

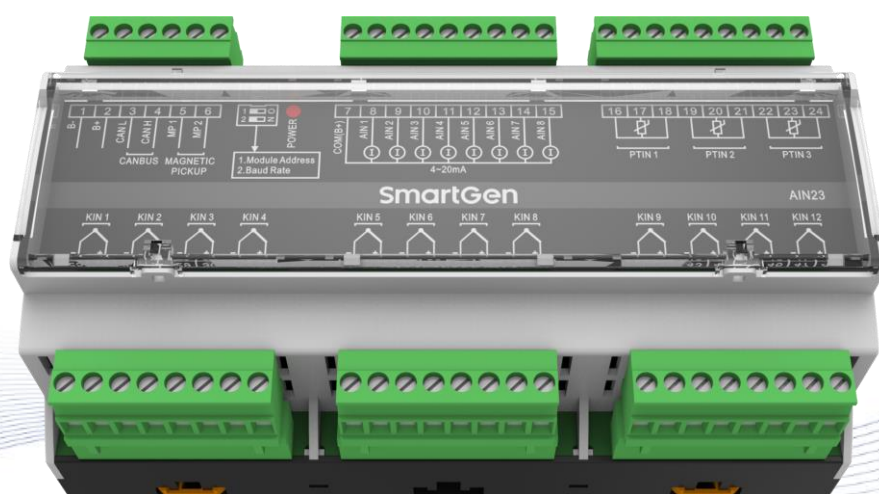
SmartGen

MAKING CONTROL SMARTER

AIN23

ANALOG INPUT MODULE

USER MANUAL



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Table 1 – Software Version

Date	Version	Notes
2023-03-29	1.0	Original release.

Table 2 – Notation Clarification

Symbol	Instruction
 NOTE	Highlights an essential element of a procedure to ensure correctness.
 CAUTION	Indicates a procedure or practice, which, if not strictly observed, could result in damage or destruction of equipment.
 WARNING	Indicates a procedure or practice, which could result in injury to personnel or loss of life if not followed correctly.

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1 OVERVIEW

AIN23 Analog Input Module is a module which has 12-way k-type thermocouple sensor, 3-way PT100 resistance type sensor, 8-way (4-20) mA current type sensor and 1-way speed sensor. The sampling data are transmitted to the master control via CANBUS.

2 PERFORMANCE AND CHARACTERISTICS

- 32-bit ARM based SCM, high integration of hardware and more reliable;
- Precision collection of various analog data;
- The CANBUS interface can connect with master controller, the sampling data (temperature, current, resistance, speed, etc.) are transmitted to the master controller via CANBUS;
- CANBUS communication baud rate can be set as 250kbps or 125kbps;
- Module CANBUS address can be set as 1 or 2;
- Wide power supply range DC(8~35)V, suitable to different battery voltage environment;
- Modular design, flame-retardant ABS shell, pluggable terminal, compact structure, 35mm guide-rail mounting with easy installation.

3 SPECIFICATION

Table 3 – Technical Parameters

Item	Content
Working Voltage	DC(8~35)V, continuous power supply
Overall Consumption	<0.5W
K-type Thermocouple Sensor Measurement Accuracy	1°C
K-type Thermocouple Sensor Measurement Temp. Range	0 ~1000°C
(4-20)mA Current-type Sensor Measurement Accuracy	Level -1
PT100 Sensor (3-wire system) Measurement Accuracy	1°C
Speed Sensor Measurement Accuracy	1Hz
Speed Sensor Frequency	Max. 20000Hz
Case Dimension	161.6mm x 93mm x 60.7mm
Rail Dimension	35mm
Working Temp.	(-25~+70)°C
Working Humidity	(20~93)%RH
Storage Temp.	(-30~+80)°C
Weight	0.34kg

