Remote IO

C Series

User Manual

V1.06

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Remote IO-C Series



Odot Automation System Co., Ltd.

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Version

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1 Product Overview

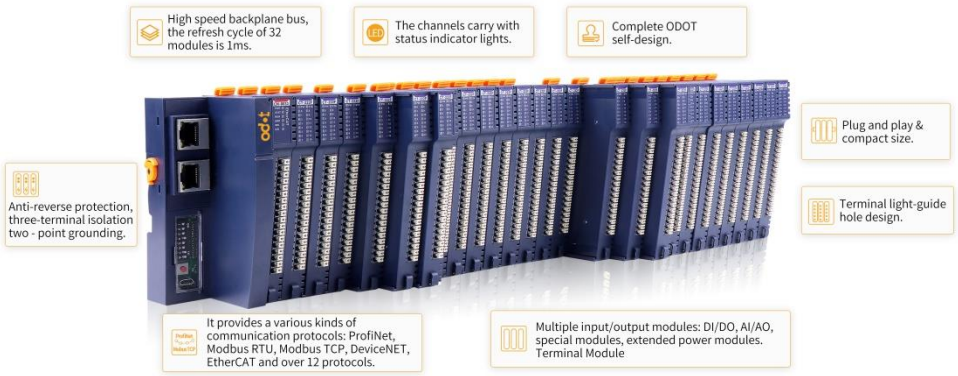
Remote IO system consists of network adapter module and extended IO module. The network adapter module controls fieldbus communication and it realizes communication link with host station controller or host computer software.

The extended IO module controls the connection with the input and output sensors in the field. At first the Input IO module collects the field signals and sends it to the network adapter through the internal bus. Secondly the controller reads and processing data from the adapter through the field bus, and it writes the output data into the network adapter, then the network adapter could write the output data into the output IO module via the internal bus, so the the field equipment control could be realized.

According to the communication interface of the controller system, the network adapter could select the corresponding bus module and mainstream industrial communication protocols including Modbus, Profibus-DP, Profinet, EtherCAT, EtherNet/IP, CANsopen, CC-Link, PowerLink, etc. And there are 6 categories of extended IO modules such as: digital input module, digital output module, analog input module, analog output module, special module, hybrid IO module, etc.

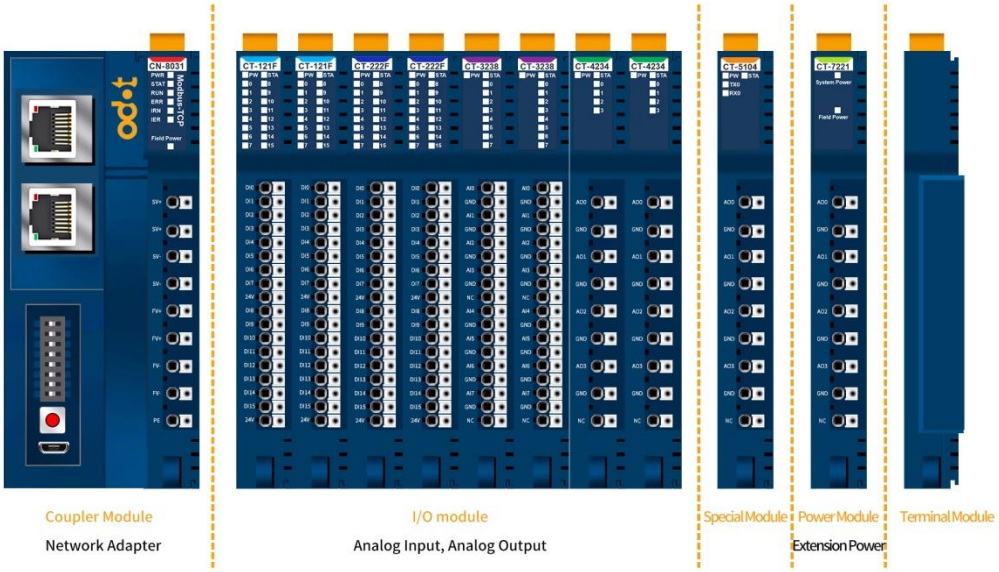
The network adapter and the extended IO module could be freely combined according to the field requirements, and it could achieve lower cost with the Remote IO module when the project rquires more data points.

