CHANGDA TONG
SCIENCE & TECHNOLOGY

$\mathcal{T}$-1000

T-1000

Product manual

Tianjin Changdatong Technology Co., LTD

Founded in 2016, Tianjin Changdatong Technology Co., Ltd. is an innovative technology-based enterprise, integrating R&D, production, sales and service. The main products are programmable controllers, data acquisition modules, switches, industrial touch screens and big data platforms.

At present, the products have reached strategic cooperation with the world's top 500 enterprises and have been applied in many metallurgical enterprises. It is the first domestic enterprise to apply programmable controllers, data acquisition modules, switches, and industrial touch screens in the main process sections of metallurgy.

The company's vision and mission is to "become the backbone of the domestic independent industrial control product field".

Its market positioning is "to be a leading brand of completely independent domestic industrial control products, with the best cost-effective products".

catalogue

T-S series remote module T-1100

Overview of the T-1100 RIO series 2

Interface module T-1100-E 7

Interface module T-1100-P 9

Digital input module T-1211 T-1212 11

Digital input module T-1213 T-1214 12

Digital input module T-1215 T-1216 13

Digital output module T-1221 T-1222 15

Digital output module T-1223 T-1224 17

Digital output module T-1225 T-1226 19

Analog input module T-1227 21

Analog input module T-1311 T-1312 T-1313 T-1314 T-1315 23

Temperature module T-1331 28

Temperature module
T-1332 31

Analog output module
T-1321 T-1322 T-1323 T-1324 34

High speed counting module
T-1413 38

High speed counting module
T-1411 40

High speed counting moduleT-
1412 42

Communication module
T-1511 44

Communication module
T-1512 46

Power supply module
T-1611 T-1612 48

Terminal module
T-0000 49

T-S series Remote IO module

T-S Series RIO

T series pluggable remote I/O module is a distributed extension module developed by Changdatong Technology. The T series complete system is mainly composed of coupler, various functional I/O modules, power auxiliary modules and terminal modules. There are several communication protocol bus couplers, such as PROFINET, EtherCAT, Ethernet/IP, Cclink IE, modbus/TCP, etc. I/O modules can be divided into multi-channel digital input module, digital output module, analog input module, analog output module and a variety of functional modules, communication modules, temperature modules, etc., customers can match according to the actual field application requirements!

The T-1100-E is an EtherCAT bus coupler, and a single coupler can be extended up to 32 I/O modules.

T-S-RIO series remote IO module

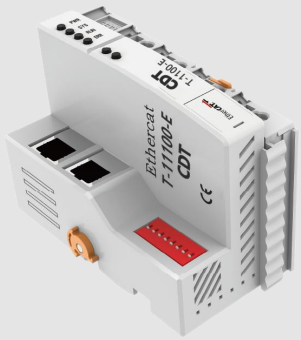
Type of product	Product Description	Product model number
Interface module	EtherCAT bus adapter	T-1100-E
	ProfiNet bus adapter	T-1100-P
	EtherNET/IP bus adapter	T-1100-I
	CC-Link IE bus adapter	T-1100-C
	Modbus/TCP bus adapter	T-1100-M
Auxiliary module	Incremental power module 2000mA	T-1611
	Auxiliary power supply module	T-1612
	Terminal resistance module	T-0000
Digital input module	8 channel digital input module, PNP	T-1211
	8 channel digital input module, NPN	T-1212
	16 channel digital input module, PNP	T-1213
	16 channel digital input module, NPN	T-1214
	32 channel digital input module, PNP	T-1215
	32 channel digital input module, NPN	T-1216
Digital output module	8 channel digital output module, PNP	T-1221
	8 channel digital output module, NPN	T-1222
	16 channel digital output module, PNP	T-1223
	16 channel digital output module, NPN	T-1224
	32 channel digital output module, PNP	T-1225
	32 channel digital output module, NPN	T-1226
Relay module	4-channel relay output module	T-1227
Analog input module	16-bit 4-channel voltage input module, ±5V, 0-10V, ±10V, configurable	T-1311
	16-bit 4-channel current input module, 4-20mA/0-20mA, configurable	T-1312
	16-bit 4-channel current and voltage hybrid input module 4-20mA/0-20mA±5V, 0-10V, ±10V, configurable	T-1315
	16-bit 8-channel voltage input module, ±5V, 0-10V, ±10V, configurable	T-1313
	16-bit 8-channel current input module, 4-20mA/0-20mA, configurable	T-1314
Temperature module	4-channel thermal resistance (RTD) input module	T-1331
	4-channel thermocouple (TC) input module	T-1332

T-S-RIO series remote IO module

Type of product	Communication module	Product model number
Analog output module	16-bit 4-channel voltage output module, ±5V, 0-10V, ±10V, configurable	T-1321
	16-bit 4-channel current output module, 4-20mA/0-20mA, configurable	T-1322
	16-bit 8-channel voltage output module, ±5V, 0-10V, ±10V, configurable	T-1323
	16-bit 8-channel current output module, 4-20mA/0-20mA, configurable	T-1324
High speed counting module	2-channel high-speed counting module (differential)	T-1413
	2 channel high speed counting module (24V/PNP)	T-1411
	2 channel high speed counting module (24V/NPN)	T-1412
Communication module	1 channel 485/232 hybrid bus module,Modbus/RTU master station	T-1511
	1 channel 485/232 hybrid bus module, free port protocol	T-1512

Interface module T-1100-E

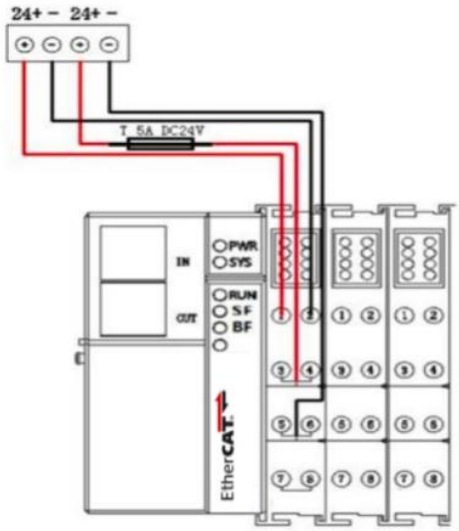
- EtherCAT(Ethernet Control Automation Technology) is an open architecture, Ethernet-based fieldbus system.The name CAT stands for Control Automation Technology. EtherCAT is a deterministic industrial Ethernet originally developed by Beckhoff in Germany. Automation generally requires short update time (or cycle time), low communication jitter during data synchronization, and low hardware cost. The purpose of EtherCAT development is to make Ethernet can be used in automation applications.
- Changdatong EtherCAT product has excellent performance and is currently a plug-in IO that can match Beckhoff's T series products in terms of performance and function in the automation field. Compared with Becofuk series products, it has the characteristics of high integration, which is beneficial to save EtherCAT sites.



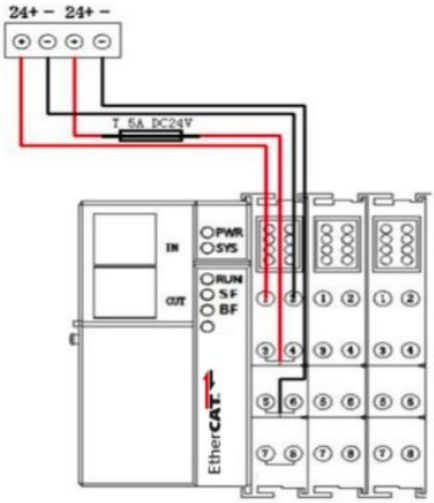
Technical Specifications

Technical parameters	
Bus protocol	EtherCAT
Address setting	According to the master station
Scale the amount of I/O	≤32
Input/output maximum bytes	Input: 1024 Byte/Output: 1024 Byte
Bus rate	100Mbps
Transmission distance	≤100m (Station to station distance)
System side power input	DC24V(18～36)
The system side provides the current	2A (Max)
IO port side power input	DC24V (±20%)
IO port side output current	10A (Max)
General parameters	
System side electrical isolation	AC500V
Anti-reverse connection protection	Support
Over current protection	System side supported, I/O side not supported
Over voltage protection	Support
Wiring specification	0.2～1.5mm²
Mode of connection	Screw free
Dimensions of form	100×48×69mm
weight	240g
Class of protection	IP20
Temperature range	Operating temperature: -10 ~ 55℃, storage temperature: -20 ~ 85℃
Relative humidity	95% no condensation

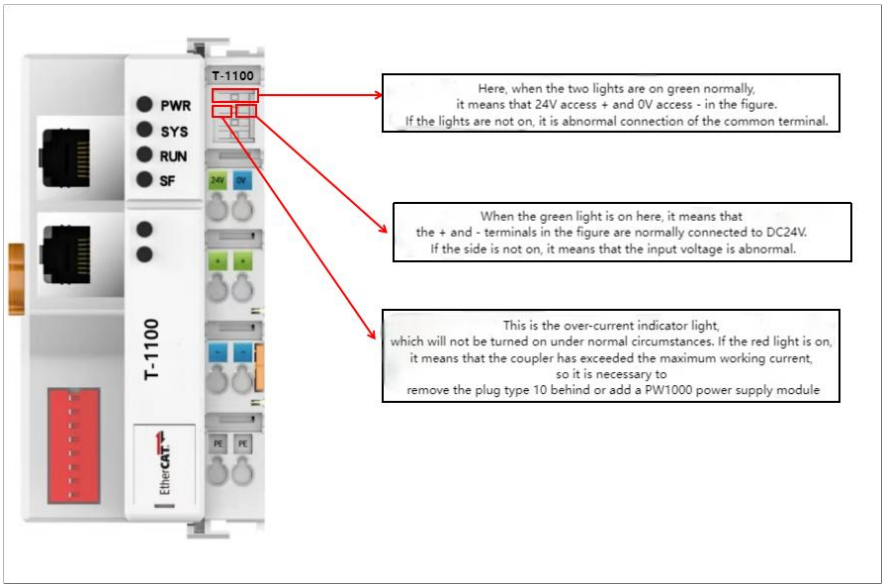
Main wiring diagram



System common end power connection

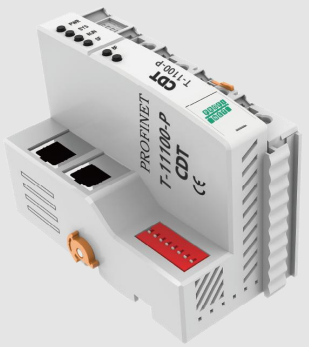


LCD indicator light description



Interface module T-1100-P

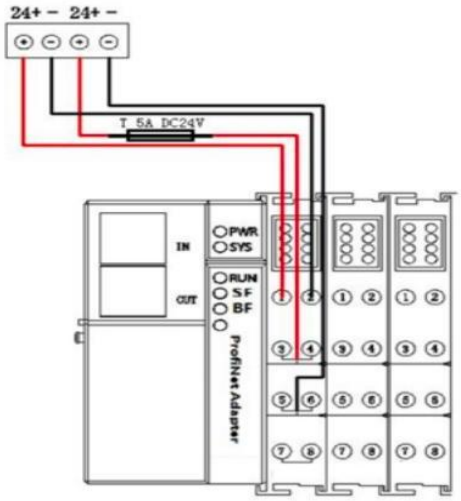
- PROFINET by PROFIBUS International organization (PI) launched, is a new generation of automation bus standard based on industrial Ethernet technology. PROFINET provides a complete network solution for automation communication, including current hot topics in automation such as real-time Ethernet, motion control, distributed automation, fail-safe, and network security. Fully compatible with industrial Ethernet and existing fieldbus technologies such as PROFIBUS, protecting existing investments.
- Changda PROFINET has a long history of development. Its products mainly cover integrated IO, plug-in IO, and cooperate with Siemens S7-200SMART, S7-300, S7-1200, S7-1500, which has a wide range of applications in many industries.



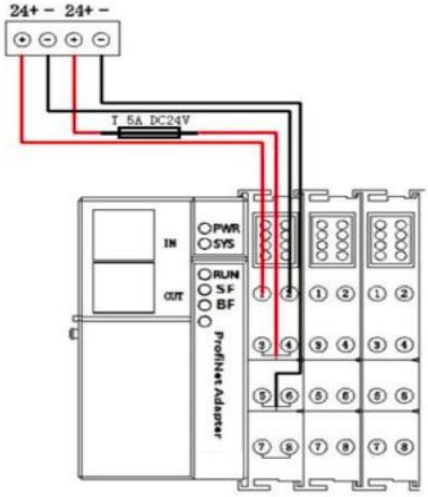
Technical Specifications

Technical parameters	
Bus protocol	PROFINET
Address setting	According to the master station
Scale the amount of I/O	≤32
Input/output maximum bytes	Input: 1024 Byte/Output: 1024 Byte
Bus rate	100Mbps
Transmission distance	≤100m (Station to station distance)
System side power input	DC24V(18～36)
The system side provides the current	2A (Max)
IO port side power input	DC24V (±20%)
IO port side output current	10A (Max)
General parameters	
System side electrical isolation	AC500V
Anti-reverse connection protection	Support
Over current protection	System side supported, I/O side not supported
Over voltage protection	Support
Wiring specification	0.2～1.5mm²
Mode of connection	Screw free
Dimensions of form	100×48×69mm
weight	240g
Class of protection	IP20
Temperature range	Operating temperature: -10 ~ 55℃, storage temperature: -20 ~ 85℃
Relative humidity	95% no condensation

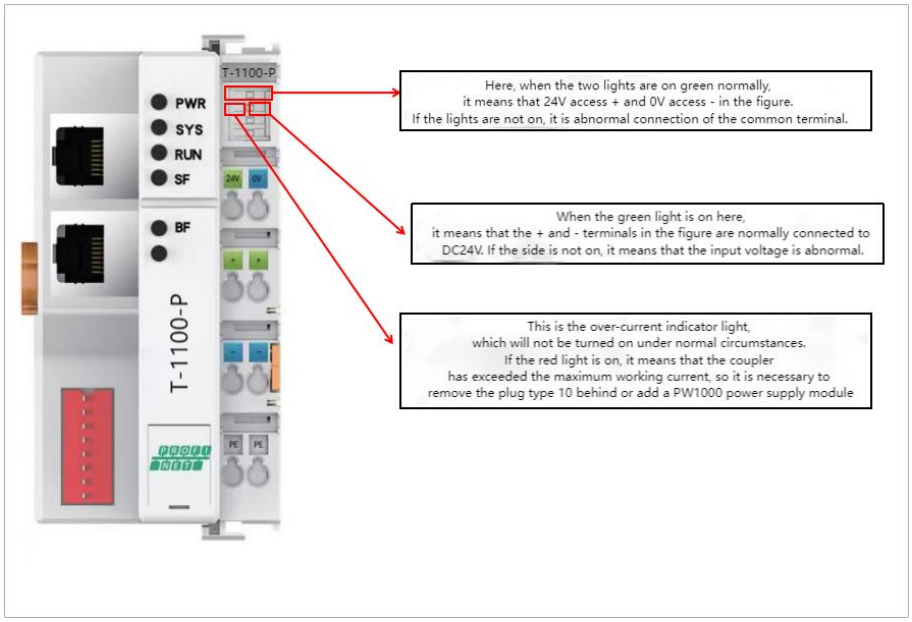
Main wiring diagram



System common end power connection

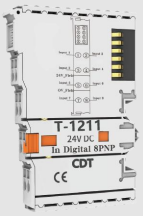


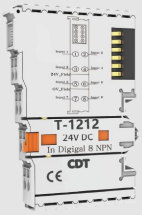
LCD indicator light description



Digital input module T-1211 T-1212

- T series plug-in remote I/O module is a distributed extension module developed by Changdatong. The T series complete system is mainly composed of coupler, various functional I/O modules, power auxiliary modules and terminal modules. There are several communication protocol bus couplers, such as PROFINET, EtherCAT, Ethernet/IP, CC-Link IE, Modbus/TCP, etc. I/O modules can be divided into multi-channel digital input module, digital output module, analog input module, analog output module and a variety of functional modules, communication modules, temperature modules, etc., customers can match according to the actual field application requirements!
- Digital input module contains PNP and NPN two signal types and 8 points, 16 points, 32 points three input point specifications, users can choose the appropriate model according to the actual needs. The input effective level is divided into two categories: high level signal (PNP) and low level signal (NPN).

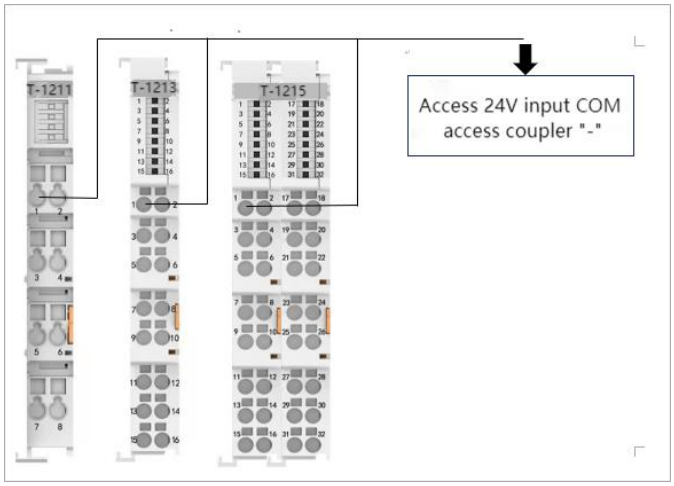


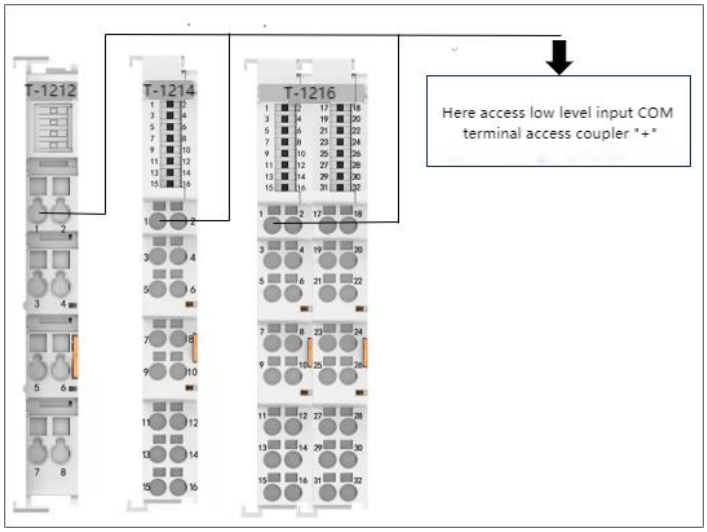


Technical Specifications

Basic parameters		
Dimensions of form	100mm×68mm×12mm	
Class of protection	IP20	
Wiring specification	0.2～1.5mm²	
Mode of connection	Screw free	
Technical parameters		
Model number	T-1211	T-1212
Product name	Digital input module	
Signal type	PNP	NPN
Power consumption	25mA	25mA
Number of input channels	8	
Input the rated voltage	PNP: DC 24V(±25%)	NPN: DC 0V(±3%)
Input logic 1 signal	15～30V	-3～3V
Input logic 0 signal	-3～3V	15～30V
To beat the clock	Configurable: 1-10ms, default: 3ms	
Isolation withstand pressure	AC500V	
Isolation mode	Optical coupling isolation	
Environmental parameters		
Operating temperature	-10～55℃	
Humidity at work	95% no condensation	
atmosphere	≥ 795 hPa (altitude ≤ 2000 m) as per IEC 61131-2	
Storage temperature	-20～85℃	
Overvoltage class	I	

主要接线示意图





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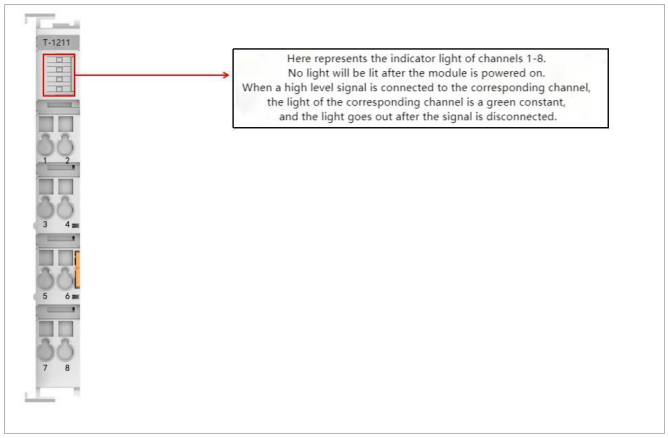
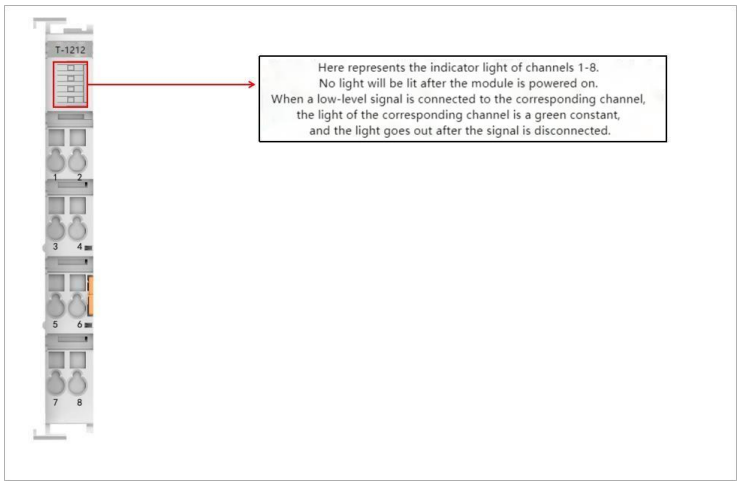
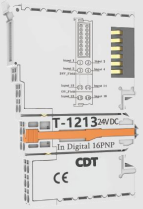
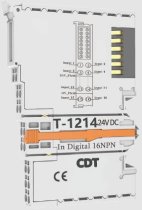




Digital input module T-1213 T-1214

- T series plug-in remote I/O module is a distributed extension module developed by Changdatong. The T series complete system is mainly composed of coupler, various functional I/O modules, power auxiliary modules and terminal modules. There are several communication protocol bus couplers, such as PROFINET, PROFINET, EtherCAT, Ethernet/IP, CC-Link IE, Modbus/TCP, etc. I/O modules can be divided into multi-channel digital input module, digital output module, analog input module, analog output module and a variety of functional modules, communication modules, temperature modules, etc., customers can match according to the actual field application requirements!
- Digital input module contains PNP and NPN two signal types and 8 points, 16 points, 32 points three input point specifications, users can choose the appropriate model according to the actual needs. The input effective level is divided into two categories: high level signal (PNP) and low level signal (NPN).

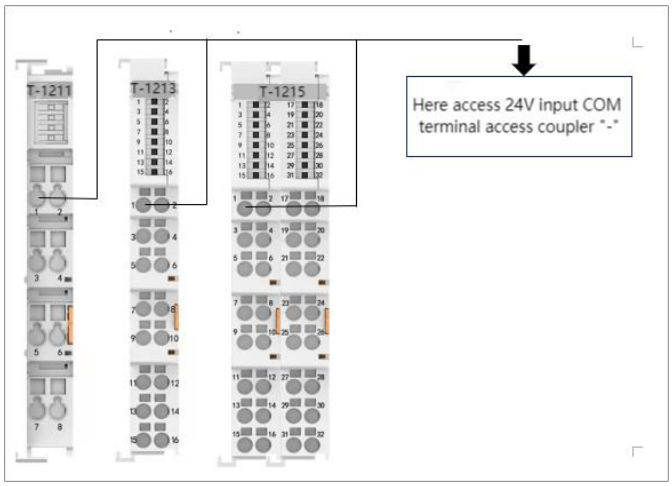


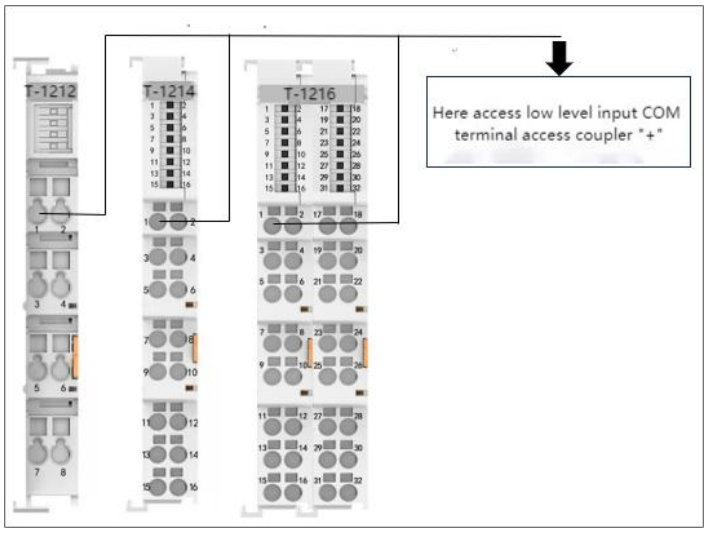


Technical Specifications

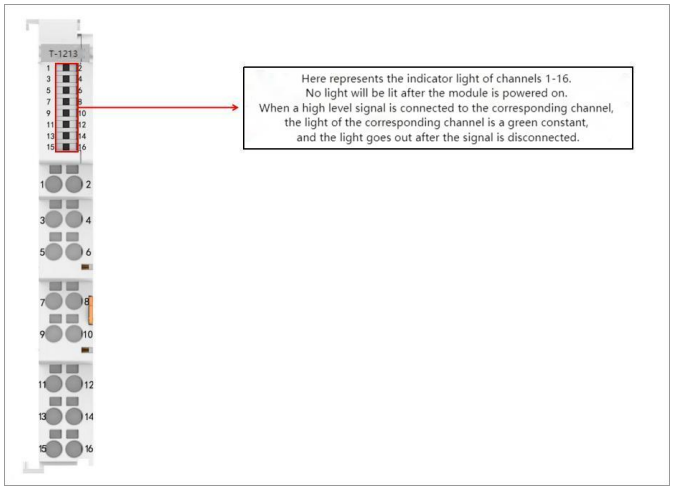
Basic parameters		
Dimensions of form	100mm×68mm×12mm	
Class of protection	IP20	
Wiring specification	0.2～1.5mm²	
Mode of connection	Screw free	
Technical parameters		
Model number	T-1213	T-1214
Product name	Digital input module	
Signal type	PNP	NPN
Power consumption	35mA	35mA
Number of input channels	16	
Input the rated voltage	PNP: DC 24V(±25%)	NPN: DC 0V(±3%)
Input logic 1 signal	15～30V	-3～3V
Input logic 0 signal	-3～3V	15～30V
To beat the clock	Configurable: 1-10ms, default: 3ms	
Isolation withstand pressure	AC500V	
Isolation mode	Optical coupling isolation	
Environmental parameters		
Operating temperature	-10～55℃	
Humidity at work	95% No condensation	
atmosphere	≥ 795 hPa (altitude ≤ 2000 m) as per IEC 61131-2	
Storage temperature	-20～85℃	
Overvoltage class	I	

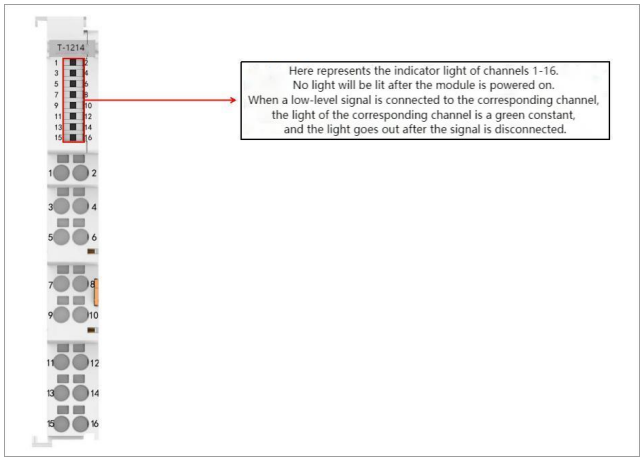
Main wiring diagram





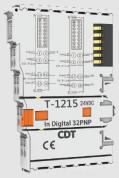
Power indicator description

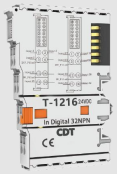




Digital input module T-1215 T-1216

- T series plug-in remote I/O module is a distributed extension module developed by Changdatong. The T series complete system is mainly composed of coupler, various functional I/O modules, power auxiliary modules and terminal modules. There are several communication protocol bus couplers, such as PROFINET, EtherCAT, Ethernet/IP, CC-Link IE, Modbus/TCP, etc. I/O modules can be divided into multi-channel digital input module, digital output module, analog input module, analog output module and a variety of functional modules, communication modules, temperature modules, etc., customers can match according to the actual field application requirements!
- Digital input module contains PNP and NPN two signal types and 8 points, 16 points, 32 points three input point specifications, users can choose the appropriate model according to the actual needs. The input effective level is divided into two categories: high level signal (PNP) and low level signal (NPN).

