

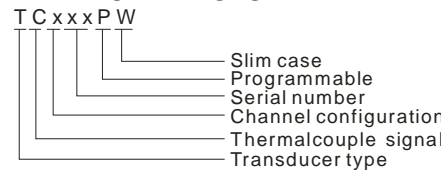
MORNSUN®

Programmable Thermocouple isolators

——TCxxxPW Series



PART NUMBER SYSTEM



FEATURES

- 3-port isolation (Signal input, signal output and power supply)
- 12.5mm slim case
- High accuracy (0.1% F.S.)
- High linearity (0.1% F.S.)
- Low temperature drift(50PPM/°C)
- Low-power dissipation
- Excellent EMC performance
- miniUSB port communication
- Input / Output range programmable
- High reliability(MTBF>500,000 hours)

GENERAL DESCRIPTION

TCxxxPW series thermocouple isolator which are mainly applied in industrial automation systems can isolated convert thermocouple input signal of the industrial field instruments to the matched analog output signal for the DCS/PLC, realizing the acquisition and transmission of field signal.

An independent power supply is needed for the product and the port of power supply, input and output are isolated from each other. This series of products contain combinations of 1 input 1 output , 1 input 2 output, 2 input 2 output and so on. The thickness of 12.5mm meet the need for high density field installation.

SELECTION GUIDE

Output type	1 input 1 output	2 input 2 output	1 input 2 output
Current output	TC100PW	TC200PW	TC600PW
Voltage output	TC140PW	TC240PW	TC640PW
Input signal:			
Input signal	Range	The minimum range	
R	-40~+1700°C	600°C	
S	-40~+1700°C	600°C	
K	-150~+1370°C	120°C	
J	-80~+900°C	100°C	
T	-160~+390°C	100°C	
B	320~+1820°C	780°C	
E	-80~+700°C	500°C	
mV	-60~+60mV	10mV	
Output signal:			
Output type	Output signal		
Current output	4~20mA / 0~20mA (programmable)		
Voltage output	0~5V / 0~10V / 1~5V / 2~10V (programmable)		
Note:1. Customers need to choose the type of the input signal, output signal and range. We could also offer customer design for special input and output. 2. You can get the USB Adapter T-01 for the isolator from Mornsun free of charge if you need.			

ELECTRICAL CHARACTERISTICS

Power input	Input voltage	18~30VDC(Typical values 24VDC)
	Power dissipation	1 input 1output ≤0.9W 1 input 2 output, 2 input 2 output ≤1.2W
	Power protection	Reverse polarity protection, over-voltage protection
Field Area	Input signal	See selection guide
	Cold junction compensation	Compensation range: -25~+75°C(Error is less than 1 ° C per 20 ° C) Method of compensation: Internal compensation

Control Area	Fault output						
	Output type	4~20mA	0~20mA	1~5V	0~5V	0~10V	2~10V
	Input disconnection	>22mA	>22mA	>5.5V	>5.5V	>11V	>11V
	Lower limit alarm	About 3mA	About 21mA	About 0.75V	About 5.25V	About 10.5V	About 1.5V
	Upper limit alarm	About 22mA	About 22mA	About 5.5V	About 5.5V	About 11V	About 11V
	Normal operation	Corresponding channel red light off					
	Upper and lower limit alarm	Corresponding channel red lights often flicker					
	Break alarm	Corresponding channel red light on(red, Single-channel 1pcs, Dual-channel 2pcs)					
	Load capacity	≤500Ω(Output current maximum)					
		≥1MΩ(Output voltage maximum)					
	Communication port	miniUSB port					
Communication protocol	See "MORNSUN Modbus Protocol Rules"						

TRANSMISSION CHARACTERISTICS

Zero Offset	0.1%F.S. (Sin = 0, 100% load, @25°C)
Accuracy	0.1%F.S. (Full-scale range,100% load, @25°C)
Temperature drift coefficient	0.0050%F.S./°C (-25°C~+71°C Operating temperature range)
Response time	<0.5s

ISOLATION CHARACTERISTICS

Electrical Isolation	Field area and control area:2KVAC/3KVDC,1min,leakage current ≤5mA
	Output and power supply,2KVAC/3KVDC,1min,leakage current ≤5mA
Insulation Resistance	100MΩ,500VDC(Signal input port, signal output port)

