

SM626H-A-0 Data Collector

Instructions for use



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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 However, content may become outdated or invalid due to product/software upgrades.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.

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1. Introduction to SM626H-A-0 Data Collector

1.1 Product Introduction

The SM626H-A-0 data acquisition unit is A micro RTU system, which is based on the advanced ARM microcontroller, and is composed of high-precision operational amplifier, interface chip, watchdog circuit, 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.

As SM626H-A-0 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 four-way analog acquisition, 16-bit high-precision A/D simultaneous sampling function.
- It has two-channel pulse counting function and two-channel switching value sampling function.
- With a DC 24V output, 20 mA drive capability (dedicated to the power supply of two-wire sensors).
- It has one RS485 instrument communication interface, which is dedicated to RS485 instrument communication.
- USB interface is used to set parameters.
- The parameter type, range, starting point and pulse bottom of the collected data can be configured.
- Parameters and real-time data can be queried locally, and all operating parameters can be set.
- With power-off memory function, parameters do not need to be reset after power off.
- The communication transceiver and module status indicator can clearly indicate the working attitude of the collector.

1.3 Main Parameters

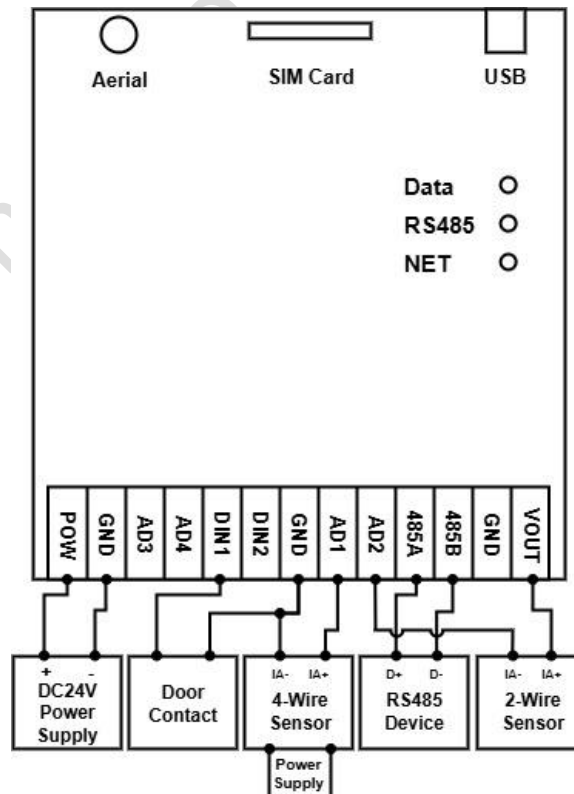
- Installation dimension: length 83 mm × width 94 mm.
- Shell size: 123 mm long × 105 mm wide × 33 mm high.
- Working temperature: -20 °C ~ + 80 °C.
- Storage temperature: -25 °C ~ + 80 °C.
- Power input voltage: DC 9 ~ 24V.
- Two switching values are input by optical non quarantine dry contact.
- Protection class: IP65.

2. Physical Drawing and Indicator Light Function of SM626H-A-0 Collector

2.1 Physical Drawings



2.2 Wiring Diagram



2.3 Port Introduction

Port name	POW	GND	AD3	AD4	DIN1	DIN2	GND	AD1	AD2	485A	485B	GND	VO
Function/access device	Power source		Analog input		Switching value input			Analog input		RS485 communication		24V output	

- POW, GND: DC power supply, the positive and negative poles (+,-) of the power line are connected to the corresponding (POW, GND) terminals respectively.
- AD1 ~ AD4: analog channel input, used to collect analog signals. Its input impedance is 250 Ω , and it can input DC current signal (DC 4 ~ 20 mA) or DC voltage signal (DC 0 ~ 5V).
- DIN1, DIN2, GND: switching value channel input, used to collect passive switching value.
- 485A, 485 B: RS485 communication, refer to the connection diagram to connect the instrument and equipment to realize the data transmission between the collector and the equipment.
- VO, GND: 24 V DC voltage output, 20 mA drive capability, designed to provide power for two-wire sensors.

2.4 Description of Indicator Light

- Data communication indicator: Flashes when sending and receiving data.
- RS485 communication indicator: it flashes when communicating with RS485 instrument.
- NET indicator light: it is on for a long time under normal function.

