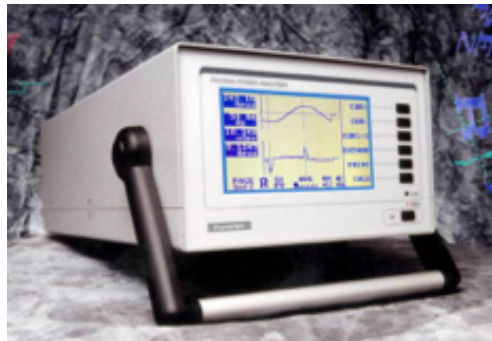


PXe-1010A Phase Angle Voltmeter

Measuring Vrms, inphase, quadrature, freq, ratios and phase angles



PXe-1010A Phase Angle Voltmeter

- **5mV to 500Vpk range**
- **2 galvanically isolated channels**
- **0.5Hz to 140kHz, 500kHz with external**
- **All PAV measurements including ratios**
- **Null meter, waveform display and THD Wattmeter and power factor option**
- **Upgrade program for SD1000 and Model 2000 to PXe-1010A GPIB, Serial and USB,**
- **compatible with SD1000 and Model 2000 Traceable to international standards via**
- **NIST (USA) and UKAS (UK) 5 year warranty**
-

About the PXe-1010A Phase Angle Voltmeter

Using Discrete Fourier Transform algorithms, the PXe-1010A provides capability, performance and versatility not available with traditional PAVs. Targeted at the Synchro/Resolver and LVDT/RVDT marketplace, this instrument makes measurements of Phase Angle, In-Phase, Quadrature (90° component), Fundamental and Total Vrms very straightforward. All these measurements are displayed simultaneously on a bright multifunction display. Isolated inputs allow null, ratio (in-phase, quad, fund, total rms, sum+difference) and gain measurements of key parameters. A reference offset facilitates bridging measurements along with a sensitive null meter for precise nulling.

Typical applications for a phase angle voltmeters (PAVs) are found in the area of position sensing, motion and control. Devices like Resolvers, LVDT (Linear Variable Differential Transformers) and RVDT (Rotary Variable Differential Transformers), convert mechanical movement and position to electrical signals, feeding a control system. Position sensors are used in a variety of applications like aircraft instruments, aircraft control surfaces, inertial navigation, gyros, autopilot and weapon aiming systems.

PAV upgrade program for military users

For decades the SD10000 phase angle meter has been used worldwide by armed forces and in the aviation sector. PX Electronics offers an upgrade package converting the SD1000 phase meter to a fully functioning PXe-1010A phase angle voltmeter. The benefits are large cost savings and continued compatibility with the user's in-house computer test systems, documentation and size - whilst adding full phase angle voltmeter capability along with multifunction display.

World-wide Traceability

All measurements made using the PXe-1010A and SD1000 are traceable to National and International standards; through the measurement standards of PX Electronics. A certificate of conformance is supplied as necessary for quality assurance standards such as IEC17025/ISO9001. Independent third-party measurement certification is possible using UKAS, A2LA or Z540/NVLAP certificate.

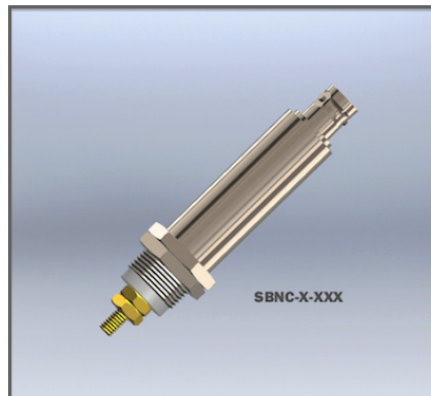
PXe-1010A phase angle meter applications

- Synchro, LVDT, RVDT actuators and positional sensors
- Current sensing for phase meters
- Single phase angle indicators V-A
- Three phase phase angle indicators V-A
- Cos Phi indicators
- Power factor meters
- Wideband Power meters
- Power analysis
- Current transformer calibration
- Current probe phase delay
- SCR phase control
- Measure output of automotive alternators
- Current detection in detonation systems
- Three-phase fault testing in power transmission substations
- Chopper current control in electric cars
- Circuit breaker testing

PXe-1010A Current measurement options

WIDE BANDWIDTH - HIGH FREQUENCY - ULTRA LOW PHASE SHIFT

Used to enable PXe-1010A phase angle
voltmeter measurements between voltage and
current



