Unpacking the 9062

The 9062 ships with the following items:

- 3 test leads
- 3 test probes
- 3 alligator clips
- 9 V battery
- Users Manual

If an item is damaged or missing, contact the place of purchase immediately.

Safety Information

A ⚠ **Caution** identifies conditions and actions that may damage the9062.
A ⚠⚠ **Warning** identifies conditions and actions that pose hazard(s) to the user.

⚠⚠ Read First: Safety Information

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

- **Read the following safety 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 9062 if it looks damaged.**
- **Be careful when working above 30 V ac rms, 42 V ac peak and 60 V 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 on a known source prior to measuring hazardous voltages (voltages above 30 V ac rms, 42 V ac peak and 60 V dc).**
- **Do not use the 9062 with any of the parts removed.**
- **Do not use the 9062 around explosive gas, vapor, or dust.**
- **Disconnect the test leads from power sources and the 9062 before changing the battery.**
- **Do not use the 9062 in a wet environment.**

Symbols

The following symbols appear on the 9062 or in this manual.

Table 1. Symbols

ϟ	Risk of electric shock	⏚	Earth
⚠	Risk of Danger. Important information. See manual.	≂	AC or DC
⚠	Hazardous voltage.	♻	Recycling information
⧈	Equipment protected by double or reinforced Insulation	CE	Conforms to EU directives.
+	Battery	CAT III	OVERVOLTAGE (Installation) CATEGORY III, Pollution Degree 2 per IEC1010-1 refers to the level of Impulse Withstand Voltage protection provided. Equipment of OVERVOLTAGE CATEGORY III is equipment in fixed installations (e.g., electricity meter and primary over-current protection equipment.

Elements of the 9062

Indicators, buttons, and jacks are shown in Figure 1.

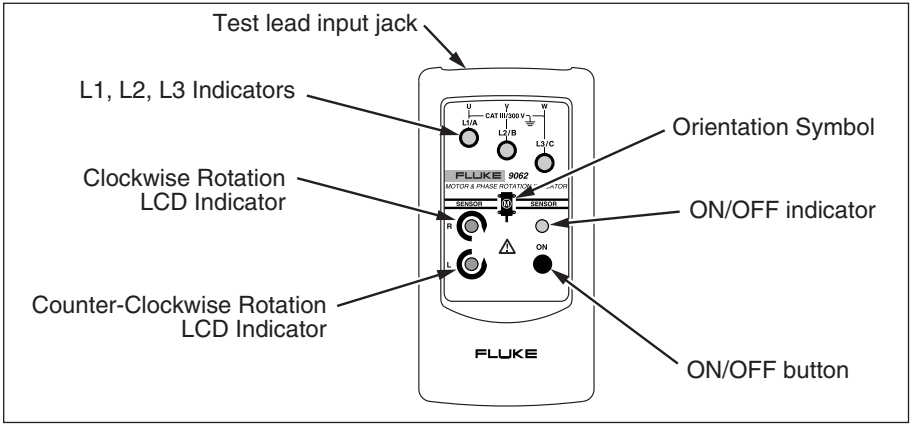

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Figure 1. The 9062 Motor and Phase Rotation Indicator

Using the Motor & Phase Rotation Indicator

Determine Rotary Field Direction

To determine the rotary field direction:

1. Connect one end of the test leads to the 9062. 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 mains 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 illuminates showing the type of rotary field direction present.

   ⚠⚠ Warning

   The rotary indicator lights even if the neutral conductor, N, is connected instead of L1, L2, or L3. Refer to Figure 2 (also shown on the back of the 9062) for more information.

○ Off
⊗ On
◎ not defined

Phase indication Phase rotation	↺	↻	L1	L2	L3
rotat. right	○	⊗	⊗	⊗	⊗
rotat. left	⊗	○	⊗	⊗	⊗
L1 missing	◎	◎	○	⊗	⊗
L2 missing	◎	◎	⊗	○	⊗
L3 missing	◎	◎	⊗	⊗	○

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Figure 2. Phase Indication Table (shown on the rear of the 9062)

Non-Contact Rotary Field Indication

For non-contact rotary field indication:

1. Disconnect all test leads from the 9062.
2. Position the Indicator on the motor so that it is parallel to the length of the motor shaft. The Indicator should be one inch or closer to the motor. See Figure 3.
3. 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 illuminates showing the type of rotary field direction present.

   Note

   The Indicator will not operate with engines controlled by frequency converters. The bottom of the 9062 should be oriented towards the drive shaft. See the Orientation Symbol on the 9062.

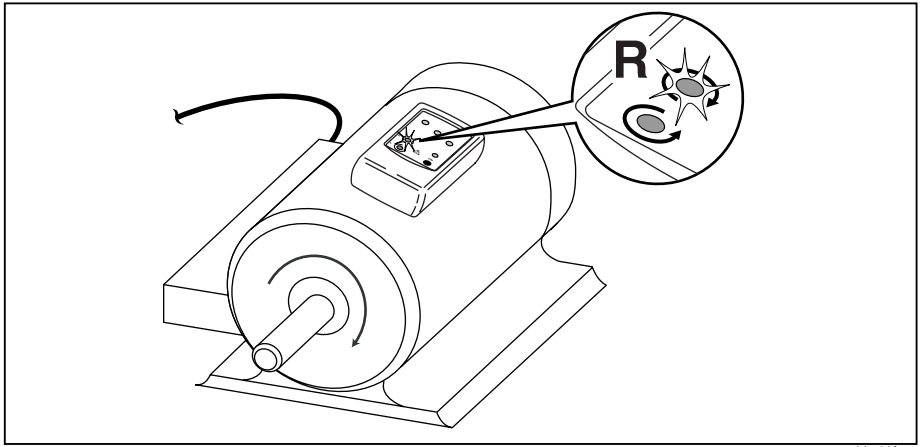

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Figure 3. Motor Rotation

See Table 2 for the minimum motor diameter and number of pole pair to obtain a reliable test result.

