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AMC16(L)-DETT DC power meter module of base station

Installation and operation manual V1.3

Acrel Co.,Ltd.

Declaration

The company reserves the right to modify the specifications described in this manual without prior notice.Before ordering,please consult your local agent for new specifications.

目录

1 Overview

Base station dedicated DC energy meter AMC16-DETT is specially designed for base stations where have sharing requirements, and switch power supply is without the function of sub-user metering. The meter could measure 6 circuits DC energy, and supply working current to the matched hall sensors. Meanwhile, it can realize zero drift calibration by upper computer software. have the functions of telemetering,teleindication,teleadjusting, metering at real time, energy quality abnormal alarm, data storage and processing, data interaction. This meter can measure DC power consumption of three operators, providing detail datas for base station.

2 Product model

Name	Model	Instruction	Note
Base station DC energy meter	AMC16(L)-DETT	35mm din rail	L:with liquid crystal

3 Technical parameters

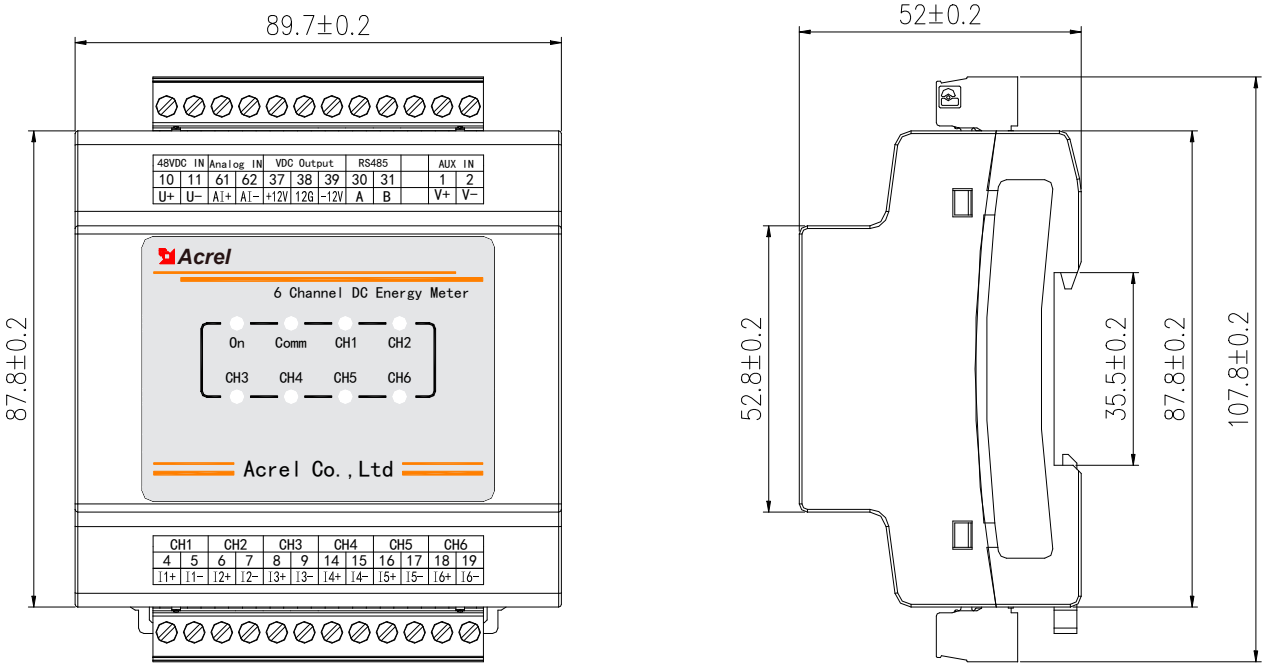
Technical parameter		Index
input	DC rated voltage	1 channel: -48VDC
	DC current	6 channels hall sensors output is 5V,current ratio can be set according to the actual ratio
	Commercial power monitoring	1 channel: 0-5VDC
	Overload capacity	Voltage:1.2times continued,2 times continued 1s; Current: 1.2 times continued,10 times continued 1s.
Accuracy (superposition hall sensors)		1%In≤I≤10%In error±2.5%; I>10%In error±2%
Measurement resolution		Voltage output accuracy 0.01V; current output accuracy 0.01A; power output accuracy 0.01kw; energy output accuracy 0.01kwh.
functions	Basic function	Monitor device system time, total voltage, output total current, power, energy, each channel voltage, current, power, energy; LED indicator display;485 communication.
	Metering function	Start current: under rated voltage, when the load current value of the meter doesn't exceed 1% of the max. current, the meter starts. Shunt running current: when there is no current in the current circuit of the meter, and 85%-125%of the rated voltage is applied on the voltage circuit, the calculator shall not have more than one digital change.
	Alarm function	DC voltage output low alarm,DC voltage output high alarm,one power down alarm, module voltage loss alarm, metering branch error alarm, internal program error alarm, clock error alarm,memory failure alarm, AC input power failure alarm
	Timing function	support broadcast timing, could remote timing to the meter through RS485 communication.
	Communication	Single channel RS485, baudrate 9600bps, can be set to 1200BPS, 2400bps, 4800bps. Communication protocol: standard or custmized

