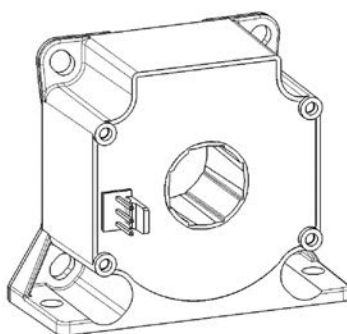


# CM1A H01 SERIES

## Current Sensor

**Model Number:**

CM1A 200 H01



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

### Features

- ✧ Closed loop (compensated) current sensor using the Hall Effect.
- ✧ Galvanic separation 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

- ✧ 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.

# CM1A H01 SERIES

## Absolute maximum ratings(not operating)

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

※ 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		85		

## Insulation coordination

Parameter	Symbol	Unit	Value	Comment
Rms voltage for AC insulation test, @ 50Hz,1min	$V_d$	kV	3.5	According to IEC 60664-1
Impulse withstand voltage 1.2/50μs	$V_w$	kV	8.8	According to IEC 60664-1
Clearance (pri.- sec.)	$d_{cl}$	mm	10.2	
Creepage distance (pri.- sec.)	$d_{cp}$	mm	11	
Plastic case	-	-	UL94-V0	
Comparative tracking index	$CTI$	PLC	3	
Application example	-	-	300V	Reinforced insulation,according to IEC 61800-5-1, IEC 62109-1CATIII, PD2
Application example	-	-	600V	Basic insulation,according to IEC 61800-5-1, IEC 62109-1CATIII, PD2

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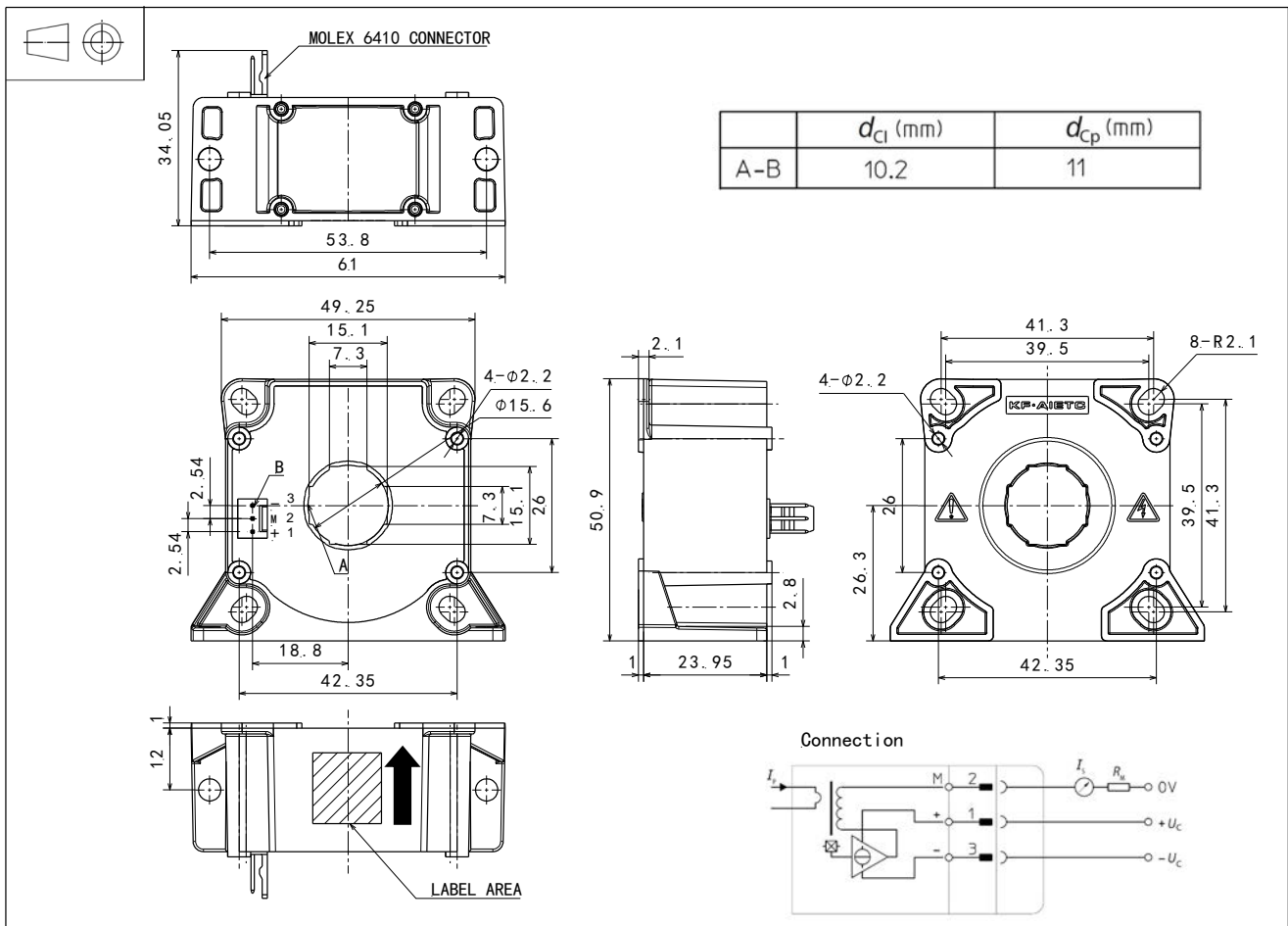
## Electrical data

