Certified Record-High Safety ... 1kV CAT IV

Great Electrical Tools With Powerful AutoCheck™ & EF-Detection Features!

CERTIFIED SAFETY! CAT IV 1000V IEC61010-1 2nd Ed. CAT IV

CLASSIFIED UL 82CM IEC61010-1 2nd Ed. CAT IV

BRYMEN®

BRIGHT PEOPLE'S CHOICE

http://www.brymen.com

CE

BM680 Professional DMM Series

BM685

BM682

BM685	BM682	Functions & Features
●	●	6,000 Counts Large Easy To Read LCD Display
●	●	5/Sec Fast Data Measurement
●	●	Fully Auto-Ranging
●	●	Cat IV 1000V Input Protection On All Functions
●	●	AutoCheck™ Feature (Automatic DCV, ACV & Ohms Selection)
●	●	Non-Contact EF-Detection (NCV)
●	●	Probe-Contact EF Detection For More Precise Indication Of Live
●	●	Intelligent Auto Power Off - Operation & Measurement Reset
●	●	Lo-Z Volts To Drain Ghost Voltages (Auto-VΩ Position)
●		Standard Hi-Z Volts To Minimize Loading (V Position)
●	●	1000V Overload-Alert On Volts (Beeps & OL Indication)
●	●	AutoCheck™ Audible Continuity (6kΩRange)
●	●	AutoCheck™ Ohms 6k Ω To 6M Ω, 4 Ranges (Auto-VΩ Position)
●		Ohms 600Ω Range+ Fast Audible Continuity
●		Capacitance 100nF To 2000μF, 5 Ranges
●		Diode Test
●		Range-Lock
●	●	Data Hold
●	●	Fire-Retarded Material Thick Wall Housing
●	●	Over-molded Rubber Holster With Probe Holders
●	●	EMC Meets EN61326, EN61000-4-2 & EN61000 -4-3
●	●	Transient Protection Up To 12kV 1.2/50μs Lightning Surge
●	●	UL Classified To IEC61010-1 2nd Ed. CAT IV 1000V AC/DC
●	●	Also UL Listed To UL61010B -1 CAT III 1000V AC/DC

A Leader In DMM Safety... CAT IV 1000V !

Reads Hard Signals Thru Ghost-Voltage-Buster (AutoCheck™) !

Identifies Live Lines By EF-Detection Feature !

HIGH SPEED AUTO-RANGING
SHORTENS THE TIME TO TEST AND INCREASES THE EASE OF USE

ASIC TECHNOLOGY
MORE FUNCTIONS & FEATURES AT AFFORDABLE PRICES

DATA HOLD
FREEZES THE DISPLAYING READING FOR LATER VIEW

LARGE 6000 COUNTS LCD DISPLAY
5/SEC FAST NOMINAL UPDATE RATE

FUNCTION SELECTION
TOGGLE CONVENIENTLY BETWEEN PRIMARY & SECONDARY FUNCTIONS

EF-DETECTION
BOTH NON-CONTACT & SINGLE-PROBE VOLTAGE DETECTION FOR IDENTIFYING LIVE LINES

CAPACITANCE
UP TO 2000µF WITH 1000V PROTECTION; AUTO-RANGING

AUTO & MANUAL-RANGING
AUTO-RANGING WITH MANUAL-RANGING OVERRIDE

DIODE TEST
FOR CHECKING DIODES AND RECTIFIERS

600 OHMS & AUDIBLE CONTINUITY
FOR QUICK OPEN-SHORT TESTS ON SWITCHES, FUSES, AND WIRES

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

SINGLE HAND OPERATION
CONVENIENTLY LOCATED SWITCH FOR SINGLE HAND OPERATION

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

INTELLIGENT SLEEP MODE
TO EXTEND BATTERY LIFE

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

ERGONOMIC STREAMLINE DESIGN
FITS COMFORTABLY IN ONE'S HAND

LVD CAT IV SAFETY
INVESTIGATED BY UL TO IEC61010-1 2ND EDITION CAT IV 1000V AC & DC

EMC
MEETS EN61326(1997, 1998/A1), EN61000-4-2(1995), & EN61000-4-3(1996)

RUGGED & DURABLE
HIGH-IMPACT FIRE-RETARDED ENCLOSURE FOR REINFORCED SAFETY & DURABILITY

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

DOUBLE INJECTION HOUSING
OVER-MOLDED BACK WITH HOLDERS FOR PROBE STORAGE AND "THIRD HAND" FEATURE

BM682 & BM685 GENERAL SPECIFICATION

Display: 3-5/6 digits 6,000 counts
Update Rate: 5 per second nominal
Polarity: Automatic
Operating Temperature: -10°C ~ 50°C
Relative Humidity: Maximum relative humidity 80% for temperature up to 31°C decreasing linearly to 50% relative humidity at 50°C
Altitude: Operating below 2000m
Storage Temperature: -30°C ~ 60°C, < 80% R.H. (with battery removed)
Temperature Coefficient: Nominal 0.15 x (specified accuracy)/°C @ (-10°C ~ 18°C or 28°C ~ 50°C), or otherwise specified
Sensing: Average sensing on all models

