HIOKI DIGITAL HiTESTER 3800 SERIES

Multi Meters

Models 3801-50, 3802-50, 3803, 3804-50, 3805-50 DMMs

Safety
Performance
Functionality

ISO 9001 JMI-0216

ISO14001 JQA-E-90091

CE

A Complete HIOKI Digital Multimeter Line-up to Suit Your Needs

From Basic Testing to High Performance Analysis	3803	3804-50 New	3805-50 New	3802-50	3801-50
					
Basic Specifications					
AC measurement method	Mean	Mean	True RMS	True RMS	True RMS
Maximum display count	4000	9999	9999	51000	51000
Dual display	–	–	–	●	●
Bar graph display	●	●	●	●	●
Display backlight function	–	–	●	●	●
Category rating	CAT III 600V	CAT III 600V	CAT III 600V	CAT IV 600V	CAT IV 600V
Measurement					
DC Voltage	400.0 mV to 1000 V	999.9 mV to 999.9 V	999.9 mV to 999.9 V	51.000 mV to 1000.0 V	51.000 mV to 1000.0 V
AC Voltage	400.0mV to 1000V	999.9 mV to 999.9 V	999.9 mV to 999.9 V	51.000 mV to 1000.0 V	51.000 mV to 1000.0 V
DC Current	400.0µA to 10.00A	999.9 µA to 9.99 A	999.9 µA to 9.99 A	510.00 µA to 10.000A	510.00 µA to 10.000 A
AC Current	400.0µA to 10.00A	999.9 µA to 9.99 A	999.9 µA to 9.99 A	510.00 µA to 10.000 A	510.00 µA to 10.000 A
Resistance (*Conductance)	400.0Ω to 40.00MΩ	999.9 Ω to 99.99 MΩ	999.9 Ω to 99.99 MΩ	510.00 Ω to 51.000 MΩ (*510.00nS)	510.00 Ω to 510.00 MΩ (*510.00nS)
Capacitance	–	9.999 µF to 9.999 mF	9.999 µF to 9.999 mF	9.999 nF to 99.99 mF	9.999 nF to 99.99 mF
AC+DC	–	–	–	–	●
Temperature	–	–	●	●	●
Frequency	–	–	●	●	●
Frequency counter	–	–	–	–	●
DUTY ratio / Pulse width	–	–	–	●	●
Contact Check Buzzer	●	●	●	●	●
Function					
Peak hold	–	–	–	●	●
Recording	–	●	●	●	●
Refresh hold	–	●	●	●	●
Trigger hold	–	●	●	●	●
Relative (REL)display	–	●	●	●	●
Percentage display (4-20mA/0-20mA)	–	●	●	●	●
Temperature difference between 2 points	–	–	●	–	–
Harmonic Ratio	–	–	●	–	–
Decibel display (dBm/dBV)	–	–	–	●	●
Pulse output	–	–	–	–	●

Dedication to Safety

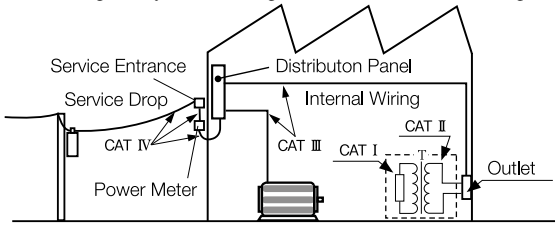
Designed for Ease of Use

CAT IV 600V Where You Need it the Most

Measurement categories (Overvoltage categories)

To ensure safe operation of measurement products, IEC 61010 establishes safety standards for various electrical environments, categorized as CAT I to CAT IV, and called measurement categories. These are defined as follows.

CAT I: Secondary electrical circuits connected to an AC electrical outlet through a transformer or similar device.
CAT II: Primary electrical circuits in equipment connected to an AC electrical outlet by a power cord (portable tools, household appliances.etc.)
CAT III : Primary electrical circuits of heavy equipment (fixed installations) connected directly to the distribution panel, and feeders from the distribution panel to outlets.
CAT IV: The circuit from the service drop to the service entrance, and to the power meter and primary overcurrent protection device(distribution panel).



Fixed Installation

Higher-numbered categories correspond to electrical environments with greater momentary energy, so a measurement product designed for CAT III environments can endure greater momentary energy than one designed for CAT II.

Transient overvoltage (Impulse voltage)

In plants and factories, power transitions and solenoid valves can cause transient voltage spikes. Using the transient voltage levels as a guide, the following correlative relationships have been defined by the IEC.

Nominal a.c.or d.c. line-to-neutral voltage of MAINS supply	Specified impulse withstand voltage		
	Measurement category		
	II	III	IV
50V	500V	800V	1,500V
100V	800V	1,500V	2,500V
150V	1,500V	2,500V	4,000V
300V	2,500V	4,000V	6,000V
600V	4,000V	6,000V	8,000V
1,000V	6,000V	8,000V	12,000V

*Taken from the IEC 61010-1 standard.

What is the recommended impulse withstanding voltage protection level for CAT IV 600V?

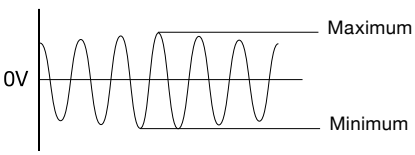
According to the table, the recommended protection for a voltage to the earth (operating voltage) level of 600V in a CAT IV environment is 8000V. As such, a measurement device qualified at CAT IV 600V has been designed taking into full account the possible introduction of 8000V of impulse voltage in the measurement environment.

