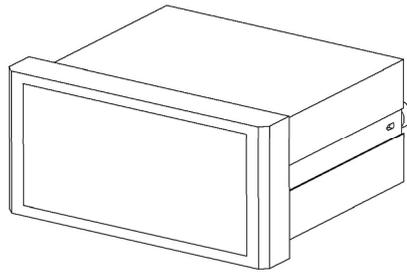
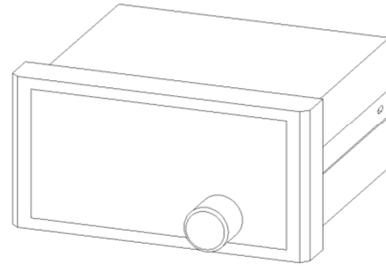


# Q03H01B/Q03H02B Current Signal Generator with Feedback - User Manual V1.20



Button version model: Q03H01B



Knob version model: Q03H02B

## 1 Product Introduction

- 1.1 Integrates current signal input/output and a generator digital display meter into one device.
- 1.2 Universal power supply voltage, compatible with both AC and DC.
- 1.3 One channel of relay alarm function: activates when the feedback input value meets the trigger condition.
- 1.4 Application scope: valve opening control, frequency converter control, etc.
- 1.5 Advantages of the button version: the panel has good water resistance; however, the button stickers are prone to damage with frequent pressing.
- 1.6 Advantages of the knob version: the panel has good water resistance; however, the knob stickers are prone to damage with frequent pressing.
- 1.7 Advantages of the knob version: convenient for adjustment; however, there is a gap at the knob.

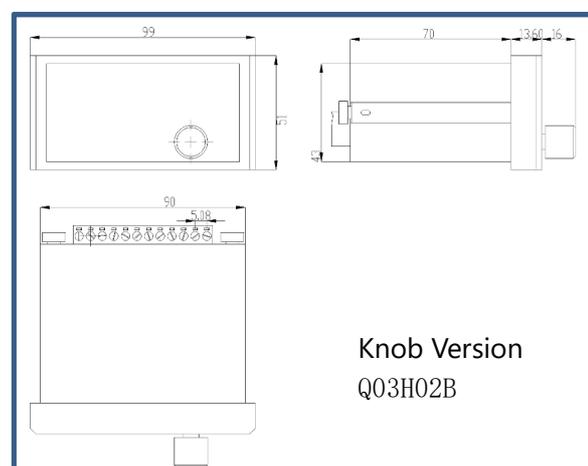
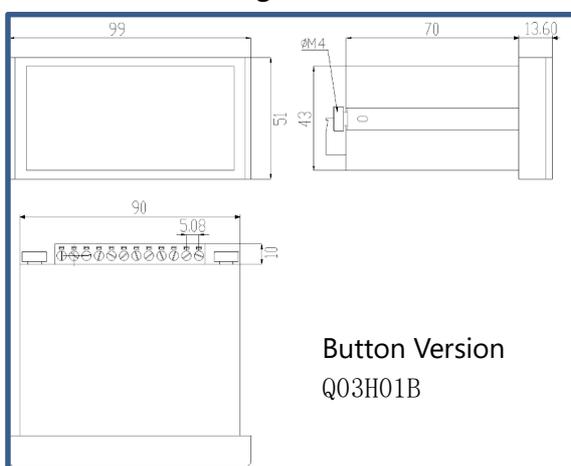
## 2 Technical Specifications

- 2.1 Power Supply: Supports connection to either high-voltage 220VAC or low-voltage 24VDC.

Power Supply	220VAC	24VDC(Standby)
Range	85-264VAC or 110-370VDC	24VDC $\pm$ 10%
Power	Less than 5Watt	Less than 5Watt
Terminal Block	⑪ ⑫	① ③

- 2.2 Current output adjustable range: 0-22mA, which can be set arbitrarily (factory setting: 4-20mA)
- 2.3 Input feedback accuracy: <0.05mA; internal sampling resistor: 10 ohms.
- 2.4 Output control accuracy: <0.05mA; load sampling resistor: <500 ohms.
- 2.5 Operating environment: 0-40°C, relative humidity <80%.

