



**Raytech USA**  
BASIC INSTRUCTIONS -  
\*Use on a disconnected and un-energized transformer only\*  
1. Connect the H (High side) and the X (Low side) leads.  
For a three (3) phase transformer use leads (Automatic Set)  
WIRE COLOR PHASE X PHASE  
RED A (Red clip) B (Black clip)  
BLACK B (Red clip) C (Black clip)  
WHITE C (Red clip) N (Black clip)  
YELLOW N (Red clip) (Black clip)  
For a Single (1) phase transformer use leads  
WIRE COLOR PHASE X PHASE  
RED A (Red clip) B (Black clip)  
YELLOW N (Red clip) (Black clip)  
2. Turn Power On.  
3. Select "NEW" data with Digi-Pol. set Transformer configuration, phase displacement, and test voltage. (Choose "FF" if displacement is unknown - 3 phase only)  
4. Press "OK" and then press "CAL" once.  
5. Press "DIG" and then set all windings (Go ABC) or test a single phase (Go A, Go B, or Go C).  
6. Press "Back" to Print or Store test results.  
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Three Phase Transformer Ratiometer  
Fully Automatic, Rugged & Reliable  
Standard Five Year Warranty

## TR- SpyMark II- Automatic Three Phase Ratiometer

### Specifications:

<b>Model:</b>	TR-Spy Mark II Automatic Three Phase Ratiometer
<b>Size:</b>	L: 18.5" (470 mm) W: 14.6" (371 mm) H: 7.5" (190 mm).
<b>Weight:</b>	18 lb. (8.2 kg).
<b>Input Power:</b>	100 to 250 vac 50 / 60 Hz Autoranging. Fuse: 2 Amp
<b>Test Voltage:</b>	User Selectable: 100, 40, 10, and 1 vac. 1 Ampere.
<b>Panel Display:</b>	LCD Graphic with back lighting.
<b>Front Panel:</b>	Sealed, Piezo-electric actuation.
<b>Interface:</b>	Standard 9 Pin RS232 Serial / 25 Pin Centronics Parallel.
<b>Memory Storage:</b>	Internally stores more than 4,000 locations in memory.

### Measurement Parameters:

**Voltage / Turns Ratio Range:** 0.8 ... 13,000 **Resolution:** 5 Digits

### Accuracy:

Range	0.8 ... 2000	± 0.08% with 100 & 40 Volt, ± 0.15% with 10 Volt
Range	2001 ... 4000	± 0.1 % with 100 & 40 Volt, ± 0.22 % with 10 Volt
Range	4001 ... 13,000	± 0.3 % with 100 & 40 Volt, ± 0.5 % with 10 Volt

	<b>Current</b>	<b>Phase Angle</b>	<b>Temperature:</b> Operating -10° C to 60° C Storage -40° C to 70° C
<b>Range:</b>	0 ... 1 Ampere	± 90 Degree	<b>Cable Set / Accessories:</b> Complete cable set. Total length 44 feet (12 feet long with an extension cable of 32 feet long). Cable carrying bag, power supply cord, instruction manual.
<b>Accuracy:</b>	± 0.001 Ampere	± 0.05 Degree	
<b>Resolution:</b>	0.0001 Ampere	0.01 Degree	

### Standard Items:

- Automatic measurements of Voltage / Turns Ratio, Current, and Phase displacement.
- Single push button operation.
- Single hook up to the transformer.
- Automatic test voltage range.
- Displays deviation from a nominal ratio.
- Graphical tap changer display.
- Load on test object < 0.05 VA.
- Measures Power transformers PT's and CT's.
- Displays % error vs. name plate value.
- Automatic Phase Vector Detection.
- Enhanced Heavy-duty protection circuitry.
- 5 Year standard warranty.

### Optional Items:

- Part No - SM 201 -External / test switch for Tap changer testing
- Part No - SM 202 -Extended cable lengths (user specified in 30 foot increments)
- Part No - SM 203 -Custom clamping devices (user specified)
- Part No - SM 204 -External portable power supply
- Part No - SM 205 -Windows based control & operation software
- Part No - SM 206 -Test with three-phase voltage.

### Local Representative: