CO-TRUST

High-performance Automation Initiator

Vision

To be the leading global supplier of high-performance automation products and solutions in industrial domain

Mission

To focus on our customer market challenges and needs by insisting on differentiated technology innovation to provide customers most competitive high-performance automation products, solutions and services, in order to consistently create maximum value for customers

Core Values

· Cooperate harmoniously, Gain the trust

· Focus on getting the customers' trust, Be obligate to serve the society with outstanding achievement of CO-TRUST

· Be responsible for the society   customer   staff and supplier

· Insist on differentiated technological innovation based on customers' needs, insist on consistently high investment in R&D, in order to gain the ability to consistently create

Certifications

Company Introduction

Shenzhen CO-TRUST technology CO., LTD. is a global supplier of high performance automation control products and solutions. CO-TRUST brand has been registered in the United States, Germany, China and other countries. We are committed to provide OEM customers differentiated innovations to meet their high performance needs of automation products, services and solutions and to create our OEM customers long-term value and potential growth.

CO-TRUST is a high-tech enterprise certified by the government. Its products include PLC, HMI, specific control system, remote I/O and field network products etc. We have won high trust of plastics machinery, boilers, glass machinery, medical equipment, brickmaking machinery textile printing & packing and many other industries' customers based on our high performance automation control solutions.

We insist on the differentiated products and technology innovation strategy according to the demand-driven. We invest more than 10% of annual sales on R&D, 50% of the employees involved in R&D. We own a number of patents of inventions.

We have sales and support offices or agencies in China,Benelux, Brazil, Turkey, Iran, Uruguay, Thailand, Indonesia, Vietnam, Pakistan,Dubai and many other countries or areas, able to offer our customers professional, quick and high-quality services. Machinery equipped with our products and solutions spread all over the world.

Products & Solutions

Product Series

CTS7-100 micro PLC

CTS7-200 small PLC

CTS7-300 medium PLC

CTSC-200 PSC

Copanel HMI

Solutions

Plastic Extruding Equipment / Plastic Injection Molding machine /Central-Spatial Molding Equipment / Cable Equipment /Industrial Boilers / Industrial Electric Cooker / Glass Machinery / Reflow Soldering Equipment / Wave Soldering Equipment / Central Air-conditioner / Medical Equipment /PET embryo injection systems / Chemical Fiber Spinning Equipment / Spraying Product Line / Bearing Equipment

Content

Product Features

CPU Modules Performance

Trust PLC®CTS7-100 series is a new generation of high-performance programmable logic controller with high cost-effective, excellent performance, multi-protocol communication ports and strong instruction , which can apply to various industries and adapt to the complex control requirements of small and medium scale systems.

■ Stable and Reliable

· anti-ESD, anti-EFT, passed strict industrial environmental adaptability tests, obtained CE certification
· triplicate-proof disposal, adapt for various inclement industrial environment
· permanent user program, data preservation
· multiple password-protection, one-way core program download function, keeping data confidential permanently
· 2 communication ports got lightningproof disposal, with high reliability.

■ High-speed and Large Capacity

· bit instruction up to 0.3us,float execution speed up to 8us
· 128 points of digital and 32 points of analog I/O in maximum
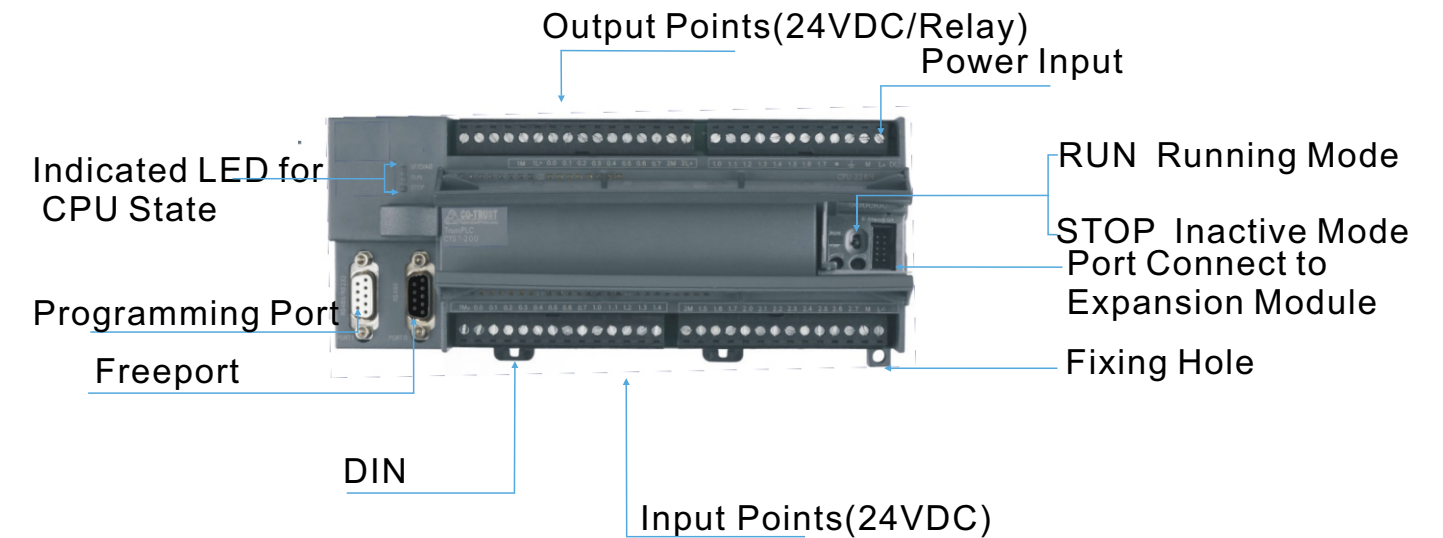· 4 high-speed counter of 1K

■ Convenient Programming

· support IEC61131 programming language
· multiple programming languages
  Ladder diagram LAD, instruction list STL, the order Figure FBD
· Chinese / English programming
· Intelligent help

■ Abundant Instruction Set

· number of instructions
  Basic instruction - 144 items
  Applied instruction - 99 items
· floating-point execution instruction
· CPU data exchange pilot
· human-machine interaction interface pilot

CPU Sketch Map

Output Points(24VDC/Relay)
Power Input
Indicated LED for CPU State
RUN Running Mode
STOP Inactive Mode
Port Connect to Expansion Module
Programming Port
Freeport
Fixing Hole
DIN
Input Points(24VDC)

CTS7- 100 CPU Series

CPU124

Integrated 2 communication ports, one for PPI, the other is freeport(FPORT), integrated MODBUS protocol internally,14 DI/10DO total 24 digital I/O, 12K program space, 8K data space, 4 high-speed counters with 1 KHZ.
Application features: Adapt to lots of high performance small-scale control system based on high-speed executive efficiency and relative connected I/O modules.

CPU126

Integrated 2 communication ports, one for PPI, the other is freeport(FPORT), integrated MODBUS protocol internally,24 DI/16DO total 40 digital I/O,12K program space, 8K data space, 4 high-speed counters with 1 KHZ.
Application features: Adapt to lots of high performance small-scale control system based on the larger system capacity, high-speed executive efficiency and relative connected I/O modules. Integrated more I/O which with higher cost-effective.

CO-TRUST
CTS7-100 Series Programmable Controller
CTS7-100 Series Programmable Controller
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CPU Modules Performance
CPU Modules Performance

Specification

Items		CPU124	CPU126
Dimensions(WXHXD)		137×80×62	196×80×62
Power loss		7W	11W
User program memory size		12KB	
User data memory size		8KB	
Max. expansion modules allowed		3	
Maximun digital I/O points		64DI/64DO	
Maximum analog I/O points		16AI/16AQ	
Data stored when power down		Supper capacitance	
Timers	1ms	4	
	10ms	16	
	100ms	236	
Counters		256	
Internal memory bits		256	
Timed interrupts		2 with 1ms resolution	
Edge interrupts		4 edge up and/or 4 edge down	
Boolean execution speed		0.3μs	
Float execution speed		8μs	
Real Time Clock		Built-in	
Communications Built-in			
Communication Ports			
PPI/MPI baudrates		9.6K 19.2K bps	
Freeport baudrates		1.2K--115.2K bps	
Max. number of stations		32 per segment,126 per network	
MPI connections		8 total with 2 reserved (1 for a PG and 1 for an OP)	
Max. cable length per segment		**With isolated repeater: 1000m up to 115.2 kbaud, 1200 m up to 38.4 kbaud;Without isolated repeater: 50 m**	
Digital I/O Specifications			
Number of integrated inputs		14	24
Input type		Sink/Source	
Number of integrated outputs		10	16
Output type		Relay	
Number of pulse catch inputs		14	24
High-Speed Counters		4 (single phase,1KHz)	
Digital inputs specification			
Number of integrated inputs		14	24
Rated voltage		24V DC	
Max. continuous permissible voltage		30V DC	
Logic 1 signal(min.))		15V DC，2.5mA	
Logic 0 signal(max.)		5V DC，1mA	
Optical isolation(field and logical)		500V Ac for 1 minute	
Number of inputs ON Simultaneously		All	
Cable length (max.)	Shielded	Standard input 500m，high -speed counter input 50m	
	Unshielded	Standard input 300m	
Digital outputs specification			
Number of integrated outputs		10	16
Output type		Relay, dry contact	
Rated current per point		2A	
Surge current		7A，with contacts closed	
Lamp load		30W DC/200W AC	
ON state resistance(contact resistance)		0.2Ω	
Number of outputs ON Simultaneously		All the outputs	

| Items		CPU124	CPU126
Digital outputs specification			
Connecting two outputs in parallel		Yes, only outputs in same group	
Cable Length	Shielded	500m	
	Unshielded	150m	

First Strong Communication Ability

1、PPI Communication Mode

CTS7-100PLC with communication port RS485 which support communication network interface such as SIEMENS PPI cables etc, support the PPI protocol, can connect to other devices by common double-core shielded twisted pair cable. Support for baud rate: 9.6KBit/s, 19.2KBit/s.

2、MPI Communication Mode

CTS7-100 series CPU can connect to the MPI network, communication rate of 19.2KBit/s which can only as slave station in the MPI network, the different slave stations can not communicate while the master stations can get the data of slave station.

MPI
CTS7-100
SIEMENS S7-300
SIEMENS S7-400
Copanel HMI
PG/PC
PC by MPI card
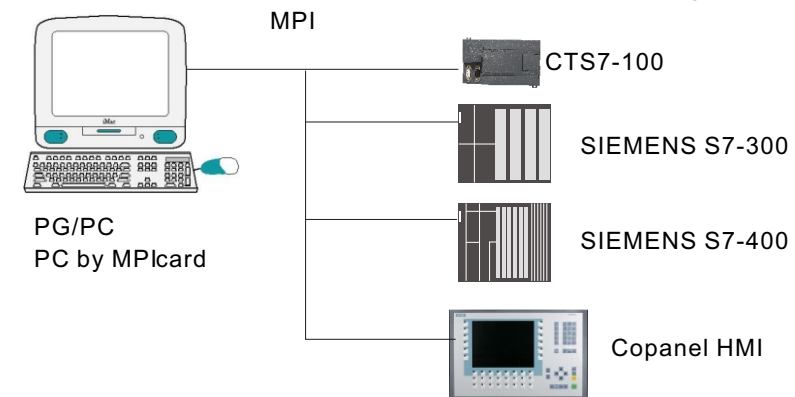
3、Freeport Communication Mode

Freeport communication mode function allows the Trust PLC®CTS7-100 communicating with any third-party devices with public communication protocol, that is, the Trust PLC®CTS7-100 can define communication protocol by the users. The third-party devices including data acquisition modules, controllers, printers or bar code reader, transducer, modem, PC equipment and so on.

Free Communication
CTS7-100 PLC
Modem
Free Communication
PLC   Printer   Bar Code Reader
Transducer
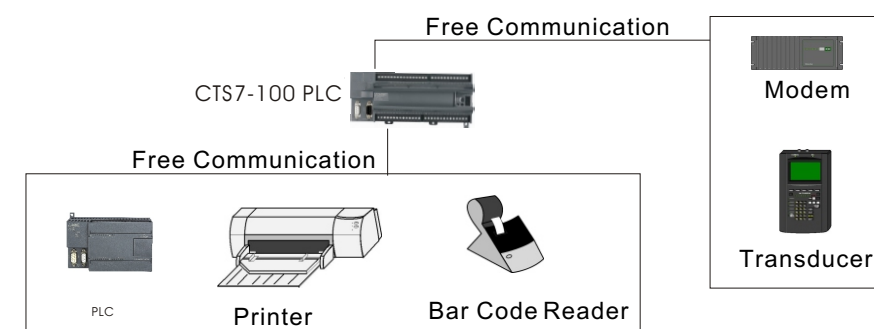
Second High Executive Efficiency

High executive speed: the speed of bit instruction up to 0.3μs, floating executive speed up to 8μs.

12K user's program in maximum, 4K is for the confidentiality program. Four level password protection and the program space can only download, not upload,super-safety.

High expansion ability: adapt to different applications by connect to different modules.

Hardware Features

Input signal optical isolated, the input points can common cathode or anode connected ,can get better anti-jamming ability by configure the filtering time of each input point.

Communication Interface have lightningproof function which can resist 2000V-voltage shock.

Triplicate-proof disposal and high-reliability design, can be applied to various industrial environments.。
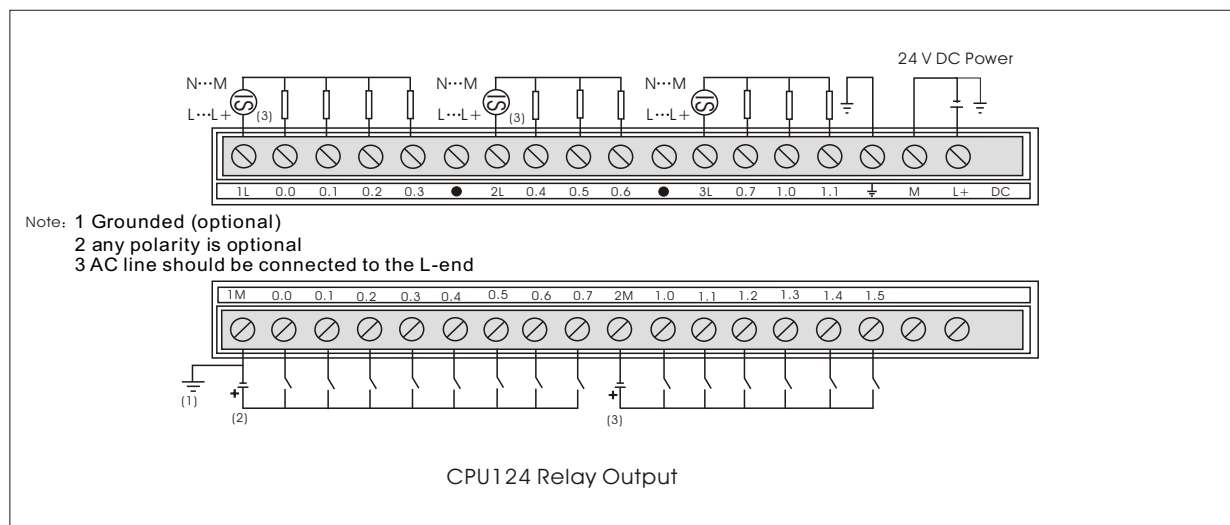
Use Instruction:

The CPU grounding point should be connected to signal ground but not alternating current ground. If there is no well place to put ground, vacant but not connect to the devices.

Both ends of the Communication lines should be well grounded and both end of the network must use network connectors with terminal resistance.

Port0 is programming port, Fport is free communication port, both are RS485.
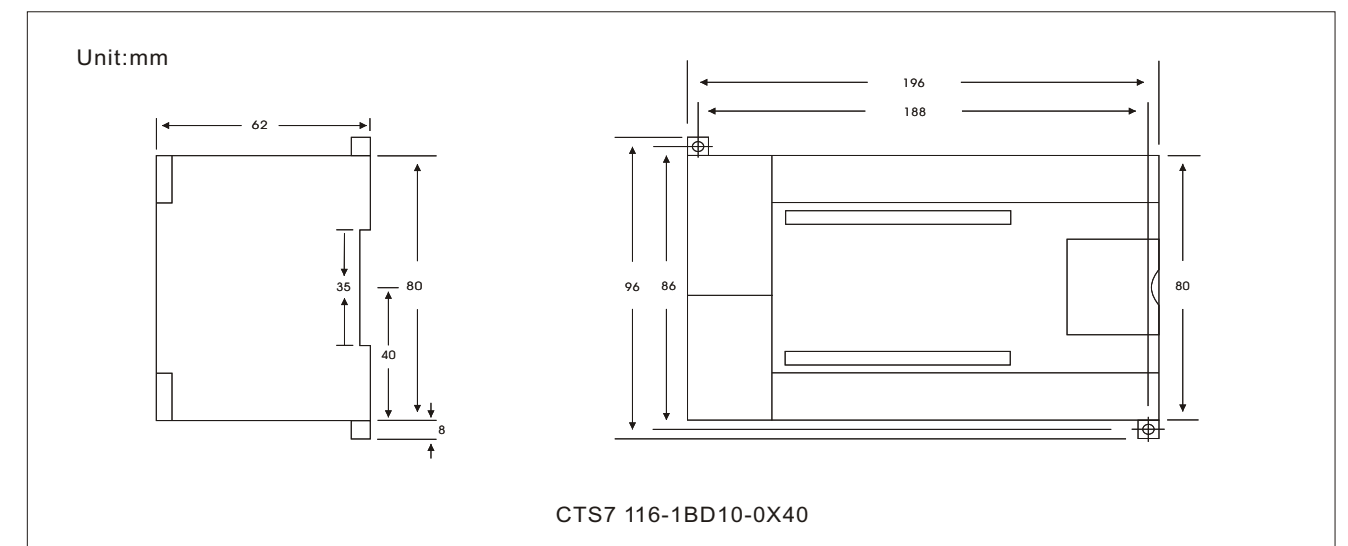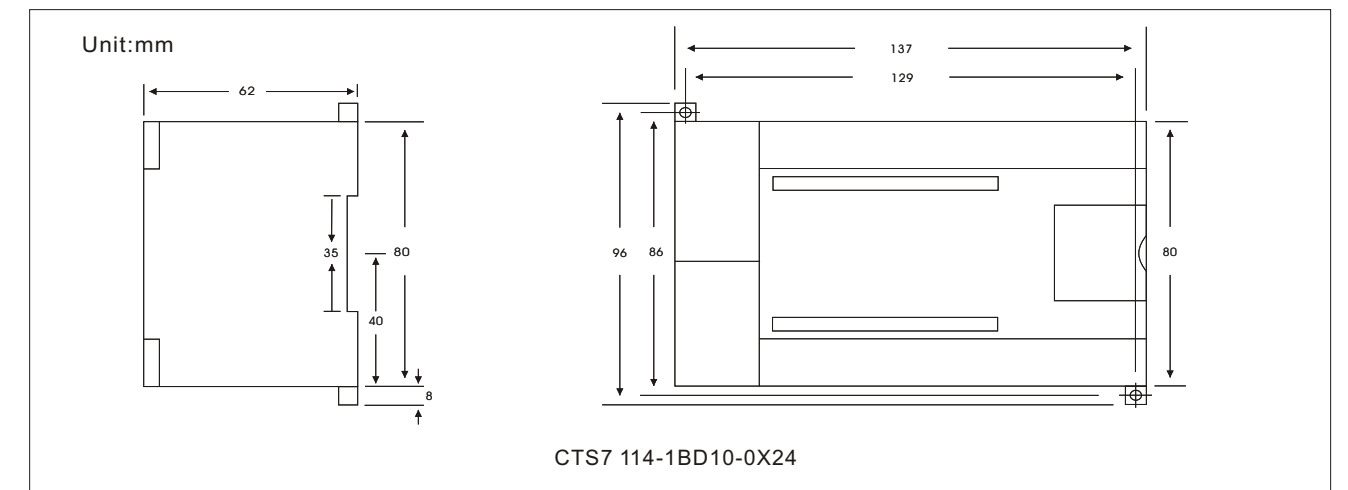
Connector Terminal Identification:

Note：1 Grounded (optional)
2 any polarity is optional
3 AC line should be connected to the L-end

CPU124 Relay Output

CPU126 Relay Output

Size Diagram

CTS7 114-1BD10-0X24

CTS7 116-1BD10-0X40

Order Data

Model and Specification	Order Number
CPU124，12K Memory，24VDC，14DI/10DO,transistor output，2A，1 PPI port，1 Fport	CTS7 114-1BD10-0X24
CPU126，12K Memory，24VDC，24DI/16DO,transistor output，2A，1 PPI port，1 Fport	CTS7 116-1BD10-0X40

CTS7-100 series modules including digital I/O expansion modules and common analog I/O modules with high cost-effective which can configure conveniently to apply for various I/O scale. All the modules take the DN45 installation.
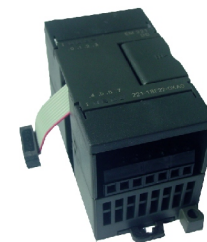
■ Bus Reliability: take the CO-TRUST bus protocol with high safety factor and stable performance.

■ Expansion Modules: can connect 3 IO expansion modules, 64DI/64DO digital and 16AI/16AO analog in maximum.

■ Filtering Technology: all the analog modules integrate CPU processor, use advanced filtering technology, so the sampling is more accurate and the stability is higher.

■Digital modules: all the input and output modules are optical isolated, the input module with filtering anti-jamming technology which with high reliability.
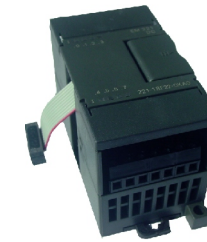
CTS7121-1BF10 8DI
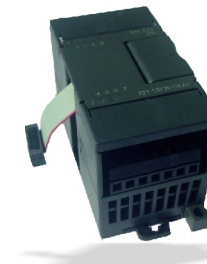
CTS7122-1BF10 8DO

CTS7122-1HF10 8DO Relay

Input Features

Items	Specifications	
Input type	Sink/Source(IEC Type 1 sink)	
Rated Voltage	24V DC	
Max. continuous permissible voltage	30V DC	
Logic 1 signal(minimum)	15V DC at 2.5mA	
Logic 0 signal(maximum)	5V DC at 1mA	
Optical isolation(field and logical)	500 VAC, 1 minute	
Max. input time delay	4.5ms	
Permissible leakage current(max.)	1mA，AC	
Number of inputs ON Simultaneously	All	
Cable Length	Unshielded	300 m
	Shielded	500m

Output Features

Items	Transistor Output	Relay Output
Output type	Solid State-MOSFET	Relay, dry contact
Rated Voltage	24V DC	-
Permissible Voltage Range	20.4~28.8V DC	5-30V DC or 5-250VAC
Logic 1 signal at maximum current	20V DC, minimum	-
Logic 0 signal with 10 kohm load	0.1V DC, maximum	-
Rated current per point	0.75A	2A
Leakage current per point	10μA, maximum	-
Maximum Surge current	8A，100ms	5A when contacts closed
Lamp load	5W	30W DC/200W AC
contact resistance	0.3Ω typica(0.6Ω max.)	0.2Ω
Isolation field and logic	500V AC，1minute	-
Delay (max.)	Off to On	50μs	-
	On to Off	200μs	-
Number of outputs ON Simultaneously	All outputs	All outputs
Lifetime mechanical (no load)	-	50,000,000
Connecting two outputs in parallel	Yes, only outputs in same group	
Cable Length	Shielded	500m
	Unshielded	150m

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Technical Features

- Input end bidirectional optical isolated which with high reliability.
- With advanced hardware filtering technology, filtering time is 4.5 ms, with strong anti-jamming capacity.
- The output end of transistor output module is optical isolated which with over-load voltage and current protection.
- The DI/DO point of the single module in maximum is 8.

Use Instruction:

1、Each input signal can be connected by common-cathode or common-anode.
2、The maximum input voltage of input point is 30 VDC, beyond which the module will be damaged.
3、If the external load is too large when connect the sensibility load, the relay output should be enlarged by medi-relay.

Application Occasions

Various digital control occasions

Connector Terminal Identification:

CTS7121-1BF10

CTS7122-1BF10

CTS7122-1HF10

Size Diagram

Unit:mm

CTS7121-1BF10
CTS7122-1BF10
CTS7122-1HF10
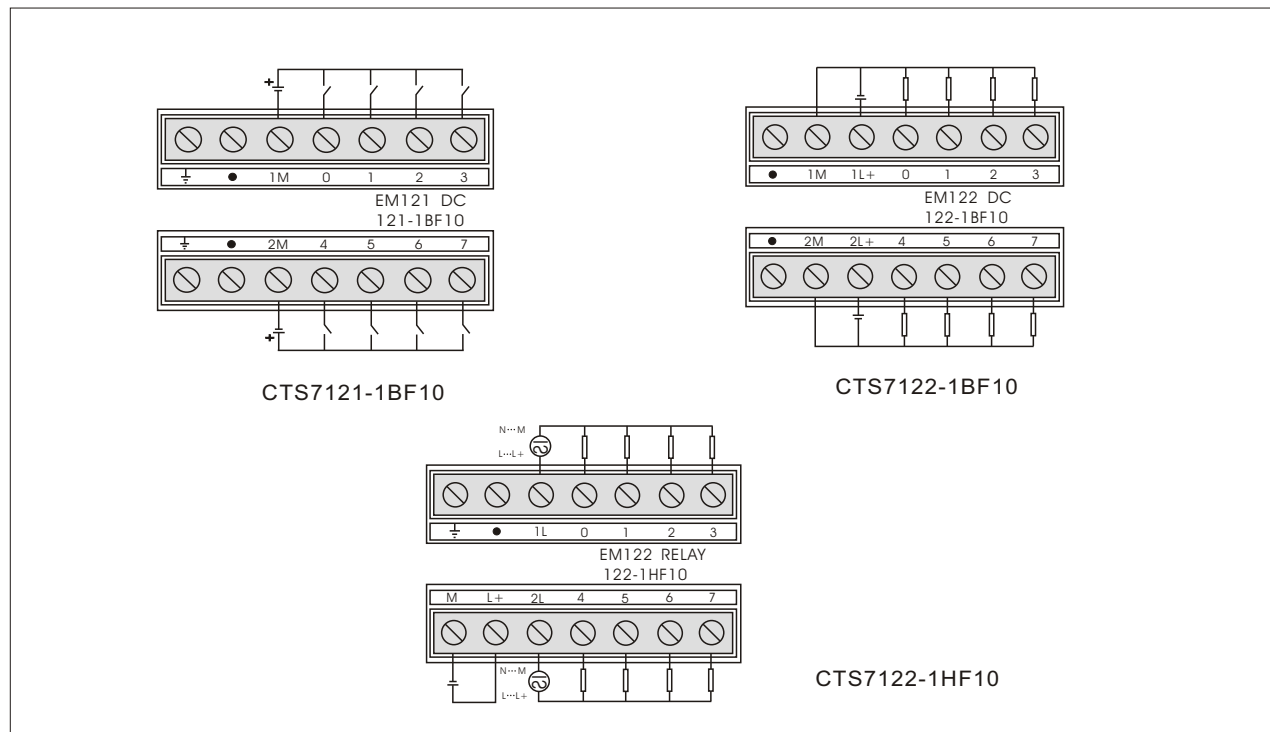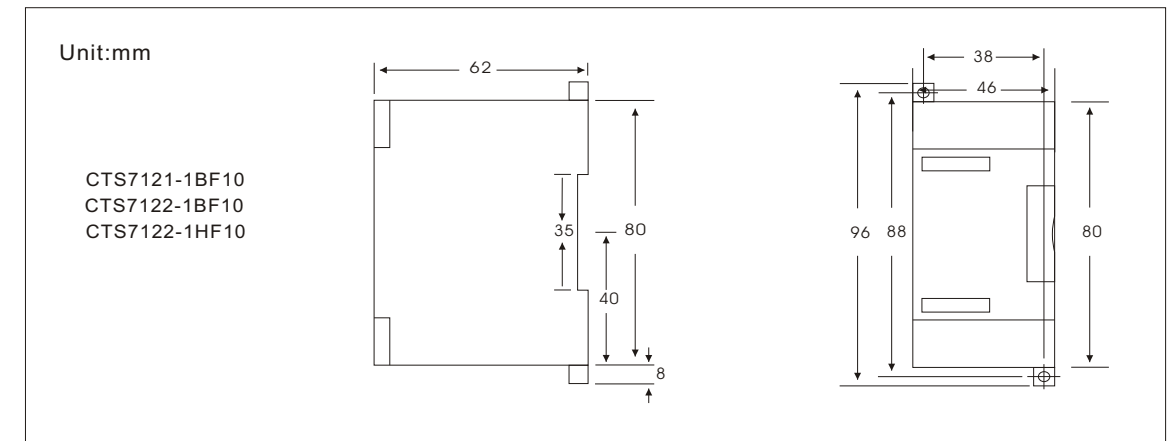
Order Data

Model and Specification	Order Number
EM121 Digital Module，8×24VDC	CTS7 121-1BF10
Em122 Digital Module，8×24VDC,transistor outputs	CTS7 122-1BF10
Em122 Digital Module，8×relay outputs	CTS7 122-1HF10

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CTS7-100 Series Programmable Controller

CTS7-100 Series Programmable Controller

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Analog Expansion Modules

Analog Expansion Modules

CTS7135-0KD10

Analog combination module,4AI/1AQ, 12 bits resolution,voltage or current input or output

CTS7131-0HC10

Analog Input module,4AI,12 bits resolution, voltage or current input

CTS7132-0HB10

Analog Output module,2AQ,±10V voltage outputs,0~20mA current output

SPECIFICATION		Em131	Em135
Analog inputs specification			
Input type		Differential	
Rated voltage		24V DC	
Max. continuous permissible voltage		30V DC	
Max. input current		30mA	
Input Range	Voltage(unipolar)	0~10V、0~5V	0-1V,0-5V,0-10V
	Voltage(bipolar)	±5V、±2.5V	±1V,±2.5V,±5V,±10V
Data Range	Current	0~20mA	
	Bipolar,full-scale range	0~32000	
	Unipolar, full-scale range	−32000~+32000,	
Input Resolution	Voltage(unipolar)	12Bit	
	Voltage(bipolar)	11Bit+Sign Bit	
	Current	11Bit	
Analog to digital conversiontime		<300μs	
Analog input step response		1.5ms to 95%	
Common mode rejection		40dB, DC - 60Hz	
Common mode voltage		Signal voltage + Commonmode voltage < 12V	
Input Impedance		≥10MΩ	
Inverse polarity protection		Yes	
ADC resolution		12BIT	
Analogl outputs specification		Em132	Em135
Output type		Voltage、Current	
Signal range		Voltage: ±10V; Current: 0~20mA	
Resolution, full-scale		Voltage:12BIT、Current:11BIT	
Data word format		Voltage: −32000~+32000; Current: 0~+32000	
Accuracy		typical: ±0.5% of full scale; Worst: ±2% of full scale	
Setting time		Voltage output: 100μs; Current output: 2ms	
Maximum drive@24VDC power		Voltage output: 5000 ohm, minimum Current output: 500 ohm, maximum	
Isolation(analog to digital)		Optical, 500VAC for1 minute	

Technical Features

- Analog input module with advanced filtering algorithm, sampling accurately and stably.
- The signals range of input and output is wide, voltage or current input and voltage and current output.
- 12 bits resolution,500 Hz sampling frequency which can adapt to most application occasions.
- The power supply with reversed polarity protection and surge absorption function which could apply to inclement working conditions.
- Signal input protect voltage can up to 30 VDC in maximum which with very strong protect ability.

Use Instruction:

1、Signal input protect voltage is 30 VDC, beyond which the module can be damaged.
2、The negative terminal of analog input signal should be connected with the M terminal of the module power supply so as to enhance the anti-jamming ability.
3、The signal line should use shielded and single terminal grounded.
4、The module grounding terminal should connect to the grounding line in the case of system grounding condition is good, otherwise vacant.
5、The module should stop power supply when the dial switch changed and will take effect when re-power.

Application Occasions

Module with strong anti-jamming capability, adapt to various of industrial environments.

Calibration and Configuration Location for EM135

Terminal   Gain   Offset   Configuration
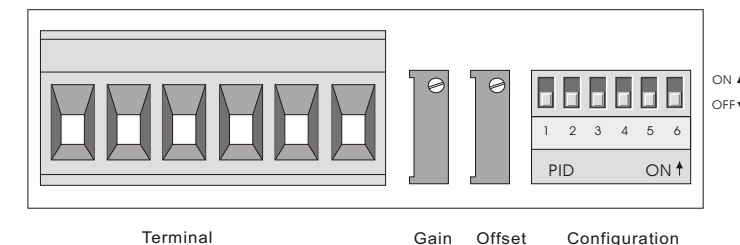
Configuration

EM131 Configuration Switch Table of Select Analog Input Range and Resolution

Unipolar			Full-scale input	Resolution
SW1	SW2	SW3		
ON	OFF	ON	0-10V	2.5mV
	ON	OFF	0 - 5V	1.25mV
			0 - 20mA	5μA
Bipolar			Full-scale input	Resolution
SW1	SW2	SW3		
OFF	OFF	ON	±5V	2.5mV
	ON	OFF	±2.5V	1.25mV

* The setting change can only enter into force after the power resumption

EM135 Configuration Switch Table of Select Analog Input Range and Resolution

Unipolar						Full-scale input	Resolution
SW1	SW2	SW3	SW4	SW5	SW6		
OFF	ON	OFF	OFF	ON	ON	0 -1V	250μV
ON	OFF	OFF	OFF	OFF	ON	0-5V	1.25mV
ON	OFF	OFF	OFF	OFF	ON	0 - 20mA	5μA
OFF	ON	OFF	OFF	OFF	ON	0-10V	2.5mV
Bipolar						Full-scale input	Resolution
SW1	SW2	SW3	SW4	SW5	SW6		
OFF	OFF	ON	OFF	ON	OFF	±1V	500μV
ON	OFF	OFF	OFF	OFF	OFF	±2.5V	1.25mV
OFF	ON	OFF	OFF	OFF	OFF	±5V	2.5mV
OFF	OFF	ON	OFF	OFF	OFF	±10V	5mV

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CTS7-100 Series Programmable Controller

CTS7-100 Series Programmable Controller

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Analog Expansion Modules

Analog Expansion Modules

Connector Terminal Identification:

| Voltage Input Mode | Current Input Mode |
| RA A+ A− RB B+ B− RC C+ C− RD D+ D− |

EM131-0HC10

| M L+ ⏚ • • • • Gain Configuration |

24VDC   CTS7 131-0HC

| M0 V0 I0 M1 V1 I1 • |

EM132-0HB10

| M L+ ⏚ • • • • |

24VDC   CTS7 132-0HB

| Voltage Input Mode | Current Input Mode |
| RA A+ A− RB B+ B− RC C+ C− RD D+ D− |

EM135-0KD10

| M L+ ⏚ M0 V0 I0 Gain Offest Configuration |

24VDC   CTS7 135-0KD

Size Diagram

Unit:mm

CTS7 131-0HC10
CTS7 132-0HB10
CTS7 135-0KD10

62
35   80
40
8

71
62
96 88   80
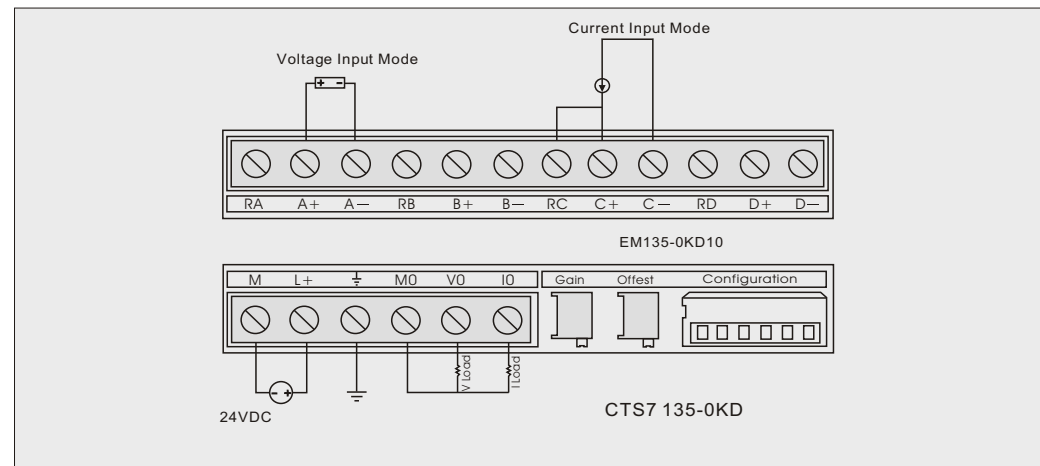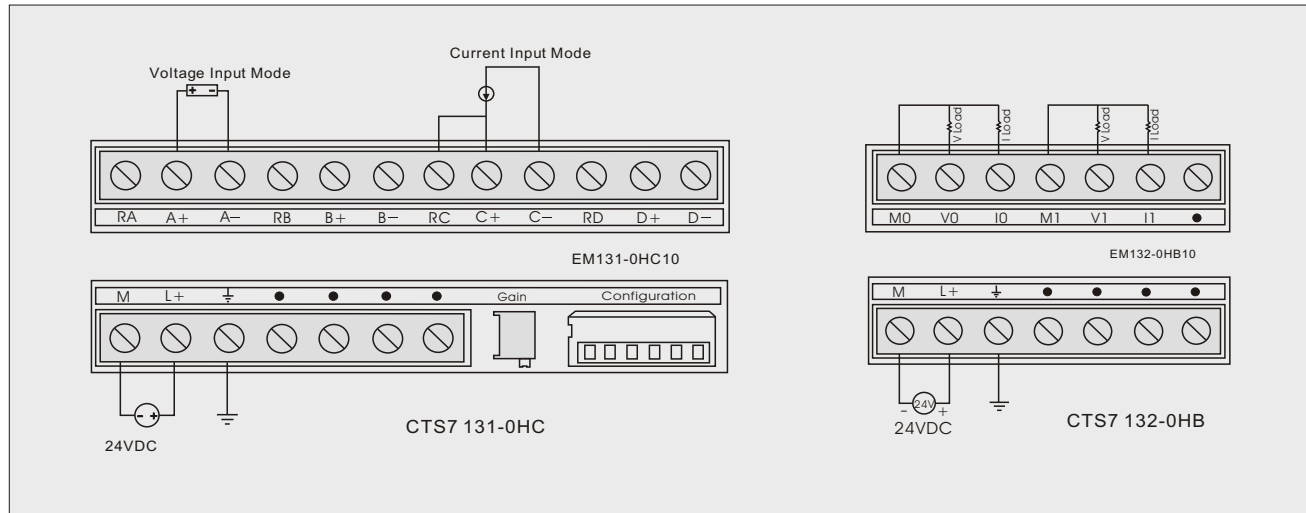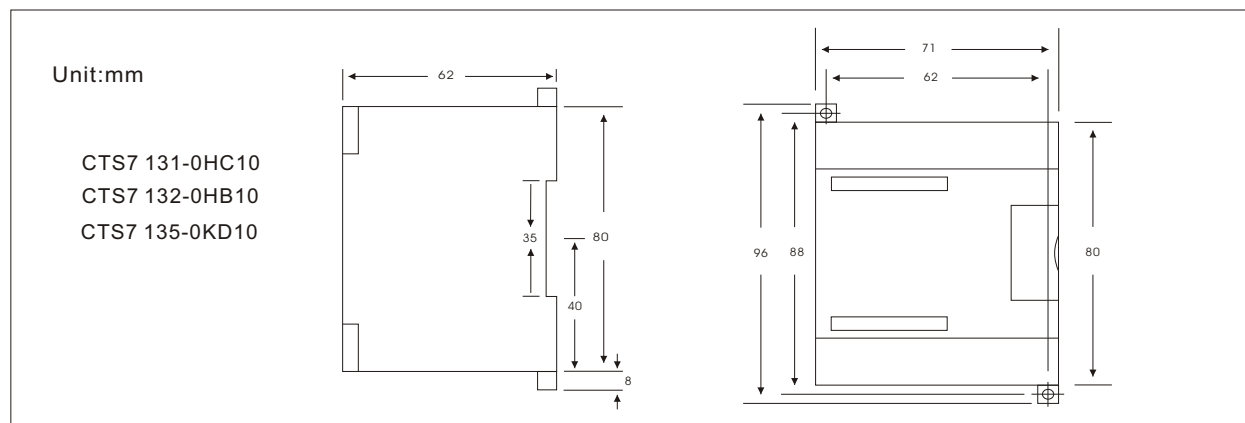
Order Data

Model and Specification	Order Number
EM131 Analog Input Module , 4 ×12-bit precision,isolation	CTS7 131-0HC10
Em132 Analog Output Module , 2 ×12-bit precision (voltage)/ 11-bit precision(current)	CTS7 132-0HB10
EM135 Analog Input/Output Module , 4 ×12-bit inputs , 1 ×12-bit output,isolation	CTS7 135-0KD10

Trust PLC® CTS7-200 series is a new generation of high-performance programmable logic controller with high cost-effective which can apply to various industries and adapt to the complex control requirements of small and medium scale systems based on the compact design, good expansibility, excellent performance and strong instruction.

■ **Stable and Reliable**

- Anti-ESD, anti-EFT, passed strict industrial environmental adaptability tests, obtained CE certification
- Triplicate-proof disposal, adapt for various inclement industrial environment
- Permanent user program, data preservation
- Multiple password-protection, core program only download function, keeping data confidential permanently
- Lightningproof disposal for communication interface which with high reliability.

■ **Strong Communication Ability**

- Integrated 2-3 communication ports, also provide DP, Ethernet and other communication modules
- Support MPI, PPI, DP, freeport, MODBUS, Ethernet and other communication protocol
- Net R/W instruction can exchange up to 200 bytes of information between the two station, communication ability is very strong.

■ **High Degree of Intelligence**

- Integrated parameter auto-tune fuzzy logic algorithm temperature control PID library, accurate temperature control, good dynamic performance
- Abundant built-in integration make the programming simpler, control more flexible
- The high-speed close-loop ability can adapt to the application of high-speed system ,such as tension control, thickness control
- High-performance motion control functions and abundant applications, easy to achieve certain sync, positioning, interpolation function

■ **High-speed, Large Capacity**

- Boolean calculation speed: 0.15 us
- Floating-point calculation speed: 8 us
- Large program memory: 16 K-72Kbyte
- Large data space: 8 K-10K, 110 KB in maximum
- High-speed input counter: 6, 200 kHz in maximum
- High-speed pulse output: 2, 200 kHz in maximum

■ **Convenient Programming**

- Support IEC61131 programming language
- Multiple programming languages
  Ladder diagram LAD, instruction list STL, the order Figure FBD
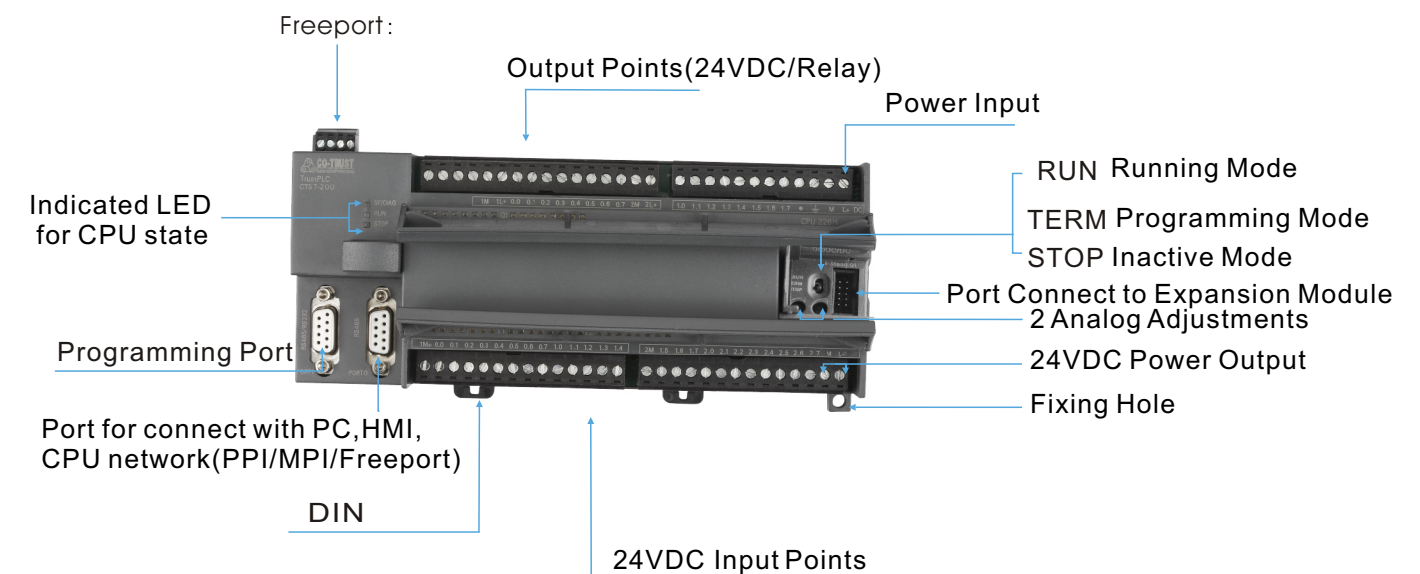- Chinese / English programming
- Intelligent help

■ **Super Powerful System Expansion**

- Analog I/O up to 56 AI/28AQ in maximum
- Digital I/O up to 248 points in maximum
- Expansion I/O modules up to 7 in maximum

■ **Abundant Instruction Set**

- Number of instructions
  Basic instruction - 144 items
  Applied instruction - 102 items
- Floating-point execution instruction
- PID instruction pilot
- Motion Control pilot
- High-speed input pilot
- CPU data exchange pilot
- Human-machine interaction interface pilot

CPU Sketch Map

Freeport：
Output Points(24VDC/Relay)
Power Input
Indicated LED for CPU state
RUN Running Mode
TERM Programming Mode
STOP Inactive Mode
Port Connect to Expansion Module
2 Analog Adjustments
Programming Port
24VDC Power Output
Fixing Hole
Port for connect with PC,HMI, CPU network(PPI/MPI/Freeport)
DIN
24VDC Input Points

CTS7- 200 CPU Series

Integrated 2 communication ports, one for PPI, the other is freeport(FPORT), integrated MODBUS protocol internally,14 DI/10DO total 24 digital I/O, program space can be expanded to 16 K, data space can be Expanded to 110 K, 6 independent high-speed counters with 30 KHZ. two-channel independent high-speed pulse output with 20 KHZ.

Application features: adapt to lots of high performance small-scale control system based on the dual communication ports, high-speed computing power and strong expansion capacity.

CPU224+

Integrated 3 communication ports, two for PPI, one for FPORT,14 DI/10DO total 24 digital I/O, program space can be expanded to 72K, data space can be expanded To 110 K; 6 independent high-speed counters with 30 KHZ, two-channel independent high-speed pulse output with 20 KHZ.

Application features: adapt to lots of complex control occasions such as high performance and multi-scale analog control based on three communication ports, high-speed computing power, large program space and strong expansion capacity.

CPU226M

Integrated 3 communication ports, two for PPI, one for FPORT (or one PPI port and two free port),24 DI/16DO total 40 digital I/O, program space can be expanded to 72 K, data space can be expanded to 110 K; 6 independent high-speed counters with 30 KHZ, two-channel independent high-speed pulse output with 20 KHZ.

Application features: adapt to lots of high performance complex control systems based on three communication ports, high-speed computing power, large program space and strong expansion capacity. This module have higher cost-effective as it integrated more I/O.

CPU226L

Integrated 3 communication ports, two for PPI, one for FPORT,24 DI/16DO total 40 digital I/O, program space can be expanded to 72 K, data space can be expanded to 110 K; 6 independent high-speed counters with 200 KHZ, two-channel independent high-speed pulse output with 200 KHZ. Support certain complex motion control instruction, suit for certain complex control occasions.

Application features: adapt to lots of high performance complex control systems based on three communication ports, high-speed computing power, large program space and strong expansion capacity. This module have higher cost-effective as it integrated more I/O.

Suit for certain complex control system with positioning, sync, interpolation requirements based on the large motion control function.

CPU226H

Specification

Items	CPU224+	CPU226M	CPU226L	CPU226H
Dimensions(WXHXD)	137×80×62		196×80×62	
Power loss	7W	11W	11W	11W
User program memory size	16KB	72KB	72KB	72KB
User data memory size	110KB			
Max. expansion modules allowed	7			
Maximun digital I/O points	248DI/DO			
Maximum analog I/O points	56AI/28AQ			
Data stored when power down	Cartridge Battery			
Timers — 1ms	4			
Timers — 10ms	16			
Timers — 100ms	236			
Counters	256			
Internal memory bits	256			
Timed interrupts	2 with 1ms resolution			
Edge interrupts	4 edge up and/or 4 edge down			
Analog adjustments	2 with 8 bit resolution			
Boolean execution speed	0.15μs per instruction			
Float execution speed	8μs per instruction			
Real Time Clock	Built-in			
Communications Built-in				
Communication Ports	2 communication ports，PORT0(RS485/RS232、PPIport)FPORT0(RS485/RS2	3 communication ports。2 configurations：PORT1(RS232/RS485、PPIport)，PORT0(RS485、PPIport）FPORT0(RS485、freeport)；PORT0(RS232/RS485、PPIport)，FPORT0(RS485、freeport) ;FPORT1(RS485、freeport)		
PPI/MPI baudrates	9.6K 19.2K 187.5K bps			
Freeport baudrates	1.2K--115.2K bps			
Max. number of stations	32 per segment,126 per network			
Max. number of masters	32			
PPI master mode(NETR/NETW)	YES（NETR/NETW）,200Bytes,8 connectors per communication packege			
MPI connections	8 total with 2 reserved (1 for a PG and 1 for an OP)			
Max. cable length per segment	**With isolated repeater: 1000m up to 187.5kbaud, 1200 m up to38.4 kbaud;Without isolated repeater: 50 m**			
Digital I/O Specifications				
Number of integrated inputs	14		24	
Input type	Sink/Source(IEC Type 1 sink)			
Number of integrated outputs	10		16	
Output type	Solid State-MOSFET / Dry contact			
Digital I/O image size	256（128Input/128Input）			
Analog I/O image size	64（32Input/32Output）			
Max. expansion modules allowed	7			
Number of pulse catch inputs	14		24	
High-Speed Counters — Total	6			
High-Speed Counters — Single phase	6×30KHz		6×30KHz	6，200KHz in max.
High-Speed Counters — Two phase	4×20KHz		4×20KHz	4，100KHz in max.
Digital inputs specification				
Number of integrated inputs	14		24	
Input type	Sink/Source			
Rated voltage	24V DC			
Max. continuous permissible voltage	30V DC			
Logic 1 signal(min.))	15V DC，2.5mA			
Logic 0 signal(max.)	5V DC，1mA			
Optical isolation(Galvanic)	500V Ac for 1 minute			

CPU Modules Performance

Items	CPU224+	CPU226M	CPU226L	CPU226H
Number of inputs ON Simultaneously	14		24	
Cable length (max.) — Shielded	Standard input 500m，high -speed counter input 50m			
Cable length (max.) — Unshielded	Standard input 300m			
Digital outputs specification				
Number of integrated outputs	10	10	16	16
Pulse frequency (max.)	20KHz(Q0.0, Q0.1)	20KHz(Q0.0, Q0.1)	20KHz(Q0.0, Q0.1)	200KHz(Q0.0, Q0.1)
	Transistor output		Relay output	
Output type	Sink/source		Relay, dry contact	
Rated Voltage	24V DC		-	
Voltage range	20.4~28.8V DC		-	
Logic 1 signal at max. current	20 VDC, minimum		-	
Logic 0 signal with 10 kohm load	0.1 VDC, maximum		-	
Rated current per point	0.75A		2A	
Max. current per common/group	3.75A		-	
Leakage current per point	10 μ A		-	
Surge current	8A，100ms		7A with contacts closed	
Lamp load	5W		30W DC/200W AC	
ON state resistance(contact resistance)	Typical: 0.15Ω，maximum:0.32Ω		0.2Ω	
Optical isolation(galvanic,field to logical)	500V Ac for 1 minute		-	
Delay (max.) — On to Off	10 μ s(Q0.0, Q0.1),130 μ s		-	
Delay (max.) — Off to On	2 μ s(Q0.0, Q0.1),15 μ s		-	
Number of outputs ON Simultaneously	All the outputs			
Connecting two outputs in parallel	Yes, only outputs in same group			
Cable Length — Shielded	500m			
Cable Length — Unshielded	150m			

First Strong Communication Capability

1、PPI Communication Mode

CTS7200 series CPU, integrated 1-2 PPI communication ports whose hardware interface is the RS485 or RS232, provide communication rate of 9.6 Kbps, 19.2Kbps, 187.5Kbps, PPI is Token-Ring network structure, can form PPI network without relay, can complete data exchange through NETR and NETW, each exchange package can be up to 200 bytes, each CPU can connect eight communication modules, namely each CPU can connect 8 PC or other CPU.

