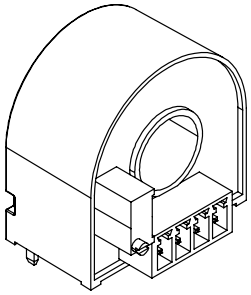
FR7V H00 SERIES

Current Sensor

Model Number:

FR7V 0.005 H00
FR7V 0.01 H00



For the electronic measurement of DC leakage current,with galvanic separation between the primary and the secondary circuit.

Features

- Current sensor based on fluxgate technology
- Output voltage
- Insulating plastic case recognized according to UL 94-V0（Blue）
- High linearity
- Very low zero temperature drift
- Standards:
  - EN50178: 1997
  - IEC 61010-1: 2000
  - UL 508: 2010

Applications

- Residual current measurement
- Photovoltaic inverter (no transformer type) leakage current measurement
- Leakage protection of photovoltaic arrays
- Detects leakage of stacked DC power supplies
- Failure mode detection of current sources
- Symmetrical fault detection (e.g. at inverter output)

Safety

The sensor must be used according to IEC61010-1.
The 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.

Absolute maximum ratings(not operating)

Parameter	Symbol	Unit	Value
Supply voltage	V_C	V	±18
Primary conductor temperature	T_B	℃	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	℃	-10		70	
Ambient storage temperature	T_S	℃	-40		85	
Mass	m	g		28		
Standards	EN 50178, IEC 61010-1, UL 508C					

Insulation coordination

Parameter	Symbol	Unit	Value	Comment
Rms voltage for AC insulation test @50Hz,1min	V_d	kV	3	
Clearance(Pri.-sec.)	d_{Cl}	mm	7.2	
Creepage distance(Pri.-sec.)	d_{Cp}	mm	7.2	
Plastic case	-	-	UL94-V0	
Comparative traking index	CTI	PLC	3	
Application example	-	-	300V CAT Ⅲ PD2	Reinforced insulation,according to EN 50178, EN 61010-1
Application example	-	-	600V CAT Ⅲ PD3	Basic insulation,according to EN 50178, EN 61010-1

Electrical data

FR7V 0.005 H00

※ With T_A = 25℃, V_C = ±15V,Unless otherwise noted, Output voltage reference R_L=10kΩ。

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal residual current effective value	I_{PN}	mA		±5		
Primary residual current measuring range	I_{PM}	mA	-7		7	
Supply voltage	V_C	V		±15		@5%
Current consumption	I_C	mA			20	@ I_{PN}=0A
Nominal output voltage	V_{OUT}	V		±5		
Measuring resistance	R_L	kΩ	10			
Theoretical sensitivity	G_{th}	V/A		1000		
Temperature drift of sensitivity error	TCG	mV/k		±1.5		@-10℃~70℃
Zero voltage	V_{0E}	mV	-50	±20	50	
Temperature drift of zero voltage@I_P = 0	TCV_{0E}	mV/k		±1.5		@-10℃~70℃
Linearity error 0…I_{PN}	ε_L	%	-1	±0.5	1	
Accuracy@ I_{PN}	X	%	-1	±0.5	1	
Response time@ 90% of I_{PN}	t_r	ms		500		
Frequency bandwidth	BW	kHz		DC		

