

# SUWI SERIES

## Multifunctional Substation Test Device





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SUWI Series is designed using advanced engineering technology to test power and control equipment in the substations. SUWI is an all-in-one device that can test Relay Timing, Transformer's Turns Ratio, Circuit Breaker Contact Resistance & Timing, Fuses, etc.

SUWI is a combined substation testing device with advanced features; hence, named Substation Wizard that is SUWI. SUWI has easy, fast and accurate measurement features using its user-friendly software.

### RELAY TIMING MEASUREMENT

SUWI can automatically test over-current, over-voltage, directional overcurrent relays and frequency control relays. SUWI has a current output up to 110A AC/150A DC and a voltage output up to 150V AC/ 220V DC. It has four universal input modules.

### TURNS RATIO MEASUREMENT

By using ANSI/IEEE C57.12.90 measurement method, SUWI can produce precise results. SUWI is one of the most accurate devices with its wide range (0.8 to 33,000) ratio measurement capability and high precision (0.08 %).

SUWI can also measure phase angle and polarity, apart from the ratio measurement. It has 1V, 4V, 10V, 40V and 100V AC test voltages generation capability. SUWI Series can measure the turns ratio of current, voltage and power transformers.

### LOW RESISTANCE MEASUREMENT/MICRO-OHMMETER

SUWI can easily measure contact resistances of a circuit breaker, shunt, and disconnecter by applying adjustable current up to 150A. It can calculate the real values of the resistors by providing penetration with the feature of the continuous current application.

Multifunctional test device

Relay Timing Tests

Turns Ratio Tests

Micro-ohmmeter

3Φ Circuit Breaker Timing Tests

Built-in Battery (Optional)

SUWI can measure resistance up to 5 Ω. It can measure the static resistance of the contact points of the circuit breaker.

SUWI can measure idle circuit breakers as well as dual grounded circuit breakers.

The frequently used test models can be saved as templates, and can perform the tests more rapidly and quickly.

### CIRCUIT BREAKER TIMING

Contact Timing Tests are performed to determine the optimal performance of the breakers. Contact timing tests are performed to compare the breakers' contact performance against the manufactures specifications.

The breakers OPEN, CLOSE, OPEN-CLOSE, CLOSE-OPEN and OPEN-CLOSE-OPEN operations are timed in milliseconds (ms) and cycles and then compared with the manufacturers' specifications to determine the performance of the circuit breaker. SUWI can perform 3-phase circuit breaker timing test; open, close, open-close, close-open, open-close-open timings, coil current measurement as well as internal and external trigger operations.

### GENERAL FEATURES

A 7-inch IPS 1024x600 pixel touch panel display allows SUWI Series to show all measurement results on a single screen. Users can record test results to the device's 8GB internal memory or an external USB flash memory.

With the HighTest Data Management Platform (DMP Software), users can analyse and manage measurement results using a PC.

Multi-language capability and user-friendly operation menu make it easy to control SUWI Series. SUWI Series is a light, compact and rugged device with the protection class IP67 (case closed).

## Technical Specifications

<b>Measurement Parameters</b>	<b>Relay Timing Tests</b> (over current relays, over voltage relays, directional over current relays, frequency control relays); <b>Turns Ratio Measurement</b> , Phase Angle, Polarity, Ratio Error (%); <b>Micro-ohmmeter/Low Resistance Tests</b> (Circuit breaker contact resistance and shunt resistance) <b>Circuit breaker timing test</b> (3-phase circuit breaker timing tests; open, close, open-close, close-open, open-close-open timings, coil current measurement, internal and external trigger operations)
<b>PROTECTION RELAY TIMING MEASUREMENT FEATURES</b>	
<b>Current Outputs</b>	Up To 110 A AC (magnitude and frequency adjustable) Up to 150 A DC
<b>Voltage Outputs</b>	150 V AC (magnitude and frequency adjustable)
<b>Universal Input Modules</b>	4 input module; Binary wet/dry Up to 300 V AC and DC voltage measurement
<b>TURNS RATIO MEASUREMENT FEATURES</b>	
<b>Ratio Measurement Modes</b>	CT Mode PT Mode (Single-Phase and Three-Phase)
<b>Test Voltages</b>	CT Mode: 1 V and 4 V ; PT Mode: 1, 4, 10, 40 & 100 V
<b>Ratio Range</b>	0.8 – 33,000
<b>LOW RESISTANCE MEASUREMENT FEATURES/MICRO-OHMMETER</b>	
<b>Measurement Modes</b>	Static Dual ground Resistance Measurement
<b>Auto Test Mode</b>	Yes
<b>Test Current</b>	Up to 150 A DC
<b>Measurement Range</b>	Up to 5 $\Omega$
<b>CIRCUIT BREAKER TIMING MEASUREMENT FEATURES</b>	
<b>Measurement Parameters</b>	Contact Timing (O, C, O-C, C-O & O-C-O); Coil Current Measurement, Internal and External Trigger Operations
<b>Timing Windows</b>	1s, 10s, 20s
<b>Timing Accuracy</b>	0.05% rdg $\pm$ 0.1 ms
<b>Contact detection</b>	Yes
<b>Trigger input voltage</b>	24 – 300 V DC or AC <sub>peak</sub>
<b>Breaker Initiate Capacity</b>	20 A, 300 V DC or AC <sub>peak</sub>
<b>Initiate current reading range</b>	0 – 20A DC, 5 kHz
<b>GENERAL FEATURES</b>	
<b>Power Supply</b>	100-240 V, 47/63 Hz,
<b>Built-in Battery</b>	Yes (Optional)
<b>Internal Memory</b>	Yes
<b>Communication</b>	USB 2.0/1.1 Standard-A, USB 2.0/1.1 Standard-B
<b>PC Software</b>	DMP Software
<b>Display</b>	7-inch IPS 1024x600 pixel touch panel display
<b>Dimensions</b>	(16.9 $\times$ 12.9 $\times$ 9.3)" (429 x 328 x 236) mm
<b>Weight</b>	9.5 kg
<b>Working Temperature</b>	-10 $^{\circ}$ C to +60 $^{\circ}$ C
<b>Storage Temperature</b>	-30 $^{\circ}$ C to +70 $^{\circ}$ C
<b>Humidity</b>	95% RH Non-condensing
<b>Protection Class</b>	IP67 (case closed)

Specifications are valid at/under 25  $^{\circ}$ C temperature. \*Contents subject to change without notice.

HighTest Technology Ltd. is a leading manufacturing company based in the UK which produces highly precise test equipment. We mainly focus on the development, manufacture, and marketing of Transformer test systems.

We have several years of experience in the field of developing and producing high-end test equipment. Customer satisfaction is our prime motto. We supply our test equipment worldwide to Transformer manufacturers, Electrical utilities, general contractors and service companies. Our test equipment is designed and produced according to the most widely adopted international standards. As we value our customers the most, our well-experienced team always provide excellent after-sales support and technical assistance.



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