

SM626H-DA Data Collector

Instructions for use



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Disclaimer:

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Before using the product, please read the manual intensively. First, please confirm which type of Instruments is used with the HART protocol, and then find out the appropriate using method in the manual. Before switching on the power, please confirm all interfaces are correctly connected. The company will not be held liable for any damage caused by improper use that violates the methods specified herein unless following the instructions.

This document serves as the official product description. However, content may become outdated or invalid due to product/software upgrades. We do not guarantee consequences arising from such changes. Please monitor version updates and ensure prompt updates.

For the latest information, please refer to our website: www.smmeter.com. If you have any questions about this document or the performance description of this product, please contact your supplier or contact us directly. E-mail : sales@smdznet.com or contact tel: [86-573-82623038](tel:86-573-82623038) for advice and answers.

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1. Introduction to SM626H-DA Data Collector

1.1 Product Introduction

SM626H-DA data acquisition unit is a micro RTU system, which is based on the advanced ARM-based microcontroller. It is composed of high-precision operational amplifier, interface chip, input and output circuits, and embedded communication module. The RTU terminal for remote data acquisition has the characteristics of stable performance and high cost performance.

The SM626H-DA data collector communicates with equipment with MODBUS-RTU communication function through RS485 interface and supports 4 ~ 20 mA current output.

As SM626H-DA data collector is specially designed for industrial product integration, it adopts special design in temperature range, vibration, electromagnetic compatibility and interface diversity, which ensures stable operation in harsh environment and provides high quality assurance for your equipment.

1.2 Product Performance

- With two analog acquisition, 16-bit high-precision A/D simultaneous sampling function.
- With a 4 ~ 20 mA current output.
- With one RS485 interface, dedicated to RS485 communication.
- The upper and lower limits and starting point of the analog quantity can be set.
- With power-off memory function, parameters do not need to be reset after power off.
- The communication transceiver indicator can clearly indicate the working status of the collector.

1.3 Main Parameters

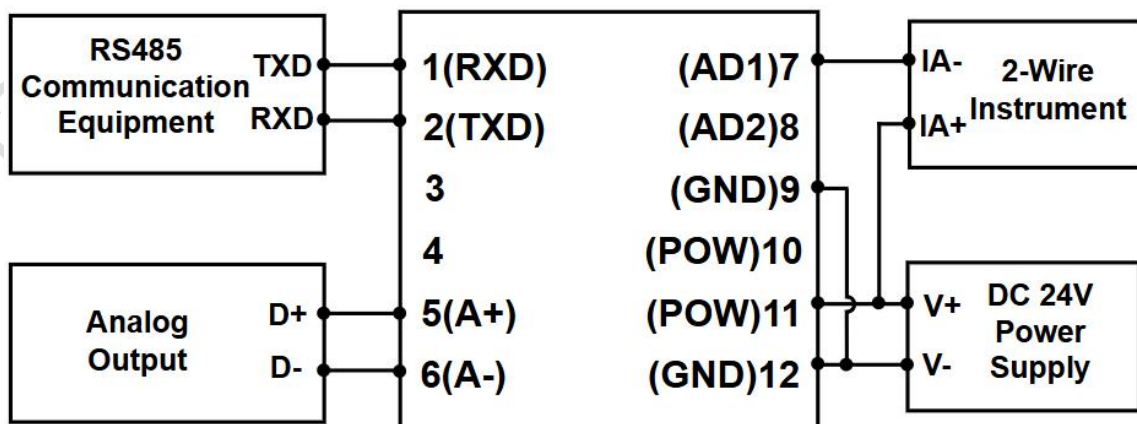
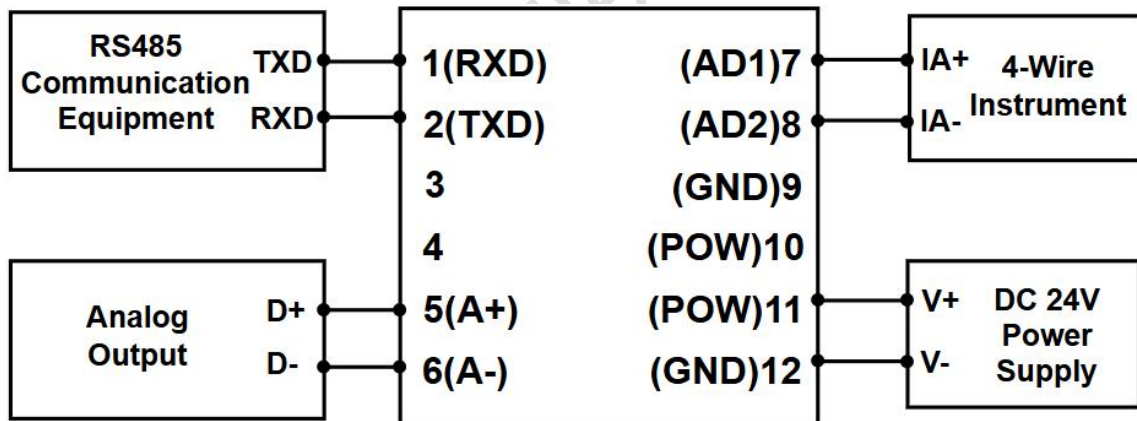
- Shell size: length 96 mm × width 80 mm × height 25 mm.
- Working temperature: -20 ℃ ~ + 80 ℃.
- Relative humidity: 10% ~ 80%.
- Power input voltage: DC 24V.
- Input signal: DC 4 ~ 20mA.

