



SKYENR1

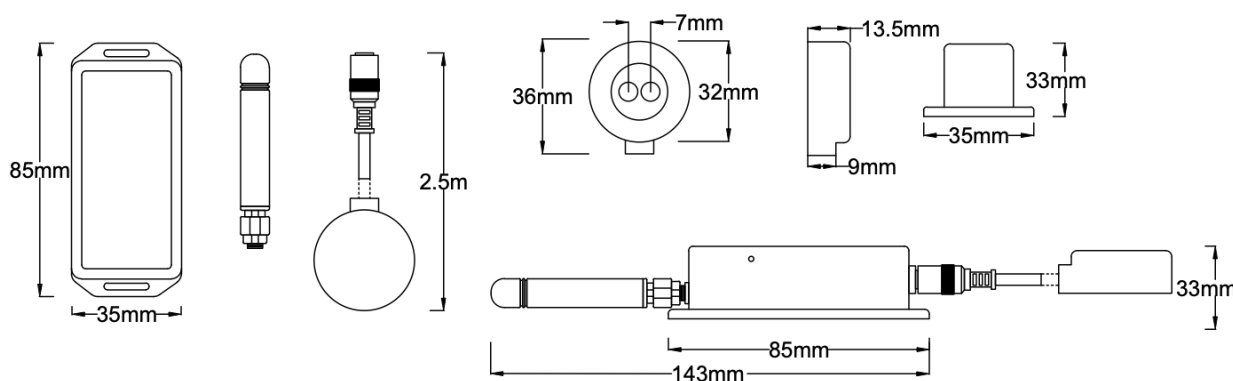
Energy Metering Module

Skysens SKYENR1 is an energy metering device with an optical port reader compatible with IEC 62056-21 protocol. It provides a cost-effective solution with its long battery life and integration capability with the existing meters.

- ✓ Completely programmable interface.
- ✓ Excellent long-term stability.
- ✓ LED interface.
- ✓ Easy attachment with accessories.
- ✓ Low power consumption compared with other technologies.
- ✓ Adjustable sensor reading interval from network
- ✓ Ready with end-to-end software application.
- ✓ 2 mode restart pin button.



Application Areas : Buildings, residential areas, campuses, stadiums, factories, etc.



Dimensions	35 x 85 x 33 mm	Available Frequencies	All
Weight	150 gr (apprx)	Temperature Sensitivity	0.5 C between -10 and +85 C
Casing	ABS with RoHS Compliancy	Humidity Sensitivity	1% RH between 20% and 80%
Antenna	+3 dBi external	Operating Conditions	-40°C to +80°C & 0% RH to 100% RH
Expected Battery Life	Minimum 5 Years with 30 min Interval	Battery	3.6V Lithium AA

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PRODUCT IMAGES, BUTTONS AND PLUG-INS



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PAYLOAD STRUCTURE – Uplink, Port 4

Sample Payload:

0x0102030400000AFA000000AC00000012000000AA000000BA000000070E100000

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5
SN XMSB	SN XLSB	SN MSB	SN LSB	1.8.0 XMSB	1.8.0 XLSB

Byte 6	Byte 7	Byte 8	Byte 9	Byte 10	Byte 11
1.8.0 MSB	1.8.0 LSB	1.8.1 XMSB	1.8.1 XLSB	1.8.1 MSB	1.8.1 LSB

Byte 12	Byte 13	Byte 14	Byte 15	Byte 16	Byte 17
1.8.2 XMSB	1.8.2 XLSB	1.8.2 MSB	1.8.2 LSB	1.8.3 XMSB	1.8.3 XLSB

Byte 18	Byte 19	Byte 20	Byte 21	Byte 22	Byte 23
1.8.3 MSB	1.8.3 LSB	8.8.0 XMSB	8.8.0 XLSB	8.8.0 MSB	8.8.0 LSB

Byte 24	Byte 25	Byte 26	Byte 27	Byte 28	Byte 29
5.8.0 XMSB	5.8.0 XLSB	5.8.0 MSB	5.8.0 LSB	Battery MSB	Battery LSB

Byte 30
Readout Err Check Byte

Note: All Data are represented as 4 bytes form. Consider all of 4 bytes are 1 number (from XMSB to LSB). Battery information is given in mV form. All index information is given in kWh or kVarh form, convert 32 bits hexadecimal number into decimal to get index values (Ex: H000000BA = 186 kVarh). Indexes from 1.8.0 to 1.8.3 represents active power indexes, 5.8.0 represents inductive power index, 8.8.0 represents capacitive power index. Readout Error Check Byte represents if there are any read error happened, 0x01 means error.

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PAYLOAD STRUCTURE – Uplink, Port 5

Sample Payload: 0x2831392D30392D30312C30303A30302928303129

Output: (19-09-01,00:00)(01)

Device can detect any openings of cover of the meter. Whenever it detects any opening, it sends this information to the network. This payload must be converted hex to ASCII as a whole. Yellow marked part represents the last date of opening in the form of YYMMDD,HHMM and pink marked part represents the number of openings.

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PAYLOAD STRUCTURE – Downlink

Interval Change Downlink

Following message should be sent to the device in order to change message period of the device.

Interval Change Command	
Port	Message
0x0B	0x02T ₀ T ₀ T ₁ T ₁ T ₂ T ₂ T ₃ T ₃

T values at the above table are time values in seconds and hexadecimal form. Must be sent in MSB first form. For example, 0x0200000384 message should be sent to the device in order to set message interval to 900 seconds. (0x384H = 900) These values can take from 1 minute to 6 hours.

Reset Downlink

Following message should be sent to the device in order to reset the device.

Reset Command	
Port	Message
0xFA	0x01

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Reset Operation

Push the reset button and hold, red LED must light for a while and start blinking. When you see the blinking release the button. The device gets reset by this operation and after every reset operation, the device goes into sleep mode by blinking red and green LEDs once.

Wake Up

To exit sleep mode and take the device to the normal operation mode, push the reset button until you see the red LED light. When you see red light release the button and the device will go into normal operation mode by blinking LEDs in a sequence of green-red-green.

OTAA Mode

The device requests OTAA join to the server after the device wakes up and goes into the normal operation mode. OTAA requests are represented by the blinking green LED once per request. When the device successfully joins to OTAA mode green LED lights for a while.

Communication

The device indicates uplink communication by blinking green LED once and downlink communication by blinking red LED once.

ABP

For ABP please contact SKYSENS.

Error Behavior

The first-time device with a hardware problem is energized, it flashes the red led at the intervals of five hundred milliseconds, to indicate there is a hardware problem.