CT-4234: 4-channel analog output /0&4-20mA/16-bit single-terminal

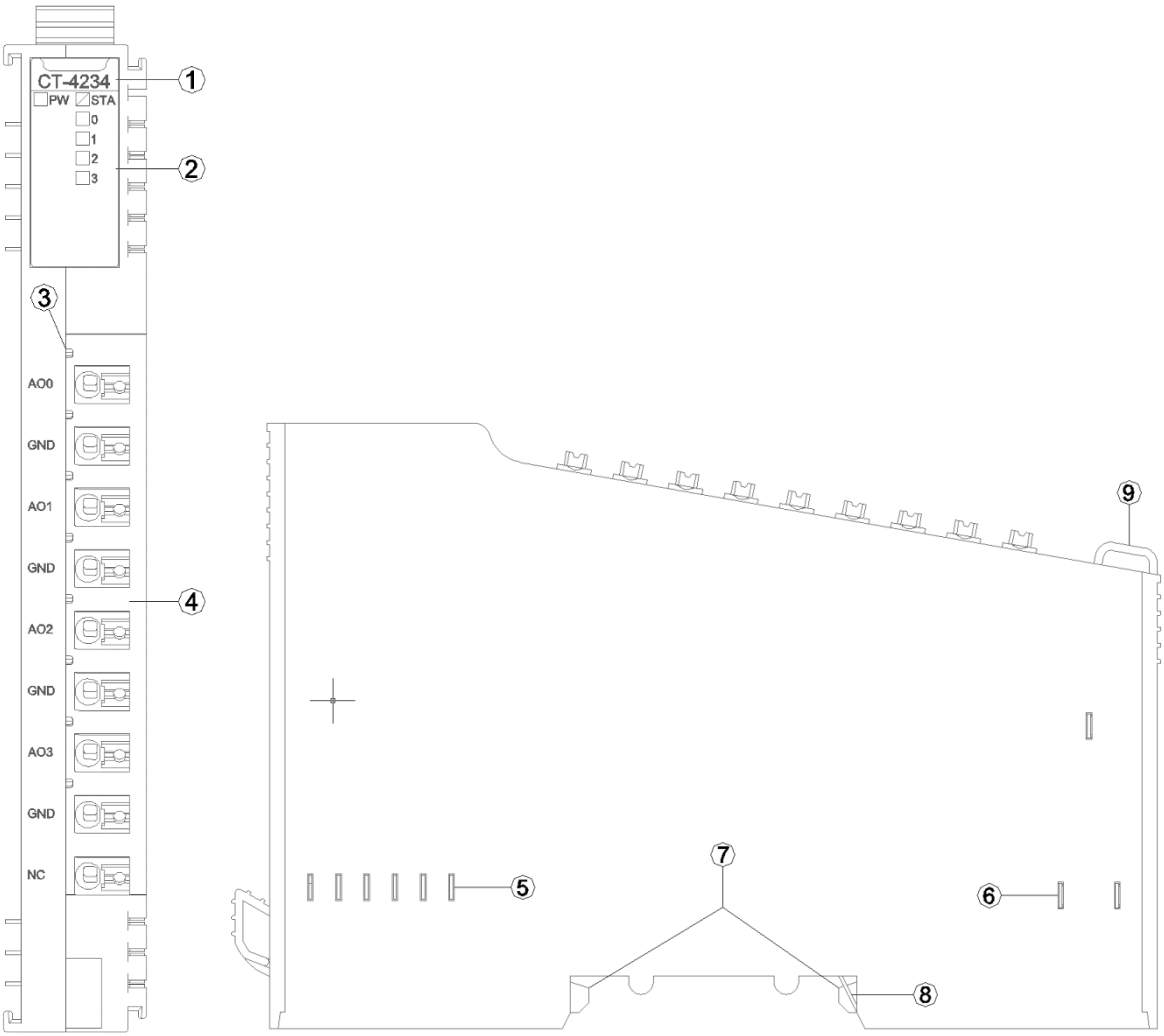
1 Module features

- ◆ 2 output ranges can be set(0-20mA、4-20mA)
- ◆ The module internal bus and field output adopts magnetic insulation
- ◆ Single-terminal grounded together output mode

2 Technical parameters

General parameters	
Power	Max.25mA@5.0Vdc
IO bus isolation	I/O to internal bus: magnetic isolation (2.5KVrms)
Wiring	I/O wiring: Max.1.5mm ²(AWG 16)
Installation	35mm DIN-Rail
Size	115*14*75mm
Weight	65g
Environmental parameters	
Working temperature	-40~85℃
Environmental humidity	5%-95% (No Condensation)
Protection grade	IP20
Output parameters	
Channel Number	4 channels
resolution ratio	16Bit
Output range	0-20mA/4-20mA
The output precision	>0.3%
Diagnostic function	Disconnection or overload, field power supply error
The common terminal	0V grounded together, channels are not isolated
Conversion time	2ms/ all channels
load	Max.1KΩ