Table 2. Reliable Motor Test Requirements

Number of Pole Pair	Rotary Number of Rotary Field (1/min) at Frequency (Hz)			Angle Between Poles	Min. ∅ of Motorcase
	16 2/3	50	60	°	cm
1	1000	3000	3600	60	5.3
2	500	1500	1800	30	10.7
3	333	1000	1200	20	16.0
4	250	750	900	15	21.4
5	200	600	720	12	26.7
6	167	500	600	10	32.1
8	125	375	450	7.5	42.8
10	100	300	360	6	53.5
12	83	250	300	5	64.2
16	62	188	225	3.75	85.6

Determine the Motor Connection

1. Connect one end of the test leads to the 9062. 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.

   Note

   The bottom of the 9062 should be oriented towards the drive shaft . See the Orientation Symbol on the 9062.

   Either the Clockwise or Counter Clockwise Rotary indicator illuminates showing the type of rotary field direction present.

Magnetic Field Detection

To detect a magnetic field, place the 9062 to a solenoid valve.

A magnetic field is present if either the Clockwise or the Counter Clockwise Rotary indicator illuminate.

Maintaining the 9062

This section provides basic maintenance information.

⚠ Caution

To avoid damaging the 9062:

- **Do not attempt to repair or service the 9062 unless qualified to do so.**
- **Make sure that the relevant calibration, performance test, and service information is being used.**

Cleaning

Periodically wipe the case with a damp cloth and mild detergent. Clean only with soap and water and remove any residue afterwards.

⚠ Caution

To avoid damaging the 9062:

- **Do not use abrasives or solvents. Abrasives or solvents will damage the 9062 case.**
- **Prior to cleaning, remove test leads from the 9062.**

Replacing and Disposing of the Batteries

⚠⚠ Warning

To avoid electric shock, disconnect the test leads from the source before opening the 9062 for battery replacement.

To avoid false readings, which could lead to possible electric shock or personal injury, replace the battery as soon as the battery indicator [+] appears.

Note

The 9062 contains alkaline batteries. Do not dispose of these batteries with other solid waste. Used batteries should be disposed of by a qualified recycler or hazardous materials handler. Contact your authorized Fluke Service center for recycling information.

The 9062 uses a 9 V battery (supplied). To replace the battery, follow these steps and refer to Figure 4:

1. Disconnect test leads from any power source.
2. Remove the holster.
3. Place the 9062 face down on a nonabrasive surface and loosen the battery-door screw with a flat-blade screwdriver.
4. Lift the battery access lid away from the 9062.
5. Replace the battery as shown in Figure 4. Observe the battery polarity shown in the battery compartment.
6. Secure the battery access lid back in position with the screw.
7. Place the 9062 back in the holster.

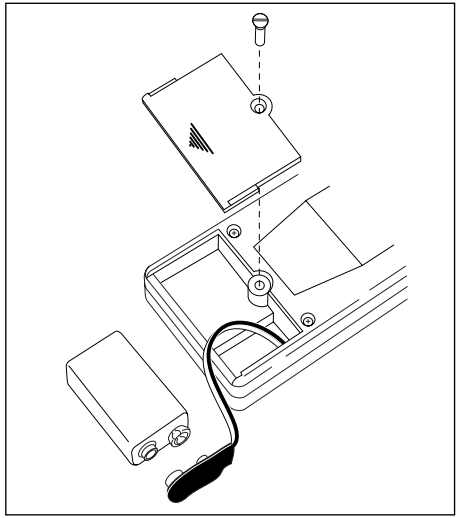

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Figure 4. Battery Replacement

Specifications

Environmental

Operating Temperature
0 °C to +40 °C

Operating Altitude
2000 m

Pollution Degree
2

Type of Protection
IP 40

Mechanical Specifications

Size
124 x 61 x 27 mm (4.9 x 2.4 x 1.1 in)

Weight
150 g (0.3 lbs)

Humidity
15 % to 80 %

Safety Specifications

Electrical Safety
Meets DIN VDE 0411, IEC 61010 DIN, VDE 0413-7, EN 61557-7, IEC 61557-7

Maximum Operating Voltage (U_{me})
400 V AC for all ranges

Protection Level
CAT III, 300 V

Electrical Specifications

Battery
9 V alkaline, IEC 6LR61

Current Consumption
max 20 mA

Battery Life
minimum 1 year for average use

Determine Rotary Field Direction

Nominal Voltage Rotary Direction
1 to 400 V AC

Nominal Voltage Phase Indication
120 to 400 V AC

Frequency Range (f_n)
2 to 400 Hz

Test Currents (I_n per phase)
less than 3.5 mA

Non-Contact Rotary Field Indication

Frequency Range (f_n)
2 to 400 Hz

Determine the Motor Connection

Nominal Test Voltage (U_{me})
1 to 400 V AC

Nominal Test Currents (I_n per phase)
less than 3.5 mA

Frequency Range (f_n)
2 to 400 Hz