

TR1V H00 SERIES

Current Sensor

Model Number

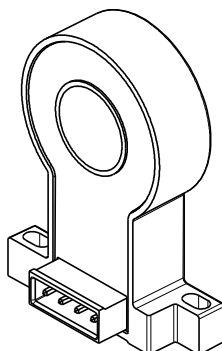
TR1V 0.01 H00

TR1V 0.02 H00

TR1V 0.05 H00

TR1V 0.10 H00

TR1V 0.20 H00



Used to measure 50Hz AC current, with galvanic separation between the primary and the secondary circuits.

Features

- ✧ AC current sensor based on transformer technology
- ✧ DC voltage output
- ✧ Insulating plastic case recognized according to UL 94-V0 (Black)
- ✧ High accuracy
- ✧ Very low offset drift over temperature
- ✧ Standards:
 - IEC 60664-1:2020
 - IEC 61800-5-1:2022
 - IEC 62109-1:2010

Applications

- ✧ AC current measurement
- ✧ Wide range of single or three phase current detection (Max. $\pm 100A$)
- ✧ Failure mode detection of current sources
- ✧ Symmetrical fault detection (e.g. at inverter output)
- ✧ AC screen

Safety

This sensor must be used according to IEC61800-5-1.

This sensor must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the following manufacture's operating instructions.

Caution, risk of electrical shock!



When operating the sensor, certain parts of the module can carry hazardous voltage (e.g., Primary busbar, power supply). Ignore this warning can lead to injury and/or cause serious damage.

This sensor is a built-in device, whose conducting parts must be inaccessible after installation. A protective housing or additional shield could be used.

Main supply must be able to be disconnected.

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Absolute maximum ratings(not operating)

Parameter	Symbol	Unit	Value
Supply voltage	V_c	V	±18
Primary conductor temperature	T_B	°C	100

- ※ Stresses above these ratings may cause permanent damage.
- ※ Exposure to absolute maximum ratings for extended periods may degrade reliability.

Environmental and mechanical characteristics

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Ambient operating temperature	T_A	°C	-10		70	
Ambient storage temperature	T_S	°C	-40		85	
Mass	m	g		63		

Insulation coordination

Parameter	Symbol	Unit	Value	Comment
Rms voltage for AC insulation test @ 50Hz, 1min	V_d	kV	3	According to IEC 60664-1
Clearance (pri.- sec.)	d_{cl}	mm	7.2	
Creepage distance (pri.- sec.)	d_{cp}	mm	7.2	
Plastic case	-	-	UL94-V0	
Comparative tracking index	CTI	PLC	3	
Application example	-	-	300V	Reinforced insulation, according to IEC 61800-5-1, IEC 62109-1CAT III, PD2
Application example	-	-	600V	Basic insulation, according to IEC 61800-5-1, IEC 62109-1CAT III, PD2

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Electrical data

TR1V 0.01 H00

※ With $T_A = 25^\circ\text{C}$, $V_C = \pm 15\text{V}$, Output measuring resistance $R_L = 10\text{k}\Omega$, unless otherwise noted.

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal rms current	I_{PN}	mA		10		
Primary current, measuring range	I_{PM}	mA		15		
Supply voltage	V_C	V	± 12		± 15	@5%
Current consumption	I_C	mA		2	20	@ $I_{PN}=0\text{A}$
Rated output voltage	V_{OUT}	V		5		DC voltage
Measuring resistance	R_L	k Ω	10			
Theoretical sensitivity	G_{th}	V/A		500		
Temperature of G	TCG	mV/k		± 1.5		@ $-10^\circ\text{C} \sim 70^\circ\text{C}$
Electrical offset voltage	V_{OE}	mV	-50		50	
Temperature coefficient of V_{OE} @ $I_P = 0$	TCV_{OE}	mV/k		± 1.5		@ $-10^\circ\text{C} \sim 70^\circ\text{C}$
Linearity error 0... I_{PN}	ε_L	%	-1	± 0.5	1	
Accuracy @ I_{PN}	X	%	-1	± 0.5	1	
Frequency bandwidth	BW	Hz		50		

TR1V 0.02 H00

※ With $T_A = 25^\circ\text{C}$, $V_C = \pm 15\text{V}$, Output measuring resistance $R_L = 10\text{k}\Omega$, unless otherwise noted.

