DT-9581

AC T-RMS / DC Clamp Meter with Thermal Imager

The CEM DT-9581 is a True RMS industrial clamp meter with built-in thermal imaging camera, and a large TFT LCD Colour display. It provides fast A/D conversion sample times with high accuracy. Using the DT-9581 it becomes very easy to find and solve issues with production equipment, it is also more efficient as the user does not have to carry two equipments, also since the user is able to see the measurement readings along with the thermal image, it becomes very easy and efficient for the user to detect the exact nature and location of issues and also to highlight the areas of potential future issues for preventive maintenance.

With features like Built in thermal imaging camera, AC current measurement through Flexible Clamp up to 3000A, Non-contact voltage detector, Bluetooth data transfer with datalogging and trend capture, Lo-Z, Inrush current, VFD measurement and built in flashlight to access the dark areas, it is a ultra-efficient and indispensable tool for any technician.

KEY FEATURES

- 6000 Count 2.4" TFT Color LCD display, with bargraph
- Built-in Thermal imager with Max, Min and Center crosshair targeting
- 50Hz fast Thermal image frame rate
- DC Current
- AC TRMS Current
- DC Voltage
- AC, AC+DC TRMS Voltage
- Resistance and Continuity Test
- Diode Test
- Capacitance
- Frequency
- Duty Cycle
- Temperature with K-type probe
- Measure up to 3000A through Flexible Clamp
- Lo-Z Function
- Inrush Current
- VFD Measurements
- Relative Measurement
- Data Hold Function
- Non Contact Voltage Detector
- Built in laser for pin point targeting
- In-Built Flashlight to access Dark Areas
- Field Replaceable, Rechargeable battery with external battery charger
- MAX / MIN / PEAK Record
- Bluetooth 4.0 Interface

Input Protection Limits

Function	Maximum Input
V DC/AC	1000V DC/AC RMS
A AC/DC	1000A DC/AC RMS
Frequency, Resistance, Capacitance, Duty Cycle, Diode Test, Continuity	1000V DC/AC RMS
Temperature	1000V DC/AC RMS
Surge Protection: 8kV peak per IEC 61010	

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ENVIRONMENT

Environmental Conditions for Use

Reference Temperature :	18°C~28°C (64°F~82°F)
Operating Temperature :	5°C~40°C (41°F~104°F)
Allowable Relative Humidity :	<80%RH
Storage Temperature :	-20°~60°C (-4°F~140°F)
Storage Humidity :	<80%RH

Reference Standards

Safety :	IEC/EN 6101 0-1
EMC:	IEC/EN 61326-1
Insulation:	Double Insulation
Pollution Level:	2
Overvoltage Category :	CAT IV 600V, CAT III 1000V
Max Operating Altitude :	2000m (6562ft)

Power Supply

Battery Type :	1x7.4V Rechargeable Li-ION battery, 1200mAh
Battery Charger Power Supply :	100/240V AC, 50/60Hz, 12V DC, 2A
Low Battery Indication :	symbol " ▭ " on the display
Auto Power Off :	after 15~60 minutes' idling (can be disabled)

Display

Conversion :	TRMS
Characteristics :	Colour TFT, 6000 dots with bargraph
Sampling Frequency :	3times/s

TECHNICAL SPECIFICATIONS

Thermal imager

Field of view (FOV) / Minimum focus distance	21° x 21°/ 0.5m
Spatial Resolution (IFOV)	4.53mrad
IR Resolution	80 x 80 pixels
Thermal Sensitivity / NETD	< 0.1°C @ +30°C (+86°F) / 100 mK
Image Frequency	50Hz
Focus Mode	Focus free
Focal Length	7.5mm
Focal Plane Array (FPA) / Spectral Range	Uncooled microbolometer / 8-14 μm
Object Temperature Range	-20°C to +260°C (-4°F to + 500°F)
Accuracy	±3°C (±5.4°F) or ±3% of reading (Environment temperature 10°C-35°C, object temperature >0°C.)

Accuracy calculated as [%reading + (num. digits*resolution)] at 18°C ~ 28°C <75%RH

DC Voltage

Range	Resolution	Accuracy	Overload Protection
600.0mV	0.1mV	± (0.8% rdg + 8 digits)	1000V DC/AC RMS
6.000V	0.001V	± (0.5% rdg + 5 dgt)	
60.00V	0.01V		
600.0V	0.1V	± (0.8% rdg + 5 dgt)	
1000V	1V		

Input Impedance : >10MΩ

AC TRMS Voltage

Range	Resolution	Accuracy (*)		Overload Protection
		(50Hz ~ 60Hz)	(61Hz~ 1kHz)	
6.000V	0.001V	± (1.2% rdg +5 dgt)	± (2.5% rdg +5 dgt)	1000V DC/AC RMS
60.00V	0.01V			
600.0V	0.1V			
1000V	1V			

(*) Accuracy specified from 10% ~ 100% of the measuring range, sine wave.

