

APM521 3-Phase Multifunction Panel Meter

Real-time Demand

Maximum Demand

Class 0.2S

RS485 Modbus



- Maximum-demand monitoring for low-voltage three-phase power systems
- Real-time and maximum demand for three-phase current and active, reactive and apparent power
- Maximum-demand timestamps and last-month maximum-demand records for peak-period analysis
- Suitable for factories, commercial buildings, data centers, EV charging, switchgear, PV and storage projects

Basic Parameters

- Panel 96 x 96 mm; cut-out 88 x 88 mm
- Rated current 1 A or 5 A
- Voltage/current/power error +/-0.2%
- Active energy Class D (0.2S)
- RS485 Modbus-RTU; optional Ethernet and I/O

Product Overview

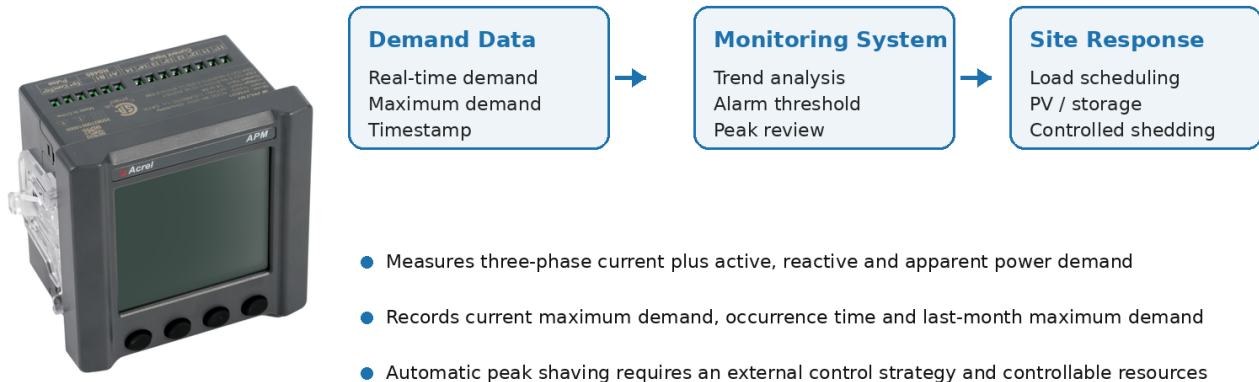
APM521 is a high-accuracy three-phase panel meter for electrical measurement, energy metering, power-quality analysis, demand records, event logging and network communication. Its demand functions provide the measurement and timestamps needed to identify peak periods and support a site demand-management strategy.

Maximum Demand Monitoring

The meter records three-phase current plus active, reactive and apparent power real-time demand and maximum demand, including occurrence timestamps. It also retains last-month maximum demand with timestamp. Demand is calculated by a sliding-window method.

APM521 Maximum Demand Monitoring

Measurement and records for peak-demand analysis and coordinated load management



APM521

Application Boundary

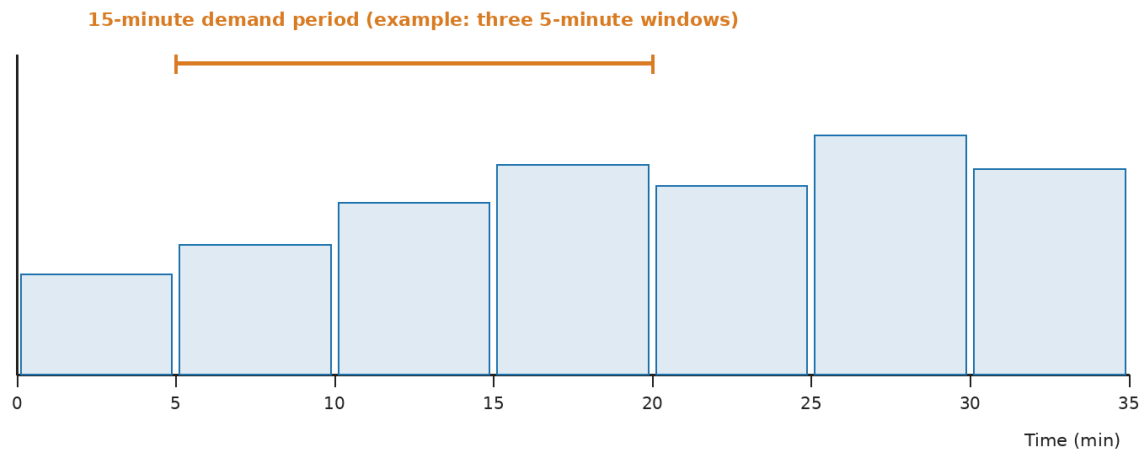
APM521 measures and records demand; it does not by itself reduce a site's maximum demand. Automatic peak shaving requires an external control strategy and controllable resources such as alarm/DO logic, an energy-management system, scheduled loads, PV, energy storage or generators.

