



# HIOKI

## DIGITAL MULTIMETER DT4281/DT4282

DMM



### Speedy Performance of Professional Testing

Two models provide high accuracy and fast response

DC V  
 $\pm 0.025\%$   
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](http://www.hioki.com)

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



**Broad operating temperature range**

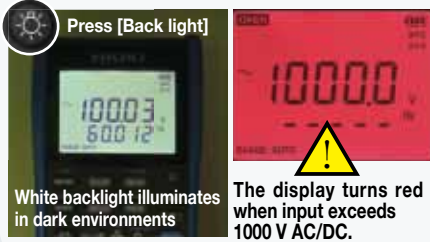
-15°C to 55°C

# 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.

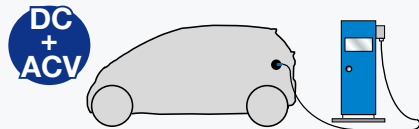
Additional Function	General Description
Max/Min value display	Press [MAX/MIN] to display the maximum and minimum values since the start of measurement.
Sampling Settings	Display update: Normal 5 times/s or Slow 1 time/s (display stabilization)
Measurement memory	Manually store measured values internally (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



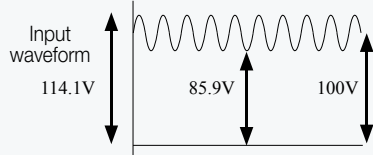
## Direct current supply system

## Ideal for checking ripple voltage in DC supply systems



## Peak measurement function & DC+AC voltage measurement

Capture ripple voltage component on direct current signals.



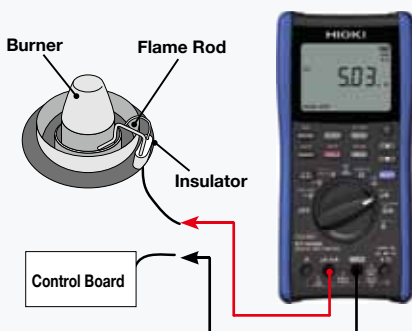
## DC+AC V range

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

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

## DC $\mu A$ Includes $\mu A$ DC range for burner system inspection

Select the 600.00  $\mu A$  DC range for burner flame current measurement.



## For Voltage and Resistance functions only V $\Omega$ and COM terminals open.

Prevent Erroneous Insertion

## 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.



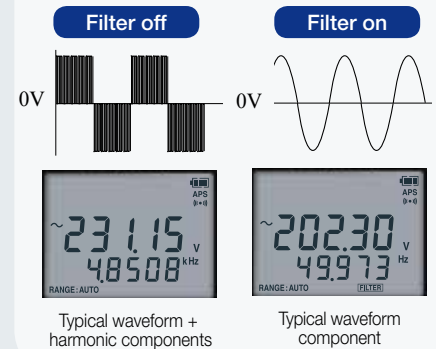
For the 'A' range,\* only the 'A' and COM terminals are accessible; and for the  $\mu A/mA$  ranges, only the  $\mu A/mA$  and COM terminals are accessible.

\* DT4282 only

## LPF 1kHz Optimized for inverter system measurements

## Low-pass filter cuts harmonic waveform components

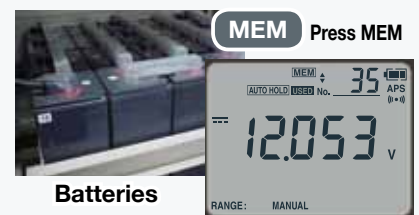
The (1-kHz cutoff) low-pass filter function cuts high harmonic components when measuring inverter secondary output voltage.



## Enhance UPS maintenance efficiency

## 1 Save on site (Up to 400 data points)

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



## 2 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	±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.
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	±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.
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	±0.03% rdg. ±2 dgt. *1	9.3 μA ±10%	
600.00 kΩ	±0.03% rdg. ±2 dgt. *1	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	±1.0% rdg. ±5 dgt. *1		
100.0 nF	±1.0% rdg. ±5 dgt. *1		
1.000 μF	±2.0% rdg. ±5 dgt.	680 μA ±10%	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 : 0.5μs or more

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.	1.1mA 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 10s before power-off
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 $2 \times 10^7$ 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×197.4H×53.4D mm (3.66"W 5 7.77"H 5 2.36"D), Approx.680g (24 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 : Main unit - EN61010-1; probes - EN61010-31; DMM only - EN61010-2-033; EMC: EN61326-2-2, 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

**Connection Cable L4930**

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



Length : 1.2m (3.937 ft)

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



**Alligator Clip Set L4935**



CAT III 1000V  
CAT IV 600V

**Bus Bar Clip Set L4936**



30mm (0.0984 ft) CAT III 600V

**Magnetic Adapter Set L4937**



Magnet  $\phi$ 7mm(0.023 ft)  
CAT III 1000V

**Test Pin Set L4932**



CAT III 1000V  
CAT IV 600V  
with one each red and black caps

**Grabber Clip 9243**



CAT III 1000V

**Extension Cable Set L4931**



CAT III 1000V  
CAT IV 600V  
Length : 1.5m (4.912 ft)  
With the coupling connector

## 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	φ46mm or less		φ55mm 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

**Thermocouples (K) DT4910**



Available soon

**Communication Package(USB) DT4900**

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



**Magnetic Strap Z5004**



**Carrying Case C0202**



Note: Company names and Product names appearing in this catalog are trademarks or registered trademarks of various companies.

# HIOKI

HIOKI E. E. CORPORATION

### Headquarters :

81 Koizumi, Ueda, Nagano, 386-1192, Japan  
TEL +81-268-28-0562 FAX +81-268-28-0568  
http://www.hioki.co.jp / E-mail: os-com@hioki.co.jp

### HIOKI USA CORPORATION :

TEL +1-609-409-9109 FAX +1-609-409-9108  
http://www.hiokiusa.com / E-mail: hioki@hiokiusa.com

HIOKI (Shanghai) Sales & Trading Co., Ltd. :  
TEL +86-21-63910090 FAX +86-21-63910360  
http://www.hioki.cn / E-mail: info@hioki.com.cn

HIOKI INDIA PRIVATE LIMITED :  
TEL +91-731-6548081 FAX +91-731-4020083  
E-mail: info@hioki.in

HIOKI SINGAPORE PTE. LTD. :  
TEL +65-6634-7677 FAX +65-6634-7477  
E-mail: info@hioki.com.sg

HIOKI KOREA CO.,LTD.  
TEL +82-42-936-1281 FAX +82-42-936-1284  
E-mail: info-kr@hioki.co.jp

DISTRIBUTED BY