

Content

CT-3808: 8 channels Analog Input, Thermocouple (J type, K type, E type, T type, S type, R type, B type, N type, C type)	2
1 Module features	2
2 Technical parameters	3
3 Hardware Interface.	4
4 Wiring	7
5 Process data definition.	8
6 Configuration parameters definition	11
A Dimension drawing	13

CT-3808: 8 channels Analog Input, Thermocouple (J type, K type, E type, T type, S type, R type, B type, N type, C type)

1 Module features

- ◆ The module supports 8-channel thermocouple signal acquisition
- ◆ The module carries 8 analog LED indicators
- ◆ The module supports 9 kinds of conventional thermocouple temperature

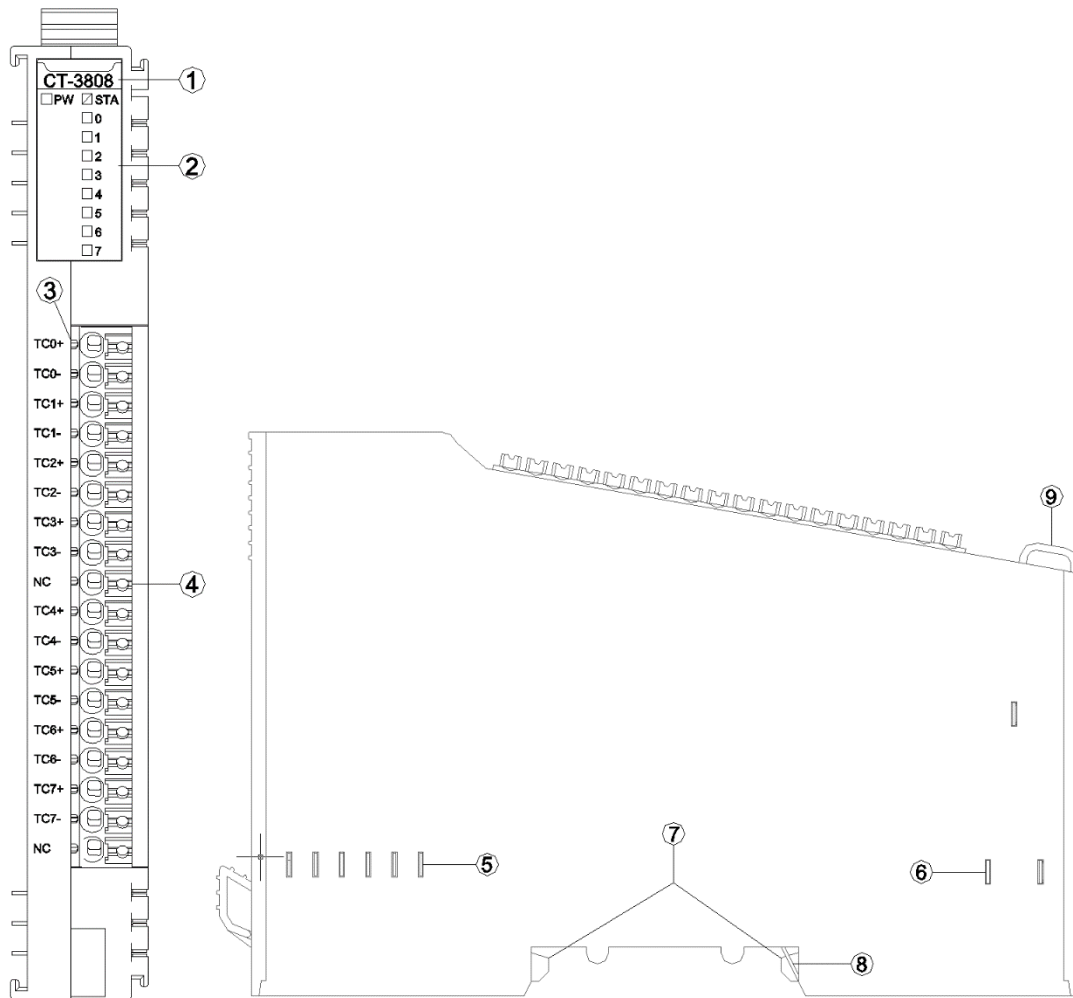
measurement type

- ◆ The internal bus of the module and field input adopts magnetic isolation
- ◆ The module input channel supports TVS overvoltage protection
- ◆ 24-bit ADC resolution (Σ - δ type)

