

USER'S MANUAL

BM857s BM859s



1) SAFETY

This manual contains information and warnings that must be followed for operating the meter safely and maintaining the meter in a safe operating condition. If the meter is used in a manner not specified by the manufacturer, the protection provided by the meter may be impaired.

Observe proper safety precautions when working with voltages above 30 Vrms, 42.4 Vpeak or 60 VDC. These voltage levels pose a potential shock hazard to the user. Do not expose this product to rain or moisture. The meter is intended only for indoor use.

Keep your hands/fingers behind the hand/finger barriers (of the meter and the test probe assembly, where applicable) that indicate the limits of safe access of the hand-held parts during measurements. Inspect lead wires, connectors, and probes for damaged insulation or exposed metal periodically. If any defects are found, replace them immediately. Only use the test probe assembly provided with the meter or a UL Listed test probe assembly to the same meter ratings or better.











Optional offer premium test probe assembly using silicone lead wire insulation, at agent's discretion, is equipped with white inner insulation layers as wear indicators. Replace them immediately if any of the white layers has become visible.

Disconnect the test leads from the test points before changing functions.

The meter meets IEC/EN/BSEN/CSA_C22.2_No./UL standards of 61010-1 Ed. 3.1, 61010-2-033 Ed. 2.0 to Measurement Categories CAT III 1000V and CAT IV 600V ac & dc.

The accompanied test probe assembly meets IEC/EN/BSEN/CSA_C22.2_No./UL standards of 61010-031 Ed. 2.0 to the same meter ratings or better. The 61010-031 requires exposed conductive test probe tips to be $\leq 4\text{mm}$ for CAT III & CAT IV ratings. Refer to the category markings on your probe assemblies as well as on the add-on accessories (like detachable Caps or Alligator Clips), if any, for applicable rating changes.

INTERNATIONAL SYMBOLS

	Marking of Electrical and Electronic Equipment (EEE). Do not dispose of this product as unsorted municipal waste. Contact a qualified recycler
	Refer to the explanation in this Manual
	Possibility of electric shock
	Earth (Ground)
	Meter protected throughout by Double Insulation or Reinforced insulation
	Fuse
	Direct Current (DC)
	Alternating Current (AC)
	Three-phase Alternating Current
	Application around and removal from hazardous live conductors is permitted

BRIEF INFORMATION ON MEASUREMENT CATEGORIES

Measurement Category IV is applicable to test and measuring circuits connected at the source of the building's low-voltage MAINS installation. Examples are measurements on devices installed before the main fuse or circuit breaker in the building installation.

Measurement Category III is applicable to test and measuring circuits connected to the distribution part of the building's low-voltage MAINS installation. Examples are measurements on distribution boards (including secondary meters), circuit-breakers, cables, bus-bars, junction boxes, switches, socket-outlets, stationary motors in the fixed installation, and equipment for industrial use.

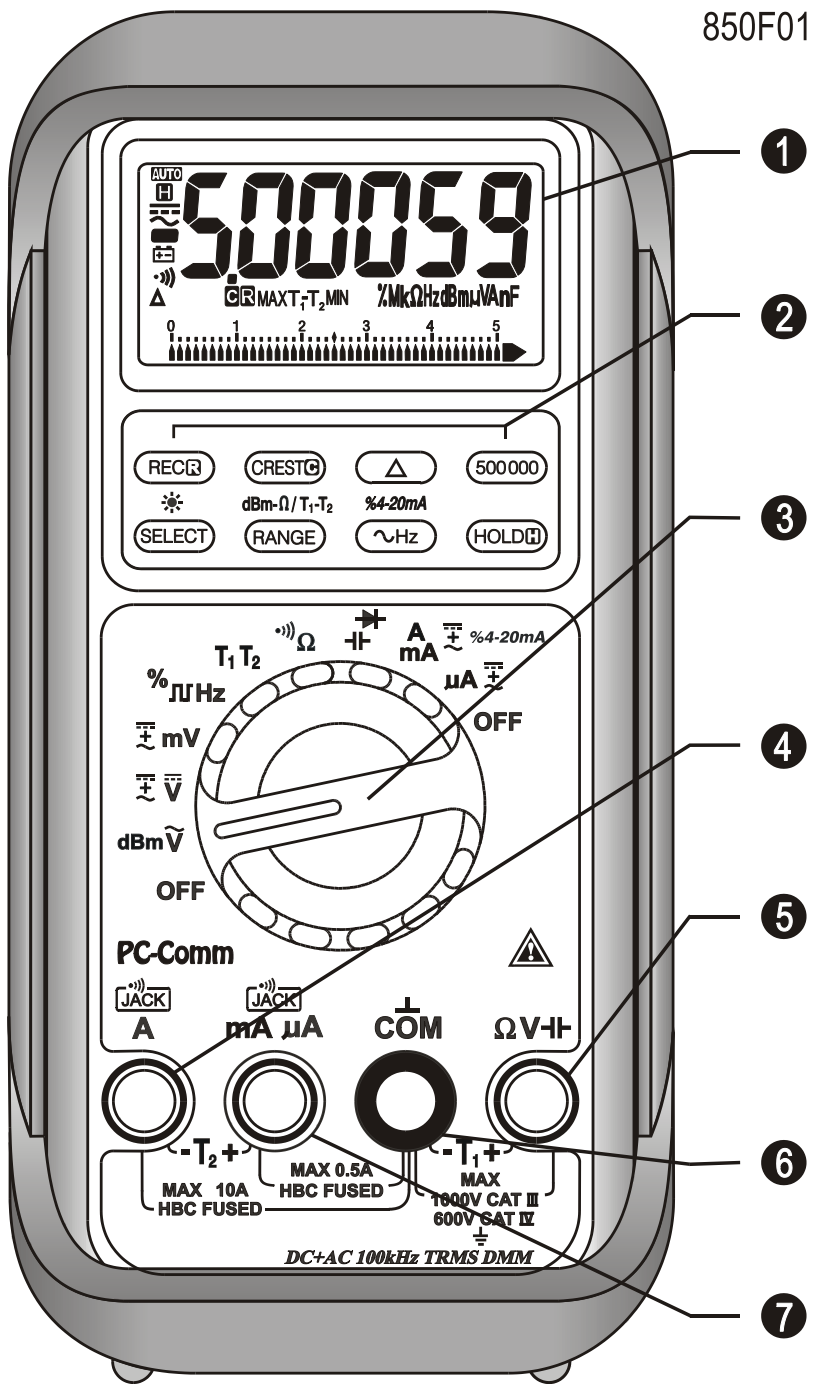
Measurement Category II is applicable to test and measuring circuits connected directly to utilization points (socket outlets and similar points) of the low-voltage MAINS installation. Examples are measurements on MAINS CIRCUITS of household appliances, portable tools and similar equipment.

