REED

Model R5004

Phase & Motor Rotation Tester

Instruction Manual



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Safety

- Protective equipment must be used to prevent shock and injury
- Use of this instrument in a manner not specified by the manufacturer may impair safety features/protection provided by the equipment
- Avoid working alone
- Damaged leads must be replaced
- Do not use this unit if it looks damaged
- Be careful when working above 30V AC RMS, 42V AC Peak, and 60V DC as such voltages pose a shock hazard
- Do not touch the probe contacts when in use, keep fingers behind the probe finger guards
- 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 operate with any of the parts removed
- Do not operate around explosive gas, vapour, or dust
- Do not operate in a wet environment

Features

- Non-contact detection of three-phase rotary field systems
- Determines motor-rotation direction and connection
- Magnetic field detection

Specifications

Operating temperature:	0 to 40°C
Operating humidity:	15 to 80%
Operating altitude:	2000m
Pollution degree:	2

Protection type:	IP40
Protection levels:	CATIII600V, CATIV300V
Standards:	DIN VDE 0411, IEC 61010 DIN, VDE 0413-7, IEC 61557-7/EN 61557-7
Operating voltage:	Multiple connections: 40 to 600V AC between phases; Single connection: 120 to 400V AC between phases
Power supply:	9V alkaline, IEC 6LR61
Power consumption:	Max 20 mA
Battery life:	Minimum 1 year of average use
Dimensions:	128 x 68 x 30mm
Weight:	185g
Includes:	3 test leads, 3 alligator clips, and one 9V battery

Rotary Field Direction

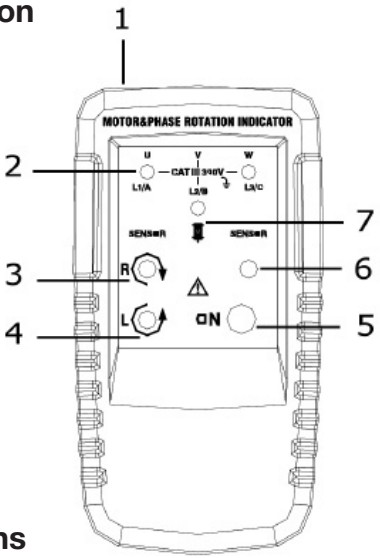
Nominal voltage rotary direction:	1 to 400V AC
Nominal voltage phase indirection:	120 to 400V AC
Frequency range:	2 to 400HZ
Test currents (in per phase):	<3.5mA
Non-contact rotary field indication frequency range:	2 to 400HZ

Motor Connection

Nominal test voltage (U me):	1 to 400V AC
Nominal test currents (In per phase):	Less than 3.5mA
Frequency range (fn):	2 to 400HZ

Instrument Description

1. Test lead input jack
2. L1, L2, L3 indicators
3. Clockwise rotation LCD indicator
4. Counter-clockwise rotation LCD indicator
5. ON/OFF button
6. ON/OFF indicator
7. Orientation symbol

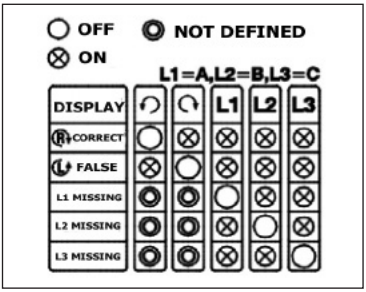


Operating Instructions

Determining the Rotary Field Direction

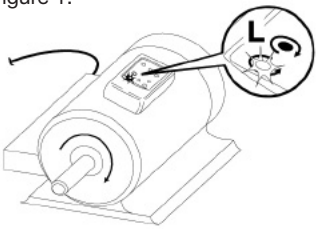
1. Connect one end of the test leads to the meter. Make sure the L1, L2, and L3 test leads are connected to the corresponding input jacks.
2. Connect the test probes to the other end of the test leads.
3. Connect the test probes to the three main phases. Press the ON/OFF button. The green ON indicator shows that the instrument is ready for testing. Either the Clockwise or Counter Clockwise Rotary indicator will illuminate showing the type of rotary field direction present.
4. The rotary indicator will light up even if the neutral conductor, N, is connected instead of the test lead input jack. See Phase Indication Table for more information.

Phase Indication Table



Non-contact Rotary Field Indication

1. Disconnect all test leads from the unit.
2. Position the unit on the motor so that it is parallel to the length of the motor shaft. The unit should be one inch or closer to the motor, and the bottom of the unit should be oriented towards the drive shaft. See Figure 1.



(Figure 1) Motor Rotation

3. Press the ON/OFF button. The green ON indicator shows that the instrument is ready for testing.
4. Either the Clockwise or Counter Clockwise Rotary indicator will illuminate showing the type of rotary field direction present.

Note: The indicator will not operate with engines controlled by frequency converters.

Motor Test Requirements

See below for the minimum motor diameter and number of pole pair needed to obtain a reliable test result.

- Number of pole pair
- Rotary number of rotary field (1/min) at frequency (HZ)
- Angle between poles
- Minimum diameter of motor case

Determining the Motor Connection

1. Connect one end of the test leads to the unit. Make sure the L1, L2, and L3 test leads are connected to the corresponding jack.
2. Connect the alligator clamps to the other end of the test leads.
3. Connect the alligator clamps to the motor connections, L1 to U, L2 to V, L3 to W.
4. Press the ON/OFF button. The green ON indicator shows that the instrument is ready for testing.
5. Turn the motor shaft half a revolution towards the right.
6. The bottom of this unit should be oriented towards the drive shaft. Either the Clockwise or Counter Clockwise Rotary indicator will illuminate showing the type of rotary field direction present.

Magnetic Field Detection

To detect a magnetic field, place this unit to a solenoid valve. A magnetic field is present if either the Clockwise or the Counter Clockwise Rotary indicator illuminates.

Battery Replacement

If this unit does not turn on, or shuts off during use, the battery needs to be replaced. To replace the battery, follow these steps.

1. Place this unit face down on a nonabrasive surface and loosen the battery-door screw with a screwdriver.
2. Lift the battery access lid away from the unit.
3. Remove the battery and replace with new 9V batteries. Observe the battery polarity shown in the battery compartment.
4. Secure the battery access lid back in position with the screw.

If the unit continues to malfunction, please contact REED Instruments at info@reedinstruments.com

Notes