Innovative AmpTip™ Jaws For Slim-Conductors In CAT-III 600V Areas

Ergonomic All-In-One AC/DC 600A, 3-Terminal RST Phase-Rotation, HVAC, AC+DC TRMS

World-wide Patented:
D148256
2001176
D678,092S
402011006273.9
M438628
2755507
13486915
202012102140.4
M429871
2359464
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CE

BM070 Series

AmpTip™ Jaws Clamp-on DMMs

BRYMEN®
BRIGHT PEOPLE'S CHOICE
http://www.brymen.com



BM079 **BM078** **BM077** **BM076** **BM073** **BM072**

079	078	077	076	073	072	FUNCTIONS & FEATURES
●	●	●	●	●	●	VFD-V & Hz for fundamental V/Hz of most Variable-Frequency-Drives
●	●	●	●	●	●	Fast measurement updates 5/sec
●	●	●	●	●	●	3-5/6 digits 6,000 counts display large LCD
●	●	●				35mm conductor size Hall-effect 600A DC/AC jaws
			●	●	●	30mm conductor size Ultra-slim 600A AC jaws
●	●	●	●	●	●	AmpTip™ Low-current-range calibrated at Jaw-tip for slim-conductors
●	●	AC	AC	AC	AC	AC+DC, AC True RMS voltage and current functions
●	●	●	●	●	●	600VAC/DC input protection on general functions
●	●	●	●	●	●	Auto Power Off
●	●	●	●	●	●	Data HOLD
●	●	●	●	●	●	Record MAX/MIN/AVG mode (Auto-ranging)
●	●	●	●	●		Relative mode (Auto-ranging) with DC-Zero mode on DCA, DC+ACA ranges
●	●		●			Fast 80ms PEAK-RMS mode to capture in-rush currents
●	●		●			Back-lighted easy-to-read LCD display
●	●	●	●	●	●	Non-Contact EF-Detection (NCV)
●	●	●	●	●	●	Probe-Contact EF-Detection for more precise indication of live
●			●			Ⓡ 3Φ-Rotation-R for MAINS supply (Probe-contact)
●			●			Ⓜ 3Φ-Rotation-M (Hi-sensitivity mode) for Motors (Probe-contact)
●			●			Type-K temperature -40.0°C to 400°C or -40.0°F to 752°F selectable
●			●			DCμA ranges 200.0μA to 2000μA (via leads) for HVAC flame sensors
●	●					DC+ACA ranges 60.00A to 600.0A + AmpTip™ DC+ACA 60.00A range
●	●	●				DCA ranges 60.00A to 600.0A + AmpTip™ DCA 60.00A range
●	●	●	●	●	●	ACA ranges 60.00A to 600.0A + AmpTip™ ACA 60.00A range
●	●					DC+ACV range 600.0V
●	●	●	●	●	●	DCV range 600.0V
●	●	●	●	●	●	ACV range 600.0V
●	●	●	●	●	●	Ohm ranges 600.0Ω to 60.00kΩ
●	●		●	●		Cx ranges 200.0μF to 2500μF for start & run motor capacitors
●	●	●	●	●	●	Diode test & Fast audible Continuity
●	●	●	●	●	●	Line-level ACV Frequency 5.00Hz to 999.9Hz
●	●	●	●	●	●	Soft carrying pouch
●	●	●	●	●	●	Rugged fire retarded casing with battery access door
●	●	●	●	●	●	Transient protection 6kV 1.2/50μs lightning surge
●	●	●	●	●	●	LVD EN61010-1/61010-2-032/61010-2-033 to CAT III 600V & CAT IV 300V
●	●	●	●	●	●	EMC EN61326-1 (EN55022, EN61000-3-2/-3 & EN61000-4-2/-3/-4/-5/-6/-8/-11)

Handy 600A! CAT III 600V! Patented AmpTip™ Jaws & Phase Rotation!

