

PSI3000/3300 Phase Sequence Indicator

INSTRUCTION MANUAL



MARTINDALE

● ● ● **ELECTRIC**

Trusted by Professionals



GENERAL SAFETY INFORMATION: Always read before proceeding.

Warning

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.

In order to avoid the danger of electrical shock, it is important that proper safety measures are taken when working with voltages exceeding 30V AC RMS, 42V AC peak or 60V DC.







This product must only be used by a competent person capable of interpreting the results under the conditions and for the purposes for which it has been constructed. Particular attention should be paid to the Warnings, Precautions and Technical Specifications. Always check the unit is in good working order before use and that there are no signs of damage to it. Do not use if damaged.

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

Please keep these instructions for future reference. Updated instructions and product information are available at: <http://www.martindale-electric.co.uk/instruct>

REMEMBER: SAFETY IS NO ACCIDENT

MEANING OF SYMBOLS:

- | | |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
|  | Equipment complies with relevant EU Directives |
|  | 3 Phase AC (Alternating Current) |
|  | Equipment protected by Double Insulation (Class II) |
|  | Caution - refer to accompanying documents |
|  | Caution - risk of electric shock |
|  | End of life disposal of this equipment should be in accordance with relevant EU Directives |

Thank you for buying one of our products. For safety and full understanding of its benefits please read this manual before use. Technical support is available from 01923 441717 and support@martindale-electric.co.uk.

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1. INTRODUCTION

1.1 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.

You should have the following items:

1. Phase Sequence Indicator complete with 3 GS38 1M long fused prods.
2. Crocodile clips x 3 (red, yellow, blue)
3. Velcro straps x 2
4. Instruction manual

Note: These crocodile clips are rated at a higher overvoltage category than the PSI3000/3300 unit. Using them DOES NOT raise or improve the overvoltage category of the PSI3000/3300 unit.

1.2 Description

Phase Sequence Indicator with neon indication and rotating disc indication.

Versions available:

PSI3000 – Clockwise Rotation

PSI3300 – Anti-clockwise Rotation

The units illuminate all phase neons reliably for voltages above 100 Volts rms phase to phase.

The motor rotates above 200 Volts rms phase to phase.

The units are rated to: Overvoltage: CAT III 600V

 Overvoltage: CAT IV 300V

2. PRODUCT SPECIFIC SAFETY INFORMATION



2.1 Precautions

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

Warning

Before use check the unit for cracks or any other damage. Make sure the unit is free from dust, grease and moisture. Also check any associated leads and accessories for damage. Do not use if damaged.

Warning

DO NOT USE IN DAMP CONDITIONS

Avoid severe mechanical shock or vibration and extreme temperature.

This unit is designed to test 3 phase voltages of 415V AC and as such extreme caution is advised when using this instrument.

BE SURE TO KEEP FINGERS BEHIND THE FINGER GUARDS.

After connecting the first lead of the instrument to a supply voltage the un-connected test leads are a safety hazard. They should only be held behind the finger guard.

Extra care should be taken when using this instrument in dimly lit locations or at height.

Do not connect this instrument to single phase supplies.

Prove the functionality of this instrument before every use on a known live supply.

When replacing a blown fuse in the test leads, be sure to use fuses of the correct size and rating, see 3.1.

Disconnect all test leads from the supply before attempting to replace blown fuses.

3. OPERATION

3.1 Replacing Fuses

Each prod is fitted with a 600V 0.5A 50KA HRC rated fuse (6x32mm) and can be replaced by unscrewing the prod tip.

Replacement fuse: Martindale order code FUSE500 (pack of 3)

3.2 How it Works

TEST A To Prove Continuity

Connect the red, yellow and blue leads of the indicator to the phases R.Y.B. respectively, switch on the supply and, if continuity is complete, the three neons R (L1), Y (L2), B (L3) of the indicator will light as shown in Fig (1) or (5). The OK neon may also light, but should be ignored for this test.

Note: Neutral and earth connections are not tested. The tests will not simulate your normal usage load.

