

MORNSUN®

Programmable Thermal Resistance Isolators

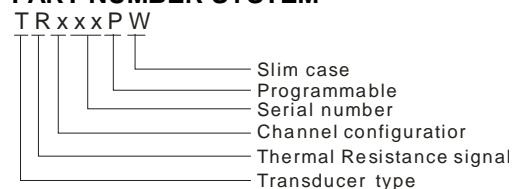
—TRxxxPW Series



FEATURES

- 3-port electrical isolation between input, 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
- Good EMC performance
- miniUSB port communication
- Input / Output range programmable
- High reliability(MTBF>500,000 hours)

PART NUMBER SYSTEM



GENERAL DESCRIPTION

TRxxxPW series thermal resistance isolator which are mainly applied in industrial automation systems can isolated convert thermal resistance 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.

Connection of field devices and the regions:
2-wire, 3-wire thermal resistance

PRODUCT TYPE

Output type	1 input 1 output	2 input 2 output	1 input 2 output
Current output	TR100PW	TR200PW	TR600PW
Voltage output	TR140PW	TR240PW	TR640PW
Input signal: programmable(2-wire system or 3-wire system input)			
Signal Type	Range	The minimum range	
Pt100	-200~+850℃	50℃	
Cu50	-50~+150℃	50℃	
Cu100	-50~+150℃	50℃	
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 parameters	Input voltage	18~30VDC(Typical values 24VDC)
	Power dissipation	1 input 1output<1W 1 input 2 output, 2 input 2 output <1.5W
	Power protection	Reverse polarity protection
Field Area	View Product Model input signal	
Control Area	Load capacity	≤500Ω(Output current maximum)
		≥1MΩ(Output voltage maximum)
	Communication port	miniUSB port
	Communication protocol	See "MORNSUN Modbus Protocol Rules"
Fault output		

Control Area	Output type	4~20mA	0~20mA	1~5V	0~5V	0~10V	2~10V
	Input disconnection	About 23mA	About 23mA	About 5.75V	About 5.75V	About 11.5V	About 11.5V
	Input over-range lower limit	3mA	21mA	0.75V	5.25V	10.5V	1.5V
	Input over-range upper limit	22mA	22mA	5.5V	5.5V	11V	11V
	Break alarm	Each channel disconnection alarm corresponding indicator light(Red, Single-channel 1, Dual-channel 2)					
	Over-range alarm	Each channel over range alarm to the corresponding indicator light flashes(Red, Single-channel 1, Dual-channel 2)					

TRANSMISSION CHARACTERISTICS

Zero Offset	0.1%F.S. or 0.5°C greater(Sin = 0,100% load,@25°C)
Accuracy	0.1%F.S. or 0.5°C greater(Full-scale range,100% load,@25°C)
Temperature drift	0.0050%F.S./°C (-25°C~+71°C Operating temperature range)
Output signal rise time	< 0.5S (Output from the 10% point of full signal up to 90% of the full signal point)
Output signal fall time	< 0.5S (Output from the 90% point of full signal down to 10% of full signal point)

ISOLATION CHARACTERISTICS

Electrical Isolation	Field area and control area:2KVAC/ 3KVDC, 1min, leakage current≤5mA
	Output and power supply, 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 GND)	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: 128g,typ

