>Leakage</td> <td>(i) No Alarm</td> </tr> <tr> <td>Low Battery</td> <td>(i) No Alarm</td> </tr> <tr> <td>Reverse Flow</td> <td>(i) No Alarm</td> </tr> <tr> <td>Burst</td> <td>(i) No Alarm</td> </tr> </table> </div>	Tamper	(i) No Alarm	Overload	(i) No Alarm	Leakage	(i) No Alarm	Low Battery	(i) No Alarm	Reverse Flow	(i) No Alarm	Burst	(i) No Alarm
Output Mode	PULSE / GND (Compensation)																		
Pulse weight (l)	1																		
Pulse Length (ms)	30																		
Tamper	(i) No Alarm																		
Overload	(i) No Alarm																		
Leakage	(i) No Alarm																		
Low Battery	(i) No Alarm																		
Reverse Flow	(i) No Alarm																		
Burst	(i) No Alarm																		

### 7.4.4 Display of Values aquastream® Radio L8 (LoRaWAN)

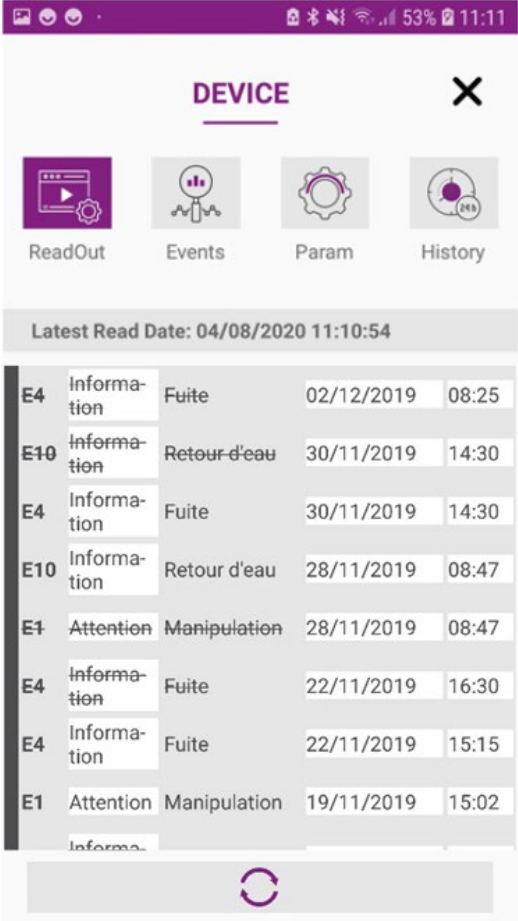
The available data are organized by group as shown in the examples below.

	<div style="border: 1px solid #ccc; padding: 5px;"> <p><b>Module information</b></p> <div style="border: 1px solid #ccc; padding: 5px;"> <p><b>▼ aquastream</b></p> <table border="1"> <tr> <td>NFC Tag Id</td> <td>4CD7CD2767280</td> </tr> <tr> <td>aquastream SN</td> <td>99999999</td> </tr> <tr> <td>Device Name</td> <td>Aquastream Lora</td> </tr> <tr> <td>Operation Time (days)</td> <td>14.23:22:40</td> </tr> <tr> <td>Device Time</td> <td>3/1/2022 18:34</td> </tr> <tr> <td>Battery life time (years)</td> <td>15.96</td> </tr> <tr> <td>NFC Protection</td> <td>Not Protected</td> </tr> <tr> <td>Firmware Version</td> <td>2.02</td> </tr> <tr> <td>Firmware Version Tag</td> <td>20214180</td> </tr> <tr> <td>Hardware Version</td> <td>1</td> </tr> </table> </div> </div>	NFC Tag Id	4CD7CD2767280	aquastream SN	99999999	Device Name	Aquastream Lora	Operation Time (days)	14.23:22:40	Device Time	3/1/2022 18:34	Battery life time (years)	15.96	NFC Protection	Not Protected	Firmware Version	2.02	Firmware Version Tag	20214180	Hardware Version	1
NFC Tag Id	4CD7CD2767280																				
aquastream SN	99999999																				
Device Name	Aquastream Lora																				
Operation Time (days)	14.23:22:40																				
Device Time	3/1/2022 18:34																				
Battery life time (years)	15.96																				
NFC Protection	Not Protected																				
Firmware Version	2.02																				
Firmware Version Tag	20214180																				
Hardware Version	1																				
	<div style="border: 1px solid #ccc; padding: 5px;"> <p><b>Radio interface information</b></p> <div style="border: 1px solid #ccc; padding: 5px;"> <p><b>▼ LoRa</b></p> <table border="1"> <tr> <td>Reference hour</td> <td>00:00</td> </tr> <tr> <td>Send hour</td> <td>00:00</td> </tr> <tr> <td>Send Period</td> <td>00:00</td> </tr> <tr> <td>Dev EUI</td> <td>0000000000000000</td> </tr> <tr> <td>Join EUI</td> <td>0000000000000000</td> </tr> </table> </div> </div>	Reference hour	00:00	Send hour	00:00	Send Period	00:00	Dev EUI	0000000000000000	Join EUI	0000000000000000										
Reference hour	00:00																				
Send hour	00:00																				
Send Period	00:00																				
Dev EUI	0000000000000000																				
Join EUI	0000000000000000																				

