

Current Transducer
TLx00-D2C



TL300-D2C-SZ



RoHS

TLx00-D2C series products are used for DC, AC and pulse current measurement under the condition of primary and secondary side isolation. Hall effect and zero flux closed-loop control principle are adopted to achieve high measurement accuracy in the full bandwidth range of the sensor.

This series of products are circular perforation, the number of turns through the core (original edge) is one turn, its shell adopts closed structure, easy to install, simple, suitable for a variety of occasions.

Application areas: electric welder, power supply equipment, power heating equipment, large UPS equipment, motor driving equipment, etc.

Features

- Accuracy up to 0.3%
- Linearity up to 0.05%
- Low temperature drift 40PPM/K
- Wide frequency bandwidth 100kHz
- Optimized response time 2 μ s
- No insertion losses
- High immunity to external interference
- Withstand a symmetrical voltage charge of $\pm 5\%$

Selection Guide

Certification	Part No.	Input Voltage (VDC)	Primary RMS Current (A)	Primary Current Measurement Range (A)	Secondary RMS Current (mA)	Turns Ratio
--	TL100-D2C	$\pm 12/\pm 15$	100	-150~+150	100	1:1000
--	TL300-D2C	$\pm 12/\pm 15$	300	-450~+450	100	1:3000
	TL300-D2C-SZ	$\pm 12/\pm 15$	300	-450~+450	100	1:3000

Electrical Characteristics

Item	Operating Conditions	Min	Typ	Max	Unit.
Primary Nominal Rated RMS Current I_{PN} (A)	TL100-D2C	--	100	--	A
	TL300-D2C/ TL300-D2C-SZ	--	300	--	
Primary Current Measurement Range I_{PM} (A)	TL100-D2C	-150	--	+150	A
	TL300-D2C/ TL300-D2C-SZ	-450	--	+450	
Secondary Nominal Rated RMS Current I_{SN} (mA)	TL100-D2C	--	100	--	mA
	TL300-D2C/ TL300-D2C-SZ	--	100	--	
Conversion Ratio K_N	TL100-D2C, Primary side coil=1	1:1000			--
	TL300-D2C/ TL300-D2C-SZ, Primary side coil=1	1:3000			
Supply Voltage V_C	Withstanding symmetrical voltage variation $\pm 5\%$	$\pm 12/\pm 15$			V
Current Consumption I_C	Actual output current I_S	$\leq 25+I_S$			mA
Temperature Drift Coefficient	TL100-D2C	--	50	100	PPM/K
	TL300-D2C/ TL300-D2C-SZ	--	20	40	
Measuring Resistance R_M		$R_{M \min}$		$R_{M \max}$	--
	TL100-D2C, @ $\pm 150A_{MAX}$, $V_C=\pm 12V$	10		25	Ω
	TL100-D2C, @ $\pm 150A_{MAX}$, $V_C=\pm 15V$	10		50	

Measuring Resistance R_M	TL300-D2C/ TL300-D2C-SZ, @ $\pm 450A_{MAX}$, $V_C=\pm 12V$	10	25	Ω
	TL300-D2C/ TL300-D2C-SZ, @ $\pm 450A_{MAX}$, $V_C=\pm 15V$	10	50	

Dynamic Characteristics

Item	Operating Conditions	Min	Typ	Max	Unit
Overall Accuracy \times_G	$T_a=25^\circ C$	--	± 0.1	± 0.3	%
Linearity Error ϵ_L	$T_a=25^\circ C$	--	0.01	0.05	
Response Time t_r	@ $I_P=10\%$ of I_{PN} Up to 90% of I_{PN}	--	0.3	2	μs
Frequency Bandwidth (-3dB) BW		0	--	100	kHz
Offset Current I_o	@ $I_P=0$, $T_a=25^\circ C$	-0.5	--	0.5	mA

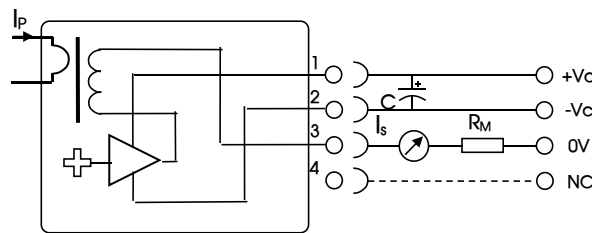
General Characteristics

Item	Operating Conditions	Min	Typ	Max	Unit
Ambient Operating Temperature T_A		-40	--	+85	$^\circ C$
Ambient Storage Temperature T_S		-40	--	+105	
Secondary Coil Resistance R_S	TL100-D2C, $T_a=25^\circ C$	--	10	--	Ω
	TL300-D2C/ TL300-D2C-SZ, $T_a=25^\circ C$	--	30	--	
Weight	TL100-D2C	60	67	74	g
	TL300-D2C	90	100	110	
	TL300-D2C-SZ	105	115	125	

Isolation Characteristics

Item	Operating Conditions	Min	Typ	Max	Unit
Power Frequency Withstand Voltage V_d	Primary input, secondary output; 50Hz, 1min; Leakage current < 0.1mA	2.5	--	--	kV
Housing Material		Black plastic; Flame-retardant and heat-resistant (UL94 V-0)			

Connection and Description



Test instructions:

