

Programmable thermal resistance isolators



RoHS



FEATURES

- 3-port electrical isolation between input, output and power supply(3kVDC)
- 12.5mm slim case
- High accuracy (0.1% Full Scale)
- High linearity (0.1% Full Scale)
- Low temperature drift(0.05°C/°C)
- Low-power dissipation
- Excellent EMC performance
- Mini USB port communication
- Input / Output range programmable
- High reliability(MTBF>500,000 h)

TR1x0PWE series thermal resistance isolator which are mainly applied in vehicle battery temperature monitoring and alarm system can isolated convert thermal resistance input signal of the field battery 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 product is 1 input 1 output . 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

Selection Guide

Output Type	Single Input/Single Output
Current Output	TR100PWE-NC
Input Signal: programmable (2-wire system or 3-wire system input)	
Signal Type	Pt100
Measuring Range	-50 to +200°C
Output Signal	4~20mA
Notes:	
1. Customers need to determine the type of input signal, measuring range and form of output signal while placing an order, customization is available for special requirements.	
2. The ancillary USB adapter model is T-01, please consult our technical staff for more information if you need it.	

Input Specifications

Item	Operating Conditions	Value
Power Supply Input	Power Supply	18-30VDC (Typical value 24VDC)
	Power Dissipation	single input/ single output <1.2W
	Power Supply Protection	Input reverse polarity protection
Field Area	Input Signal	See List of Product Models

Output Specifications

Item	Operating Conditions	Value	
Control Area	Output Signal	See selection guide	
	Load Sapacity	Output current maximum	≤ 500 Ω
	Communication Port		Mini USB port
	Communication Protocol		See <i>MORNSUN Modbus Bus Protocol Rules</i> for details
	Fault Output		
Control Area	Output Type	4 ~ 20mA	
	Input Disconnection	3 ± 0.1mA	
	Input Over-range Lower limit	2 ± 0.1mA	
	Input Over-Range Upper Limit	1 ± 0.1mA	
	Break Alarm	Each channel disconnection alarm corresponding red light	
	Over-Range Alarm	Each channel over range alarm to the red indicator light flashes	

Transmission Specifications

Item	Operating Conditions	Value
Accuracy	Full-scale range, 100% load, @25°C	0.1%FS. or 0.5°C greater
Zero Offset	Sin = 0, 100% load, @25°C	0.1%FS. or 0.5°C greater
Temperature Drift	Operating temperature range of -25°C to +71°C	0.05°C (Sampling deviation) / °C (Ambient temperature)
Output Signal Rise Time	Output from the 10% point of full signal up to 90% of the full signal point	< 0.5s
Output Signal Fall Time	Output from the 90% point of full signal down to 10% of full signal point	< 0.5s

General Specifications

Item	Operating Conditions	Value
Electric Isolation	1Min leakage current ≤5mA	Field area and control area 2000VAC/3000VDC
		Output and power supply 2000VAC
Isolation Resistance	signal input terminal, signal output terminal	100MΩ, 500VDC
Operating Temperature		-25 to +71°C
Transportation and Storage Temperature		-40 to +85°C

Physical Specifications

Case Material	Retardant material UL94-V0
Safety Class	IP20(IEC60529 / EN60529)
Vibration Class	IEC61373:1999
Package Dimensions	35mm DIN-rail package: T-rail card package (DIN50022), pluggable connection pin, thickness 12.5mm
Weight	88.0g.(Typ.)
Cooling Method	Free air convection

EMC Specifications

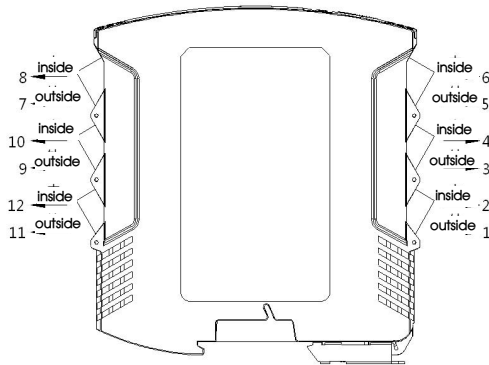
Emissions	CE	GB/T24338.4-2009 0.15MHz~0.5MHz, QP limits 79dB μV, 0.5MHz~30MHz, QP limits 73dB μV	
	RE	GB/T24338.4-2009 30MHz~230MHz, QP limits 40dB μV/m, 30MHz~1000MHz, QP limits 47dB μV/m	
Immunity	ESD	GB/T24338.4-2009 Contact ±6KV/Air ±8KV	perf. Criteria B
	RS	GB/T24338.4-2009 10V/m	perf. Criteria A
	EFT	GB/T24338.4-2009 power supply port ±2KV, 5kHz	perf. Criteria B
		GB/T24338.4-2009 signal port ±2KV, 5kHz	perf. Criteria A
	Surge	GB/T24338.4-2009 power supply port ±2KV	perf. Criteria B
		GB/T24338.4-2009 signal port ±2KV (line-to-ground)	perf. Criteria B
CS	GB/T24338.4-2009 10 Vr.m.s	perf. Criteria A	

