SUWI-120 SERIES MULTIFUNCTION SUBSTATION TEST SET



SUWI-120 series stands as a versatile testing instrument meticulously crafted to evaluate the performance of power and control apparatus within substations.

It encompasses an array of essential tests, including the precise assessment of Relay Timing, the determination of a Transformer's Turns Ratio, the scrutiny of Circuit Breaker Contact Resistance and Timing, as well as the examination of MCBs, among other critical functions. This all-encompassing substation testing device has earned the name SUWI, from our belief in its skills as a Substation Wizard.

RELAY TIMING MEASUREMENT

The SUWI instrument can automatically test over-current, over-voltage, directional overcurrent relays and frequency control relays. SUWI has an adjustable output current up to 110A AC / 120A DC and an adjustable output voltage to 150V AC / 220V DC. It has four universal input modules.

TURNS RATIO MEASUREMENT

Employing elements of performance tests specified in the ANSI/IEEE C57.12.90 standard, the instrument performs transformer ratio measurements to a precision of 0.08 % across a ratio range of 0.8 to 10,000.

SUWI also measures phase angle and polarity, and it can generate 1V, 4V, 10V, 40V and 100V AC test voltages to facilitate the measurement of the turns ratio for current, voltage and power transformers.

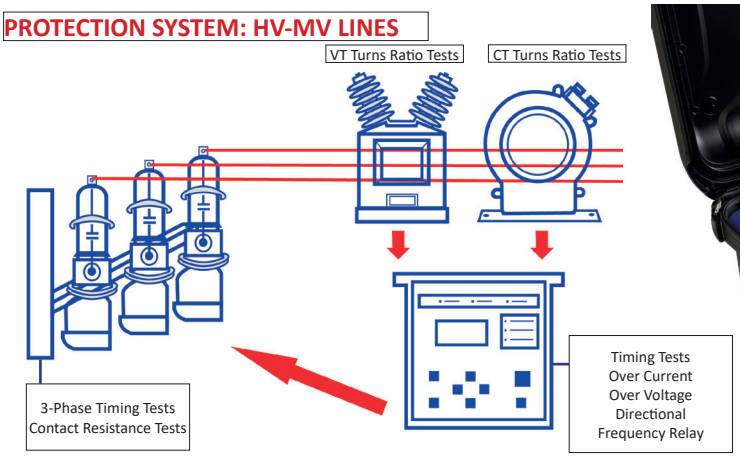
CONTACT RESISTANCE / LOW RESISTANCE MEASUREMENT

SUWI has an adjustable output DC current up to 120 Amps which facilitates the measurement of contact resistance of a circuit breaker, a shunt or disconnector. SUWI-120 can measure resistance up to 5 Ω, with a resolution of 0.01 μΩ.

CIRCUIT BREAKER TIMING

Contact Timing Tests are performed to determine a breaker's contact performance against its manufactured specifications. The timing for a breaker's operation such as OPEN, CLOSE, OPEN-CLOSE, CLOSE-OPEN and OPEN-CLOSE-OPEN are measured for all three-phases simultaneously. SUWI can perform 3-phase circuit breaker timing test cycles as described above along with coil current measurements using internal and external trigger inputs.







TECHNICAL SPECIFICATIONS

Measurement Parameters	Relay Timing Tests (over current relays, over voltage relays, directional over current relays, frequency control relays); Turns Ratio Measurement, Phase Angle, Polarity, Ratio Error (%); Contact Resistance/Low Resistance Tests (Circuit breaker contact resistance and shunt resistance) Circuit breaker timing test (3-phase circuit breaker timing tests; open, close, open-close, close-open, open-close-open timings, coil current measurement, internal and external trigger operations)
PROTECTION RELAY TIMING MEASUREMENT FEATURES	
Current Outputs	Up To 110 A AC (magnitude and frequency adjustable) Up to 120 A DC
Voltage Outputs	150 V AC (magnitude and frequency adjustable) 220 V DC
Universal Input Modules	4 input module; Binary wet/dry Up to 300 V AC/DC voltage measurement
TURNS RATIO MEASUREMENT FEATURES	
Ratio Measurement Modes	CT Mode PT Mode (Single-Phase and Three-Phase)
Test Voltages	CT Mode: 1 V and 4 V ; PT Mode: 1, 4, 10, 40 & 100 V
Ratio Range	0.8 – 10,000
CONTACT RESISTANCE/LOW RESISTANCE MEASUREMENT FEATURES	
Measurement Modes	Static Resistance Measurement
Auto Test Mode	Yes
Test Current	Up to 120 A DC
Measurement Range	Up to 5 Ω
CIRCUIT BREAKER TIMING MEASUREMENT FEATURES	
Measurement Parameters	Contact Timing (O, C, O-C, C-O & O-C-O); Coil Current Measurement, Internal and External Trigger Operations
Timing Windows	1s, 10s, 20s
Timing Accuracy	0.05% rdg ± 0.1 ms
Contact detection	Yes
Trigger input voltage	24 – 300 V DC or AC_{peak}
Breaker Initiate Capacity	20 A, 300 V DC or AC_{peak}
Initiate current reading range	0 – 20A DC, 5 kHz
GENERAL FEATURES	
Power Supply	100-240 V, 47/63 Hz,
Internal Memory	Yes
Communication	USB 2.0/1.1 Standard-B, Ethernet
PC Software	DMP Software
Display	7-inch IPS 1024x600 pixel touch panel display
Dimensions	(16.9 × 12.9 × 9.3)" (429 x 328 x 236) mm
Weight	10.70 kg
Temperature	Working : -10 °C to +60 °C; Storage: -30 °C to +70 °C
Humidity	95% RH Non-condensing
Protection Class	IP67 (case lid closed)
Included in the Package	5m long measurement cable set (Input 1,2,3, 4), 5m Contact out Cable Set (Contact 1 & 2), 5 m Vout Cable Set, 1.5m I out Cable Set, 1.8m Power Cord (Type-UK/EU/US), 2.5m Hightest Standard Ground Cable, 1m Ethernet Cable, USB Flash drive (DMP, Manual, Brochure), Soft Carry Bag for Cables, CIBREL3 Cable Set Adapter, 6m Contact Cable Set (Contacts 1,2 &3), TURA01 Cable Set Adapter, 5m Measurement Cable Set for TURA-01
Optional	Hard Carry Case

*Specifications are valid at/under 25 °C temperature. *Content subject to change without notice.*

ORDERING INFORMATION

SUWI-120 Multifunctional Substation Tester