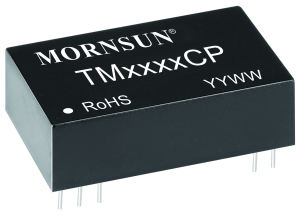
Signal conditioning modules
TMxxxxCP Series

MORNSUN®

Active high precision signal conditioning module
Millivolt-class positive and negative signal input & positive and negative signal output



FEATURES

- Input, output and power supply are mutually isolated from each other
- High accuracy (0.1% F.S.)
- High linearity (0.1% F.S.)
- Isolation voltage(2.5KVDC/60S)
- Extremely low temperature coefficient (35PPM/℃)
- Industrial grade (operating temperature range: -25to +71℃)
- High reliability (MTBF >500,000 hours)

The TMxxxxCP series signal conditioning module have a millivolt-class positive and negative signal input, positive and negative signal output. These modules, with a high efficiency micro-power source built-in, can provide power for signal processing circuit. In the three-wire and four-wire transmitter applications, our products make customers' design simple and helpfully improve the room-using ratio of PCB. Adopting electromagnetism isolation technology, it is available to keep higher accuracy and extremely lower temperature drift than optocoupler isolation. These modules have three-port isolation(input, output and power supply),and the isolation voltage between them is up to 2.5kVDC.

Selection Guide

Part No.	Power Input(VDC)	Input Signal	Output Signal	Isolation Power Output (VDC)
TM1630CP	24V	±10mV	±5V	None
TM2630CP	24V	±20mV	±5V	None
TM4630CP	24V	±50mV	±5V	None
TM5630CP	24V	±75mV	±5V	None
TM6630CP	24V	±100mV	±5V	None
TM7650CP	12V	±200mV	±5V	None
TM4530CP	24V	±50mV	±10V	None
TM5530CP	24V	±75mV	±10V	None
TM6530CP	24V	±100mV	±10V	None

Note: We could also offer customer design for special input and output as follow:
Power supply:24/15/12VDC;
Input signal:0~±10/±20/±30/±50/±75/±100mV;
Output signal: 0~±5V/±10V.

Input Specifications

Item		Operating Conditions	Value
Power Supply	Input voltage		(Nominal value of power supply input) ±5%
	Input power	Single output & Isolation Power Output full load	≤1W
	Power supply protection		Anti-reverse protection
Signal Input	Input signal		Reference selection guide
	Input impedance	In case of max. input of voltage signal	≥10MΩ
	Overload		10V

Output Specifications

Item		Operating Conditions	Value
Signal Output	Output signal		Reference selection guide
	Load capacity	In case of max. output of voltage signal	≥2KΩ

Transmission Specifications

Item	Operating Conditions	Value
Zero Offset		0.1%F.S.
Signal Precision		0.1%F.S.
Temperature Drift	Operating temperature range: -25 to +71℃	35PPM/℃ (input signal range≥100mV) 50PPM/℃ (input signal range<100mV)

General Specifications

Item	Operating Conditions	Value
Electric Isolation		Input, output and power supply are mutually isolated from each other
Degree of Isolation	testing for 1 minute, leakage current <1mA, humidity <70%	2.5KVDC
Isolation Resistance		100MΩ, 500VDC (signal input terminal, signal output terminal, power supply terminal)
Operating Temperature		-25℃~+71℃
Transportation and Storage Temperature		-50℃~+105℃
Application Environment		The presence of dust, fierce vibration, impulsion and corrosive gas may cause damage to the product

Physical Specifications

Casing Material	WH8100-F (1)
Package	DIP24
Weight	10g(Typ.)
Cooling Method	Free air convection

EMC Specifications

EMS	ESD	IEC/EN61000-4-2	Contact ±4KV (see Fig. 2 for recommended circuit)	perf. Criteria B
	EFT	IEC/EN61000-4-4	Power supply port ±2KV (see Fig. 2 for recommended circuit)	perf. Criteria B
		IEC/EN61000-4-4	Other ports ±1KV (see Fig. 2 for recommended circuit)	perf. Criteria B
	Surge	IEC/EN61000-4-5	Power supply ±1KV (see Fig. 2 for recommended circuit)	perf. Criteria B
		IEC/EN61000-4-5	Other ports ±1KV (line to ground) (see Fig. 2 for recommended circuit)	perf. Criteria B

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 dismount and assemble the product without permission to avoid failure or malfunction of equipment.

After-sales service

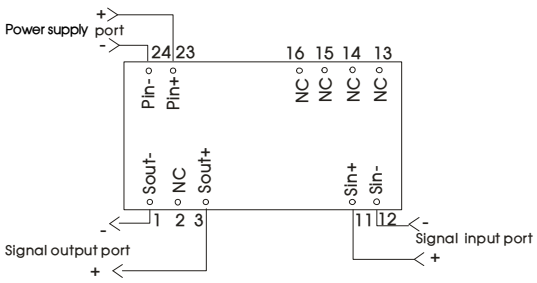
1. Ex-factory inspection and quality control have been strictly conducted for the product; if there occurs abnormal operation or possibility of failure of internal module, please contact the local representative or our technical support.
2. The warranty period for the product is 3 years as calculated from the date of delivery. If any quality problem occurs under normal use within the warranty period, the product can be repaired or changed for free.

