

TECHNICAL DATA

PFM-711B, CPM-720B, PCS-730B

Electrostatic Field Meter with Charge Plate and ± 1 kV Charger



The Hand Held Dual Range Field Meter that measures Electrostatic Field Density

The PFM-711B is an accurate, portable electrostatic fieldmeter that is easy to use and designed for one hand operation. The PFM-711B is a digital, electronic chopper design, which allows the instrument to make electrostatic field measurements in areas where ionized air is present.

The PFM-711B uses a dual range for measuring surface voltage and electrostatic potentials. In the kV/inch range, the PFM-711B will indicate electrostatic field voltage from 0 to $\pm 20,000$ volts in 10 volt increments at a distance of 1" (25 mm) from the charged surface with an accuracy of $\pm 5\%$ of the displayed value.

In the V/inch range, the instrument measures field density from 0 to $\pm 1,999$ volts in 1 volt increments at a distance of 1" (25 mm) from the charged surface with an accuracy of $\pm 5\%$ of the displayed value.

The two LED ranging lights help position the meter at the right distance from a charged object for accurate measurements.

Product Highlights

- Lightweight, portable, hand-held Field Meter
- Dual range up to ± 19.99 kV (20,000V) at a distance of 1" (25 mm)
- LED ranging lights help position the meter at the right distance
- Zero button allows the display to be adjusted to zero (0)
- Hold feature freezes the measurement on the display

Additional Accessories

- CPM-720B Charge Plate Assembly
- PCS-730B ± 1 kV Electrostatic Charger
- PDT-740B Static Decay Timer
- PGA-710B Autoanalysis System



PFM-711B Electrostatic Field Meter Specifications

PERFORMANCE	
Overall Range	Low Range: 0 V to ± 1999 V High Range: 0 V to ± 19.99 kV
Accuracy	Voltage Monitor Output: Better than $\pm 5\%$ of reading, ± 10 mV Voltage Display: Better than $\pm 5\%$ of reading, ± 2 counts
Stability	± 10 counts
VOLTAGE MONITOR	
Output	± 20.0 kV meter reading equals ± 2.0 Volt output
Ratio	Low Range: 0 to 2,000 volts is equal to ± 0.2 volts output High Range: 0 to 20,000 volts is equal to ± 2 volts output
FRONT PANEL	
Display	Number of Characters: 3.5 digits Character Format: 7-Segment Character Size: 12.70mm H x 7.62mm W Automatic polarity, LOW BATTERY indicator
Range	V / Inch: 0 to ± 1999 V / inch kV / Inch: 0 to ± 19.99 kV / inch
Display Resolution	Low Range: 1 Volt increment High Range: 10 Volts increments
Sampling Rate	Display readings are updated every 0.5 seconds Analog readings are taken every 100ms, or 10 times per second
Low Battery	Low battery indicator comes on at 7.4 Volts
POWER	
Input	9 VDC alkaline battery included
Battery Life	Approx. 20 hours (of continuous use)
GROUNDING	
Case	Circuit grounded through conductive case
Ground Snap	10 mm snap fastener mounted on back of case
MEASUREMENT DISTANCE	
	1" \pm 1/64" (25mm \pm 0.5mm) LED distance indicator; aligned targets indicate 1 inch (25 mm)
CONTROLS	
Keypad	A custom membrane controls the different functions
ON/OFF	Short press to turn the instrument ON Long press to turn the instrument OFF
Range	Selects between V/Inch (0-2000V) and kV/Inch (0-20kV)
Zero	Adjusts the displayed value to Zero (0)
Hold	Captures and holds a stable measurement
OUTPUT	
Analog Output	2.5 mm jack (3/32") audio jack 2 Volts output corresponds to 20 kV
Response Time	Less than 180ms (90-10%)
Sensor Noise Signal (Typical) ¹	Maximum Voltage: +3 volts Minimum Voltage: -5 volts
ENVIRONMENT	
Operating Temperature	10°C to 30°C (50°F to 80°F)
Operating Relative Humidity	0% – 80%, non-condensing
Operating Altitude	2000 m
PHYSICAL SPECIFICATIONS	
Size (with ground snap attached)	27.2 mm H x 61.5 mm W x 105.9 mm L 1.07" H x 2.41" W x 4.17" L
Weight	142 g (5.0 oz.) with battery
WARRANTY	
	2 years on circuit board, display and membrane 1 year on sensor ²

¹ Typical specifications are not guaranteed.

² Warranty on the sensor limited to a defective sensor that was not dropped or used for measuring a source greater than 20kV.

CPM-720B Charge Plate Monitor Assembly

The CPM-720B Charge Plate Monitor Assembly is a miniature isolated plate attachment for the PFM-711B Electrostatic Field Meter. It converts the PFM-711B Field Meter into a portable, battery operated charged plate monitor. This unique design allows precision balancing of ionizing blowers and other devices to less than ± 5 volts accuracy.

