

MEASURER

CIRCUIT BREAKER RESPONSE TIME METER - 12 CHANNELS



CIRCUIT BREAKER RESPONSE TIME METER

Description

High-voltage circuit breakers are responsible for the dual function of controlling and protecting power systems, and their performance is directly related to the safe operation of the electrical grid. Therefore, the parameter of mechanical characteristic of this device is one of the most important to evaluate the performance of a circuit breaker.

The circuit breaker timing meter consists of a complete solution for testing and measuring the operating time of circuit breakers by monitoring and controlling input and output parameters. It can be associated with transducers to observe the mechanical displacement of the operating system in addition to the pole opening time.

It can be applied to circuit breakers with various types of insulation elements, such as common circuit breakers, oil-filled circuit breakers, vacuum circuit breakers, sulfur hexafluoride (SF6) circuit breakers, etc., covering various voltage levels and mechanical and dynamic characteristics. Once the circuit breaker is operated, all data and graphs are obtained and displayed on the screen.

Benefits

- It can simultaneously measure 12 metal contacts, 6 main and 6 auxiliary ones;
- Equipped with an embedded industrial computer;
- Equipped with 2 USB ports, supports mouse connection;
- Operation via RS232 online interface (optional);
- Operation via Wi-Fi (optional);
- Possible to expand memory to store up to 30,000 sets of current data;
- Applicable to various types of circuit breakers, such as: oil-free, oil-filled, vacuum, SF6, etc.;
- The part related to electromagnetic compatibility (anti-interference circuit) allows the equipment to be used in substations up to 500 kV;
- Equipped with linear, rotary, universal, and laser sensors (optional);
- Multifunctional connector allows for convenient and simple installation.



Technical Specifications

Different period test range	0,1 ms to 99 ms; resolution: 0,01 ms
Time measurement	12 way inherent opening (closing) time
	Opening (closing) phase in different periods
	The difference between different phases of opening (closing)
	Closing (opening) bounce time (bounce times)
Internal trigger test range	0,1 ms to 999 ms, resolution: 0,01 ms
	1000 ms to 9999 ms, resolution: 0,01 ms
	10000 ms to 200000 ms, resolution: 1 ms
External trigger test range	0.1 ms to 200 s
Accuracy within 1000m	0,05 % $\pm$ 1 word
Speed measurement	Just opening / Just closing
	The average speed of the specified time period (travel segment or angle segment)
Speed measurement range	Sensors: 1 mm, 0,1 mm, 345°, laser
1 mm sensor	0,01 m/s to 25 m/s
0,1 mm sensor	0,001 m/s to 2,5 m/s
345° angle sensor	0,01 m/s to 25 m/s
Laser sensor	0,01 m/s to 15 m/s

Technical Specifications

Stroke measurement	Moving contact stroke (stroke) (3-way stroke measurement optional)
	Contact stroke (opening distance)
	Overtravel
	Overshoot stroke or rebound stroke
Linear Sensor (50 mm)	Range: 0 mm to 50 mm; resolution: 0,1 mm
Rotation Sensor (345°)	Range: 0 mm to 1000 mm; resolution: 0,08°; dead zone: 15°; preferred range: 160° to 200°
Acceleration sensor	Range: 0 mm to 300 mm, resolution: 0,1 mm
Maximum coil current	20 A, resolution: 0,01 A
Measuring range of coil resistance	0 Ω to 2000 Ω , resolution: 0,01 Ω
Instrument power supply	220 VAC $\pm$ 10%, 50 Hz $\pm$ 10%
DC power output	6 VDC to 270 VDC continuously adjustable
	24 VDC $\leq$ 15 A (short time)
	220 VDC $\leq$ 20A (short time)
External trigger voltage	10 to 300 VAC/VDC
External trigger current	$\leq$ 120 A
Dimensions	400 x 263 x 175 mm
Operating temperature	-20 °C to 50 °C
Relative humidity	$\leq$ 90 %

Technical Specifications

Measuring range of isolating switch

Voltage output	6 VDC to 270 VDC (adjustabel)
Power output time	0,01 to 20 seconds (adjustable)
Maximum acquisition time of fracture signaç	200 seconds
Measurable	Closing and opening time, three-phase out-of-phase, bounce time

Dimensions

Length	215 mm
Width	130 mm
Height	60 mm

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