





## **ALWAYS READ THESE INSTRUCTIONS BEFORE PROCEEDING**

Thank you for using one of our products. For safety and a full understanding of its benefits please read this manual before use. Technical support is available from +44 (0)1923 441717 and support@martindale-electric.co.uk.

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# 1 SAFETY INFORMATION

## **REMEMBER: SAFETY IS NO ACCIDENT**

These instructions contain both information and warnings that are necessary for the safe operation and maintenance of this product. It is recommended that you read the instructions carefully and ensure that the contents are fully understood. Failure to understand and to comply with the warnings and instructions can result in serious injury, damage or even death.

Particular attention should be paid to the Warnings, Precautions and Technical Specifications.

Please keep these instructions for future reference. Updated instructions and product information are available at: [www.martindale-electric.co.uk](http://www.martindale-electric.co.uk)

### 1.1 Meaning of Symbols and Markings



**Caution - risk of danger & refer to instructions**



**Caution - risk of electric shock**



**Equipment protected by double or reinforced insulation (Class II)**

**CAT II (Measurement Category II)** is applicable to test and measuring equipment connected directly to utilisation points (socket outlets and similar points) of the low-voltage MAINS installation.

**CAT III (Measurement Category III)** Measurement Category III is applicable to test and measuring circuits connected at the source of the building's low-voltage MAINS installation.

For further information on measurement categories refer to page 7, or visit [martindale-electric.co.uk/measurement\\_categories.php](http://martindale-electric.co.uk/measurement_categories.php)



**Equipment complies with relevant Directives**



**Equipment complies with relevant UK conformity assessed marking**



**End of life disposal of this equipment should be in accordance with relevant directives**

## 1.2 Precautions

This product has been designed with your safety in mind, but please pay attention to the following warnings and cautions before use.

### Warnings

In order to avoid the danger of electrical shock, it is important that proper safety measures are taken when working with voltages exceeding the extra low voltage (ELV) limit of 50V (25V) AC RMS or 120V (60V) DC. The values in brackets are valid for limited ranges (as for example in the medicine or agriculture).

Where applicable other safety measures such as use of protective gloves, goggles etc. should be employed.

This check plug must only be used by a skilled and competent person who is familiar with the relevant regulations, the safety risks involved and the consequent normal safe working practices, and under the conditions and for the purposes for which it has been constructed and specified.

Before each use the check plug should be examined for damage, cracks, cuts or scratches. The 16A/32A plug cable has contrasting outer and inner insulation, to allow damage to the cable to be easily identified. **Do not use** if damaged in any way.

Make sure the check plug is dry, clean and free from dust, grease and moisture while in use.

This check plug must only be used on CAT III and CAT II installations up to 300V to earth.

Always verify the unit is functioning correctly on a known correctly-wired live socket before and after use.

If the equipment is used in a manner not specified by Martindale Electric, the protection provided by the equipment may be impaired.

If the indicators do not illuminate, this does not necessarily mean the circuit under test is dead. E.g. the earth and neutral lines could both be open circuit.

### **Cautions**

Avoid severe mechanical shock or vibration and extreme temperature.

## **2. INTRODUCTION**

### **2.1 Inspection**

Examine the shipping carton for any sign of damage. Inspect the unit and any accessories for damage. If there is any damage then consult your distributor immediately.

### **2.2 Description**

The BZ201 check plug is a socket tester designed for the fast and safe checking of 200 to 250V, 16A and 32A industrial sockets

There are two versions of the check plug, one is fitted with a blue, 16A, 3-pin plug, and the other is fitted with a blue, 32A, 3-pin plug, both to BS EN 60309-1 (BS4343).

Three indicator LED's across the front of the unit provide a clear indication of a correctly wired socket.

The check plug's moulded body gives lasting durability and is maintenance free.

### 3. OPERATION

Verify the BZ201 in a known correctly wired live socket before and after use. If any indicators do not illuminate or the buzzer does not emit a continuous tone, then do not use the BZ201 and return it for repair.

#### 3.1 Buzzer

Table 1 shows the buzzer response for the various wiring and test conditions.

Table 1:

<b>Continuous tone</b>	Wiring correct
<b>Pulsed tone</b>	Faulty wiring
	Supply voltage out of tolerance

Simply plug the check plug into a live 16A/32A socket and switch the socket on.

