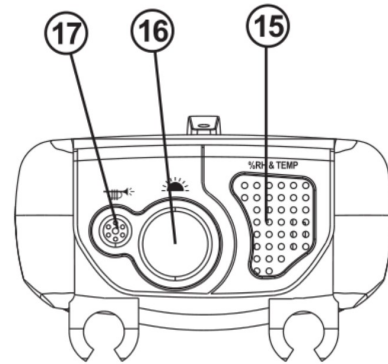
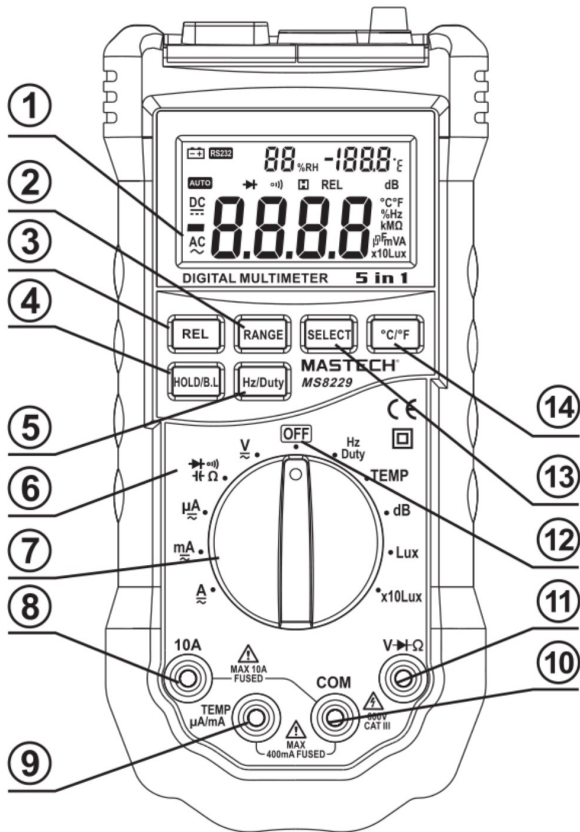


DIGITAL MULTIMETER

SKU: 2020027

MFG: MS8229



1. Switch, Buttons And Input Jacks

HOLD/B.L. Button

- for holding the reading or control backlight

SELECT Button

- for switching among measuring functions

RANGE Button

- for switching between auto and manual ranges.

Hz/DUTY Button

- for switching between Hz and duty measurement.

REL Button

- for switching to relative measurement.

°C/°F Button (°C/°F)

- for switching between °C and °F

Rotary Selector

- for selecting functions and ranges.

OFF Position

- for turning off the power.

10A Input Jack

- for measuring current 0~10A.

mA/μA/TEMP Input Jack

- for measuring current 0~400mA and temperature.

V, Ω, Hz, \rightarrow , \rightarrow Input Jack

- for measuring voltage, resistance, frequency, duty, capacitance, diode, and continuity.

COM Input Jack

- common input connection for current, voltage, resistance, frequency, duty, capacitance, diode, continuity, temperature measurement.

Humidity Sensor

- for measuring humidity.

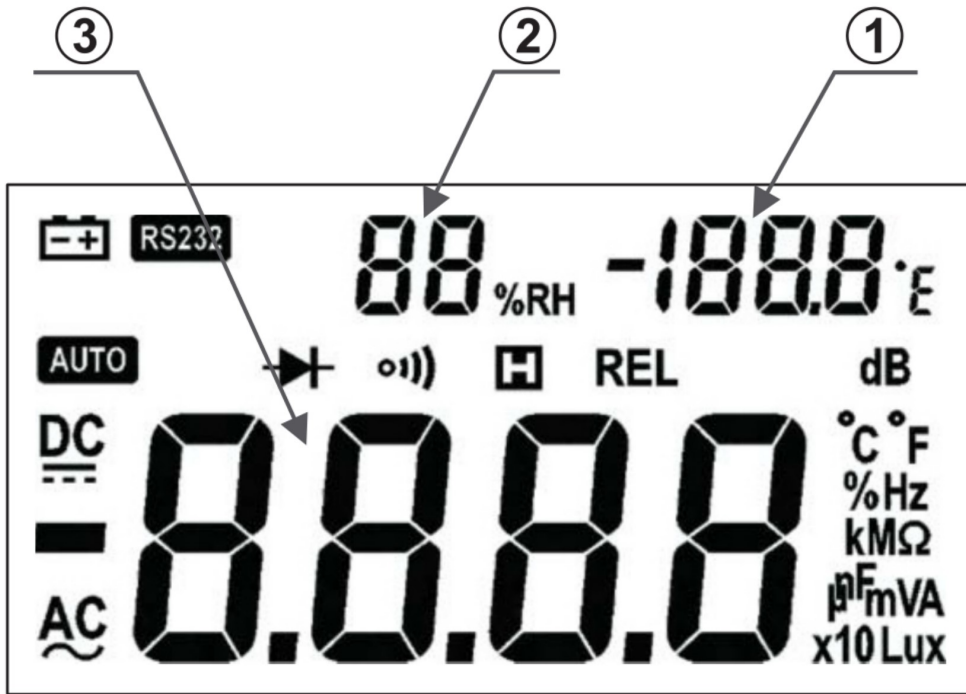
Light Sensor

- for measuring luminance.

