JouKo

Usage of the JouKo Countryside Central device

The device is meant to be used at existing homes to remotely switch off (and on) home appliances using 230 V (1-Phase) – 400 V AC (3-Phase) electricity, remotely.

The device is also used to measure the power in Watts through each of the 3 AC Phases separately, when the device conducts and gives AC power to the appliances connected to the device.

The device is equipped with a GSM SIM card that gives access to GSM 2G services. If one uses a 4G network, the device only asks for its 2G services.

When the device is new, an authorized electrician makes the new electrical connections to JouKo at Your home.

A connection that always is necessary, is the power connection to the Phase 1 , or L1 related screw of the internal screw connection. JouKo itself uses power from the *L1 in* line. To be able to get operating power, a connection to the home network is also required to the Neutral 1 in (N in) screw of the internal screw connectors . JouKo itself only consumes around 5 – 30 Watts of power. It is usually less than one common LED lighting bulb. But still JouKo can deliver to Your appliances up to 11 kW of three phase power.

JouKo leads the Protective Earth (PE) line of the house straight through itself. Therefor You must always screw the wires PE in and PE out (of the house) well to the internal screw connectors.

If You use Phase 1 only , the wires of the appliances are screwed to the L1 out and N1 out screws of the internal screw connectors.

If You use more Phases, then additionally (not alternatively) the L2 in and L2 out, and L3 in and L3 out connections can also be used.

The maximum allowed AC current from Lx in to Lx out is 16 A each. *The circuit of the house should then itself use 16 A max. fuses.* Of course 10 A house fuses are also possible.

Normally the switch on the device is always kept at the “ON” position. If the switch is at “OFF” then no remote control is possible and the appliances get power all the time. The service provider then sees that the remote control is off.

If it is necessary to update the internal software, then the new paper mailed SD Flash card contains the new software. When the switch is at “OFF” the yellow LED goes dark. You can then push with a thin and flat screwdriver to the end of the old SD card visible in the narrow hole. When You release the screwdriver, the old SD card moves outwards, and You can take it out with a pincer. Let the switch be at “OFF”. Push in the new SD card to the same position (up and down sides) than the old one was when You took it out. The new SD card will lock into place. Finally, turn the switch to “ON”. The yellow LED will light up.

The red LED means that the processor is ok and the device begins to contact the GSM network or is communicating with the cloud.

The green LED gives other status indications, described in the User’s Manual.

The Electricity company can remotely switch Your appliances connected to JouKo off and on, when both the yellow and the red LEDs are on, or the yellow LED on and the red one is blinking.

You can control Your switch-offs with the JouKo smartphone app. The Electricity Company suggests switch-offs, and You can see the suggestions with the JouKo app. You can then cancel beforehand the suggestions that are not feasible for You. Do the cancellations at least 40 minutes before the suggested switch-off time.

JouKo starts automatically again after power shortages.

JouKo withstands normal overvoltage spikes from the AC network, caused by lightnings.

Use a 880 – 1850 MHz antenna. A GSM 3G or 4G antenna also works fine.

The usage of the **JouKo City device** is similar. The connection to the cloud is then via the LoRaWAN network. You must be within a LoRaWAN network coverage, and You must have a service agreement with the LoRaWAN service provider. Use a 860 – 870 MHz antenna.

The software documentation of JouKo describes how to set the parameters for using the LoRaWAN network. You have to get the needed parameters from Your LoRaWAN network operator.

Within the EU (radio regulations) we have estimated that if the LoRaWAN base station has a good outdoors antenna and this antenna is situated on a high building (among the 20% of the highest buildings within Your neighborhood) then the distance from a room in Your house to the base station antenna can be up to 5 kilometers.

LoRaWAN has limited data transmission capability (in kilobits per second). A good service quality is possible only, if there are a small enough amount of LoRaWAN terminals serviced by the base station, and the average amount of data transmission from the terminals is low enough. Otherwise, new base stations should be founded.