

POWERNAAC™ PN500



Digital Multi Function Meter



NAAC ENERGY CONTROLS PVT LIMITED



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Overview

The **PN500 Series Multi Function Digital Power Analyzer** is an Advanced Three-Phase LCD Smart KWH Meter engineered for comprehensive power monitoring and management in diverse industrial and commercial applications. This robust device excels in accurately measuring a wide array of electrical parameters, including phase and line voltages, three-phase currents, active, reactive, and apparent power (both split-phase and total), power factor, and frequency.

Its capability for four-quadrant power metering, recording both forward / reverse active and positive/reverse reactive energy, makes it ideal for detailed energy analysis and billing.

Equipped with a clear segmented LCD display, the PN500 provides immediate and easily readable data. Its powerful data acquisition and processing functions allow for real-time insights into power consumption and quality. A key strength of the PN500 lies in its communication capabilities, featuring an RS485 interface and supporting the widely adopted Modbus-RTU protocol. This enables seamless integration into existing SCADA systems, energy management platforms, and building automation networks, facilitating remote monitoring, control, and data logging.



Key Features and Capabilities

- Provide a detailed overview of the electrical health and consumption patterns within a three-phase system, allowing users to identify anomalies, power factor issues, and unbalanced loads.
- By accurately measuring active and reactive energy in four quadrants, it supports detailed energy billing, cost allocation, and the implementation of energy-saving strategies.
- Through its RS485 and Modbus-RTU interface, it can be seamlessly integrated into a centralized monitoring system, allowing operators to remotely view real-time data, receive alarms, and potentially control loads (via the relay output).
- Its flexible input/output options allow it to interact with other equipment and systems, triggering alarms, controlling relays based on measured parameters, or feeding analog signals to PLCs or other controllers.

Features





- High-Accuracy Measuring : Class: 0.5S
- Measures upto 250 Electrical Parameters
- Harmonic Analysis - upto the 31st Order Harmonic on Screen and Upto the 63rd Order on Modbus
- Bi-Directional Metering (Import and Export)
- MODBUS RS-485 Interface
- Site-Programmable CT and PT Ratio
- True RMS Measurement
- Energies : KWH, KVAH, KVARH
- Voltage and Current Unbalance
- Pulse Output
- Flush-mount LCD Multi-Function Meter, 96x96x73 mm
- Segmented LCD with White Backlit
- Four Quadrant Power Metering
- Auxiliary Supply 85V DC / 265V AC
- RS485 Modbus Communication
- Programmable CT Secondary : /1A and /5A
- Setup Password protection available
- Programmable Alarm
- Measures frequency within the 45Hz-65Hz range
- Temperature Range : -20°C to 55°C

Digital and Smart Capabilities

This series of digital LCD three-phase Multi-Function Meter adopts professional metering chip with industrial-grade microprocessor as the core to measure electric parameters such as Voltage, Current, Power, Power Factor, Frequency, forward and reverse bi-directional electric energy in the power grid, which has high cost performance.

Embedded installation, simple wiring, small amount of engineering. Broken code liquid crystal display, easy to read the data. Widely used in electric power grid, automation control system, SCADA, DCS system, etc., help users save investment and use space.

Button Functions

Buttons	Click	Press 2 Sec.
	<ul style="list-style-type: none"> • Display Voltage and Current information • Phase sequence • Left side move 	<ul style="list-style-type: none"> • Individual harmonic distortion of Voltage upto 31st
	<ul style="list-style-type: none"> • Display Active Power, Reactive Power and Apparent Power • Up Page or Reduce Value 	<ul style="list-style-type: none"> • Full Screen Checking • Modbus Setting Information
	<ul style="list-style-type: none"> • Display P.F, Frequency • Max. and Min. of Voltage & Current • Down Page and Add Value 	<ul style="list-style-type: none"> • Individual harmonic distortion of Current upto 31st
	<ul style="list-style-type: none"> • Display total / Import / Export Active • Reactive Energy / Multi-Tariff Energy • Right Side Move 	<ul style="list-style-type: none"> • Set-up Mode Entry Confirmation

Technical Specifications

Technical Parameters

Applicable Networks	3 Phase 4 Wire, 3 Phase 3 Wire, Single Two-Wire, 3 Phase 3 Wire PT
Operating Voltage Power Range	85V-265V AC / DC
Operating Power Wastage	≤ 5W

Input Voltage

Rating	475V AC
Overloaded	1.2 x Continuous, 2 x (10s)
Power Wastage	≤0.4 VA / Phase
Electrical Impedance	≥ 200 k Ohm

Input Current

Primary Current	1A - 9999A
Secondary Input	1A or 5A
Short Term Over-current	20x maximum current for 0.5 seconds
Power Wastage	≤0.2 VA / Phase
Electrical Impedance	≥ 0.1 Ohm
Frequency	45Hz - 65Hz
Switching Input	Dry Contact Input, Opto-Isolated

Output

Switching Output	Relay Output; any power alarm can be set, default remote control
Pulse Output	1 electrical energy pulse

Precision Indicators

Voltage / Current	0.2%
Frequency	0.2%
Power / Power Factor	1%
Active Degree of Electricity	0.5S Class
Reactive Power	1.0 Class

Communication

Bus Type	RS 485
Communication Protocols	Modbus RTU
Baud	2400 bps / 4800 bps / 9600 bps / 19200 bps / 38400 bps
Address range	1 - 247
Communication Distance	1000 m
Parity	Even / Odd / None (default)
Data Bit	8
Stop Bit	1

Ambient Conditions

Operating Temperature	-25°C - +55°C
Storage Temperature	-40°C - +70°C
Operating Humidity	≤90% RH. Non-condensing, non-corrosive gas locations
Storage Humidity	≤95% RH. Non-condensing, non-corrosive gas locations
Height above seal level	≤2000m

Installation Category

Installation Category	CATIII
Pressure Resistance	AC withstand voltage 4KV / 1 min Pulse withstand voltage 6kV - 1.2uS waveform
Protection Class	IP 51 (Interior)
Insulation Class	II
Average trouble-free operation time	≥50000h

Specifications and characteristics mentioned in this document are subject to change without notification.
The information in this document is purely illustrative, and not contractually binding.

GET IN TOUCH



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