2. Function of SM626H-DA Collector Physical Drawing and Indicator Light

2.1 Physical Drawings



2.2 Wiring Diagram



2.3 Port Introduction

Port number	1	2	3	4	5	6	7	8	9	10	11	12
Port name	RS485_A (RXD)	RS485_B (TXD)			A+	A-	AD1	AD2	GND	POW		GND
Function/access device	RS485 communication				Analog output		Analog input			Power source		

- RS485 _ A, RS485 _ B: RS485 communication, connect the upper computer according to the wiring diagram to realize the data transmission between the collector and the upper computer.
- A +, A-: analog channel output, connect 4 ~ 20mA current acquisition equipment, read the output variable information.
- AD1, AD2, GND: analog channel input, used to collect analog signals.
- POW, GND: DC power supply, the positive and negative poles (+,-) of the power line are connected to the corresponding (DC24V, GND) terminals respectively.

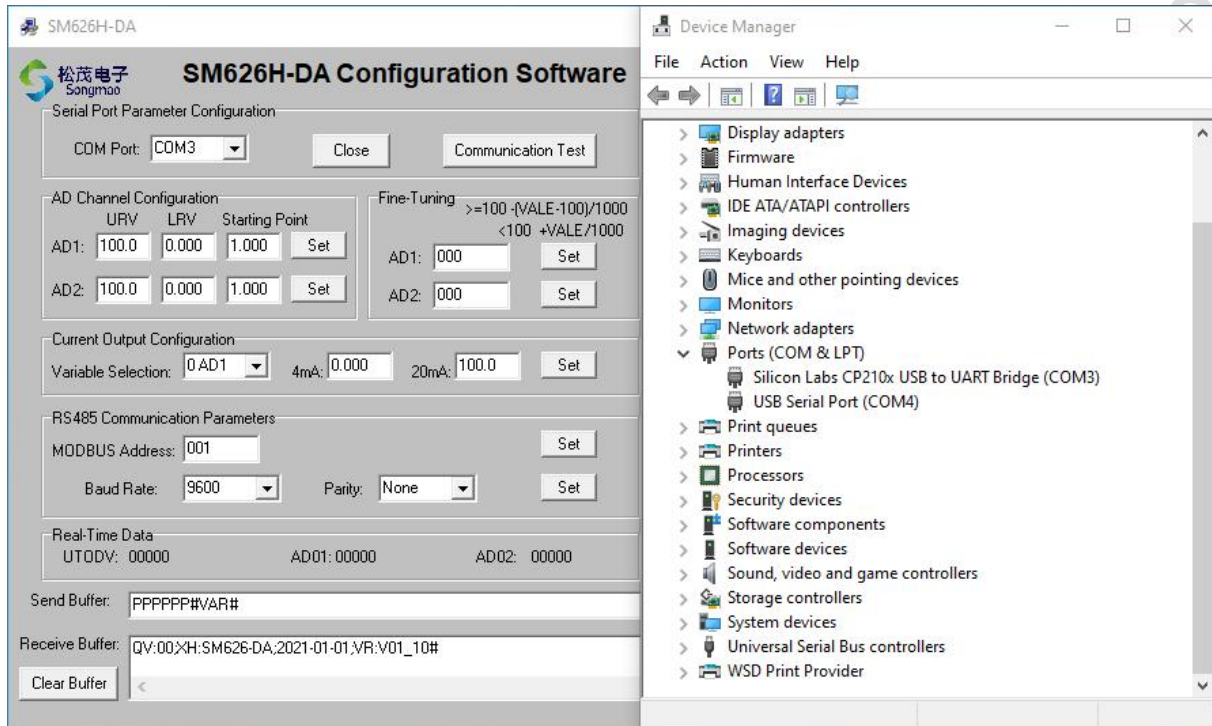
2.4 Description of Indicator Light

- MOD indicator: Flashes when sending and receiving data.
- PWR indicator: it is on for a long time after power on.

3. Function Introduction and Operation Steps of Configuration Software

3.1 Communication Connection

- 1) Connect the power supply and RS485 communication line according to the introduction of the port in the above part. When the PWR indicator is on for a long time, the parameter can be configured.
- 2) Open the configuration debugging software, select the correct serial port number and open the serial port.
- 3) Click "Communication test" to find the version number of the collector in the "Receiving buffer" below, and the connection is successful.



3.2 Parameter Setting

This interface is used to set and query basic parameters such as MODBUS communication parameters and upper and lower range limits.

- 1) AD channel configuration: configure the upper range limit, lower range limit and starting point respectively according to the analog channel accessed by the collector. Wherein the analog quantities AD1 and AD2 correspond to the signals collected by the collector ports 7 and 8 in turn.
- 2) Fine-Tuning: When there is a deviation between the collected real-time data and the actual input data, the data can be calibrated by setting the fine adjustment value.

X_{AV} Representing real-time data, X_{TV} Represents actual input data, K Represents a trim value

$$\textcircled{1} \text{ When } X_{AV} \geq X_{TV} \text{ When, } X_{TV} = X_{AV} - \frac{K - 100}{1000}, \text{ then } K = 1000 \times (X_{AV} - X_{TV}) + 100$$

