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4-channel DC Energy Meter
HYDC400
User Manual

Heyuan Intelligence Technology Co., Ltd

IMPORTANT DECLARATIONS

Please read this manual carefully before the product is operated. And once you start operating the meter, you'll be considered to have read this manual and accept all our terms. Heyuan shall not be responsible or liable for any damages or injuries caused by improper meter installation and/or operation.

Attention: the following symbols in this manual refer to meanings as follows

 **Electric Shock Symbol: Carries information about procedures which must be followed to reduce the risk of electric shock and danger to personal health**

 Safety Alert Symbol: Carries information about circumstances which if not considered may result in injury or death

The meter must be installed and operated by one who has experience with high-voltage devices or has qualifications. Please connect the meter to correct voltage before operating the meter. Please install and use the meter according to the user manual. Heyuan shall not be responsible or liable for any damages or injuries caused without following the instructions in the user manual.

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Chapter 1 Meter Overview

The HYDC400 is advanced, smart networked 4 channels DC energy meter. It is suitable to be used for DC signal measurement and energy metering of batteries, solar panels etc. It can also be used for industrial and mining enterprises, civil construction, building automation and other modern DC system for distribution.

Main Function:

* Measuring Parameters: one common voltage, current, power, bidirectional(import&export) energy from 4 loops
* Save monthly energy in the past 12 months
* Storage space of load recording: the data capacity is not less than 40 days at interval of 1 minute when recording positive energy.
* RS485 interface, support Modbus-RTU protocol;
* LCD display

Chapter 2 Specifications

2.1 Input Voltage

Rated Voltage: 24V, 48V, 100V, 350V, 500V
If the rated voltage is greater than the 500V, it is required a voltage divider to change the voltage less than 100V.
Input Voltage Range:0.8Un～1.1Un

2.2 Input Current

Input Current : 50A, 100A, 200A, 300A, 500A(settable),
Input Current Range:0~6666A
Start Current: 6‰Ib
Support 75mV shunt or DC0 ~ 4V hall sensor input.

2.3 Accuracy Class

Voltage: 0.5 Current: 0.5
Power: 0.5 Energy: 0.5

2.4 Power Consumption

Voltage line:≤1W Current line: ≤0.5 W
Power Consumption: ≤2W

2.5 Communication

RS485 / Modbus-RTU Communication Protocol
Baud Rate: 1200/2400/4800/9600 bps (the default is 2400)
Parity: the default is E-8-1

2.6 Power

Power Supply: DC20V~60V or AC85V~265V/DC100V~330V(optional)
Power-line Connection Terminals: L/+ and N/-
Power Output: DC±12V(ONLY used for hall sensor connection)

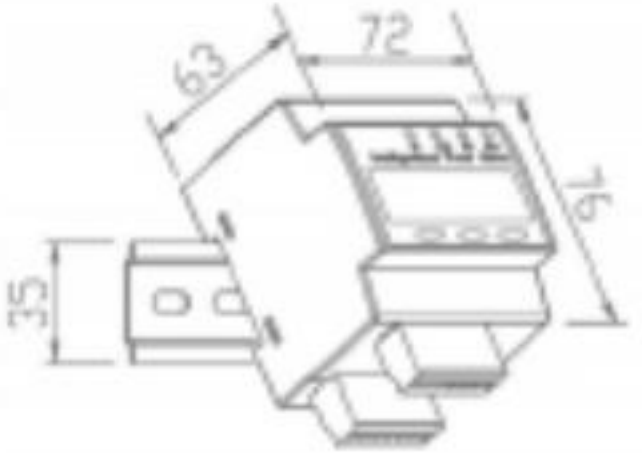
2.7 Working Condition

Operating Temperature: -25℃° ~ +60℃° Storage Temperature: -40℃° ~ +70℃°
Relative Humidity: ≤75%(no corrosive gas)
Altitude: ≤2500m

