CT-3238: 8-channel analog input /0&4-20mA/15-bit single-terminal

1 Module features

◆ the module supports 8-channel current signal acquisition.

◆ the module can be configured for 0-20mA or 4-20mA current signal acquisition.

◆ the module supports 2-wire (non-loop output, external power supply is required) or 4-wire current sensor input.

◆ the internal bus of the module and field input adopts magnetic insulation.

◆ the module input channel is connected to the field active analog signal current output sensor.

◆ the module channel equips with TVS overvoltage protection.

2 Technical parameters

| General parameters	
Power	Max.65mA@5.0Vdc
Isolation	I/O to internal bus: magnetic isolation (2.5KVrms) Power isolation: DC-DC
Wiring	I/O wiring: Max.1.5mm ƚAWG 16)
Installation	35mm DIN-Rail
Size	115*14*75mm
Weight	65g
Environmental parameters	
Working temperature	-40~85°C
Environmental humidity	5%-95% (No Condensation)
Protection grade	IP20
Input parameters	
Channel Number	8 channels
LED Indicator	8 LED channel state indicators
Input range	Maximum: 0 ~ 23.5 mA
Resolution ratio	15 Bit
Acquisition precision	±0.3% full range, @25°C
	±0.5% full range, @-20~70°C

Sampling rate	28 ms / 8 channels
Data format	16-bit signed integer

3 Hardware interfaces
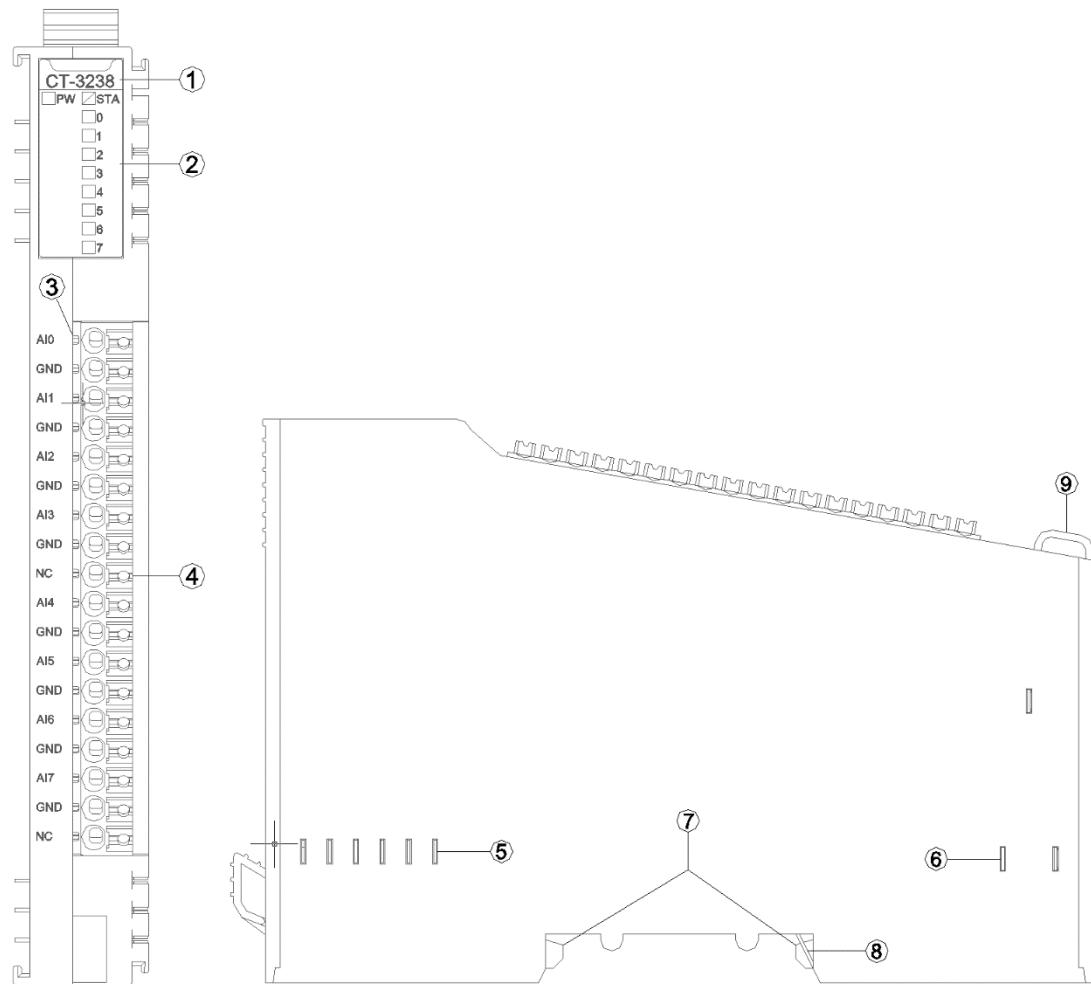
① Module Type

② State indicator

③ (no field channel indicator)

