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AIM-T500L Series Industrial Insulation Monitoring and Fault Locating Products

Installation and Operation Manual V1.4

Acrel Co., Ltd.

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The contents of this description will be updated and amended constantly, and it is inevitable that there will be a slight discrepancy between the physical product and the description in the product function upgrading. Please refer to the physical product purchased and obtain the latest version of the description through www. acrel.cn or sales channels.

Modified Records

No.	Time	Versions	Reasons for revision
1	2018.06.18	V1.0	First version
2	2019.01.15	V1.1	Modify error
3	2020.03.28	V1.2	Add overview; Revise inaccurate content; Modify the panel of ASG200 and AIL200-12. Modified address table and added fault location records.
4	2020.08.10	V1.3	Modified the power supply in the wiring diagram. Add dc input; Modified the wiring of ASG200. Added AIL200-12 operation instructions.
5	2022.02.30	V1.4	Modify the format; Add modified records; Modify technical parameters; Update transformer information; Add operation instructions of fault locator; Update the address table.
Note:			

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AIM-T500L Series Industrial Insulation Monitoring and Fault Locating Products

1 Introduction

With the development of industrial science and technology, residual current poses a great threat to industrial production safety. In order to improve the continuity and reliability of power supply, many important production sites adopt IT distribution system (ungrounded system).

AIM-T500L series industrial insulation monitoring and fault is specially developed by Acrel for IT distribution system in industrial occasions such as mine, glass factory, electric furnace and test equipment, ship, metallurgical plant, chemical plant, explosion hazard site, computer center and emergency power supply. The system has rich functions, including insulation resistance monitoring, insulation fault warning, insulation fault alarm, event recording, parameter setting, communication networking, etc. When the system has grounding fault, it can give a timely alarm and accurately locate the specific circuit of the fault to remind staff to check the fault in time.

The products conform to the requirements of enterprise standard Q/VDCL-26-2017 *IT System Insulation Monitor*.

Type and Name	Picture	Introduction
AIM-T500L insulation monitor		AIM-T500L insulation monitor adopts advanced microcontroller technology, high integration, small size, easy to install, intelligent, digital, networking in one. wide measuring range, fast reaction speed and large allowable system leakage capacitance.
ASG200 test signal generator		ASG200 test signal generator can start and produce test signals in time when insulation fault occurs in the monitored IT system. It can coordinate with insulation fault locator to realize insulation fault location function and send fault phase line.
AIL200-12 insulation fault locator		AIL200-12 insulation fault locator adopts high-precision signal detection circuit, and AKH-0.66L series current transformer, detection the signal of ASG200 test signal generator, accurate location of the insulation fault loop. every locator can locate 12 loops.
AKH-0.66 L series current transformer		AKH-0.66 L series current transformer is used with AIL200-12 insulation fault locator together, ratio is 1000:1. It is installed in the cabinet in the way of screw direct fixation.

2 Functional characteristics

2.1 AIM-T500L insulation monitor

- Monitor resistance of IT system real time, warning or alarm when the resistance exceeds the limit;
- Relay alarm output, LED alarm output and other fault indication modes;
- SOE function, convenient for staff to check and analyze the failure type and occurrence time, and judge the operation status of the system;
- Self-check function, which can realize fault self-check of instrument hardware circuit;
- Disconnect monitoring, real-time monitoring of PE/KE function grounding wire connection status;
- RS485 interface, standard Modbus-RTU protocol;
- CAN interface, custom protocol, used to interact with signal generator and fault locator;
- Support manual/automatic reset modes;
- Wide range of applications, suitable for AC, DC and AC-DC hybrid IT systems.

2.2 ASG200 test signal generator

- Generate positioning signals and inject them into the ungrounded system;
- Indicate the phase line where the fault is;
- Manual startup positioning is supported;
- CAN bus technology is adopted to facilitate data interaction with other devices in the system.

2.3 AIL200-12 insulation fault locator

- Locate and indicate the loop where the fault is;
- A single AIL200-12 can locate up to 12 loops;
- Each IT system can be connected to a maximum of 90 locators, with a total of 1080 loops;
- CAN bus technology is adopted to facilitate data interaction with other devices in the system.

2.4 AKH-0.66L series current transformer

- Rated current ratio 5A:5mA , select model according to the rated current of the loop;
- Coordinate with AIL200-12 insulation fault locator to achieve fault location.

3 Technical parameters

3.1 AIM-T500L insulation monitor

Item		Parameter
Accessory power supply		AC 85~265V; DC100~300V; 50/60Hz
Power dissipation		< 8W
System voltage		AC 0~690V; DC 0~800V; 40~460Hz
System application		IT system (online), Other system (offline)
Insulation monitoring	Measuring range	1k~10MΩ
	Alarm range	10k~10MΩ
	Resistance accuracy	1~10k,1k; 10k~10M, ±10%
	system leakage capacitance	<500μF
	Response time (Ce=1μF)	<5s

Internal parameters	Measuring voltage	<50V
	Measuring current	<270μA
	Internal DC impedance	≥180kΩ
Relay output		Error, Alarm, Warning
SOE		20 records (fault type, fault value, fault time)
Alarm type		LCD, LED indicator
Communication		RS485, Modbus-RTU; CAN, custom
Impulse voltage / Pollution Level		8kV/III
EMC/ Radiation		IEC61326-2-4
Environment	Working temperature	-10 ~+65℃
	Storage temperature	-20~+70℃
	Relative humidity	<95%, without condensation
	Altitude	≤2500m

3.2 ASG200 test signal generator

Accessory power supply	Voltage	AC 85~265V; DC100~300V
	Power dissipation	<7W
IT system	Voltage	AC 220V; 3AC 0~690V; DC 0~800V
Fault locating	Response time	<5s
	positing voltage	20V/5Hz
	positing current	0~10mA
	Response sensitivity	——
Internal parameters	EMC/ Radiation	IEC61326-2-4
Output	Relay output	——
Environment	Working temperature	-15~+55℃

3.3 AIL200-12 insulation fault locator

Accessory power supply	Voltage	AC 85~265V; DC100~300V
	Power dissipation	<5W
IT system	Voltage	——
Fault locating	Response time	<12s
	positing voltage	——
	positing current	——
	Response sensitivity	>0.5mA
Internal parameters	EMC/ Radiation	IEC61326-2-4
Output	Relay output	Alarm
Environment	Working temperature	-15~+55℃

3.4 AKH-0.66L series current transformer

Specifications	Rated current	Ratio	Accurate level	Rated load	Overload ratio
L-45	16-100A	5A:5mA	1 level	100Ω	10
L-80	100-250A				
L-100	250-400A				

L-150	400-800A				
L-200	800-1500A				

4 Reference standards

■ Q/ VCL-26-2017 *IT System Insulation Monitor.*

■ IEC 61557-8 *Electrical safety in low voltage distribution systems up to 1000V a.c. and 1500V d.c. - Equipment for testing, measuring or monitoring of protective measures - Part 8: Insulation monitoring devices for IT systems.*