If the I/O scale of some systems is relatively too large that one CPU can not meet the requirements, can achieve by several CPU. multi-CPU structure can achieve distributed control that with high system reliability. The data exchange is extremely fast and convenient because of the strong communication ability among different CPUs.
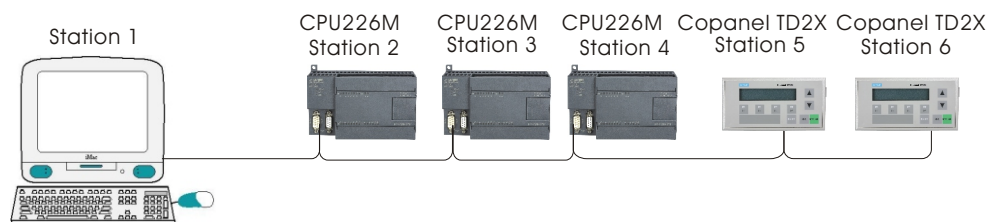
Station 1 | CPU226M Station 2 | CPU226M Station 3 | CPU226M Station 4 | Copanel TD2X Station 5 | Copanel TD2X Station 6
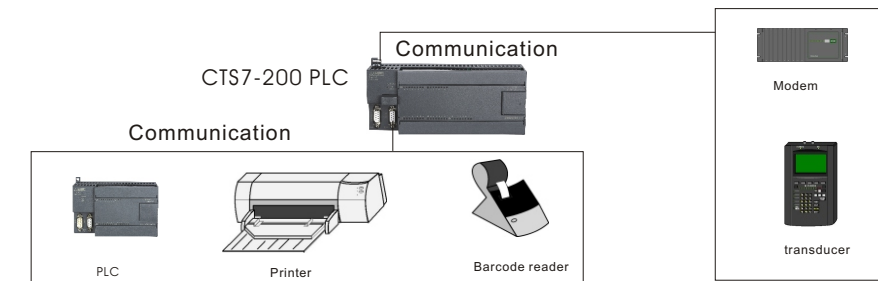
2、MPI Communication Mode

CTS7200 series CPU can connect to the MPI network, communication rate of 19.2 kbps or 187.5 kbps which can only as slave station in the MPI network, the different slave stations can not communicate while the master stations can get the data of slave station.

MPI — CTS7-200
SIEMENS S7-300
SIEMENS S7-400
Copanel HMI

PG/PC
PC By MPI Card
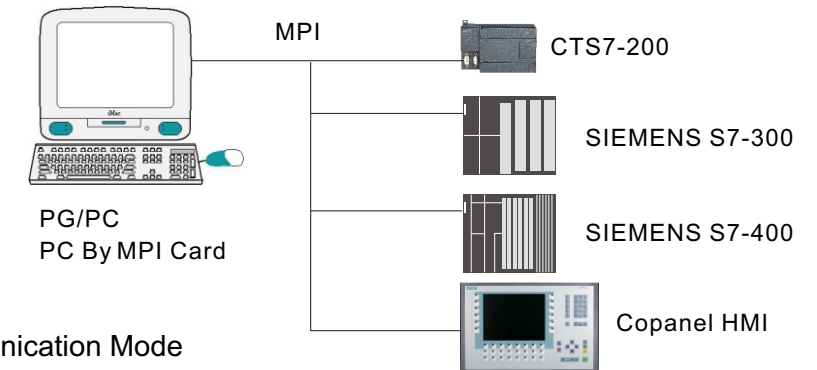
3、Freeport Communication Mode

Different CPU provide 1-2 freeport which can not switch to PPI protocol, embedded several free communication protocol library such as MODBUS、 USS etc. also you can compile certain communication protocols by yourself so as to realize communicating among different devices.

CPU226M, CPU226L, CPU226H all with two free communication ports that can communicate simultaneously so as to meet the requirements of such occasions: high-speed communication, synchronous control, many peripherals.

CTS7-200 PLC | Communication | Modem
Communication
PLC | Printer | Barcode reader | transducer

4、DP or Ethernet communication mode

CPU can be connected to the PROFIBUS field bus by DP slave stations, as slave station of certain master station, it can exchange data fast and real-time also can run independently which with high reliability.

CPU can be connected with industrial Ethernet by Ethernet module which is suitable for building control or other applications with several stations.

Second High-Speed Computing Power

1、The CPU speed is very fast because of 0.15 us bit instruction execution speed, 8 us floating-point execution speed, 18 us PID instruction. The system provides 1ms time interruption which can realize certain high-speed closed-loop applications such as the pressure closed-loop of some tension control system, the central-spatial forming machines thickness control system and the injection molding machine etc.

2、The CPU can complete rather complex control system as the program space can up to 72 K in maximum. Besides the 10K data space, the CPU provide 100K storage space which can save high-speed history data, parameters prescription. It can protect your intellectual property effectively based on four-scale password protection function and the one-way download function of super strong secrecy program space.

Third High Degree of Intelligentization

For different control requirements, the CPU integrated lots of function library which can greatly simplify the programming and realize some complex control functions.

1、 Auto-tune fuzzy logical temperature control library PID_T, need no programming and do not occupy program and data space. Auto-tune PID parameters adapt to a wide range of temperature control. Algorithm with fuzzy logical function, accurate temperature control and good dynamic performance that can achieve 64 loop control in maximum. Apply to plastic machinery, welding equipment, glass mechanical and other temperature control occasions.

2、 The general PID library, with self-tune pilot, the execute time of PID instruction id 18 us so that it has a very high real-time performance which can meet various application occasions from slow to high speed closed-loop.

3、 6 channel high-speed pulse input, 2 channel high-speed pulse output while the upgrade product in the future can up to 6 channel. the highest frequency of high-speed pulse input and output can up to 200K, CPU provide subprogram library such as repositioning, positioning, sync, linear cyclo-arc interpolation so that can realize extremely complex motion control function. Applicable to various application occasions of position control such as printing and packaging machinery,

Hardware Features:

CPU is sorted to two types according to the output type: transistor and relay output CPU. Transistor output CPU power supplied by 24 VDC, relay output CPU power supplied by 220VAC.these two types of CPU both provide 24VDC filtering power output, output current 660 MA, can supply some sensors, analog power supply module, digital input point, but generally do not supply as power of output point.

Input signal optical isolated, each input signal can be connected by common-cathode or common-anode as it's dual-coupler. CPU can set the filter time of Each input point, can achieve a better anti-jamming capability.

Communication Interface have lightningproof function which can resist 2000 V-voltage shock.

Triplicate-proof disposal and high-reliability design, can be applied to various industrial environments.
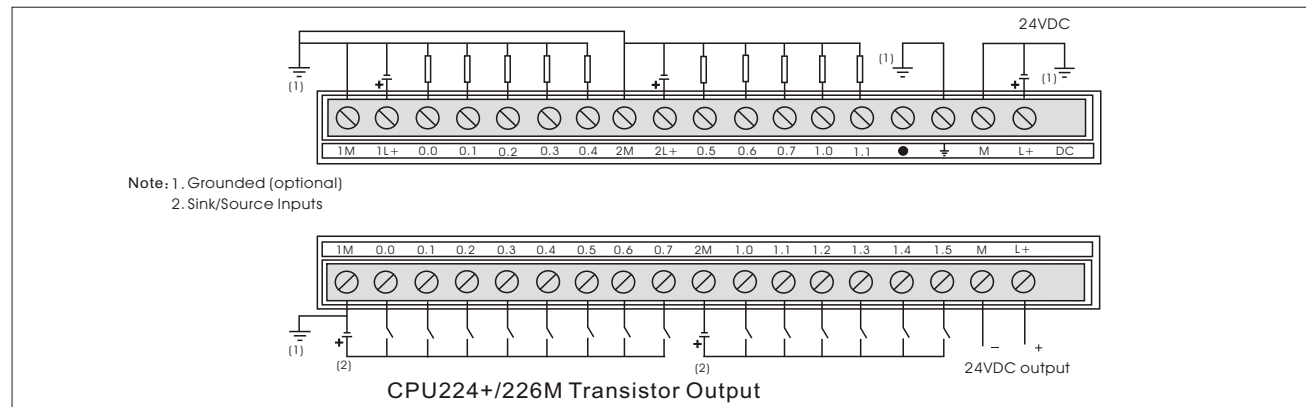
Use Instruction:

The CPU grounding point should be connected to signal ground but not alternating current ground. If there is no good place to put ground, vacant but not connect to the devices.
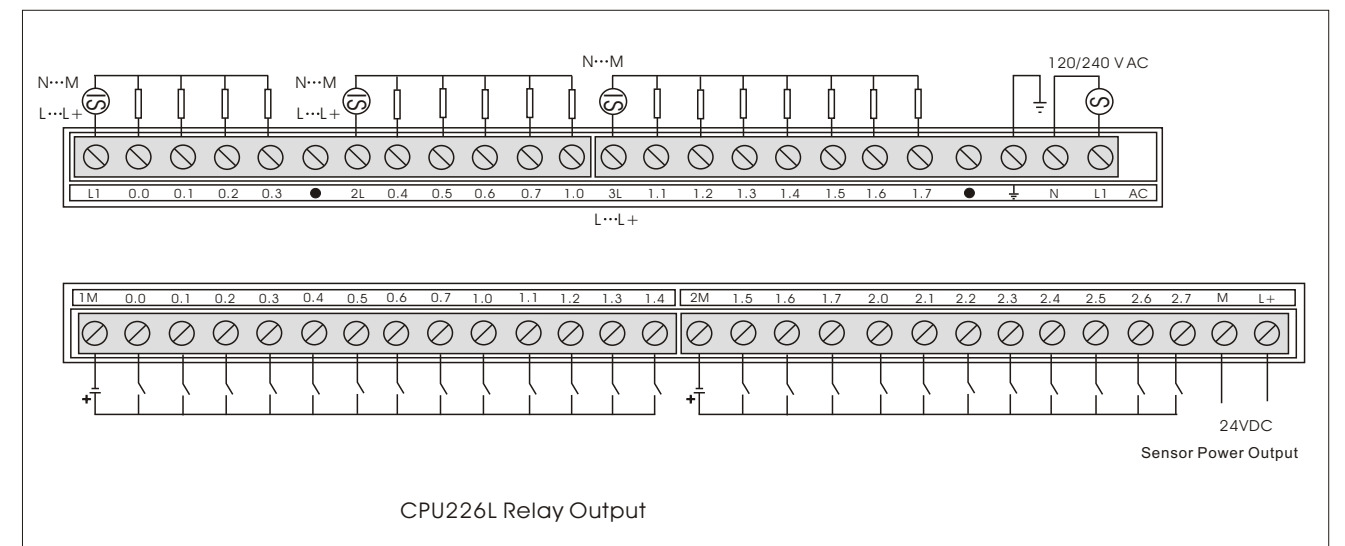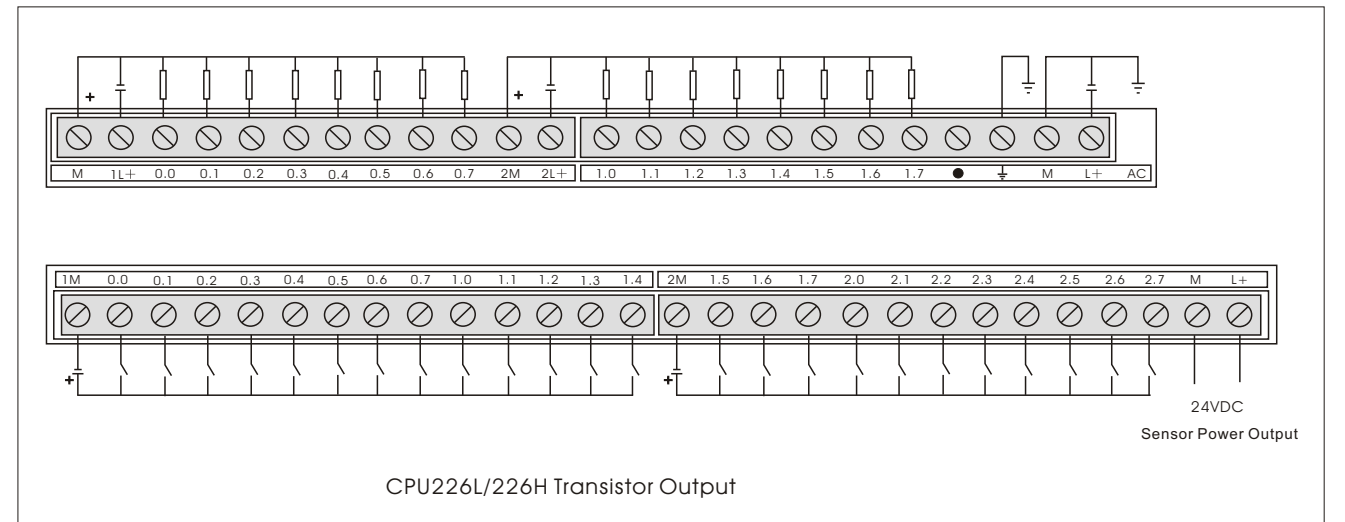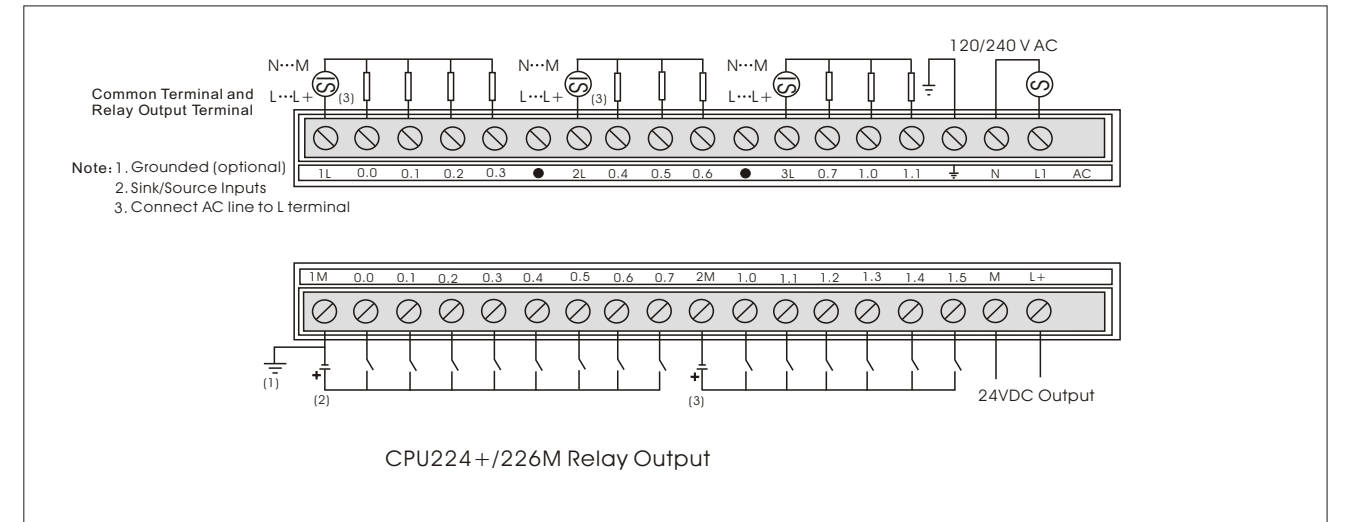
Both ends of the Communication lines should be well grounded and both end of the network must use network connector with terminal resistance .

PPI port is programming port, integrated RS232, no need for special programming cable but can not insert and pull out communication lines with power supply, excessive static electricity may damage the interface.

Connector Terminal Identification:

Note：1. Grounded (optional)
2. Sink/Source Inputs

CPU224+/226M Transistor Output

Common Terminal and Relay Output Terminal

Note：1. Grounded (optional)
2. Sink/Source Inputs
3. Connect AC line to L terminal

CPU224+/226M Relay Output

24VDC
Sensor Power Output

CPU226L/226H Transistor Output

24VDC
Sensor Power Output

CPU226L Relay Output

Size Diagram

Unit:mm

CPU224+/226M

Unit:mm

CPU226L/226H
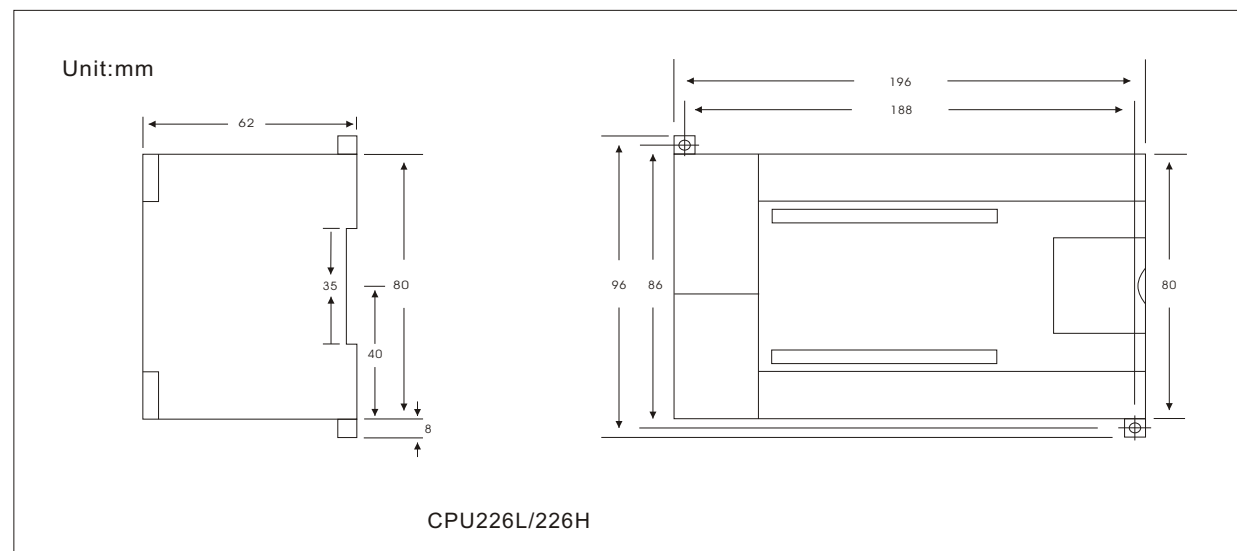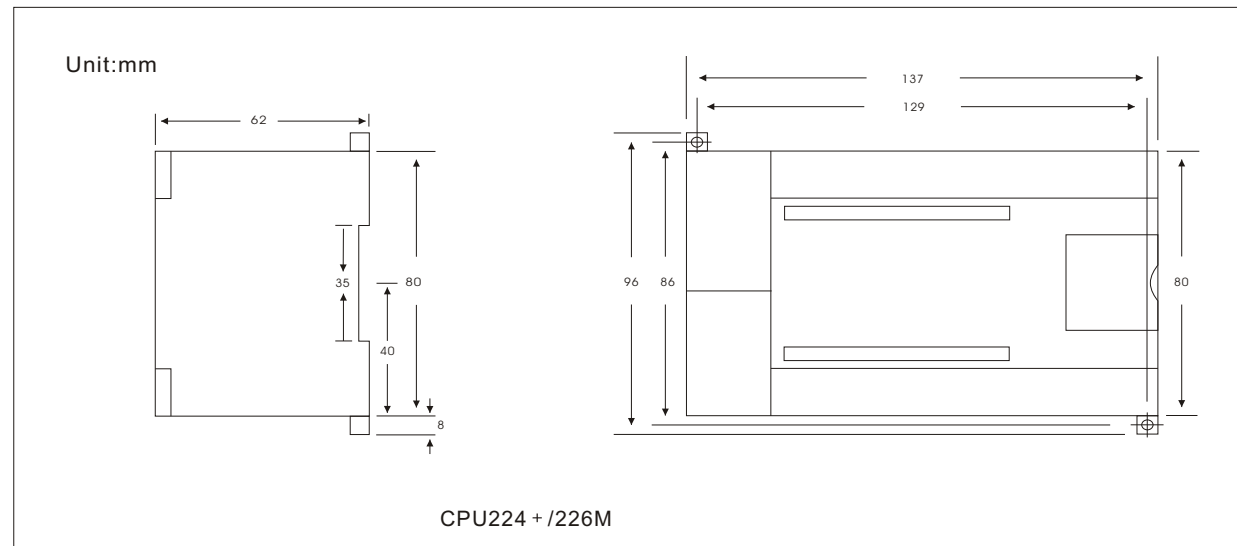
Order Data

| Model and Specification	Order Number
CPU224+,16K Program/110K Data,24VDC,14DI/10DO,transistor outputs,0.75A,1 PPI port, 1 Fport	CTS7 214-1AD33-0X24
CPU224+,16K Program/110K Data,220VAC,14DI/10DO,relay outputs ,2A,1 PPI port, 1Fport	CTS7 214-1BD33-0X24
CPU226M,72K Program/110K Data,24VDC,14DI/10DO,transistor outputs,0.75A,2 PPI port, 1 Fport	CTS7 216-1AD33-0X24
CPU226M,72K Program/110K Data,220VAC,14DI/10DO,relay outputs ,2A,2 PPI port, 1Fport	CTS7 216-1BD33-0X24
CPU226L,72K Program/110K Data,24VDC,24DI/16DO,transistor outputs,0.75A,2 PPI port, 1 Fport	CTS7 216-2AD33-0X40
CPU226L,72K Program/110K Data,220VAC,24DI/16DO,relay outputs ,2A,2 PPI port, 1Fport	CTS7 216-2BD33-0X40
CPU226H,72K Memory/110K Data,24VDC,24DI/16DO,transistor outputs,0.75A,2 PPI port, 1 Fport	CTS7 216-2AH33-0X40
CPU226L,72K Program/110K Data,24VDC,24DI/16DO,transistor outputs,0.75A,1 PPI port, 2 Fport	CTS7 216-2AF33-0X40
CPU226L,72K Program/110K Data,220VAC,24DI/16DO,relay outputs ,2A,1 PPI port, 2Fport	CTS7 216-2BF33-0X40

   CTS7-200 series of expansion modules are sorted to several types, mainly including digital input and output expansion modules, common analog input and output modules, high-precision analog modules, temperature measurement modules, intelligent modules and communication modules, there are various point afford each type which can configure kinds of I/O scales and realize very high cost-effective. All modules take Dn45 rail installation which is very convenient.

- Technical features about CTS7-200 series modules are as follows:

- Bus Reliability: all the modules are optical isolated which greatly improved the system bus reliability and bus performance stability.

- Expansion Ability: CTS7-200 series CPU can connect seven expansion modules in maximum.

- Largest I/O capacity: the digital I/O: 128 DI and 128 DO. The Analog I/O: 56 AI and 28 AO, but with the launch of certain higher density module, the system I/O capacity will be larger.

- Filtering Technology: all the analog modules integrate CPU processor, take advanced filtering technology, so the sampling stability is more accurate and higher.

- Digital Modules: all the input and output are optical isolated, the input module with filtering anti-jamming technology which with high reliability.

- Temperature Sampling Module: with Bus、power supply、channels total isolated technology, 24 bit AD sampling, with strong anti-jamming ability and high sampling accuracy. Support intelligent troubleshooting function which with high security.

- High-precision Modules: 16 bit precision, sampling time less than 200us each channel, can satisfy lots of high-speed sampling and closed-loop control occasions.

- Intelligent Modules: mainly including PID temperature control module, weighing module, motion control module, the module integrates powerful CPU, the module execute the control , greatly improved the execution of the response time, the module embedded algorithm, programming simply but can complete very complex control functions.

- Communication Modules: DP slave station modules, Ethernet communication module, greatly improved the system interconnectivity and communication capability.

