

# Meazon DinRail Cerberus Installation Guide



## Table of Contents

Features & Technical Specifications.....	2
General Installation instructions.....	6
Installation in a three-phase panel .....	6
CTs installation .....	7
Power lines L1 L2 L3 installation .....	7
Disclaimer.....	9
About Meazon.....	9

## Features & Technical Specifications

Meazon has developed “DinRail Cerberus”, a 3-Phase electricity meter capable of **remote monitoring and controlling** energy consumption of a household and/or an industrial building.

It is a **wireless metering system** based on ZigBee Mesh network technology, featuring a unique design that combines low cost and high accuracy measurements.

Every metering device on the ZigBee network is associated with a ZigBee gateway. The role of the gateway is to periodically collect all measurements, gathered by the devices, to forward them to the **Meazon Cloud** for storage and further analysis.

Meazon Cloud gives users the ability to monitor the current energy consumption, set alarm rules, control their devices (on/off switching) and schedule them to operate in a desired pattern.

Meazon DinRail Cerberus is a rail-type device with small size (2 DIN), which can be easily installed and is capable of **monitoring, measurement logging and controlling**:

- *up to three separate power lines / loads*
- *a three-phased load*
- *an entire electrical panel (single-phase, dual-phase, three-phase)*

It comes with **three current transformers** to measure any electrical load without limitations.

The internal relay can be externally driven using **On/Off commands** or internally using **Meazon scheduling**.

### Communication Specifications

Communication protocols	ZigBee NB-IoT/LTE CAT M1/3G (Optional)
Frequency band	Zig-Bee: 2.4GHz  NB-IOT/M1 Bands: 1, 2, 3, 4, 5, 8, 12, 13, 17, 18, 19, 20, 25, 26, 28
Data communication interval	1 second (default 5 minutes)
Security - Communication Encryption	AES encryption 128 bits
Build-in Data log record	2000 records

### Electrical Specifications

Operating Voltage *	100-240 Vac, 0.2A for EU  100-285 Vac, 0.2A for US 347 Vac ± 10%, 0.2A for US
Frequency	50-60 Hz

### Electrical measurements

Electrical parameters measured	Irms, Vrms, Power factor Active Power & Energy, Reactive Power & Energy (per phase), line Frequency.
Ranges of measured parameters	Voltage: 0 to Nominal Operating Voltage between phase and Neutral **  Current: up to 600Amps (More Amp available on request)
Tolerance	+10% of nominal load (I <sub>ov</sub> )
Accuracy of measurements	<0,5% of reading measurement error (metering device) ***

(\*) Make sure your purchased DinRail Cerberus meets your appliances Voltage

(\*\*) At least one of the measured phases must have models nominal Voltage

(\*\*\*) Accuracy refers to Electric Power Measurements

### Mechanical and Environmental Specifications

Power Consumption	5VA
Dimensions (WxHxD)	36 X 100 x 87,8 mm
Mass	0.185 Kg
Supply wiring requirements	16 or 18AWG Solid
Operating Environment	Temperature: -20°C to 50°C Relative Humidity: 10% to 90% RH

### Current Transformers

CT 63A, accuracy $\pm 1\%$
CT 125A, accuracy $\pm 1\%$
CT 300A, accuracy $\pm 1\%$
CT 400A, accuracy $\pm 1\%$
CT 600A, accuracy $\pm 1\%$

### Extra Features

LCD Display 128 x 64 pxls
External Antenna
Anti-Tampering covers
Wire installation with Fast Connectors

Connector	Description	Connector	Description
<b>L1</b>	Phase 1	<b>CTN Left</b>	CTN Red wire
<b>L2</b>	Phase 2	<b>CTN Right</b>	CTN Black wire
<b>L3</b>	Phase 3	<b>1</b>	Relay contact Input
<b>N</b>	Neutral	<b>2</b>	Relay contact Output
<b>CT1 Left</b>	CT1 Red wire	<b>GND</b>	RS 485 Ground
<b>CT1 Right</b>	CT1 Black wire	<b>A</b>	RS 485 A
<b>CT2 Left</b>	CT2 Red wire	<b>B</b>	RS 485 B
<b>CT2 Right</b>	CT2 Black wire	<b>DC +</b>	Rogowski integrator Supply
<b>CT3 Left</b>	CT3 Red wire	<b>DC -</b>	
<b>CT3 Right</b>	CT3 Black wire		

### Device Status based on led indications L1-LED1 / L2-LED2

P1	Active Energy imp/KWh
P2	Reactive Energy imp/KVarh
P3	Apparent Energy imp/KVAh
TEST NETWORK (ZigBee)	ZigBee Status
STATUS (ZigBee)	Relay Status
TEST NETWORK (NB-IoT)	LQI
STATUS (NB-IoT)	Connection Status

## FCC Information

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.”

