

Installation and commissioning

The installation and placement of the LoRa based ioLiving measurement devices, repeaters and gateway devices can be designed and verified using the LoRa signal scanner and LoRa beacon transmitter.

1. Turn on the scanner by connecting it to a powered USB port. If the scanner needs to be moved, it can be connected to a movable power bank with USB port.
2. Wait until the scanner has turned on and the display shows "Scanning begins". The scanner shows the received LoRa messages, listing them one below the other. There are 4 different columns in the scanner display. The first column shows the arrival time of the message from the start of the scanning. The second column shows the serial number of the measurement device that sent the message. Third column (pink A) indicates whether the message has been sent through the repeater. If there is no A, the message has come directly from the measurement device. The fourth column shows the signal strength of the message in decibels. Signal strength scale is as follows (note that the value is negative):
 - Signal strength more than -115 Good
 - Signal strength -116...-127 Fairly good
 - Signal strength -128...-134 Weak (some data will be lost occasionally)
3. LoRa beacon transmitter can be used to support the installation. It sends the LoRa message every 60 seconds, when normally the measurement devices send the LoRa message about every 10 to 15 minutes. Beacon's LoRa message is identical to the messages sent by the LoRa measurement devices. It helps designing and verifying the locations of measurement devices and Gateways. The beacon is turned on from the power switch. Its serial number can be found on the back cover sticker.
Note! It is important to switch off the beacon when it is not in use.
4. Once the suitable locations for measurement devices and gateways have been found, the installation can be done. Measurement devices' serial numbers and locations must be written down for the activation. Repeaters are not activated for the account. It is possible that the activation has been done before the installation and the measurement devices only need to be named during the installation.

Example of the Beacon and scanner use: The LoRa Beacon transmitter is left in the planned location of the measurement device. The scanner is taken to the planned location of the Gateway, where the Beacon's message signal level is determined.

Similarly, the functionality of the signal repeater location can be tested. Leaving the Beacon transmitter in the intended repeater location and viewing its signal strength with the scanner at the locations of the Gateway and the measurement device.