2.5 MODBUS Data Register Address Table

Default communication parameters: MODBUS slave address 001, baud rate 9600, data bit 8, stop bit 1, check bit None

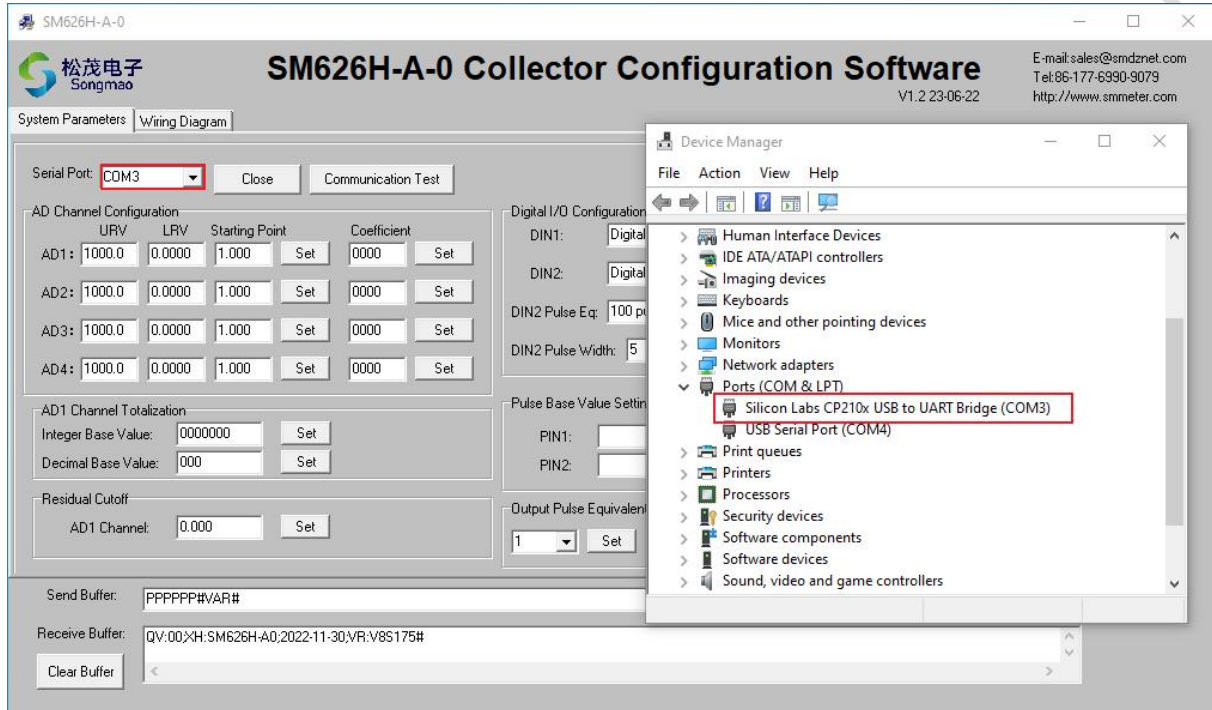
Name	Meaning	Function Code	Data address	Data type	Data format	Corresponding message
FLOW	Flow rate	03	40003 40004	IEE754	F2 F1 F4 F3	FLOW
TOTE	Integer part of cumulative flow	03	40005 40006	UINT32	F2 F1 F4 F3	TOTAL
FLows	Flow rate	03	40007 40008	IEE754	F2 F1 F4 F3	SPEE
TOTX	Fractional part of cumulative flow	03	40009 40010	IEE754	F2 F1 F4 F3	TOXS
AD1	Analog Channel 1	03	40021 40022	IEE754	F2 F1 F4 F3	A01
AD2	Analog Channel 2	03	40023 40024	IEE754	F2 F1 F4 F3	A02
AD3	Analog Channel 3	03	40025 40026	IEE754	F2 F1 F4 F3	A03
AD4	Analog Channel 4	03	40027 40028	IEE754	F2 F1 F4 F3	A04
P00	Integer part of cumulative flow	03	40029 40030	UINT32	F2 F1 F4 F3	P00
P01	Accumulate channel 1	03	40031 40032	UINT32	F2 F1 F4 F3	P01
P02	Accumulate channel 2	03	40033 40034	UINT32	F2 F1 F4 F3	P02
PFLOW	Pulse output instantaneous flow	03	40041 40042	IEE754	F2 F1 F4 F3	P1FLOW
PTOTE	Pulse output cumulative flow	03	40043 40044	UINT32	F2 F1 F4 F3	P1TOTAL
K1	Switching value 1	02	10001	Bit	F2 F1 F4 F3	K01

K2	Switching value 2	02	10002	Bit	F2 F1 F4 F3	K01
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3. Function Introduction and Operation Steps of Configuration Software

3.1 Communication Connection

- 1) According to the introduction of the port in the above part, connect the power supply and USB data cable, and wait for the NET indicator light to be on for parameter configuration.
- 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 "Receive buffer" below, and the connection is successful.