Applied circuit

See *Application Notes for Isolated Transmitter* for details.

Design Reference

1. Wiring diagram for product application & Schematic diagram



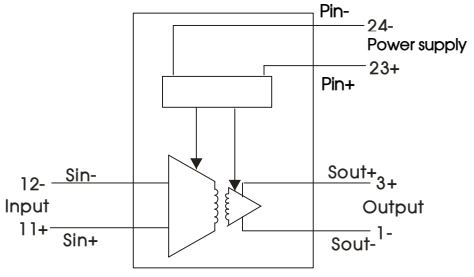


Fig.1

2. EMC solution-recommended circuit

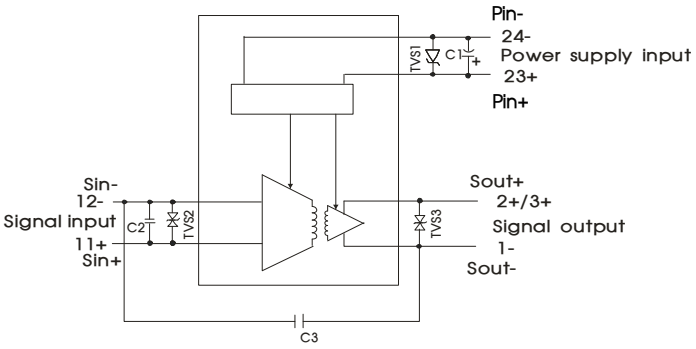
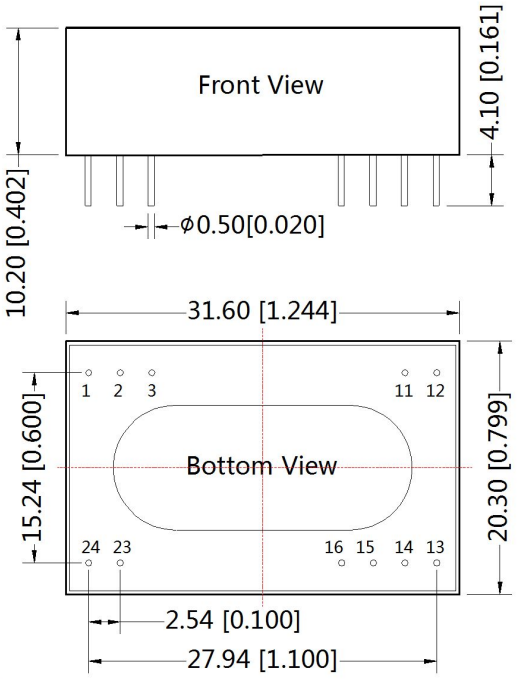


Fig.2

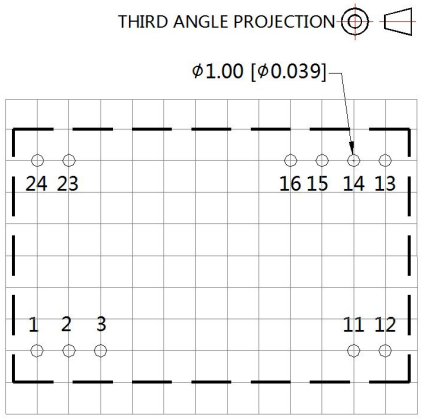
Components	Recommended parameters
TVS1	SMCJ30A
TVS2	SMBJ5CA
TVS3	SMBJ15CA
C1	220μF/35V
C2	1μF/50V
C3	2200pF/400VAC

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

Dimensions and Recommended Layout



Note:
Unit :mm[inch]
Pin diameter tolerances :±0.10[±0.004]
General tolerances:±0.50[±0.020]



Note : Grid 2.54*2.54mm

Pin-Out		
Pin	Vo	Function
1	Sout-	Signal output(-)
2	NC	Signal output(+)
3	Sout+	Signal output(+)
11	Sin+	Signal input(+)
12	Sin-	Signal input(-)
13,14	NC	No function pin
15,16	NC	No function pin
23	Pin+	Power supply(+)
24	Pin-	Power supply(-)

NC:Not available for electrical connection

Notes:

1. Packing Information please refer to 'Product Packing Information'. Packing bag number: 58210008;
2. Unless otherwise specified, data in this datasheet should be tested under the conditions of Ta=25℃, humidity<75% when inputting nominal voltage and outputting rated load;
3. All index testing methods in this datasheet are based on our Company's corporate standards;
4. The performance indexes of the product models listed in this datasheet 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;
6. Specifications of this product are subject to changes without prior notice.

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