

# Full Functions & True-RMS For Your Tasks In 600A Cat-III 600V Areas!

BeepLit™ Continuity & Diode, CREST MaxMin, REC MaxMin, Relative, Hold, Backlight  
AmpTip™ ACA DCA, LPF ACV, LPF Hz, DCV, MΩ, Cx, °C, °F, μA, Hi-Lo EF NCV

## BM030 SERIES

Patented AmpTip™ Jaws  
Clamp-on DMM



Bright People's Choice



www.brymen.com

WW Patented:  
I442059  
2359464  
Nr 20 2011 052 429.9  
US 8,754,636 B2  
M383120  
1530122  
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US 8,504,604 B2  
I414796  
ZL201010271977.9  
Nr 20 2010 017 434.1  
US 8,432,172 B2  
& Patents Pending



Intertek



BM037



BM035



BM033



BM031

037	035	033	031	FUNCTIONS & FEATURES
•	•			600A DC/AC Hall-effect Jaws, Max 26mm conductor size
		•	•	600A AC Extra-slim Jaws, Max 26mm conductor size
•	•			Regular DCA 600.0A range + AmpTip™ DCA 60.00A range
•	~6kΩ	•	~6kΩ	Ohm ranges 600.0Ω, 6.000kΩ, 60.00kΩ, 600.0kΩ, ~6000kΩ
•		•		Type-K temperature -40.0°C to 400°C or -40.0°F to 752°F selectable
•		•		Cx ranges 200.0μF to 2500μF for start & run motor capacitors
•		•		Line-level ACV Frequency (LPF Added) 5.00Hz up to 999.9Hz
•		•		DCμA ranges 200.0μA to 2000μA (via probes) for HVAC flame sensors
•	•	•	•	6,000 counts 3-5/6 digits LCD display; Updates 5/sec
•	•	•	•	AmpTip™ Low-current-range calibrated at Jaw-tip for thin-conductors
•	•	•	•	600V AC/DC input protection on General functions
•	•	•	•	True RMS AC Voltage and Current functions
•	•	•	•	LPF Added On ACV For Fundamentals Of VFDs And Noisy Signals
•	•	•	•	Back-lighted easy-to-read LCD Display
•	•	•	•	Intelligent Auto Power Off
•	•	•	•	Data HOLD
•	•	•	•	RECORD MAX/MIN mode (Auto-ranging)
•	•	•	•	5ms CREST MAX/MIN mode to capture instantaneous +Peak & -Peak
•	•	•	•	Relative mode (Auto-ranging) with DC-Zero mode on DCA ranges
•	•	•	•	Non-Contact EF-Detection (NCV) with Hi/Lo Selectable Sensitivities
•	•	•	•	Probe-Contact EF-Detection for more precise indication of live
•	•	•	•	ACV (LPF Added) range 600.0V; DCV range 600.0V
•	•	•	•	BeepLit™ Continuity. Features Audible Beep & Visible Backlight effects
•	•	•	•	BeepLit™ Diode. Features 0.85V Beep-Alert, and <0.1V BeepLit™ effects
•	•	•	•	Regular ACA 600.0A range + AmpTip™ ACA 60.00A range
•	•	•	•	Soft carrying pouch
•	•	•	•	Rugged fire retarded housing
•	•	•	•	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

# Compact AC/DC 600A! Cat-III 600V! AmpTip™! Precise Rotary Switch!

AmpTip™ To Fit, Accurate To Read, Compact To Carry, Safe To Trust, Reliable To Last  
Body width <50mm For Handy Operations, Overall Length <190mm For Easy Carrying

## PATENTED AmpTip™ CLAMP JAWS

Easy Access & Excellent Repeatability  
For Measuring Thin Conductors In Tight Areas

## LVD CAT III 600V & CAT IV 300V

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

## REGULAR CURRENT

Measures At Jaw Center For  
Regular Conductors Up To 600 Amps

## AmpTip™ LOW-CURRENTS

Ergonomically Measures At Jaw Tip For  
Small-sized Thin Conductors Up To 60 Amps

## 1.0% DCV BASIC ACCURACY

Measures Up To 600V DC

## DIRECT LPF ACV & Hz FOR VFD

Measures Voltage & Frequency  
Of Most Variable Frequency Drives  
And Noisy Electrical Signals  
Up To 600V AC

## BACKLIGHTED LCD DISPLAY

For Easy Viewing In The Dark

## FULLY AUTO-RANGING

Shortens The Time To Measure  
And Increases The Ease Of Use

## INTELLIGENT AUTO-POWER-OFF (APO)

Stays ON While In Measurements;  
Intelligently Turns OFF To Extend Battery Life

## ERGONOMIC & STREAMLINE BODY

Body width <50mm Fits Nicely In A Hand  
Overall Length <190mm For Easy Carrying

## TRUE RMS MEASUREMENTS

For Non-sinusoidal & Complex  
Waveforms Of Voltages & Currents

## RUGGED & DURABLE

Robust Enclosure;  
Precise & Reliable Rotary Switch;  
Premium Plating & Low Leakage PCB