Meter information	Alarms information																								
<p><b>▼ Meter</b></p> <table border="1"> <tr><td>Meter SN</td><td>11111111</td></tr> <tr><td>Index (m3)</td><td>1.366</td></tr> <tr><td>Reverse Index (m3)</td><td>0.000</td></tr> <tr><td>Flow (l/h)</td><td>0</td></tr> <tr><td>Max Flow (l/h)</td><td>300</td></tr> <tr><td>Diameter <sup>(i)</sup></td><td>DN 20</td></tr> </table>	Meter SN	11111111	Index (m3)	1.366	Reverse Index (m3)	0.000	Flow (l/h)	0	Max Flow (l/h)	300	Diameter <sup>(i)</sup>	DN 20	<p><b>▼ Alerts</b></p> <table border="1"> <tr><td>Tamper <sup>(i)</sup></td><td>No Alarm</td></tr> <tr><td>Overload <sup>(i)</sup></td><td>No Alarm</td></tr> <tr><td>Leakage <sup>(i)</sup></td><td>No Alarm</td></tr> <tr><td>Low Battery <sup>(i)</sup></td><td>No Alarm</td></tr> <tr><td>Reverse Flow <sup>(i)</sup></td><td>No Alarm</td></tr> <tr><td>Burst <sup>(i)</sup></td><td>No Alarm</td></tr> </table>	Tamper <sup>(i)</sup>	No Alarm	Overload <sup>(i)</sup>	No Alarm	Leakage <sup>(i)</sup>	No Alarm	Low Battery <sup>(i)</sup>	No Alarm	Reverse Flow <sup>(i)</sup>	No Alarm	Burst <sup>(i)</sup>	No Alarm
Meter SN	11111111																								
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Diameter <sup>(i)</sup>	DN 20																								
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Low Battery <sup>(i)</sup>	No Alarm																								
Reverse Flow <sup>(i)</sup>	No Alarm																								
Burst <sup>(i)</sup>	No Alarm																								

### 8.24 7.5 Events and Alarms

The events and alarms are stored in the counter/module and it can be read by this menu.



The screenshot shows a mobile application interface for a device. At the top, there's a 'DEVICE' header with a close button. Below it are four icons: ReadOut, Events, Param, and History. The 'Events' icon is selected. Below the icons, it says 'Latest Read Date: 04/08/2020 11:10:54'. A table lists events with columns for ID, level, description, date, and time.

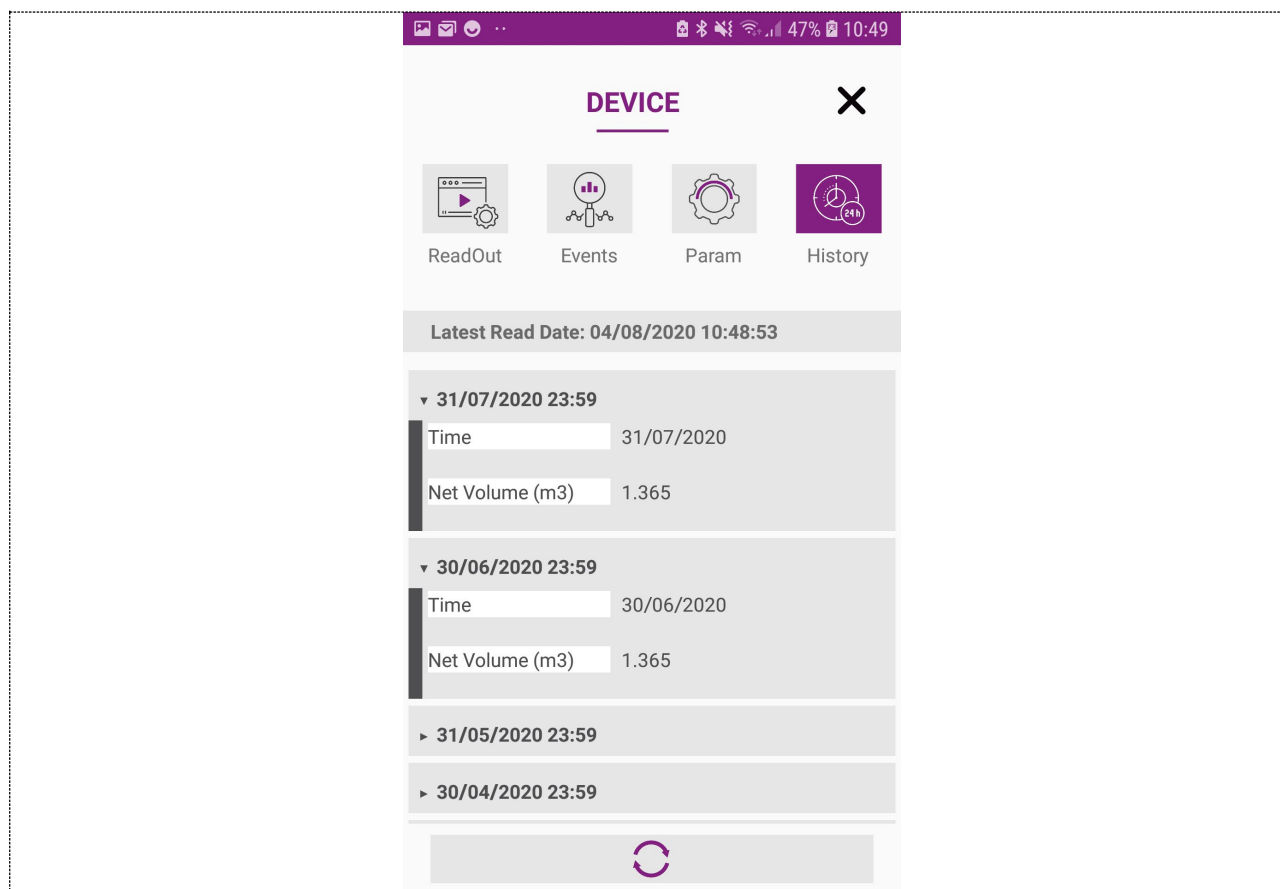
ID	Level	Description	Date	Time
E4	Information	Fuite	02/12/2019	08:25
E10	Information	Retour d'eau	30/11/2019	14:30
E4	Information	Fuite	30/11/2019	14:30
E10	Information	Retour d'eau	28/11/2019	08:47
E1	Attention	Manipulation	28/11/2019	08:47
E4	Information	Fuite	22/11/2019	16:30
E4	Information	Fuite	22/11/2019	15:15
E1	Attention	Manipulation	19/11/2019	15:02

This function reads all the events stored in the module/counters, such as alarms, malfunctions...

