



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

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.



www.hioki.com



Broad operating temperature range

-15°C to 55°C

Quality Hioki Products Online at:

www.GlobalTestSupply.com

sales@GlobalTestSupply.com



DT4281

Current measurement
available with optional clamp.



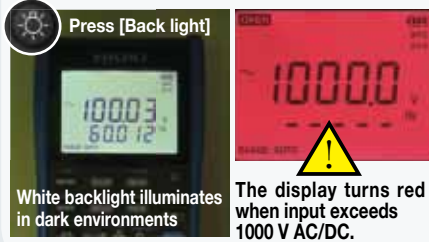
DT4282

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.

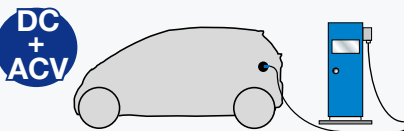
Additional Function	General Description
Max/Min value display	Press [MAX/MIN] to display the maximum and minimum values since the start of measurement.
Sampling Settings	Display update: Normal 5 times/s or Slow 1 time/s (display stabilization)
Measurement memory	Manually store measured values internally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



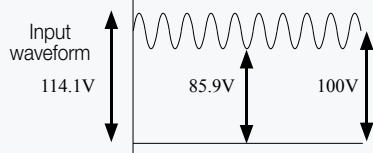
Direct current supply system

Ideal for checking ripple voltage in DC supply systems



Peak measurement function & DC+AC voltage measurement

Capture ripple voltage component on direct current signals.



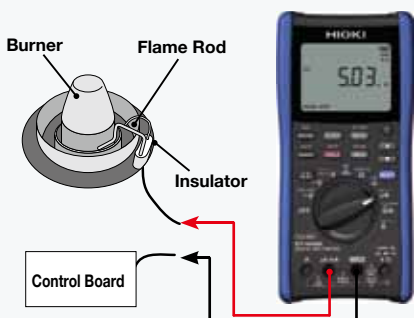
DC+AC V range

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

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

DC μA Includes μA DC range for burner system inspection

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



For Voltage and Resistance functions only V Ω 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.

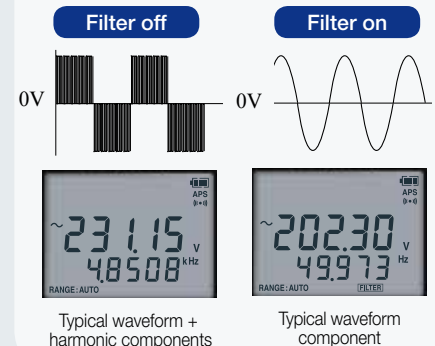


For the 'A' range,* only the 'A' and COM terminals are accessible; and for the $\mu A/mA$ ranges, only the $\mu A/mA$ and COM terminals are accessible.

LPF 1kHz Optimized for inverter system measurements

Low-pass filter cuts harmonic waveform components

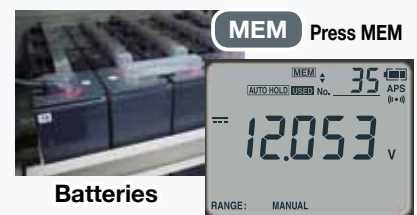
The (1-kHz cutoff) low-pass filter function cuts high harmonic components when measuring inverter secondary output voltage.



Enhance UPS maintenance efficiency

1 Save on site Memory function (Up to 400 data points)

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



Batteries

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.	±0.4% rdg.	±0.6% rdg.	±0.9% rdg.	±1.5% rdg.	±20% rdg.±80 dgt.
600.00 mV	±60 dgt.	±40 dgt.	±40 dgt.	±40 dgt.	±40 dgt.	±8% rdg.±80 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.	±3.5% rdg.
60.000 V	Undefined				±40 dgt.	±40 dgt.
600.00 V					Undefined	Undefined
1000.0 V						

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.	±1.5% rdg. ±45 dgt.	±3.5% rdg. ±125 dgt.
60.000 V	Undefined			±30 dgt.	Undefined	Undefined
600.00 V				±0.4% rdg. ±45 dgt.		
1000.0 V						

Input impedance : 1MΩ ±4%/100pF or less

Crest factor : 3 or less (1.5 or less for the 1000.0V range)

Accuracy : 5% or more of each range

specification 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.	1 Ω
600.00 mA	±0.15% rdg. ±5 dgt.	
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 : Accuracy is not defined for measurements below 5% of range

specification 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 : 120 minutes (when the product environmental temperature fluctuates ±5°C or more)

• Optional K Thermocouple DT4910 specifications

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 ±10%	DC3.1 V or less
10.00 μF			DC2.1 V or less
100.0 μF			
1.000 mF			
10.00 mF			
100.0 mF			

*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)

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 2×10^7 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

•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.



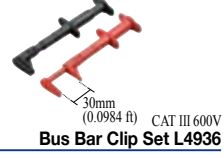
Alligator Clip Set L4935

CAT III 1000V CAT IV 600V



Bus Bar Clip Set L4936

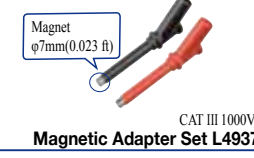
30mm (0.0984 ft) CAT III 600V



Magnetic Adapter Set L4937

Magnet ϕ 7mm(0.023 ft)

CAT III 1000V



Test Pin Set L4932

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



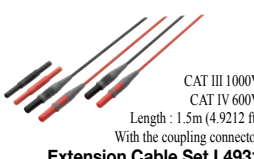
Grabber Clip 9243

CAT III 1000V



Extension Cable Set L4931

CAT III 1000V CAT IV 600V Length : 1.5m (4.9212 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	Adapter Model 9704 is required to connect <u>AC CLAMP ON PROBES 9010-50, 9018-50</u> and 9032-50 to the DT4281.  Conversion Adapter 9704
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 ×0.73 H × 0.11D ft), 600g(21.1oz.), cord length 3m(9.84 ft)	

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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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 (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

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Quality Hioki Products Online at:

www.GlobalTestSupply.com

sales@GlobalTestSupply.com