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Electrical Test Instruments

## Tegam Motor Rotation Indicator

- 2.13 x 3.25 x 1.13" In Size
- Battery Operated

The 7368E provides proper connection sequence with one turn of a motor shaft. It is ideal for installing conveyor lines, pump systems, and interconnected drives. Works on most single or multiple three-phase motor installations (in some cases, three-phase sine wave excitation may be required). Allows all motors in a multiple installation to run in the proper direction without trial and error, and without disconnecting driven-unit shaft couplings.

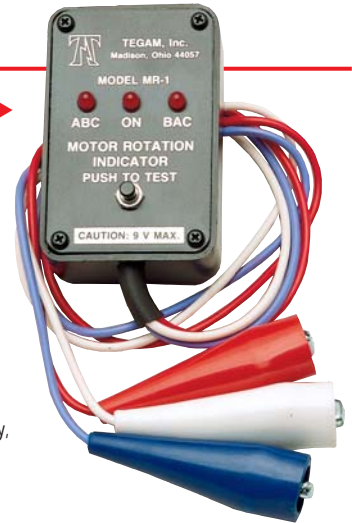
Attaches to any disconnected three-phase motor via color-coded red, white and blue (ABC) leads.

### Ordering Information

Order #	Mfg #	Description	Price
MP7368E	MR-1	Motor Rotation Indicator	

**Each Unit Includes:** 9V alkaline battery, and instruction manual.

MR-1



## Tegam Phase Sequence Indicator

- Positive ID of Phase Sequence
- 115 to 700 V, 50/60 Hz Service

Use the 7410E for installing or servicing motors, wattmeters, transformers, power factor meters and generators. Either ABC or BAC lamp indicates phase sequence. Both lamps light when an open-phase condition exists.

### Ordering Information

Order #	Mfg #	Description	Price
MP7410E	T-471	Phase Sequence Indicator	



T-471

## Amprobe Phase Sequence/Motor Rotation Tester

- Frequency Range: 50 to 400 Hz
- Integrated Test Leads
- Bright LED Indicators

Use this dual-function tester to identify both the correct phase sequence of live three-phase lines and the phase/winding sequence of de-energized, three-phase motors. The 23524E is extremely easy to operate: to determine power-line phase sequence, just connect the tester to the circuit, press a button, and check the LED

indicators. A green LED indicates normal (ABC) sequence, and a red LED indicates reverse (BAC) sequence. To check motor phase sequence, hook the tester up to the de-energized motor, turn the motor in the desired direction, and press the button.

The 23524E features color-coded integrated test leads, which eliminate the risk of misconnection and meter damage. It also includes LED indicators are for phase loss (red) and low-battery (yellow).

### Specifications

Operating Frequency:	50/60/400 Hz
Operating Voltage:	20 to 600V RMS
Isolation:	3000 VAC
Operating Temperature:	32 to 113°F (0 to 45°C)
Power Supply:	One 9V alkaline battery
Dimensions:	3.75 x 2.625 x 1.5" HWD (9.53 x 6.67 x 3.81 cm)

### Ordering Information

Order #	Mfg #	Description	Price
MP23524E	PRM-1	Phase Sequence/Motor Rotation Tester	

PRM-1



**Each Unit Includes:** 9V alkaline battery, two 0.5A high-interrupting fuses, and instructions.

## Megger Motor Rotation/Phase Sequencing Testers

**Eliminate time-consuming, hazardous temporary connections for good**

### 560060/560400

- Ensures Correct Phase Hookup in One Easy Test
- Determines:
  - Rotation Direction of One-, Two-, or Three-Phase Motors Before Connection
  - Phase Rotation or Sequence of Energized Power Circuits
  - Polarity of Instrument and Power Transformer
  - Phase/Polarity of Unmarked Motor Windings

### 565250

The 8010E phase sequence/continuity indicator provides identification of the phase sequence in energized three-phase, 40–60 Hz power lines from 100–600V. They also indicate which phase, if any, is faulty to speed troubleshooting. Built for rugged use, it features an impact-resistant plastic body.

**Each Unit Includes:** Alkaline D cell battery, built-in line and motor leads, color coded 36-inch test leads (565250), carrying case (565250) and instruction manual.

