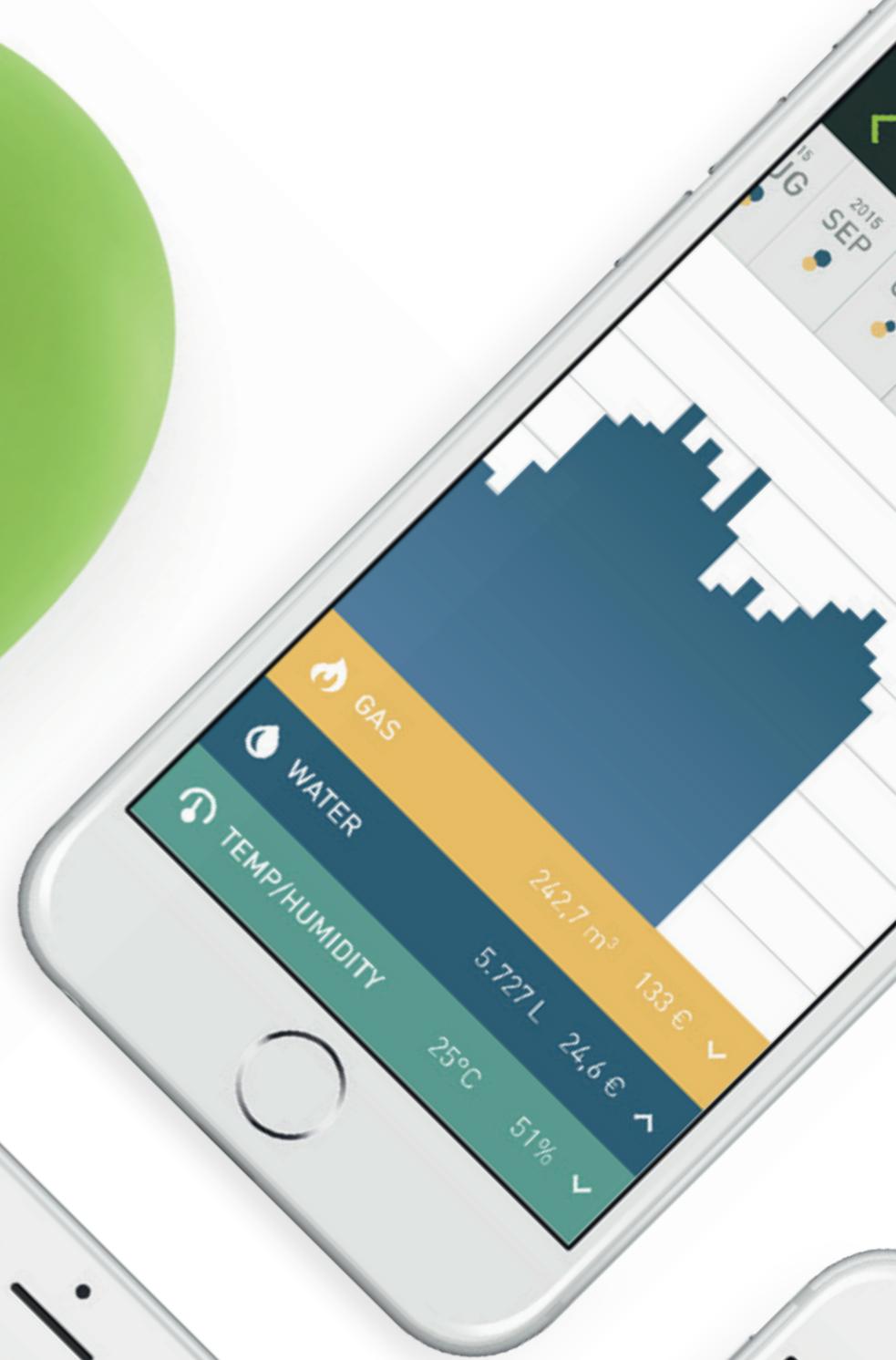
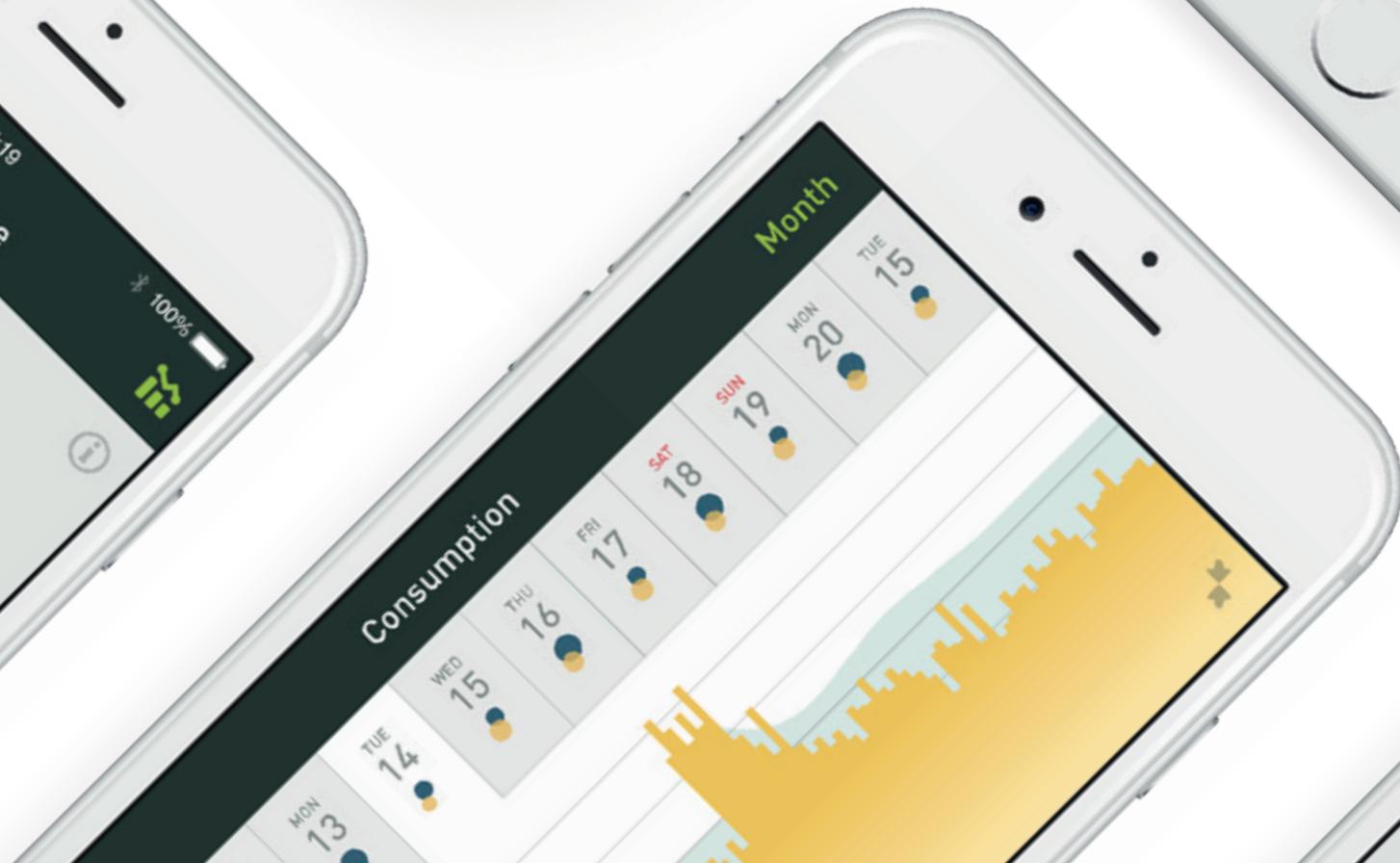




Gas & water monitor

manual V1.0



Welcome to the world of Smappee

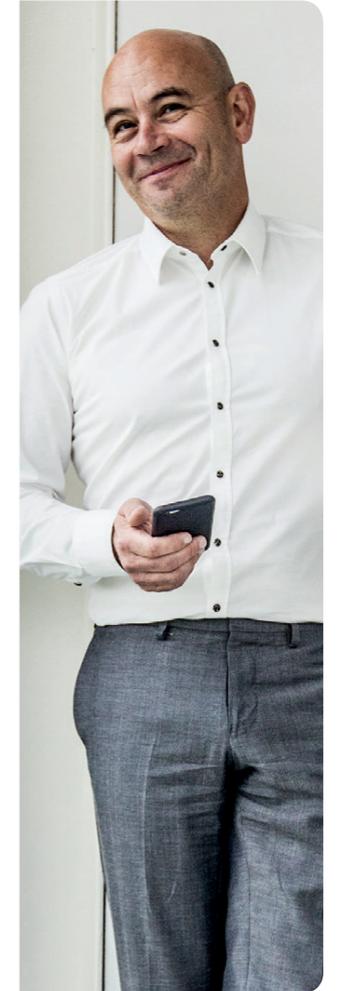


You will soon notice that this Smappee gas & water monitor offers nothing but benefits. It immediately gives you clear and simple insights into your gas and water consumption. You'll become more conscious about how you deal with gas and water, which allows you to make savings right away, without compromising on comfort. It might take a bit of getting used to in the beginning, but Smappee will soon become part of your life.

The Smappee energy monitor completes the picture. If you combine both monitors, the app will provide you with an overview of all your home energy consumption – gas, water and electricity –, in real-time per day, per month and per year, with the related costs, on a single device. You can now also leave the house without worrying. After all, you can simply use the app to keep an eye on what's happening in your home.

It will even send you a leak alert if anything is wrong.

As I said: nothing but benefits, for your peace of mind, your energy bill and the planet.



A handwritten signature of Stefan Grosjean in a green, cursive script.

Stefan Grosjean,
Founder and C.E.O. Smappee

How to install and configure my Smappee Gas & Water?

The quick install..

The install wizard step by step

The optical and magnetic sensors, how does it work?

Meters with spinning hands, numeric dials,.. what ?

How does Smappee-GW communicate with me? Bluetooth or ..?

quick install guide

- 1**



Download and install the free Smappee app.
Skip this if you already have a Smappee energy monitor.
- 2**



Open the app and press Install.
Or choose Settings in the menu and let the wizard guide you.
- 3**



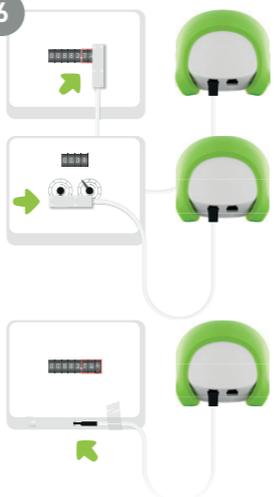
Insert the batteries into the monitor.
- 4**



Connect to the Smappee Gas & Water via Bluetooth.
- 5**



Select which port you will use and which meter you want to connect to your Smappee.
- 6**



If your meter uses spinning dials or number dials with a reflective surface, connect Smappee with the optical sensor.
Otherwise, connect Smappee with the magnetic sensor in the opening on the side of your meter.
- 7**



Check and tell how much is consumed with each revolution.
This info is usually printed on your meter.
- 8**



Save the settings to Smappee and start tracking your consumption.
Repeat this procedure to install another meter.



Installation and configuration



1



Download and install the free Smappee app.

Skip this if you already have a Smappee energy monitor.

2



Open the app and press Install.

Or choose Settings in the menu and let the wizard guide you.

3



Insert the batteries into the monitor.



Start Installation



Next

4



Connect to the Snappee Gas & Water via Bluetooth.

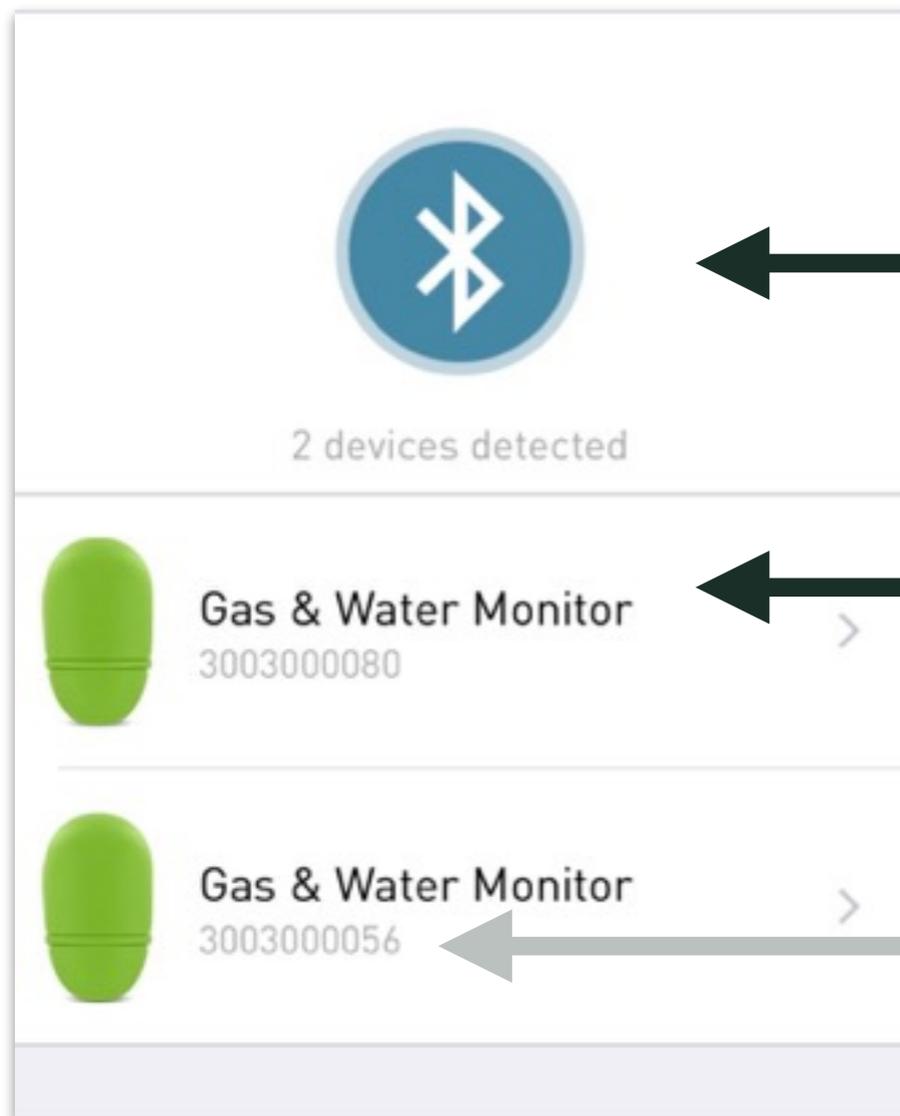


The Snappee App will now configure your Snappee device. Your App and your Snappee device will communicate using BlueTooth. So, make sure the BlueTooth of your Phone/Tablet is turned ON.