	Hall sensor power supply	Power supply output:+12V/100mA, -12V/50mA
	Clock accuracy	≤0.5S/d(23℃), ≤1S/d(-20℃-60℃),
Auxiliary power supply	Voltage range	-40V~-60VDC
	Power consumption	Whole device≤2W(no hall power supply output)
Storage		It has the storage function of historical power data and historical alarm information, and the memory is 2MB
Insulation resistance		≥40MΩ
environment	Temperature	Working : -20℃~+60℃; storage:-40℃~+70℃
	Humidity	≤98% no condensation, no corrosive gas place
	Altitude	≤4000m
Protection level		IP20
Material flame retardent		Terminal glow wire temperature 960℃±10℃ ,shell glow wire temperature 650℃±15℃
installation		Standard 35mm din rail
Lightning protection	Voltage input (differential mode)	Peak value 5kA
	Auxiliary power supply (differential mode)	Peak value 5kA

4 Outline structure

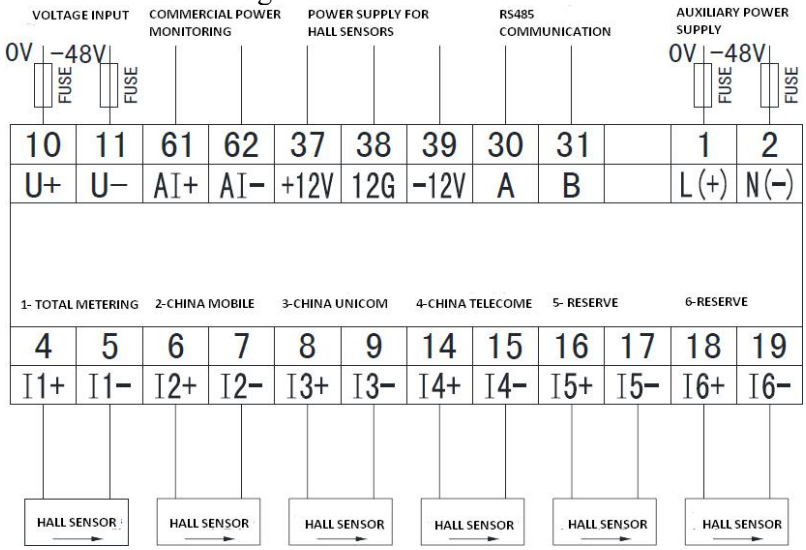
AMC16(L)-DETT DC power meter module of base station

unit：mm

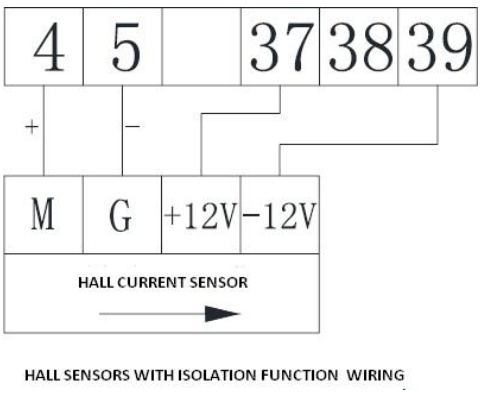


5 Installation wiring

5.1 terminals and wiring



Note: arrow direction should be the same with current direction marked on the sensor .



