

SAT series

Coil Analyzers

- Lightweight - only 10 kg
- Powerful – up to 40 A
- Voltage 10 V - 300 V DC, 10 V - 250 V AC
- Coil resistance measurement
- Coil current measurement
- Minimum trip voltage test
- Fully automatic operation
- DV Win software



Description

The Coil Analyzer SAT series is a powerful tool for testing circuit breakers where a substation battery is not available. It operates the breaker coils and spring charging motors as a part of commissioning and maintenance testing.

The SAT series measures a current and a resistance of the circuit breaker coils. In addition, the SAT series can also be used to test a minimum trip voltage of the circuit breaker coils.

It is equipped with thermal and overcurrent protection. The SAT series is easy to use and has accessory cable-set with touch-proof contacts.

Thanks to a proprietary hardware and software design solution, it is capable of canceling electrostatic and electromagnetic interference in HV electric fields.

The output voltage is selectable in the ranges from 10 V to 300 V DC or from 10 V to 250 V AC.

This device is a powerful and a versatile unit which, at 230 V mains supply, is capable of

generating on its Motor output the initial current of 40 A as well as the continuous DC currents as presented in the tables below.

The Coils outputs can generate lower current values, up to 15 A.

The Motor output can generate from 10 V to 250 V DC (and 250 V AC for the SAT40A model), and from 10 V to 300 V DC and AC on its Coils outputs.

Model	Mains Voltage	Load Voltage	Max Current	Max load interval
SAT30A	230 V	110 V DC	24 A 20 A 10 A	20 sec 60 sec contin.
		220 V DC	12 A 10 A 7 A	20 sec 60 sec contin.
		110 V AC	10 A 5 A	1 sec contin.
		220 V AC	10 A 5 A	1 sec contin.
	120 V	48 V DC	24 A 20 A 10 A	20 sec 60 sec contin.
		110 V DC	12 A 10 A 7 A	20 sec 60 sec contin.
		125 V DC	10.6 A 8.9 A 3.5 A	20 sec 60 sec contin.
		220 V DC	7 A 6 A 5 A	20 sec 60 sec contin.
		110 V AC	10 A 5 A	1 sec contin.
		220 V AC	10 A 5 A	1 sec contin.

Model	Mains Voltage	Load Voltage	Max Current	Max load interval
SAT40A	230 V	110 V DC	30 A 24 A 12 A	20 sec 60 sec contin.
		220 V DC	15 A 12 A 8 A	20 sec 60 sec contin.
		110 V AC	15 A 10 A	10 sec contin.
		220 V AC	12 A 6 A	10 sec contin.
	120 V	48 V DC	30 A 24 A 12 A	20 sec 60 sec contin.
		110 V DC	15 A 12 A 8 A	20 sec 60 sec contin.
		115 V DC	13.2 A 10.5 A 7 A	20 sec 60 sec contin.
		220 V DC	8 A 6 A 5 A	20 sec 60 sec contin.
		110 V AC	12 A 8 A	10 sec contin.
		220 V AC	8 A 5 A	10 sec contin.

Application

The SAT series is used in switchyards, power and industrial environment, in manufacturing, in commissioning and as well in maintenance of the circuit breakers for:

- Operating circuit breakers
- Supplying spring-charging motors (DC voltage output all SAT models, and AC only the SAT40A)
- Coils resistance measurement
- Coils current measurement
- Minimum trip voltage-test of the circuit breaker's coils
- As a power supply in the tests with breaker analyzers from different vendors

Other important parameters of the circuit breaker can be tested with a circuit breaker analyzer. The SAT series is also used as a power supply unit while testing with circuit breaker analyzers. It is compatible with circuit breaker analyzers from different vendors.

The SAT series can also be used as a general power supply unit or a temporary battery charger.

Coil resistance measurement as a unique option on the market among all coil testers

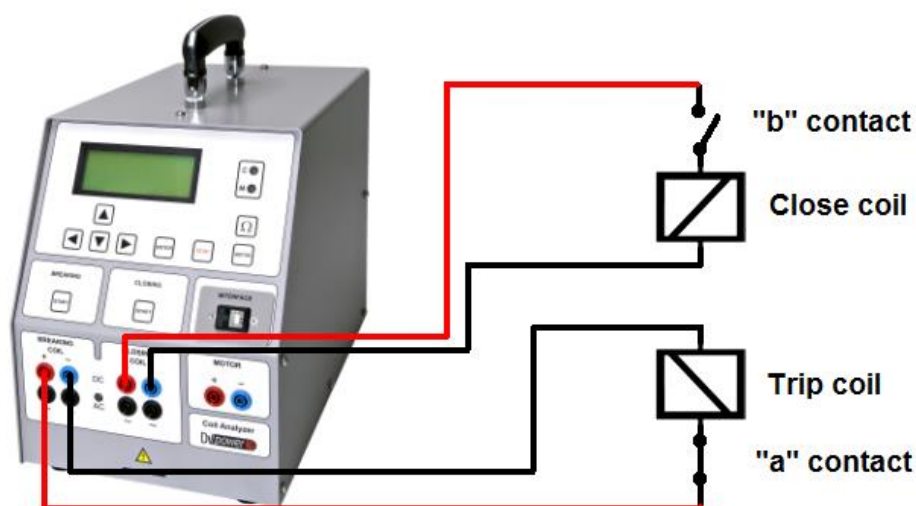
The experience from field tests show that, a measurement of the circuit breaker coil resistance is a very important task for circuit breaker condition monitoring. Availability of this feature makes the Coil Analyzer SAT series one of the most versatile and useful devices in the market.

