

Welectron.

Complementary DCV & True-RMS ACV Numeric LCD Readings!

CAT-III 1kV Rated, EN61243-3:2014 3rd Edition Compliance!

Battery-less Operating Voltages & ELV Limit LED Indications!

User Replaceable IP2x Probes!



CE

BT-70EU Series
Electrical Testers

BRYMEN®

BRIGHT PEOPLE'S CHOICE
<http://www.brymen.com>

Battery-less LED Voltage Detection + Battery Powered Functions!

IP65, Detachable IP2X Probe Option, Backlite LCD & Flash-light!

Ohms, Cx, Continuity, RST Sequence, RCD, EF-Detection, ELV & AC Shaker!

DETACHABLE (BLACK) TEST LEAD
STANDARD 4mm PLUG DESIGN FOR
EASY USER REPLACEMENT

SCREW-ON STATIONARY (RED) PROBE BODY
SCREW-ON DESIGN FOR
EASY USER REPLACEMENT

INTELLIGENT AUTO ON & OFF
AUTOMATIC POWER ON & POWER OFF
TO EXTEND BATTERY LIFE

AUTOMATIC DCV, ACV & CONTINUITY SELECTION
SHORTENS THE TIME TO TEST
AND INCREASES THE EASE OF USE

AC-DETECTION SHAKER
THE SHAKER SIGNALS THAT
SIGNIFICANT ACV IS BEING MEASURED

LEAKAGE LOAD FOR RCD
INTERNAL LEAKAGE LOAD PROVIDED.
TYPICAL LEAKAGE CURRENT 30mA AT 230V
(USA GFCI VERSION ALSO AVAILABLE)

CAPACITANCE FUNCTION
199.9 μ F & 1999 μ F 2 RANGES

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

ELV LIMIT INDICATION (BATTERY-LESS)
THE LED INDICATES THE PRESENCE OF A VOLTAGE
BEYOND THE ELV LIMIT (120 VDC/50 VAC) WITH
POWER SUPPLIED BY THE TEST OBJECT,
WITHOUT THE NEED OF BATTERY POWER

BATTERY-LESS VOLTAGE DETECTION
LEDS INDICATE THE PRESENCE OF VOLTAGES
WITH POWER SUPPLIED BY THE TEST OBJECT,
WITHOUT THE NEED OF BATTERY POWER

LVD CAT III & CAT IV SAFETY
MEETS EN61010 AND EN61243-3
ED. 3, TO CAT III 1000V & CAT IV 600V

19mm PROBE PITCH
FOR EUROPEAN RECEPTACLE TESTING

IP2X 4mm TIPS DETACHABLE PROBES
SPRING RETRACTABLE SHROUDED 4mm TIPS
FOR IEC61010 + IEC61243-3 Ed. 3 VERSION;
OPTIONAL 2mm+CAP/4mm FOR MERE IEC61010

EMC
MEETS EN61326-1:2013

RST PHASE SEQUENCE INDICATION
CONVENIENT PHASE ROTATION TESTING
BY USING ONLY TWO POLES

BACKLIT LCD & FLASH-LIGHT
FOR MORE PRECISE INDICATION
& EASY VIEWING IN THE DARK

RESISTANCE FUNCTION
1.999k Ω , 19.99k Ω , 199.9k Ω
& 1000k Ω 4 RANGES

EF-DETECTION
BOTH NON-CONTACT & SINGLE-
PROBE VOLTAGE DETECTION
FOR IDENTIFYING LIVE LINES
AND THUS THE POLARITY

ERGONOMIC STREAMLINE DESIGN
FITS COMFORTABLY IN ONE'S HAND

UP TO 1kV VOLTAGE TESTING
IMPROVED TESTING CAPABILITIES

DOUBLE INJECTION HOUSING
SEAMLESS OVER-MOLDED
PUSH-BUTTON SWITCHES AND
LED / LCD DISPLAY WINDOWS
FOR HARSH ENVIRONMENTS

DC AND AC INDICATIONS
+V LIGHTS UP FOR CORRECT DC POLARITY,
-V LIGHTS UP FOR REVERSED DC POLARITY
BOTH +V & -V LIGHT UP FOR AC INDICATION