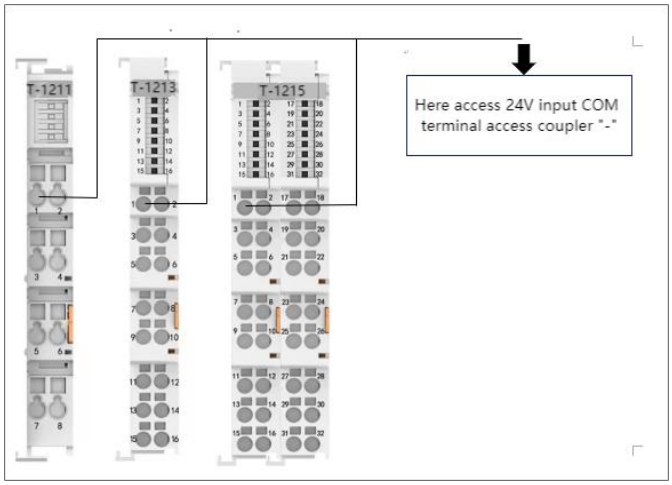


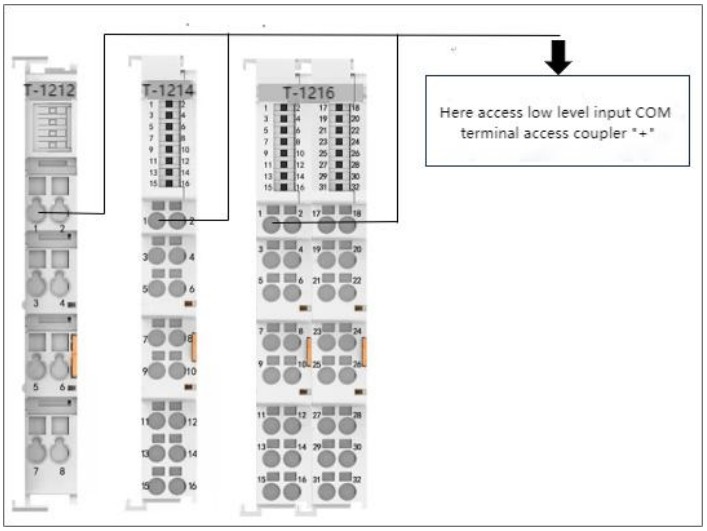


Technical Specifications

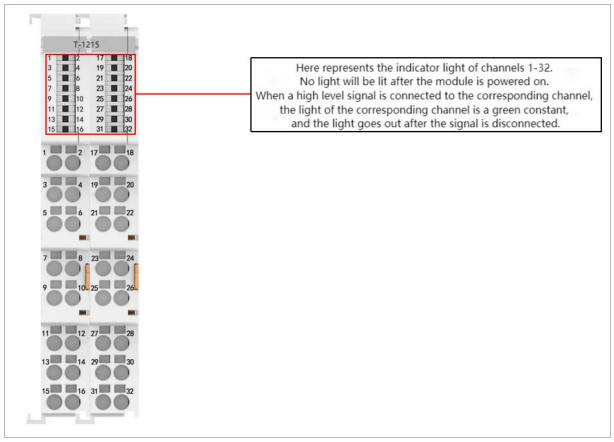
Basic parameters		
Dimensions of form	100mm×68mm×12mm	
Class of protection	IP20	
Wiring specification	0.2～1.5mm²	
Mode of connection	Screw free	
Technical parameters		
Model number	T-1215	T-1216
Product name	Digital input module	
Signal type	PNP	NPN
Power consumption	45mA	45mA
Number of input channels	32	
Input the rated voltage	PNP: DC 24V(±25%)	NPN: DC 0V(±3%)
Input logic 1 signal	15～30V	-3～3V
Input logic 0 signal	-3～3V	15～30V
To beat the clock	Configurable: 1-10ms, default: 3ms	
Isolation withstand pressure	AC500V	
Isolation mode	Optical coupling isolation	
Environmental parameters		
Operating temperature	-10～55℃	
Humidity at work	95% no condensation	
atmosphere	⩾ 795 hPa (altitude ⩽ 2000 m) as per IEC 61131-2	
Storage temperature	-20～85℃	
Overvoltage class	I	

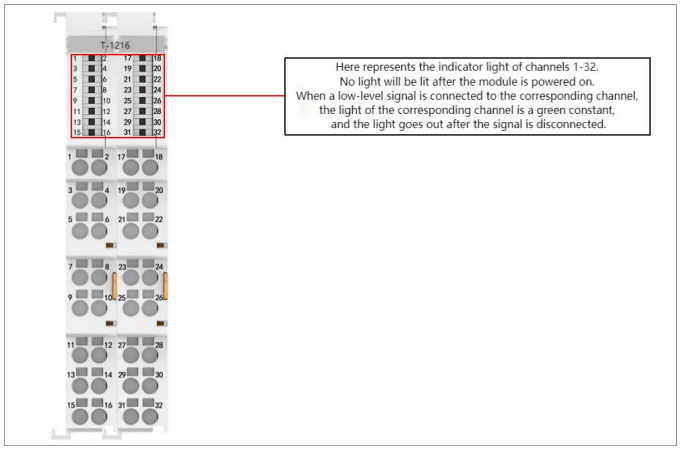
Main wiring





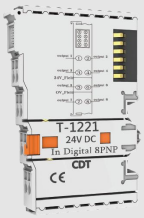
Power indicator description

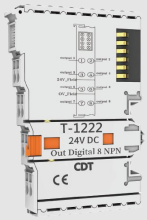




Digital output module T-1221 T-1222

- T series plug-in remote I/O module is a distributed extension module developed by Changdatong. The T series complete system is mainly composed of coupler, various functional I/O modules, power auxiliary modules and terminal modules. There are several communication protocol bus couplers, such as PROFINET, EtherCAT, Ethernet/IP, CC-Link IE, Modbus/TCP, etc. I/O modules can be divided into multi-channel digital input module, digital output module, analog input module, analog output module and a variety of functional modules, communication modules, temperature modules, etc., customers can match according to the actual field application requirements!
- The output signal of the digital output module is divided into two types: transistor and relay, in which the transistor type output effective level is divided into high level signal (PNP) and low level signal (NPN). The digital output module has 8 points, 16 points, 32 points three types of specifications to choose from.

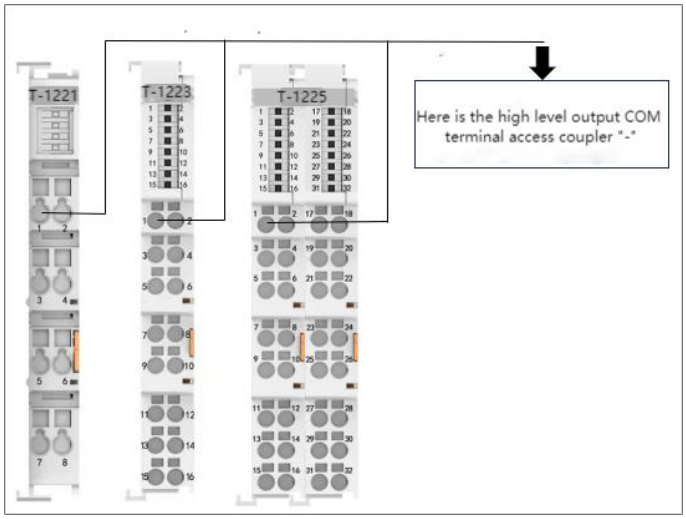


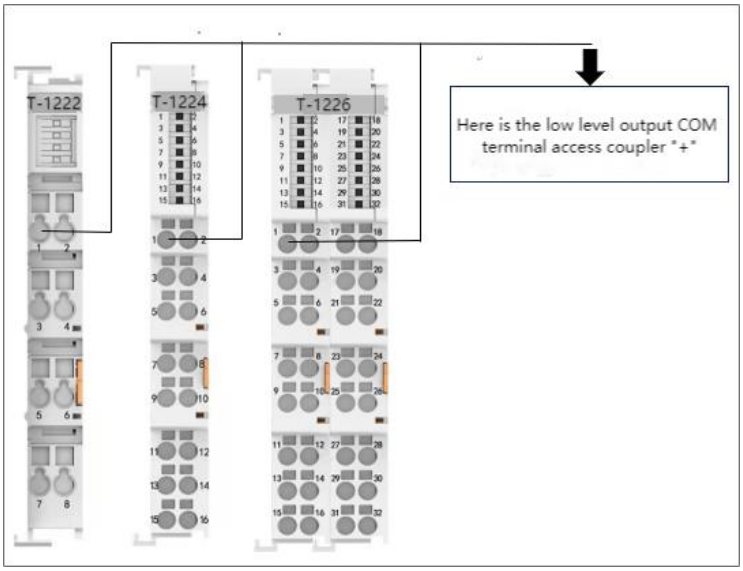


Technical Specifications

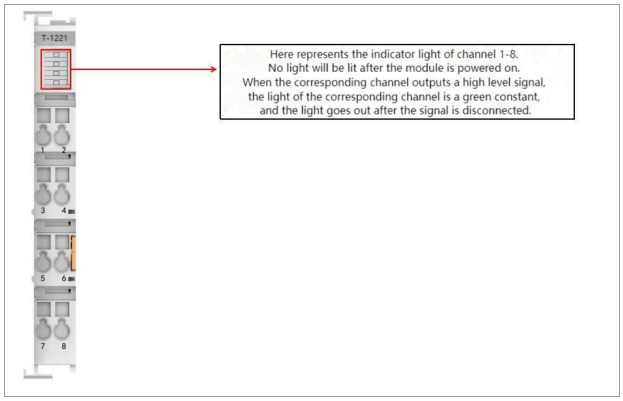
Basic parameters		
Dimensions of form	100mm×68mm×12mm	
Class of protection	IP20	
Wiring specification	0.2～1.5mm²	
Mode of connection	Screw free	
Technical parameters		
Model number	T-1221	T-1222
Product name	Digital output module	
Signal type	PNP	NPN
Power consumption	66mA	66mA
Number of output channels	16	
Output rated voltage	PNP: DC 24V(±25%)	NPN: DC 0V(±3%)
Drive capability	The load of the single channel is 500mA	
Type of payload	Resistive load, inductive load, lamp load	
Isolation withstand pressure	AC500V	
Isolation withstand pressure	Optical coupling isolation	
Environmental parameters		
Operating temperature	-10～55℃	
Humidity at work	95% no condensation	
atmosphere	⩾ 795 hPa (altitude ⩽ 2000 m) as per IEC 61131-2	
Storage temperature	-20～85℃	
Overvoltage class	I	

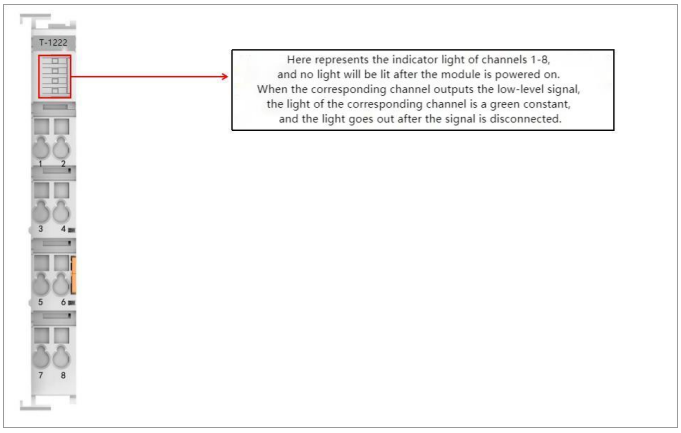
Main wiring diagram





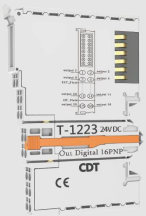
Power indicator description

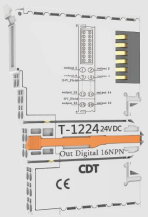




Digital output module T-1223 T-1224

- T series plug-in remote I/O module is a distributed extension module developed by Changdatong. The T series complete system is mainly composed of coupler, various functional I/O modules, power auxiliary modules and terminal modules. There are several communication protocol bus couplers, such as PROFINET, EtherCAT, Ethernet/IP, CC-Link IE, Modbus/TCP, etc. I/O modules can be divided into multi-channel digital input module, digital output module, analog input module, analog output module and a variety of functional modules, communication modules, temperature modules, etc., customers can match according to the actual field application requirements!
- The output signal of the digital output module is divided into two types: transistor and relay, in which the transistor type output effective level is divided into high level signal (PNP) and low level signal (NPN). The digital output module has 8 points, 16 points, 32 points three types of specifications to choose from.



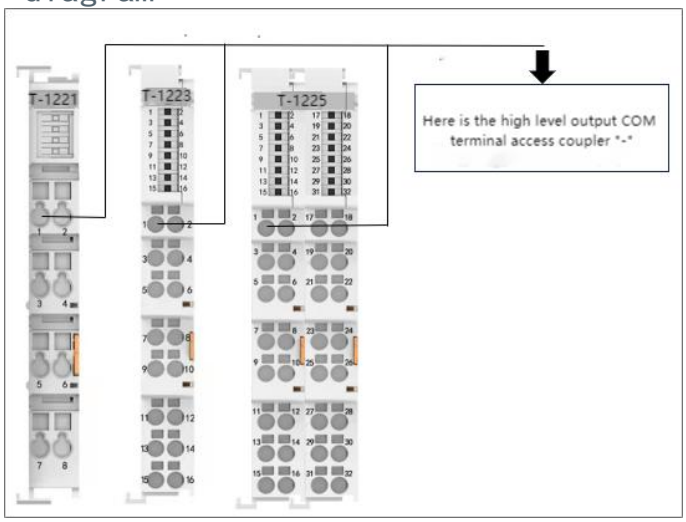


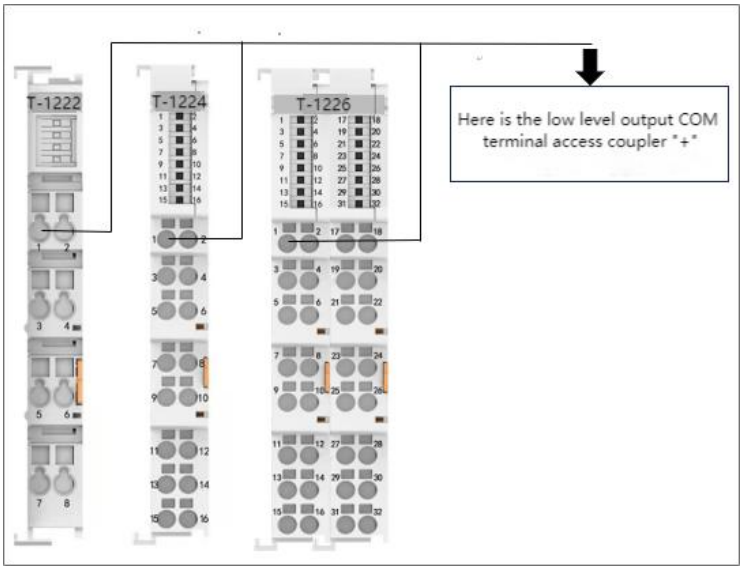
Technical Specifications

Basic parameters		
Dimensions of form	100mm×68mm×12mm	
Class of protection	IP20	
Wiring specification	0.2～1.5mm²	
Mode of connection	Screw free	
Technical parameters		
Model number	T-1223	T-1224
Product name	Digital output module	
Signal type	PNP	NPN
Power consumption	66mA	66mA
Number of output channels	32	
Output rated voltage	PNP: DC 24V(±25%)	NPN: DC 0V(±3%)
Drive capability	The load of the single channel is 500mA	
Type of payload	Resistive load, inductive load, lamp load	
Isolation withstand pressure	AC500V	
Isolation mode	Optical coupling isolation	

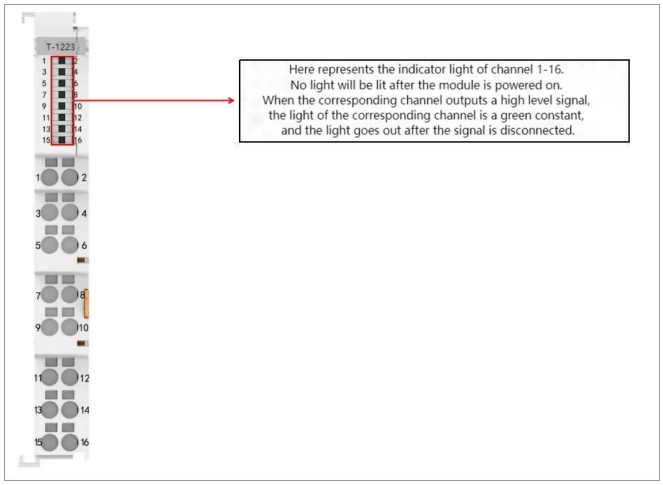
Environmental parameters	
Operating temperature	-10～55℃
Humidity at work	95% no condensation
atmosphere	≥ 795 hPa (altitude ≤ 2000 m) as per IEC 61131-2
Storage temperature	-20～85℃
Overvoltage class	I