Extra Functionality Provides Enhanced Measurement Capabilities

● Please refer to the table on the preceeding page for details regarding each model. (Displays shown here reflect those on Model 3801-50.)

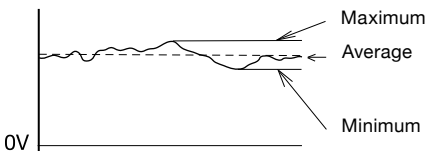
Peak hold Function

This function locks in the maximum and minimum change in the measured value of an input signal over a period of 1 ms(one-shot) or 250 µs (repetitive).



Recording Function

Maximum, minimum and average values measured with the recording function active are automatically captured and displayed.



Relative display Function

Treat the present measured value as a standard against which to display subsequent measurements as relative values.

● Standard Value

● Relative Value

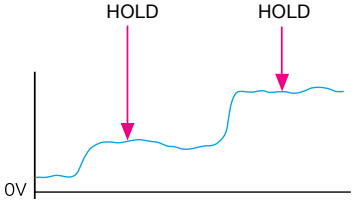
Press the REL key

Refresh hold Function

The displayed value is automatically held once the measurement stabilizes. This is convenient when both hands are needed to take measurements.

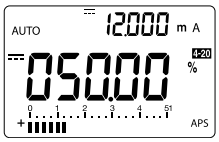
Trigger hold Function

The trigger hold function locks the value that was being measured at the moment that the HOLD key was pressed.



Percentage Conversion Function

When measuring with the DC mA function, percentage conversion appears in the main display area.



This conversion displays the range 4 to 20 mA as 0 to 100%

True RMS and Dual Display

Double the Cost-Performance with High Accuracy and Super Functionality

3802-50: From plant maintenance to R&D testing

All the basic functions you need: AC & DCV/ AC & DCA/ Ω/ Diode/Continuity/ Frequency/Capacitance. On top of the high DCV accuracy (510mV to 51V range) of ±0.025%rdg. ±5dgt, this versatile multimeter is also connectible to thermocouple sensors for convenient temperature testing. Refer to page 8 for the measurable temperature range.

Temperature

Thermocouple Type	Range	Accuracy
K	-200.0 to 1372.0 °C (-328 to 2502 °F)	±0.3%rdg. ±3 °C (±0.3%rdg. ±6 °F)
J (3801-50 only)	-210.0 to 1200.0 °C (-346 to 2192 °F)	

Accuracy does not include temperature probe error
Response time:60 minutes (main unit reference contact temperature compensation)

3801-50: AC+DC Mode with Pulse Output Function

Upgrade from the 3802-50 to utilize all of its basic testing features

General Specifications	3801-50 / 3802-50
Measurement Mode	Dual integration
Maximum display count	51000 count 15000 count : 1000V Range / 1000mV Range, 99999 count : Hz function 9999 count : C function
Sampling rate	3.75 times /s (V/A measurement), 1.65 times /s (AC+DC V measurement) 7.5 times /s (Ω / Diode) , 1.12 times /s (Hz / Frequency Counter) 3 times /s (Temperature)
Power supply	6F22 manganese battery or 6LR61 alkaline battery
Continuous operating time	Approx. 20 hours (DC measurement, when the manganese battery is used) Approx. 50 hours (DC measurement, when the alkaline battery is used)
Dielectric strength	6.88kV AC for 1 minute, sine wave, between input terminals and case (50Hz/60Hz)
Maximum input voltage	V terminal: 1000 V DC/ 1000Vrms (sine) or 10^7 VHz Measurement category CAT III 1000V, CAT IV 600V (anticipated transient overvoltage 8000V)
Maximum input current	A terminal: Continuous up to 10 A AC/DC, no more than 30 seconds up to 20A AC/DC. µA.mA terminal: 510 mA AC/DC
Dimensions	Approx. 100W × 202H × 57D mm (3.94"W×7.95"H×2.24"D) (including protective holster)
Mass	Approx. 680 g (24.0 oz.) (including protective holster and battery)
Usage Environment	0°C to 50°C(32°F to 122°F), 80%RH or less (no condensation)
Storage Environment	-20°C to 60°C(-4°F to 140°F), 80%RH or less (no condensation)
Applicable Standards	Safety standard: EN61010 EMC: EN61326
Accessories	TEST LEAD 3851-10, Strap, Protective holster, Instruction manual One 6LR61 alkaline battery (supplied)

Bright Backlight

Added Functions of the 3801-50

AC+DC Measurement and Output Functions

● AC+DC Measurement Function

Measure AC current even when a DC current component is superimposed. The dual display function enables simultaneous measurement of both direct and alternating current components.