※ With  $T_A = 25^\circ\text{C}$ ,  $V_C = \pm 15\text{V}$ ,  $R_M = 25\Omega$ , unless otherwise noted.

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal rms current	$I_{PN}$	A	-100		100	
Primary current, measuring range	$I_{PM}$	A	-200		200	
Measuring resistance	$R_M$	$\Omega$	0		92	@ $\pm 12\text{V}$ , $85^\circ\text{C}$ , $\pm 100\text{A}$
			0		37	@ $\pm 12\text{V}$ , $85^\circ\text{C}$ , $\pm 200\text{A}$
			0		120	@ $\pm 15\text{V}$ , $85^\circ\text{C}$ , $\pm 100\text{A}$
			0		51	@ $\pm 15\text{V}$ , $85^\circ\text{C}$ , $\pm 200\text{A}$
Secondary nominal rms current	$I_{SN}$	mA	-100		100	
Secondary coil resistance	$R_S$	$\Omega$			10	@ $25^\circ\text{C}$
					13	@ $85^\circ\text{C}$
Secondary current, measuring range	$I_S$	mA	-200		200	
Number of secondary turns	$N_S$	-		1000		
Theoretical sensitivity	$G_{th}$	mA/A		1.0		
Supply voltage	$V_C$	V	$\pm 12$		$\pm 15$	@ $\pm 5\%$
Current consumption	$I_C$	mA		$16 + I_S$		
Zero offset current	$I_0$	mA	-0.15		0.15	
Thermal drift of offset current	$I_{OT}$	mA	-0.2	$\pm 0.1$	0.2	@ $-40^\circ\text{C} \sim 85^\circ\text{C}$
Residual current @ $I_P=0$ after $3 \times I_{PN}$	$I_{OM}$	mA	-0.1		0.1	
Sensitivity error	$\varepsilon_G$	%	-0.1		0.1	@ $-40^\circ\text{C} \sim 85^\circ\text{C}$
Linearity error $0 \dots I_{PN}$	$\varepsilon_L$	% of $I_{PN}$	-0.1		0.1	@ $-40^\circ\text{C} \sim 85^\circ\text{C}$
Accuracy @ $I_{PN}$	$X$	% of $I_{PN}$	-0.2		0.2	@ $-40^\circ\text{C} \sim 85^\circ\text{C}$
Response time @ 90% of $I_{PN}$	$t_r$	$\mu\text{s}$		0.5	1	
Frequency bandwidth (-1dB)	$BW$	kHz	100			

# CM1A H01 SERIES

Dimensions (in mm. 1 mm = 0.0394 inch)



## Mechanical characteristics

◇ General tolerance	$\pm 0.3$ mm
◇ Primary hole	$\phi 15.6$ mm or 15.1 mm $\times$ 7.3 mm
Transduce vertical fastening	2pc $\phi 4.3$ mm through-hole 2pc M4 metal screws
Recommended fastening torque	2.1 N·m ( $\pm 10\%$ )
◇ Connection of secondary	Molex 6410
Transduce horizontal fastening	4pc $\phi 4.3$ mm through-hole 4pc M4 metal screws
Recommended fastening torque	0.9 N·m ( $\pm 10\%$ )

## 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.
- ◇ 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.