Input Features

Items	Specifications
Input type	Sink/Source(IEC Type 1 sink)
Rated Voltage	24V DC
Max. continuous permissible voltage	30V DC
Logic 1 signal(minimum)	15V DC at 2.5mA
Logic 0 signal(maximum)	5V DC at 1mA
Optical isolation(field and logical)	500 VAC, 1 minute
Max. input time delay	4.5ms
Permissible leakage current(max.)	1mA，AC
Number of inputs ON Simultaneously	4/8/16/32
Cable Length Unshielded	300 m
Cable Length Shielded	500m
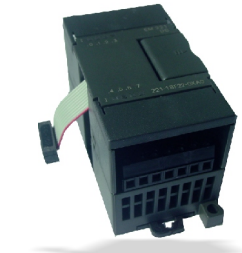
CTS7221-1BF32 8DI
CTS7222-1BF32 8DO
CTS7222-1HF32 8DI Relay
CTS7223-1BF32 4DI/4DO
CTS7223-1HF32 4DI/4DO Relay

Output Features

Items	Transistor Output	Relay Output
Output type	Solid State-MOSFET	Relay, dry contact
Rated Voltage	24V DC	-
Permissible Voltage Range	20.4~28.8V DC	-
Logic 1 signal at maximum current	20V DC, minimum	-
Logic 0 signal with 10 kohm load	0.1V DC, maximum	-
Rated current per point	0.5A	2A
Leakage current per point	10 μ A, maximum	-
Maximum Surge current	8A，100ms	7A when contacts closed
Lamp load	5W	30W DC/200W AC
contact resistance	0.15Ω typica(0.32Ω max.)	0.2Ω
Isolation field to logic	500V AC，1minute	-
Isolation coil to contact	-	1500V Ac，1minute
Isolation between open contacts	-	750V Ac，1minute
Isolation Isolation resistance	-	100MΩ minimum
Isolation group of outputs	4 or 8	4
Delay (max.) Off to On	50 μ s	-
Delay (max.) On to Off	200 μ s	-
Overload protection	Electronic Protection	-
Number of outputs ON Simultaneously	All outputs	All outputs
Connecting two outputs in parallel	Yes, only outputs in same group	
Switch delay	-	15ms
Relay Features Switch Frequency	-	1 Hz
Relay Features Lifetime mechanical (no load)	-	20,000,000
Relay Features Lifetime contacts at rated load	-	300,000
Cable Length Shielded	500m	500m
Cable Length Unshielded	150 m	150m

CTS7221-1BH32 16DI
CTS7222-1BH32 16DO
CTS7222-1HH3216DO Relay
CTS7223-1BH32 8DI/8DO
CTS7223-1PH32 8DI/8DO Relay

CTS7221-1BL32 32DI
CTS7222-1BL32 32DO
CTS7223-1BL32 16DI/16DO
CTS7223-1PL32 16DI/16DO Relay

Technical Features

- Input end bidirectional optical isolated which with high reliability.
- With advanced hardware filtering technology, filtering time is 4.5 ms, with strong anti-jamming capacity.
- Transistor output module output end optical isolated, with overload voltage and current protection.
- Relay output module with a surge absorption circuit which can prevent external Interference.
- The DI/DO of single module in maximum is 32.

Use Instruction:

1、Each input signal can be connected by common-cathode or common-anode.
2、The maximum input voltage of input point is 30 VDC, beyond which the module will be damaged.
3、If the external load is too large when connect the sensibility load, the relay output should be enlarged by medi-relay.
4、The output power supply of transistor do not use the CPU's as possible as you can because the capacity of CPU output power supply is much smaller.

Application Occasions

Various digital control occasions

Connector Terminal Identification:

CTS7221-1BF

CTS7221-1BH

CTS7221-1BL

CTS7221 Series Input Modules

CTS7222-1BF

CTS7222-1BH

EM222 DC
222-1BF32

EM222 DC
222-1BH32

EM222 DC
222-1BL32

CTS7222-1BL

CTS7222 Series Transistor Output Modules

EM222 RELAY
222-1HF32

EM222 RELAY
222-1HH32

CTS7222-1HF

CTS7222-1HH

CTS7222 Series Relay Output Modules

EM223 DC/DC
223-1BF32

EM223 DC/RELAY
223-1HF32

CTS7223-1BF

CTS7223-1HF

CTS7223-1BF/1HF

EM223 DC
223-1BH32

EM223 DC/RELAY
223-1PH32

CTS7223-1BH

CTS7223-1PH

CTS7223-1BH/1PH

EM223 DC/RELAY
223-1PL32

CTS7223-1PL

EM223 DC/DC
223-1BL32

CTS7223-1BL
CTS7223-1PL/1BL

Size Diagram

Unit:mm

CTS7221-1BF32
CTS7222-1BF32
CTS7222-1HF32
CTS7223-1BF32
CTS7223-1HF32

62

35

80

40

8

38

46

96 88

80

CTS7221-1BF32

Digital Expansion Modules

Unit:mm

CTS7221-1BH32
CTS7222-1BH32
CTS7222-1HH32
CTS7223-1BH32
CTS7223-1PH32

62   71
62
96 88   80
35 80
40
8

CTS7221-1BH32

Unit:mm

CTS7221-1BL32
CTS7222-1BL32
CTS7223-1BL32
CTS7223-1PL32

62   137
129
96 88   80
35 80
40
8
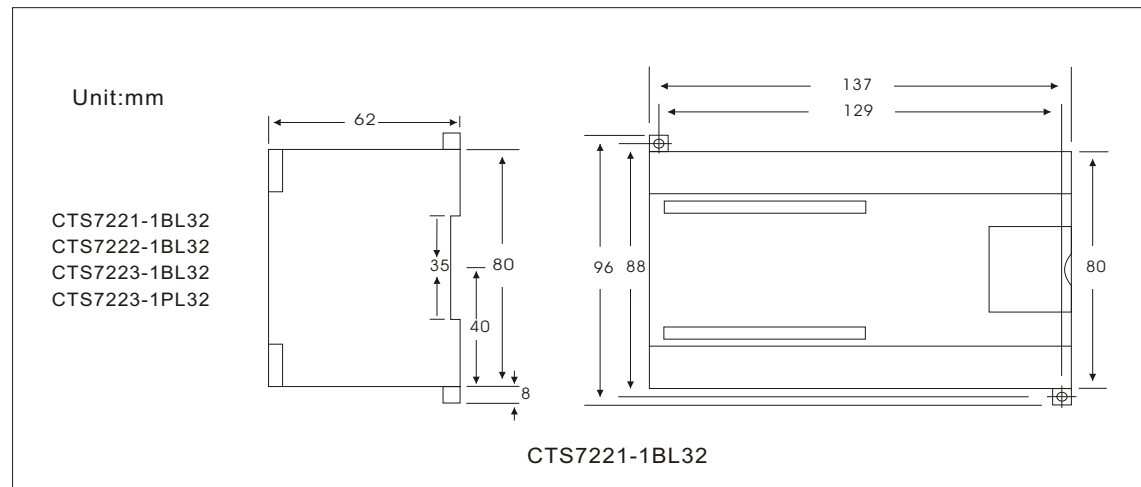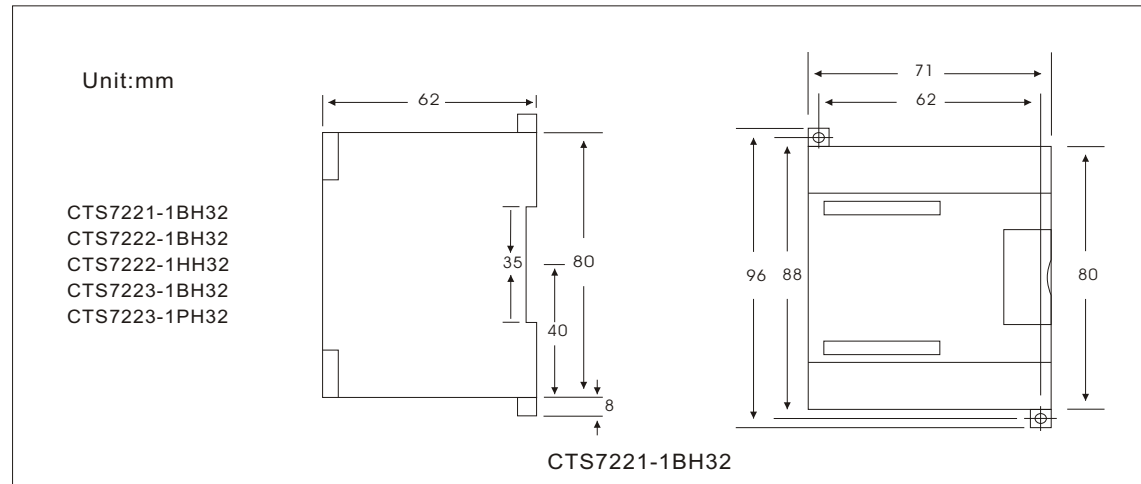
CTS7221-1BL32

Order Data

Model and Specification	Order Number
EM221 Digital Input Module , 8×24VDC	CTS7 221-1BF32
EM221 Digital Input Module , 16×24VDC	CTS7 221-1BH32
EM221 Digital Input Module , 32×24VDC	CTS7 221-1BL32
EM222 Digital Output Module , 8×24VDC transistor outputs 0.5A	CTS7 222-1BF32
EM222 Digital Output Module , 8×Relay outputs 2A	CTS7 222-1HF32
EM222 Digital Output Module , 16×24VDC transistor outputs 0.5A	CTS7 222-1BH32
EM222 Digital Output Module , 16×Relay outputs 2A	CTS7 222-1HH32
EM222 Digital Output Module , 32×24VDC Relay outputs 0.5A	CTS7 222-1BL32
EM223 Digital Input/Output Module, 4×24VDC inputs ,4×transistor outputs, 0.5A	CTS7 223-1BF32
EM223 Digital Input/Output Module , 4×24VDC inputs ,4×relay outputs, 2A	CTS7 223-1HF32
EM223 Digital Input/Output Module , 8×24VDC inputs ,8×transistor outputs, 0.5A	CTS7 223-1BH32
EM223 Digital Input/Output Module , 8×24VDC inputs ,8×relay outputs, 2A	CTS7 223-1PH32
EM223 Digital Input/Output Module , 16×24VDC inputs ,16×transistor outputs, 0.5A	CTS7 223-1BL32
EM223 Digital Input/Output Module , 16×24VDC inputs ,16×relay outputs, 2A	CTS7 223-1PL32

Analog Expansion Modules

CTS7235-0KD32

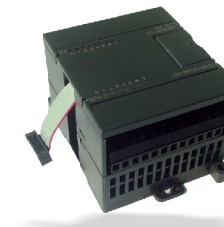Analog combination module,4AI/1AQ, 12 bits resolution,voltage or current input or output

CTS7231-0HC32

Analog Input module,4AI,12 bits resolution, voltage or current input

CTS7232-0HB32

Analog Output module,2AQ,±10V voltage outputs,0~20mA current output

CTS7232-0HF32

Analog Output module,4AQ,±10V voltage outputs,0~20mA current output

SPECIFICATION		EM231	EM235
Analog inputs specification			
Input type		Differential	
Rated voltage		24V DC	
Max. continuous permissible voltage		30V DC	
Max. input current		30mA	
Input Range	Voltage(unipolar)	0~10V，0~5V	0-50mV,0-100mV,0-500mV, 0-1V,0-5V,0-10V
	Voltage(bipolar)	±5V，±2.5V	±25mV,±50mV,±100mV,±250mV, ±500mV,±1V,±2.5V,±5V,±10V
Data Range	Current	0~20mA	
	Bipolar,full-scale range	0~32000	
	Unipolar, full-scale range	−32000~+32000,	
Input Resolution	Voltage(unipolar)	12Bit	
	Voltage(bipolar)	11Bit+Sign Bit	
	Current	11Bit	
Analog to digital conversion time		＜300μs	
Analog input step response		1.5ms to 95％	
Common mode rejection		40dB，DC - 60Hz	
Common mode voltage		Signal voltage + Commonmode voltage < 12V	
Input Impedance		≥10MΩ	
Isolation(field side to logiccircuit)		Optical, 500VAC for1 minute	
Inverse polarity protection		Yes	
ADC resolution		12BIT	
Analogl outputs specification		EM232	EM235
Output type		Voltage、Current	
Signal range		Voltage：±10V；Current：0~20mA	
Resolution, full-scale		Voltage:12BIT、Current:11BIT	
Data word format		Voltage：−32000~+32000；Current：0~+32000	
Accuracy		typical：±0.5% of full scale；Worse：±2% of full scale	
Setting time		Voltage output：100μs；Current output：2ms	
Maximum drive@24VDC power		Voltage output：5000 ohm, minimum Current output：500 ohm, maximum	
Isolation(analog to digital)		Optical, 500VAC for1 minute	

Analog Expansion Modules

Technical Features

- High reliability and strong anti-jamming capability based on the optical isolated bus.
- Analog input module with advanced filtering algorithm, sampling accurately and stably.
- The signals range of input and output is wide, voltage or current input，voltage and current output.
- 12 bit precision,500Hz sampling frequency which can satisfy most application occasions.
- The power supply with reversed polarity protection and surge absorption function which could apply to inclement working conditions.
- Signal input protect voltage can up to 30 VDC in maximum which is very strong.

Use Instruction

1、Signal input protect voltage is 30 VDC, beyond which the module can be damaged.
2、The negative end of analog input signal should be connected with the M end of the module power supply so as to enhance the anti-jamming ability.
3、The signal line should use shielded and single terminal grounded.
4、The module grounding end should be connected to the grounding line in the case of system grounding condition is good, otherwise vacant.
5、The module should stop power supply when the dial switch changed and will take effect when re-power.

Application Occasion

Module with strong anti-jamming capability, adapt to various of industrial occasions.

Calibration and Configuration Location for EM235

Terminal   Gain Offset   Configuration
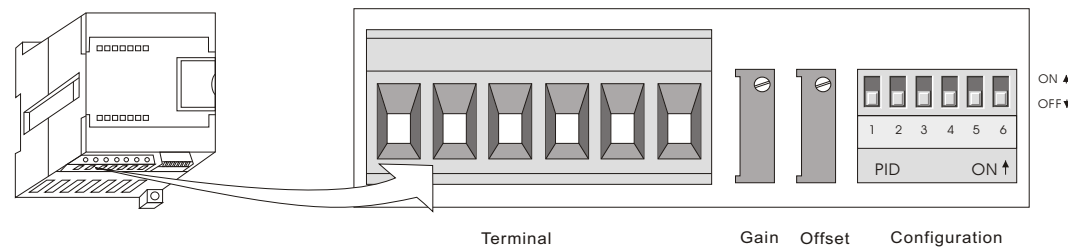
Configuration

EM231 Configuration Switch Table of Select
Analog Input Range and Resolution

Unipolar			Full-scale input	Resolution
SW1	SW2	SW3		
ON	OFF	ON	0-10V	2.5mV
	ON	OFF	0 - 5V	1.25mV
			0 - 20mA	5 μ A
Bipolar			Full-scale input	Resolution
SW1	SW2	SW3		
OFF	OFF	ON	±5V	2.5mV
	ON	OFF	±2.5V	1.25mV

* The setting change can only enter into force after the power resumption

EM235 Configuration Switch Table of Select
Analog Input Range and Resolution

Unipolar						Full-scale input	Resolution
SW1	SW2	SW3	SW4	SW5	SW6		
ON	OFF	OFF	ON	OFF	ON	0 - 50mV	12.5 μ V
OFF	ON	OFF	ON	OFF	ON	0- 100mV	25 μ V
ON	OFF	OFF	OFF	ON	ON	0- 500mV	125 μ V
OFF	ON	OFF	OFF	ON	ON	0 -1V	250 μ V
ON	OFF	OFF	OFF	OFF	ON	0-5V	1.25mV
ON	OFF	OFF	OFF	OFF	ON	0 - 20mA	5 μ A
OFF	ON	OFF	OFF	OFF	ON	0-10V	2.5mV
Bipolar						Full-scale input	Resolution
SW1	SW2	SW3	SW4	SW5	SW6		
ON	OFF	OFF	ON	OFF	OFF	±25mV	12.5 μ V
OFF	ON	OFF	ON	OFF	OFF	±50mV	25 μ V
OFF	OFF	ON	ON	OFF	OFF	±100mV	50 μ V
ON	OFF	OFF	OFF	ON	OFF	±250mV	125 μ V
OFF	ON	OFF	OFF	ON	OFF	±500mV	250 μ V
OFF	OFF	ON	OFF	ON	OFF	±1V	500 μ V
ON	OFF	OFF	OFF	OFF	OFF	±2.5V	1.25mV
OFF	ON	OFF	OFF	OFF	OFF	±5V	2.5mV
OFF	OFF	ON	OFF	OFF	OFF	±10V	5mV

Analog Expansion Modules

Connector Terminal Identification:

Size Diagram

Unit:mm

CTS7 232-0HB32

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Analog Expansion Modules

Unit:mm

CTS7 231-0HC32
CTS7 232-0HF32
CTS7 235-0KD32
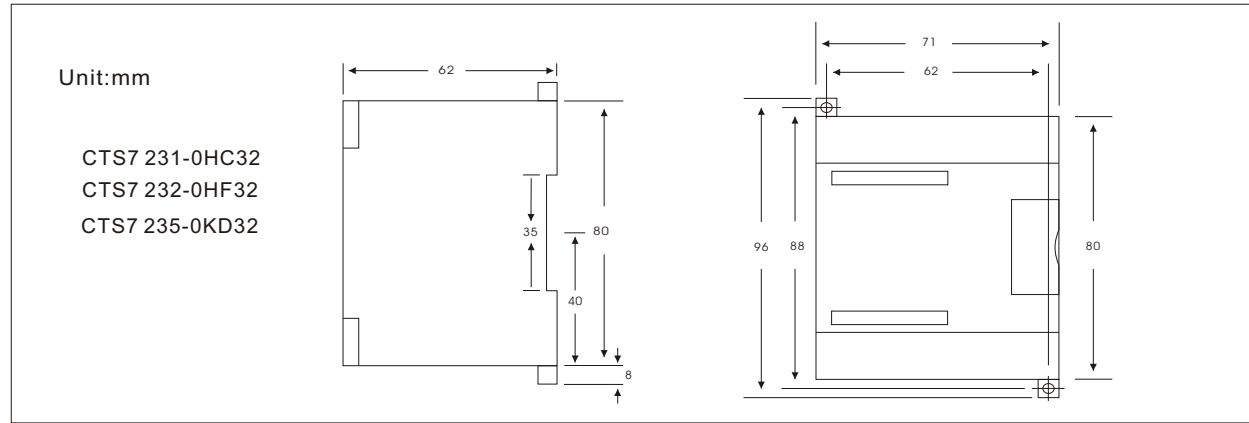
Order Data

Model and Specification	Order Number
EM231 Analog Input Module ,4 ×12-bit precision	CTS7 231-0HC32
EM232 Analog Output Module ,2 ×12-bit precision (voltage)/ 11-bit precision(current)	CTS7 232-0HB32
EM232 Analog Output Module ,4 ×12-bit precision (voltage)/ 11-bit precision(current)	CTS7 232-0HF32
EM235 Analog Input/Output Module ,4 ×12-bit inputs ,1 ×12-bit output	CTS7 235-0KD32

High Precision Analog Expansion Modules

Input Features

CTS7231-7HC32

4 Inputs of voltage signal,
16 bits resolution,
2 points of 10VDC power output

CTS7231-0HF32

8 Inputs of voltage signal,
16 bits resolution,
optical Isolated

CTS7231-1HF32

8 Inputs of current signal,
16 bits resolution,
optical Isolated

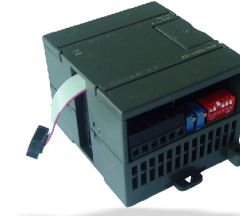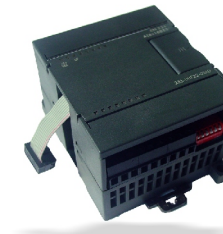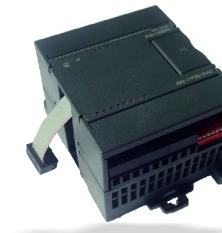| Model and Specification		CTS7 231-7HC32	CTS7 231-0HF32	CTS7 231-1HF32
input type		Differential		
Number of analog inputpoints		4	8	
Rated voltage		24V DC		
Max.continuous input voltage allowed		30V DC		
Max. input current		25mA	30mA	40mA
Input Range	Unipolar	-	Voltage: 0~10V，0~5V	Current: 0~20mA，4~20mA
	Bipolar	Voltage: ±10V，±5V	Voltage: ±5V，±2.5V	-
Measuring principle		Successive approximation	Delta-Sigma	
Analog to digital conversiontime		<200μs	10ms	
Analog input step response		<1ms	100ms，8 Channels	
Data Range	Unipolar	-	0~32000, full-scale	
	Bipolar	−32000~+32000, full-scale		
Input Resolution	Unipolar	-	10V：0.3mV；5V：0.15mV	0.000625mA；0.0005mA
	Bipolar	±10V：0.3mV；±5V：0.15mV	±5V：0.15mV；±2.5V：0.075mV	-
Analog input step response		0.5ms	5ms	100ms
Common mode rejection		85dB，DC to 60Hz	40dB，DC to 60Hz	90dB，DC to 60Hz
Maximum accuracy		Voltage: <0.1%		Current: <0.1%
Linear accuracy		±0.025%		
Isolation(field side to logiccircuit)		-	500VAC，1minute	
Inverse polarity protection		Yes		
ADC resolution		16BIT		
Power output	Rated voltage output	10V DC	-	
	Rated current output	10mA	-	
	Overload protection	Yes	-	

Technical Features

- High reliability and strong anti-jamming capability based on the optical isolated bus.
- 16 bit precision, with advanced hardware filtering technology, sampling is very stable and accurate.
- The power supply with reversed polarity protection and surge absorption function which could apply to inclement working conditions.
- Signal input protect voltage can up to 30 VDC in maximum which is very strong.
- CTS7 231-7HC32 module sampling frequency up to 1KHz which can satisfy high-speed sampling applications.
- CTS7 231-0HF32 module sampling frequency is 200 Hz which can satisfy most of high-precision sampling applications.
- CTS7 231-7HC32 provide two-channel 10 VDC exact sensor power supply.

High Precision Analog Expansion Modules

Temperature Measure Modules

Use Instruction

1、Signal input protect voltage is 30 VDC, beyond which the module can be damaged.
2、The signal line should use shielded and single terminal grounded.
3、The module grounding end should be connected to the grounding line in the case of system grounding condition is good, otherwise vacant.
4、The three modules are both voltage input which can parallel connect 250 or 500 ohm resistance change into voltage when current input.

Application Occasions:

1、CTS7 231-7HC32 can be used to connect electronic device, the module provides 10 VDC power supply directly to the electronic device. The high-speed performance of CPU can realize 50-200 point thickness control of central-spatial forming machine.
2、CTS7 231-7HC32 can also adapt to a number of other high speed sampling occasions such as certain locations and pressure closed-loop control of injection molding machines, die-casting machine.
3、CTS7 231-0HF32 apply to certain occasions with high sampling precision, strong anti-jamming ability but not need high sampling speed such as the pressure, voltage and current sampling of extruder. These modules with bus, channel and power supply triplex isolated so that the anti-jamming capability is super strong.

Configuration

CTS7231-7HC32（4AI×16位）

Bipolar			Full-scale input	Resolution
SW1	SW2	SW3		
OFF	OFF	ON	±10V	300μV
	ON	OFF	±5V	150μV

CTS7231-0HF32（8AI×16位）

Unipolar			Full-scale input	Resolution
SW1	SW2	SW3		
ON	OFF	ON	0-10V	300μV
	ON	OFF	0-5V	150μV
Bipolar			Full-scale input	Resolution
SW1	SW2	SW3		
OFF	OFF	ON	±5V	150μV
	ON	OFF	±2.5V	75μV

CTS7231-1HF32（8AI×16位）

SW1	SW2	SW3	SW4	SW5	SW6	Scale
0	0	0	0	0	0	0—20mA
0	0	1	0	0	0	4—20mA

＊ The setting change can only enter into force after the power resumption

Connector Terminal Identification:

Size Diagram

Unit:mm

CTS7 231-7HC32
CTS7 231-0HF32
CTS7 231-1HF32
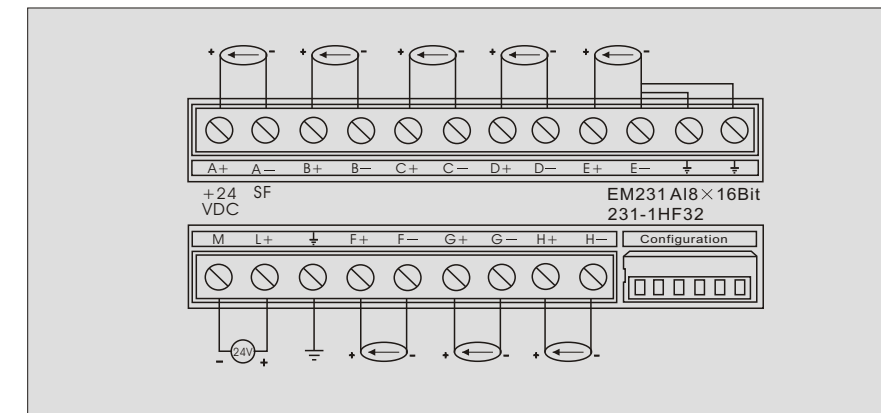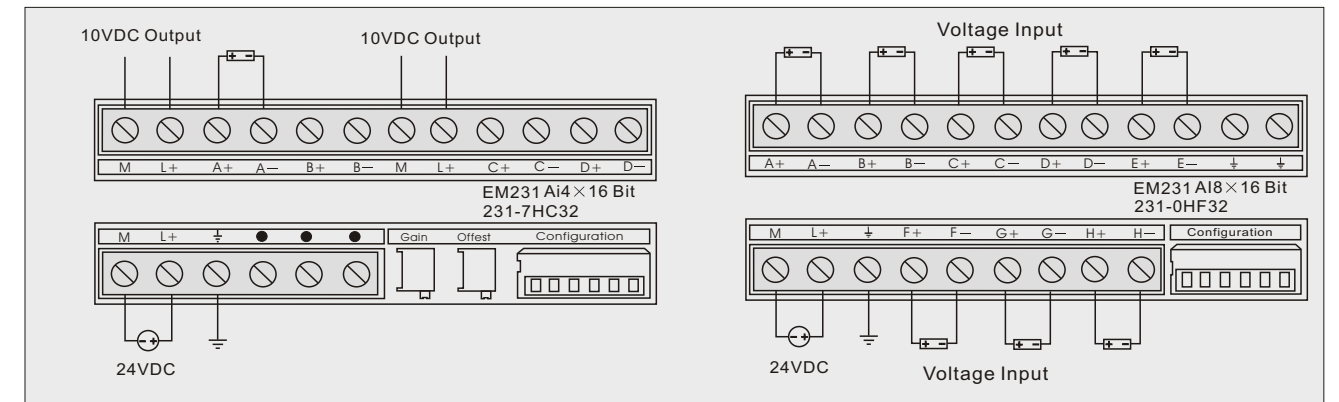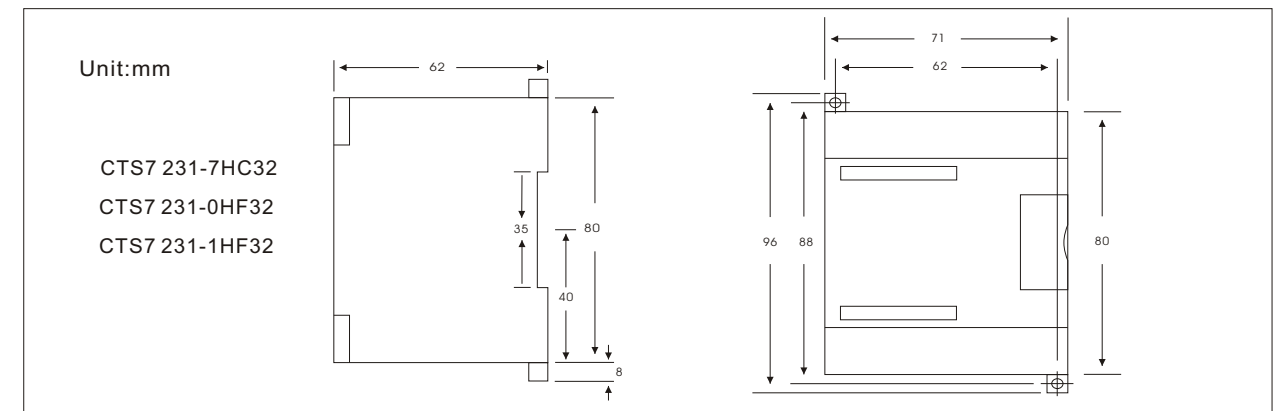
Order Data