EMC CHARACTERISTICS

EMI	CE	CISPR22/EN55022 CLASS A
	RE	CISPR22/EN55022 CLASS A
EMS	ESD	IEC/EN61000-4-2 Contact ±4KV/Air ±8KV perf. Criteria B
	RS	IEC/EN61000-4-3 10V/m perf. Criteria A
	EFT	IEC/EN61000-4-4 DC power port ±2KV perf. Criteria B
		IEC/EN61000-4-4 I/O signal port ±1KV perf. Criteria B
	Surge	IEC/EN61000-4-5 DC power port ±1KV /±2KV perf. Criteria B
		IEC/EN61000-4-5 I/O signal port ±1KV(line to earth) perf. Criteria B
CS	IEC/EN61000-4-6 3 Vr.m.s perf. Criteria A	

OTHER CHARACTERISTICS

Ambient Temperature	Operating temperature:-25~+71°C
	Transport and storage temperature:-40~+85°C
Package	35mm DIN-rail package: T-rail card package (DIN50022), pluggable connection pin, thickness 12.5mm
Safety Class	IP20(IEC60529 / EN60529)
Weight	1 input 1 output: 100g;2 input 2 output & 1 input 2 output: 135g, typ

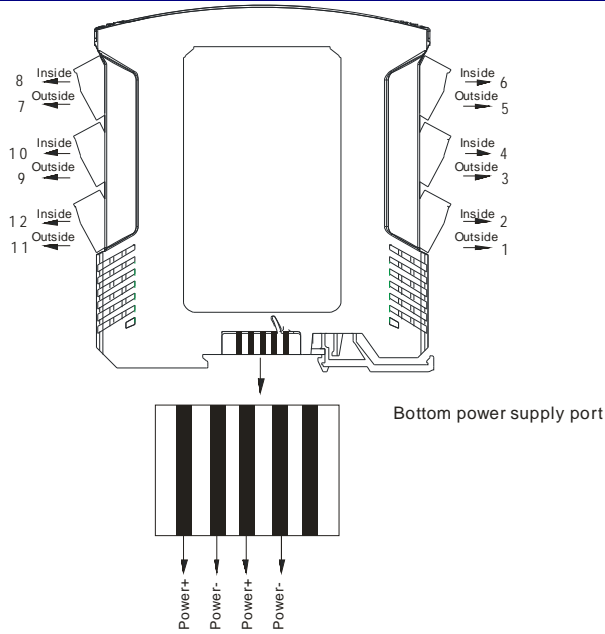
CONNECTION

1. Connection used dismountable terminals;
2. Cross section area of wiring: 0.5mm² ~2.5 mm²;
3. The length of bare wire is about 8mm, locked up by the M3 bolt.

Operation notes

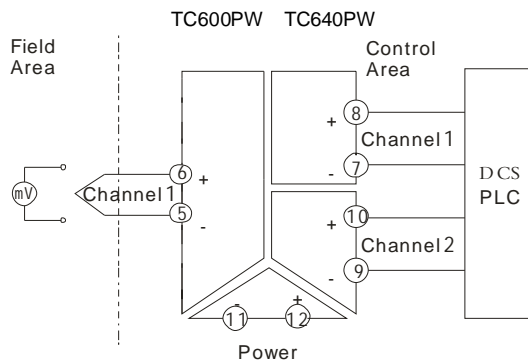
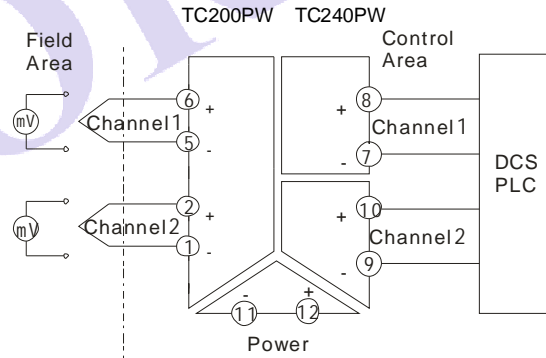
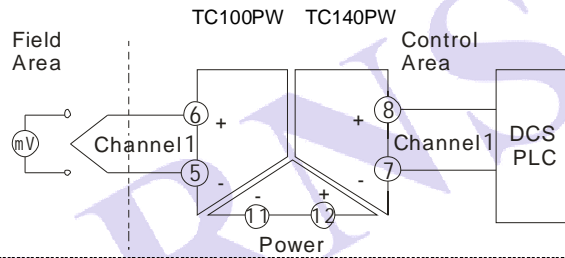
1. Please read the user manual carefully before using. If any question please contact our technical support department.
2. Please do not use this product in hazardous area.
3. The power supply of this product should be 24VDC power source. It is forbidden to use 220VAC power supply.
4. To avoid invalid explosion protection function, or any failure, users disassemble this product is forbidden.

