



IDC20K

High current injection test set

1. INTRODUCTION

IDC20K is an innovating solution designed to perform routine testing of the DC switchgear and protective relays used in metro and railways electric utilities.

IDC20K performs a primary current injection of up to 20000A with a low voltage of max 7V5.

Programmable and user-defined transient waveforms make IDC20K suitable for over-current testing as well as for complex time-dependent fault conditions.

IDC20K is a compact and modular solution that eases portability into switchgear rooms with limited space.

On-site primary injection tests improve switchgears reliability and avoid costly factory calibration.



2. USE

2.1 Circuit breaker calibration

IDC20K allows realizing the preventive maintenance and the calibration of trigger levels for MV circuit breakers (Imax and di/dt thresholds).

2.2 Test of digital protections

Protection relays are tested with their effective operation parameters.

The complex acquisition chain (i.e. sensors, cabling and relays) is tested through primary current injection.

More complex protections (like feeders or catenary protection relays) based on the current dynamic measurement are also validated on site when commissioning as well as during periodic tests.

3. FUNCTIONALITY

The modular design of the IDC20K is composed of 19" 3U racks. A maximum current of 20000A is obtained by bridging 8 power modules.

3.1 IJK20 power module

Each power module allows injecting an impulse current of max. 2500A during 500msec. It is also possible to generate a pulse of duration up to 1.8 second with a reduced max current. The shape of the impulse is given by the ICK20 control module. The recharge time between each pulse is < 1 minute.

3.2 ICK20 control module

Allows control of up to 8 IJK20 modules. ICK20 generates arbitrary waveforms and monitors the current injection. The user supervises the system with the help of the integrated laptop PC.

A new record management module automatically generates and saves a report of the test being performed.



3.3 Transportation cases

The equipment is integrated in transportation cases made of thermoformed polyethylene. The mass of each case doesn't exceed 22kg, cables included. Rollers grant you an easy transportation.



4. CHARACTERISTICS

4.1 IJK20 power module

Current	Max. 2500 A
Voltage	Max. 7V5
Max pulse current	2500 A / 500 ms 1300 A / 1000 ms 700 A / 1800 ms
Accuracy	< 1 %
Recharge time	< 1 minute
Supply voltage	230 Vac single phase 50 Hz
Power	< 300 Watts per module
Dimensions (LxHxD)	19" rack : 330 x 440 x 134 mm Transportation case : 559 x 549 x 197 mm
Mass (case included)	16kg + 6kg (cables)
Cables	Flexible cables (95 mm ²) Length 3m Storage integrated in the case

4.2 ICK20 control module

Controllable modules	Max. of 8 IJK20 modules
Man-Machine Interface	Laptop PC integrated in the rack Graphical interface running under Windows®
Waveform	<ul style="list-style-type: none"> • Constant current • Multi-Step • Catenary short-circuit • Pre-recorded template (from RL-PROTECT perturbography)
Accuracy	< 0,4 %
Supply voltage	230 Vac single phase 50 Hz
Power consumption	< 300 Watts
Dimensions (LxHxD)	Rack : 330 x 440 x 134 mm Case : 559 x 549 x 197 mm
Mass	20kg (case and cables included)