The range of BlueTooth is 7 meters. So you need to have your Snappee device close to you.

Bluetooth is scanning!

Select your Snappee in the list of discovered devices (within 7 meters)



Serial Number



4



Connect to the Snappee Gas & Water via Bluetooth.



Gas & Water Monitor
3003000034 ✓

Battery Level	100%
Temperature	25°
Humidity	32%
Firmware	1.2.2

Next

You are now connected to this device

Serial Number 3003000034

Your app has read some basic parameters from your Snappee device over BlueTooth:

- the battery level (should be 100%!!)
- the Temperature as measured
- the Relative Humidity (0-100%)
- the version of the Firmware

Press Next to proceed with the installation

5



Select which port you will use and which meter you want to connect to your Smappee.



← this is a Sensor



Your Smappee monitor can manage 2 Sensors at the same time..

Click Input 1 to continue with the configuration of the first sensor.

5



Select which port you will use and which meter you want to connect to your Smappee.



Gas Meter



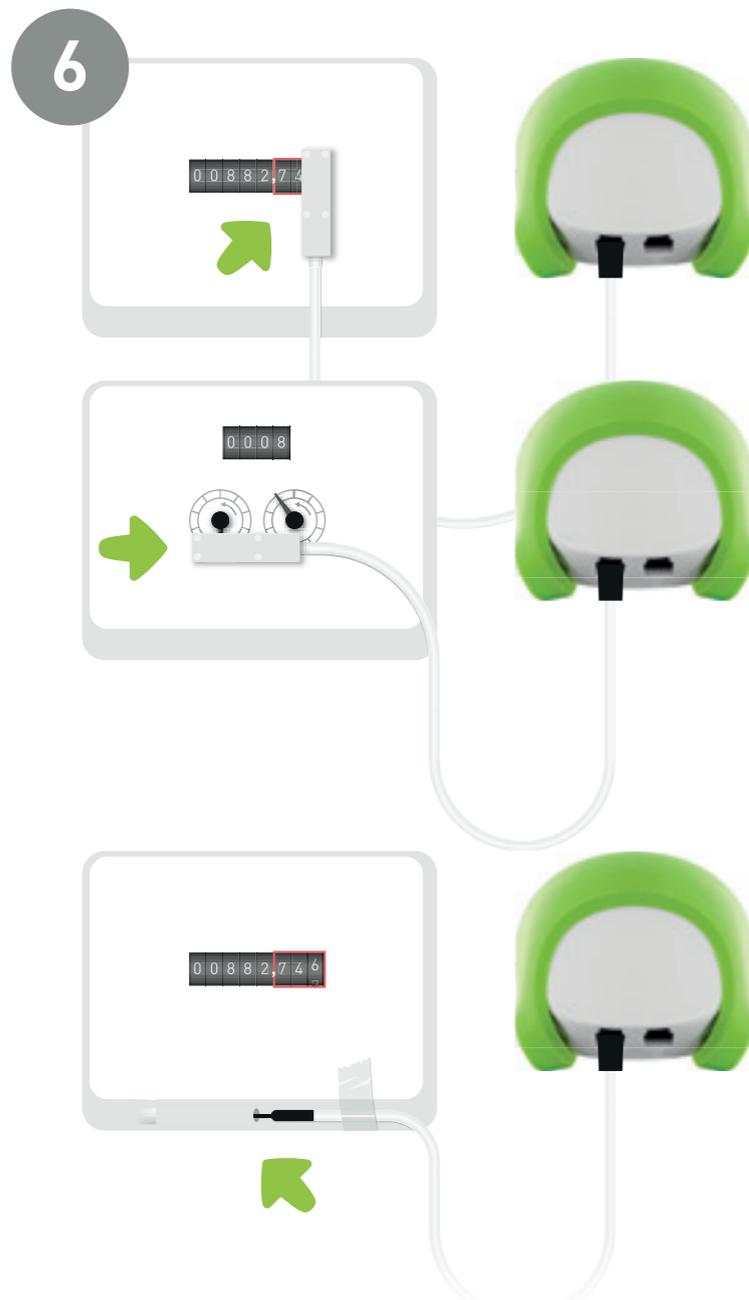
Click here if you want to monitor your Gas consumption. We will install the sensor of your Smappee monitor on your Gas meter.



Water Meter



Click here if you want to monitor your Water consumption

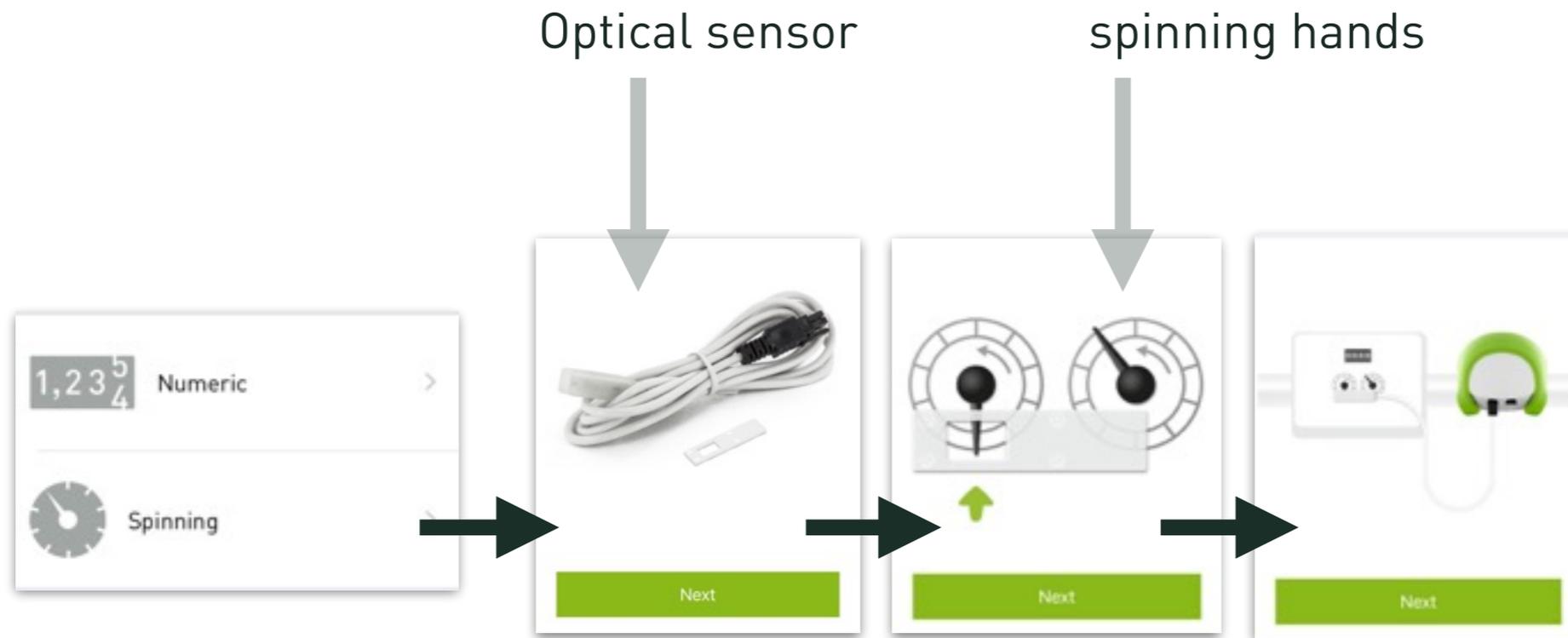


If your meter uses **spinning hands** or **number dials with a reflective surface**, connect Smappee with the optical sensor.

Otherwise, connect Smappee with the **magnetic sensor** in the opening on the side of your meter.

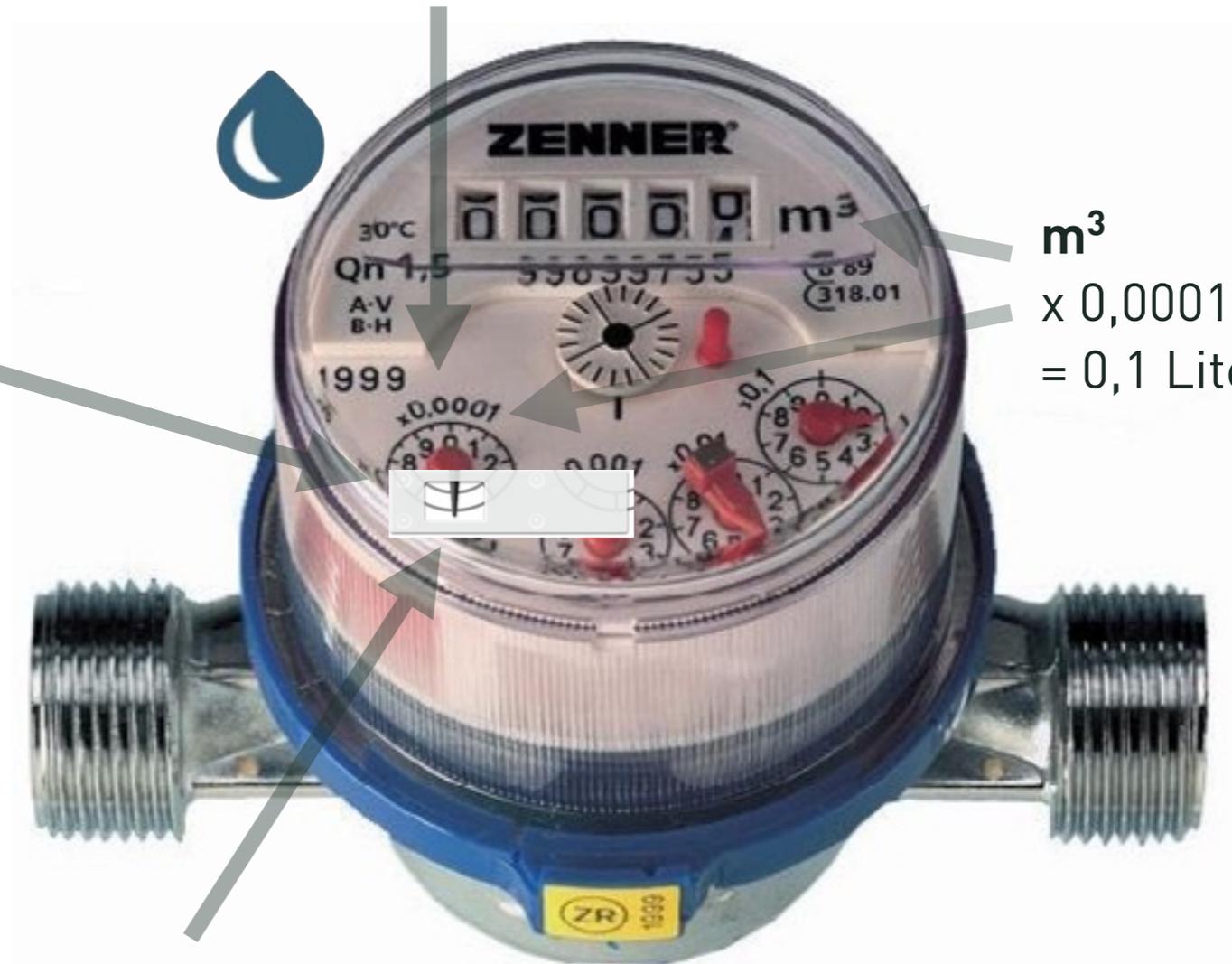
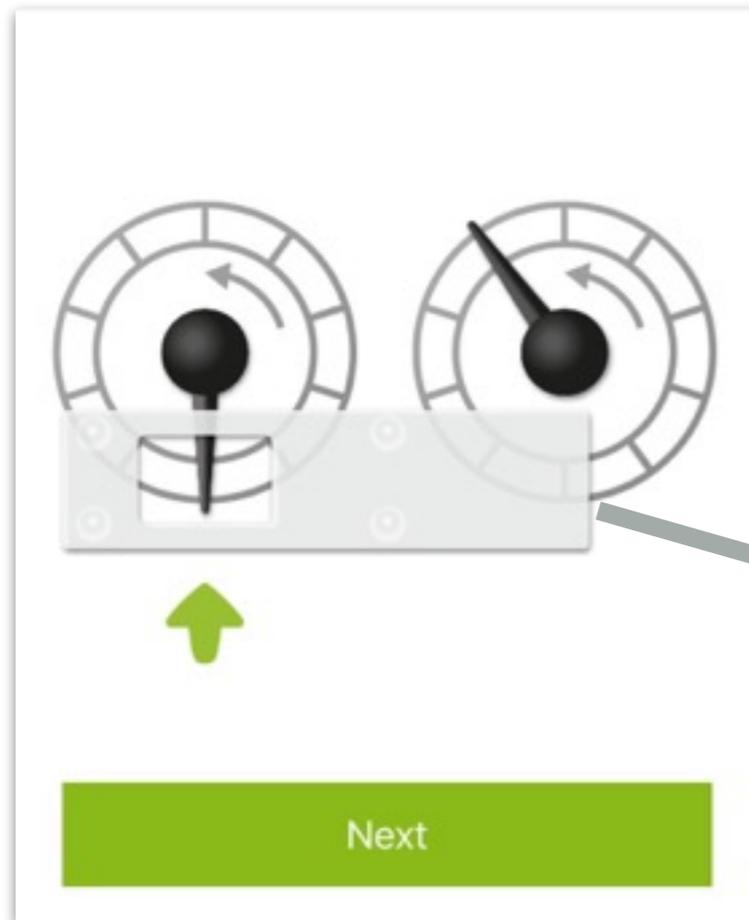


