

PORTABLE PHASE ANGLE VOLTMETER 6010



The 6010 offers economical phase and amplitude measurements in the 10Hz to 10kHz frequency range.



Industries Served

LVDT/RVDT
Manufacturers
Synchro/Resolver
Manufacturers
Military
Aerospace
Engineering Labs
General R&D
Gyroscope
Manufacturers
Turbine Testing
Test Labs

With full portability and optional IEEE488, or RS232 interfaces or an 8-channel Analog Output, the 6010 delivers many cost-saving benefits to engineering, production test, and field service. The implementation of simple and infrequent front panel (covers on) external calibration enables the user to maintain the high accuracy of the instrument with ease and with a minimum of costly calibration equipment.

XITRON's Digital Signal Processing Technology delivers flexibility. Impressive accuracy (0.2% amplitude, 0.5 deg phase) and bandwidth (10Hz to 10kHz), coupled with ease-of-use, make the 6010 ideal for field service and production engineers.

QUALITY AND RELIABILITY

XITRON Technologies, founded in 1990, is the premier source for precision power testing and measurement instruments used in industrial manufacturing and medical electronics. Using the latest digital signal processing and circuitry, XITRON's sophisticated technology gives our customers the edge in design verification and product manufacturability. XITRON is ISO 9001:2000, EN46001 registered, and FDA (GMP 820) compliant.

- Wide Bandwidth 10-10kHz
- 0.2% Amplitude Accuracy
- Full +/-180° range with 0.5° accuracy
- Total RMS, in phase, quadrature and frequency are measured
- RMS level or ratio displays
- Full 20mV to +/-15V input range on both inputs
- Optional +/- 150V input range

ORDERING INFORMATION

PART#	Description
6010	Portable Phase Angle Voltmeter (30Vrms full-scale)
6010-150	Portable Phase Angle Voltmeter (300 Vrms full-scale)
Options	
RS-BAT	RS232 interface
IE-BAT	IEEE 488 interface
T5	Universal free-standing charging adapter
CC	Canvas carrying case with accessory pouches
MO6010	Additional operating manual
RA	Rack adapter kit (single instrument)
RB	Rack adapter kit (three instruments)
NB	No internal battery

PORTABLE PHASE ANGLE VOLTMETER

6010



CONDENSED SPECIFICATIONS

(Contact XITRON for complete specifications)

Frequency Range: 10Hz to 10kHz (typical performance to 20kHz)

Isolation: Inputs are isolated from each other for voltages of up to 30Vpk isolation from ground (chassis), interface (if fitted), and Charging Module for voltages up to 1500Vpk

Input Voltage Range: Specifications are valid for input signals with RMS values between 30mV and +/-15V. Also available with +/- 150V input range

Max. Input Slew Rate: Specifications are valid for input voltage signals (either series or common mode) having <math><300\text{V}/\mu\text{s}</math> slew rate

Measurement Period: Approximately 0.5s

Settling Time: 8ms

Amplitude Accuracy (Multiply by 10 for 150V input range)

Resolution: 1mV for inputs up to 7.5V RMS, 10mV up to 15V RMS

Accuracy: 0.03 to 3.75V : 8mV + 0.8mV/kHz

3.75 to 7.5V : 15mV + 1.5mV/kHz

7.5 to 15V : 30mV + 3mV/kHz

Crest Factor: Better than 2:1 at 15V RMS, increasing linearly to 250:1 at 30mV. 30V peak max. input to maintain accuracy

Protection: 1000V peak continuously

Input Impedance: 100K Ω from any terminal to the Input A Low terminal

>1000M Ω || 5000pF from the Input A Low terminal to chassis

Phase Accuracy

Resolution: 0.1 $^\circ$

Accuracy: 0.5 $^\circ$ + 0.1 $^\circ$ /kHz + 0.01 $^\circ$ (15/Input A level) + 0.01 $^\circ$ (15/Input B level)

Technique: Proprietary correlation technique computing phase shift between correlating components in both input signals

General Specifications

Battery Discharge Time: Greater than 2.5 hours following full charge

Battery Charge Time: Less than 15 hours to full charge, may be operated continuously from the Charging Module if desired

Charging Input: Rear Panel mounted DC charging connector, 10-16V DC @ 2.5A max

Charging Module: 115VAC 50/60Hz US wall-socket type (others also available)

Battery Type: Sealed Lead Acid

Physical

Overall Size: 4.1" (104mm) wide by 6.3" (160mm) high by 9.7" (246mm) deep

Weight: 3lbs. (1.4Kg) in use, 8lbs. (2.3Kg) shipping

Environmental

Operating: 0 $^\circ$ C to 45 $^\circ$ C, less than 75% RH @ 40 $^\circ$ C (non-condensing)

Storage: -30 $^\circ$ C to +65 $^\circ$ C, less than 95% RH @ 40 $^\circ$ C (non-condensing)

Digital Interface

With either IEEE488 or RS232 interface, multi-instrument systems may be controlled via a single interface. Each instrument also may be controlled by individual interfaces

IEEE488: Full Talk/Listen capabilities. SH1AH1T6TE0L4LE0SR1RL1PP0DC1DT1C0

RS232: Full Talk/Listen capabilities. Selectable baud rate of 1200, 2400, 4800, 9600 or 19200 baud

Analog Interface

Number of Channels: 8

Output Voltage: -5V to +5V DC. Common ground

Resolution: 5mV

Accuracy: 0.1% of output + 5mV

Usage: Each output may be independently "connected" to any displayable parameter

Settling Time: Within accuracy specifications <math><0.5</math> seconds following measurement period changing parameter

Output Drive: 2mA max. load on each output, 10mA max. total load

Output Impedance: Less than 0.2W

External Calibration

The user may command an external calibration whenever desired. A one year external calibration interval is recommended for normal use. While calibration at 23 $^\circ$ C ambient is recommended, this may be performed at any temperature from 10 $^\circ$ C to 35 $^\circ$ C without degradation of accuracy specifications

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TECHNOLOGIES

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