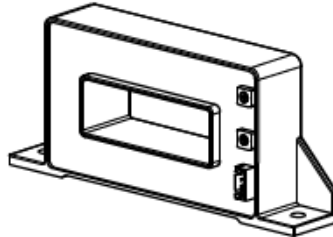


# HS3V H01 SERIES

## Current Sensor

### Model Number

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



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

### Features

- ◇ Open loop current sensor using the Hall effect
- ◇ Galvanic separation between primary and secondary
- ◇ Insulating plastic case recognized according to UL 94-V0
- ◇ No insertion losses
- ◇ Small size
- ◇ Standards:
  - EN50178: 1997
  - IEC 61010-1: 2000
  - UL 508: 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 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.

# HS3V H01 SERIES

## 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	-40		85	
Ambient storage temperature	$T_S$	°C	-40		90	
Mass	$m$	g		450		
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	5	
Impulse withstand voltage 1.2/50µs	$V_w$	kV	8.3	
Clearance (pri.- sec.)	$d_{cl}$	mm	12.7	
Creepage distance (pri.- sec.)	$d_{cp}$	mm	15.7	
Plastic case	-	-	UL94-V0	
Comparative tracking index	$CTI$	PLC	3	
Application example	-	-	600V CAT III PD2	Reinforced insulation, according to EN 50178, EN 61010-1
Application example	-	-	1000V CAT III PD2	Basic insulation, according to EN 50178, EN 61010-1

# HS3V H01 SERIES

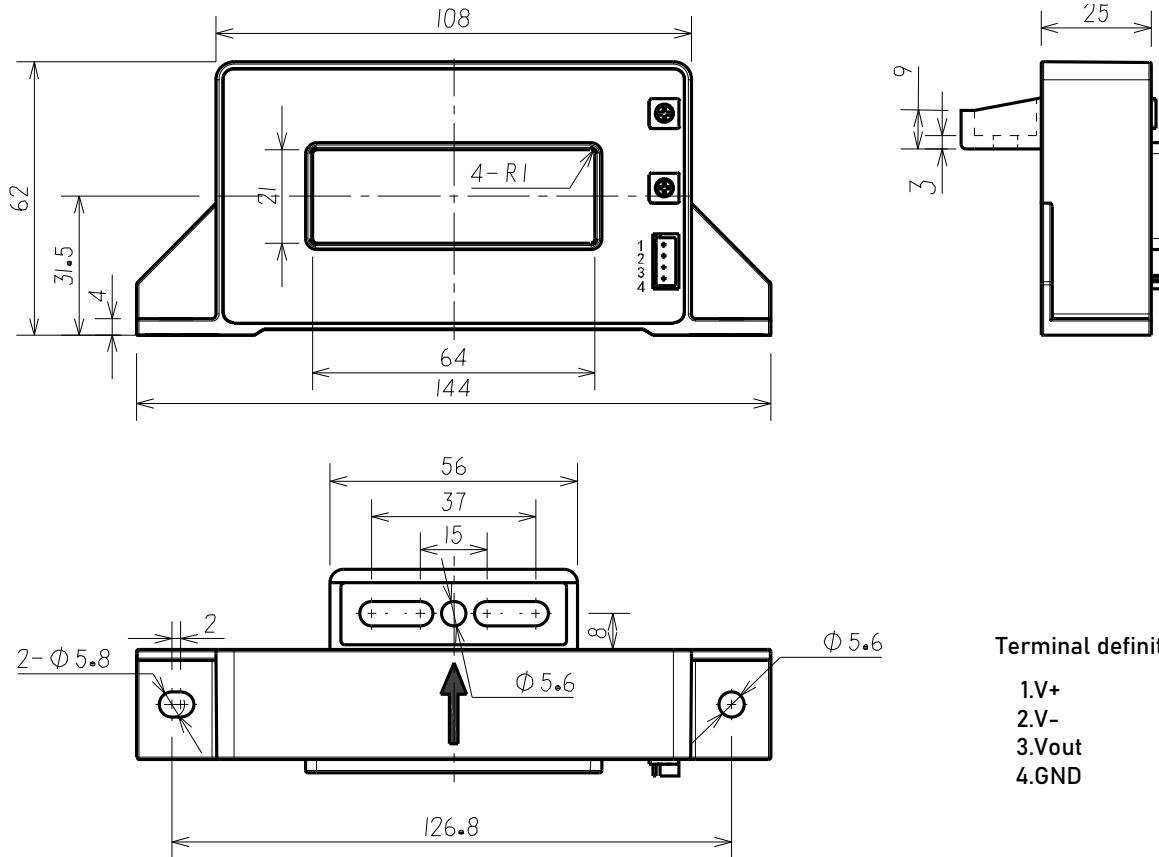
## Electrical data

※ With  $T_A = 25^\circ\text{C}$ ,  $V_C = \pm 15\text{V}$ ,  $R_L = 10\text{k}\Omega$ , 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
			-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
			-4500		4500	HS3V 1500 H01
			-5500		5500	HS3V 2000...3000 H01
Supply voltage	$V_C$	V		$\pm 15$		@ 5%
Current consumption	$I_C$	mA		20		
Internal output resistance	$R_{IN}$	$\Omega$		100		
Load resistance	$R_L$	k $\Omega$	10			
Output voltage (Analog) @ $I_{PN}$	$V_{OUT}$	V	$\pm 3.960$	$\pm 4.000$	$\pm 4.040$	
Electrical offset voltage	$V_{OE}$	mV	-20		20	
Temperature coefficient of $V_{OE}$	$TCV_{OE}$	mV/K	-1		1	@ $-40^\circ\text{C} \sim 85^\circ\text{C}$
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
				2.67		HS3V 1500 H01
				2.00		HS3V 2000 H01
				1.60		HS3V 2500 H01
				1.33		HS3V 3000 H01
Sensitivity error	$\varepsilon_G$	%	-0.5		0.5	Exclusive of $V_{OE}$
Temperature of G	$TCG$	%/K	-0.1		0.1	@ $-40^\circ\text{C} \sim 85^\circ\text{C}$
Linearity error 0... $I_{PN}$	$\varepsilon_L$	% of $I_{PN}$	-1.0		1.0	Exclusive of $V_{OE}$
Hysteresis offset voltage @ $I_P=0$ after $1 \times I_{PN}$	$V_{OM}$	mV	-30		30	
Accuracy @ $I_{PN}$	$X$	% of $I_{PN}$	-1		1	Exclusive of $V_{OE}$
Response time @ 90% of $I_{PN}$	$t_r$	$\mu\text{s}$			5	
Frequency bandwidth (-3dB)	$BW$	kHz	25			

# HS3V H01 SERIES

Dimensions (in mm. 1 mm = 0.0394 inch)



Terminal definition:

- 1.V+
- 2.V-
- 3.Vout
- 4.GND

## Mechanical characteristic

- ◇ General tolerance  $\pm 0.5$  mm
- ◇ Connection of secondary XH-4A
- ◇ Primary hole 64mm×21mm
- ◇ Sensor 2 or 3 pc  $\Phi 5.5$  mm through hole  
2 or 3 pc M5 metal screws

Recommended fastening torque 1.2 N•m ( $\pm 10\%$ )

## Remarks

- ◇  $V_{OUT}$  and  $I_P$  are in the same direction, when  $I_P$  flows in the direction of arrow.
- ◇ Temperature of the primary conductor should not exceed 100°C.
- ◇ 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.