Chapter 3 Dimension and Installation

3.1 Dimension (unit: mm)

72± 0.5 mm ×76±0.5 mm×63±0.5mm
Weight: 0.5kg

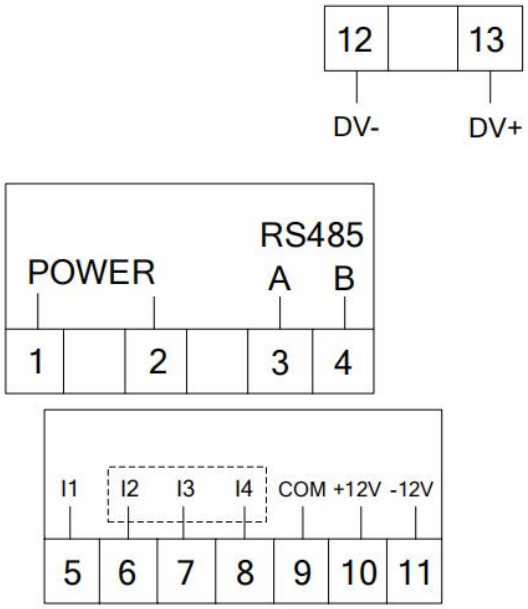


3.2 Installation Method

Installation Environment: the meter should be installed in a dry and dust free environment. Avoid exposing meter to excessive heat, radiation and high electrical noise sources.
Install Method: DIN rail Mounting.