4 WIRING CONNECTION

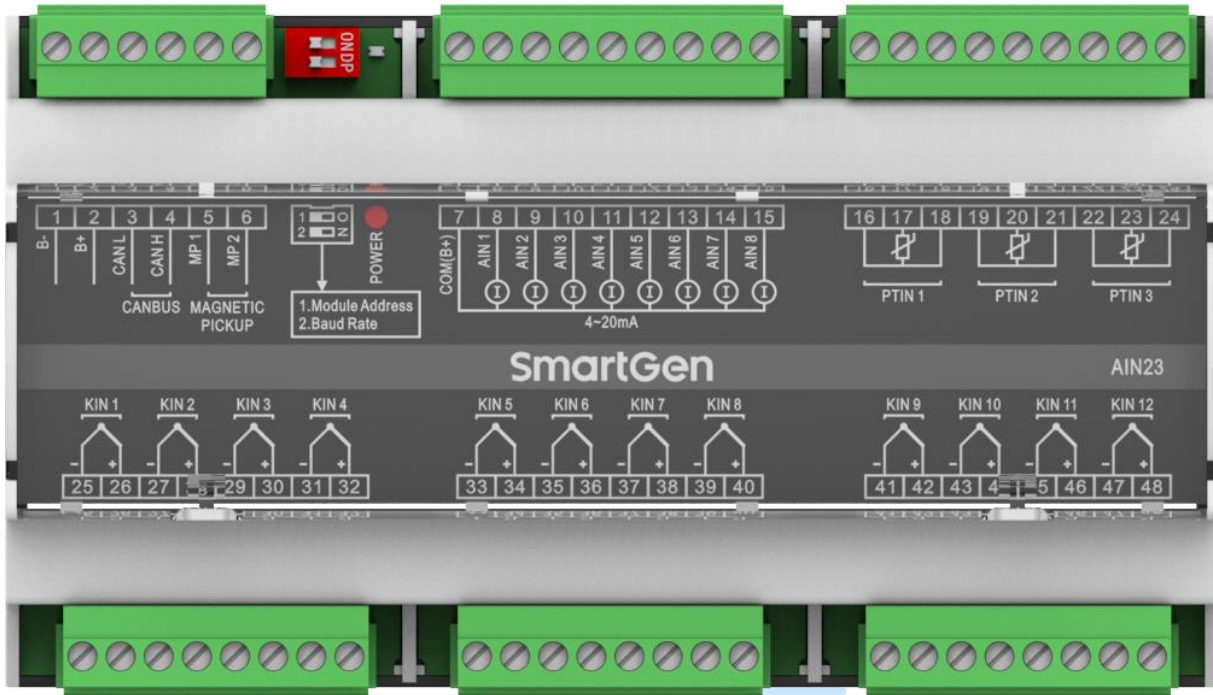


Fig.1 – AIN23 Panel Drawing

Table 4 – Terminal Connection

No.	Function	Cable Size	Remark
1	B-	1.0mm ²	DC power supply negative input.
2	B+	1.0mm ²	DC power supply positive input.
3	CAN(L)	0.5mm ²	The CANBUS port for communication with master controller, using 120Ω shielding wire with its one end grounded.
4	CAN(H)		
5	MP1	0.5mm ²	For connecting to speed sensor. The internal of MP2 module has been connected to B-.
6	MP2		
7	COM(B+)	1.0mm ²	4-20mA current sensor COM terminal (B+)
8	AIN1	0.5mm ²	4-20mA current sensor terminal
9	AIN2	0.5mm ²	4-20mA current sensor terminal
10	AIN3	0.5mm ²	4-20mA current sensor terminal
11	AIN4	0.5mm ²	4-20mA current sensor terminal
12	AIN5	0.5mm ²	4-20mA current sensor terminal
13	AIN6	0.5mm ²	4-20mA current sensor terminal
14	AIN7	0.5mm ²	4-20mA current sensor terminal
15	AIN8	0.5mm ²	4-20mA current sensor terminal
16	PTIN1	C	PT100 sensor 1 COM terminal
17		A	PT100 sensor 1 terminal
18		B	
19	PTIN2	C	PT100 sensor 2 COM terminal
20		A	PT100 sensor 2 terminal
21		B	

No.	Function	Cable Size	Remark	
22	PITN3	0.5mm	PT100 sensor 3 COM terminal	
23			A	PT100 sensor 3 terminal
24			B	
25	KIN1-	0.5mm ²	K-type thermocouple sensor	
26	KIN1+			
27	KIN2-	0.5mm ²	K-type thermocouple sensor	
28	KIN2+			
29	KIN3-	0.5mm ²	K-type thermocouple sensor	
30	KIN3+			
31	KIN4-	0.5mm ²	K-type thermocouple sensor	
32	KIN4+			
33	KIN5-	0.5mm ²	K-type thermocouple sensor	
34	KIN5+			
35	KIN6-	0.5mm ²	K-type thermocouple sensor	
36	KIN6+			
37	KIN7-	0.5mm ²	K-type thermocouple sensor	
38	KIN7+			
39	KIN8-	0.5mm ²	K-type thermocouple sensor	
40	KIN8+			
41	KIN9-	0.5mm ²	K-type thermocouple sensor	
42	KIN9+			
43	KIN10-	0.5mm ²	K-type thermocouple sensor	
44	KIN10+			
45	KIN11-	0.5mm ²	K-type thermocouple sensor	
46	KIN11+			
47	KIN12-	0.5mm ²	K-type thermocouple sensor	
48	KIN12+			
	SWITCH	<p>The master controller can connect to two AIN23 modules at the same time.</p> <p>Address selection: It is Address 1 (Module 1) when the switch 1 is connected to 12, while Address 2 (Module 2) when connected to ON position.</p> <p>Baud rate selection: It is 250kbps when the switch 2 is connected to 12, while 125kbps when connected to ON position.</p>		
	POWER	<p>Power supply and communication normal indicator, it is flashing when the communication is abnormal.</p>		

