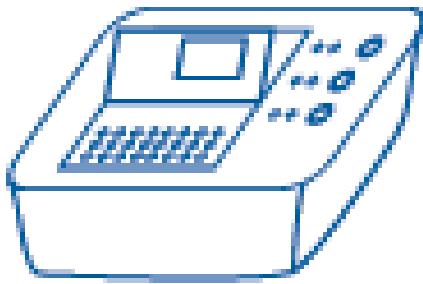
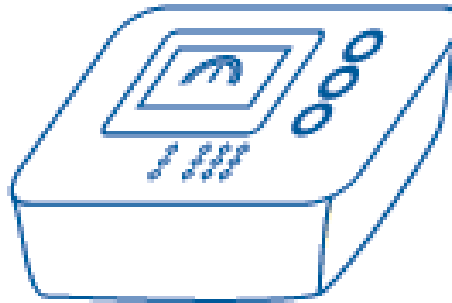


Testing Of Circuit Breaker

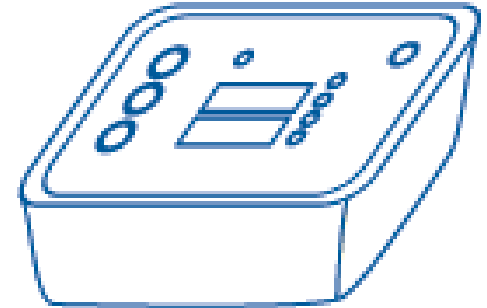
What is usually needed to test breakers



Timing
Analyzer



$\mu\Omega$ - Meter



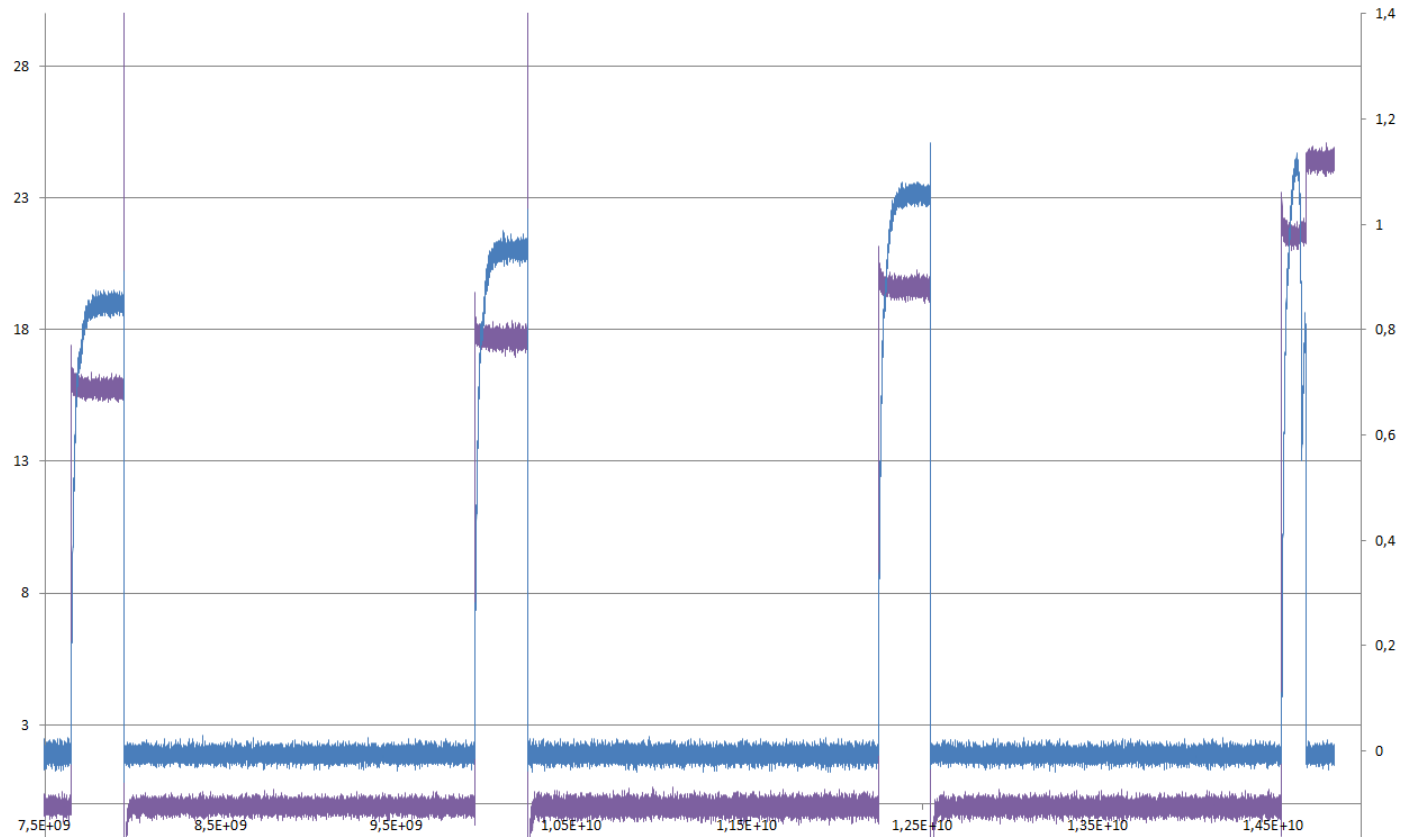
CB Supply

- > Rewiring for each test
- > Individual $\mu\Omega$ -Measurement for each interrupter
- > Collect data for test report

