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# **PIA-1010**

## **Quick Reference Guide**

**Fault Detector**

**Model No. : PIA-1010**



## Warning

Dangerous voltages may occur in devices and modules during operation depending on the design and application.

Incorrect use of the devices can therefore result in severe personal injury or substantial damage to property.

Only suitably qualified staff should work on this device. Correct and safe operation of this device is dependent on proper handling, installation, operation and maintenance. Should you require further information, or should particular problems occur which are not handled in sufficient depth in the instructions of the respective product, help can be requested through your local Siemens Office or representative

## 1. Preparing PIA-1010 for Installation

The PIA-1010, shipped from the factory, is equipped with a battery. To prevent battery discharge during transportation, battery wire and PCB are separated. Before installing the PIA-1010, connect the "1" battery connector on Figure 1-1 and "1-1" on Figure 1-2. In order to install PIA-1010, you need to give PIA-1010 ID. How to set ID is explained in "How to set ID".

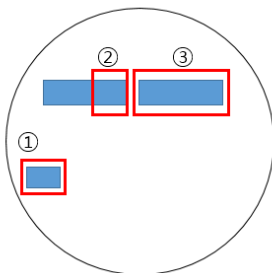


Figure1-1

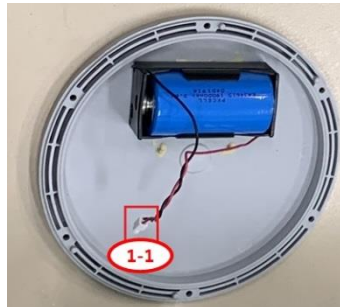


Figure1-2

## 2. How to set ID

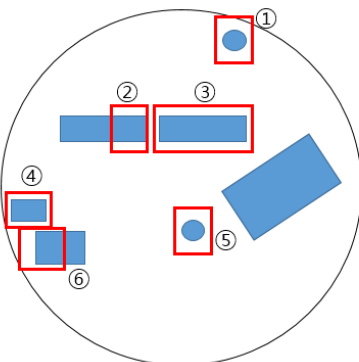


Figure2 PCB Description

1. Reset Button
2. Phase Parameter
3. ID Parameter
4. Download Program Switch
5. Antenna Connector
6. Battery Connector

- 2-1. How to set Phase parameter

In Figure 2, "2" is the part that sets the phase parameter. The Phase parameter can be set in binary code.

1 is A phase, 2 is B phase, 3 is C phase. See Figure 2-1 for phase parameters. After setting, press the reset button (Figure 2 "1").

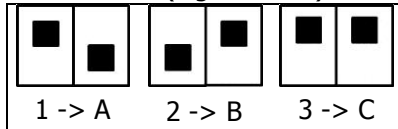


Figure 2-1

- 2-2. How to set ID parameter

In Figure 2, "3" is the part that sets the ID parameter. The ID parameter can be set in binary code. The ID can be set from 1 to 255. The ID selection method is 1 from 2 near the gateway. When there is a branch point, select the ID of the edge first and then select the ID of each branch in the same way. Figure 2-2 shows an example. After setting, press the reset button (Figure 2 "1").

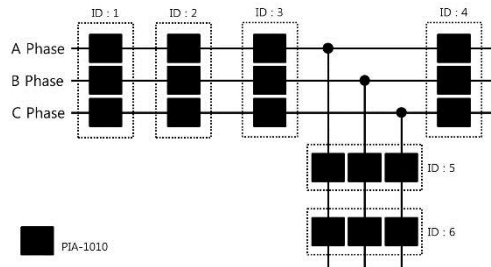


Figure 2-2

## 3. Maintenance Program

Maintenance program is a program for individual test and setting parameters of PIA-1010. This program is based on ZENON 7.50 of COPA-DATA. ZENON 7.50 is required to run this program. Figure 3-1 describes each part. Figure 3-2 describes the function of each button.