1.1 Module Feature



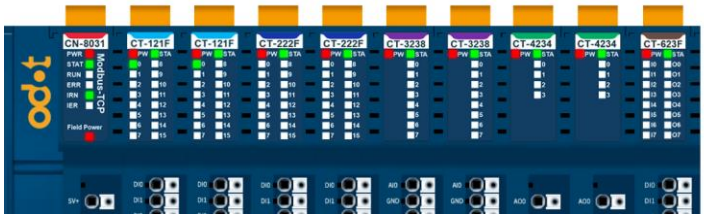
1.2 Module Layout

The ODOT-C series is a remote I/O module. The adapter module lies on the far left, and on the right are extended I/O modules.



1.3 LED Indicators

The user can easily check the power state of adapter and I/O module, I/O module operating state, and the number of I/O channels though LED state. And the detailed indicator state should refer to the related adapter or IO modules.



1.4 Ground Protection

There is one metal resilient sheet on the back of the module, which is used for effective grounding with the guide rail. The metal resilient sheet and the adapter PE (protective earthing) are connected internally.

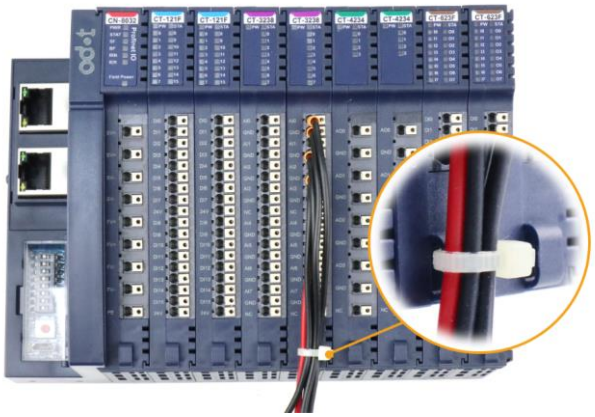


1.5 Wiring

Use push-in method to connect single-wire or crimp terminal wires without any other tools. Users can save wiring time and ensure a safe operation regardless of wiring experience.

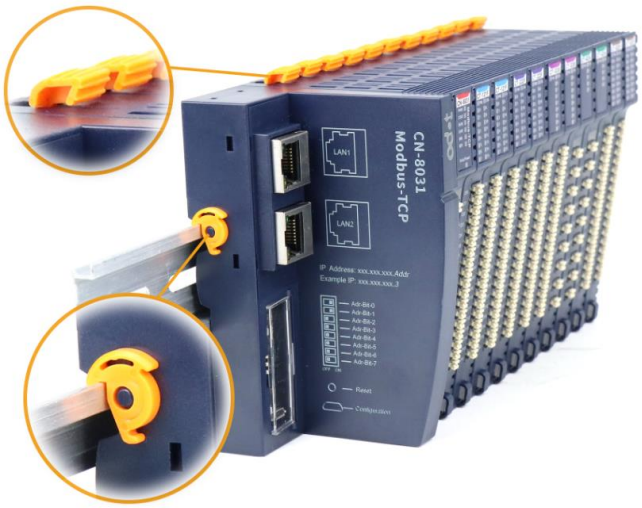


The module equips with a wiring fixed end for cable harness, which is used to fix the cable when the IO module is wired with multiple cables.



1.6 Installation and Removal

DIN-Rail Lock could be safely and reliably installed on 35 mm DIN-Rail. There is a manual closure buckle on the upper side of all modules for locking, and a manual buckle is on the left side of the adapter for locking the guide rail.



When the module is removed, it needs to manually unlock the guide rail on the upper side of the module. For the adapter module, you also need to unlock the left rail buckle counterclockwise.