HALL SENSORS WITH ISOLATION FUNCTION WIRING

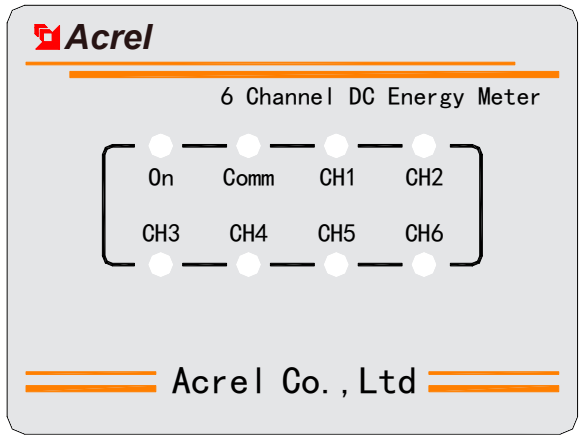
5.2 wiring precautions

1. input voltage should not be higher than 120% of product's rated input voltage, must install 1A fuse at the voltage input terminal.
2. Current input should use external diverter or hall sensor.
3. To ensure the accuracy,the DC meter should used together with Acrel hall sensors, the wiring length between sensors to meters should <3m.
4. Advise use three core shielded wires as communication connection wires. Each core >0.5mm^2 connect A,B, Connect shielding layer to earth, and keep communication line away from strong electric cable or other strong electric field environment during wiring

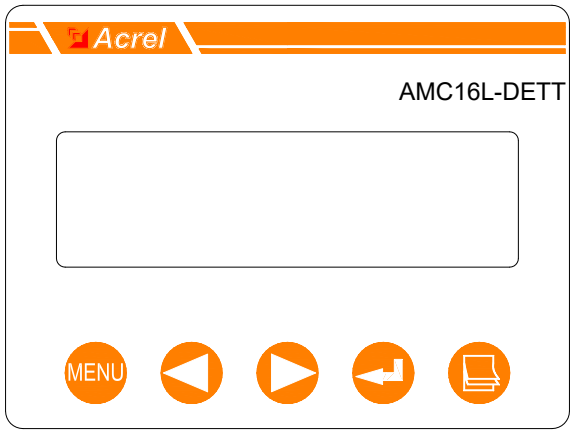
   The hall sensor opening locking screw must be tightened to ensure the closed-loop tightness of the sensor.

6 Guide to use

6.1 Panel diagram



AMC16-DETT



AMC16L-DETT

6.2 LED instructions

A total of 8 LED indicators are used to indicate the working status of the metering modules;

"running" status (green): when the metering module is in mormal operation,the running indicator light flashes。

"communication" status (red): when the 485 communication of metering module is normal,the communication indicator will flash.。

"Total"、"Mobile"、"Unicom"、"Telecom"、"Reserve1"、"Reserve2" status (red): the corresponding indicator lights flash when the main circuit and each branch power metering monitoring.

6.3 AMC16L-DETT key operation

There are five buttons in the DC energy metering module of AMC16L-DETT base station,, from left to right: menu key、left key、right key、enter key和page key

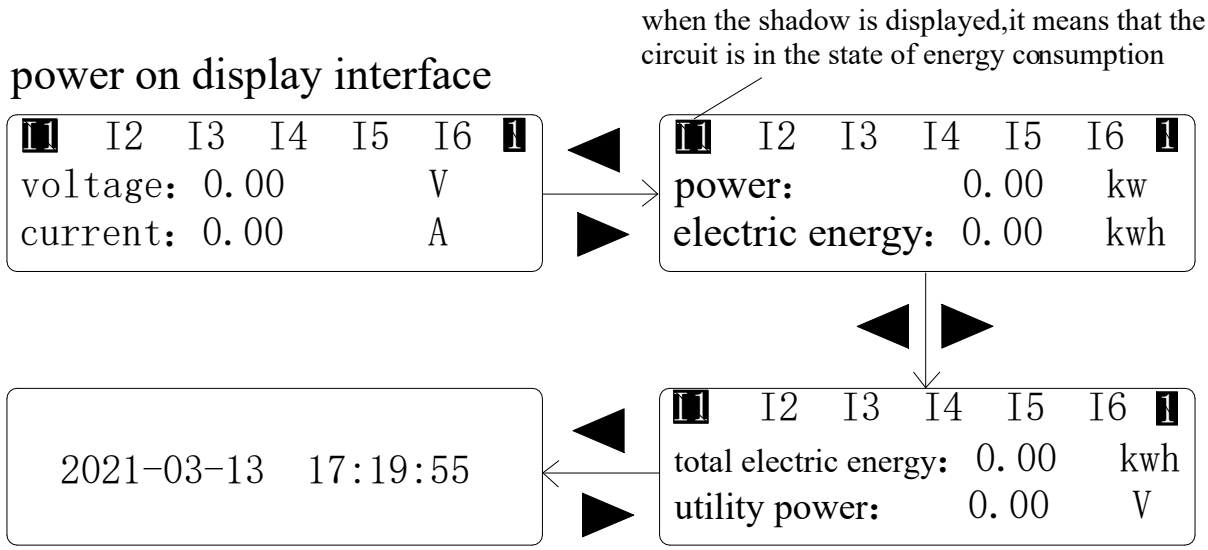
menu key	Non programming mode: press this key to enter the programming mode,and the device will prompt you to enter the password or return to the previous menu. Programming mode: used to return to the previous menu or exit the Programming mode.
left key、right key	Non programming mode: used to switch the display interface; Programming mode: used to switch the same level menu and shift the cursor。
enter key	Programming mode: used to confirm the selection of menu items and enter the next level menu.