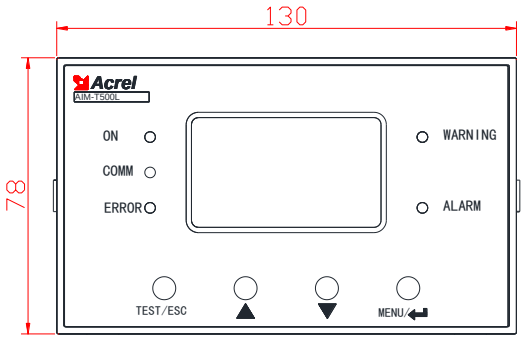
■ IEC 61557-9 *Electrical safety in low voltage distribution systems up to 1 000 V a.c. and 1 500 V d.c. - Equipment for testing, measuring or monitoring of protective measures - Part 9: Equipment for insulation fault location in IT systems.*

■ IEC 61326-2-4 *Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-4: Particular requirements - Test configurations, operational conditions and performance criteria for insulation monitoring devices according to IEC 61557-8 and for equipment for insulation fault location according to IEC 61557-9.*

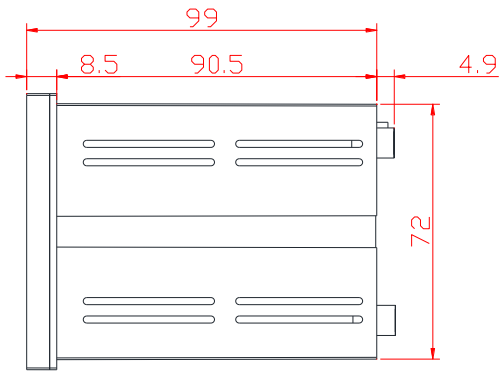
5 Installation and connection

5.1 Shape and size

AIM-T500L insulation monitor appearance and size are shown as follows (unit: mm)

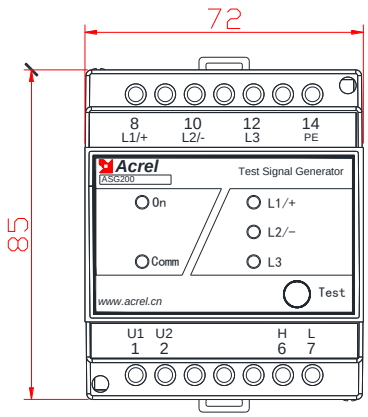


Front view

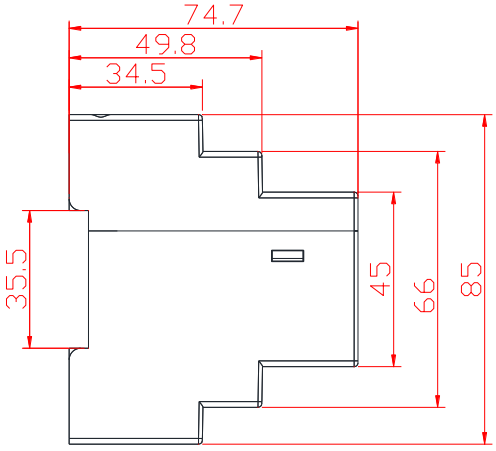


Side view

ASG200 test signal generator appearance is shown in the following figure (unit: mm)

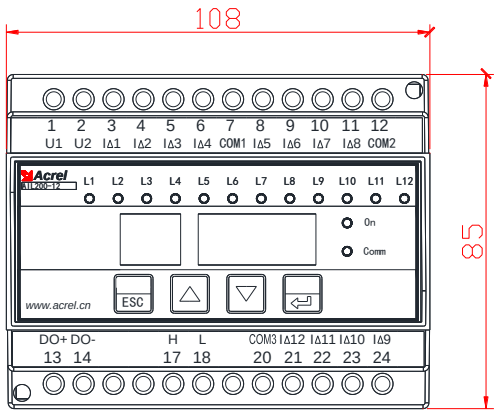


Front view

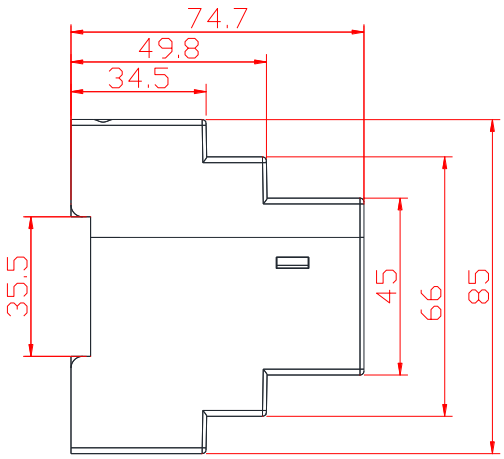


Side view

AIL200-12 Insulation fault locator appearance size as shown below (unit: mm)



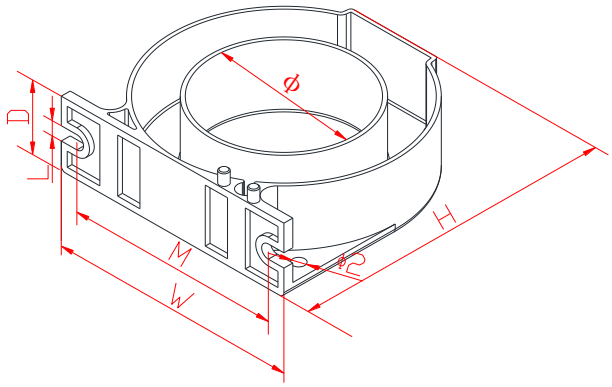
Front view

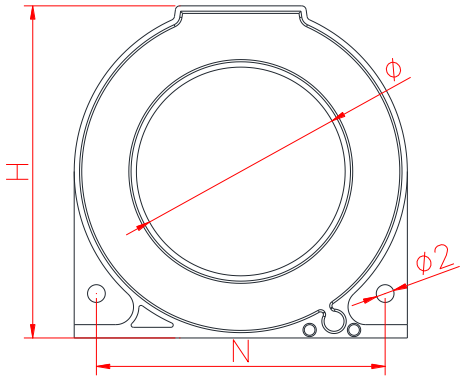


Side view

5.1.4 AKH-0.66 L series current transformer

AKH-0.66 L series current transformer dimension are shown in the table below:



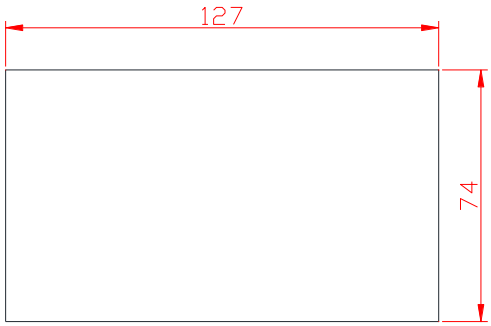


Product model	Rated current (A)	Overall dimensions (mm)			**Hole size (mm)**	Installation dimensions (mm)				product weight (g)
		W	H	D	**Φ**	M	N	L	Φ2	
L-45	16~100	75	75	22	**46**	65	65	4.3	4	200±10
L-80	100~250	120	120	23	**81**	105	105	4.4	4	380±20
L-100	250~400	140	140	23	**100**	124	124	4.6	4	460±30
L-150	400~800	196	205	24	**150**	175	180	4.6	6	850±50
L-200	800~1500	240	247	28	**200**	214	212	5	6	1200±50

