

Data Sheet

Manual Ranging Tool Kit® DMM with Transistor Test Model 2704C



hFE Transistor Test



Measures common-emitter gain.

The 2704C has all of the functionality for basic DMM applications including some high end features you might not expect. The 2000 count LCD can display resistance values up to 2 G Ω , capacitance to 20 μ F or a transistors common-emitter gain value up to 1000. Value-packed features make this meter a must in every "Tool Kit"[®].

Features

- Magnetic hanger
- AC voltage to 750 V
- Capacitance to 20 μ F
- Diode test
- hFE Transistor test
- One-handed operation
- Measures up to 10 A (AC & DC)
- DC voltage to 1000 V
- Resistance to 2000 M Ω
- Continuity test
- Logic test

Specifications

model

2704C

DC Volts

Ranges	200 mV, 2 V, 20 V, 200 V, 1000V
Resolution	0.1 mV, 1 mV, 10 mV, 100 mV, 1 V
Accuracy	$\pm(0.8 \% \text{ rdg} + 1 \text{ dgts})$
Input Impedance	10 M Ω
Overload Protection	1000 VDC or 750 VACrms*

AC Volts (50 Hz-500 Hz)

Ranges	200 mV, 2 V, 20 V, 200 V, 750V
Resolution	0.1 mV, 1 mV, 10 mV, 100 mV, 1 V
Accuracy	200 mV & 20 V ranges: $\pm(1.5 \% \text{ rdg} + 5 \text{ dgts})$ 200 V & 750 V ranges: $\pm(2.0 \% \text{ rdg} + 5 \text{ dgts})$
Input Impedance	10 M Ω
Overload Protection	1000 VDC or 750 VACrms*

DC Current

Ranges	20 mA, 200 mA, 10 A
Resolution	10 μ A, 100 μ A, 10 mA
Accuracy	20 mA to 200 mA ranges: $\pm(1.0 \% \text{ rdg} + 1 \text{ dgts})$ 10 A range: $\pm(3.0 \% \text{ rdg} + 3 \text{ dgts})$
Input Protection	0.5 A/500 V & 10 A/600 V fast blow ceramic fuses
10A Input	10 A for 60 sec max. followed by a 10 minute cooling period

AC Current (50 Hz-500 Hz)

Ranges	20 mA, 200 mA, 10 A
Resolution	10 μ A, 100 μ A, 10 mA
Accuracy	20 mA to 200 mA ranges: $\pm(2.0 \% \text{ rdg} + 5 \text{ dgts})$ 10 A range: $\pm(3.0 \% \text{ rdg} + 5 \text{ dgts})$
Input Protection	0.5 A/500 V & 10 A/600 V fast blow ceramic fuses
10A Input	10 A for 60 sec max. followed by a 10 minute cooling period

Resistance

Ranges	200 Ω , 2 k Ω , 200 k Ω , 20 M Ω , 2000 M Ω
Resolution	0.1 Ω , 1.0 Ω , 100 Ω , 10 k Ω , 1 M Ω
Accuracy	200 Ω to 200 k Ω ranges: $\pm(1.0 \% \text{ rdg} + 4 \text{ dgts})$ 20 M Ω range: $\pm(2.0 \% \text{ rdg} + 4 \text{ dgts})$ 2000 M Ω range: $\pm(5.0 \% \text{ rdg} + 10 \text{ dgts})$
Open Circuit Voltage (typical)	0.3 VDC (3.0 VDC on 200 Ω , 2000 M Ω range)
Overload Protection	500 VDC/ACrms

Capacitance

Ranges	2 nF, 20 nF, 200 nF, 2.0 μ F, 20 μ F
Resolution	1 pF, 10 pF, 100 pF, 1 nF, 10 nF
Accuracy	$\pm(4 \% \text{ rdg} + 10 \text{ dgts})$
Overload Protection	Discharge capacitor before connecting

Frequency

Ranges	2 kHz, 20 kHz, 200 kHz, 2 MHz, 20 MHz
Resolution	1 Hz, 10 Hz, 100 Hz, 1 kHz, 10 kHz
Accuracy	$\pm(0.1 \% \text{ rdg} + 3 \text{ dgts})$
Sensitivity	2.0 Vrms minimum
Minimum Pulse Width	>25 ns
Duty Cycle Limits	>30 % and <70 %
Overload Protection	500 VDC/AC rms

Diode Test

Test Current	1.0 mA (typical)
Resolution	10 mV
Accuracy	$\pm(1.5 \% \text{ rdg} + 3 \text{ dgts})$
Open Circuit Voltage	3.0 VDC (typical)
Overload Protection	500 VDC/ACrms

Continuity

Audible Indication	Less than 100 Ω
Response Time	100 ms
Overload Protection	500 VDC/ACrms