Safety: UL investigated and classified to IEC61010-1 2nd Edition (2001)
Measurement Category: CAT IV 1000V AC & DC
Transient Protection: 12kV lightning surge (1.2/50μs)
E.M.C.: Meets EN61326 (1997, 1998/A1), EN61000- 4-2 (1995), & EN61000-4-3 (1996)
In an RF Field of 3V/m:
Capacitance function is not specified.
Other function ranges:
Total accuracy = Specified accuracy + 45d
Performance above 3V/m is not specified.
Overload Protection: 1000VDC & VAC rms

Pollution Degree: 2
Power Consumption: 2mA typical
Power Supply: Single standard 9V battery (NEDA1604, JIS006P, IEC6F22)
Low battery: Below approx. 4.5V
APO Consumption: 2μA typical
APO Timing: Idle for 3 minutes
Low battery: approx. 4.5V
Dimension: L173mm x W83mm x H48.5mm
Weight: approx.300 gm
Special features: AutoCheck™ (Automatic V & Ω Selection), EF-Detection and Display Hold
Accessories: Test lead pair, Battery installed and User's manual
Optional Accessories: Soft carrying case

BM682 & BM685 Electrical Specification

Accuracy is given as ± (% of reading digits + number of digits) or otherwise specified @ 23°C ± 5°C and less than 75% R.H.

DC Voltage

RANGE	Accuracy	
	BM682	BM685
6000mV [1]	1.3%+2d	0.8%+2d
6.000V	1.3%+2d	0.8%+2d
60.00V	1.3%+1d	0.8%+1d
600.0V	1.2%+4d	1.2%+4d
1000V	1.5%+8d	1.5%+8d

NMRR: > 30dB @ 50Hz/60Hz
CMRR: > 100dB @ DC, 50Hz/60Hz; Rs=1kΩ
Hi-Z DCV (BM685 only) Input Impedance:
5MΩ, 90pF nominal
AutoCheck™ Lo-Z DCV Threshold:
> +1.5VDC & < -1.0VDC nominal
AutoCheck™ Lo-Z DCV Input Impedance:
Initially 4.2kΩ, 90pF 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:
18kΩ @ 100V
125kΩ @ 300V
320kΩ @ 600V
500kΩ @ 1000V
[1]Range for BM685 only and can only be entered using **RANGE** button. Use the 6000mV range for voltage output accessories.

AC Voltage

RANGE	Accuracy	
	BM682	BM685
50Hz ~ 400Hz		
6000mV [1], 6.000V, 60.00V	2.5%+3d	1.5%+3d
600.0V	2.5%+6d	2.0%+6d
1000V	2.8%+8d	2.8%+8d

CMRR: > 60dB @ DC to 60Hz, Rs=1kΩ
Hi-Z ACV (BM685 only) Input Impedance:
5MΩ, 90pF nominal
AutoCheck™ Lo-Z ACV Threshold:
> 2VAC (50/60Hz) nominal
AutoCheck™ Lo-Z ACV Input Impedance:
Initially 4.2kΩ, 90pF 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:
18kΩ @ 100V
125kΩ @ 300V
320kΩ @ 600V
460kΩ @ 1000V
[1]Range for BM685 only and can only be entered using **RANGE** button. Use the 6000mV range for voltage output accessories.

Ohms

RANGE	Accuracy [1]	
	BM682	BM685
6.000KΩ [2]	0.9%+4d [3]	0.9%+4d [3]
60.00KΩ	0.9%+4d	0.9%+4d
600.0KΩ	0.9%+1d	0.9%+1d
6.000MΩ	1.2%+4d	1.2%+4d

Open Circuit Voltage: 0.4VDC typical
[1]Cool down interval 2 minutes after over 50V measurements in Auto-VΩ position
[2]Continuity Beeper turns on while < 0.025kΩ
[3]Add 20d to specified accuracy while reading is below 20% of range

Diode Tester (BM685 only)

Test Current	Open Circuit Voltage
0.25mA typical	< 1.6VDC typical

600Ω with Continuity Beeper (BM685 only)

RANGE	Accuracy
600.0Ω	2.0%+6d [1]

Continuity Beeper Response: < 100μs
Open Circuit Voltage: 0.4VDC typical
Audible Threshold: between 50Ω and 250Ω
[1]Add 30d to specified accuracy while reading is below 20% of range.

Capacitance (BM685 only)

RANGE	Accuracy
100.0nF [1]	3.5%+5d
1000nF, 10.00μF, 100.0μF	2.5%+2d
2000μF	2.5%+5d

Accuracies with film capacitor or better.
[1]Accuracy below 50nF is not specified.

Non-Contact EF-Detection

Typical Voltage	Bar Graph Indication
15V to 50V	-
30V to 70V	--
50V to 100V	---
70V to 140V	----
above 100V	-----

Indication: Bar graph segments & audible beep tones proportional to the field strength
Detection Frequency: 50/60Hz
Detection Antenna: Top end of the meter
Probe-Contact EF-Detection: For more precise indication of live wires, such as distinguishing between live and ground connections, use the Red (+) test probe for direct contact measurements.

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