**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



## Safety Information

Use this product only in the manner described in this manual. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Product may be cleaned with a clean soft towel. Do not use liquids to clean.

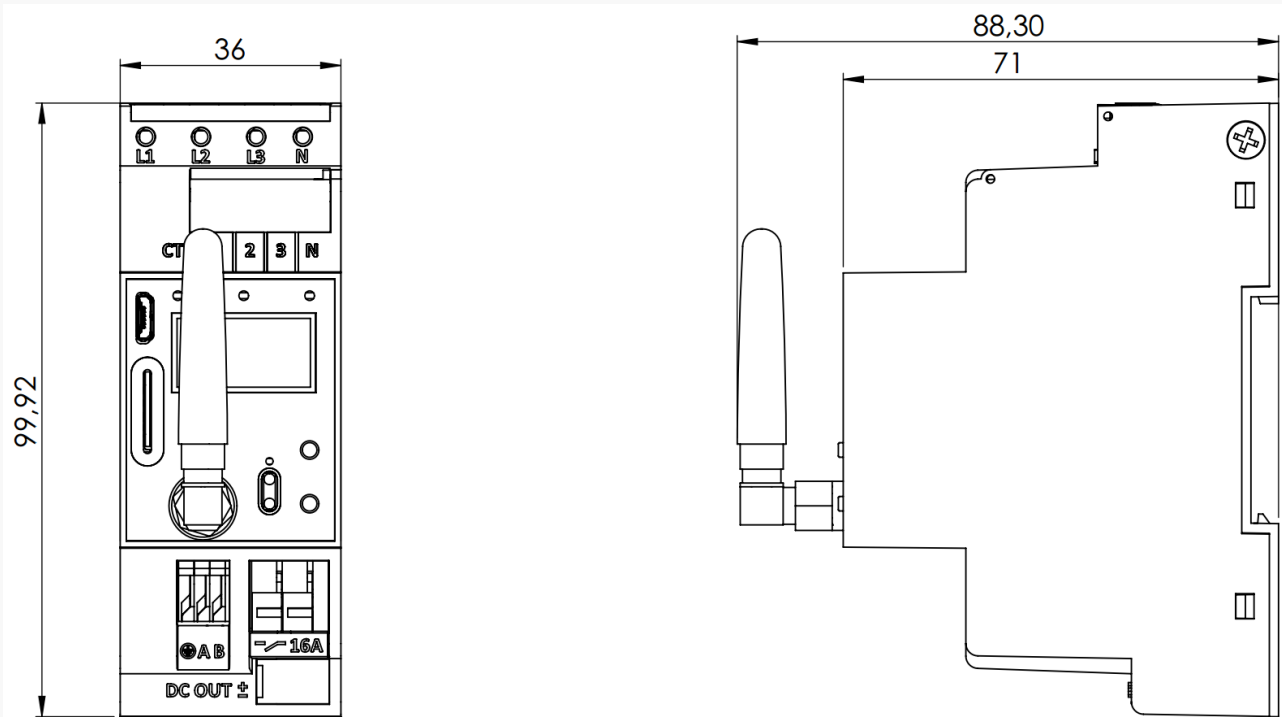
Product is not water resistant. If the unit gets wet, do not touch it. Power off and allow it to dry thoroughly before further operation.

Do not disassemble the product. There are no spare parts for this, it is not repairable. If physical damage to the product occurs, do not use. Replace with a new one.

RF exposure warning :

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment shall be installed and operated with minimum distance 20cm between the radiator & body.

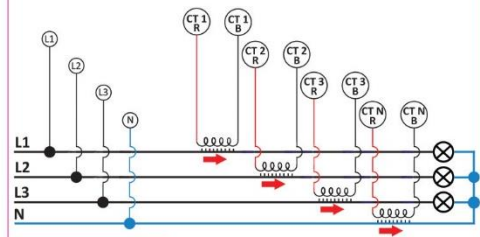
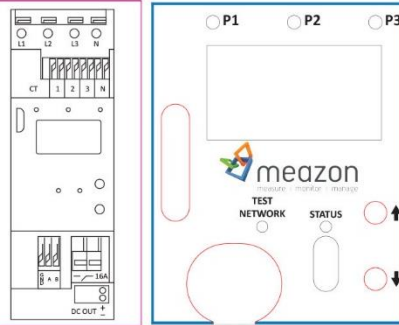
### Meazon DinRail Cerberus



Model: **Cerberus**  
 Frequency: **50-60 Hz**  
 \*Nominal Voltage: **100-240 V~**