Transistor hFE

Range	0 to 1000
Base Current	Approximately 10 μ ADC ($V_{CE} = 3.0 \text{ VDC}$)

Logic Test

Threshold	Logic Hi (2.8 V $\pm 0.8 \text{ V}$) / Logic Lo (0.8 V $\pm 0.5 \text{ V}$)
Indication	40 msec beep at logic Lo
Overload Protection	500 VDC/AC rms

General

Display	3 1/2 digit, 2000 count LCD
Polarity	Automatic, positive implied, negative polarity indication
Overrange	OL or -OL is displayed
Low Battery Indication	Battery symbol will display when battery voltage drops below operating levels
Measurement Rate	2.5 times per second
Operating Environment	0°C to 50°C at <70 % relative humidity
Storage Environment	-20°C to 60°C at 0 to 80 % relative humidity
Accuracies	Stated accuracy at 23°C $\pm 5^\circ\text{C}$ at <75 % relative humidity
Temperature Coefficient	0.1 x (specified accuracy) per °C. (°C to 18°C, 28°C to 50°C)
Power	Single standard 9 volt battery, NEDA 1604, JIS 006P, IEC 6F22
Battery Life	150 hours typical
Dimensions	165 mm (H) x 78 mm (W) x 42.5 mm (D)
Weight	Approximately 10 oz. (285 g) with battery and hanger

Three-Year Warranty

Supplied Accessories: User manual, one set of test leads, one spare fuse, and 9V battery (installed)

* = 600 VDC/ACrms for 15 seconds on 200 mV range

B&K Precision's 2700 Tool Kit® Series

Models 2703C, 2704C, 2705B, 2706B, 2707B, 2708B, 2709B & 2712

These excellent meters are for most jobs that require flexibility, accuracy and speed. Value-packed features make these meters a must for everyone's "Tool Kit".

Common Features:

- DC Voltage to 1000V
 - DC Current to 10A
 - Diode test
 - Magnetic hanging strap
- AC Voltage to 750V
 - Continuity test
 - Drop resistant case



Magnetic Hanging Strap

This convenient feature allows you to hang your DMM on any magnetic metallic surface freeing up your hands for troubleshooting.



Back Light / Easy-to-Read LCD

Model 2706B



Ultra-bright blue LCD back light for low ambient light measurements

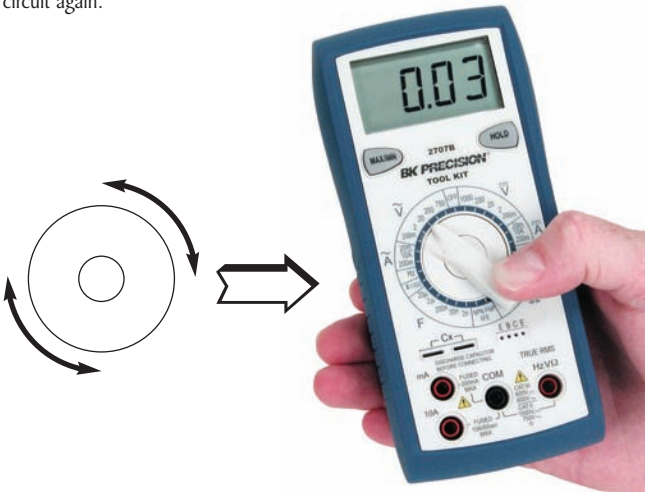
Models 2709B & 2712



Large easy-to-read LCD with green LED backlight

Single-handed operation

The ergonomic design allows both left and right handed users to rotate the knob while holding the meter in one hand. While one hand keeps the probe on the circuit, the other hand changes the meter's function. This speeds up troubleshooting because you don't have to locate the probe point in the circuit again.



Features

	models							
	2712	2709B	2708B	2707B	2706B	2705B	2704C	2703C
Ranging	Auto/Manual	Auto/Manual	Auto/Manual	Manual	Manual	Auto/Manual	Manual	Manual
True RMS	AC + DC	√	√	√	-	-	-	-
Current	10 A AC/DC	10 A AC/DC	10 A AC/DC	10 A AC/DC	200 mA AC/DC	10 A AC/DC	10 A AC/DC	10 A DC
Capacitance	to 40 uF	to 66 mF	-	to 20 uF	to 20 mF	-	to 20 uF	-
Transistor Test	-	-	-	√	-	-	√	-
Frequency Counter	to 500 kHz	to 66 MHz	-	to 20 MHz	to 40 kHz	-	to 20 MHz	-
Temperature	-	-	-	-	√	-	-	-
Logic Probe	-	-	-	√	-	-	√	-
Backlight LCD	√	√	-	-	√	-	-	-
Analog Bar Graph	√	-	√	-	-	-	-	-
Battery Test	-	-	-	-	-	-	-	√
Auto Power off	√	√	√	-	√	√	-	-