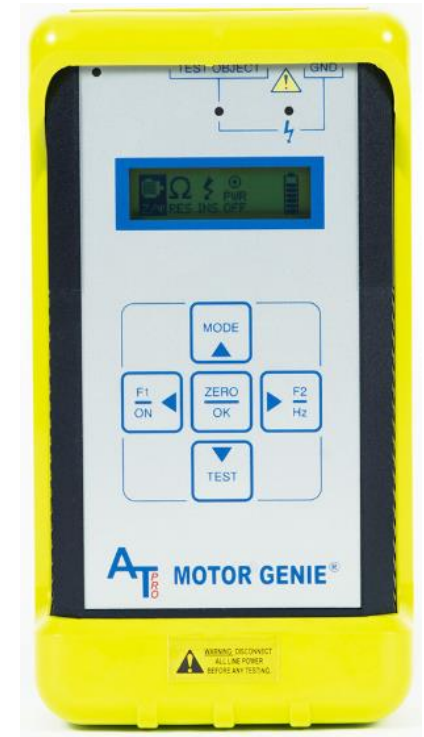




Electrical Motor Testing\*

	Ground Faults	Internal Winding Faults**	Open Connection	Contamination
MOTOR GENIE®	YES	YES	YES	YES
Meg-Ohm-Meter	YES	NO	NO	YES
Volt/Ohm Meter	NO	NO	YES	NO

\*Common electrical testing Instruments    \*\*Winding coil faults: turn-to-turn & coil-to-coil



Technical Support

Technical Support can be obtained by contacting ALL-TEST Pro at: [support@alltestpro.com](mailto:support@alltestpro.com) -put "MOTOR GENIE® Support" in your subject line or visit: [alltestpro.com](http://alltestpro.com)

ALL-TEST Pro

PO Box 1139  
Old Saybrook, CT 06475

860.399.4222 -Phone  
860.399.3180 -Fax  
[support@alltestpro.com](mailto:support@alltestpro.com)  
[alltestpro.com](http://alltestpro.com)



Input Section

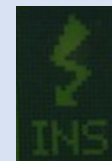
See Diagram on Back

- A. Test Lead Port
- B. Charger Port
- C. Ground Test Lead Port for Insulation to Ground Measurements
- D. Reset Button

Turning on the Instrument

- Turn the instrument on by holding down **F1/ON** key
- Move the cursor on screen left to right by pressing the **F1** and **F2** keys

Insulation to Ground Test – INS



1. Using the **F1** and **F2** keys, select the **INS** icon
2. Connect both the red and yellow lead to ground
3. Press the **ZERO/OK** key to select the insulation test (**INS**)
4. The Insulation Resistance Test screen will display
5. Press and hold the **TEST** button until a stable reading is obtained
6. Connect red test lead to phase 2 and yellow to frame ground
7. Press **F2** to toggle between 500V and 1000V
8. Press and hold the **TEST** button until a stable reading is obtained

→ Press the **MODE** key to return to the main menu



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Test		Limits	Description
Resistance (R)	< 5%	Likely Loose or Faulty Connection	
Impedance (Z)	Special	This result can be used to trend the condition of a winding. If the overall readings decrease significantly between tests, then the winding is degrading or contaminated.	
Phase Angle (FI)	+/- 1 point	FI is a winding short indicator. A result of 35, 36, 37 degrees is OK. A result of 35, 32, 32 would be a fault (shorted winding). This value should be greater than 15 degrees and less than 90 degrees.	
Current/Frequency (I/F)	+/- 2 points	I/F is a winding short indicator. A result of -44, -45, -46 degrees is OK. A result of -44, -46, -46 is a borderline and -42, -45, -45 would be a fault (shorted winding). These readings should be between -15 and -50.	
Phase Balance	< 5%	Consult manual for test procedure and guidelines.	
Insulation Resistance	See Table 2 and 3	Indicated ground wall insulation failure or severe winding contamination.	

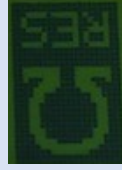
**Three Phase Motor Test Results**

**Analysis**

**Additional Features and Functions**

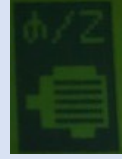
- On occasion, the MOTOR GENIE® may fail to respond to keyboard input, lock up due to excessive EMI or other reasons.
  - To reset, simply press the reset button located at the top of the instrument.
- Resetting the Instrument**
- To charge the instrument, plug the battery charger into the battery charging port on the top of the instrument.
  - Plug the other end of the battery charger into the wall receptacle.
  - When charging, the light will be illuminated red.
  - Date on screen will identify information on the battery including length of time on charge, battery voltage level and battery temperature.
  - Battery charge light will turn green when fully charged.
- Charging the Instrument**

**Phase Resistance Test – RES**



1. Using the **F1** and **F2** keys, select the **RES** icon
  2. Press the **ZERO/OK** key to select the resistance test (**RES**)
  3. Connect both the red and black test leads to each other
  4. Press the **ZERO/OK** key
  5. Instrument will display "ZERORING"
  6. On screen message will state "Connect lead to motor, then press **ZERO/OK**"
  7. Connect red and black test leads to Phase 1-2
  8. Press **ZERO/OK**
  9. Measuring screen will appear, then the resistance result will display
  - Note: If "No Continuity", disconnect and reconnect test leads.
  - Press **ZERO/OK**
  - If "No Continuity" persists, then the connection is open
  10. Connect the test leads to the motor terminals and the test Phase 1-3.
  11. Press **ZERO/OK** to get resistance value
  12. In the same way, test the resistance on the other two terminals and test Phase 2-3.
  13. Press **ZERO/OK** to get resistance value
- Press the **MODE** key to return to the main menu

**Impedance / Phase Angle Test**



1. Using the **F1** and **F2** keys, select the **Z/φ** icon
  2. Connect red and black test leads to Phase 1-2
  3. Press the **ZERO/OK** key
  - The first screen will show the Impedance and Phase Angle for Phase 1-2
  - Note: In the lower right-hand corner it states 200Hz
  - 200Hz is the default test frequency for the impedance.
  - Frequency can be increased or decreased using the **F2/Hz** and **Up/Down** keys
  4. Press the **F2/Hz** once and the display in the upper left corner will change to an Up/Down arrow.
  5. Using the **Up/Down** keys on the keypad and the frequency will increase/decrease accordingly. Your value will appear on the screen.
  6. With the red and black test leads still connected to Phase 1-2, press the **TEST** button
  - This will double the test frequency. Your value will display on screen.
  7. Connect test leads to Phases 1-3 and then 2-3 to make the same measurements
- Press the **MODE** key to return to the main menu