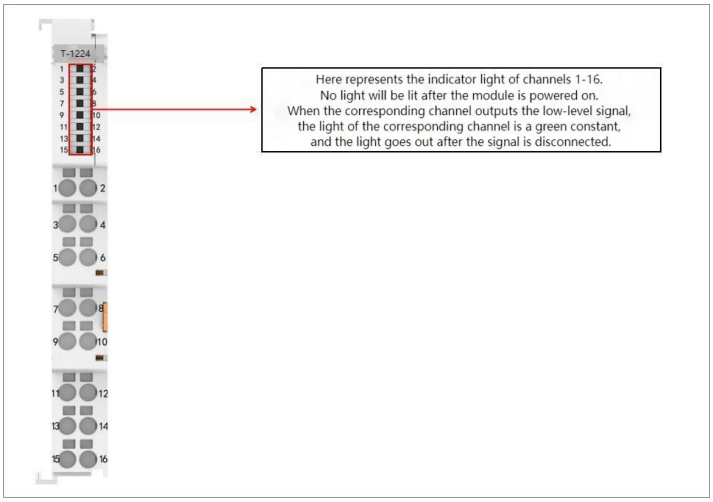
Main wiring diagram





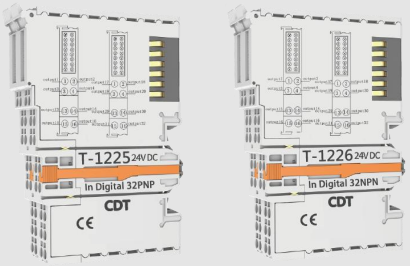
Power indicator description





Digital output module T-1225 T-1226

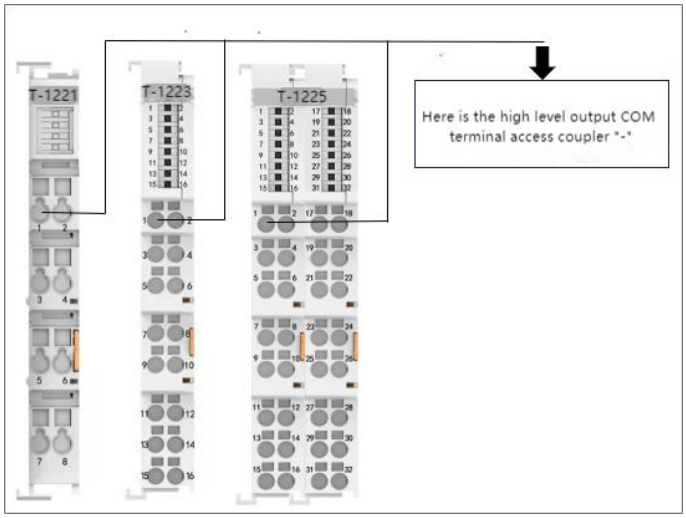
- T series plug-in remote I/O module is a distributed extension module developed by Changdatong. The T series complete system is mainly composed of coupler, various functional I/O modules, power auxiliary modules and terminal modules. There are several communication protocol bus couplers, such as PROFINET, EtherCAT, Ethernet/IP, CC-Link IE, Modbus/TCP, etc. I/O modules can be divided into multi-channel digital input module, digital output module, analog input module, analog output module and a variety of functional modules, communication modules, temperature modules, etc., customers can match according to the actual field application requirements!
- The output signal of the digital output module is divided into two types: transistor and relay, in which the transistor type output effective level is divided into high level signal (PNP) and low level signal (NPN). The digital output module has 8 points, 16 points, 32 points three types of specifications to choose from.

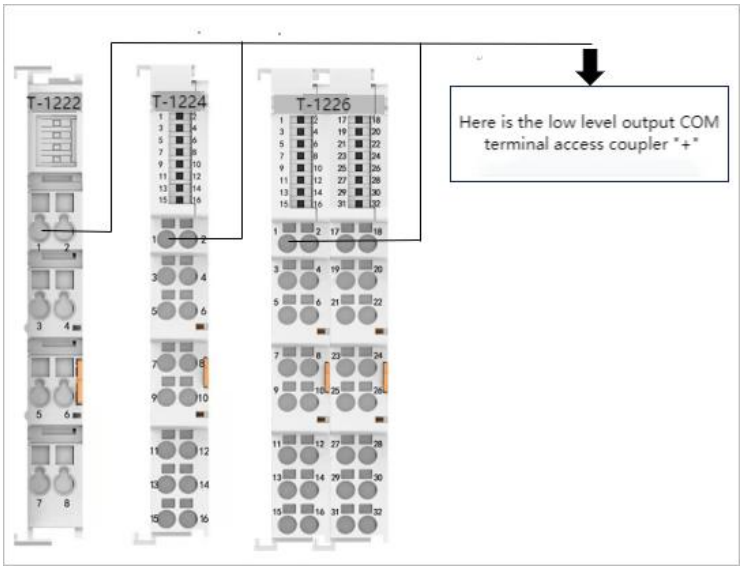


Technical Specifications

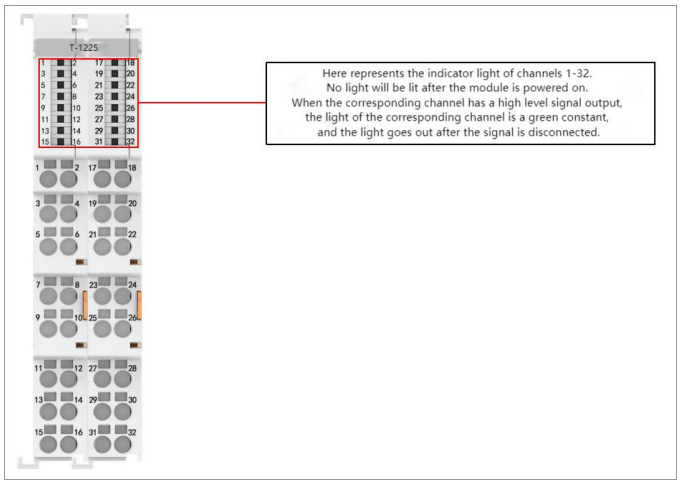
Basic parameters		
Dimensions of form	100mm×68mm×12mm	
Class of protection	IP20	
Wiring specification	0.2～1.5mm²	
Mode of connection	Screw free	
Technical parameter		
Model number	T-1225	T-1226
Product name	Digital output module	
Signal type	PNP	NPN
Power dissipation	66mA	66mA
Output channel number	16	
Output rated voltage	PNP: DC 24V(±25%)	NPN: DC 0V(±3%)
Driving ability	The single-channel load is 500mA	
Load type	Resistive load, inductive load, lamp load	
Isolated withstand voltage	AC500V	
Isolation mode	Optical coupling isolation	
Environmental parameters		
Operating temperature	-10～55℃	
Humidity at work	95% no condensation	
atmosphere	≥ 795 hPa (altitude ≤ 2000 m) as per IEC 61131-2	
Storage temperature	-20～85℃	
Overvoltage class	I	

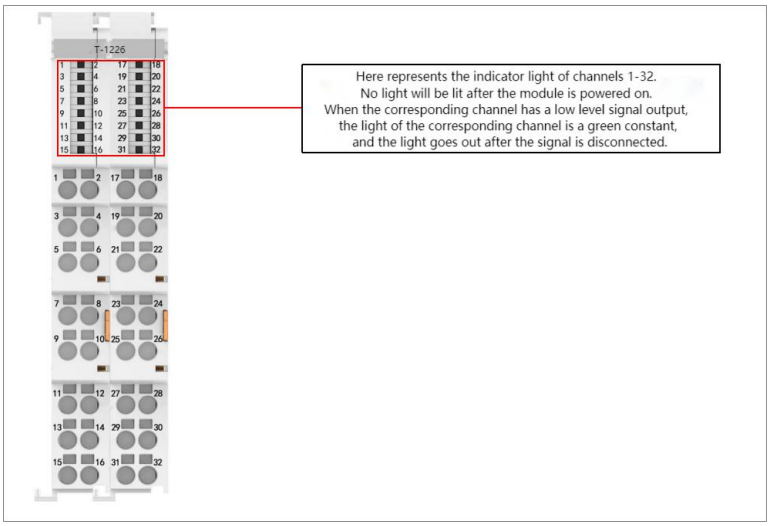
Main wiring diagram





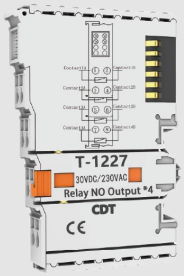
Power indicator description





Relay output module T-1227

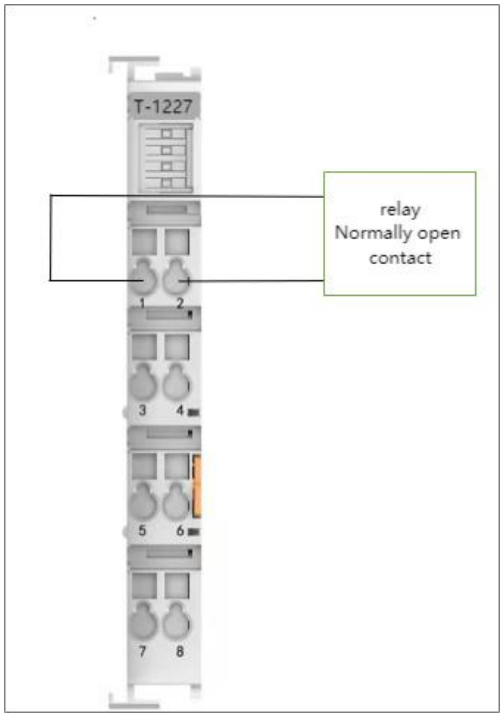
- T series plug-in remote I/O module is a distributed extension module developed by Changdatong. The T series complete system is mainly composed of coupler, various functional I/O modules, power auxiliary modules and terminal modules. There are several communication protocol bus couplers, such as PROFINET, EtherCAT, Ethernet/IP, CC-Link IE, Modbus/TCP, etc. I/O modules can be divided into multi-channel digital input module, digital output module, analog input module, analog output module and a variety of functional modules, communication modules, temperature modules, etc., customers can match according to the actual field application requirements!
- The output signal of the digital output module is divided into two types: transistor and relay, in which the transistor type output effective level is divided into high level signal (PNP) and low level signal (NPN). The digital output module has 8 points, 16 points, 32 points three types of specifications to choose from.



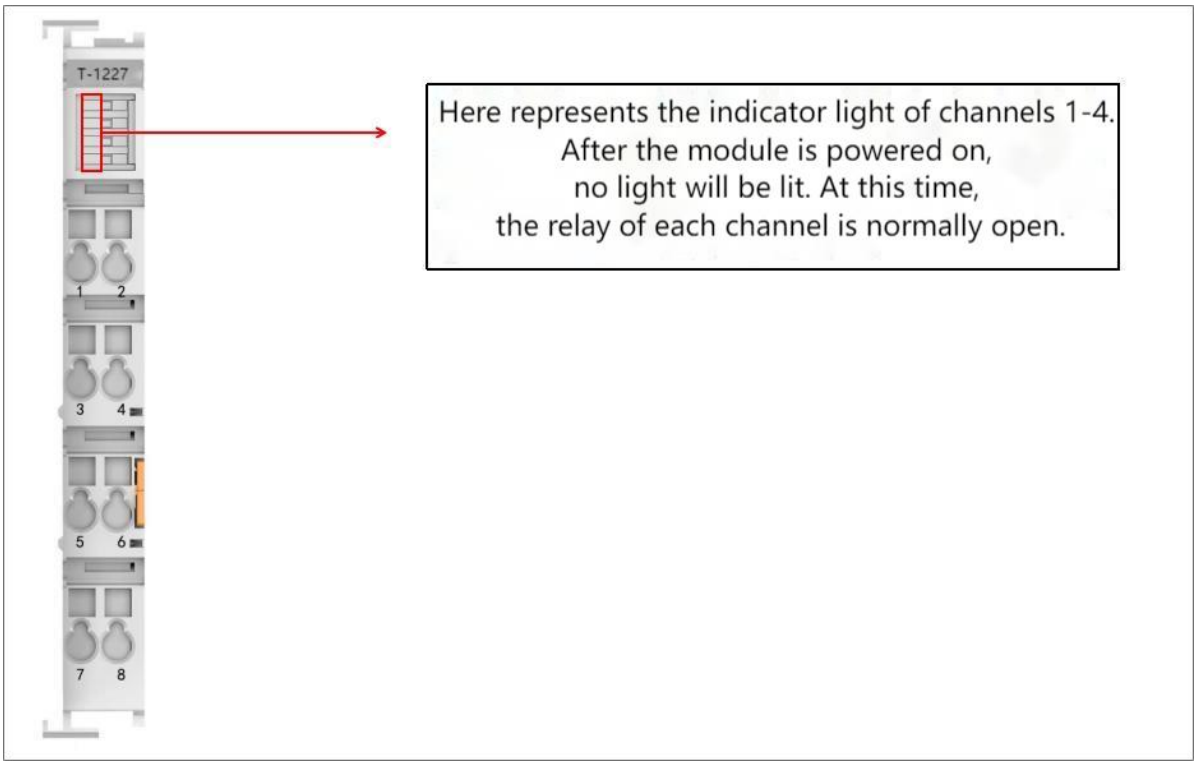
Technical Specifications

Basic parameters	
Dimensions of form	100mm×68mm×12mm
Class of protection	IP20
Wiring specification	0.2～1.5mm²
Mode of connection	Screw free
Technical parameters	
Model number	T-1227
Product name	Digital output module
Power consumption	45mA
Number of output channels	4
Output rated voltage	-
Drive capability	230VAC/30VDC
Type of payload	Resistive load, inductive load, lamp load
Isolation withstand pressure	AC500V
Isolation mode	Optical coupling isolation
Environmental parameters	
Operating temperature	-10～55℃
Humidity at work	95% no condensation
atmosphere	≥ 795 hPa (altitude ≤ 2000 m) as per IEC 61131-2
Storage temperature	-20～85℃
Overvoltage class	I

Main wiring diagram

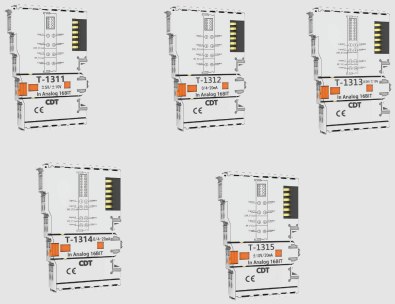


Power indicator description



Analog input module T-1311 T-1312 T-1313 T-1314 T-1315

- T series plug-in remote I/O module is a distributed extension module developed by Changdatong. The T series complete system is mainly composed of coupler, various functional I/O modules, power auxiliary modules and terminal modules. There are several communication protocol bus couplers, such as PROFINET, EtherCAT, Ethernet/IP, CC-Link IE, Modbus/TCP, etc. I/O modules can be divided into multi-channel digital input module, digital output module, analog input module, analog output module and a variety of functional modules, communication modules, temperature modules, etc., customers can match according to the actual field application requirements!
- Analog input and output module is a common I/O module in EA series field. Divided into input and output two types, according to the signal type is divided into voltage and current type, 16 bit resolution, channel is divided into 4 channels and 8 channels!