## 8.25 7.6 Historic (Data Logger)

Datalogger functions are available in some meters/module and can be accessed via this menu.

This function allows you to view all the historical values stored in the modules.



## 8.26 7.7 Modification of the values

To access the configuration view, click on the "Settings" menu.

### INDICATION



The parameters that can be modified in this menu depending on the type of modules (M-Bus, Radio or M-Bus/Pulses) being scanned.

### 7.7.1 aquastream® M-Bus modification

### NOTE



Knowledge of the M-Bus protocol is necessary to define the parameters of the module.

The available data are organized by group as shown in the examples below.

### Configuration of meter information

The mandatory information is:

- The meter number
- The meter index
- The diameter of the meter

▼ Meter		
Meter SN	123	12345678
Index to set (m3) <sup>(i)</sup>	0.000	0.250
Customer text field		
Diameter <sup>(i)</sup>	Unspecified	DN 15

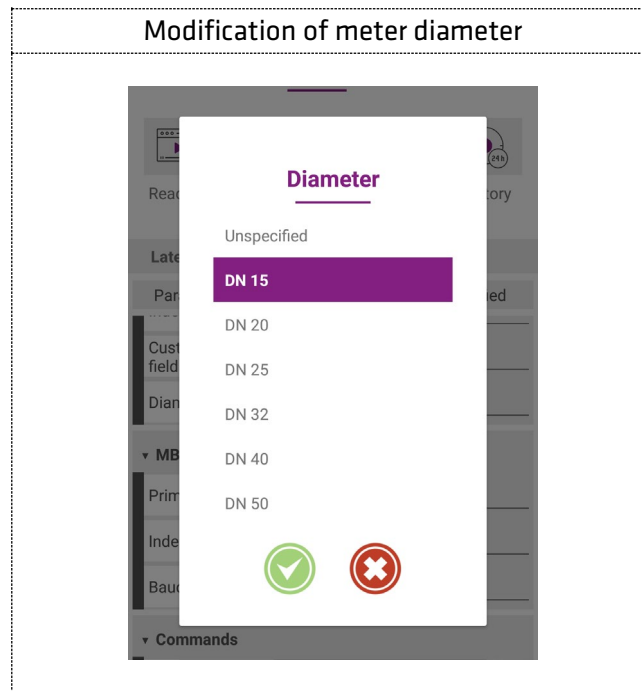
### Configuration of M-Bus output

▼ MBus		
Primary Address	0	1
Index Unit	l	
Baudrate	2400	

**INDICATION**



Changing the index resets all alarms, initializes the negative volume and synchronizes the date and time with that of your smartphone.



**INDICATION**



If the meter diameter is not specified, the management of Burst, Leak and Return water alarms is not operational.

**INDICATION**



The alarm thresholds for Burst, Leak and Return water detection are automatically updated when the diameter of the meter is changed and are reset to the default value.

**INDICATION**



The analysis of the fraud alarm only starts when the module has detected a volume of water greater than 5 litres.

Additional functions are available such:

- Set the time,
- Delete the histories stored in the module,
- Initialize alarms,
- Changing predefined alarm values.



Special commands	Configuration of alarms																
<div style="border: 1px solid #ccc; padding: 5px;"> <p>▼ Commands</p> <table border="1"> <tr> <td>Reset</td> <td>No</td> </tr> </table> </div>	Reset	No	<div style="border: 1px solid #ccc; padding: 5px;"> <p>▼ Alerts</p> <table border="1"> <tr><td>Reset Tamper</td><td>No</td></tr> <tr><td>Reset Reverse flow</td><td>No</td></tr> <tr><td>Reset Maxflow</td><td>No</td></tr> <tr><td>Reset Overload</td><td>No</td></tr> <tr><td>Reset Burst</td><td>No</td></tr> <tr><td>Leak threshold (l/h)</td><td>50</td></tr> <tr><td>Overload threshold (l/h)</td><td>3125</td></tr> </table> </div>	Reset Tamper	No	Reset Reverse flow	No	Reset Maxflow	No	Reset Overload	No	Reset Burst	No	Leak threshold (l/h)	50	Overload threshold (l/h)	3125
Reset	No																
Reset Tamper	No																
Reset Reverse flow	No																
Reset Maxflow	No																
Reset Overload	No																
Reset Burst	No																
Leak threshold (l/h)	50																
Overload threshold (l/h)	3125																

### 7.7.2 aquastream® Radio W8 (Wireless M-Bus) modification

**NOTE**



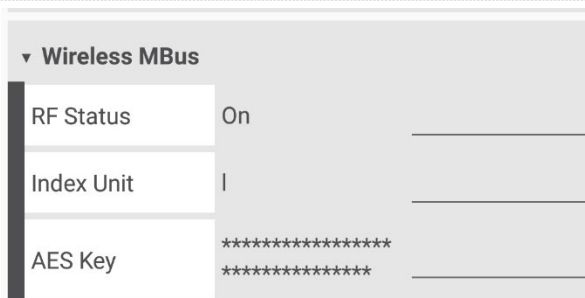
Knowledge of Wireless M-Bus communication is necessary to define the parameters of the module.

