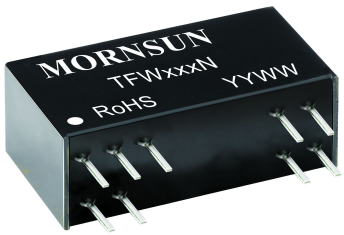
Active high precision output signal conditioning module



CE RoHS 3 years Warranty

FEATURES

- Two- port isolation (signal input and signal output)
- High linearity (0.1% F.S.)
- Isolation voltage (2kVAC/60s)
- Low ripple & noise: (≤30mVpp.TYP, 20MHz)
- Compact size: DIP18 (26*9.5*12.5mm)
- ESD protection (IEC/EN61000-4-2 Contact ±4kV perf. Criteria B)
- EN60950 approval

The TFWxxxN series signal conditioning modules is with preceding PWM signal input and backward voltage/current signal output, can directly convert digital PWM signal isolation to analog voltage and current signals. Adopting electromagnetism isolation technology, it is available to keep higher accuracy and extremely lower temperature drift than optocoupler isolation. This module is two-port isolation (Signal input and Power Supply to Signal Output).

Selection Guide

Certification	Model	Power Supply input Typ. (VDC)	Input Signal(%)	Output Signal	Isolation Power Output (VDC)
CE	TFW260N	5	0-100	0-20mA	None
	TFW560N	5	0-100	0-10V	None
	TFW660N	5	0-100	0-5V	None

Input Specifications

Item		Operating Conditions	Min.	Typ.	Max.	Unit
Power Input	Input Voltage		Nominal-5 %	Typ.	Nominal+5%	V
	Input Power		--	--	1.0	W
	Power Supply Protection		None			
Signal Input	Frequency	Operating temperature range of -40℃ to +85℃, ViH-ViL=3.3V	100	--	1000	Hz
	Duty Cycle	Operating temperature range of -40℃ to +85℃, ViH-ViL=3.3V	0	--	100%	--
	Edge Time	500Hz; Ta=25℃;	--	--	100	nS
	PWM Amplitude	ViH-ViL	3	--	5	V

Output Specifications

Item		Operating Conditions	Min.	Typ.	Max.	Unit
Signal Output	Output Signal		See selection guide			
	Load Capacity	Current output	--	--	500	Ω
		Voltage output	2	--	--	kΩ
	Ripple & Noise	20MHz bandwidth	--	30	--	mVpp

Transmission Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Signal Precision	Ta=25℃	-0.1%F.S.	--	+0.1%F.S.	--
Temperature Coefficient	Operating temperature range of -40℃ to +85℃	--	50	100	PPM/℃
Response Time		--	500	1000	ms

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General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Electric Isolation		Isolated between the signal input/Power Supply and the signal output.			
Isolation Voltage	Testing for 1 minute, leakage current <1mA, humidity <70%	2	--	--	kVAC
Insulation Resistance	500VDC	100	--	--	MΩ
Operating Temperature		-40	--	+85	℃
Transportation and Storag Temperature		-40	--	+85	℃
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 heat-proof plastic
Package	DIP18
Weight	5.5g(Typ.)
Cooling Method	Free air convection

EMC Specifications

EMS	ESD	IEC/EN61000-4-2	Contact ±4kV	perf. Criteria B
	EFT	IEC/EN61000-4-4	Signal Output port ±1kV (see Fig. 3 for recommended circuit)	perf. Criteria B
	Surge	IEC/EN61000-4-5	Signal Output port ±1kV (line to ground) (see Fig. 3 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;
5. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75% with power input nominal voltage and rated signal output full load.

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

1) Schematic diagram

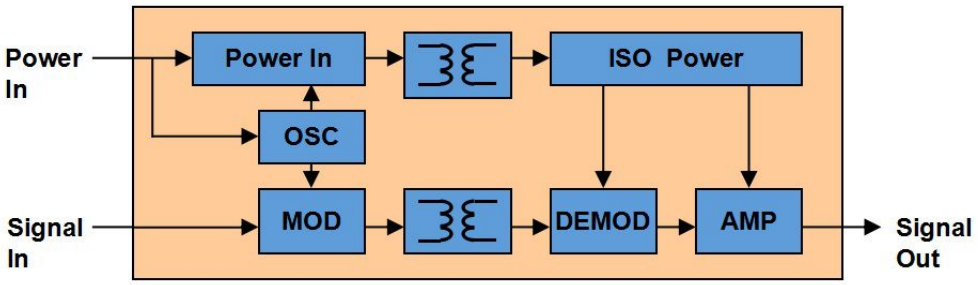

Fig. 1

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2) Typical application circuit

