

# MeasureSafe 36A

MeasureSafe 36A

Operational Instruction Manual



Version 1.00

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# 1. Table of Contents

- 1. Table of Contents .....2
- 2. Introduction .....3
  - 2.1. Operation .....3
    - 2.1.1. Slope.....3
    - 2.1.2. Type.....4
    - 2.1.3. Test.....4
    - 2.1.4. I Test.....4
    - 2.1.5. T Test.....4
    - 2.1.6. I Set .....4
    - 2.1.7. Up Arrow .....4
    - 2.1.8. Down Arrow .....4
    - 2.1.9. Enter .....4
  - 2.2. Display .....4
- 3. Serial Interface .....5
  - 3.1. Serial Commands.....5
- 4. Maintenance and Calibration.....6
- 5. Product Specifications.....6

## 2. Introduction

The MeasureSafe 36A 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 known as electrical safety switches. For the sake of this document these circuit breakers will be referred to as RCD's.

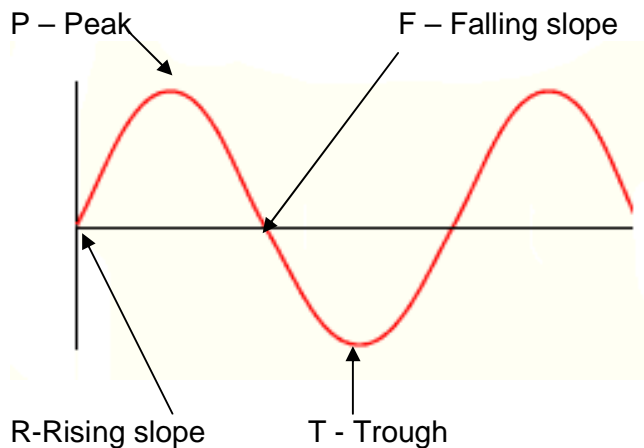
The MeasureSafe 36A will test many different types of RCD's including Type I Type II and a custom type as setup by the user. The MeasureSafe will test both trip time and trip current and record the results with a time stamp in the units with storage memory.

### 2.1. Operation

This section details the operational instructions for the MeasureSafe 36A. 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 enables 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.

### **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.

### **2.1.3. Test**

This button is used to initiate the actual test sequence.

### **2.1.4. I Test**

This is use to select the trip current test.

### **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.

### **2.1.8. Down Arrow**

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

### **2.1.9. Enter**

When the custom current reading is set this key will accept and record this value.

## **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 for 20 seconds before resuming normal operation.

### **Hold time.**

The MeasureSafe 36A 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

z– indicates testing slop 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. Serial Interface

The MeasureSafe 36A is able to log and records test results during its testing. These test results are downloaded via the RS232 serial port to a PC either using a simple terminal program such as hyperterm or using the optional MeasureLink software package. If using the MeasureLink software package refer to its instructions to download the results.

If using a simple serial terminal to access the information then follow these simple instructions. Setup the comm. port to work at 9600 baud 8 data bits, one stop bit no parity and no handshaking.

Use a straight through serial cable. Pin 2-2, pin 3-3, pin 5-5. A ribbon cable with a DB9M and DB9F at the ends will work. Plug the cable into the port that you have setup in your comms program. Use the commands shown to perform the action required.

#### 3.1. Serial Commands

The following is a list of the serial commands that are available in terminal mode.

? – Provides help on the available instructions.

tme - allows the time to be setup in the unit just follow the on screen instructions.

dte - allows the date to be setup in the unit just follow the on screen instructions.

clr – will clear the results stored in the unit.

dwn – will download the results stored in the unit.

## 4. 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.

## 5. 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	Model dependant 0 results Basic unit 2000 Results 4000 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 LCD display showing mains voltage, RCD trip time, RCD trip current and any RCD faults.
Power Supply:	Powers up from mains source. Serviceable internal battery with a 2000 RCD test life.

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
Downloading	The results can be down loaded using a simple serial terminal or the optional software interface.
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 (requires battery replacement & re-calibration)
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.