The available data are organized by group as shown in the examples below:

	Configuration of meter information						
<div style="border: 1px solid #ccc; padding: 5px;"> </div>	<p>The mandatory information is:</p> <ul style="list-style-type: none"> <li>- The meter number</li> <li>- The meter index</li> <li>- The diameter of the meter</li> </ul> <div style="border: 1px solid #ccc; padding: 5px;"> <p>▼ Meter</p> <table border="1"> <tr><td>Meter SN</td><td>11111111</td></tr> <tr><td>Index to set (m3)<sup>(i)</sup></td><td>1.366</td></tr> <tr><td>Diameter<sup>(i)</sup></td><td>DN 20</td></tr> </table> </div>	Meter SN	11111111	Index to set (m3) <sup>(i)</sup>	1.366	Diameter <sup>(i)</sup>	DN 20
Meter SN	11111111						
Index to set (m3) <sup>(i)</sup>	1.366						
Diameter <sup>(i)</sup>	DN 20						



### Configuration of the Radio M-Bus interface

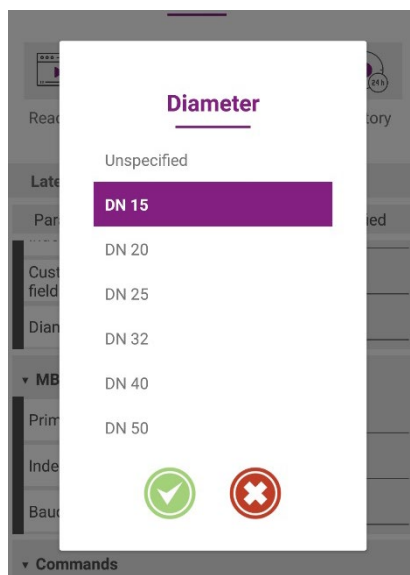


**INDICATION**



Changing the index resets all alarms, initializes the negative volume and synchronizes the date and time with that of your smartphone.

### Configuration of meter diameter



**INDICATION**



If the meter diameter is not specified, the management of Burst, Leak and Return water alarms is not operational.

**INDICATION**



The alarm thresholds for Burst, Leak and Return water detection are automatically updated when the diameter of the meter is changed and are reset to the default value.

**INDICATION**



The analysis of the fraud alarm only starts when the module has detected a volume of water greater than 5 litres.



Additional functions are available such:

- Set the time,
- Delete the histories stored in the module,
- Initialize alarms,
- Changing predefined alarm values.

Special commandes	Configuration of alarms																								
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> <p>▼ <b>Commands</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; border-right: 1px solid #ccc; padding: 2px 5px;">Reset</td> <td style="padding: 2px 5px;">No</td> <td style="border-bottom: 1px solid #ccc; width: 60%;"></td> </tr> </table> </div>	Reset	No		<div style="border: 1px solid #ccc; padding: 5px;"> <p>▼ <b>Alerts</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; border-right: 1px solid #ccc; padding: 2px 5px;">Reset Tamper</td> <td style="padding: 2px 5px;">No</td> <td style="border-bottom: 1px solid #ccc; width: 60%;"></td> </tr> <tr> <td style="border-right: 1px solid #ccc; padding: 2px 5px;">Reset Reverse flow</td> <td style="padding: 2px 5px;">No</td> <td style="border-bottom: 1px solid #ccc;"></td> </tr> <tr> <td style="border-right: 1px solid #ccc; padding: 2px 5px;">Reset Maxflow</td> <td style="padding: 2px 5px;">No</td> <td style="border-bottom: 1px solid #ccc;"></td> </tr> <tr> <td style="border-right: 1px solid #ccc; padding: 2px 5px;">Reset Overload</td> <td style="padding: 2px 5px;">No</td> <td style="border-bottom: 1px solid #ccc;"></td> </tr> <tr> <td style="border-right: 1px solid #ccc; padding: 2px 5px;">Reset Burst</td> <td style="padding: 2px 5px;">No</td> <td style="border-bottom: 1px solid #ccc;"></td> </tr> <tr> <td style="border-right: 1px solid #ccc; padding: 2px 5px;">Leak threshold (l/h)</td> <td style="padding: 2px 5px;">50</td> <td style="border-bottom: 1px solid #ccc;"></td> </tr> <tr> <td style="border-right: 1px solid #ccc; padding: 2px 5px;">Overload threshold (l/h)</td> <td style="padding: 2px 5px;">3125</td> <td style="border-bottom: 1px solid #ccc;"></td> </tr> </table> </div>	Reset Tamper	No		Reset Reverse flow	No		Reset Maxflow	No		Reset Overload	No		Reset Burst	No		Leak threshold (l/h)	50		Overload threshold (l/h)	3125	
Reset	No																								
Reset Tamper	No																								
Reset Reverse flow	No																								
Reset Maxflow	No																								
Reset Overload	No																								
Reset Burst	No																								
Leak threshold (l/h)	50																								
Overload threshold (l/h)	3125																								

### 7.7.3 aquastream® M-Bus/Pulses modification

**NOTE**



Knowledge of M-Bus communication and pulse signals is necessary to define the parameters of the module.

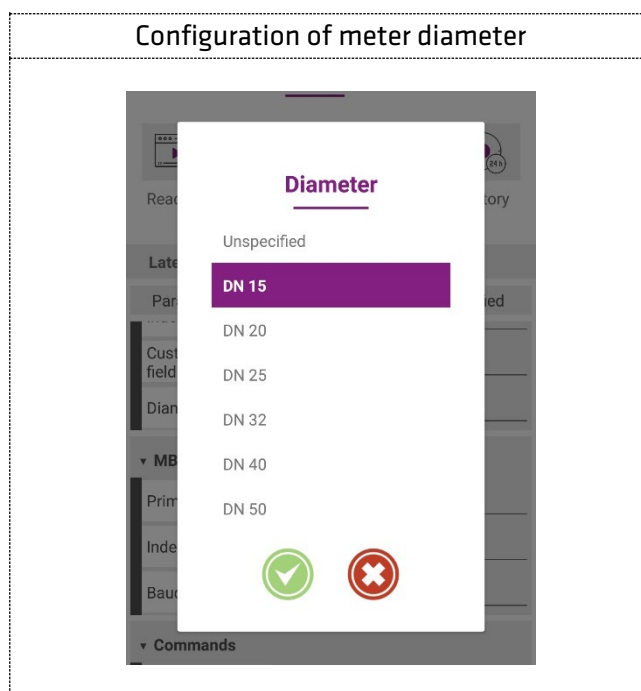
The available data are organized by group as shown in the examples below.

