DCM R Series
True RMS Digital Clampmeters



- **a.c. and d.c. Amps, Ohms, Diode & Continuity**
- **IEC1010 & EMC Compliance**
- **RMS measurement**
- **Auto-ranging & Auto-zeroing**
- **Excellent accuracy**
- **Display – Hold and Max**
- **Analogue outputs**

DESCRIPTION

The DCM R series of digital clamp meters have a four digit L.C.D. and are available in different versions for maximum currents of 200 A, 1000 A and 2000 A. They feature auto-ranging and auto-zeroing and can measure a.c., d.c., pulsed and mixed currents. Additional functions include the measurement of voltage, resistance, continuity and a diode test. The overall accuracy of 1,3% of the measured value has been achieved by utilising the latest microprocessor technology, plus the use of a true RMS measuring technique. This accuracy even applies when harmonics or complex waveforms are present.

The clampmeters have additional ranges of 400 V, 600 V, 400 Ω, 4 k Ω and allow diode tests as well as continuity tests with an integrated buzzer. Simply by pushing a button, it is possible to freeze the last value measured or to display the peak value on the four digit 12 mm high liquid crystal display. The analogue outputs of this DCM series can be connected to an oscilloscope, chart recorder, datalogger or other measuring/recording equipment. A true RMS output is also available.

The traditional measuring method for taking current measurements by inserting a shunt resistor or a current transformer has inherent disadvantages, such as the necessity to break the circuit conductor. The modern, competitively priced Hall effect DCM R series clamp-on multimeters offer the user many advantages including the measurement of d.c. currents and non-sinusoidal waveforms.

High Accuracy

Advanced jaw design means that the clampmeters' accuracy is not actually affected by external magnetic fields or off-centre conductor positioning. Utilisation of Hall Effect technology ensures a broad flat frequency response resulting in optimum accuracy even when harmonics are present.

True RMS Measurement

By using True RMS measurement techniques the DCM R series avoids errors (up to 50%) which can occur when non-sinusoidal waveforms created by today's complex loads are measured using traditional average reading techniques. True RMS measurements are available for a.c., d.c. (Amps, Volts) and a.c. + d.c. (Amps).

Safety and Convenience

The compact size of the instruments gives the user access to constricted locations. The jaw has a large aperture of 55 mm and is able to accommodate conductors with diameters up to 50 mm. The tactile barrier indicates to the operator a safe working distance for his hand to be from the live uninsulated conductors, providing added confidence when making measurements in hazardous voltage areas.

Wide Range of Applications

The high accuracy current measurement capability and full multimeter functionality of the DCM R series satisfy a wide range of applications in service, maintenance and installation of machinery and industrial equipment. These battery powered instruments can be used for automotive diagnostics and current measurements in converter driven

MODEL	DCM24R	DCM104R	DCM204R
Ranges (auto ranging)	40 A, 200 A	400 A, 1000 V	400 A, 2000 A
Measurement methods	a.c. or d.c. True RMS, or d.c. only		
Resolution	10 mA (40 A range) 100 m A (200 A range)	100 mA (400 A range) 1 A (1000 A range)	100 mA (400 A range) 1 A (2000 A range)
Accuracy	±1,3% of reading ±3 digital		
Crest Factor	6 maximum for True RMS measurements		
Maximum measureable load	200 A d.c. or a.c. peak	1000 A d.c. or a.c. peak	2000 A d.c. or a.c. peak
Maximum overload	10 000 A		
Analogue Output (2) **Switcheable Instantaneous or RMS (100 ms) output**	5 mV/A	1 mV/A	0,5 mV/A
Analogue output accuracy		±1,3% of reading ±1 mV	

motors, current networks, electric vehicles, generators, switch mode power supplies, power electronics, electroplating plants and welding equipment.

In addition they are suitable for measuring high-voltage currents and the ripple on power supplies.

Typical application areas include the analysis of current distribution in multiple grid systems, the determination of peak demand in current networks and the measurement of the battery supply current in uninterruptible power supplies.

The analogue output feature allows current waveforms to be displayed on an oscilloscope and true RMS values of current to be recorded on a chart recorder.

FEATURES AND BENEFITS

- Hand guard designed for operator safety
- True RMS measurement for greater accuracy
- Measurement of current, voltage and resistance in one instrument

SPECIFICATIONS

Voltage Measurement

Methods of measurement a.c. True RMS or d.c.

Maximum overload 1000 V

Accuracy ±1% of reading ±3 digits

Resolution 100 mV (400 V range)

Crest Factor 6 for V < 1000 V peak

Input Impedance 1 MΩ

Resistance, Continuity and Diode Testing

Ω ranges (auto-ranging) 400 Ω , 4 kΩ

Ω resolution 0,1 Ω (400 Ω range)

Ω accuracy ±1% of reading ±3 digits

Continuity sounder Toggled on & off by button

(Ω range only) Sounds when resistance <50 Ω

Input protection, Ω & diode test
To 600 V, d.c. or sinewave

Diode test 3,2 V max. open circuit, 0,3 mA short circuit Reads forward - biased diode Voltage to 2000 mV

Diode test accuracy ±1% of reading ±2 digit

Frequency Response (Measurements and analogue output)

a.c. only True RMS V & A 15 Hz to 1 kHz

d.c. True RMS A d.c. +15 Hz to 1 kHz

d.c. V and A d.c. only

Display

Size and type 40000 count LCD
12 mm (0,5 in) characters

Status indication Low Battery, Data Hold
PK (MAX hold), a.c., d.c., Diode Test, Ω, Continuity

Refresh rate 3 times per second

Power Supply

Battery type 9 V alkaline: MN1604, PP3,
IEC 6LR61 or equivalent

Battery life Typically 40 hours

Mechanical Data

Dimensions (H x W x D) 251 x 98 x 53 mm
(9,88 x 3,86 x 2,05 ins.)

Weight 500 gm (1,1 lbs)

Jaw capacity 1 x 50 mm (2,0 in) dia. cable Ω
2 x 30 mm (1,2 in) dia. cables

Environmental Data

Operating Temperature	0ºC to 50ºC (40ºF - 122ºF)
Temperature co-efficient	±0,1% of reading per ºC
(Current)	±0,06% of reading per ºF
Storage temperature	-20ºC to 60ºC (-4ºF to 140ºF)

Safety

All models comply with IEC1010-1, 600 V working, Installation category III, Pollution degree 2.

Maximum Safe Voltages

Current measurement (bare conductors)

600 V a.c. RMS or d.c. between uninsulated conductor & ground.
600 V a.c. RMS or d.c. between input terminals or between live terminal & local ground.

EMC

In accordance with IEC 61326 including amendment No.1

ORDERING INFORMATION

Item	Order Code	Included Accessories
Digital Clamp Meter 200 A	DCM24R	Test Leads
Digital Clamp Meter 1000 A	DCM104R	Case
Digital Clamp Meter 2000 A	DCM204R	Operating Instructions

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OTHER TECHNICAL SALES OFFICES
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