Pin	Description
L1	Phase L1
L2	Phase L2
L3	Phase L3
N	Neutral
CT 1 (Left)	CT1 Red wire
CT 1 (Right)	CT1 Black wire
CT 2 (Left)	CT2 Red wire
CT 2 (Right)	CT2 Black wire
CT 3 (Left)	CT3 Red wire
CT 3 (Right)	CT3 Black wire
CT N (Left)	CT Neutral Red wire
CT N (Right)	CT Neutral Black wire
16A	Relay Contact
GND	RS 485 Ground
A	RS 485 A
B	RS 485 B
DC OUT +	Rogowski Integrator supply
DC OUT -	



\*Nom. Voltage Phase to Neutral. FCC ID: 2AJUUDR3PCR8  
 FOR INDOOR USE ONLY  
 MADE IN GREECE



## General Installation instructions



### INSTALLATION REQUIREMENTS

The instructions provided below, should be performed only by licensed electricians. Installation from non-qualified individuals may lead to electrocution or heavy damage to the devices.

Wiring requirements: 16 or 18AWG Solid cable.

Make sure that the maximum amperage to be measured does not exceed the maximum value the provided Meazon DinRail Cerberus can measure.

We recommend to protect Meazon DinRail Cerberus with a maximum 10Amps circuit breaker.

*Suggested Miniature Circuit Breaker*

- ABB S201-C10 (Rated Current 10A)

*Any other circuit breaker with the same specification can also be used.*

### INSTALLATION

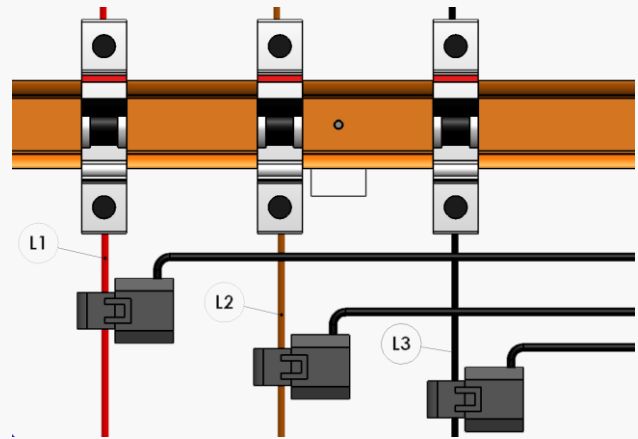
- 1) Locate the main electrical panel.
  - 2) Turn the power off for safety reasons.
  - 3) Locate the current conductors to be measured. Current transformers will be added at those conductors
- WARNING!** Current conductors should be between the electrical fuse and the circuit breaker (in case of metering electrical loads separately), or between protection relay and electrical fuse (in case of measuring total consumption).
- 4) Check inside the electrical panel for the optimal location to place the Meazon DinRail Cerberus and the 10A protective circuit breaker.
  - 5) Place the protective circuit breaker at the rail.
  - 6) Place the DinRail and push to lock it at the rail of the electrical panel.

In this installation guide DinRail Cerberus will be called DinRail for brevity reasons.

## Installation in a three-phase panel

## CTs installation

- Connect each of the three Current Transformer's outputs (black wires) to contacts CT1 B, CT2 B and CT3 B.
- Connect each of the three Current Transformer's inputs (red wires) to contact CT1 R, CT2 R, and CT3 R.
- Locate the current conductors to be measured starting from phase L1 and pass it through the coil of the CT (current transformer) by opening the coil of CT.



**WARNING!** Make sure the direction of the arrow illustrated at the CT terminals to the load. Reconnect the current conductor.

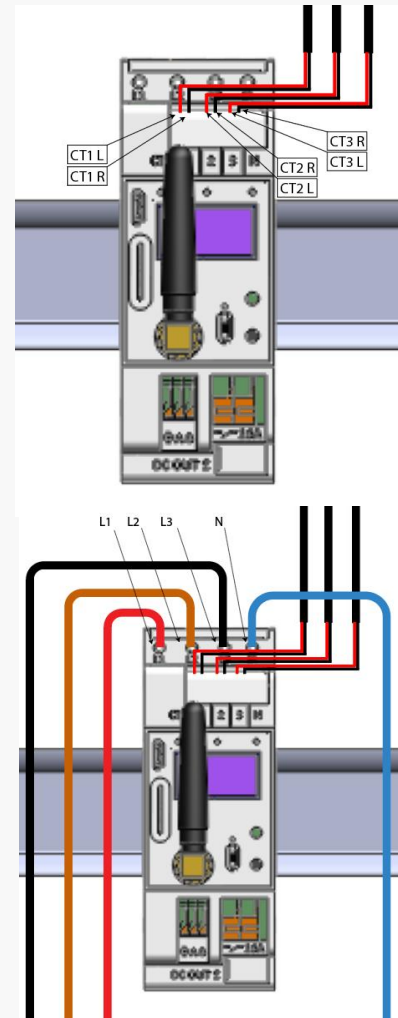
- Repeat the process for the other two phases (L2, L3).

