Aranet Stem Micro-Variation sensor installation and configuration

1. Stem micro-variation detector connection to AC power supply

First sensor should be paired to Aranet PRO base station like any other sensor following guidelines in our Aranet Forum post: https://forum.aranet.com/aranet-solutions/what-would-be-correct-procedure-how-to-pair-sensors-to-the-aranet-pro-base-station/

As the detector part of the Aranet stem micro-variation sensor needs a constant AC power supply, then next user has to connect the sensor to the AC power source. As the sensor has 3 regional versions (European, North American and Russian), then the correct AC power supply should be connected:

1) For European (TDSPSD02) and Russian (TDSPSDR2) versions with voltage=220-240V and frequency=50-60Hz;
2) For the North American version (TDSPSDU2) with voltage=110-127V and frequency=50–60 Hz.

For connection to power supply 2-wire cable is necessary without ground wire termination. The sensor can be connected with a straight cable to some industrial power junction box or with a simple 2-wire power cable plug to any standard wall socket (as in the example below):
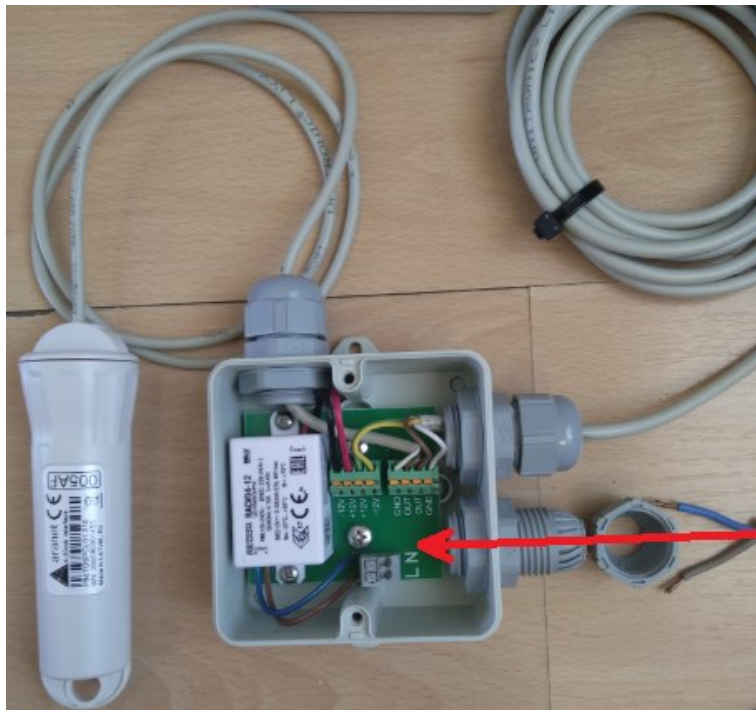
To make the AC power connection:

1) the sensor junction box where the 4-20mA interface is connected should be opened unscrewing 2 screws:

2) Then power cable should be inserted through the free cable gland opening:

3) And finally connecting power cable line (phase, "hot") wire to **L clamp** on the sensor board and neutral ("cold") wire to **N clamp**:

Once the AC power connection is made, the junction box can be closed, gland for the power cable tightened and AC power turned on for the sensor.