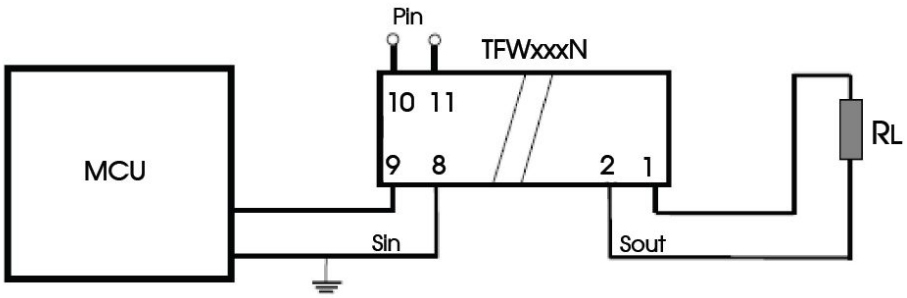

Fig. 2 Schematic diagram of TFW_N application

Function declaration

In the figure 2, Sin is a digital control signal provided by the MCU control circuit. TFW-N output module to achieve control signal isolation output. Sout for output isolation signal, Pin is the input port of the module power supply

Working principle

When the circuit works, MCU circuit output PWM signal is Sin, The PWM signal is converted to analog signal and isolated from the output to the back end load through the TFW-N output modul. The whole process to achieve the MCU digital signal isolationconversion output. The power supply of TFW_N is supplied by the MCU control circuit

2. Recommended EMC circuit

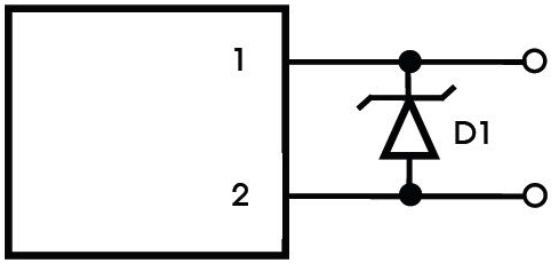

Fig. 3

Components	Recommended parameters
D1	SMBJ15A

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

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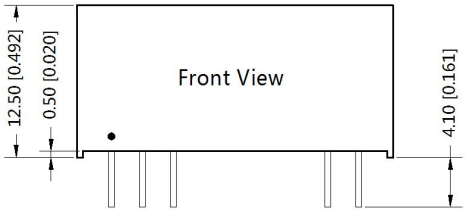
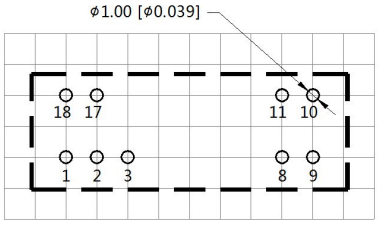
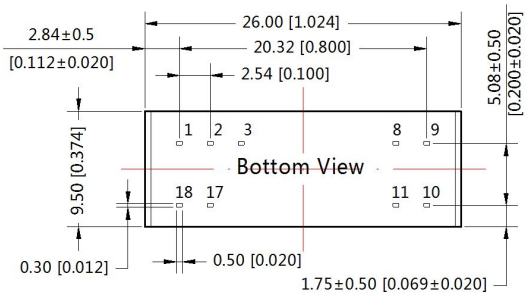
Dimensions and Recommended Layout

THIRD ANGLE PROJECTION





Note : Grid 2.54*2.54mm



Note:
Unit: mm[inch]
Pin section tolerances: ±0.10[±0.004]
General tolerances: ±0.25[±0.010]

Pin-Out					
1	Sout+	Signal output(+)	10	Pin+	Power input(+)
2	Sout-	Signal output(-)	11	Pin-	Power input(-)
3	NC	No Connection	17	NC	No Connection
8	Sin-	Signal input(-)	18	NC	No Connection
9	Sin+	Signal input(+)			

Notes:

1. Packing information please refer to Product Packing Information which can be downloaded from www.mornsun-power.com. Packing bag number: 58240002;
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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