Technical Specifications

Technical parameters					
Model number	T-1311	T-1313	T-1312	T-1314	T-1315
Product name	Analog input module				
Signal type	±5V, 0～10V, ±10V		4～20mA 0～20mA		±5V, 0～10V, ±10V 4～20mA, 0～20mA
Current consumption	260mA	400mA	260mA	400mA	260mA
Input features					
Number of input channels	4 channels	8 channels	4 channels	8 channels	4 channels
Input filtering	configurable				
Input impedance	＞500KΩ		100Ω		＞500KΩ/100Ω
resolution	16位				
accuracy	0.1%				
Over voltage protection	Support				
Isolation withstand pressure	AC500V on the field side and digital side, without isolation between channels				
Physical parameters					
Dimensions and specifications	100mm×68mm×12mm				
Operating temperature	-10～55℃				
Storage temperature	-20～85℃				
Class of protection	IP20				

Corresponding value of analog quantity range (the following is the 4-channel T-1311 model, the same is true for the 8-channel T-1313)

Note: The default configuration is 1:0-10V.

(1). Set parameters 1:0-10v, input alarm above 11.759V

When the alarm is above 11.759V, the code value is 32767, and the corresponding channel light is steady on.

voltage	Code value
>11.759V	32767
10V	27648
5V	13824
0V	0

(2) Configure parameter 2: -10V - +10v,
When the alarm is above 11.759V, the code value is 32767, and the corresponding channel light is steady on.
The alarm below -11.759V, the code value is -32767, and the corresponding channel light is on.

voltage	Code value
>11.759V	32767
10V	27648
5V	13824
-5V	-13824
-10V	-27648
<-11.759V	-32767

(3). Configure parameter 3:0-5V, input 5.88V or above alarm
Input the alarm above 5.88V, the code value is 32767, and the corresponding channel light is steady on.

voltage	Code value
>5.88V	32767
5V	27648
2.5V	13824
0V	0

(4). Set parameter 4: -5V-5V

When the alarm is above 5.88V, the code value is 32767, and the corresponding channel light is on.

If the alarm is below -5.88V, the code value is -32767, and the corresponding channel light is on.

voltage	Code value
>5.88V	32767
5V	27648
2.5V	13824
0V	0
-2.5V	-13824
-5V	-27648
<-5.88V	-32767

Analog range corresponding value (below is the 4-channel T-1312 model, 8-channel T-1314 the same)

Note: The default configuration is 1:4-20 mA.
(1). Set parameters 1:4-20mA and input alarm above 22.81mA
If the alarm is above 22.81mA, the code value exceeds 32511, and the corresponding channel light is on.

Electric current	Code value
>22.81mA	32511
20mA	27648
12mA	13824
4mA	0
<1.185mA	-32768

(2). Configure parameters 2:0-20mA and input alarm above 23.52mA
Code value above 23.52mA, overpressure alarm, code value more than 32511, the corresponding channel light is on.

Electric current	Code value
>23.52mA	32511
20mA	27648
10mA	13824
0mA	0

Analog range corresponding value (below is the 4-channel T-1315 model)

Note: The default configuration is 1:0-10V.
(1). Set parameters 1:0-10v, input alarm above 11.759V
When the alarm is above 11.759V, the code value is 32767, and the corresponding channel light is steady on.

voltage	Code value
>11.759V	32767
10V	27648
5V	13824
0V	0

(2). Set parameter 2: -10V-+10v,
When the alarm is above 11.759V, the code value is 32767, and the corresponding channel light is steady on.
The alarm below -11.759V, the code value is -32767, and the corresponding channel light is on.

voltage	Code value
>11.759V	32767
10V	27648
5V	13824
-5V	-13824
-10V	-27648
<-11.759V	-32767

(3) Configure parameter 3:0-5V, input 5.88V or above alarm
Input the alarm above 5.88V, the code value is 32767, and the corresponding channel light is steady on.

voltage	Code value
>5.88V	32767
5V	27648
2.5V	13824
0V	0

(4). Set parameter 4: -5V-5V
When the alarm is above 5.88V, the code value is 32767, and the corresponding channel light is on.
If the alarm is below -5.88V, the code value is -32767, and the corresponding channel light is on.

voltage	Code value
>5.88V	32767
5V	27648
2.5V	13824
0V	0
-2.5V	-13824
-5V	-27648
<-5.88V	-32767

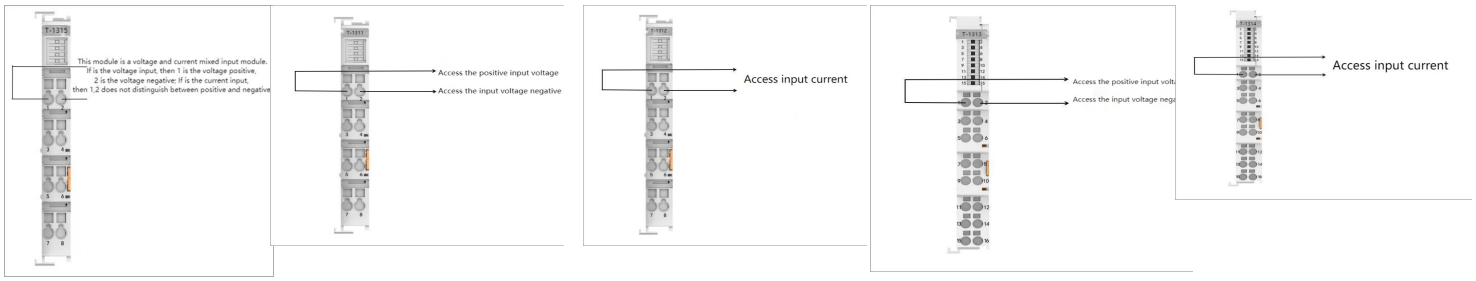
(5) Configure parameters 5:0-20mA, input more than 23.52mA alarm
If the code value is above 23.52mA, the overpressure alarm is generated. The code value is 32767, and the corresponding channel light is on.

Electric current	Code value
>23.52mA	32767
20mA	27648
10mA	13824
0mA	0

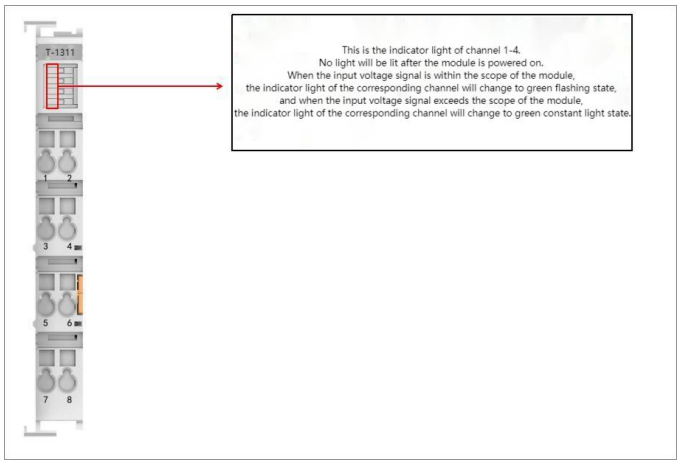
(6) Configure parameters 6:4-20mA, input more than 22.81mA alarm
The alarm is above 22.81mA, the code value is 32767, and the corresponding channel light is steady on.
When the alarm is below 1.185mA, the code value is -32768, and the corresponding channel light is steady on.

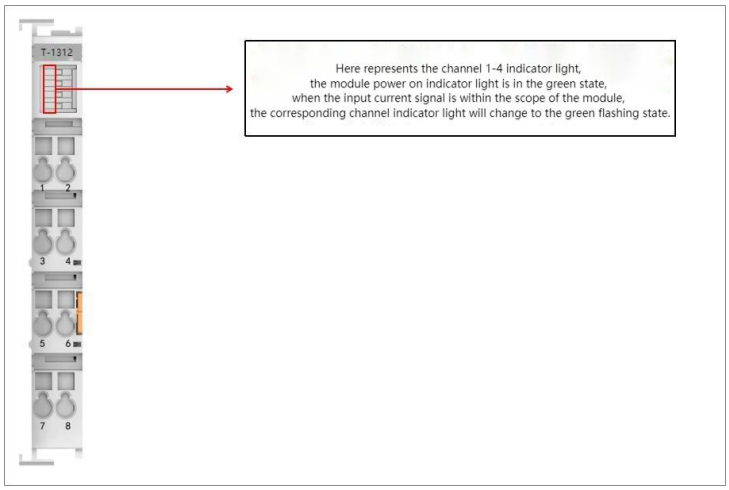
Electric current	Code value
>22.81mA	32767
20mA	27648
12mA	13824
4mA	0
<1.185mA	-32768

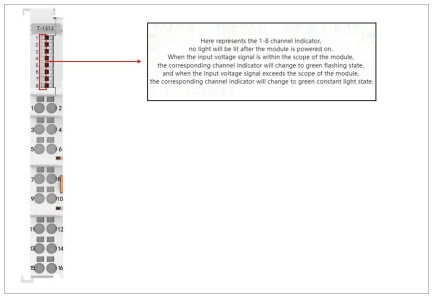
Main wiring diagram

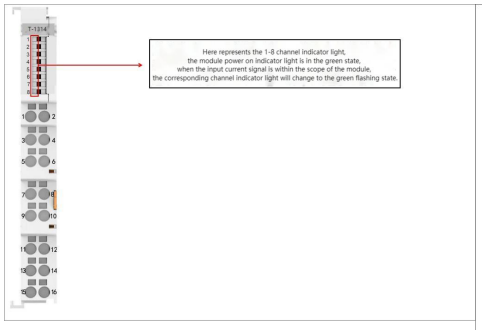


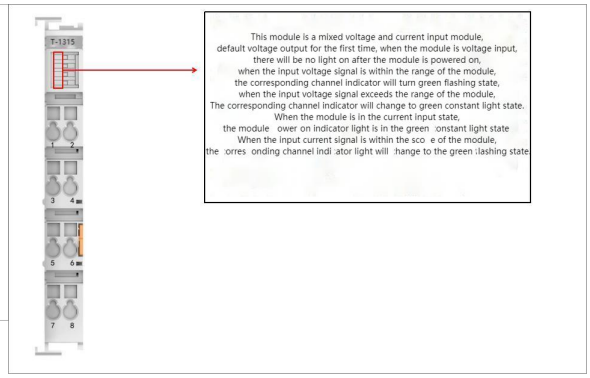
Power indicator Description





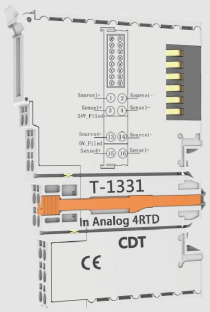






Temperature module T-1331

- T series plug-in remote I/O module is a distributed expansion module developed by CTC. The T series complete system is mainly composed of couplers, various functional I/O modules, power auxiliary modules and terminal modules. There are couplers for various communication protocol buses, such as PROFINET, PROFINET, EtherCAT, Ethernet/IP, CC-Link IE, Modbus/TCP, I/O module can be divided into multi-channel digital input module, digital output module, analog input module, analog output module and various functional modules, communication module, temperature module, etc., customers can be matched according to the actual field application needs!
- The temperature acquisition module is divided into two types according to the sensor type: thermocouple (TC) and thermal resistor (RTD). The filter of each channel of the T-1331(RTD) thermal resistance temperature acquisition module can be configured separately (the default is 1), and the thermal resistance temperature acquisition module can support 5 types of thermal resistance sensors, namely PT100, PT200, PT500, PT1000, Ni120 and resistance!



Technical specification

Technical parameter	
Model number	T-1331
Product name	Thermal resistance module
Current consumption	190mA
Input characteristic	
Input channel number	4
Input filtering	Value range: 1 to 6. Default value: 1
Connection mode	2 or 3 or 4 wire system (default 3 wire system)
Signal type	PT100/PT200/PT500/PT1000/Ni20
Temperature range	-200…+800度（PT sensor）、-79…+309The degree of（Ni sensor）
Resolution	0.1℃/digit
precision	±1℃
Overvoltage protection	support
Isolated withstand voltage	500V on the field side and the digital side. Channels are not isolated
Diagnosis and alarm	
Temperature abnormal alarm	support
Disconnection alarm	Supported (When the channel code value is 32767, it means that the channel is disconnected)
System power monitoring	support
Physical parameter	
Size specification	100mm×68mm×12mm
Operating temperature	-10～55℃
Storage temperature	-20～+85℃
Relative humidity	95% condensation free
Class of protection	IP20

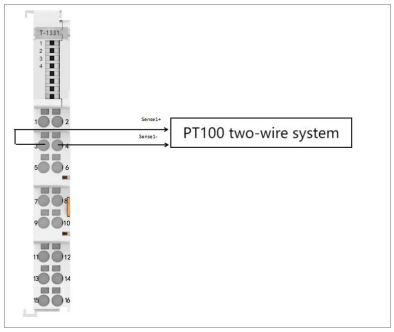
The filter of each channel of the thermal resistance temperature acquisition module can be configured separately (the default is 1). The thermal resistance temperature acquisition module can support 6 types of thermal resistance sensors, respectively PT100, PT200, PT500, PT1000, Ni120, resistance measurement.

