

HIOKI TITITI 143 Gali

C CALRIGHT INSTRUMENTS

The Right Source For Your Test & Measurement Needs

8715 Mesa Point Terrace San Diego, CA 92154 Toll Free: 1.866.363.6634 Tel: 1.619.429.4545 Fax: 1.619.374.7012 Email: sales@calright.com http://www.calright.com



TIMETER

Defy conventional wisdom for achieving testing safety with a new and proprietary circuit breaker false trip prevention function

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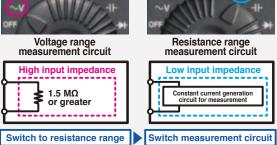
Hazard Mistakenly tripped circuit breakers and arcs due to careless input of voltage to the resistance range can be extremely hazardous.



The DT4223 and DT4224 feature a new proprietary function that prevents accidents resulting from breakers that mistakenly trip due to incorrect input

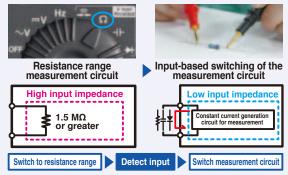
O

Conventional digital multimeters



Because changing the measurement range also changes the measurement circuit, mistakenly inputting voltage with the instrument set to the resistance range will cause a large current to flow to the device, leading to hazards such as tripped circuit breakers and arcing.

DT4223 / DT4224 Digital Multimeter



The measurement circuit is switched after the instrument detects resistance, continuity, capacitance, or diode input. Even if you mistakenly input voltage with the instrument set to the resistance range, the high input impedance will limit the current flowing to the instrument to 1.5 mA or less to prevent potential hazards.





Safe testers that protect workers from dangerous accidents

Engineered based on extensive customer feedback, the Hioki Digital Multimeter DT4200 series delivers the design and quality needed in order to ensure safety in field measurement.

Prevent unavoidable debris from shorting the measurement target and causing an accident.



The DT4255's voltage input terminals incorporate a protective fuse so that contamination of the instrument's internal components with iron powder or other particulate matter will not result in an internal short-circuit. The fuse can be replaced easily on site.

Hazard Continued high input may result in major accidents such as fire.



To prevent an accident, a warning function immediately notifies the operator if the DMM receives excessively high input.

*Red screen available on high-end models and DT4223/DT4224 only

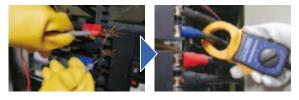
Hazard 4 Wrong insertion 4 may lead to short-circuits.



The DT4281 and DT4282 use terminal shutters to keep probes from being inserted into the wrong inlets. The shutters block whichever terminal is not being used based on the selected measurement function.



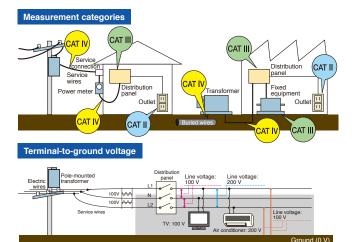
Hazard Mistakenly measuring voltage using the current range may lead to a short-circuit.



The DT4281, DT4253, DT4255, and DT4256 eliminate the root cause of such accidents by providing clamp-on sensorbased current measurement functionality instead of using conventional probes.

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Safe measurement requires use of an instrument that suits the measurement location.

To ensure operators' ability to use measuring instruments safely, IEC 61010 classifies the locations in which instruments are used into a series of safety-based measurement categories (ranging from CAT II to CAT IV). Using an instrument that does not satisfy the required safety level can lead to an electrical accident.

CAT IV	600 V	Terminal-to-ground voltage	
		Measurement category suited to the location of use	
High-end model	s CA	T III 1000 V / CAT IV 600 V	

Standard models CAT III 1000 V / CAT IV 600 V Pocket models CAT III 600 V / CAT IV 300 V	High-end models	CAT III 1000 V	/ CAT IV 600 V
Pocket models CAT III 600 V / CAT IV 300 V	Standard models	CAT III 1000 V	/ CAT IV 600 V
	Pocket models	CAT III 600 V	/ CAT IV 300 V

Designed and manufactured in Japan to ensure high quality and guaranteed with a 3-year warranty for peace of mind

All development, design, and manufacturing processes for almost all Hioki digital multimeters are carried out at our Head Office in Nagano Prefecture. Some of the industry's most advanced technological capabilities enable us to deliver products of the highest possible quality.



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Field-Proven Strength and Usability DT4200 series

Robust design capable of withstanding a drop from a height of 1 m onto concrete



To test our products' ability to withstand mechanical shock,

Drop tester

we repeatedly drop them from a height of at least 1 m until they break. This drop-testing regime leads to more robust products by fostering a series of design improvements.



Fast, accurate measurement of the output voltage on the secondary side of an inverter



The DT series can accurately measure the voltage on the secondary side of an inverter, just like a power meter. Its low-pass filter rejects harmonic components so that the fundamental wave can be isolated and accurately measured.

Outstanding viewing angle so display is easy to read at an angle or even in a dim location



The DT4200 series features a display with a wide viewing angle and a backlight function so that it's easy to read, even when you can't view the screen from the front or when making measurements in a dim location.





If dust gets into the instrument's enclosure, it can cause the device to fail. Since dust can get into the instrument especially easily through the gap around the rotary switch, the DT4200 series incorporates a dustproof part known as an O-ring where the rotary switch is mounted to improve the device's dust resistance.

True RMS measurement for accurate measurement of even distorted current waveforms



Current waveforms are often distorted, causing the average-value and true RMS measurement methods to yield different results. To obtain accurate readings, RMS measurement is indispensable.

Rotary switch that's easy to operate even when wearing gloves



The DT4200's rotary switch is designed to be easy to turn even when wearing thick work gloves, for example while working in hazardous measurement locations or harsh conditions

Outstanding hands-free ease of use in the field when working with numerous measurement locations





Secure the instrument on the wall so that you don't have to hold it.