$$\textcircled{2} \text{ When } X_{AV} < X_{TV} \text{ When, } X_{TV} = X_{AV} + \frac{K}{1000}, \text{ then } K = 1000 \times (X_{TV} - X_{AV})$$

For example, if the collected real-time data is 50.039, but the actual input data is 50, the trimming value is:

$$K = 1000 \times (50.039 - 50) + 100 = 139$$

- 3) Current output configuration: select the value of the corresponding input channel as the current output according to the requirements, and set the upper range limit and the lower range limit.
- 4) RS485 communication parameters
 - ① MODBUS address: input the 3-digit MODBUS address and click "set".
 - ② Baud rate and parity: The user selects the correct baud rate and check bit of the instrument according to the connected equipment, and then clicks "set".
- 5) Output value: Click "Output value and current value" to read the current value and current corresponding value currently output by the collector in the "Receiving data buffer" below.
- 6) Read parameters: AD range upper and lower limits, starting point, current output configuration, RS485 communication parameters and other information can be read.
- 7) Real-time data: Click "Real-time data" to read the output value, output current value and two input values in the real-time data box. Because the product uses high-precision components, the analog quantity collected can be accurate to 1 ‰.



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SM626H-DA Configuration Software

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Serial Port Parameter Configuration

COM Port: COM3

Close

Communication Test

AD Channel Configuration

	URV	LRV	Starting Point	
AD1:	100.0	0.000	1.000	Set
AD2:	100.0	0.000	1.000	Set

Fine-Tuning

$\geq 100: -(VALE-100)/1000$
 $< 100: +VALE/1000$

AD1:	000	Set
AD2:	000	Set

Current Output Configuration

Variable Selection: 0 AD1

4mA: 0.000 20mA: 100.0

Set

RS485 Communication Parameters

MODBUS Address: 001

Set

Baud Rate: 9600 Parity: None

Set

Real-Time Data

UTODV: 00000 AD01: 00000 AD02: 00000

Send Buffer: PPPPPP#CHEACK1#

Receive Buffer: STQ:001;MR485A:3,0;DVA:0,0.000,100.0;AD01:100.0,0.000,1.000;AD2:100.0,0.000,1.000;PA1:139;

Clear Buffer

< >

Output Value

Read Parameters

Real-Time Data

4. MODBUS _ RTU Communication Protocol

4.1 Register Addr

RS485 communication factory default slave address 001, baud rate 9600, no check, 8 data bits, 1stop bit.