AC+DCV measurement

Range	Accuracy *1				
	20 to 45Hz	45 to 1kHz	1k to 10kHz	10k to 20kHz	20k to 100kHz
51.000 mV	±1.2%rdg. ±80dgt.	±0.4%rdg. ±60dgt.	±0.7%rdg. ±60dgt.	±1.5%rdg. ±60dgt.	±3.5%rdg. ±220dgt.
510.00 mV	±1.2%rdg. ±65dgt.	±0.4%rdg. ±30dgt.	±0.4%rdg. ±30dgt.	±1.5%rdg. ±45dgt.	±3.5%rdg. ±125dgt.
1000.0 mV					
5.1000 V					±3.5%rdg. ±125dgt.
51.000 V					
510.00 V				±1.5%rdg. ±45dgt. *2	±3.5%rdg. ±125dgt. *2
1000.0 V		±0.4%rdg. ±45dgt.	±0.4%rdg. ±45dgt.		Unspecified

Input impedance: mV Range 1 GΩ or more / V Range 1.1 MΩ 100 pF or less
*1: Accuracy not specified at less than 5% of range
(An accuracy of 45Hz to 1kHz is applicable only for a DC component)
*2: Accuracy specified for 200 Vrms or less when exceeding 10 kHz

● Pulse Output Function

Use as a control or standard signal source for measurement systems or electronic circuits.
Pulse frequency and duty cycle (or pulse width) can be specified.

- Frequency settings: 0.5, 1, 2, 5, 10, 15, 20, 25, 30, 40, 50, 60, 75, 80, 100, 120, 150, 200, 240, 300, 400, 480, 600, 800, 1200, 1600, 2400 or 4800 Hz
- Duty cycle setting range: 0.39% to 99.60%
- Pulse width settings: 1/frequency
- Amplitude: fixed 2.8 V
- Output impedance: 3.5 kΩ or less

AC+DCA measurement

Range	Accuracy *1		
	20 to 45Hz	45 to 2kHz	2k to 20kHz
510.00 µA *2	±1.6%rdg. ±55dgt.	±0.8%rdg. ±25dgt.	±3.1%rdg. ±85dgt.
5100.0 µA	±1.6%rdg. ±45dgt.		±3.1%rdg. ±65dgt.
51.000 mA	±1.7%rdg. ±45dgt.	±0.9%rdg. ±25dgt.	±3.2%rdg. ±65dgt.
510.00 mA			
5.1000 A	±2.2%rdg. ±50dgt. *3	±0.9rdg. ±30dgt.	±3.2%rdg. ±70dgt. *4
10.000 A	±2.2%rdg. ±45dgt. *3	±0.9%rdg. ±25dgt.	

Shunt resistance: µA Range 100 Ω / mA Range 1 Ω / A Range 0.01 Ω
*1: Accuracy not specified at less than 5% of range
(An accuracy of 45Hz to 2Hz is applicable only for a DC component)
*2: Accuracy is specified for an input current of at lesst 35 µA
*3: Accuracy is specified for an input current of up to 3 A
*4: Accuracy is specified for up to 3A when exceeding 5 kHz.

Accuracy Guaranteed for 1 Year 23 ±5°C, 80% RH or less (no condensation)

DCV measurement

3801-50

Range	Accuracy	Input impedance
51.000 mV	±0.05%rdg.±50dgt. *1	at least 1 GΩ
510.00 mV	±0.025%rdg.±5dgt.	
1000.0 mV		
5.1000 V		10 MΩ
51.000 V		
510.00 V	±0.03%rdg.±5dgt.	
1000.0 V		

3802-50

Range	Accuracy	Input impedance
51.000 mV	±0.05%rdg.±50dgt. *1	at least 1 GΩ
510.00 mV	±0.03%rdg.±5dgt.	
1000.0 mV		
5.1000 V		10MΩ
51.000 V		
510.00 V	±0.03%rdg.±5dgt.	
1000.0 V		

*1: After the inputs are shorted and the relative value(REL)display function has been initiated, the accuracy is ±0.05%rdg.±5dgt.

ACV measurement

3801-50

Range	Accuracy *1				
	20 to 45Hz	45 to 1kHz	1k to 10kHz	10k to 20kHz	20k to 100kHz
51.000 mV	±1%rdg. ±60dgt.	±0.4%rdg. ±40dgt.	±0.7%rdg. ±40dgt.	±1.5%rdg. ±40dgt.	±3.5%rdg. ±120dgt.
510.00 mV		±0.4%rdg. ±25dgt.	±0.4%rdg. ±25dgt.		
1000.0 mV					
5.1000 V					
51.000 V					
510.00 V				±1.5%rdg. ±40dgt. *2	±3.5%rdg. ±120dgt. *2
1000.0 V		±0.4%rdg. ±40dgt.	±0.4%rdg. ±40dgt.		Unspecified

3802-50

Range	Accuracy *1			
	30 to 45Hz	45 to 1kHz	1k to 10kHz	10k to 30kHz
51.000 mV	±1%rdg. ±60dgt.	±0.6%rdg. ±40dgt.	±1%rdg. ±40dgt.	±1.6%rdg. ±60dgt.
510.00 mV		±0.6%rdg. ±25dgt.	±1%rdg. ±25dgt.	±1.6%rdg. ±40dgt.
1000.0 mV				
5.1000 V				
51.000 V				
510.00 V				±1.6%rdg. *2 ±40dgt.
1000.0 V		±0.6%rdg. ±40dgt.	±1%rdg. ±40dgt.	Unspecified

Input impedance: mV Range 1GΩ or more / V Range 1.1MΩ 100pF or less
Crest factor : 3 or less *1: Accuracy not specified at less than 5% of range
*2: Accuracy specified for 200Vrms or less when exceeding 10kHz

DCA measurement

3801-50

Range	Accuracy	Shunt resistance
510.00 µA	±0.05%rdg. ±25dgt. *1	100 Ω
5100.0 µA		
51.000 mA	±0.15%rdg. ±25dgt. *2	1 Ω
510.00 mA		
5.1000 A	±0.2%rdg. ±10dgt.	0.01 Ω
10.000 A	±0.2%rdg. ±5dgt.	

