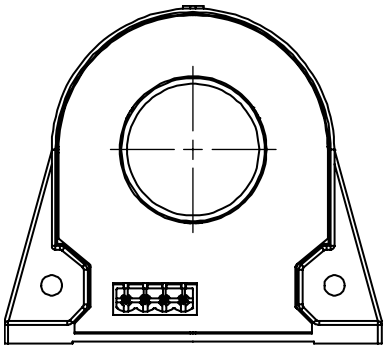
HR1M H00 SERIES

Current Sensor

Model Number:

HR1M 100 H00
HR1M 200 H00
HR1M 300 H00
HR1M 400 H00
HR1M 500 H00



For the electronic measurement of current: DC, AC, pulsed…, with galvanic separation between the primary and the secondary circuits....

True rms output is 4-20mA.

Features

- True rms output 4-20mA
- Primary hole:Φ35mm
- Galvanic separation between primary and secondary
- Insulating plastic case recognized according to UL 94-V0
- Very low offset drift over temperature
- No insertion loss
- Standards:
  - IEC 61010-1: 2000
  - UL 508: 2010

Applications

- AC variable speed and servo motor drives
- Uninterruptible Power Supplies (UPS)
- Static converters for DC motor drives
- Switch Mode Power Supplies (SMPS)
- Power supplies for welding applications
- Charging Piles
- Test and detection devices

Safety

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

Absolute maximum ratings（not operating）

Parameter	Symbol	Unit	Value
Supply voltage	V_C	V	+42
Primary conductor temperature	T_B	℃	100

※ Stress 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	℃	-40		85	
Ambient storage temperature	T_S	℃	-40		85	
Mass	m	g		300		
Standards	IEC 61010-1, UL 508C					

Insulation coordination

Parameter	Symbol	Unit	Value	Comment
Rms voltage for AC insulation test @50 Hz, 1 min	V_d	kV	4	
Impulse withstand voltage 1.2/50μs	V_W	kV	7.3	
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	1	
Application example	-	-	300V CAT Ⅲ PD2	Reinforced insulation,according to EN 61010-1.

Electrical data

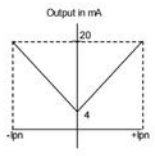
※ With T_A = 25℃, V_C = +24V, R_M = 100Ω,unless otherwise

Parament	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal rms current	I_{PN}	A	-100		100	HR1M 100 H00
			-200		200	HR1M 200 H00
			-300		300	HR1M 300 H00
			-400		400	HR1M 400 H00
			-500		500	HR1M 500 H00
Primary current measurement peak of AC1）	I_{PM}	A	-600		600	HR1M 100 H00
			-600		600	HR1M 200 H00
			-1000		1000	HR1M 300 H00
			-1000		1000	HR1M 400 H00
			-1800		1800	HR1M 500 H00
Measuring resistance	R_M	Ω			300	
Secondary nominal rms current（DC）	I_{SN}	mA	4		20	
Secondary maximum current（DC）	I_{SL}	mA			25	
Theoretical sensitivity	G_{th}	mA/A		0.16		HR1M 100 H00
				0.08		HR1M 200 H00
				0.053		HR1M 300 H00
				0.04		HR1M 400 H00
				0.032		HR1M 500 H00
Supply voltage2）	V_C	V	20	24	50	@ ±5%
Current consumption	I_C	mA		30 + I_S		
Zero offset current	I_O	mA	3.84	4	4.16	@ I_{PN}=0A
Thermal drift of offset current	I_{OT}	μA/K	-4		4	@ -40℃~85℃
Sensitivity error	ε_G	%/K	-0.1		0.1	Exclusive of I_{OE}
Linearity error 0…I_{PN}	ε_L	% of I_{PN}	-1		1	Exclusive of I_{OE}
Accuracy @ I_{PN}	X	% of I_{PN}	-1		1	Exclusive of I_{OE}
Response time@ 90% of I_{PN}	t_r	ms		150		
Frequency bandwidth (-1dB)	BW	Hz	20		6000	Includsive of DC

Notes：

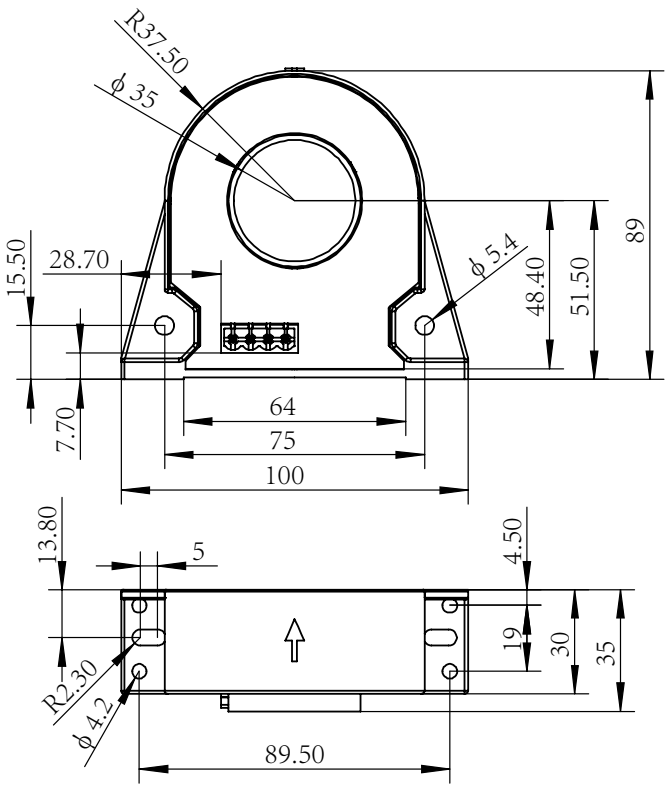
1)Primary AC current measurement peak， basied on output capability of a circuit calculated by true rms,maximum output limit is I_{SL}=25mA.
2)According to UL508 and industrial equipment control requirements,the maximum supply voltage does not exceed +42V.

Transfer characteristics



HR1M H00 SERIES

Dimensions（in mm. 1 mm = 0.0394 inch）



Mechanical characteristics

✧ General tolerance	±0.5 mm
✧ Primary hole	Φ35.0mm
✧ Transduce vertical fastening	2pc Φ5.2 mm through-hole 2pc M5 Metal screws
Recommended fastening torque	2.1 N•m (±10%)
✧ Connection of secondary	WJ2EDGVC-5.08-4P-14
✧ Transduce horizontal fastening	2pc Φ5.2mm through-hole 2pc M5 metal screws
Recommended fastening torque	2.1 N•m (±10%)

Remarks

- ✧ Temperature of the primary conductor should not exceed 100℃.
- ✧ For security , do not install a current sensor with primary current or secondary power supply.

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