



## Transformers Testing

### VTRT 01 Series

The VTRT-01 S2 is Amperis's third-generation micro-processor-based, single-phase, automatic, transformer-turns-ratio tester. This portable test equipment is offered in three models: the VTRT-01 S2, VTRT-01B S2, and VTRT-01D S2. The VTRT-01 S2 is ac-line powered; the VTRT-01B S2 is ac-line or rechargeable-battery powered, and the VTRT-01D S2 is powered by six D-cells.

The VTRT-01 S2 determines the transformer turns-ratio using the IEEE C57.12.90 measurement method. The transformer turns-ratio is determined by precisely measuring the voltages across the unloaded transformer windings. The VTRT-01 S2's measuring circuitry self-calibrates before each measurement to

ensure turnsratio accuracy.

The VTRT-01 S2 measures turns-ratios ranging from 0.800 to 15,000 and can be used to test voltage regulators, power transformers, current transformers (CT), and Potential Transformers (PT). The VTRT-01 S2 also measures and displays transformer-winding excitation current, and winding polarity. Test results are displayed on a back-lit LCD screen (4 lines by 20 characters).

In addition to measuring a transformer's turns-ratio, nameplate voltages can also be entered via the keypad, and the VTRT-01 S2 will then display the turns-ratio error as a percentage. This convenient feature eliminates any user-calculation error when testing transformers.

If a 3-phase transformer is being tested, the VTRT-01 S2 will also provide connection information (H and X test probes to transformer bushings) for phases A, B, and C tests. Three-phase test results (turns-ratio, excitation current, winding polarity, and percentage error) are displayed on the LCD screen at the end of each test.

## User Interface

The VTRT-01 S2 features a back-lit LCD screen (4 lines by 20 characters) that is viewable in both bright sunlight and low-light levels. Displayed test results include turns-ratio, wind-



ing polarity, excitation current, and percentage error calculation. The VTRT-01 S2's rugged, 16-key membrane keypad is used to select a test and enter the nameplate voltages for turns-ratio percentage error calculation.

## Computer Interface

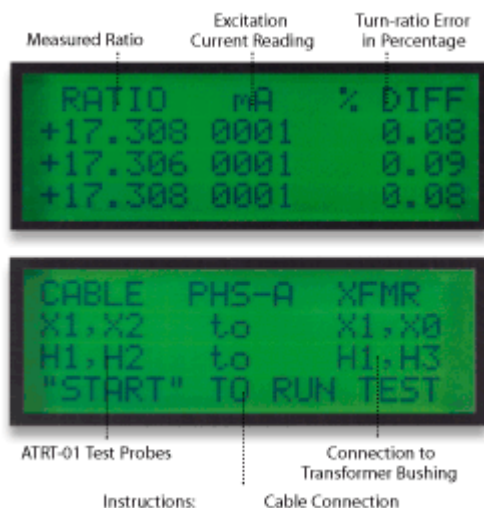
The VTRT-01 S2, VTRT-01B S2 and the VTRT-01D S2 can be used with a PC via the RS-232C interface. Windows® XP/Vista-based software is provided with each unit and can be used to test transformers and to store the test results on the computer. The test results can be retrieved later, in the office for example, for analysis and for printing on an office printer. The test results can also be exported in text or Microsoft® Excel format, thus allowing the results to be used with other PC applications.

The included PC software can also be used to create test plans for specific transformers. A test plan is comprised of the transformer nameplate voltages for each tap setting. Computed turns-ratio is based on the nameplate voltages which can be compared to the measured ratio to derive percentage error.

## Battery Power for Exceptional Portability

The VTRT-01B S2 is powered by a 6-Volt, 7 Ampere-hour, lead-acid battery. The high capacity battery, coupled with the VTRT-01B S2's low power consuming circuitry, allows the unit to be used continuously for up to 6 hours between re-charges. A built-in charger lets the unit be used while the battery is being charged. The VTRT-01D S2 uses 6 D-cell batteries. Up to 250 tests can be performed with one set of D-cell batteries.

### Transformers Testing - VTRT 01 Series



## TTRT-01 S2



### TTRT-01 S2 Features

Stand-alone or computer-controlled  
Inexpensive  
Displays ratio from 0.8 - 15,000  
Calculates turn-ratio in percentage  
Displays winding polarity  
Displays excitation current  
Size: 12"W x 9"H x 8"D  
(30.5 cm x 22.9cm x 20.3cm)  
Weight: 8 lbs. (3.6 kg)