Non-inductive shunt Model Series A
Ultra low phase error 1A to 20A



Non-inductive shunt Option 02F/B, 2A -
50A



Non-inductive shunt Option 02F/B 0.1A - 10A

PXe-1010A SPECIFICATIONS

| | |
|---------------------|--|
| Channels/display | 2 isolated / 5 digits resolution 0.001° Null meter and Ratio |
| Measurement | For CH1 and CH2 Vrms, in-phase, fundamental, quadrature frequency, phase angle, power, PF, THD (% or dB) |
| Null Meter | 1uV sensitivity, 25uV total mode noise (variability) min range |
| Voltage input range | 5mV to 350Vrms (500Vpk). 1000Vpk optional |
| Phase input range | 0.000° to -360.000°, 0.000° to +360.000°, 0.000° to ±180.000° Resolution 0.001° |
| Frequency range | 0.5Hz to 140kHz, 500kHz with ext. sync |
| Common mode CMRR | 0.5Hz to 999.99Hz : 126dB 1kHz to 5kHz: 110dB 5kHz to 32 kHz: 100dB 32kHz to 64kHz: 91dB |
| Harmonic Rejection | 80dB (even and odd) |
| THD | ±0.05% |

| Max input | | ±500Vpk | |
|----------------------------|-------------------|-----------------------------------|------------|
| Input impedance | | 2M ohm 20pF | |
| Coupling | | AC or DC | |
| Averaging | | 0.5, 3 or 10 seconds | |
| Voltage and phase accuracy | | | |
| Frequency | Voltage Rdg%+rng% | Phase | Gain ratio |
| 0.5Hz to 100Hz | ±0.04% ±0.05% | ±0.02° ± 1 digit | ±0.02dB |
| >100Hz to 2kHz | ±0.05% ±0.05% | ±0.025° ± 0.005°/kHz ± 1 digit | ±0.03dB |
| >2kHz to 10kHz | ±0.08% ±0.08% | ±0.035° ± 0.005°/kHz ± 1 digit | ±0.04dB |
| >10kHz to 100kHz | ±0.2% ±0.2% | ±0.04° ± 0.005°/kHz ± 1 digit | ±0.12dB |
| >100kHz to 200kHz | ±0.75% ±0.75% | ±0.25° ± 0.005°/kHz ± 1 digit | ±0.2dB |
| Phase repeatability | | ± 0.005° | |

| | | |
|----------------------------|--|---|
| Frequency | Range | 0.5Hz to 700 kHz |
| | Accuracy | $\pm 0.1\%$ ($23^{\circ}\text{C} \pm 5^{\circ}\text{C}$) |
| Inputs | Voltage Range (operational) Current ranges using Options 02F/B All voltage and current input combinations are possible | 1mV rms to 350V rms (500Vpk) 20mA - 2Arms range Opt. 02F/B 1R00 5Hz - 20kHz 1.0Arms to 20Arms range Opt. 02F/B 0R01 5Hz - 20kHz |
| | Bandwidth | 0.5Hz to 700kHz |
| | Isolation (inputs to ground) Impedance | 2000V 2 Mohm and 20pF |
| Environment | Temperature | Operating 0°C to $+50^{\circ}\text{C}$, best accuracy $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Storage -40°C to $+70^{\circ}\text{C}$ |
| Dielectric Strength | Humidity (non-condensing) Inputs to case or AC line input Power supply to case | 10% to 90% RH 2kV AC 50/60Hz 1 minute 2kV AC 50/60Hz 1 minute 110V or 220V AC $\pm 10\%$ |
| Power Requirements | Line input voltage Line input frequency Line input fuse Line input conformance | 50/60Hz 315mAT IEC348 Class I; EN61000-3-2; EN61010 Class I; IEC801 Parts 1 to 4; EN55011 |
| | Power consumption | 25VA |
| Mechanical | Weight | 5kg (6kg in delivery packaging) |
| | Dimensions (W x H x D) | 215mm x 144mm x 390mm |

ORDERING INFORMATION

PXe-1010A (front input)

PXe-1010AR (Rear input)

PXe-1010AWR (Watts measurement and Rear input)

DC output option

SD-PXe-1010A (upgrade and conversion of SD1000 to
PXe-1010A)



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