

## Motwane Reliability in Your Pocket



# M21C **handy** Digital Multimeter

Motwane's **M21C handy** is a Technician Grade, "M"-series pocket-sized, general purpose, handy Digital Multimeter. M21C handy comes with the trustworthy Motwane reliability, 2400 Counts, Basic accuracy of 0.5%, Voltage measurement up to 1000V DC/750V AC, Current measurement up to 10A AC/DC, Resistance measurement up to 24M $\Omega$ , CE and CAT II 600V protection.

In addition to the standard DMM features such as measurement of basic Power parameters – V, A & R, M21C handy also offers capacitance, frequency & duty-cycle measurement, Diode & Continuity Testing with audio-visual indication addressing a wide range of general purpose, low voltage applications.

M21C handy is provided with a magnet which enables the user to stick the multimeter on to a metallic surface and perform handsfree operations.

# M21C **handy** Digital Multimeter



## FEATURES

- 0.5% Accuracy, 2400 Count LCD display with large digits for easy visibility
- Voltage range up to 1000V DC/750V AC
- AC/DC current range up to 10A
- Resistance measurement up to 24M $\Omega$
- Capacitance, Frequency, Duty-cycle and Diode measurement facility
- Continuity measurement with audio-visual indication
- CE and CAT II 600V protection
- Pollution Degree 2 for enhanced safety in outdoor use
- Highly Rugged casing
- Overload protection on all ranges
- Calibration Certificate

## APPLICATIONS

The new DMM M21C handy can serve a wide range of Low Voltage indoor applications to suit the general purpose needs of Electrical Contractors, Medium~Large Industries, SMEs, Educational Institutions, Hobbyists and Students.

# M21C<sup>handy</sup> TECHNICAL SPECIFICATIONS

Measurement	Range	Resolution	Max. Reading	Accuracy ±(reading + digits)	Overload Protection
DC Voltage	240mV	0.1mV	240.0mV	±(0.5% + 3)	1050V DC/AC rms
	2.4V	1mV	2.400V	±(0.5% + 3)	
	24V	10mV	24.00V	±(0.5% + 3)	
	240V	100mV	240.0V	±(0.5% + 3)	
	1000V	1V	1000V	±(0.8% + 3)	
Note : Input impedance 10MΩ approx.					
AC Voltage (50Hz - 500Hz) Only Sine Wave (Average)	2.4V	1mV	2.400V	±(1.0% + 5)	1050V DC/AC rms
	24V	10mV	24.00V	±(1.0% + 5)	
	240V	100mV	240.0V	±(1.0% + 5)	
	750V	1V	750V	±(1.2% + 8)	
Note : Input impedance 10MΩ approx. shunted by 30pF approx.					
Resistance Range	240Ω	0.1Ω	240.0Ω	±(0.5 % + 3)	250V DC/AC rms (For 30 sec.)
	2.4KΩ	1Ω	2.400KΩ	±(0.5 % + 3)	
	24KΩ	10Ω	24.00KΩ	±(0.5 % + 3)	
	240KΩ	100Ω	240.0KΩ	±(0.5 % + 3)	
	2.4MΩ	1KΩ	2.400MΩ	±(1.5 % + 3)	
24MΩ	10KΩ	24.00MΩ	±(3.5 % + 5)		
Note : Open circuit Voltage on 240Ω - 24MΩ ranges are 0.400V DC approx.					
Diode	1.5V	1mV	1.52VDC	Test Current 0.5 mA approx.	250V DC/AC rms (For 30 sec.)
Continuity	240Ω	0.1Ω	Meter beeps at < 50Ω approx.		
	Note : Open Circuit Voltage on continuity range is 0.400 V DC approx.				
Capacitance	2.5nF	0.001nF	2.500nF	±(5.0 % + 50)	250V DC/AC rms (For 30 sec.)
	25nF	0.01nF	25.00nF	±(5.0 % + 10)	
	250nF	0.1nF	250.0nF	±(5.0 % + 10)	
	2.5μF	1nF	2.500μF	±(5.0 % + 10)	
	25μF	10nF	25.00μF	±(5.0 % + 10)	
Note : 1. Capacitance measurement accuracy is specified after pressing REL at zero input 2. Settling time on 25μF range in 30 sec. approx.					
Frequency	5Hz	0.001Hz	5.000Hz	±(0.3 % + 3)	250V DC/AC rms (For 30 sec.)
	50Hz	0.01Hz	50.00Hz	±(0.3 % + 3)	
	500Hz	0.1Hz	500.0Hz	±(0.3 % + 3)	
	5KHz	1Hz	5.000KHz	±(0.3 % + 3)	
	50KHz	10Hz	50.00KHz	±(0.3 % + 3)	
	500KHz	100Hz	500.0KHz	±(0.3 % + 3)	
Duty Cycle	0.1%- 99.9%	0.1%	99.9%	±(0.5%+20Digit)	250V DC/AC rms (For 30 sec.)
	Note : Measurement Accuracy is specified at < 20VAC rms				
	Note : Sensitivity 5Hz- 50KHz > 400mV rms, 500KHz to 5MHz > 6V rms				
DC Current	24mA	0.01mA	24.00mA	±(1.0 % + 5)	250mA/250V DC/AC fast blow, Ceramic Fuse
	240mA	0.1mA	240.0mA	±(1.2 % + 5)	
	2.4A	1mA	2.400A	±(2.0 % + 5)	
	10A	10mA	10.00A	±(2.0 % + 5)	
AC Current (50Hz - 500Hz) Only sine wave (Average)	24mA	0.01mA	24.00mA	±(1.0 % + 5)	250mA/250V DC/AC fast blow, Ceramic Fuse
	240mA	0.1mA	240.0mA	±(1.2 % + 5)	
	2.4A	1mA	2.400A	±(2.0 % + 5)	
	10A	10mA	10.00A	±(2.5 % + 5)	

