



HIOKI

DIGITAL MULTIMETER DT4281/DT4282

DMM



Speedy Performance of Professional Testing

Two models provide high accuracy and fast response

DC V
± 0.025%
Basic Accuracy

AC V
20 to 100kHz
Frequency Characteristics



Rich feature set to improve efficiency

LPF Memory

True RMS

No 'A' Terminal

Safe, durable design

CAT IV 600V

DT4281

Current measurement available with optional clamp.

DT4282

Anti-Shock Design – Drop Proof Survives 1m drop to concrete.



Terminal Shutters – prevent erroneous test lead insertion Unnecessary terminals are closed by the rotary selector.



ISO 9001
JMI-0216



ISO 14001
JQA-E-90091



www.hioki.com

HIOKI company overview, new products, environmental considerations and other information are available on our website.



Broad operating temperature range

-15°C to 55°C

Improves efficiency with useful functions suitable for professional testing such as new energy development and facility maintenance

Additional Function	General Description
Filter function	Harmonic noise removal, $f_c = 1 \text{ kHz}$ AC voltage, AC current, AC current w/clamp input, DCV + ACV measurement
Hold display value	Press [HOLD] to hold the displayed value.
Auto Hold	Automatically holds the display when the measured value becomes stable (within the set threshold range).
Relative display	Press [REL] to display relative values, taking the currently measured value as the reference value.

Additional Function	General Description
Max/Min value display	Press [MAX/MIN] to display the maximum and minimum values since the start of measurement.
Sampling Settings	Display update: Normal 5 times/s or Slow 1 time/s (display stabilization)
Measurement memory	Manually store measured values internally (400 data points)
USB communications	Acquire measurement data on a PC using optional DT4900 Communications Package
Decibel conversion	Shows decibel values converted to standard AC voltage (dBm/dBV)
Percentage conversion display	Displays 4 to 20 mA (or 0 to 20 mA) signals converted to 0 to 100%

Back light **Large, easy-to-see display**

Press [Back light]

White backlight illuminates in dark environments

The display turns red when input exceeds 1000 V AC/DC.

Direct current supply system

DC + ACV

Peak measurement function & DC+AC voltage measurement

Capture ripple voltage component on direct current signals.

Input waveform
114.1V
85.9V
100V

DC+AC V range

DC+AC measurement* ▶ 100.49V
+PEAK measurement ▶ 114.10V
-PEAK measurement ▶ 85.90V

*DC+AC = $\sqrt{(AC)^2 + (DC)^2}$

DC μA **Includes μA DC range for burner system inspection**

Select the 600.00 μA DC range for burner flame current measurement.

Burner
Flame Rod
Insulator
Control Board



For Voltage and Resistance functions
only V Ω and COM terminals open.

Terminal shutters prevent test leads from being inserted by mistake

Incorrect function settings and terminal connections are prevented. When the selector is turned to a current measurement position, only the current measurement terminals are open.



For the 'A' range,* only the 'A' and COM terminals are accessible; and **for the $\mu\text{A}/\text{mA}$ ranges,** only the $\mu\text{A}/\text{mA}$ and COM terminals are accessible.

* DT4282 only

LPF 1kHz **Optimized for inverter system measurements**

Low-pass filter cuts harmonic waveform components

The (1-kHz cutoff) low-pass filter function cuts high harmonic components when measuring inverter secondary output voltage.

Filter off **Filter on**

Typical waveform + harmonic components

Typical waveform component

Enhance UPS maintenance efficiency

1 Save on site

Memory function (Up to 400 data points)

Store battery cell voltage in internal memory on site, for later recall and display.

Batteries

MEM Press MEM

MEM + 35
AUTO HOLD ESEB No. APS 9+0
120.53 V
RANGE: MANUAL

2 Send to PC

Data Communications function

Transfer stored data from internal memory using the optional communications package. Data can be saved in text format.

Communications Software and Other Functions

- Saves graphic display and files at specified intervals (or manually).
- Real-time measurement values are displayed on the PC screen.