Meter with spinning hands



Meter with spinning hands

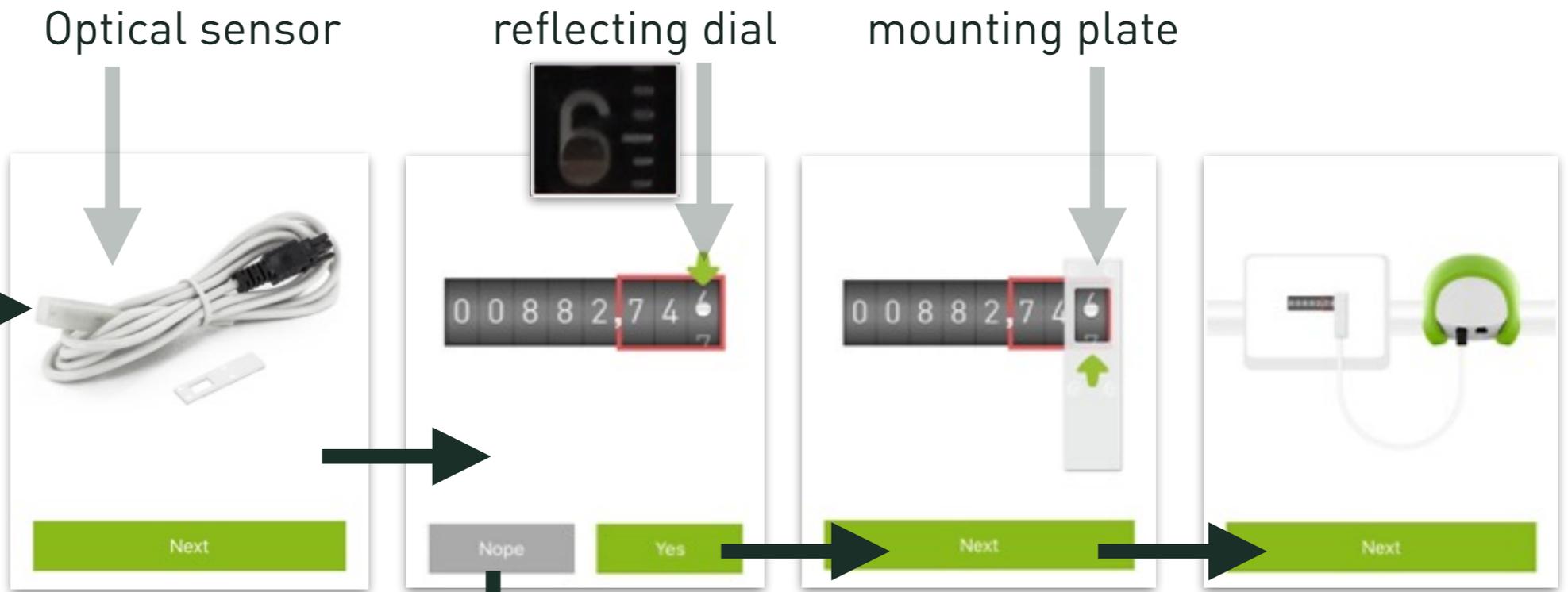
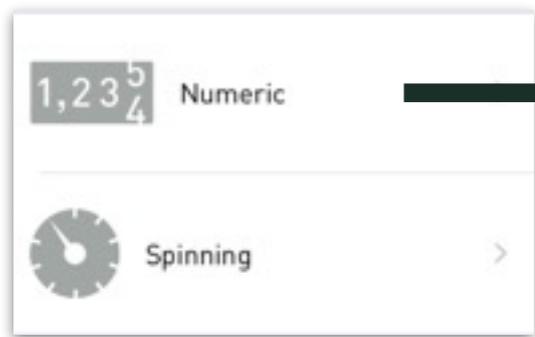
This hand will spin the fastest! If we count the rotations of this hand, we will get the number of 0,1 Liters that were consumed



Position the **mounting plate of the optical sensor here**. Each **spin of the hand** corresponds to a consumption of 0,1 Liter. By counting the rotations (= each time the light beam is interrupted by the hand passing under the sensor), Smappee will count the number of 0,1 Liters of water consumed!

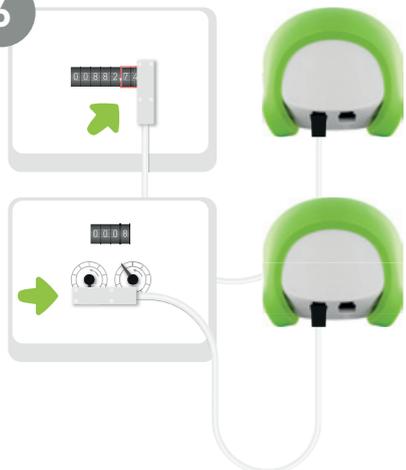


Meter with reflecting dial

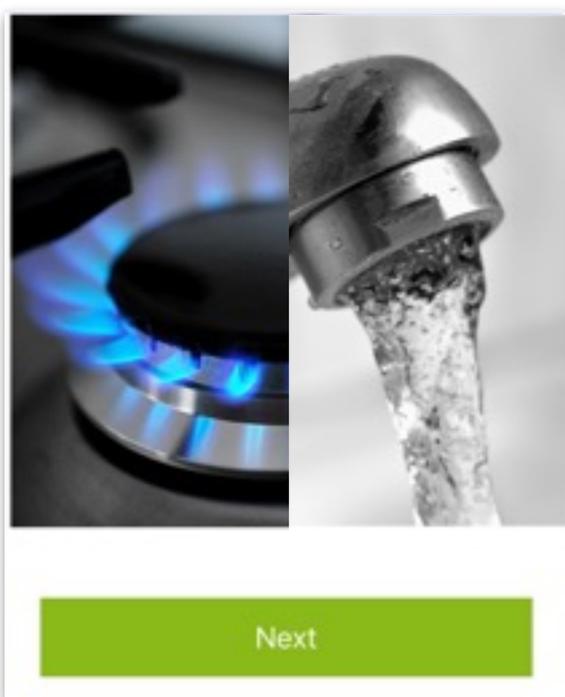


No reflecting dials and
No spinning hands on your
meter?
Then check if you can use
of the "magnetic" sensor.

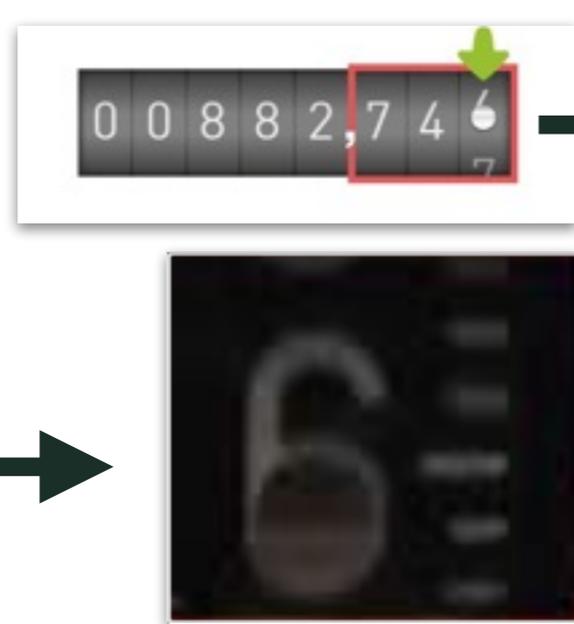
6



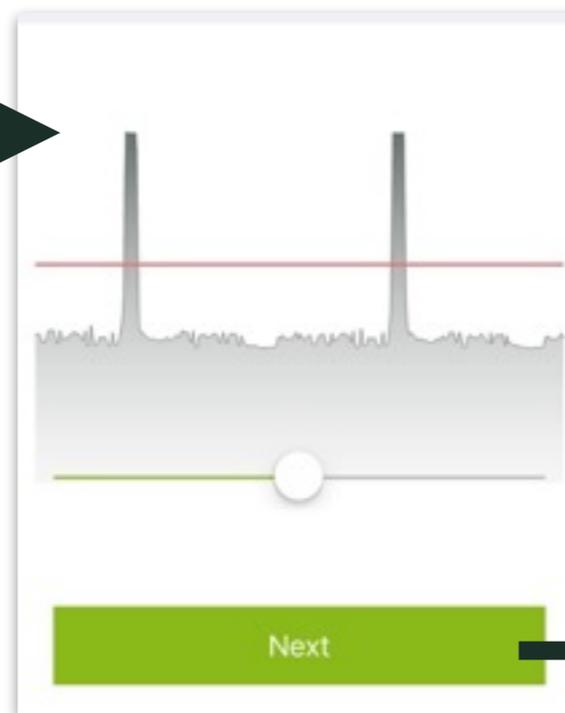
Meter with reflecting dial



Start consuming in order to make the dial spin. The reflecting dial will pass under the optical sensor that you just mounted.



The light beam is reflected by the reflector on the dial. The reflected light is measured by the sensor and drawn as a graph.

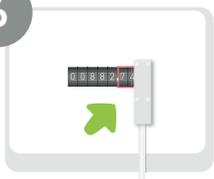


Use this slider to shift the red line up. The red line should be in the middle between the top of the pulse and the base of the pulse. see further..



Don't forget to turn off the Gas / Water consumption

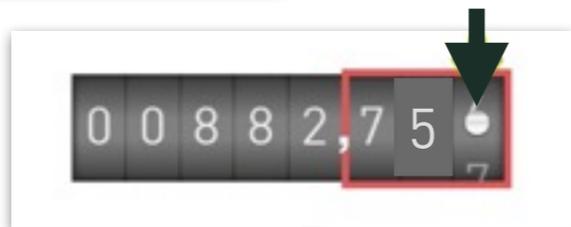
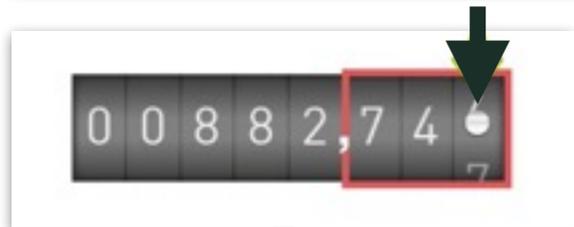
6



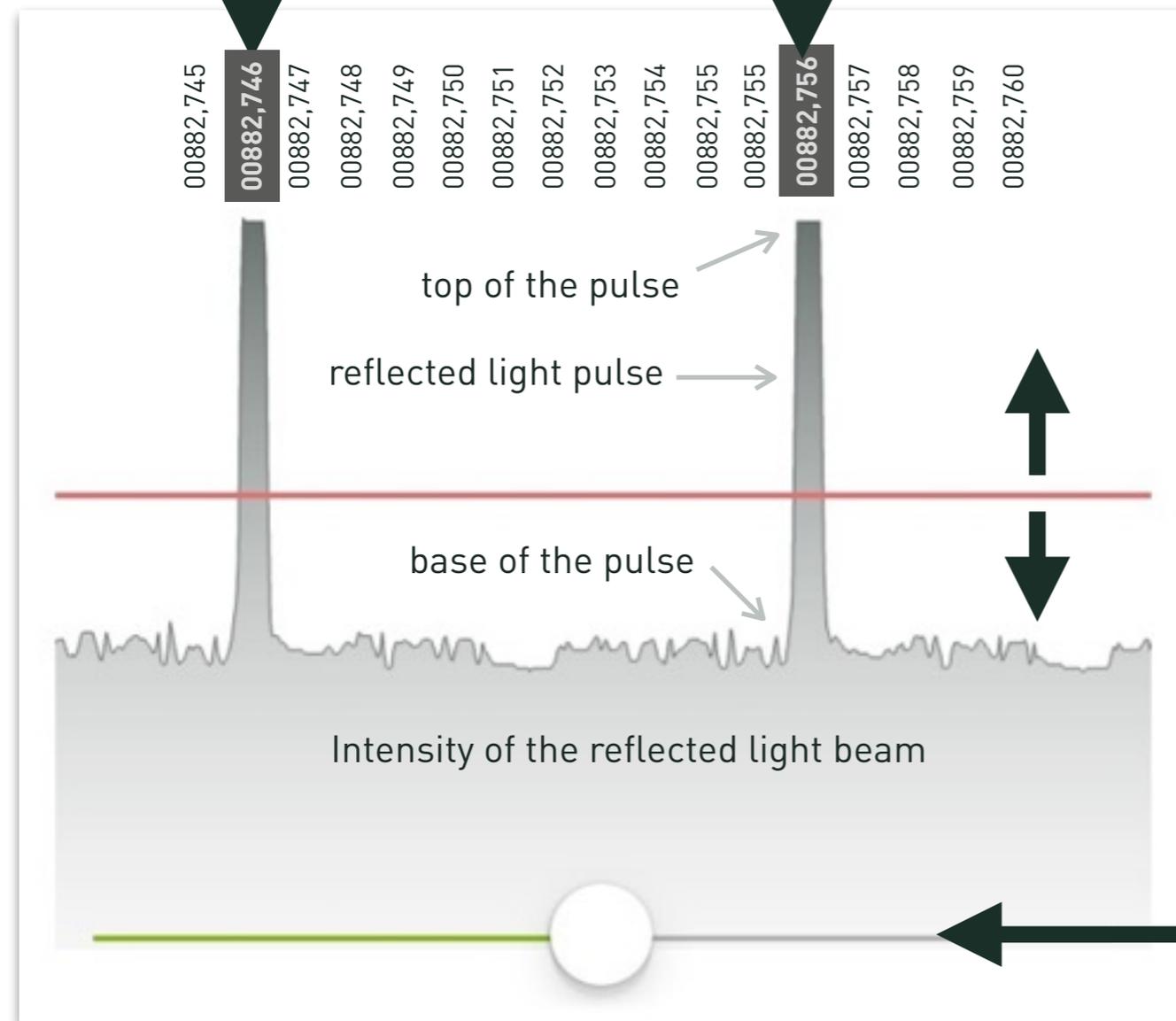
Meter with a reflecting dial



This meter has a "reflecting 6" numeric dial



Optical sensor mounted on the meter



The red line should be **in the middle between the top of the pulse and the base of the pulse.**

Use the **slider at the bottom** to shift the **red line** up.

6

No



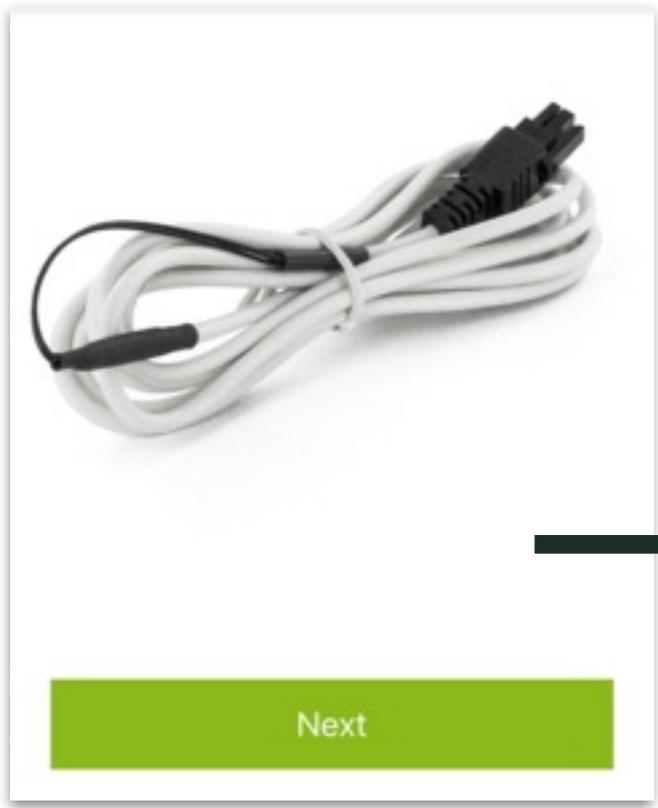
No reflecting dials and

No



No spinning hands on your meter

← Use the Magnetic Sensor



Next



Next



Next

Water meters without spinning hand and without “reflecting” dial!