	<p style="text-align: center;"><b>Configuration of meter information</b></p> <p>The mandatory information is:</p> <ul style="list-style-type: none"> <li>- The meter number</li> <li>- The meter index</li> <li>- The diameter of the meter</li> </ul> <table border="1"> <thead> <tr> <th colspan="3">▼ Meter</th> </tr> </thead> <tbody> <tr> <td>Meter SN</td> <td>123</td> <td>12345678</td> </tr> <tr> <td>Index to set (m3)<sup>(i)</sup></td> <td>0.000</td> <td>0.250</td> </tr> <tr> <td>Customer text field</td> <td></td> <td></td> </tr> <tr> <td>Diameter<sup>(i)</sup></td> <td>Unspecified</td> <td>DN 15</td> </tr> </tbody> </table>	▼ Meter			Meter SN	123	12345678	Index to set (m3) <sup>(i)</sup>	0.000	0.250	Customer text field			Diameter <sup>(i)</sup>	Unspecified	DN 15									
▼ Meter																									
Meter SN	123	12345678																							
Index to set (m3) <sup>(i)</sup>	0.000	0.250																							
Customer text field																									
Diameter <sup>(i)</sup>	Unspecified	DN 15																							
<p style="text-align: center;"><b>Configuration of M-Bus output</b></p> <table border="1"> <thead> <tr> <th colspan="3">▼ MBus</th> </tr> </thead> <tbody> <tr> <td>Primary Address</td> <td>0</td> <td>1</td> </tr> <tr> <td>Index Unit</td> <td>l</td> <td></td> </tr> <tr> <td>Baudrate</td> <td>2400</td> <td></td> </tr> </tbody> </table>	▼ MBus			Primary Address	0	1	Index Unit	l		Baudrate	2400		<p style="text-align: center;"><b>Configuration of Pulses output</b></p> <table border="1"> <thead> <tr> <th colspan="3">▼ Pulse output</th> </tr> </thead> <tbody> <tr> <td>Output Mode</td> <td>PULSE / GND (Compensation)</td> <td></td> </tr> <tr> <td>Pulse weight (l)</td> <td>1</td> <td></td> </tr> <tr> <td>Pulse Length (ms)</td> <td>30</td> <td></td> </tr> </tbody> </table>	▼ Pulse output			Output Mode	PULSE / GND (Compensation)		Pulse weight (l)	1		Pulse Length (ms)	30	
▼ MBus																									
Primary Address	0	1																							
Index Unit	l																								
Baudrate	2400																								
▼ Pulse output																									
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**INDICATION**



Changing the index resets all alarms, initializes the negative volume and synchronizes the date and time with that of your smartphone.



**INDICATION**



If the meter diameter is not specified, the management of Burst, Leak and Return water alarms is not operational.

**INDICATION**



The alarm thresholds for Burst, Leak and Return water detection are automatically updated when the diameter of the meter is changed and are reset to the default value.

**INDICATION**



The analysis of the fraud alarm only starts when the module has detected a volume of water greater than 5 litres.

Additional functions are available such:

- Set the time,
- Delete the histories stored in the module,
- Initialize alarms,
- Changing predefined alarm values.

Special Commands	Configuration of alarms																								
<div data-bbox="207 571 742 683"> <p>▼ <b>Commands</b></p> <table border="1"> <tr> <td>Reset</td> <td>No</td> <td>_____</td> </tr> </table> </div>	Reset	No	_____	<div data-bbox="837 504 1396 974"> <p>▼ <b>Alerts</b></p> <table border="1"> <tr> <td>Reset Tamper</td> <td>No</td> <td>_____</td> </tr> <tr> <td>Reset Reverse flow</td> <td>No</td> <td>_____</td> </tr> <tr> <td>Reset Maxflow</td> <td>No</td> <td>_____</td> </tr> <tr> <td>Reset Overload</td> <td>No</td> <td>_____</td> </tr> <tr> <td>Reset Burst</td> <td>No</td> <td>_____</td> </tr> <tr> <td>Leak threshold (l/h)</td> <td>50</td> <td>_____</td> </tr> <tr> <td>Overload threshold (l/h)</td> <td>3125</td> <td>_____</td> </tr> </table> </div>	Reset Tamper	No	_____	Reset Reverse flow	No	_____	Reset Maxflow	No	_____	Reset Overload	No	_____	Reset Burst	No	_____	Leak threshold (l/h)	50	_____	Overload threshold (l/h)	3125	_____
Reset	No	_____																							
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Reset Burst	No	_____																							
Leak threshold (l/h)	50	_____																							
Overload threshold (l/h)	3125	_____																							



### 7.7.4 aquastream® Radio L8 (LoRaWAN) modification

**NOTE**



Knowledge of LORAWAN communication is necessary to define properly the parameters of the module.