Microphone

- for measuring sound level (dB).

2. Liquid-crystal display (LCD)



1) Temperature indicator

2) Humidity indicator

3) Main indicator

- for switching between auto and manual ranges.

Hz/DUTY Button

- for switching between Hz and duty measurement.

REL Button

- for switching to relative measurement.

~	AC	Alternating Current
≡	DC	Direct Current
⎓		AC or DC (alternating current or direct current)
➤		Diode
o)))		Continuity buzzer
H		Reading being held
REL		Relative measurement
AUTO		Auto range
⊖		Battery low
°C		Celsius units (Temperature)
°F		Fahrenheit units (Temperature)
%RH		Relative Humidity units
F		Farad(Capacitance)
Ω		Ohms (Resistance)
V		Volts(Voltage)
A		Amperes (Current)
Hz		Hertz (Frequency)
%		Duty Cycle
dB		Decibel
Lux		Illuminance units
X10		Decuple
n、μ、m、k、M		Unit of measure prefixes: nano, micro, milli, kilo and mega

3. Specifications

Calibration is required once a year, to be carried out at a temperature between 18°C and 28°C (64°F to 82°F) and relative humidity below 75%.

3.1 Technical Specifications

Ambient temperature: 23°C±5°C

Relative humidity: < 75%

3.2.1 DC Voltage

Range	Resolution	Accuracy
400mV	0.1mV	±(0.7% of reading+2 digits)
4V	1mV	
40V	10mV	
400V	100mV	
600V	1V	

3.2.2 AC Voltage

Range	Resolution	Accuracy
400mV	0.1mV	±(0.8% of reading+3 digits)
4V	1mV	
40V	10mV	
400V	100mV	
600V	1V	±(1.0% of reading+3 digits)

3.2.3 DC Current

Range	Resolution	Accuracy
400µA	0.1µA	±(1.2% of reading+3 digits)
4000µA	1µA	
40mA	10µA	
400mA	100µA	
4A	1mA	±(2.0% of reading+10 digits)
10A	10mA	

3.2.4 AC Current

Range	Resolution	Accuracy
400µA	0.1µA	±(1.5% of reading + 5 digits)
4000µA	1µA	
40mA	10µA	
400mA	100µA	
4A	1mA	±(3.0% of reading + 10 digits)
10A	10mA	

3.2.5 Resistance

Range	Resolution	Accuracy
400Ω	0.1Ω	±(1.2%of reading + 2 digits)
4kΩ	1Ω	
40kΩ	10Ω	
400kΩ	100Ω	
4MΩ	1kΩ	
40MΩ	10kΩ	±(2.0%of reading + 5 digits)

3.2.6 Capacitance

Range	Resolution	Accuracy
40nF	10pF	±(3.0% of reading + 3 digits)
400nF	0.1nF	
4μF	1nF	
40μF	10nF	
100μF	100nF	

3.2.7 Frequency

Range	Resolution	Accuracy
9.999Hz	0.001Hz	±(2.0% of reading + 5 digits)
99.99Hz	0.01Hz	±(1.5% of reading + 5 digits)
999.9Hz	0.1Hz	
9.999kHz	1Hz	
99.99kHz	10Hz	±(2.0% of reading + 5 digits)
199.9kHz	100Hz	
>200kHz		for reference only

3.2.8 Duty

Range	Resolution	Accuracy
0.1-99.9%	0.1%	±3.0%

-By Hz range:

Frequency response: 0~200kHz

Input voltage range: 0.5V-10V rms AC
(higher input voltage at higher frequency)

Overload protection: 250V DC or rms AC
(higher input voltage at higher frequency)

-By V range:

Frequency response: 0~40kHz

-By μA, mA or A range:

Frequency response: 0 ~ 40kHz

Input current range: ≥1/4 of the rms AC for the range
(higher input voltage at higher frequency)

-Max. input current:

mA jack (μA ranges): 4mA,

mA jack (mA ranges): 400mA,

10A jack: 10A

-Overload protection:

μA, mA ranges: resettable fuses F1 400mA/600V

10A range: F2 10A/600V fuse (quick acting).

3.2.9 Relative Humidity

(on RH and humidity display)

Range	Resolution	Accuracy
20 - 95%	0.1%	±5.0%RH

-Operating temperature: 0°C to 40°C

-Sampling Period: ~20s.

3.2.10 Temperature

Range	Resolution	Accuracy	
°C	0.1°C	0°C to 40°C	±2°C
°F	0.1°F	32°F to 104°F	±4°F

3.2.11 Sound Level (dB)

Range	Resolution	Accuracy
40-100dB	0.1 dB	±3.5%dB at 94dB, 1kHz sine wave