Advanced Safety Compliance with IEC 61010-2-032 3rd Edition and IEC 61010-2-033 1st Edition

Investigated, Tested and Listed by UL, a global independent safety science company

AC+DC TRUE RMS MEASUREMENTS (BM079, & 078 ONLY)
For Non-sinusoidal & Complex Waveforms Of Voltages & Currents

TYPE-K TEMPERATURE (BM079 & 076 ONLY)
Selectable ˚C And ˚F Readings; Comes With Bkp60 Bead Probe

HANDY 35mm AmpTip™ CLAMP JAWS (30mm FOR ACA ONLY MODELS)
For Large & Small Conductors With AC Or DC+AC TRMS 600A Capability

LVD CAT III 600V & CAT IV 300V
Certified EN61010-2-032, EN61010-2-033, EN61010-1 & Relevant UL Standards On CAT III 600V & CAT IV 300V

EF-DETECTION
Both Non-Contact (NCV) & Single-Probe Voltage Detection For Identifying Live Lines

DIODE TEST
For Testing Diodes & Rectifiers

DCμA (BM079 & 076 ONY)
For HVAC Flame Sensors Testing Via Test Probes

FAST AUDIBLE CONTINUITY
For Quick Open-short Tests On Switches, Fuses, And Wires

PHASE ROTATION (BM079 & 076 ONY)
Dual Sensitivity Modes For Both Motors And Supply Systems

REGULAR CURRENT & Hz
Measures At Jaw Center For Regular Conductors Up To 600 Amps

CAPACITANCE (EXCEPT BM072)
2 Auto-ranges Up To 2500μF To Measure Motor Capacitors

AmpTip™ LOW-CURRENT & Hz
Ergonomically Measures At Jaw Tip For Small-sized Conductors Up To 60 Amps

RESISTANCE
3 Auto-ranges Up To 60kΩ
Best Resolution 0.1Ω At 600Ω Range

VFD V & Hz FEATURE
Measures Fundamental Voltage & Frequency Of Most Variable Frequency Drives

ERGONOMIC & STREAMLINE BODY
Also Comes With A Soft Pouch For Easy Carrying & Protection

FULLY AUTO-RANGING DMM
Shortens The Time To Measure And Increases The Ease Of Use

AUTO-POWER-OFF
Extends Battery Life

1.0% DCV BASIC ACCURACY
DCV Up To 600V; ACV Up To 600V

IN-RUSH PEAK-RMS (BM079, 078, & 076 ONLY)
Captures In-rush Peak RMS Readings At Durations As Short As 80ms

RELATIVE ZERO & DC_ZERO
For Convenient Readings Comparison As Well As DC Jaws Hysteresis Offset

RECORD MAX / MIN / AVG
Records Max, Min, & Calculates Avg Readings Over Time. Auto-ranging

DATA HOLD
Freezes The Displaying Reading For Later View

BACKLIGHTED LCD DISPLAY (BM079, 078, & 076 ONLY)
For Easy Viewing In The Dark

RUGGED & DURABLE
High-impact Fire-retarded Enclosure With Battery Compartment & Access Door

EMC
Meets EN61326-1:2006 (EN55022, EN61000-3-2/-3 & EN61000-4-2/-3/-4/-5/-6/-8/-11)

TRANSIENT PROTECTION
Up To 6kV 1.2/50μs Lightning Surge; More Confidence For Serious Users