Demand Settings

Demand width can be set to 1, 2, 3 or 5 minutes. Demand period can be set from 5 to 60 minutes and must be an integer multiple of the demand width. The current demand is refreshed at the end of each sliding window.

APM521 Sliding-Window Demand Calculation

Official settings: demand width 1 / 2 / 3 / 5 minutes; demand period 5-60 minutes



The current demand is refreshed at the end of each sliding window.

This image is an English-only redraw of the calculation method in the official APM521 manual.

Typical demand-management uses

- Identify which production or charging periods created the maximum demand.
- Send demand data to a monitoring system for trends, thresholds and alarms.
- Support coordinated load scheduling or dispatch of PV and energy storage.

Technical Parameters

Section	Parameter	APM521
Input	Network	Three-phase three-wire or three-phase four-wire
Input	Rated voltage (UL/CE)	66 V L-N / 115 V L-L; 230 V L-N / 400 V L-L; 277 V L-N / 480 V L-L; 400 V L-N / 690 V L-L
Input	Voltage overload	1.2 x rated value continuously; 2 x rated value for 1 second
Input	Voltage accuracy / consumption	+/-0.2%; <1 VA
Input	Rated current (UL/CE)	1 A or 5 A
Input	Current overload	1.2 x rated value continuously; 10 x rated value for 1 second
Input	Current accuracy / consumption	+/-0.2%; <0.2 VA
Measurement	Power	Active, reactive and apparent power; error +/-0.2%
Measurement	Grid frequency	50/60 Hz; error +/-0.2%
Measurement	Response time	<=200 ms for voltage/current/power; <=1 s for energy
Metering	Energy accuracy	Active energy Class D (0.2S); reactive energy Class 2
Demand	Measured demand	Three-phase current plus active, reactive and apparent power real-time and maximum demand, with timestamps; last-month maximum demand with timestamp
Demand	Calculation settings	Sliding-window method; width 1/2/3/5 min; period 5-60 min and an integer multiple of the width
Auxiliary power	Supply / consumption	AC/DC 85-300 V; <=4 W, 10 VA
Communication	Standard	RS485 Modbus-RTU; address 1-247; 1200-38400 bps
Options	Expansion	4DI/2DO; 2AO 4-20 mA; second RS485; Ethernet Modbus-TCP and FTP
Mechanical	Panel / cut-out / shell	96 x 96 mm / 88 x 88 mm / 86.5 x 86.5 x 50 mm
Environment	Operating / storage	-40 to +70 deg C / -40 to +80 deg C
Environment	Humidity / altitude	<=95% without condensation; standard use <=2000 m
Environment	Protection / location	IP54 front panel; IP30 body; indoor dry location

