# APM SERIES MULTI-FUNCTION DIGITAL PANEL METER



## Introduction

The APM series advanced multifunction digital panel meter is designed for comprehensive monitoring and control of power distribution systems. It features four direct-access keys and a high-definition LCD display, providing clear visualization of all electrical parameters in 3P3W or 3P4W low-voltage systems.

The meter can be seamlessly integrated into intelligent power distribution or industrial automation systems as a data acquisition unit. It supports remote access to all monitoring data via a standard RS485 communication interface, enabling efficient system supervision and management.

## Main Features

- High-precision measurement with accuracy class 0.1 / 0.2 / 0.5 (PMD compliant);
- Configurable current input: .../5 A or .../1 A;
- Wide-range auxiliary power supply: 90-240VAC/DC, with optional 20–60VDC;
- 1.6-inch dot-matrix LCD for clear parameter visualization;
- Backlit LCD display for enhanced visibility in low-light conditions;
- Configurable load alarm functions with time-stamped event recording;
- SOE (Sequence of Events) recording and virtual alarm functionality;
- ITF technology for input/output current isolation protection;
- Optional 128 MB onboard data logging memory;
- Expandable architecture with optional I/O modules and Ethernet interface;
- RS485 communication with Modbus RTU protocol;
- Advanced power quality analysis, including maximum demand, unbalance factor, crest factor, K-factor, etc.;
- 1 kHz waveform capture, enabling 1-second snapshot recording of voltage, current, and power disturbances (e.g., flicker, sag, and transient events) for detailed event analysis;

## Measurement Function

| Model | APM-96Z | APM-96Y | APM-96J | APM-4MJ | APM-96Q |
|---|---|---|---|---|---|
| **Parameters** | | | | | |
| Basic parameters(1) | ● | ● | ● | ● | ● |
| Split-phase measures | - | - | ● | ● | ● |
| Harmonic distortion | - | ● | ● | ● | ● |
| Individual harmonic | - | 2~31st | 2-63rd | 2-63rd | 2~127th |
| Time of use (TOU) | - | ● | ● | ● | ● |
| Max demand | - | ● | ● | ● | ● |
| SOE record | - | ● | ● | ● | ● |
| Curr./volt unbalance | - | ● | ● | ● | ● |
| Volt/Fre. deviation | - | ● | ● | ● | ● |
| Vsag/swell/flicker/fluc. | - | - | - | - | ● |
| Waveform capture | - | - | - | - | ● |
| 128MB memory | - | - | - | - | ○ |
| **I/O module** | | | | | |
| AO (0/4~20mA;0~5V) | ○ | ○ | ○ | - | ○ |
| DI/DO | ○ | ○ | ○ | ○ | ○ |
| PO (Pulse output) | ○ | ○ | ○ | ○ | ○ |
| **Communication** | | | | | |
| RS485 | ● | ● | ● | ● | ● |
| RJ45/ Ethernet | ○ | ○ | ○ | - | ○ |
| Profibus | ○ | ○ | ○ | - | ○ |

●With this function ○Optional function -Without this function

(1) Basic parameters:Voltage,Current,Frequency,Total power factor,Active power, Reactive power,Apparent power,Active energy,Reactive energy.

## Ordering Information

APM- [1] [2] - [3]

- [3] Communication
- [2] Function code
- [1] Panel size

| Num. | Code | Description |
|---|---|---|
| [1] | 96 | 96(W)x96(H)x71(D)mm |
| | 72 | 72(W)x72(H)x71(D)mm |
| | 80 | 80(W)x80(H)x71(D)mm |
| | XM | Module width |
| [2] | Z | Economic power meter |
| | Y | Multifunction power meter |
| | J | Smart power monitor |
| | Q | Intelligent power analyzer |
| [3] | Blank | **Default:** With RS485 interface, Modbus-RTU |
| | Eth | Ethernet interface,Modbus-TCP & Modbus-RTU |

## Technical Characteristics

| Model | APM-96Z | APM-96Y | APM-96J | APM-4MJ | APM-96Q |
|---|---|---|---|---|---|
| **Working power** | | | | | |
| Power supply | 90~240Vac/dc, ± 10 % | | | | |
| Consumption | ≤4VA | | | | |
| **Current measurement (TRMS)** | | | | | |
| CT secondary | 1 or 5 A | | | | |
| Measurement range | 0...11 KA | | | | |
| Input consumption | <0.4 VA | | | | |
| **Voltage measurement (TRMS)** | | | | | |
| Measurement range | 18...400 VAC | | | | |
| PT secondary | 100 VAC/400 VAC | | | | |
| Frequency | 50 / 60 Hz | | | | |
| Input consumption | <0.1 VA | | | | |
| **Elctrical power measurement (IEC 61557-12)** | | | | | |
| Accuracy (A, V) | 0.5% | | 0.2% | | 0.1% |
| Accuracy (Power) | 0.5s% | | | | 0.2% |
| **Energy accuracy** | | | | | |
| Active energy (IEC 62053-21/ 22) | Class 1.0 | | Class 0.5s | | Class 0.2 |
| Reactive energy (IEC 62053-23) | Class 2.0 | | Class 1.0 | | Class 1.0 |
| **Frequency measurement** | | | | | |
| Measurement range | 45...65 Hz | | | | |
| Accuracy | ±0.02 Hz | | | | |
| **I/O module** | | | | | |
| Pulse output (PO) | 2* Pulse, 1600imp/kWh | | | 1* Pulse, 1600imp/kWh | 1* Pulse, 1600imp/kWh |
| Pulse constant | 5000imp/kWh, 20000imp/kVarh | | | | |
| Relay output (DO) | 5A@250Vac / 5A@30Vdc | | | | |
| Digital Input (DI) | Dry contact, Ri<500Ω turn on, Ri>100kΩ turn off | | | | |
| Analog output (AO) | 4~20mA, load <390Ω,or 0~10V, load >100KΩ | | | / | 4~20mA, load <390Ω, or 0~10V, load >100KΩ |
| **Communication** | | | | | |
| Interface | RS485 | | | | |
| Protocol | Modbus RTU | | | | |
| MODBUS speed | 4800/9600/19200 bauds | | | | |
| **Others** | | | | | |
| Calibration environment | 27°C ± 5°C | | | | |
| Operation environment | 0 to 50°C, RH < 70% | | | | |
| Storage environment | -10 to 60°C, RH < 70% | | | | |
| Dielectric strength (Voltage sampling) | 2 kV at 50Hz for 1 min | | | | |
| Dielectric strength(AUX terminal) | 2 kV at 50Hz for 1 min | | 4 kV at 50Hz for 1 min | | |