Table 1-3. 8050A Specifications

ELECTRICAL: The electrical specifications given apply for an operating temperature of 18°C to 28°C (64.4°F to 82.4°F), relative humidity up to 90%, and a 1-year calibration cycle.

FUNCTIONS: DC volts, AC volts (linear and dB), DC current, AC current, resistance, diode test, conductance, relative.

DC VOLTS*:

RANGE	RESOLUTION	ACCURACY for 1-Year
±200 mV	10 μV	±(0.03% of reading +2 digits).
±2V	100 μV	
±20V	1 mV	
±200V	10 mV	
±1000V	100 mV	

INPUT IMPEDANCE: 10 MΩ in parallel with <100 pF, all ranges

NORMAL MODE REJECTION RATIO: >60 dB at 60 Hz or 50 Hz

COMMON MODE REJECTION RATIO: >90 dB at dc, 50 Hz or 60 Hz (1 kΩ unbalanced)
(>120 dB available on request)

COMMON MODE VOLTAGE (MAXIMUM): 500V dc or peak ac

RESPONSE TIME TO RATED ACCURACY: 1 second maximum

MAXIMUM INPUT: 1000V dc or peak ac continuous (less than 10 seconds duration on both the 200 mV and 2V ranges).

*DC Volts can also be measured using the dB mode with .01 dB resolution between 5% of range and full range.

AC VOLTS (TRUE RMS RESPONDING, AC COUPLED):

VOLTAGE READOUT ACCURACY: ± (% of reading + no. of digits), between 5% of range and full range.

INPUT VOLTAGE	RESOLUTION	RANGE	20 Hz**	45 Hz	1 kHz	10 kHz	20 kHz	50 kHz
10 mV - 200 mV	10 μV	200 mV	1%+10		.5%+10	1%+10	5%+30	NOT SPECIFIED
0.1V - 2V	100 μV	2V						
1V - 20V	1 mV	20V						
10V - 200V	10 mV	200V						
100V - 750V	100 mV	750V						

**Typically 3 to 5 digits of rattle will be observed at full scale at 20 Hz.*

Table 1-3. 8050A Specifications (cont)

dB RANGES:

INPUT VOLTAGE	dBm (600 Ω REF)	ACCURACY: from 5% of range to full scale, 1-year					
		RANGE	20 Hz	45 Hz	1kHz	10 kHz	20 kHz	50 kHz
0.77 mV - 2 mV	-60 to -52	200 mV*	0.5 dBm					
2 mV - 2V	-52 to +8	200 mV*	±0.25 dBm		±0.15 dBm	±0.25 dBm	±0.75 dBm	
0.1V - 2V	-18 to +8	2V						
1V - 20V	+2 to +28	20V						
10V - 200V	+22 to +48	200V				NOT SPECIFIED		
100V - 750V	+42 to +60	750V						

When 200 mV range is selected the 8050A autoranges for best accuracy for 2V inputs and less.

RESOLUTION: 0.01 dB from 5% of scale to full scale; 0.1 dB from 1-5% of scale, 1 dB below 1% of scale.

VOLT - Hz PRODUCT: 10^7 max (200V max @ 50 kHz)

EXTENDED dB RESPONSE: Typically -72 dB (600Ω Ref) ± 1 dB to 10 kHz

EXTENDED FREQUENCY RESPONSE: Typically -3 dB at 200 kHz

COMMON MODE REJECTION RATIO (1 kΩ unbalance): >60 dB at 50 Hz or 60 Hz

CREST FACTOR RANGE: Waveforms with a Peak/RMS ratio of 1:1 to 3:1 at full scale, increasing down range

INPUT IMPEDANCE: 10 MΩ in parallel with <100 pF

MAXIMUM INPUT VOLTAGE: 750V rms or 1000V peak continuous (less than 10 seconds duration on both the 200 mV and 2V ranges), not to exceed the volt-hertz product of 10^7.

RESPONSE TIME: 2 seconds maximum within a range

REFERENCE IMPEDANCES: Fifteen user selectable impedance reference levels are provided to reference a 0 dBm, 1 mW level (50Ω, 75Ω, 93Ω, 110Ω, 125Ω, 135Ω, 150Ω, 250Ω, 300Ω, 500Ω, 600Ω, 800Ω, 900Ω, 1000Ω, 1200Ω), and an 8Ω impedance reference level is provided to reference a 0 dBW level.

DC CURRENT:

RANGE	RESOLUTION	ACCURACY for 1-Year	BURDEN VOLTAGE
200 μA	0.01 μA	±(0.3% of reading + 2 digits	0.3V max
2 mA	0.1 μA		
20 mA	1 μA		
200 mA	10 μA		
2000 mA	100 μA		0.9V max

OVERLOAD PROTECTION: 2A/250V fuse in series with 3A/600V fuse (for high energy sources).

Table 1-3. 8050A Specifications (cont)

AC CURRENT (TRUE RMS RESPONDING, AC COUPLED):

INPUT CURRENT	RESOLUTION	RANGE	20 Hz**	45 Hz	2 kHz	10 kHz	20 kHz	BURDEN VOLTAGE
10 μA - 200 μA	0.01 μA	200 μA	2%+10	1%+10			2%+10	0.3V rms max
100 μA - 2 mA	0.1 μA	2 mA						
1 mA - 20 mA	1 μA	20 mA						
10 mA - 200 mA	10 μA	200 mA						
100 mA - 2000 mA	100 μA	2000 mA			Not specified			0.9V rms max

***Typically 3 to 5 digits of rattle will be observed at full scale at 20 Hz.*

CREST FACTOR RANGE: Waveforms with a Peak/RMS ratio of 1:1 to 3:1 at full scale.