3.2 System Parameters

This interface is used to set and query basic parameters such as MODBUS address, upper and lower range limits, switch type, etc.

- 1) Parameter initialization: Click "Parameter initialization" to restore the parameters of the collector to the initialization state.
- 2) AD channel configuration: the user configures corresponding parameters on the corresponding analog channel according to the accessed analog signal. Wherein the analog quantities AD1 to AD4 correspond to the signals collected by the collector ports AD1 to AD4 in turn.
 - ① URV: corresponding value of 20 mA.
 - ② LRV: 0 mA or 4mA.
 - ③ Starting point: when the input analog signal is 0 ~ 20 mA, the starting point is 0; When the input analog signal is 4 to 20 ma, the starting point is 1.
 - ④ Coefficient: When there is a deviation between the collected actual data and the calculated theoretical data, the data can be calibrated by setting the coefficient.

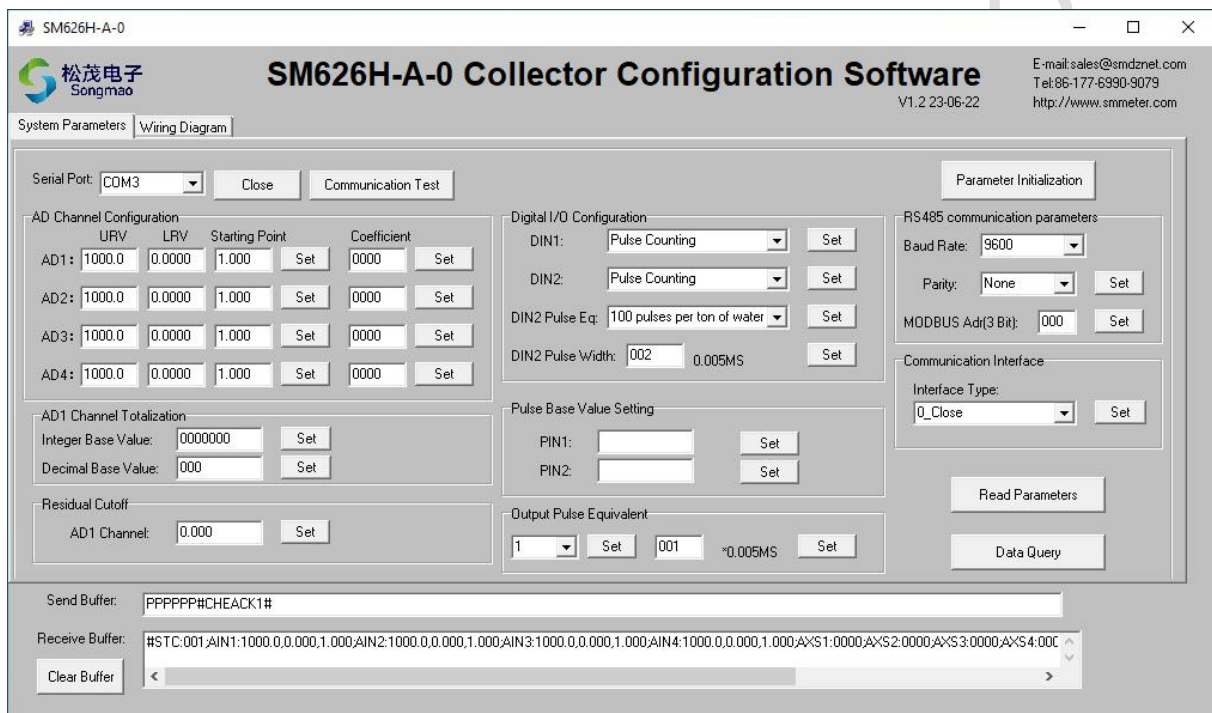
X_{AV} Represents the actual value, X_{TV} Represents the theoretical value, K Represents a coefficient

$$\text{When } X_{AV} \geq X_{TV} \text{ When, } X_{TV} = X_{AV} \times \left(1 - \frac{K}{10000}\right), \text{ then } K = 10000 \times \left(1 - \frac{X_{TV}}{X_{AV}}\right)$$

$$\text{When } X_{AV} < X_{TV} \text{ When, } X_{TV} = X_{AV} \times \left(1 + \frac{K - 1000}{10000}\right), \text{ then } K = 10000 \times \left(\frac{X_{TV}}{X_{AV}} - 1\right) + 1000$$