Communication Package DT4900(option)

Operating Environment

- Interface: USB
- OS: Windows 7, Vista (SP1 or later), XP (SP2 or later)

Specifications Accuracy Guaranteed for 1 Year 23 ± 5°C (73°F±41°F) , 80% RH or less (no condensation)

DT4282 only

DT4281 only

DC voltage (V DC, mV DC)

Range	Accuracy	Input impedance
60.000 mV	±0.2% rdg. ±25 dgt. *1	1GΩ or more: 100 pF or less
600.00 mV	±0.025% rdg. ±5 dgt. *1	1GΩ or more: 100 pF or less
6.0000 V	±0.025% rdg. ±2 dgt.	11.0MΩ ±2% : 100 pF or less
60.000 V	±0.025% rdg. ±2 dgt.	10.3MΩ ±2% : 100 pF or less
600.00 V	±0.03% rdg. ±2 dgt.	10.2MΩ ±2% : 100 pF or less
1000.0 V	±0.03% rdg. ±2 dgt.	10.2MΩ ±2% : 100 pF or less

*1 Accuracy specifications are valid only after the inputs are shorted and the relative value (REL) display function has been activated.

AC voltage (V AC, mV AC)

Range	Accuracy					
	20 to 45Hz	45 to 65Hz	65 to 1kHz	1k to 10kHz	10k to 20kHz	20k to 100kHz
60.000 mV	±1.3% rdg. ±60 dgt.	±0.4% rdg. ±40 dgt.	±0.6% rdg. ±40 dgt.	±0.9% rdg. ±40 dgt.	±1.5% rdg. ±40 dgt.	±20% rdg. ±80 dgt.
600.00 mV	±1% rdg. ±60 dgt.	±0.2% rdg. ±25 dgt.	±0.3% rdg. ±25 dgt.	±0.4% rdg. ±25 dgt.	±0.7% rdg. ±40 dgt.	±3.5% rdg. ±40 dgt.
6.0000 V	Undefined	±0.2% rdg. ±25 dgt.	±0.3% rdg. ±25 dgt.	±0.4% rdg. ±25 dgt.	±0.7% rdg. ±40 dgt.	±3.5% rdg. ±40 dgt.
60.000 V	Undefined	±0.2% rdg. ±25 dgt.	±0.3% rdg. ±25 dgt.	±0.4% rdg. ±25 dgt.	±0.7% rdg. ±40 dgt.	±3.5% rdg. ±40 dgt.
600.00 V	Undefined	±0.2% rdg. ±25 dgt.	±0.3% rdg. ±25 dgt.	±0.4% rdg. ±25 dgt.	±0.7% rdg. ±40 dgt.	±3.5% rdg. ±40 dgt.
1000.0 V	Undefined	±0.2% rdg. ±25 dgt.	±0.3% rdg. ±25 dgt.	±0.4% rdg. ±25 dgt.	±0.7% rdg. ±40 dgt.	±3.5% rdg. ±40 dgt.

DCV + ACV measurement

Range	Accuracy					
	20 to 45Hz	45 to 65Hz	65 to 1kHz	1k to 10kHz	10k to 20kHz	20k to 100kHz
6.0000 V	±1.2% rdg. ±65 dgt.	±0.3% rdg. ±30 dgt.	±0.4% rdg. ±30 dgt.	±0.4% rdg. ±30 dgt.	±1.5% rdg. ±45 dgt.	±3.5% rdg. ±125 dgt.
60.000 V	Undefined	±0.3% rdg. ±30 dgt.	±0.4% rdg. ±30 dgt.	±0.4% rdg. ±30 dgt.	±1.5% rdg. ±45 dgt.	±3.5% rdg. ±125 dgt.
600.00 V	Undefined	±0.3% rdg. ±30 dgt.	±0.4% rdg. ±30 dgt.	±0.4% rdg. ±30 dgt.	±1.5% rdg. ±45 dgt.	±3.5% rdg. ±125 dgt.
1000.0 V	Undefined	±0.3% rdg. ±30 dgt.	±0.4% rdg. ±30 dgt.	±0.4% rdg. ±30 dgt.	±1.5% rdg. ±45 dgt.	±3.5% rdg. ±125 dgt.

Input impedance : 1MΩ ±4%/100pF or less
 Crest factor : 3 or less (1.5 or less for the 1000.0V range)
 Accuracy specification range : 5% or more of each range
 With the filter ON, accuracy is defined only for frequencies 100Hz or less. Furthermore, 2% rdg. is added

DCA measurement 6A, 10A range : DT4282 only

Range	Accuracy	Shunt resistance
600.00 μA	±0.05% rdg. ±25 dgt.	101 Ω
6000.0 μA	±0.05% rdg. ±5 dgt.	
60.000 mA	±0.05% rdg. ±25 dgt.	
600.00 mA	±0.15% rdg. ±5 dgt.	1 Ω
6.0000 A	±0.2% rdg. ±25 dgt.	10 mΩ
10.000 A	±0.2% rdg. ±5 dgt.	

