AIM-D100-CA 直流绝缘监测仪

安装使用说明书 V1.0

AIM-D100-CA DC Insulation Monitor

Installation Manual V1.0

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AIM-D100-CA 直流绝缘监测仪

1 概述

1 Overview

AIM-D100-CA 型直流绝缘监测仪主要用于在线监测直流不接地系统正负极对地绝缘电阻，当绝缘电阻低于设定值时，能发出预警和报警信号。

产品可测 100-1000V 的直流系统，可应用于电动汽车充电装置、储能直流系统、UPS 供电系统、光伏直流系统、直流电网等直流系统的绝缘监测。

AIM-D100-CA DC Insulation Monitor is mainly used for on-line monitoring of DC ungrounded system positive and negative pole-to-ground insulation resistance. When the insulation resistance is lower than the set value, it can send out early warning and alarm signals.

The product can measure 100-1000V DC systems, and can be applied to insulation monitoring of DC systems such as electric vehicle charging devices, energy storage DC systems, UPS power supply systems, photovoltaic DC systems, and DC grids.

2 功能特点

2 Features

■ 监测直流系统正负极之间的电压，正负极对电压，测量范围为 100~1000V。

■ 监测直流系统正负极对地的绝缘电阻，当电阻低于设定的预警和报警值时，能发出预警和报警信号。

■ 具有运行、通讯和故障指示功能。

■ 1 路 RS485 接口，基于 Modbus-RTU 协议，可实现监测仪对外的数据交互。

■ 采用金属外壳，壁挂式安装，配置安装卡扣后也可导轨安装。

2 Features

■Monitor the voltage between the positive and negative poles of the DC system, and the voltage of the positive and negative poles. The measuring range is 100~1000V.

■Monitor the insulation resistance of the positive and negative poles of the DC system to the ground. When the resistance is lower than the set early warning and alarm value, an early warning and alarm signal can be issued.

■It has functions of operation, communication and fault indication.

■1 RS485 interface, based on the Modbus-RTU protocol, can realize the external data exchange of the monitor.

■Using metal shell, wall-mounted installation, it can also be installed on guide rails after the installation buckle is configured.

3 技术指标

3 Technical indicators

辅助电源 Power Supply		24DC
功耗 Power Consumption		≤3W
直流系统 DC system	电压范围 Voltage Range	100-1000VDC
	测量精度 Measurement Accuracy	0.5级 0.5 class
绝缘监测 Insulation Monitoring	绝缘电阻范围 Insulation resistance range	1kΩ-10MΩ
	精度 Precision	≤3%
允许系统泄露电容 Allowable System Leakage Capacitance		≤5uF
最快测量时间 Fastest measurement time		200ms（测量时间随泄露电容增大而变长） 200ms (measurement time becomes longer as the leakage capacitance increases)
通讯 Communication		RS485通讯，Modbus-RTU协议 RS485 communication, Modbus-RTU protocol
安装方式 Installation method		壁挂式安装，也可导轨安装（需配安装卡扣） Wall-mounted installation or rail installation (need to be equipped with installation clips)
环境参数 Environmental	工作温度 Operating	-15-+55℃

parameters	temperature	
	存储温度 Storage temperature	-20-+70℃
	相对湿度 Relative humidity	<95%，不结露 <95%, no condensation
	海拔高度 Altitude	<2000m

4 外形及安装接线

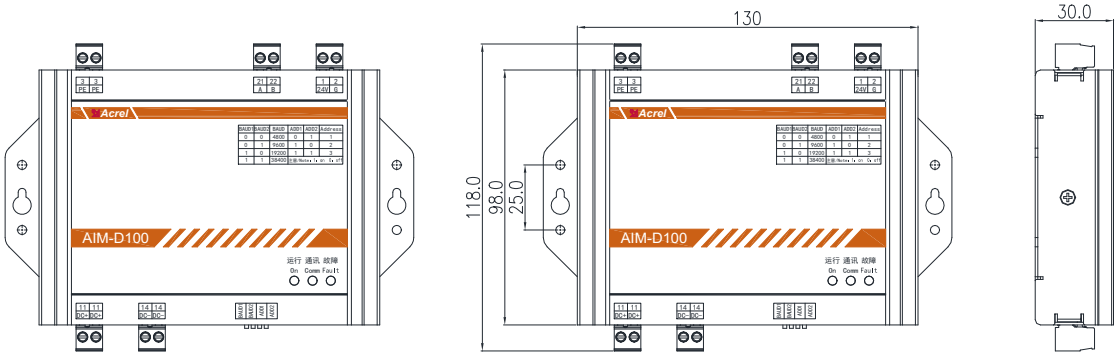
4 Appearance and installation wiring

4.1 外形和尺寸

4.1 Shape and size

AIM-D100-CA 型直流绝缘监测仪采用金属外壳，其外形尺寸如下图所示：（单位：mm）。

AIM-D100-CA DC Insulation Monitor adopts a metal casing, and its dimensions are shown in the figure below: (unit: mm).



