PCU2/E

Primary Current Injection System

Features

- 20kVA output capability
- Continuously variable output
- Multi-function timing system
- Digital true RMS ammeter with memory
- Bright LED displays
- Automatic switch-off at end of test
- Centralised control and metering
- Separate control and loading units
- Loading units from 3000A-6000A
- Low impedance, dual-range outputs

The PCU2/E Mk4 primary current injection system is ideally suited to commissioning and maintenance testing where very high currents are required. The system consists of separate control and loading units for maximum flexibility. The control unit contains all control and metering circuitry, and is linked to the loading unit by control and metering cables.

The control unit may be used with one of a range of loading units providing between 3000A and 6000A of output current. Each loading unit has two outputs which may be connected in series or parallel for maximum flexibility. For example, the LU6000 may be configured to either give a maximum current of 3000A at 6.6V or 6000A at 3.3V.

The control and loading units are each housed in tough steel cases fitted with castors and protective lifting handles. The loading units have a small plan area to allow them to be positioned as close as possible to the test object, minimising power requirements and maximising the availables current.

The PCU2/E Mk4 control unit is shown here with an LU6000 loading unit. This combination may be used to inject currents of up to 6000A.

This unit is ideally suited to all primary current injection tasks, including testing under and over current relays, circuit breakers and CT ratio testing.

The control unit is rated at 20kVA, and has digital metering. A memory facility is provided on the metering to hold the current reading when the output trips or is switched off. The current is automatically switched off when the device under test trips.

A flexible timing system is provided, allowing timing tests to be carried out to a resolution of 1ms. Selection for normally open or normally closed contacts is automatic, and the status of the contacts is shown on the front panel. Timing modes are available to test under and overcurrent devices, reclosers, under and over voltage devices, current trips and circuit breakers.

PCU2/E Control Unit Specification

Output

The output to the loading unit is variable from 0-240Vac (non-isolated), at intermittent currents of up to 100A.

Voltage	Continuous current	Intermittent current 5min on/15 min off
0-240V	0-50A	0-100A

Metering

The AC output current is metered by a true RMS 4 digit memory ammeter with an LED display.

Current metering resolution	1A
Current Metering Accuracy	±0.6%rdg+6d
Memory ammeter aquisition time	200ms

Timing System

The PCU2/E has a flexible timing system with two contact inputs and 5 operating modes. Both the start and stop contact circuits will accept volt free contacts. Each contact circuit automatically selects for N/O or N/C contacts, and the status of each contact input is shown by an LED. In addition to contact operation, the first timing channel may be triggered by a dc voltage between 24 and 240V. The timing system will also respond to the rise and fall of current in the test object for devices where no auxiliary contact is available.

Timer resolution	1ms
Timer full scale	999.999s
Timer accuracy	±0.01%rdg+2d
	±0.01%rdg+3d current operated mode
Contact O/C voltage	24V
Contact S/C current	100mA
Vdc input range	24-240Vdc

Timer mode	Timer start	Timer stop
Normal	'On' button	Contact
Single contact	Contact 1	Contact 1
Dual contact	Contact 1	Contact 2
Current	Current >20% of range	Current <20% of range
Off	Timer inactive	

Supply Requirements

230V±10%	49-61Hz	1ph	23kVA max

Temperature Range

Storage -20°C to 60°C, Operating 0°C to 45°C

Dimensions	Weight
660mm x 400mm x 740mm	115kg

Accessories

Lead set, spare fuse set, operating manual.

Lead Set Specifications

1 x 5m loading unit power interconnection lead.
1 x 5m loading unit metering interconnection lead.
1 x 2m mains lead

Loading Unit Specifications

Output

The output of the loading unit is isolated, and continuously variable from zero. All metering functions are handled by the control unit.

Loading unit intermittent ratings (5 min on/15 off)

Unit	Series connection		Parallel connection		Max
Type	Current	Voltage	Current	Voltage	kVA
LU3000	0-1500A	0-8V	0-3000A	0-4V	12
LU4000	0-2000A	0-8V	0-4000A	0-4V	16
LU5000	0-2500A	0-8V	0-5000A	0-4V	20
LU6000	0-3000A	0-6.6V	0-6000A	0-3.3V	20

Loading unit continuous ratings

Unit	Series connection		Parallel connection		Max
Type	Current	Voltage	Current	Voltage	kVA
LU3000	0-750A	0-8V	0-1500A	0-4V	6
LU4000	0-1000A	0-8V	0-2000A	0-4V	8
LU5000	0-1250A	0-8V	0-2500A	0-4V	10
LU6000	0-1500A	0-6.6V	0-3000A	0-3.3V	10

Unit	Dimensions	Weight
LU3000	660 x 400 x 740mm	155kg
LU4000	660 x 400 x 740mm	155kg
LU5000	660 x 400 x 740mm	155kg
LU6000	660 x 400 x 740mm	135kg

Protection and Safety

The PCU2/E and loading units are CE marked and are designed to meet the requirements of BS EN61010.

The system is protected by an electronic trip on the output, and fuses on the mains input and control unit output.

Supply:	100A HRC fuse
Output:	100A HRC fuse
Control:	T3.15A fuse
Timing:	2xF250mA fuses

Optional Output Lead Set Specifications

A range of output lead sets are available to complement the PCU2/E system, with lengths from 1m to 2.5m, and current ratings between 3000A and 6000A. The leads are double insulated, and have good flexibility.

Type	Length	CSA	Termination
3000AL	2.5m	560mm^2	Copper bar
4000AL	2.5m	700mm^2	Copper bar
5000AL	2m	840mm^2	Copper bar
6000AL	2m	1120mm^2	Copper bar

Other output lead lengths are available on request.

T&R Test Equipment Ltd, 15-16 Woodbridge Meadows, Guildford, Surrey, GU1 1BJ, UK
Tel: +44 (0)1483 207428 Fax: +44 (0)1483 511229 email: sales@trtest.com