GENERAL SPECIFICATIONS

Display: 3-5/6 digits 6000 counts
Polarity: Automatic
Update Rate: 5 per second nominal
Operating Temperature: 0°C to 40°C
Relative Humidity: Maximum relative humidity 80% for temperature up to 31°C decreasing linearly to 50% relative humidity at 40°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 accuracy)/ °C @(0°C -- 18°C or 28°C -- 40°C), or otherwise specified
Sensing: True RMS
Safety: Double insulation per UL/IEC/EN61010-1 Ed. 3, IEC/EN61010-2-033 Ed. 1, CAN/CSA C22.2 No. 61010-1 Ed. 3, IEC/EN61010-2-032 Ed. 3 & IEC/EN61010-031 Ed. 1.1 to CAT III 600V and CAT IV 300V AC & DC
Transient Protection: 6.0kV (1.2/50μs surge)
Overload Protections:
Current & Hz functions via jaws: 600ADC/AAC rms at <400Hz
Voltage & 3-Phase Rotation functions via terminals: 660VDC / 920VAC rms
Other functions via terminals: 600VDC/VAC rms
E.M.C.: Meets EN61326-1:2006 (EN55022, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, , EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11):
DCA and DC+ACA Functions, in an RF field of 1V/m: Total Accuracy = Specified Accuracy + 20 digits at around 405MHz
DCμA and Ohm Functions, in an RF field of 1V/m: Total Accuracy = Specified Accuracy + 25 digits
Other Functions, in an RF field of 3V/m: Total Accuracy = Specified Accuracy + 20 digits
Power Supply: 1.5V AAA Size battery X 2
Power Consumption: Typical 13mA for Current functions of BM079, BM078 & BM077; 4.3mA for others
Low Battery:
Below approx. 2.85V for Capacitance & Hz
Below approx. 2.5V for other functions
APO Timing: Idle for 32 minutes
APO Consumption: 5μA typical
Dimension (LxWxH): 223 x 76 x 37mm for BM079, BM078 & BM077; 217 x 76 x 37mm for BM076, BM073 & BM072
Weight: 234gm for BM079, BM078 & BM077; 186gm for BM076, BM073 & BM072
Jaw opening & Conductor diameter:
35mm max for BM079, BM078 & BM077
30mm max for BM076, BM073 & BM072
Accessories: Test lead set, User's manual, Soft carrying pouch, Bkp60 banana plug K-type thermocouple (BM079 & BM076 only), Alligator Clip set (BM079 & BM076 only)
Optional purchase accessories: BKB32 banana plug to type-K socket plug adaptor (BM079 & BM076 only)
Special Features: AmpTip™ low-current range; MAX/MIN/AVG Recording mode; Display Hold; EF-Detection (NCV); Backlighted LCD (BM079, BM078 & BM076 only); 80ms Peak-RMS mode for inrush current (BM079, BM078 & BM076 only); Relative-Zero (BM079, BM078 & BM076 only), 3-Phase Rotation detection (BM079 & BM076 only)

Electrical Specifications

Accuracy is ±(% reading digits + number of digits) or otherwise specified, at 23°C ± 5°C.
Maximum Crest Factor < 2.5 : 1 at full scale & < 5 : 1 at half scale or otherwise specified, and with frequency spectrum not exceeding the specified frequency bandwidth for non-sinusoidal waveforms.

DC Voltage

RANGE	Accuracy
600.0V	1.0% + 5d

Input Impedance: 10MΩ, 100 pF nominal

AC Voltage (with Digital Low-Pass Filter)

RANGE	Accuracy
50Hz ~ 60Hz	
600.0V	1.0% + 5d

Input Impedance: 10MΩ, 100 pF nominal

DC+AC Voltage (with Digital Low-Pass Filter) (BM079 & BM078 Only)

RANGE	Accuracy
DC, 50Hz ~ 60Hz	
600.0V	1.2% + 7d

Input Impedance: 10MΩ, 100 pF nominal

PEAK-rms (ACV & ACA of BM079, BM078 & BM076 only)

Response: 80ms to > 90%

Audible Continuity Tester

Audible Threshold: At between 10Ω and 250Ω
Response time: 32ms approx.

Ohm

RANGE	Accuracy
600.0Ω, 6.000KΩ, 60.00KΩ	1.0% + 5d

Open Circuit Voltage: 1.0VDC typical

Capacitance (BM079, BM078, BM076 & BM073 only)

RANGE	Accuracy [1]
200.0μF, 2500μF	2.0% + 4d

[1] Accuracies with film capacitor or better

Diode Tester

RANGE	Accuracy
2.000V	1.5% + 5d

Test Current: 0.3mA typically
Open Circuit Voltage: < 3.5VDC typically

Temperature (BM079 & BM076 only)

RANGE	Accuracy
-40.0 °C ~ 99.9 °C	1.0% + 0.8°C
100 °C ~ 400 °C	1.0% + 1°C
-40.0 °F ~ 211.8 °F	1.0% + 1.5°F
212 °F ~752 °F	1.0% + 2°F

K-type thermocouple range & accuracy not included

DCμA (BM079 & BM076 only)