2) EUROPEAN DIRECTIVES AND UK STATUTORY REQUIREMENTS

The instruments conform to EUROPEAN (CE) Low-Voltage Directive 2014/35/EU, Electromagnetic Compatibility Directive 2014/30/EU, and RoHS 2 Directive 2011/65/EU plus amendment Directive (EU) 2015/863. The instruments also conform to the UK (UKCA) Electrical Equipment (Safety) Regulations 2016, Electromagnetic Compatibility Regulations 2016, and The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012.

3) PRODUCT DESCRIPTION

Panel Illustration



1) 5-4/5 digits 500000 counts LCD display

2) Push-buttons for special functions & features

3) Selector to turn the Power On or Off and Select a function

4) Input Jack for 10A (+) (20A for 30sec) current, and for T2 (-) function

5) Input Jack (+) for all functions EXCEPT current (μA , mA, A) and T2 functions

6) Common (Ground reference) Input Jack (-) for all functions EXCEPT T2 function

7) Input Jack (+) for milli-amp, micro-amp, and T2 (+) functions

4) OPERATION

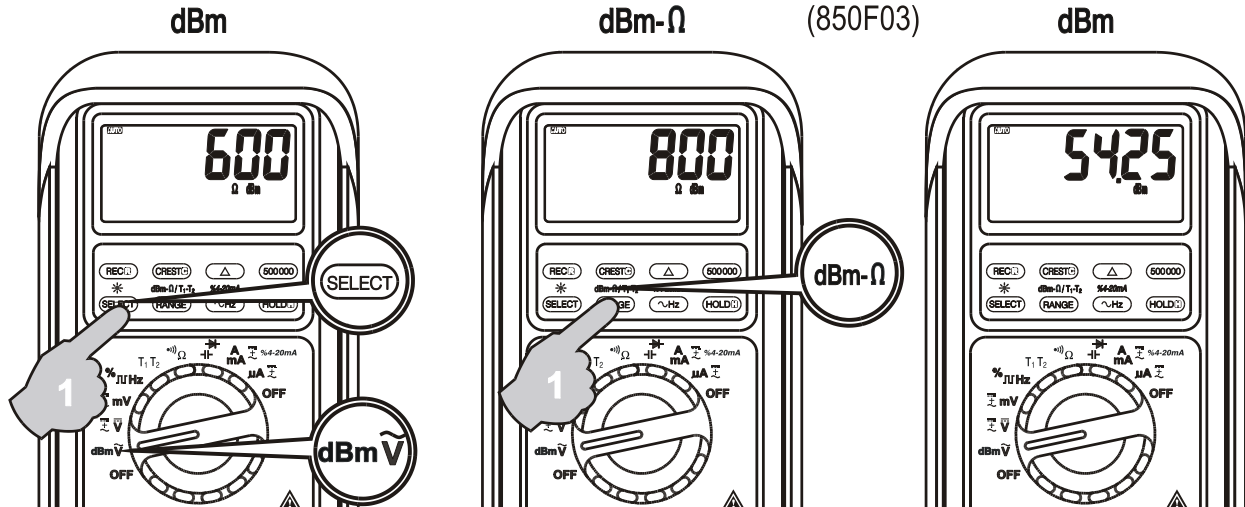
NOTE

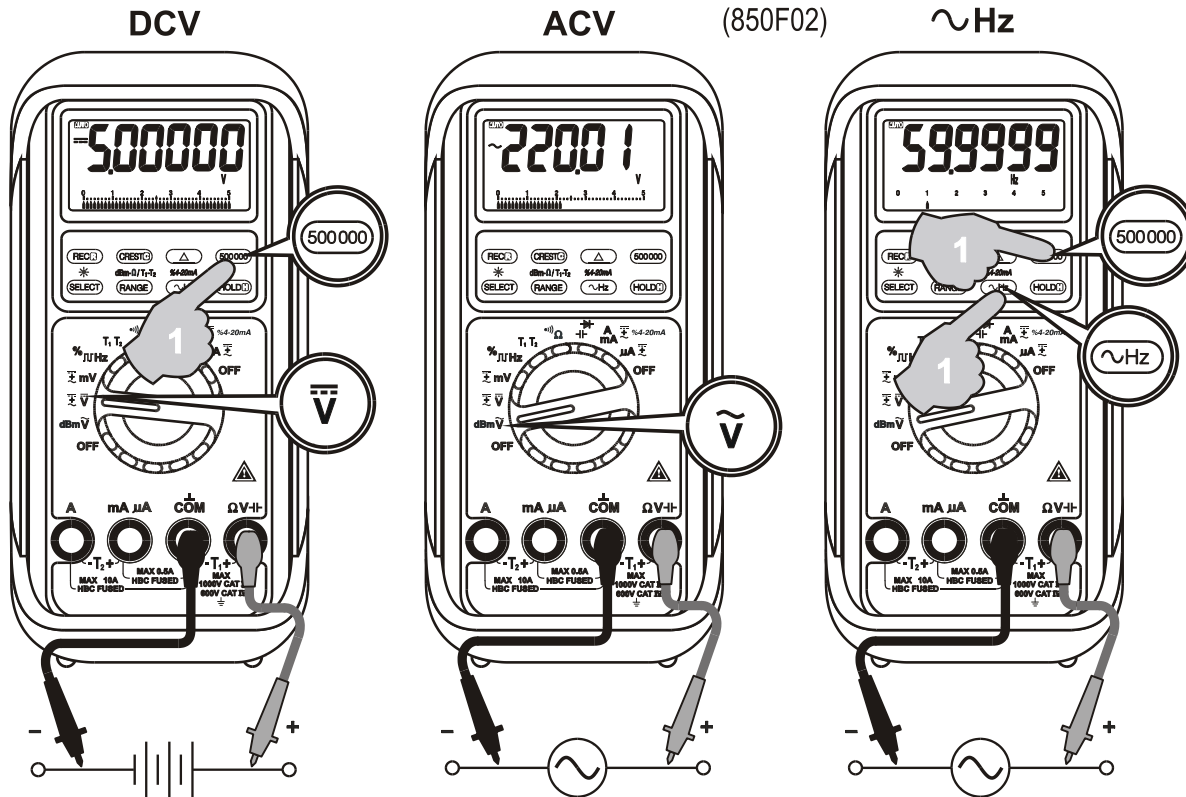
Before and after hazardous voltage measurements, test the voltage function on a known source such as line voltage to determine proper meter functioning.

