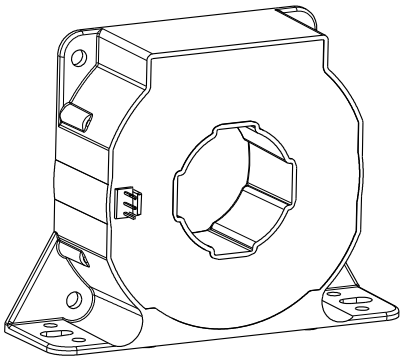
CM4A H03 SERIES

Current Sensor

Model Number:

CM4A 1000 H03



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

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

- 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 manufacturer'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	± 25.2
Primary conductor temperature	T_B	℃	100

※ Stresses above these ratings may cause permanent damage.

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

Environmental and mechanical characteristic

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Ambient operating temperature	T_A	℃	-40		85	
Ambient storge temperature	T_S	℃	-40		90	
Mass	m	g		615		
Standards	IEC 60664-1,IEC 61800-5,IEC 62109-1					

Insulation coordination

Parameter	Symbol	Unit	Value	Comment
Rms voltage for AC insulation test @ 50Hz,1min	V_d	kV	3	
Impulse withstand voltage 1.2/50μs	V_W	kV	14.1	
Clearance (pri.- sec.)	d_{Cl}	mm	16.6	
Creepage distance (pri.- sec.)	d_{Cp}	mm	17.4	
Plastic case	-	-	UL94-V0	
Comparative tracking index	*CTI*	PLC	3	
Application example	-	-	800V CAT Ⅲ PD2	Reinforced insulation,according to IEC 61800-5,IEC 62109-1
Application example	-	-	1600V CAT Ⅲ PD2	Basic insulation,according to IEC 61800-5,IEC 62109-1

Electrical data

※ With T_A = 25℃, V_C = ±24V, R_M = 10Ω,unless otherwise noted.

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal rms current	I_{PN}	A		±1200		
Primary current, measuring range	I_{PM}	A	-1800		1800	
Measuring resistance	R_M	Ω	0 0		37 12	@±24V, 85℃, ±1200A @±24V, 85℃, ±1800A
Secondary nominal rms current	I_{SN}	mA		±300		
Secondary coil resistance	R_S	Ω			28 34.6	@ 25℃ @ 85℃
Secondary current,measuring range	I_S	mA	-450		450	
Number of secondary turns	N_S	-		4000		
Theoretical sensitivity	G_{th}	mA/A		0.25		
Supply voltage	V_C	V		±24		@ ±5%
Current consumption	I_C	mA		28 + I_S		
Offset current	I_O	mA	-0.4	±0.2	0.4	
Thermal drift of offset current	I_{OT}	mA	-0.8	±0.3	0.8	@ -40℃~85℃
Residual current@ I_P=0 after I_{PN}	I_{OM}	mA	-0.2		0.2	
Sensitivity error	ε_G	%	-0.2	±0.1	0.2	Exclusive of I_{OE}
Linearity error 0…I_{PN}	ε_L	% of I_{PN}	-0.1		0.1	Exclusive of I_{OE}
Accuracy@ I_{PN}	X	% of I_{PN}	-0.4		0.4	Exclusive of I_{OE}
Response time@ 90% of I_{PN}	t_r	μs		0.5	1	
Frequency bandwidth(-1dB)	BW	kHz	150			

