

X10 Earth Leakage Relay Quick Reference Guide

A Brief Overview



- a) Trip LED
- b) Alarm LED
- c) 2x16-digit LCD with backlight display
- d) "ESC" key
- e) "UP" key
- f) "DOWN" key
- g) "ENTER" key
- h) "CLEAR" key
- i) "TEST/RECORD" key
- j) Mikro logo and power on indicator

Keypad

UP, DOWN, ENTER and ESC keys are used to navigate through the menus and adjust the settings.

ESC : To exit from menus, submenus or to cancel the setting value change. Press and hold for 1.5 seconds to return to the default display from any submenu.

UP : Scroll up the menus or increase the setting value.

DOWN : Scroll down the menus or decrease the setting value.

ENTER : To enter submenus or to confirm the setting value change.

CLEAR : To clear/reset the user resettable alarms. When the alarm record is empty and the "CLEAR" Scroll is enabled (under Configurations->Display menu), it can be used to scroll through the protection settings. To return to the default display from any submenu press and hold for 1.5 seconds.

TEST/RECORD : To display the alarm records. To display successive records, press the RECORD key again. If there's no alarm press and hold for 5 seconds to run the test function.

LEDs

Trip LED : Indicates tripping.

Alarm LED : Blinks to indicate unacknowledged alarm and continuously ON when the alarm is acknowledged by pressing any key.

1. General Description

Mikro X10 is an earth leakage relay with built-in advanced features and functions for leakage protection, programmable input and output control function, remote monitoring and etc. It works together with Mikro's zero-phase current transformer (ZCT) to perform the protection function.

The relay provides the user with a 2x16 character LCD for real-time display of leakage current, fault records, event record, alarm record, various internal settings and etc.

The relay extends its connectivity by adopting the Modbus-RTU protocol. Through the use of RS485 standard protocol, the user will be able to network the relay with other slave devices, linked to a central monitoring station.

The relay provides 2 programmable output contacts. There is another output contact which is used for the relay's internal fault indication. Besides that, it also provides 1 configuration logic input for various functions.

2. Precaution



Please observe the following safety precautions before and during the installation of the relay :

Only competent and trained personnel should install, operate, service and maintain this device.

Disconnect ALL power sources to the relay before performing installation, inspection, tests and maintenance.

Do not perform megger, hi-pot or any high voltage stress test with the relay connected to the system.

Install in a suitable enclosure where relay connections are inaccessible with sufficient clearance from other live parts.

Please note that incorrect installation may impair the operation or even damage the relay. There is no user servicable part in the relay. Tampering with it may damage the relay, result in injury and also voiding any warranty.

Before power up the relay, make sure the auxiliary voltage supply is within the specification of **85 - 265 VAC or 110 - 370 VDC**.

After powering up the relay, please ensure the LCD display and the AUX Led indicator are turned on.

3. Things included in the packing box

- a) 1 x X10 protection relay
- b) 2 x black colour retainer clips
- c) 1 x X10 quick reference guide

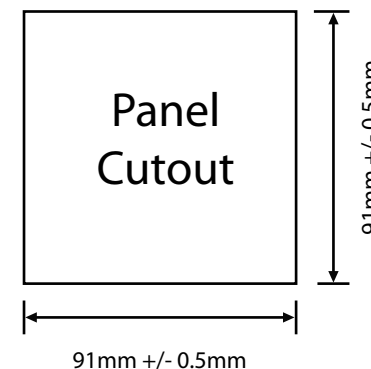
4. Installation Guide

Before installing the relay, please check that the environment meets the following conditions:

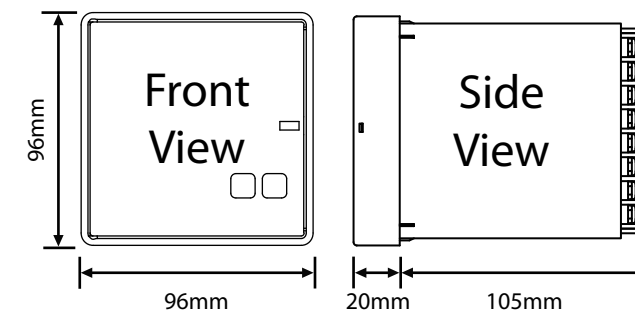
- Operating temperature: -5°C to +55°C
- Humidity: 5% to 95%, non-condensing
- Dust free environment away from electrical noise and radiation.

5. Mounting

Insert the relay through a 91mm x 91mm cutout on a switch-gear panel as shown below:



6. Dimension



* For more details, please download the full set of X10 user manual from the <http://itmikro.com/contents/view/122> webpage.

7. Change Setting

There are two ways to change setting in X10.

