Current Transducer TLAx00-S

RoHS

3 years Warranty

Features

- Segmentation accuracy up to 0.02%
- Overall accuracy up to 0.5%
- Linearity up to 0.1%
- Low temperature drift
- Wide frequency bandwidth
- Optimized response time
- No insertion losses
- High immunity to external interference
- Withstand a symmetrical voltage charge of ±5%
- Meets UL 94V-0/IEC61010-1 standards

TLAx00-S is used for isolation measurement between primary and secondary. The hall effects is used to achieve zero-flux closed-loop control of DC magnetic flux, AC magnetic flux, and excitation magnetic flux, so that the sensor has a relatively high measurement accuracy in the full bandwidth. The shell adopts a closed structure with circular perforations, and the number of turns of the core (primary side)is one turn.

It is often used to measure DC, AC, pulse current, the installation is convenient, simple and suitable.

Application areas: medical equipment, electricity, new energy, ships metering, industrial control, rail transit, test instrument, automobiles, smart grid measurement, etc.

Selection Guide

Certification	Part No.	Input Voltage (VDC)	Primary current measurement range I_{PM}(A)	Primary nominal rated RMS current I_{PN} (A)	Secondary nominal rated RMS current I_{SN} (mA)	Turns ratio
--	TLA50-S	±12/±15	-100~+100	50	25	1：2000
	TLA100-S		-200~+200	100	50	1：2000
	TLA200-S		-300~+300	200	100	1：2000
	*TLA300-S**		-500~+500	300	120	1：2500
	*TLA500-S**		-800~+800	500	250	1：2000
	*TLAx00-S**		--	x00	--	1：3500

Remarks:
*: products are available for develop.

Electrical Characteristics

Item	Operating Conditions	Min	Typ	Max	Unit.
Primary Current Measurement Range I_{PM}	TA=25℃, TLA50-S	-100	--	+100	A
	TA=25℃, TLA100-S	-200	--	+200	
	TA=25℃, TLA200-S	-300	--	+300	
Measuring Overload $I_{P\,MAX}$	3mn/hour @ VC=± 15V, RM=5Ω, TLA50-S	--	600	--	
	3mn/hour @ VC=± 15V, RM=5Ω, TLA100-S				
	3mn/hour @ VC=± 15V, RM=5Ω, TLA200-S				
Conversion Ratio K_N	Primary side coil=1, TLA50-S	1：2000			--
	Primary side coil=1, TLA100-S				
	Primary side coil=1, TLA200-S				
Supply Voltage V_C	Withstanding symmetrical voltage variation ±5%	±12/±15			V
Current Consumption $I_{C\,min}$	Actual output current I_S	20（@±15V）+I_S			mA

			T_A=70 ℃		T_A=85 ℃		
			$R_{M\,min}$	$R_{M\,max}$	$R_{M\,min}$	$R_{M\,max}$	
Measuring Resistance R_M	±12V	@ ±50 A_{MAX}, TLA50-S, TLA100-S, TLA200-S	0	366	0	365	Ω
		@ ±100 A_{MAX}, TLA50-S, TLA100-S, TLA200-S	0	162	0	160	
		@ ±200 A_{MAX}, TLA100-S, TLA200-S	0	59	0	57	
		@ ±300 A_{MAX}, TLA200-S	0	33	0	30	
	±15V	@ ±50 A_{MAX}, TLA50-S, TLA100-S, TLA200-S	5	471	5	467	
		@ ±100 A_{MAX}, TLA50-S, TLA100-S, TLA200-S	5	212	5	212	
		@ ±200 A_{MAX}, TLA100-S, TLA200-S	5	89	5	86	
		@ ±300 A_{MAX}, TLA200-S	5	50	5	49	

Dynamic Characteristics

Item		Operating Conditions	Min	Typ	Max	Unit
Overall accuracy x_G		@I_{PN}, T_A=25℃	--	--	±0.5	%
Segmentation accuracy x_S	@IPN：50A-100A	TA=25℃, TLA100-S, TLA200-S	--	±0.060	--	
	@IPN：100A-150A	TA=25℃, TLA200-S	--	±0.040	--	
	@IPN：150A-200A	TA=25℃, TLA200-S	--	±0.030	--	
	@IPN：200A-250A	TA=25℃, TLA200-S	--	±0.025	--	
	@IPN：250A-300A	TA=25℃, TLA200-S	--	±0.020	--	
Linearity Error ε_L		T_A=25℃	--	±0.1	--	
Response Time t_r		Up to 10% of I_{PN}	--	--	500	ns
		di/dt=100A/us, 90% of I_{PN} step	--	--	1	μs
Current Change Rate di/dt			100	--	--	A/μs
Frequency Bandwidth (-3dB) BW			0	--	100	KHz
Offset Current I_O		@I_P=0, T_A=25℃	-0.15	--	0.15	mA
Temperature Variation Of I_{OT}		@I_P=0, T_A=-40℃to+85℃	-0.30	--	0.30	