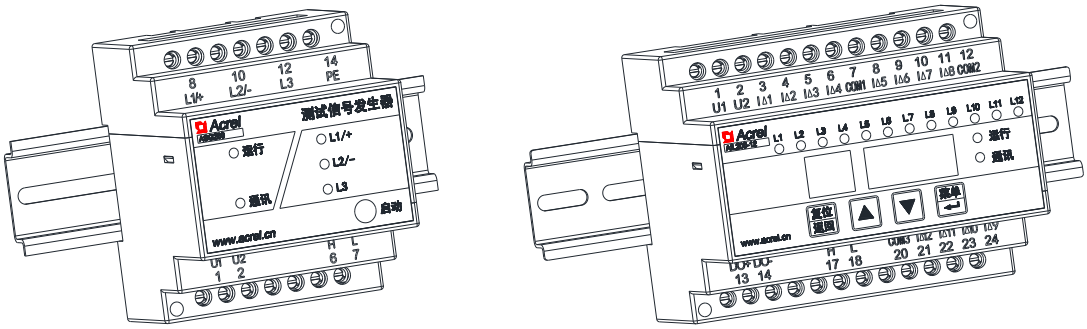
Note: The current transformer with corresponding specifications should be selected according to the rated current of the circuit and the thickness of the wire. (If you have special requirements on the shape and range of the transformer, contact us)

5.2 Installation method

AIM-T500L insulation monitor adopts embedded installation (which can be installed in the distribution cabinet), the size of the opening hole is as follows:



AGS200 test signal generator and AIL200-12 insulation fault locator are installed on a 35mm standard guide rail and can be installed on the terminal block in the power distribution cabinet. The installation effect is shown below:



5.3 Wiring method

AIM-T500L wiring method

H	L		T1	T2		F1	F2
6	7		31	32		23	24

CAN comm Test Lock

AK		L2		L1
9		5		4

Expand IT System

H, L (6, 7) are CAN communication terminals, which are used to communicate with the signal generator and fault locator of the fault positioning system. T1 and T2 (31, 32) are self-check terminals, which can determine whether the resistance measurement of the instrument is normal or not. This function must be used without access to the DC system. Short-connect T1 and T2, and the instrument self-test results will be displayed. F1 and F2 (23, 24) are interconnection terminals. When two sets of ungrounded systems are interconnected, the monitor which F1 and F2 connected will stop working and be separately monitored by another instrument, this is used for the situation of two-segment bus with busbar coupling.

AK (9) is the extension terminal, used for insulation monitoring above AC690/DC800V, see ACPD series installation and operation manual for details. L1, L2 (4, 5) are used to access the monitored IT system (three-phase or single-phase IT system without neutral line is connected to any 2 phases. For three-phase IT systems with neutral lines, L1 and L2 are connected to the neutral line, in a single-phase DC system, L1 is connected to the positive pole and L2 to the negative pole).

12	13	14	15	16	17	28	29
D01+	D01−	D02+	D02−	D03+	D03−	PE	KE

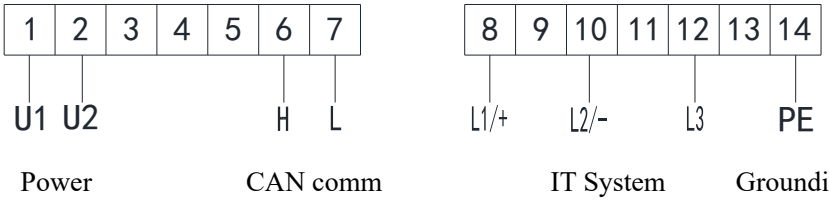
Relay output Grounding

18	19		1	2
A	B		U1	U2

485 comm Power

DO1 (12, 13), DO2 (14, 15) and DO3 (16, 17) are the outputs of three sets of relays, which normally correspond to the outputs of error alarm, fault alarm and fault warning respectively. PE and KE (28, 29) are the instrument functional grounding terminals, which shall be connected to the field equipotential grounding terminal row respectively. A, B (18, 19) are the Interfaces A and B of RS485 respectively for communication with the upper computer. U1, U2 (1, 2) terminals are auxiliary power interfaces for instruments, generally connected to 220V AC power supply.

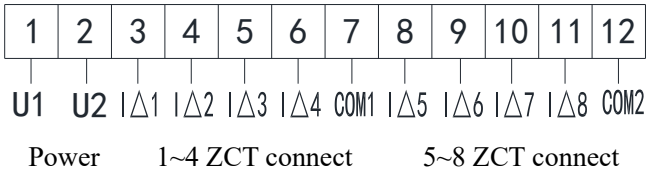
ASG200 wiring method



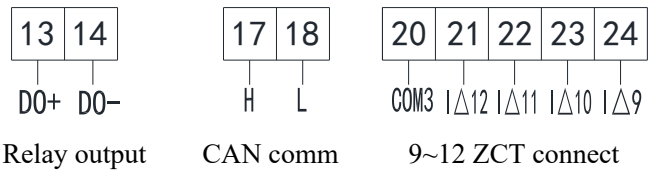
U1, U2 (1, 2) terminals are auxiliary power interfaces for instruments, generally connected to AC220V power supply. H, L (6, 7) are CAN communication terminals used for communicating with insulation monitors and fault locator of fault locating products.

L1/+, L2/-, L3 (8, 9, 10) are used for access to monitored IT system (three-phase IT system access to three-phase, single-phase IT system access to L1, L2; For single-phase DC systems, L1/+ is connected to the positive pole and L2/- is connected to the negative pole). PE (14) is the instrument functional earthing terminal and shall be connected to the field equipotential earthing terminal row.