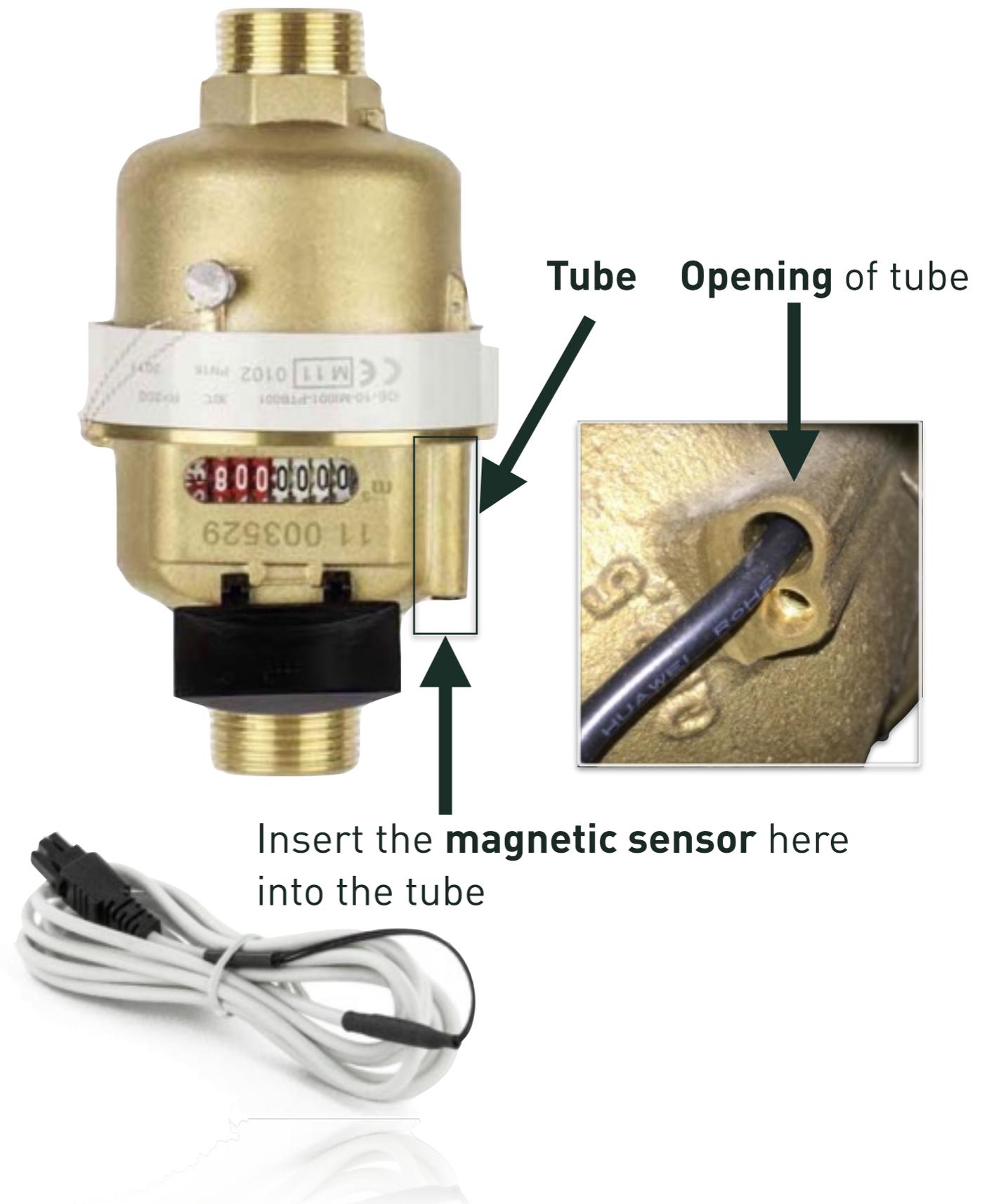
Smappee can't use the optical sensor, when there is no “reflecting dial”, nor spinning hand.

The only possibility is to use the “**magnetic sensor**”, if the meter has an opening for such “magnetic” or “reed contact” sensor of course. Google “your meter” to help you find out ..

The meter in this example has a little internal magnet that moves as the water flows. The magnet is attached to the turbine that rotates when water flows through the meter. Each time a certain volume of water is consumed (half Liter for this one), the magnet passes by the end of the tube.

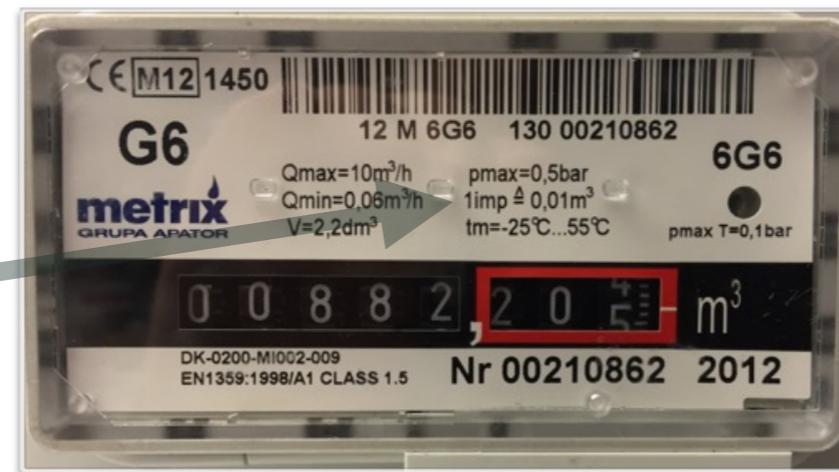
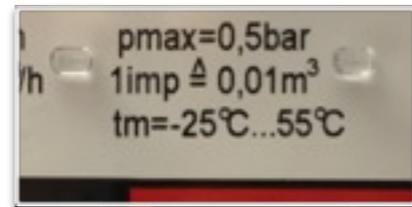
That's where **the magnetic sensor can sense when the magnet passes** by the end of the tube.

Make sure the sensor is **inserted till the end and fastened with cable tie**, to avoid the sensor being pushed out by the magnet.



Gas meters “ready” for magnetic sensor

If you find an indication of a pulse weight like e.g. $1 \text{ imp} = 0,01 \text{ m}^3$



there should be a position where a magnetic sensor or reed contact can be mounted.

Some meters provide a reed contact or “transistor” pulse output. That will work too, when using smappee’s “pulse input” cable.

Mount the **magnetic sensor** here



Google to find out for your meter. There are too many types of meters to list them all here.

7

0,001 m³

Check and tell how much is consumed with each revolution.

This info is usually printed on your meter.



The sensor is installed, now specify the unit and volume of what your meter measures.

0
0,0
0,00
0,000 ✓

Next

0 0 0 0 0 0 0 0

Cubic Meter (m³) ✓
Liter (L)
Cubic Foot (ft³)
Gallon (gal)
Kilowatt Hour (kWh)

Next

Smappee needs to know **how much Gas you consume per rotation, revolution of the dial or hand.**

Just **specify the number of decimals and the unit ..**

Smappee will try to figure this out automatically. **You can always modify or overwrite the settings later.**

7

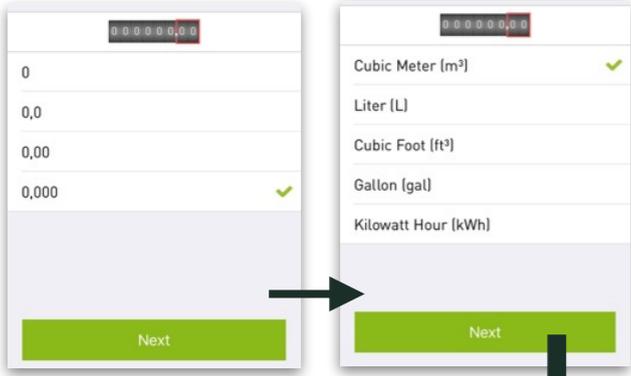
0,001 m³

Check and tell how much is consumed with each revolution.

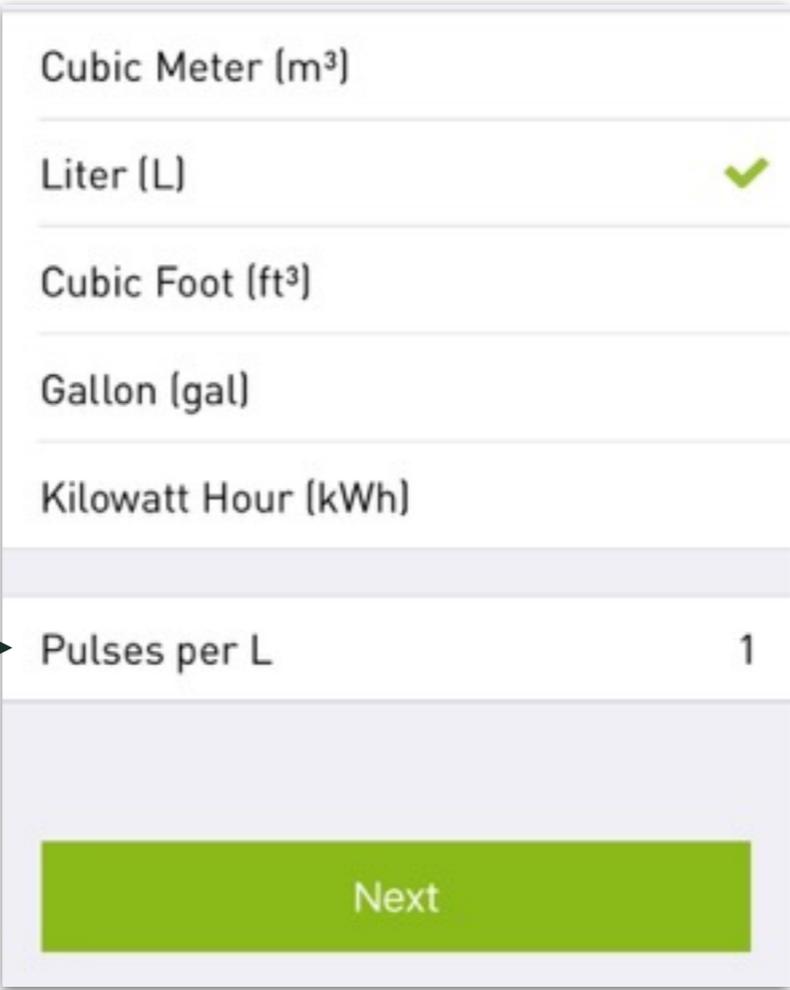
This info is usually printed on your meter.



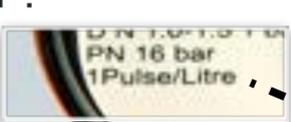
This applies mostly for “magnetic sensors”



Smappee will try to figure this out automatically. But if wrong, you **can always modify or overwrite the settings later.** In that case you will have to specify the “Pulses per” unit of what you Measure, e.g. L, m3, Gallon



Pulses per L / m³ where do you find the parameter?



You should find this on your meter. “pulses per” or “Imp/” ..

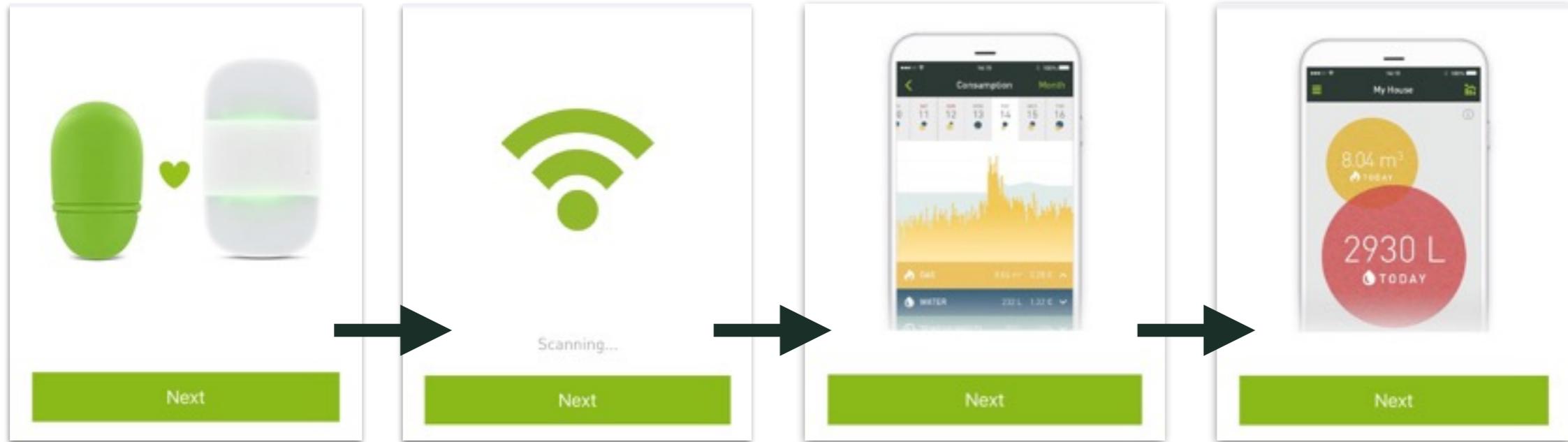
If you can't find the **pulse weight** like on this meter, **measure it by tapping eg 1 L of water and check the Bubbles.** Did it add 1L, 2L, ..? (this one is 2 pulses per L btw!)



We're almost done with the installation



Save the settings to Smappee and start tracking your consumption. Repeat this procedure to install another meter.



Your **Smappee-GW** will try to locate your **Smappee-Energy** (only if you have one).

Your Smappee-GW can provide you **real-time notifications in case of a Leak or Excessive consumption**. It will use the Internet connection of your Smappee-Energy to notify you!

Your **gas and water rates are configured to default prices**. You can change them later.

Smappee has **activated the Leak detection** to “medium” level by default. You can change this setting later.

