# 200ADM-P Relay Test System

## with Phase Shift & USB Data Storage

### Main Output

Output currents up to 200A AC and output voltages up to 240V AC/DC from four outputs with four independent metering ranges.
Protected by a duty cycle trip.
With current limit mode for fine current control.

The metering features single cycle capture of RMS values.

### Auxiliary Metering

AC and DC voltage and current up to 300V and 10A.

DC: Volts/Amps DC average & RMS ripple
AC: Volts/Amps AC RMS, frequency & phase angle
Power: VA, W and power factor
Impedance: Z, X & phase angle
CT ratio: Ratio relative to 1A & 5A CT and phase angle
Harmonic: Harmonics & THD on the main output & aux input

### AC Output with Phase Shift

0-130V, 0-260V and 0-10A.
0-360° phase shift or variable frequency 45-100Hz. Use as a voltage output for directional and impedance relays, or as a second current for differential relays.
Linked to the timer for timing voltage and frequency relays.

### Timing

Auto-ranging timer with 1ms resolution. Trigger from main output, auxiliary output and two contact sets.

Auto-selecting for NO/NC with contact state indication.

### Auto Mains Selection

Automatic selection of 115/230V supply input.

### Interfaces

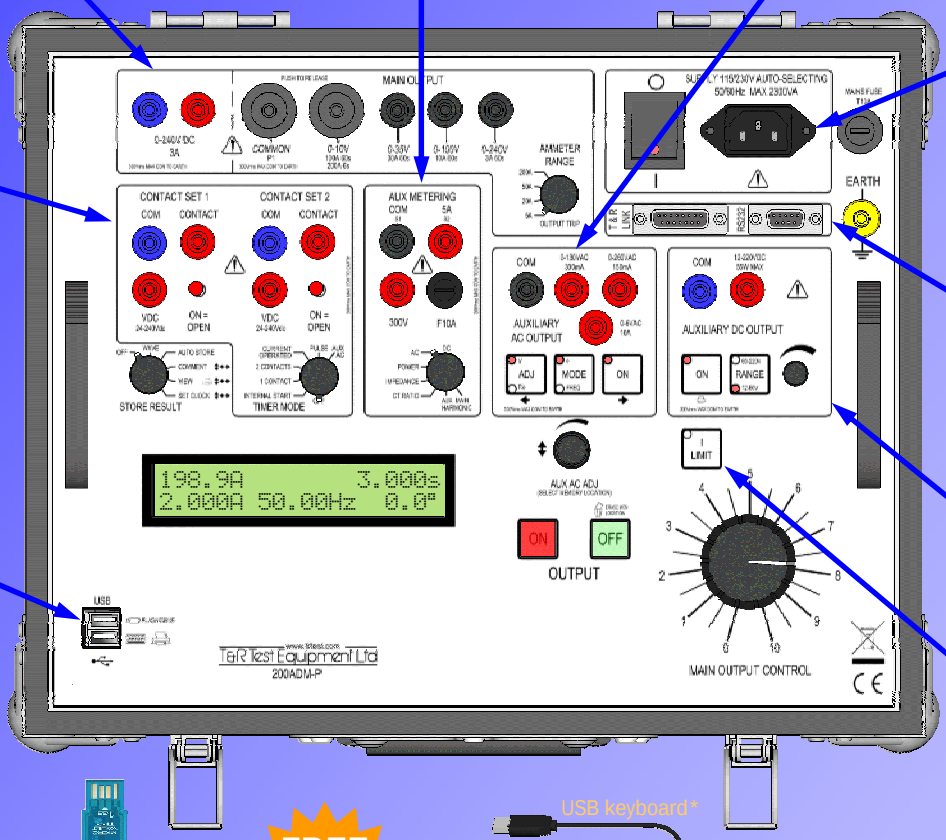
T&R link for contact output and connection to other T&R products.
RS232 for PC or printer.

### DC Output

Stabilised, variable dc output 12-220V.

### Current Limit

Very fine current control for currents up to 10A.




## USB Data Storage

All test results can be stored automatically on a standard USB memory key. The unit has a real-time clock to time and date-stamp all results. All parameters are automatically stored whenever the timer stops. Results are written to a CSV file that can be opened by any spreadsheet program.

A comment can be entered with the USB keyboard, and this is stored with each result.

MS Excel macros are supplied with the unit to plot relay time-current curves and CT mag curves.