AC Voltage, DC Voltage, DC+AC Voltage, & \sim Hz Line Level Frequency

In AC Voltage, press **SELECT** button momentarily to toggle between AC and dBm. In DC Voltage, press **SELECT** button momentarily to toggle between DC, and DC+AC. In mV Voltage, press **SELECT** button momentarily to select DC, AC, or DC+AC. The new settings will be saved automatically to the non-volatile memory as power up default. In DCV and DCmV, press **500000** button momentarily to toggle between 4-4/5 digits and 5-4/5 digits readings. In voltage or current functions, press the \sim Hz push button momentarily to activate or to exit Line Level Frequency measuring function. Line Level Frequency measuring function is designed especially for noisy electrical high voltage signals.

Note: In dBm function, power up default reference impedance will be displayed for 1 second before displaying the dBm readings. Press **dBm- Ω (RANGE)** button momentarily to select different reference impedance of 4, 8, 16, 32, 50, 75, 93, 110, 125, 135, 150, 200, 250, 300, 500, 600, 800, 900, 1000, up to 1200 Ω . The new impedance value will be saved automatically to the non-volatile memory as power up default.

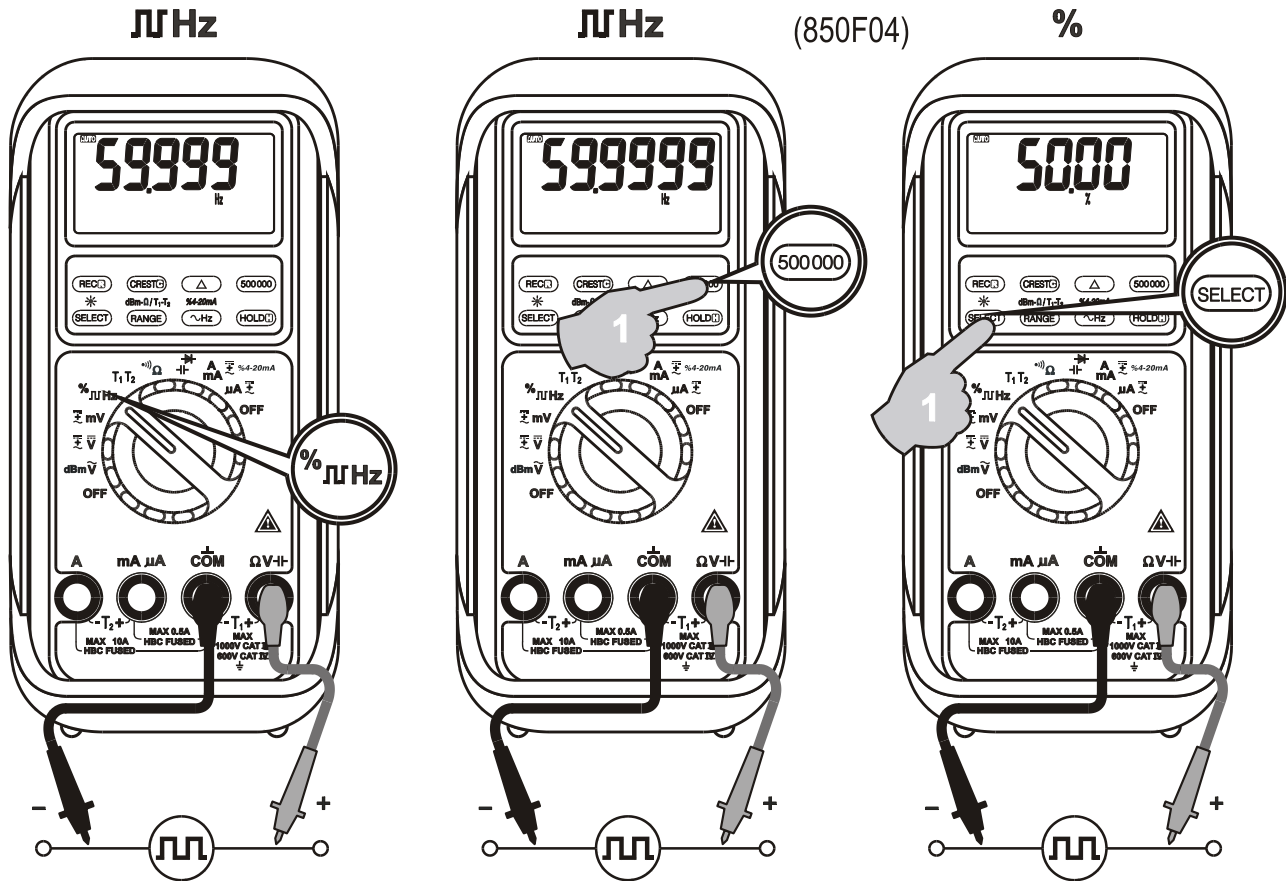




Note: Line Level Frequency measuring function input sensitivity varies automatically with voltage (or current) function range selected. The lower the measuring range the higher the sensitivity. That is, mV function has the highest and the 1000V range has the lowest as in voltage function ranges. It is recommended to first measure the signal voltage (or current) level then activate the Hz function in that voltage (or current) range to automatically get the most appropriate trigger level. When activated from voltage function, you can also press the **RANGE** button momentarily to select another trigger level range manually. The analog bargraph pointer will point at the selected trigger level range scale 1, 2, 3, or 4. If the Hz reading is unstable, select lower sensitivity to avoid electrical noise. If the reading shows zero, select higher sensitivity.

Hz Logic Level Frequency and % Duty Cycle functions

Press **SELECT** button momentarily to toggle between Hz and % (duty cycle) readings. The new setting will be saved automatically to the non-volatile memory as power up default. Press **500000** button momentarily to toggle between 5 full digits and 6 full digits Hz readings.