**Note :** For current measurement, 10A AC/DC for 30 sec. max. after every 15 min. cool down interval.  
Electromagnetic Compatibility : In RF Field, overall accuracy is equal to 10% of reading + 30 digits.  
For AC voltage measurement from freq. 400 Hz to 500 Hz add 1% extra tolerance

## M21C<sup>handy</sup> GENERAL SPECIFICATIONS

- Display : 2400 Count LCD Display
- Polarity : Automatic
- Display Update Rate : 3 times per sec. nominal
- Sensing : Average sensing calibrated for rms
- Dimension (W X H X D) : 63 x 138 x 28 mm approx.
- Weight : 180g. approx.

### Power:

- Power Supply : Battery 1.5V x 2 (AAA size or equivalent)
- Power Consumption : 1mA Typical
- Low Bat Indication : '⚡' is displayed below 2.3V approx.
- Auto Power OFF : After 30 minutes, idle sleep mode consumption 2.5µA approx.

### Environmental:

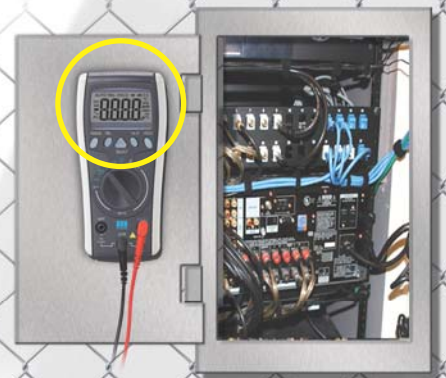
- Operating Temperature : 0° C to 50° C
- Storage Temperature : -20° C to 60° C
- Relative Humidity : 80% RH at 5° C to 31° C, 50% RH at 31° C to 40° C non-condensing

### Safety:

- Measurement Category : CAT II (600V)
- Pollution Degree : 2

### Accuracy:

- Temperature Co-efficient : (0.1% x Specified Accuracy) per °C referred to 25° C
- Accuracy is valid from 10% of range to 95% of the range
- Accuracy is not valid if display shows low battery symbol '⚡'. In this case immediately replace the battery
- Accuracy is specified as  $\pm$ (% of reading + digits) and is valid at  $25 \pm 3^{\circ}\text{C}$ ,  $\leq 55\% \text{ RH}$
- It is recommended that calibration equipment used to verify the accuracy of the meter, should be 10 times more accurate
- It is recommended to re-calibrate the meter once in a year



## Accessories

- Standard Accessory : Pair of test leads, Battery 1.5V X 2 (AAA or equivalent)
- Optional Accessory : Magnet

### Notes

1.For FREE calibration certificate, log-on to : "http://www.motwane.com/calibration" 2.Tests can be conducted at the factory with the available test set-up only.  
3.The company policy is continuous improvement of its products. We therefore reserve the Right of any deviation from illustration & specifications without notice.



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