The display automatically stops once the measured value stabilizes.



Press the MEM key to save measured values in the instrument's internal memory.

It's hard to carry out work tasks smoothly when you're juggling a measuring instrument, probes, recording paper, and other supplies. Field concerns like these are resolved by the DT4200's magnetic strap, auto-hold function, and ability to save results in its internal memory. These capabilities boost work efficiency and help reduce work times.

*The auto-hold function is available exclusively in high-end, standard models and DT4223, DT4224. The ability to save results in internal memory is available exclusively in highend models.

Extensive selection of probe tips that you can choose based on the measurement location, improving ease of measurement





With screw terminals



In deep-set locations that can't be reached with other probes



For clamping around the target busbar

With the DT4200, you can choose the probe type that best suits your measurement location, making it possible to measure in areas that can't be reached with conventional probes and busbars that you wish to clamp between probes.

Compatible probe tips vary with the DMM model. Please see page 16. The optional Connection Cable L4930 is required in order to use the probes shown at the left.



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High-end models

Featuring high accuracy, extensive additional functionality, and a broad range of measurement parameters

> DCV typical accuracy: ±0.025% rdg. ±2 dgt. Measurement categories: CAT III (1000 V) / CAT IV (600 V)



For electrical work in the field DT4281

Designed for maximum safety in the field when measuring current with clamp-on sensors.

DC voltage	60.000 mV to 1000.0 V
AC voltage	60.000 mV to 1000.0 V
DC + AC voltage	6.000 V to 1000.0 V
DC current	600.00 µA to 600.00 mA
AC current	600.00 μA to 600.00 mA
AC clamp-on measurement	Frequency
AC clamp-on measurement Resistance	Frequency Continuity check
	1 2
Resistance	Continuity check



For laboratory and research use DT4282

Designed for use in laboratories and R&D applications where you wish to measure a wide variety of parameters.

DC voltage	60.000 mV to 1000.0 V		
AC voltage	60.000 mV to 1000.0 V		
DC + AC voltage	6.000 V to 1000.0 V		
DC current	600.00 µA to 10.000 A		
AC current	600.00 µA to 10.000 A		
AC clamp-on measurement	Frequency		
AC clamp-on measurement Resistance	Frequency Continuity check		
Resistance	Continuity check		

nent parameter Supported measurement parameter (with model-specific variations) Unsupported measurement parameter "
The range figures given indicate the instrument's measurement ranges (not the range of measurable values).



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Applications



Magnetic strap frees both hands for work Using the magnetic strap (option)

By using the magnetic strap to secure the instrument to the wall, you can free both hands so that you can more easily record measured values, significantly boosting work efficiency.



Automatically hold display values and save results with one touch to the DMM's internal memory

The display is automatically held once the measured value stabilizes. You can save measurement results to the instrument's internal memory simply by pressing the MEM key, making it easy to read and record values during inspection work.



Manage measurement data on a computer Using the Communication Package DT4900-01 (option)

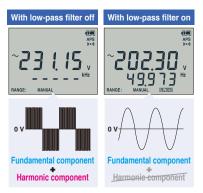
Measurement results can be downloaded to a computer via a USB connection. Once downloaded, you can save them as a file (text format) or display them as a graph using the desired interval. Results can also be sent in real time while measurement is ongoing.

*The computer and multimeter are electrically isolated by means of optical communications so that data can be sent with peace of mind.



Measure output voltage on the secondary sides of inverters

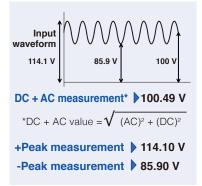
Accurately measure the fundamental wave alone by eliminating harmonic components with the DMM's low-pass filter function.





Ripple voltage confirmation of DC charging systems Peak value measurement / DC + AC voltage measurement

High-end models can detect ripple voltage with a superposed DC signal.





Percentage display for instrumentation signal measurement 4 to 20 mA / 0 to 20 mA percentageequivalent display

You can check percentage-equivalent values.





SLOW

Change the display

refresh speed to stabilize the display when performing measurement characterized by a high level of variability.



Relative display

View relative values using the display value before the relative function was enabled as the reference.



Maximum/minimum value display

Check the maximum and minimum measured values shown on the display after pressing the MAX/MIN button.



Decibel conversion

Convert the results of AC voltage measurement to a decibel value relative to a reference value and display the results (dbm/ dby).

_RIGHT RUMENTS

Measure very low currents used by

High-end models provide a DC 600.00 µA

sensor rod

range for measuring burner flame currents.

gas-burning devices

DC uA range

Burne

Control board



Intuitive notification of continuity check results and excessively high input with a red screen backlight and beep

High-end models notify the operator of continuity check results and excessively high input with a red screen backlight and beep, making it possible to check measurement results intuitively





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Standard models

Introducing a line of field-optimized instruments that can be chosen based on the application at hand

DCV typical accuracy: ±0.3% rdg. ±3 dgt. Measurement categories: CAT III (1000 V) / CAT IV (600 V)



Supported measurement parameter
 Supported measurement parameter (with model-specific variations)
 Unsupported measurement parameter
 *The range figures given indicate the instrument's measurement ranges (not the range of measurable values).

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IENTS

Applications



Magnetic strap and auto-hold function free up hands for easier work

Using the magnetic strap (option)

By using the magnetic strap to secure the instrument to the wall and the auto-hold function to automatically stop display values, you can free your hands, making it easier to record measured values and significantly boosting work efficiency.



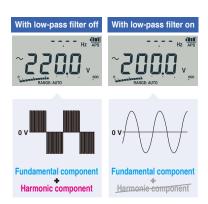
Automatic switching of measurement in locations where AC and DC voltages are mixed AC/DC voltage automatic detection (DT4253/54/55/56 only)

When making measurements in locations with both AC and DC voltages, automatic switching eliminates the need to operate the rotary switch and helps prevent measurement mistakes.



