

GENERAL SPECIFICATIONS

Display:
9999 counts: ACV, DCV, Hz & nS
6000 counts: mV, μ A, mA, A, Ohm & Capacitance
Polarity: Automatic
Update Rate:
Digital Display: 5 per second nominal;
41 Segments Bar-graph: 60 per second max
Low Battery: Below approx. 7V
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 0.15 x (specified

Electrical Specifications

Accuracy is $\pm$ (% reading digits + number of digits) or otherwise specified, at 23°C $\pm$ 5°C & less than 75% relative humidity.
True RMS voltage & current accuracies are specified from 10 % to 100 % of range or otherwise specified. Maximum Crest Factor < 2:1 at full scale & < 4:1 at half scale, and with frequency components within the specified frequency bandwidth for non-sinusoidal waveforms.

DC Voltage

Function	RANGE	Accuracy
mV	60.00mV	0.12%+2d
	600.0mV	0.06%+2d
V	9.999V, 99.99V, 999.9V	0.08%+2d

Input Impedance: 10M Ω , 50pF nominal (80pF nominal for 600mV range)

AC Voltage

Function	RANGE	Accuracy
	50Hz ~ 60Hz	
mV	60.00mV, 600.0mV	0.5% + 3d
V	9.999V, 99.99V, 999.9V	
	40Hz ~ 500Hz	
mV	60.00mV, 600.0mV	0.8% + 4d
V	9.999V, 99.99V	1.0%+4d
	999.9V	2.0%+4d
	500Hz ~ 1kHz	
mV	60.00mV, 600.0mV	2.0% + 3d
V	9.999V, 99.99V	1.0%+4d
	999.9V	2.0%+4d
	1kHz ~ 3kHz	
mV	60.00mV, 600.0mV	2.0%+3d
V	9.999V, 99.99V, 999.9V	3.0%+4d
	3kHz ~ 20kHz	
mV	60.00mV ¹⁾ , 600.0mV ¹⁾	2%+3d
V	9.999V ²⁾ , 99.99V	3dB
	999.9V	Unspec'd

¹⁾Specified from 30% to 100% of range.

²⁾for 3kHz ~ 15kHz only

Input Impedance: 10M Ω , 50pF nominal (80pF nominal for mV ranges)

dBm

At 600 Ω , -11.76dBm to 54.25dBm,
Accuracy: $\pm$ 0.25dB + 2d (@40Hz -- 20kHz)
Input Impedance: 10M Ω , 50pF nominal
Selectable reference impedance of 4, 8, 16, 32, 50, 75, 93, 110, 125, 135, 150, 200, 250, 300, 500, 600, 800, 900, 1000, 1200 Ω

AutoCheck™ (DCV)

RANGE	Accuracy
9.999V, 99.99V, 999.9V	0.5%+3d

Lo-Z DCV Threshold: > +1.5VDC or < -1.0VDC nominal

Lo-Z DCV Input Impedance:

Initially approx. 3.0k Ω , 165pF nominal; Impedance increases abruptly within a fraction of a second as display voltage is above 50V (typical). Ended up impedances vs display voltages typically are:

18k Ω @ 100V
125k Ω @ 300V
320k Ω @ 600V
500k Ω @ 1000V

DC AC & AC+DC AC Voltage

Function	RANGE	Accuracy
	DC, 50Hz ~ 60Hz	
mV	60.00mV, 600.0mV	0.7% + 6d
V	9.999V, 99.99V, 999.9V	
	40Hz ~ 1kHz	
mV	60.00mV, 600.0mV	1.0%+6d
V	9.999V, 99.99V, 999.9V	2.2%+6d
	1kHz ~ 20kHz	
mV ¹⁾	60.00mV, 600.0mV	2.2%+6d
V	9.999V ²⁾ , 99.99V	3dB
	999.9V	Unspec'd

¹⁾Specified from 30% to 100% of range.

