

# Precision Phase Standard

## Model 5600

- 1Hz to 1MHz Freq. Range
- 0.1m<sup>o</sup> Resolution
- Output Current > 30mA
- Hi Resolution Color Display
- Voltage Accuracy: 0.5%
- IEEE-488, USB
- 50mV to 120V
- Phase accuracy: 5m<sup>o</sup>



The Model 5600 Precision Phase Standard replaces the industry standard Model 5500-2. Using the latest digital techniques and optimally designed output circuitry the Model 5600 offers the same level of high accuracy, voltage range and low distortion as the Model 5500-2 but now covers a much greater frequency range, can drive loads of up to 30mA and a full decade of higher resolution. It also does this at a remarkably low cost and in a much smaller package. The combination of excellent phase accuracy, excellent amplitude accuracy and low distortion from each channel make the Model 5600 ideal for calibrating Phase Meters, Phase Angle Voltmeters, Vector Voltmeters, Power Analyzers and FRA's.

The Model 5600 contains an "auto-zero" function which measures the output phase at  $\pm 90^\circ$  and makes an internal correction to remove any phase errors between the two output channels. This function is activated automatically anytime the amplitude or frequency is changed. It may also be activated manually. The automatic function can also be disabled by the user.

### IEEE-488 AND USB INTERFACE STANDARD

The Model 5600 Phase Standard has an IEEE-488 interface and USB as standard features. Via these interfaces the user can set the phase angle, frequency and voltage.

### EASY TO CALIBRATE

The complete set of specifications of the Model 5600 can be checked with an accurate PAV such as the Clarke Hess Model 2600, a good Distortion Analyzer such as the

Clarke Hess Model 7600 and a set of Clarke Hess Model 5002 Phase Verification Bridges.

## DESCRIPTION

The Model 5600 is a crystal controlled phase angle calibration standard. It produces two digitally synthesized, low distortion sine waves. The relative phase angle between these two sine waves can be varied in  $0.0001^\circ$  steps over the range of  $-999.9999^\circ$  to  $999.9999^\circ$ . The amplitude of the two outputs may be individually adjusted from 50mV to 120V rms.

## SPECIFICATIONS

Frequency Range	1 Hz to 1MHz
Phase Angle Range:	$0.0000^\circ$ to $\pm 999.9999^\circ$
Output Voltage Range (each channel)	50mV to 120V up to 200kHz; 50mV to 8V up to 1MHz
Phase Resolution	$0.0001^\circ$

### Phase Accuracy

1Hz to 1kHz	$\pm 5m^\circ$
>1kHz to 6.25kHz	$\pm 10m^\circ$
>6.25kHz to 50kHz	$\pm 15m^\circ$
>50kHz to 200kHz	$\pm 40m^\circ$
>200kHz to 1MHz	$\pm [40 + 210(\text{fkHz}-200)\div 800] m^\circ$

### Voltage Accuracy (each channel)

1Hz to 50kHz	$\pm 0.5\% \pm 5mV$
>50kHz to 100kHz	$\pm 1\% \pm 25mV$
>100kHz to 200kHz	$\pm 5\% \pm 50mV$
>200kHz to 1MHz	$\pm 10\%$

### Voltage Resolution (each channel)

50mV to 9.999V	1mV
10V to 99.99V	10mV
100V to 120V	100mV

### THD plus noise

- Less than 0.02% from 1 Hz to 1kHz
- Less than 0.05% from 1kHz to 20kHz
- Less than 0.13% from 20kHz to 50kHz
- Less than 0.30% from 50kHz to 600kHz

Output DC offset: Less than 0.5% of Voltage Setting plus 5mV

Maximum output current: 30mA

Output impedance: 0.5 ohms at 1kHz

Maximum output load capacitance: 3000pf

Warmup time: 30 minutes

### General

Display	4.3" High Resolution Color TFT
Digital Interface	IEEE-488.2, USB
Size	Approximately 17" W x 3.5" H x 13" D
Temperature range	Operating: 0° to 40°C Within specification: 23°C ± 5°
Humidity	Within specification: 20% to 50% RH noncondensing
Storage Environment	Temperature Range: 0° to 50°C Humidity Range: 15% to 80% RH noncondensing
Weight	Approximately 14.5 pounds
Power supply	100V, 120V, 220V, 240Vrms, 47Hz to 63Hz, 30VA max.
Warranty	1 year