Three indicator LED's across the front of the unit provide a clear indication of a correctly wired socket.

Fault indications are quickly identified using the key on the face label.

Additional information can be found in the table below, showing 32 wiring conditions, of which 28 are faults that require investigation.











In the event that a fault is indicated, investigation should only be carried out by a suitably qualified electrician.

NOTE: This unit, in common with other simple socket testers, cannot detect Earth / Neutral reversal.

### 3.2 Wiring and voltage check

The condition of the wiring at the socket under test or any out of tolerance supply voltage will be indicated by the LED sequences of figure 1 on the row of LED's.

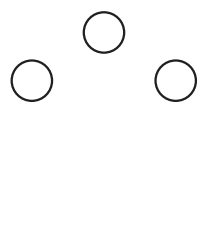
*Figure 1. Wiring and Voltage Test Indicators (LED's)*

	<b>Wiring Correct, Voltage OK</b>
	<b>Wiring Correct, Voltage high &gt;270V</b>
	<b>Wiring Correct, Voltage low &lt;195V</b>
	<b>Earth-Neutral voltage &gt;30V</b>
	<b>Open Neutral</b>
	<b>Open Earth &gt;500Ω</b>
	<b>Phase (Live) Fault</b>
	<b>Phase-Neutral Reversal</b>
	<b>Phase-Earth Reversal</b>
	<b>Serious wiring fault or voltage &lt;135V</b>

In the event of a fault being indicated, investigation should only be carried out by a suitably qualified electrician.

Figure 2. Socket wiring indications when live (phase) is connected.

N	E	L	
Socket Under Test Wiring			
N	E	L	
E	N	L	● ● ●
E	E	L	● ● ●
N	N	L	
OPEN	E	L	○
OPEN	N	L	
OPEN	L	E	● ○
OPEN	L	N	
N	OPEN	L	
E	OPEN	L	●
L	OPEN	E	○ ○
L	OPEN	N	
L	E	OPEN	
L	N	OPEN	○
E	L	OPEN	○ ●
N	L	OPEN	
L	E	N	
L	E	E	○
L	N	E	● ●
L	N	N	
E	L	L	
N	L	L	
N	L	E	
E	L	E	●
E	L	N	○ ●
N	L	N	
L	E	L	
L	N	L	

N	E	L	
<b>Socket Under Test Wiring</b>			
OPEN	OPEN	OPEN	
L	L	L	
L	L	OPEN	
L	OPEN	L	
OPEN	L	L	
L	OPEN	OPEN	
OPEN	L	OPEN	
OPEN	OPEN	L	

## **4. MAINTENANCE**

### **4.1 Cleaning**



Prior to cleaning, ensure the socket tester is disconnected from any voltage source.

If contamination is found, clean with a damp soft cloth and if necessary a mild detergent or alcohol. Do not use abrasives, abrasive solvents, or detergents which can cause damage to the unit. If a mild detergent is used, the unit should subsequently be thoroughly cleaned with a water dampened soft cloth. After cleaning, dry and allow to remain in a dry environment for 2 hours before use.

### **4.2 Repair & Service**

There are no user serviceable parts. Return to Martindale Electric if faulty. Our service department will quote promptly to repair any fault that occurs outside the guarantee period.

### **4.3 Storage Conditions**

The check plug should be kept in warm dry conditions away from direct sources of heat or sunlight, and in such a manner as to preserve their working life. It is strongly advised that they are not kept in a tool box where other tools may damage them.

## **5. WARRANTY AND LIMITATION OF LIABILITY**

This Martindale product is warranted to be free from defects in material and workmanship under normal use and service. The warranty period is 2 years and begins on the date of receipt by the end user. This warranty extends only to the original buyer or end-user customer, and does not apply to fuses, disposable batteries, test leads or to any product which, in Martindale's reasonable opinion, has been misused, altered, neglected, contaminated, or damaged by accident or abnormal conditions of operation, handling or storage.

Martindale authorised resellers shall extend this warranty on new and unused products to end-user customers only but have no authority to extend a greater or different warranty on behalf of Martindale.

Martindale's warranty obligation is limited, at Martindale's option, to refund of the purchase price, free of charge repair, or replacement of a defective product which is returned to Martindale within the warranty period.