AIL200-12 wiring method



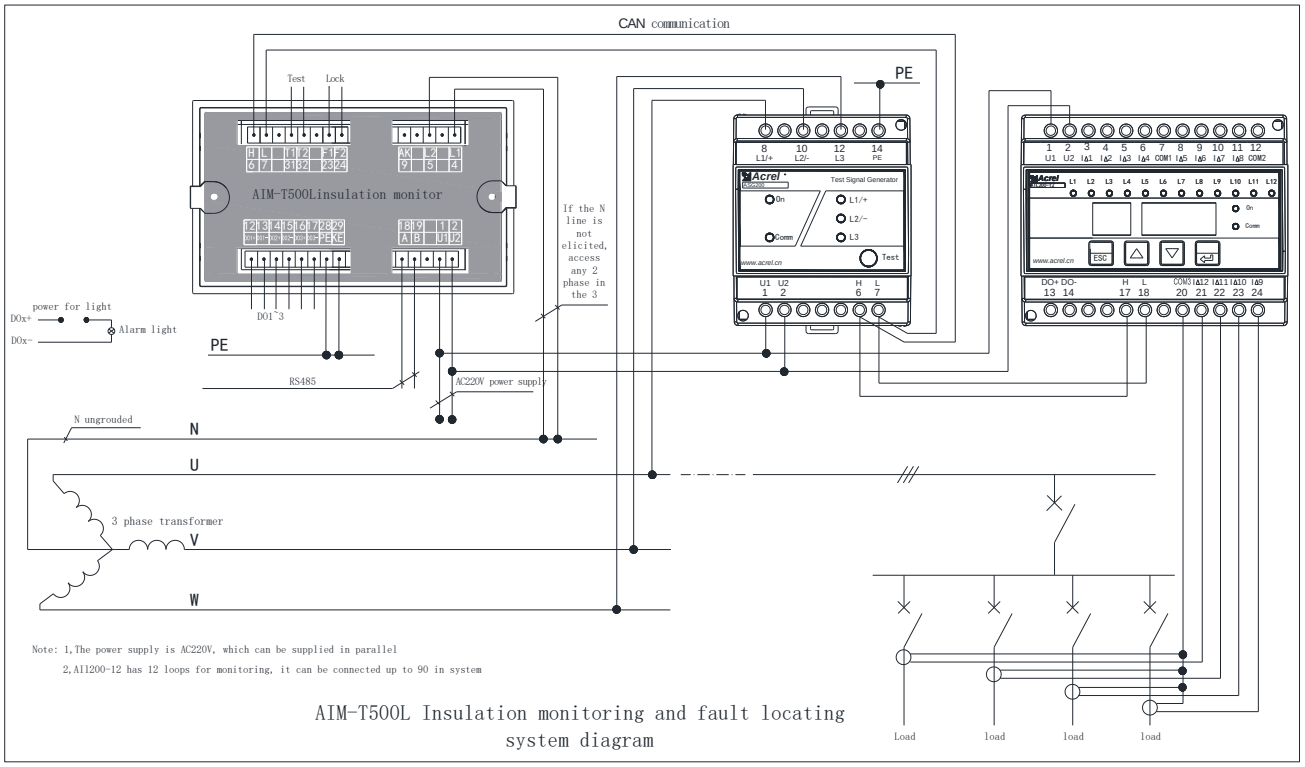
U1, U2 (1, 2) terminals are auxiliary power interfaces, generally connected to 220V AC power supply. I△1~I△4 (3, 4, 5, 6) respectively access 1~4 loop residual current transformer. COM1 (7) access other side with 1~4 loop of residual current transformer. I△5~I△8 (8, 9, 10, 11) respectively access 5~8 loop residual current transformer. COM2 (12) access other side with 5~8 loop of residual current transformer.



DO+, DO- (13, 14) is relay output, corresponding to fault alarm output, as long as there is any alarm signal along the loops, be closed. H, L (17, 18) is CAN communication terminal used to interact with insulation monitor and signal generator of the fault locating products. I△9~I△12 (24, 23, 22, 21) respectively access 9~12 loop residual current transformer. COM3 (20) access other side with 9~ 12 loop of residual current transformer.

5.4 Typical application

AIM-T500L series industrial insulation monitoring and fault typical application wiring method is as follow:



AIM-T500L Insulation monitoring and fault locating system diagram

5.5 Matters needing attention

(1) Wiring shall be conducted according to the wiring diagram. It is better to press and connect the wires with the needle-type sleeve joint, then insert the corresponding terminals of the instrument and tighten the screws to avoid abnormal operation of the instrument due to poor contact.

(2) AIM-T500L has two communication interfaces, and the first one is RS485 communication interface with Modbus-RTU protocol. When connected to the system, a bus can theoretically connect up to 128 instruments simultaneously. The second is the CAN communication interface, which uses a custom protocol for the data interaction between each component of the insulation fault locating products. The CAN address of AIM-T500L defaults to 1, ASG200 and AIL200-12 only have one-way CAN communication interface, the CAN address of ASG200 defaults to 1, and the CAN address of AIL200-12 defaults to 1, and it can be set 1~90.

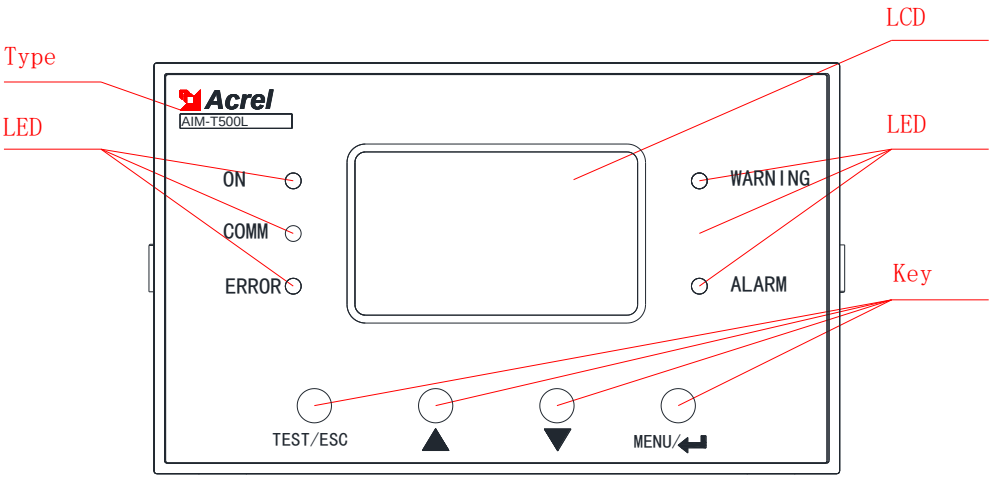
(3) It is recommended to use shielded twisted pair wire when connecting AIM-T500L to the upper computer system. Each core section should be no less than 1.0mm^2, connected to A and B respectively, and the communication wire should be kept away from strong electric cables or other strong electric field environment when wiring. Suggest the end insulation monitor of matching resistor in parallel between A and B terminals, recommended value for 120Ω; Insulation fault location system CAN communication interface connection, pay attention to the connection H and L, the distance is longer than the suggested in head and tail end parallel matching resistance and recommended value for 120Ω.

(4) The relay output of AIM-T500L and AIL200-12 do not carry power, and the external alarm (or warning light) shall be equipped with additional independent power supply.

6 Program and Usage

6.1 AIM-T500L insulation monitor

6.1.1 Display Panel



6.1.2 LED

5 LED indicators are used to indicate the status of the insulation monitor:

"ON": when the device is normal, the indicator light flashes at a frequency of about once per second.

"COMM": when the device has communication data to send and receive, the indicator light flashes.

"ERROR": when the device PE, KE broken line, indicator light flashing.

"WARNING": When the monitored insulation resistance value is less than the warning value, the warning indicator flashes.

"ALARM": When the monitored insulation resistance value is less than the alarm value, the warning and alarm indicator light flashes.

6.1.3 keys function

There are four keys in the device, which are self-check/return, up/down, menu/Enter.

Keys	Function
TEST/ESC	In non-programming mode, it is used to start the self-check function; In programming mode, for exit.
Up button, Down button	In non-programming mode, it is used to view and browse fault records; In programming mode, used to increase or decrease values.
MENU/↵	In non-programming mode, used to enter programming mode; In programming mode, for validation.

