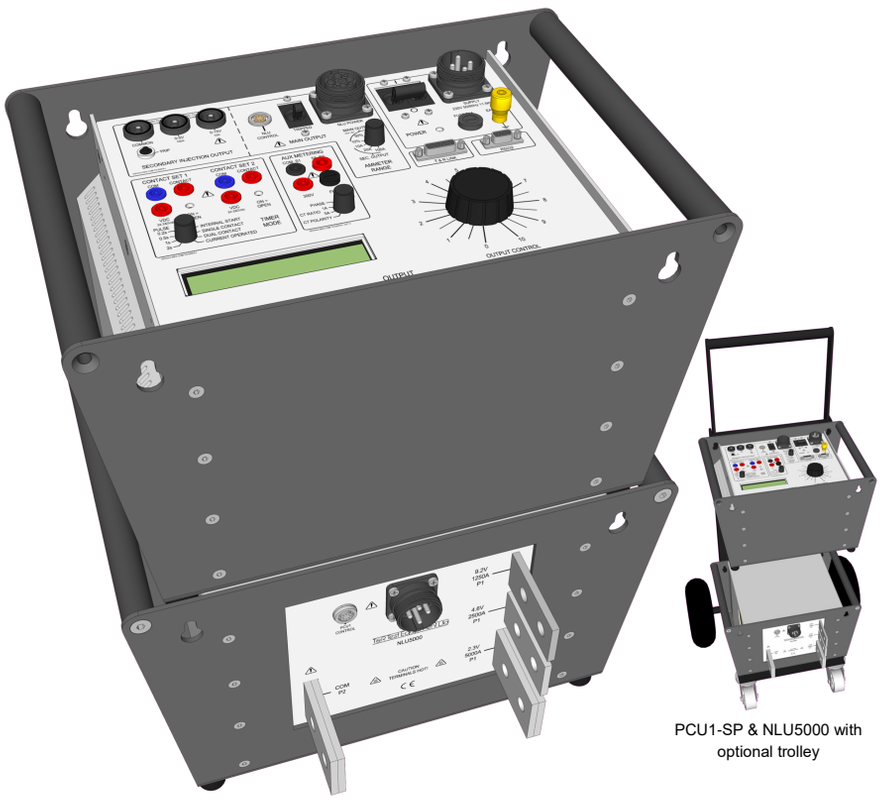
PCU1-SP mk2 *Primary Current*



PCU1-SP & NLU5000 with optional trolley

Features

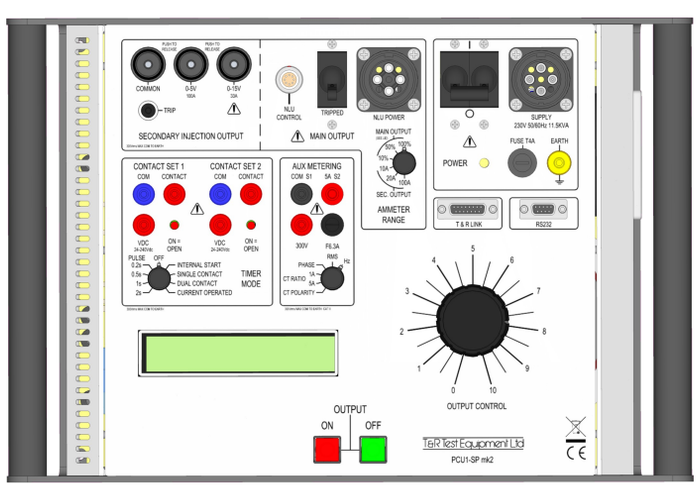
- 5kA maximum output current (higher overload currents for 2s)
- Multi-function digital timing system
- True RMS memory ammeter with single cycle capture
- 2000A and 5000A loading units
- Three range outputs on loading units
- Rugged, compact design
- Optional trolley mounting of system
- Secondary injection up to 100A
- Direct reading CT ratio and polarity

The PCU1 series are medium powered primary current injection systems offering output currents up to 5000A. The system consists of a separate control unit containing all metering and control functions and a loading unit that provides the high current output. The PCU1-SP mk2 is ideally suited to primary current injection, stability testing and circuit breaker testing. In addition, it offers direct-reading CT ratio and polarity tests and a 100A secondary injection output. T&R also offer the higher-powered PCU2 system.

The control units are rated at 11.5kVA with a 2 second overload capability of 23kVA using pulse mode. All metering is digital and a memory facility is provided to hold the current reading when the output trips or is switched off. The PCU1 systems have a high accuracy timing system with 1ms resolution. 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 for under and over current devices, re-closers, under and over voltage devices, current trips and circuit breakers.

Feature	PCU1-SP mk2	PCU2
Primary injection	✓	✓
Max output power	11.5kVA 40s	20kVA 5 min
Secondary injection	✓	×
CT ratio/polarity test	✓	×

Two loading units are available, delivering a maximum output current of 2000A or 5000A. Each loading unit has three output taps to allow for a wide range of load impedances. For example, the NLU5000 may be configured to either give a maximum current of 5000A on the 2.3V range, 2500A on the 4.6V range or 1250A on the 9.2V range.