page key	Non programming mode：used to increase the number of digits. Programming mode：used for 6-way metering shunt page turning.

6.4 AMC16L-DETT operation display instructions

After the instrument is powered on, the screen displays the power on interface as follows:whether there is signal input in 6 current mrtering channels I1,I2,I3,I4,I5,I6 and the real time data of correspond voltage and current of each channel.The value under the black shadow in the upper right corner indicates the current channels.press the page turning key to increase the number of channels,up to 6.Then press the left and right keys to switch back and forth the interface of voltage,current,power,electric energy,total electric energy,mains power and display time.On the power on interface,Press the menu key to enter the password input interface.After entering the password,you will enter the menu setting interface:1.communication,2.time,3.power,4.system.press the left and right keys to move the cursor,and press enter to enter each sub interface for viewing.the specific flow chart is as follows.

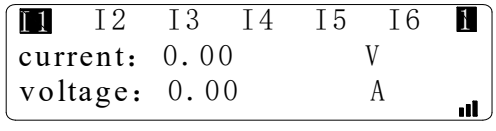
Power on interface



The DC energy metering module of AMC16-DETT and AMC16L-DETT base stations has six metering branches.By default,the first channel is the total metering,the second,third and fourth channels are mobile users,unicom users and telecom users respectively,and the fifth and sixth channels are reserved.

When the first circuit current is connected,white words on black background will be displayed at I1,indicating that the circuit is in energy consumption state,and the rest circuits are the same.It can display single current connection or multiple current connection.

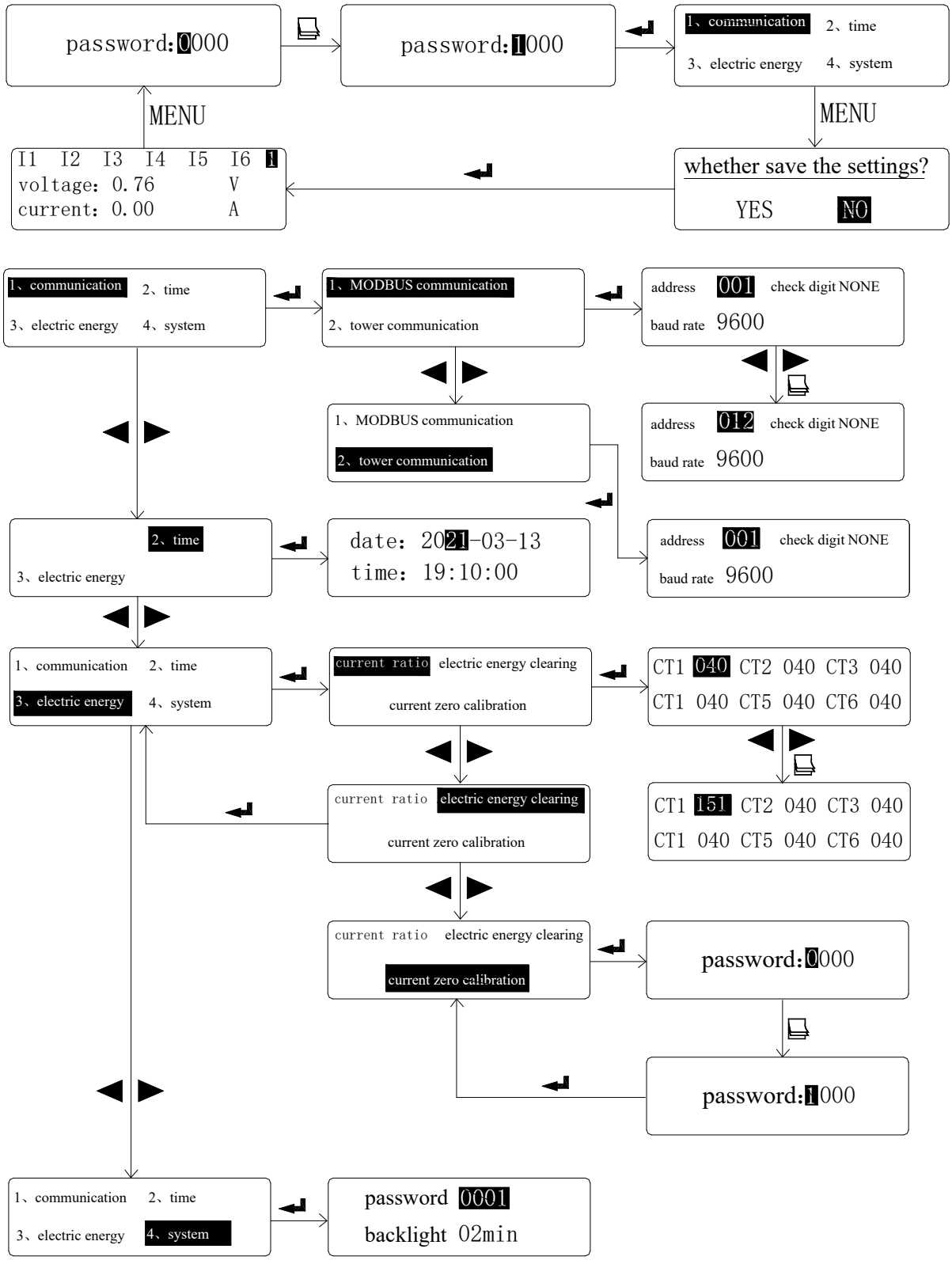
When connecting communication,the communication icon will appear in the lower right corner of the interface to distinguish.The specific display is shown in the figure below.



