SPECIFICATION

DESCRIPTION

The TEKTRONIX P6230 is a low-impedance, subminiature, 10X active probe for use with broad-band oscilloscopes. The P6230 is equipped with an internal/external 50-ohm termination switch which allows the probe to be used on scopes having an input resistance of either 50Ω or 1 MΩ. A coding pin on the BNC connector advances the Volts/Division reading by 10X, on oscilloscopes equipped with this feature, so that the correct deflection factor at the probe tip is indicated.

The compensation box of the P6230 houses an active circuit which provides a variable voltage at the probe tip. This voltage is used to minimize probe-loading effects. The voltage available at the tip of the P6230 spans the range from -5 volts to +5 volts, allowing the probe to minimize loading effects on most logic families that are in use today.

The P6230 is available with a 1.6-meter signal cable and a 1.4-meter power cable.

The subminiature probe head of the P6230 is fully compatible with the Tektronix family of subminiature probe accessories.

ACCESSORIES

The P6230 is shipped with the following standard accessories:

1 Instruction manual
1 Carrying pouch
1 Hook tip
2 Circuit-board-to-probe-tip connectors
1 Ground lead with microhook
1 Low-inductance ground lead
1 Ground lead with alligator clip
1 Probe holder
4 Sets of cable markers (2 each: white, gray, red, green)

Use of these accessories is described in the "Operating Instructions" section of this manual. Part numbers and optional accessories are listed in the "Replaceable Parts List" (Section 7).

PERFORMANCE CONDITIONS

The electrical characteristics listed in Table 1-1 apply when a calibrated probe is used with a calibrated oscilloscope system operating within the environmental conditions stated in Table 1-2.

Items listed in the "Performance Requirement" column are verifiable qualitative or quantitative limits.

Items listed in the "Supplemental Information" column are not verified in the "Performance Check Procedure" (Section 3); they are either explanatory notes, calibration setup descriptions, performance characteristics for which no absolute limits are specified, or characteristics that are impractical to check.

The probe's physical characteristics are listed in Table 1-3.

Table 1-1

Electrical Characteristics

Characteristic	Performance Requirement	Supplemental Information
Attenuation (system)	10X ±3% at dc.	Probe terminated by 50Ω ±0.5%.
Input Resistance (system)	450Ω ±1% at dc.[a]	Probe terminated by 50Ω ±0.5%.
Input Capacitance (1 kHz to 1.5 GHz)	Less than 1.6 pF.[a]	Typically 1.3 pF. See Figure 1-1 for a graph of input impedance versus frequency.

[a] **Performance Requirement not checked in manual.**

Table 1-1 (cont.)

Characteristic	Performance Requirement	Supplemental Information
Bandwidth (−3 dB) (Probe Only)	DC to at least 1.5 GHz.	Calculated from risetime: BW = 0.35 ÷ risetime.
Risetime (Probe Only)	Less than 230 ps.	Test system must have a risetime of less than 100 ps.
Aberrations (Probe Only)	<+4%, −9% for the first 1 ns (referenced from 1 ns); ±3% thereafter.	In addition to system aberrations.
Signal Delay	8.70 ns ±100 ps.[a]	Probe tip to output BNC.
Input Dynamic Range	$-5\ V \leqslant (V_{signal} + V_{offset}) \leqslant +5\ V$.	
Offset Null	Less than ±10 mV.	
DC Offset Range	0 to at least +5 V and −5 V.	Measured from probe tip to ground with a high impedance (≥ 50 kΩ/V) voltmeter.
DC Thermal Drift	Less than 10 mV/hr/°C.	Equivalent input offset voltage.

[a]**Performance requirement not checked in manual.**

Table 1-1 (cont)

Electrical Characteristics

Characteristic	Performance Requirement	Supplemental Information
Output Load Requirement	50 Ω ±0.5%.[a]	
Maximum Nondestructive Input Voltage	10 Vdc continuous, 30 V (dc + peak ac) for 1 sec.[a]	
Power Supply Requirements	Tektronix Oscilloscope Probe Power Supply.	+15 Vdc ±4%. −15 Vdc ±4%. Less than 10 mV ripple (20 Hz to 500 Hz).

[a] Performance Requirement not checked in manual.