④ Wiring Terminal and marking

⑤ Internal Bus

⑥ Field Power

⑦ Buckle

⑧ Grounding Sheet

⑨ Fixed Wiring Harness

3.1 LED indicator lights
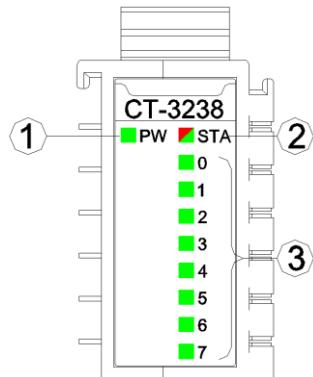
① Power indicator light (green)

② Module State indicator (red/green)

③ Input channel indicator light (green)

| PW power indicator	Definition
ON	Internal bus power supply is normal
OFF	Internal bus power supply is failure
STA module State indicator	Definition
Green slow flash (2.5hz)	The internal bus of the module is not started
Red slow flash (2.5hz)	Module internal bus offline
Green on	Operation normal
Flash(2.5Hz) (RED/GREEN)	Upgrading mode
Flash(10Hz) (RED/GREEN)	Firmware upgrading
Red flashes twice	Module exception has been soft-restarted
0-7 channel indicator light	Definition
ON	Input signal >=1% range
OFF	Input signal <1% range

3.2 Terminal definition

Terminal number	Definition	Description
1	AI0	Current input CH0
2	GND	
3	AI1	Current input CH1
4	GND	
5	AI2	Current input CH2
6	GND	
7	AI3	Current input CH3
8	GND	

9	NC	Not connected
10	AI4	Current input CH4
11	GND	
12	AI5	Current input CH5
13	GND	
14	AI6	Current input CH6
15	GND	
16	AI7	Current input CH7
17	GND	
18	NC	Not connected