1.7 Installation Size

Adapter size: 115*51.5*75mm I/O module size: 115*14*75mm



2 Extended IO module

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

1 Module features

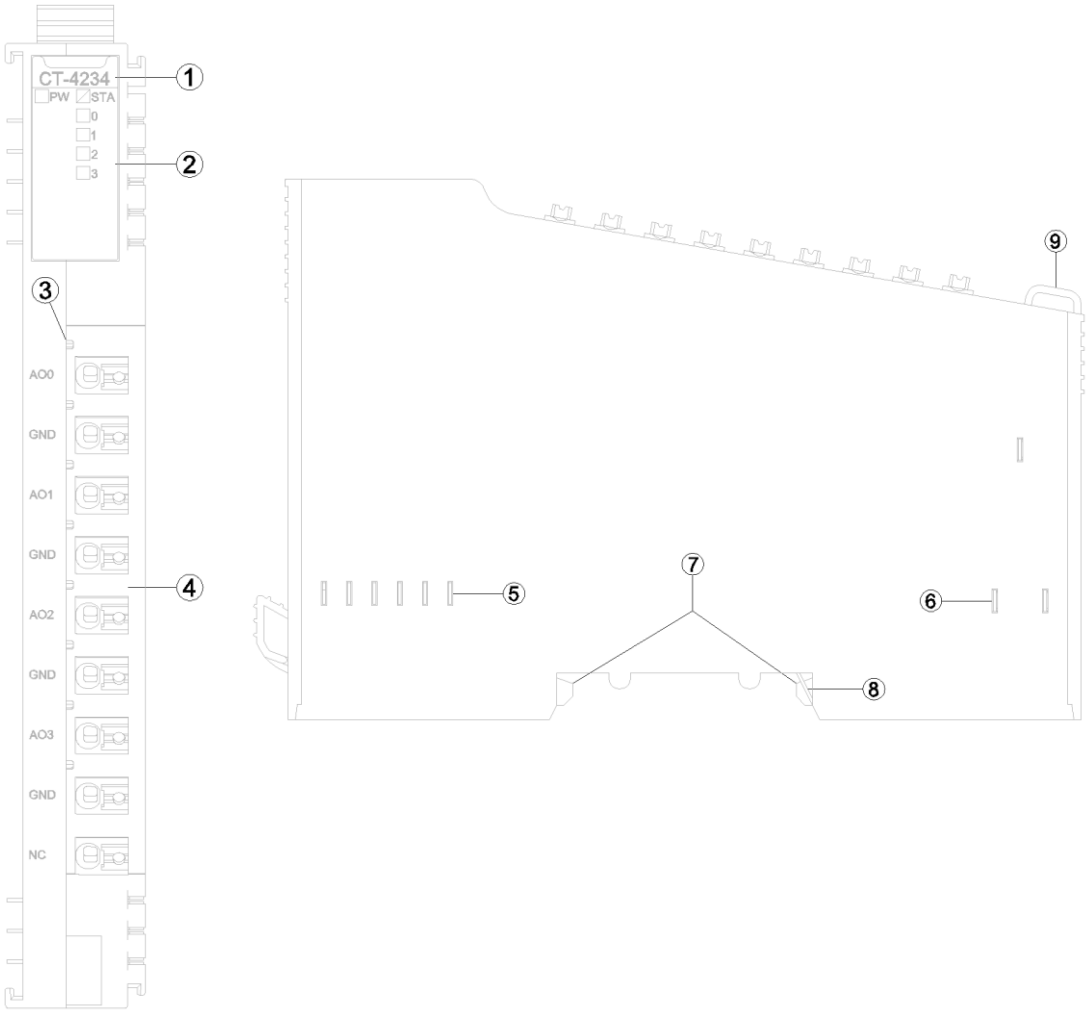
- ◆ 2 output ranges can be set(0-20mA、4-20mA)
- ◆ The module internal bus and field output adopts magnetic insulation
- ◆ Single-terminal grounded together output mode

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.1.5mm² (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

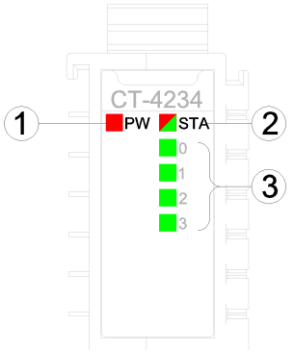
⑥ Field Power

⑦ Buckle

⑧ Grounding Sheet

⑨ Fixed Wiring Harness

3.1 LED indicators definition



① Power LED indicator (red)

