

# Measuresafe 36B

MeasureSafe 36B

Operational Instruction Manual

Version 1.00

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Extron Design Services Pty. Ltd.

[www.Extrondesign.com.au](http://www.Extrondesign.com.au)

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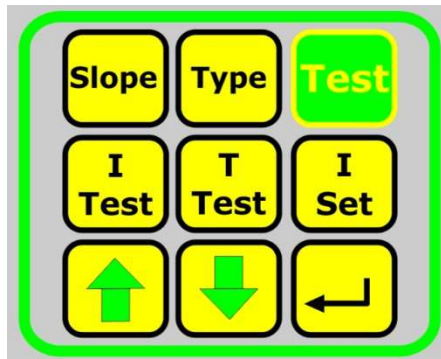
## 2. Introduction

The MeasureSafe 36B is an advanced diagnostic unit enabling full testing of a range of earth fault circuit breakers. These earth fault circuit breakers are also known as RCD (Residual Current Devices), ELCB (Earth Leakage Circuit Breakers) and GFI (Ground Fault Interrupters) They are also know as electrical safety switches. For the sake of this document these circuit breakers will be referred to as RCD's.

The MeasureSafe 36B will test many different types of RCD's including Type I, Type II, Type A AFCI and a custom type as setup by the user. There is also a Type I Medical test option. The MeasureSafe will test both trip time and trip current and record the results with a time stamp.

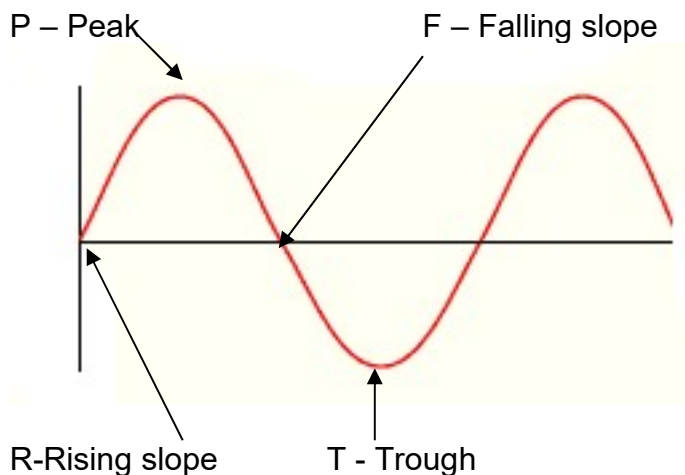
### 2.1. Operation

This section details the operational instructions for the MeasureSafe 36B. The description of the user keys below explains what each key is used for.



#### 2.1.1. Slope

The slope key is used to toggle the selection of the start of testing slope on the unit. This enable each test to be set up to start testing on the following 4 points on the mains voltage cycle. The graph below shows the mains cycle the four points where testing can begin.



This enables full flexibility on the testing conditions. The slowest response time for the RCD will be if the testing is started on either R or F. This will be the worst case situation and is the recommended testing point for testing the trip time. The slope selection does not apply for the Type I Medical tests the starting point is selected randomly as per AS3003.

### 2.1.2. Type

The Type select button is used to select the different types of RCD devices as detailed below.

- Type I – tripping current set to 10mA
- Type II – tripping current set to 30mA
- Type C – tripping current set to custom value from 5mA to 50mA.
- Type I Medical Test – test Type I with 10.5mA and 6 consequent tests
- Type A - DC pulse testing with 10mA DC pulse.
- Type AFCI - Test Arc Fault Circuit interrupters.

### 2.1.3. Test

This button is used to initiate the actual test sequence selected.

### 2.1.4. I Test

This is use to select the trip current test. Where applicable.

### 2.1.5. T Test

This is used to select the trip time test.

### 2.1.6. I Set

This is used to set up the custom trip current.

### 2.1.7. Up Arrow

This button is used to increment the custom trip current during I Set command sequence. Also used to increment the hold time setup.

### 2.1.8. Down Arrow

This button is used to decrement the custom trip current during I Set command sequence. Also used to decrement the hold time setup.

### 2.1.9. Enter

When the custom current reading is set this key will accept and record this value. Also pressing this key will enable the user to change the display hold time when the unit trips the breaker.

## 2.2. Display

When the unit is first turned on it will display the operating system version number. If the unit is out of calibration it will display the out of calibration message and wait before resuming normal operation.

### Hold time.

The MeasureSafe 36B can be set to display the test results for a user selected time. Once the instrument has been turned on, wait for the initial display information, then press the Enter key. The set trip on time message is displayed. Press the up and down keys to set the number of seconds for the display to remain on. Press the Enter key to set the new display time.

