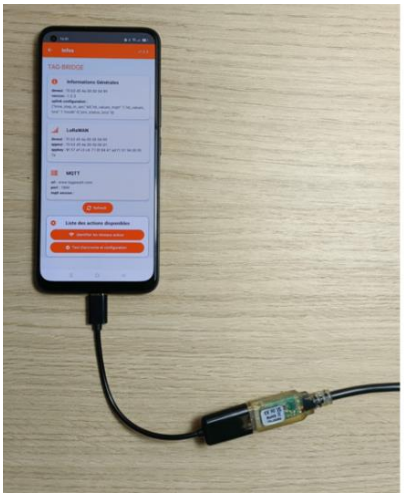
Edito

Hello,
The Fludia Newsletter is back with quite a few tips and ideas for now and for the future: An android app to check NB-IoT/LTE-M coverage, a question about LoRaWAN as a backup for an NB-IoT/LTE-M product, new wattag formats, 3D printed specific plastic mounts and reminders regarding units of measurement.

An android app to check NB-IoT/LTE-M coverage

Even though our products based on NB-IoT/LTE-M connectivity include a network discovery strategy, it seemed useful to develop **a dedicated tool to check** the **different available networks** and their characteristics. The tool consists of an android app that can be connected to an existing FM442 or tag-Bridge product through a specific FTDI cable.



The app can ask the modem to scan the surrounding networks (NB-IoT or LTE-M) and report the results, including the list of available networks and associated quality indicators.

The app can also be used to configure the network discovery strategy of the product (priority to NB-IoT or priority to LTE-M…).

LoRaWAN backup for an NB-IoT/LTE-M product? Makes sense?

Our plug-and-play submetering system, tagawatt, is already multiprotocol (LoRaWAN and NB-IoT/LTE-M), but the choice must be made at the time of configuration.

Our FM442 optical readers (and pulse counters) are exclusively NB-IoT/LTE-M… so far.

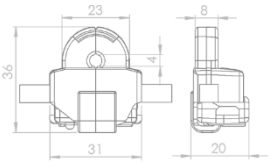
So, we are wondering whether it would make sense to work **on a multiprotocol option** that could automatically **switch to an alternative technology**. For example, this could be a product with a default NB-IoT/LTE-M configuration, able to switch to LoRaWAN in case it encounters connectivity issues.

Alternatively, it could be a strategy consisting of analyzing the different technologies available on-site during the first few hours, based on coverage quality and/or battery lifetime, and then selecting the best option.

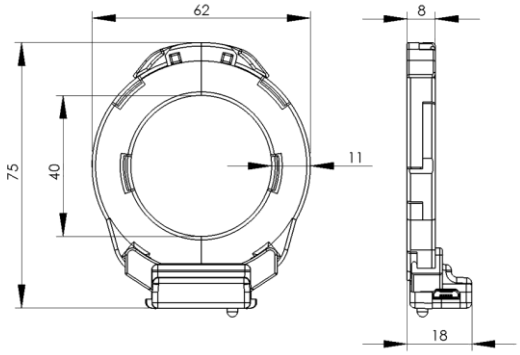
At this stage, we are just exploring ideas and seeing what comes back, so we would be very interested in hearing your thoughts (remarks, new ideas, possible use cases, and so on).

tagawatt: A peek at new wattag formats

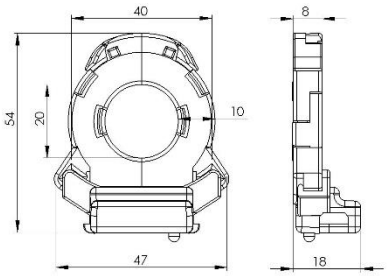
So far, the miniature Rogowski current sensors included in the tagawatt system were… miniature. However, in some situations, there is a need to measure larger conductors with higher max currents. Therefore, we have **designed two new formats**: **wattag_L** and **wattag_XL**. And always the same principle: two microUSB connectors to insert the sensor in the tagawatt chain of sensors.



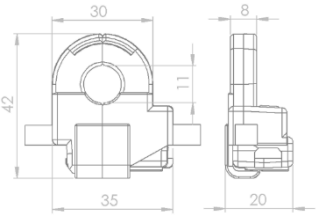
wattag_S



wattag_XL



wattag_L



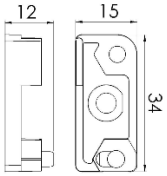
wattag_M

3D printed specific plastic mounts

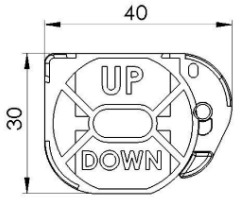
In the design of plug-and-play sensors, mechanical mounting plays an important role. Our products are generally manufactured using molded plastic parts, but it is increasingly common for variants to be developed for specific use cases, with **parts produced using 3D printing.**

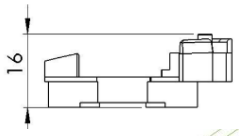
For example, the FM432ir and FM442ir products are supplied with the standard mounting part, made of molded plastic, but a second mounting part is also included, produced by 3D printing, to **facilitate positioning on certain mME meters**.