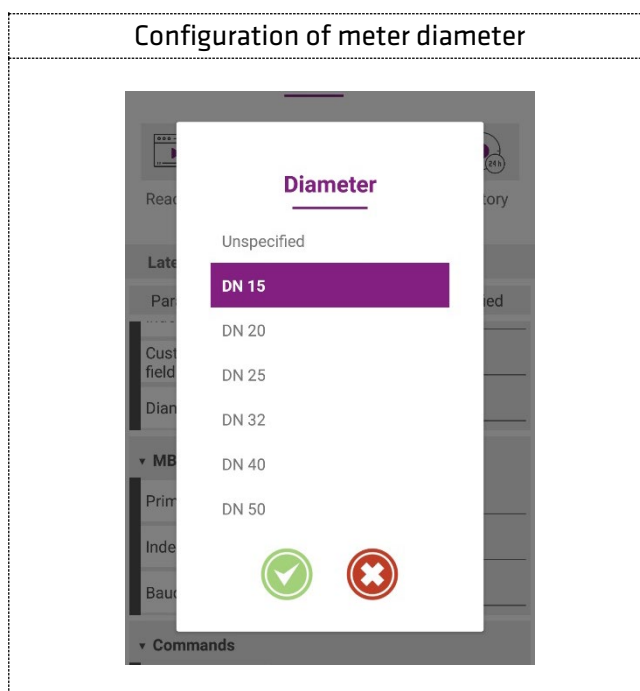
The available data are organized by group as shown in the examples below.

	<p style="text-align: center;"><b>Configuration of meter information</b></p> <p>The mandatory information is:</p> <ul style="list-style-type: none"> <li>- The meter number</li> <li>- The meter index</li> <li>- The diameter of the meter</li> </ul> <table border="1"> <thead> <tr> <th colspan="3">▼ Meter</th> </tr> </thead> <tbody> <tr> <td>Meter SN</td> <td>123</td> <td>12345678</td> </tr> <tr> <td>Index to set (m3)<sup>(i)</sup></td> <td>0.000</td> <td>0.250</td> </tr> <tr> <td>Customer text field</td> <td></td> <td></td> </tr> <tr> <td>Diameter<sup>(i)</sup></td> <td>Unspecified</td> <td>DN 15</td> </tr> </tbody> </table>	▼ Meter			Meter SN	123	12345678	Index to set (m3) <sup>(i)</sup>	0.000	0.250	Customer text field			Diameter <sup>(i)</sup>	Unspecified	DN 15
▼ Meter																
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Customer text field																
Diameter <sup>(i)</sup>	Unspecified	DN 15														
<p style="text-align: center;"><b>Configuration of LoRaWAN</b></p> <table border="1"> <thead> <tr> <th colspan="3">▼ LoRa</th> </tr> </thead> <tbody> <tr> <td>Lora Join</td> <td>No</td> <td></td> </tr> <tr> <td>Lora Message</td> <td>No</td> <td></td> </tr> </tbody> </table>	▼ LoRa			Lora Join	No		Lora Message	No								
▼ LoRa																
Lora Join	No															
Lora Message	No															

**INDICATION**



Changing the index resets all alarms, initializes the negative volume and synchronizes the date and time with that of your smartphone.



**INDICATION**



If the meter diameter is not specified, the management of Burst, Leak and Return water alarms is not operational.

**INDICATION**



The alarm thresholds for Burst, Leak and Return water detection are automatically updated when the diameter of the meter is changed and are reset to the default value.

**INDICATION**

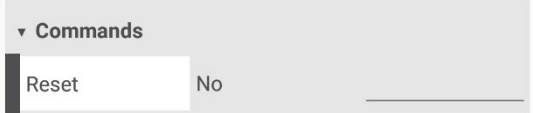
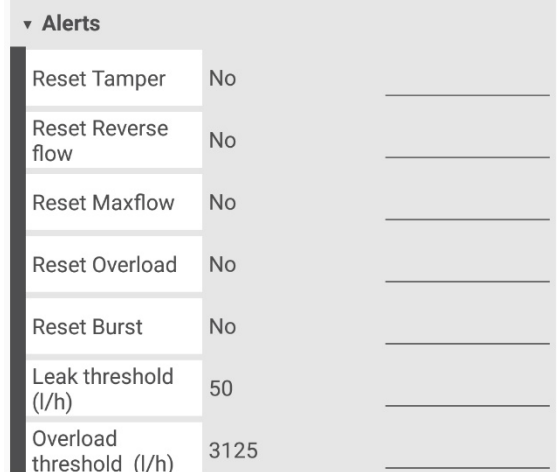


The analysis of the fraud alarm only starts when the module has detected a volume of water greater than 5 litres.



Additional functions are available such:

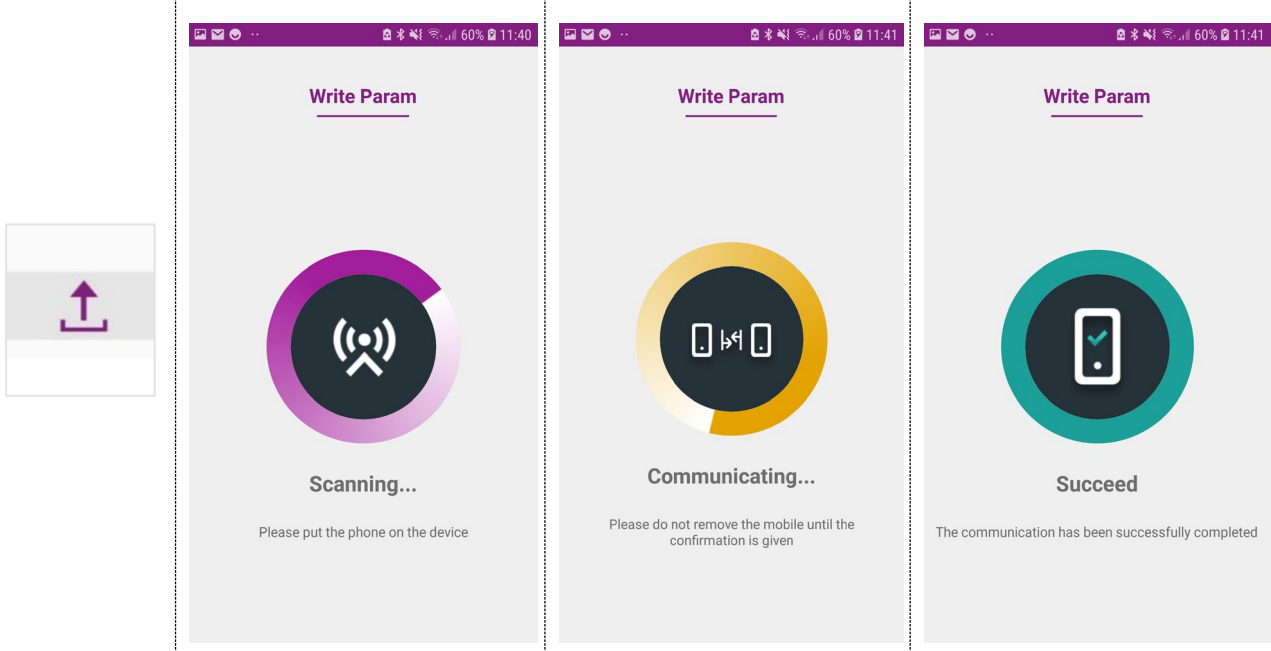
- Set the time,
- Delete the histories stored in the module,
- Initialize alarms,
- Changing predefined alarm values.

Special Commands	Configuration of alarms																
	 <table border="1"> <thead> <tr> <th colspan="2">Alerts</th> </tr> </thead> <tbody> <tr> <td>Reset Tamper</td> <td>No</td> </tr> <tr> <td>Reset Reverse flow</td> <td>No</td> </tr> <tr> <td>Reset Maxflow</td> <td>No</td> </tr> <tr> <td>Reset Overload</td> <td>No</td> </tr> <tr> <td>Reset Burst</td> <td>No</td> </tr> <tr> <td>Leak threshold (l/h)</td> <td>50</td> </tr> <tr> <td>Overload threshold (l/h)</td> <td>3125</td> </tr> </tbody> </table>	Alerts		Reset Tamper	No	Reset Reverse flow	No	Reset Maxflow	No	Reset Overload	No	Reset Burst	No	Leak threshold (l/h)	50	Overload threshold (l/h)	3125
Alerts																	
Reset Tamper	No																
Reset Reverse flow	No																
Reset Maxflow	No																
Reset Overload	No																
Reset Burst	No																
Leak threshold (l/h)	50																
Overload threshold (l/h)	3125																

### 8.27 7.8 Apply your modifications

To write the changes in the module, click on the following button.

The update screens are displayed.





## 8 Technical data

### 8.28 aquastream® M-Bus

Technical data	
Resolution	1 liter
Power Supply	Integrated lithium 3,6V battery
Battery lifetime	Up to 16 years(*)
Environmental conditions	
Fluid	Water
Protection class	IP68
Operating temperature	-10°C to +55°C
Storage temperature	-20°C to +70°C
Humidity	Up to 98% relative humidity, with condensation
Communication interface	
Protocol	M-Bus conformed EN 13757-2/3
Baud rate	300, 2400, 9600
Cable	Integrated with gel connector, 2 non-polarized wires, length 25cm
M-Bus Load	1,5 mA
Meter index	00000,000 m3 Configurable value during installation
Information M-Bus Frame (REQ_UD2)	Current main index Return water volume Current flow rate Maximum flow rate Date/Time Module manufacturing number Factory number of the water meter Firmware Version Hardware Version Status Info Battery life
Addresses	Primary Address 0-250 Secondary Address 8-digits Extended Secondary Address with serial number
Programming	
Interface	NFC - 13,56 MHz
Alarms	Manipulation/wrong installation, Overload, Leakage, Low Battery, Backflow, Burst
DataLogger	12 monthly values (end of month)
Programming Software	ParamApp, Compatible with Android > 6.1 Available on Google Play

(\*) Remaining battery life is calculated by software, based on the nominal capacity of the battery with a certain safety margin. Battery capacity may vary depending on manufacturing tolerances and operating conditions (e.g. temperature, humidity etc.).

In addition, if the remaining battery life of the transmission battery becomes negative, it means that the operating time of the device has exceeded the estimated battery life. Immediate replacement of the device is strongly recommended. Subsequent operation of the device is not guaranteed in this case.

#### INDICATIONS



Cable 2 wires, | AWG : 20 → 22 | Section : 0,34 → 0,52 mm<sup>2</sup>  
 Please follow the instructions according to the mounting instructions.

## 8.29 aquastream® M-Bus/Pulses

<b>Technical data</b>	
Resolution	1 liter
Power Supply	Integrated lithium 3,6V battery
Battery lifetime	Up to 16 years(*)
<b>Environmental conditions</b>	
Fluid	Water
Protection class	IP68
Operating temperature	-10°C to +55°C
Storage temperature	-20°C to +70°C
Humidity	Up to 98% relative humidity, with condensation
<b>Communication interface</b>	
Pulses output	Open Collector, 2 or 3 wires configurable
Modes	Different modes configurable 2 wires with compensation, 3 wires with direction (PULSE / DIR / GND) 3 wires (PULSE+ / PULSE- / GND) 3 wires for duplicate signal (PULSE1 / PULSE2 / GND)
Cable	3 wires configurable, 1,5m length
Backflow detection	Yes
Pulse Weight	Configurable (1, 2.5, 10, 100, 1000 litres...)
Pulse Duration	Configurable (30ms, 50ms, 100ms, 500ms, 1s...)
M-Bus Output	M-Bus conformed EN 13757-2/3
Baud-rate	300, 2400, 9600
Cable	2 non-polarized wires, length 1.5m
M-Bus Load	1,5 mA
Meter Index	00000,000 m3 Configurable value during installation
Information M-Bus Frame (REQ_UD2)	Current main index Return water volume Current flow rate Maximum flow rate Date/Time Module manufacturing number Factory number of the water meter Firmware Version Hardware Version Status info Battery life
Addresses	Primary Address 0-250 Secondary Address 8-digits Extended Secondary Address with serial number
<b>Programing</b>	
Interface	NFC - 13,56 MHz
Alarms	Manipulation/wrong installation, Overload, Leakage, Low Battery, Backflow, Burst
DataLogger	16 yearly values (end of year) - 48 monthly values (end of month) - 460 daily values (end of day) - 24 hourly values (last 24 hours)
Programming Software	ParamApp, Compatible with Android > 6.1 Available on Google Play

(\*) Remaining battery life is calculated by software, based on the nominal capacity of the battery with a certain safety margin. Battery capacity may vary depending on manufacturing tolerances and operating conditions (e.g. temperature, humidity etc.).

