HS3V H01 SERIES

CHIPSENSE

Current Sensor

Model Number

HS3V 500 H01
HS3V 600 H01
HS3V 800 H01
HS3V 1000 H01
HS3V 1200 H01
HS3V 1500 H01
HS3V 2000 H01
HS3V 2500 H01
HS3V 3000 H01

RoHS compliant

CE

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

Features

- Open loop current sensor using the Hall effect
- Galvanic insulation between primary and secondary
- Insulating plastic case recognized according to UL 94-V0
- No insertion losses
- Small size
- Standards:
  - IEC 60664-1:2020
  - IEC 61800-5-1:2022
  - IEC 62109-1:2010

Applications

- AC variable speed
- Uninterruptible Power Supply (UPS)
- Static converters for DC motor drives
- Switch Mode Power Supplies (SMPS)
- Power supplies for welding applications
- Battery management
- Wind energy inverter

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.

Absolute maximum ratings(not operating)

Parameter	Symbol	Unit	Value
Supply voltage	V_C	V	±18
Primary conductor temperature	T_B	℃	100
ESD rating, Human Body Model (HBM)	V_{ESD}	℃	4

※Stresses above these ratings may cause permanent damage.

Environmental and mechanical characteristics

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Ambient operating temperature	T_A	℃	-40		85	
Ambient storage temperature	T_S	℃	-45		105	
Mass	m	g		430 460		HS3V 500…1200 H01 HS3V 1500…3000 H01

※Exposure to absolute maximum ratings for extended periods may degrade reliability.

Insulation coordination

Parameter	Symbol	Unit	Value	Comment
Rms voltage for AC insulation test @ 50Hz,1min	V_d	kV	4.5	
Impulse withstand voltage 1.2/50μs	V_W	kV	8.3	
Clearance (pri.- sec.)	d_{Cl}	mm	16.8	
Creepage distance (pri.- sec.)	d_{Cp}	mm	32	
Comparative traking index	*CTI*	PLC	Group Ⅲa	
Application example	-	-	1000V	Reinforced insulation,according to IEC 61800-5-1,IEC 62109-1 CAT Ⅲ PD2
Application example	-	-	1500V	Basic insulation,according to IEC 61800-5-1,IEC 62109-1 CAT Ⅲ PD2

Electrical data

※ With T_A = 25℃, V_C = ±15V, R_L = 10kΩ,unless otherwise noted.

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal rms current	I_{PN}	A	-500		500	HS3V 500 H01
			-600		600	HS3V 600 H01
			-800		800	HS3V 800 H01
			-1000		1000	HS3V 1000 H01
			-1200		1200	HS3V 1200 H01
			-1500		1500	HS3V 1500 H01
			-2000		2000	HS3V 2000 H01
			-2500		2500	HS3V 2500 H01
			-3000		3000	HS3V 3000 H01
Primary current, measuring range	I_{PM}	A	-1500		1500	HS3V 500 H01
			-1800		1800	HS3V 600 H01
			-2400		2400	HS3V 800 H01
			-3000		3000	HS3V 1000 H01
			-3600		3600	HS3V 1200 H01
			-4500		4500	HS3V 1500 H01
			-5500		5500	HS3V 2000...3000 H01
Supply voltage	V_C	V		±15		@ 5%
Current consumption	I_C	mA		20		
Load resistance	R_L	kΩ	10			
Output voltage（Analog）@I_{PN}	V_{OUT}	V	± 3.960	± 4.000	± 4.040	
Electrical offset voltage	V_{OE}	mV	-20		20	
Temperature coefficient of V_{OE}	TCV_{OE}	mV/K	-1		1	@ -40℃~85℃
Theoretical sensitivity	G_{th}	mV/A		8.00		HS3V 500 H01
				6.67		HS3V 600 H01
				5.00		HS3V 800 H01
				4.00		HS3V 1000 H01
				3.33		HS3V 1200 H01
				2.67		HS3V 1500 H01
				2.00		HS3V 2000 H01
				1.60		HS3V 2500 H01
				1.33		HS3V 3000 H01
Sensitivity error	ε_G	%	-0.5		0.5	Exclusive of V_{OE}
Temperature of G	TCG	%/K	-0.1		0.1	@ -40℃~85℃
Linearity error 0…I_{PN}	ε_L	% of I_{PN}	-1.0		1.0	Exclusive of V_{OE}
Hysteresis offset voltage@I_P=0 after 1×I_{PN}	V_{OM}	mV	-30		30	
Accuracy@ I_{PN}	X	% of I_{PN}	-1		1	Exclusive of V_{OE}
Response time@90% of I_{PN}	t_r	μs			5	
Frequency bandwidth(-3dB)	BW	kHz	25			