Typical tests on circuit breakers

- 1. Minimum pick-up test**
- 2. Static resistance or contact resistance test (μOhm)**
- 3. Timing of main and auxiliary contacts**
 - a. different operations (O, C, OC, CO, OCO, COCO, OCOCO,...)**
 - b. undervoltage test**
 - c. coil currents**
- 4. Motor current**
- 5. Contact travel (motion) of main contacts**
- 6. Dynamic contact resistance (DRM)**

1. Minimum Pick-up Test

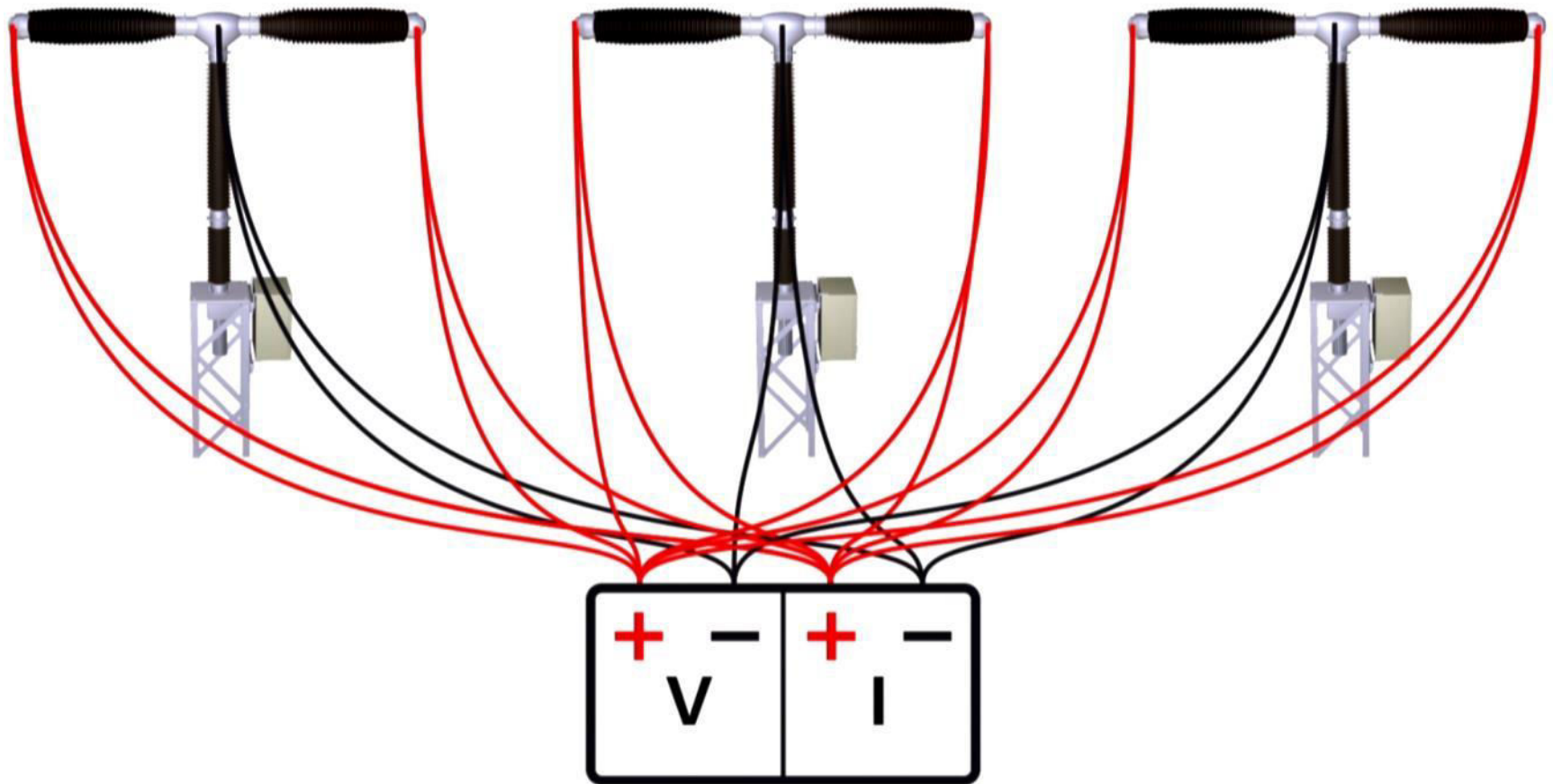


1. Minimum Pick-up Test

- > **Indicates the lowest voltage to operate the trip or close coil**
- > **Start at a certain voltage level**
- > **Try to operate**
- > **If not working increase voltage and try again**
- > **Ramp the voltage pulse until minimum voltage is reached with which the circuit breaker switches**
- > **Everybody has a „selfmade“ solution for this test**

2. Contact Resistance Test

Conventional Setup



2. Contact Resistance Test

- > Test is performed with a μOhm -Meter
- > A lot of different test devices on the market (weight, handling, output current and accuracy)
- > Inject a high current
- > Measurement of a small voltage in a noisy environment
- > Use 4-wire technique to connect