## 3 Dimension Drawing (Unit: mm)



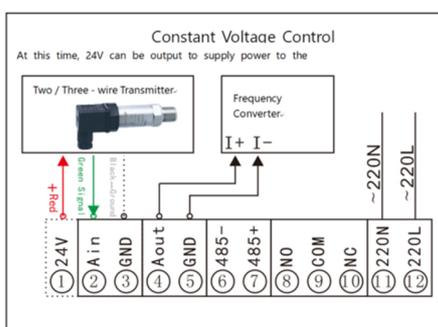
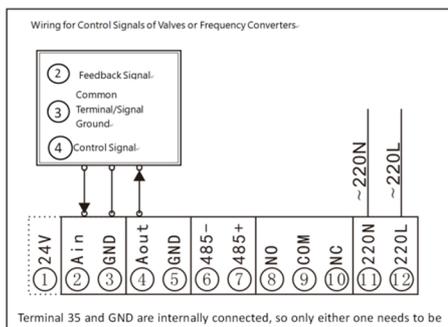
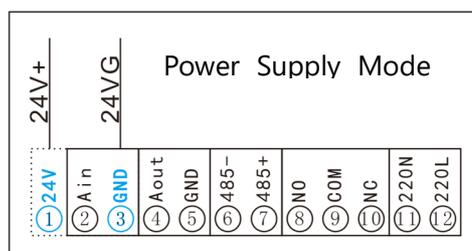
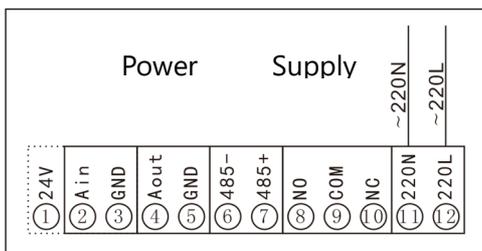
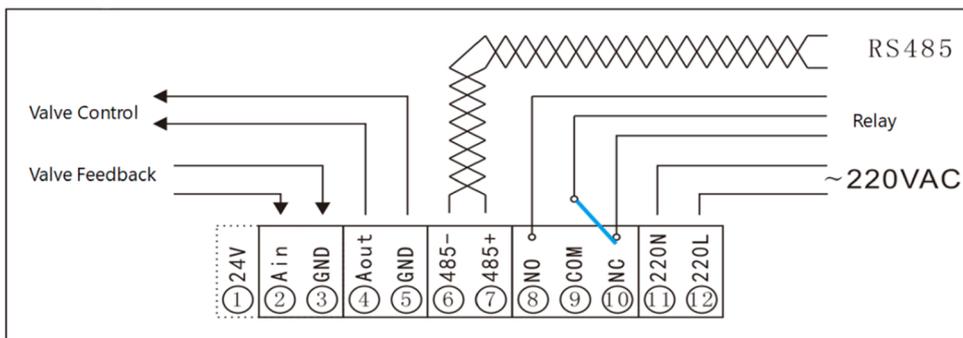
Recommended hole size: 90.5\*43.5mm

## 4 Wiring Diagram (With Pluggable Terminal Blocks)

①	24V	Reserved for 24V input or output terminal
②	Ain	Positive for feedback signal input
③	GND	Negative for feedback signal input, internally connected to terminal ⑤ - GND
④	Aout	Positive for output signal
⑤	GND	Negative for output signal
⑥	485-	For upper computer communication RS485B -
⑦	485+	For upper computer communication RS485A +
⑧	NO	Normally open of relay
⑨	COM	Common terminal of relay
⑩	NC	Normally closed of relay
⑪	220N	Commonly used for 220V AC mains power supply
⑫	220L	Commonly used for 220V AC mains power supply



Conventional Wiring Diagram:

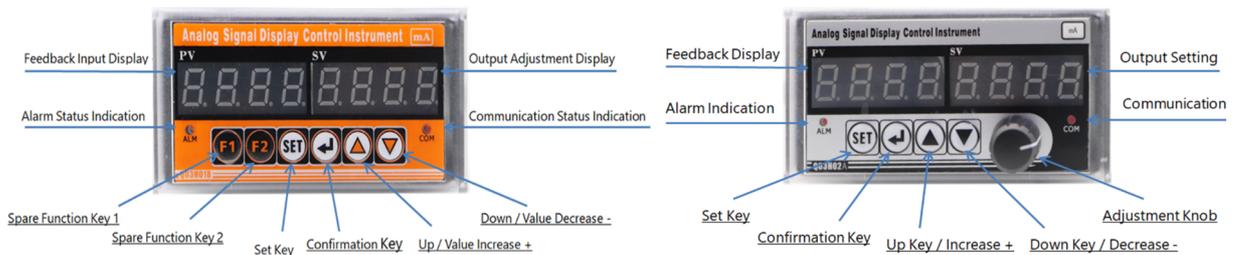


① 24V Terminal should be noted when used as an output.

1. This terminal can power the transmitter with a maximum output current of 50mA. If the transmitter's rated current exceeds 50mA, do not use this 24V supply. Instead, provide an external 24V power source for the transmitter.
2. Avoid simultaneous use with the relay function of this device, as it will reduce the 24V output current.

## 5 System Function Settings and Parameter Table

### 5.1 Operation Diagram



5.2 When powered on, the digital display shows: 4-digit software version number + 1-digit baud rate code + 3-digit RS485 device address.

5.3 After startup, the display shows the feedback value and output setting. Use the up/down keys to adjust the output setting. Hold the up/down key for 1 second to adjust rapidly.

5.4 Press and hold the SET key for 2 seconds to view parameters. The parameter number "F00X" and its value will be displayed. Use the up/down keys to cycle through parameters.

5.5 Press the CONFIRM key once to make the parameter value blink, entering edit mode.

5.6 Use the up/down keys to modify the parameter value. Press CONFIRM to save changes and exit edit mode, or press SET to exit without saving.

