

TWS - HIGH SPEED DC CIRCUIT BREAKERS TESTER



APPLICATION

Diagnostics tests of overcurrent releases of high-speed DC circuit breakers:

- accurate measurement of the tripping current,
- measurement of the main contact resistance,
- measurement of the making capacity of the breaker,
- measurement of the circuit breaker opening time,
- measurement of very small resistances of the order of micro-ohms of any part of the circuit breaker or switchgear current path.

BENEFITS

- On site testing eliminating the need of breaker transportation
- Fast and accurate testing due to various probing pulse shapes
- One single device for output current up to 8 kA
- Unique „making capacity” feature
- Small resistance measurements
- Single phase 230 VAC, 16 A power supply
- Comprehensive test reports
- Easy tester transportation

TWS DC high-speed circuit breaker tester, using a battery of super capacitors as a probing current source, was firstly established in Europe in the early 2000s by KOLEN. Currently, the mobile TWS tester features with output current capacity of up to 8 kA. It is powered from single-phase 230 V AC power supply with 16 A protection.

TWS is suitable for testing electromagnetic, latch and ultra-fast high speed DC circuit breakers.

Various probing current waveforms are available including the normalized waveform with a rate of rise of 200 A / s.

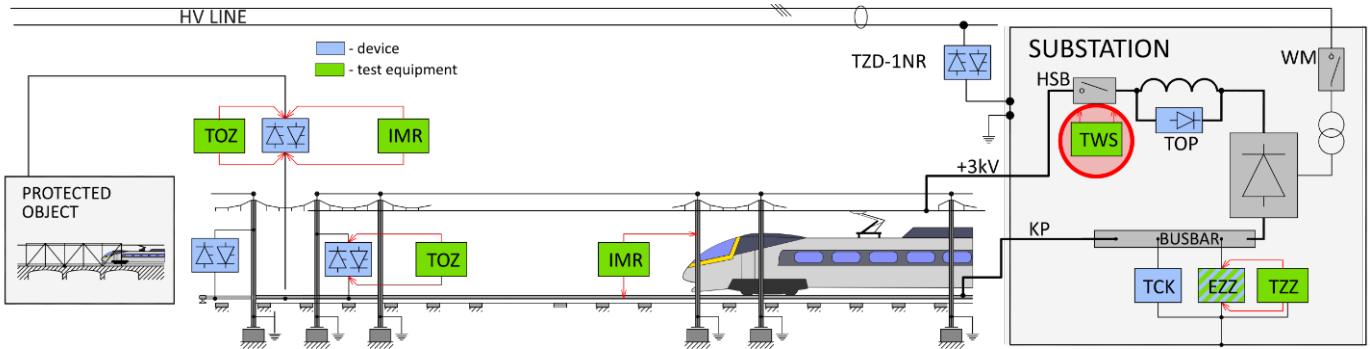
Tester TWS work together with dedicated PC software which allows full control on testing procedures and is capable of creating easy to reuse test reports.

PARAMETERS

For TWS-8000/ TWS-6000 / TWS-4000:

- | | |
|--------------------------------|------------------|
| • Supply voltage | 230 VAC 50 Hz |
| • Maximum output voltage | 8 VDC |
| • Maximum probing current | 8000/6000/4000 A |
| • Maximum power consumption | 2.5 kVA |
| • Current measurement accuracy | 2.5% |
| • Resistance measurement range | from 1 uOhm |
| • Dimensions | 770/520/400 mm |
| • Weight | 55 kg |





Testers TWS (8000, 6000 and 4000) are power electronic device capable of generating a current pulse of up to 8000 A, 6000 A or 4000 A (depending on the version). They are dedicated mainly for diagnostics of overcurrent releases of high-speed DC circuit breakers. The testers can also be used for measurements of very low resistances.

Probing current pulse is shaped by a microprocessor circuit modulating the resistance. The duration of the probing current pulse, depends on the type of test performed, and it is from several hundred milliseconds to two seconds. The source of the pulse energy is a battery of supercapacitors.

The device is controlled by the software installed on a PC (laptop) with the Windows operating system. The software enables tests and diagnostics of circuit breakers, collects the waveforms of the probing currents, and facilitate generating reports. Measurement results can also be stored in a text file.

Biggest advantage of the TWS tester is relatively low power consumption (max 2.5 kVA) from only a single-phase 230 VAC, 50 Hz network. This allows the tester to be used in any facility. By comparison, a converter that converts power directly from the grid to 6000 A DC would require approximately 60 kVA of power.

TWS testers are used in Poland and Europe by:

- companies operating high-speed circuit breakers for testing their performance after repair or maintenance adjustment,
- manufacturers of high-speed circuit breakers for testing the parameters of finished products at the end of the technology line.