5 ELECTRICAL CONNECTION DIAGRAM

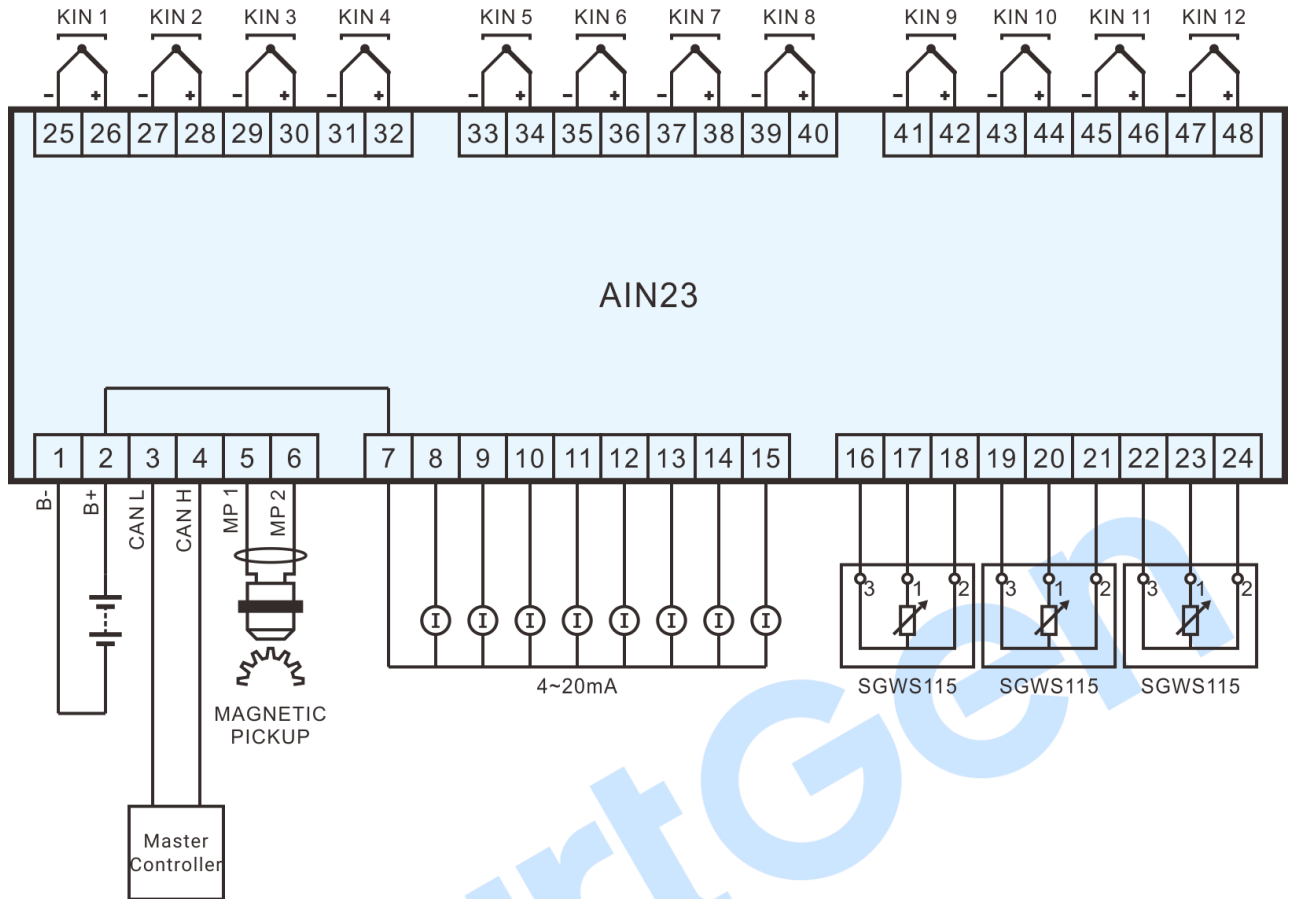


Fig.2 – AIN23 Electrical Connection Diagram

6 CASE DIMENSIONS

Unit: mm

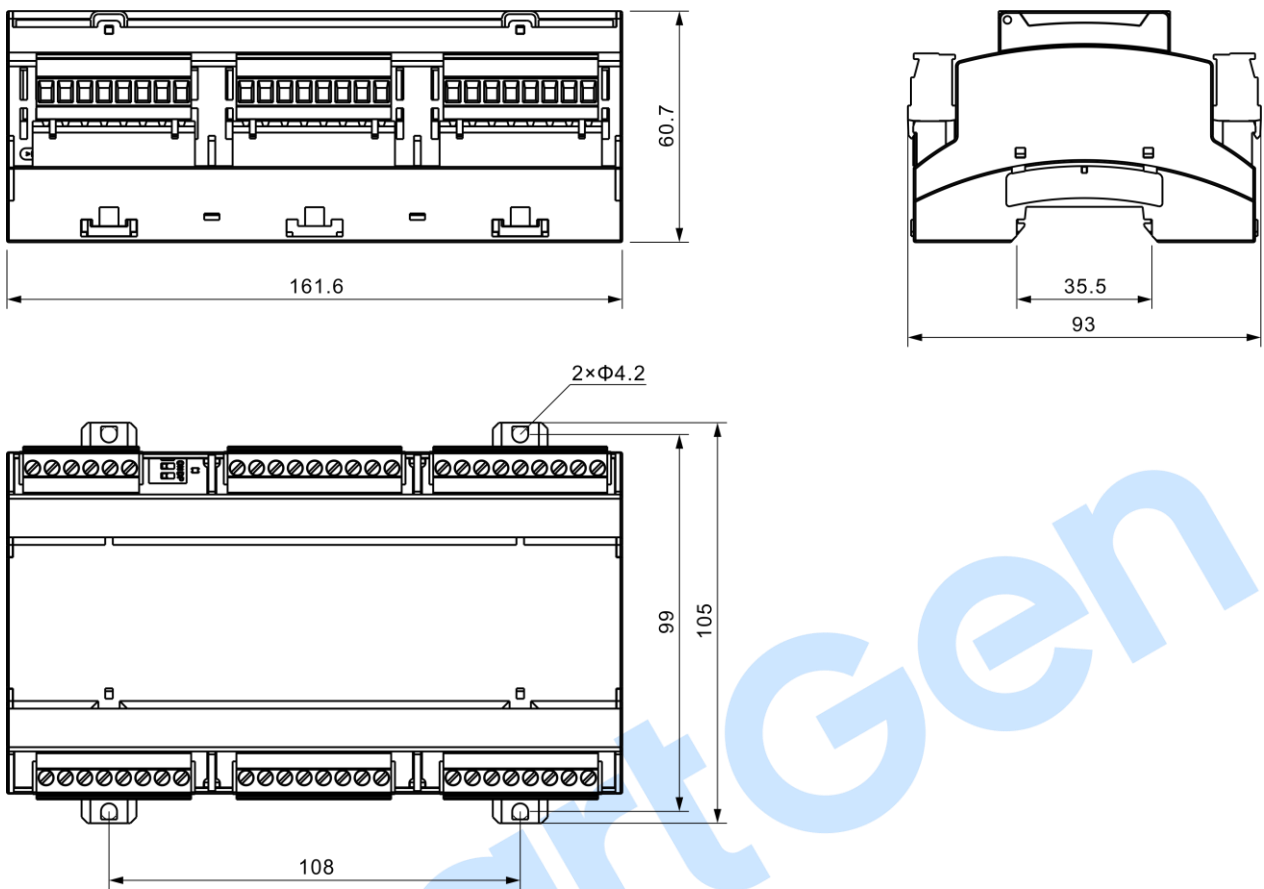


Fig.3 – Overall Dimensions

Table 5 – Troubleshooting

Fault Symptoms	Possible Solutions
Controller no response when power on	Check power voltage; Check controller wirings; Check DC fuse.
CANBUS Communication Abnormal	Check if CANBUS wires are connected reversely.

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