Table 1-2

Environmental Characteristics

Characteristic	Information
Temperature Range (Operating)	0°C to +50°C (+32°F to +122°F).
Temperature Range (Nonoperating)	−55°C to +75°C (−67°F to +167°F).
Humidity	Five cycles (120 hr.) at 90% to 95% relative humidity at 30°C to 60°C.
Altitude (Operating)	To 4,600 m (15,000 ft).
Transportation	Qualifies under National Safe Transit Association's Pre-shipment Test Procedures; 1A-B-1.

Table 1-3

Physical Characteristics

Characteristic	Information
Net Weight (includes accessories)	400 g (14 oz).
Signal Cable Length	1.6 m (61 in).
Power Cable Length	1.4 m (54 in).

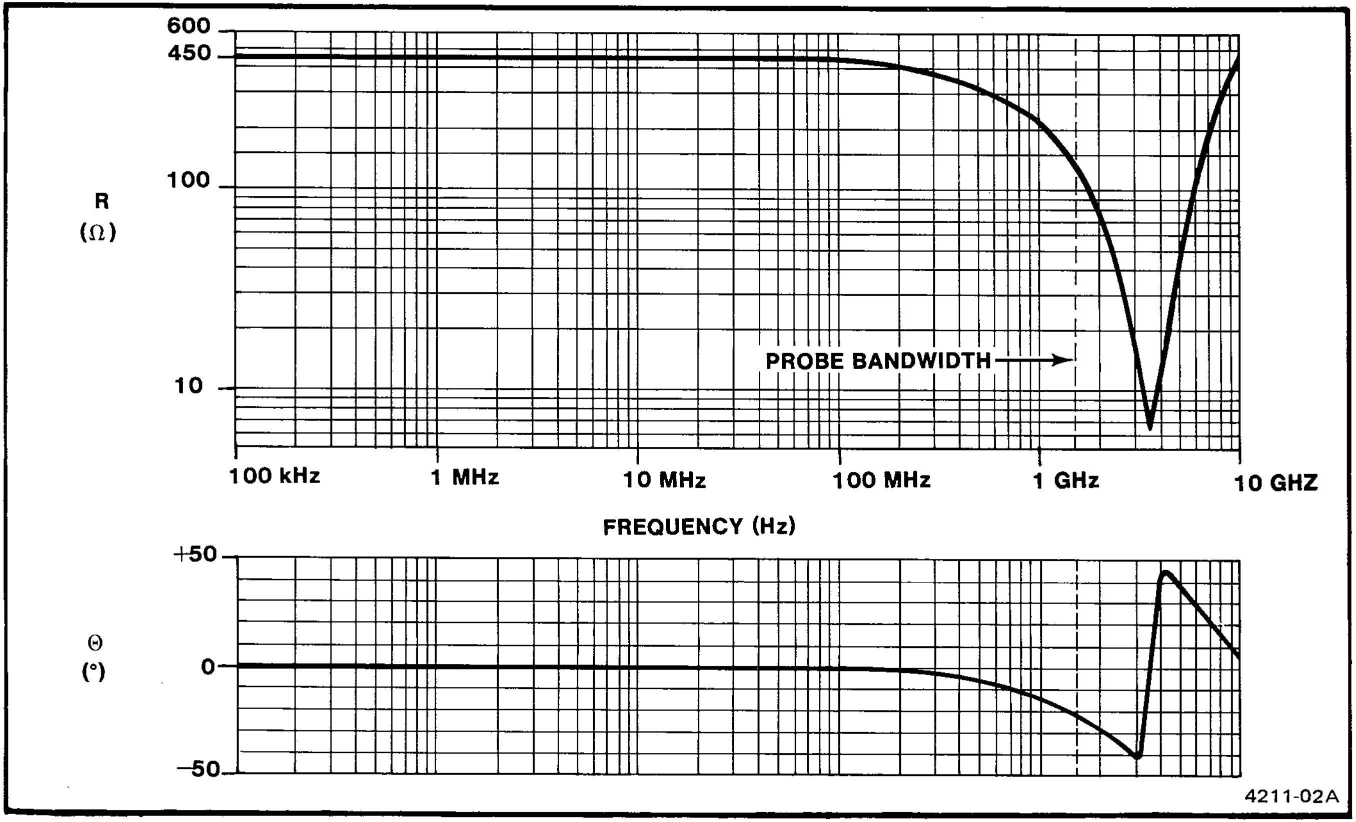

Figure 1-1. Typical input impedance versus frequency.