② Module State LED indicator (red/green)

③ Output channel LED indicator (green)

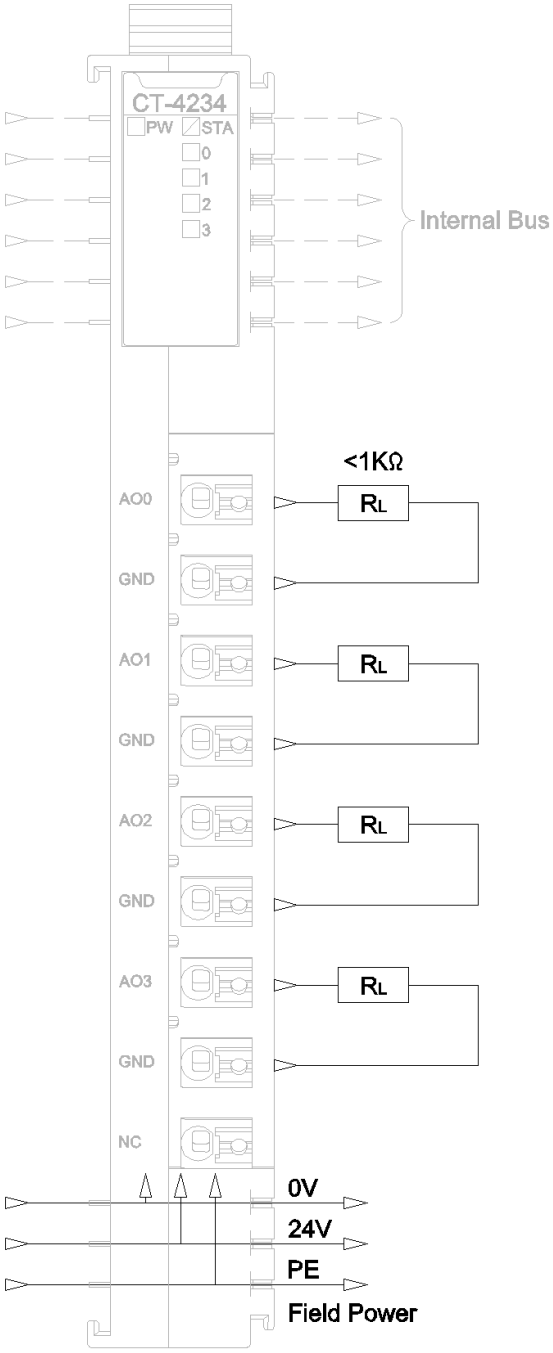
PW Power Indicator(Red)	Definition
ON	Internal bus power supply is normal
OFF	Internal bus power supply is failure
STA Module State Indicator(Red/Green)	Definition
Green Slow Flash (2.5hz)	The internal bus of the module is not started
Red Slow Flash (2.5hz)	Module internal bus offline
Green Normally 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

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

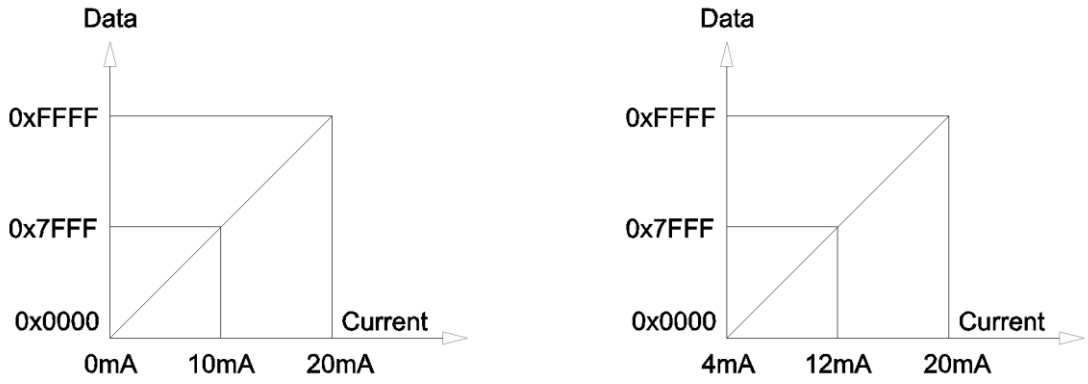
Field Power Error (CH0-3)： This Error will occur when the Field Power is not powered on.