Measure output voltage on the secondary sides of inverters

Accurately measure the fundamental wave by eliminating harmonic components with the DMM's low-pass filter function.





Test no-load voltage at megasolar installations

1700 V DC measurement (DT4254 only) Model DT4254 can measure DC voltages up to 1700 V, enabling you to make no-load voltage inspections of megasolar installations.

Polarity detection and notification

Certain standard models can detect a load voltage in excess of -10 V and notify the operator with a red LED and beep. *DT4254/4255/4256 only.





Use a computer in the field to save and check measured values With the Communication Package DT4900-01 (option)

Measured values can be displayed in real time on a computer, and displayed values can be saved to a file (text format) or graphed at a user-specified interval.

*The computer and multimeter are electrically isolated by means of optical communications so that data can be sent with peace of mind.



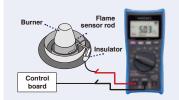
Percentage display for instrumentation signal measurement 4 to 20 mA percentage-equivalent display (DT4253 only) The standard models' dual display function lets you to simultaneously check measured values and percentage-equivalent values at a glance.





Measure very low currents used by gas-burning devices DC µA range (DT4253 only)

Model DT4253 provides a DC 60.00 µA range for measuring burner flame currents.





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Intuitive notification of continuity check results and excessively high input with a red LED and beep

Standard models notify the operator of continuity check results and excessively high input with a red LED and beep, making it possible to check measurement results intuitively.





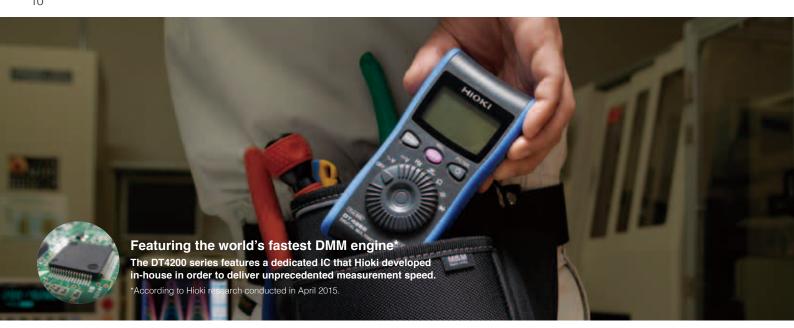
Excessively high input



Thorough prevention of shortcircuit accidents

Voltage measurement terminal fuse (DT4255 only) When using the resistance measurement function, a when using unreal-measurance measurement to action a protective circuit functions to prevent a short-circuit accident in the event of erroneous operation such improperly supplying voltage input. Even if a short-circuit accident the tester, a current-limiting resistor will limit any short-circuit current while a fast-blow fuse quickly and reliably disconnects the tester circuitry, preventing a short-circuit accident.

A: <u>0.63 /</u> B: <mark>Circu</mark>			Se Fuse cap AC: 50 k DC: 30 k imiting resistor	1
+ 6- сом ф	A	**	Protective Tester circuit circuit	r ry



Pocket models

Featuring a compact body for ergonomic hold and a reliable, safe design





For electrical work in the field **DT4221**

Delivering maximum field safety for workers whose principal use is voltage measurement.

600.0 mV to 600.0 V

6.000 V to 600.0 V

Frequency

Continuity check

/oltage detection function

DC voltage

AC voltage

C/DC automatic detection



For multiple applications **DT4222**

For laboratories and R&D applications to measure a wide variety of parameters.

600.0 mV to 600.0 V

6.000 V to 600.0 V

Frequency

Continuity check

Diode test

DC voltage

AC voltage

For electrical work in the field **DT4223**

Delivering maximum field safety for workers whose principal use is voltage measurement.

600.0 mV to 600.0 V

6.000 V to 600.0 V

Frequency

Continuity check

oltage detection functior

DC voltage

AC voltage

Resistance

C/DC automatic detection



For multiple applications **DT4224**

For laboratories and R&D applications to measure a wide variety of parameters.

DC voltage	600.0 mV to 600.0 V
AC voltage	6.000 V to 600.0 V
DC + AC voltage	DT4281/4282 only
DC current	
AC current	n/a
AC clamp-on measurement	Frequency
Resistance	Continuity check
Temperature	Diode test
Capacitance	Conductance
AC/DC automatic detection	Voltage detection function

ur<u>e</u>me<u>n</u>t p<u>arame</u>ter 🔶 Supported measurement parameter (with model-specific variations) 🧶 Unsupported measurement parameter *The range figures given indicate the instrument's measurement ranges (not the range of measurable values).

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Circuit breaker false trip prevention built-in

Applications

New DT4223 and DT4224 feature circuit breaker false trip prevention



Prevent potential accidents during incorrect input

The measurement circuit switches only after detecting the appropriate signal. This way, even if you mistakenly input voltage, accidents due to tripped breakers or arcs will not happen. (see page 2)



LoZ icon identifies switched measurement circuit

When the instrument detects resistance, continuity, capacitance, or diode input, the LoZ icon is shown on the display, allowing you to identify at a glance which measurement circuit has been selected.



Warning function notifies you of incorrect input.

The instrument's display flashes red to warn you when voltage has been mistakenly input while the instrument is set to the resistance range.



Compact and lightweight design for outstanding ease of use

The small form factor fits in your hand perfectly and is easily stowable, making it convenient to transport to and from the field and boosting work efficiency. The lightweight design also ensures that pocket models are easy to work with.



Safe enough for measuring voltage at distribution panels and service wires

Despite a compact body, the pocket models can be used to measure voltage at distribution panels and service wires in CAT III (600 V)/CAT IV (300 V) situations.



Intuitive notification of excessively high input with flashing screen

The pocket digital multimeters notify the operator of excessively high input by flashing the screen, making it possible to check measurement results intuitively.



