

SenNet IoT Easy Meter LongNet

Energy Meter 3PH CT/Rogowski

General description

SenNet IoT Easy Meter LongNet is a wireless device that monitors 3PH energy electrical circuits, with two options of current transformer, 0.33Vac or flexible Rogowski. This device link at LongNet RF Network coordinator (Datalogger DL or Gateway LongNet), to access to their measurement is through modbus RTU protocol. It's necessary define an ID modbus to access to their parameters (see table modbus-parameters).

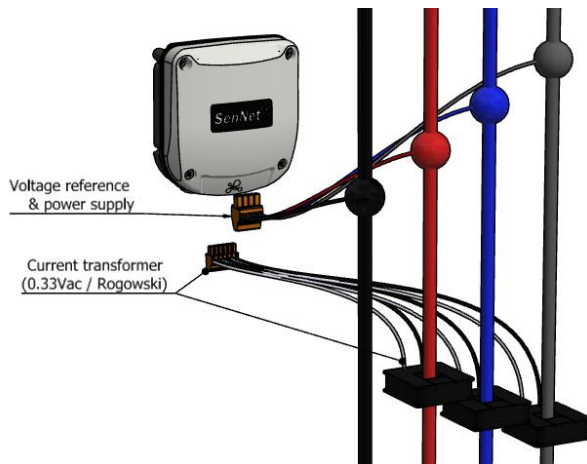
The configuration of all these features is possible by three ways:

- Through APP *SenNet IoT* (IOS or Android).
- Micro-usb connection and console/terminal.

Power supply

The device uses voltage reference as the power supply (100-265VAC @ 50HZ), it's important just to use Neutral Line Vn and V1. There is an internal fuse to protect the device against surge damages.

Voltage power supply	100-265VAC @ 50HZ
Power	<1W



Basic steps to install:

1. Set the type Current Transformer:
CT-0.33Vac: 50A, 100A, 150A, 400A, 800A
Flexible-Rogowski: 3500A, 3700A, 5000A
2. Set ID modbus.
3. Connect voltage reference (feed internal power supply) and current reference.

Easy to set with **SenNet IoT APP**
iOS & Android (phones with NFC)



[SenNet IoT \(iOS version \) Link](#)

[SenNet IoT \(Android version \) Link](#)

SenNet IoT



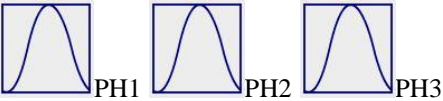

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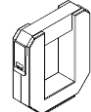
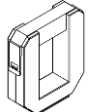
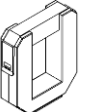
LONG
NET RF

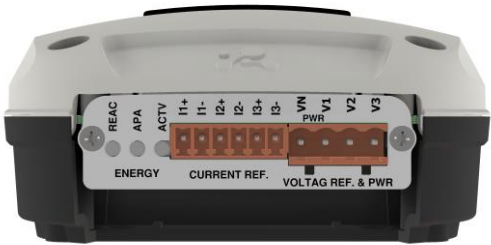
Frequency	433.99MHz@10mW (by default)
	869.224MHz (EU) 915MHz(US) @25mW
Modulation	2FSK (by default)
RF mode	300bps
RF Channel width	6.25KHz

Power Meter features

These devices include advanced technology for metering power electricity loads, using a current reference and voltage reference. It's possible to use this device like a 3 single-phase meter or 1 three-phase meter, it depends on the client's goal to monitor.


Type of load to monitorized	
3 single-phase loads independent	
1 three-phase load	

Led output pulse	Current Reference						Voltage Reference & Power Supply			
	I1+ (1)	I1- (2)	I2+ (3)	I2- (4)	I3+ (5)	I3- (6)	Vn (19)	V1 (20)	V2 (21)	V3 (22)
Reactive Power Aparent Power Active Power 1 pulse/seg = 1kw	 PH1	 PH2	 PH3	Type CT current transformer (CT – 0.33vac)* 50A, 100A, 150A, 400A , 800A (Rogowski type) 5000A			Power Supply 100-265VAC @ 50HZ			



*with CT-0.33Vac is possible wire several CT with same nominal value, on device must be set with add value of these CT's.
This method allow measure several loads on one single input.

Voltage reference

Range	110-220/240VAC (CAT III – 400V)
Frequency	50-60Hz
Electrical isolation	2.5Kv @ 60second
Power supply requirement	0.1 VA per phase
Accuracy	Class 0.2 (+/-0.2%)
	Recommend using electrical protection before connecting this reference.