6.1.4 keys operation

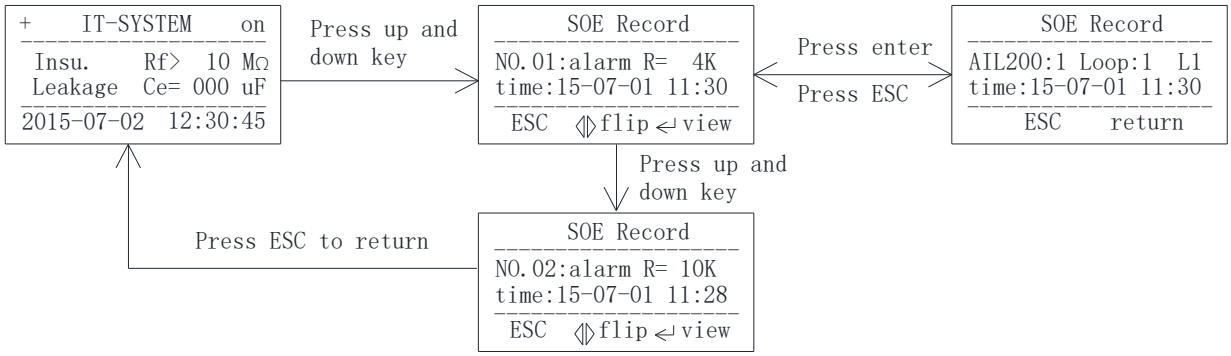
Button operation on the main interface

(1) Boot into the main interface by default. If no other keystrokes are performed, the system enters the main interface and runs. The main interface displays the insulation resistance, leakage capacitance,

and current system time.

(2) Check the alarm record. In the main interface, press "up key" or "down key" to enter the event record query interface, and turn the page by "up key" or "down key" to query the last 20 fault records in turn. Article 1 is the most recent record and article 20 is the oldest record.

(3) Instrument self-test. Press the "Self-test" key and the monitor will start the self-test program to simulate insulation failures and system errors.5 LED lights are on at the same time and the relay is closed. The self-test result will be displayed after 2s to check whether the instrument functions normally.



Parameter setting

(1) Enter the menu

If the system runs normally, press Enter to enter the password input page. Use the Up and Down keys to change the password. Enter the correct password and press Enter to enter the menu. Otherwise, "Incorrect password" will be displayed.

(2) LCD Settings

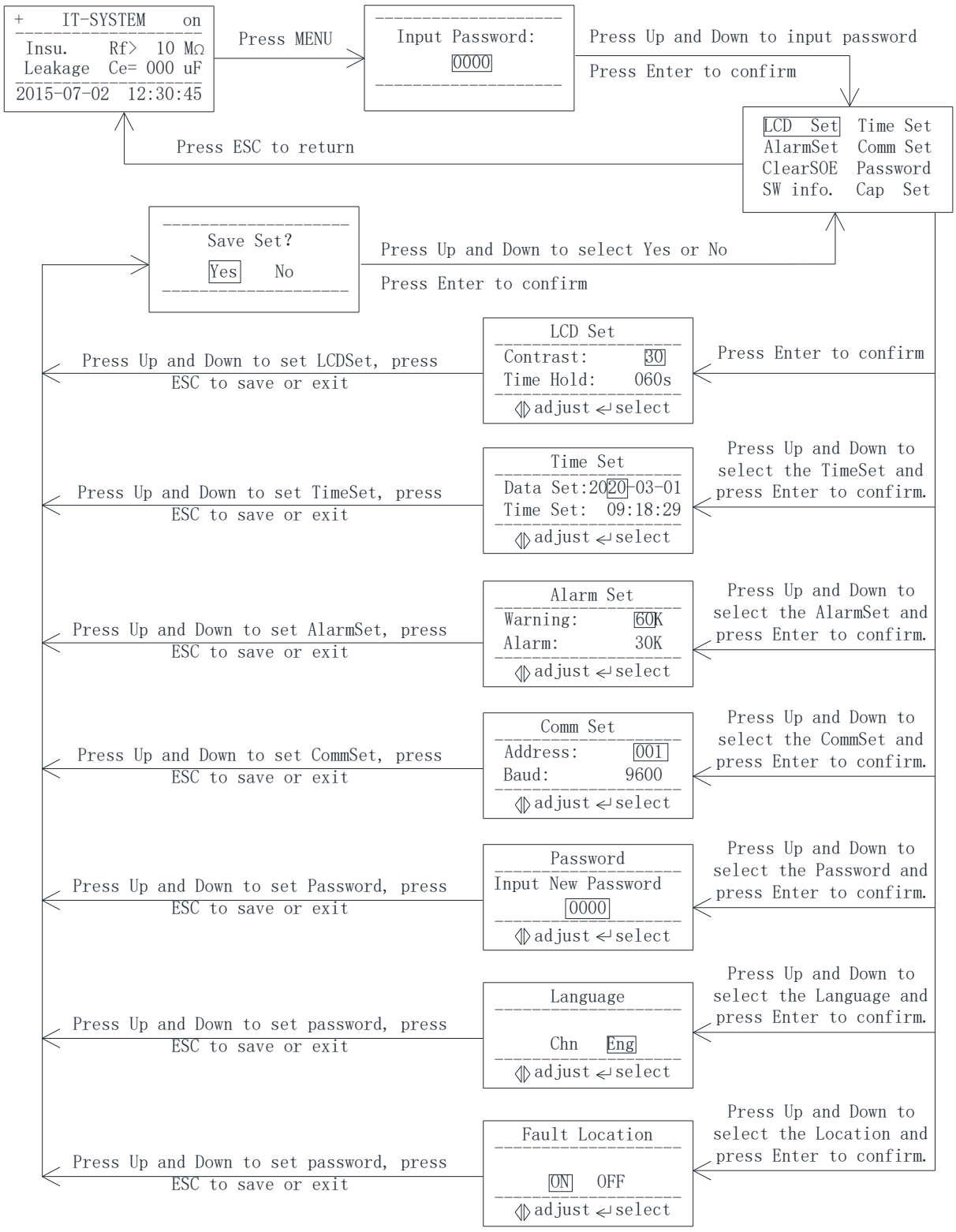
After entering the menu, select "LCD Settings" and press "Up" and "Down" to adjust the LCD contrast (long press is supported). You can adjust the LCD backlight time. After the modification is complete, press the "Back" key to exit. At this time, you can choose whether to save the setting and press Enter to confirm and exit.

(3) Security Settings

Alarm setting is to set the insulation warning value and the insulation alarm value of the system. It belongs to the menu of the same level as "Password Setting", and the steps to enter are the same. The default warning value is 60K and alarm value is 30K.

(4) Communication Settings

Communication Settings can modify the communication address and baud rate, with the upper computer communication, the default address 1, baud rate 9600.

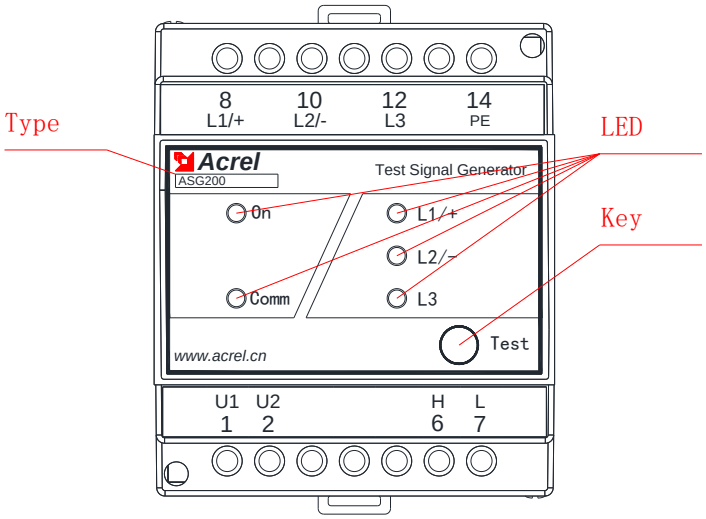


(5) Setting of other information

The insulation monitor also provides functions such as Time setting, Capacitance setting, Language setting, and Fault Location, which are set by default before delivery. If the fault locating function is required, keep it enabled. If you need to modify parameter Settings, refer to the preceding operations.