*1: After the input is opened aand the relative value (REL) display function has been initiated, the accuracy is ±0.05%rdg. ±5dgt.
*2: After the input is opened and the relative value (REL) display function has been initiated, the accuracy is ±0.15%rdg. ±5dgt.

3802-50

Range	Accuracy	Shunt resistance
510.00 µA	±0.1%rdg. ±25dgt. *1	100 Ω
5100.0 µA		
51.000 mA	±0.2%rdg. ±25dgt. *2	1 Ω
510.00 mA		
5.1000 A	±0.2%rdg. ±10dgt.	0.01 Ω
10.000 A		

*1: After the input is opened and the relative value (REL) display function has been initiated, the accuracy is ±0.1%rdg. ±5dgt.
*2: After the input is opened and the relative value (REL) display function has been initiated, the accuracy is ±0.2%rdg. ±5dgt.

Duty Ratio and Pulse width

3801-50/ 3802-50

Function	Range	Accuracy
DUTY	99.99%	±0.3%/kHz ±0.3%
PULSE	510.00ms	±0.2%rdg. ±3dgt.
	1999.9ms	

Accuracy is specified for a square wave input in the 5.1000V DC range with an amplitude of 5V and a pulse width of at least 10µs.
For AC coupling, measurement within a range of 5.00% to 95.00% is possible for a frequency signal of 20 Hz or more.

Resistance measurement/ Contact Check

***Conductance (1/Ω) Measurement (nS)**

3801-50

Range	Accuracy	Measurement Current	Open-Terminal Voltage
510.00 Ω	±0.05%rdg. ±10dgt. *1	Approx. 1.00 mA max	4.8V
5.1000 kΩ	±0.05%rdg. ±5dgt. *1	Approx. 0.38 mA max	
51.000 kΩ	±0.05%rdg. ±5dgt.	Approx. 38 µA max	
510.00 kΩ		Approx.3.8 µA max	
5.1000 MΩ	±0.15%rdg. ±5dgt.	Approx.345 nA max	
51.000 MΩ	±1%rdg. ±10dgt. *2	Approx.200 nA max	
510.00 MΩ	±3%rdg. ±5dgt. *3		
	±8%rdg. ±10dgt. *4		
*510.00 nS	±1%rdg. ±10dgt. *5		

3802-50

Range	Accuracy	Measurement Current	Open-Terminal Voltage
510.00 Ω	±0.08%rdg. ±10dgt. *1	Approx. 1.00 mA max	4.8V
5.1000 kΩ	±0.08%rdg. ±5dgt. *1	Approx. 0.38 mA max	
51.000 kΩ	±0.08%rdg. ±5dgt.	Approx. 38 µA max	
510.00 kΩ		Approx.3.8 µA max	
5.1000 MΩ	±0.2%rdg. ±5dgt.	Approx.345 nA max	
51.000 MΩ	±1%rdg. ±5dgt. *2	Approx.200 nA max	
*510.00 nS	±1%rdg. ±10dgt. *5		

Continuity threshold value:Buzzer sounds less than 1000 counts for each range
*1: Accuracy is specified after the inputs are shorted and the relative value (REL) display function has been initiated
*2: Specified for humidity up to 60%RH
*3: 200 MΩ or less *4: 200MΩ or more *5: 50nS or less

Diode 3801-50/3802-50

Range	Accuracy	Measurement Current	Open-Terminal Voltage
2.1000V	±0.1%rdg. ±5dgt.	Approx.1.00mA	4.8V

Continuity threshold value: Buzzer sounds at less than 0.0500V

ACA measurement

3801-50

Range	Accuracy *1			
	20 to 45Hz	45 to 2kHz	2k to 20kHz	20k to 100kHz
510.00 µA *2	±1.5%rdg. ±50dgt.	±0.7%rdg. ±20dgt.	±3%rdg. ±80dgt.	±5%rdg. ±80dgt.
5100.0 µA	±1.5%rdg. ±40dgt.		±3%rdg. ±60dgt.	
51.000 mA				
510.00 mA				
5.1000 A	±2%rdg. ±40dgt. *3		±3%rdg. ±60dgt. *4	Unspecified
10.000 A				

3802-50

Range	Accuracy *1		
	30 to 45Hz	45 to 2kHz	2k to 20kHz
510.00 µA*2	±1.5%rdg.±50dgt.	±0.8%rdg.±20dgt.	±3%rdg.±80dgt.
5100.0 µA	±1.5%rdg.±40dgt.		±3%rdg.±60dgt.
51.000 mA	±1.5%rdg.±40dgt.	±0.9%rdg.±20dgt.	
510.00 mA			
5.1000 A	±2%rdg.±40dgt. *3	±0.8%rdg.±20dgt.	±3%rdg.±60dgt. *4
10.000 A			

Shunt resistance: µA Range 100Ω / mA Range 1Ω / A Range 0.01Ω
Crest factor : 3 or less
*1: Accuracy not specified at less than 5% of range
*2: Accuracy is specified for an input current of at least 35 µA
*3: Accuracy is specified for an input current of up to 3 A
*4: Accuracy is specified for up to 3A when exceeding 5 kHz