- 3) AD1 channel is totalization: AD1 channel can be used as instantaneous flow to realize totalization.
 - ① Integer base value: the user sets the count base of the cumulative flow according to the current cumulative value of the instrument. Enter the floor value of the integer digit, and finally click "Set".
 - ② Decimal base value: The user sets the count base of the cumulative flow according to the current cumulative value of the instrument. Enter the value of the decimal place, and finally click "Set".
- 4) Residual cutoff: the collector can calculate the flow of the signal collected by the AD1 channel. Set the small flow cut-off value in m3/H. When the instantaneous flow is less than small flow cutoff value, the flow at this time is considered to be 0.
- 5) Digital I/O configuration
 - ① Switching value type: switching value DIN1 and DIN2 correspond to the signals collected by collector ports DIN1 and DIN2 in turn, and the configurable switch types include switching value collection and pulse counting.
When the collector port DIN1 and DIN2 acquire the switch signal, the switch type is set as "switching value acquisition";
When the collector ports DIN1 and DIN2 collect pulse signals, the switch type is set to "pulse count".
 - ② DIN2 pulse equivalent: the collector can calculate the flow of the signal collected by the DIN2 pulse collection channel. Select the pulse equivalent value according to the water quantity indicated by the single pulse signal, and click "Set".
 - ③ DIN2 pulse width: pulse width = input value $\times$ 0.005ms. When the interval between the current pulse signal and the previous pulse signal is less than pulse width, the current pulse signal is considered invalid.
- 6) Pulse base value setting: Accumulative amount PIN1 and PIN2 respectively correspond to the signals collected by collector port DIN1 and DIN2. When the switch type is set as pulse count, the count floor can be configured for the accumulative amount.
- 7) Output pulse equivalent: according to customer requirements, the collector can be customized with a pulse output channel. Select the amount of water represented by a single pulse signal, set the pulse width, and click "Set".
- 8) RS485 communication parameters

- ① Baud rate and check bit: The user selects the correct baud rate and check bit of the instrument according to the connected equipment, and then clicks "Set".
 - ② MODBUS address: input the 3-digit MODBUS address and click "Set".
- 9) Communication interface: the corresponding interface type can be set according to the type of hardware purchased.
- ① 0 _ off: only one RS485 interface is available.
 - ② 1 _ NET: one RS485 interface and one gateway interface.
 - ③ 2 _ RS485: two RS485 interfaces.
- 10) Read parameters: Click "Read parameters" and read MODBUS address, upper and lower range limits, starting point, RS485 communication parameters and other information in the "Receive buffer" below.
- 11) Data query: Click "Data query" to read the data information collected by the collector. Because the product uses high-precision components, the analog quantity collected can be accurate to 1 %.



SM626H-A-0

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SM626H-A-0 Collector Configuration Software

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System Parameters | Wiring Diagram

Serial Port: COM3 Close Communication Test

Parameter Initialization

AD Channel Configuration

	URV	LRV	Starting Point	Coefficient
AD1:	1000.0	0.0000	1.000	0000
AD2:	1000.0	0.0000	1.000	0000
AD3:	1000.0	0.0000	1.000	0000
AD4:	1000.0	0.0000	1.000	0000