3 Hardware interfaces



① Module Type

② State Indicator

③ (non field channel indicator)

④ Wiring Terminal and Marking

⑤ Internal Bus

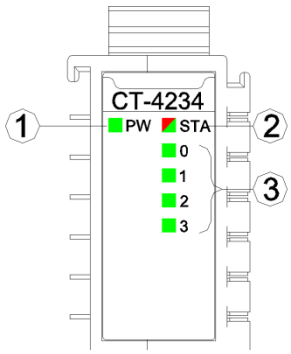
⑥ Field Power

⑦ Buckle

⑧ Grounding Sheet

⑨ Fixed Wiring Harness

3.1 LED indicators definition



① Power LED indicator (green)

② Module State LED indicator (red/green)

③ Output channel LED indicator (green)

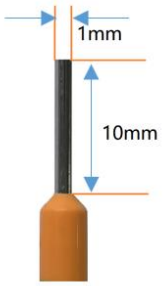
PW Power Indicator(GREEN)	Definition
ON	Internal bus power supply is normal
OFF	Internal bus power supply is failure
STA Module State Indicator(Red/Green)	Definition
Green Slow Flash (2.5hz)	The internal bus of the module is not started
Red Slow Flash (2.5hz)	Module internal bus offline
Green Normally On	Operation is normal
Flash(2.5Hz) (RED/GREEN)	Upgrading mode
Flash(10Hz) (RED/GREEN)	Firmware upgrading
Red Flashes Twice	Module exception has been soft-restarted
0-3 Channel Indicator Light	Definition
ON	Output signal >=1% range
OFF	Output signal <1% range

3.2 Terminal definition

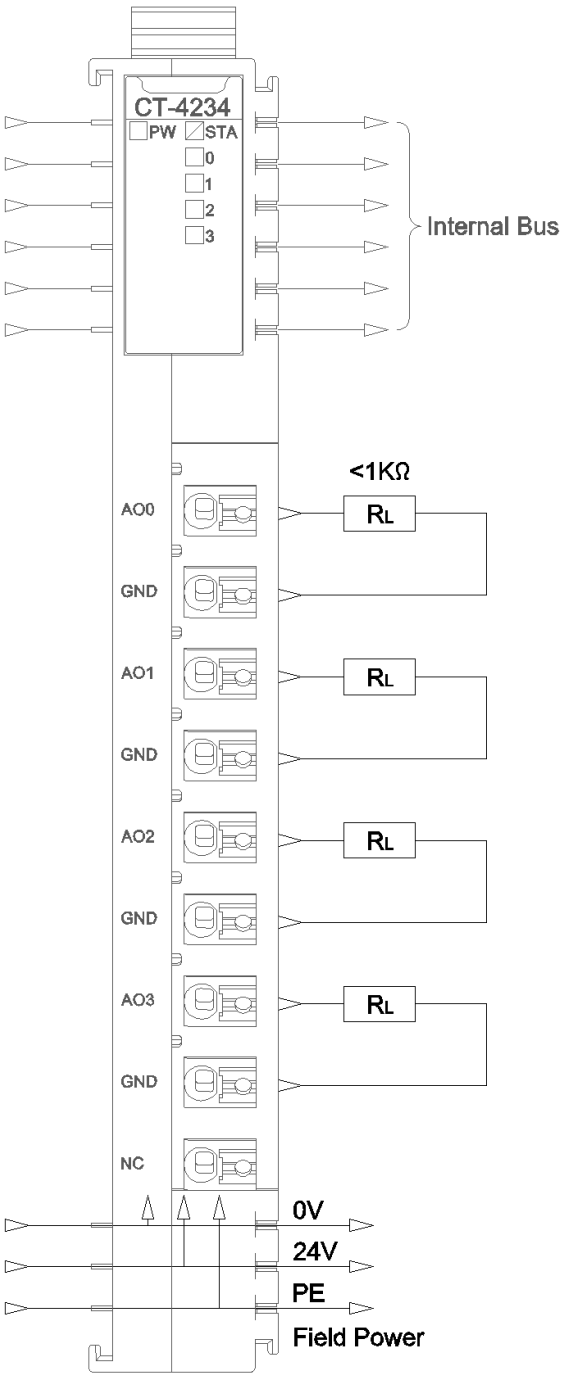
Terminal number	Definition	Instructions
1	AO0	Current output CH0
2	GND	
3	AO1	Current output CH1
4	GND	
5	AO2	Current output CH2
6	GND	
7	AO3	Current output CH3
8	GND	
9	NC	Disconnected

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

The cold-pressed terminal parameters are as follows:



4 Wiring


CT-4234
PW
STA
0
1
2
3
Internal Bus
<1KΩ
AO0
GND
AO1
GND
AO2
GND
AO3
GND
NC
RL
RL
RL
RL
0V
24V
PE
Field Power

5 Progress data definition

Input data								
Bit No	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	Reserved		Field Power Error (CH0-3)	DAC Communication Error (CH0-3)	Output Opening or Overload (CH3)	Output Opening or Overload (CH2)	Output Opening or Overload (CH1)	Output Opening or Overload (CH0)
Output data								
Bit No	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	Analog Output Data (CH 0)							
Byte 1								
Byte 2	Analog Output Data (CH 1)							
Byte 3								
Byte 4	Analog Output Data (CH 2)							
Byte 5								
Byte 6	Analog Output Data (CH 3)							
Byte 7								

Data description:

Output Opening or Overload (CH0-3)： Current output diagnostic State, when the corresponding Output channel is open or overloaded, this bit is set to 1, and it will be automatically cleared when the load returns to normal.

0: normal is load

1: openload or overload

DAC Communication Error(CH0-3)： DAC converter Communication is Error. This Error will occur when the field power supply is disconnected or the DAC and isolator are damaged.

0: DAC communication is normal

1: DAC conversion failed

Field Power Error (CH0-3)： This Error will occur when the Field Power is not powered on.

0: field power access is normal

1: field power access is failure

Analog Output Data(CH0-3)：Analog Output value, 16-bit unsigned integer.

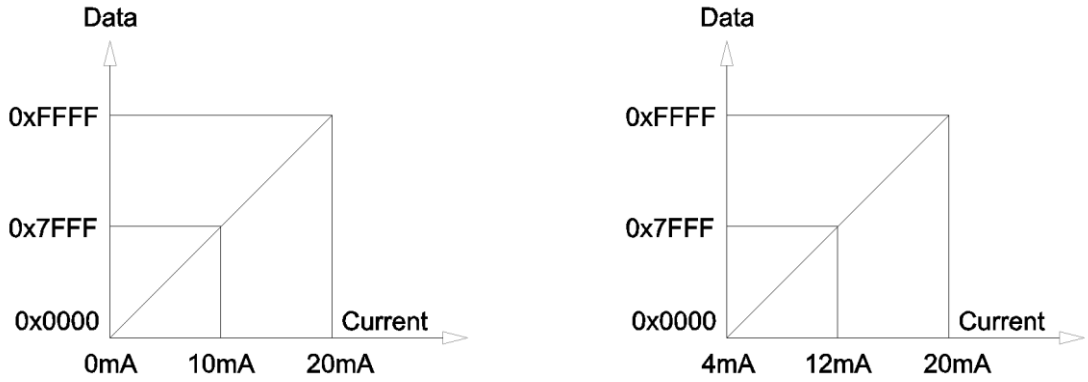
5.1 Process data definition（standard mode）

Analog Output Data(CT-4234) **(0-20mA)**			
Current (0-20mA)	Decimal	Hex	Range
21mA	32767	7FFF	Overflow
	29031	7167	
21mA	29030	7166	Exceeds the upper limit
20mA+723.4nA	27649	6C01	
20mA	27648	6C00	Rated range
15mA	20736	5100	
723.4nA	1	1	
0 mA	0	0	
0 mA	-1	FFFF	Underflow
	-32768	8000	

Analog Output Data(CT-4234) **(4-20mA)**			
Current (4-20mA)	Decimal	Hex	Range
21mA	32767	7FFF	Overflow
	29377	72C1	
21mA	29376	72C0	Exceeds the upper limit
20mA+578.7nA	27649	6C01	
20 mA	27648	6C00	Rated range
16 mA	19008	4A40	
4mA +578.7nA	1	1	
4mA	0	0	
3.9995mA	-1	FFFF	Exceeds the lower limit
3.6mA	-692	FD4C	
3.6mA	-693	FD4B	Underflow
	-32768	8000	

5.Process data definition（special mode）

Analog Output Data (CT-4234)			
Current (0 to 20 mA)	Current (4-20 mA)	Decimal 16 bits	Hexadecimal 16 bits
20	20	65535	0xFFFF
.	.	.	.
.	.	.	.
.	.	.	.
10	12	32767	0x7FFF
.	.	.	.
.	.	.	.
.	.	.	.
0	4	0	0x0000



16Bit Data/Current

6 Configuration parameter 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	Reserved				Current Type CH3	Current Type CH2	Current Type CH1	Current Type CH0

Data description:

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

0：A-B

1：B-A

Range_Mode：Process data mode (default: standard mode)

Standard mode: same with Siemens process data definition

Special mode: max range of the hardware

Current Type(CH0-3)：Type of output current. (Default: 1)

0：0-20mA

1：4-20mA

A Dimension drawing