6.2 ASG200 test signal generator

6.2.1 Display Panel



6.2.2 LED

5 LED indicators are used to indicate the current status of ASG200 test signal generator;

"On": when the device is normal, the indicator light flashes at a frequency of about once per second;

"Comm": when the device has communication data to send and receive, the indicator light flashes;

"L1/+": when insulation fault occurs in Phase A or L+, the indicator light will be on;

"L2/-": when insulation fault occurs in B phase or L-, the indicator light will be on;

"L3": when insulation fault occurs in Phase C, the indicator light will be on.

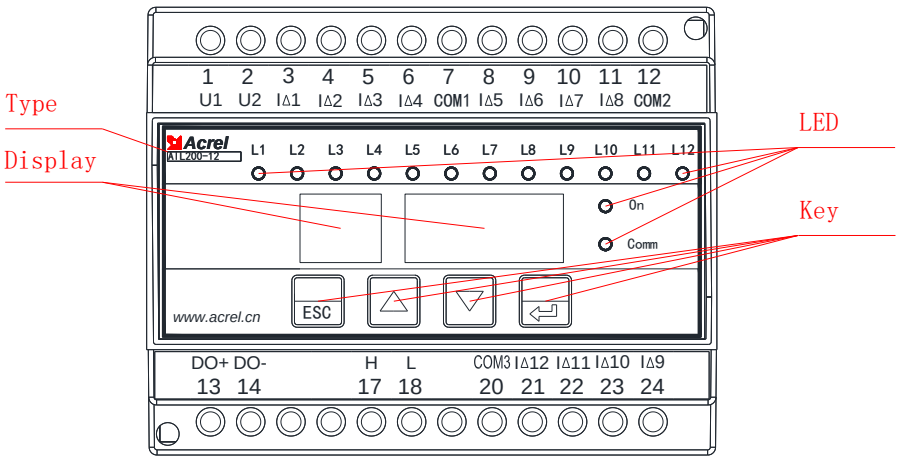
When insulation fault cannot be determined, L1, L2, and L3 are all on.

6.2.3 keys function

The Start button of the ASG200 test signal generator is reserved for manual fault location. After manual startup, the signal generator interacts with the insulation monitor and fault locator information, the instrument communication light flashes, and the interface of the insulation monitor displays the start of manual fault location. If the insulation status of the system is normal, the insulation monitor will return to normal after the re-measurement is completed.

6.3 AIL200-12 insulation fault locator

6.3.1 Display Panel



6.3.2 LED

14 LED indicators are used to indicate the current status of AIL200-12 insulation fault locator:

"On": when the device is normal, the indicator light flashes at a frequency of about once per second.

"Comm": when the device has communication data to send and receive, the indicator light flashes.

"L1~L12": the corresponding indicator light will be on in case of short circuit and broken line of any loop transformer from L1 to L12 and insulation fault.

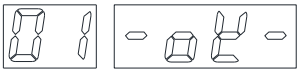
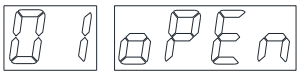
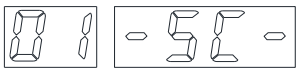
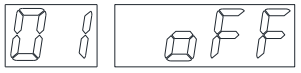
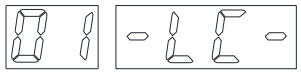
6.3.3 Keys function

There are four keys in the device, namely " RESET/ESC ", " up/down ", " MENU/↵".

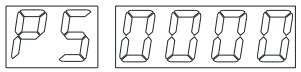
Keys	Function
RESET/ESC	In non-programming mode, used to return to the superior menu; In programming mode, used to exit the current operation; Long press for device reset function.
Up button, down button	In non-programming mode, used for menu switching and password entering; In programming mode, used for change values and switching states.
MENU/↵	In non-programming mode, press the button to enter the programming mode. In programming mode, when enter confirm or select the key to use.

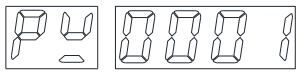
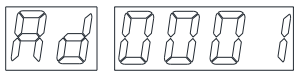
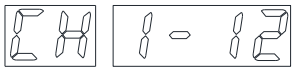
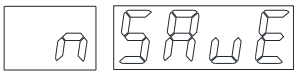
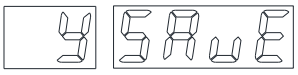
6.3.4 Operation Description

The user interface displays the status of 12 loops. You can press up or down to view the status. The corresponding characters are described as follows:

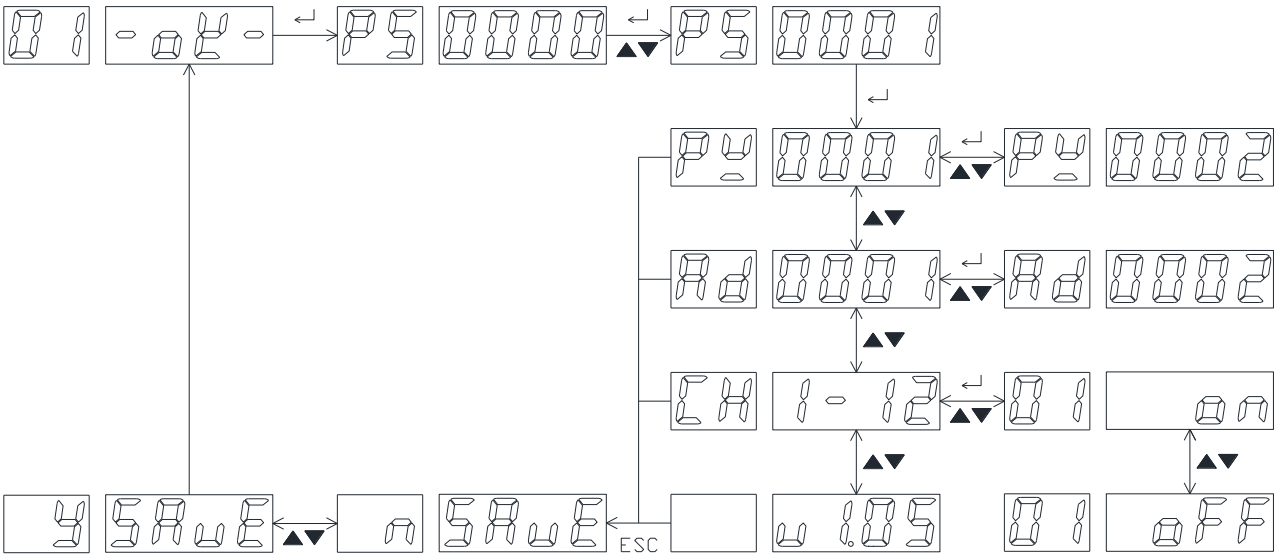
Symbol	Symbol describption
	01 -OK-, for 01 ZCT loop normally connected, normal state
	01 OPEN, for 01 ZCT loop break line, abnormal state
	01 -SC-, for 01 ZCT loop short circuit, abnormal state
	01 OFF, for 01 ZCT loop channel is closed, normal state
	01 -LC-, for 01 ZCT loop fault, fault state

To modify the settings, press OK and enter the password to enter the settings. The blinking character indicates that you can modify the settings. You can change the default password. The default password is 0001. The value ranges from 1 to 90. The default address is 1. The loop can be set to open or close. If the loop is not connected to the transformer, the loop can be manually closed. After modifying the settings, press the Back key to enter the screen for saving the settings. Press the up or down key to select whether to save the settings. After confirming the saving, return to the main screen.