560060 ▶



▼ 565250



### Specifications and Ordering Information

Mfg#	560060	560400	565250
Operation	Phase & Motor Rotation		Phase Sequence/Continuity
Maximum Voltage:	600V		
Frequency:	50/60 Hz	25, 50, 60, 400 Hz	50/60 Hz
Size:	7.5 x 7.5 x 9" HWD		
Weight:	3.5 lbs		
Order #	MP8011E	MP4249E	MP8010E
Price			

## AEMC Phase and Motor Rotation Tester

- Three Functions in One Unit
  - 1) Phase Rotation Tester
  - 2) Motor Rotation Tester
  - 3) Open Phase Tester
- Fused Phase Rotation Inputs
- Battery Operated (Motor Rotation)
- Meets EN 1010, 600V CAT III, (EN61010) Safety Requirements
- Includes Three 4' Leads with Large Alligator Clips Soft Carrying Case

**Model Includes:** Carrying case and 4' test leads (black, red and blue) with large alligator clips.

2121.04 ▶



### Specifications and Ordering Information

Mfg#	2121.04 (PMR-1)
Insulation Voltage	100V to 600 VAC
Frequency	45 to 70 Hz
Power for Motor Rotation	9V Alkaline Battery
Phase Motor Indication	ABC or BAC
Open Phase Indication	A, B, C
Installation Category	EN 1010, 600V CAT III
Order #	MP2121.04
Price	

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## **NEW** BJM Pro™ 31 Motor Tester

**Revolutionary New Technology Goes Far Beyond A Meg-ohm-meter!**

- Detects all of the following:
  - Turn-to-turn faults
  - Coil-to-coil and phase-to-phase faults
  - Open phases
  - Phase unbalances
  - Broken rotor bars
  - Grounded windings
  - Capacitor failures (pass/fail test)
  - Shorted armature windings (DC Motors)
- Works on all sizes of motors—fractional through thousands of HP.
- Low-voltage tests are non-destructive

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Your motor drive has shut the system down. Is the problem in the motor, the drive, the connections, or the overload? Maybe you've installed a large new motor only to find it won't run—how could you have detected the fault in advance?

Most motor faults start in the end turns of the windings. They can propagate for days or even weeks until the motor trips and finally fails. You'll never spot them with a megohm meter or a DMM until the motor has failed, and you may still miss them. You need an ALL-TEST Pro.

This off-line tester applies a low voltage AC signal to the windings, and measures relative impedance, phase angle, and performs a current/frequency response test. Compare the balance of the measurements (just like comparing resistance) and you know the condition of the motor. The ALL-TEST Pro 31 also measures insulation resistance up to 500 MΩ with choice of 500 or 1000V test voltages to detect grounded windings and failing insulation.

Rotor bar problems are among the most difficult problems to confirm, but not with an ALL-TEST Pro 31. Simply connect to one phase while slowly rotating the shaft, to quickly detect broken rotor bars and even eccentricity.

### Applications:

- Test new and rewound motors before installing to insure they're good.
- Test motors during shut-down to detect developing faults.
- Positively troubleshoot motor and drive trips to identify the problem area – motor, drive, overload, cabling, etc.

When testing installed motors, most tests can be run from the MCC through even hundreds of feet of cable.

### Diagnostic Software

Condition Calculator 2.0 is a diagnostic tool that takes the guesswork out of interpreting measurements. Simply enter the data into the PC and view the diagnosis and condition.

Also available is a palmtop version, Condition Calculator PPC, sold installed on a Toshiba e310 Palm PC. The e310 is powered by Windows Pocket PC 2002, and also includes Pocket Word, Pocket Excel, Pocket Outlook, and much more. Equipped with 32 MB of RAM and a 206 MHz microprocessor, it has the power and capacity operate additional programs. PC communication is through the included USB port cable or infrared port.

### Reference Book

Want to know more? **Motor Circuit Analysis: Theory, Applications, and Energy Analysis** by Howard W Penrose Ph.D. is an outstanding reference on motors, motor circuits, reliability, and test methods. Put a copy in your library!

### Ordering Information

Order #	Mfg #	Description	Price
MPAT31-115	AT31-115	ALL-TESTPro 31	
MPAT4402	AT4402	Condition Calculator 2.0 software	
MPAT4402PPC	AT4402PPC	Condition Calculator PPC /Toshiba palmtop	
MPAT12000	AT12000	Motor Circuit Analysis Reference Book	



**PRO31** ▲

Electrical Test Instruments