Chapter 4 Terminals

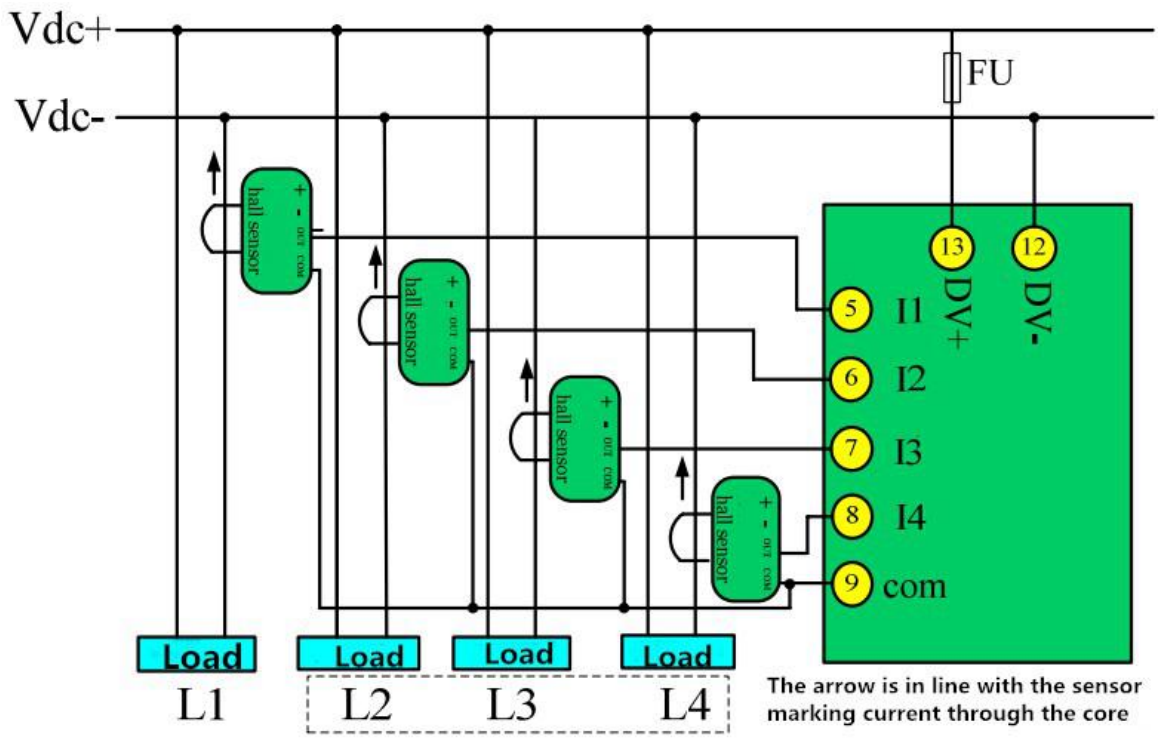
Terminal Description



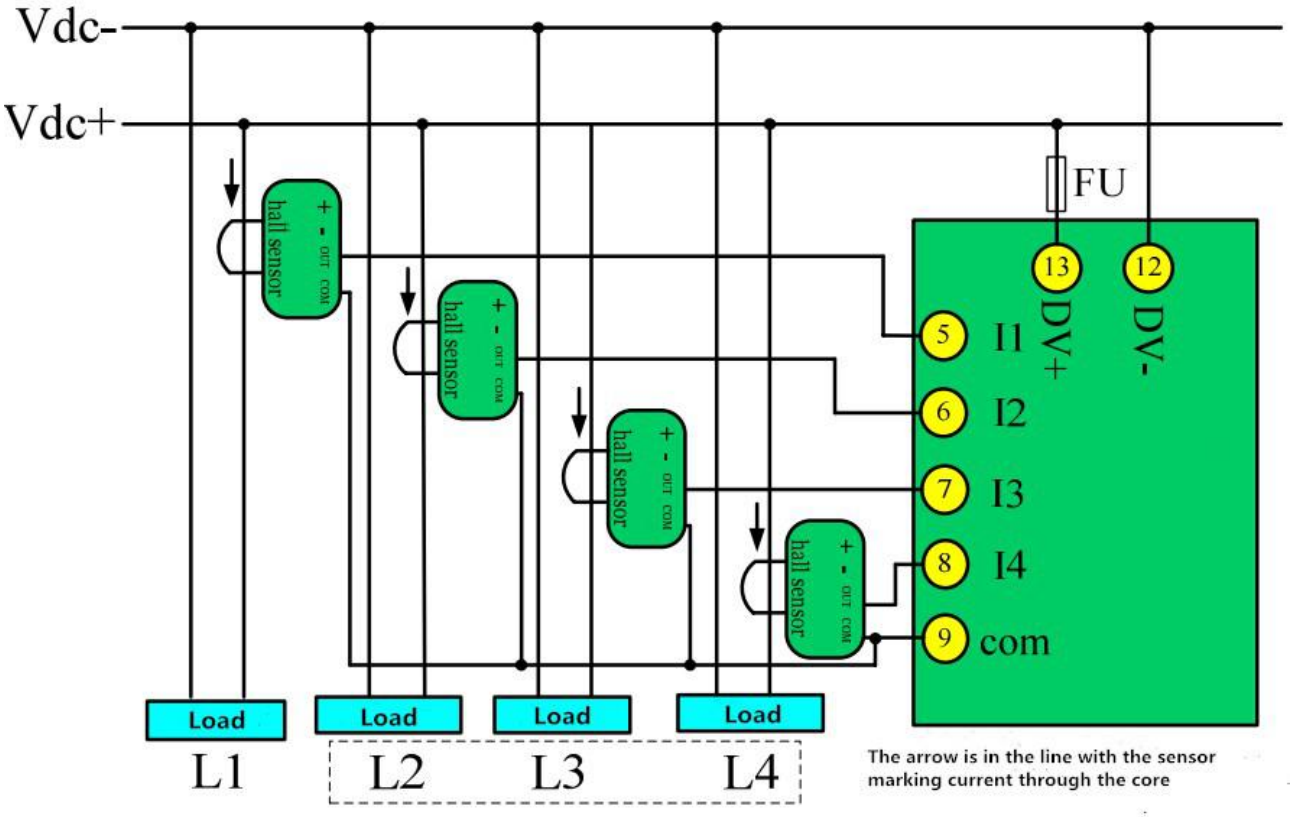
1, 2	Power	Power Supply (regardless positive and negative)
3, 4	A, B	RS485 Communication
5~8	I1~I4	Current sensor output is positive
9	COM	The common port of sensor input and voltage output
10,11	±12V	DC±12V output
12	DV-	Sampling voltage (-)
13	DV+	Sampling voltage (+)

Chapter 5 Typical Wiring

Hall sensor:



