

3-Phase Multifunction Meter





1. Overview

Next generation DIN rail mountable single or three-phase energy meter with a 3x120A, 3-phase current transformers

Neutron Pro 3EM (The Device) is a DIN rail mountable three-phase energy meter. Enhanced with all the gen2 firmware flexibility and LAN connectivity, it provides professional integrators with additional options for end-customer solutions. It can work standalone in a local LAN and/or Wi-Fi network, or it can also be operated through cloud home automation services through MQTT, HTTP, and WebSocket. All inbound connections support TLS.

The Device reports accumulated energy as well as instantaneous voltage, current, active, and apparent power per phase in real time. It stores data in non-volatile memory that can be retrieved for a period of up to 60 days in 1-minute intervals.

The Device has a real-time clock to keep the correct time if the connection to an SNTP server is lost.

Neutron Pro 3EM can be accessed, set up, and monitored remotely by the User, as well as the Device can access and communicate with an automation system, as long as they are in the same network infrastructure.

The Device has an embedded Web Interface which can be used to monitor and control the device, as well as adjust its settings

2. Features:

- 4 Quadrant measurement
- DIN rail mounting
- Multiple connection types
- Current transformer connection
- Phase sequence error detection* (option)
- Channel-to-channel calibration**
- No load threshold***
- Optical pulse indication of energy usage
- Real-time clock
- Data logs
- Accuracy Class B (IEC 62053-21)
- Photovoltaic ready

3. Specification

Physical

Size (HxWxD):	94x19x69 ±0.5 mm / 3.70x0.75x2.71 ±0.02 in
Weight:	62 ±1 g / 2.19 ±0.05 oz
Mounting:	DIN rail
Screw terminals max torque:	0.4 Nm / 4.43 lbin
Conductor cross section:	0.5 to 2.5 mm ² / 20 to 14 AWG (solid, stranded, and bootlace lugs)
Conductor stripped length:	6 to 7 mm / 0.24 to 0.28 in
Shell material:	Plastic
Color:	White



Environmental -20 °C to 40 °C / -5 °F to 105 °F Ambient temperature: Humidity: 30 % to 70 % RH Max. altitude: 2000 m / 6562 ft **Electrical** Power supply voltage AC: 100 - 260 V, 50/60 Hz Power supply voltage DC: N/A < 3 W Power consumption: Sensors, meters Yes Internal-temperature sensor: 100 - 260 V Voltmeters (RMS for each phase): Voltmeters accuracy: ±1% Ammeters (RMS via CT for each 0 - 120 A phase and the Neutral): **Compatible CT CT 120A** ±1 % (2 - 120 A), ±2 % (1 - 2 A), ±5 % (0 - 1 A) Ammeters accuracy: Active and apparent power Active and apparent energy Power and energy meters: Power factor Fundamental active and fundamental reactive energy Channel-to-channel calibration 500 W per channel minimum load No load threshold: 30 VA per channel Measurement data storage: At least 60 days of 1 min data resolution CSV for PQ recorded values Data export: JSON format export through RPC Radio RF band: 2400 - 2495 MHz <20 dBm Max. RF power: Wi-Fi protocol: 802.11 b/g/n Up to 30 m / 100 ft indoors and 50 m / 160 ft outdoors Wi-Fi Range: (Depends on local conditions) **Bluetooth Protocol:** 4.2 Up to 10 m / 33 ft indoors and 30 m / 100 ft outdoors **Bluetooth Range:** (Depends on local conditions) **MCU** CPU: ESP32-D0WDQ6 Flash: 16 MB **Firmware capabilities** Webhooks (URL actions): 20 with 5 URLs per hook Scripting: Yes MQTT: Yes CoAP: No