Current reference

This device can use current transformers (CT) of two types 0.33Vac and flexible type (Rogowski), depending on each type has a different type of accuracy.

Types	Range of measurement	Output type	Accuracy
CT 50 A	1....50 A	0.33VAC	+/-1% (5%....100% In)
CT 100 A	1....100 A	0.33VAC	+/-1% (5%....100% In)
CT 150 A	1....150 A	0.33VAC	+/-1% (5%....100% In)
CT 400 A	1....400 A	0.33VAC	+/-1% (5%....100% In)
CT 800 A	1....800 A	0.33VAC	+/-1% (5%....100% In)
Flexible 5000 A (7cm Ø) (*)	10....5000 A	Rogowski	+/-1% (centered)
Flexible 5000 A (12cm Ø) (*)	10....5000 A	Rogowski	+/-1% (centered)
Flexible 5000 A (20cm Ø) (*)	10....5000 A	Rogowski	+/-1% (centered)

(*)Must use flexible SenNet Rogowski model to certificate Class 1. (Factory Calibrated)

Accuracy on current measurement

Easy Meter + SenNet CT 0.33Vac	Class 1	(Class 0.5 under requirement)
Easy Meter + Flexible SenNet Rogowski	Class 1	Factory Calibrated

Electrical isolation

SenNet CT 0.33Vac	2.5KV / 0.5mA / 3second
Flexible SenNet Rogowski	600V CAT IV

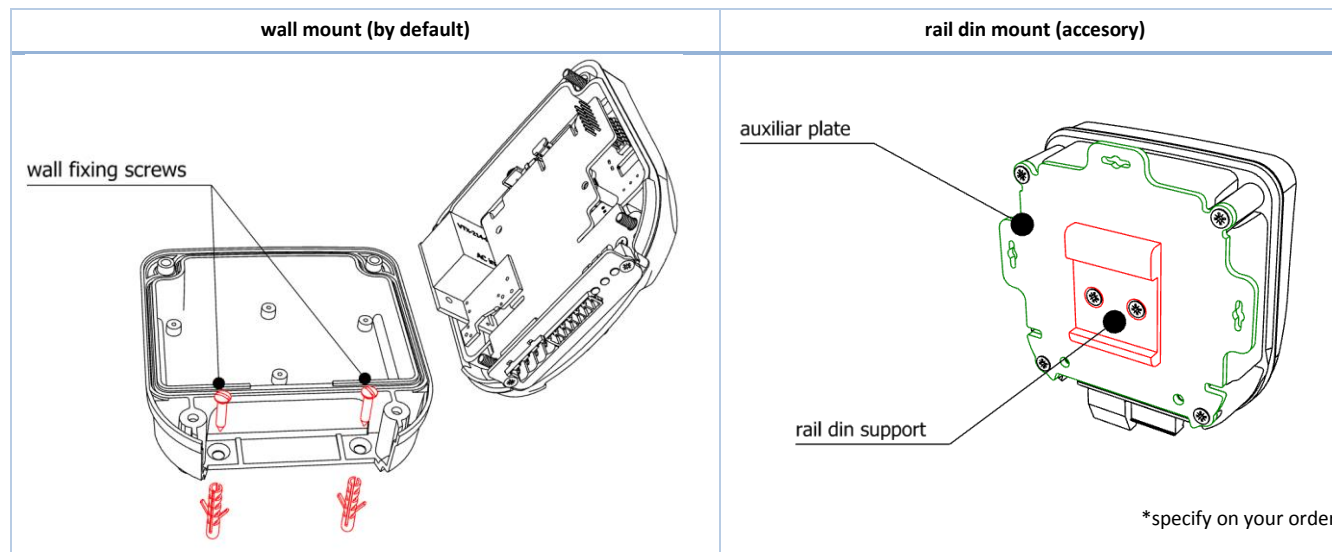
Tabla – Modbus RTU

- Modbus RTU: 9600 baud – 8N1
- Formato: Float inverse
- 16 bit cada registro (2 bytes)
- Base 0