²⁾for 1kHz ~ 15kHz only

accuracy)/ °C @ (0°C ~ 18°C or 28°C ~ 45°C), or otherwise specified

Sensing: AC+DC True RMS

Safety: Double insulation per IEC/UL/EN61010-1 Ed. 3.0, IEC/UL/EN61010-2-030 Ed. 1.0, IEC/UL/EN61010-2-033 Ed. 1.0, IEC/UL/EN61010-031 Ed. 1.1 and CAN/CSA-C22.2 No. 61010-1-12 Ed. 3.0 to Category IV 1000Vac & Vdc.

Transient protection: 12kV (1.2/50 μ s surge)

Terminals (to COM) Measurement Category:

V / A / mA μ A : Category IV 1000Vac & Vdc

Overload Protections:

μ A & 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

E.M.C. : Meets EN61326-1:2013

In an RF field of 3V/m:

Input Impedance: 10M Ω , 50pF nominal (80pF nominal for mV ranges)

AutoCheck™ (ACV)

RANGE	Accuracy
50Hz ~ 60Hz	

9.999V, 99.99V, 999.9V

1.0%+4d

Lo-Z ACV Threshold: > 3VAC (50/60Hz) nominal

Lo-Z ACV Input Impedance:

Initially approx. 3.0k Ω , 150pF nominal; Impedance increases abruptly within a fraction of a second as display voltage is above 50V (typical). Ended up impedances vs display voltages typically are:

18k Ω @ 100V
125k Ω @ 300V
320k Ω @ 600V
460k Ω @ 1000V

Ohms

RANGE	Accuracy
600.0 Ω , 6.000k Ω , 60.00k Ω , 600.0k Ω	0.1%+3d
6.000M Ω	0.4%+3d
60.00M Ω	1.5%+5d
99.99nS	0.8%+10d

Open Circuit Voltage: < 1.2VDC (< 1.0VDC for 60M Ω range)

AutoCheck™ (Ohms)

RANGE	Accuracy
600.0 Ω , 6.000k Ω , 60.00k Ω , 600.0k Ω	0.5%+4d
6.000M Ω	0.8%+3d
60.00M Ω ¹⁾	2.0%+5d

¹⁾Temperature Coefficient: 0.6 x (specified accuracy)/ °C

@ (0°C ~ 18°C or 28°C ~ 45°C)

Open Circuit Voltage: < 1.2VDC (< 1.0VDC for 60M Ω range)

Audible Continuity Tester

Audible threshold: between 20 Ω and 300 Ω ; Response time < 100 μ s

Capacitance

RANGE	Accuracy ¹⁾
60.0nF, 600.0nF	0.8% + 3d
6.000 μ F	1.0% + 3d
60.00 μ F	2.0% + 3d
600.0 μ F ²⁾	3.5% + 5d
6.000mF ²⁾	5.0% + 5d
25.00mF ²⁾	6.5% + 5d

¹⁾Accuracies with film capacitor or better

²⁾In manual-ranging mode, measurements not specified below 50.0 μ F, 0.54mF and 5.4mF for 600.0 μ F, 6.000mF and 25.00mF ranges respectively

AC & AC+DC Current

RANGE	Accuracy	Burden voltage
	50Hz ~ 60Hz	
600.0 μ A, 6000 μ A	0.6%+3d	0.08mV/ μ A
60.00mA		2.1mV/mA
600.0mA	1.0%+3d	
6.000A, 10.00A ¹⁾	0.8%+6d	0.02V/A
	40Hz ~ 1kHz	
600.0 μ A, 6000 μ A	0.8%+4d	0.08mV/ μ A
60.00mA		2.1mV/mA
600.0mA	1.0%+4d	
6.000A, 10.00A ¹⁾	0.8%+6d	0.02V/A

¹⁾10A continuous, >10A to 20A for 30 second max with 5 minutes cool down interval

Capacitance function is not specified

Other function ranges:

