

17 Specifications

Frequency Range

DC and 10mHz to 2MHz

DC and 10mHz to 1MHz (50Arms version)

Voltage Input

Ranges – 1Vpk to 3000Vpk (1000Vrms) in 8 ranges

20% over-range ability maintains 300Vpk range with 240Vrms

Accuracy – $0.04\% \text{ Rdg} + 0.04\% \text{ Rng} + (0.004\% \times \text{kHz}) + 1\text{mV}^*$

External sensor input to 3Vpk – BNC connector

Current Input

The standard PPA is fitted with a 30Arms internal shunt.

10Arms or 50Arms internal shunts are available as an option

30Arms Shunt:

Ranges – 100mA_{pk} to 300A_{pk} (30Arms) in 8 ranges

Accuracy – $0.04\% \text{ Rdg} + 0.04\% \text{ Rng} + (0.004\% \times \text{kHz}) + 100\mu\text{A}^*$

10Arms Shunt:

Ranges – 10mA_{pk} to 30A_{pk} (10Arms) in 8 ranges

Accuracy – $0.04\% \text{ Rdg} + 0.04\% \text{ Rng} + (0.004\% \times \text{kHz}) + 10\mu\text{A}^*$

50Arms Shunt (PPA26xx series only):

Ranges – 300mA_{pk} to 1000A_{pk} (50Arms) in 8 ranges

Accuracy – $0.04\% \text{ Rdg} + 0.04\% \text{ Rng} + (0.004\% \times \text{kHz}) + 100\mu\text{A}^*$

External shunt input to 3Vpk – BNC connector

Phase Accuracy

5 millidegrees + (10 millidegrees x kHz)

10 millidegrees + (20 millidegrees x kHz) (50Arms shunt)

Watts Accuracy

$[0.05\% + 0.03\%/\text{pf} + (0.01\% \times \text{kHz})/\text{pf}] \text{ Rdg} + 0.05\% \text{VA Rng}$

DC Accuracy

Voltage – $0.1\% \text{ Rdg} + 0.1\% \text{ Rng} + 10\text{mV}$ (or 10uV external)

Current – $0.1\% \text{ Rdg} + 0.1\% \text{ Rng} + 1\text{mA}$ (or 10uV external)

Total Harmonic distortion (THD) Accuracy

$$THD + THD Error = \left(\frac{1}{h_1 + h_1 error} \right) \sqrt{\sum_{i=2}^{i=n} (h_i + h_i error)^2}$$

Voltage:

$$hi\ error\ (Voltage) = 0.04\% \ hi\ rdg + 0.04\% \ rng + 0.004\% * KHz + 1mV$$

Current:

10A:

$$hi\ error\ (Current) = 0.04\% \ hi\ rdg + 0.04\% \ rng + 0.004\% * KHz + 10uA$$

30A:

$$hi\ error\ (Current) = 0.04\% \ hi\ rdg + 0.04\% \ rng + 0.004\% * KHz + 100uA$$

50A, PPA26xx only:

$$hi\ error\ (Current) = 0.04\% \ hi\ rdg + 0.04\% \ rng + 0.004\% * KHz + 100uA$$

Common Mode Rejection

Total Common Mode and Noise effect on current channels

Applied 250V @ 50Hz – Typical 1mA (150dB)

Applied 100V @ 100kHz – Typical 3mA (130dB)

Datalog

Functions	Up to 4 measured functions user selectable
Datalog window	From 10ms with no gap between each log
Memory	RAM or non-volatile up to 8000 records

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High Speed Data Streaming

Rate	Up to 1000 reading/s single phase
Window	1ms to 1s synchronized to waveform
Buffer	Up to 8000 records

General

Crest factor	Voltage and Current - 20
Sample rate	Real time no gap - 2.2Ms/s on all channels
Low power accuracy	Compliant with IEC62301 using internal shunt Refer to low power measurement application note
Remote operation	Full capability, control and data
Application modes	PWM Motor Drive Ballast Inrush Power transformer

Ports

RS232	Baud rate to 19200 – RTS/CTS flow control
LAN (option L)	10/100 base-T Ethernet auto sensing RJ45
GPIOB (option G)	IEEE488.2 compatible
USB	USB device – 2.0 and 1.1 compatible
Speed	Analog bipolar +/- 10V or pulse count
Torque	Analog bipolar +/- 10V
Sync	Measurement synchronization for 6 phase mode
Extension	Master slave control and N4L accessory port

Physical

Display	320 x 240 dot LCD – white LED backlight
Size	PPA25xx - 125H x 355W x 250D mm – excl feet PPA26xx - 135H x 430W x 250D mm – excl feet
Weight	PPA25xx - 5kg – 1 phase 5.6kg – 3 phase PPA26xx - 5.5kg – 1 phase 6kg – 3 phase
Safety isolation	1000V rms or dc – category II
Power supply	90-265 rms 50-60Hz 35VA max

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Standard Accessories

Leads	Power, RS232, USB
Connection	36Arms rated 2 meter long leads with 4mm –
cables	stackable terminals 2x Yellow and 2x Black per phase
	Note 1: LC version instruments (rated at 10Arms) are supplied with 20Arms connection cables
	Note 2: HC version instruments (rated at 50Arms) are not supplied with connection cables or connection clips.
Connection	4mm terminated alligator clips –
clips	2x Yellow and 2x Black per phase
Documentation	Calibration Certificate, User manual with quick start guide, Communications manual

* measured fundamental value

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PPA Comparison Table

	PPA2500	PPA2600	PPA5500
Accuracy			
Basic reading + range	0.04% + 0.04%	0.04% + 0.04%	0.02% + 0.04%
Direct current input options			
10Arms (30Apk)	✓	✓	✓
30Arms (300Apk)	✓	✓	✓
50Arms (1000Apk)		✓	✓
Ranges	8	8	9
Bandwidth			
10Arms and 30Arms options	DC to 2MHz	DC to 2MHz	DC to 2MHz
50A current option		DC to 1MHz	DC to 1MHz
General features			
Display	BW Graphic	BW Graphic	High contrast Colour Graphic
Processing power - Harmonic computations per second	300	300	1,800
Non volatile internal Memory	192kB	192kB	1GB
USB port for memory drive			✓
Plug in USB memory drive - supplied standard			2GB
Non volatile real time clock			✓
Analogue output			✓
Internal datalog functions	4	4	16 (4 x 4)
Datalog record storage capacity	8,000	8,000	10,000,000
Frequency measurement accuracy	0.02%	0.02%	0.001%
Mechanical			
Handle	Fixed	Fixed	Adjustable
Tilt	Single position	Single position	Multiple position
19" Rack mounting option		✓	✓
Shared features			
Phases - Internal	1 - 3	1 - 3	1 - 3
Master Slave mode	4 - 6	4 - 6	4 - 6
Direct voltage input up to 3000Vpk	✓	✓	✓
No gap analysis	✓	✓	✓
RS232, USB, LAN* and GPIB* (* option)	✓	✓	✓
Direct Torque and speed inputs	✓	✓	✓
Harmonic mode with THD, TIF, THF, TRD and TDD	✓	✓	✓
RMS mode with dc, ac, pk, mean, cf, surge	✓	✓	✓
Impedance mode with resistance, reactance, phase	✓	✓	✓
Scope mode with high update speed	✓	✓	✓