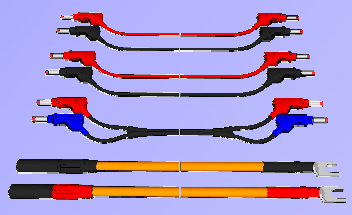
USB memory key*

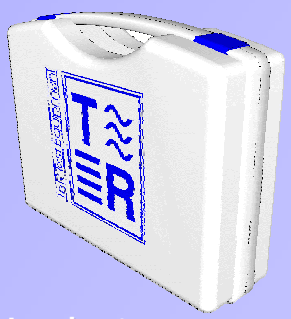
**FREE**
USB keyboard
USB memory key
with units ordered in 2008

USB keyboard*

Personalised, commented test results

**NEW**
Available for shipping November 2008





### Lead set

High quality output leads in carry case included with unit

T&R Test Equipment Ltd

**www.trtest.com**

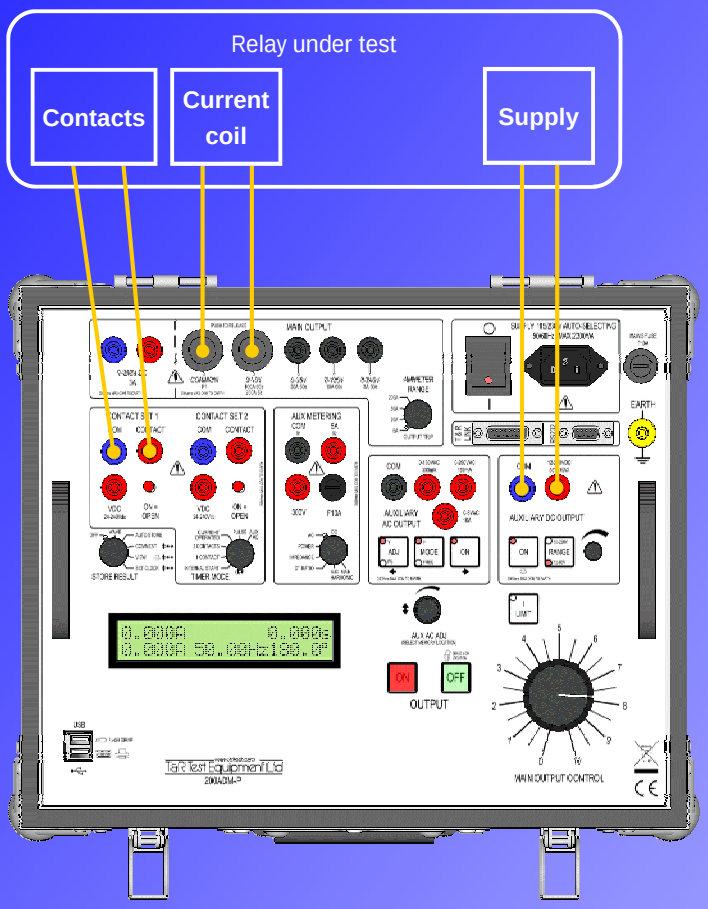
* optional accessories

# Example Applications

## Overcurrent relay with result storage

Testing an overcurrent relay with a 200ADM-P is simple, complete with logging of results and plotting the curve on a PC.

Connect the relay coil to the main output, contact set 1 and the dc supply if required. To log the results, insert a USB key and plug in the keyboard.



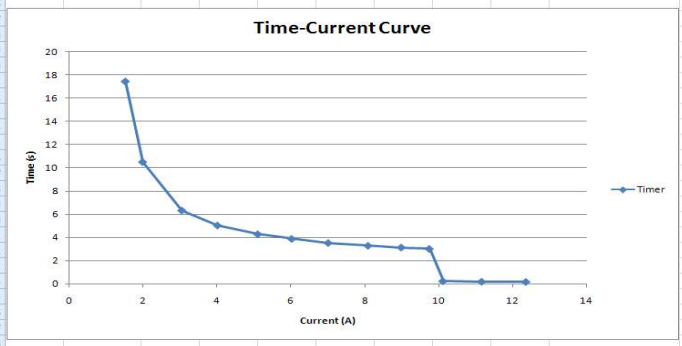

Set the Store Result switch to Comment, and type in a comment to add to all results. Set the switch to Auto-Store.

Switch the timer off and set the required current. If testing a digital relay select current limit mode to give fine current control. Switch the timer to Internal Start and then switch the output on. The timer will stop when the relay trips, and the trip time will be recorded to the USB key with the test current, time, date and your comment. Repeat for other points on the relay curve as required.

After testing, plug the USB memory key into your PC. You'll find a folder called TRTEST on the key with your results in a sub-folder named with the test date. Your results file is named with the time of the test. Open the file in Excel (or any other spreadsheet). If you're using Excel, run the macro supplied with the unit to plot the curve (see right).