Model and Specification	Order Number
EM231 High-speed Voltage Input Module，4×16-bit precision，sampling time<200μs /channel	CTS7 231-7HC32
EM231 Isolated Voltage Input Module，8×16-bit precision	CTS7 231-0HF32
EM231 Isolated Voltage Input Module，8×16-bit precision	CTS7 231-1HF32

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Input Features

Input type		Thermocouple Input	RTD Input
		Floating TC	Module ground referenced RTD
Number of analog input points		4/8	2/4
Rated voltage		24V DC	24V DC
Max. input voltage allowed		30V DC	30V DC
Input range		TC type(select one per module): S/T/R/E/N/K/J；Voltage range: +/-80mV	RTD type(select one per module): Pt-100Ω, 200Ω, 500Ω,1000Ω Cu-9.035Ω,Pt-1000Ω Ni-10Ω,120Ω,1000Ω R-150Ω,300Ω,600ΩFS
Isolation	Field to Logic	500V Ac，1minute	500V Ac，1minute
	Field to 24VDC	500V Ac，1minute	500V Ac，1minute
	24V DC to logic	500V Ac，1minute	500V Ac，1minute
Module update time: (All channels)		4 Channels 425ms, 8 Channels 825ms	2 Channels 425ms, 4 Channels 825ms
Measuring principle		Sigma-Delta	Sigma-Delta
Common mode input range (input to input)		120VAC	120VAC
Common mode rejection		>120dB@120V AC	>120dB@120V AC
Input resolution	Temperature	0.1℃/0.1℉	0.1℃/0.1℉
	Resistance	15 bits plus sign	-
	Resistance	-	15 bits plus sign
Wire length to sensor, max.		100m to sensor	100m to sensor
Wire loop resistance,max.		100Ω	20Ω，CU2.7Ω
Suppression of interference		85dB@50Hz/60Hz/400Hz	85dB@50Hz/60Hz/400Hz
Data word format		Voltage: -27648 to+27648	-
Input impedance		>1MΩ	>10MΩ
Basic error (max.)		0.1% Fs（Voltage）	0.1% Fs（Resistance）
Repeatability		0.05% FS	0.05% FS
Cold junction error		±1.5℃	-
24V DC supply voltage range		20.4~28.8VDC	

CTS7231-7PB32 Isolated，2 RTD Inputs,16bits resolution

CTS7231-7PC32 Isolated，4 RTD Inputs,16bits resolution

CTS7231-7PD32 Isolated，4 TC Inputs,16bits resolution

CTS7231-7PF32 Isolated，8 TC Inputs,16bits resolution

Technical Features

- The bus, power supply and channels total isolated, with high reliability and strong anti-jamming capability.
- 16 bit precision, with advanced hardware filtering technology, temperature measurement is accurate and stable.
- The power supply with reversed polarity protection and surge absorption function which could apply to inclement working conditions.
- Signal input protect voltage can up to 30 VDC in maximum which is very strong.
- Intelligentized break detection, high system control security.

Use Instruction:

1、 The thermocouple and thermal resistance should be isolated so as to improve the reliability and anti-jamming performance.

2、 The signal line should use shielded and single terminal grounded.

3、 The module grounding end should be connected to the grounding line in the case of system grounding condition is good, otherwise vacant.

4、 For canceling break trouble alarm, unused channels can be short-circuit in TC module or can be connected to standard resistance in RTD module.

Application Occasions:

All kinds of temperature sampling occasions that need high accuracy, with strong anti-jamming ability which could be applied to various industrial environments. the CPU can connect 7 temperature expansion modules in maximum, 56 channels temperature sampling in maximum, with integrated auto-tune PID library by CPU which can realize 56 loops temperature control, satisfy various temperature occasions such as extrusion equipment, glass machinery, rubber and plastics equipment etc.

Configuration

TC Sensor Type	SW1	SW2	SW3
J(Default)	0	0	0
K	0	0	1
T	0	1	0
E	0	1	1
R	1	0	0
S	1	0	1
N	1	1	0
+/-80mV	1	1	1

Configuration Item	CTS7 231- 7PD32		CTS7 231- 7PF32	
	Switch	Setting	Switch	Setting
Open Wire Detect Direction	SW5	0:Upscale(+3276.7degree) 1:Downscale(−3276.8degree)	SW4	0:Upscale(+3276.7degree) 1:Downscale(−3276.8degree)
Open Wire Detect Enable	SW6	0:Enable,1:Disable		Enable Always
Temperature Scale	SW7	0:Celsius,1:Fahrenheit	SW5	0:Celsius,1:Fahrenheit
Code-Junction Compensating Enable	SW8	0:Enable,1:Disable	SW6	0:Enable, 1: Disable

Configuration for TC Modules

RTD type	SW1	SW2	SW3	SW4	SW 5
100 Pt 0.003850(Default)	0	0	0	0	0
200Ω Pt 0.003850	0	0	0	0	1
500Ω Pt 0.003850	0	0	0	1	0
1000Ω Pt 0.003850	0	0	0	1	1
100Ω Pt 0.003920	0	0	1	0	0
200Ω Pt 0.003920	0	0	1	0	1
500Ω Pt 0.003920	0	0	1	1	0
1000Ω Pt 0.003920	0	0	1	1	1
100Ω Pt 0.00385055	0	1	0	0	0
200Ω Pt 0.00385055	0	1	0	0	1
500Ω Pt 0.00385055	0	1	0	1	0
1000Ω Pt 0.00385055	0	1	0	1	1
100Ω Pt 0.003916	0	1	1	0	0
200Ω Pt 0.003916	0	1	1	0	1
500Ω Pt 0.003916	0	1	1	1	0
1000Ω Pt 0.003916	0	1	1	1	1
100Ω Pt 0.003902	1	0	0	0	0
200Ω Pt 0.003902	1	0	0	0	1
500Ω Pt 0.003902	1	0	0	1	0
1000Ω Pt 0.003902	1	0	0	1	1
Reserved	1	0	1	0	0
100Ω Ni 0.00672	1	0	1	0	1
120Ω Ni 0.00672	1	0	1	1	0
1000Ω Ni 0.00672	1	0	1	1	1
100Ω Ni 0.006178	1	1	0	0	0
120Ω Ni 0.006178	1	1	0	0	1
1000Ω Ni 0.006178	1	1	0	1	0
10000Ω Pt 0.003850	1	1	0	1	1
10Ω Cu 0.004270	1	1	1	0	0
150Ω FS Resistance	1	1	1	0	1
300Ω FS Resistance	1	1	1	1	0
600Ω FS Resistance	1	1	1	1	1

Configuration for RTD Modules

SW6	Open Wire Detect Direction	SW7	Temperature Scale	SW8	Wiring Scheme
0	Upscale (+3276.7degree)	0	Celsius (℃)	0	3-wire
1	Downscale(-3276.8degree)	1	Fahrenheit (℉)	1	2-wire or 4-wire

＊The setting change can only enter into force after the power resumption

Temperature Measure Modules

PID Temperature Control Modules

Connector Terminal Identification:

Em231 RTD Modules

Em231 TC Modules

Size Diagram

Unit:mm

CTS7 231-7PB32
CTS7 231-7PC32
CTS7 231-7PD32
CTS7 231-7PF32
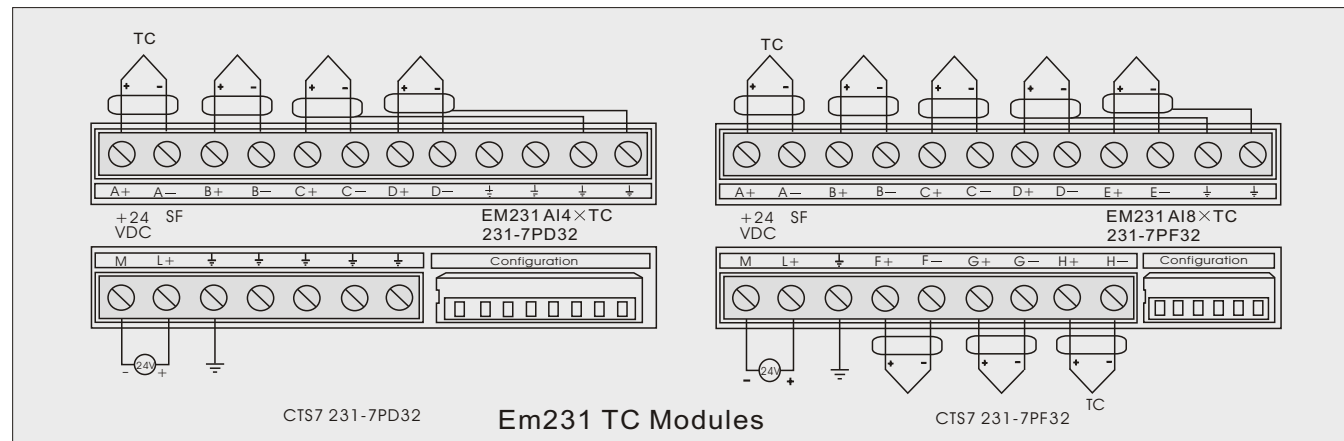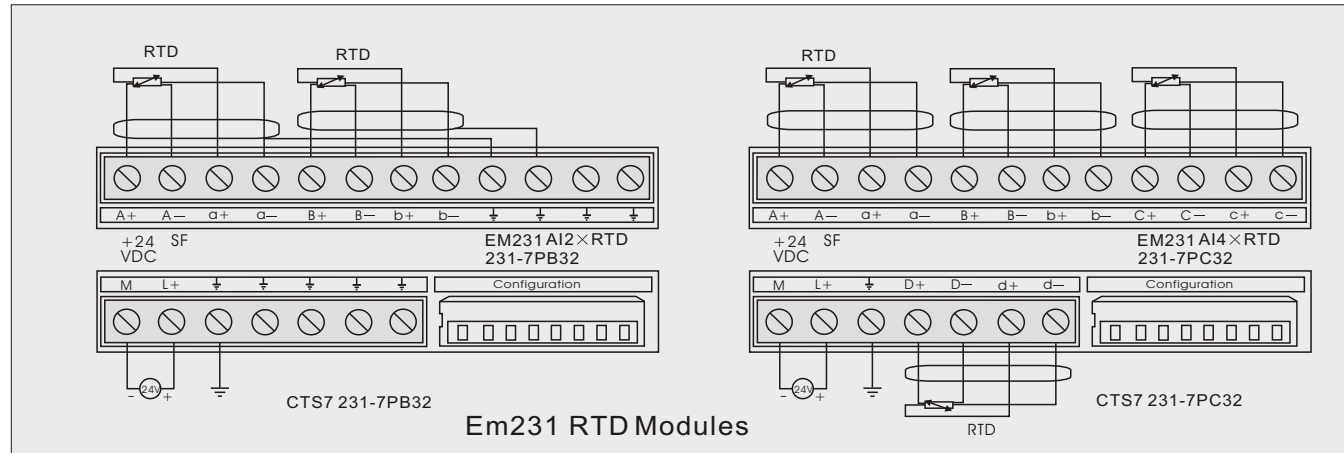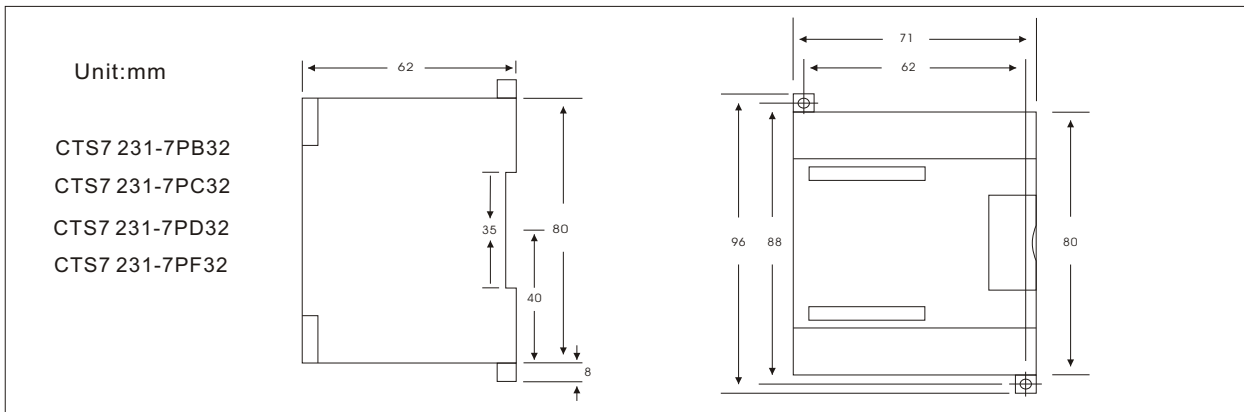
Order Data

Model and Specification	Order Number
EM231 Analog Input RTD , 2×16-bit precision , isolation	CTS7 231-7PB32
EM231 Analog Input RTD , 4×16-bit precision , isolation	CTS7 231-7PC32
EM231 Analog Input Thermocouple , 4×16-bit precision ,J/K/R/S/T/E/N , isolation	CTS7 231-7PD32
EM231 Analog Input Thermocouple , 8×16-bit precision ,J/K/R/S/T/E/N , isolation	CTS7 231-7PF32
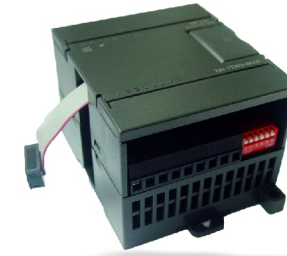
CTS7231-7TD32

Isolated 4 TC input, integrating intelligent PID arithmetic inside
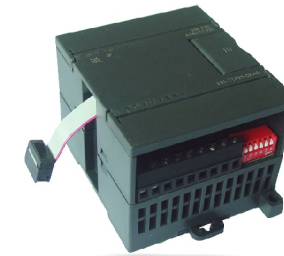
CTS7231-7TF32

Isolated 8TC input,integrating intelligent PID arithmetic inside

CTS7231-7HF32

Isolated 8TC current input,integrating intelligent PID arithmetic inside

Specifications		CTS7 231-7TF32	CTS7 231-7TD32	CTS7 231-7HF32
Dimension(WXHXD)mm		71.5×80×62		
Number of input points		8, TC	4, TC	8, current
Input impedance		TC type: J/K		0-20mA/4-20mA
Insert I/O terminal		No		
Maximum input voltage		30VDC		
Isolation		Yes		
● Field to Logic		500VAC		
● Field to 24V DC		500VAC		
● 24V DC to logic		500VAC		
Module update time:All channels		825ms	405ms	825ms
Measuring principle		SIGMA-DELTA		
Input resolution	Temperature	0.1 ℃ / 0.1 ℉		
	Voltage	15 bits plus sign		
Noise suppression		85dB		
● Noise freguenly		50/60/400Hz		
Common mode input range (input channel to inputchannel)		120V AC		
Common mode rejection		>120dB@120V AC		
Data word format		−27648--+27647		-
Basic error		0.1%FS(Voltage)		0.1%FS(current)
Repeatability		0.05%FS		
Cold junction error		±1.5℃		-
Diagnostic program		LED: EXTF,SF		
wire length to sensor, maximum		100m to sensor		
Wire loop resistance		100Ω		10Ω
Power Consumptiom		-		
● From +5V(from I/O bus)		87mA		35mA
● From L+		60mA		37mA
Power Loss(dissipation)		1.8W		

Technical Features

- The bus, power supply and channels total isolated, with high reliability and strong anti-jamming capability.
- 16 bit precision, with advanced hardware filtering technology, temperature measurement is accurate and stable.
- The power supply with reversed polarity protection and surge absorption function which could apply to inclement working conditions.
- Modules integrate advanced fuzzy logic control algorithm, do not occupy CPU resources, need no programming, with good temperature control accurate dynamic performance.
- PID control output can be PWM or analog, bipolar output, can control heating and Cooling.

Use Instruction:

1、The thermocouple should be isolated so as to improve the reliability and anti-jamming performance.
2、The signal line should use shielded and single terminal grounded.
3、The module grounding end should be connected to the grounding line in the case of system grounding condition is good, otherwise vacant.
4、For the TC modules, unused channels can be short-circuit to cancel the break trouble alarm.

Application Occasions:

Temperature control is very convenient which is adapt to various temperature control as the effect is so good.
The CPU can connect 7 expansion modules, realize 56 loops temperature control which adapt to the CPU do not with auto-tune PID temperature control.
Mainly satisfy various temperature control occasions.

Configuration

231-7TD32/231-7TF32

Item	Switch	Setting
TC Type	SW3	0:J 1:K
Open Wire Detect Direction	SW4	0:Upscale(+3276.7degree) 1:Downscale(−3276.8degree)
Temperature Scale	SW5	0:Celsius，1:Fahrenheit
Code-Junction Compensating Enable	SW6	0:enable,1:Disable

231-7HF32

SW1	SW2	SW3	SW4	SW5	SW6	Scale
1	1	0	0	0	0	0—20mA
1	1	1	0	0	0	4—20mA

* The setting change can only enter into force after the power resumption

Connector Terminal Identification:

CTS7 231-7TD32   EM231 PID Temperature Control Module   CTS7 231-7TF32

Size Diagram

Unit:mm

CTS7 231-7TF32
CTS7 231-7TD32
CTS7 231-7HF32

Order Data

Model and Specification	Order Number
EM231 Analog Input Thermocouple , 4×16-bit precision ,K , isolation , intelligent PID	CTS7 231-7TD32
EM231 Analog Input Thermocouple , 8×16-bit precision ,K , isolation , intelligent PID	CTS7 231-7TF32
EM231Current Input,8×16-bit precision , isolation，0-20mA/4-20mA， intelligent PID	CTS7 231-7HF32

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CTS7-200 Series Programmable Controller

CTS7-200 Series Programmable Controller

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NTC Temperature Collecting Modules

NTC Temperature Collecting Modules
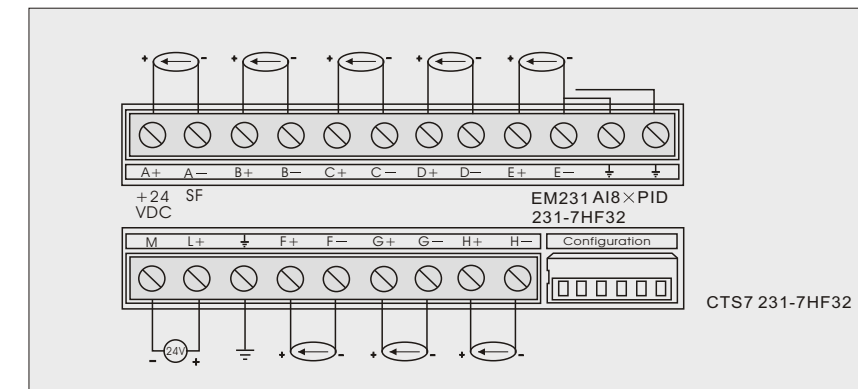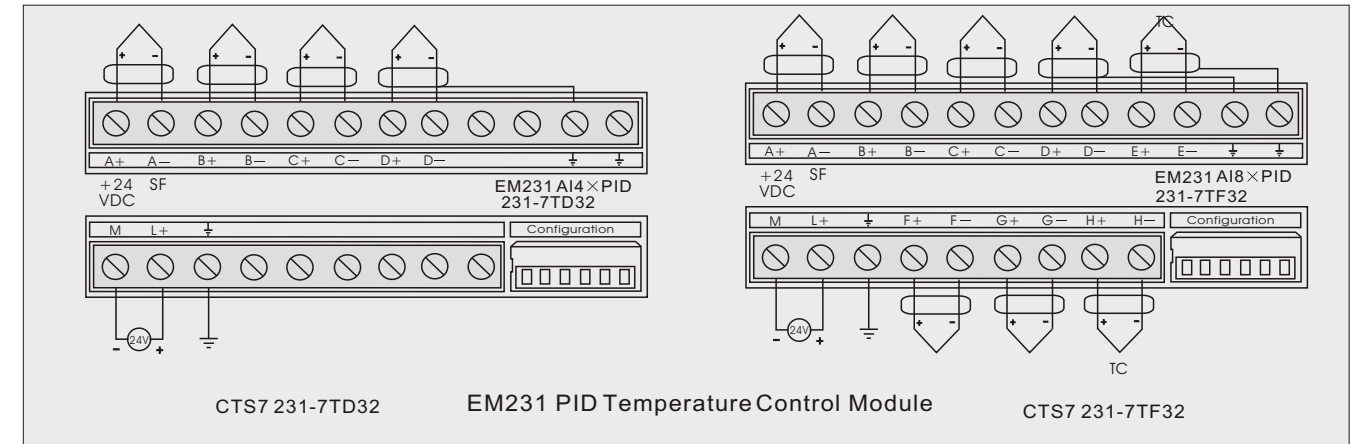
Input Features

CTS7 231-7ND32

EM231 NTC Module
With 2 inputs of NTC/PT100,and
2 inputs of voltage/current,
16 bits resolution, isolated

CTS7 231-7NF32

EM231 NTC Module
With 8 inputs of NTC,
16 bits resolution, isolated

Specification		CTS7231-7ND32	CTS7231-7NF32
Dimension(W×H×D)		71.2×80×62mm	
Power loss		1.7W	2.1W
Power Consumption	From +5V	87mA	
	From L+	60mA	70mA
	L+ voltage range	20.4~28.8V DC	
LED Indicator		24V DC: ON=power supply good, OFF=no supply power	
		SF: ON=Module Failure, BLINK=Input Signal Error, OFF=no fault	
Input type		Module reference ground RTD	
Input range		RTD type(select one)： Pt-100Ω(α=3850PPm,3920PPm,3850.55PPm, 3916PPm，3902PPm) NTC R25=10K B=3950	NTC R25=10K B=3950
Voltage input range		±5V, ±10V, 0~5V, 0~10V	
Current input range		0~20mA	
Number of input		2 PT100/2NTC and 2AI	8 NTC
Isolation	Field to logic	500V AC	
	Field to 24V DC	500V AC	
	24VDC to logic	500V AC	
Common mode input range (input channel to input channel)		0	
Common mode rejection		>120dB@120V AC	
Input resolution	Temperature	0.1℃/0.1℉	
	Voltage	15bits plus sign	
Measuring principle		Sigma-Delta	
Module update time: All channel		425ms	1s
Wire length to sensor		100m(maximum)	
Wire loop resistance		20Ω	
Suppression of interference		85dB@50Hz/60Hz/400Hz	
Data word format		Voltage：-27648 ~ +27648	
Input inpedance		>10MΩ	
Maximum input voltage		30V DC (detect) ,5VDC(power supply)	
Resolution		15bits plus sign	
Input filter attenuation		−3dB@21KHz	
Basic error		0.1% Fs(Resistance)	
Repeatability		0.05% Fs	

Technical Features:

- The bus power supply and channels total isolated, with high reliability and strong anti-jamming capability.
- 16 bit precision, with advanced hardware filtering technology, temperature measurement is accurate and stable.
- The power supply with reversed polarity protection and surge absorption function which could apply to inclement working conditions.
- CTS7 231-7ND32 module integrate two-channel temperature two-channel

Use Instruction:

1、The signal line should use shielded and single terminal grounded.
2、The module grounding end should be connected to the grounding line in the case of system grounding condition is good, otherwise vacant.

Application Occasions:

The module have high cost-effective in central air conditioning and the medical equipment, with high sampling precision and strong anti-jamming ability which is very convenient to use.