2 Technical parameters

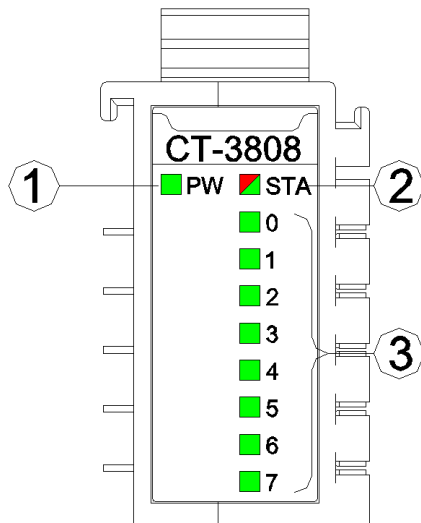
General Parameters		
Power	Max.60mA@5.0Vdc	
Isolation	I/O to internal bus: magnetic isolation (2.5KVrms)	
Field Power	Not used	
Wiring	I/O Wiring: Max.1.5mm (AWG 16)	
Mounting Type	35mmDIN-Rail	
Size	115*14*75mm	
Weight	65g	
Environment Specification		
Operational Temperature	-40~85°C	
Operational Humidity	5%~95% RH(No Condensation)	
Protection Class	IP20	
Input Parameter		
Channel Number	8 Channels	
LED Indicator	8 Input LED Indicators	
Sensor Type	J / K / E / T / S / R / B / N / C type thermocouples	
Acquisition Accuracy	±0.3% Full Scale, @25°C ±0.5% Full Scale, @-40~85°C	
Sampling Rate	70ms/4 channel	
Measuring Range°C	J Type	-210~1200°C
	K Type	-270~1370°C
	E Type	-270~1000°C
	T Type	-270~400°C
	S Type	-50~1760°C
	R Type	-50~1760°C
	B Type	0~1820°C
	N Type	-270~1300°C
C Type	0~2320°C	
Data Format	16-Bit Signed Integer (Integer)	
Diagnostic Function	-32767: No thermocouple model selected (that is, the channel is disabled) 32766: open circuit disconnection 32767: Temperature overflow -32768: Temperature underflow	

3 Hardware Interface



- ① Module Type
- ② State indicator
- ③ N/A
- ④ Wiring Terminal and identification
- ⑤ Internal Bus
- ⑥ Field Power
- ⑦ Buckle
- ⑧ Grounding Resilient Sheet
- ⑨ Fixed Wiring Harness

3.1 LED indicator definition



- ① Power LED indicator (green)
- ② Module State LED indicator (red/green)
- ③ Output channel LED indicator (green)

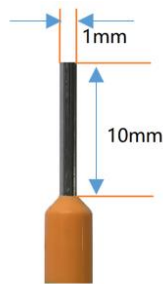
PW POWER STATE (GREEN)	Definition
ON	Internal bus Power Normal
OFF	Internal bus Power Failure
STA MODULE STATE (RED/GREEN)	Definition
Green slow flash (2.5Hz)	Module internal bus is not started
Red slow flash (2.5Hz)	Module internal bus offline
ON (GREEN)	Operation normal
Flash(2.5Hz) (RED/GREEN)	Upgrading mode
Flash(10Hz) (RED/GREEN)	Firmware Update
Double Flash (RED)	Module Exception has been soft-restarted
0-7 Channel Indicator	Definition
ON	The input signal exceeds 1% of the range
OFF	Invalid output signal

