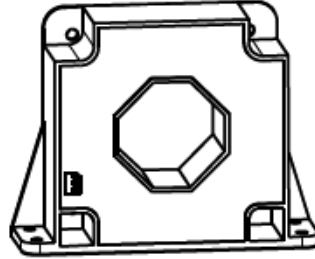


# CM5A H20 SERIES

## Current Sensor

### Model Number:

CM5A 2000 H20



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

### Features

- ✧ Closed loop (compensated) current sensor using the Hall effect
- ✧ Galvanic insulation between primary and secondary
- ✧ Insulating plastic case recognized according to UL 94-V0
- ✧ Very good linearity
- ✧ High accuracy
- ✧ Very low offset drift over temperature
- ✧ No insertion loss
- ✧ Standards:
  - IEC 60664-1:2020
  - IEC 61800-5-1:2022
  - IEC 62109-1:2010

### Applications

- ✧ Windmill inverter
- ✧ 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
- ✧ Battery management
- ✧ Wind energy inverter
- ✧ Test and detection devices

## Safety

This sensor must be used according to IEC 61800-5-1.

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	$\pm 25.2$
Primary conductor temperature	$T_B$	$^{\circ}\text{C}$	100
Max. primary nominal current (-40...85 $^{\circ}\text{C}$ )	$I_{PN}$	A	2000

- ※ 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	$T_A$	$^{\circ}\text{C}$	-40		85	
Ambient storage temperature	$T_S$	$^{\circ}\text{C}$	-40		90	
Mass	$m$	g		1500		

## Insulation coordination

Parameter	Symbol	Unit	Value	Comment
Rms voltage for AC insulation test @ 50Hz, 1min	$V_d$	kV	6	According to IEC 60664-1
Impulse withstand voltage 1.2/50 $\mu\text{s}$	$V_w$	kV	23	According to IEC 60664-1
Clearance (pri.- sec.)	$d_{cl}$	mm	28	
Creepage distance (pri.- sec.)	$d_{cp}$	mm	30	
Plastic case	-	-	UL94-V0	
Comparative tracking index	$CTI$	PLC	3	
Application example	-	-	2000V	Reinforced insulation, according to IEC 61800-5-1, IEC 62109-1CATIII, PD2
Application example	-	-	4000V	Basic insulation, according to IEC 61800-5-1, IEC 62109-1CATIII, PD2

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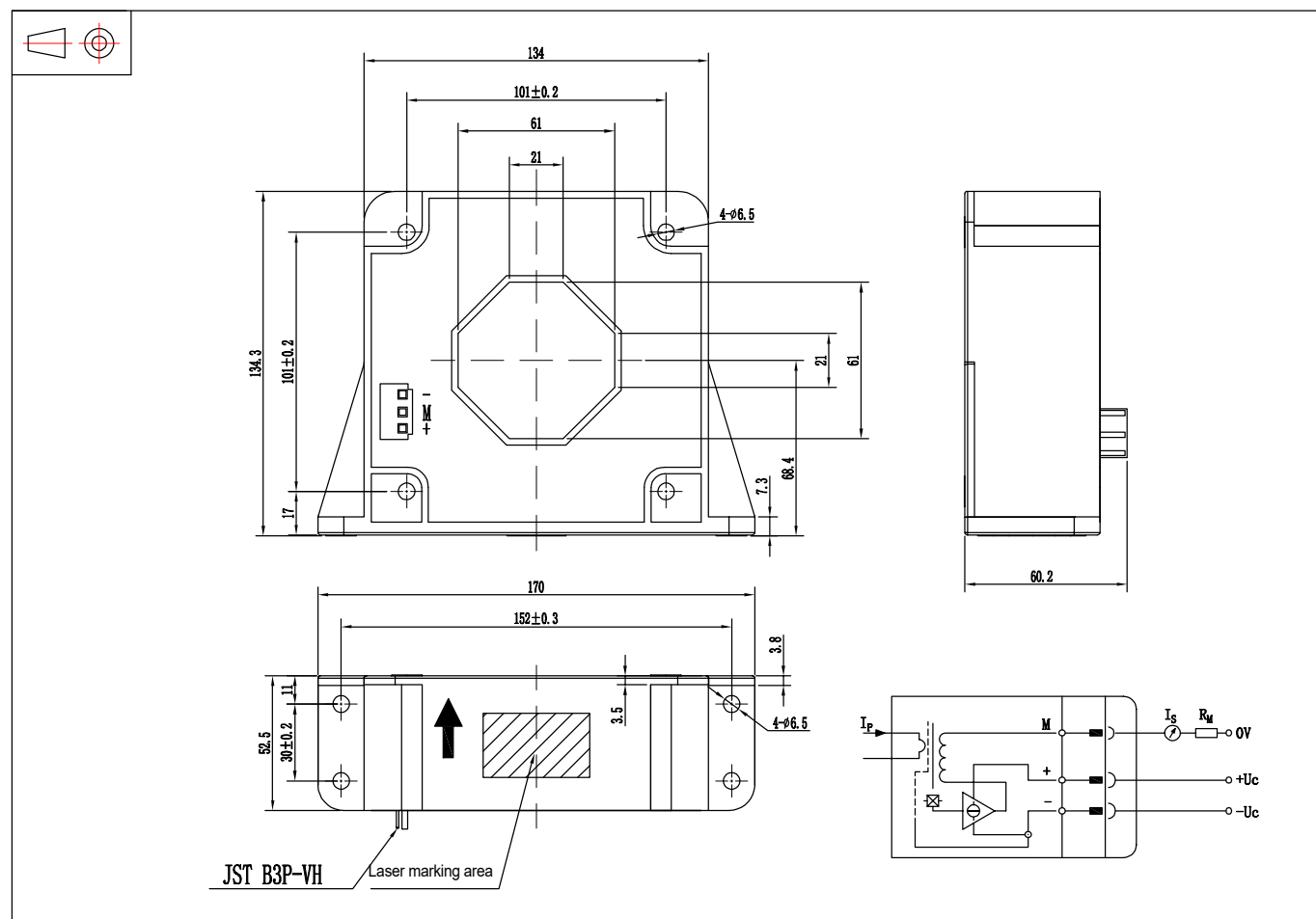
## Electrical data