ACA measurement 6A, 10A range : DT4282 only

Range	Accuracy				
	20 to 45Hz	45 to 65Hz	65 to 1kHz	1k to 10kHz	10k to 20kHz
600.00 μA	±1.0% rdg. ±20 dgt.	±0.6% rdg. ±20 dgt.	±0.6% rdg. ±20 dgt.	±2% rdg. ±20 dgt.	±4% rdg. ±20 dgt.
6000.0 μA	±1.0% rdg. ±5 dgt.	±0.6% rdg. ±5 dgt.	±0.6% rdg. ±5 dgt.	±2% rdg. ±5 dgt.	±4% rdg. ±5 dgt.
60.000 mA	±1.0% rdg. ±20 dgt.	±0.6% rdg. ±20 dgt.	±0.6% rdg. ±20 dgt.	±1% rdg. ±20 dgt.	±2% rdg. ±20 dgt.
600.00 mA	±1.0% rdg. ±5 dgt.	±0.6% rdg. ±5 dgt.	±0.6% rdg. ±5 dgt.	±1.5% rdg. ±10 dgt.	Undefined
6.0000 A	Undefined	±0.8% rdg. ±20 dgt.	±0.8% rdg. ±20 dgt.	Undefined	Undefined
10.000 A	Undefined	±0.8% rdg. ±5 dgt.	±0.8% rdg. ±5 dgt.	Undefined	Undefined

Shunt resistance : μA Range 101Ω/ mA Range 1Ω/ A Range 10mΩ
 Crest factor : 3 or less (Note that it applies to 1/2 of the range.)
 Accuracy specification range : Accuracy is not defined for measurements below 5% of range
 With the filter ON, accuracy is defined only for frequencies 100Hz or less. Furthermore, 2% rdg. is added.

Conductance (nS) DT4282 only

Range	Accuracy	Measurement Current	Open-circuit Voltage
600.00 nS	±1.5% rdg. ±10 dgt.	96 nA ±10%	2.5 V DC or less

- Accuracy is defined for humidity 60% RH or less.
- Accuracy is defined for the range 20nS or more.
- In the case of 300 nS or more, ±20 dgt. is added

Temperature

Thermocouple Type	Range	Accuracy *1
K	-40.0 to 800.0°C (-40.0 to 1472.0°F)	±0.5% rdg. ±3 °C (5.4°F)

*1: Accuracy specifications are valid only in an environment where the temperature of the DT4281/DT4282 is stable within ±1°C
 • The optional K Thermocouple DT4910 is used.
 • Accuracy does not include the error of the K thermocouple
 Display update rate : 1 time/s (disconnection check included)
 Open display : [OPEn] in the main display
 Standard contact temperature compensation stability time : 120 minutes (when the product temperature fluctuates ±5°C or more)
 • Optional K Thermocouple DT4910 specifications
 Thermal junction form: exposed weld
 Sensor length: approx. 800 mm
 Measurement temperature range: -40 to 260°C (thermocouple)
 -15 to 55°C (connector)

Resistance measurement

Range	Accuracy	Measurement Current	Open-Terminal Voltage
60.000 Ω	±0.3% rdg. ±20 dgt. *1	640 μA ±10%	2.5V DC or less
600.00 Ω	±0.03% rdg. ±10 dgt. *1		
6.0000 kΩ	±0.03% rdg. ±2 dgt. *1	96 μA ±10%	
60.000 kΩ		9.3 μA ±10%	
600.00 kΩ	±0.03% rdg. ±2 dgt.	0.96 μA ±10%	
6.0000 MΩ	±0.15% rdg. ±4 dgt.	96 nA ±10%	
60.00 MΩ	±1.5% rdg. ±10 dgt. *2		
600.0 MΩ	±3.0% rdg. ±20 dgt. *2 *3		
	±8.0% rdg. ±20 dgt. *2 *4		

*1 : Accuracy specifications are valid only after the inputs are shorted and the relative value (REL) display function has been activated.

