

## Miro-ECO Emergency Changeover

The Miro ECO Emergency Changeover instrument (Figure 1), is a power quality logger and analyser with a fast relay output (switch) that is triggered by user settable voltage thresholds and switches supply from one source to another. A typical application is an emergency supply changeover scheme for a railway signalling system power supply. This is where normal supply fails and the Miro ECO enables changeover to an emergency supply. When normal supply recovers, the instrument automatically switches back to normal supply. The Miro ECO instrument provides event information as to the cause of the switchover. Switching times are very fast, typically 10ms.



Figure 1: Miro ECO

The Miro ECO instrument is an intelligent device that can be configured to prevent nuisance and repetitive switching operations by progressively delaying switchback times.

The fast switching ensures continued normal operation of downstream equipment, as the switching times and residual voltages are confined to the 'No Interruption' or 'No Damage' regions as defined in the CBEMA curve (Figure 2). This, in many cases, removes the need for UPS (Uninterruptible Power Systems) schemes, which can incur large capital costs and significant ongoing operation and maintenance costs.

The Miro ECO instrument currently comes in two models:

- The Miro ECO-Block model, with a relay output of 0.125A, capable of driving contactors rated up to 80A, e.g. block contactors.

- The Miro ECO-Bar model, with a solid-state relay (SSR) output of 2A, capable of driving contactors rated up to 250A, e.g. bar contactors. Pluggable terminal blocks and compact iron core current sensors make for easy and quick installation (Figure 3). The Miro ECO comes with magnetic feet that allows for quick and easy installation.

The Miro ECO instrument can be used for any application where a rapid circuit changeover is required, including:

- Railway signalling equipment.
- Critical loads, e.g. hospital back-up supplies.
- Secure communication networks, e.g. police and military.
- Data centre redundant supply schemes.

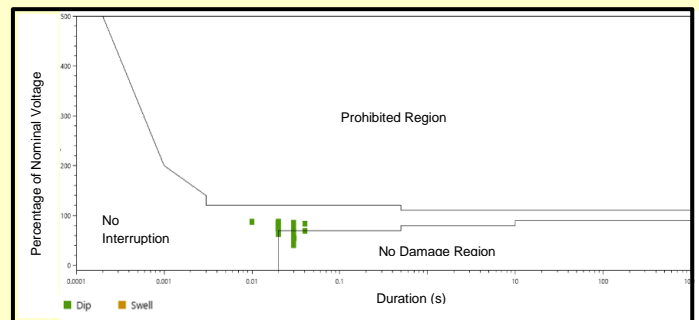


Figure 2: CBEMA curve.



Figure 3: Miro-ECO – Input and output terminals/ports.

## Get more Work from your Power

### Key hardware features

- Compact form factor (180mm X 180m X 60mm)
- Switchover based on user settable voltage thresholds.
- Remote cellular communications and Ethernet options available. Allows remote connection to instrument to view real time measurements, data download and configuration

### Power Quality Logging Features

The Miro ECO instrument also logs extensive power quality measurements. Please refer to the Miro Power Quality Logger and Analyser brochure for complete details.

### Miro ECO – Specification

PARAMETER	DESCRIPTION
<b>Switching Parameters</b>	
Average Switching Time	10ms
Rated Current (Output Relay Hold current))	0.125A (Miro ECO-Block) or 2A (Miro ECO-Bar)
<b>Accuracy</b>	
Voltage (½ Cycle RMS):	±0.5% @ 120VAC
Voltage (Logged):	±0.2% @ 120VAC
Voltage temperature coefficient:	Approx. 25ppm/C
Voltage range:	0 to 420VACrms (600Vpk)
<b>Measurement</b>	
A to D Conversion	16 bits.
Samples per cycle	384 @ 50 Hz; 320 @ 60 Hz.
Sampling Rate	Nominal: 19.2kHz synchronised to mains.
Anti-aliasing	High-frequency components attenuated by at least 50dB so as not to interfere with harmonic measurements.
<b>General</b>	
Operating Temperature	-20°C to +60°C
Relative Humidity	20% to 99% Relative Humidity
Degree of Protection	IP3X (Indoor housing only).
Current	±1% of full scale.
GPS:	GPS Timing and Location available upon request
Logged data memory:	7.5GB.
Logging intervals:	All IEC61000-4-30 intervals (simultaneously); plus, adjustable interval from 1s to 3600s.
Measurements:	All measurements simultaneously.
Power supply:	Phase A voltage, range: 60-420VACrms; 15VA typical
Backup power:	Super Capacitor 4.2V 90F (-20°C to +80°C)
Backup battery duration:	30 Seconds, or until low voltage condition on SuperCap.
<b>Certifications/Type Testing</b>	
Instrument type:	IEC61000-4-30, Class A
EMC:	EN55022:1998 _A1:2000 +A2:2003 CLASS A
Salt Spray (Corrosion):	MIL STD 810 G
Random Vibration:	MIL STD 810 G
Impact Test:	IEEE 495:2007 or equivalent