0: field power access is normal

1: field power access is failure

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

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

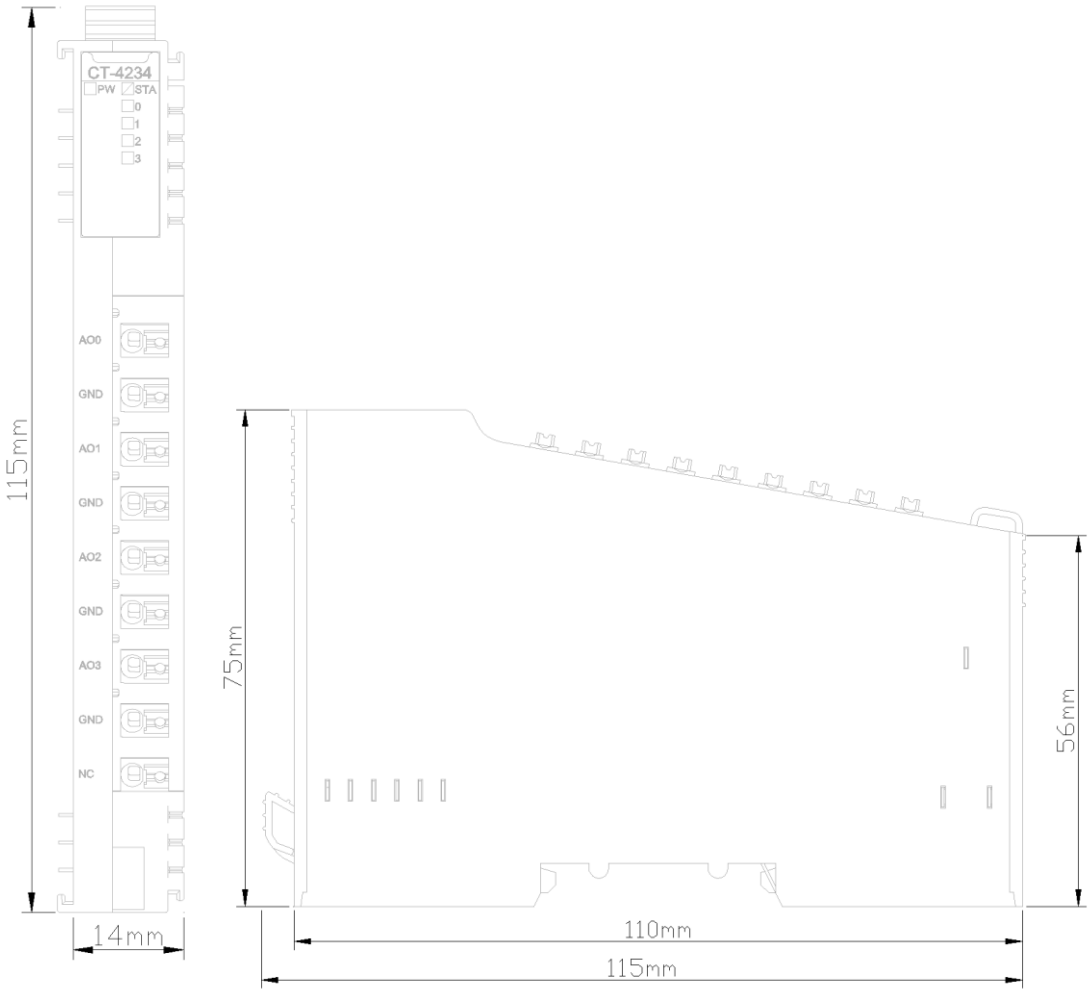
1：B-A

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

0：0-20mA

1：4-20mA

A Dimension drawing



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