Configuration

CTS7 231-7ND32

Sensor Type	SW1	SW2	SW3	SW4	SW 5
100 Pt 0.003850(Default)	0	0	0	—	—
100Ω Pt 0.003920	0	0	1	—	—
100Ω Pt 0.00385055	0	1	0	—	—
100Ω Pt 0.003916	0	1	1	—	—
100Ω Pt 0.00302	1	0	0	—	—
NTC R25=10K B=3950	1	0	1	—	—
NTC R25=10K B=3435	1	1	0	—	—
Reserved	1	1	1	—	—
0—5V	—	—	—	1	0
0—20MA	—	—	—	1	1
0—10V	—	—	—	0	0
-10V—10V	—	—	—	0	1
-5V—5V	—	—	—	1	0

SW6	Open Wire Detect Direction	SW7	Temperature Scale	SW8	Wiring Scheme
0	Upscale (+3276.7degree)	0	Celsius (℃)	0	3-wire
1	Downscale(-3276.8degree)	1	Fahrenheit (℉)	1	2-wire

CTS7 231-7NF32

Sensor Type	SW1	SW2	SW3	SW4	SW 5
NTC R25=10K B=3950	1	0	1	—	—
NTC R25=10K B=3435	1	1	0	—	—

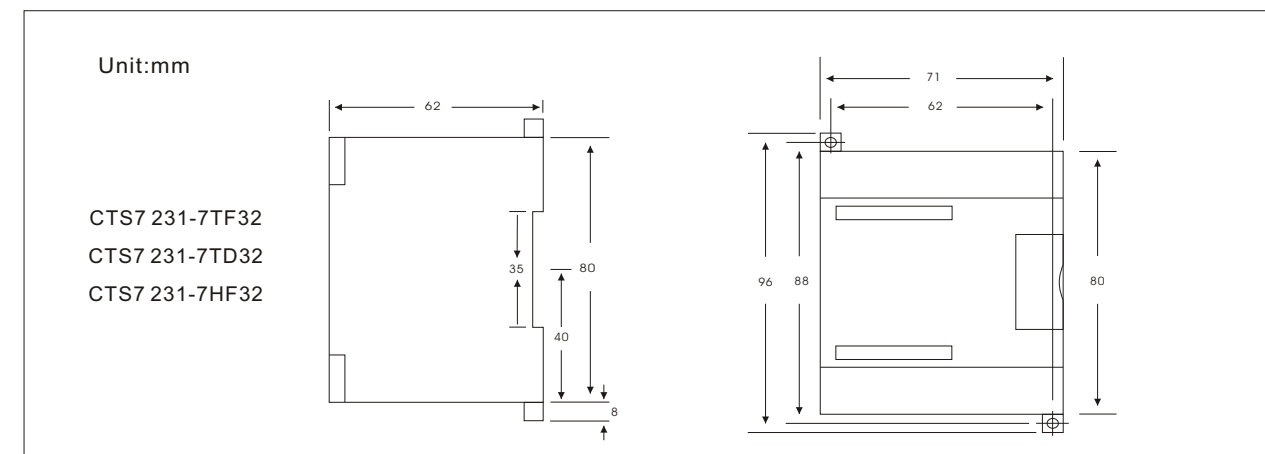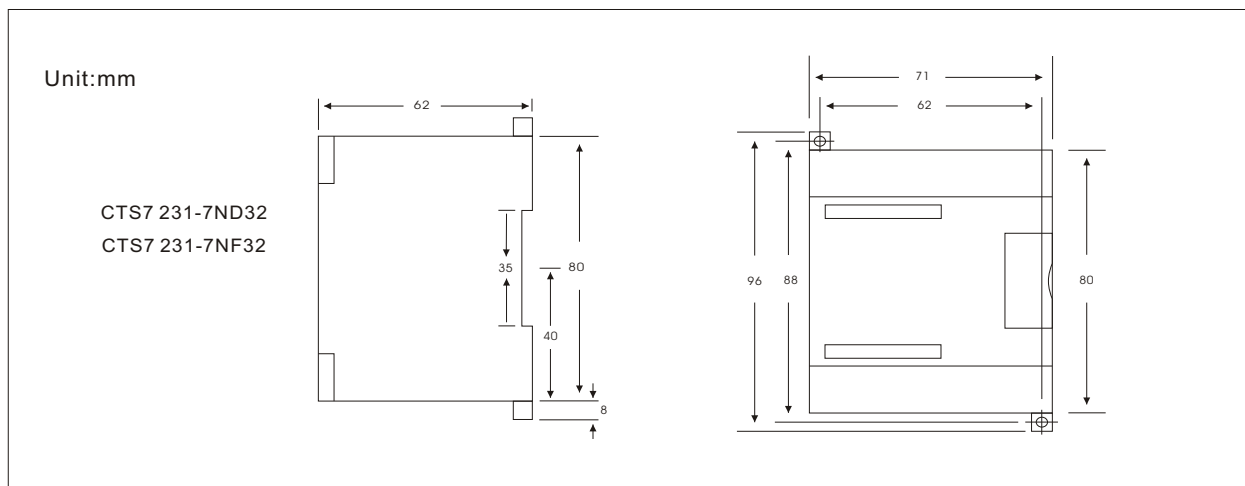| SW6	Open Wire Detect Direction	SW7	Temperature Scale	SW8	Wiring Scheme
0	Upscale (+3276.7degree)	0	Celsius (℃)	0	3-wire
1	Downscale(-3276.8degree)	1	Fahrenheit (℉)	1	2-wire

* The setting change can only enter into force after the power resumption

NTC Temperature Collecting Modules

Connector Terminal Identification:

RTD   RTD   NTC

A+ A− a+ a− B+ B− b+ b− RC C+ C−
+24 SF   EM231 AI2+2RTD
VDC   231-7ND32

A+ A− B+ B− C+ C− D+ D− E+ E− F+ F−
+24 SF   EM231 8NTC
VDC   231-7NF32

M L+ ⏚ RD D+ D−   Configuration

CTS7 231-7ND32

M L+ ⏚ H+ H− G+ G−   Configuration

CTS7 231-7NF32

Size Diagram

Unit:mm

62

71
62

CTS7 231-7ND32
CTS7 231-7NF32

35   80   96 88   80

40

8
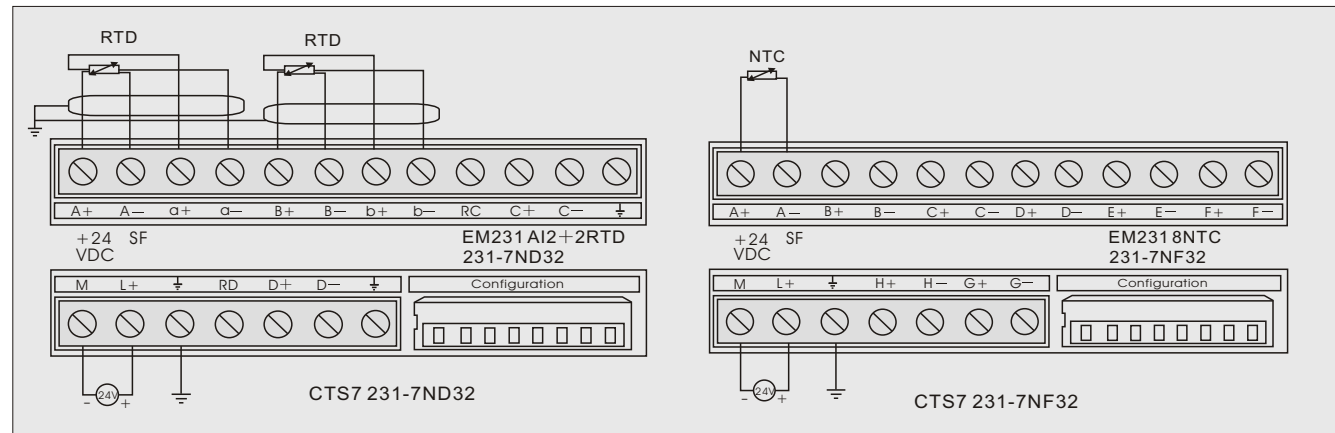
Order Data

Model and Specification	Order Number
EM231 Combination Temperature Input Module,2 NTC/PT100, 2inputs of voltage/current,isolation	CTS7 231-7ND32
EM231 NTC Temperature input Module,8×NTC,16 bit precision ,isolation	CTS7 231-7ND32

Communication Modules

Input Features

CTS7 277-0AA32

PROFIBUS-DP Module, Slave Station,
12Mbps in maximum,isolated

CTS7 277-0AB32

PROFIBUS-DP Module,
Slave Station,isolated

Specification	EM277-0AA	EM277-0AB
Number of ports	1	
Electrical inteface	Isolated RS-485	
Onboard I/O	0	
PROFIBUS-DP/MP I baud rates (Set automatically)	9.6、19.2、45.45、93.75、187.5 and 500K baud 1、1.5、3、6 and 12M baud	PROFIBUS-DP baud rates (auto. set) 9.6、19.2、45.45、93.75、187.5 and 500K baud; 1M、1.5M baud
Protocols	PROFIBUS-DP slave and MPI slave	PROFIBUS-DP V0
Cable Length		
Up to 93.75K baud	1200m	Shield 500m
187.5K baud	1000m	
500K baud	400m	
1 to 1.5M baud	200m	Unshield 300m
3 to 12M baud	100m	
Network Capabilities		
Station address settings	0 to 126(set by rotary switches)	1 to125(select by swithes)
Max. stations per segment	32	
Max. stations per networkl	126,up to 125 EM277stations	126(include station with zeroaddress)
MPI Connections	6 total, 2 reserved (1 for PG,1 forOP)	—
24VDC Input Power Requirements		
Voltage range	20.4 to 28.8 VDC(Class2, limited power,or sensor power fromPLC)	
Max, current(Module only with port active)	70mA	1.5A peak
Ripple noise(<10 Mhz)	<1 V peak topeak(maximum)	
Isolation(Field to logic)	500 VAC,1 minute	Not insulated

Technical Features:

- With high reliability and strong anti-jamming capability based on the optical isolation technology.
- With terminal resistance, the bus connection need no special network connectors.
- The power supply with reversed polarity protection and surge absorption function which could apply to inclement working conditions.
- EM277A need to use with CPU, EM277B can be used as slave station independently.
- The I/O scale of slave station can up to 256 points digital I/O,56AI/28AO.
- Slave station 277B can connect 6 expansion modules.

Use Instruction:

1、The communication lines must use shielded twisted pair which must ground Both terminals.
2、The module grounding end should be connected to the grounding line in the case of system grounding condition is good, otherwise vacant.
3、The terminal resistance must dial to ON position if the module as the last station.

Communication Modules

Application Occasions:

DP bus is field bus with high speed and reliability, strong anti-jamming capability which with lots of practical application nodes. The system with bus structure have the features of flexible line distributing, strong expansion ability and the system anti-jamming capability.

The slave station formed by EM277A+ CPU with the ability of distributed control and focus monitoring so that the reliability of the system will be very high

EM277B is an independent DP slave station with pretty high cost-effective which can reduce the interference caused by line distributing and signals through the distributed control. It's expansion ability is so strong that can extend 125 substation.
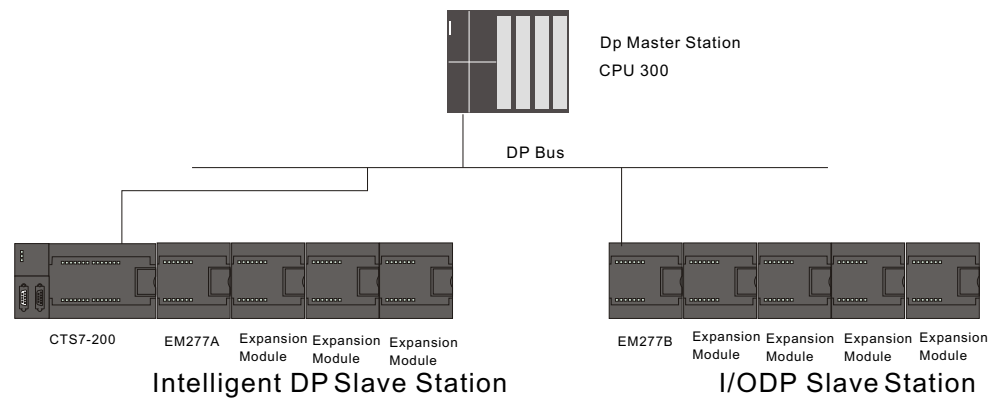
Intelligent DP Slave Station I/ODP Slave Station

Connector Terminal Identification:

Size Diagram
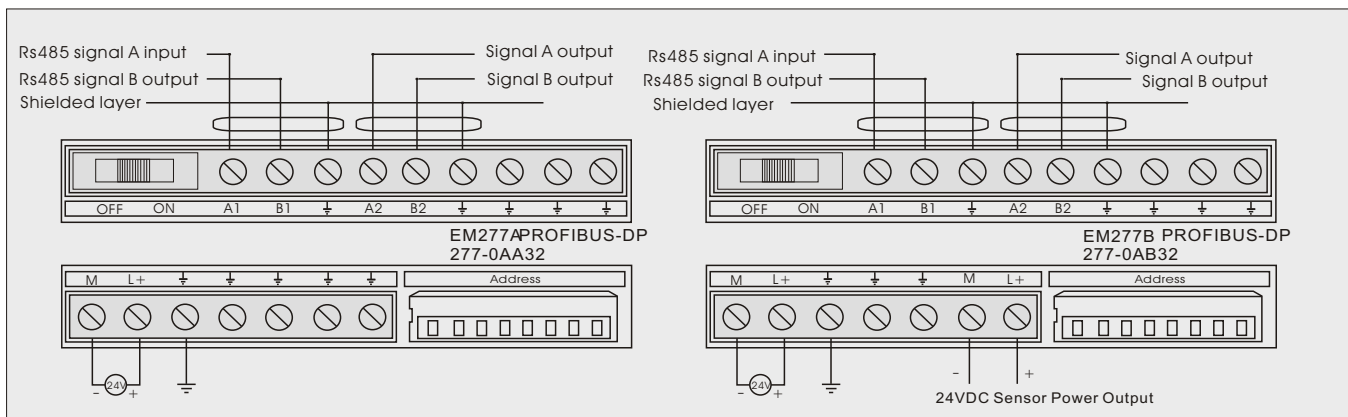
Communication Modules
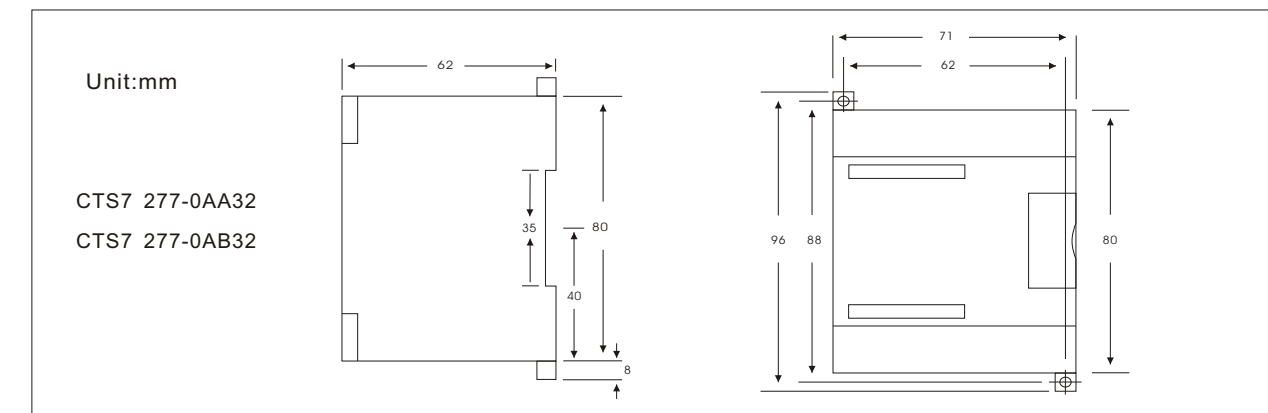
Order Data

Model and Specification	Order Number
EM277A PROFIBUS-DP Slave Expansion Module,isolation	CTS7 277-0AA32
EM277B PROFIBUS-DP Slave Module,isolation	CTS7 277-0AB32

Programmable Special Control Modules

We have launched various special controller aimed at different industries which can satisfy the high performance and cost-effective requirement of kinds of OEM control. We CO-TURST have advanced technical advantages in high-speed closed loop applications, motion control and temperature control that can develop the high cost-effective solution satisfying the control performance for the customers.

CPU Performance

PSC 266

- Logical instructions 0.15 us, floating-point instructions 8 us.
- Program space 72 Kbytes, data space 110 Kbytes, can satisfy various of complex applications.
- Super strong confidential function which can protect your intellectual property effectively.
- The CPU integrate 20 channels thermocouple input, 14 DI/10DO, 4 channel analog output.
- The thermocouple sampling use total-isolated technology,16 bit precision, strong anti-jamming capability.
- Integrated three communication ports so that the communication function is very strong.

Specification

Description		CPS 226
Dimensions(WXHXD)		196×80×62
Power loss		11W
User program memory size		72KB
User data memory size		110KB
Max. expansion modules allowed		7
Maximun digital I/O points		248DI/DO
Maximum analog I/O points		56AI/28AQ
Data stored when power down		Cartridge battery + Suppercapacitance
Timers	1ms	4
	10ms	16
	100ms	236
Counters		256
Internal memory bits		256
Timed interrupts		2 with 1ms resolution
Edge interrupts		4 edge up or 4 edge down
Analog adjustments		2 with 8-bit resolution
Boolean execution speed		0.15 μs
Float execution speed		8 μs
Real Time Clock		Built-in
Communications Built-in		
Communication Ports		3 communication ports，1 configuration。 PORT1(RS232/RS485、PPI port)、PORT0(RS485、PPIport),FPORT0(RS485、freeport)
PPI/MPI baudrates		9.6K 19.2K and 187.5K bps
Freeport baudrates		1.2K--115.2K bps
Max. number of stations		32 stations per segment,126 stations per network
Max. number of masters		32
PPI master mode(NETR/NETW)		Yes（NETR/NETW），200 kbytes/8 connector per communication package
MPI connections		8 total,2 reserved （1PG/1OP)
Max. cable length per segment		**With isolated repeater: 1000 m up to 187.5 kbaud, 1200 m up to 38.4 kbaud;Without isolated repeater: 50 m**
Digital input	Input points	14
	Input voltage	24VDC
	Isolation	Optical

（continued from previous page）

Digital outputs	Output points	10
	Current	0.5A 24VDC
	Isolation	Optical Isolated
	Output short circuit protection	Yes
Analog outputs	Output points	4
	Voltage	0－10VDC
	Isolation	Optical Isolated
TC input	Amount	20 channels
	Temperature range	K −150~1370℃
	Precision	16 bits
	Sampling speed 1	1s/14 channels
	Sampling speed 2	0.5s/6 channels
	Isolation	Yes
	Break detection	Yes
	Input protection voltage	30VDC
	Input type	K

I/O Capacity

- Can connect 7 expansion modules to form control system with strong function.
- Can realize 76 channel analog collection, 32 channel analog output,256 channel digital input and output.
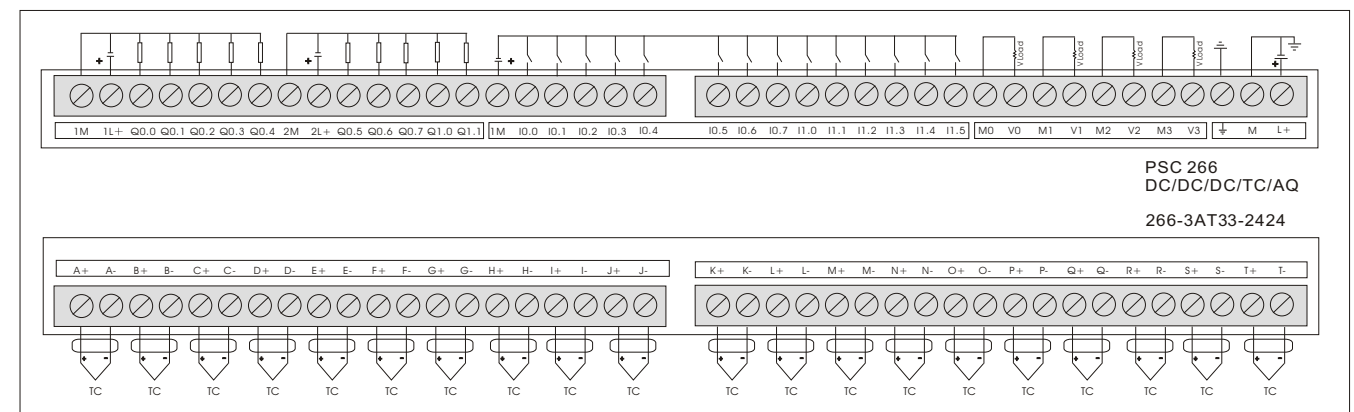
Software Function

- Integrated special function library of various industries so as to exert the equipment performance in maximum.
- Auto-tune fuzzy logic temperature control PID, need no programming, high temperature control precision, good dynamicperformance.
- Various communication function library such as MODBUS which can communicate with a variety of peripherals expediently.
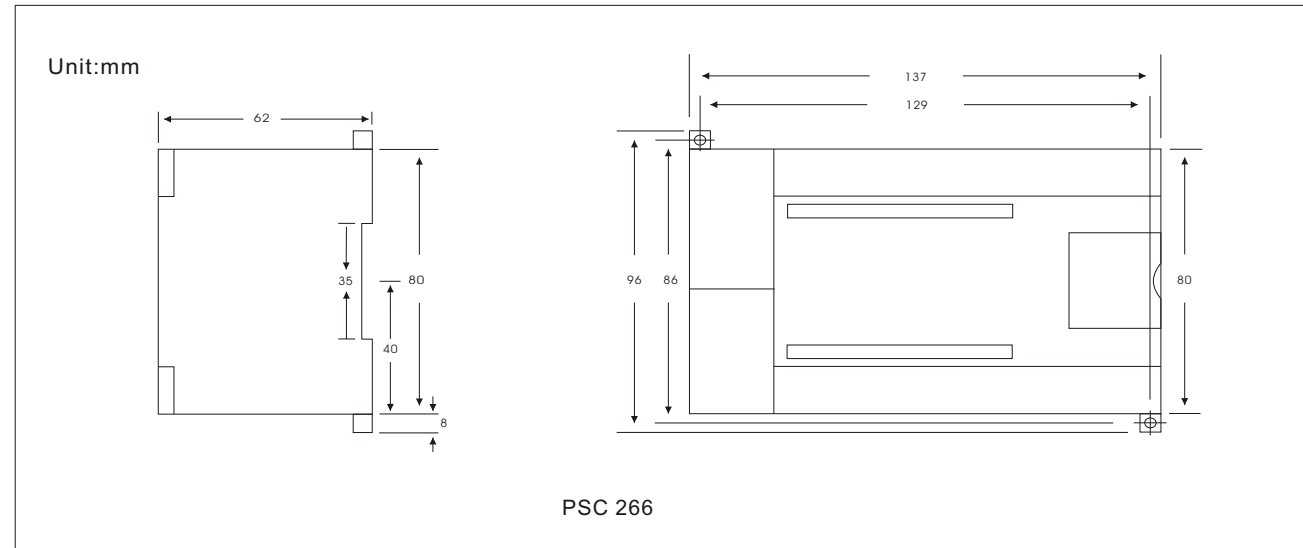
Application Occasions

The controller can satisfy most of the temperature control applications
Reflow Soldering Control Equipment
Rubber and plastic equipment
Industrial Boilers
Chemical fiber Equipment
Glass Machinery

Connector Terminal Identification:

PSC 266
DC/DC/DC/TC/AQ
266-3AT33-2424

Programmable Special Control Modules

Text Operation Panel

Size Diagram

Unit:mm

PSC 266

Order Data

Model and Specification	Order Number
PSC266，72K Program/110K Data，24VDC,14DI/10DO transistor outputs，4×Analog output，isolation，20×TC input，0.75A，3 communication ports	CTSC 266-3AT33-2424

Copanel TD2X

Copanel TD2X is the text display operating interface of TrustPLC® CTS7-100/200 series programmable logic controller that can display two lines of characters, it use the same program software with PLC which is easy to use.

Copanel TD2X

TD200X features:
- Display CPU information
- Display and modify the value of CPU V storage areas
- Support/cancel forced I/O point function
- Can set the date and time for the CPU with real-time clock
- Supports multiple character sets
- Support six kinds of language(German, English, Chinese, French, Italian and Spanish)
- Can power supply independently or by CPU though the cable matched the TD2X directly

Copanel TD4X

Copanel TD4X is the text display operating interface of Trust PLC® CTS7-100/200 series programmable logic controller that can display four lines of characters, need no professional program software which is easy to use.

