

100ADM-F

Current Filter Unit



Features

- Forces test current to a sinusoid
- Greatly improves timing accuracy when testing electromechanical relays
- Wide range of test currents
- High overload capability
- 50/60Hz operating frequency
- High efficiency
- Current monitoring output
- Compact and portable

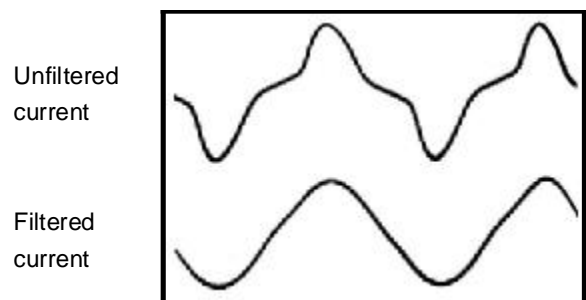
The 100ADM-F filter unit reduces the level of current harmonics when testing electro-mechanical protection relays. It is designed for use with our range of secondary injection test sets.

All electromechanical protection relays have iron cores that saturate and distort the test current under high overload test conditions. This distortion causes significant errors in the measured trip time of these relays during testing. Distortion of the waveform can be a particular problem with disc induction type over-current and sensitive earth fault relays.

For example, testing a CDG11 disc induction over-current relay without a filter causes significant timing errors. The results below show the errors for a 1.3s 1A CDG11 over-current relay on its 0.5A plug setting, tested at 5A.

	Current	THD	Trip time	Error
No Filter	5A	34.5%	1.54s	18.5%
With Filter	5A	6.12%	1.30s	0%

The effect of the filtering on the current may be clearly seen in the waveforms below.



Unfiltered and filtered current waveforms for disc induction relay

The 100ADM-F has nine current ranges covering 0.25A to 100A and is supplied in an insulated case complete with protective cover and carrying strap.

100ADM-F Specification

Current Ranges and Ratings

Range	Continuous rating	5 min on/ 15 min off
0.25A	0.125A	0.25A
0.5A	0.25A	0.5A
1A	0.5A	1A
2.5A	1.25A	2.5A
5A	2.5A	5A
10A	5A	10A
25A	12.5A	25A
50A	25A	50A
100A	50A	100A

Frequency

The unit may be used at either 50Hz or 60Hz, selectable by a switch on the front panel.

Range Selection

The lower ranges (0.25A-50A) are selected by a switch, and the highest current range is selected by a terminal.

Current Monitor

A current monitoring output is provided that gives an output of 0-100mA corresponding to the rated current for the range.

Filter Unit Impedance

The table below give the impedance in ohms of the filter unit against frequency on each range.

Range	Impedance (Ω)			
	50Hz	150Hz	250Hz	350Hz
0.25A	880 Ω	17.5k Ω	30.4k Ω	41.5k Ω
0.5A	220 Ω	4.38k Ω	7.65k Ω	10.3k Ω
1A	47.7 Ω	950 Ω	1.65k Ω	2.25k Ω
2.5A	7.8 Ω	150 Ω	250 Ω	360 Ω
5A	1.94 Ω	38 Ω	65 Ω	90 Ω
10A	510m Ω	9.5 Ω	16.5 Ω	22.5 Ω
25A	85m Ω	1.5 Ω	2.5 Ω	3.6 Ω
50A	22m Ω	380m Ω	650m Ω	900m Ω
100A	5.5m Ω	95m Ω	165m Ω	225m Ω

Temperature Range

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

Dimensions

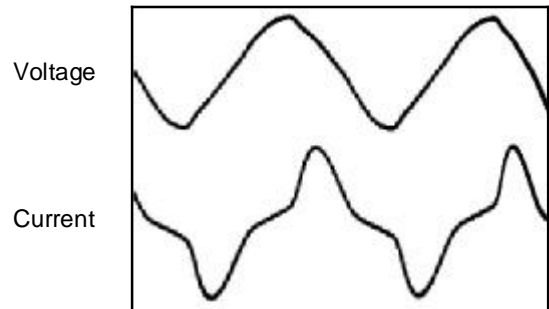
340mm x 230mm x 330mm

Weight

15.6kg

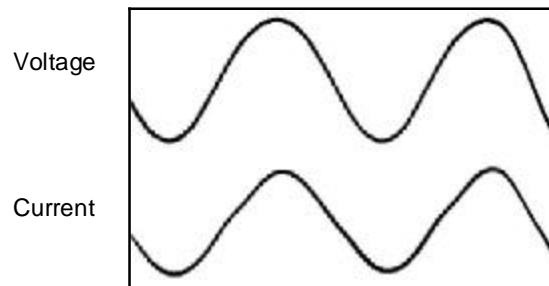
Current Waveforms

The waveforms below show the current and voltage waveforms for a disc induction type relay supplied from a 100ADM current injection system without a filter. The distortion of the current waveform can be clearly seen.



Voltage and current waveforms for disc induction relay without filter unit

The effect of adding the filter unit is shown below - very little distortion is evident on the current waveform.



Voltage and current waveforms for disc induction relay with filter unit

Accessories

- Operating manual
- Current monitor plug and lead

Optional Accessories

- 100AL lead set