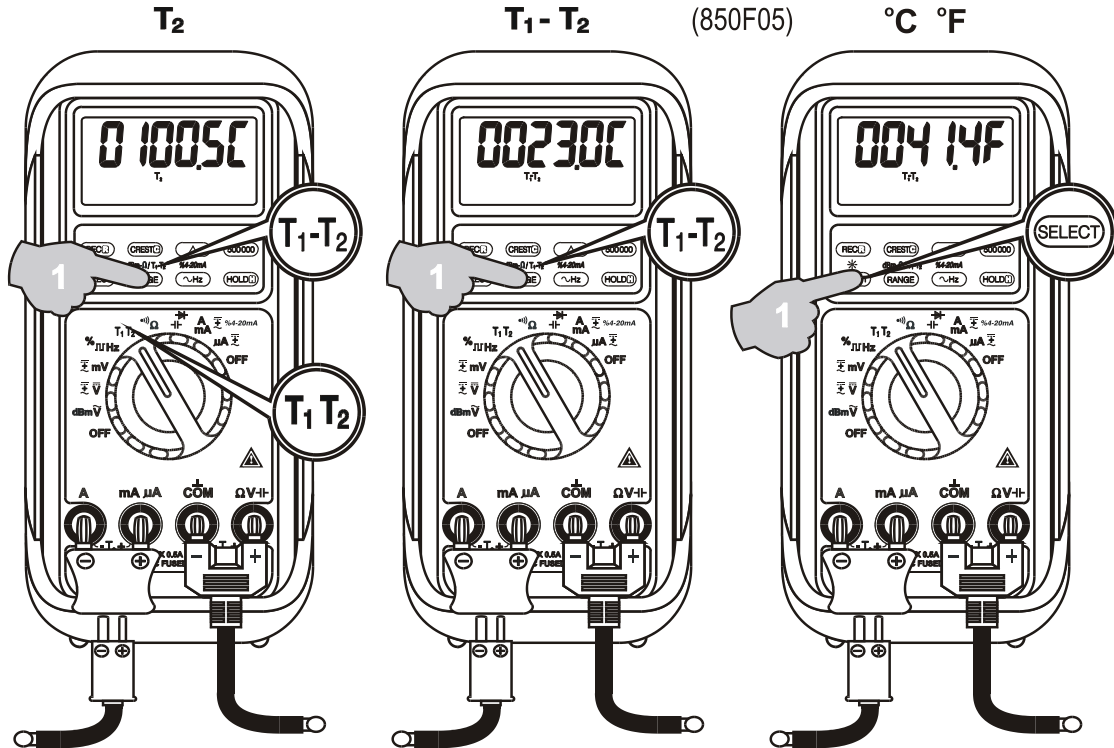


Note: Unlike the Line Level Frequency measuring function as previously stated, this Logic Level Frequency function is set only at the highest input sensitivity for measuring digital type electronic signals.

T1-T2 Dual Channels Temperature function (Model 859s only)

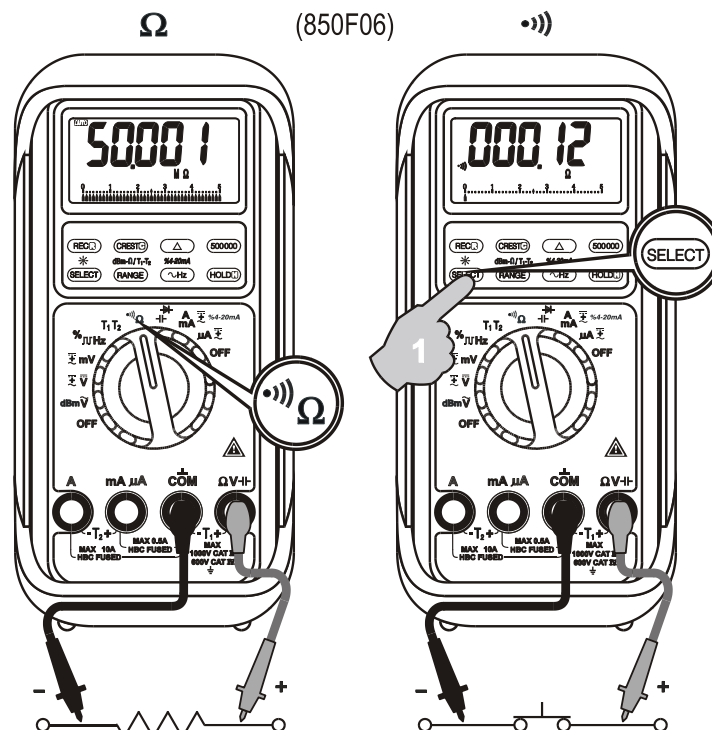
Press **SELECT** button momentarily to toggle between °C and °F readings, and the new setting will be saved automatically in the non-volatile memory as power up default. Press T1-T2 (**RANGE**) button momentarily to select T1, T2, or T1-T2 readings.

Note: Insert the banana plug K-type temperature bead probe Bkp60 (standard accessory x 1) with correct **+** **-** polarities. Dual channels T1-T2 readings require 2 probes. You can also use a plug adapter Bkb32 (Optional purchase) with banana pins to K-type socket to adapt other standard K type mini plug temperature probes.



Ω Resistance, \rightarrow) Continuity functions

Press **SELECT** button momentarily to toggle between Ω and \rightarrow) Continuity functions. The new setting will be saved automatically to the non-volatile memory as power up default. Continuity function is convenient for checking wiring connections and operation of switches. A continuous beep tone indicates a complete wire.



NOTE

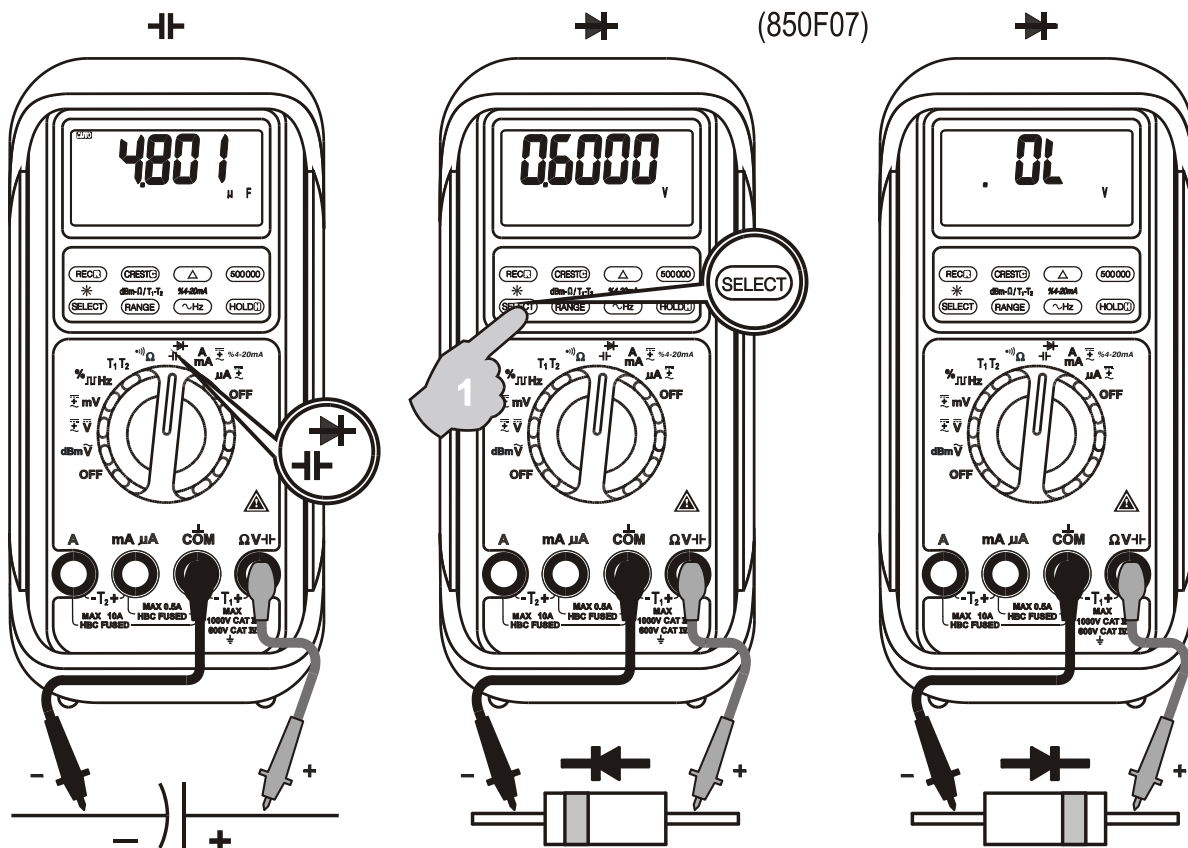
Using resistance or continuity function in a live circuit will produce false results and may damage the meter. In many cases the suspected component must be disconnected from the circuit to obtain an accurate reading.