*2 : Accuracy defined for humidity up to 60% RH

*3 : 200MΩ or less *4 : 200MΩ over

Continuity Check

Range	Accuracy	Measurement Current	Open-Terminal Voltage
600.0 Ω	±0.5% rdg. ±5 dgt.	640 μA ±10%	2.5 V DC or less

Continuity threshold : 20Ω (default) /50Ω/ 100Ω/ 500Ω

Electrostatic Capacity

Range	Accuracy	Measurement Current	Open-Circuit Voltage
1.000 nF	±1.0% rdg. ±20 dgt. *1	32 μA ±10%	DC2.5 V or less
10.00 nF			
100.0 nF			
1.000 μF	±2.0% rdg. ±5 dgt.	680 μA ±20%	DC3.1 V or less
10.00 μF			
100.0 μF			
1.000 mF			
10.00 mF			
100.0 mF	±2.0% rdg. ±20 dgt.		DC2.1 V or less

*1 For the 100nF range or below, accuracy is defined only after the REL function is activated.

AC clamp DT4281 only

Range	Accuracy *1	
	40 to 65Hz	65 to 1kHz
10.00 A	±0.6% rdg. ±2 dgt.	±0.9% rdg. ±2 dgt.
20.00 A	±0.6% rdg. ±4 dgt.	±0.9% rdg. ±4 dgt.
50.00 A	±0.6% rdg. ±10 dgt.	±0.9% rdg. ±10 dgt.
100.0 A	±0.6% rdg. ±2 dgt.	±0.9% rdg. ±2 dgt.
200.0 A	±0.6% rdg. ±4 dgt.	±0.9% rdg. ±4 dgt.
500.0 A	±0.6% rdg. ±10 dgt.	±0.9% rdg. ±10 dgt.
1000 A	±0.6% rdg. ±2 dgt.	±0.9% rdg. ±2 dgt.

The optional 9010-50, 9018-50, or 9132-50 CLAMP ON PROBE is used.
 Accuracy does not include the error of the clamp-on probe.

Crest factor: 3 or less

*1 Accuracy is not defined for measurements below 15% of range
 With the filter ON, accuracy is defined only for frequencies 100Hz or less.
 Furthermore, 2% rdg. is added

Frequency (For of AC V, DC+AC V, AC μA, AC mA, AC A)

Range	Accuracy
99.999 Hz	±0.02% rdg. +3 dgt.
999.99 Hz	
9.9999 kHz	
99.999 kHz	±0.02% rdg. +3 dgt.
500.00 kHz	

Measurement range : 0.5Hz or more ([----] is displayed when frequency is less than 0.5Hz)

Pulse width : 1μs or more (DUTY ration is 50%)

With the filter ON, accuracy is defined only for frequencies 100Hz or less.

Peak measurement (For AC V, DC V, DC+AC V, Clamp, DC μA, DC mA, DC A, AC μA, AC mA, AC A)

Main measurement	Signal width	Accuracy*1
DCV	4ms or more (single)	±2.0% rdg. ±40 dgt.
	1ms or more (repeated)	±2.0% rdg. ±100 dgt.
Other than DCV	1ms or more (single)	±2.0% rdg. ±40 dgt.
	250ms or more (repeated)	±2.0% rdg. ±100 dgt.

*1 Depends on frequency and waveform accuracy

Diode

Range	Accuracy	Measurement Current	Open-Terminal Voltage
3.600 V	±0.1% rdg. ±5 dgt.	1.2mA or less	DC4.5 V or less

If the reading is lower than the threshold during the forward connection, a buzzer sounds and the red backlight turns on.

Forward threshold : 0.15V/0.5V (default) /1V/1.5V/2V/2.5V/3V

Decibel conversion measurement : Standard impedance (dBm)

4/8/16/32/50/75/93/110/125/135/150/200/250/300/500/600/800/900/1000/1200Ω
 (default : 600Ω)