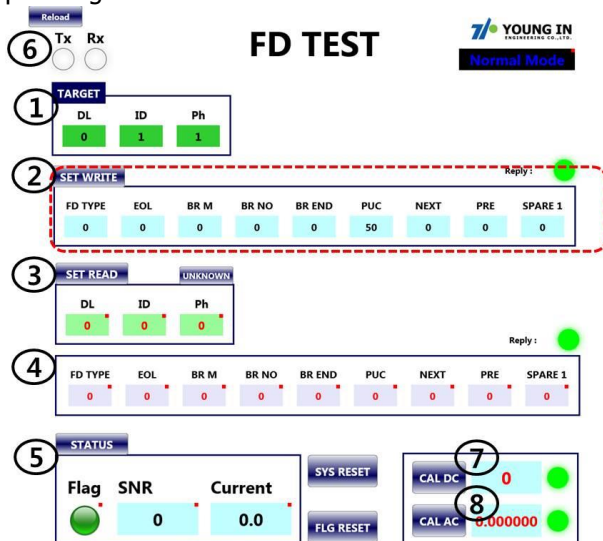


Figure 3-1

1. It is the part to input the information (DL, ID, Phase) of FD to set.
2. It is the part to input the setting value of FD.
3. Information (DL, ID, Phase) of called FD.
4. The setting value of the called FD.
5. The state value of the called FD. Status values include alarm flag, SNR value, and current value.
6. It shows the communication status of FD.
7. Shows the DC calibration value.
8. Shows the AC calibration value.

FD TEST

7/ YOUNG IN

Normal Mode

Reload Tx Rx

TARGET

DL	ID	Ph
0	1	1

1 SET WRITE

FD TYPE	EOL	BR M	BR NO	BR END	PUC	NEXT	PRE	SPARE 1
0	0	0	0	0	50	0	0	0

2 SET READ

3 UNKNOWN

DL	ID	Ph
0	0	0

FD TYPE	EOL	BR M	BR NO	BR END	PUC	NEXT	PRE	SPARE 1
0	0	0	0	0	0	0	0	0

4 STATUS

Flag	SNR	Current
0	0	0.0

5 SYS RESET

6 FLG RESET

7 CAL DC

8 CAL AC

CAL DC	CAL AC
0	0.000000

Figure 3-2

1. SET WRITE : Enter the FD setting value and press the button to enter the setting value in FD.
2. SET READ : After inputting FD information, press button to read the input FD setting value.
3. UNKNOWN : Read setting value of nearby FD. (If there are multiple FDs in the vicinity, the value of one FD is read.)
4. STATUS : Read the status values (Flag, SNR, Current) of the called FD.
5. SYS RESET : Reset the system of the FD. (The setting value does not change.)
6. FLG RESET : Reset the alarm flag for the specified FD.
7. CAL DC : DC calibration of the specified FD.
8. CAL AC : AC calibration of the specified FD.

## 4. PIA-1010 Setting and Parameterization

You can enter the setting parameters of PIA-1010 using the maintenance program. There are 8 parameters to set.

1. FD TYPE : 0: General type , 1: Branch type
2. EOL : 0: General , 1: End of line
3. BR M : 0:General , 1: Branch main
4. BR NO : For branch lines, the branch number of each line
5. BR END : 0: General , 1: End line of branch line
6. PUC : Pickup current setting in FD
7. NEXT : 0: General , 1: Next FD is Branch type
8. PRE : 0: General , 1: Previous FD is Branch type

Enter the ID and phase of the FD to communicate with in TARGET. DL is entered as 0. Enter the appropriate value in FD and press "1" on Figure 3-2 to enter the value.

## 5. Self Test

If you install the FD with the ID set on the power line, the FD turns on. At this time, self-test can be conducted using the Maintenance program.

After entering the TARGET in the maintenance program, press STATUS ("4" in Figure 3-2).

If the status values (Flag, SNR, Current) are displayed, the installation is correct.

## 6. Technical Specification

Parameter	Specifications
System frequency	50 Hz/ 60 Hz
Rated voltage	Maximum 69kV
Rated Current	10 A to 600 A
Cable diameter	5mm to 40mm
Energy source	Lithium battery + Energy harvesting
Current measurement accuracy	± 5 %
Operating Temperature	-30 °C ~ +85 °C
Fault current detection method	Load Adaptive
Pick-up Current range	50A to 1600A
Maximum Fault Current	25KA
Pick-up Time	≤ 24 mSec (±5%)
Weight	1.92Kg
Dimensions	153mm*153m*174mm
Communication mode	LORA(LPWAN)
Operating frequency band	904-925 MHz
RF output power range	Maximum 19 dBm
Communication Range	General up to 2 ~ 3 Km

## 7. FCC Statment

This equipment has been tested and found to comply with the limit for a Class B digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential Installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encourage to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experience radio/TV technician for help

Change or modification not expressly approved by the party responsible for Compliance could void the user's authority to operate the equipment

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions; (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

The antenna(s) used for this device must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.