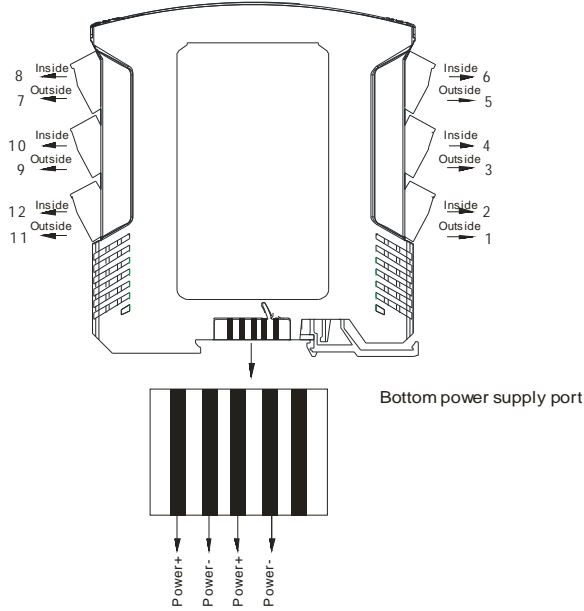
CONNECTION

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

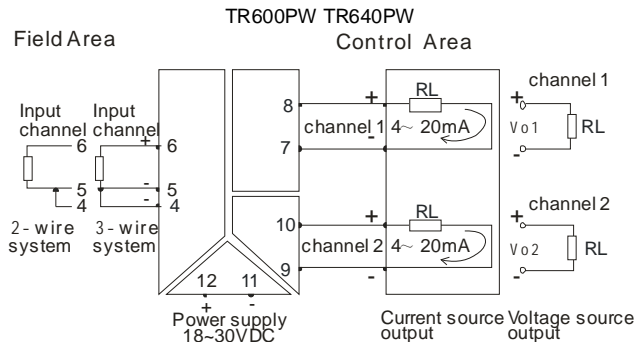
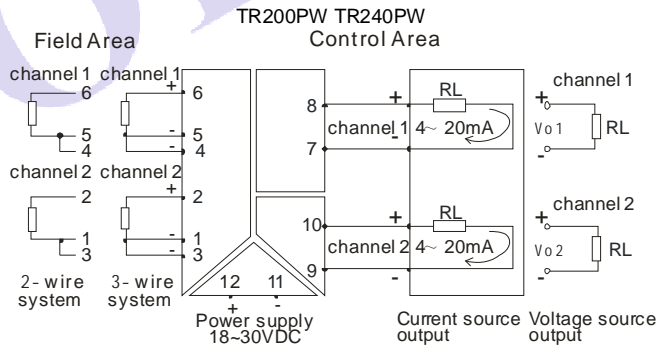
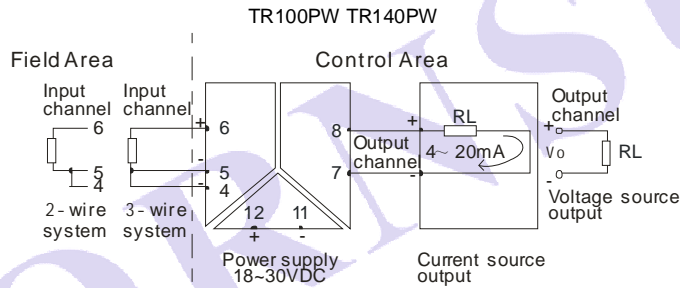
1. Please read the user manual carefully before using. If any question please contact our technical support department.
2. Please do not use this product in hazardous area.
3. The power supply of this product should be 24VDC power source. It is forbidden to use 220VAC power supply.
4. To avoid invalid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

APPLICATION CIRCUIT DIAGRAM & PIN DESCRIPTION



PIN	Description (2 input 2 output)
1	L2B Signal 2 input line B
2	L2A Signal 2 input line A
3	L2C Signal 2 input line C
4	L1C Signal 1 input line C
5	L1B Signal 1 input line B
6	L1A Signal 1 input line A
7	So1- Signal 1 output-
8	So1+ Signal 1 output+
9	So2- Signal 2 output-
10	So2+ Signal 2 output +
11	Power- power input-
12	Power+ power input+

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

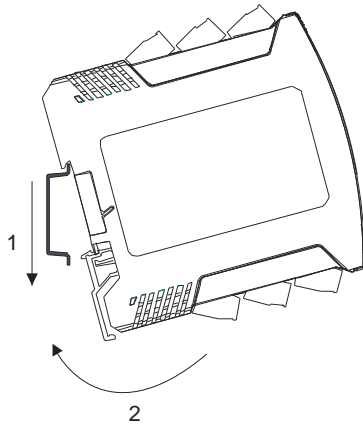


INSTALLATION & DISASSEMBLY

Installation

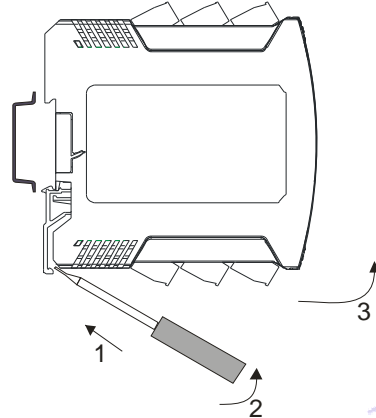
DIN35mm standard rail installation:

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



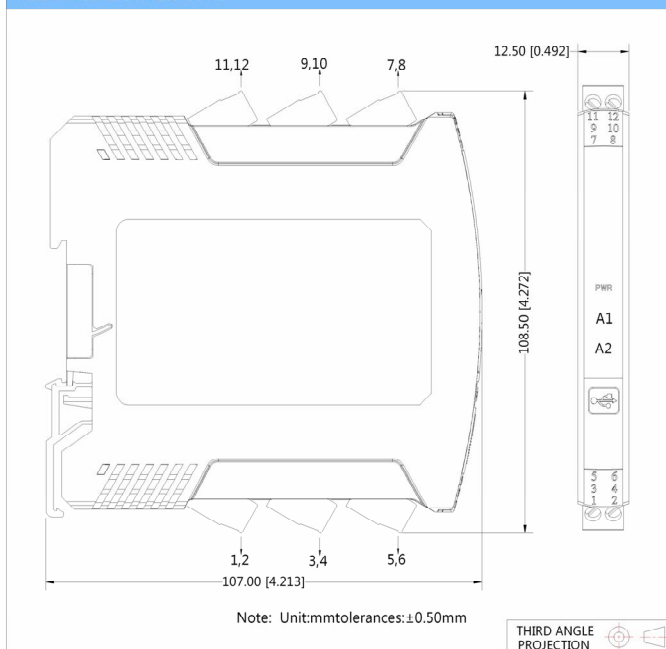
Disassembly

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.

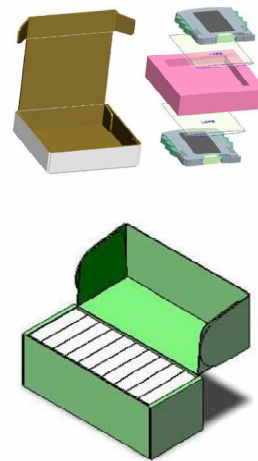


PACKAGING DIMENSION & PACKAGING DIAGRAM

MECHANICAL DIMENSIONS



PACKAGE DIAGRAM



Small white box dimensions: L*W*H=165*155*40mm
 Packaging Quantity: 2pcs
 Inner carton dimensions: L*W*H=425*175*160mm
 Packaging Quantity: 20 pcs
 Outer carton dimensions: L*W*H=560*450*520mm
 Packaging Quantity: 180 pcs

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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