CURRENT SENSOR

PRODUCT SERIES: STB-CAB500X-XXC

PRODUCT PART NUMBER: STB-CAB500X-XXC

VERSION: Ver 5.2

Sinomags Technology Co., Ltd.

Web site: www.sinomags.com

CONTENT

1. Characteristic

CAB500 Series current sensor is based on Sinomags Active 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 ±1.0A @ ±100A-300A; Error ±1.5A @ >±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°C~+85°C；
Insulation resistance： >= 500 MΩ；
Rms voltage for AC insulation test 50Hz 1min 2.5KV
Over-voltage 24V/1 minute
Electrostatic discharge voltage 4KV

3. Electrical parameters

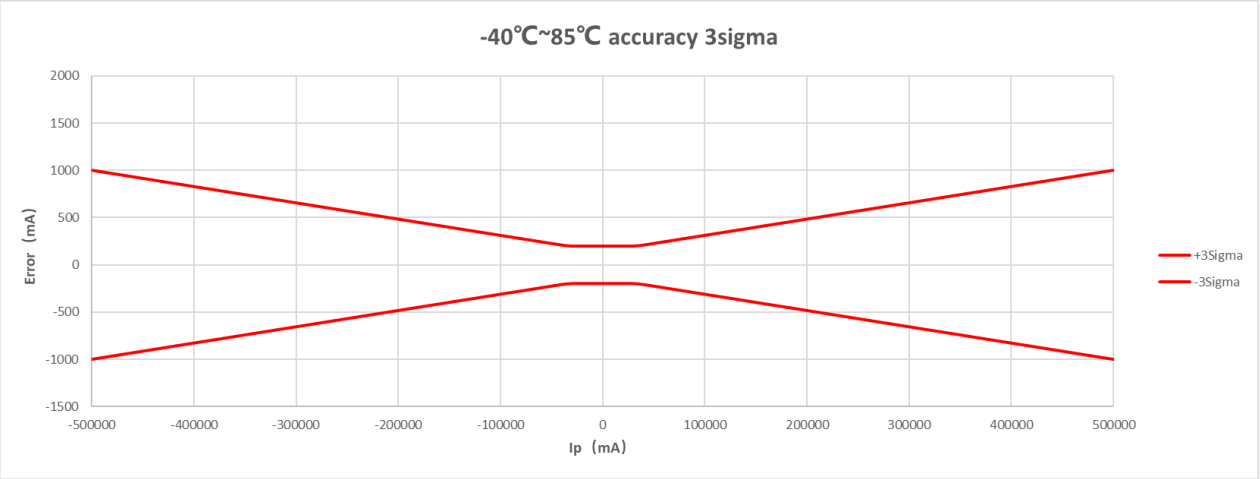
3.1 Supply Voltage U_C =12V

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℃
Current Consumption @I_P=500A	I_C	mA		250		U_C=12V, T=25℃
Sensitivity error Accuracy	X_G	%	-0.5		0.5	=-40 to 85℃; ± 3 sigma(>±30A)
Offset=0A	I_{OS}	A		±0.2		=-40 to 85℃; ± 3 sigma
Linearity error with I_{PN}	ε_L	%		0.1		@room temperature
Temperature coefficient of G	TCG	ppm/℃		20		

3.2 Supply Voltage U_C =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℃
Current Consumption @I_P=500A	I_C	mA		250		U_C=24V, T=25℃
Sensitivity error Accuracy	X_G	%	-0.5		0.5	=-40 to 85℃; ± 3 sigma(>±30A)
Offset=0A	I_{OS}	A		±0.2		=-40 to 85℃; ± 3 sigma
Linearity error with I_{PN}	ε_L	%		0.1		@room temperature
Temperature coefficient of G	TCG	ppm/℃		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

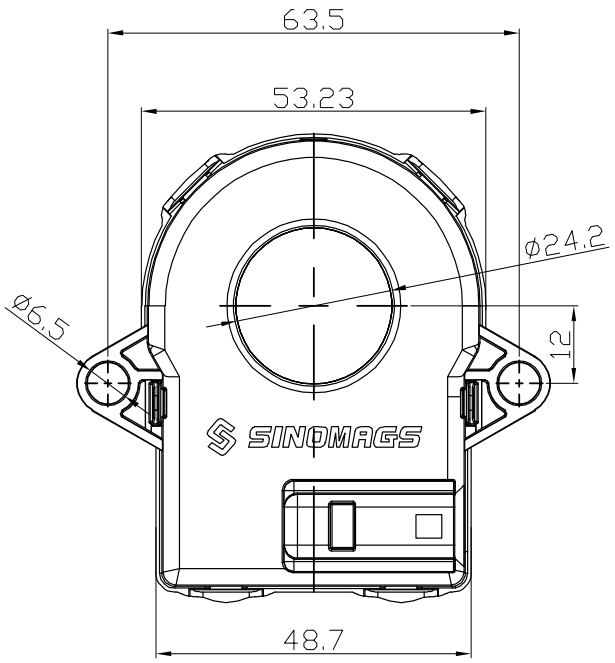
Message Description	CAN ID	name	Data Length (bytes)	Type of frame	Message launch type	Signal description	Signal Name	Start bit	Len-gth
Current Ip （mA）	0x3C2	CAB500	8	standard	Cyclic message every 10ms	Ip Value： 80000000H= 0mA, 7FFFFFFFH= - 1mA, 80000001H= 1mA	IP_VALUE	24	32
						b0:Error information (0=Normal ,1=failure)	ERROR_INDICATION	32	1
						b7-b1:RxQuality (0-100%)	ERROR_INFORMATION	33	7
						Vacant bits (fix to 0)	UNDEFINE	40	8
							PCBA Ver	48	8
							FIRMWARE Ver	56	8

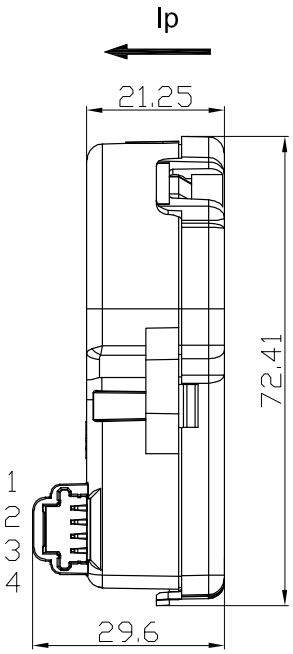
6. Diagnostic Trouble Code (DTC)

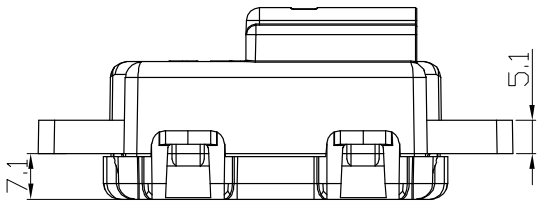
FAILLURE MODE	Ip VALUE	ERROR INDICATION	ERROR INFORMATION
Overcurrent Detection Ip> Approximate 520A	FFFFFFFF	1	0x41
Closed-loop reference voltage over range	FFFFFFFF	1	0x42
Signal not available for more than 100ms	FFFFFFFF	1	0x44
Supply voltage out of range	FFFFFFFF	1	0x46

7. Dimensions：(in mm)

Connector type：TYCO 1-473672-1



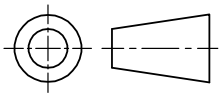




Terminals

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: PBT+ GF30%
3. Mounting screw M6, torque max 6 Nm
4. Mass：78g±5g

8. Application

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

9. Product definition statement