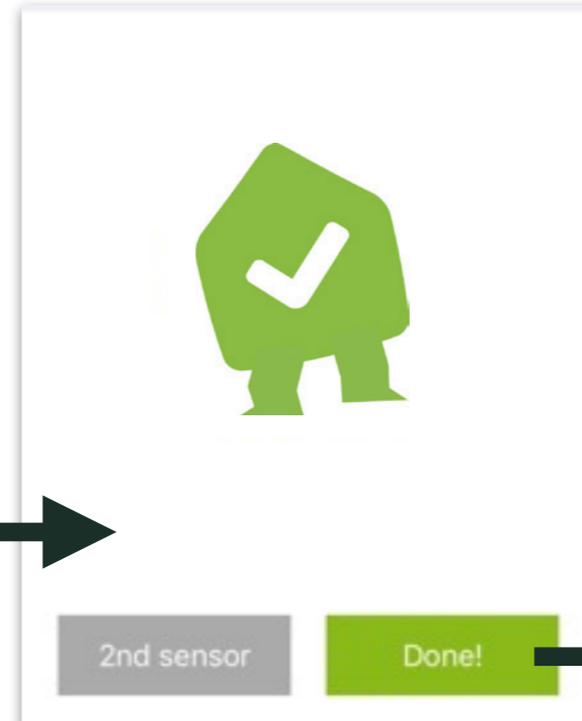
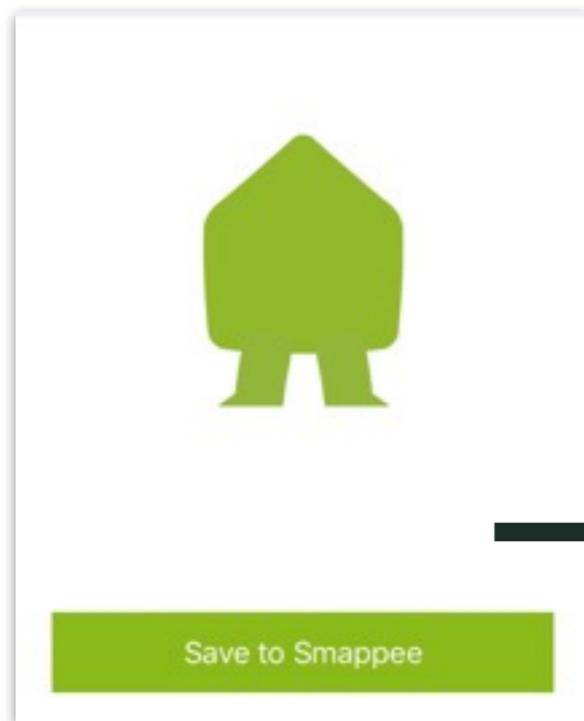
8



Save the settings to Smappee and start tracking your consumption.

Repeat this procedure to install another meter.

smappee



Save the configuration to your Smappee-GW using Bluetooth and to the Smappee Cloud using your phone's Internet connection. You should have Internet connection working!

You're done with the first sensor. **Unless you want to install the second sensor** now as well. You can always come back via the "Settings" menu.

Start tracking your consumption now. Check your consumption and configuration. **Tap some water and check the number of Liters in Water bubble.**

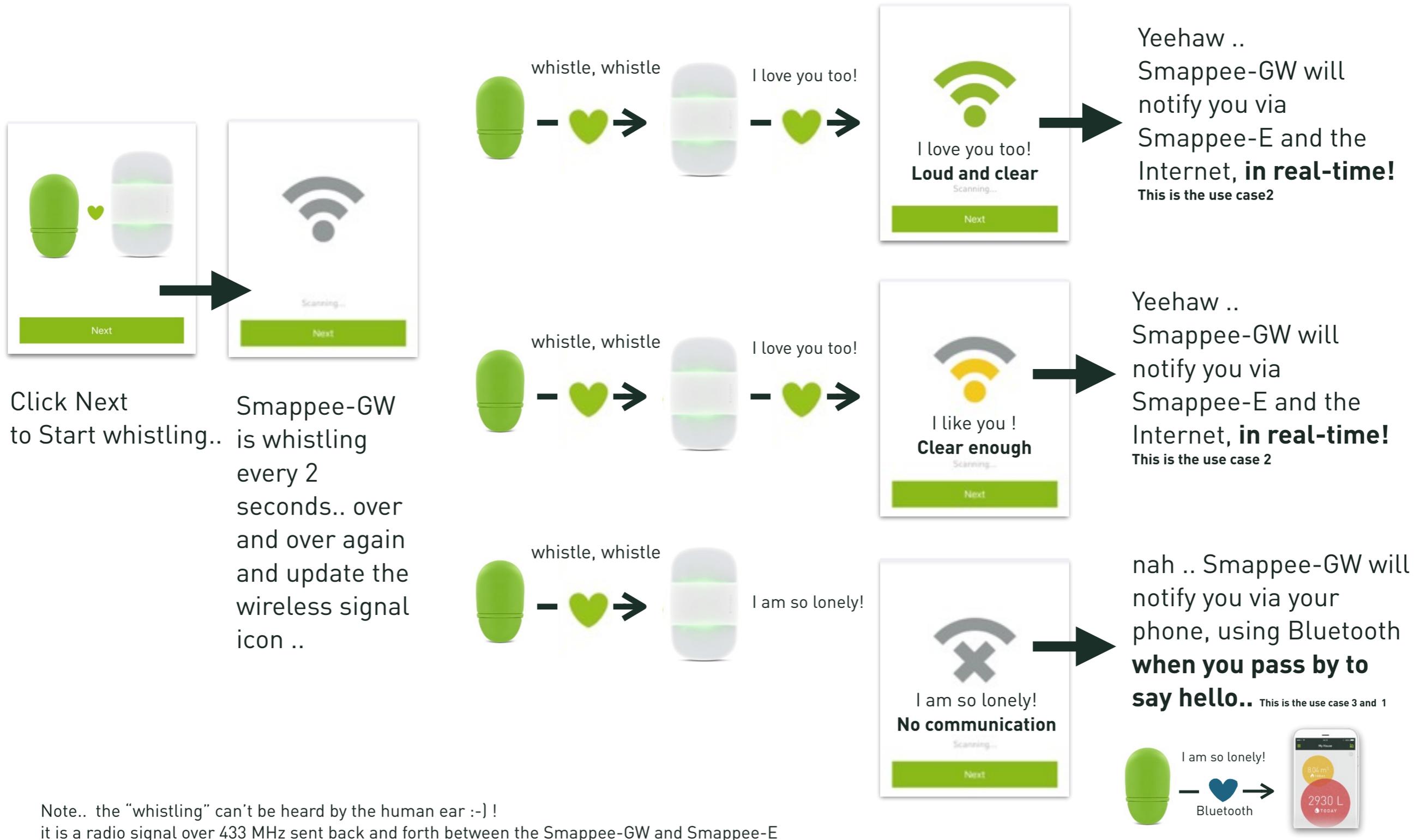
How does Smappee notify me?

Communication via Bluetooth?
via the my Smappee Energy?
via my smart phone and App..
How does work?

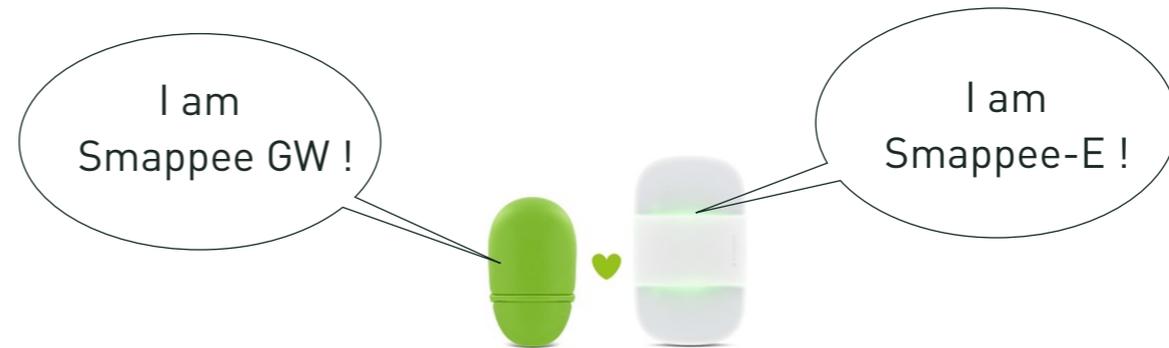
Smappee Gas & Water communication test



The "Pair me" widget will test the communication between your Smappee-GW and Smappee-E



How does Smappee-GW notify me?



There are 3 possible use cases:

1. You have **a stand-alone Smappee Gas & Water only** (thus no Smappee Energy)
2. You have **both a Smappee Gas & Water and a Smappee Energy. They are very close** to each other (20-30 meters range)
3. You have **both a Smappee Gas & Water and a Smappee Energy, but they are far away from each other.** There is no chance that they could communicate with each other using their built-in radio.



The sounds that frogs make are not what you'd expect. Did you know that there are frogs that chirp? Others can **whistle, croak, ribbit, peep, cluck, bark** and grunt.

Smappee Gas & Water communication



The Smappee Gas & Water **operates 3 years with 2 AA batteries.** This is performed by extremely performant, low energy sensors, hardware and firmware! As you now, the optical sensor creates a continuous light beam to detect the reflecting dial or the spinning hand and count the rotations in order to log your consumption. This requires a lot of engineering to avoid draining the battery in a few days.

It would also not be possible to use smart phone GSM technology to communicate and operate years with only 2 AA batteries. WiFi also consumes too much power and would only work a few days. So how does it work then?

At Smappee we have **chosen to use two distinct Radio technologies**, to transfer Smappee GW's data to you, to your smart phone or tablet:

- **Bluetooth 4.0** (Low Energy mode)
- **433 MHz** (as already used by the Smappee Energy to control the Comfort Plugs)

First of all most smart phones and tablets have built-in Bluetooth. Now Bluetooth has special modes of operations, called Bluetooth Low Energy, to lower the power consumption to a maximum. It has proven to be very good and as it allows any phone to collect data from the Smappee GW, we designed the Smappee GW with this Bluetooth Radio built-in. The downside of Bluetooth however is the very limited range of 7 meters. In most cases it would not be able to communicate with your Smappee Energy. This is the reason why we **designed the Smappee GW with a second Radio, a 433 MHz radio with a longer range of 20 to 30 meters.** In most cases enough within domestic environments.

Smappee Gas & Water communication



There are 3 possible use cases:

1. You have a **stand-alone Smappee Gas & Water only** (thus no Smappee Energy)
2. You have **both a Smappee Gas & Water and a Smappee Energy. They are very close** to each other (20-30 meters range)
3. You have **both a Smappee Gas & Water and a Smappee Energy, but they are far away from each other.** There is no chance that they could communicate with each other using their built-in radio.

Smappee Gas & Water communication 1



Why is it useful to let Smappee GW communicate with my Phone? (use case 1)

The Smappee-GW will chirp every second, using so called Bluetooth beacons. These are small signals to notify Bluetooth enabled devices that another Bluetooth device is within close proximity. When your phone hears the “chirp”, it will try to find out which of the available Apps can handle this “chirp”.

In the case of the Smappee-GW, the **Smappee App will stand up and take advantage of being close to the Smappee-GW to interrogate it and request all stored hourly consumption values, as well as the total consumption for the day (since midnight).**

The Smappee App will **update the Bubbles** in the real-time home screen with your consumption for today, thus far **and upload the collected hourly consumption values to the Smappee cloud.** The Cloud software will archive and analyse the values. It will store the values, calculate the costs, your daily, monthly and yearly totals and allow you to check those values at any time via your App’s Usage menu.

You will be notified in case of Leaks and excessive consumption. However, not in real-time as you have to be in proximity of your Smappee-GW (7 to 10m) in order to collect the consumption values. That’s generally fine for Leaks, but not for sudden, excessive consumptions (eg broken pipe ..)

Smappee Gas & Water communication 2



Why is it useful to let Smappee GW communicate with my Smappee Energy? (use case 2)

The Smappee-E(nergy) is connected to the Internet via its built-in WiFi. We have added functions to the Smappee-GW and Smappee-E to let them communicate with each other in real-time! Yes real-time!

Each time the Smappee-GW detects a “pulse” (spinning hand or reflecting dial), it will bark the total meter read it keeps track of and let the Smappee-E hear it (with the 433 MHz radio). The Smappee-E can store those “barks” (“Hey the meter is at 00012,34 now”) and even create very detailed 5 minute consumption graphs that will allow you to understand how much water you just used to shower, to flush the toilet, etc.

The Smappee-E pushes these 5 minutes consumption values to the Smappee cloud where they are archived and analysed. When your phone or tablet connects to the Smappee Cloud (by means of the Smappee App), it will get the latest consumption data! Real-time values.

As soon as the Smappee Cloud receives updates from your Smappee-GW (via Smappee-E), it analyses the values for Leaks and for Excessive consumption. **In case of excessive consumption** (eg 150 L in 5 minutes ..) the **Smappee Cloud will notify you via your Smappee App and phone with a “Push message” Alert.** At least if you allowed Smappee to send you notifications. Which we think you should.

Smappee Gas & Water communication 3



Why is it useful to let Smappee GW communicate with my Smappee Energy? (use case 3)

You have both devices, a Smappee-E connected to the Internet via the WiFi and the Smappee-GW. However, you're unsure if they can hear each other as the range is close to 20 or 30 meters.

To verify how well both devices communicate with each other, we added the "Pair me" function. In the case you already installed your Smappee-E and you are adding the Smappee-GW, using the wizard, then the "**Smappee-GW LOVES Smappee-E**" screen will be presented to you.



This time Smappee-GW will whistle to Smappee-E and try to hear the echo "I love you too!" sent by Smappee-E.

Leak detection, Rates..

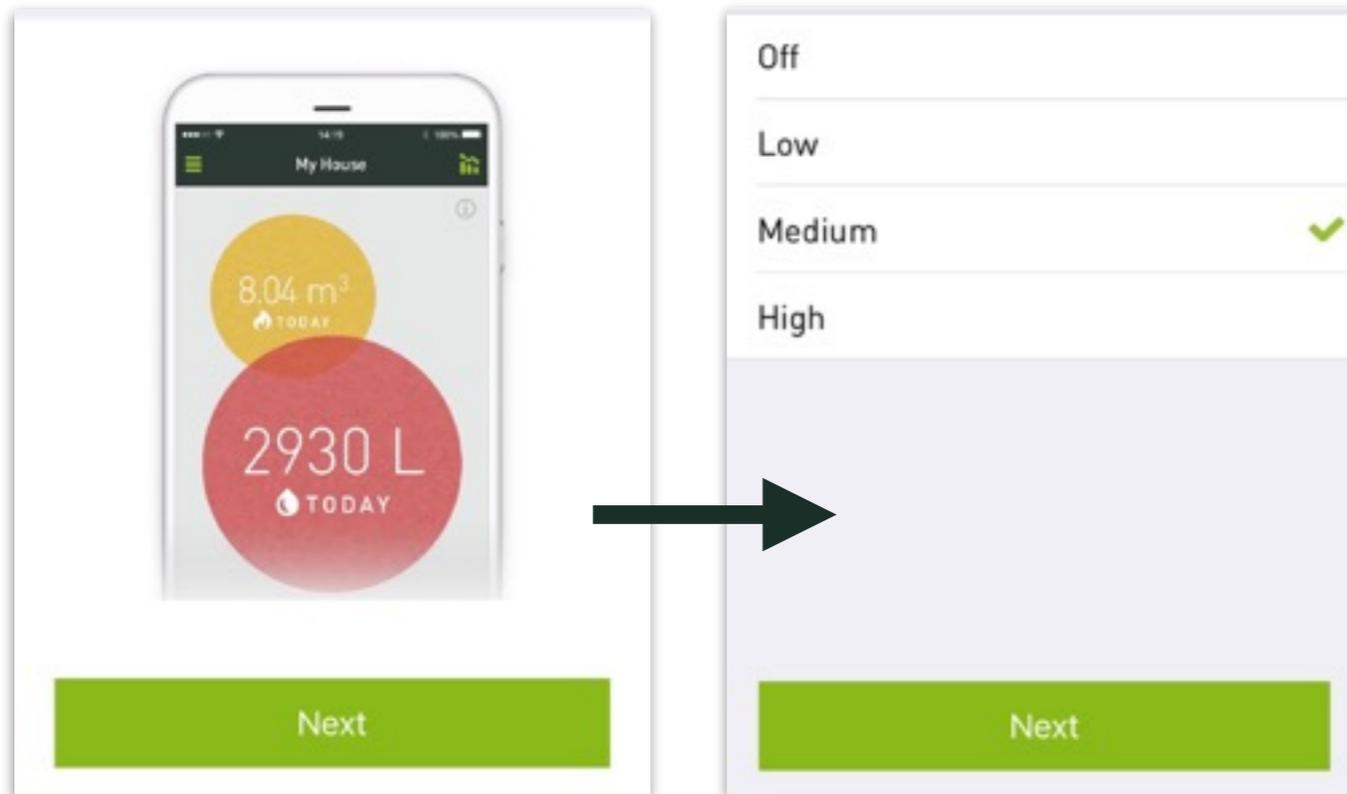
How does this work?