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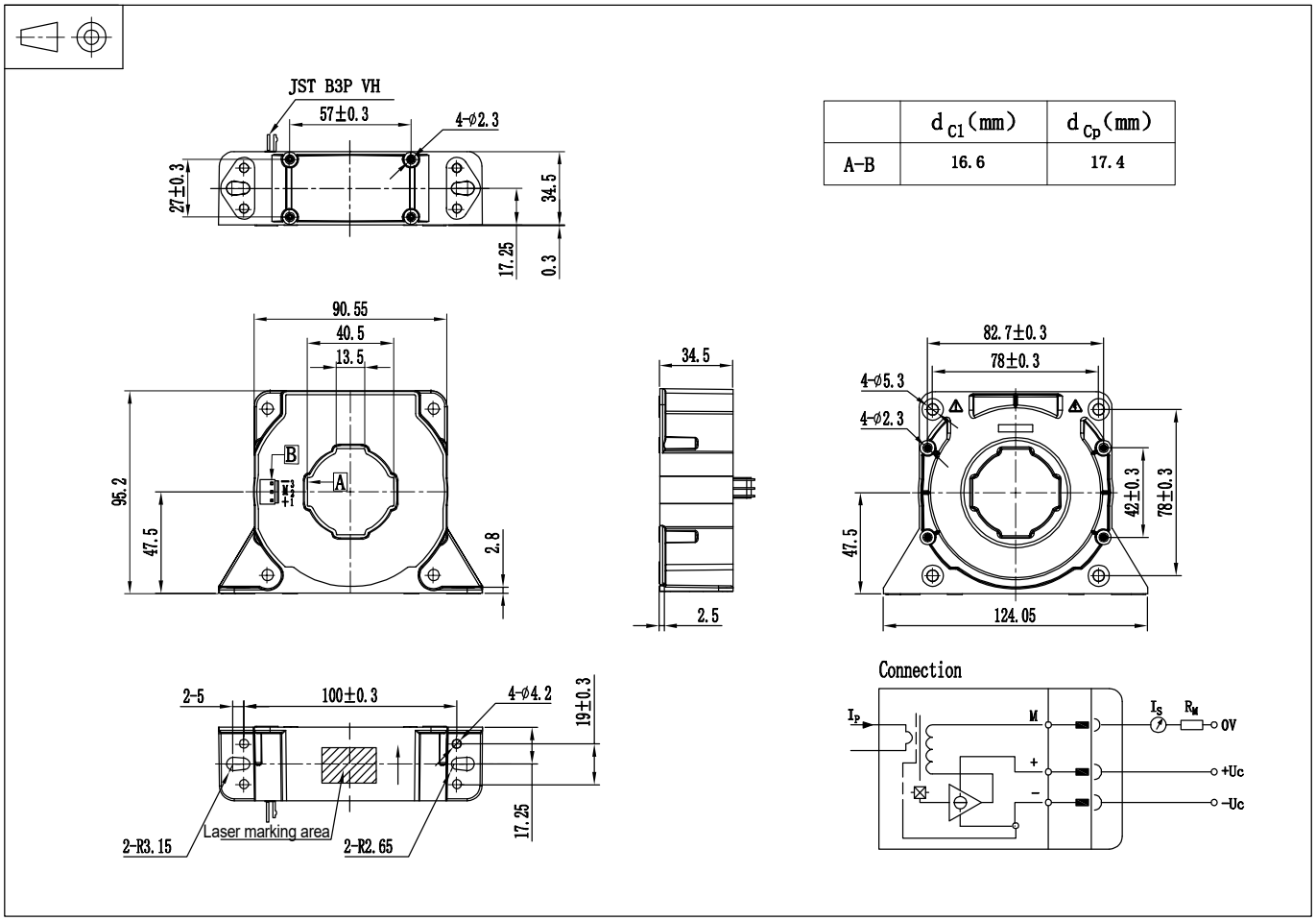
Dimensions（in mm. 1 mm = 0.0394 inch）



	d_{C1}(mm)	d_{Cp}(mm)
A-B	16.6	17.4

Mechanical characteristics

✧ General tolerance	±0.5 mm
✧ Primary hole	Φ38 mm
or	
✧ Transduce vertical fastening	40 mm x 13 mm 2pc Φ5.3 mmthrough hole 2pc M5 metal screw
Recommended fastening torque	1.2 N•m (±10%)
or	
Recommended fastening torque	4pc Φ4.2 mm through hole 4pc M4 metal screw 0.9 N•m (±10%)
✧ Connection of secondary	JST B3P VH
✧ Transduce horizontal fastening	4pc Φ5.3 mm through hole 4pc M5 metal screw
Recommended fastening torque	0.9 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 primary conductor should not exceed 100℃.
- ✧ Dynamic performances（di/dt and response time）are best with a single bar compleetely filling the primary hole.