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal rms current	I_{PN}	mA		20		
Primary current, measuring range	I_{PM}	mA		30		
Supply voltage	V_C	V	± 12		± 15	@5%
Current consumption	I_C	mA		2	20	@ $I_{PN}=0\text{A}$
Rated output voltage	V_{OUT}	V		5		DC voltage
Measuring resistance	R_L	k Ω	10			
Theoretical sensitivity	G_{th}	V/A		250		
Temperature of G	TCG	mV/k		± 1.5		@ $-10^\circ\text{C} \sim 70^\circ\text{C}$
Electrical offset voltage	V_{OE}	mV	-50		50	
Temperature coefficient of V_{OE} @ $I_P = 0$	TCV_{OE}	mV/k		± 1.5		@ $-10^\circ\text{C} \sim 70^\circ\text{C}$
Linearity error 0... I_{PN}	ε_L	%	-1	± 0.5	1	
Accuracy @ I_{PN}	X	%	-1	± 0.5	1	
Frequency bandwidth	BW	Hz		50		

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Electrical data

TR1V 0.05 H00

※ With $T_A = 25^\circ\text{C}$, $V_C = \pm 15\text{V}$, Output measuring resistance $R_L = 10\text{k}\Omega$, unless otherwise noted.

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal rms current	I_{PN}	mA		50		
Primary current, measuring range	I_{PM}	mA		75		
Supply voltage	V_C	V	± 12		± 15	@5%
Current consumption	I_C	mA		2	20	@ $I_{PN}=0\text{A}$
Rated output voltage	V_{OUT}	V		5		DC voltage
Measuring resistance	R_L	k Ω	10			
Theoretical sensitivity	G_{th}	V/A		100		
Temperature of G	TCG	mV/k		± 1.5		@ $-10^\circ\text{C} \sim 70^\circ\text{C}$
Electrical offset voltage	V_{OE}	mV	-50		50	
Temperature coefficient of $V_{OE}@I_P = 0$	TCV_{OE}	mV/k		± 1.5		@ $-10^\circ\text{C} \sim 70^\circ\text{C}$
Linearity error $0 \dots I_{PN}$	ε_L	%	-1	± 0.5	1	
Accuracy@ I_{PN}	X	%	-1	± 0.5	1	
Frequency bandwidth	BW	Hz		50		

TR1V 0.1 H00

※ With $T_A = 25^\circ\text{C}$, $V_C = \pm 15\text{V}$, Output measuring resistance $R_L = 10\text{k}\Omega$, unless otherwise noted.

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal rms current	I_{PN}	mA		100		
Primary current, measuring range	I_{PM}	mA		150		
Supply voltage	V_C	V	± 12		± 15	@5%
Current consumption	I_C	mA		2	20	@ $I_{PN}=0\text{A}$
Rated output voltage	V_{OUT}	V		5		DC voltage
Measuring resistance	R_L	k Ω	10			
Theoretical sensitivity	G_{th}	V/A		50		
Temperature of G	TCG	mV/k		± 1.5		@ $-10^\circ\text{C} \sim 70^\circ\text{C}$
Electrical offset voltage	V_{OE}	mV	-50		50	
Temperature coefficient of $V_{OE}@I_P = 0$	TCV_{OE}	mV/k		± 1.5		@ $-10^\circ\text{C} \sim 70^\circ\text{C}$
Linearity error $0 \dots I_{PN}$	ε_L	%	-1	± 0.5	1	
Accuracy@ I_{PN}	X	%	-1	± 0.5	1	
Frequency bandwidth	BW	Hz		50		