Model number	Specification description
T-1331	4-channel PT100 thermal resistance acquisition module, Measuring range -200 ~ 800℃
	4-channel PT200 thermal resistance acquisition module, Measuring range -200 ~ 630℃
	4-channel PT500 thermal resistance acquisition module, Measuring range -200 ~ 630℃
	4-channel PT1000 thermal resistance acquisition module, Measuring range -50 ~ 300℃
	4-channel Ni120 thermal resistance acquisition module, Measuring range -79 ~ 309℃
	4-channel thermal resistance acquisition module, Range 1-1200Ω

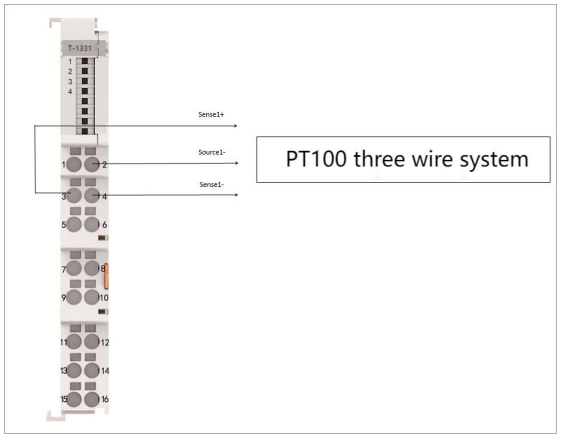
Table of values corresponding to the temperature values measured by T-1331

T-1331				
Types	Temperature (Celsius)	Number (decimal)	Broken line value	Remarks
PT100	-200～+800	-2000～+8000	32767	The code value obtained by PLC acquisition is divided by 10 to obtain the actual temperature value
PT200	-200～+630	-2000～+6300	32767	
PT500	-200～630℃	-2000～+6300	32767	
PT1000	-50～+300	-500～+3000	32767	
NT120	-79～+309	-790～+3090	32767	
Thermal resistance	1～1200	10～+12000	32767	

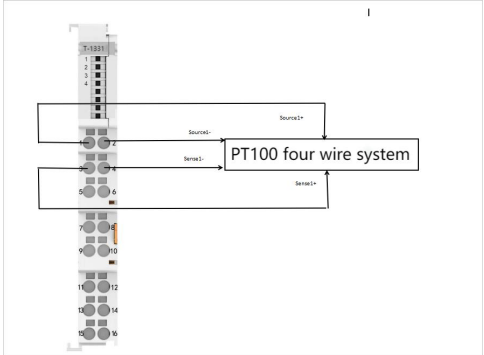
Schematic diagram of two-wire wiring



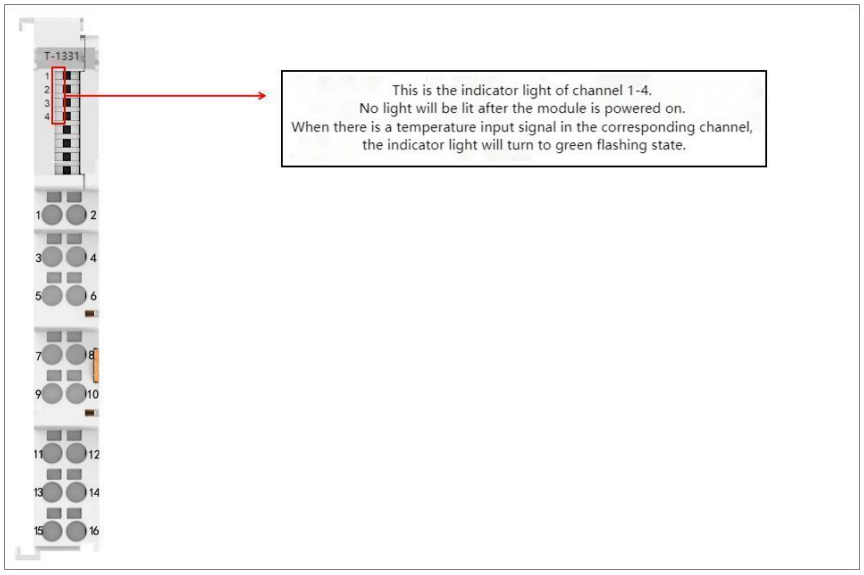
Three wire system wiring



Four wire system wiring

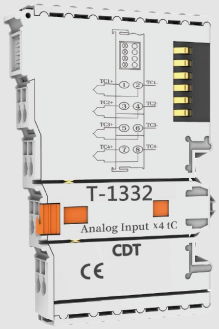


LCD indicator light description



Temperature module T-1332

- T series plug-in remote I/O module is a distributed extension module developed by Changdatong. The T series complete system is mainly composed of coupler, various functional I/O modules, power auxiliary modules and terminal modules. There are several communication protocol bus couplers, such as PROFINET, EtherCAT, Ethernet/IP, CC-Link IE, Modbus/TCP, Cclink IE, modbus/TCP, etc. I/O modules can be divided into multi-channel digital input module, digital output module, analog input module, analog output module and a variety of functional modules, communication modules, temperature modules, etc., customers can match according to the actual field application requirements!
- The temperature acquisition module is divided into two types according to the sensor type: thermocouple (TC) and thermal resistance (RTD). T-1332 is a thermocouple temperature acquisition module of each channel filter can be configured separately (the default is 1), thermocouple temperature acquisition module can support 9 types of thermocouple sensors, respectively K, J, T, E, N, S, R, B, C,!



Technical Specifications

Basic parameters	
Dimensions of form	100×68×12mm
Relative humidity	95% no condensation
Class of protection	IP20
Wiring specification	0.2～1.5mm²
Mode of connection	Screw free
Input features	
Number of input channels	4
Input filtering	Configurable: 1 to 6, Default value: 1
Connection method	TC thermocouple
Signal type	K, J, T, E, N, S, R, B, C
Temperature range	Default: K type: -100 ~ +1370℃
resolution	0.1℃/Digit number
accuracy	0.5% (Full scale range)
Over voltage protection	Support
Isolation withstand pressure	AC500V on the field side and digital side, without isolation between channels
Diagnostics and Warnings	
Disconnection warning	Supported (When the channel code value is 32767, it means that the channel is disconnected)

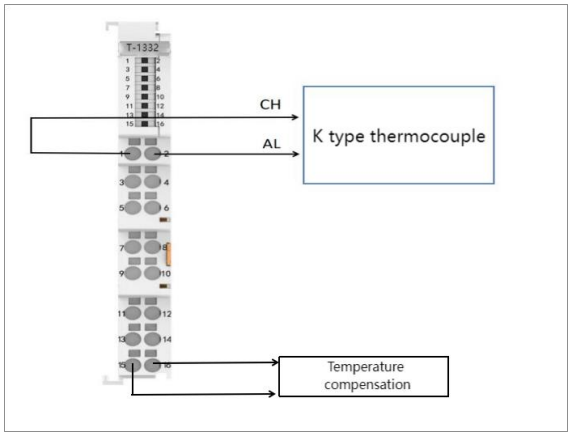
The filter for each channel of the thermocouple temperature acquisition module can be configured individually (default is 1), and the thermocouple temperature is selected
The set module supports 9 types of thermocouple sensors, namely K, J, T, E, N, S, R, B, and C.

Model number	Specification description
T-1332	4-channel K-type thermocouple acquisition module, measuring range -100 ~ 1370℃
	4-channel J-type thermocouple acquisition module, measuring range -100 ~ 1200℃
	4-channel T-type thermocouple acquisition module, measuring range -100 ~ 400℃
	4-channel E type thermocouple acquisition module, measuring range -100 ~ 1000℃
	4-channel N-type thermocouple acquisition module, measuring range -100 ~ 1300℃
	4-channel S-type thermocouple acquisition module, measuring range 0 ~ 1700℃
	4-channel R-type thermocouple acquisition module, measuring range 0 ~ 1700℃
	4-channel Type B thermocouple acquisition module, measuring range 600 ~ 1800℃
	4-channel C-type thermocouple acquisition module, measuring range 0 ~ 2320℃

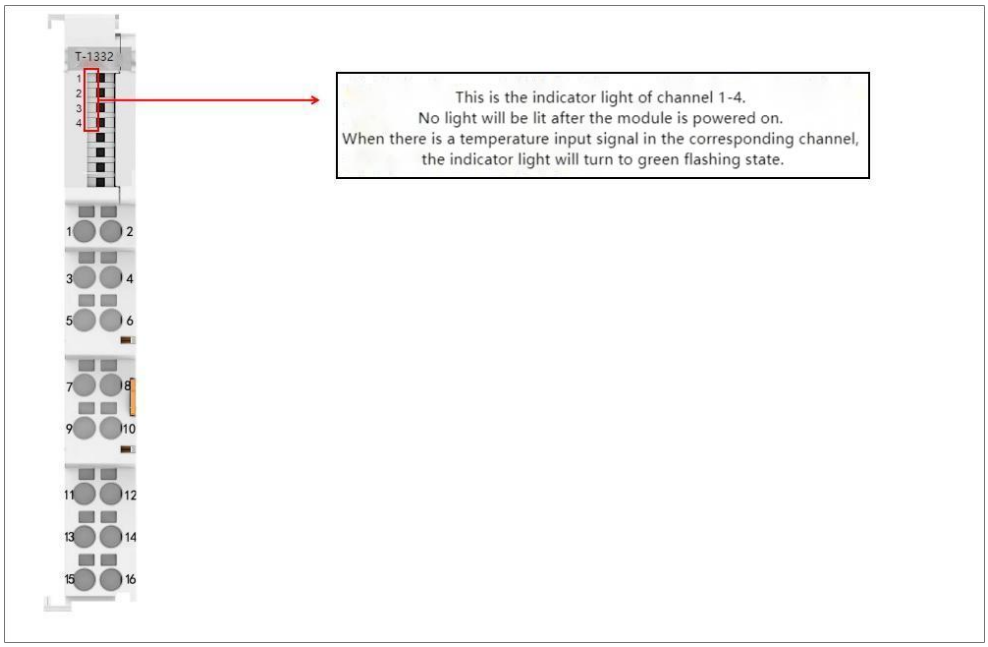
Table of values corresponding to temperature values measured by T-1332

EA3604					
Type range	Default value	Temperature (degrees Celsius)	Numerical value (decimal)	Breaking value	remark
1:K	Default value 1: K	-100～+1370	-1000～+13700	32767	PLC obtains the code Divide the value by 10 to get the real value The temperature value of the international
2:J		-100～+1200	-1000～+12000	32767	
3:T		-100～+400	-1000～+4000	32767	
4:E		-100～+1000	-1000～+10000	32767	
5:N		-100～+1300	-1000～+13000	32767	
6:S		0～+1700	0～+17000	32767	
7:R		0～+1700	0～+17000	32767	
8:B		600～+1800	6000～+18000	32767	
9:C		0～+2320	0～+23200	32767	

Main wiring diagram

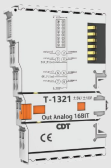


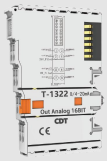
LCD indicator description

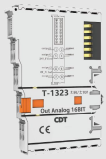


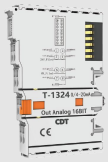
Analog output module T-1321 T-1322 T-1323 T-1324

- T series plug-in remote I/O module is a distributed extension module developed by Changdatong. The T series complete system is mainly composed of coupler, various functional I/O modules, power auxiliary modules and terminal modules. There are several communication protocol bus couplers, such as PROFINET, EtherCAT, Ethernet/IP, CC-Link IE, Modbus/TCP, etc. I/O modules can be divided into multi-channel digital input module, digital output module, analog input module, analog output module and a variety of functional modules, communication modules, temperature modules, etc., customers can match according to the actual field application requirements!
- Analog input and output module is a common I/O module in EA series field. Divided into input and output two types, according to the signal type is divided into voltage and current type, 16 bit resolution, channel is divided into 4 channels and 8 channels!









Technical Specifications

Technical parameters				
Model number	T-1321	T-1323	T-1322	T-1324
Product name	Analog output module			
Signal type	±5V, 0～10V, ±10V		4～20mA 0～20mA	
Current consumption	230mA	400mA	285mA	50mA
Input features				
Number of input channels	4 channels	8 channels	4 channels	8 channels
Output load	＞5KΩ		＜500Ω	
Type of payload	Resistive load			
resolution	16 bit			
accuracy	0.02%			
Over voltage protection	Support			
Isolation withstand pressure	The field side and the digital side are 500V, and the channels are not isolated			
Physical parameters				
Dimensions and specifications	100mm×68mm×12mm			
Operating temperature	-10～55℃			
Storage temperature	-20～85℃			
Class of protection	IP20			

Corresponding value of analog quantity range (the following is the 4-channel T-1321 model, the same is true for the 8-channel T-1323)

Note: The default configuration is 1:0-10V.
(1) Configuration parameter 1:0-10v
When the code value exceeds 32512, the output is above 11.759V, and the corresponding channel light is always on.

Code value	voltage
32767	>11.759V
27648	10V
13824	5V
0	0V

(2). Configuration parameter 2: -10V-+10v,
If the code value exceeds 32511 and the output is above 11.759V, the alarm will be raised, and the corresponding channel light is always on.
Code value is less than -32511, output -11.759V below, the alarm, the corresponding channel light is always on.

Code value	voltage
32767	>11.759V
27648	10V
13824	5V
-13824	-5V
-27648	-10V
-32767	<-11.759V

(3). Configuration parameter 3:0-5V
If the code value exceeds 32511 and the output is above 5.88V, the alarm will be raised, and the corresponding channel light is always on.

Code value	voltage
32767	>5.88V
27648	5V
13824	2.5V
0	0V

(4) Configuration parameter 4: -5V-5V
If the code value exceeds 32511 and the output is above 5.88V, the alarm will be raised, and the corresponding channel light is always on.
Code value less than -32511, output below -5.88V, then alarm, corresponding to the channel light is always on.

Code value	voltage
32767	>5.88V
27648	5V
13824	2.5V
0	0V
-13824	-2.5V
-27648	-5V
-32767	<-5.88V

Corresponding value of analog quantity range (the following is the 4-channel T-1322 model, the same is true for the 8-channel T-1324)

Note: The default configuration is 1:4-20MA.

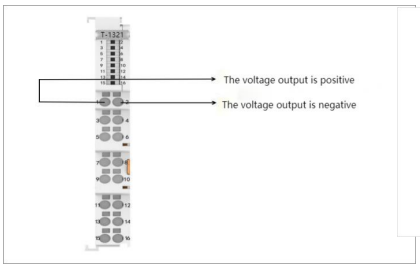
(1). Configuration parameter 1:4-20mA, code value more than 32511, the above alarm
The code value exceeds 32511, the output is above 22.81mA, the output is alarming, and the corresponding channel light is always on.

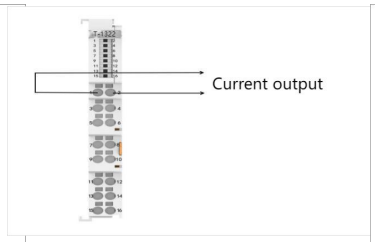
Code value	current
32511	>22.81mA
27648	20mA
13824	12mA
0	4mA
-32768	<1.185mA

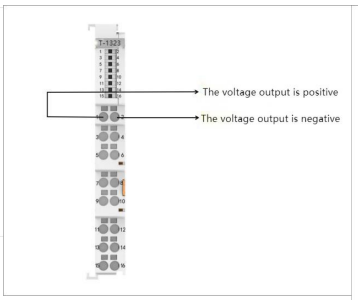
(2) Configuration parameters: 0-20mA, code value more than 32511 alarm
The code value is more than 32511, the output is more than 23.52mA, the overpressure alarm, and the corresponding channel light is always on.