	PS 0000, for password interface, the default password is 0001

	PW 0000, for password modify, it can be set
	Ad 0001, for CAN address, it can be set 1~90
	CH 1-12, for 12 channel set, it can be set ON or OFF
	01 On, for channel is open, the default is all of 12 channels are open, the channel without ZCT can be set closed
	01 OFF, for channel is closed, the channel with ZCT can be set open
	n SAVE, for setting is invalid
	y SAVE, for setting is valid

The specific key operation process is shown in the figure below:



If only one fault locator is connected to the system, manually close the loop that is not connected, and other parameters default. If multiple fault locators are connected to the system, confirm the transformer circuit connected to each fault locator and manually close the unconnected circuit; Set the address of each fault locator to distinguish different fault locators. After the Settings are modified, exit the Settings and select confirm to save. The fault locator will run automatically.

7 Communication Instruction

7.1 Modbus-RTU communication protocol

Meter RS485 interface adopts Modbus-RTU communication protocol, which defines the address, function code, data, check code in detail. It is the necessary content to complete the data exchange between the host and slave machine.

7.2 Introduction to the function code

7.2.1 Function code 03H or 04H: Read the registers

This function allows to acquire the data by equipment and the system parameters. The number of data requested by hosts has no limit, but cannot exceed the defined address range.

The following example shows how to read a measured insulation resistance value from No.01 slave computer, with the address of the value of 0008H.

The host computer sends		Send message
Address code		01H
Function code		03H
Start address	High byte	00H
	Low byte	08H
Number of registers	High byte	00H
	Low byte	01H
CRC check code	Low byte	05H
	High byte	C8H

The slave computer returns		Return message
Address code		01H
Function code		03H
Bytes		02H
Register data	High byte	00H
	Low byte	50H
CRC check code	Low byte	B8H
	High byte	78H

7.2.2 Function code 10H: Write the registers

The function code 10H allows the user to change the contents of multiple registers, which can write the time and date in this meter. The host can write up to 16 (32 bytes) data at a time.

The following example shows a preset address of 01 with an installation date and time of 12:00, Friday, December 1, 2009.

The host computer sends		Send message
Address code		01H
Function code		10H
Start address	High byte	00H
	Low byte	04H
Number of registers	High byte	00H
	Low byte	03H
Number of registers		06H
0004H data	High byte	09H
	Low byte	0CH
0005H data	High byte	01H
	Low byte	05H
0006H data	High byte	0CH
	Low byte	00H
CRC check code	Low byte	A3H
	High byte	30H

The slave computer returns		Return message
Address code		01H
Function code		10H
Start address	High byte	00H
	Low byte	04H
Number of registers	High byte	00H
	Low byte	03H
CRC check code	Low byte	C1H
	High byte	C9H

Note: The above data is for reference only, see address table for register definition

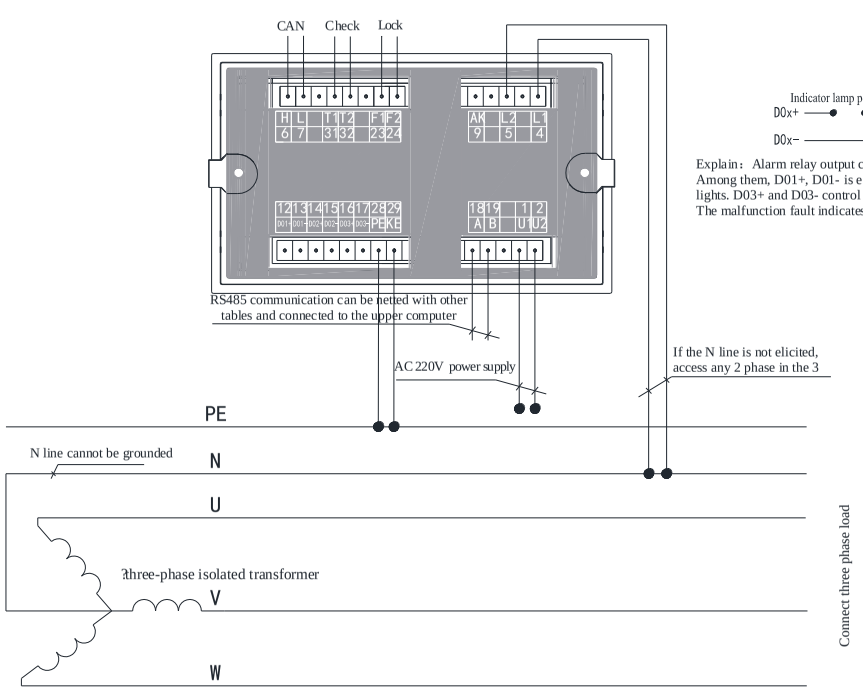
7.3 AIM-T500L address table

No.	Address	Parameter		Read/ write	Value range	Data Type
1	0000H	Passwords		R	0000-9999 (default 0000)	word
2	0001H high	Address		R	1~247 (default 1)	word
	0001H low	Baud rate		R	0~3: 4800, 9600, 19200, 38400 (unit bps) (default 9600)	
3	0002H high	Contrast ratio		R	15-60 (default: 30)	word
	0002H low	Display time		R	15~250 (unit second) (default 60, 15 light)	
4	0003H high	Year		R/W	0~99	word
	0003H low	Month		R/W	1~12	
5	0004H high	Day		R/W	0~31	word
	0004H low	Warning mark		R	0: none 1: warning 2: early warning and alarm	
6	0005H high	Hour		R/W	0~23	word
	0005H low	Minute		R/W	0~59	
7	0006H high	Second		R/W	0~59	word
	0006H low	Data stable		R	0 or 1 (0 invalid, 1 stable)	
8	0007H high	Warning value		R/W	60~4999 (unit: k Ω) (default: 60)	word
	0007H low	Warning value				
9	0008H high	Alarm value		R/W	10~4999 (unit: k Ω) (default: 38)	word
	0008H low	Alarm value				
10	0009H high	Resistance value		R	1~10001 (unit: k Ω)	word
	0009H low	Resistance value				
11	000AH	SN (high 16 bits)		R	Default: 0000000000	word
12	000BH	SN (low 16 bits)				word
13	000CH	Reserve				word
14	000DH	Leakage capacity		R	0~500 (unit: μF)	word
15	000EH high	Symbol of broken line		R	0: none 4:PE/KE broken line	word
	000EH low	Current period			2~200 (unit s)	
16	000FH high	Whether access system		R	0: no access system 1: access system	word
	000FH low	Reserve				
17	0010H high	Fault Record 1	STA1	R	The sequence number of incident record	word
	0010H low			R	Incident1content: 0~2 0: a fault free record 1: early warning 2: alarm	
18	0011H		resistance value	R	incident 1 insulation resistance	word
19	0012H high		Year1	R	incident 1 time -year	word
	0012H low		Month1	R	incident 1 time -month	

