SINOMAGS
希 磁 科 技

CURRENT SENSOR

PRODUCT SERIES: STB-CAB500x-xxx

PRODUCT PART NUMBER: STB-CAB500x-xxx

VERSION: Ver 6.0

Sinomags Technology Co., Ltd.

Web site: www.sinomags.com

CONTENT

1. Characteristic

CAB500 Series current sensor is based on Sinomags Close Loop technology, with CANBUS digital output. It can be used to measure 500A rated current. Using a proprietary Digital Compensation technology. This product brings the best combination of performance and reliability.

- Error ± 0.2A @ ≤±30A, Error ±0.5A @ ≤±100A; Error ±1.5A @ ±100A~±300A; Error ±2.5A @±300~±500A.
- High electromagnetic compatibility against complex electromagnetic interference environment.
- Excellent anti magnetic interference.
- Can bus output, convenient for system integration.
- Ultra-high over current capability

2. General parameters

Working temperature:	-40℃~+85℃；
Storage temperature:	-40℃~+85℃
Insulation resistance：	>= 500 MΩ；
Rms voltage for AC insulation test	50Hz 1min 2.5KV
Over-voltage(12V)	24V/1 minute
Over-voltage(24V)	36V/1 minute
Electrostatic discharge voltage	4KV

3. Electrical parameters

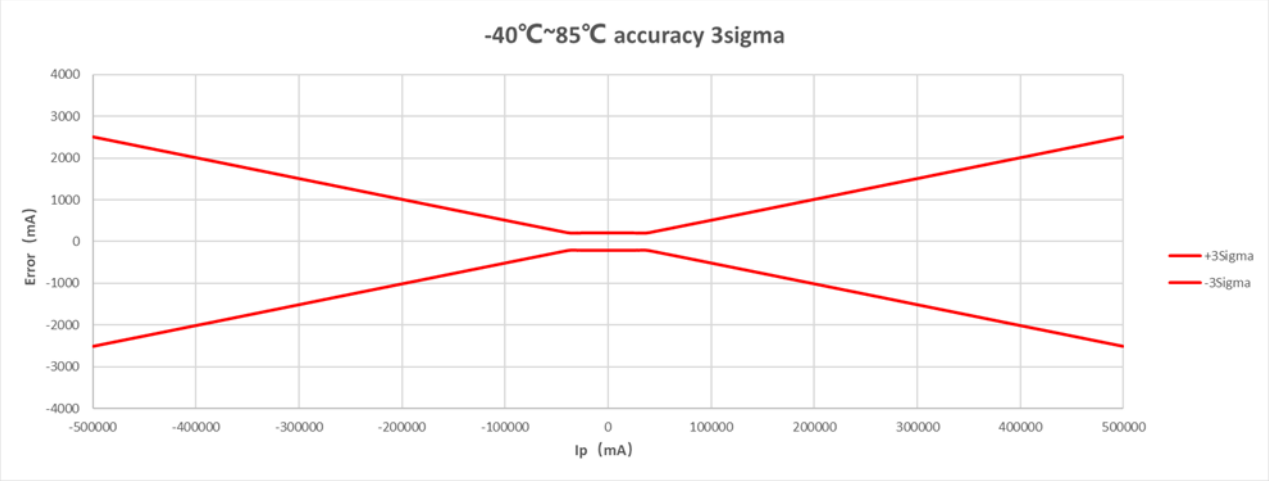
3.1 Supply Voltage U_C =12V

Parameter	Symbol	Unit	Specification			Conditions
			Min	Type	Max	
Nominal Measuring Range	I_{PN}	A	-500		500	
Supply Voltage	U_C	V	7.2	12	18	Full accuracy
Current Consumption @I_P=0A	I_C	mA		26		U_C=12V, T=25˚C
Current Consumption @I_P=500A	I_C	mA		250		U_C=12V, T=25˚C
All Temperature Sensitivity error Accuracy	X_G	%	-0.5		0.5	=-40 to 85˚C; ± 3 sigma(＞±30A)
Offset=0A	I_{OS}	A		±0.2		=-40 to 85˚C; ± 3 sigma
Linearity error with I_{PN}	ε_L	%		0.1		@room temperature
Temperature coefficient of G	TCG	ppm/˚C		20		

3.2 Supply Voltage UC =24V

Parameter	Symbol	Unit	Specification			Conditions
			Min	Type	Max	
Nominal Measuring Range	I_{PN}	A	-500		500	
Supply Voltage	U_C	V	7.2	24	32	Full accuracy
Current Consumption @I_P=0A	I_C	mA		26		U_C=24V, T=25˚C
Current Consumption @I_P=500A	I_C	mA		85		U_C=24V, T=25˚C
All Temperature Sensitivity error Accuracy	X_G	%	-0.5		0.5	=-40 to 85˚C; ± 3 sigma(>±30A)
Offset=0A	I_{OS}	A		±0.2		=-40 to 85˚C; ± 3 sigma
Linearity error with I_{PN}	ε_L	%		0.1		@room temperature
Temperature coefficient of G	TCG	ppm/˚C		20		