Leak detection

Excessive consumption?

I want to enter my rates for gas and water!

Leak detection for Gas & Water



OFF: no leak detection

LOW: No consumption, during 1 hour per sliding 24 hour = no Leak!

MEDIUM: No consumption, during 2 successive hours per sliding 24 hour = no Leak !

HIGH: No consumption, during 3 successive hours per sliding 24 hour = no Leak!

Leak detection and “Excessive” consumption alert are turned on automatically during initial configuration. Leak detection sensitivity can be modified anytime, via the “Settings” menu.

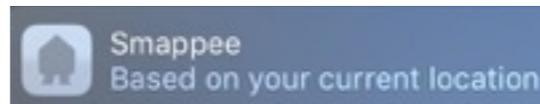
Excessive consumption for Gas & Water



“**Excessive**” consumption alert is turned on automatically during initial configuration. Note that you will only **receive real-time alerts** when your Smappee Gas & Water can talk to your Smart Phone by using your Smappee Energy as a gateway to the Internet.

If you don't have a Smappee Energy, you'll still get the “Excessive consumption” alert, but not in real-time.

You will get the Alert when the Smappee App on your smart phone has collected the consumption data from your Smappee Gas & Water, using BlueTooth. Thus when your phone got in range.

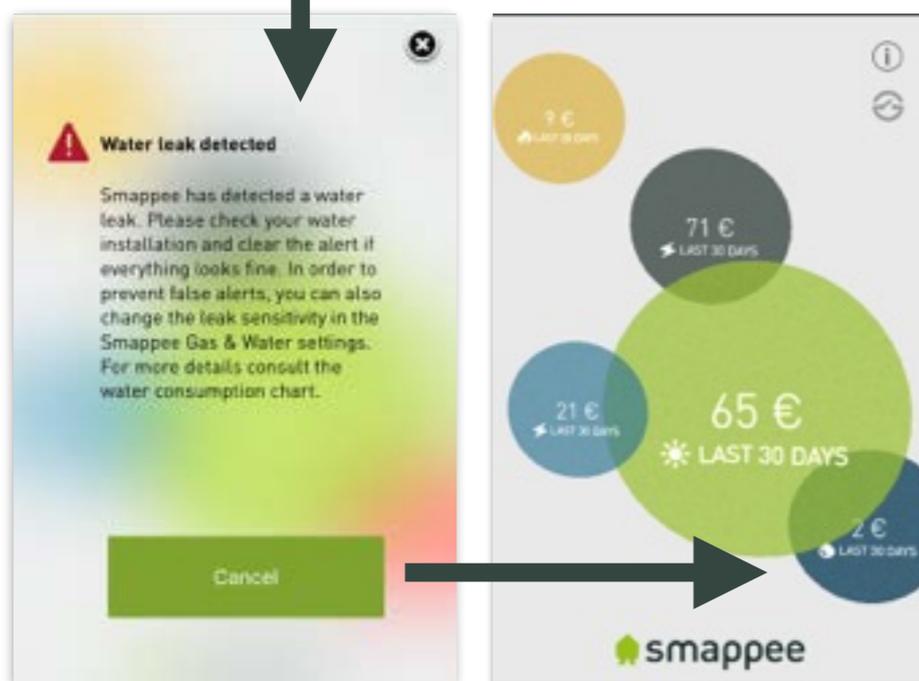


The consumption data is then uploaded to the Smappee Cloud and immediately analysed. The Smappee Cloud will notify your phone (note: only if you allowed Smappee to **provide you push messages**)!

Excessive consumption alert occurs as soon as you consume more than **150L of Water** and/or **more than 5 m³ of Gas** without **interruption** of the flow.

A typical household Gas consumption would be under 10 to 20 m³ for a whole day. A shower takes typically from 25L to 60L, a bath is 120L, hence the 150L threshold.

Click the red “ALERT” Bubble to get more information and Cancel the Alert



Excessive consumption for Gas & Water



Water leak detected

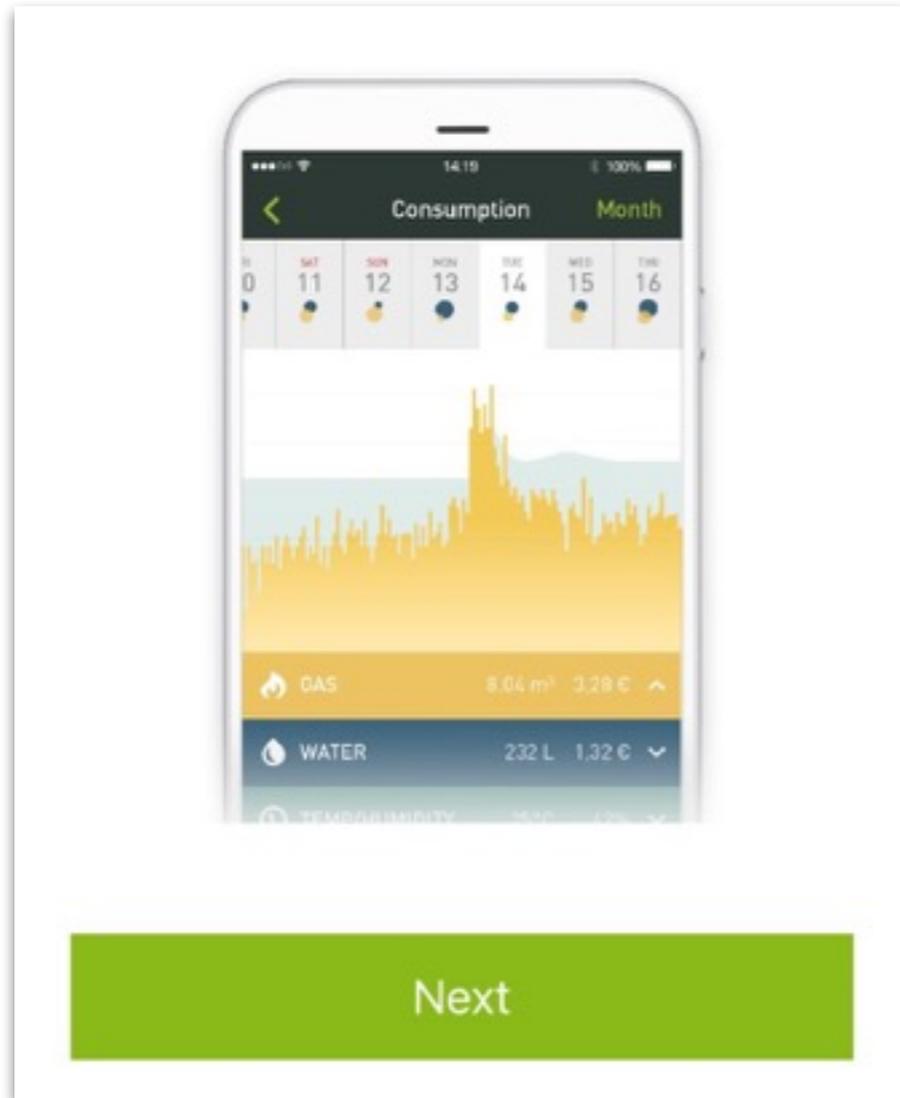
Smappee has detected a water leak. Please check your water installation and clear the alert if everything looks fine. In order to prevent false alerts, you can also change the leak sensitivity in the Smappee Gas & Water settings. For more details consult the water consumption chart.

Cancel

Rates, Prices of Gas & Water



Save the settings to Smappee and start tracking your consumption.
Repeat this procedure to install another meter.



Gas & Water prices, rates can be edited anytime, via the “Settings” menu.

Following rates are configured as default



GAS AND WATER RATE		
	Gas	0,55 €/m ³
	Water	0,0043 €/L

Check and modify the configuration

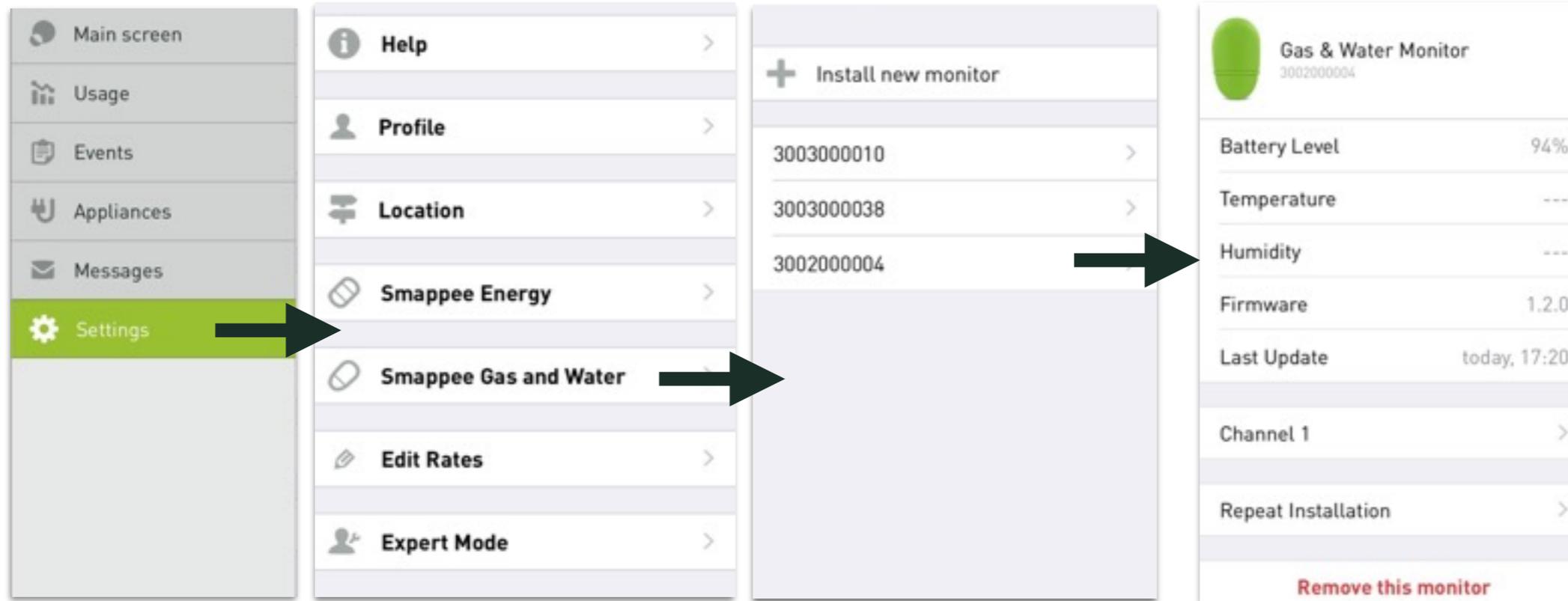
My Smappee-GW is installed and configured, but I want to check or modify the configuration. How?

Modify the configuration

verify and modify your configuration via the “settings” menu



Save the settings to Smappee and start tracking your consumption. Repeat this procedure to install another meter.



Goto Settings in the main menu, then Smappee Gas and Water. Select the smappee you want to modify (by the serial number). You can also **install a new Smappee GW**

see further ..

Modify the configuration

verify and modify your configuration via the “settings” menu



Save the settings to Smappee and start tracking your consumption. Repeat this procedure to install another meter.

	Gas & Water Monitor 3002000004
Battery Level	94%
Temperature	---
Humidity	---
Firmware	1.2.0
Last Update	today, 17:20
Channel 1	>
Repeat Installation	>
Remove this monitor	

Check the level of the **Batteries**, the **Temperature and Humidity** as measured by the Smappee GW’s internal sensors.

Verify the **Firmware** here.

The “**Last Update**” field indicates the timestamp of the last connection / communication via Bluetooth.

Click on “**Input 1**”, or “Input 2” (only visible if it has been configured via the wizard) **to check or modify the configuration** of the Input and attached sensor.

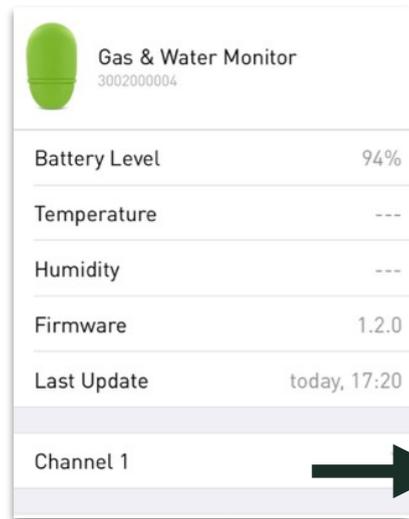
Repeat the installation, using the wizard.

Remove the Smappee-GW here! Historical data will still be visible in the Usage screen.