Automatic switching of measurement in locations where AC and DC voltages are mixed

AC/DC voltage automatic detection (DT4221, DT4223 only) When making measurements in locations with both AC and DC voltages, automatic switching eliminates the need to operate the rotary switch and helps prevent measurement mistakes



Detect voltage simply by holding the instrument against a wire

Voltage detection function (DT4221, DT4223 only) Easily detect voltage with the built-in sensor. Results are communicated with a beep.



Card HiTester 3244

DT4221





Immediate display of measurement results

Fast measurement for outstanding ease of use

Measured values are displayed quickly to facilitate quick testing. The difference is clear when you compare the measurement speed with that of the Hioki Card HiTESTER 3244-60.



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DT4200 Series Basic Comparison

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	DT4281	DT4282	DT4252	DT4253	5000 DT4254	DT4255	DT4256	DT4221	DT4222	DT4223	DT4224
Desis Observatori		D14202	D14232	D14255	D14234	D14255	D14230	DI4ZZI	DI4ZZZ	D14223	D14224
Basic Characteris											
True RMS	Ye				Yes				Ye		
DCV basic accuracy	±0.025 %ro			lg. ±5 dgt.		±0.3 %rdg. ±3 dgt			±0.5 %rd	g. ±5 dgt.	
Measurement item					1						
DC voltage	60 mV to		600 mV	to 1000 V	600 mV to 1500 V	600 mV t	o 1000 V		600 mV		
AC voltage	60 mV to				6 V to 1000 V				6 V to		
DCV + ACV	6 V to 1				n/a	1-			n,		
DCA current	600 µA to 600 mA	600 µA to 10 A	6 A to 10 A	60 µA to 60 mA		/a	60 mA to 10 A		n,		
ACA current	600 µA to 600 mA	600 µA to 10 A	6 A to 10 A	10.41.1000.4	n/a		600 mA to 10 A		n,		
AC clamp	10 A to 1000 A	n/a	n/a	10 A to 1000 A	n/a	10 A to 1000 A	10 A to 1000 A	10 In	n,		
Resistance	60 Ω to 6 -40°C to			0 60 MΩ	n/a	600 Ω to	060 MΩ	n/a		600 Ω to 60 MΩ	
Temperature			n/a	-40°C to 400°C	2/2	n/a	40 mF	2/2	n/		4.5540.55
Capacitance	1 nF to 1		ιμ-τα	10 mF	n/a	Ι μ- το	10 mF	n/a	1 μF to 10 mF	n/a	1 µF to 10 mF
Frequency	99 Hz to :			es	99 Hz to 99 kHz		es		99 Hz to		
Continuity check	Ye				n/a			10			Vee
Diode check	Ye		Y	es	n/a	Ye	es	n/a	Yes	n/a	Yes
Conductance	n/a	Yes		1-	n/a	Vee		Vee	n,		10
Voltage detection	n/	a	n	/a		Yes		Yes	n/a	Yes	n/a
Additional Function		1-			N						
AUTO AC/DCV	n/ DC/		n/a			es		Yes	n/a	Yes	n/a
Peak measurement					n/a				n, Disita		
Low-pass filter	Analog Cut-off :			Pass-	Digital filter band : 100Hz/	500Hz			Digita Pass-band : 1	l filter 100Hz/500Hz	
Display update setting	Ye	es			n/a				n	′a	
Hold display value	AUTO / N	ANUAL		A	UTO / MANUA	AL.		MAN	IUAL	AUTO /	MANUAL
Max/Min value display	Ye	es			Yes				n	′a	
Relative display	Ye	es			Yes				Ye	es	
Decibel conversion	Ye	es			n/a				n	′a	
Percentage conversion display	Ye	es	n/a	Yes	n	/a	n/a		n	n/a	
DC voltage polarity check	n/	'a	n	/a		Yes		n/a			
Data storage											
Capacity	Max 40	00 data			n/a				n	′a	
USB communication*1	Ye	es			Yes				n	′a	
Operating time											
Continuous operating time	Approx. 10	0 hours*2		A	pprox. 130 hou	irs		Approx.	40 hours	Approx.	35 hours
Power supply	Alkaline (LR6) battery ×4 / N	langanese(R6P) battery ×4		Alkali	ne (LR03) batt	ery ×4			Alkaline (LRC	3) battery ×1	
Display											
Back light	Ye	es			Yes				Ye	es	
Dual display	Ye	es		Yes					n	′a	
Bar graph display	n/	a			Yes				Ye	es	
Safety											
Safety standard categories	CATIII1000 V	/ CATIV600 V		CAT	TII1000 V/ CATIV	600 V			CATIII600 V	CATIV300 V	
				CATII1000 V/ CATIV600 V CATIV300 V						,	
Mis-insertion prevention shutters	Ye	es		n/a n/a				11	′a		

*1. Requires optional DT4900-01 Communication Package *2. When using four AA alkaline batteries

Glossary

Auto AC/DCV : Automatically detects and measures AC and DC voltage. | Peak measurement : After starting PEAK value measurement, check maximum and minimum instantaneous voltage and current values. | Low-pass filter : Cuts high frequency content to provide stable numerical values for measurement. | Display update setting : Reduces the display value update rate to stabilize measurements. | Hold display value : Manual: press the button to freeze the display. Auto: the display freezes automatically when the measurement value is stable. | Max/Min value display : Pressing the MAX/MIN button displays the maximum and minimum displayed measurement values. | Relative display : Pressing the REL button displays subsequent measurements as values relative to that displayed when the button was pressed. | Decibel conversion : Displays AC voltage measurements converted to decibel values (dbm/dbv) | Percentage conversion display : Displays 4 to 20 mA (or 0 to 20 mA) signals converted to 0 to 100% values. For the DT4253, only 4 to 20 mA.