Meter 1	Register	Register	Description	Format	Units
1	00000	00001	Frequency Hz	32 bit Float Inverse	Hz
1	00002	00003	Phase 1 Power factor	32 bit Float Inverse	
1	00004	00005	Phase 2 Power factor	32 bit Float Inverse	
1	00006	00007	Phase 3 Power factor	32 bit Float Inverse	
1	00008	00009	Phase 1 to Neutral Voltage	32 bit Float Inverse	V
1	00010	00011	Phase 2 to Neutral Voltage	32 bit Float Inverse	V
1	00012	00013	Phase 3 to Neutral Voltage	32 bit Float Inverse	V
1	00014	00015	Phase 1 Line current	32 bit Float Inverse	A
1	00016	00017	Phase 2 Line current	32 bit Float Inverse	A
1	00018	00019	Phase 3 Line current	32 bit Float Inverse	A
1	00020	00021	Phase 1 Active Power	32 bit Float Inverse	W
1	00022	00023	Phase 2 Active Power	32 bit Float Inverse	W
1	00024	00025	Phase 3 Active Power	32 bit Float Inverse	W
1	00026	00027	Phase 1 Reactive Power	32 bit Float Inverse	VAr
1	00028	00029	Phase 2 Reactive Power	32 bit Float Inverse	VAr
1	00030	00031	Phase 3 Reactive Power	32 bit Float Inverse	VAr
1	00032	00033	Phase 1 Apparent Power	32 bit Float Inverse	kVA
1	00034	00035	Phase 2 Apparent Power	32 bit Float Inverse	kVA
1	00036	00037	Phase 3 Apparent Power	32 bit Float Inverse	kVA
1	00038	00039	Phase 1 Active Energy Partial	32 bit Float Inverse	kWh
1	00040	00041	Phase 2 Active Energy Partial	32 bit Float Inverse	kWh
1	00042	00043	Phase 3 Active Energy Partial	32 bit Float Inverse	kWh
1	00044	00045	Phase 1 Reactive Energy Partial	32 bit Float Inverse	kVArh
1	00046	00047	Phase 2 Reactive Energy Partial	32 bit Float Inverse	kVArh
1	00048	00049	Phase 3 Reactive Energy Partial	32 bit Float Inverse	kVArh
1	00050	00051	Phase 1 Apparent Energy Partial	32 bit Float Inverse	kVAh
1	00052	00053	Phase 2 Apparent Energy Partial	32 bit Float Inverse	kVAh
1	00054	00055	Phase 3 Apparent Energy Partial	32 bit Float Inverse	kVAh
1	00056	00057	Phase 1 Active Energy Total	32 bit Float Inverse	kWh
1	00058	00059	Phase 2 Active Energy Total	32 bit Float Inverse	kWh
1	00060	00061	Phase 3 Active Energy Total	32 bit Float Inverse	kWh
1	00062	00063	Phase 1 Reactive Energy Total	32 bit Float Inverse	kVArh
1	00064	00065	Phase 2 Reactive Energy Total	32 bit Float Inverse	kVArh
1	00066	00067	Phase 3 Reactive Energy Total	32 bit Float Inverse	kVArh
1	00068	00069	Phase 1 Apparent Energy Total	32 bit Float Inverse	kVAh
1	00070	00071	Phase 2 Apparent Energy Total	32 bit Float Inverse	kVAh
1	00072	00073	Phase 3 Apparent Energy Total	32 bit Float Inverse	kVAh
1	00074	00075	Active Energy Total	32 bit Float Inverse	kWh
1	00076	00077	Reactive Energy Total	32 bit Float Inverse	kVArh
1	00078	00079	Apparent Energy Total	32 bit Float Inverse	kVAh

Holding case

IP Grade	IP-60
Temperature details	
Working temperature	-20°C...+70°C
Store temperature	-20°C...+75°C
Holding	
Dimensions	119 x 111 x 53 mm
Type mount	Wall or din rail
Plastic Material	ABS – V0



Warranty

Satel Spain guarantees its products against all manufacturing defects for a period of 1 year.



No return of material will be accepted, nor will any equipment be repaired if it is not accompanied by a report (RMA) indicating the defect observed or the reasons for the return.
The warranty will be void if the equipment has suffered "misuse" or the storage, installation or maintenance instructions in this manual have not been followed. "Misuse" is defined as any use or storage situation contrary to the National Electrical Code or that exceeds the limits indicated in this manual.
Satel Spain declines all responsibility for possible damage to the equipment or to other parts of the installations and will not cover possible penalties derived from a possible breakdown, poor installation or "misuse" of the equipment. Consequently, the guarantee is not applicable to breakdowns produced in the following cases.

- Due to overvoltage and/or electrical disturbances in the supply.
- By water, if the product does not have the appropriate IP rating.
- For exposing the equipment to extreme temperatures, which exceed the operating or storage temperature limit.
- Due to a modification of the product by the client without prior notice to Satel Spain.

Faced with possible errors in this technical sheet, keep it updated in our website.