Menu function option interface

Press the menu key to enter the password interface.The default password is 1.Press left and right keys to shift,press the page turning key to increase the value,and then press the enter key to return to the power on interface.

Menu function setting interface



CT1-CT6 in the current ratio interface indicates the corresponding transformation ratio of each circuit in the factory.The default value is 40,and the corresponding rating is 5*40=200A.The parameters can be adjusted through the page turning key,and the maximum value can be set to 999.

7 Communication guide

Modbus address table

Telemetry,telecontrol

Pamameter area（0x00H~0x2FH）

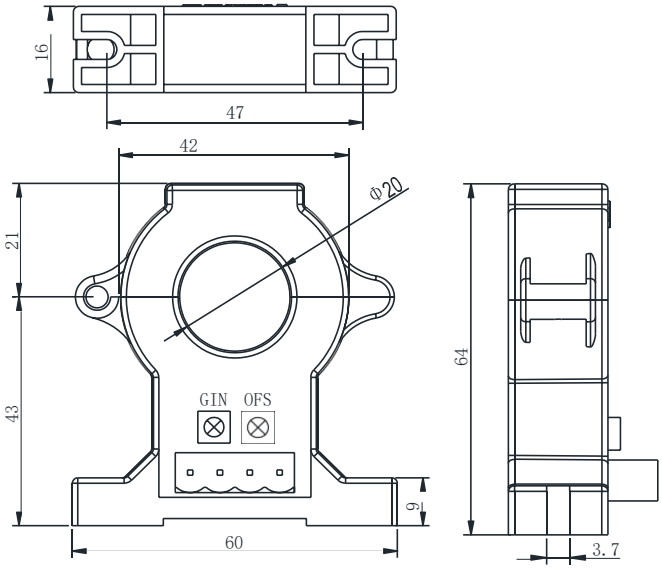
Serial number	variable	address	Read/ write	length	unit	Data type	note
1	address	00H	R/W	1	NONE	Uint16	1~247
2	Baud rate	01H	R/W	1	NONE	Uint16	2400,4800,9600,19200
3	reserve	02H	R/W	1	NONE	Uint16	
4	reserve	03H	R/W	1	NONE	Uint16	
5	voltage ratio	04H	R/W	1	NONE	Uint16	
6	voltage ratio 1	05H	R/W	1	NONE	Uint16	
7	Current ratio 2	06H	R/W	1	NONE	Uint16	
8	Current ratio 3	07H	R/W	1	NONE	Uint16	
9	Current ratio 4	08H	R/W	1	NONE	Uint16	
10	Current ratio 5	09H	R/W	1	NONE	Uint16	
11	Current ratio 6	0AH	R/W	1	NONE	Uint16	
12	Zero shielding value setting	0BH	R/W	1	0.1%	Uint16	One decimal place
13	Current zero calibration	0CH	W	1	NONE	Uint16	0x8801:the first way 0x8802:the second way …… 0x88FF:whole
14	Electric energy clearing	0DH	W	1	NONE	Uint16	0x8801:the first way 0x8802:the first way …… 0x88FF:whole
21	backlight	15H	R/W	1	min	Uint16	0~5
22	password	16H	R/W	1	NONE	Uint16	0~9999