Capacitance measurement

3801-50/3802-50

Range	Accuracy	Sampling Rate
9.999 nF	±2.5%rdg. ±8dgt.	4 times/s
99.99 nF	±1.5%rdg. ±5dgt.	
999.9 nF		
9.999 mF		
99.99 mF		
999.9 mF		1 times/s
9.999 mF		0.1 times/s
99.99 mF	±3.5%rdg. ±10dgt.	0.01 times/s

Frequency (when measuring voltage or current)

3801-50/3802-50

Range	Accuracy	Minimum frequency
99.999 Hz	±0.02%rdg. +3dgt. 600 kHz or less	0.5Hz
999.99 Hz		1Hz
9.9999 kHz		2Hz
99.999 kHz		5Hz
999.99 kHz		

Minimum frequency is set by the power on option

True RMS Measurements Plus Enhanced Functionality

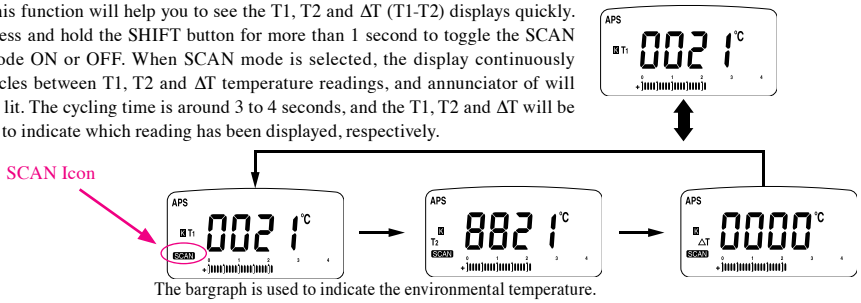
True RMS

3805-50: Demonstrate the Power of your DMM during Facilities Maintenance

Make RMS measurements of your harmonic-ridden signals and display as a percentage from 0.0 to 99.9% in order to get an accurate picture of the level of waveform distortion. Simultaneously make two temperature measurements, ideal for comparing the liquid-state and gas-state of the same refrigerant existing in cooling equipment. Also test current flames at uA levels for a precise analysis.

■ New! Temperature scanning function

This function will help you to see the T1, T2 and ΔT (T1-T2) displays quickly. Press and hold the SHIFT button for more than 1 second to toggle the SCAN mode ON or OFF. When SCAN mode is selected, the display continuously cycles between T1, T2 and ΔT temperature readings, and annunciator of will be lit. The cycling time is around 3 to 4 seconds, and the T1, T2 and ΔT will be lit to indicate which reading has been displayed, respectively.



The bargraph is used to indicate the environmental temperature.
In the ℃ scale, one segment is equal 1℃. In the °F scale, one segment is equal to 2.5°F.

General Specifications	3805-50
Measurement Mode	Dual integration
Maximum display count	9999
Sampling rate	7 times /s (V/A measurement, Temperature) 14 times /s (Ω, Diode, Contact Check), 1 time/s (Hz) 4 times /s (Capacitance Measurement)
Power supply	6F22 manganese battery or 6LR61 alkaline battery
Continuous operating time	Approx. 30 hours (DC measurement, when the manganese battery is used) Approx. 60 hours (DC measurement, when the alkaline battery is used)
Dielectric strength	5.312kV AC for 15 sec, sine wave, between input terminals and case (50Hz/ 60Hz)
Maximum input voltage	V terminal: 1000 V DC/ 1000Vrms (sine) or 2×10^7 VHz Measurement category CAT II 1000V, CAT III 600V (anticipated transient overvoltage 6000V)
Maximum input current	A terminal: Continuous up to 10 A AC/DC, μA.mA terminal: 1000 mA AC/DC
Dimensions	Approx. 83W × 178H × 58D mm (3.27"W×7.01"H×2.28"D) (including protective holster)
Mass	Approx. 400 g (14.1 oz.) (including protective holster and battery)
Usage Environment	0°C to 40°C(32°F to 104°F), 80%RH or less (no condensation)
Storage Environment	-20°C to 60°C(-4°F to 140°F), 80%RH or less (no condensation)
Applicable Standards	Safety: EN61010; EMC : EN61326
Accessories	TEST LEAD 3851-10, Protective holster, Instruction manual One 6LR61 alkaline battery (supplied)

Bright Backlight

Average Rectification at a Low Price

3804-50: With Capacitance Testing

By adding capacitance measurement to all the basic DMM functions of AC/DC V, AC/DC A, resistance, diode, and continuity testing, you get the convenience of an all-purpose device that easily enables you to analyze the data, record max/min/avg values, display the relative value and even calculate for 4-20mA in terms of percentage level.

3803: Our Most Basic Model

Introductory model offering CAT III 600V safety at the lowest costs, but not skimping on features such as a quick-acting 600V withstanding fuse at the current input terminals to assure safety.