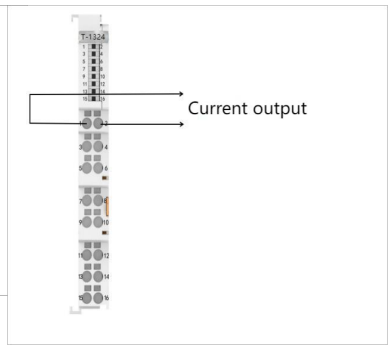
Code value	current
32511	>23.52mA
27648	20mA
13824	10mA
0	0mA

Main wiring diagram

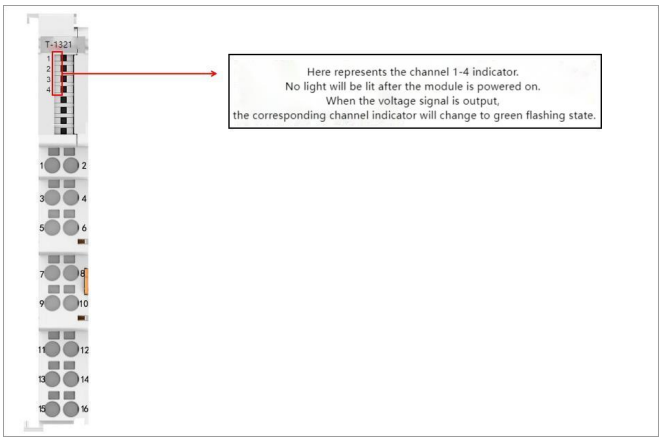


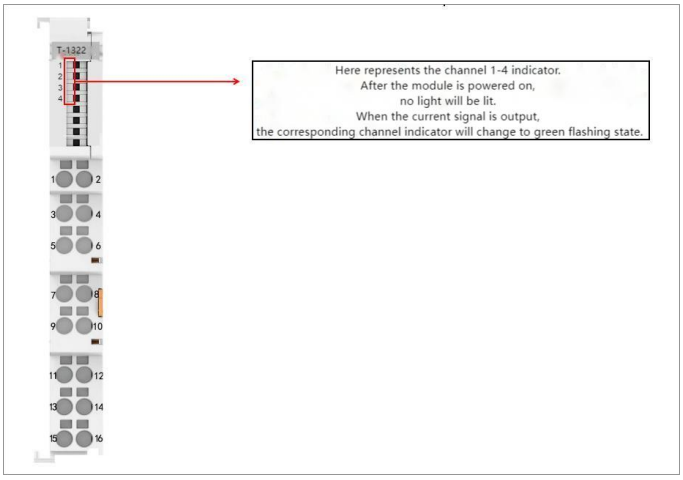


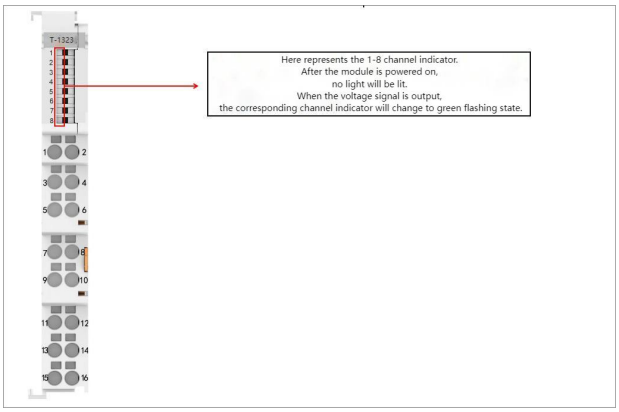


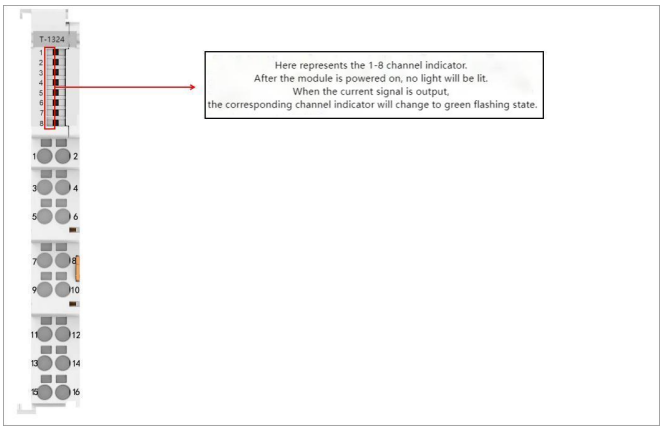


Power indicator description



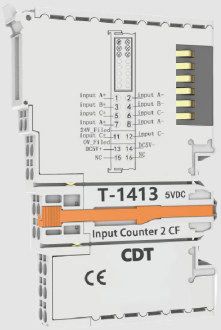






High speed counting module T-1413

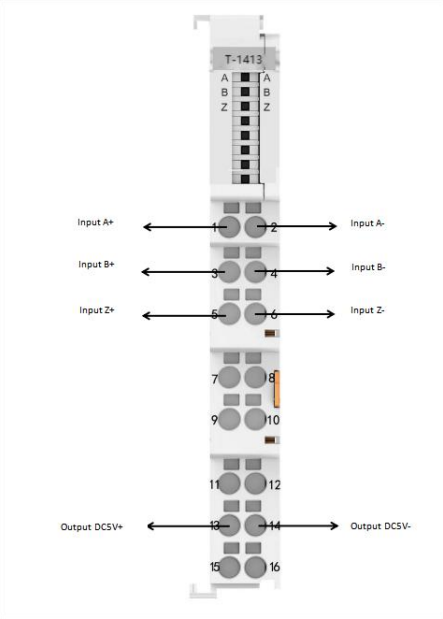
- T series plug-in remote I/O module is a distributed extension module developed by Changdatong. The T series complete system is mainly composed of coupler, various functional I/O modules, power auxiliary modules and terminal modules. There are several communication protocol bus couplers, such as PROFINET, EtherCAT, Ethernet/IP, CC-Link IE, Modbus/TCP, etc. I/O modules can be divided into multi-channel digital input module, digital output module, analog input module, analog output module and a variety of functional modules, communication modules, temperature modules, etc., customers can match according to the actual field application requirements!
- T-1413 is a dual-channel differential high-speed counting module, used for industrial field equipment (such as handwheel or orthogonal encoder, etc.) to count.



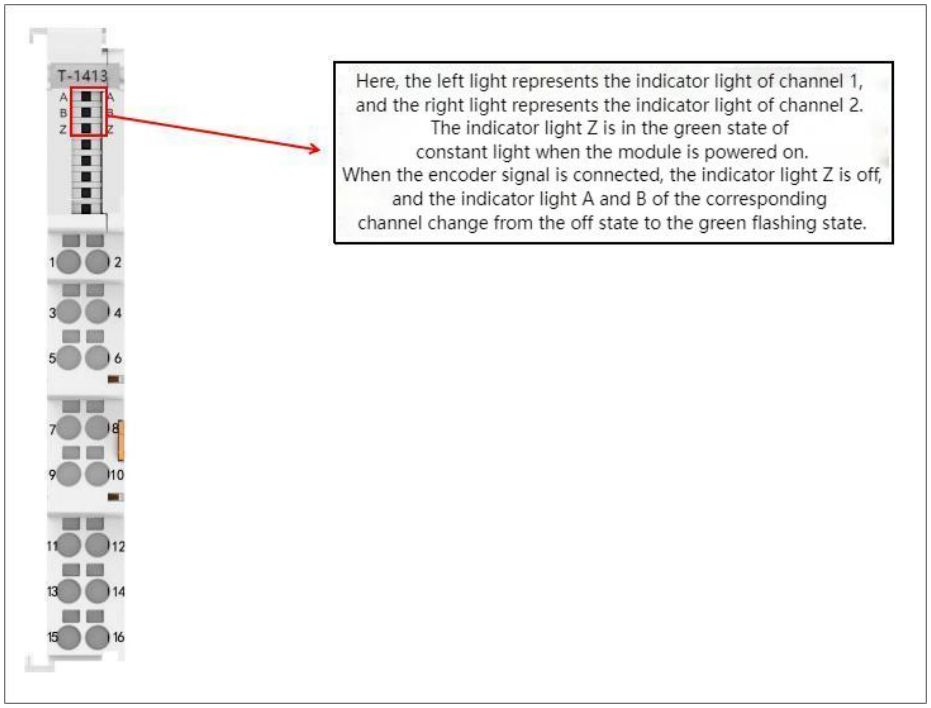
Technical Specifications

Product model number	T-1413	
Power supply specification		
Input power supply	Supply voltage	5V DC (±10 %)
	Current consumption	210mA
Common terminal voltage	Input voltage	24V DC (±20 %)
Output feature		
Number of input channels	2	
Pulse output mode	Difference (5v)	
Counting mode	Linear counting, circular counting	
Range of counts	Linear count: -2147483648-2147483648	
Maximum input frequency	1MHz	
Quadrature encoder multiplier	X1、X2、X4 (Default X1)	
Input impedance	＞500KΩ	
Isolation mode	Optical coupling isolation	
Maximum connection distance of signal line	10 m	
Physical properties		
Dimensions and specifications	94mm × 68mm × 15mm (Connection width: 12mm)	
Operating temperature	-10~55℃	
Storage temperature	-20~85℃	
Relative humidity	95%, no condensation	
Class of protection	IP20	

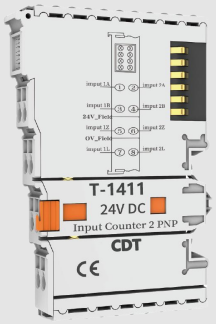
Main wiring diagram



LCD indicator light description



High speed counting module T-1411

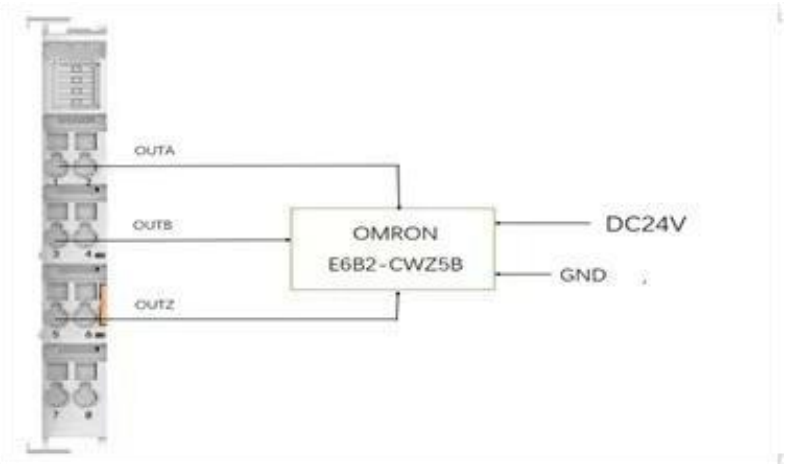


- T series plug-in remote I/O module is a distributed extension module developed by Changdatong. The T series complete system is mainly composed of coupler, various functional I/O modules, power auxiliary modules and terminal modules. There are several communication protocol bus couplers, such as PROFINET, EtherCAT, PROFINET, EtherCAT, Ethernet/IP, CC-Link IE, Modbus/TCP, etc. I/O modules can be divided into multi-channel digital input module, digital output module, analog input module, analog output module and a variety of functional modules, communication modules, temperature modules, etc., customers can match according to the actual field application requirements!
- T-1411 is a dual-channel PNP high-speed counting module, which is used to count equipment (such as handwheel, encoder, etc.) in the industrial field.

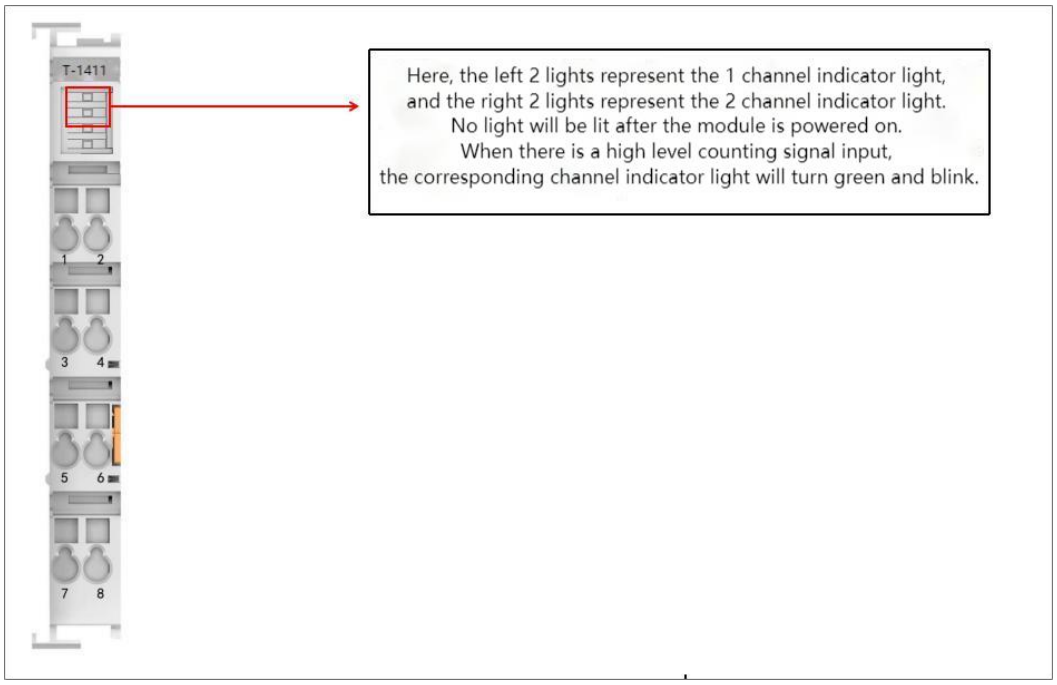
Technical Specifications

Product model	T-1411
Product name	High Speed Counting Module (24V/PNP)
Power supply specification	
Supply voltage	5V DC (±10 %)
Current consumption	270mA
Input characteristic	
Input channel number	2
Input signal type	PNP
Input voltage	24V
Counting mode	线性计数
Counting range	Linear counting: 0~4294967295/-2147483648-2147483647
Maximum input frequency	1MHz
Hand wheel multiplier	X1、X2、X4
Isolated withstand voltage	500V on the field side and the digital side. Channels are not isolated
Maximum connection distance of a signal cable	2m
Physical characteristics	
Size specification	100mm × 68mm × 15mm
Operating temperature	-10~55℃
Storage temperature	-20~85℃
Relative humidity	95%, no condensation
Class of protection	IP20

Main wiring diagram

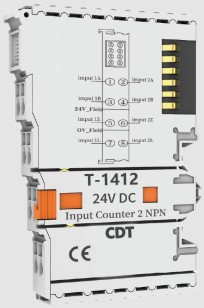


LCD indicator description



High speed counting module T-1412

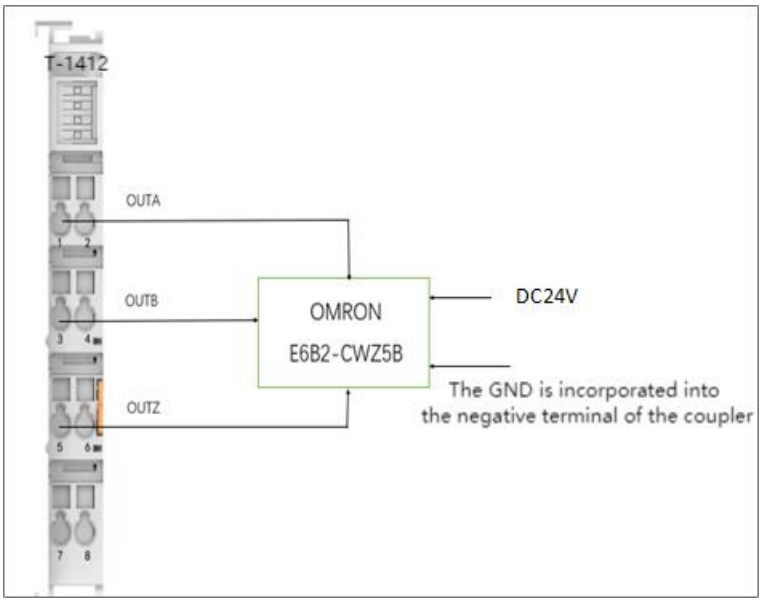
- T series plug-in remote I/O module is a distributed expansion module developed by CTC. The T series complete system is mainly composed of couplers, various functional I/O modules, power auxiliary modules and terminal modules. There are couplers for various communication protocol buses, such as PROFINET, EtherCAT, Ethernet/IP, CC-Link IE, Modbus/TCP, I/O module can be divided into multi-channel digital input module, digital output module, analog input module, analog output module and various functional modules, communication module, temperature module, etc., customers can be matched according to the actual field application needs!
- The T-1412 is a dual-channel PNP high-speed counting module for counting equipment in industrial sites such as handwheels, encoders, etc.