4. Total Error Graph for CAB-500



5. CAB-500 CAN Output specification

CANBUS speed refer to product version table,
CANBUS protocol: version 2.0A/B
CAN oscillator tolerance: 0.3125%
Byte order: big endian (Motorola)
120 ohm termination resistor to be added externally, internal CAN impedance = 4.8 Kohm

Message Description	CAN ID	name	Data Length (bytes)	Type of frame	Message launch type	Signal description	Signal Name	Start bit	Len -gth
Current Ip （mA）	0x3C2	CAB500	8	standard	Cyclic message every 10ms	Ip Value： 80000000H= 0mA, 7FFFFFFFH= - 1mA, 80000001H= 1mA	IP_VALUE	24	32
						b0:Error indication (0=Normal ,1=failure)	ERROR_INDICATION	32	1
						b7-b1:Error information	ERROR_INFORMATION	33	7
						Vacant bits (fix to 0)	UNDEFINE	40	8
							PCBA Ver	48	8
							FIRMWARE Ver	56	8

6. Diagnostic Trouble Code (DTC)

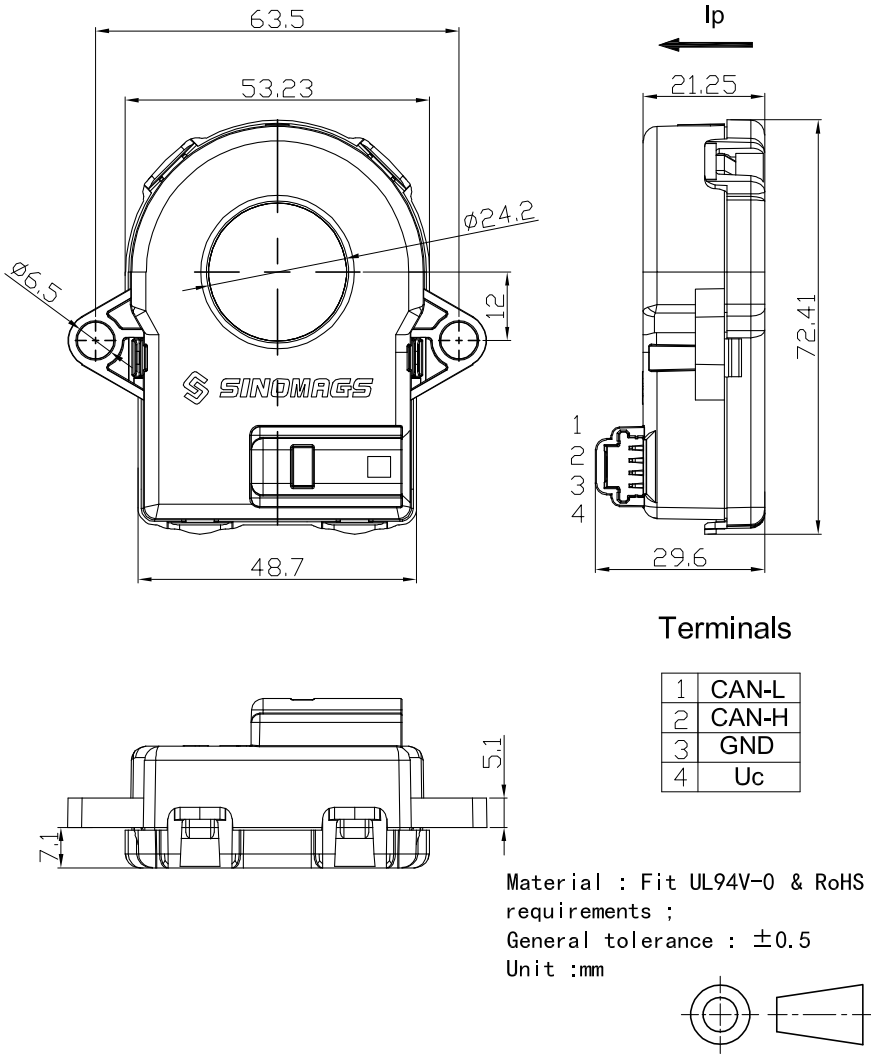
FAILLURE MODE	Ip VALUE	ERROR INDICATION	ERROR INFORMATION
Flash CRC error	0x FFFF FFFF	1	0x40
AFE over range happens①	0x FFFF FFFF	1	0x41
AFE error happens	0x FFFF FFFF	1	0x42
Internal LUT error	0x FFFF FFFF	1	0x44
Power Minimum Limit②	0x FFFF FFFF	1	0x46
Power Maximum Limit②	0x FFFF FFFF	1	0x47

Note：
① The sensor's maximum measurement vlaue is ±520A.
② Sensor will restart after voltage recovered to supply voltage range.