## Power lines L1 L2 L3 installation

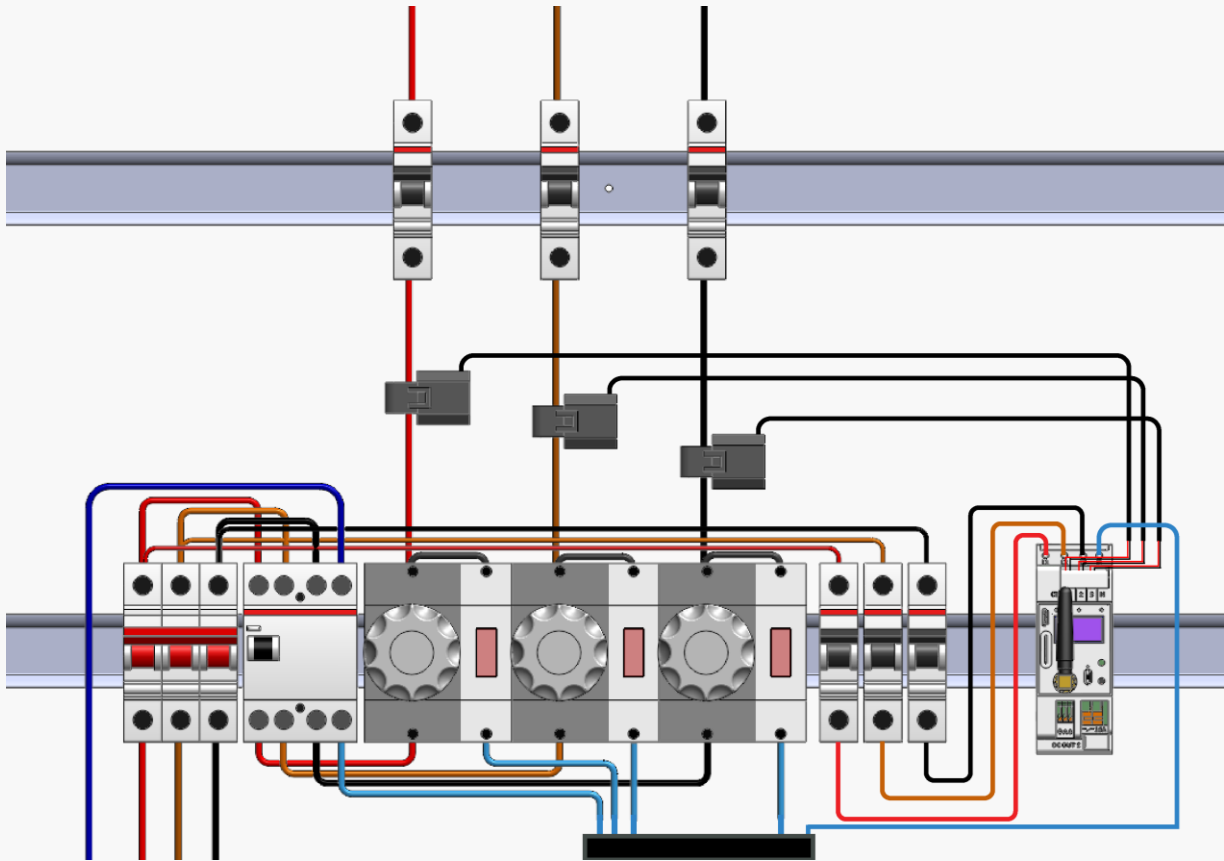
- Connect the phase voltage L1, L2, L3 and N with the terminal L1, L2, L3 and N.

**WARNING!** Make sure that the sequence of phases 1, 2 and 3 of the DinRail is strictly L1, L2 and L3, otherwise measurements will be incorrect.

- Check the entire procedure again before completing the installation (the sequence of the phases of DinRail's input, the sequence of the Current Transformers' connection and the direction of the arrow of each CT).







Upon completion of the electrical installation of DinRail, the electrical panel should appear as below:

*Electrical Panel with DinRail Cerberus in a 3-Phase Panel*

## Disclaimer

- The material in this manual is for informational purposes only. The products it describes are subject to change without prior notice, due to the manufacturer's continuous development program.
- Meazon S.A. shall not be liable for any damages, losses, costs or expenses, direct, indirect or incidental, consequential or special, arising out of, or related to the use of this material or the products described herein.

## About Meazon

Meazon acts as a catalyst to the energy efficiency market. We design and manufacture revolutionary small size energy meters and integrate them with cloud technology. We build on open standards and provide insights in energy consumption of commercial and residential buildings. This way we drive significant energy efficiencies. For more information visit [www.meazon.com](http://www.meazon.com).



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