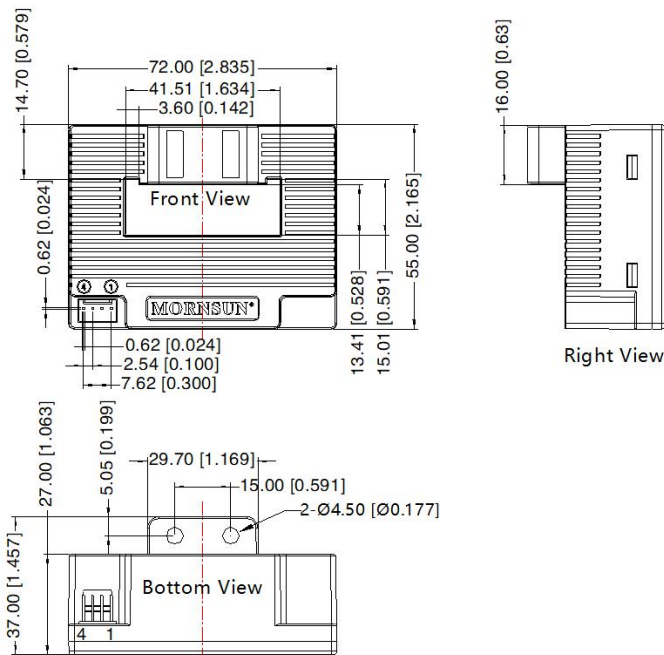
- I_P is measured current, I_S is measuring current, $C=100 \mu F/50V$. If the input power is stable, the capacitor C can be removed;
- R_M is measuring resistance, set according to the required voltage range of the output circuit;
- By measuring the test current I_S flowing through R_M , or the voltage U_R across R_M , the primary current I_P can be obtained:

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

- I_S is positive when I_P flows in the direction of the arrow;
- The temperature of the primary winding coil should be lower than $100^\circ C$;
- Dynamic characteristics best condition: the measured wire completely fills the hole;
- Hot plug is unavailable.
- It is recommended to use a power supply VRA2415ZP-6WR3 (MORNSUN) with 5W output power and output voltage of $\pm 15V$.

Dimensions and Recommended

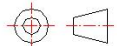
THIRD ANGLE PROJECTION 

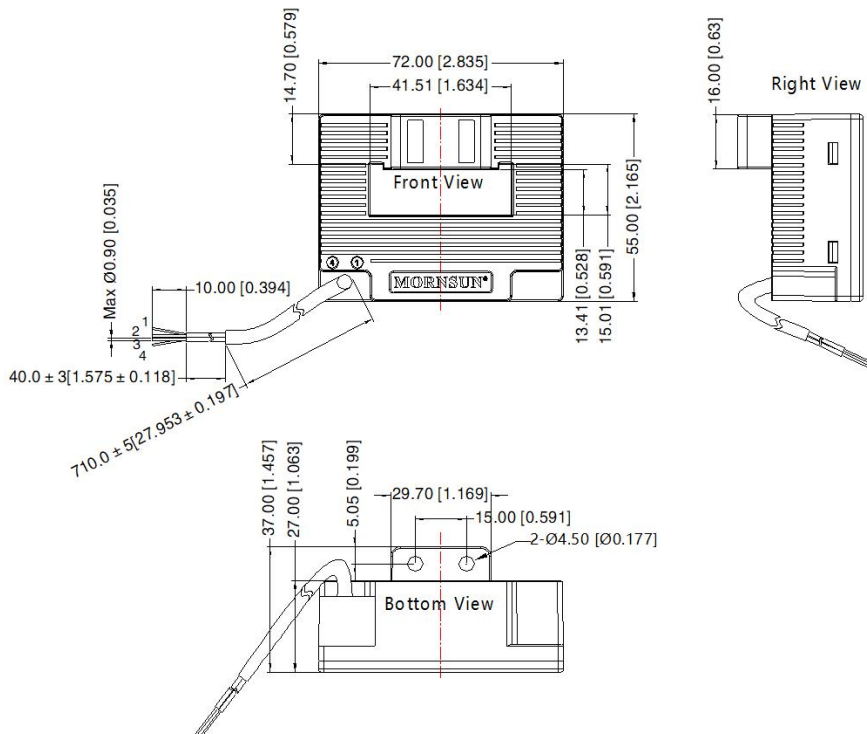


Pin-Out		
Pin	Mark	Customer Connector
1	+15V	Housing: MOLEX 22-01-2041 Terminal: MOLEX 22-27-2041 or equivalent
2	-15V	
3	output	
4	NC	

Note:
Unit: mm[inch]
General tolerances: ± 1.00[± 0.039]

TLx00-D2C Dimensions

THIRD ANGLE PROJECTION 



Pin-Out	
Pin	Mark
1(Red)	+15V
2(Blue)	-15V
3(Yellow)	output
4(Black)	NC

Note:
Unit: mm[inch]
General tolerances: ± 1.00[± 0.039]

TL300-D2C-SZ Dimensions

Notes:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58070003(TLx00-D2C), 58070005(TL300-D2C-SZ);
2. All index testing methods in this datasheet are based on company corporate standards;
3. 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;
4. We can provide product customization service, please contact our technicians directly for specific information;
5. 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;
6. 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);
7. 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;
8. It is strictly forbidden to disassemble and assemble the products privately to prevent equipment without failure or malfunction;
9. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

MORNSUN Guangzhou Science & Technology Co., Ltd.

Address: No. 8 Nanyun 4th Road, Huangpu District, Guangzhou, China

Tel: 86-20-38601850

Fax: 86-20-38601272

E-mail: info@mornsun.cn

www.mornsun-power.com