TRANSIENT PROTECTION
UP TO 8kV 1.2/50 μ s LIGHTNING SURGE;
SUPERB PROTECTION FOR SERIOUS USERS





BT-75EU



BT-73EU



BT-71EU

75EU	73EU	71EU	FUNCTIONS & FEATURES
●	●	●	Handy & Stylish, Fits Comfortably In One's Hand
●	●	●	19mm Probe Pitch For Quick European Receptacle Testing
●	●	●	4mm Test Tips With IP2X Retractable Shroud For IEC61243-3 Ed3
●	●	●	Detachable (Black) Test Lead For Easy Replacement
●	●	●	User Replaceable Screw-On Stationary (Red) Probe Body
●	●	●	Battery-less ELV Limit (120VDC/50VAC) LED Indication
●	●	●	Battery-less DCV & ACV Auto-selection With LED Polarity Indication
●	●	●	Battery-less DCV 8-Ranges LED Indication: 12, 24, ... To 1000V
●	●	●	Battery-less ACV 8-Ranges LED Indication: 12, 24, ... To 1000V
●	●	●	Automatic Power On & Power Off
●	●	●	Non-Contact EF-Detection (NCV)
●	●	●	Probe-Contact EF-Detection For More Precise Indication Of Live
●	●	●	Continuity: Audible Beeper & Visible LED Indications
●	●		Display Backlight & Flash-light For Easy Viewing In The Dark
●	●		True-RMS ACV Readings On LCD Numeric Display
●	●		AC-Detection Shaker Indicates ACV Is Being Measured
●	●		RCD Leakage Load for Tripping 230VAC/30mA RCD Circuit Breakers
●	●		RST Phase Sequence/Rotation Indication
●			Capacitance Function 2 Ranges: 199.9 μ F & 1999 μ F
●			Resistance Function 4 Ranges: 1.999k Ω , 19.99k Ω , 199.9k Ω & 1000k Ω
●	●	●	Low Battery Warning For Battery Operated Functions and Features
●	●	●	Battery Access Door
●	●	●	Rugged Fire Retarded Double Injected Casing
●	●	●	Water And Dust Resistance; IP65 Per EN60529
●	●	●	Transient Protection 8kV 1.2/50 μ s Lightning Surge
●	●	●	LVD EN61010 & EN61243-3 Ed3 CAT-III 1kV & CAT-IV 600V
●	●	●	EMC EN61326-1:2013

GENERAL SPECIFICATIONS

LCD Display (BT-75EU & BT-73EU only):

1999 counts

Display Update Rate (BT-75EU & BT-73EU only):

5 per second nominal

Operating Temperature: -10°C ~ 50°C

Relative Humidity: ≤90%

Altitude: Operating below 2000m

Storage Temperature: -20°C ~ 65°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: TRMS sensing for LCD indication; Averaging sensing for LED indication

Measurement Category: CAT III 1000V & CAT IV 600V AC & DC

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

For LCD display only:

Total accuracy = Specified accuracy + 45d @ an RF

Field of 3V/m.

Type of Protection: IP65 (Certified by SGS UK)

Pollution Degree: 2

Safety: Meets IEC/EN61010-1 Ed. 3.0,

IEC/EN61010-2-033 Ed. 1.0, IEC/EN61243-3:2014 to CAT III 1000V & CAT IV 600V

Transient Protection: 8kV lightning surge (1.2/50μs)

Overload Protection: 1100VDC & VAC rms

Low Battery: Below approx. 2.6V

Power Supply: 1.5V AAA Size (NEDA 24A or IEC LR03) alkaline battery X 2

APO Timing:

Resistance and Capacitance functions: Idle for 8 seconds

Other functions: Idle for 16 seconds

Battery Power Consumption (typical):

BT-71EU:

1mA for Power-on ready

40mA for Buzzer on @ Continuity or EF function

BT-75EU & BT-73EU:

2.7mA for Power-on ready & DCV

50mA for ACV (with shaker on)

105mA for RCD

40mA for Buzzer on @ Continuity or EF function

55mA for Resistance or Capacitance

Add 30mA for Backlight on

APO Consumption (typical): 12μA for BT-75EU & BT-73EU; 6μA for BT-71EU

Dimension: L278mm x W57mm x H40mm

Weight: Approx. 235gm

Special Features: EF-Detection; LCD indication (BT-75EU & BT-73EU only), AC-Detection Shaker (BT-75EU & BT-73EU only); RCD Leakage-Path (BT-75EU & BT-73EU only); RST Phase Rotation Detection (BT-75EU & BT-73EU only); Resistance and Capacitance functions (BT-75EU only)

Accessories: Batteries, User's manual, Screw-on stationary red probe and detachable leaded black probe

Electrical Specification

Accuracy is given as ± (% of reading digits + number of digits) or otherwise specified @ 23°C ± 5°C.

Maximum Crest Factor <2:1 at full scale & <4:1 at half scale, and with frequency components fall within the tester specified frequency bandwidth for non-sinusoidal waveforms

DC & AC Operating Voltage, LED Successive Indication

Voltage Marking	Typical Turn-ON Threshold (% of Voltage Marking)	Typical Turn-OFF Threshold (% of Pre-Voltage Marking)
12V	9.6V (80%)	7V
24V	19.2V (80%)	14V (116%)
50V	40V (80%)	33V (137%)
120V	96V (80%)	67V (134%)
230V	184V (80%)	140V (117%)
400V	320V (80%)	283V (123%)
690V	552V (80%)	490V (122%)
1000V	800V (80%)	760V (110%)

LED Threshold ON: < 85% of Voltage Marking.