Modify the configuration of Smappee-GW

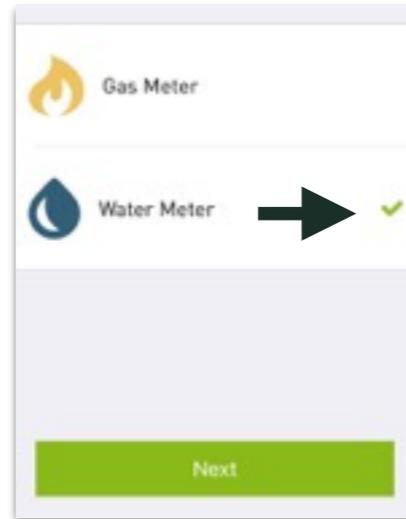


verify and modify your Smappee-GW's configuration via the "settings" menu

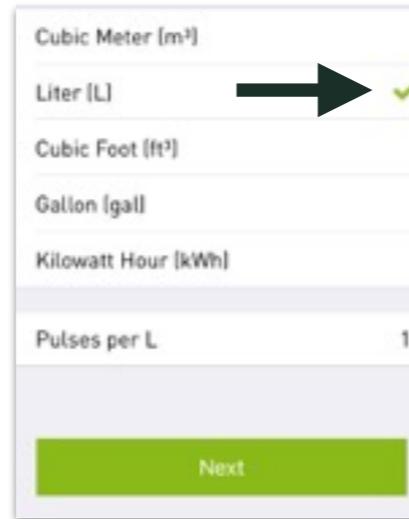


Click "**Input**" to check or modify the configuration of the Input.

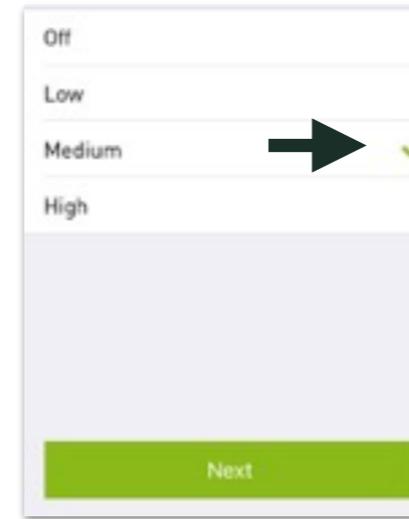
Changing these settings is **only possible when connected** over Bluetooth to your Smappee-GW



Check or modify the **type of meter** you connected to this input

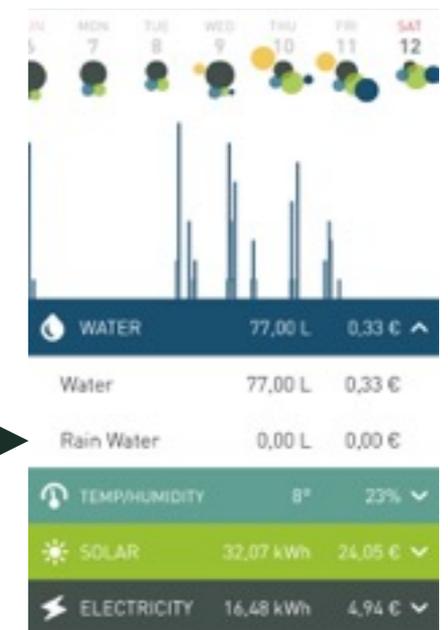


Check or modify the the **unit of measure** and the **pulse weight**



Modify the **sensitivity of the Leak detection** or even turn it off.

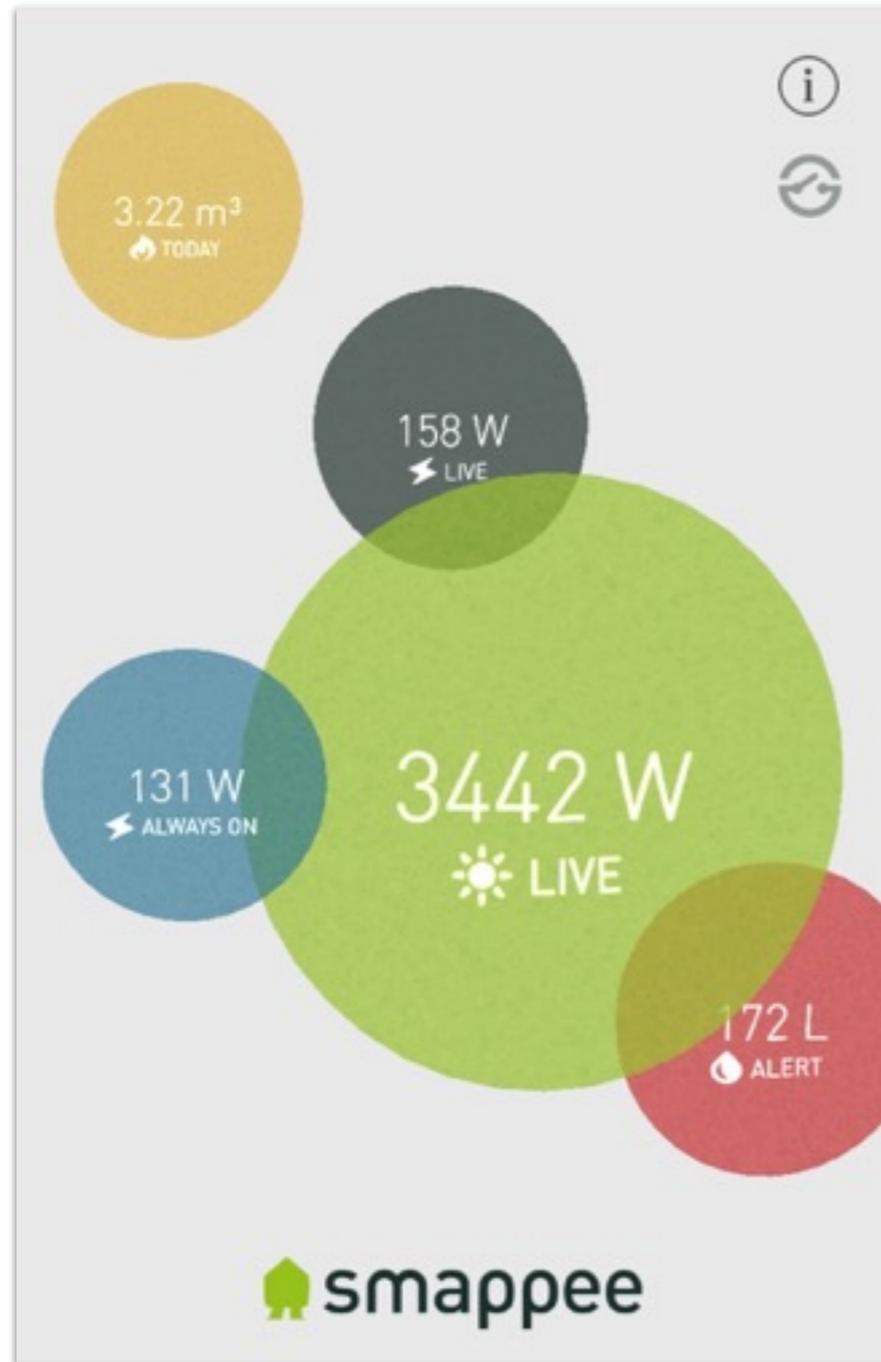
Name this sensor. This is useful if you have multiple meter of the same type ex. rainwater, city water, ..). The usage will be shown per sensor!



The Home screen with the Bubbles

Understand the Bubbles

Understand the Bubbles

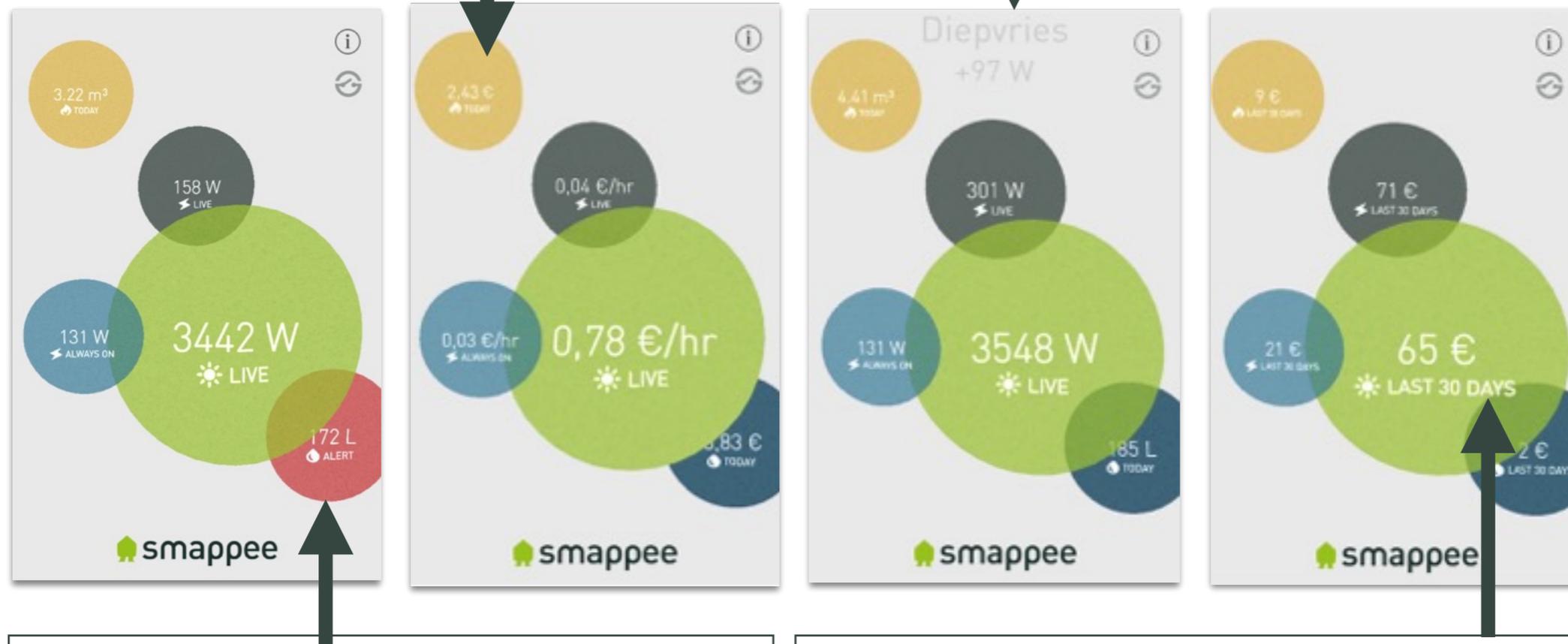


-  Gas Consumed (m³, ft³, CFH,..)
-  Water Consumed (m³, L, Gallon, ..)
-  Electricity Consumed (kWh)
-  Electricity Consumed as “Standby Power” (kWh)
-  Solar, Wind, Battery, .. Produced (kWh)
-  Alert!

Understand the Bubbles

Gas Bubble will be “shaking” to indicate that there is consumption right now!

“Found and Labeled Appliances” will be shown here when they turn On and Off. “Deep Freezer, +97 W” (97 W is the Wattage)



Water consumption Alert..
Total consumption for today is 172 L.
This value is reset to 0 L at midnight,
every day again

Tap any Bubble and see the content swap from Real-time Power (today's consumption for Gas/Water), to Cost per Hour, to Cost for last sliding 30 days (+/-month) so you can control you monthly budget, every day.

How to read the graphs?

Understand the graphs.

Select days, month, year totals for Gas, Water, ..

Bars of 5 minutes and 1 hour values.

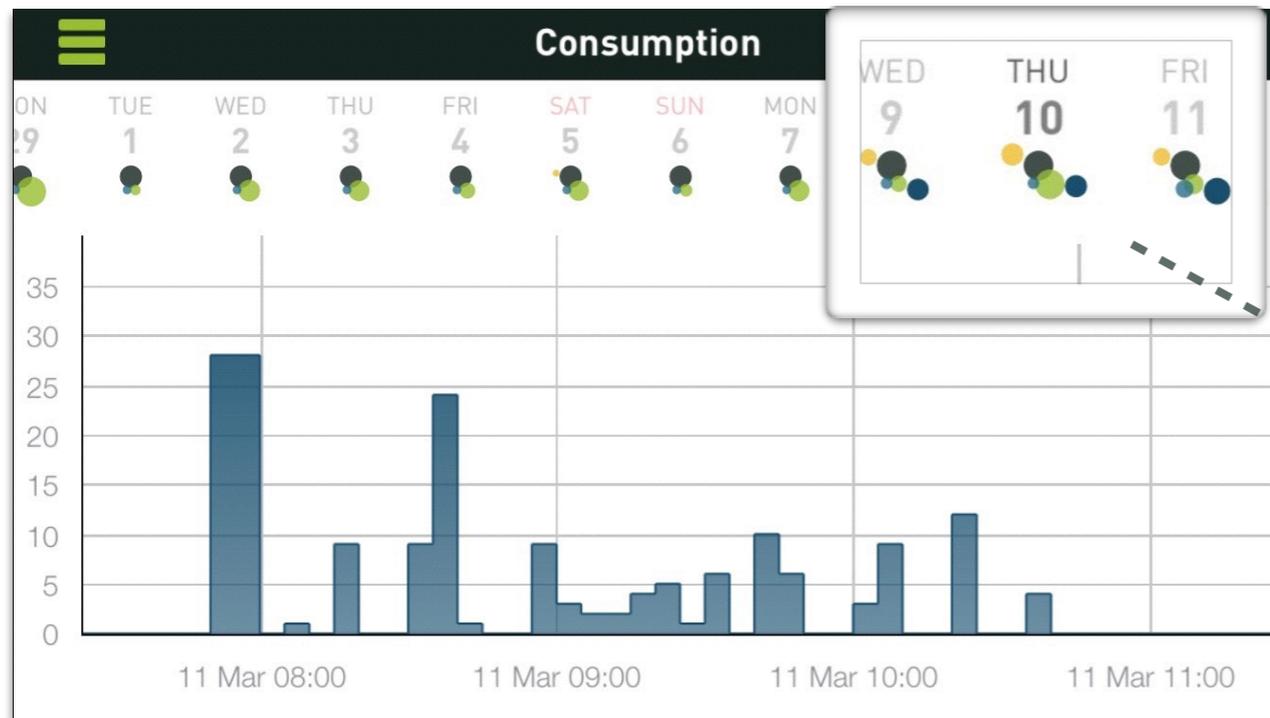
Read the Graphs!

The selected day THU 10th is set to Bold



The size of the Bubbles indicates how much Water, Gas, Electricity, .. has been consumed or how much Solar has been produced for that specific day!