When the unit is in idle mode the display will show the current operational setup and will scroll on the bottom line the time and date and the mains voltage and frequency and other useful information.

The top line will be in the following format  
"Type xx z y nnnnn"

This display has the following meanings

xx – indicates the device type will be

I – type I RCD 10mA

II – type I RCD 30mA

C – Custom RCD as set up in custom I set

A – type A

z– indicates testing slope position see section 1.1.1

R – rising slope

P – peak of slope

T – trough of slope

F – falling slope

y – indicates if it is a trip time test or trip current test

S - trip time mS

A - trip current mA

nnnnn – test number every time a test is performed a unique test number is stored with the stored results to enable easy tracing of the test result and test number in the downloaded results.

### 3. Type I Medical Special Test Mode

The M36B has a special mode for testing Type I RCDs when used in medical facilities. The standard AS3003 as a requirement to test the RCD 6 times and average the results to determine a pass or fail. This test mode only tests trip time and uses 10.5mA test current. The unit will also start each test at random times in the voltage cycle. This can result in different trip times with each test.

When selecting this test and the unit is ready to test. Press the test button, the RCD will trip and display the results the unit will not shut down, reset the RCD and the unit will then automatically perform another trip. This will happen a total of 6 times then the unit will display the average after the 6 trips. All trip results are stored and can be downloaded for later review.

### 4. Serial Interface

The MeasureSafe 36B is able to log and records test results during its testing. These test results are downloaded via the USB serial port to a PC using the M36 Reporter software package. Can be downloaded from the website.

The M36 Reporter once running, connect a USB lead to the unit make sure the USB lead is connected to the M36B and the PC and the unit is powered up.

Click "Connect" the software will hunt for the M36B. If the M36B cannot be found then there might be another USB device that is preventing the M36B connecting try removing other USB devices from the PC and try "Connect" again.

Once connection is made click "Unit Information" this will get general information about the unit.

The "Set Unit Date/Time" will update the internal clock of the M36B to the current data and time.

The "Download" button will download all results into the window.

The results can then be save by selecting the "Export Results" button.

Once all the results have been downloaded the internal results can be cleared ready for the next series of tests. Click the "Clear Records" button to clear the results. The unit can hold over 120,000 test results so it is not necessary t clear the pointer/counters but makes the next series of results easier to see.

## 5. Maintenance and Calibration

The MeasureSafe 36A will test and report on the state of the device under test, the results will meet the published specifications only if the unit is calibrated regularly. This calibration must be carried out by an authorised calibration and service centre. Please see your reseller for details of the nearest calibration service centre. The recommended calibration period is every 12 months.

There are no user serviceable parts inside and it is recommended that the unit be returned to an authorised service centre for any calibration, service or repair work.

## 6. Product Specifications

Please refer to the web site for the latest product specifications.

Mains Voltage Accuracy:	+/-0.5%
Tripping Current Accuracy:	±0.25mA
Trip Time Accuracy:	0-400mS ± 0.1mS
Loading Slope Phase angle	Selectable 0, 90, 180, 270 Degrees
Result storage	The unit can store over 120,000 results
RTC	The unit has a built in battery backup real time clock for time and date stamping of test results
Test Leakage Current Range:	2mA to 50mA in 0.5mA steps
Internal fuse	1A 250Vac
Operating Voltage:	85-265VAC 50-60 Hz
Test Time:	90sec maximum depending upon trip current of the RCD.
Test Current:	Incremented test sequence from 0mA until RCD trips or fails.
Display	2 line OLED display showing mains voltage, RCD trip time, RCD trip current and any RCD faults.
Power Supply:	Powers up from mains source.

Operational Temperature:	0°C to +60°C
Storage Temperature:	-20°C to +70°C
Dimensions H x W x L:	195 x 100 x 39mm
Weight:	450g
RCD type Selection	Type I – 10mA Type II – 30mA Type Custom selectable 1-50mA Type A – DC 10mA pulse testing AFCI Type I Medical
Downloading	The results can be down loaded using M36 Reporter
Power inlet	IEC socket
Approvals	EMC and EMI C-tick and CE
Service & calibration:	By manufacturer only
Fault Reports:	Incorrect mains wiring (active and neutral swapped), no earth connected, RCD fails to trip.
Calibration Requirement:	Every year or approximately 4000 RCD tests
Other Requirements:	Warranty Void and Test Results not guaranteed if the case tamper seal damaged or removed.
Optional Extras:	Adaptor with Alligator leads and probes for testing RCD's in meter boxes or directly on wiring.