LED Threshold OFF: > 110% of Pre-Voltage Marking.

Input Impedance:

12V, 24V, 50V Voltage Markings: 100kΩ, 160pF nominal

120V, 230V, 400V, 690V, 1000V Voltage Markings: 200kΩ ~ 500kΩ vary linearly,

160pF nominal

ACV Frequency Response: 45Hz ~ 65Hz

Duty ratio:

Continuous @ ≤ 300V

Time rating (t_r) ON for 30 seconds & Recovery time (t_r) OFF for 2 minutes @ > 300V

DC & AC Operating Voltage, LCD Numeric Indication (BT-75EU & BT-73EU only)

RANGE	Auto-Power-ON Threshold	Accuracy
DC 199.9V, 1000V	> +27VDC or < -4.5VDC	1.5%+3d
AC 199.9V, 1000V	> 8VAC	2.5%+4d

Input Impedance:

12V, 24V, 50V Voltage Markings: 100kΩ, 160pF nominal

120V, 230V, 400V, 690V, 1000V Voltage Markings: 200kΩ ~ 500kΩ vary linearly,

160pF nominal

ACV Frequency Response: 45Hz ~ 65Hz

Duty ratio:

Continuous @ ≤ 300V

Time rating (t_r) ON for 30 seconds & Recovery time (t_r) OFF for 2 minutes @ > 300V

AC-Detection Shaker (BT-75EU & BT-73EU only)

Shaker Threshold: Between 8V and 15V ac

Audible Continuity

Open Circuit Voltage: 0.7DC typical

Audible Threshold:

Between 500kΩ and 750kΩ for BT-75EU & BT-73EU

Between 1MΩ and 1.5MΩ for BT-71EU

RCD Leakage-Path (BT-75EU & BT-73EU only)

RCD Circuit Breakers intended: 30mA/230Vac

Activation inhibited: at <201V or >264V

Activation indication: Flashing RCD-LED accompanied with beep sound

Path Impedance: 6.1kΩ nominal, PTC protected

Path Current: ≥30mA typical at 230V

Activation interval¹⁾: Maximum 5 seconds with automatic cutoff

¹⁾ In the event of a full continuous 5 second activation interval, the protection PTC will heat up and affect the load current magnitude thereafter. Allow cooling for 120 seconds before the next activation then.

RST 3-Phase Rotation Detection (BT-75EU & BT-73EU only)

Voltage Range: 165V ~ 1000V

Frequency Range: 45Hz ~ 65Hz

Applications: Intended for Y-connection 3P4W and High-leg Δ-connection 3P3W systems. Not intended for Δ-connection 3P3W systems without an earth-ground neutral.

Electric Field EF-Detection

Non-Contact EF-Detection: An antenna is located at the top-right side of the tester

Probe-Contact EF-Detection: Via Black (-) test probe for direct-contact detection. It is mainly for identification of live connections using maximum sensitivity.

Detection Frequency: 50/60Hz

Strength Indication: Signal strength is indicated by the flashing rate of 

Continuity-LED accompanied with beep sound. BT-75EU & BT-73EU also display successive bar-graph segments proportional to the field strength on LCD. Typical Non-Contact EF-Detection values are shown in the following table.

Typical Non-Contact Voltage Range			LCD Bar-Graph Indication
LED Flashing Rate	BT-71EU	BT-75EU & BT-73EU	BT-75EU & BT-73EU
#1	80V to 250V	15V to 55V	-
#2	150V to 450V	30V to 95V	--
#3	300V to 700V	55V to 170V	---
#4	Above 500V	Above 120V	----

OHM¹⁾ (BT-75EU only)

RANGE	Accuracy
1.999kΩ, 19.99kΩ, 199.9kΩ, 1000kΩ	2.5%+5d

Open Circuit Voltage: 1.0Vdc typical

¹⁾ Resistance function shares the same PTC protection of RCD Leakage-Path function.

For specified accuracy, allow cooling for 120 seconds especially right after a full continuous 5 second RCD activation interval.

Capacitance¹⁾ (BT-75EU only)

RANGE	Accuracy
199.9 μF ²⁾	2.5%+5d
1999 μF	5.0%+5d

¹⁾ Capacitance function shares the same PTC protection of RCD Leakage-Path function.

For specified accuracy, allow cooling for 120 seconds especially right after a full continuous 5 second RCD activation interval.

²⁾ Specification +10d @ <25.0 μF

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