2. Sensor configuration in Aranet PRO base graphical user interface

To show the correct stem diameter value with the Stem Micro-Variation sensor it is necessary to configure it upon installation. The process can be done in the following steps:
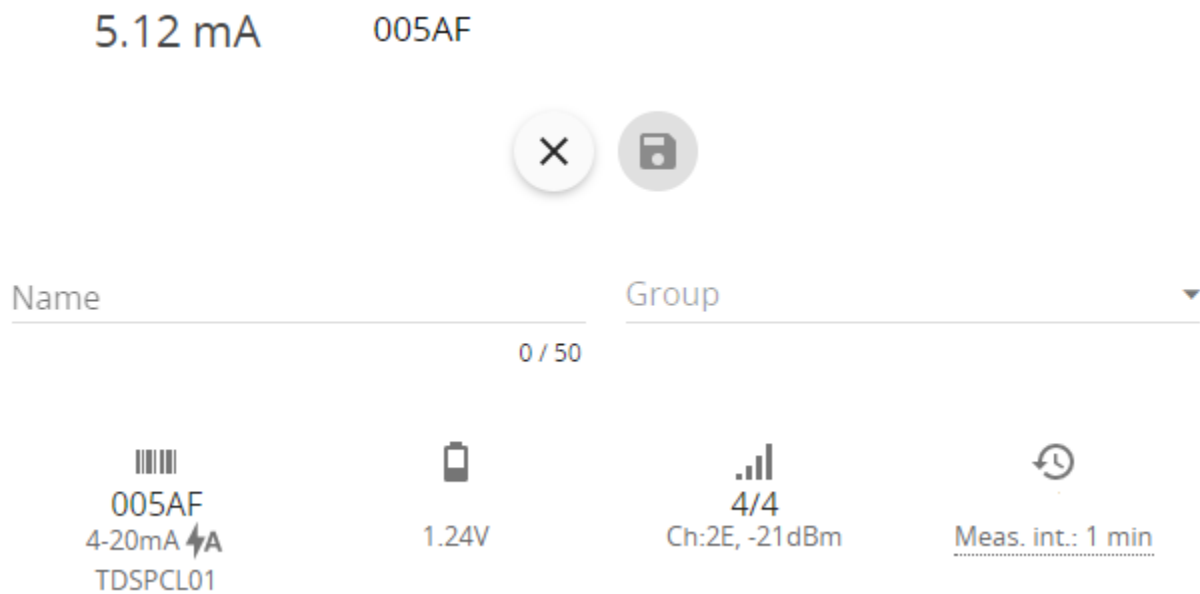
1. First existing stem diameter should be measured with a ruler or caliper (*in our example 8mm*):

2. Then sensor detecting element should be mounted on the stem:

3. Sensor electric current reading on Aranet PRO base station graphical user interface should be checked and recorded (*in our example 5.12mA*)

5.12 mA   005AF

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Name   Group ▼

0 / 50

005AF   1.24V   4/4   Meas. int.: 1 min
4-20mA ⚡A   Ch:2E, -21dBm
TDSPCL01

4. Next it is necessary to determine how much from the sensor measurement range (4–20 mA) is already used by the current measurement. Here from the recorded current value then minimal reading value = 4mA should be subtracted (*in our example 5.12 mA – 4 mA = 1.12 mA*)

5. Then subtraction value obtained in the previous point should be divided by 0.01mA that is the resolution step of electric current measurements (*in our example 1.12mA/0.01mA = 112*). This is the measurement range in step units that are already used by the sensor;

6. Next used electric current measurement step unit value should be multiplied by 0.003125mm that is the value of one measurement step unit in millimeters (*in our example 112*0.003125mm=0.35mm*). The obtained value should be rounded to 2 digits after the coma and it is the measurement range used by the sensor in millimeters (*in our example 0.35mm*);

7. Next, the used measurement range in millimeters should be subtracted from stem diameter measured in point 1 (*in our example 8mm-0.35mm=7.65mm*) and here we obtain stem diameter value that corresponds to 4mA electric current reading of the sensor

8. Then measurement value in millimeters should be determined that correspond to max electric current measurement value 20mA. Sensor measurement range in millimeters is 5mm, so this value should be added to the value obtained in point 7 to get the value corresponding to the 20mA electric current reading of the sensor (*in our example 7.65mm+5mm=12.65mm*)