## EMC

Superior Immunity To Interference;  
Reliable Operations And Readings;  
Meets The Latest EN61326-1



## DUAL SENSITIVITIES EF-DETECTION

Features Non-Contact (NCV) & Single-Probe  
Voltage Detection For Identifying Live Lines;  
Added User Selectable Hi/Lo Sensitivities

## MAX CONDUCTOR SIZE 26mm, 600Amps

Features 600A Extra-slim Jaws ACA Models  
And Hall-effect Jaws ACA/DCA Models

## CREST MaxMin IN-RUSH CURRENTS

Fast Captures In-rush +/- Peak Signals  
At Durations As Short As 5ms;  
Automatic APO Disable Feature

## REC MaxMin DISPLAY READINGS

Records Max & Min Readings Over Time;  
Automatic APO Disable Feature

## RELATIVE ZERO & DC\_ZERO

REL For Convenient Readings Comparison;  
DC\_Zero For DCA Residue Offset (BM037 & 035)

## DATA HOLD

Freezes The Displaying  
Reading For Later View

## INNOVATIVE BeepLit™ DIODE TEST

Short-Beep Alert On Forward Voltages <0.85V;  
Beep & Backlight Effects For Shorted Diodes

## DCμA (BM037 & 033)

For HVAC Flame Sensors  
Testing Via Test Probes

## TYPE-K TEMPERATURE (BM037 & 033)

Selectable °C And °F Readings;  
Comes With Bkp60 Bead Probe

## CAPACITANCE (BM037 & 033)

2 Auto-ranges Up To 2500μF  
To Measure Motor Capacitors

## INNOVATIVE BeepLit™ CONTINUITY

Quick Open-short Tests On Switches And Wires;  
Beep & Backlight Effects For Noisy Environments

## RESISTANCE

Best Resolution 0.1Ω At 600Ω Range;  
2 Auto-ranges Up To 6kΩ (BM035 & 031);  
5 Auto-ranges Up To 6000kΩ (BM037 & 033)

## TRANSIENT PROTECTION

Up To 6kV 1.2/50μs Lightning Surge;  
Fully Certified By Independent Test Lab;  
Years Of Credibility 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 0.1 x (specified accuracy) / °C @ (0°C -- 18°C or 28°C -- 40°C), or otherwise specified  
**Sensing:** True RMS  
**Safety:** Certified per IEC/UL/CSA\_C22.2\_#/EN standards:  
 61010-1 Ed. 3.0, 61010-2-032 Ed. 3.0, 61010-2-033 Ed. 1.0 & 61010-031 Ed. 2.0 to Measurement Categories CAT III 600V and CAT IV 300V ac & dc  
**Transient Protection:** 6.0kV (1.2/50µs surge)  
**Overload Protections:**  
 Current via jaws: 600Adc/Aac rms at <400Hz  
 Voltage via terminals: 660Vdc / 920Vac rms  
 Other functions via terminals: 600Vdc/Vac rms  
**E.M.C.:** Meets EN61326-1  
 DCA and ACA Functions, in an RF field of 1V/m:  
 Total Accuracy = Specified Accuracy + 40 digits at around 87MHz  
 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 14mA for Current functions of BM037 & BM035; 4mA for others  
**Low Battery Indication:**  
 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):** 188 x 66 x 32mm  
**Weight:** 202g for BM037 & BM035; 158g for BM033 & BM031  
**Jaw opening & Conductor diameter :** 26mm max  
**Accessories:** Test lead set, User's manual, Soft carrying pouch, Bkp60 banana plug type-K thermocouple (BM037 & BM033 only),  
**Optional purchase accessories:** BKB32 banana plug to type-K socket plug adaptor (BM037 & BM033 only)  
**Special Features:** AmpTip™ low-current range; MAX/MIN Recording mode; MAX/MIN Crest (Peak-Hold) mode; Relative-Zero mode; Display Hold; EF-Detection (NCV); BeepLit™ Feature

## ELECTRICAL SPECIFICATIONS

Accuracy is ±(% reading digits + number of digits) or otherwise specified, at 23°C ± 5°C.  
 Maximum Crest Factor < 2 : 1 at full scale & < 4 : 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 Low-Pass Filter)