Total Accuracy = Specified Accuracy + 100 digits

Performance above 3V/m is not specified

Power Supply: Single 9V battery; NEDA1604G, JIS006P

IEC6F22, NEDA1604A, JIS6AM6 or IEC6LF22

Power Consumption: 5 mA typical

APO Timing: Idle for 30 minutes

APO Consumption: 50 μ A typical

Dimension: L208mm X W103mm X H64.5mm with holster

Weight: 635 gm with holster

Accessories: Test lead pair; battery installed; user's manual;

BKP60 banana plug type-K thermocouple

Optional purchase accessories: USB interface kit BU-86X;

BKB32 banana plug to type-K socket plug adaptor; BMH-01

magnetic hanger; BMP-86x soft carrying pouch

DC Current

RANGE	Accuracy	Burden voltage
600.0 μ A, 6000 μ A	0.2%+4d	0.08mV/ μ A
60.00mA, 600.0mA		2.1mV/mA
6.000A, 10.00A ¹⁾		0.02V/A

¹⁾10A continuous, >10A to 20A for 30 second max with 5 minutes cool down interval

Line Level Frequency (~Hz)

Function Range	Frequency	Sensitivity (Sine RMS)
AC 60.00mV	15.00 ~ 50.00kHz	40mV
AC 600.0mV		60mV
AC 9.999V	15.00 ~ 10.00kHz	2.5V
AC 99.99V		25V
AC 999.9V	15.00 ~ 3.000kHz	100V
AC 600.0 μ A		200 μ A
AC 6000 μ A		600 μ A
AC 60.00mA		40mA
AC 600.0mA		60mA
AC 6.000A		4A
AC 10.00A		6A

Accuracy: 0.04%+4d

Logic Level Frequency (μ Hz) & Duty Cycle (D%)

@ DCmV Function	Range	Accuracy ¹⁾
Frequency	5.00Hz ~ 1.000MHz	0.04%+4d
Duty Cycle	0.00% ~ 100.0%	3d/kHz+2d ²⁾

¹⁾Sensitivity: 2.5Vp (Square wave) for 3V & 5V Logic Family

²⁾Specified Frequency: 5Hz ~ 10kHz

Crest mode (Instantaneous Peak Hold)

Accuracy: Specified accuracy adds 250 digits for changes > 1.0 ms in duration

Record mode

Accuracy: Specified accuracy adds 10 digits for changes > 100 ms in duration

Diode Tester

RANGE	Accuracy
2.000V	1.0%+1d

Test Current (Typically): 0.4mA

Open Circuit Voltage: < 3.5 VDC

Temperature

RANGE	Accuracy
-50°C to 1000°C	0.3%+2°C
-58°F to 1832°F	0.3%+5°F

Type-K thermocouple range & accuracy not included



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Specifications subject to change without notice

Patents pending. Printed in Taiwan

Mobile Logger Supports Multi-session, More Memory & Dual Display!

12kV Transient Protection, 1kV Fuses, DC+AC True RMS, Duty %, 4 Digit Resolution, nS Conductance... And More!

Data-Logging, PC-Comm, Bar-graph, BeepJack, Crest (Peak), Rec (Min Max), Relative, Backlit... Full-Features!

Ergonomic, Magnetic Hanger, Probe Holders, Tilt stand & Hanger, Battery Access Cover... User-Oriented!

AutoCheck+LoZ, Capacitance, Line Level Hz, T1-T2 Temperature... Full-Functions!



BM520s Series Professional Multimeter



BRIGHT PEOPLE'S CHOICE

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The Best Of The Best : 1kV Protection + MobileLogger!

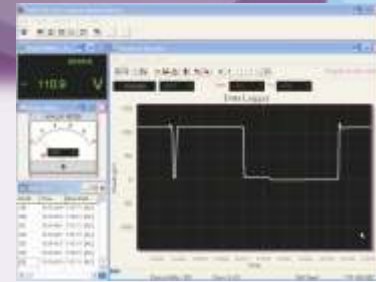
87,000 Points Stand-Alone Data-Logging With On-Screen Recall !
Includes AutoCheck™ & Ghost-Voltage-Buster™ !