9. Finally previously obtained millimeter values for 4mA and 20mA should be entered in Stem Micro-variation sensor **Conversion** configuration in Aranet PRO base station graphical user interface section **Sensors → SENSORS** after that user will be able to see sensor measurements in mm of the stem diameter:
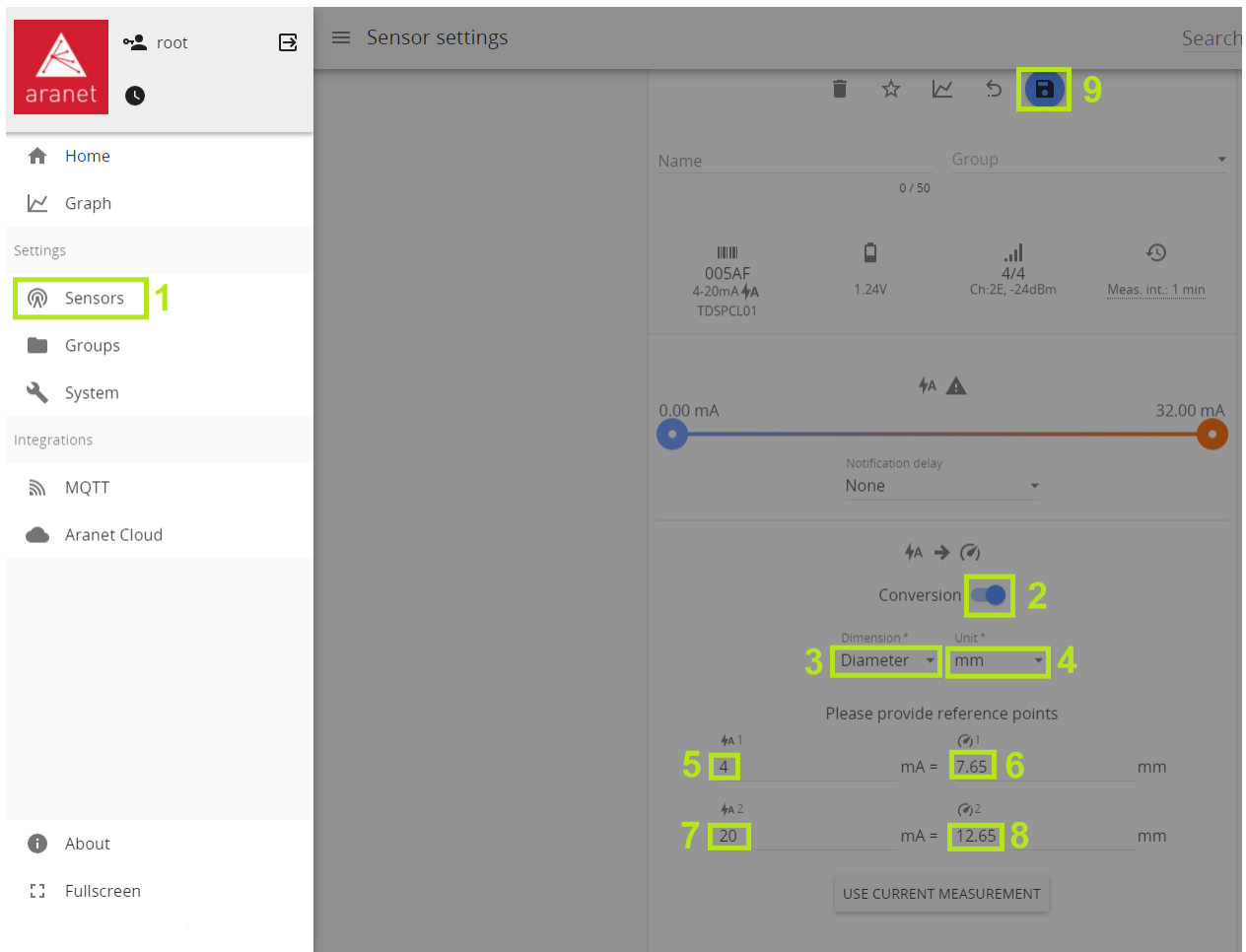
5.11 mA

7.995938 mm

005AF

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Name

Group ▾

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005AF
4-20mA ⚡A
TDSPCL01

🔋
1.24V

📶
4/4
Ch:2E, -31dBm

🕓
Meas. int.: 1 min