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High-End DT4281/DT4282 (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

DC Voltage							
Range	Accuracy	Input Impedance					
60.000 mV	±0.2 %rdg. ±25 dgt.						
600.00 mV	±0.025 %rdg. ±5 dgt.	1 GΩ or more //100 pF or less					
6.0000 V	-0.005.0/ rda0. dat	11.0 MΩ± 2% //100 pF or less					
60.000 V	±0.025 %rdg. ±2 dgt.	10.3 MΩ±2% //100 pF or less					
600.00 V	±0.03 %rdg. ±2 dqt.	10.2 MΩ± 2% //100 pF or less					
1000.0 V	±0.03 /ordy. ±2 dgt.	10.2 W122 2 /0 // 100 pF OF less					

AC Voltage								
Danga			Ac	curacy				
Range	20 to 45 Hz	45 to 65 Hz	65 to 1 kHz	1 k to 10 kHz	10 k to 20 kHz	20 k to 100 kHz		
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.				±0.7 %rdg.	±3.5 %rdg.		
60.000 V		±0.2 %rdg.	±0.3 %rdg.	±0.4 %rdg.	±40 dgt.	±40 dgt.		
600.00 V	Undefined	±25 dgt.	±25 dgt.	±25 dgt.	Undefined	Undefined		
1000.0 V					Ondenned	Undenned		

DCV + ACV Measurement							
Range			Ac	curacy			
naliye	20 to 45 Hz	45 to 65 Hz	65 to 1 kHz	1 k to 10 kHz	10 k to 20 kHz	20 k to 100 kHz	
6.0000 V	±1.2 %rdg. ±65 dgt.			±0.4 %rdg.	±1.5 %rdg. ±45 dgt.	±3.5 %rdg. ±125 dgt.	
60.000 V		±0.3 %rdg. ±30 dgt.	0	±30 dgt.			
600.00 V	Undefined						
1000.0 V	Undenned			±0.4 %rdg. ±45 dgt.	Undefined	Undefined	
Input impe	edance	1MΩ ± 4 %	5//100pF or I	ess			
Crest fact	or	3 or less (1	1.5 or less fo	or the 1000.0	V range)		
		5% or more of each range					
Accuracy specificati	on range	With the filter ON, accuracy is defined only for frequencies 100Hz or less. Furthermore, 2% rdg. is added					

DCA Meas	*1 : DT4282 only		
Range	Accuracy / Display update : SLOW	Accuracy / Display update : NORMAL	Shunt Resistance
600.00 μA		±0.05 %rdg. ±25 dgt.	101 Ω
6000.0 μA	±0.05 %rdg. ±5 dgt.	±0.05 %rdg. ±5 dgt.	101 22
60.000 mA		±0.05 %rdg. ±25 dgt.	10
600.00 mA	±0.15 %rdg. ±5 dgt.	±0.15 %rdg. ±5 dgt.	1 12
6.0000 A ^{*1}	±0.2 %rdg. ±5 dqt.	±0.2 %rdg. ±25 dgt.	10m Q
10.000 A ^{*1}	±0.2 %rag. ±5 agi.	±0.2 %rdg. ±5 dgt.	1011122

ACA Mea	asurement			*1	: DT4282 only	
Danga			Accuracy			
Range	20 to 45 Hz	45 to 65 Hz	65 to 1 kHz	1 k to 10 kHz	10 k to 20 kHz	
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 ^{*1}	Undefined	±0.8 %rdg. ±20 dgt.	±0.8 %rdg. ±20 dgt.	Undefined	Undefined	
10.000 A ^{*1}	Undefined	±0.8 %rdg. ±5 dgt.	±0.8 %rdg. ±5 dgt.	Undefined	Undefined	
Shunt resist	ance	μA Range 101 Ω / mA Range 1 Ω / A Range 10m Ω				
Crest factor		3 or less (Note that it applies to 1/2 of the range.)				
Accuracy spec	cification range	Accuracy is not o	defined for meas	urements below	5% of range	

Continuity Check			
Range	Accuracy	Measurement Current	Open-terminal Voltage
600.0 Ω	±0.5 %rdg. ±5 dgt.	640 μA ±10%	DC2.5 V or less
Continuity threshold	20Ω (default) /50Ω/ 100Ω/ 500Ω		

Diode Check				
Range	Accuracy		Measurement Current	Open-terminal Voltage
3.600 V	±0.1 %rdg. ±5 dgt.		1.2 mA or less	DC4.5 V or less
Forward threshold		0.15V/ 0.5V (default)/1V/ 1.5V/ 2V/ 2.5V/ 3V		
		If the reading is lower than the threshold during the forward connection, a buzzer sounds and the red backlight turns on.		

AC Clamp (AC Current)	DT4281 only
Danga	Acc	curacy
Range	40 to 65 Hz	65 to 1 kHz
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

Accuracy is not defined for measurements below 15% of range

Resistance Measurement

Resistance	measurement		
Range	Accuracy	Measurement Current	Open-terminal Voltage
60.000 Ω	±0.3 %rdg. ±20 dgt.	640.04.100/	
600.00 Ω	±0.03 %rdg. ±10 dgt.	640 μA ±10%	
6.0000 kΩ		96 μA ±10%]
60.000 kΩ	±0.03 %rdg. ±2 dgt.	9.3 μA ±10%	
600.00 kΩ		0.96 μA ±10%	DC2.5 V or less
6.0000 MΩ	±0.15 %rdg. ±4 dgt.		
60.00 MΩ	±1.5 %rdg. ±10 dgt.	96 nA ±10%	
600.0 MQ	±3.0 %rdg. ±20 dgt.	90 HA ±10%	
0.00010122	±8.0 %rdg. ±20 dgt.		