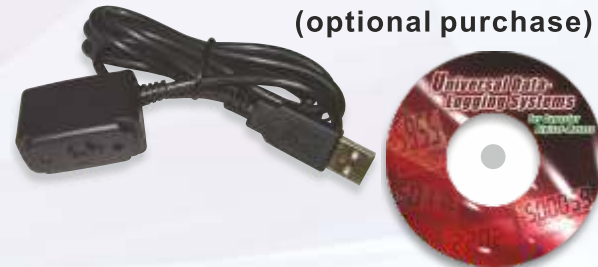
BM525s



BM521s



BU-86X interface kit
(optional purchase)



525s	521s	FUNCTIONS & FEATURES
87,000	10,800	Stand-Alone Data-Logging Function (Points at Single Display Mode)
43,000	5,400	Stand-Alone Data-Logging Function (Points at Dual Display Mode)
•	•	4 Digits 10,000 Counts Large Easy To Read LCD Display
•	•	Fast Measurements, 5/Sec; Fully Auto-Ranging
•	•	Dual Digital Display
•	•	41 Segment Analog Bar-graph Updates 60/Sec
•	•	0.08% High Basic DCV Accuracy
•	•	Optional Purchase USB Cable & Software For Win98/2k/xp/Vista/7/8
•	•	Intelligent Auto Power Off
•	•	Data Hold
•	•	Relative Zero Mode
•	•	Audible & Visible BeepJack™ Input Warning Against Improper Plug In
•	•	AC, AC+DC True RMS Conversion
•	•	Record Max/Min/MAX-MIN Readings, Auto-Ranging
•	•	Crest (Peak Hold) Max/Min/MAX-MIN Readings, Auto-Ranging
•	•	AutoCheck™ Feature (Automatic DCV, ACV & Ohms Selection)
•	•	Lo-Z Volts To Drain Ghost Voltages (AutoCheck™ Feature)
•	•	Back-Lighted Large Easy To Read LCD Display
•	•	DCV 0.01mV To 1000V
•	•	ACV 0.01mV To 1000V
•	•	AC+DCV 0.01mV To 1000V
•	•	DCA 0.1µA To 10A; 20A For 30 Seconds Per 5 Minutes Cooling
•	•	ACA 0.1µA To 10A; 20A For 30 Seconds Per 5 Minutes Cooling
•	•	AC+DCA 0.1µA To 10A; 20A For 30 Seconds Per 5 Minutes Cooling
•	•	Ohms 0.1Ω To 60MΩ
•	•	Conductance 0.01nS To 100nS
•	•	Capacitance 0.01nF To 25mF
•	•	T1 Type-K Temperature Readings -50°C To 1000°C
•	•	T2 Dual Type-K Temperature Readings -50°C To 1000°C
•	•	Line Level Frequency 15.00Hz To 1.000kHz
•	•	Logic Level Frequency 5.00Hz To 1.000MHz
•	•	Logic Level Duty Cycle Readings 0.01% To 100.0%
•	•	Diode Tester
•	•	Rugged Fire Retarded Casing With Battery Access Door
•	•	Replaceable Protective Holster With Probe-Holders & Tilt-Stand
•	•	Optional Purchase Magnetic Hanger
•	•	1000V General (Ohm, Capacitance ... etc.) Input Protection
•	•	1000V High Breaking Capacity Fuses Protected On Current Inputs
•	•	Transient Protection Up To 12kV 1.2/50µs Lightning Surge
•	•	LVD Meets EN61010-1 CAT IV 1kV
•	•	EMC EN61326-1:2013

ANALOG BAR-GRAPH
FAST UPDATE RATE 60/SEC

HIGH ACCURACY
0.08% BASIC DCV ACCURACY;
FAST AUTO-RANGING

DISPLAY BACKLIGHT
FOR EASY VIEWING IN THE DARK

FUNCTION SELECTION
TOGGLE CONVENIENTLY BETWEEN
PRIMARY & SECONDARY FUNCTIONS

nS CONDUCTANCE
nS=1/GΩ VIRTUALLY EXTENDS RESISTANCE
MEASUREMENT TO THE ORDER OF GΩ.
IT IS USEFUL FOR LEAKAGE MEASUREMENTS