20	0013H high		Day1	R	incident 1 time -day	word
	0013H low		Hour1	R	incident 1 time -hour	
21	0014H high		Minute1	R	incident 1 time -minute	word
	0014H low		Second1	R	incident 1 time -second	
22~116	0015H-0073H	The remaining 19 events are recorded in this part of the space, and the rules and formats are the same as the first.				
117~120	0074H~0077H	Reserve				
121	0078H high	Fault Locate Record 1	Number	R	The sequence number of incident record: 0~19	word
	0078H low		Locator	R	Locator sequence of record 1: 0~90	word
122	0079H high		Fault loop	R	Locator fault loop of record 1: 1~12	word
	0079H low		Fault line	R	Fault line of record 1: 01: A 02: B 03: C 04: N	word
123~160	007AH~009FH	The remaining 19 events are fault locating recorded in this part of the space, and the rules and formats are the same as the first.				

8 Typical applications

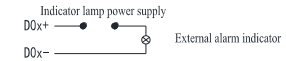
8.1 AIM-T500L typical wiring method



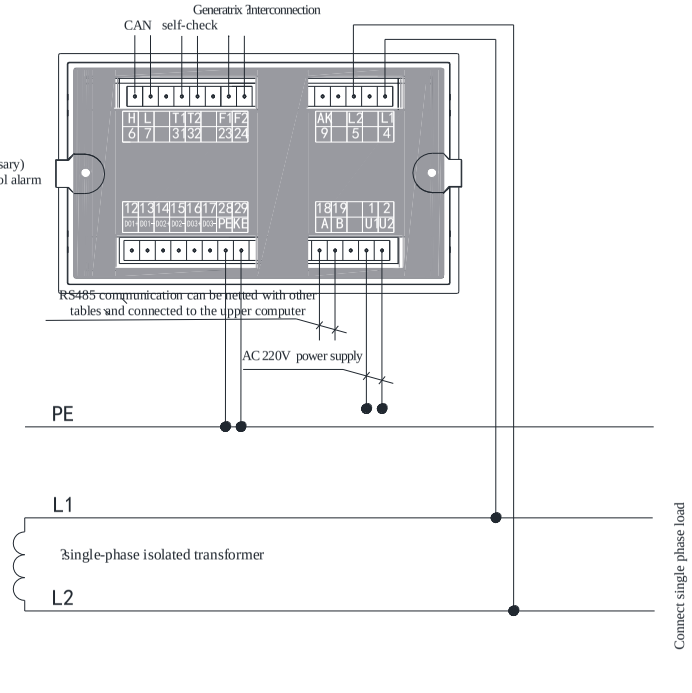
Note: 1, The source power of meter is AC220V

2, In DC System, L1 link to +, L2 link to -

AIM-T500L insulation monitor is applied to the connection diagram of 3-phase IT system

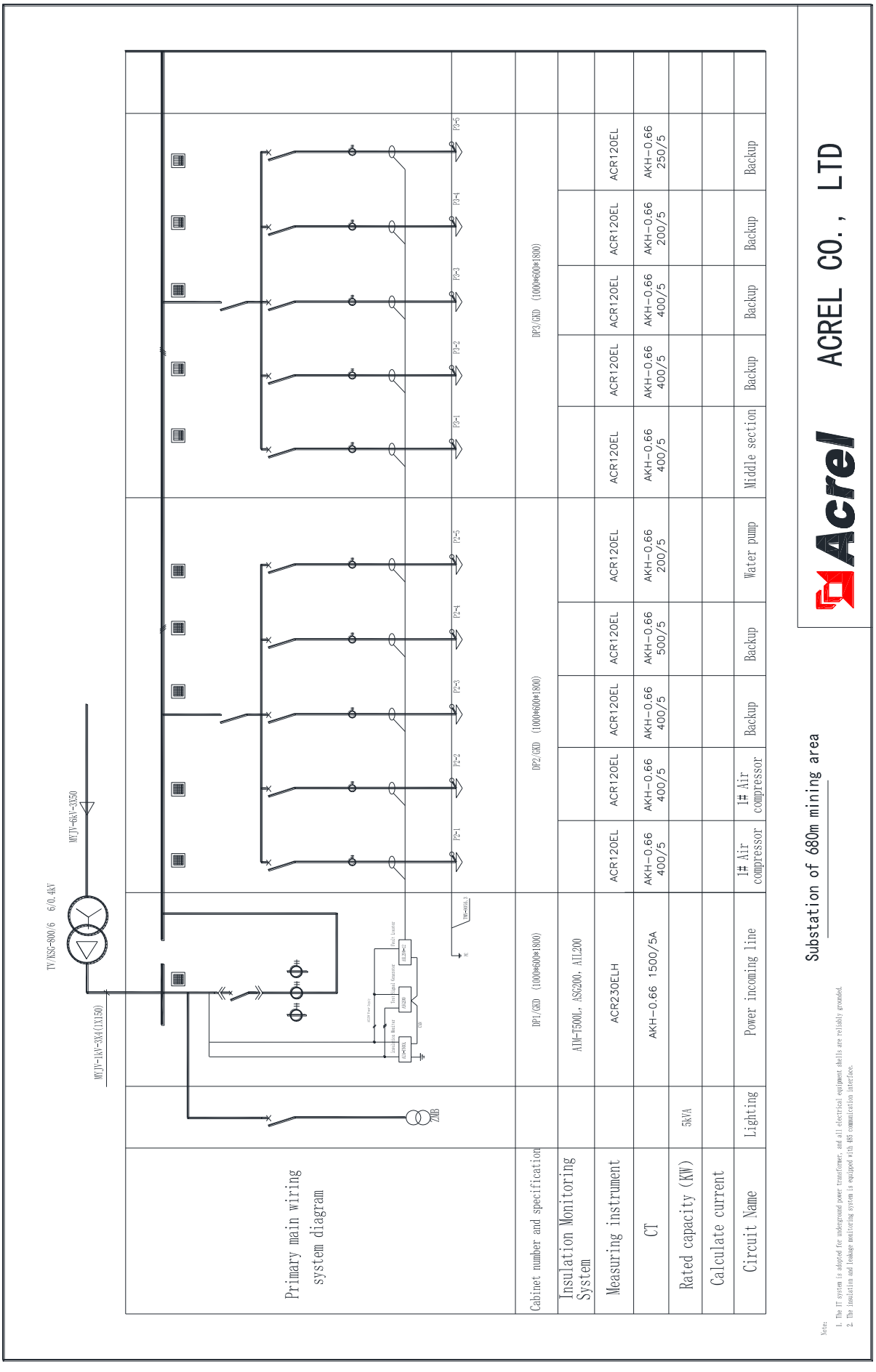


Explain：Alarm relay output control external alarm indicator (if necessary)
Among them, D01+, D01- is error indicating lamp , D02+, D02- control alarm lights. D03+ and D03- control the warning lights.
The malfunction fault indicates that the meter itself is out of order.



AIM-T500L insulation monitor is applied to the connection diagram of single-phase IT system

8.2 AIM-T500L typical application diagram



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