

ELECTRICAL CHARACTERISTICS

Characteristic	Performance Requirements	Supplemental Information
Vertical Deflection Factors		
Input Current (In +Input I and -Input I Functions)	50 pA/div to .2 mA/div in a 1-2-5 sequence unmagnified, 5 pA/div to 20 μ A/div with 10X magnifier on.	
Accuracy ^a	Within $\pm 3\%$ ± 50 pA, unmagnified. Within $\pm 4\%$ ± 50 pA with 10X magnifier on.	
Voltage ^b	10 μ V/div to 50 mV/div in a 1-2-5 sequence, unmagnified.	
	1 μ V/div to 5 mV/div with 10X magnifier on.	
GAIN and OFFSET V Functions Accuracy ^b	Within $\pm 3\%$, unmagnified; $\pm 4\%$ with 10X magnifier on.	
CMRR Function Accuracy	Within $\pm 3\% + \frac{100 \text{ K}}{\text{Gain} - \text{K}} \% \pm \frac{150}{\text{K}} \mu\text{V}/\text{V}_{\text{cm}}$.	
	Within $\pm 4\% + \frac{100 \text{ K}}{\text{Gain} - \text{K}} \% \pm \frac{150}{\text{K}} \mu\text{V}/\text{V}_{\text{cm}}$ with 10X magnifier on (1 μ V/div to 5 μ V/div); see footnotes b and c.	
PSRR Function Accuracy	Within $\pm 3\% + \frac{100 \text{ K}}{\text{Gain} - \text{K}} \%$.	
	Within $\pm 4\% + \frac{100 \text{ K}}{\text{Gain} - \text{K}} \%$ with 10X magnifier on (1 μ V/div to 5 μ V/div); see footnotes b and c.	
Power Supply		
Current	1 nA/div to 50 mA/div in a 1-2-5 sequence, unmagnified. 0.1 nA/div to 5 mA/div with 10X magnifier on.	
Current Mode Accuracy ^a	Within $\pm 3\%$ ± 1 nA unmagnified; $\pm 4\%$ ± 1 nA with 10X magnifier on.	

^aAccuracies are the highest percentage of on-screen values.

^bVertical magnification is not recommended for .5 mV/div through 50 mV/div unmagnified settings.

^cDUT gain with small signal out near zero volts with 50 k Ω load:

K = 10 for 50 mV/div to 1 mV/div, K = 100 for .5 mV/div to 100 μ V/div, and K = 1000 for 50 μ V/div to 10 μ V/div to 10 μ /div. V_{cm} = Common-mode voltage.

ELECTRICAL CHARACTERISTICS (cont)

Characteristic	Performance Requirements	Supplemental Information
Collector Supply		
Current	1 nA/div to 50 mA/div in a 1-2-5 sequence, unmagnified . 0.1 nA/div to 5 mA/div with 10X magnifier on.	
Current Mode Accuracy ^a	Within $\pm 3\%$ ± 1 nA, unmagnified. $\pm 4\%$ ± 1 nA with 10X magnifier on.	
Positive and Negative Supplies		Both supplies can be adjusted from the +SUPPLY control. Negative supply can be independently adjusted using the uncalibrated -SUPPLY control.
Voltage	Adjustable from 0 to 30 V.	
Accuracy	Within $\pm 2\%$ ± 100 mV.	The -SUPPLY voltage is within $\pm 1\%$ (absolute) of the +SUPPLY voltage when the -SUPPLY control is in the TRACK +SUPPLY position.
Current	At least 150 mA	Adjustable current limiting.
Sweep Generator		
Frequency	0.1 Hz to 1 kHz, sinusoidal signal. Five ranges, 0.1, 1, 10, 100, and 1000 Hz with X.1 to X1 variable.	Ranges overlap at X.1 end of variable.
Accuracy	Within $\pm 5\%$ in calibrated (X1) position.	
Amplitude (In OFFSET and GAIN Functions)	Adjustable from 0 V to 30 V $\pm 3\%$ maximum peak.	Adjustable, depends on function. The voltage should be limited to the output capability of the dut.
Common-mode Voltage in INPUT I and CMRR Function	0 V to 30 V $\pm 3\%$ maximum peak. In the 1 mV/div to 50 mV/div ranges, the values are 10% lower.	Limited to the power supply voltages (clipped).
Power Supply Voltage in PSRR and SUPPLY I Functions		See Positive and Negative Supplies.
Manual Sweep		The Generator output may be manually set to any dc level (uncalibrated) within its amplitude range (depends on the setting of the FUNCTION switch).

^aAccuracies are the highest percentage of on-screen values.

ELECTRICAL CHARACTERISTICS (cont)

Characteristic	Performance Requirements	Supplemental Information
Source Resistance Resistances		<p>Four pairs; 50 Ω, 10 kΩ, 20 kΩ, and 50 kΩ.</p> <p>When the VERT UNITS/DIV switch is set to 1 mV/DIV through 50 mV/DIV, the indicated values increase by 500 Ω. External resistors can be used.</p>
Tolerance		$\pm 1\% \pm 10 \Omega$.
Load Resistance Resistance		Seven resistances; 100 Ω , 1 k Ω , 2 k Ω , 5 k Ω , 10 k Ω , 20 k Ω , and 50 k Ω .
Tolerance		<p>$\pm 3\%$ except when using the 50 mV, 20 mV, and 10 mV positions of the VERT UNIT/DIV switch. The tolerance for the 50 kΩ then becomes $\pm 30\%$, for the 20 kΩ $\pm 14\%$, 10 kΩ $\pm 7\%$, and 5 kΩ $\pm 3\%$ when the dut output voltage swing is 2.5 V or less. The maximum tolerance decreases exponentially as the output swing is increased and is less than $\pm 3\%$ when the output is swinging ± 30 volts.</p>

ENVIRONMENTAL CHARACTERISTICS

Characteristic	Performance Requirement	Supplemental
Temperature		
Specified Operating		+10° C (+50° F) to +40° C (+104° F).
Useful Operating		0° C (+32° F) to +50° C (+120° F).
Non-operating		−40° C (−40° F) to +65° C (+149° F).
Altitude		
Operating		To 10,000 feet (3000 meters).
Transportation		12-inch (30 cm) package drop. Qualified under the National Safe Transit Committee procedure 1A.

PHYSICAL CHARACTERISTICS

Characteristic	Performance Requirement	Supplemental
Dimensions		
Height		4.5 inches (11.4 cm).
Width		7.9 inches (20.1 cm).
Depth		7.8 inches (19.8 cm).
Weight		
Net		3.3 pounds (1.5 kg).

Standard Accessories

Refer to the Replaceable Mechanical Parts list for a listing of the standard accessories.