Method 1: Change setting through rear RS485 communication port

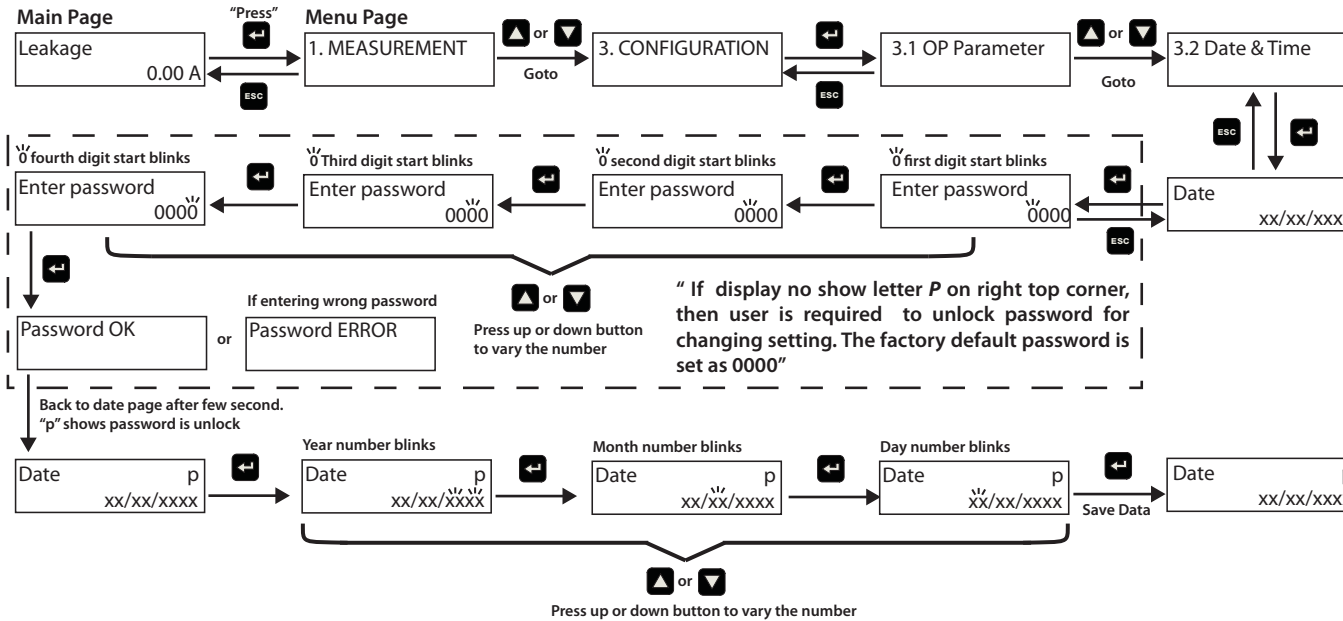
User can use X-series toolkits software to change setting in PC.

The toolkits can be downloaded from website <http://itmikro.com/contents/view/122>

Method 2: Change setting through relay front panel

User must unlock the password first then only allow to change the setting. The default password is "0000".

The following flow chart shown an example on how to change date:



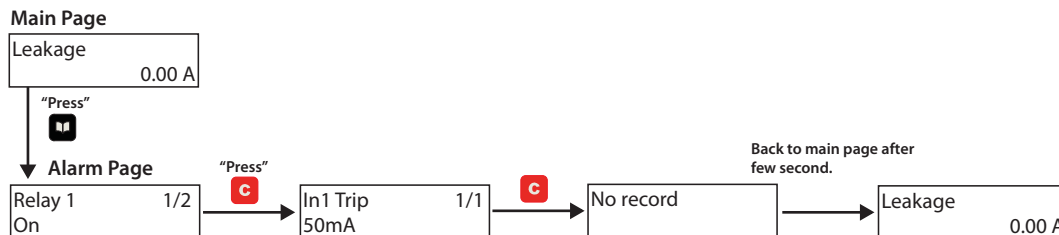
8. Alarm Record

Alarms are divided into two categories: user resettable and non-resettable types.

For the user non-resettable type, the alarm is self reset by the relay once the alarm condition is removed.

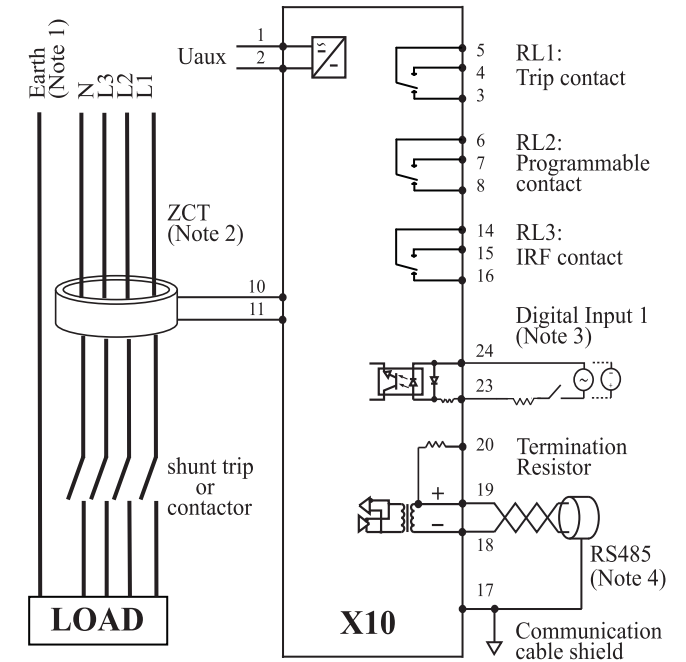
For the user resettable type, the user must ensure the cause of the alarm is removed before the the alarm can be cleared.

The following flow chart shown an example on how to clear fault alarm:



* For more detail information, please download full set of X10 user manual from <http://itmikro.com/contents/view/122> webpage

9. Connection Diagram



Note 1 : The EARTH wire must not pass through the ZCT.

Note 2 : The relay must work together with Mikro's ZCT.

Note 3 : External series resistor 18k ohm, 2W is required for input voltage greater than 94Vac or 132Vdc

Note 4 : Short terminals 18 and 20 for communication data lines termination. Applicable only for relays located at the head and tail ends of the communication lines.

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