General Specifications

Display	Main and Sub displays: 5-digit LCDs with '-' polarity indicator; 3-digit data count; Over-Range: blinks "OVER"
Display refresh rates	5 times/s (0.05 to 2 times/s for electrostatic capacitance, depending on measured value; 1 time/s for temperature; 2.5 times/s for DC+AC)
Power supply/Continuous operating time	Alkaline (LR6) battery ×4: Approx. 100 hours; Manganese(R6P) battery ×4: Approx. 30 hours [Representative value: DCV function/Backlight off]
Auto Power Save	Approx. 15 min. (from last operation); beeper sounds and [APS] blinks 15s before power-off (can be released)
Dielectric strength	Between all input terminals and case: 8.5kV AC (sine wave, 50/60 Hz, 60 seconds)
Maximum rated voltage between terminals	Between the V and COM terminals : 1000 V DC/AC or 2×10^7 V · Hz
Maximum rated current between terminals	Between the mA and COM terminals : 600mA DC/600mA AC, Between the A and COM terminals : 10A DC/10A AC (continuous)
Maximum rated voltage between input terminals and ground	1000V (Measurement category III), 600V (Measurement category IV), Anticipated transient overvoltage: 8000V
Dimensions	Approx. 93W×197H×53D mm (3.66"W 5 7.77"H 5 2.36"D), Approx.650g (23 oz.) (including batteries)
Operating temperature and humidity	-15°C to 55°C(-22°F to 140°F), Up to 40°C(104°F): at 80%RH or less(non-condensating), 40°C to 45°C(104°F to 113°F): at 60%RH or less(non-condensating), 45°C to 55°C (113°F to 131°F): at 50%RH or less (non-condensating)
Storage temperature and humidity	-30°C to 60°C(-15°F to 131°F), at 80%RH or less (non-condensating)
Applicable standards	Safety : EN61010-1, EMC: EN61326, Waterproof and dustproof: IP40
Accessories	Test Leads L9207-10, Instruction Manual, LR6 alkaline battery×4 (unloaded)

L9207-10 Options


L9207-10 (Bundled accessory)

- with cap
CAT III 1000V
CAT IV 600V
- without cap
CAT II 1000V

Cable length 90 cm (2.9527 ft)
with one each red and black caps

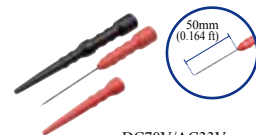


L4933 and L4934 probe tips (at right) can be used on L9207-10 test leads.



DC70V/AC33V Contact Pin Set L4933

50mm (0.164 ft)



Small Alligator Clip Set L4934

CAT II 600V
CAT III 300V



L4930 Options

**with cap
CAT III 1000V
CAT IV 600V**

**without cap
CAT II 1000V**



Length : 1.2m (3.937 ft)

Connection Cable L4930

L4935, L4936, L4937, L4932, 9243, and L4931 probe tips(at right) can be used on L4930 test leads.



**CAT III 1000V
CAT IV 600V**

Alligator Clip Set L4935



30mm (0.0984 ft)

CAT III 600V

Bus Bar Clip Set L4936



**Magnet
ø7mm(0.023 ft)**

CAT III 1000V

Magnetic Adapter Set L4937



**CAT III 1000V
CAT IV 600V**

with one each red and black caps

Test Pin Set L4932



CAT III 1000V

Grabber Clip 9243






**CAT III 1000V
CAT IV 600V**

Length : 1.5m (4.912 ft)
With the coupling connector

Extension Cable Set L4931



AC Clamp-On Probes for DT4281 (Adapter 9704 required for connection)

Product appearance	 CAT III 600V	 CAT III 600V	 CAT III 600V
Model number	9010-50	9018-50	9132-50
Rated current	AC 10/20/50/100/200/500 A		AC 20/50/100/200/500/1000A
Amplitude accuracy (45 to 66Hz)	±2% rdg. ±1% f.s.	±1.5% rdg. ±0.1% f.s.	±3% rdg. ±0.2% f.s.
Frequency characteristics	40Hz to 1kHz:±6% rdg.	40Hz to 3kHz:±1% rdg.	40Hz to 1kHz:±1% rdg.
Output rate	AC 0.2 V f.s. (For each range)		
Max. circuit voltage	AC600 V (50/60Hz)		
Diameter	ø46mm or less		ø55mm or less, 80×20mm
Dimensions, mass	78W×188H×35D mm (0.25W×0.61H×0.11D ft), 420g (14.8oz), cord length 3m (9.84 ft)		100W×224H×35D mm(0.32W×0.73H×0.11D ft), 600g(21.1oz), cord length 3m(9.84 ft)

Adapter Model 9704 is required to connect AC CLAMP ON PROBES 9010-50, 9018-50 and 9032-50 to the DT4281.



Conversion Adapter 9704

Other options

Available soon

Thermocouples (K) DT4910



- Communication cable
- Communication adapter
- PC software
- Instruction manual

Communication Package(USB) DT4900



Magnetic Strap Z5004



Carrying Case C0202



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