RANGE	Accuracy	Burden Voltage
200.0μA, 2000μA	1.0% + 5d	3.5mV/μA

AmpTip™ clamp-on ACA

RANGE	Accuracy [1] [2] [3] [4]
DC, 50Hz ~ 60Hz	
60.00A	1.5% + 5d

[1] Induced error from adjacent current-carrying conductor: <0.01A/A
[2] Specified with Relative Zero Δ mode applied to offset the non-zero residual readings, if any
[3] Add 10d to the specified accuracy @ < 4A
[4] For BM076, BM073 & BM072, unspecified @ <0.2A

AmpTip™ clamp-on DCA (BM079, BM078 & BM077 only)

RANGE	Accuracy [1] [2] [3]
60.00A	2.0% + 5d

[1] Induced error from adjacent current-carrying conductor: <0.01A/A
[2] Specified with DC-Zero mode applied to offset the non-zero residual readings, if any
[3] Add 10d to the specified accuracy @ < 4A

AmpTip™ clamp-on DC+ACA (BM079 & BM078 only)

RANGE	Accuracy [1] [2] [3]
DC, 50Hz ~ 60Hz	
60.00A	2.0% + 7d

[1] Induced error from adjacent current-carrying conductor: <0.01A/A
[2] Specified with DC-Zero mode applied to offset the non-zero residual readings, if any
[3] Add 10d to the specified accuracy @ < 4A

Regular Clamp-on ACA

RANGE	Accuracy [1] [2] [3]
50Hz ~ 100Hz	
60.00A [4] [5], 600.0A	1.8% + 5d
100Hz ~ 400Hz	
60.00A [4] [5], 600.0A	2.0% + 5d

[1] Induced error from adjacent current-carrying conductor: <0.01A/A
[2] For Models 079, 078 & 077, Maximum Crest Factor < 2 : 1 at full scale & < 4 : 1 at half scale
[3] For Models 076, 073 & 072, specified accuracy is for measurements made at the jaw center. When the conductor is not positioned at the jaw center, add 2% to specified accuracy for position errors
[4] For Models 079, 078 & 077, add 10d to the specified accuracy @ < 9A
[5] For Models 076, 073 & 072, add 10d to specified accuracy @ < 6A, and unspecified @ < 0.2A

Regular Clamp-on DCA (BM079, BM078 & BM077 only)

RANGE	Accuracy [1] [2]
60.00A [3] , 600.0A	2.0% + 5d

[1] Induced error from adjacent current-carrying conductor: <0.01A/A
[2] Specified with DC-Zero mode applied to offset the non-zero residual readings, if any
[3] Add 10d to the specified accuracy @ < 9A

Regular Clamp-on DC+ACA (BM079 & BM078 only)

RANGE	Accuracy [1] [2]
DC, 50Hz ~ 100Hz	
60.00A [3], 600.0A	2.2% + 7d
100Hz ~ 400Hz	
60.00A [3], 600.0A	2.7% + 7d

[1] Induced error from adjacent current-carrying conductor: < 0.01A/A
[2] Specified with DC-Zero mode applied to offset the non-zero residual readings, if any
[3] Add 10d to the specified accuracy @ < 9A

Hz Line Level Frequency

Function	Sensitivity [1] (Sine RMS)	Range
600V	50V	5.00Hz ~ 999.9Hz
60A (AmpTip™)	40A	50.00Hz ~ 400.0Hz
60A, 600A	40A	50.00Hz ~ 400.0Hz

Accuracy: 1%+5d
[1] DC-bias, if any, not more than 50% of Sine RMS

Non-Contact EF-Detection

Typical Voltage	Bar-Graph Indication
20V (tolerance: 10V ~ 36V)	-
55V (tolerance: 23V ~ 83V)	--
110V (tolerance: 59V ~ 165V)	---
220V (tolerance: 124V ~ 330V)	----
440V (tolerance: 250V ~ 600V)	-----

Indication: Bar-graph segments & audible beep tones proportional to the field strength
Detection Frequency: 50/60Hz
Detection Antenna: Inside the top side of the stationary jaw
Probe-Contact EF-Detection: For more precise indication of live wires, such as distinguishing between live and ground connections, use one single probe to test via terminal COM for direct contact EF-Detection with best sensitivity.

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