Lower than specified resistance may indicate a short circuit condition between the coil turns due to damaged or burned insulation. The higher resistance value indicates damaged wire of the coil winding due to overheating, contact corrosion, or other reasons.

Automatic testing of a breaker Minimum trip voltage

To ensure that a circuit breaker operation is guaranteed under the most severe conditions placed upon the substation tripping supply, the circuit breaker trip coils are required to work with a minimum tripping voltage much below the nominal battery voltage. The SAT series have built-in capability to perform automatic test of minimum trip voltage. The Minimum trip voltage test is described in a number of international and national standards such as IEC 62271-100, ANSI C37.09 etc.

Connecting the SAT device to a test object



Technical Data

Mains Power Supply

- Connection according to IEC/EN60320-1; UL498, CSA 22.2
- Voltage 90 V – 264 V AC, 50/60 Hz, Single phase
- Power consumption 4000 VA

Output data

- Coils output DC Voltage 10 V to 300 V DC
- Coils output AC Voltage 10 V to 250 V AC; 50/60 Hz; true RMS
- Motor output DC and AC Voltage 10 V to 250 V DC/AC (AC Voltage available only for SAT40A)
- Output current max 40 A (for SAT40A, and max 30 A for SAT30A)

Measurement

- Voltage 10 V – 300 V DC or 10 V – 250 V AC
- Current 1 A – 50 A
- Accuracy $\pm (0,25\% \text{ rdg} + 0,25\% \text{ FS})$

Coil resistance measurement

- Measuring range / Resolution
1 Ω - 99,9 Ω / 0,1 Ω
100 Ω – 999 Ω / 1 Ω
- Typical accuracy $\pm (0,5\% + 0,5 \text{ F.S.})$

Environment conditions

- Operating temperature
–10[°]C - +55[°]C / 14[°]F – 131[°]F
- Storage and transportation
–40[°]C - +70[°]C / -40[°]F – 158[°]F
- Humidity Maximum relative humidity 95%, non-condensing

Dimensions and Weight

- Dimensions (W x H x D) with handle down
205 mm x 287 mm x 410 mm
8,07 in x 11,29 in x 16,14 in
- Weight 10kg / 22,046 lbs

Mechanical protection

- IP 43

Warranty

- three years

Safety Standards

- Low Voltage Directive:
- Directive 2014/35/EU (CE conform).
- Applicable standards, for a class I instrument, pollution degree 2,
- Installation category II: IEC EN 61010-1

Electromagnetic Compatibility (EMC)

- Directive 2014/30/EU (CE conform).
- Applicable standard: EN 61326-1

Accessories



Transport case



Cable bag



Device bag



Cable set

SAT series – models

SAT30A



Generates 10 V to 300 V DC and 10 V to 250 V AC on coils outputs.
 Motor output range selectable from 10 V to 250 V DC.
 Max output current 30 A.

SAT40A



Generates 10 V to 300 V DC and 10 V to 250 V AC on coils outputs.
 Motor output range selectable:
 • 10 V to 250 V DC, and
 • 10 V to 250 V AC.
 Max output current 40 A.

Order info:

Instrument	Art.No.
Coil Analyzer SAT40A	SAT40AA-N-00
Coil Analyzer SAT30A	SAT30AA-N-00
Included set of accessories	
DV-Win software including USB cable	
Mains power cable	
Ground cable	
Recommended set of accessories	
Cable set 6 x 2 m 2,5 mm ²	C6-02-02BPBP
Device bag	DEVIC-BAG-00
Cable bag	CABLE-BAG-00

Optional accessories	Art.No.
Cable set 6 x 5 m 2,5 mm ²	C6-05-02BPBP
Transport case	HARD-CASE-MC
Coil supply cable set 2 x 2 m 2,5 mm ² with banana plugs	C2-02-02BPBP
Bluetooth communication module	BLUET-MOD-00
USB Cable	CABLE-USB-00