Digital I/O Configuration

DIN1: Pulse Counting Set

DIN2: Pulse Counting Set

DIN2 Pulse Eq: 100 pulses per ton of water Set

DIN2 Pulse Width: 002 0.005MS Set

RS485 communication parameters

Baud Rate: 9600 Set

Parity: None Set

MODBUS Adr(3 Bit): 000 Set

Communication Interface

Interface Type: 0_Close Set

AD1 Channel Totalization

Integer Base Value: 0000000 Set

Decimal Base Value: 000 Set

Residual Cutoff

AD1 Channel: 0.000 Set

Pulse Base Value Setting

PIN1: Set

PIN2: Set

Output Pulse Equivalent

1 Set 001 *0.005MS Set

Read Parameters

Data Query

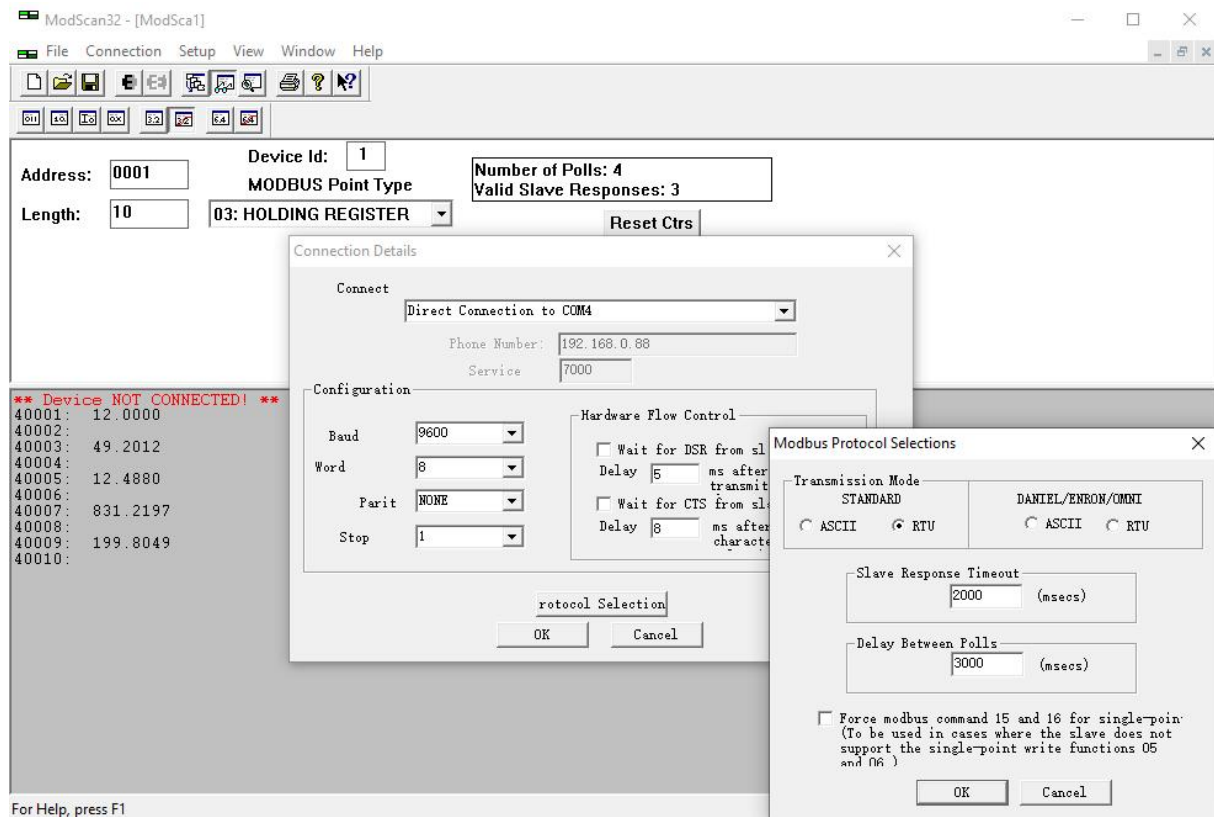
Send Buffer: P P P P P # C H E A C K 1 #

Receive Buffer: # S T C : 0 0 1 ; A I N 1 : 1 0 0 0 . 0 ; 0 . 0 0 0 ; 1 . 0 0 0 ; A I N 2 : 1 0 0 0 . 0 ; 0 . 0 0 0 ; 1 . 0 0 0 ; A I N 3 : 1 0 0 0 . 0 ; 0 . 0 0 0 ; 1 . 0 0 0 ; A I N 4 : 1 0 0 0 . 0 ; 0 . 0 0 0 ; 1 . 0 0 0 ; A X S 1 : 0 0 0 0 ; A X S 2 : 0 0 0 0 ; A X S 3 : 0 0 0 0 ; A X S 4 : 0 0 0 0

Clear Buffer

3.3 Mod Scan32 Software

Connect the USB-RS485 communication line at the RS485 port, and then open the ModScan32 software. After configuring the parameters, click the "Connect button" to read the instrument data.



4. 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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