7. Dimensions：(in mm)

Connector type：TYCO 1473672-1

7.1 Plastic mounting hole



Terminals

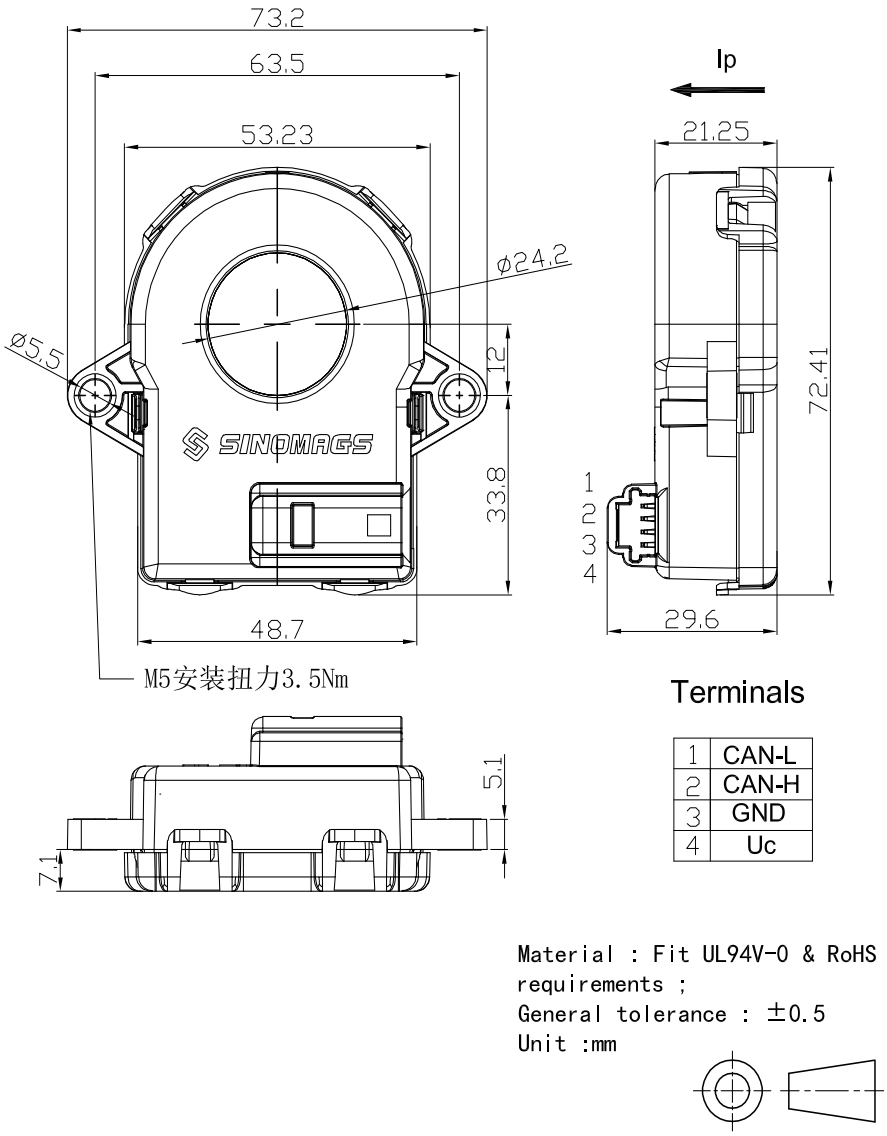
1	CAN-L
2	CAN-H
3	GND
4	Uc

Material : Fit UL94V-0 & RoHS requirements ;
General tolerance : ±0.5
Unit :mm

Mechanical characteristics

1. Unspecified tolerance: ±0.5mm
2. Plastic housing material: PA66+ GF30%
3. Mounting screw M6, torque recommendation 3 Nm
4. Mass：78g±5g

7.2 Metal mounting hole



Terminals

1	CAN-L
2	CAN-H
3	GND
4	Uc

Material : Fit UL94V-0 & RoHS requirements ;
General tolerance : ±0.5
Unit :mm

Mechanical characteristics

1. Unspecified tolerance: ±0.5mm
2. Plastic housing material: PA66+ GF30%
3. Mounting screw M5, torque min 3.5 Nm
4. Mass：80g±5g

8. Application

- Hybrid and electric vehicle battery pack
- Accurate current measurement for battery management applications

9. Product definition statement