This warranty is the buyer's sole and exclusive remedy and is in lieu of all other warranties, expressed or implied, including but not limited to any implied warranty of merchantability or fitness for a particular purpose. Martindale shall not be liable for any special, indirect, incidental or consequential damages or losses, including loss of data, arising from any cause or theory.

Since some jurisdictions do not allow limitation of the term of an implied warranty, or exclusion or limitation of incidental or consequential damages, the limitations and exclusions of this warranty may not apply to every buyer. If any part of any provision of this warranty is held invalid or unenforceable by a court or other decision-maker of competent jurisdiction, such holding will not affect the validity or enforceability of any other provision or other part of that provision.

Nothing in this statement reduces your statutory rights.

## MEASUREMENT CATEGORIES

### CAT Ratings

BS EN61010-1 Installation

Categories (CAT ratings) define the risks from hazardous transient impulses and potentially lethal short circuit currents on the mains supply system based on where you are working.

### Voltage Ratings

Test equipment used for measuring mains circuits will have a CAT rating to show where it can be used. Each category also has a voltage rating to show the maximum safe phase to earth system voltage, normally 50V, 100V, 150V, 300V, 600V or 1000V.

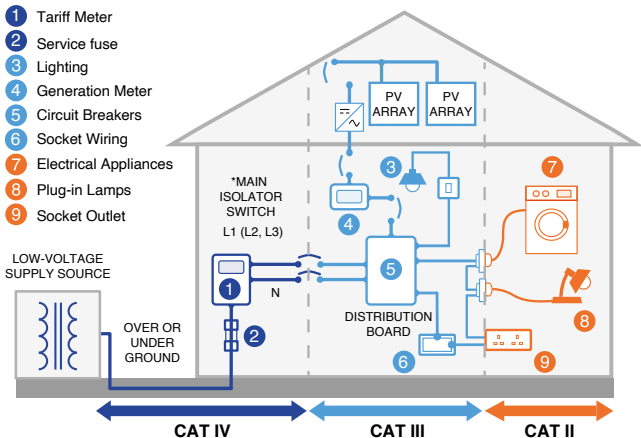
**Stay safe - Match your test equipment safety rating to the installation category.**

**CAT II:** Socket outlets and similar points of the mains installation.

**CAT III:** The distribution part of the building's mains installation.

**CAT IV:** The supply side source of the building's mains installation.

**Testers, leads and accessories all need safety ratings equivalent to, or higher than the installation category and voltage rating for the location to be safe.**





### Electrical

Nominal operating voltage: 230V~  $\pm 10\%$ .

Operating frequency: 50Hz

Power consumption: <2.5W

Power: from mains socket under test

Standby: after approx. 10 minutes

Voltage low indication: <195V  $\pm 5\%$

Voltage high indication: >270V  $\pm 5\%$

Earth neutral voltage high indication: >30V nominal

Open earth indication: >35k $\Omega$   $\pm 15\%$

### General

Dimensions: 91(L) x 80(W) x 38(D)mm

Weight: approx. 195g

### Environmental

Location: Indoor use & outdoor use in dry weather conditions only

Altitude: up to 2000m

Operating environment: -10°C to 40°C, at max. 60%RH

Mains supply voltage fluctuations:  $\pm 10\%$

Overvoltage category: CAT II 300V

Pollution degree: 2

### Safety

Conforms to BS EN 61010-1, CAT III 300V

Class II, double insulation

### EMC

Conforms to BS EN 61326-1, BS EN 61326-2-2





## Check out what else you can get from Martindale:

- 18th Edition Testers
- Accessories
- Cable Locators
- Calibration Equipment
- Continuity Testers
- Digital Clamp Meters
- Digital Multimeters
- Electricians' Kits
- Environmental Products
- Full Calibration & Repair Service
- Fuse Finders
- Labels
- Microwave Leakage Detectors
- Multifunction Testers
- PAT Testers & Accessories
- Phase Rotation Testers
- Proving Units
- Safe Isolation Kits
- Socket Testers
- Specialist Drummond Testers
- Thermometers & Probes
- Test Leads
- Voltage Indicators

Drummond products by Martindale Electric Co. Ltd. Metrohm House,  
12 Imperial Park, Imperial Way, Watford WD24 4PP. T: +44 (0)1923 441717  
[www.martindale-electric.co.uk](http://www.martindale-electric.co.uk) [sales@martindale-electric.co.uk](mailto:sales@martindale-electric.co.uk)

### Ver. F1.0

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