Serial port baud rate-support 1200/2400/4800/9600/19200 bps

Check-Odd Check/Even Check/No Check

Data bits-8 bits

Stop bit-1 bit

Function code-03

Serial number	Name	Meaning	Function Code	Data address	Data type	Data format
1	UTODV	Output value	03	40001 40002	float	IEE754 F2 F1 F4 F3
2	UTOIA	Output current value	03	40003 40004	float	IEE754 F2 F1 F4 F3
3	AD01	Enter a value of 1	03	40005 40006	float	IEE754 F2 F1 F4 F3
4	AD02	Enter a value of 2	03	40007 40008	float	IEE754 F2 F1 F4 F3

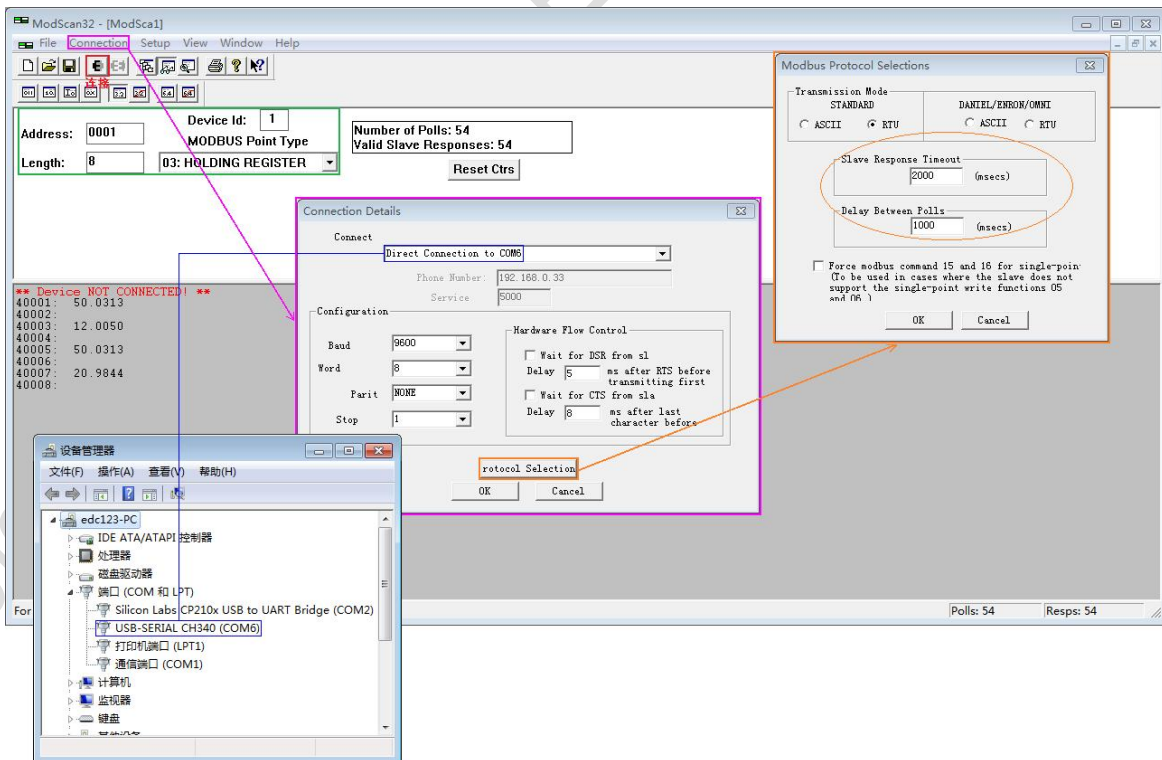
Example: Read Output Value

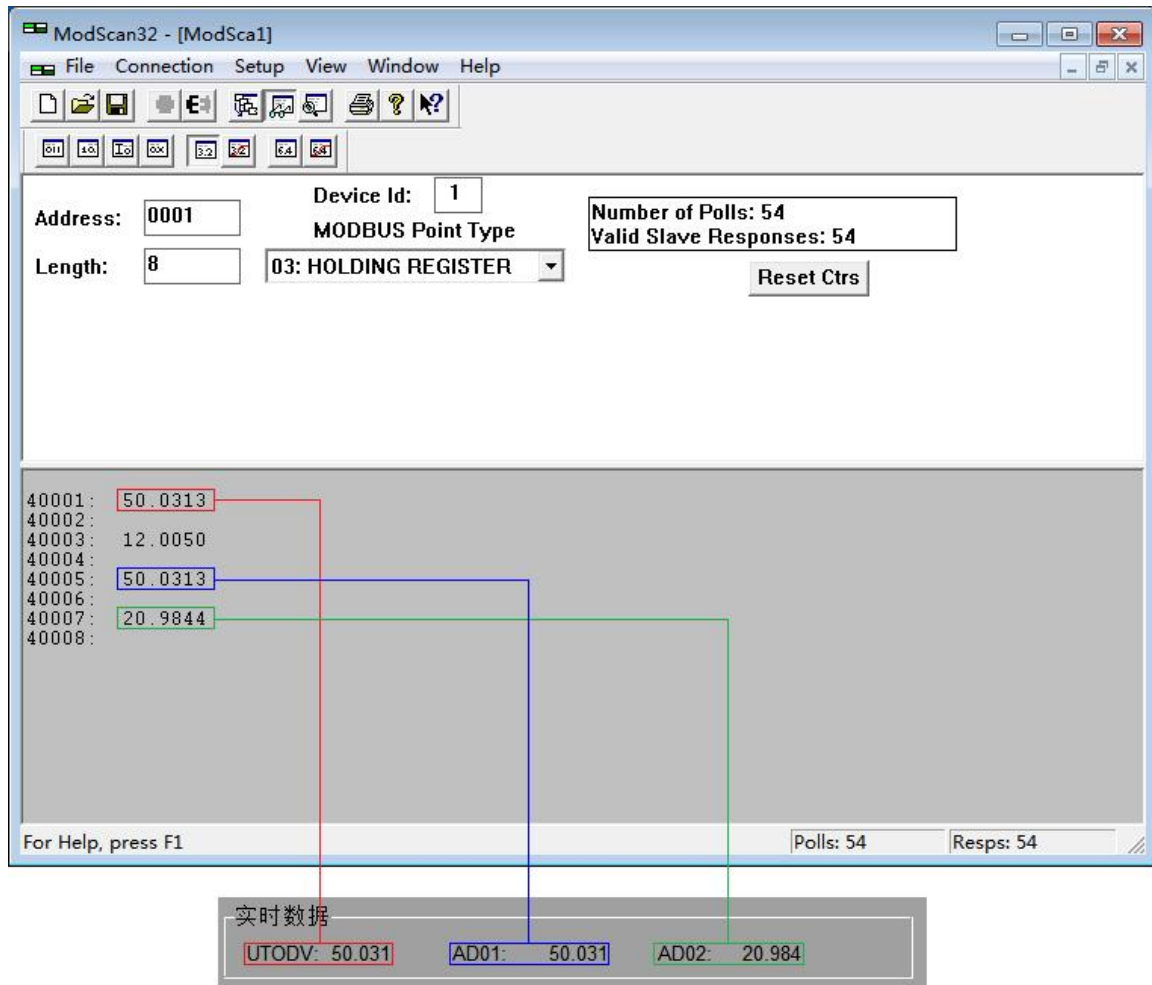
Send: 01 03 00 00 00 02 C4 0B

Return: 01 03 04 30 00 42 48 C2 08 (corresponding value of current output is 50.0468)

4.2 Mod Scan32 Software

Connect the USB-RS485 communication line at the RS485 port, open the ModScan32 software, configure the parameters and click the "Connect button" to read the data of the collector.





5. Service and Warranty

1. This product is guaranteed for three years under normal use conditions.
2. During the warranty period, our company will provide you with warranty service for any failure caused by product technology.
3. The following circumstances are not within the scope of free warranty:
 - ① Products that are disassembled and repaired without the consent of the Company;
 - ② Damage caused by external force and other natural disasters.
4. If the user thinks that the product of our company needs to be repaired, please call our company to contact us in time, and we will repair and send it back as soon as possible.
5. The warranty liability is limited to the fault maintenance of the product during the warranty period, and does not assume other responsibilities.

After-sales service hotline: 86-573-82623038

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