Electric parameter data area（0x30H~0xEFH）

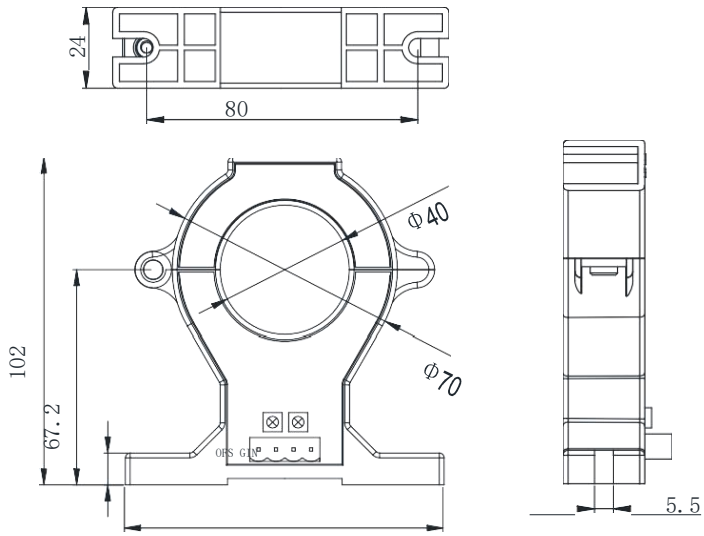
Serial number	variable	address	Read/write	length	unit	Data type	note
1	voltage 1	30H-31H	R	2	V	float	
2	voltage 2	32H-33H	R	2	V	float	
3	voltage 3	34H-35H	R	2	V	float	
4	voltage 4	36H-37H	R	2	V	float	
5	voltage 5	38H-39H	R	2	V	float	
6	voltage 6	3AH-3BH	R	2	V	float	
7	current 1	3CH-3DH	R	2	A	float	
8	current 2	3EH-3FH	R	2	A	float	
9	current 3	40H-41H	R	2	A	float	
10	current 4	42H-43H	R	2	A	float	
11	current 5	44H-45H	R	2	A	float	
12	current 6	46H-47H	R	2	A	float	
13	power 1	48H-49H	R	2	w	float	
14	power 2	4AH-4BH	R	2	w	float	
15	power 3	4CH-4DH	R	2	w	float	
16	power 4	4EH-4FH	R	2	w	float	
17	power 5	50H-51H	R	2	w	float	
18	power 6	52H-53H	R	2	w	float	
19	electric energy 1	54H-55H	R	2	0.01kWh	Uint32	
20	electric energy 2	56H-57H	R	2	0.01kWh	Uint32	
21	electric energy 3	58H-59H	R	2	0.01kWh	Uint32	
22	electric energy 4	5AH-5BH	R	2	0.01kWh	Uint32	
23	electric energy 5	5CH-5DH	R	2	0.01kWh	Uint32	
24	electric energy 6	5EH-5FH	R	2	0.01kWh	Uint32	
25	DC input	60H-61H	R	2	V	float	0~5V

8 Hall densor recommended

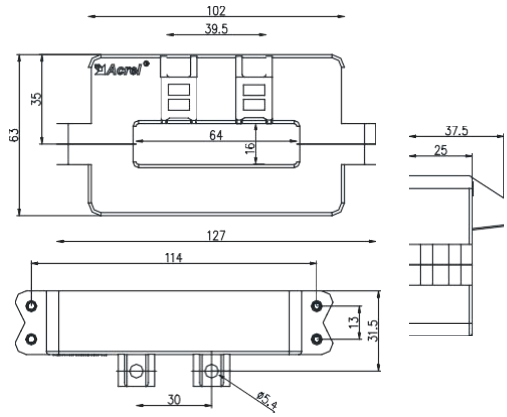
Recommend hall sensor （unit：mm）



AHKC-EKA（50A/5V） aperture Φ20mm



AHKC-EKB（100A/5V） aperture Φ40mm



AHKC-K(200A/5V) aperture Φ64*16mm

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