General Specifications	3803	3804-50
Measurement Mode	Dual integration	
Maximum display count	4000	9999
Sampling rate	1.3 times/s	7 times/s (V/A measurement, Temperature) 14 times /s (Ω, Diode, Contact Check), 1 time/s (Hz) 4 times /s (Capacitance Measurement)
Power supply, Continuous operating time	Approx. 200 hours (when the manganese battery is used)	Approx. 30 hours (DC measurement, when the manganese battery is used) Approx. 60 hours (DC measurement, when the alkaline battery is used)
Dielectric strength	6kV AC for 1 minute, sine wave, between input terminals and case (50Hz/ 60Hz)	5.312kV AC for 15 sec, sine wave, between input terminals and case (50Hz/ 60Hz)
Maximum input voltage	V terminal: 1000 V DC/ 1000Vrms (sine) or 10^6 VHz Measurement category CAT II 1000V, CAT III 600V (anticipated transient overvoltage 6000V)	V terminal: 1000 V DC/ 1000Vrms (sine) or 2×10^7 VHz Measurement category CAT II 1000V, CAT III 600V (anticipated transient overvoltage 6000V)
Maximum input current	A terminal: Continuous up to 10 A AC/DC, μA.mA terminal: 500 mA AC/DC	A terminal: Continuous up to 10 A AC/DC, μA.mA terminal: 1000 mA AC/DC
Dimensions	Approx. 83W × 178H × 58D mm (3.27"W×7.01"H×2.28"D) (including protective holster)	
Mass	Approx. 400 g (14.1 oz.) (including protective holster and battery)	
Usage Environment	0°C to 40°C(32°F to 104°F), 80%RH or less (no condensation)	
Storage Environment	-20°C to 60°C(-4°F to 140°F), 80%RH or less (no condensation)	
Applicable Standards	Safety: EN61010, UL 3111-1; EMC: EN61326	Safety: EN61010; EMC: EN61326
Accessories	TEST LEAD 3851-10, Protective holster, Instruction manual One 6F22 manganese battery (supplied)	TEST LEAD 3851-10, Protective holster, Instruction manual One 6LR61 alkaline battery (supplied)

Accuracy Guaranteed for 1 Year 23 ±5°C, 80% RH or less (no condensation)

DCV measurement

3803

Range	Accuracy	Input impedance
400.0 mV	±0.6%rdg. ±2dgt.	10MΩ
4.000 V		
40.00 V		
400.0 V		
1000 V		

3804-50/3805-50

Range	Accuracy	Input impedance
999.9 mV	±0.09%rdg. ±5dgt.	11.1MΩ
9.999 V	±0.09%rdg. ±2dgt.	10.10MΩ
99.99 V	±0.09%rdg. ±2dgt.	10.01MΩ
999.9 V	±0.2%rdg. ±5dgt.	10.00MΩ

ACV measurement

3803

Range	Accuracy		Input impedance
	40 to 200Hz	200 to 500Hz	
400.0 mV	±2%rdg. ±10dgt.	Unspecified	10MΩ
4.000 V	±2%rdg. ±2dgt.	±2%rdg. ±2dgt.	
40.00 V			
400.0 V			
1000 V	±2.2%rdg. ±5dgt.	±2.2%rdg. ±5dgt.	

3804-50

Range	Accuracy *1		Input impedance
	40 to 200Hz	200 to 500Hz	
999.9 mV	±2.5%rdg. ±5dgt.	Unspecified	11.1MΩ
9.999 V	±1.2%rdg. ±5dgt.	±1.5%rdg. ±5dgt.	10.10MΩ
99.99 V			10.01MΩ
999.9 V			10.00MΩ

*1: Measurement accuracy is prescribed from 5% to 100% of the range

3805-50

Range	Accuracy *1			Input impedance
	40 to 500Hz	500 to 1kHz	1k to 2kHz	
999.9 mV	±2.5%rdg. *2 ±5dgt.	Unspecified	Unspecified	11.1MΩ
9.999 V	±1%rdg. ±5dgt.	±1%rdg. ±5dgt. *3	±2%rdg. ±5dgt.	10.10MΩ
99.99 V				10.01MΩ
999.9 V			Unspecified	10.00MΩ

Crest factor:3 or less. The degree of accuracy for measuring distorted waveforms entails an addition of ±2%rdg. ±20dgt.

*1: Measurement accuracy is prescribed from 5% to 100% of the range
*2: 40 to 200Hz
*3: Add ±5dgt. to accuracy at ±10% or less

DCA measurement

3803

Range	Accuracy	Shunt resistance
400.0 µA	±1.5%rdg. ±2dgt.	Approx. 500Ω
4000 µA		Approx. 50Ω
40.0 mA		Approx. 5Ω
400.0 mA		Approx. 0.5Ω
10.00 A	±1.5%rdg. ±5dgt.	Approx. 0.05Ω

3804-50

Range	Accuracy	Shunt resistance
999.9 µA	±0.1%rdg. ±3dgt.	100Ω
9999 µA		100Ω
99.99 mA	±0.2%rdg. ±3dgt.	1Ω
999.9 mA	±0.2%rdg. ±3dgt. *1	1Ω
9.99 A	±0.5%rdg. ±3dgt.	0.01Ω

*1:±0.5%rdg. ±3dgt. to accuracy at 400mA or more.

3805-50

Range	Accuracy	Shunt resistance
999.9 µA	±0.1%rdg. ±3dgt.	100Ω
9999 µA		100Ω
99.99 mA	±0.2%rdg. ±3dgt.	1Ω
999.9 mA	±0.2%rdg. ±3dgt. *1	1Ω
9.99 A	±0.5%rdg. ±3dgt.	0.01Ω

*1:±0.5%rdg. ±3dgt. to accuracy at 400mA or more.