⇄ Capacitance, ⇄ Diode test function

Press **SELECT** button momentarily to toggle between ⇄ Capacitance and ⇄ Diode test functions. The new setting will be saved automatically to the non-volatile memory as power up default.

NOTE

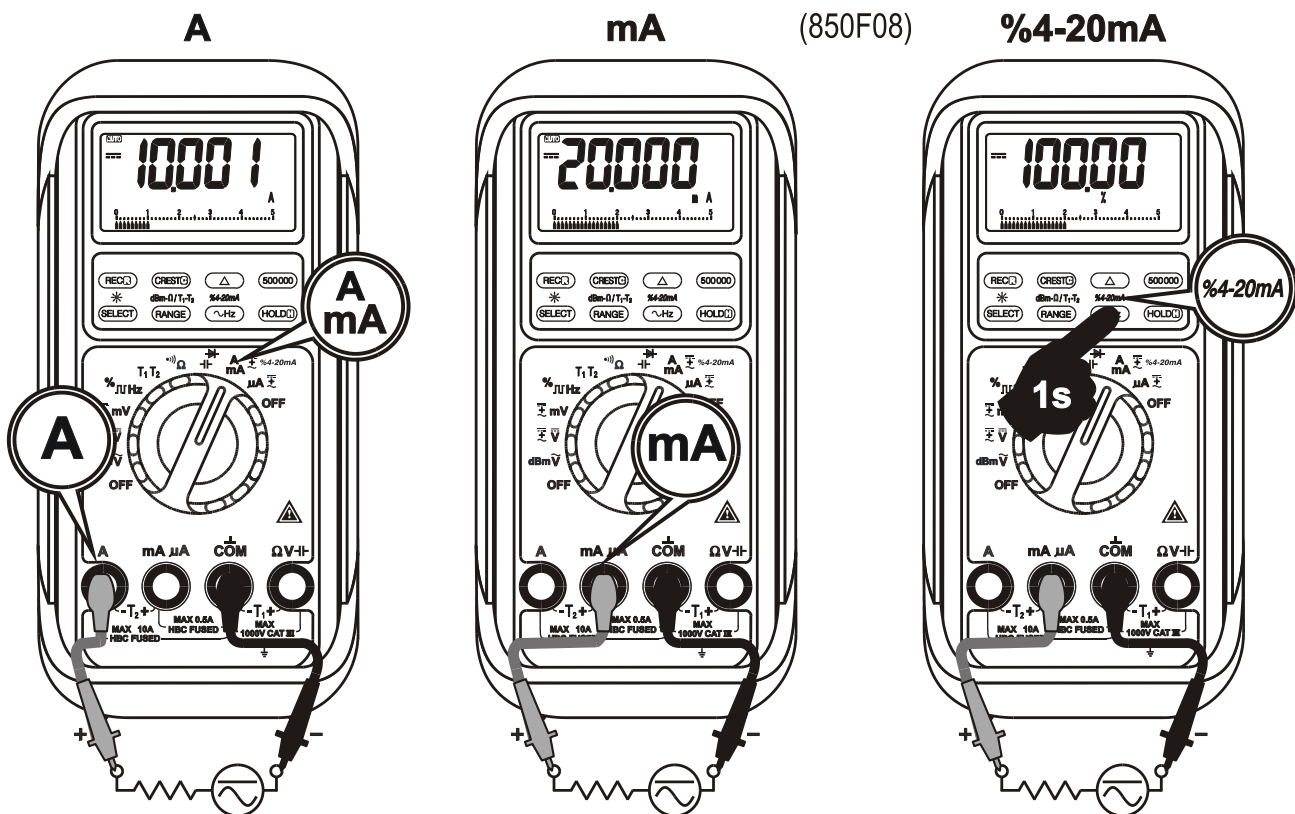
Discharge capacitors before making any measurement. Large value capacitors should be discharged through an appropriate resistance load.



Note: Normal forward voltage drop (forward biased) for a good silicon diode is between 0.400V to 0.900V. A reading higher than that indicates a leaky diode (defective). A zero reading indicates a shorted diode (defective). An OL indicates an open diode (defective). Reverse the test leads connections (reverse biased) across the diode. The digital display shows OL if the diode is good. Any other readings indicate the diode is resistive or shorted (defective).

μ A, mA, A, and %4-20mA Current functions

Insert the red test lead into the correct μ A/mA or A input jack. Press **SELECT** button momentarily to select DC, AC, or DC+AC. The new settings will be saved automatically to the non-volatile memory as power up default. In DC mA function, neither in AC nor in DC+AC, *press and hold* the %4-20mA (\sim Hz) button for 1 second or more to display the current digital data in terms of loop current percentage (%) value. It is set at 4mA = 0% (zero) and 20mA = 100% (span) with 0.01% high resolution, which virtually extends the meters' capability to test and regulate the externally powered loop current in the industrial process control applications. The analog bar-graph remains showing the mA current value to alert the user.