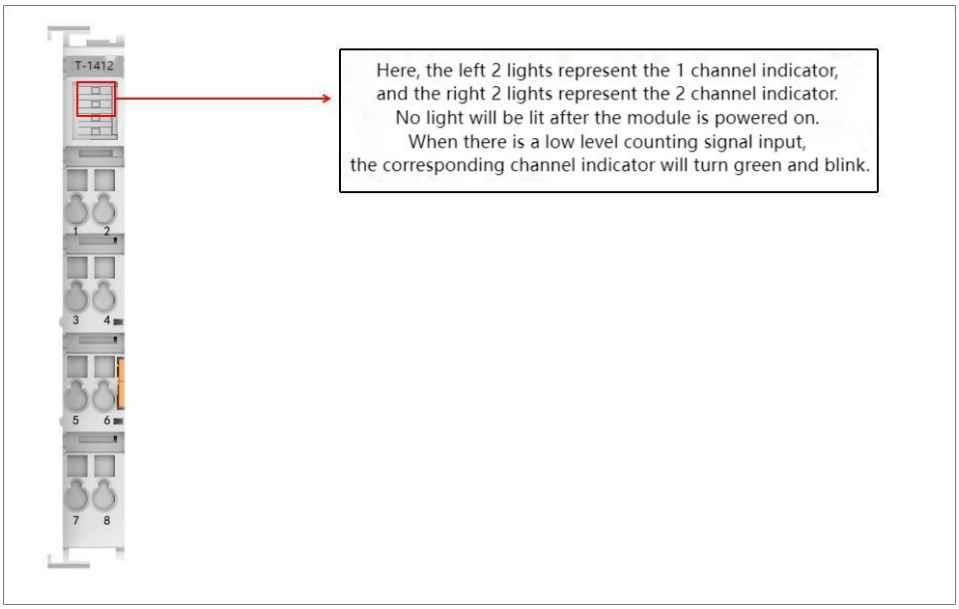
Technical specification

Product model	T-1412
Product name	High Speed Counting Module (24V/NPN)
Power supply specification	
Supply voltage	5V DC (±10 %)
Current consumption	270mA
Input characteristic	
Input channel number	2
Input signal type	NPN
Input voltage	24V
Counting mode	Linear counting
Counting range	Linear counting: 0~4294967295/-2147483648-2147483647
Maximum input frequency	1MHz
Hand wheel multiplier	X1、X2、X4
Isolated withstand voltage	500V on the field side and the digital side. Channels are not isolated
Maximum connection distance of a signal cable	2m
Physical characteristics	
Size specification	100mm × 68mm × 15mm
Operating temperature	-10~55℃
Storage temperature	-20~+85℃
Relative humidity	95%, no condensation
Class of protection	IP20

Main wiring diagram

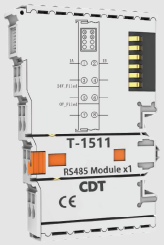


LCD indicator description



I/O module T-1511

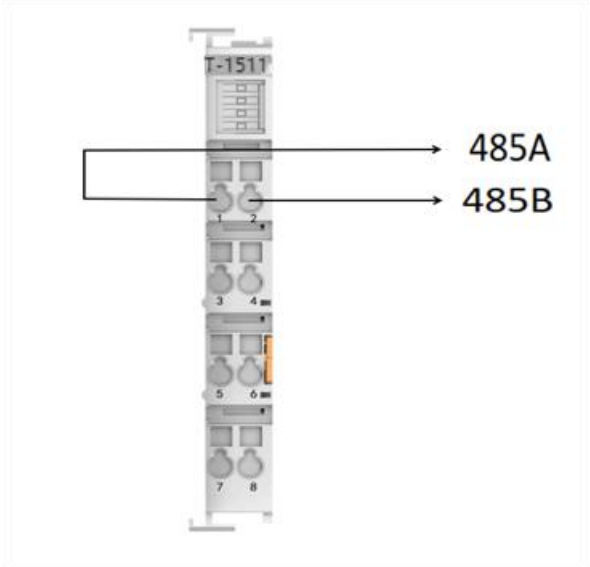
- T series plug-in remote I/O module is a distributed expansion module developed by CTC. The T series complete system is mainly composed of couplers, various functional I/O modules, power auxiliary modules and terminal modules. There are couplers for various communication protocol buses, such as PROFINET, PROFINET, EtherCAT, Ethernet/IP, CC-Link IE, Modbus/TCP, I/O module can be divided into multi-channel digital input module, digital output module, analog input module, analog output module and various functional modules, communication module, temperature module, etc., customers can be matched according to the actual field application needs!
- The T-1511 is a 485 bus module that communicates as a ModbusRTU master station with industrial field devices such as frequency converters that support ModbusRTU slave station communication.



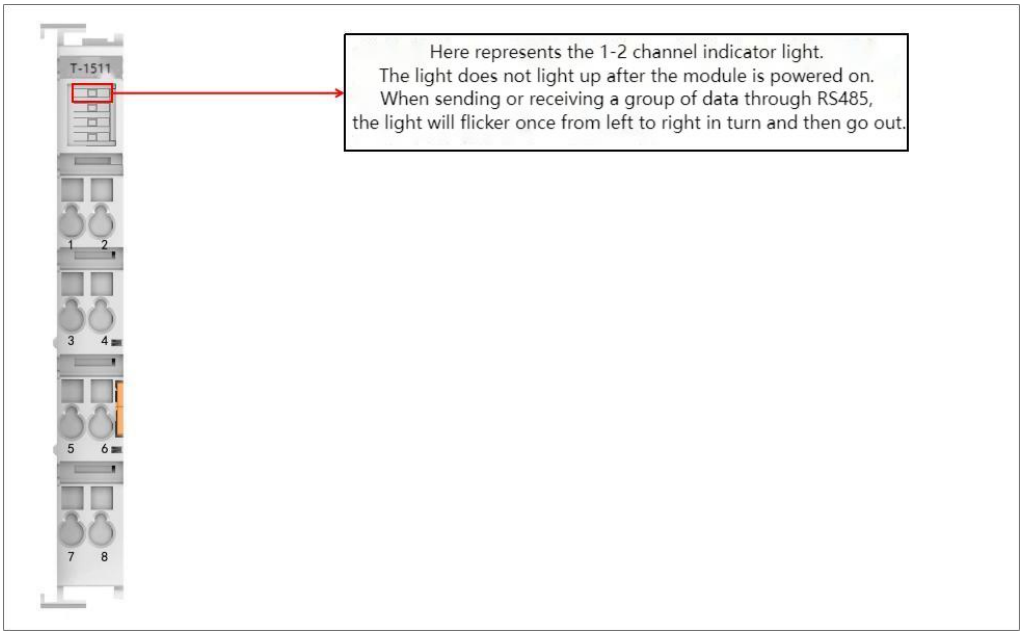
Technical specification

Product model		T-1511
Product name		485/232 hybrid bus module,Modbus/RTU master station
Power supply specification		
System power supply	Supply voltage	5V DC(±10 %)
	Current consumption	76mA
Input characteristic		
Number of channels		1
Physical form		RS485/232总线
Supports a maximum number of nodes		32
Communication rate		1200 BAUDRATE 2400 BAUDRATE 4800 BAUDRATE 9600 BAUDRATE 14400 BAUDRATE 19200 BAUDRATE 38400 BAUDRATE 56000 BAUDRATE 57600 BAUDRATE 115200 BAUDRATE
Synchronization message		support
Communication protocol		ModbusRTU主站
Communication timeout detection		support
Physical characteristics		
Size specification		100mm × 68mm × 12mm
Operating temperature		-10~55℃
Storage temperature		-20~85℃
Relative humidity		95%, no condensation
Class of protection		IP20

Main wiring diagram

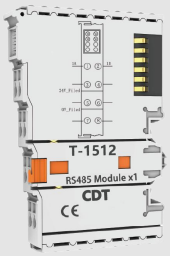


LCD indicator light description



IO module T-1512

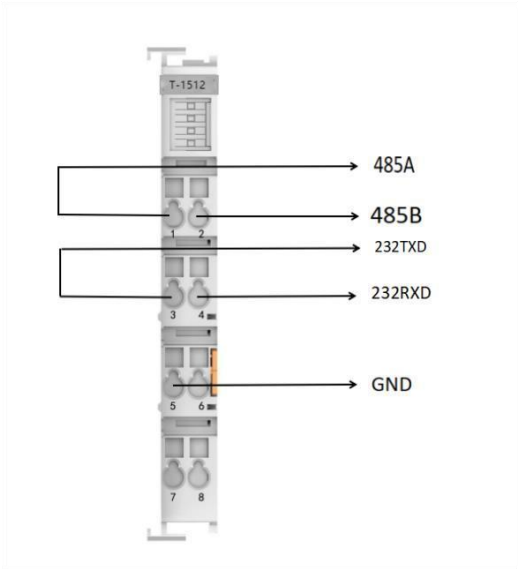
- T series plug-in remote I/O module is a distributed extension module developed by Changdatong. The T series complete system is mainly composed of coupler, various functional I/O modules, power auxiliary modules and terminal modules. There are several communication protocol bus couplers, such as PROFINET, EtherCAT, Ethernet/IP, CC-Link IE, Modbus/TCP, etc. I/O modules can be divided into multi-channel digital input module, digital output module, analog input module, analog output module and a variety of functional modules, communication modules, temperature modules, etc., customers can match according to the actual field application requirements!
- T-1512 is a RS485/RS232 free port module. Support with RS485/RS232 free port protocol of industrial equipment, such as: weighing, mechanical instruments, etc.



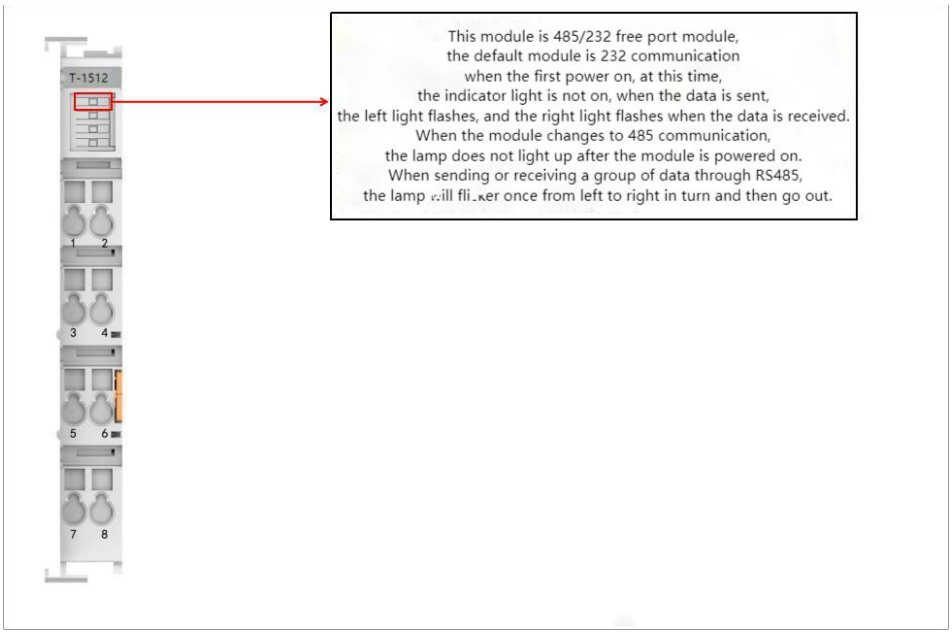
Technical Specifications

Product model number	T-1512	
Product name	485/232 hybrid bus module, free port protocol	
Power supply specification		
System power supply	Supply voltage	5V DC (±10 %)
	Current consumption	200mA
Common terminal voltage	Input voltage	24V DC (±20 %)
Electrical characteristics		
Number of channels	1	
Baud rate	RS232/485 The baud rate can be chosen: 1200、 2400、 4800、 9600 (Default) 、 14.4K、 19.2K、 38.4K、 56k、57.6K、115.2K	
Hot swap	support	
Communication protocol	Free mouth	
Communication timeout protocol	support	
Data bit	7-bit, 8-bit (default)	
Check bit	None (default), odd check, even check	
Stop bit	1 (default), 2 stop bits	
Select the master/slave mode	M/S, the default master mode	
Receiving mode	Receive at character intervals (tacit recognition); Receive according to the received data length;	
Physical characteristics		
Size specification	100mm × 68mm × 12mm	
Operating temperature	-10~55℃	
Storage temperature	-20~85℃	
Relative humidity	95%, no condensation	
Class of protection	IP20	

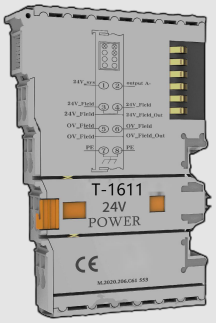
Main wiring diagram

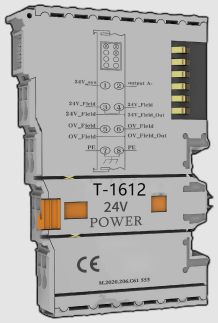


LCD indicator description



Incremental power module T-1611/T-1612





- T series plug-in remote I/O module is a distributed extension module developed by Changdatong. The T series complete system is mainly composed of coupler, various functional I/O modules, power auxiliary modules and terminal modules. There are several communication protocol bus couplers, such as PROFINET, EtherCAT, Ethernet/IP, CC-Link IE, Modbus/TCP, etc. I/O modules can be divided into multi-channel digital input module, digital output module, analog input module, analog output module and a variety of functional modules, communication modules, temperature modules, etc., customers can match according to the actual field application requirements!
- T-1611 and T-1612 are power supply modules. Support power supply or use point power supply.

Technical Specifications

Product model number	T-1611	
Product name	Power supply module	
Power supply specification		
System power supply	Supply voltage	5V DC (±5%)
	Current output	2000mA
Common terminal voltage	Input voltage	24V DC (±20 %)
Electrical characteristics		
Number of channels	1	
Baud rate	RS232/485 The baud rate can be chosen: 1200、 2400、 4800、 9600 (Default) 、 14.4K、 19.2K、 38.4K、 56k、57.6K、115.2K	
Hot swap	Support	
Communication protocol	Free of charge	
Communication timeout protocol	Support	
Data bit	7-bit, 8-bit (default)	
Check bit	No parity (default), odd parity, even parity	
Stop bit	1 (default), 2 stop bits	
Master-slave mode selection	M/S, Default main mode	
receiving mode	Receive by character interval (implied recognition) Receive according to the length of received data;	
physical property		
Dimensions and specifications	100mm × 68mm × 12mm	
Operating temperature	-10~55℃	
Storage temperature	-20~85℃	
Relative humidity	95%, No condensation	
Class of protection	IP20	

Terminal module T-0000

- T series plug-in remote I/O module is a distributed extension module developed by Changdatong. The T series complete system is mainly composed of coupler, various functional I/O modules, power auxiliary modules and terminal modules. There are several communication protocol bus couplers, such as PROFINET, EtherCAT, Ethernet/IP, CC-Link IE, Modbus/TCP, etc. I/O modules can be divided into multi-channel digital input module, digital output module, analog input module, analog output module and a variety of functional modules, communication modules, temperature modules, etc., customers can match according to the actual field application requirements!
- T-0000 is the terminal module.

Technical Specifications

product model	T-0000
Product name	Terminal module
Physical properties	
Dimensions and specifications	100mm x 27.5mm x 7.2mm
Operating temperature	0~55℃
Storage temperature	-25~85℃℃
Relative humidity	95%, No condensation
Class of protection	IP20

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