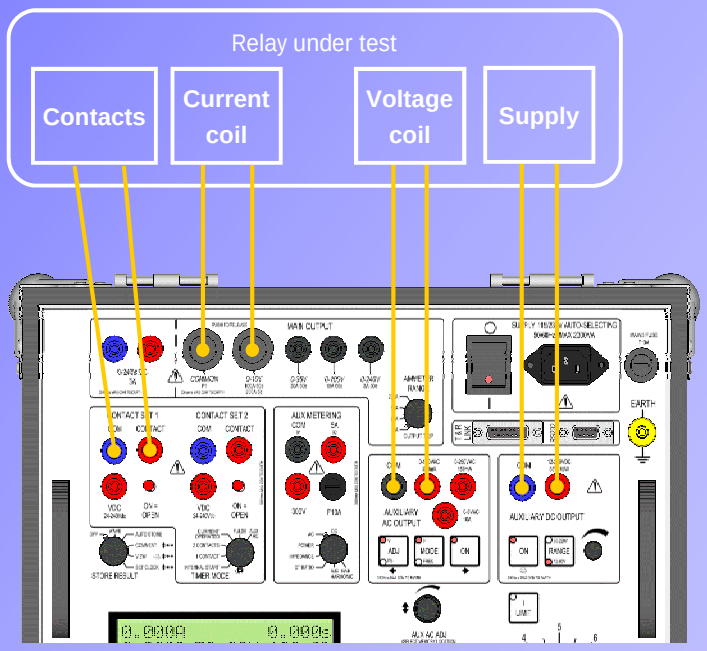
Overcurrent relay curve plotted in MS Excel

| | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 200ADM-P | V0.00 | C00 | P1 | A1 | | | | | |
| 2 | Time | Date | Main A | Timer | Aux A | Aux V | Phase | Freq Hz | Aux Range | Comment |
| 3 | 12:40:03 | 12/09/2008 | 1.51 | 17.39 | 0 | 0 | 0 | 0 | 5 | MCGG21 Overcurrent |
| 4 | 12:40:34 | 12/09/2008 | 1.98 | 10.47 | 0 | 0 | 0 | 0 | 5 | MCGG21 Overcurrent |
| 5 | 12:40:54 | 12/09/2008 | 3.04 | 6.312 | 0 | 0 | 0 | 0 | 5 | MCGG21 Overcurrent |
| 6 | 12:41:09 | 12/09/2008 | 4.01 | 5.02 | 0 | 0 | 0 | 0 | 5 | MCGG21 Overcurrent |
| 7 | 12:41:21 | 12/09/2008 | 5.1 | 4.269 | 0 | 0 | 0 | 0 | 5 | MCGG21 Overcurrent |
| 8 | 12:41:32 | 12/09/2008 | 6.02 | 3.869 | 0 | 0 | 0 | 0 | 5 | MCGG21 Overcurrent |
| 9 | 12:41:45 | 12/09/2008 | 7.01 | 3.52 | 0 | 0 | 0 | 0 | 5 | MCGG21 Overcurrent |
| 10 | 12:41:55 | 12/09/2008 | 8.09 | 3.278 | 0 | 0 | 0 | 0 | 5 | MCGG21 Overcurrent |
| 11 | 12:42:04 | 12/09/2008 | 8.99 | 3.129 | 0 | 0 | 0 | 0 | 5 | MCGG21 Overcurrent |
| 12 | 12:42:16 | 12/09/2008 | 9.75 | 3.008 | 0 | 0 | 0 | 0 | 5 | MCGG21 Overcurrent |
| 13 | 12:42:21 | 12/09/2008 | 10.12 | 0.236 | 0 | 0 | 0 | 0 | 5 | MCGG21 Overcurrent |
| 14 | 12:42:27 | 12/09/2008 | 11.17 | 0.193 | 0 | 0 | 0 | 0 | 5 | MCGG21 Overcurrent |
| 15 | 12:42:31 | 12/09/2008 | 12.37 | 0.172 | 0 | 0 | 0 | 0 | 5 | MCGG21 Overcurrent |




## Directional Relay

Connect your directional relay as the overcurrent relay, but connect the voltage coil to the auxiliary ac output. Link the ac output to the metering input for metering.




The unit displays the voltage, frequency and phase angle.


The aux ac adjust control first sets the voltage, and then when the ADJ button is pressed it switches to control the phase angle. If you plug in the memory key and select internal start timer mode, results will be stored whenever the timer stops or the main output is switched off.

For details of more applications, please visit our web site: www.trtest.com

**Under and Over-voltage relays — Frequency relays — Check-sync relay — CT Mag Curves**

For full specification please refer to the 200ADM-P data sheet

*Note: 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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