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SPECIFICATIONS

Electrical

Table 1 delineates the electrical specifications for the test sets.

Table 1: Specifications of Input and Output

Cat. No.	Input Voltage For nominal line voltage, single phase	Output Voltage For nominal dc line voltage, continuously variable, negative polarity with respect to ground, less than 1 mA output current.	Output Current Maximum rating (thermal)
220070	120 V (105-130 V) 50/60 Hz 5 A	0 to70 kV	5 mA for 30 min 3.5 mA continuous
220072	120 V (105-130 V) 50/60 Hz 5 A	0 to70 kV	5 mA for 30 min 3.5 mA continuous
220070-47	240 V (210-260 V/) 50/60 Hz 2.5 A	0 to70 kV	5 mA for 30 min 3.5 mA continuous
220072-47	240 V (210-260 V/) 50/60 Hz 2.5 A	0 to70 kV	5 mA for 30 min 3.5 mA continuous
220123	120 V (105-130 V) 50/60 Hz 10 A	0 to120 kV	5 mA for 20 min 2.5 mA continuous
220124	120 V (105-130 V) 50/60 Hz 10 A	0 to120 kV	5 mA for 20 min 2.5 mA continuous
220123-47	240 V (210-260 V) 50/60 Hz 5 A	0 to120 kV	5 mA for 5 min 2 mA continuous

Cat. No.	Input Voltage For nominal line voltage, single phase	Output Voltage For nominal dc line voltage, continuously variable, negative polarity with respect to ground, less than 1 mA output current.	Output Current Maximum rating (thermal)
220124-47	240 V (210-260 V) 50/60 Hz 5 A	0 to120 kV	5 mA for 5 min 2 mA continuous
220163	120 V (105-130 V) 50/60 Hz 10 A	0 to160 kV	5 mA for 20 min 2 mA continuous
220164	120 V (105-130 V) 50/60 Hz 10 A	0 to160 kV	5 mA for 20 min 2 mA continuous
220163-47	240 V (210-260 V) 50/60 Hz 5 A	0 to160 kV	5 mA for 5 min 1.5 mA continuous
220164-47	240 V (210-260 V) 50/60 Hz 5 A	0 to160 kV	5 mA for 5 min 1.5 mA continuous

Ripple is less than 2 percent on capacitive test samples at continuous-rated output values.

Regulation is less than 20 percent from no-load to continuous-rated output current.

Special internal guard circuit eliminates the extra meter connection lead required on most dc test sets. The simplified guard circuit reduces internal leakage current to less than 0.1 μA at full-rated output voltage. Guard terminal on HV output cable allows optional connection to test sample.

VOLTMETER

220070 and -47	Digital voltmeter: 0 – 70 kV
220123 and -47	Resolution: 100 volts
220163 and -47	Accuracy: ±2% of reading + 100 volts
220072 and -47	4.5", Analog voltmeter: 0 – 40 kV, 0 – 80 kV
	Resolution: 1 kV/ 2 kv
	Accuracy: ±2% of full scale

220124 and -47	4.5", Analog voltmeter: 0 – 60 kV, 0 – 120 kV
	Resolution: 1 kV/ 2 kV
	Accuracy: ±2% of full scale
220164 and -47	4.5", Analog voltmeter: 0 – 80 kV, 0 – 160 kV
	Resolution: 2 kV/ 4 kV
	Accuracy: ±2% of full scale
AMMETER	
220070 and -47	Digital ammeter: 0 – 19.9, 0 – 199 μA, 0 – 1.99, 0 – 5.00mA
220123 and -47	Accuracy: ±2% of reading + 1 count
220163 and -47	
220072 and -47	4.5", Analog ammeter: 0 – 5 μA
220124 and -47	Multipliers: x1k, x100, x10, x1
220164 and -47	Maximum Resolution: 0.1 μA
	Accuracy: ±2% of full scale

All high-voltage components are encapsulated or sealed in dielectric housing for high reliability and minimum size and weight. There is a surge-limiting resistor in series with the high-voltage output and a bleed-off resistor for the discharging of charge stored in the unit.

Safety Features

- Input supply line circuit breaker.
- Output current overload relay.
- Zero-start interlock for high-voltage output.
- Push-button controls for high-voltage ON and OFF.
- Indicating lights for high-voltage ON and OFF.
- Connection for external permissive and safety switches.
- Protection against damage by overloads and surges.
- Control unit separated from HV unit by 15 ft (4.6 m) of interconnection cable.

Physical Characteristics

CONTROL UNIT

The control unit is housed in a sturdy, suitcase-style portable case.

Cat. No.	Dimensions	Weight
220070, 220072, 220123, 2200124, 220163 and 2200164	20 x 12 x 12 ½ in. (L x W x H) (50.8 x 30.5 x 31.8 cm)	23 lb (10.5 kg)
220070-47, 220072-47, 220123-47, 2200124-47, 220163-47 and 2200164-47	20 x 12 x 12 ½ in. (L x W x H) (50.8 x 30.5 x 31.8 cm)	25 lb (11.4 kg)

HV UNIT

The HV unit is housed in a high-impact strength polyethylene housing with an adjustable shoulder carrying strap.

Cat. No.	Dimensions	Weight
220070 and -47 22072 and -47	12 x 12 x 20 in. (L x W x H) (30.5 x 30.5 x 51 cm)	44 lb (20 kg)
220123 and -47 220124 and -47	12 x 12 x 29 in. (L x W x H) 30.5 x 30.5 x 74 cm)	65 lb (30 kg)
220163 and -47 220164 and -47	12 x 12 x 29 in. (L x W x H) (30.5 x 30.5 x 100 cm)	73 lb (33 kg)

CABLE CARRYING CASE

The cable carrying case is a sturdy canvas bag that holds all test cables, instruction manual, and test reports. Bag has convenient carrying handle and an adjustable shoulder strap.

Cat. No.	Dimensions	Weight
220070 and -47 220072 and -47	12 W x 17 H x 4 in. thick (30.5 x 43 x 10 cm)	7 lb (3 kg) incl Cables

Cat. No.	Dimensions	Weight
220123 and -47 220124 and -47 220163 and -47 220164 and -47	15 W x 17 H x 4 in. thick (38 x 43 x 10 cm)	9 lb (4 kg) incl Cables

TEST CABLES AND ACCESSORIES

- One 8-ft, 3-wire input supply cord
- Two 15-ft ground cables
- One 15-fi interconnection cable
- One 15-ft shielded HV output test cable, detachable
- Instruction Manual
- Kilovolt/megohm graph paper, 100-sheet pad (Cat. No. 220000).

Environmental

Operating Temperature Range: -20 to 130°F (-30 to 55°C)

Storage Temperature Range: -40 to 150°F (-40 to 65°C)

Relative Humidity: 0 to 90% non-condensing (operating)
0 to 95% non-condensing (storage)

CAUTION

Storage for extended periods of time at high temperature and relative humidity may cause degradation of the digital displays.