Diode

3803

Range	Accuracy	Measurement Current	Open-Terminal Voltage
Diode	±1.0%rdg. ±2dgt.	Approx. 1.65mA	Less than 3V

3804-50/3805-50

Range	Accuracy	Measurement Current	Open-Terminal Voltage
2.100 V	±0.3%rdg. ±2dgt.	Approx. 0.45mA	Less than DC3.5V

Continuity threshold value: Buzzer sounds at less than 0.050V.
A single beep will sound for diode forward voltage in the range of 0.3V to 0.8V.

Resistance measurement/Contact

3803

Range	Accuracy	Measurement Current	Open-Terminal Voltage
400.0 Ω	±0.6%rdg. ±3dgt.	Approx. 400 µA max	DC1.2V or less
4.000 kΩ		Approx. 120 µA max	
40.00 kΩ		Approx. 36 µA max	DC0.45V or less
400.0 kΩ		Approx. 4.6 µA max	
4.000 MΩ	±1.2%rdg. ±3dgt.	Approx. 0.4 nA max	
40.00 MΩ	±2%rdg. ±3dgt.	Approx. 0.04 nA max	

Contact Check (400Ω range): Beeper will sound if the resistance falls below 34.5Ω and will stop if resistance exceeds 35.0Ω.

3804-50/3805-50

Range	Accuracy	Measurement Current	Open-Terminal Voltage
999.9 Ω	±0.3%rdg. ±3dgt. *1	Approx. 0.45 mA max	DC3.5V or less
9.999 kΩ		Approx. 0.2 mA max	
99.99 kΩ	±0.3%rdg. ±3dgt.	Approx. 20 µA max	
999.9 kΩ		Approx. 1.81 µA max	
9.999 MΩ	±0.8%rdg. ±3dgt.	Approx. 181 nA max	
99.99 MΩ	±1.2%rdg. ±3dgt. *2	Approx. 181 nA max	

Continuity threshold value : Buzzer sounds at a resistance equivalent to or less than 100 counts (±5%) for each rang.
*1:Accuracy of 999.9 Ω and 9.999 kΩ is when the test leads have been shorted and when using the relative (REL) display function.
*2:Specified for humidity up to 60%RH

ACA measurement

3803

Range	Accuracy	Shunt resistance
	40 to 500Hz	
400.0 µA	±2%rdg. ±2dgt.	Approx. 500Ω
4000 µA		Approx. 50Ω
40.0 mA		Approx. 5Ω
400.0 mA		Approx. 0.5Ω
10.00 A	±2%rdg. ±5dgt.	Approx. 0.05Ω

3804-50

Range	Accuracy *1		Shunt resistance
	40 to 500Hz	500 to 2kHz	
999.9 µA	±1.2%rdg. ±5dgt.	±1.8%rdg. ±5dgt.	100Ω
9999 µA			100Ω
99.99 mA			1Ω
999.9 mA			1Ω
9.99 A			0.01Ω

*1:Accuracy is specified at 5% or more of range.

3805-50

Range	Accuracy *1		Shunt resistance
	40 to 500Hz	500 to 2kHz	
999.9 µA	±1%rdg. ±5dgt.	±1.5%rdg. ±5dgt.	100Ω
9999 µA			100Ω
99.99 mA			1Ω
999.9 mA	±1%rdg. ±5dgt.	±1.5%rdg. ±5dgt.	1Ω
9.99 A	±1%rdg. ±5dgt.	±1.5%rdg. ±5dgt.	0.01Ω

Crest factor:3 or less. The degree of accuracy for measuring distorted waveforms entails an addition of ±2%rdg. ±20dgt.
*1:Accuracy is specified at 5% or more of range.

Capacitance measurement

3804-50/3805-50

Range	Accuracy	Charging current
9.999 µF	±2%rdg. ±5dgt.	Approx. 0.08mA
99.99 µF		
999.9 µF	±3.5%rdg. ±5dgt.	Approx. 0.8mA
9.999 mF		

Measurement method: Charge-discharge method with DC current

Frequency

3805-50

Range	Accuracy	Minimum frequency *1
9.999Hz	±0.03%rdg. ±3dgt.	0.5Hz 1Hz 2Hz 5Hz
99.99Hz		
999.9Hz		
9.999kHz		
99.99kHz		
999.9kHz		

*1: Minimum frequency is set by power on option

Temperature

3805-50

Thermocouple Type	Range	Accuracy
K	-40 to 1372°C (-40 to 2502°F)	±0.3%rdg. ±3°C (±0.3%rdg. ±6°F)
J	-40 to 1200°C (-40 to 2192°F)	

Accuracy does not include temperature probe error. Response time:60 minutes (main unit reference contact temperature compensation time)

For measurement range, refer to the temperature range of the sensor in use, as described on page 8.

OPTIONS

COMMUNICATION PACKAGE 3856-01 (RS-232C) / 3856-02 (USB)

Includes application software and USB or RS-232C cable for transferring test data to the PC. User-customizable and programmable to add remote control functions.