Standard plastic mount



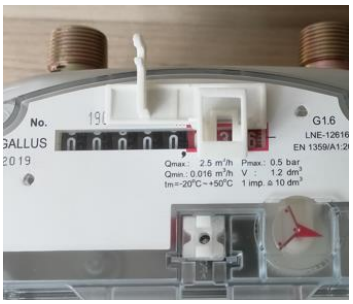
Specific printed mount



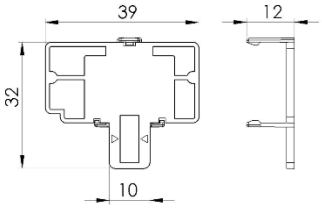


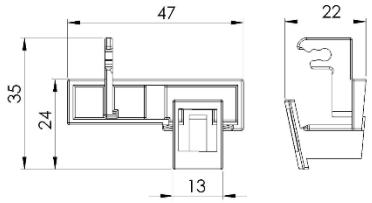
Another example is the case of the FM432g-n and FM442g-n products, for which an alternative mounting part has been designed for certain gas or water meters (upon request).

Standard plastic mount



Specific printed mount



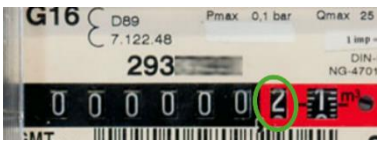


If you have ideas for mounting systems that could facilitate installation or operation, please feel free to share them with us. The process for creating new parts using 3D printing is much simpler and faster than for molded parts.

Constants, units, pulse weights, multiplication factors, etc.

Here is a brief overview of topics related to units of measurement and any multiplication or division factors that may need to be applied to obtain the desired numerical values:

- **Measurement of gas or water consumption** (using FM432g-n LoRaWAN and FM442g-n NB-IoT/LTE-M products): it is recommended to position the reading head in front of the second-to-last digit. However, depending on the meter, this digit may correspond to 0.01 m³, 0.1 m³, 1 m³, or 10 m³. It is therefore necessary to apply the appropriate multiplication or division factor to the received data in order to obtain values in m³ (or possibly in dm³).

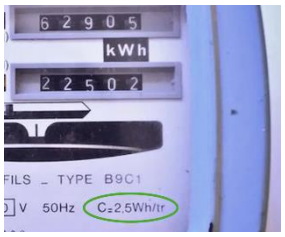


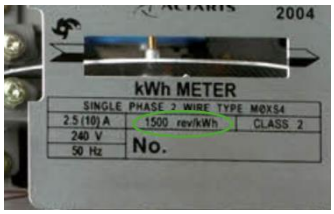
- **Measurement of electricity consumption on an electromechanical meter** (FM432e LoRaWAN and FM442e NB-IoT/LTE-M products): the received data will have to be multiplied by a factor depending on the meter constant.

  The constant is either **expressed in Wh/tr** (this constant diretly corresponds to the multiplication factor required to obtain values in Wh) **or in U/kWh** (the multiplication factor is equal to 1000 devided by the constant, to obtain values in Wh)

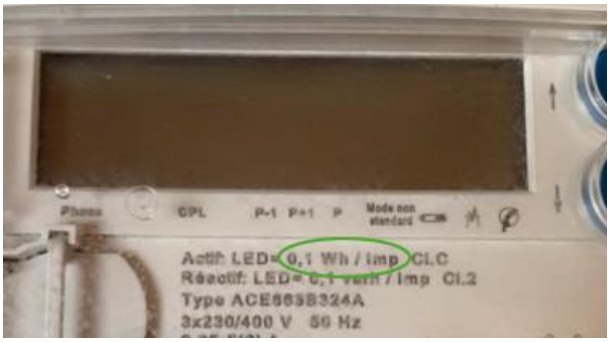
  If CTs are installed to reduce the current entering the meter, their ratio must also be taken into account (e.g. for CTs 300/5, the corresponding multiplication factor, 60, must be applied).

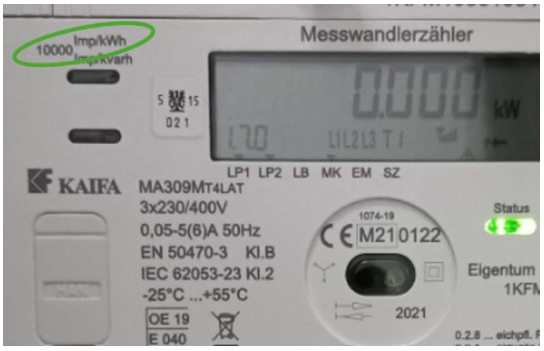
  For example the data received for a meter with 96U/kWh and 200/5 CTs will have to be multiplied by (1000/96)x(200/5)=416.67





- **Measurement of electricity consumption on an electronic meter with LED** (FM432e LoRaWAN and FM442e NB-IoT/LTE-M products): optical pulse weight, expressed in Wh/Imp must be used as a multiplication factor, possibly combined with CTs value if present.





- **Measurement of electricity consumption on an mME meter with IR port and SML protocol** (FM432ir LoRaWAN and FM442ir NB-IoT/LTE-M products): the unit for the collected measurements is now 1 Wh instead of 0.1 Wh previously.