3.2 Terminal definition

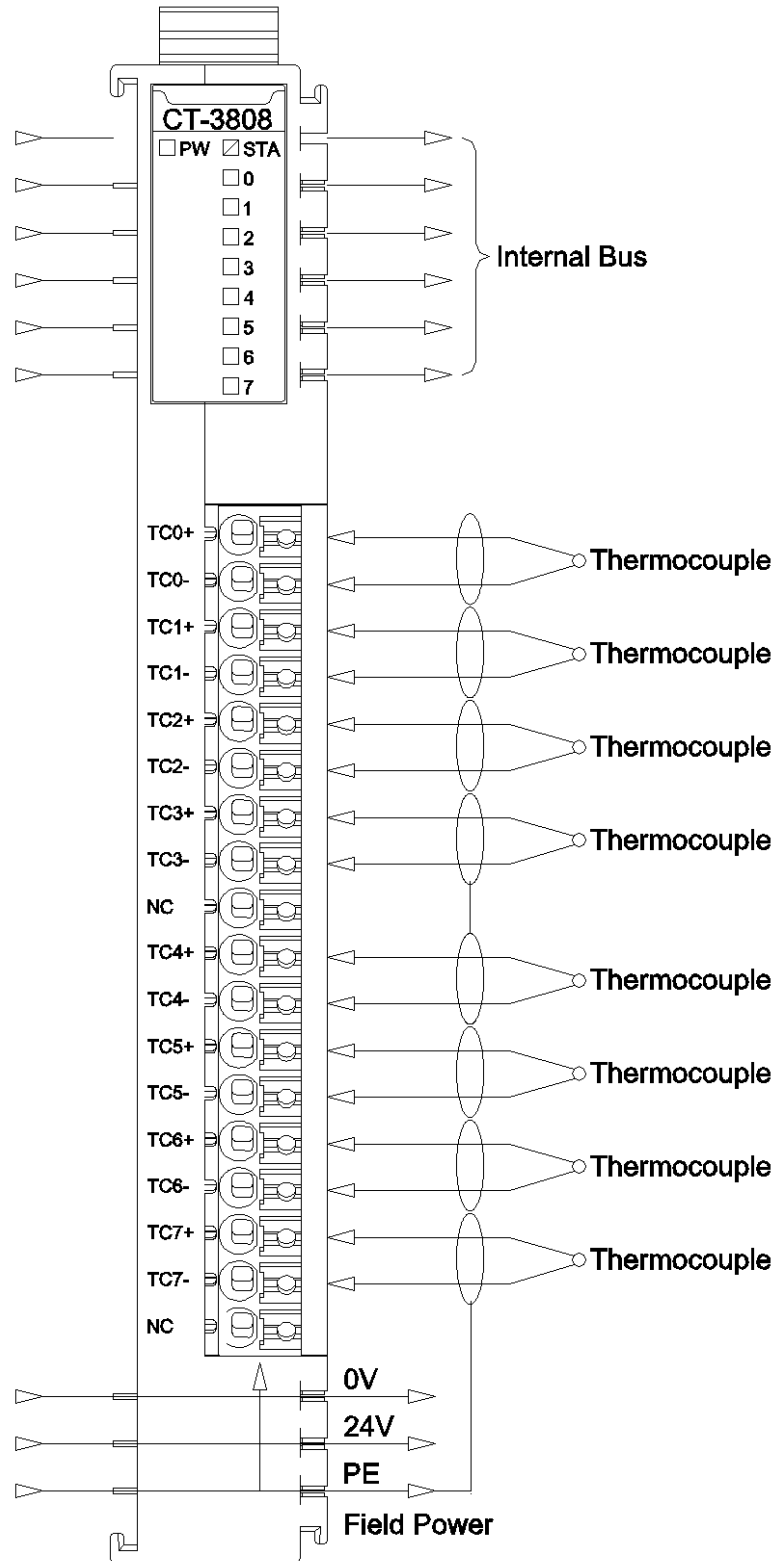
Terminal Number	Definition	Description
1	TC0+	Signal Input CH0
2	TC0-	
3	TC1+	Signal Input CH1
4	TC1-	
5	TC2+	Signal Input CH2
6	TC2-	
7	TC3+	Signal Input CH3
8	TC3-	
9	NC	Not Connected
10	TC4+	Signal Input CH4
11	TC4-	
12	TC5+	Signal Input CH5
13	TC5-	
14	TC6+	Signal Input CH6
15	TC6-	
16	TC7+	Signal Input CH7
17	TC7-	
18	NC	Not Connected

It is recommended to use cables with cores smaller than 1mm ?