APPLICATION CIRCUIT DIAGRAM & PIN DESCRIPTION



PIN	Description (2 input 2 output)
1	Signal 2 input-
2	Signal 2 input+
5	Signal 1 input-
6	Signal 1 input+
7	Signal 1 output-
8	Signal 1 output+
9	Signal 2 output-
10	Signal 2 output+
11	power input-
12	power input+

Note: When use bottom power supply, anyone group or both is OK.

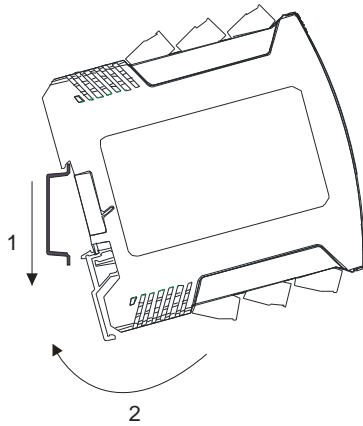


INSTALLATION & DISASSEMBLY

Installation

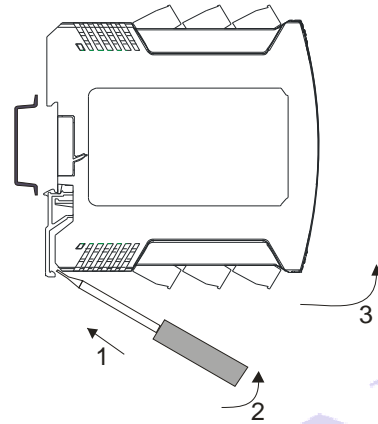
DIN35mm standard rail installation:

1. Insert the top of the instrument card in the rail;
2. Push the bottom of the instrument into the rail.

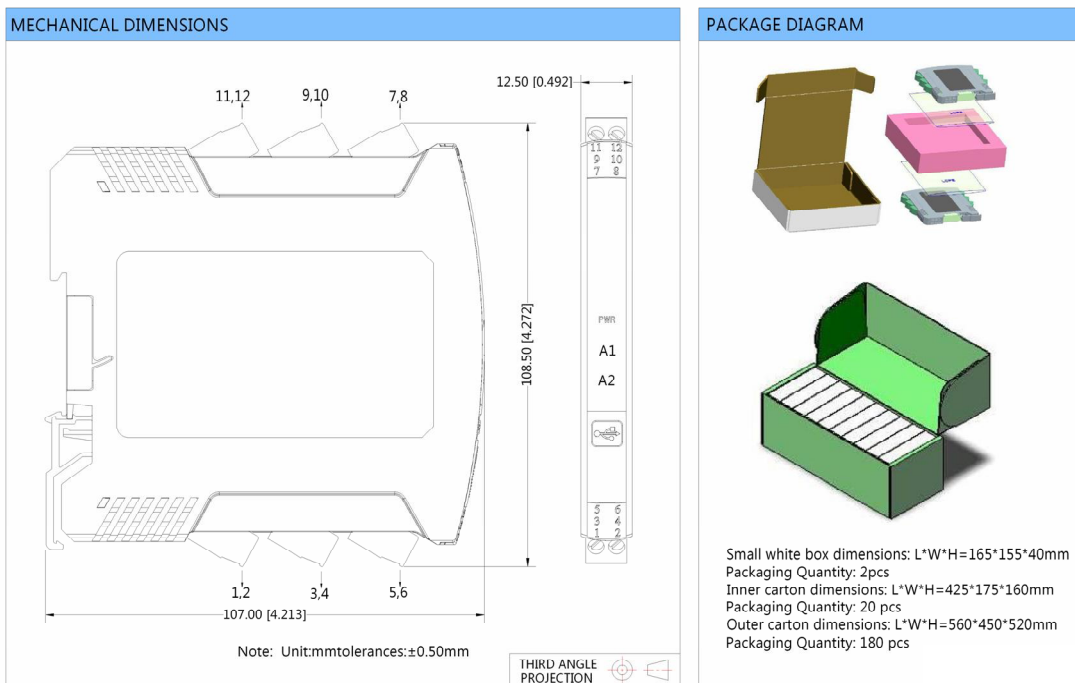


Disassembly

1. Insert a screwdriver between the bottom of the card lock and the rail;
2. Pull up the screwdriver and press the card lock downwards;
3. Pull the instrument out of the rail.



PACKAGING DIMENSION & PACKAGING DIAGRAM



Note:

1. All specifications are measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2. In this datasheet, all the test setup and methods are based on our corporate standards.
3. All characteristics are for listed models, and non-standard models may perform differently. Please contact our technical support for more detail.
4. Contact us for your specific requirement.
5. Specifications are subject to change without prior notice.

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