When used with auxiliary leads or wrist strap, the CPM-720B measures body voltage and equipment charge generation. Combining this unique assembly with the Prostat PCS-730B Electrostatic Charger, one can easily confirm ionizer performance, plot decay times, measure suppression, and perform a variety of other electrostatic evaluations and demonstrations.



Product Highlights

- Portable, battery operated charged plate monitor
- Precision balancing of ionizing blowers to less than ± 5 volts accuracy
- Measures body voltage and equipment charge generation
- Confirms ionizer performance and plot decay times
- **Note:** Not compatible with the PFM-711A

CPM-720B Charge Plate Monitor Assembly Specifications

PERFORMANCE	
Tolerance	Matches the PFM-711B Field Meter within 5% when calibrated together
Capacitance	19 Picofarads (pF) ± 1 pF when mounted to the PFM-711B
Range	0 to ± 5 kV $\pm 2\%$
GROUNDING	
Case	Through conductive case and snap fastener of PFM-711B Field Meter
ENVIRONMENT	
Operating Temperature	10°C to 30°C (50°F to 80°F)
Operating Relative Humidity	0% – 70%, non-condensing
Operating Altitude	2000 m
DIMENSIONS	
Without the Banana Input Jack	8.25 cm L x 8.25 cm W x 1.75 cm H 3.25" L x 3.25" W x 0.69" H
With the Banana Input Jack	8.25 cm L x 8.25 cm W x 2.29 cm H 3.25" L x 3.25" W x 0.90" H
WEIGHT	
	187 g (6.6 oz.)

PCS-730B Electrostatic Charger

The PCS-730B Electrostatic Charger is a battery operated hand held device used to charge an object up to ± 1 kV.

The PCS-730B is designed to be used in conjunction with the Prostat PFM-711B Field Meter equipped with the CPM-720B Charge Plate Monitor Assembly. This unique instrument combination provides ionization performance testing, electrostatic decay of materials or equipment, and suppression analysis of worksurfaces or clothing.

The PCS-730B is personnel safe and easy to use. It should not be used in contact with electrostatic discharge sensitive (ESDS) devices or assemblies.

Product Highlights

- Used to charge an object up to ± 1 kV
- Charges from zero to over 1000 volts in less than 10 seconds
- Provides ionization performance testing
- Provides electrostatic decay of materials or equipment
- Provides suppression analysis of worksurfaces or clothing
- Battery operated
- Includes a Low Battery indicator



PCS-730B Electrostatic Charger Specifications

PERFORMANCE	
Output	$\pm 1,250 \pm 5\%$ volts DC Current limited to less than 1 microamp
Output Connector	Female banana jack provided with mating contact rod
Charging Speed	Charges from zero to over ± 1000 volts in 3 seconds at ambient conditions
POWER	
Input	9 VDC alkaline battery included
Battery Life	Minimum of 28 hours (of continuous use) Approximately 20,000 charges of either polarity
GROUNDING	
	10mm female snap fastener on rear of case
ENVIRONMENT	
Operating Temperature	10°C to 30°C (50°F to 80°F)
Operating Relative Humidity	0% – 80%, non-condensing
Operating Altitude	2000 m
DIMENSIONS	
Electrostatic Charger	2.85 cm H x 6.12 cm W x 12.65 cm L 1.12" H x 2.41" W x 4.98" L
Charging Rod	Length: 4.45cm (1.75") Length: with banana plug: 8.18 cm (3.22") Diameter: 0.154"
WEIGHT	
	147 g (5.2 oz.) with battery



Ordering Information

PFM-711B Electrostatic Field Meter (*includes Zippered soft case², 9 VDC alkaline battery, NIST calibration certificate*)

CPM-720B Charge Plate Monitor³

PCS-730B ± 1 kV Electrostatic Charger

PFK-100B Electrostatic Field Meter Set (*includes PFM-711B, CPM-720B, PCS-730B*)

Optional Accessories

PFM-700C Field Meter Zippered Case

PFM-711AC Analog Output Cable

PFK-100H Instrument Holder

PDT-740B Static Decay Timer

Ionization Test Kits⁴

PFK-105 Ionization Test Set (*includes PFK-100B, PDT-740B, PFK-100H*)

PFK-101 Basic Field Kit (*includes PFK-105, PHT-771, Grounding Accessories, Hard Shell Case*)

PIK-110 Ionization Kit (*includes PFK-101, Extech[®] 45170*)

PGA-710 Walking Test System Kit (*includes PFK-101, PGA-710B, Autoanalysis Software*)

² Included only when ordering the PFM-711B by itself

³ Must be match calibrated to the PFM-711B

⁴ All kits include NIST Calibration Certificates with data

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