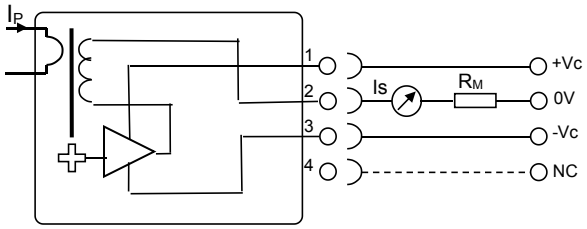
General Characteristics

Item	Operating Conditions	Min	Typ	Max	Unit
Ambient Operating Temperature T_A		-40	--	+85	℃
Ambient Storage Temperature T_S		-40	--	+90	
Secondary Coil Resistance R_S	@T_A=70℃	--	35	--	Ω
	@T_A=85℃	--	37	--	
Weight m		92	96	100	g

Isolation Characteristics

Item	Operating Conditions	Min	Typ	Max	Unit
Rms Voltage for AC Isolation Test V_d	Primary edge input, secondary output; 50Hz,1min; Leakage current<0.1mA	--	7	--	kV
Impulse Withstand Voltage V_w	50μs	--	19	--	
Creepage Distance dCp		--	19.5	--	mm
Clearance Distance dCl		--	18	--	
Comparative Tracking Index CTI		--	225	--	V

Connection and Description



Test instructions:

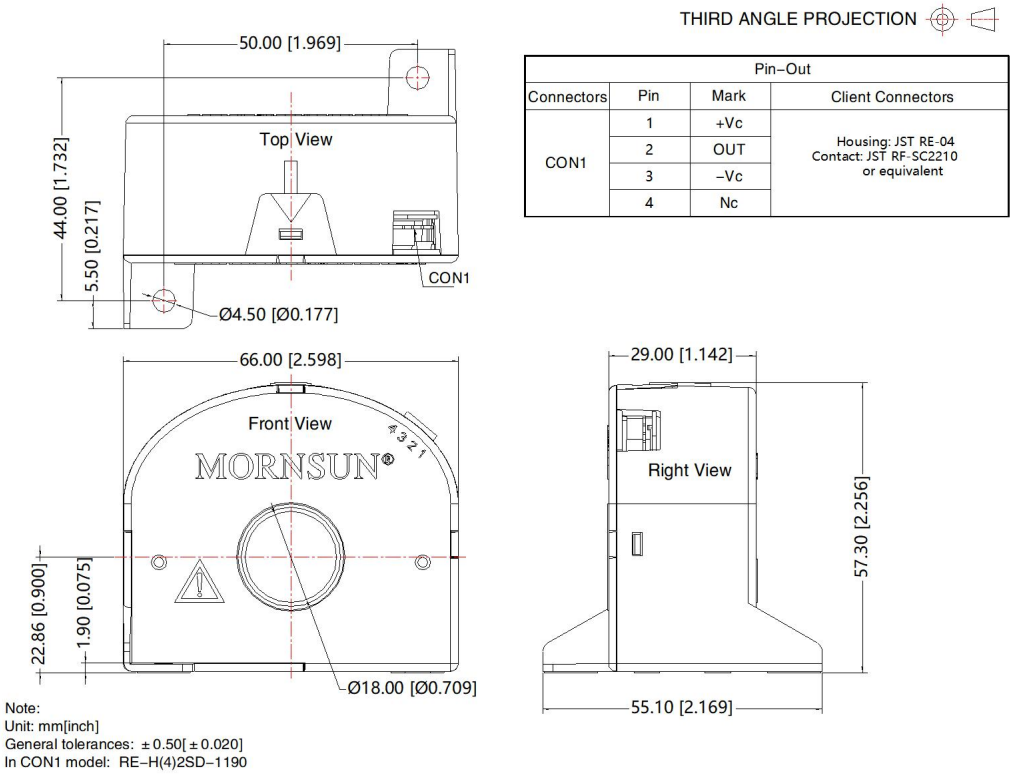
1、I_P is measured current,I_S is measuring current;

2、R_M is measuring resistance, set according to the required voltage range of the output circuit;

3、By measuring the test current I_S flowing through R_M, or the voltage U_R across R_M, the primary current I_P can be obtained:

$$I_P = K_N * I_S = K_N * (U_R / R_M)$$

Dimensions and Recommended



Pin-Out			
Connectors	Pin	Mark	Client Connectors
CON1	1	+Vc	Housing: JST RE-04 Contact: JST RF-SC2210 or equivalent
	2	OUT	
	3	-Vc	
	4	Nc	

Note:
Unit: mm[inch]
General tolerances: ±0.50[±0.020]
In CON1 model: RE-H(4)2SD-1190

Notes:

1.I_S is positive when I_P flows in the direction of the arrow;
2.The temperature of the primary winding coil should be lower than 100℃;
3.Dynamic characteristics（di/dt response time) best condition: the measured wire completely fills the hole;
4.Hot plug is unavailable.

Notes:

1. All index testing methods in this datasheet are based on company corporate standards;
2. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58240026;
3. We can provide product customization service, please contact our technicians directly for specific information;
4. This products is used in electronic equipment, please follow the operation and instructions of the manual, and use it in a standard and safe environment;
5. Please do not install the product in a dangerous area; beware of the risk of electric shock during operating, some modules may generate dangerous voltages (such as primary wires, power supply wires);
6. This products is a build-in device, After installation, the conductive part must not be touched completely. A protective box or shield can be used;
7. It is strictly forbidden to disassemble and assemble the products privately to prevent equipment without failure or malfunction;
8. 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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