### SPECIFICATIONS

<b>Input Power</b>	120/240Vac (Selectable), 50/60Hz
<b>Measurement Method</b>	ANSI/IEEE C57.12.90
<b>Ratio-Measuring Range</b>	0.8 - 15,000 (5-digit resolution)
<b>Turns-Ratio Accuracy</b>	0.800-1,999 ( $\pm 0.1\%$ ), 2,000-3,999 ( $\pm 0.25\%$ ), 4,000-15,000 ( $\pm 1\%$ )
<b>Test Voltages</b>	8 Vac @ 1.0 Amp, 40 Vac @ 0.6 Amp
<b>Excitation Reading Range</b>	0 - 2 Amperes
<b>Current Reading Accuracy</b>	$\pm 1$ milli-amp, $\pm 2\%$ of reading ( $\pm 1$ -digit)
<b>Display</b>	Back-lit LCD screen (4 lines by 20 characters), viewable in bright sunlight & low-light levels
<b>Computer Interface</b>	One RS-232C (19,200 baud) port
<b>PC Software</b>	Windows® XP/Vista-based, included with purchase price
<b>Safety</b>	Designed to meet IEC61010 (1996), UL61010A-1, CSA-C22.2 standards
<b>Environment</b>	Operating: -10°C to 50°C (15°F to 122°F); Storage: -30° C to 70°C (-22°F to 158°F)
<b>Humidity</b>	90% RH @ 40°C (104°F) non-condensing
<b>Altitude</b>	2,000m (6,562 ft) to full safety specifications
<b>Cables</b>	One 15-foot single-phase cable, one cable-carrying duffel bag included
<b>Options</b>	Transportation case
<b>Warranty</b>	One year on parts and labor

## TTRT-01B S2



### TTRT-01B S2 Features

Stand-alone or computer-controlled  
Battery or AC powered  
Displays ratio from 0.8 - 15,000  
Calculates turn-ratio in percentage  
Displays winding polarity  
Displays excitation current  
Size: 12"W x 9"H x 8"D  
(30.5 cm x 22.9cm x 20.3cm)  
Weight: 9.5 lbs (4.3 kg)

### SPECIFICATIONS

<b>Input Power</b>	SLA battery (90-240Vac, 50/60Hz). Delivers up to 6-hours of operation.
<b>Measurement Method</b>	ANSI/IEEE C57.12.90
<b>Ratio-Measuring Range</b>	0.8 to 15,000 (5-digit resolution)
<b>Turns-Ratio Accuracy</b>	0.800-1,999 ( $\pm 0.1\%$ ), 2,000-3,999 ( $\pm 0.25\%$ ), 4,000-15,000 ( $\pm 1.5\%$ )
<b>Test Voltages</b>	8 Vac @ 350 mA, 40 Vac @ 70 mA
<b>Excitation Reading Range</b>	0 - 2 Amperes
<b>Current Reading Accuracy</b>	$\pm 1$ Milli-amp, $\pm 2\%$ of reading ( $\pm 1$ -digit)
<b>Display</b>	Back-lit LCD screen (4 lines by 20 characters), viewable in bright sunlight & low-light levels
<b>Computer Interface</b>	One RS-232C (19,200 baud) port
<b>PC Software</b>	Windows® XP/Vista-based, included with purchase price
<b>Safety</b>	Designed to meet IEC61010 (1996), UL61010A-1, CSA-C22.2 standards
<b>Environment</b>	Operating: -10°C to 50°C (15°F to 122°F); Storage: -30° C to 70°C (-22°F to 158°F)
<b>Humidity</b>	90% RH @ 40°C (104°F) non-condensing
<b>Altitude</b>	2,000m (6,562 ft) to full safety specifications
<b>Cables</b>	One 15-foot single-phase cable, one cable-carrying duffel bag included
<b>Options</b>	Transportation case
<b>Warranty</b>	One year on parts and labor

## TTRT-01D S2



### TTRT-01D S2 Features

Stand-alone or computer-controlled  
Battery powered (D-cells)  
Displays ratio from 0.8 - 15,000  
Calculates turn-ratio in percentage  
Displays winding polarity  
Displays excitation current  
Size: 12"W x 9"H x 8"D  
(30.5 cm x 22.9cm x 20.3cm)  
Weight: 9.5 lbs (4.3 kg)

### SPECIFICATIONS

<b>Input Power</b>	6 D Cells (250-test capacity)
<b>Measurement Method</b>	ANSI/IEEE C57.12.90
<b>Ratio-Measuring Range</b>	0.8 to 15,000 (5-digit resolution)
<b>Turns-Ratio Accuracy</b>	0.800-1,999 ( $\pm 0.1\%$ ), 2,000-3,999 ( $\pm 0.25\%$ ), 4,000-15,000 ( $\pm 1.5\%$ )
<b>Test Voltages</b>	8 Vac @ 350 mA, 40 Vac @ 70 mA
<b>Excitation Reading Range</b>	0 - 2 Amperes
<b>Current Reading Accuracy</b>	$\pm 1$ Milli-amp, $\pm 2\%$ of reading ( $\pm 1$ -digit)
<b>Display</b>	Back-lit LCD screen (4 lines by 20 characters), viewable in bright sunlight & low-light levels
<b>Computer Interface</b>	One RS-232C (19,200 baud) port
<b>PC Software</b>	Windows® XP/Vista-based, included with purchase price
<b>Safety</b>	Designed to meet IEC61010 (1996), UL61010A-1, CSA-C22.2 standards
<b>Environment</b>	Operating: -10°C to 50°C (15°F to 122°F); Storage: -30° C to 70°C (-22°F to 158°F)
<b>Humidity</b>	90% RH @ 40°C (104°F) non-condensing
<b>Altitude</b>	2,000m (6,562 ft) to full safety specifications
<b>Cables</b>	One 15-foot single-phase cable, one cable-carrying duffel bag included
<b>Options</b>	Transportation case
<b>Warranty</b>	One year on parts and labor

Note: The above specifications are valid at nominal voltage and ambient temperature of +25°C (+77°F). Specifications are subject to change without notice.