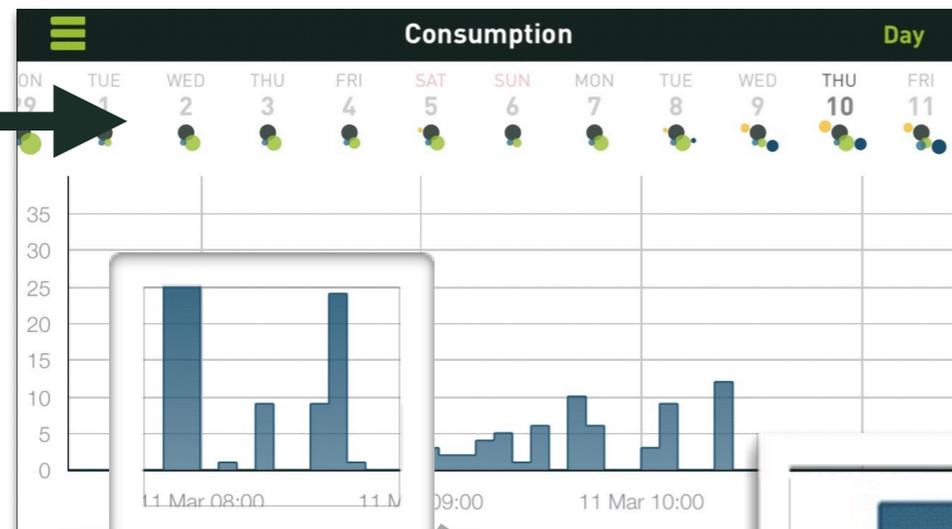
You can quickly compare with other days and check the days with high consumption.



-  Electricity Consumed (kWh)
-  Electricity Consumed as "Standby Power" (kWh)
-  Solar, Wind, Battery, .. Produced (kWh)
-  Gas Consumed (m³, ft³, CFH,..)
-  Water Consumed (m³, L, Gallon, ..)

Check the Graphs!

Select the Day you want to check by scrolling Left and Right in this band with dates and bubbles. Click the date to change to that day. The selected day is set to Bold.



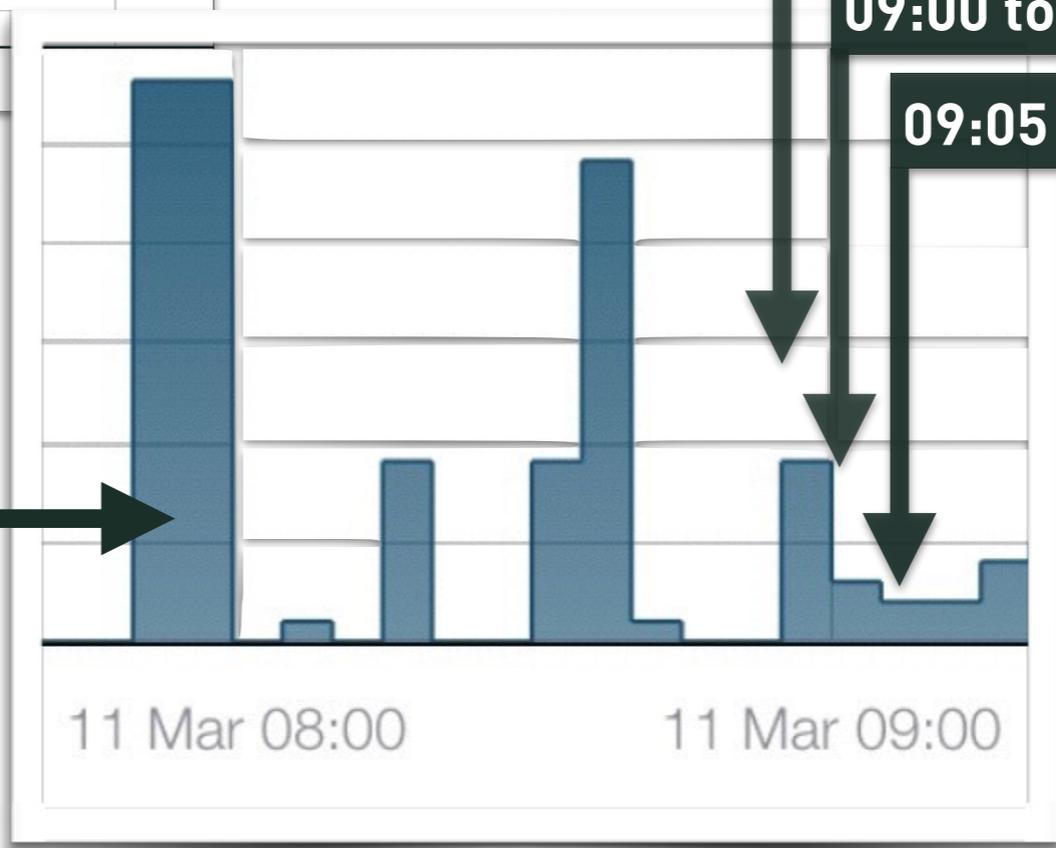
Each Bar indicates the Water consumption in the 5 minutes period

08:55 to 09:00

09:00 to 09:05

09:05 to 09:10

Shower from 07:50 to 08:00 ?
2 bars of x 25L = 50L



Gas & water meters .. help!

Continental Europe (metric) and North America, UK, ..
(imperial meters)

Look for a number of indications on the meters..

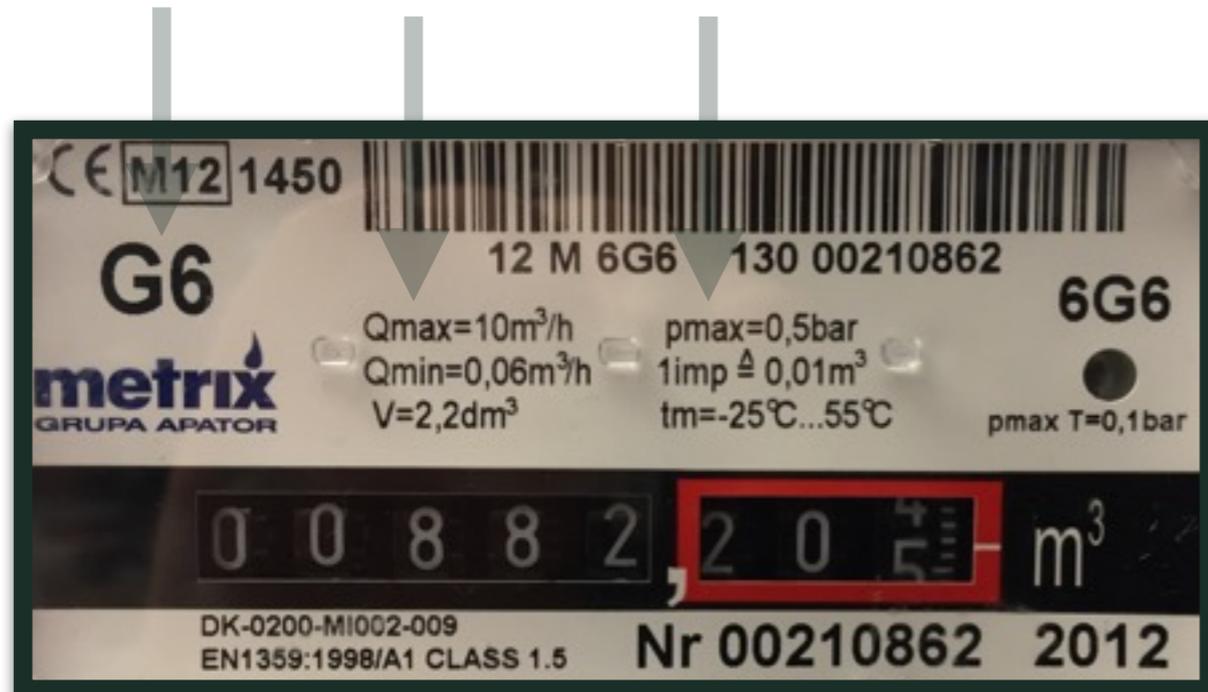
Gas meters in continental Europe



← Typical **Gas Meter Europe**

Look for indications like:

- “G4”, “G6”
- Qmax, Qmin, m³/h
- Temperature in °C
- pressure in bar.



← The volume or quantity of Gas consumed is generally measured in **m³** (metric)

Gas meters in North America, ..



Typical Gas Meter in North America, UK

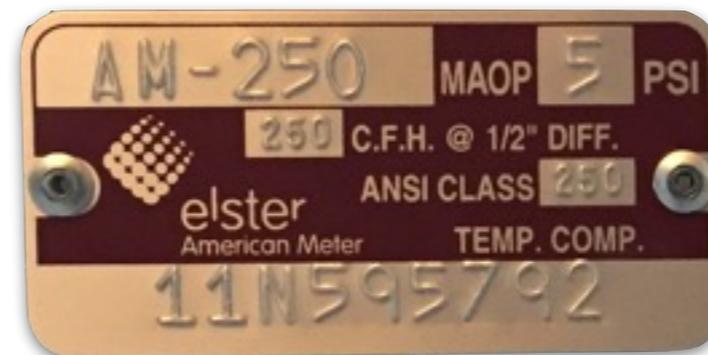
Look for indications like
“TEMPerature COMPensation”

The volume or quantity of Gas consumed is generally measured in Cubic Feet (ft³), C.F.H. (Cubic Feet Hour, ..)

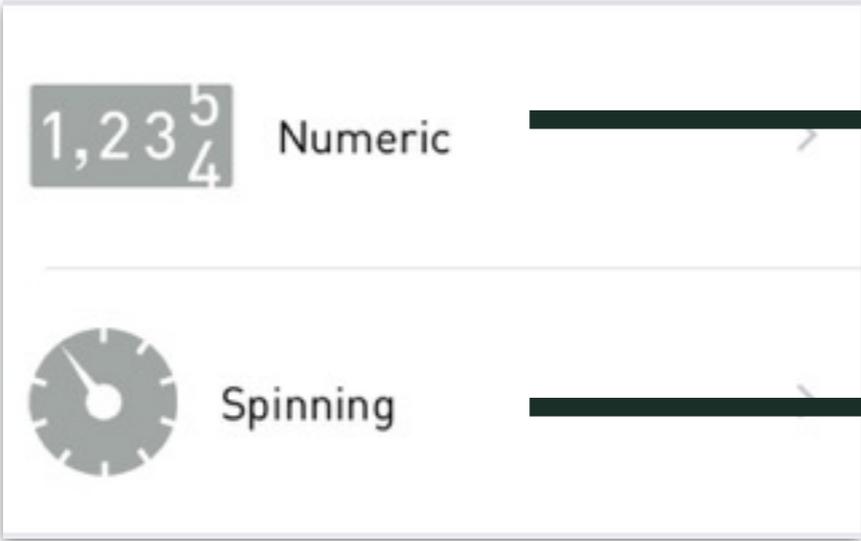
“Operating pressure” in PSI



Spinning hands with marks like “half foot”, “two feet” per spin, per rotation



Most water meter have spinning hands.



Water meters with numeric dial, but **without spinning hands**



Water meters **with spinning hands**

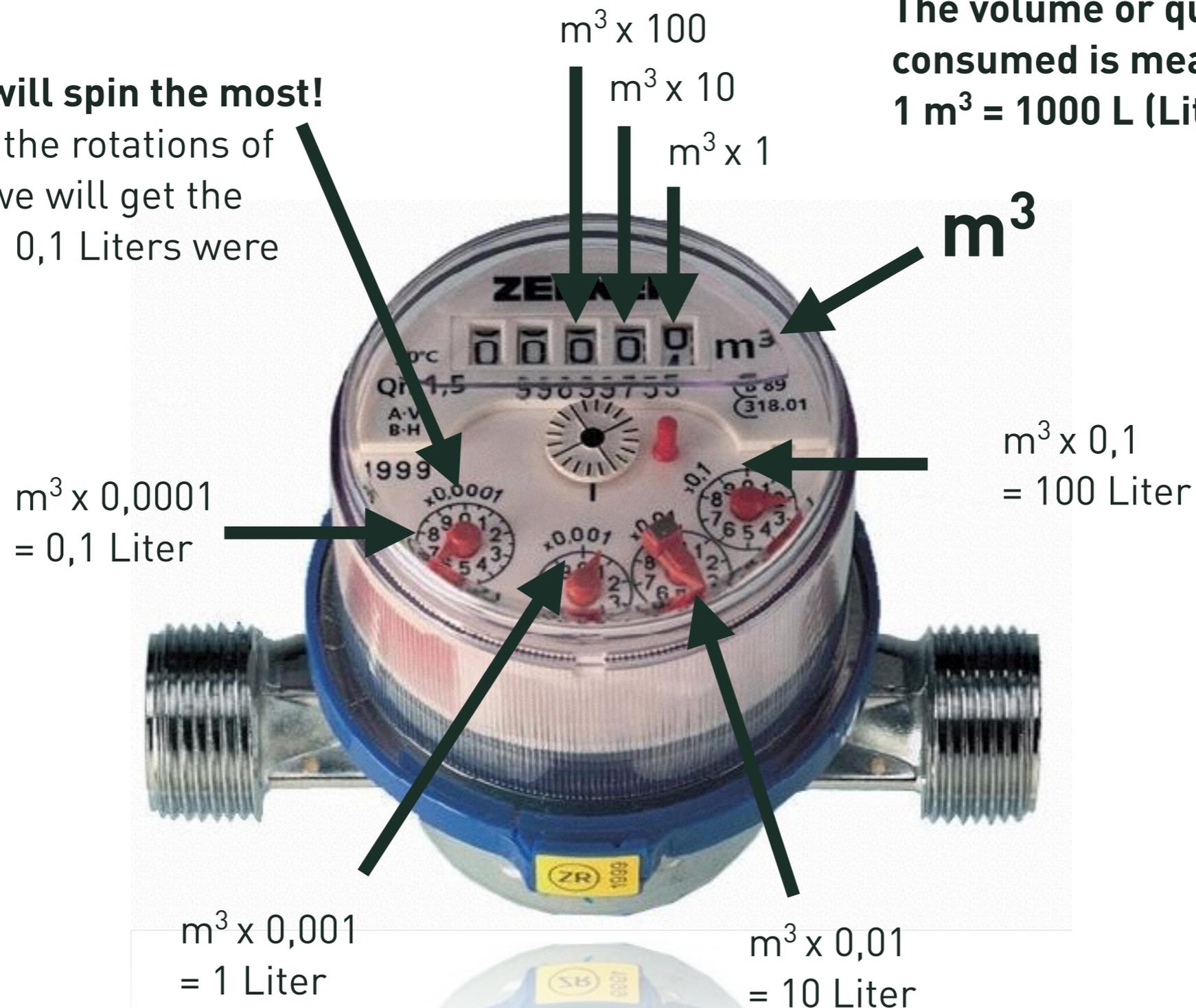
Water meter with a spinning hand



This hand will spin the most!

If we count the rotations of this hand, we will get the number of 0,1 Liters were consumed

The volume or quantity of Water consumed is measured in m^3 .
 $1 m^3 = 1000 L$ (Liters)



Technical specifications

Specifications

Declaration of conformity

Declaration of Conformity



Marsh 10th, 2016

We, Smappee nv Evolis 100, 8500 Kortrijk Belgium,

....

Also the wireless stuff !!!

BlueTooth ..



User manual and support
smappee.com/support



Stay tuned and follow us on Facebook, Twitter and LinkedIn
for Smappee sustainable energy news.