TEST B To Identify Faulty Line if Continuity is not Proved

The faulty phase is indicated by one of the three neons lighting, e.g. should the neon marked R light, it indicates that the Red line is faulty (see Fig 2). Similarly, Yellow and Blue line faults are indicated by their respective neons being lit (see Figs 3 and 4). When the fault has been corrected, phase continuity will be indicated as Fig (1) or (5).

TEST C To Identify the Sequence of Phase Rotation

According to the model number, the tester is configured for either clockwise (PSI3000) or anti-clockwise (PSI3300) rotation. First ensure that continuity is complete as test (A). If the phases arise at their source in the order red, yellow, blue, the motor indicator will rotate in the direction shown by the arrows and the OK light will illuminate as Fig (1). If the phases arise in the order red, blue,

yellow, then the motor indicator will rotate in the reverse direction and the OK lamp will not illuminate as Fig (5).

Note:- Fig 1-5 shows the PSI3000 version with clockwise arrow direction.

TEST D To Prove Connection of Colour Coding

Connect the leads as in test (A) to supply connections at incoming distribution box when the instrument will indicate the phase sequence as in Fig (1) or (5). If the installation is correct, a similar test at any other distribution box should produce the same indication. If at any individual test point the phase sequence is reversed, it is obvious that one or more of the phase colours have been cross connected. To rectify this, proceed as follows:

With the instrument in circuit withdraw a fuse (say on the red line) at the last test point proved correct. The indicator will show which lead is connected to the red line, i.e. if the neon marked Y remains lit, this means that the yellow lead of the tester is connected to the red phase of the supply.

Having identified the red supply phase (which is wrongly coded as yellow), interchange the yellow instrument lead with the red instrument lead. Replace the fuse and note the indication of the instrument R.Y.B. or R.B.Y. If the correct indication is given, the instrument lead colours should correspond to the phase colours. Withdrawal of the blue and yellow fuses in turn will be conclusive proof of correct identification. The phase connections may then be corrected as appropriate.

TEST E To Identify the Phase Colours of Worn, Faded or Unmarked Leads

Where the phase colour coding is known at the distribution box, but

cannot be identified at the test point, proceed as follows:-

Connect the leads of the instrument to the three phases under test (the order is immaterial), and make sure that phase continuity is complete as in test (A). With continuity in all phases, proceed as in test (D).

Note 1: The tester may be used to check 3 phase supplies with phase to phase voltages from 100V to 600V, and frequencies from 40Hz to 60Hz.

Note 2: Before and after using the tester, check for correct operation on a known voltage. The tester and leads should also be periodically examined for damage to insulation etc. If any damage is evident, the unit should not be used.

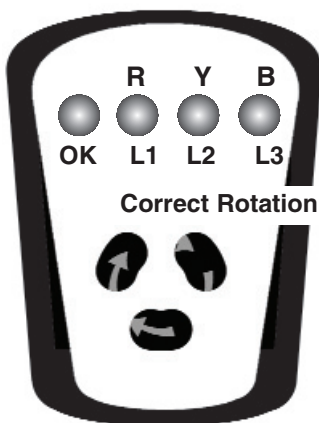


Figure 1.

Continuity proved with phase sequence red, yellow, blue

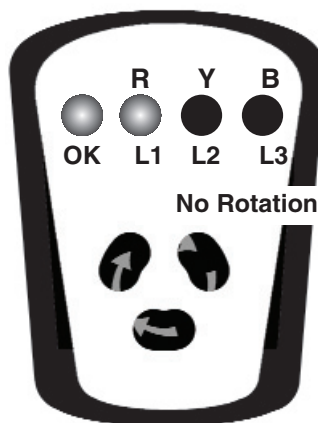


Figure 2.