RESISTANCE:

RANGE	RESOLUTION	ACCURACY for 1-Year	FULL SCALE VOLTAGE ACROSS UNKNOWN RESISTANCE
200Ω	0.01Ω	±(0.1% reading + 2 digits + .02Ω)	.19V
2 kΩ	0.1Ω		1.2V
20 kΩ	1Ω	±(.05% of reading + 2 digits)	.2V
200 kΩ	10Ω		2V
2000 kΩ	100Ω	±(0.25% reading + 3 digits)	.2V
20 MΩ	1 kΩ		2V

OVERLOAD PROTECTION: 500V dc/ac rms on all ranges

OPEN CIRCUIT VOLTAGE: Less than 3.5V on all ranges

RESPONSE TIME (TO RATED ACCURACY): 10 seconds maximum on 20 MΩ range
2 seconds maximum on all other ranges

DIODE TEST: ⏩ These three ranges have enough voltage to turn on silicon junctions to check for proper forward-to-back resistance. The 2 kΩ range is preferred and is marked with a larger diode symbol on the front panel of the instrument. The three non-diode test ranges will not turn on silicon junctions so in-circuit resistance measurements can be made with these three ranges.

CONDUCTANCE:

RANGE	RESOLUTION	ACCURACY for 1-Year
2 mS	.1 μS (10 MΩ)	±(0.1% of reading + 5 digits)
200 nS	.01 nS (100,000 MΩ)	±(0.5% of reading + 20 digits)

MAXIMUM OPEN CIRCUIT VOLTAGE: <3.5V

OVERLOAD PROTECTION: 500V dc/ac rms on all ranges

CONDUCTANCE UNITS: We use the international unit of conductance, the siemen = S = 1/Ω. Another unit of conductance is the mho.

Table 1-3. 8050A Specifications (cont)

RELATIVE:

RELATIVE REFERENCE: An input applied when the RELATIVE button is depressed to the ON position is held as "0" reference point. Subsequent readings indicate the deviation (±) from this point. (Note: REL annunciator indicates when this mode is enabled.)

RELATIVE ACCURACY: Error will not exceed the sum of the errors of the two measurements.

ENVIRONMENTAL:

TEMPERATURE COEFFECIENT: <0.1 times the applicable accuracy specification per °C for 0°C to 18°C and 28°C to 50°C (32°F to 64.4°F and 82.4°F to 122°F).

OPERATING TEMPERATURE: 0°C to 50°C (32°F to 122°F).

STORAGE TEMPERATURE: (without batteries): −40°C to +70°C (−40°F to +158°F).
(with batteries): −40°C to +50°C (−40°F to +122°F).

RELATIVE HUMIDITY: Up to 90%, 0°C to 35°C (32-95°F), up to 70%, 35°C to 50°C (95-122°F), except on 2000 kΩ, 20 MΩ, and 200 nS ranges where it is up to 80%, 0°C to 35°C (32-95°F).

GENERAL:

MAXIMUM COMMON MODE VOLTAGE: 500V dc, or peak ac (low terminal potential with respect to power line ground)

SIZE: 22 cm X 6 cm X 25 cm (8-½" X 2-½" X 10") See Figure 1-8.

WEIGHT: 1.08 kg (2 lbs., 6 oz.)

POWER REQUIREMENTS (LINE ONLY MODELS):

LINE VOLTAGE: 90 to 110V ac 47 to 440 Hz
105 to 132V ac, 47 to 440 Hz
200 to 264V ac, 47 to 440 Hz
Factory configured for customerspecified voltage.

POWER CONSUMPTION: 4W max.

STANDARDS: IEC 348 Protection Class 1

Table 1-4. 8050A Option Specifications

–01 BATTERY OPTION:

BATTERIES: TYPE: NiCAD
OPERATING TIME: 10 hours, typical
RECHARGE TIME: (with POWER switch in OFF position): 14 hours for full charge

POWER CONSUMPTION: 6W max.

LINE VOLTAGE: 90-264V, 47-440 Hz, field changeable

STANDARDS: IEC 348: Protection Class 1 when operated from supply mains
Protection Class 2 when operated from internal batteries

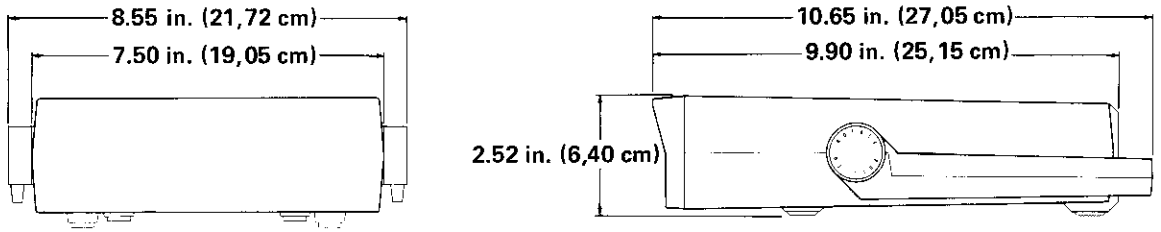

Figure 1-8. 8050A Dimensions