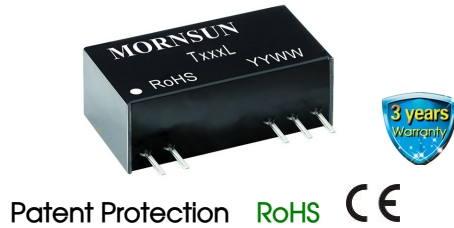


Two-wire loop power supply signal conditioning module
Voltage signal input & current signal output



FEATURES

- Compact size: SIP9 (26*9.5*12.5mm)
- High isolation voltage(2KVAC/1mA)
- High accuracy (0.1% F.S.)
- High linearity (0.1% F.S.)
- Output loop-powered
- Extremely low temperature coefficient:50PPM/°C
- Industrial grade operating temperature:-40 to +85°C
- ESD protection(±4KV without external components)
- EN60950 approval

T_L is a voltage input and two-wire current output loop-powered signal conditioning module. After the adoption of the current loop feed-level approach to the pre-power devices and equipment received from the preceding stage output voltage signal. The isolation module output standard two-wire current signal. This product incorporates a unique electromagnetic isolation mode and high performance level after feeding technology, the voltage signal to standard current signal isolation accurate conversion, can be used with a variety of instruments analog input port (such as PLC, DCS systems, etc.) to match. In addition, this module has extremely small form factor (SIP9) and excellent temperature drift characteristics (at -40°C to +85°C operating temperature range drift is less than 50PPM/°C), the input and output ends of energy bear 2KVAC isolation voltage.

Selection Guide

Certification	Model	Power Supply input Typ. (VDC)	Input Signal	Output Signal	Isolation Power Output (VDC)
CE	T747L	10-24V	0-2.5V	3.7-22mA	3.3V
	TS107L-F-2	10-24V	0-2V	4-20mA	3.3V

Notes: Customization products are available if required.

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Signal Input	Input signal	See selection guide			
	Input impedance	10	--	--	MΩ
	Signal input range	Voltage signal input	--	--	5

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit	
Signal Output	Output signal	See selection guide				
	Supply voltage*	10	24	30	V	
	The power port equivalent capacitance	--	--	2.2*1.05	μF	
	Load capacity	T747L(Vin: Loop supply voltage)	--	--	(Vin-10)/0.022	Ω
		TS107L-F-2(Vin: Loop supply voltage)	--	--	(Vin-10)/0.02	Ω
	Load regulation		--	--	0.05%/100	F.S./Ω
Low ripple & noise	20MHz bandwidth, 250Ω / 0.01 μF load	--	--	30	mVp-p	
Isolation Power Output	Output voltage	Nominal -3%	Nominal	Nominal +3%	V	
	Maximum load current	--	--	4	mA	
	Short circuit protection	Continuous short-circuit protection; withdrawal product to resume normal work after a fault				

Notes: *can not working long time on max. Voltage with no load

Transmission Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Zero Offset		-0.1%F.S.	--	+0.1%F.S.	--
Signal Precision		-0.1%F.S.	--	+0.1%F.S.	--
Signal band width	250Ω /0.01μ F load	500	--	--	Hz
Signal response time		--	--	5	mS
Temperature Coefficient	Operating temperature range: -40℃ to +85℃	--	--	50	PPM/℃

General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Electric Isolation		Two-port isolation (signal input and signal output, isolation power belongs to the input)			
Isolation voltage	Testing for 1 minute, leakage current <1mA, humidity <70%	2	--	--	KVAC
Insulation Resistance	500VDC	100	--	--	MΩ
Operating Temperature		-40	--	+85	℃
Transportation and Storage Temperature		-50	--	+105	
Safety Standard		EN60950			
Safety Certification		EN60950			
Safety Class		CLASS III			
Application Environment		The presence of dust, fierce vibration, impulsion and corrosive gas may cause damage to the product			

Physical Specifications

Casing Material	Black flame-retardant and heat-resistant plastic
Package	SIP9
Weight	6g (Typ.)
Cooling Method	Free air convection

EMC

EMI	CE	CISPR22/EN55022	CLASS A (Recommended Circuit Refer to Figure 2)	
	RE	CISPR22/EN55022	CLASS A (Recommended Circuit Refer to Figure 2)	
EMS	ESD	IEC/EN61000-4-2	Contact ±4KV	perf. Criteria B
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4	Power port ±2KV (Recommended Circuit Refer to Figure 2-①)	perf. Criteria B
		IEC/EN61000-4-4	Signal port ±1KV (Recommended Circuit Refer to Figure 2-②)	perf. Criteria B
	Surge	IEC/EN61000-4-5	Power port ±1KV(line to line) / ±2KV(line to ground) (Recommended Circuit Refer to Figure 2-①)	perf. Criteria B
		IEC/EN61000-4-5	Signal port ±1KV (line to ground)(Recommended Circuit Refer to Figure 2-②)	perf. Criteria B
CS	IEC/EN61000-4-6	3 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. Unless otherwise specified, data in this data sheet should be tested under the conditions of Ta=25℃, humidity<75% when inputting nominal voltage and outputting rated load;
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. Typical application