Red Line Faulty

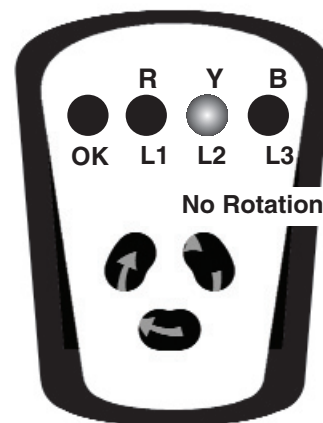


Figure 3.

Yellow Line Faulty

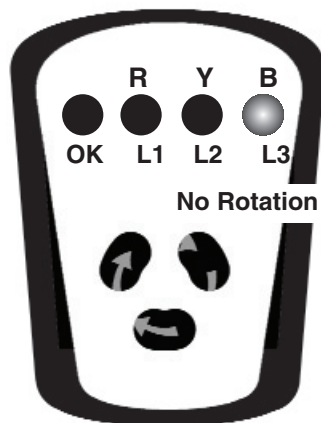


Figure 4.

Blue Line Faulty

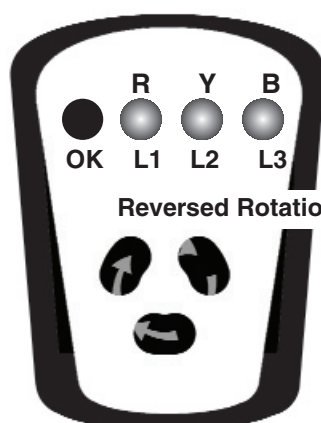
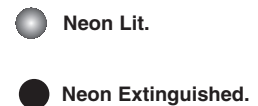


Figure 5.

Continuity proved with phase sequence red, blue, yellow



4. MAINTENANCE

4.1 Calibration

To maintain the integrity of measurements made using your instrument, Martindale Electric recommends that it is returned at least once a year to an approved Calibration Laboratory for recalibration and certification.

Martindale Electric is pleased to offer you this service. Please contact our Service Department for details.

E: service@martindale-electric.co.uk

T: 01923 650660

4.2 Cleaning

The unit may be cleaned using a soft dry cloth. Do not use moisture, abrasives, solvents, or detergents, which can be conductive.

4.3 Repair & Service

There are no user serviceable parts in this unit other than those that may be described in section 3. Return to Martindale Electric if faulty. Our service department will quote promptly to repair any fault that occurs outside the guarantee period.

Before the unit is returned, please ensure that you have checked the fuses.

4.4 Storage Conditions

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

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 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.

USER NOTES

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Specification
PSI3000/3300
phase rotation indicator



Model PSI3000 has clockwise disc rotation

Model PSI3300 has anti-clockwise disc rotation

For use on systems from 100V to 600V phase to phase, 40Hz to 60Hz

Neon indication from 100V phase to phase (RMS)

Rotating disc operation from 200V phase to phase (RMS)

Fitted with GS38 fused prods with 1M leads: 3 colour coded crocodile clips are included

Operating Temp: - 20°C to 40°C

Overvoltage: CAT III 600V

Overvoltage: CAT IV 300V

Fuses: each prod is fitted with a 600V 0.5A 50KA HRC rated fuse (6x32mm). Martindale order code FUSE500 (pack of 3)

Complies With: GS38 and BS EN 61010 & IEC 61010

Includes: 3 easy to fit crocodile clips

Degrees of protection: IP40

Altitude: up to 2000M

Pollution degree: 2

Check out what else you can get from Martindale:

- 16th Edition Testers
- Accessories
- Calibration Equipment
- Continuity Testers
- Electricians' Kits
- Environmental Products
- Full Calibration & Repair Service
- Fuse Finders
- Digital Clamp Meters
- Digital Multimeters
- Labels
- Microwave Leakage Detectors
- Motor Maintenance Equipment
- Multifunction Testers
- Non-trip Loop Testers
- Pat Testers & Accessories
- Phase Rotation Testers
- Proving Units
- Socket Testers
- Thermometers & Probes
- Test Leads
- Voltage Indicators
- Specialist Metrohm Testers (4 & 5kV)
- Specialist Drummond Testers

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