产品外形　　正视图　　侧视图

AIM-D100-CA 外形尺寸

4.2 安装方法

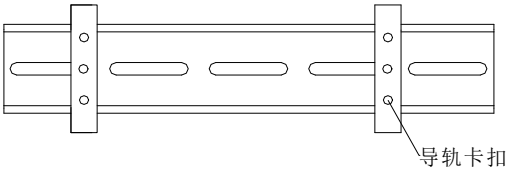
4.2 Installation method

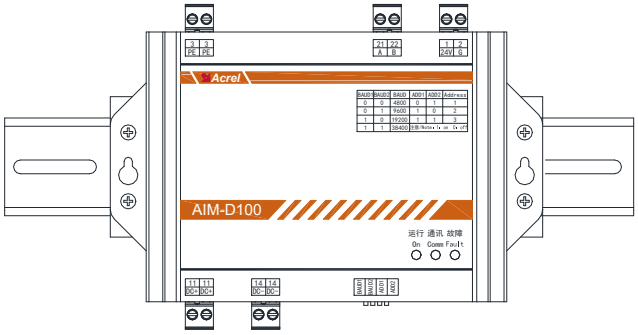
安装方式一：AIM-D100-CA 结构采用壁挂式安装的方式。安装时，用 M3 的螺丝（或自攻螺丝穿过仪表两侧的安装孔，将其固定在柜内支架上。

安装方式二：导轨式安装，首先将随仪表附带的塑料导轨卡扣卡在导轨上，将仪表两边的安装孔位与导轨卡扣上安装孔对齐，用附带的 4 颗 M3 自攻螺丝对齐安装孔位拧紧后，便可固定，如下图所示。

Installation method 1: The structure of AIM-D100-CA adopts the method of wall-mounted installation. When installing, use M3 screws or self-tapping screws to pass through the mounting holes on both sides of the instrument, and fix it on the bracket in the cabinet.

Installation method 2: Guide rail installation, first, snap the plastic guide rail buckle attached to the instrument on the guide rail, align the mounting holes on both sides of the instrument with the mounting holes on the guide rail buckle, and use the attached 4 M3 self-tapping screws to align and install After the holes are tightened, it can be fixed, as shown in the figure below.





4.3 接线方法

4.3 Wiring method

产品接线端子如下图所示：

The product terminal is shown in the figure below：

1	2	3	3	11	11	14	14	21	22
24V	G	PE	PE	DC+	DC+	DC−	DC−	A	B
辅助电源		功能接地		直流系统正极		直流系统负极		RS485通讯	

1、2 号端子：接直流 24V 电源；

3 号端子：接现场地排，两个 3 号端子在仪表内部相连接，可任取一个端子接线；

11 号端子：接直流系统正极，两个 11 号端子在仪表内部相连接，可任取一个端子接线；

14 号端子：接直流系统负极，两个 14 号端子在仪表内部相连接，可任取一个端子接线；

21、22 号：为仪表的 RS485 通讯端子。

Terminals 1 and 2: connected to DC 24V power supply;

No. 3 terminal: connected to the field row, the two No. 3 terminals are connected inside the instrument, and one terminal can be used for wiring;

Terminal No. 11: connected to the positive pole of the DC system, the two No. 11 terminals are connected inside the instrument, and one terminal can be used for wiring;

Terminal No. 14: connected to the negative pole of the DC system, the two terminals No. 14 are connected inside the instrument, and one terminal can be used for wiring;

No. 21 and No. 22: RS485 communication terminals of the instrument.

接线线型：辅助电源、功能接地、直流系统正负极接线，可以选用 1.5mm^2 的多芯铜线。RS485 通讯接线采用 1.5mm^2 的屏蔽双绞线。

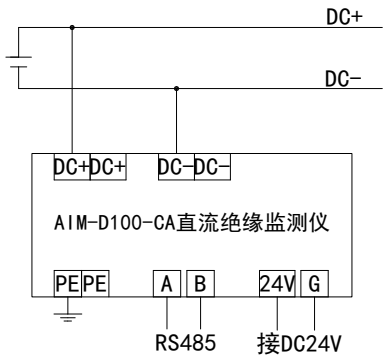
Wiring line type: auxiliary power supply, functional grounding, DC system positive and negative wiring, you can choose 1.5mm2 multi-core copper wire. RS485 communication wiring adopts 1.5mm2 shielded twisted pair.

4.4 应用接线示意

4.4 Application Wiring Schematic

AIM-D100-CA 直流绝缘监测仪监测直流系统时接线方式如下示意图所示：

When AIM-D100-CA DC insulation monitor monitors the DC system, the wiring method is shown in the following schematic diagram:



4.5 注意事项

1）为保证绝缘监测的有效性，绝缘监测仪应与被监测的直流系统可靠连接，绝缘监测仪的 14 号端子接直流系统的负极，11 号端子接直流系统的正极，3 号端子可靠接地。

2）安装接线时严格应按接线图进行接线，接线最好用针式套接头压接后，再插入仪表相应端子并将螺钉拧紧，避免因接触不良而导致仪表工作不正常。

3）严禁非专业人士擅自打开产品外壳，以免影响产品功能。

4.5 Precautions

1) In order to ensure the effectiveness of insulation monitoring, the insulation monitor should be reliably connected to the monitored DC system. Terminal 14 of the insulation monitor is connected to the negative pole of the DC system, terminal 11 is connected to the positive pole of the DC system, and terminal 3 is reliably grounded .

2) When installing the wiring, the wiring should be strictly in accordance with the wiring diagram. It is best to crimp the wiring with a needle socket joint, then insert the corresponding terminal of the instrument and tighten the screws to avoid abnormal operation of the instrument due to poor contact.

3) It is strictly forbidden for non-professionals to open the product shell without authorization, so as not to affect the product function.