

PR450 Motor and Phase Rotation Tester



Introduction

Congratulations on your purchase of the Triplett PR450 Motor and Phase Rotation Tester. This handheld instrument detects the rotational field of three-phase systems and determines motor-rotation direction. Color-coded test leads are provided for connecting to the system or motor under test.

Safety

International Safety Symbols



Caution ! Refer to the explanation in this Manual



Caution ! Risk of electric shock



Earth (Ground)



Double Insulation or Reinforced insulation



AC, Alternating Current or Voltage



DC, Direct Current or Voltage

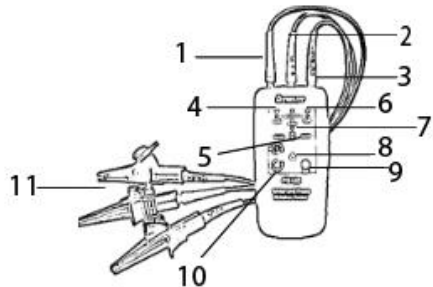
Safety Procedures

To avoid possible electric shock or fire, observe the following:

- Read the following information carefully before using or servicing the instrument.
- Adhere to local and national safety codes.
- Individual protective equipment must be used to prevent shock and injury.
- Use of instrument in a manner not specified by the manufacturer may impair safety features/protection provided by the equipment.
- Avoid working alone.
- Inspect the test leads for damaged insulation or exposed metal. Check test lead continuity. Damaged leads must be replaced. Do not use the meter if it appears damaged.
- Use care when working above 30V ac rms, 42V ac peak and 60V dc. Such voltages pose a shock hazard.
- When using the probes, keep fingers away from probe contacts. Keep fingers behind the finger guards on the probes.
- Measurements can be adversely affected by impedances of additional operating circuits connected in parallel or by transient currents.
- Verify operation prior to measuring hazardous voltages (voltages above 30V ac rms, 42V ac peak and 60V dc).
- Do not use the meter with any of the parts removed.
- Do not use the meter near explosive gas, vapor, or dust.
- Do not use the meter in a wet environment.

Meter Description

1. L1 test Lead input to meter
2. L3 test lead input to meter
3. L2 test lead input to meter
4. L1 status LED
5. Orientation symbol for non-contact testing
6. L3 status LED
7. L2 status LED
8. Power ON status LED
9. ON button
10. Left/Right Clockwise/Counter-Clockwise status LEDs
11. Test lead alligator clips



Operation

Determine Phase Rotation Direction

1. Connect the supplied color-coded test leads to the meter's test lead input jacks at the top of the meter.
2. Connect the test probes to the three mains phases for the system under test.
3. Press and Hold the ON button to turn the meter on.
4. L1, L2, and L3 indicators will illuminate for each phase connected, respectively.
5. The clockwise and counter-clockwise arrows with the left/right 'L' or 'R' icons display the phase rotation direction (phase sequence) of mains as connected.
6. To understand the status of a test, based on the condition of the meter's front panel LEDs, refer to the table printed on the meter:

Note: The rotational indicator LEDs illuminate even if one of the test probes is connected to a neutral or ground conductor instead of one of the mains phases.

Check Motor Turn Direction (contact method)

1. Connect the supplied color-coded test leads to the meter's test lead input jacks at the top of the meter.
2. Connect the test (alligator) probes to the three motor connections (L1 to U, L2 to V, and L3 to W).
3. Press and Hold the ON button. The green ON indicator shows that the instrument is ready for testing.
4. Turn the motor shaft continuously in a clock-wise rotation.

Note: you must rotate the shaft with enough speed to generate a voltage that can be detected.

5. The clockwise and counter-clockwise arrows with the left/right 'L' or 'R' icons display the orientation of the motor.

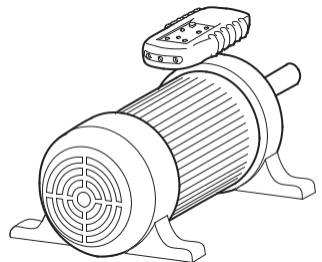
Check Motor Turn Direction (non-contact method)

1. Disconnect the test leads from the meter and from any other devices under test.
2. Hold the meter close (one inch or closer) to the motor, parallel to the length of the motor shaft.
3. The bottom of the meter should face the drive shaft and the back of the meter should be flush with the motor (refer to diagram at right).

Note: There is an orientation symbol on the meter to assist.

4. Press and Hold the ON button. The green ON indicator shows that the instrument is ready for testing.
5. The orientation of the motor is represented by the clockwise and counter-clockwise arrows with the left/right 'L' or 'R' icons display. Face the rear of the motor (meter will appear upside down) when reading the status of the display LEDs.

Note: The meter will not operate with motors controlled by frequency converters (VFDs).



Magnetic Field Detection

1. Hold the meter in the area under test. Press and hold ON button.
2. A magnetic field is present if either the clockwise or the counter-clockwise LED illuminates.

Battery replacement

The meter uses a 9V battery (supplied) as a power source. If the green LED does not light when the ON/OFF button is pressed, replace the battery.

1. Place the meter on a clean, flat, non-abrasive surface.
2. Loosen the rear bottom Phillips head screw to access the battery compartment.
3. Lift the battery access door and replace the 9V battery observing polarity.
4. Place the battery carefully in the compartment without crimping the black and red battery connecting wire.
5. Close the access door and secure the screw.

You, as the end user, are legally bound (**Battery ordinance**) to return all used batteries and accumulators; **disposal in the household garbage is prohibited!**



You can hand over your used batteries / accumulators at collection points in your community or wherever batteries / accumulators are sold!

Disposal: Follow the valid legal stipulations in respect of the disposal of the device at the end of its lifecycle

Specifications

Environmental Specifications

Operating Temperature	0 to 40°C (32 to 104°F)
Operating Humidity	15 to 80% relative humidity
Operating altitude	2000m
Pollution Degree	2
Approvals	DIN / VDE 0411 IEC 61010 DIN / VDE 0413-7

Mechanical Specifications

Dimensions	130 x 69 x 32mm (5.1 x 2.7 x 1.3")
Weight	130g (4.6oz)

Safety Specifications

Electrical Safety Approvals	IEC 61010/EN61010, IEC 61557-7/EN 61557-7
Maximum Operating Voltage	600 V
Protection Levels	CAT III 600V

Electrical Specifications

Battery type	9V battery
Current Consumption	20mA max.
Battery life	One (1) year minimum
Nominal Voltage	40 to 600 VAC
Frequency Range (Hz)	2 to 400Hz
Nominal Test current (per phase)	< 3.5mA

Warranty Information

Triplet / Jewell Instruments extends the following warranty to the original purchaser of these goods for use. Triplet warrants to the original purchaser for use that the products sold by it will be free from defects in workmanship and material for a period of (1) one year from the date of purchase. This warranty does not apply to any of our products which have been repaired or altered by unauthorized persons in any way or purchased from unauthorized distributors so as, in our sole judgment, to injure their stability or reliability, or which have been subject to misuse, abuse, misapplication, negligence, accident or which have had the serial numbers altered, defaced, or removed. Accessories, including batteries are not covered by this warranty

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