Conductance (nS)			DT4282 only
Range	Accuracy	Measurement Current	Open-circuit Voltage
600.00 nS	±1.5 %rdg. ±10 dgt.	96 nA ±10%	DC2.5 V 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

Capacitance Measurement			
Range	Accuracy	Measurement Current	Open-circuit Voltage
1.000 nF	±1 %rdg. ±20 dgt.		
10.00 nF		32 μA ±10%	DC2.5 V or less
100.0 nF	±1 %rdg. ±5 dgt.		
1.000 μF			
10.00 μF			DC3.1 V or less
100.0 μF	0.0 (vola . E dat		DC3.1 V OI less
1.000 mF	±2 %rdg. ±5 dgt.	680 μA ±20%	
10.00 mF			DC2.1 V or less
100.0 mF	±2 %rdg. ±20 dgt.		

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

Frequency (For AC V, DC+AC V, AC µA, AC mA, AC A)			
Range		Accuracy	
99.999 Hz			
999.99 Hz		±0.005 %rdg. +3 dgt.	
9.9999 kHz			
99.999 kHz		±0.005 %rdg. +3 dgt.	
500.00 kHz			
Measurement r	ange	nge 0.5Hz or more ([] is displayed when frequency is less than 0.5Hz)	
Pulse width	1µs or more (DUTY ratio is 50%)		
With the filter ON.	accuracy is defined only for frequencies 100Hz or less. (For ACV, DC+ACV)		

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	
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.	
	250µs or more (repeated)	±2.0 %rdg. ±100 dgt.	

Decibel Conversion Measurement : Standard impedance (dBm)

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

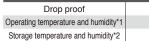
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C INSTRUMENTS

General Specifications

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Storage temperature and humidity*2	-30°C to 60°C
Applicable standards	Safety : EN61010, EMC: EN61326, Waterproof and dustproof: IP40
40°C to 45°C (104°F to 113°F):	o to 40°C (104°F): at 80%RH or less (non-condensating), at 60%RH or less (non-condensating), at 50%RH or less (non-condensating)

*2 : 80%RH or less (non-condensating)

Dimensions/Mass

Durability

93mm(W)×197mm(H)×53mm(D)(3.66"W 7.76"H 2.09"D Inch) / 650g (including batteries) (23 oz.)

Safety Maximum rated voltage between input terminals and ground CATIII1000 V/ CATIV600 V Maximum rated voltage between terminals Between the V and COM terminals : 1000 V DC/AC 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

Accessories

TEST LEAD L9207-10 , Instruction Manual, LR6 alkaline battery×4

Standard DT4252/DT4253/DT4254/DT4255/DT4256 (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

YES

-15°C to 55°C

DC Voltage		*1 : DT4252 only *2 : DT4254 only
Range	Accuracy	Input Impedance
High precision 600mV range ¹	±0.2 %rdg. ±5 dgt.	10.2 MΩ ± 1.5 %
600.0 mV	±0.5 %rdg. ±5 dgt.	11.2 MQ ± 2.0 %
6.000 V	±0.3 %rdg. ±3 dgt.	11.2 IVI2 ± 2.0 /8
60.00 V		10.3 MΩ ± 2.0 %
600.0 V		
1000 V		10.2 MΩ ± 1.5 %
1500 V ^{*2}	±0.3 %rdg. ±3 dgt.	

AC Voltage				
Banga	Accuracy		land the sector sec	
Range	40 to 500 Hz	500 or more to 1kHz	Input Impedance	
6.000V			11.2 M Ω \pm 2.0%//100 pF or less	
60.00V	±0.9 %rdg. ±3 dqt.	±1.8 %rdq. ±3 dqt.	$10.3\ \text{M}\Omega$ ± 2.0%//100 or less	
600.0V	±0.9 %rug. ±3 úgi.	±1.0 /010g. ±0 0gi.	10.2 MΩ ± 1.5%//100 or less	
1000V			10.2 MI2 ± 1.5%//100 Of less	

AUTO V (Identification)		DT4253, DT4254, DT4255, DT4256 only		
Accuracy		Jracy	Input Impodonoo	
DC,4	40 to 500 Hz	500 or more to 1kHz	Input Impedance	
±2.0 %rdg. ±3 dgt.		±4.0 %rdg. ±3 dgt.	900 kΩ ± 20% 1800 kΩ ± 20% ^{*1}	
Crest factor 3 up to 4000 counts and reduces linearly to 2 at		s and reduces linearly to 2 at 600	00 counts.	
Accuracy specification range		For ACV, minimum 1% of range; add ±5 dgt. when measuring at or below 5% of range		
		With the filter ON, the accuracy is not specified at 100Hz/500Hz or more		
	DC,4 ±2.0	Accu DC,40 to 500 Hz ±2.0 %rdg. ±3 dgt. 3 up to 4000 counts For ACV, minimum 1%	Accuracy DC,40 to 500 Hz 500 or more to 1kHz ±2.0 %rdg. ±3 dgt. ±4.0 %rdg. ±3 dgt. 3 up to 4000 counts and reduces linearly to 2 at 600 For ACV, minimum 1% of range; add ±5 dgt. when measuring	

*1 : DT4254

DCA Measurer	ment	DT4252, DT4253, DT4256 only
Range	Accuracy	Input Impedance
 60.00 μA 	±0.8 %rdg. ±5 dgt.	1 kΩ±5 %
 600.0 μA 	±0.8 %rdg. ±5 dgt.	1 kΩ±5 %
• 6.000 mA	±0.8 %rdg. ±5 dgt.	15 Ω±40 %
• • 60.00 mA	±0.8 %rdg. ±5 dgt. ^{*1}	15 Ω±40 % ^{`1}
• 600.0 mA	±0.9 %rdg. ±5 dgt.	35 mΩ±30 %
• • 6.000 A	±0.9 %rdg. ±3 dgt. ^{*2}	35 mΩ±30 %
• 10.00 A	±0.9 %rdg. ±3 dgt. ²	35 mΩ±30 %
	1050 DT 1050	

•: DT4252 •: DT4253 •: DT4256

*1 : DT4256 : ±1.8 %rdg. ±15 dgt. Input Impedance : 35 mΩ±30 % *2 : DT4252 : ±0.9 %rdg. ±5 dgt.