In addition, if the remaining battery life of the transmission battery becomes negative, it means that the operating time of the device has exceeded the estimated battery life. Immediate replacement of the device is strongly recommended. Subsequent operation of the device is not guaranteed in this case.

### INDICATIONS



Cable 5 wires | AWG 22 - Section : 0,34mm<sup>2</sup> | Diameter external: 5,5mm  
 Please follow the instructions according to the mounting instructions.

### 8.30 aquastream® Radio W8 (Wireless M-Bus/OMS)

Technical data	
Resolution	1 liter
Power Supply	Integrated lithium 3,6V battery
Battery lifetime	Up to 16 years(*)
Environmental conditions	
Fluid	Water
Protection class	IP68
Operating temperature	-10°C to +55°C
Storage temperature	-20°C to +70°C
Humidity	Up to 98% relative humidity, with condensation
Communication interface	
Protocol	WM-Bus conformed EN 13757-4 , OMS 4.0
Frequency	868 MHz (T1 Mode)
Emission Interval	Every 16 seconds
Meter index	00000,000 m <sup>3</sup> Configurable value during installation
Information WM-Bus Long frame	Current main index Return water volume Historical volume (end of month) Date volume History (end of month) Date/Time Status info Battery life Long telegram when the module is installed on the meter
Information WM-Bus Short frame	Status info Battery life Reduced telegram when the module is not installed on the meter
Addresses	OMS compliant address Manufacturer: IMT Version: 0x05 / 0x01 Serial number: 8-digit
Programming	
Interface	NFC - 13,56 MHz
Alarms	Manipulation/wrong installation, Overload, Leakage, Low Battery, Backflow, Burst
Datalogger	16 yearly values (end of year) – 48 monthly values (end of month) – 460 daily values (end of day) – 24 hourly values (last 24 hours)
Programming Software	ParamApp, Compatible with Android > 6.1 Available on Google Play

(\*) Remaining battery life is calculated by software, based on the nominal capacity of the battery with a certain safety margin. Battery capacity may vary depending on manufacturing tolerances and operating conditions (e.g. temperature, humidity etc.).

In addition, if the remaining battery life of the transmission battery becomes negative, it means that the operating time of the device has exceeded the estimated battery life. Immediate replacement of the device is strongly recommended. Subsequent operation of the device is not guaranteed in this case.

### 8.31 aquastream® Radio L8 (LoRaWAN)

Technical data	
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Resolution	1 liter
Power Supply	Integrated lithium 3,6V battery
Battery lifetime	Up to 16 years(*)
<b>Environmental conditions</b>	
Fluid	Water
Protection class	IP68
Operating temperature	-10°C to +55°C
Storage temperature	-20°C to +70°C
Humidity	Up to 98% relative humidity, with condensation
<b>Communication interface</b>	
Protocol	LoRaWAN according to LoRaWAN 1.0.3
Frequency	868 MHz
Emitted Power	25 mW (14 dBm)
Radio Range	Up to 15 km (depending on the environment conditions)
Connection mode	Over-The-Air Activation OTAA Activation by Personalization ABP
Transmission interval	Default Twice a day (6.00 and 18.00 UTC) Configurable up to 15min interval Value below possible with impact on battery life-time
Readout interval	Permanent
Meter index	00000,000 m3 Configurable value during installation
Telegram content by default	Current meter reading Returned water volume Meter number Date/Time Status info Battery life
Addresses	LoRaWAN compliant address (16 digits)
<b>Programming</b>	
Interface	NFC - 13,56 MHz
Alarms	Manipulation/wrong installation, Overload, Leakage, Low Battery, Backflow, Burst
DataLogger	16 yearly values (end of year) – 48 monthly values (end of month) – 460 daily values (end of day) – 24 hourly values (last 24 hours)
Programming Software	ParamApp, Compatible with Android > 6.1 Available on Google Play

(\*) Remaining battery life is calculated by software, based on the nominal capacity of the battery with a certain safety margin. Battery capacity may vary depending on manufacturing tolerances and operating conditions (e.g. temperature, humidity etc.).

In addition, if the remaining battery life of the transmission battery becomes negative, it means that the operating time of the device has exceeded the estimated battery life. Immediate replacement of the device is strongly recommended. Subsequent operation of the device is not guaranteed in this case.

## 9 Maintenance

The aquastream® module requires no special maintenance.

### WARNING



Do not clean the product with solvents or abrasives as they may damage the plastic cover.  
If necessary, use a damp cloth or sponge.

## 10 Waste disposal

At the end of its life cycle, this product must be disposed of in accordance with local recycling or waste disposal regulations.

The battery is not replaceable and cannot be changed!

**WARNING**



The battery is permanently installed and cannot be replaced or changed, therefore:

- Do not open the unit or break the housing
- Do not dispose of the product in a fire or oven
- Do not crush or deform the product

The separate collection and recycling of used products contributes to the conservation of natural resources and ensures that they are disposed of in a way that does not harm the environment and nature.



## 11 Certification, regulation

Certificates and declarations of conformity are available at the following address:

[www.integra-metering.com](http://www.integra-metering.com).