Input Impedance : > 9M; Accuracy PEAK Function : ± 10%rdg,
PEAK Response Time: 1ms

LowZ AC TRMS Voltage

Range	Resolution	Accuracy (*)	Overload Protection
6.000V	0.001V	± (3.0% rdg + 40 dgt)	1000V DC/AC RMS
60.00V	0.01V		
300.0V	0.1V		

(*) Accuracy specified from 10% ~ 100% of the measuring range, sine wave.
Input Impedance : 300KΩ

LowZ AC TRMS Voltage

Range	Resolution	Accuracy (*)	Overload Protection
6.000V	0.001V	± (3.0% rdg + 40 dgt)	1000V DC/AC RMS
60.00V	0.01V		
300.0V	0.1V		

(*) Accuracy specified from 10% ~ 100% of the measuring range, sine wave.
Input Impedance : 300KΩ

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AC + DC TRMS Voltage

Range	Resolution	Accuracy (50Hz ~ 1kHz)	Overload Protection
6.000V	0.001V	± (2.5% rdg +20 dgt)	1000V DC/AC RMS
60.00V	0.01V		
600.0V	0.1V		
1000V	1V		

Input Impedance : >10MΩ

DC Current

Range	Resolution	Accuracy	Overload Protection
60.00A	0.01A	±(2.0% rdg + 8 dgt)	1000A DC/AC RMS
600.0A	0.1A		
1000A	1A		

Flexible Coil AC Current (AC Current Through Flexible Clamp)

Range	Resolution	Accuracy (*) (50Hz ~ 400Hz)	Overload Protection
30.00A	0.01A	± (3.0% rdg + 5 dgt)	1000A DC/AC RMS
300.0A	0.1A		
3000A	1A		

(*) Accuracy specified from 10% ~ 100% ofthe measuring range, sine wave.

Resistance and Continuity Test

Range	Resolution	Accuracy	Overload Protection
600.0Ω	0.1Ω	± (1.0% rdg + 10 dgt)	1000V DC/AC RMS
6.000kΩ	0.001kΩ	± (0.8% rdg + 5 dgt)	
60.00kΩ	0.01 kΩ		
600.0kΩ	0.1kΩ		
6.000MΩ	0.001MΩ		
60.00MΩ	0.01MΩ	± (2.5%rdg + 10 dgt)	

Buzzer : <50Ω

Diode Test

Function	Test Current	Open Circuit Voltage
→|←	<1.5mA	3.3V DC

Duty Cycle

Range	Resolution	Accuracy
10.0% ~ 90.0%	0.1%	± (1.2% rdg + 8 dgt)

Pulse Frequency Range : 40Hz ~ 10kHz, Pulse
Amplitude : ± 5V (100us ~ 100ms)

LowZ AC + DC TRMS Voltage

Range	Resolution	Accuracy	Overload Protection
6.000V	0.001V	± (3.5% rdg + 40 dgt)	1000V DC/AC RMS
60.00V	0.01V		
300.0V	0.1V		

Input Impedance : <300KΩ

AC TRMS Current

Range	Resolution	Accuracy (*) (50Hz ~ 60Hz)	Overload Protection
60.00A	0.01A	± (2.5% rdg + 5 dgt)	1000A DC/AC RMS
600.0A	0.1A		
1000A	1A		

(*) Accuracy specified from 10% ~ 100% ofthe measuring range, sine wave.
Accuracy Inrush function integral time 100ms, and reading for reference only.

Temperature with K-type probe

Range	Resolution	Accuracy	Overload Protection
-40.0°C ~ 600.0°C	0.1°C	± (1.5% rdg + 3°C)	1000V DC/AC RMS
600°C ~ 1000°C	1°C		
-40.0°F ~ 600.0°F	0.1°F	± (1.5% rdg + 5.4°F)	
600°F ~ 1800°F	1°F		
245.0K ~ 600.0K	0.1K	± (1.5% rdg + 3K)	
600K ~ 1273K	1K		

Frequency (Electronic Circuits)

Range	Resolution	Accuracy	Overload Protection
60.00Hz	0.01Hz	± (0.2% rdg +5 digits)	1000V DC/AC RMS
600.0Hz	0.1Hz		
6.000kHz	0.001kHz		
60.00kHz	0.01kHz		
600.0kHz	0.1kHz		
6.000MHz	0.001MHz		
10.00MHz	0.01MHz		

Sensitivity : >2V RMS (@20% ~ 80% duty cycle) and f<100kHz;
>5V RMS (@ 20% ~ 80% duty cycle) and f>100kHz

Capacitance

Range	Resolution	Accuracy	Overload Protection
60.00nF	0.01nF	± (3.0% rdg + 20 dgt)	1000V DC/AC RMS
600.0nF	0.1nF	± (3.0% rdg + 8 dgt)	
6.000uF	0.001uF	± (3.0% rdg + 8 dgt)	
60.00uF	0.01uF	± (3.0% rdg + 8 dgt)	
600.0uF	0.1uF	± (3.0% rdg + 8 dgt)	
6000uF	1uF	± (3.5% rdg + 20 dgt)	
60.00mF	0.01mF	unspecific	
100.0mF	0.1mF		

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