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# DATA-SHEET



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**WHY BUY**  
WHEN YOU CAN HIRE

# 200ADM Current Injection System



## Features

- Clear and simple user interface
- 0-200A output current
- True RMS digital metering with memory ammeter
- Multi-function timing system
- Auxiliary DC output
- Variable auxiliary AC output
- Auxiliary metering input
- Large back-lit liquid crystal display
- Thermal and over-current protection
- Compact and portable
- Automatic mains voltage selection



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 200ADM is the most recent addition to the range, and provides commissioning and maintenance engineers with a flexible system for testing protective systems. It has an easy to understand panel layout and a simple user interface. The status of every function can be seen at a glance, and there are no complex menus to navigate.

*The back-lit display on the 200ADM is bright and clear with a wide viewing angle. The results of a test can be seen here as they appear on the display*

The unit has a range of outputs allowing injection of currents as low as 1mA and as high as 200A. 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. Industry standard safety connectors are used on all inputs and outputs for convenience, reliability and safety.

The 200ADM is comprehensively protected by overcurrent, duty cycle and thermal trips, and keeps the user fully informed of any trip condition.



An auxiliary metering input is provided and can measure AC and DC voltage, current, frequency, and the phase between the main current output and an external voltage or current. A stabilised DC supply is provided to power the relay under test, along with an independently variable AC output.

The timing system is very flexible without compromising ease of use, allowing trip times, reset times and reclose times to be quickly measured to a high degree of accuracy.

The 200ADM 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
- Differential relays
- Earth fault relays
- Miniature circuit breakers
- Power relays
- Tripping relays
- Thermal relays



T&R Test Equipment Ltd



## 200ADM 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 200A.

| Range   | Continuous | 5 minutes | 1 minute | 6 sec. |
|---------|------------|-----------|----------|--------|
| 10V     | 25A        | 50A       | 100A     | 200A*  |
| 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.

\*6 second intermittent ratings available with 230V supply.

### 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 trip circuit.

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

Variable AC output 0-130Vac 300mA

The variable AC output is isolated, switched, and fuse protected.

### Metering

The output is metered by a digital true RMS system with a memory ammeter - whenever the timer stops and the output is switched off, the current reading is held on the display.

| Range  | Resolution | Trip current | Accuracy    |
|--------|------------|--------------|-------------|
| 5.000A | 0.001A     | 5.5A         | ±0.5%rdg+5d |
| 20.00A | 0.01A      | 22A          | ±0.5%rdg+5d |
| 50.00A | 0.01A      | 55A          | ±0.5%rdg+5d |
| 200.0A | 0.1A       | 220A         | ±0.5%rdg+5d |

A current trip is automatically set to 110% of full scale of the selected metering range to protect the device under test.

### Auxiliary Metering Inputs

An auxiliary metering input is provided which is able to measure RMS and DC voltage or current. In addition the frequency of the external input may be measured, and the phase measured between the main output current and the auxiliary metering input.

| Setting    | Range     | Resolution | Accuracy    |
|------------|-----------|------------|-------------|
| Volts (DC) | 270.0V    | 0.1V       | ±0.7%rdg+5d |
| Volts (AC) | 270.0V    | 0.1V       | ±0.7%rdg+5d |
| Amps (DC)  | 5.000A    | 1mA        | ±0.7%rdg+5d |
| Amps (AC)  | 5.000A    | 1mA        | ±0.7%rdg+5d |
| Phase      | 0.1°      | ±3°        |             |
| Frequency  | 20-1000Hz | 0.1Hz      | ±0.2%rdg+1d |

The current input is protected by a F6.3A fuse.

### Supply Requirements

115V±10% 50/60Hz 1ph 2300VA max

230V±10% 50/60Hz 1ph 2300VA max

The correct range is automatically selected by the unit.

### Timing System

|            |  |
|------------|--|
| Range      | 0-999.999s                             |
| Resolution | 1ms                                    |
| Accuracy   | 0.1%rdg+2d (+4d current operated mode) |

The contact circuit has an open circuit voltage of 24Vdc and a short circuit current of 10mA. Each contact circuit will auto-select for normally open or normally closed contacts. A DC voltage of 24-240Vdc may also be used to trigger either timer channel. The output is automatically switched off at the end of the test to safeguard the relay under test.

The following functions are provided:

| Mode             | Timer Start            | Timer Stop             |
|------------------|------------------------|------------------------|
| Internal start   | Press 'ON'             | Contact 1 or 2         |
| Single contact   | Contact 1              | Contact 1              |
| Dual contact     | Contact 1              | Contact 2              |
| Current operated | Current > 10% of range | Current < 10% of range |

Pulse mode is used for setting the current level in devices sensitive to heating, and allows current to be injected for 400ms and the current recorded.

### RS232

An RS232 port is provided to allow connection of a printer.

### Protection and Safety

The unit is protected by electronic over current, duty cycle trips and thermal monitoring on the outputs and fuses on the 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.

### Temperature Range

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

### Lead Set specifications

The 200ADM is supplied with a lead set including:

2 x 5m 25mm<sup>2</sup> 200A leads terminated in M10 ring crimps

2 x 5m 2.5mm<sup>2</sup> 25A leads terminated in 4mm plugs

1 x 5m 2 core auxiliary leads terminated in 4mm plugs

The lead set is supplied in a plastic carrying case.

### Dimensions

380mm x 314mm x 221mm

Including handle and corner protectors

### Weight

20.7kg

### Accessories

Operating manual, o/p lead set, mains lead, spare fuses

### Optional Accessories

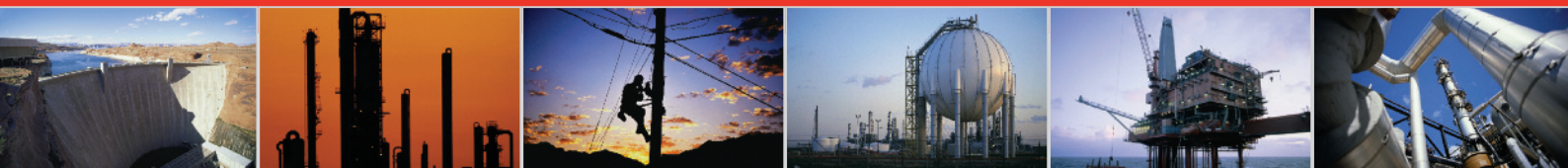
Filter unit, Printer, 200ADM-DRE (see below)

### Optional 200ADM-DRE extension unit

The 200ADM-DRE converts the auxiliary ac output into a 0-5A 6.8V or 0-10A 3.4V current output, allowing bias differential relays to be tested. The unit may also be used in other situations where a second current output is required from the 200ADM.



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\*subject to availability and conditions

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