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 Declaration:

Analog Input Data (CH0-3): The current temperature acquisition value of the corresponding channel

Process Data Definition - J Type			
Temperature	Decimal	Hex	Location
>1360.0	32767	7FFF	Overflow
1360.0	13600	3520	Exceeds the upper limit
.	.	.	
.	.	.	
1200.1	12001	2EE1	
1200.0	12000	2EE0	Rated range
.	.	.	
.	.	.	
-210.0	-2100	F7CC	
<-210.0	-32768	8000	Underflow

Process Data Definition - K Type			
Temperature	Decimal	Hex	Location
>1622.0	32767	7FFF	Overflow
1622.0	16220	3F5C	Exceeds the upper limit
.	.	.	
.	.	.	
1372.1	13721	3599	Rated range
1372.0	13720	3598	
.	.	.	
.	.	.	
-270.0	-2700	F574	Underflow
<-270.0	-32768	8000	

Process Data Definition – E Type			
Temperature	Decimal	Hex	Location
>1200.0	32767	7FFF	Overflow
1200.0	12000	2EE0	Exceeds the upper limit
.	.	.	
.	.	.	
1000.1	10001	2711	Rated range
1000.0	10000	2710	
.	.	.	
.	.	.	
-270.0	-2700	F574	Underflow
<-270.0	-32768	8000	

Process Data Definition –T Type			
Temperature	Decimal	Hex	Location
>540.0	32767	7FFF	Overflow
540.0	5400	1518	Exceeds the upper limit
.	.	.	
.	.	.	
400.1	4001	FA1	Rated range
400.0	4000	FA0	
.	.	.	
.	.	.	
-270.0	-2700	F574	Underflow
<-270.0	-32768	8000	

Process Data Definition –S Type			
Temperature	Decimal	Hex	Location
>1850.0	32767	7FFF	Overflow
1850.0	18500	4844	Exceeds the upper limit
.	.	.	
.	.	.	
1769.1	17691	451B	Rated range
1769.0	17690	451A	
.	.	.	
.	.	.	
-50.0	-500	FE0C	Exceeds the lower limit
-50.1	-501	FE0B	
.	.	.	
.	.	.	
-170.0	-1700	F95C	
<-170.0	-32768	8000	Underflow

Process Data Definition – R Type			
Temperature	Decimal	Hex	Location
>2019.0	32767	7FFF	Overflow
2019.0	20190	4EDE	Exceeds the upper limit
.	.	.	
.	.	.	
1769.1	17691	451B	Rated range
1769.0	17690	451A	
.	.	.	
.	.	.	
-50.0	-500	FE0C	Exceeds the lower limit
-50.1	-501	FE0B	
.	.	.	
.	.	.	
-170.0	-1700	F95C	
<-170.0	-32768	8000	Underflow

Process Data Definition - B Type			
Temperature	Decimal	Hex	Location
>2070.0	32767	7FFF	Overflow
2070.0	20700	50DC	Exceeds the upper limit
.	.	.	
.	.	.	

1820.1	18201	4719	
1820.0	18200	4718	Rated range
.	.	.	
.	.	.	
0.0	0		
<0.0	-32768	8000	Underflow

Process Data Definition – N Type			
Temperature	Decimal	Hex	Location
>1550.0	32767	7FFF	Overflow
1550.0	15500	3C8C	Exceeds the upper limit
.	.	.	
.	.	.	
1300.1	13001	32C9	Rated range
1300.0	13000	32C8	
.	.	.	
.	.	.	
-270.0	-2700	F574	
<-270.0	-32768	8000	Underflow

Process Data Definition – C Type			
Temperature	Decimal	Hex	Location
>2320.0	32767	7FFF	Overflow
2320.0	23200	5AA0	Rated range
.	.	.	
.	.	.	
0.0	0		
<0.0	-32768	8000	Underflow

6 Configuration parameters definition

Configuration Parameter								
Bit No	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	Reserved							16Bit Data Format
Byte 1	TC Input Type (CH 1)				TC Input Type (CH 0)			
Byte 1	TC Input Type (CH 3)				TC Input Type (CH 2)			

Data Declaration:

16Bit Data Format: Big-endian and little-endian format of data upload:

0: A_B

1: B_A

TC Input Type(CH 0-3): Sensor type of the channel:

0: Channel is disabled

1: J Type

2: K Type

3: E Type

4: T Type

5: S Type

6: R Type

7: B Type

8: N Type

9: C Type

A Dimension drawing