- Operating environment: Windows 2000, XP, Vista *1 (HELP function for Model 3803 not compatible with Windows Vista)
- Acquisition interval: 1 second to 99 hours (3803: 1 to 999sec)
- Transfer: Up to 65,000 data points (3803:Up to 32,700 data points)
- Other functions:Header settings, save files in CSV format

*1. Windows 2000, XP, Vista are registered trademarks of Microsoft Corp.,USA

■ Software Functions

- Display and recording of measured data and graph display
- Adjust range and other settings of DMM
- Display connection method according to function in use
- Set auto output of pulse readings (3801-50 only)
- Save measured data as CSV file

*Note: For the 3803, only display of measured data and the recording screen is available.

■ Communication Cable

- Length: 2m
- PC connector : D-sub 9pin (3856-01)
  : USB (3856-02)

TEMPERATURE PROBE (Type K thermocouple)

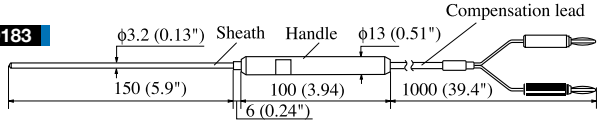
	9472	9473	9474	9475	9183	9180	9476	9181	9182
Max use temperature	-100 to 300°C -148 to 572°F	0 to 800°C 32 to 1472°F	-100 to 300°C -148 to 572°F	-100 to 500°C -148 to 932°F	-50 to 750°C -58 to 1382°F		-40 to 500°C -40 to 932°F	-50 to 400°C -58 to 752°F	-50 to 750°C -58 to 1382°F
Thermocouple material	K type (Chromel/Almel)								
Tolerance	The greater of ±1.5°C(2.7°F) or ±0.4% of measured temperature					The greater of ±2.5°C(4.5°F) *1			
Response (90%) *	About 5 sec	About 10 sec	About 5 sec	About 10 sec	About 5 sec		About 3 sec		About 5 sec
Size of Sheath	ϕ2.3×150mm	ϕ4.8×300mm	ϕ2.3×100mm	ϕ4.8×100mm	ϕ3.2×150mm		ϕ17mm	ϕ15mm	ϕ3.2×500mm
Cable	General use (-20°C to 90°C, -4°F to 194°F)1m								(0°C to 150°C) 2m
Grip heat resistance	80°C				150°C		80°C	150°C	90°C

*Sheath type : Responsiveness in ice water at 0°C (32°F) and in boiling water at 100°C (212°F)
Surface type : Responsiveness on a metal surface at 0°C (32°F) and at 100°C (212°F)

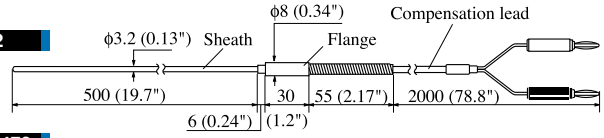
*1: 9180, 9182 :The greater of ±2.5°C(4.5°F) or ±0.75% of measured temperature
9476 : (-0.03 ×T)°C to +2.5°C at 100°C <(T-Ts)
9181 : (-0.035×T)°C to +2.5°C at 100°C <(T-Ts)
T : measured temperature, Ts : environmental temperature

SHEATH TYPE

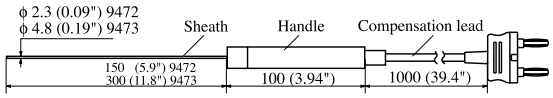
9180, 9183



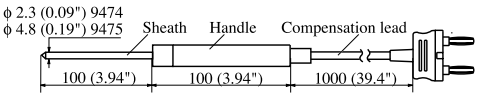
9182



9472, 9473

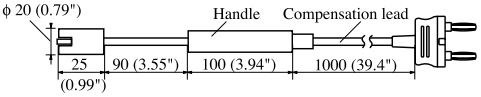


9474, 9475

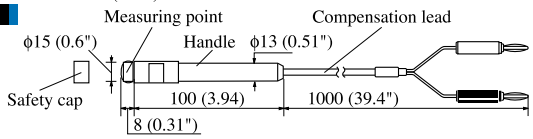


SURFACE TYPE

9476



9181



DIGITAL HiTESTER 3801-50
DIGITAL HiTESTER 3802-50
DIGITAL HiTESTER 3803
DIGITAL HiTESTER 3804-50
DIGITAL HiTESTER 3805-50

● Options

- CARRYING CASE 3853
- COMMUNICATIONS PACKAGE (RS-232C) 3856-01
- COMMUNICATIONS PACKAGE (USB) 3856-02
- CLIP ON BASE (non-CE compliant) 9617
- CLIP TYPE LEAD (non-CE compliant) 9618
- SHEATH TYPE TEMPERATURE PROBE 9180
- SURFACE TYPE TEMPERATURE PROBE 9181
- SHEATH TYPE TEMPERATURE PROBE 9182
- SHEATH TYPE TEMPERATURE PROBE 9183
- SHEATH TYPE TEMPERATURE PROBE 9472
- SHEATH TYPE TEMPERATURE PROBE 9473
- SHEATH TYPE TEMPERATURE PROBE 9474
- SHEATH TYPE TEMPERATURE PROBE 9475
- SURFACE TYPE TEMPERATURE PROBE 9476

CLIP ON BASE 9617
(non-CE compliant)

CLIP-TYPE LEAD 9618
(non-CE compliant)

CARRYING CASE 3853

COMMUNICATION PACKAGE
3856-01

● Supplied Accessories

Holster (pre-fitted on the HiTESTER)
Strap (3801-50,3802-50 only)
TEST LEAD 3851-10

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