Electrical data

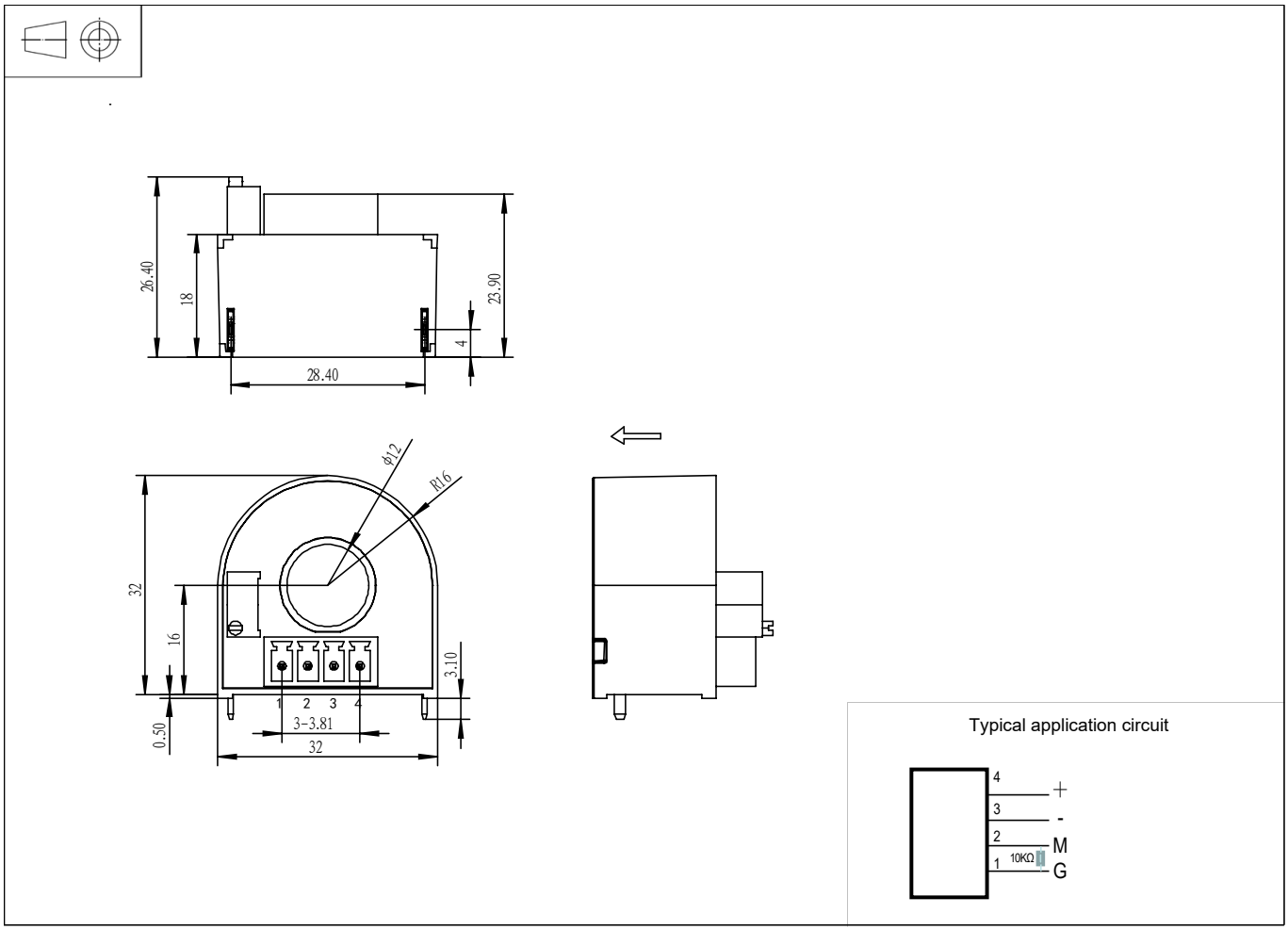
FR7V 0.01 H00

※ With T_A = 25℃, V_C = ±12V,unless otherwise noted, Output voltage reference R_L=10kΩ.

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal residual current effective value	I_{PN}	mA		±10		
Primary residual current measuring range	I_{PM}	mA	-17		17	
Supply voltage	V_C	V		±15		@5%
Current consumption	I_C	mA			20	@ I_{PN}=0A
Nominal output voltage	V_{OUT}	V		±5		
Measuring resistance	R_L	kΩ	10			
Theoretical sensitivity	G_{th}	V/A		1000		
Temperature drift of sensitivity error	TCG	mV/k		±1.5		@-10℃~70℃
Zero voltage	V_{0E}	mV	-50	±20	50	
Temperature drift of zero voltage@I_P = 0	TCV_{0E}	mV/k		±1.5		@-10℃~70℃
Linearity error 0…I_{PN}	ε_L	%	-1	±0.5	1	
Accuracy@ I_{PN}	X	%	-1	±0.5	1	
Response time@ 90% of I_{PN}	t_r	ms		500		
Frequency bandwidth	BW	kHz		DC		

FR7V H00 SERIES

Dimensions（in mm. 1 mm = 0.0394 inch）



Mechanical characteristics

✧ General tolerance	±0.3mm
✧ Connection of secondary	KF2EDG 3.81MM 4P
✧ Primary hole	Φ12mm

Remarks

✧ When I_P flows in the direction of the arrow, V_{OUT} increase.

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