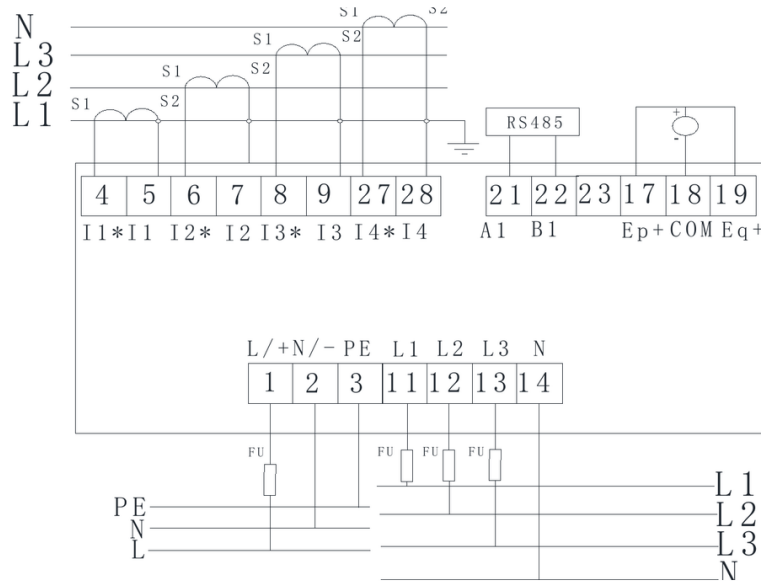
Functions

Function group	APM521 capability	Availability
Electrical measurement	Total electrical measurement including voltage, current, P, Q, S, power factor and frequency	Standard
Energy	Four-quadrant active/reactive energy, phase energy, apparent energy and multi-rate energy	Standard
Demand	Three-phase current and P/Q/S real-time demand; maximum demand with timestamp; last-month maximum demand with timestamp	Standard
Demand settings	Sliding-window demand width 1/2/3/5 min and period 5-60 min	Standard
Extreme-value statistics	This-month and last-month extreme electrical values with timestamps	Standard
Power quality	Voltage/current imbalance and phase angle; harmonic content 2nd-63rd; waveform, K-factor, deviation and sequence components	Standard
Frozen energy	24-hour, 31-day, 12-month and scheduled frozen energy	Standard
Records	Latest 128 DDO records and latest 128 alarm records	Standard
Communication	RS485 Modbus-RTU and DL/T 645-2007	Standard
Digital I/O	4 digital inputs and 2 digital outputs	Optional
Analog output	2 channels, 4-20 mA	Optional
Additional communication	Second RS485 Modbus-RTU or Ethernet Modbus-TCP / FTP	Optional

Wiring and Installation

APM521 Typical Wiring

Official APM521 manual drawing; external CTs are required for the current inputs.



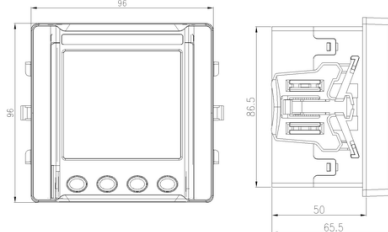
Embedded installation

APM521 Embedded Installation

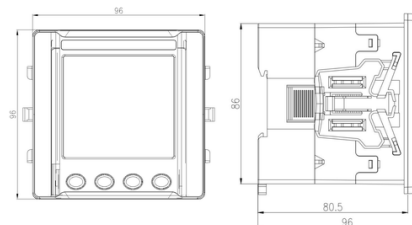
Actual product



Without extension module



With extension module



Panel 96 x 96 mm | Cut-out 88 x 88 mm | Shell 86.5 x 86.5 x 50 mm

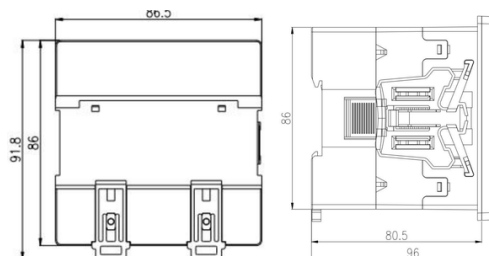
Optional Rail-Mounted Configuration

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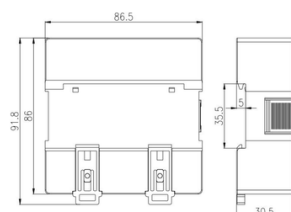
Actual product



Rail-mounted assembly



Optional extension module



Rail-mounted shell 96 x 96 x 96 mm | Extension module 86 x 86 x 30.5 mm