Application Precautions

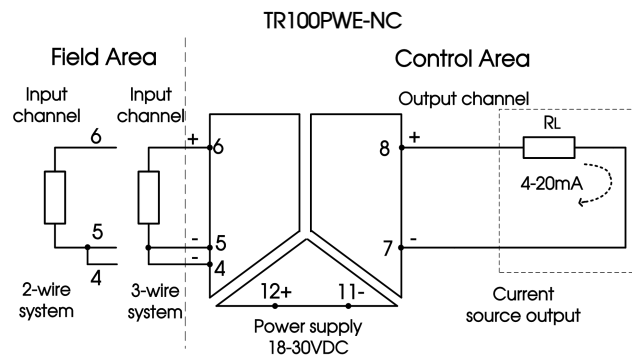
1. Please read the instructions carefully before use; contact our technical support if you have any problem;
2. Do not use the product in hazardous areas;
3. Use DC power supply for the product. and 220V AC power supply is prohibited;
4. Do not disassemble or assemble the product without permission to avoid explosion protection failure or malfunction of product.

Design Reference

1. Wiring diagram for product application



PIN	Description (1 input 1 output)
1	NC
2	NC
3	NC
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	NC
10	NC
11	Power- power input-
12	Power+ power input+



- ① Use dismantable terminals for instrument wiring, easy to operate;
- ② The sectional area of conductor is 0.5mm²-2.5mm²;
- ③ The length of conductor exposed is 8mm and is fastened by M3 bolts.

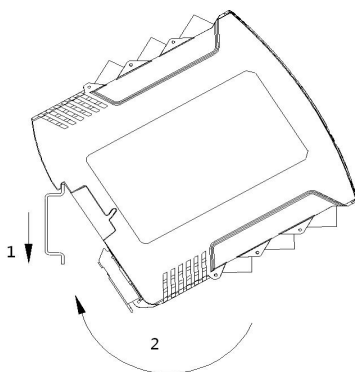
2. For more information please find the application notes on www.mornsun-power.com

Installation & Removal

Installation

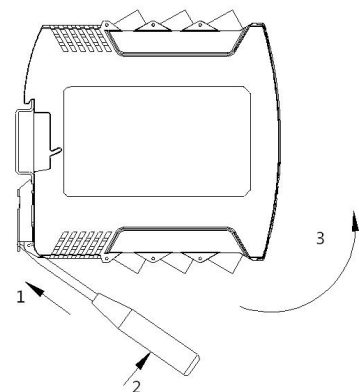
Standard 35mm DIN rail installation:

1. Insert top of Module into DIN rail;
2. Push bottom of Module into rail until it snaps in.

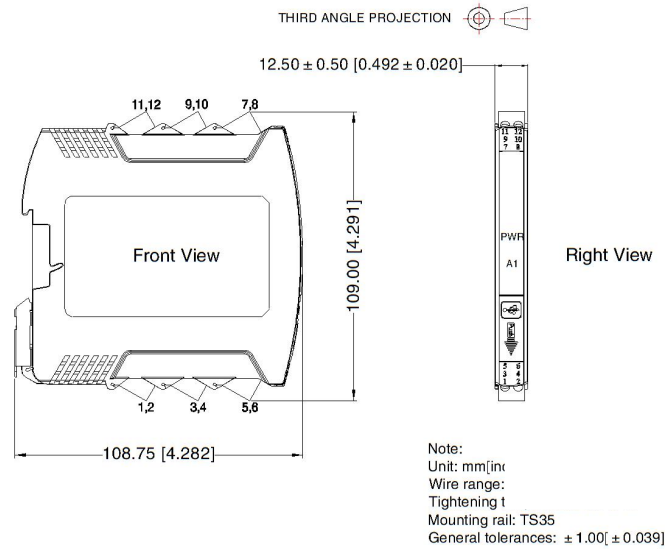


Removal

1. Insert screw driver on the lower end of Module to release clamp (tool edge width ≤6mm);
2. Push screw driver up towards Module to slide clamp out;
3. Pull Module up out of the guide rail.



Dimensions



Notes:

1. Packaging information please refer to Product packaging Information which can be downloaded from www.mornsun-power.com.
Packaging bag number: 58240007;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a=25^{\circ}\text{C}$, humidity<75%RH with nominal input voltage and rated output load;
3. All index testing methods in this datasheet are based on our company corporate standards;
4. The performance indexes of the product models listed in this manual are as above, but some indexes of non-standard model products will exceed the above-mentioned requirements, and please directly contact our technician for specific information;
5. We can provide product customization service, please contact our technicians directly for specific information;
6. Products are related to laws and regulations: see "Features" and "EMC";
7. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

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