2.D14232.±0.9 /siug.±30

ACA Measurement			DT4252, DT4256 only
Panga	Accuracy		Input Impedance
Range	40 to 500 Hz	500 or more to 1kHz	input impedance
600.0 mA ^{*1}	±1.4 %rdg. ±5 dgt.	±1.8 %rdg. ±5 dgt.	35 mΩ±30 %
6.000 A	±1.4 %rdg. ±3 dgt.	±1.8 %rdg. ±3 dgt.	35 mΩ±30 %
10.00 A	±1.4 %rdg. ±3 dgt.	±1.8 %rdg. ±3 dgt.	35 mΩ±30 %

 Crest factor
 3 up to 4000 counts and reduces linearly to 2 at 6000 counts.

 Accuracy specification range
 Minimum 1% of range; add ±5 dgt. when measuring 300 counts or less

 *1 : DT4256 only
 *1

Electric Charge		DT4254, DT4255, DT4256 only
Range	Detection voltage range	Detection Target Frequency
Hi	AC40 V to AC600 V	50 Hz / 60 Hz
Lo	AC80 V to AC600 V	50 HZ / 60 HZ

During voltage detection, a continuous buzzer sounds and the red LED lights up.



Continuity Check		DT4252, DT4253, I	DT4255, DT4256 only	
Range	Ac	curacy	Measurement Current	Open-terminal Voltage
600.0 Ω	±0.7 %rdg. ±5 dgt.		Approx.200 µA	DC1.8 V or less
Continuity ON threshold Approx. 25Ω c		Approx. 25Ω or l	ess (continuous buzzer	sound, red LED lights)
Continuity OFF threshold		Approx.245Ω o	or more	
Diode Check			DT4252, DT4253, I	DT4255, DT4256 only

			,,	,,
Range	Accuracy		Measurement Current	Open-terminal Voltage
1.500 V	±0.5 %rdg. ±5 dgt. ^{*1}		Approx. 0.5 mA	DC5.0 V or less
Forward threshold		Buzzer sounds intermit	tently at 0.15V to 1.5V, th	e red LED flashes

*1 : DT4255 : ±0.5 %rdg. ±8 dgt.

AC Clamp (AC Current)	DT4253, DT4255, DT4256 only	
Range	Accuracy	
naliye	40 to 1 kHz	
10.00 A		
20.00 A		
50.0 A		
100.0 A	±0.9 %rdg. ±3 dgt.	
200.0 A		
500 A		
1000 A		
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	
Accuracy specification range	Minimum 1% of range; add ±5 dgt. when measuring at or below 5% of range	

Resistance M	Resistance Measurement		DT4255, DT4256 only
Range	Accuracy	Measurement Current	Open-terminal Voltage
600.0 Ω	±0.7 %rdg. ±5 dgt.	Approx. 200 µA	
6.000 kΩ		Approx. 100 µA	
60.00 kΩ	±0.7 %rdg. ±3 dgt. ^{*1}	Approx. 10 µA	DC1.8 V or less
600.0 kΩ		Approx. 1 µA	DC1.6 V OF less
6.000 MΩ	±0.9 %rdg. ±3 dgt. ^{*1}	Approx. 100 nA	
60.00 MΩ	±1.5 %rdg. ±3 dgt. ^{*1}	Approx. 10 nA	

Accuracy guarantee condition After zero adjustment has been performed *1 : DT4252/4253 : ±5dgt.

Capacitance Measurement		DT4252 ,DT4253, DT	4255, DT4256 only
Range	Accuracy	Measurement Current	Open-terminal Voltage
1.000 μF	±1.9 %rdg. ±5 dgt.	Approx. 10 n/100 n/1 µA	
10.00 μF		Approx. 100 n/1 µ/10 µA	
100.0 μF		Approx. 1 μ/10 μ/100 μA	DC1.8 V or less
1.000 mF		Approx. 10 μ/100 μ/200 μA	
10.00 mF	±5.0 %rdg. ±20 dgt.	Approx. 100 μ/200 μA	

Temperature		DT4253 only
Thermocouple Type	Range	Accuracy
К	-40.0 to 400.0 °C	±0.5 %rdg. ±2 °C

The optional K Thermocouple DT4910 is used. Accuracy does not include the error of the K thermocouple

Frequency	
Range	Accuracy
99.99 Hz	
999.9 Hz	. 0 1 0/ refer 1 dest
9.999 kHz	±0.1 %rdg. +1 dgt.
99.99 kHz (V AC Only)	

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General Specifications

Durability	
Drop proof	YES
Operating temperature and humidity*1	-25°C to 65°C(DT4254/4255/4256) -10°C to 50°C(DT4252/4253)
Storage temperature and humidity*2	-30°C to 70°C(DT4254/4255/4256) -30°C to 60°C(DT4252/4253)
Applicable standards	Safety : EN61010, EMC: EN61326, Waterproof and dustproof: IP42

*1 : -10°C to 50°C(14°F to 122°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)

- *1 : Up to 40°C(104°F): at 80%RH or less(non-condensating), 40°C to 65°C (104°F to 149°F): reduces linearly 80%rh to 25%rh or less
- *2 : 80%RH or less (non-condensating)

Dimensions/Mass

84mm(W)×174mm(H)×52mm(D)(3.31"W 6.85"H 2.05"D) 390g (including batteries and holster) (13.8 oz.)