It is recommended to use cables with cores smaller than 1mm²

The cold-pressed terminal parameters are as follows:
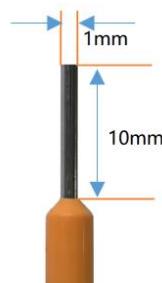
4 Wiring
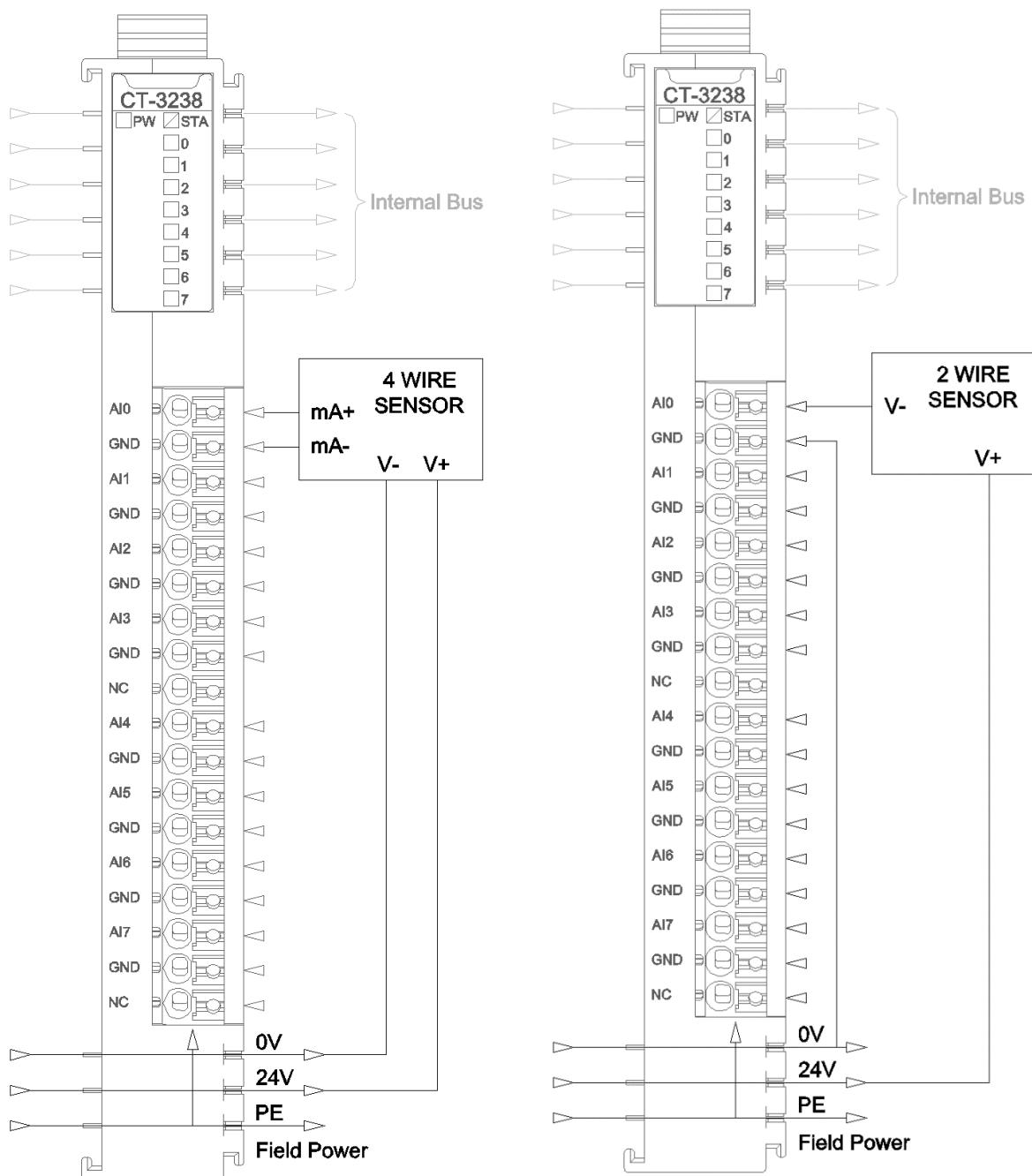
5 Process data definition

Input data								
Bit No	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	Analog Input Data (CH 0)							
Byte 1								
Byte 2	Analog Input Data (CH 1)							
Byte 3								
Byte 4	Analog Input Data (CH 2)							
Byte 5								
Byte 6	Analog Input Data (CH 3)							
Byte 7								
Byte 8	Analog Input Data (CH 4)							
Byte 9								
Byte 10	Analog Input Data (CH 5)							
Byte 11								
Byte 12	Analog Input Data (CH 6)							
Byte 13								
Byte 14	Analog Input Data (CH 7)							
Byte 15								

Data description:

Analog Input Data (CH0-7)：Analog signal Input value of corresponding channel.

Analog Input Data (CT-3238)				
Current (0-20mA)	Current (4-20mA)	Decimal	Hexadecimal	Location
>23.515	>22.810	32767	7FFF	Overflow
23.515	22.81	32511	7EFF	Exceed the upper limit
.	.	.	.	
.	.	.	.	
20.0007	20.0005	27649	6C01	
20	20	27648	6C00	Rated range
.	.	.	.	
.	.	.	.	
0	4	0	0000	
<0.0	3.9995	-1	FFFF	Exceed the lower limit
	.	.	.	
	.	.	.	

	1.1852	-4864	ED00	
	<1.1852	-32768	8000	Underflow

For example: AI0 input monitoring value of the CT-3238 is 16#3126=12582, if it chooses the range of 4-20mA, then the theoretical input value of AI0 is:

12582/27648*16+4=11.28125mA.

For example: AI0 input monitoring value of the CT-3238 is 16#3126=12582, if it chooses the range of 0-20mA, then the theoretical input value of AI0 is:

12582/27648*16=7.28125mA

6 Configuration parameter definition

Configuration parameters								
Bit No	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	16Bit Data Format							
Byte 1	Current Type Ch#7	Current Type Ch#6	Current Type Ch#5	Current Type Ch#4	Current Type Ch#3	Current Type Ch#2	Current Type Ch#1	Current Type Ch#0

Data description:

16Bit Data Format：Analog data storage format. (default: 0)

    0：A-B

    1：B-A

Current Type Ch#(0-7)：Type of input signal. (default: 1)

    0：0-20mA

    1：4-20mA

A Dimension drawing