RANGE	Accuracy
50Hz ~ 60Hz	
600.0V	1.5% + 5d

Input Impedance: 10MΩ, 100 pF nominal

### Ohm

RANGE	Accuracy
600.0Ω, 6.000KΩ (All models)	1.0% + 5d
600.0Ω, 60.00kΩ, 600.0kΩ, 6000kΩ (BM037 & BM033 only)	

Open Circuit Voltage: 1.0VDC typical

### BeepLit™ Continuity Tester:

Continuity Threshold: Between 30Ω and 480Ω  
 Continuity ON Response Time: 15ms approx.  
 Audible Indication: Beep sound  
 Visible Indication: LCD Backlight

### Capacitance (BM037 & BM033 only)

RANGE	Accuracy <sup>1)</sup>
200.0µF, 2500µF	2.0% + 4d

<sup>1)</sup>Accuracies with film capacitor or better

### BeepLit™ Diode Tester

RANGE	Accuracy
3.000V	1.5% + 5d

Test Current: 0.3mA typically  
 Open Circuit Voltage: < 3.5VDC typically  
 Short Beep Alert Threshold: Drop across 0.850V  
 BeepLit™ ON Threshold: < 0.100V  
 Audible Indication: Beep sound  
 Visible Indication: LCD Backlight

### DCµA (BM037 & BM033 only)

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

### Temperature (BM037 & BM033 only)

RANGE	Accuracy <sup>1) 2)</sup>
-40.0 °C ~ 99.9 °C	1.0% + 1.0°C
100 °C ~ 400 °C	1.0% + 1°C
-40.0 °F ~ 211.8 °F	1.0% + 2.0°F
212 °F ~ 752 °F	1.0% + 2°F

<sup>1)</sup>Accuracies assume meter interior has the same temperature of the ambient (isothermal stage) for a correct junction voltage compensation. Allow the meter and the type-K probe set to reach isothermal stage for a significant change of ambient temperature. It can take up to an hour for changes > 5°C.  
<sup>2)</sup>Type-K thermocouple range & accuracy not included

### Clamp-on AmpTip™ ACA

RANGE	Accuracy <sup>1)</sup>
50Hz ~ 60Hz	
60.00A	1.0% + 5d

<sup>1)</sup>Induced error from adjacent current-carrying conductor:  
 <0.01A/A for BM037 & BM035  
 <0.06A/A for BM033 & BM031

### Clamp-on AmpTip™ DCA (BM037 & BM035 only)

RANGE	Accuracy <sup>1) 2) 3)</sup>
60.00A	1.0% + 5d

<sup>1)</sup>Induced error from adjacent current-carrying conductor: <0.01A/A

<sup>2)</sup>Specified with DC-Zero mode applied to offset the non-zero residual readings, if any

<sup>3)</sup>Add 5d to the specified accuracy @ < 4A

### Clamp-on Regular ACA

RANGE	Accuracy <sup>1) 2)</sup>
50Hz ~ 100Hz	
600.0A	1.5% + 5d
100Hz ~ 400Hz	
600.0A	2.0% + 5d

<sup>1)</sup>Induced error from adjacent current-carrying conductor:

<0.1A/A for BM037 & BM035

<0.6A/A for BM033 & BM031

<sup>2)</sup>For BM033 & BM031, 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

### Clamp-on Regular DCA (BM037 & BM035 only)

RANGE	Accuracy <sup>1) 2)</sup>
600.0A	2.0% + 5d

<sup>1)</sup>Induced error from adjacent current-carrying conductor: <0.1A/A

<sup>2)</sup>Specified with DC-Zero mode applied to offset the non-zero residual readings, if any

### Hz Line Level Frequency (BM037 & BM033 only)

Function	Sensitivity <sup>1)</sup> (Sine RMS)	Range
600V	50V	5.00Hz ~ 999.9Hz

Accuracy: 1%+5d

<sup>1)</sup>DC-bias, if any, not more than 50% of Sine RMS

### Non-Contact EF-Detection

Bar-Graph Indication	EF-H (Hi Sensitivity)	EF-L (Lo Sensitivity)
	Typical Voltage (Tolerance)	
-	10V (2V ~ 20V)	40V (10V ~ 70V)
--	20V (4V ~ 40V)	80V (20V ~ 140V)
---	40V (8V ~ 70V)	160V (40V ~ 280V)
----	80V (16V ~ 140V)	320V (80V ~ 560V)
-----	160V (>40V)	500V (>160V)

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 metal Probe-Contact EF-Detection to achieve the most distinctive indication.

### CREST (Peak-Hold):

Applicability: Voltage and Non-invasion Current functions

Accuracy: Add +/- 250 digits to specified accuracy for changes > 5ms in duration



BRYMEN TECHNOLOGY CORPORATION



www.brymen.com

TEL: +886 2 2226 3396 (rep)  
 FAX: +886 2 2225 0025

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