NOTE: When measuring a 3-phase system, special attention should be taken to the phase-to-phase voltage that is significantly higher than the phase-to-earth voltage. To avoid exceeding the voltage rating of the protection fuse(s) accidentally, always consider the phase-to-phase voltage as the working voltage for the protection fuse(s).

PC-COMM computer interface capabilities

The instrument equips with an optical isolated interface port at the meter back for data communication. Optional purchase PC interface kit BRUA-85Xa (BC-85Xa RS232C optical adapter cable + BS85X software CD + BUA-2303 USB-to-Serial adaptor) is required to connect the meter to the PC computer. The Bs85x Data Recording System software equips with a digital meter, an analog meter, a comparator meter, and a Data Graphical recorder display. Refer to the README file in the interface kit for further details.

MAX/MIN RECORDING mode

Press **REC** button momentarily to activate MAX/MIN recording mode. The LCD annunciators “R” and “MAX MIN” turn on. The meter beeps when new maximum or minimum reading is updated. Press the button momentarily to read throughout the Maximum (MAX), Minimum (MIN), and Maximum minus Minimum (MAX-MIN) readings. Press the button for 1 second or more to exit MAX/MIN recording mode. Auto Power Off feature will be disabled automatically in this mode.

CREST Capture (Instantaneous Peak Hold) mode

Press **CREST** button momentarily to activate CREST mode to capture voltage or current signal duration as short as 0.8ms. This mode is available in DC, AC, DC+AC modes of voltage and current functions. The LCD annunciators “C” & “MAX” turn on. The meter beeps when new maximum or minimum reading is updated. Press the button momentarily to read throughout the Maximum (MAX), Minimum (MIN), and Maximum minus Minimum (MAX-MIN) readings. Press the button for 1 second or more to exit CREST capture mode. Auto Power Off feature will be disabled automatically in this mode.

▲ Relative Zero mode

Relative Zero allows the user to offset the meter consecutive measurements with the displaying reading as the reference value. Practically MAX/MIN recording feature readings can also be set as relative reference value. Press the **▲** button momentarily to activate and to exit Relative Zero mode.

500000 high resolution stable mode

In DC voltage and frequency functions, press the **500000** button momentarily to toggle between the 4-4/5 digits fast mode and the 5-4/5 digits high resolution stable mode.

Backlighting display


Press the **SELECT** button for 1 second or more to turn on or off the display backlight function. It will also be turned off automatically after 256 seconds to extend battery life.

Manual or Auto-ranging

Press the **RANGE** button momentarily to select manual-ranging mode, and the meter will remain in the range it was in, the LCD annunciator **AUTO** turns off. Press the button momentarily again to step through the ranges. Press and hold the button for 1 second or more to resume auto-ranging mode.

Note: Manual ranging mode feature is not available in Hz function.

Hold

The hold function freezes the display for later view. Press the **HOLD ** button momentarily to activate or to exit the hold function.

Set Beeper Off

Press the \sim Hz button while turning the meter on to disable the push button operating beeper feature. However, the continuity and Jack Beep input warning features remain.

Beep-Jack™ Input Warning

The meter beeps as well as displays “InErr” to warn the user against possible damage to the meter due to improper connections to the μ A, mA, or A input jacks when other function (like voltage function) is selected.

Intelligent Auto Power Off (APO)

The Intelligent Auto Power Off (APO) mode turns the meter off automatically to extend battery life after approximately 17 minutes of no activities. Activities are specified as: 1) Rotary switch or push button operations, and 2) Significant measuring readings of above 10% of range or non-OL Ω readings. In other words, the meter will intelligently avoid entering the APO mode when it is under normal measurements. To wake up the meter from APO, press the **RECORD** button momentarily or turn the rotary switch to the OFF position and then turn back on again. Always turn the rotary switch to the OFF position when the meter is not in use.

Disabling Auto Power Off

Press the **RANGE** button while turning the meter on to disable the Auto Power Off (APO) feature.

5) MAINTENANCE

NOTE

To avoid electrical shock, disconnect the meter from any circuit, remove the test leads from the input jacks and turn OFF the meter before opening the case. Do not operate with open case. Install only the same type of fuse or equivalent

Calibration

Periodic calibration at intervals of one year is recommended to maintain meter accuracy. Accuracy is specified for a period of one year after calibration.

If self-diagnostic message “rE-O” is being displayed while powering on, the meter is re-organizing internal parameters. Do not switch off the meter then, and it will be back to normal measurement shortly. However, if self-diagnostic message “C_Er” is being displayed while powering on, some meter ranges might be largely out of specifications. To avoid mis-leading measurements, stop using the meter and send it for re-calibration. Refer to the LIMITED WARRANTY section for obtaining warranty or repairing service.

Trouble Shooting

If the instrument fails to operate, check battery, fuses, leads, etc., and replace as necessary. Double check operating procedure as described in this user’s manual. If the instrument voltage-resistance input terminal has subjected to high voltage transient (caused by lightning or switching surge to the system) by accident or abnormal conditions of operation, the series fusible resistors will be blown off (become high impedance) like fuses to protect the user and the instrument. Most measuring functions through this terminal will then be open circuit. The series fusible resistors and the spark gaps should then be replaced by qualified technician. Refer to the LIMITED WARRANTY section for obtaining warranty or repairing service.

Cleaning and Storage

Periodically wipe the case with a damp cloth and mild detergent; do not use abrasives or solvents. If the meter is not to be used for periods of longer than 60 days, remove the battery and store it separately.

Battery and Fuse replacement

Battery use:

9V alkaline battery NEDA1604A, JIS6AM6 or IEC6LF22

Fuse (FS1) for μ mA current input:

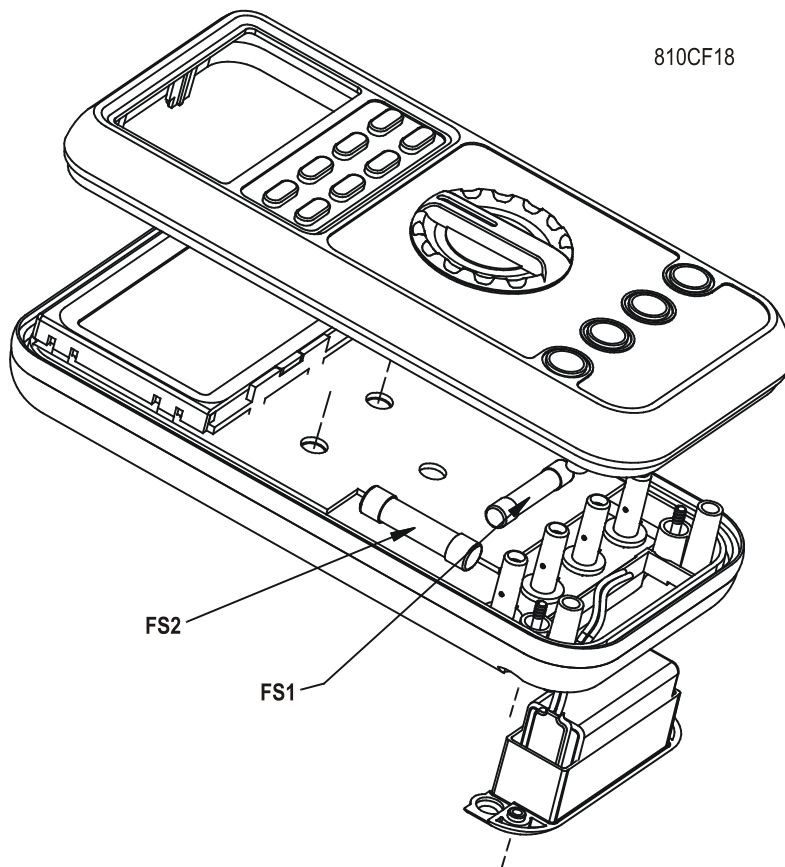
0.44A/1000V, IR 10kA or better, F fuse; Dimension: 10 x 38mm

Fuse (FS2) for A current input:

11A/1000V, IR 20kA or better, F fuse; Dimension: 10 x 38mm

Battery replacement for models with battery access door:

Loosen the 2 screws from the battery access door of the case bottom. Lift the battery access door and thus the battery compartment up. Replace the battery. Re-fasten the screws.



Fuse replacement (and also Battery replacement for splash proof version without battery access door):

Loosen the 4 screws from the case bottom. Lift the end of the case bottom nearest the input jacks until it unsnaps from the case top. Replace the blown fuse(s) and/or the battery. Replace the case bottom, and ensure that all the gaskets are properly seated and the two snaps on the case top (near the LCD side) are engaged. Re-fasten the screws.

6) SPECIFICATIONS

GENERAL SPECIFICATIONS

Display: 4-4/5 digits 50,000 counts. Selectable stable mode 5-4/5 digits 500,000 counts for DC Voltage, & 6 digits 999,999 counts for Hz

Polarity: Automatic

Update Rate:

4-4/5 digits fast mode: 5 per second nominal;

5-4/5 digits stable mode: 1.25 per second nominal;

42 Segments Bar graph: 60 per second max

Operating Temperature: 0°C to 45°C

Relative Humidity: Maximum relative humidity 80% for temperature up to 31°C decreasing linearly to 50% relative humidity at 45°C

Pollution degree: 2

Storage Temperature: -20°C to 60°C, < 80% R.H. (with battery removed)

Altitude: Operating below 2000m

Temperature Coefficient: nominal $0.1 \times (\text{specified accuracy}) / ^\circ\text{C} @ (0^\circ\text{C} -- 18^\circ\text{C} \text{ or } 28^\circ\text{C} -- 40^\circ\text{C})$, or otherwise specified

Sensing: AC, AC+DC True RMS

Safety: Double insulation per IEC/UL/EN/BSEN 61010-1 Ed. 3.1, IEC/UL/EN/BSEN 61010-2-033 Ed. 2.0, IEC/UL/EN/BSEN 61010-031 Ed. 2.0 and the corresponding CAN/CSA-C22.2 regulations to Measurement Categories III 1000V AC & DC and Category IV 600V AC & DC

Overload Protections:

μA & mA : 0.44A/1000V DC/AC rms, IR 10kA, F fuse

A : 11A/1000V DC/AC rms, IR 20kA, F fuse

V : 1100V DC/AC rms

mV, Ω , & Others : 1000V DC/AC rms

Transient protection: 8kV (1.2/50 μs surge)

E.M.C.: Meets EN61326-1

In an RF field of 3V/m:

Capacitance function is not specified

Other function ranges: Total Accuracy = Specified Accuracy + 100 digits

Performance above 3V/m is not specified

Power Supply: Single Alkaline 9V battery; NEDA1604A, JIS6AM6 or IEC6LF22

Power Consumption: 6mA typical

Low Battery: Below approx. 7V

APO Timing: Idle for 17 minutes

APO Consumption: 55 μA typical for Model 857s; 30 μA typical for Model 859s

Dimension: L186mm X W87mm X H35.5mm; L198mm X W97mm X H55mm with holster

Weight: 390 gm; 500 gm with holster

Accessories: Test leads (pair), holster, battery installed, user's manual, Bkp60 banana plug K-type thermocouple x 1 (Model 859s only)

Optional Accessories: BRUA-85Xa PC interface kit (BC-85Xa RS232 optical adapter cable + Bs85X software CD + BUA-2303 USB-to-Serial adaptor), Bkb32 banana pins to K-type socket plug adapter

Special Features: Record MAX, MIN, MAX-MIN readings. Crest (Instantaneous Peak hold) MAX, MIN, MAX-MIN readings. Relative zero mode. 500,000 counts high resolution stable reading mode. Backlighted display. dBm readings. T1-T2 differential temperature readings (Model 859s only). %4-20mA loop current readings. High noise rejection filtered Line Level Frequency mode. Data Hold. Audible & visible input warning.

ELECTRICAL SPECIFICATIONS

Accuracy is \pm (% reading digits + number of digits) or otherwise specified, at $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$ & less than 75% relative humidity.

True RMS voltage & current accuracies are specified from 5 % to 100 % of range or otherwise specified. Maximum Crest Factor < 5:1 at full scale & < 10:1 at half scale, and with frequency components within the specified frequency bandwidth for non-sinusoidal waveforms.