DT4221/DT4222 /DT4223 /DT4224 Pocket

(Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

DC Voltage			
Range	Accuracy	Input Impedance	
600.0 mV		11.2 MQ ± 2.0 %	
6.000 V	±0.5 %rdg. ±5 dqt.	11.2 MIL2 ± 2.0 %	
60.00 V	±0.5 %rug. ±5 ugt.	10.3 MΩ ± 2.0 %	
600.0 V		10.2 MQ ± 1.5 %	

AC Voltage				
Range	Accu	uracy	Input Impedance	
nange	40 to 500Hz	500 or more to 1kHz	input impedance	
6.000 V		±2.5 %rdg. ±3 dgt.	11.2 M Ω \pm 2.0%//100 pF or less	
60.00 V	±1.0 %rdg. ±3 dgt.	±2.0 %rdg. ±3 dgt.	10.3 MΩ ± 2.0 %//100 pF or less	
600.0 V			10.2 MΩ \pm 1.5 %//100 pF or less	
Crest factor	3 up to 4000 counts and reduces linearly to 2 at 6000 counts.			
Accuracy	For ACV, minimum 1% of range; add ±5 dgt. when measuring at or below 5% of range			
Accuracy specification range	With the filter ON, the accuracy is not specified in 100Hz/500Hz or more			

AUTO V (Identification)		DT422	21, DT4223 only
Dongo	Accuracy		In multilizer a damage
Range	DC, 40 to 500 Hz	500 or more to 1kHz	Input Impedance
600.0 V	±2.0 %rdg. ±3 dgt.	±4.0 %rdg. ±3 dgt.	900 kΩ ± 20 %
Crest factor	3 up to 4000 counts and reduces linearly to 2 at 6000 counts.		
Accuracy	For ACV, minimum 1% of range; add ±5 dgt. when measuring at or below 5% of range		
Accuracy specification range	With the filter ON, the accuracy is not specified in 100Hz/500Hz or more		

Electric Charge	DT4221, DT4223 only
Detection Voltage Range	Detection Target Frequency
AC80 V to AC600 V	50 Hz / 60 Hz

During voltage detection, a continuous buzzer sounds.

Continuity Check				
Range	Accu	racy	Measurement Current	Open-terminal Voltage
600.0 Ω	±1.0 %rdg. ±5 dgt.		Approx. 200 µA	DC1.8 V or less (DT4221 / DT4222) DC2.0 V or less (DT4223 / DT4224)
Continuity ON threshold Ap		Approx. 250	or less (continuous	buzzer sound)
Continuity OFF threshold		Approx.2459	Ω or more	

General Specifications

Durability	
Drop proof	YES
Operating temperature and humidity*1	-10°C to 50°C (DT4221, DT4222) -10°C to 65°C (DT4223, DT4224)
Storage temperature and humidity*2	-30°C to 60°C (DT4221, DT4222) -30°C to 70°C (DT4223, DT4224)
Applicable standards	Safety : EN61010, EMC: EN61326, Waterproof and dustproof: IP42

*1 : -10°C to 50°C(14°F to 122°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 65°C (113°F to 122°F): at 50%RH or less (non-condensating)

*2 : 80%RH or less (non-condensating)

Dimensions/Mass

72mm(W)×149mm(H)×38mm(D) (2.83"W 5.87"H 1.50"D) 190g (including batteries and holster) (6.7 oz.)



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Safety	
Maximum rated voltage between input terminals and ground	CATIII1000 V/ CATIV600 V
Maximum rated voltage between terminals	Between the V and COM terminals : DC1000 V/ AC1000 $V^{\star 1}$
Maximum rated current between terminals	Between the A and COM terminals : DC10 A/ AC10 A (DT4252/DT4256) Between the μA ,mAand COM terminals : DC60 mA (DT4253 only)

*1 · DT4254 ---- DC1700 V/AC1000 V

Accessories

TEST LEAD L9207-10 / Instruction Manual / LR03 Alkaline battery×4 Holster (attached to the instrument, with a test lead holder)

Diode Check		DT4	222, DT4224 only
Range	Accuracy	Measurement Current	Open-terminal Voltage
1.500 V	±0.9 %rdg. ±5 dgt.	Approx.0.5 mA (DT4222) Approx.0.2 mA (DT4224)	DC2.5 V or less

Resistance Measurement		DT4222, DT422	3, DT4224 only
Range	Accuracy	Measurement Current	Open-terminal Voltage
600.0 Ω		Approx.200 µA	DOLON L
6.000 kΩ		Approx.100 µA	DC1.8 V or less (DT4222)
60.00 kΩ	±0.9 %rdg. ±5 dgt.	Approx.10 µA	
600.0 kΩ		Approx.1 µA	DC2.0 V or less
6.000 MΩ		Approx.100 nA	(DT4223 / DT4224)
60.00 MΩ	±1.5 %rdg. ±5 dgt.	Approx.10 nA	014224)
Accuracy guarantee condition After zero adjustment has been performed			

Accuracy guarantee condition After zero adjustment has been performed

Capacitance Measurement		DT422	2, DT4224 only
Range	Accuracy	Measurement Current	Open-terminal Voltage
1.000 μF	±1.9 %rdg. ±5 dgt.	Approx.10 n/100 n/1 µA	DC1.8 V or less
10.00 μF		Approx.100 n/1 μ/10 μA	(DT4222)
100.0 μF		Approx.1 μ/10 μ/100 μA	, ,
1.000 mF		Approx.10 μ/100 μ/200 μA	DC2.0 V or less (DT4223 / DT4224)
10.00 mF	±5.0 %rdg. ±20 dgt.	Approx.100 µ/200 µA	(D14223 / D14224)

Frequency	
Range	Accuracy
99.99 Hz	
999.9 Hz	±0.1 %rdg. +2 dgt.
9.999 kHz	

Safety

Maximum rated voltage between input terminals and ground Maximum rated voltage between terminals Between the V and COM terminals : 600 V DC/AC

CAT III 600V/ CAT IV300V

Accessories

TEST LEAD DT4911 / Instruction Manual / LR03 Alkaline battery×1 Holster (attached to the instrument, with a test lead holder.)



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