DC negative system connection

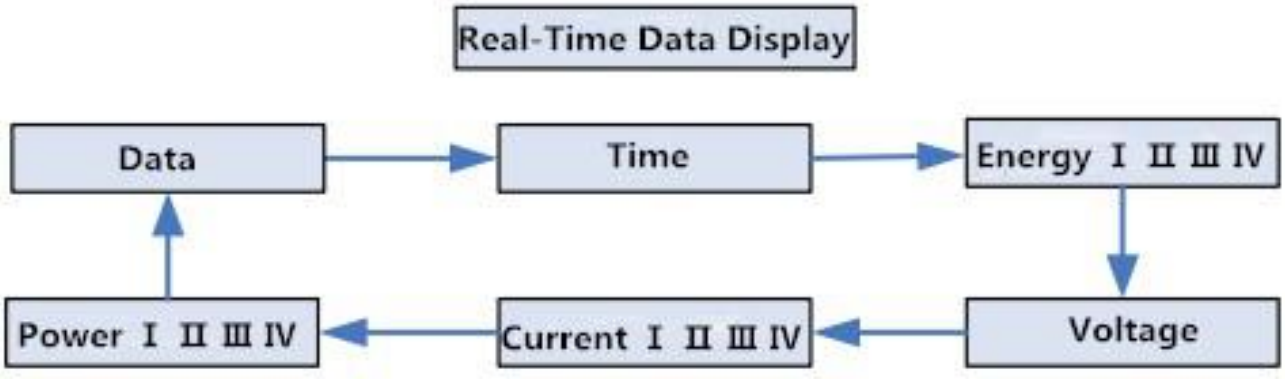


DC positive system connection

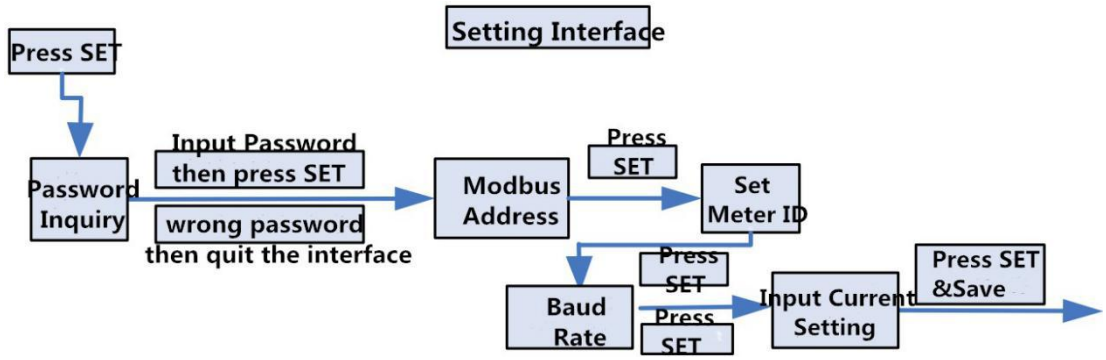
Chapter 6 Meter Display and Operation

6.1 Operation and Buttons

The display interface is composed of LCD display screen, 3 buttons and 8 LED light indicator. Press buttons "▲" and "▼" to cyclically switch interfaces of date, time, energy, voltage, current, power.



Press button “SET” to enter setting interfaces.



Press button ”▲” to increase values of passwords, ID, baud rate etc.
Press button ”▼” to shift digits.
Pulse Indicator: Energy pulse (red light, flash when calculate the import energy)

6.2 Display and Description

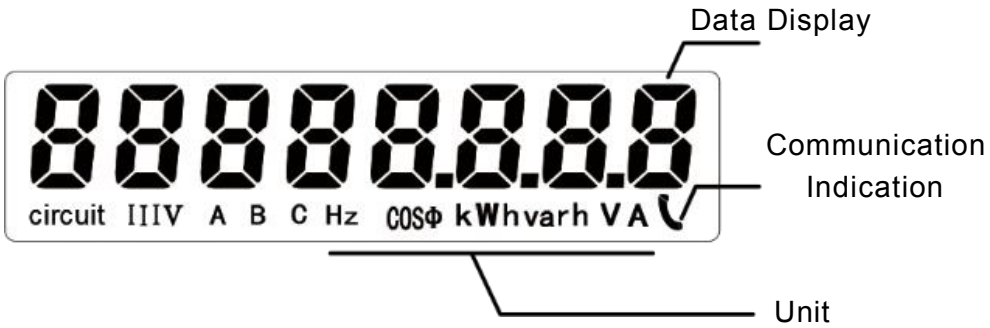


Figure 1 LCD Interface Display

LCD Display Interface Diagram

LCD Dispaly	Discription	LCD Display	Discription
PSd 3366	Password 3366	02400 E	Baud Rate & Parity
HR 146034	High 6-digit	14-12-30	Data
LR300051	Low 6-digit	11:48:30	Time
nAdr 33	Modbus Address	0.00	Energy
Cn1 0100	1st loop Current	22.999	Voltage
Cn2 0600	2nd loop Current	7.100	Current
Cn3 0600	3rd loop Current	14829	Power

Note:
energy, current, power will be display in 4 loops.1(Ⅰ)、2(Ⅱ)、3(Ⅲ)、4(Ⅳ)

Chapter 7 After-sales Service

Product Warranty

1. The product warranty period is one year.
2. The company is responsible for free maintenance or exchange within one-year warranty period.
3. The cost of the components and freight shall be charged for improper meter installation and/or operation.
4. Over the warranty period, part of the maintenance cost according to actual situation will be charged.

Service Guarantee

1. Product technical consulting and quality complaints will be replied within 12 hours.
2. Solutions for quality complaints will be provided within 24 hours.
3. Except statutory holidays and force majeure.

Chapter 8 Contact Us

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