

# 100ADM Current Injection System



## Features

- 0-100A output current
- Accurate true RMS digital metering
- All outputs fully isolated
- Multi-function 1ms resolution timing system
- Auxiliary DC output
- Auxiliary AC output
- Large LED displays
- Electronic over-current protection
- Compact and portable
- Triple supply voltage operation

T&R Test Equipment is a market leader in the field of current injection equipment. The range includes secondary injection units with 100A output capability up to 6000A primary injection systems. All have true RMS metering, a flexible timing system, and an easy to understand user interface.

The 100ADM test system is regarded as an industry standard for testing protection systems. It provides commissioning and maintenance engineers with a compact, portable and flexible system for the testing and timing of protective relays, circuit breakers and auto-reclosers. The unit is equally at home testing solid state or electro-magnetic relays. A matching filter unit is available for testing disc induction relays and other devices causing distortion of the test current.

The unit has a range of outputs allowing the injection of currents up to 100A. Voltages up to 240V are available on the main outputs, allowing high impedance current relays and voltage relays to be tested. Four true RMS metering ranges are provided, allowing the full scale of the meter and trip level to be set independently of the selected output. The lowest range gives a resolution of 1mA, and the highest range has a full scale of 100A. Industry standard connectors are used on all inputs and outputs for convenience, reliability and safety. The 100ADM is comprehensively protected by electronic overcurrent trips and fuses.

A stabilised DC supply is provided to power the relay under test, and a fixed auxiliary AC output facilitates the testing of directional relays.

The timing system on the 100ADM is very flexible and exceptionally easy to use. It allows trip times, reset times and reclose times to be quickly measured to a high degree of accuracy. Ease of use is enhanced by contact inputs that automatically select for normally open or normally closed contacts. The timer may also be operated independently to time external events.

The 100ADM can be used to test many types of single phase secondary protection including:

- Over and under current relays
- IDMT relays
- Over and under voltage relays
- Auto-reclosers
- Time delay relays
- Earth fault relays
- Miniature circuit breakers
- Power relays
- Tripping relays
- Thermal relays
- Voltage regulating relays

100ADM with  
optional  
100ADM-F  
current filter unit



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## 100ADM Specification

### Main Output

The main output on the unit has four taps, allowing the selection of output voltages up to 240V and output currents up to 100A. The output is switched on and off by illuminated pushbuttons, and the current is set using the main control knob on the front panel. All ranges are continuously variable from zero.

Range	Continuous	5 minutes	1 minute
10V	25A	50A	100A
35V	10A	20A	30A
100V	3A	5A	10A
240V	1A	2A	3A
240V DC	1A	2A	3A

The above intermittent on times must be followed by an off time of 15 minutes, and are based on an ambient temperature of 25°C.

### Auxiliary AC and DC Outputs

A switched, isolated auxiliary DC supply is available to power the relay under test. The output is protected by a fuse and electronic fold back current limiting circuit.

DC stabilised output	24V	1.04A
	48V	0.52A
	60V	0.42A
	110V	0.23A
	220V	0.11A

The auxiliary AC output is isolated and fuse protected.

Fixed AC output	110Vac	300mA
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### Metering

The output is metered by a digital true RMS system with a 3.5 digit LED display. The range is selected by a switch on the front panel.

Range	Resolution	Trip current	Accuracy
1.999A	0.001A	2.3A	±0.6%rdg+6d
5.00A	0.01A	5.75A	±0.6%rdg+6d
19.99A	0.01A	23A	±0.6%rdg+6d
100.0A	0.1A	115A	±0.6%rdg+6d

An electronic current trip is automatically set to 115% of full scale of the selected metering range to protect the device under test.

### Capacitor

A 10µF capacitor is provided to allow basic phase shifting of voltage outputs.

### Supply Requirements

115V+10%-6%	50/60Hz 1ph 1200VA max
220V±10%	50/60Hz 1ph 1200VA max
240V±10%	50/60Hz 1ph 1200VA max

### Temperature Range

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

### Dimensions

340mm x 230mm x 330mm  
Including carrying handle

### Weight

20.7kg

## Timing System

The timing system on the 100ADM is very flexible, allowing a wide range of protective devices to be timed.

Range	0-999.999s
Resolution	1ms
Accuracy	0.01% rdg +1d (all except current operated mode) 0.01% rdg +3d (current operated mode)

The contact circuit has an open circuit voltage of 24Vdc and a short circuit current of 100mA. The state of each contact set is shown by an LED, and each contact circuit will auto-select for normally open or normally closed contacts. The contacts may be connected to volt-free contacts or contacts connected to a DC voltage system (220Vdc maximum). A DC voltage of 24-240Vdc may also be used to trigger the first timer channel.

The following functions are provided:

Mode	Timer Start	Timer Stop
Internal start	Press 'ON'	Contact 1
Single contact	Contact 1	Contact 1
Dual contact	Contact 1	Contact 2
Current operated	Current > 20% of range	Current < 20% of range

The output is automatically switched off at the end of the test to safeguard the relay under test in internal start, dual contact, and current operated mode. The output switches off after the first change of contact in single contact mode to allow the testing of auto-reclose devices..

### Protection and Safety

The unit is protected by electronic over current trips on the outputs, fuses on the contact inputs, and fuses on the mains input and regulator. The auxiliary AC output is fuse protected, and the stabilised DC output is protected by an electronic trip and fuse. An earth terminal is provided for connection to a local earth.

The unit is designed to comply with BSEN61010, and is CE marked.

### Lead Set specifications

The 100ADM is supplied with a lead set including the following items:

- 2 x 5m 25mm<sup>2</sup> 100A leads terminated in M10 fork crimps
  - 2 x 5m 4mm<sup>2</sup> 25A leads terminated in 4mm plugs
  - 2 x 0.5m 4mm<sup>2</sup> 25A leads terminated in 4mm plugs
  - 2 x 5m 2 core auxiliary leads terminated in 4mm plugs
- The lead set is supplied in a reinforced plastic wallet.

### Accessories

Operating manual, output lead set, mains lead, spare fuse set, shoulder carry strap.

### Optional Accessories

100ADM-F filter unit

*Note: Due to the company's continuous research programme, the information above may change at any time without prior notification. Please check that you have the most recent data on the product.*

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