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Electrical data

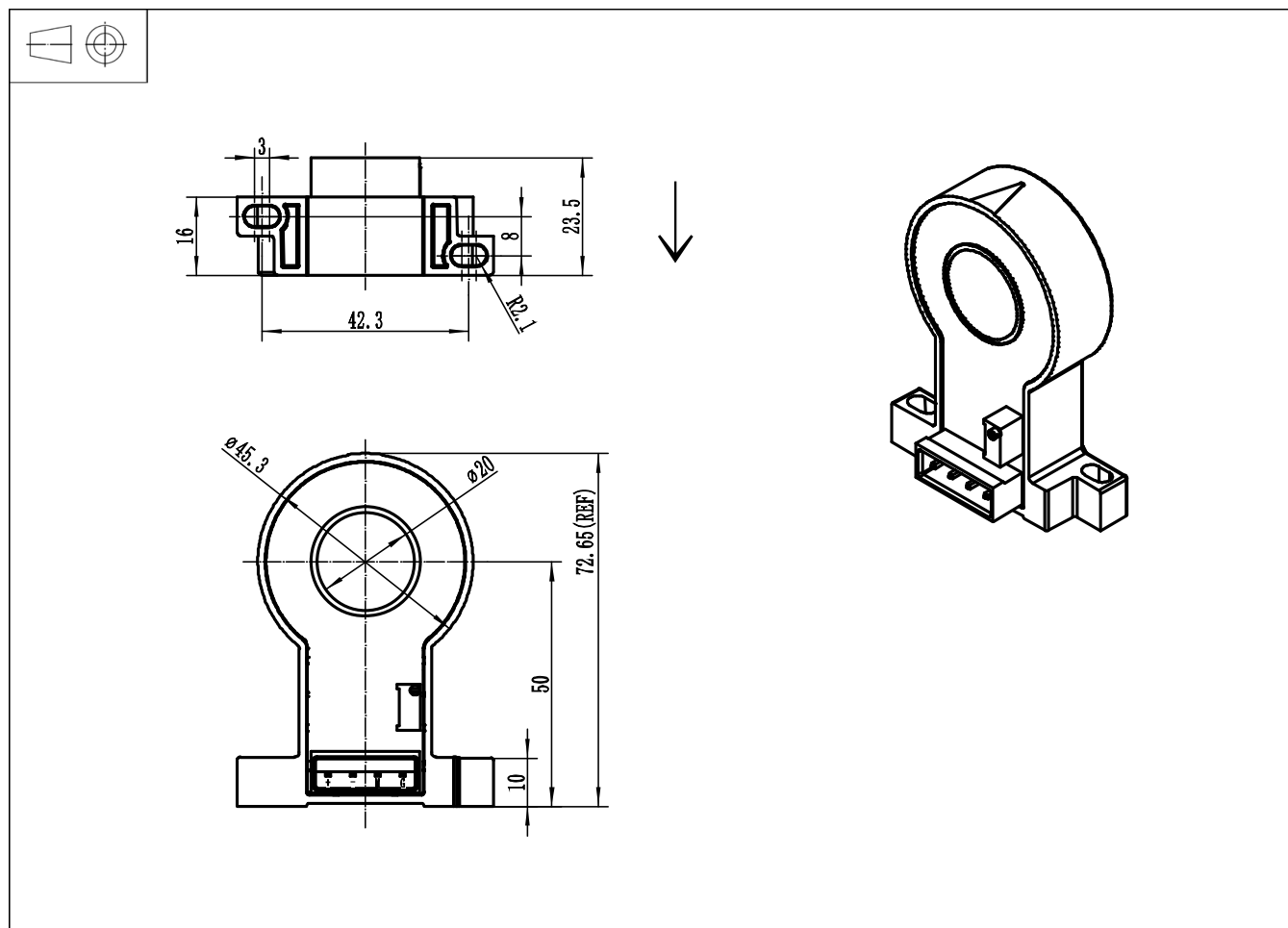
TR1V 0.2 H00

※ With $T_A = 25^\circ\text{C}$, $V_C = \pm 15\text{V}$, Output measuring resistance $R_L = 10\text{k}\Omega$, unless otherwise noted.

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal rms current	I_{PN}	mA		200		
Primary current, measuring range	I_{PM}	mA		250		
Supply voltage	V_C	V	± 12		± 15	@5%
Current consumption	I_C	mA		2		@ $I_{PN}=0\text{A}$
Rated output voltage	V_{OUT}	V		5		DC voltage
Measuring resistance	R_L	k Ω	10			
Theoretical sensitivity	G_{th}	V/A		50		
Temperature of G	TCG	mV/k		± 1.5		@ $-10^\circ\text{C} \sim 70^\circ\text{C}$
Electrical offset voltage	V_{OE}	mV	-50		50	
Temperature coefficient of $V_{OE}@I_P = 0$	TCV_{OE}	mV/k		± 1.5		@ $-10^\circ\text{C} \sim 70^\circ\text{C}$
Linearity error 0... I_{PN}	ε_L	%	-1	± 0.5	1	
Accuracy@ I_{PN}	X	%	-1	± 0.5	1	
Frequency bandwidth	BW	Hz		50		

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Dimensions (in mm. 1 mm = 0.0394 inch)



Mechanical characteristic

◇ General tolerance	±0.3mm
◇ Connection of secondary	JK2EDG-5.08-4P
◇ Primary hole	Φ20mm
◇ Sensor	1pc Φ4.0 mm through hole 1pc M4 Metal screws
	1.8 N•m (±10%)

Recommended fastening torque

Remarks

This is a standard model. For different applications (measurement, secondary connections...), please contact CHIPSENSE.