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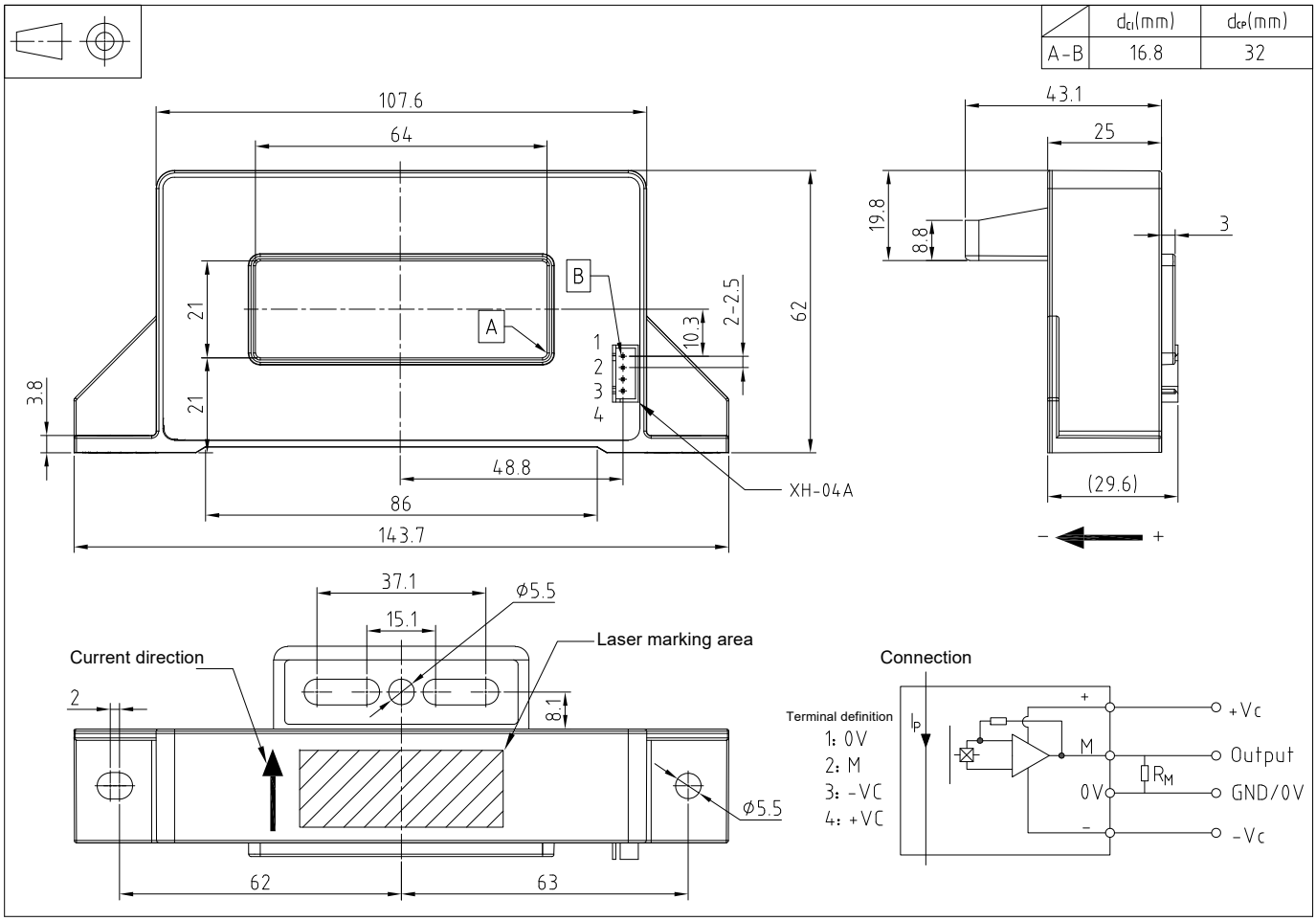
Dimensions（in mm. 1 mm = 0.0394 inch）



Mechanical characteristic

✧General tolerance	±0.5 mm
✧Connection of secondary	XH-4A
✧Primary hole	64mm×21mm
✧Sensor	2 or 3 pc Φ5.5 mm through hole 2 or 3 pc M5 metal screws

Recommended fastening torque 1.2 N•m (±10%)

Remarks

- ✧ When I_P flows in the direction of the arrow, the voltage output is positive.
- ✧ Temperature of the primary conductor should not exceed 100℃.
- ✧ Dynamic performances (di/dt and response time)are best with a single bar completely filling the primary hole.

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