CREST (PEAK HOLD)
CAPTURES INSTANTANEOUS
+PEAK & -PEAK, AUTO-RANGING

LOGIC LEVEL DUTY%
MEASURES DIGITAL LOGIC LEVEL
DUTY CYCLE % READINGS

LOGIC LEVEL Hz
MEASURES DIGITAL LOGIC LEVEL
FREQUENCIES UP TO 2MHz

HIGH IMPEDANCE VOLTAGE
1000VAC/DC MEASURING CAPABILITIES;
HIGH INPUT IMPEDANCE FOR
LOAD SENSITIVE CIRCUITS

Hz OF LINE LEVEL VOLTAGE
MEASURES NOISY HIGH VOLTAGE
ACV FREQUENCIES UP TO 200kHz
IN DUAL DISPLAY

AUTOCHECK™ FEATURE
AUTOMATIC SELECTION OF
LoZ DCV, LoZ ACV & OHMS

GHOST-VOLTAGE-BUSTER
LoZ DRAINS GHOST/ STRAY VOLTAGES
LEAVING ONLY HARD SIGNALS
ON METER READINGS

PC INTERFACE CAPABILITY
OPTIONAL PURCHASE USB CABLE
WITH DATA RECORDING PC SOFTWARE
FOR WIN98/NT4/2K/XP/VISTA

BEEP-JACK™ AUDIBLE & VISIBLE WARNING
GUARDS AGAINST IMPROPER A-TERMINAL
PLUG IN. DECREASES RISKS OF DAMAGE

AC, AC+DC TRUE RMS MEASUREMENTS
FOR NON-SINUSOIDAL WAVEFORMS
OF COMPLEX VOLTAGE OR CURRENT SIGNALS

STAND-ALONE DATA-LOGGING
UP TO 87,000 DATA ITEMS IN SINGLE
DISPLAY MODE, OR 43,000 DATA
ITEMS IN DUAL DISPLAY MODE

STAND-ALONE DATA RECALL
ON-SCREEN REVIEW LOGGED READINGS
WITHOUT THE NEED OF A COMPUTER

SELECTABLE SAMPLING INTERVAL
16 SELECTABLE SAMPLING INTERVALS
FROM 0.05S TO 600S

DUAL DIGITAL DISPLAY
SIMULTANEOUSLY VIEW
RELEVANT PARAMETERS IN
COMPLEMENTARY DISPLAY

LARGE 10000 COUNTS LCD DISPLAY
5/SEC FAST NOMINAL UPDATE RATE

DATA HOLD
FREEZES THE DISPLAYING
READING FOR LATER VIEW

MAX MIN RECORD
RECORD MAX and MIN
READINGS; AUTO-RANGING

DIODE TEST
FOR CHECKING DIODES
AND RECTIFIERS

T1-T2 TYPE-K TEMPERATURE
2 CHANNEL MEASUREMENTS,
SELECTABLE °C & °F READINGS

CAPACITANCE
UP TO 25mF WITH 1000V PROTECTION;
AUTO-RANGING

CURRENT & Hz
MEASURES CURRENT & FREQUENCIES
IN DUAL DISPLAY

ERGONOMIC STREAMLINE DESIGN
FITS COMFORTABLY IN ONE'S HAND

INTELLIGENT AUTO-POWER-OFF
TO EXTEND BATTERY LIFE

TRANSIENT PROTECTION
UP TO 12kV 1.2/50µs LIGHTNING SURGE;
SUPERB PROTECTION FOR SERIOUS USERS

EMC
MEETS EN61326-1:2013

LVD Safety
MEETS EN61010-1/-2-030/-2-033
CAT III 1kV & CAT IV 600V

PROTECTIVE HOLSTER
WITH HOLDERS FOR PROBE STORAGE
AND "THIRD HAND" FEATURE,
REPLACEABLE & WASHABLE