PCU1-SP mk2 Specification

Loading Unit Current Metering

The AC output current is metered by a true RMS memory ammeter (acquisition time 200ms) with a liquid crystal display. The current metering has 3 ranges corresponding to 10%, 50% and 100% of the maximum rating of the loading unit. In addition, a 200% metering range is enabled in pulse mode.

NLU2000

Range	Full scale	Resolution	Accuracy
10%	200.0A	0.1A	±0.5%rdg+5d
50%	1000A	1A	±0.5%rdg+5d
100%	2000A	1A	±0.5%rdg+5d
200%	4000A	1A	±1%rdg+5d

NLU5000

Range	Full scale	Resolution	Accuracy
10%	500.0A	0.1A	±0.5%rdg+5d*
50%	2500A	1A	±0.5%rdg+5d*
100%	5000A	1A	±0.5%rdg+5d*
200%	10kA	10A	±1.5%rdg+5d

* ±1.5%rdg+5d pulse mode

Timing System

The PCU1 systems have a flexible timing system with two contact inputs and 5 operating modes. Each contact circuit automatically selects for N/O or N/C contacts, and the status of each contact input is shown by an LED. The timing channels may also be triggered by a DC voltage between 24 and 240V.

Timer resolution	1ms
Timer full scale	999.999s
Timer accuracy	±0.01%rdg+2d (4d current mode)
Contact O/C voltage	24V
Contact S/C current	20mA
Vdc input range	24-240Vdc

Timer mode	Timer start	Timer stop
Internal Start	'On' button	Contact
Single contact	Contact 1	Contact 1
Dual contact	Contact 1	Contact 2
Current operated **	Current >20% rng	Current <20% rng
Pulse mode 0.2s *	'On button'	0.2s
Pulse mode 0.5s *	'On button'	0.5s
Pulse mode 1s *	'On button'	1s
Pulse mode 2s *	'On button'	2s
Off	Setting position	

I<20% range Contact 1

***Pulse** mode applies current to the load for a maximum of the specified time. If contact set 1 changes state or the current drops below 20% of the metering range during the pulse time, the timer is stopped. The maximum output current is increased in pulse mode. The maximum obtainable current is set by the impedance of the test object and output leads.

****Current operated mode** is used to time circuit breakers with no auxiliary contacts. The timer is started when the current exceeds 20% of the selected metering range (e.g. 100A on the NLU5000 500A range). The timer stops when the current falls.

Secondary Injection Output

Output Range	Continuous current	Intermittent current 5min on*	1 min on*
0-5V	33A	67A	100A
0-16V	10A	20A	30A

*All on times must be followed by an off time of 15 minutes

Metering Range	Resolution	Accuracy	Current trip
10.00A	0.01A	±0.5%rdg+5d	10.5A
20.00A	0.01A	±0.5%rdg+5d	21A
100.0A	0.1A	±0.5%rdg+5d	100A

Supply Requirements

230V±10%, 45-65Hz 1ph 11.5kVA max (23kVA overload for 2s)

Control Unit Standard Accessories

Mains lead (5m), loading unit power and metering leads (5m), operating manual and spare fuses.

Dimensions		Weight
PCU1-SP	450 x 275 x 305mm	26kg
NLU2000	450 x 275 x 370mm	49kg
NLU5000	450 x 275 x 370mm	58kg

Temperature Range

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

Protection and Safety

The PCU1 series and loading units are CE marked and are designed to meet the requirements of BS EN61010. The system is protected by electronic trips on the outputs, circuit breakers on the mains input, and control unit output. The unit also has a duty cycle trip on the loading unit output and thermal protection.

Optional Loading Unit Specifications

Two loading units are available to provide a range of output currents suitable for different primary injection tasks. Each loading unit has three output taps allowing current injection into a wide range of loads of differing impedances.

NLU5000 Loading Unit Intermittent Ratings

Output		Maximum current		
Voltage*	Cont.	5 min	1 min	40s
2.3V	1500A	3000A	4500A	5000A
4.6V	750A	1500A	2250A	2500A
9.2V	375A	750A	1125A	1250A

NLU2000 Loading Unit Intermittent Ratings

Output		Maximum current		
Voltage*	Cont.	5 min	1 min	40s
4V	600A	1200A	1800A	2000A
8V	300A	600A	900A	1000A
16V	150A	300A	450A	500A

*open circuit voltage at 230V mains

Optional Output Lead Set Specifications

Type	Length	CSA	Termination
1000NAL	1m to 5m	140mm²	Copper bar
2000NAL	1m to 5m	280mm²	Copper bar
3000NAL**	1m to 3hm	420mm²	Copper bar
5000NAL**	1m to 3m	560mm²	Copper bar

*Output currents above 3000A require very short leads, and longer leads will restrict the maximum current available