DC Voltage

RANGE	859s	857s
Accuracy		
500.00 mV, 5.0000V, 50.000V	0.02% + 2d	0.03% + 2d
500.00V	0.04%+2d	0.05% + 2d
1000.0V	0.05%+ 2d	0.1%+2d

NMRR: >60dB @ 50/60Hz

CMRR: >120dB @ DC, 50/60Hz, Rs=1kΩ

Input Impedance: 10MΩ, 30pF nominal
(80pF nominal for 500mV range)

Crest mode (Instantaneous Peak Hold)

Accuracy: Specified accuracy ± 100 digits
for changes > 0.8ms in duration

Ohms

RANGE	859s	857s
Accuracy		
500.00Ω	0.07%+10d	0.1%+6d
5.0000kΩ	0.07%+2d	
50.000kΩ		
500.00kΩ		
5.0000MΩ	0.2%+6d	0.4%+6d
50.000MΩ	2.0%+6d	2.0%+6d

Open Circuit Voltage: < 1.3VDC (< 3VDC
for 500Ω range)

Audible Continuity Tester

Audible threshold: between 20Ω and 200Ω

Response time < 100μs

AC & AC+DC Voltage

RANGE	859s	857s
Accuracy*		
20Hz -- 45Hz		
500.00mV, 5.0000V, 50.000V	1.5% + 60d	Unspec'd
500.00V, 1000.0V	Unspec'd	
45Hz -- 300Hz		
500.00mV	0.3% + 20d	0.8%+60d
5.0000V, 50.000V	0.8% + 20d	
500.00V, 1000.0V	0.4% + 40d	
300Hz -- 5kHz		300Hz -- 1kHz
500.00mV	0.3% + 10d	0.8%+40d
5.0000V, 50.000V, 500.00V	0.4% + 40d	2.0%+60d
1000.0V	0.8% + 40d (300Hz--1kHz)	1.0%+40d
5kHz -- 20kHz		1kHz -- 20kHz
500.00mV	0.5%+20d	1dB**
5.0000V, 50.000V	0.8%+20d	2dB**
500.00V	0.5%+20d	3dB**
1000.0V	Unspec'd	Unspec'd
20kHz -- 100kHz		
500.00mV	2.5%+40d	Unspec'd
5.0000V, 50.000V	4.0%+40d**	
500.00V	Unspec'd	
1000.0V		

*From 5% to 10% of range:

accuracy % of reading (or in dB) + 80d

**From 5% to 10% of range:

accuracy % of reading (or in dB) + 180d

**From 10% to 15% of range:

accuracy % of reading (or in dB) + 100d

CMRR: >80dB @ DC to 60Hz, $R_s=1k\Omega$
 Input Impedance: $10M\Omega$, 30pF nominal
 (80pF nominal for 500mV range)
 Residual reading less than 50 digits with
 test leads shorted.

dBm

Range and accuracy are subjected to ACV,
 and reference impedance selected. Typical
 600Ω reference impedance ranges:

At 600Ω : -11.76dBm to 54.25dBm

Input Impedance: $10M\Omega$, 30pF nominal
 Selectable reference impedance of 4, 8, 16,
 32, 50, 75, 93, 110, 125, 135, 150, 200,
 250, 300, 500, 600, 800, 900, 1000, 1200Ω

Diode Tester

Range	Accuracy	Test Current (Typical)	Open Circuit Voltage
5.0000V	1%+1d	0.4mA	< 3.5 VDC

Capacitance

RANGE	Accuracy*
50.00nF	0.8% + 3d
500.0nF	0.8% + 3d
5.000 μ F	1.5% + 3d
50.00 μ F	2.5% + 3d
500.0 μ F**	3.5% + 5d
9999 μ F**	5.0% + 5d

*Accuracies with film capacitor or better

**In manual-ranging mode, measurements
 not specified below 45.0 μ F and 450 μ F for
 500.0 μ F and 9999 μ F ranges respectively

AC & AC+DC Current

RANGE	859s	857s	Burden Voltage
	Accuracy		
50Hz -- 60Hz			
500.00 μ A	0.5% +50d	1.0% +40d	0.15mV/ μ A
5000.0 μ A			0.15mV/ μ A
50.000mA			3.3mV/mA
500.00mA			3.3mV/mA
5.0000A			45mV/A
10.000A*			45mV/A
40Hz – 1kHz			
500.00 μ A	0.7% +50d	1.0% +40d	0.15mV/ μ A
5000.0 μ A			0.15mV/ μ A
50.000mA			3.3mV/mA
500.00mA			3.3mV/mA
5.0000A			45mV/A
10.000A*			45mV/A
1kHz – 10kHz			
500.00 μ A	2.0% +50d	Unspec'd	0.15mV/ μ A
5000.0 μ A			0.15mV/ μ A
50.000mA			3.3mV/mA
500.00mA			3.3mV/mA
5.0000A	Unspec'd	Unspec'd	45mV/A
10.000A*			

*10A continuous, >10A to 20A for 30
 second max with 5 minutes cool down
 interval

DC Current

RANGE	Accuracy	Burden Voltage
500.00 μ A	0.15%+20d	0.15mV/ μ A
5000.0 μ A	0.1%+20d	0.15mV/ μ A
50.000mA	0.15%+20d	3.3mV/mA
500.00mA	0.1%+30d	3.3mV/mA
5.0000A	0.5%+20d	45mV/A
10.000A*	0.5%+20d	45mV/A

*10A continuous, >10A to 20A for 30
 second max with 5 minutes cool down
 interval

DC Loop Current %4--20mA

4mA = 0% (zero)

20mA = 100% (span)

Resolution: 0.01%

Accuracy: $\pm 25d$ **T1-T2 Dual Temperature (Model 859s only)**

RANGE	Accuracy
-50.0°C to 1000.0°C	0.3%+1°C
-58.0°F to 1832.0°F	0.3%+2°F

Thermocouple range & accuracy not included

Hz Line Level Frequency

Function RANGE	Sensitivity (Sine RMS)	Range
500mV	100mV	10Hz ~ 200kHz
5V	1V	10Hz ~ 200kHz
50V	10V	10Hz ~ 100kHz
500V	100V	10Hz ~ 100kHz
1000V	900V	10Hz ~ 10kHz

Accuracy: 0.02%+4d

Hz Logic Level Frequency

RANGE	Accuracy
5.0000Hz--2.00000MHz	0.002%+4d

Sensitivity: 2.5Vp square wave

%Duty Cycle

RANGE	Accuracy
0.1% -- 99.99%	3d/kHz+2d

Input Frequency:

5Hz -- 500 kHz, 5V Logic Family

LIMITED WARRANTY

BRYMEN warrants to the original product purchaser that each product it manufactures will be free from defects in material and workmanship under normal use and service within a period of one year from the date of purchase. BRYMEN's warranty does not apply to accessories, fuses, fusible resistors, spark gaps, batteries or any product which, in BRYMEN's opinion, has been misused, altered, neglected, or damaged by accident or abnormal conditions of operation or handling.

To obtain warranty service, contact your nearest BRYMEN authorized agent or send the product, with proof of purchase and description of the difficulty, postage and insurance prepaid, to BRYMEN TECHNOLOGY CORPORATION. BRYMEN assumes no risk for damage in transit. BRYMEN will, at its option, repair or replace the defective product free of charge. However, if BRYMEN determines that the failure was caused by misused, altered, neglected, or damaged by accident or abnormal conditions of operation or handling, you will be billed for the repair.

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