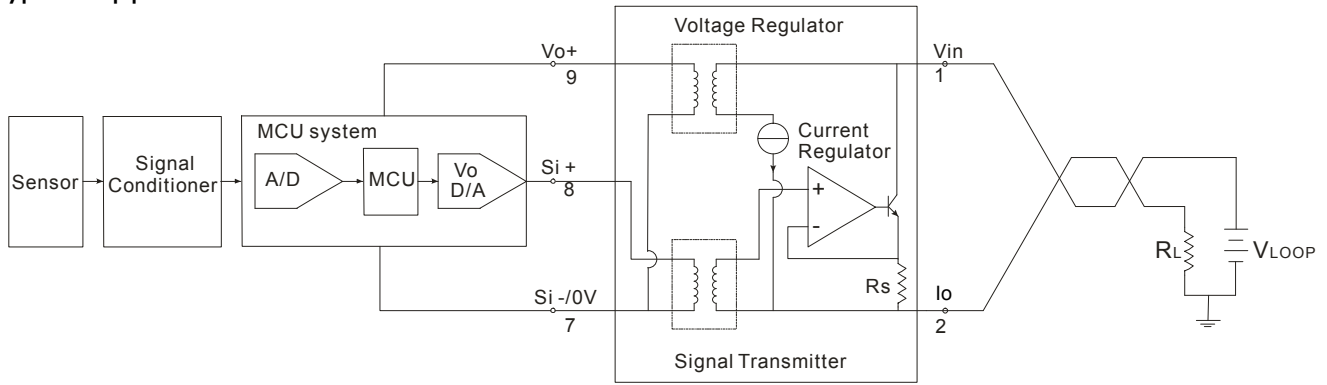


图 1

Function

The picture shows the way an application module with MCU system together constitute the signal conversion, isolation transfer functions.

Working principle

As shown, the signal conditioning unit VLoop take power from the output circuit for signal input device provides one isolated power V_o+ ;MCU for the first stage of the system power supply. The strain sensor output signal after signal conditioning unit into the MCU system, by the MCU system the collected signal processing, computing, and then the D/A converter, converted to a voltage signal. Module receives the voltage signal, the internal precision isolation transferred to the output, and converted to standard current signal output to VLoop loop.

The system of the sensor signal to the standard current signal isolation transmission, the output remotely, using the sampling resistor R_L , the current signal can be converted to a voltage signal, the various instruments of the type of input signal to the output of the module match.

2. EMC solution-recommended circuit

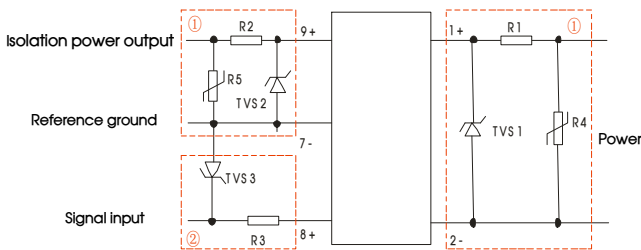


图 2

R_1 , R_2 , R_3	12 Ω /2W
R_4 , R_5	S14K20
TVS1	SMCJ30A
TVS2	SMCJ6.5A
TVS3	SMBJ5A

3. Wiring diagram for product application

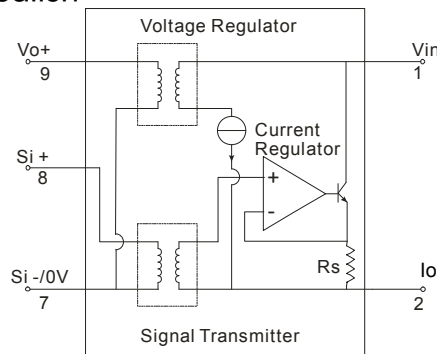
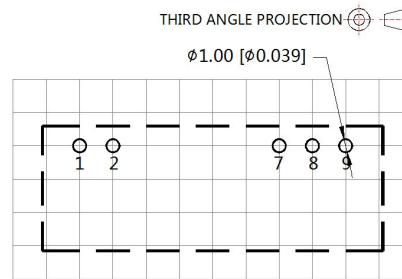
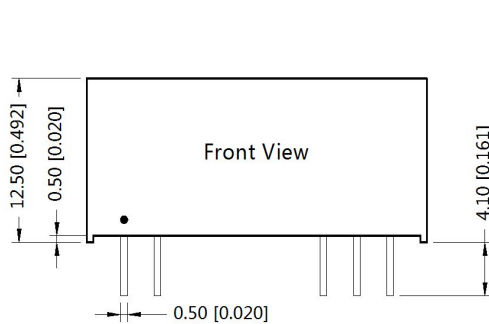


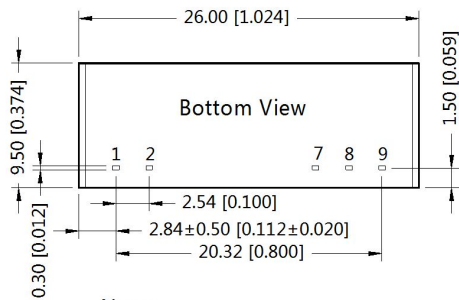
图 3

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

Dimensions and Recommended Layout



Note : Grid 2.54*2.54mm



Note:
Unit :mm[inch]
Pin section tolerances : $\pm 0.10[\pm 0.004]$
General tolerances: $\pm 0.25[\pm 0.010]$

Pin-Out		
Pin	Function	
1	Vin	Power input
2	Io	Current output
7	0V/Si-	Signal input(-)
8	Si+	Signal input(+)
9	Vo+	Isolation Power output(+)

Notes:

1. Packing information please refer to Product Packing Information which can be downloaded from www.mornsun-power.com. Packing bag number:58210006;
2. All index testing methods in this datasheet are based on our Company's corporate standards;
3. 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;
4. We can provide product customization service;
5. Specifications of this product are subject to changes without prior notice.

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