Copanel TD4X

Copanel TD4X Features:
- Display CPU information
- User-defined alarm
- User-defined button
- User-defined screen saved time
- Change PLC mode
- Support / cancel forced I/O point
- Display and modify the value of CPU V storage areas
- Can set date and time for CPU with the real time clock
- Support copying the user's program to the memory card
- Provide password protected
- Supports multiple character sets
- Support multi-language menu and clue
- Can power supply independently or by CPU through the cable matched the TD4X directly

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Specification

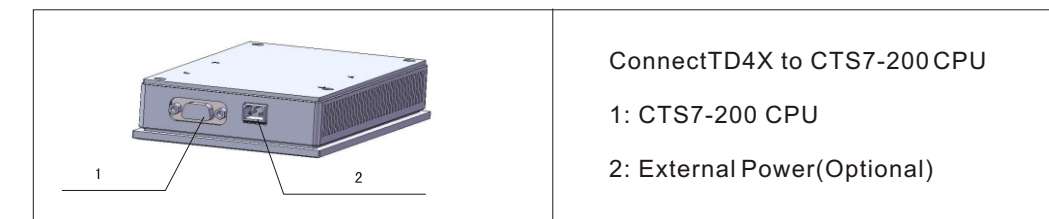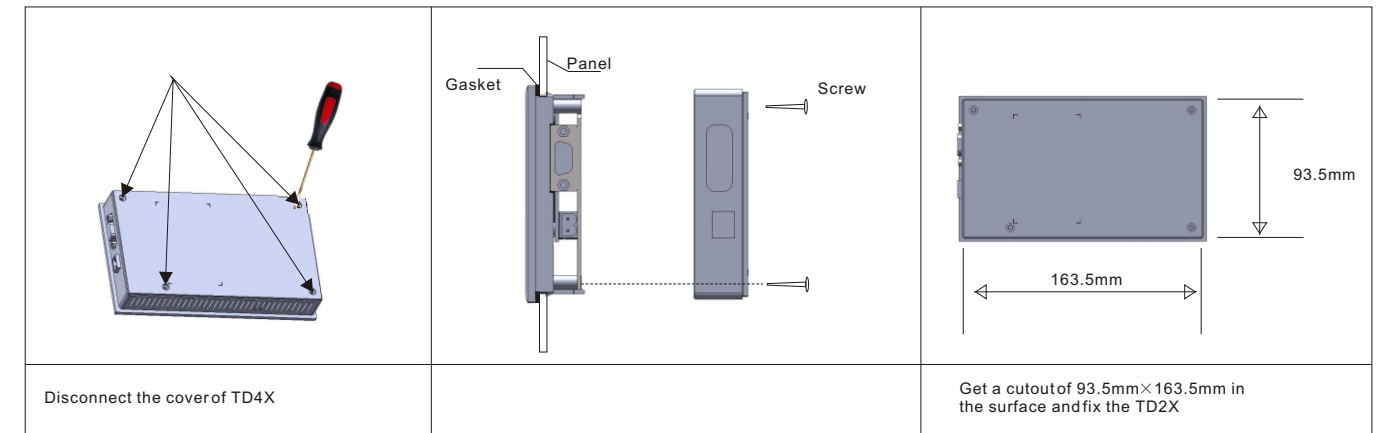| Item		Copanel TD2X	Copanel TD4X
Order number		CTS6 D02－MH010	CTS6 D04－MH010
Support PLC type		Trust PLC CTS7-200/100	Trust PLC CTS7-200/100
LCD Display	LCD display type	STN	STN
	Resolution(row x line)	160×32	192×64
	Point distance (row x line)	—	0.508 mm X 0.508 mm
	Character set (row X line)	Small（16×16 lattice font）2×20	Small font（16×16 lattice font）4×12 Big font（24×24 lattice font）2×8
	Display effect	High light silver white fundus and blue words	High light blue fundus and white words
	Backlight	LED light	Safety low voltage LED light
Buttons	Button type	Filmed button panel	Film switch ,can click 1 million times
	Default function button	4	8
	Default system button	5	7
	User-defined button	4	Total 15 buttons can be user-defined
External port	1 communication port	1RS-485 PPI/MPI port，support run by communication port power communication baudrate：9.6 /19.2 /187.5 Kbps optional	1RS-485 PPI/MPI port，support run by communication port power communication baudrate：9.6 /19.2 /187.5 Kbps optional
	1 power supply port	1 2-PIN external power supply port	1 2-PIN external power supply port
Software features	Screen protection	—	LCD backlight tiem-lapse controllable
	User-defined screen image	—	Up to 64
	User-defined alarm	—	Up to 80
	Button-press voice	—	Button-press feedback voice
	Password protection	Support password protection, use according purview	
Protection	Dustproof、waterproof	Front panel：Ip65	
		Back panel：Ip20	
	Reliability	ESD protection：±4K（contact discharge），±8K（air discharge）	
		Surge protection：2KV	
		Power supply inverse protection	
Power supply	Work voltage	9VDC～28VDC	
	Work current	45mA@24VDC （normal typical）	
Dimension	Front panel（W×H）	148×76mm	174×102 mm
	Cutout size（W×H×D）	138×68×28mm	163.5×93.5×31 mm
Temperature	Work temperature	0℃～+60℃	
	Transport and store	−30℃～+80℃	

Installation Sketch Map

Copanel TD2X

Gasket Panel Screw

68mm

138mm

Disconnect the cover of TD2X

Get a cutout of 68mm×138mm in the surface and fix the TD2X

Connect TD2X to CTS7-200 CPU

1: CTS7-200 CPU

2: External Power(Optional)

Copanel TD4X

Gasket Panel Screw

93.5mm

163.5mm

Disconnect the cover of TD4X

Get a cutout of 93.5mm×163.5mm in the surface and fix the TD2X

Connect TD4X to CTS7-200 CPU

1: CTS7-200 CPU

2: External Power(Optional)
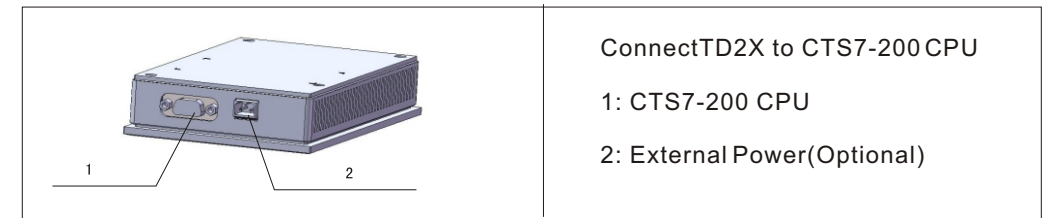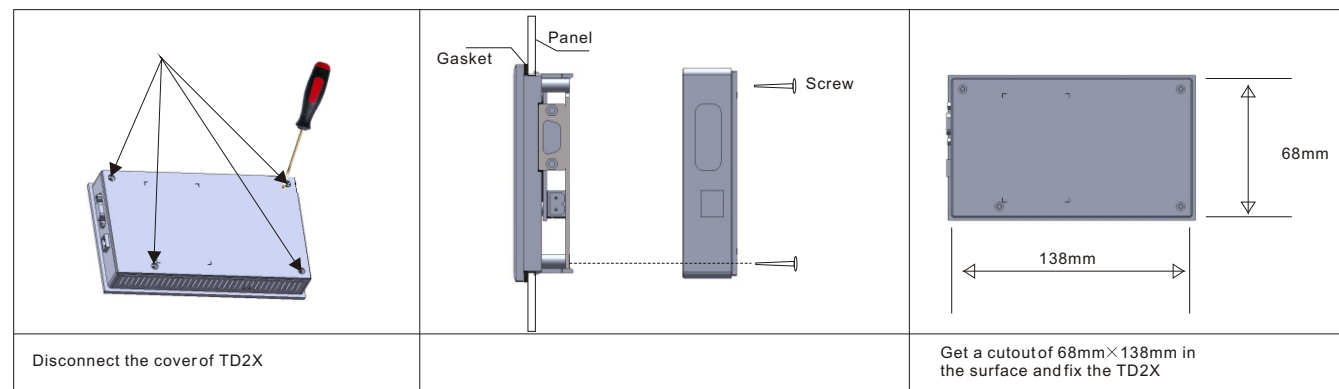
Order Data

Model and Specification	Order Number
Copanel TD2X，2×10 Chinese character sets，RS485，PPI/MPI Protocol	CTS6 D02-MH010
Copanel TD4X，4×12 Chinese character sets，RS485，PPI/MPI Protocol	CTS6 D04-MH010

Graphic Operation Panel
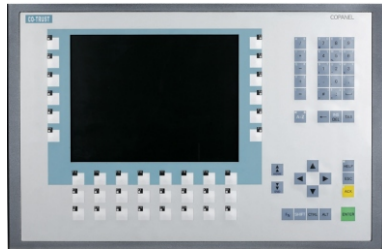
Copanel series HMI key Features:

Compact high-performance button panel, perfect inside and
outside overall design to satisfy the complex visual requirements.

Prominent Features::

- Abundant chart library, support the standard of vector graphics, can expand flexibly
- A strong history of data storage; Support PPI, MPI ;USB port
- Support strong historical curve, XY curve function
- High-speed 32-bit RISC processor, screen switched fluently
- Provide a large number of functional buttons and display instructions
- Multimedia card socket, support SD card, the capacity up to 4 GB
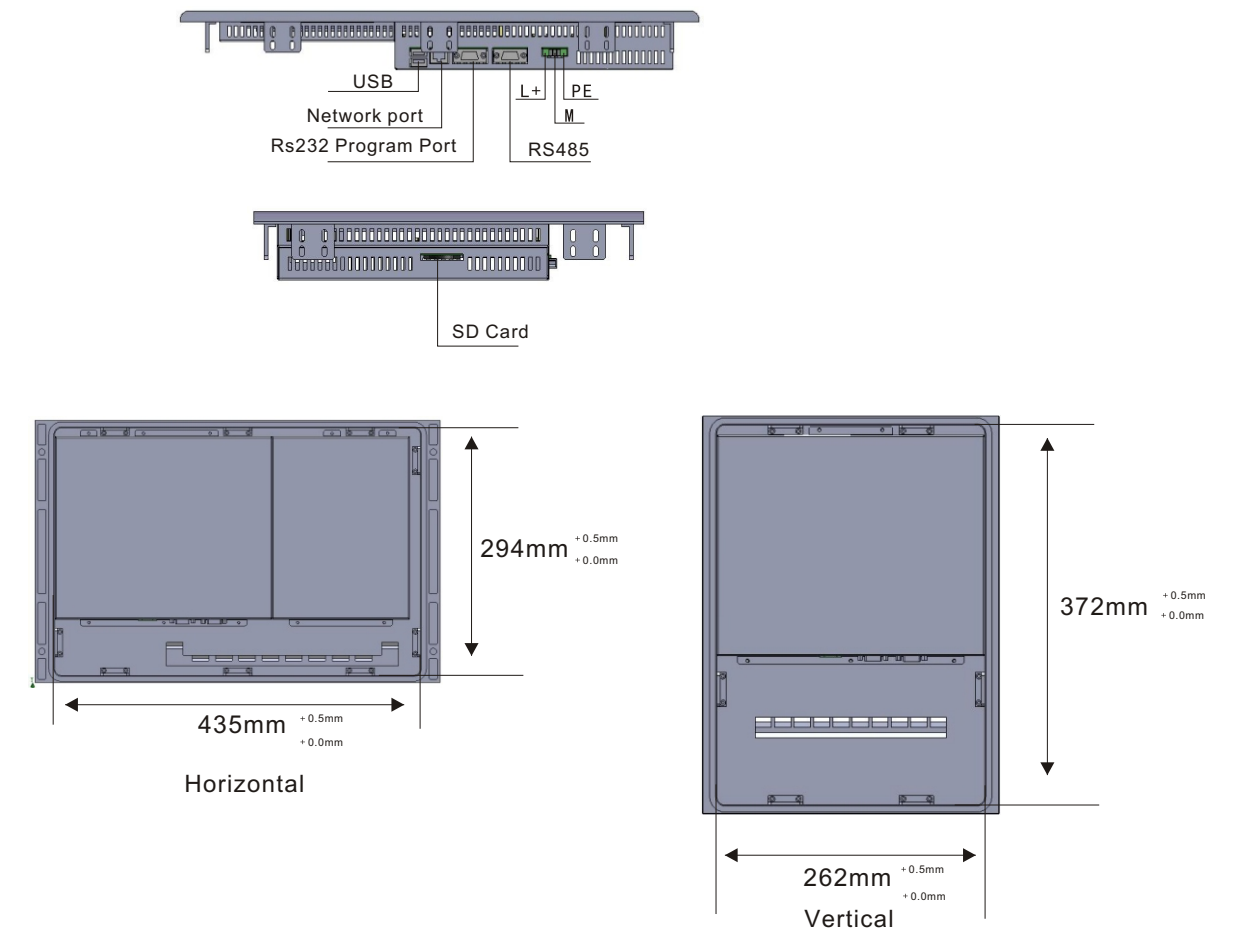
Specification

Item		
Dimension (W×H×D)mm		481.5×310.5×54mm
Display	Size	10.4 inch
	Resolution(W×H, pixel)	640×480
	Color	65535
	Lifetime of the backlight（25℃）	About 50000H
Front panel size(W×H)mm		481.5×310.5mm
Weight		4.0KG
Installation angle		Vertical
Ports		1 RS485/1 RS232/2USB/1 SD card（Lan will compatible in the future）
Rated votage		24V
Rated current		0.6A
Variable amount	Item variable	2048
	Elements per array	1000
	Part variable	1000
Alarm amount	Alarm type	32
	Alarm group	32
	Discrete alarm	2000
	Analog alarm	200
	Alarm character set length	50
Image amount	Image	100
	Domain per image	200
	Variable per image	200
	Complex object per image	5
Prescription amount	Prescription	100
	Elements per prescription	500
	Data records per prescription	1000
Record amount	Record	20
	Items per record (including all record segment)	500万
Trend	Trend amount	8
Text graphic list amount	Text list	400
	Graphic list	500
	Total list files	500
	Items per text or graphic list	256
	Graphic	1000

Management	User group	50
	Authorization	32
	Users amount	100
Item files content		4MB
Configuration system button		Yes
Connect on line(simul.)		6
Voice on line(simul.)		None
Help system		Yes
Mission plan(timing)		None
Addictive function		None

Installation Sketch Map

USB
Network port
Rs232 Program Port
L+ PE
M
RS485

SD Card

294mm $^{+0.5mm}_{+0.0mm}$

435mm $^{+0.5mm}_{+0.0mm}$

Horizontal

372mm $^{+0.5mm}_{+0.0mm}$

262mm $^{+0.5mm}_{+0.0mm}$

Vertical

Order Data

| Model and Specification		Order Number
KP10H，10.4 inch TFT LCD Screen，74 buttons，SD card，RS485，horizontal installation		CTS6 K10-CH010
KP10V，10.4 inch TFT LCD Screen，74 buttons，SD card，RS485，vertical installation		CTS6 K10-CV010

Digital Input Features

CTS7321-1BH01

EM321,16DI × 24VDC，
Optical Isolation，
20PIN front connector
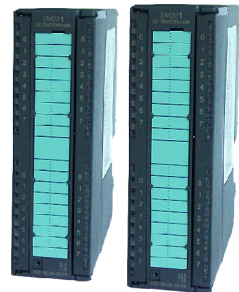
CTS7321-1BL00

EM321,32DI × 24VDC,
Optical Isolation,
40PIN front connector
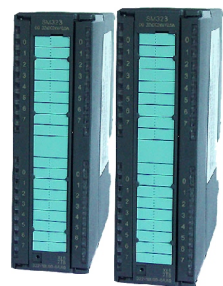
CTS7323-1BL00

EM323,16DI/16DO × 24VDC,
Optical Isolation,
40PIN front connector

Specification		CTS7 321-1BH01 CTS7 323-1BL00	CTS7 321-1BL00
Front connector		20PIN	40PIN
Number of inputs		16	32
Rated voltage		24V DC	
Max. continuous permissible		28.8V DC	
Logic 1 signal(minimum)		12.8V~30V	
Logic 0 signal(maximum		-30V~12V	
Input group number		2	4
Number of Inputs per group		8	
Number of inputs ON Simultaneously		16	32
Isolation	Channel and field bus	yes	
	Channel and Channel	yes	
	isolation groups of	8	
Max. input delay time		26ms	
Optical isolation		500VAC	
Input current		7.04mA(aprox.)	
Interrupt		None	
Diagnosis		None	
Status indicator		LED for each channel	
Max. cable length	Shield	100 meter	
	Unshield	600 meter	

Digital Output Features

CTS7322-1BH01

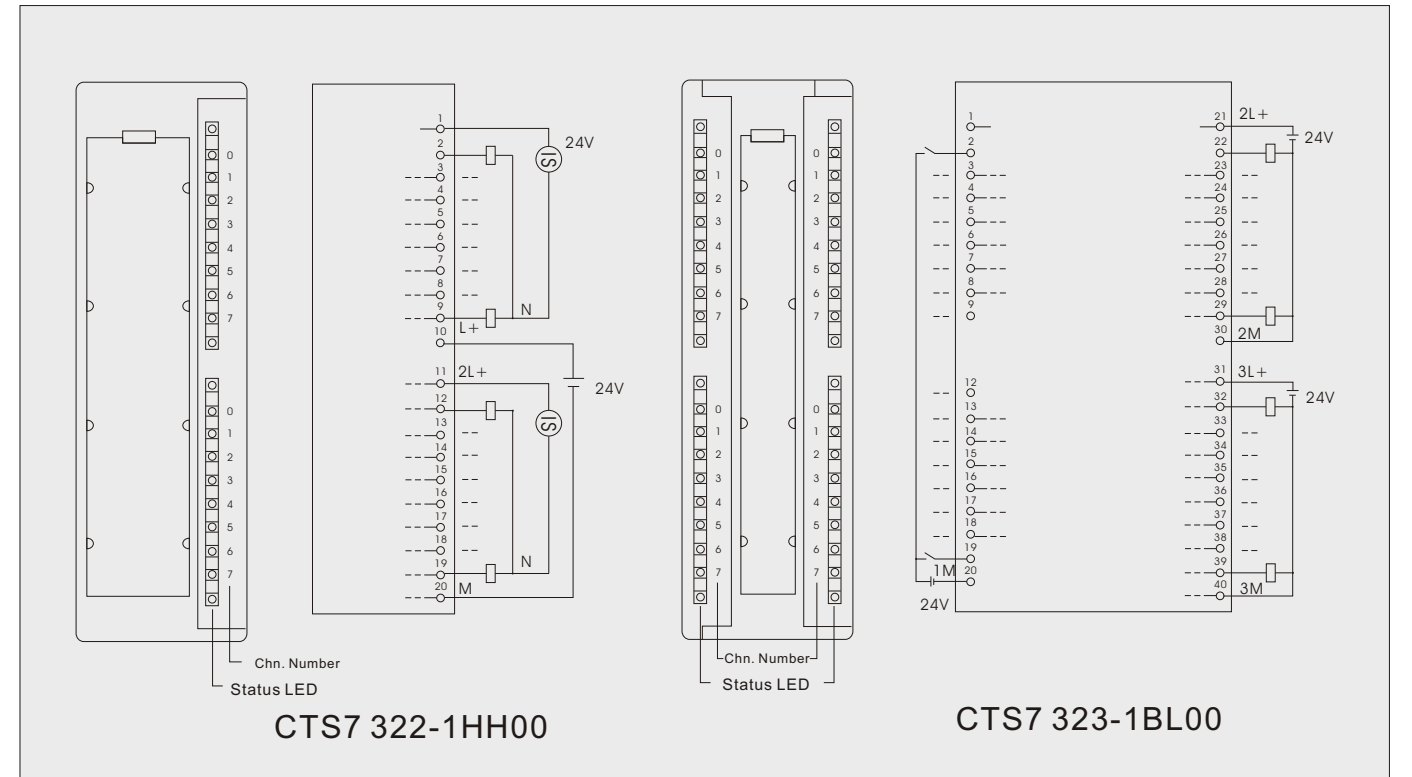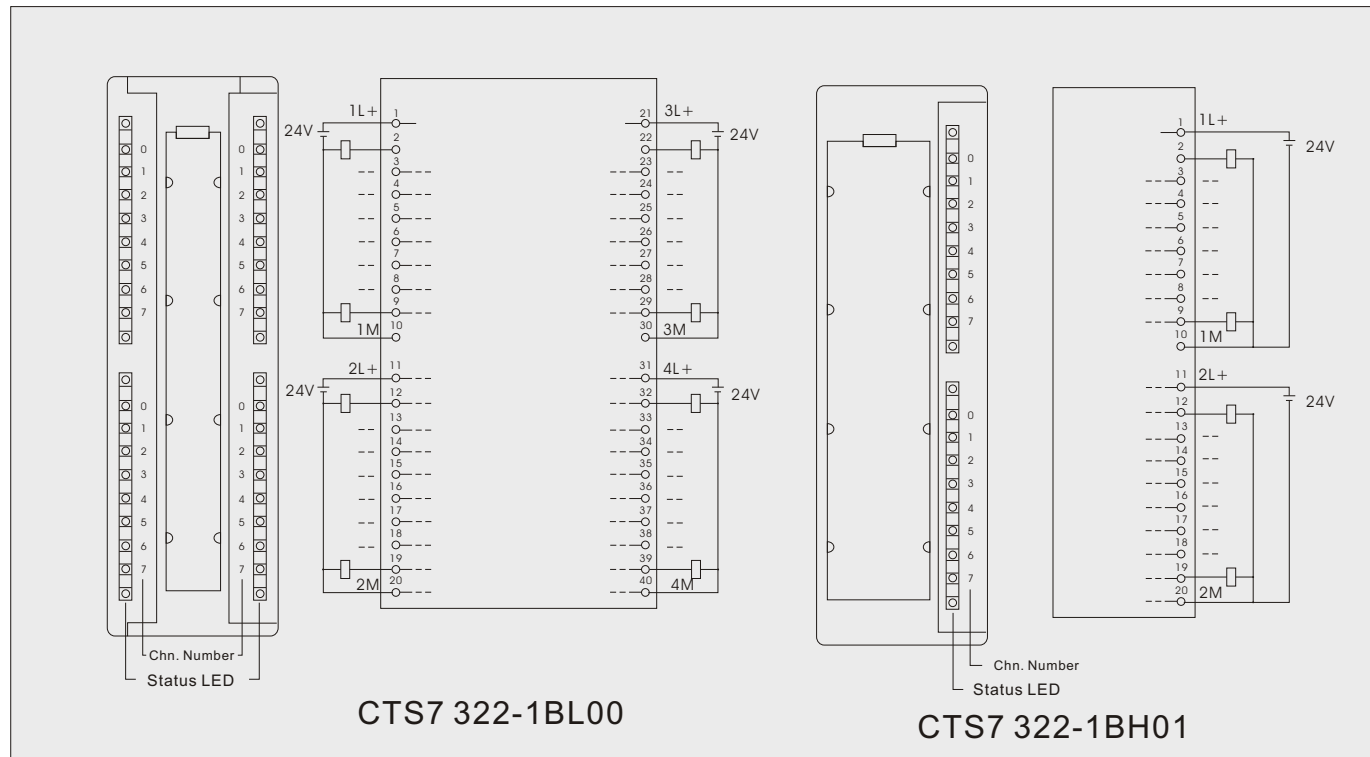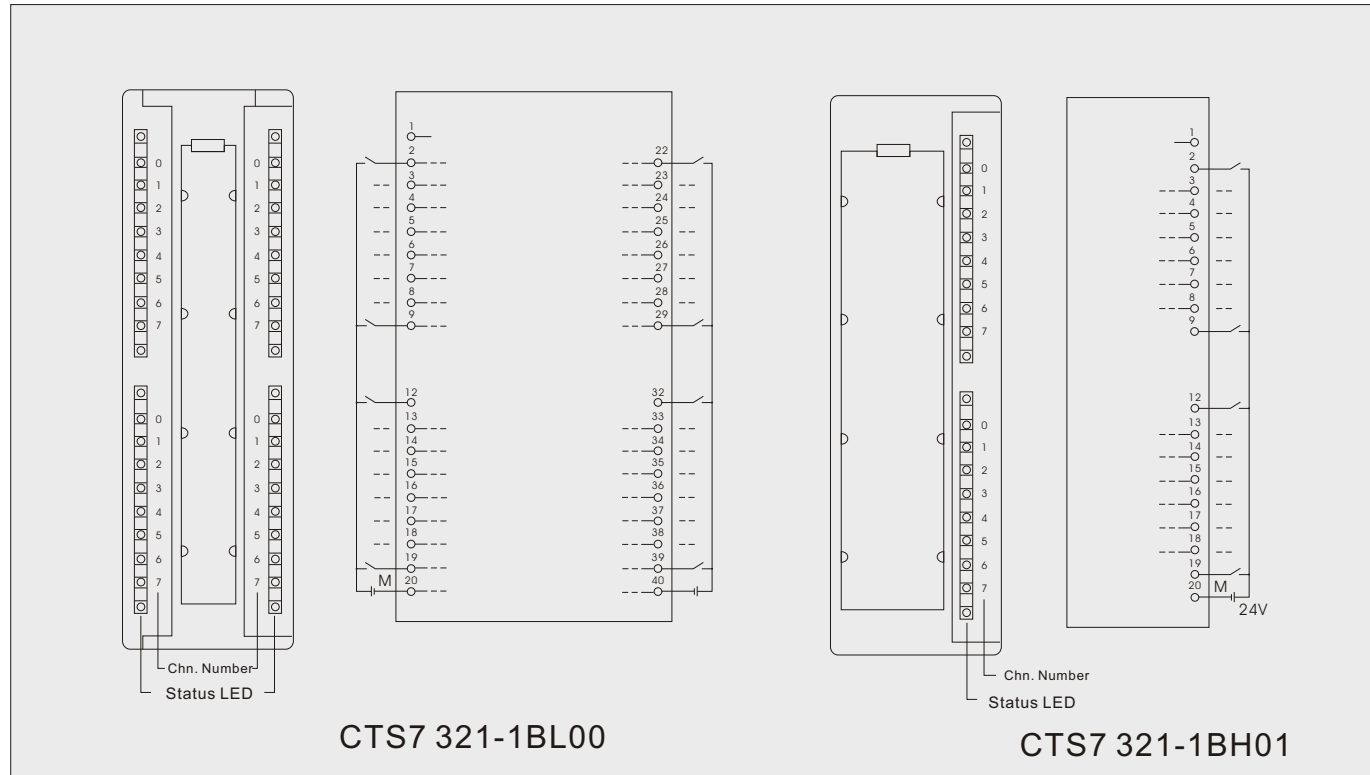EM322,16DO × 24VDC,
Optical Isolation,
20PIN front connector

CTS7322-1BL00

EM322,32DO × 24VDC,
Optical Isolation,
40PIN front connector

CTS7322-1HH00

EM322,16DO × Relay,
20PIN front connector

Specification			CTS7 322-1BH01	CTS7 322-1BL00	CTS7 322-1HH00
Power loss			4.9W	4.5W	4.5W
Front connector			20PIN	40PIN	20PIN
Number of outputs			16	32	16
Output type			Solid—MOSFET	Solid—MOSFET	Relay—Dry contact
Voltage of logic"1"			Minimum L+: ±0.8V	Minimum L+: ±0.8V	DC:5~30V, AC:5~250V
Output current	Logic signa1 "1"		0.5A	0.5A	2A
	Number of output groups		2	4	2
	Per group mounting(max.)		8	8	8
	Number of output ON(max.)		16	32	16
	Max. current per group		4A	4A	8A
	Lamp load		5W	5W	5W
	Contact resistance		-	-	0.2Ω
	Surge current(max.)		-	-	8A, 100ms
	Overload protection		Electron	Electron	from external
Isolation	Channel and field bus		Yes	-	Yes
	Channel and Channel		Yes	-	Yes
	Coil and contact		1500V AC,1minute	1500V AC,1 minute	1500V AC,1 minute
	L+current		36.1mA/no load	36.1mA/no load	236mA/no load
Switch Frequency	Switch delay	On→Off	130μs	130μs	-
		Off→On	360μs	360μs	-
	Lifetime mechanical (no load)		-	-	30,000,000
	Lifetime contacts at rated load		-	-	30,000
	Impedance load(max.)		100HZ	100HZ	-
	Inductive Load(max.)		0.5HZ	0.5HZ	-
	Lamp load(max.)		10HZ	10HZ	1HZ
Interrupt			None		
Diagnosis			None		
Status Indicator			With LED each channel		
Cable Length	Unshield		600 meter		
	Shield		1000 meter		
Power Consumption	From bus(+5V DC)		80 mA maximum	90 mA maximum	100 mA maximum
	From L+(no load)		120 mA maximum	200 mA maximum	250 mA maximum

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Connector Terminal Identification:

Chn. Number
Status LED
CTS7 321-1BL00

Chn. Number
Status LED
CTS7 321-1BH01

Chn. Number
Status LED
CTS7 322-1BL00

Chn. Number
Status LED
CTS7 322-1BH01

Chn. Number
Status LED
CTS7 322-1HH00

Chn. Number
Status LED
CTS7 323-1BL00

Order Data

Model and Specification	Order Number
EM321 Digital Input Module, 16DI×24VDC, optical isolation, 20PIN front connector	CTS7 321-1BH02
EM321 Digital Input Module, 32DI×24VDC, optical isolation, 40PIN front connector	CTS7 321-1BL00
EM322 Digital Output Module, 16×24VDC, 0.5A, optical isolation, 20PIN front connector	CTS7 322-1BH01
EM322 Digital Output Module, 16×Relay, 2A, optical isolation, 20PIN front connector	CTS7 322-1HH00
EM322 Digital Output Module, 16×24VDC, 0.5A, optical isolation, 40PIN front connector	CTS7 322-1BL00
EM323 Digital I/O Module, 16DI/16DO×24VDC, 0.5A, optical isolation, 40PIN front connector	CTS7 323-1BL00

CO-TRUST
CTS7-300 Series Programmable Controller
Analog Expansion Modules

CTS7-300 Series Programmable Controller
CO-TRUST
Analog Expansion Modules

Analog Input Features

CTS7 331-7KB02

EM331 Analog Input Module
2 AI of voltage, current, TC or RTD,
optical isolation,
20PIN front connector

CTS7 331-7KF02

EM331 Analog Input Module
8 AI of voltage, current, TC or RTD,
optical isolation,
20PIN front connector

Speicification		EM331, CTS7 331-7KB02/CTS7331-7KF02
Dimension(W×H×D)		40×125×120mm
Power loss		1W
Front connector		20PIN
From +5V(bus)		50 mA(max.)
Input voltage range		20.4~28.8V DC
Number of inputs		2/8
Alarm	Limit value alarm	Parameterizable channes 0 and2
	Diagnostic alarm	Parameterizable
Diagnostic		LEDs: channel error andsum error monitor,information readable
Isolation to backplane bus		500V AC
Input Range	Voltage Input	±80mV, ±250 mV, ±500 mV,±1V,±2.5V,±5V,1~5V,±10 V
	Current Input	±3.2 mA ,±10 mA ,±20 mA ,0~20 mA,4~ 20 mA
	Resistance input	150Ω,300Ω,600Ω,
	TC input	TC type: E,N,J,K,L
	RTD input	Pt100,Ni100
Input error	Full Scale	Voltage	80mV ----±1% , 250 -1000mV---- ±0.6% , 2.5 -10V ----±0.8%
		Current	3.2 - 20mA---- ±0.7%
		Resistance	150Ω;300Ω;600Ω ---- ±0.7%
		TC	E,N,J,K,L ---- ±1.1%
		RTD	Pt100,Ni100 ---- ±0.7%,Pt 100 ---- ±0.8%
	In 25℃	Voltage	80mV ----±0.6% , 250 -1000mV---- ±0.4% , 2.5 -10V
		Current	3.2 - 20mA---- ±0.6%
		Resistance	150Ω;300;600Ω ---- ±0.5%
		TC	E,N,J,K,L ---- ±0.5%
		RTD	Pt100,Ni100,Pt 100 ---- ±0.7%,
Permissible input voltage for voltage input		50V, maximum
Permissible input current for current input		32 mA,maximum
Resolution	Voltage input	11 bits plussign
	Current input	11 bits plussign
parameterized interference frequency Hz		400/60/50/10 Hz
Basic error		± 0.05 %
Analog to digital conversion time		22ms
ADC resolution		16BIT

Analog Output Features
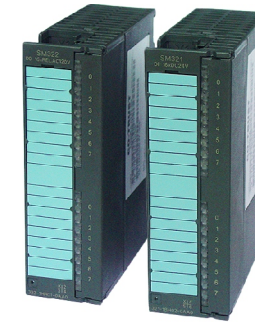
CTS7 332-5HB01

EM332 Analog Output Module
2 points of Voltage/Current output,
11bits plus sign or 12bits,
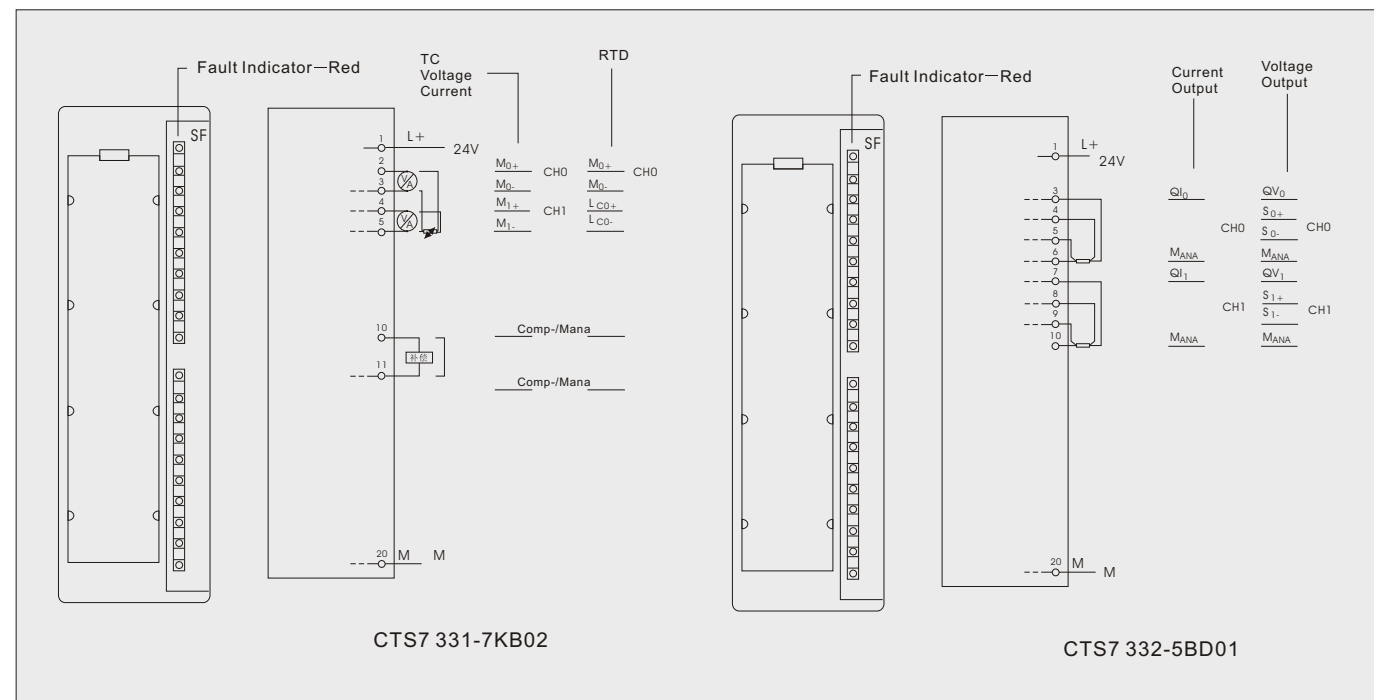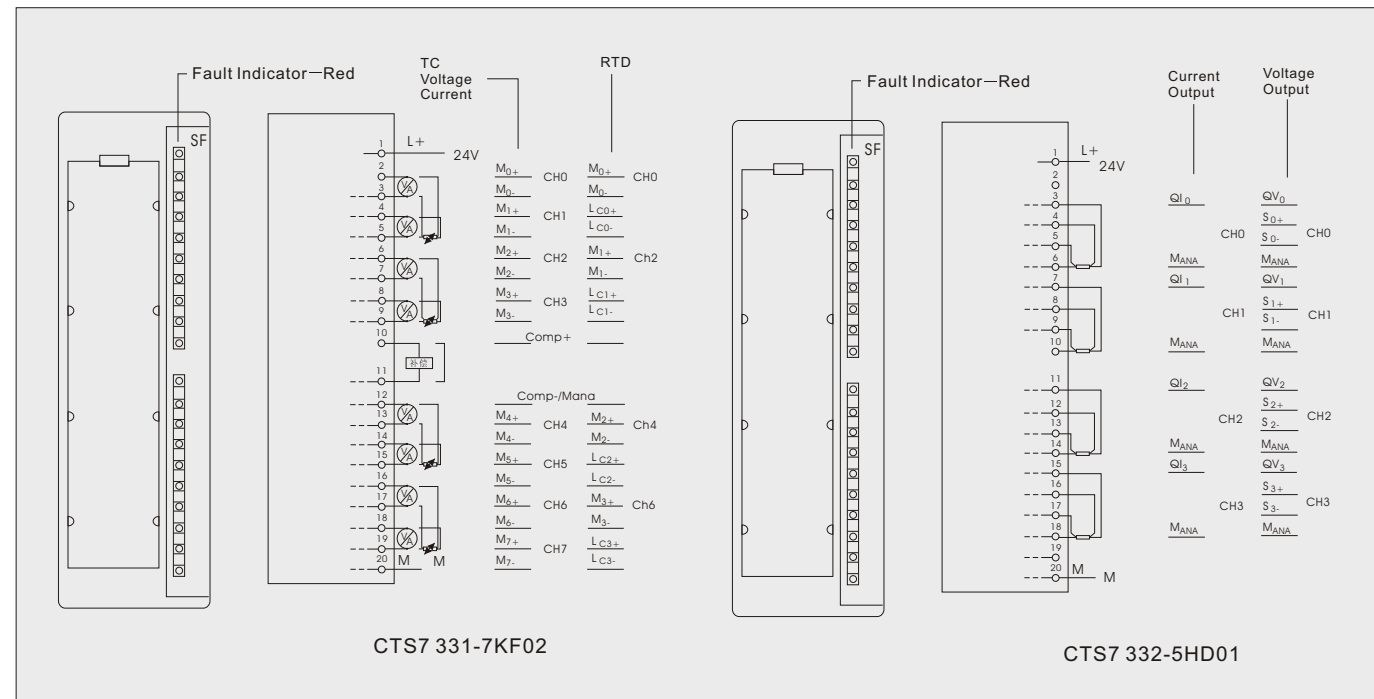Diagnostic Function, Isolation,
20PIN front connector

CTS7 332-5HD01

EM332 Analog Output Module
4 points of Voltage/Current output,
11bits plus sign or 12bits,
Diagnostic Function, Isolation,
20PIN front connector

Model/Specification		EM332, CTS7 332-5HB01 /CTS7 332-5HD01
Dimension(W×H×D)		40 x 125 x120mm
Power loss		3W
Power Consumption	+5V DC	60 mA
	L+	240 mA
Rated voltage		24V DC
Front connector		20 PIN
Number of outputs		2/4
Diagnostic alarm		Parameterizable
Diagnostic Function	Sum error monitor	Red LED(SF)
	Information readable	Possible
Replacement value setting		Parameterizable
Output Range	Voltage	0 ~ 10 V; ±10 V; 1~ 5 V
	Current	4 ~ 20 mA; ±20 mA; 0~ 20 mA
Resolution		11 bits +sign(+/ - 10 V, + / -20mA, 4 - 20mA, 1 - 5V); 12 bit s(0 - 10 V, 0 - 20 mA)
Voltage Output	Short Circuit Protection	Yes
	Short circuit current	25mA
Current Output	No-load operation	18V, maximum
Cycle time(max.)		0.8ms
Boot Time	Impedance load	0.1ms
	Capacitive load	3.3ms
	Inductive load	0.5ms
Isolation between channels and backplane bus		Optical, 500V AC
Burden Resistance	Voltage outputs	1KΩ , maximum
	Current ooutputs	500 Ω , maximum
	Capacitive load	1 mF,maximum
	Inductive load	10 mH, maximum
Basic Error	Voltage output	Typical: ±0.2%(full scale),Worst: ±0.5%(full scale)
	Current output	Typical:±0.3%(full scale),Worst: ±0.6%(full scale)
Cable length(shield)		200 meter, maximum
Reverse protection		Yes

Analog Expansion Modules

CTS7 331-7KF02

CTS7 332-5HD01

CTS7 331-7KB02

CTS7 332-5BD01

Model and Specification	Order Number
EM331, 2 analog inputs of voltage,current, resistance, RTD or TC, 9/12/14bits(plussign), isolation, alarm and diagnostic function, 20PIN front connector	CTS7 331-7KB02
EM331, 8 analog inputs of voltage,current, resistance, RTD or TC, 9/12/14bits(plussign), isolation, alarm and diagnostic function, 20PIN front connector	CTS7 331-7KF02
EM332, 2 analog outputs of voltage or current, 11bits plus sign or 12 bits, isolation,20PIN front connector	CTS7 332-5HB01
EM332, 4 analog outputs of voltage or current, 11bits plus sign or 12 bits, isolation,20PIN front connector	CTS7 332-5HD01

| Model and Specification	Order Number
CTS7-100 CPU	
CPU124，12K Memory，24VDC，14DI/10DO,transistor output，2A，1 PPI port，1 Fport	CTS7 114-1BD10-0X24
CPU126，12K Memory，24VDC，24DI/16DO,transistor output，2A，1 PPI port，1 Fport	CTS7 116-1BD10-0X40
CTS7-100 Expansion Module	
EM121 Digital Module，8×24VDC	CTS7 121-1BF10
EM122 Digital Module，8×24VDC,transistor outputs	CTS7 122-1BF10
EM122 Digital Module，8×relay outputs	CTS7 122-1HF10
EM131 Analog Input Module ,4 ×12-bit precision,isolation	CTS7 131-0HC10
EM132 Analog Output Module ,2 ×12-bit precision (voltage)/ 11-bit precision(current)	CTS7 132-0HB10
EM135 Analog Input/Output Module ,4 ×12-bit inputs ,1 ×12-bit output,isolation	CTS7 135-0KD10
CTS7-200 CPU	
CPU224+,16K Program/110K Data,24VDC,14DI/10DO,transistor outputs,0.75A,1 PPI port, 1 Fport	CTS7 214-1AD33-0X24
CPU224+,16K Program/110K Data,220VAC,14DI/10DO,relay outputs ,2A,1 PPI port, 1 Fport	CTS7 214-1BD33-0X24
CPU226M,72K Program/110K Data,24VDC,14DI/10DO,transistor outputs ,0.75A,2 PPI port, 1 Fport	CTS7 216-1AD33-0X24
CPU226M,72K Program/110K Data,220VAC,14DI/10DO,relay outputs ,2A,2 PPI port, 1 Fport	CTS7 216-1BD33-0X24
CPU226L,72K Program/110K Data,24VDC,24DI/16DO,transistor outputs ,0.75A,2 PPI port, 1 Fport	CTS7 216-2AD33-0X40
CPU226L,72K Program/110K Data,220VAC,24DI/16DO,relay outputs ,2A,2 PPI port, 1 Fport	CTS7 216-2BD33-0X40
CPU226H,72K Memory/110K Data,24VDC,24DI/16DO,transistor outputs ,0.75A,2 PPI port, 1 Fport	CTS7 216-2AH33-0X40
CPU226L,72K Program/110K Data,24VDC,24DI/16DO,transistor outputs ,0.75A,1 PPI port, 2 Fport	CTS7 216-2AF33-0X40
CPU226L,72K Program/110K Data,220VAC,24DI/16DO,relay outputs ,2A,1 PPI port, 2 Fport	CTS7 216-2BF33-0X40
CTS7-200 Expansion Module	
EM221 Digital Input Module , 8 ×24VDC	CTS7 221-1BF32
EM221 Digital Input Module , 16 ×24VDC	CTS7 221-1BH32
EM221 Digital Input Module , 32 ×24VDC	CTS7 221-1BL32
EM222 Digital Output Module , 8 ×24VDC transistor outputs 0.5A	CTS7 222-1BF32
EM222 Digital Output Module , 8 × Relay outputs 2A	CTS7 222-1HF32
EM222 Digital Output Module , 16×24VDC transistor outputs 0.5A	CTS7 222-1BH32
EM222 Digital Output Module , 16 × Relay outputs 2A	CTS7 222-1HH32
EM222 Digital Output Module , 32 ×24VDC Relay outputs 0.5A	CTS7 222-1BL32
EM223 Digital Input/Output Module, 4 ×24VDC inputs ,4×transistor outputs, 0.5A	CTS7 223-1BF32
EM223 Digital Input/Output Module , 4 ×24VDC inputs ,4×relay outputs, 2A	CTS7 223-1HF32
EM223 Digital Input/Output Module , 8 ×24VDC inputs ,8×transistor outputs, 0.5A	CTS7 223-1BH32
EM223 Digital Input/Output Module , 8 ×24VDC inputs ,8×relay outputs, 2A	CTS7 223-1PH32
EM223 Digital Input/Output Module , 16×24VDC inputs ,16×transistor outputs, 0.5A	CTS7 223-1BL32
EM223 Digital Input/Output Module , 16 ×24VDC inputs ,16×relay outputs, 2A	CTS7 223-1PL32
EM231 Analog Input Module ,4 ×12-bit precision	CTS7 231-0HC32
EM232 Analog Output Module ,2 ×12-bit precision (voltage)/ 11-bit precision(current)	CTS7 232-0HB32
EM232 Analog Output Module ,4 ×12-bit precision (voltage)/ 11-bit precision(current)	CTS7 232-0HF32
EM235 Analog Input/Output Module ,4 ×12-bit inputs ,1 ×12-bit output	CTS7 235-0KD32
EM231 High-speed Voltage Input Module , 4×16-bit precision ,sampling time<200μs /channel	CTS7 231-7HC32
EM231 Isolated Voltage Input Module , 8×16-bit precision	CTS7 231-0HF32
EM231 Isolated Voltage Input Module , 8×16-bit precision	CTS7 231-1HF32
EM231 Analog Input RTD , 2×16-bit precision , isolation	CTS7 231-7PB32
EM231 Analog Input RTD , 4×16-bit precision , isolation	CTS7 231-7PC32

Order Data

| Model and Specification	Order Number
CTS7-200 Expansion Module	
EM231 Analog Input Thermocouple , 4×16-bit precision ,J/K/R/S/T/E/N , isolation	CTS7 231-7PD32
EM231 Analog Input Thermocouple , 8×16-bit precision ,J/K/R/S/T/E/N , isolation	CTS7 231-7PF32
EM231 Analog Input Thermocouple , 4×16-bit precision ,K , isolation , intelligent PID	CTS7 231-7TD32
EM231 Analog Input Thermocouple , 8×16-bit precision ,K , isolation , intelligent PID	CTS7 231-7TF32
EM231Current Input,8×16-bit precision , isolation，0-20mA/4-20mA，intelligent PID	CTS7 231-7HF32
EM277A PROFIBUS-DP Slave Expansion Module,isolation	CTS7 277-0AA32
EM277B PROFIBUS-DP Slave Module,isolation	CTS7 277-0AB32
EM231 Combination Temperature Input Module,2 NTC/PT100, 2inputs of voltage/current,isolation	CTS7 231-7ND32
CTS7-300 Expansion Module	
EM321 Digital Input Module, 16DI × 24VDC, optical isolation, 20PIN front connector	CTS7 321-1BH02
EM321 Digital Input Module, 32DI×24VDC, optical isolation, 40PIN front connector	CTS7 321-1BL00
EM322 Digital Output Module, 16×24VDC, 0.5A,o ptical isolation, 20PIN front connector	CTS7 322-1BH01
EM322 Digital Output Module, 16×Relay, 2A, optical isolation, 20PIN front connector	CTS7 322-1HH00
EM322 Digital Output Module, 16×24VDC, 0.5A,o ptical isolation, 40PIN front connector	CTS7 322-1BL00
EM323 Digital I/O Module, 16DI/16DO×24VDC, 0.5A, optical isolation, 40PIN front connector	CTS7 323-1BL00
EM331, 2 analog inputs of voltage,current, resistance, RTD or TC, 9/12/14bits(plussign), isolation, alarm and diagnostic function, 20PIN front connector	CTS7 331-7KB02
EM331, 8 analog inputs of voltage,current, resistance, RTD or TC, 9/12/14bits(plussign), isolation, alarm and diagnostic function, 20PIN front connector	CTS7 331-7KF02
EM332, 2 analog outputs of voltage or current, 11bits plus sign or 12 bits, isolation,20PIN front connector	CTS7 332-5HB01
EM332, 4 analog outputs of voltage or current, 11bits plus sign or 12 bits, isolation,20PIN front connector	CTS7 332-5HD01
CTSC-200 Programmable Special Control System	
PSC266，72K Program/110K Data，24VDC,14DI/10DO transistor outputs，4×Analog output，isolation，20×TC input，0.75A，3 communication ports	CTSC 266-3AT33-2424
Human Machine Interface	
Copanel TD2X，2×10 Chinese character sets，RS485，PPI/MPI Protocol	CTS6 D02-MH010
Copanel TD4X，4×12 Chinese character sets，RS485，PPI/MPI Protocol	CTS6 D04-MH010
KP10H，10.4 inch TFT Screen，74 buttons，SD card，RS485，horizontal installation	CTS6 K10-CH010
KP10V，10.4 inch TFT Screen，74 buttons，SD card，RS485，vertical installation	CTS6 K10-CV010

Application

Plastics Machinery

Extruder

- Temperature control loop up to 56 channels
- Use PID modules to achieve accurate temperature control and good dynamic performance
- Strong communication capability, can communicate with various external devices
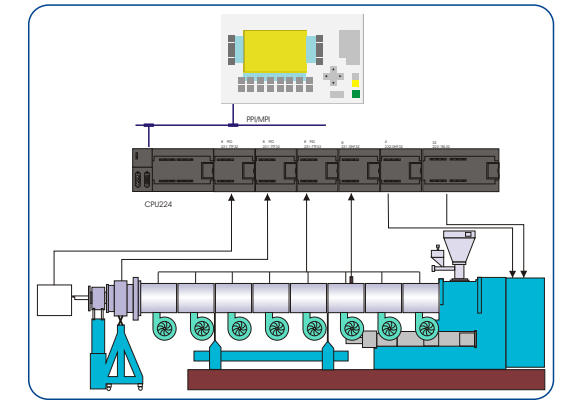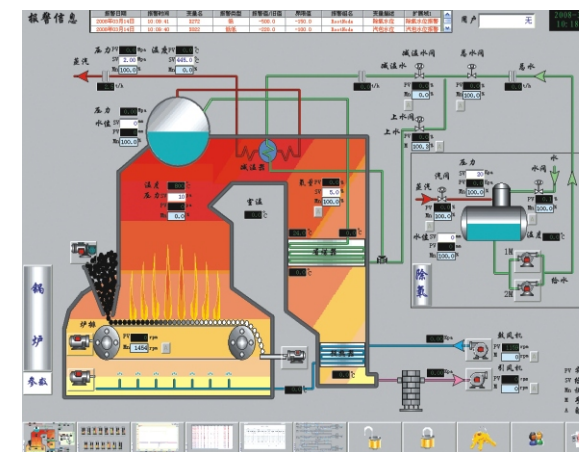

Extruder control system

Blowers

- High-speed closed loop up to 1 ms , high precision thickness control
- Thickness control can be achieved to 50-400 points
- Intelligent PID modules, accurate temperature control
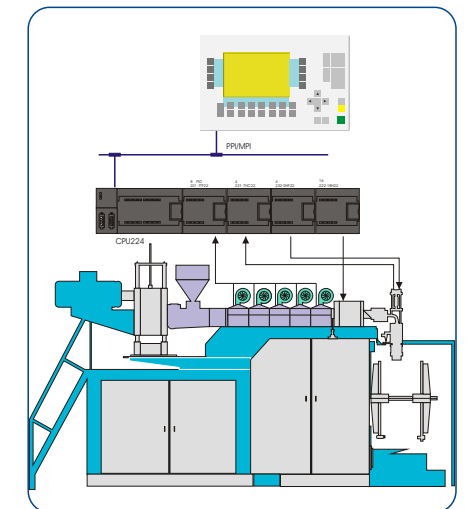
Blowing Machine Control System

Boiler Control System

Boilers, chemical equipment, etc.

- Up to 40 loop control
- Consummate bunch level, parallel level, multi-level closed loop control function
- Perfect protection function

Printing and packaging machinery

Packaging Machine

- CPU integrated maximum 4 channels of 200KHz pulse output, able to realize

  complex synchronization and interpolation function

- CPU integrated maximum 6 channels of 200KHz pulse input, able to achieve

  the position closed-loop control function

Electronic equipment

Reflow soldering machine, wave soldering machines, ultrasonic cleaning equipment, etc.

- Solution with PSC266 programmable specific controller is high cost-effective

Accessories

DIN Rail

- Used for the installation of CTS7-300 PLC
- Taking screw fastener fixing
- Aluminum body, gold-plated surface
- Equipped with ground screws for the system grounding

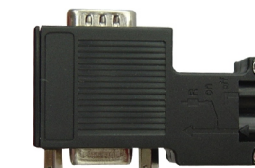| Specification	Order Number
CTS7-300 DIN Rail（160mm)	SIS7 390-1AB60
CTS7-300 DIN Rail （482mm)	SIS7 390-1AE80
CTS7-300 DIN Rail （530mm)	SIS7 390-1AF30
CTS7-300 DIN Rail （830mm)	SIS7 390-1AJ30

Fieldbus Cables

- Profibus DP cables
- Purple PVC jacket
- Dual-core intertwist single solid bare copper wire
- Dual-shielded by the aluminum foil and wire
- Working temperature 30-70℃

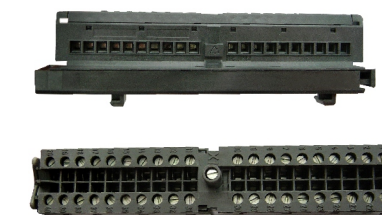| Specification	Order Number
Profibus bus Cables	SIS7 830-0EH10

Bus Connector

- 90℃ angle-round
- Cables connected with screws
- Built-in terminal resistance

Specification	Order Number
Profibus Bust Connector	SIS7 972-0BB12

CTS7-300 Front Connector

- Used to connect the external connection to CTS7-300 modules
- Avoid inserting the wrong module through the position socket
- Apply to different types of modules

Specification	Order Number
20 PIN front connector	SIS7 392-1AJ00
40 PIN front connector	SIS7 392-1AM00