※ With  $T_A = 25^\circ\text{C}$ ,  $V_C = \pm 24\text{V}$ ,  $R_M = 1\Omega$ , unless otherwise noted.

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal rms current	$I_{PN}$	A	-2000		2000	
Primary current, measuring range	$I_{PM}$	A	-4250		4250	
Measuring resistance	$R_M$	$\Omega$	0 0 0 0		8 1 29 1	@ $\pm 15\text{V}$ , $85^\circ\text{C}$ , $\pm 2000\text{A}$ @ $\pm 15\text{V}$ , $85^\circ\text{C}$ , $\pm 2500\text{A}$ @ $\pm 24\text{V}$ , $85^\circ\text{C}$ , $\pm 2000\text{A}$ @ $\pm 24\text{V}$ , $85^\circ\text{C}$ , $\pm 4250\text{A}$
Secondary nominal rms current	$I_{SN}$	mA	-400		400	
Secondary coil resistance	$R_S$	$\Omega$		18		@ $25^\circ\text{C}$
Secondary current, measuring range	$I_S$	mA	-850		850	
Number of secondary turns	$N_S$	-		5000		
Theoretical sensitivity	$G_{th}$	mA/A		0.2		
Supply voltage	$V_C$	V	$\pm 15$		$\pm 24$	@ $\pm 5\%$
Current consumption	$I_C$	mA		38		
Zero offset current	$I_0$	mA	-0.5		0.5	
Thermal drift of offset current	$I_{OT}$	mA	-0.5		0.5	@ $-40^\circ\text{C} \sim 85^\circ\text{C}$
Residual current@ $I_P=0$ after $I_{PN}$	$I_{OM}$	mA	-0.2		0.2	
Sensitivity error	$\mathcal{E}_G$	%	-0.2		0.2	Exclusive of $I_{OE}$
Linearity error 0... $I_{PN}$	$\mathcal{E}_L$	% of $I_{PN}$	-0.1		0.1	Exclusive of $I_{OE}$
Accuracy@ $I_{PN}$	$\chi$	% of $I_{PN}$	-0.3		0.3	Exclusive of $I_{OE}$
Response time@ 90% of $I_{PN}$	$t_r$	$\mu\text{s}$		0.5		
Frequency bandwidth(-3dB)	$BW$	kHz		150		

# CM5A H20 SERIES

### Dimensions (in mm. 1 mm = 0.0394 inch)



## Mechanical characteristics

- |   |                              |  |
|---|------------------------------|--|
| ✧ | General tolerance            | ±0.5 mm  |
| ✧ | Primary hole                 | Φ57.5mm  |
|   | or                           | 61mm×21mm                                      |
| ✧ | Connection of secondary      | JST B3P-VH                                     |
| ✧ | Transduce vertical fastening | 4pc Φ6.5mm through-hole<br>4pc M6 metal screws |

Recommended fastening torque      5.5 N•m (±10%)

- ✧ Transduce horizontal fastening 4pc  $\Phi 6.5\text{mm}$  through-hole  
4pc M6 metal screws

Recommended fastening torque      5.5 N•m (±10%)

## Remarks

- ✧  $I_S$  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.
- ✧ 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.