5.7 Press SET again to exit parameter view mode.

5.8 Parameter Table:

Parameter	Description	Notes	Default
F001	Key Adjustment Multiplier	1-500 Multiplier for output adjustment via up/down keys.	5
F002	Knob Adjustment Multiplier	1-500 Multiplier for output adjustment via knob.	10
F003	* Reserved *	F1/F2 Functions: Max/Min, ON/OFF, etc.	*...*
F004	Relay Function	0: Disable (open) 1: Close when feedback is within limits 2: Open when feedback is within limits	0
F005	Relay Lower Limit	0-22.00mA	4.00
F006	Relay Upper Limit	0-22.00mA	8.00
F007	Relay Trigger Delay	0-10.0seconds	1.0
F008	* Reserved *	0: Manual / 1: Automatic Output	0
F009	Output Range (Current)	0: 0-20mA 1: 4-20mA 2: 0-22mA -1: Custom	1
F010	Custom Output Low End	0-22.00mA	0
F011	Custom Output High End	0-22.00mA	20.00
F012	Input/Output Display Mode	0: Actual current value 1: 0-100.0% 2: 0-50.0hz -1: Custom	0
F013	Custom Display Low End	-1999 to 9999 Decimal point set in F015	0
F014	Custom Display High End	-1999 to 9999 Decimal point set in F015	1000
F015	Custom Decimal Position	0-4 0/1: None 2: 999.9 3: 99.99 4: 9.999	3
F016	Display When Input < Low End	0: Show minimum (F013) 1: Calculate linearly	0
F017	Display When Input > High End	0: Show maximum (F014) 1: Calculate linearly	0

F018	Input Filter Level	1-3	1
F019	* Reserved *	Allow broadcast mode	*_*_*
F020	Communication - Device ID (Requires restart)	1-127	1
F021	Communication - Baud Rate (Requires restart)	0-2400 1-4800 <b>2-9600</b> 3-19200 4-38400 5-57600 6-115200	2
F022	Communication - Parity (Requires restart)	0: <b>8-1-n</b> 1:8-2-n 2:8-1-odd 2:8-1-even	0
F023	Output 4mA Calibration Value	-999 -- +999 For internal reference only. Modify with caution.	
F024	Output 12mA Calibration Value	-999 -- +999 For internal reference only. Modify with caution.	
F025	Output 20mA Calibration Value	-999 -- +999 For internal reference only. Modify with caution.	
F026	* Reserved *		*_*_*
F027	Zero Calibration (0V)	Short input to ground, then press "CONFIRM" to auto-calibrate zero point.	
F028	Span Calibration (3-50mA)	Apply signal, adjust with up/down keys to match multimeter reading.	

## 5.9 Relay Function Description

5.9.1 **F004=0**: Relay is not controlled by feedback value.

5.9.2 **F004=1 or 2**: Compares the feedback value with trigger thresholds (F005/F006) for output control.

5.9.3 **F007 Relay Trigger Delay**: After the feedback value reaches the trigger threshold, the relay activates after a delay. This feature reduces interference and extends relay lifespan by minimizing frequent actions.

5.9.4 When the relay is activated, the ALARM LED on the operation panel illuminates.

5.9.5 When the relay is activated, the ALARM LED on the operation panel illuminates.

5.9.6 **Relay Contact Rating**: 10A/250VAC, 30VDC

## 5.10 RS485 MODBUS Communication

5.10.1 It adopts the standard MODBUS-RTU message format. The factory default settings are: slave mode with address 1, baud rate 9600, and parity 8-N-1 (configurable).

5.10.2 There is no built-in 120Ω termination resistor. When the bus distance is long or there are many nodes, users need to connect external termination resistors to ensure more stable transmission. Use shielded twisted-pair cables to enhance anti-interference capability.

MODBUS-RTU Message Format, Commands and Examples:

485 Slave Address	1byte
Function Code	1byte 03 or 06commands
Data	N byte
CRC Check	Standard CRC16 with initial value 0xFFFF

03 Command for querying multiple registers. Example: Query 20 registers starting from address 0, returning 40 bytes of data.

Send	01 03 00 00 00 14 45 C5
Return	01 03 28 00 00 04 B0 04 B0 04 B0 00 01 00 00 00 01 00 01 00 02 00 00 00 00 00 01 03 20 00 0A 00 00 00 00 00 00 00 00 00 00 00 00 00 98 EE

06 Command for setting a single register. Example: Set the value of register 3 to 2000, with the command returned directly.

Send	01 06 00 03 07 D0 7A 66
Return	01 6 00 03 07 D0 7A 66

### 5.11 Register Table

Register Address	Description	Read/W rite	Notes
0	None		Not used as some PLC data addresses start from 1
1	Current feedback current value	r	No decimal point, e.g.: 20 = 0.20mA, 2000 = 20.00mA
2	Current feedback nixie tube display value	r	No decimal point
3	Current output nixie tube display value	r/w	No decimal point

5.12 When a data packet is successfully received via communication, the communication LED indicator flashes once.

## 6 Precautions

- 6.1 This instrument contains high voltage. Please turn off the power before wiring; do not operate with power on. Pay attention to safety and prevent electric shock.
- 6.2 Please read this manual first. Exceeding the range indicated in the technical specifications may cause damage to the instrument.