

CURRENT SENSOR

PRODUCT SERIES: STB-CAB700x-xxx

PRODUCT PART NUMBER: STB-CAB700N-xxF

VERSION: Ver 1.5



Sinomags Technology Co., Ltd.

Web site: www.sinomags.com

CONTENT

1. Characteristic	2
2. General parameters	2
3. Electrical parameters	2
4. Total Error Graph for CAB-700 Series	3
5. CAB-700 CAN Output specification	3
6. Diagnostic Trouble Code (DTC).....	4
7. Dimensions: (in mm)	4
8. Application	5
9. Product definition statement	5

1. Characteristic

CAB700 Series current sensor is based on Sinomags Open loop fluxgate technology, with CANBUS digital output. It can be used to measure 700A rated current. Using a proprietary Digital Compensation technology. This product brings the best combination of performance and reliability.

- Error $\pm 30\text{mA}$ @ $<\pm 10\text{A}$, Accuracy $\pm 0.3\%$ @ $<\pm 30\text{A}$; Accuracy $\pm 0.5\%$ @ $<\pm 700\text{A}$.
- High electromagnetic compatibility against complex electromagnetic interference environment.
- Excellent anti magnetic interference.
- CANBUS output, convenient for system integration.
- Ultra-high over current capability

2. General parameters

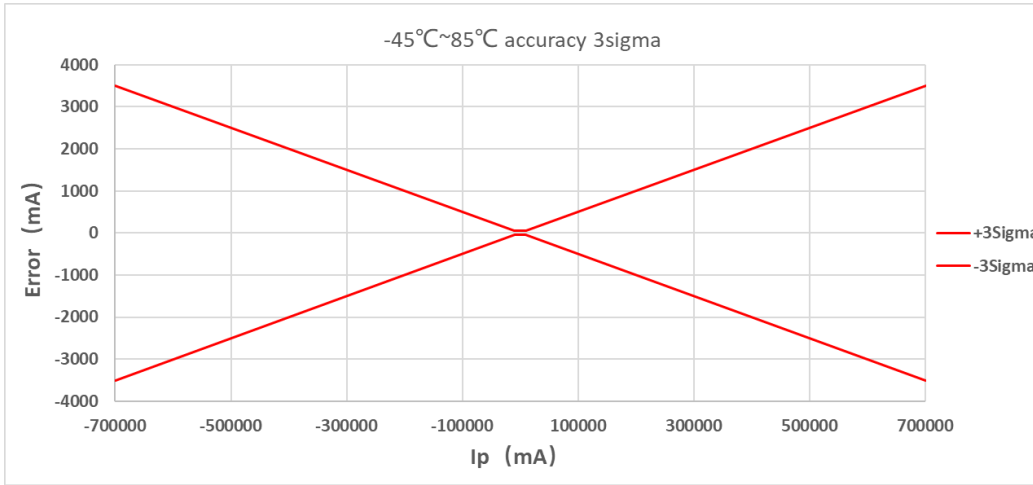
Working temperature: $-40^{\circ}\text{C}\sim+85^{\circ}\text{C}$;
 Storage temperature: $-40^{\circ}\text{C}\sim+85^{\circ}\text{C}$
 Insulation resistance: $\geq 500\text{M}\Omega$;
 Rms voltage for AC insulation test 50Hz 1min 2.5KV
 Over-voltage 24V/1 minute
 Electrostatic discharge voltage 4KV

3. Electrical parameters

Parameter	Symbol	Unit	Specification			Conditions
			Min	Type	Max	
Nominal Measuring Range	I_{PN}	A	-700		700	
Supply Voltage	U_C	V	7.2	12	18	Full accuracy
Current Consumption @ $I_P=0\text{A}$	I_C	mA		33		$U_C=12\text{V}$, $T=25^{\circ}\text{C}$
Current Consumption @ $I_P=700\text{A}$	I_C	mA		200		$U_C=12\text{V}$, $T=25^{\circ}\text{C}$
All Temperature Sensitivity error Accuracy @ $I_P \leq 10\text{A}$	X_G	A	-0.03		0.03	$=-40$ to 85°C ; ± 3 sigma
All Temperature Sensitivity error Accuracy @ $10\text{A} < I_P \leq 30\text{A}$	X_G	%	-0.3		0.3	$=-40$ to 85°C ; ± 3 sigma
All Temperature Sensitivity error Accuracy @ $30\text{A} < I_P \leq 700\text{A}$	X_G	%	-0.5		0.5	$=-40$ to 85°C ; ± 3 sigma
Offset=0A	I_{OS}	A	-0.03		0.03	$=-40$ to 85°C ; ± 3 sigma
Linearity error with I_{PN}	ϵ_L	%		0.2		@room temperature
Temperature coefficient of G	TCG	ppm/ $^{\circ}\text{C}$		20		

4. Total Error Graph for CAB-700 Series

Performances are considered with average value over 10 CAN frames(100ms)



5. CAB-700 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

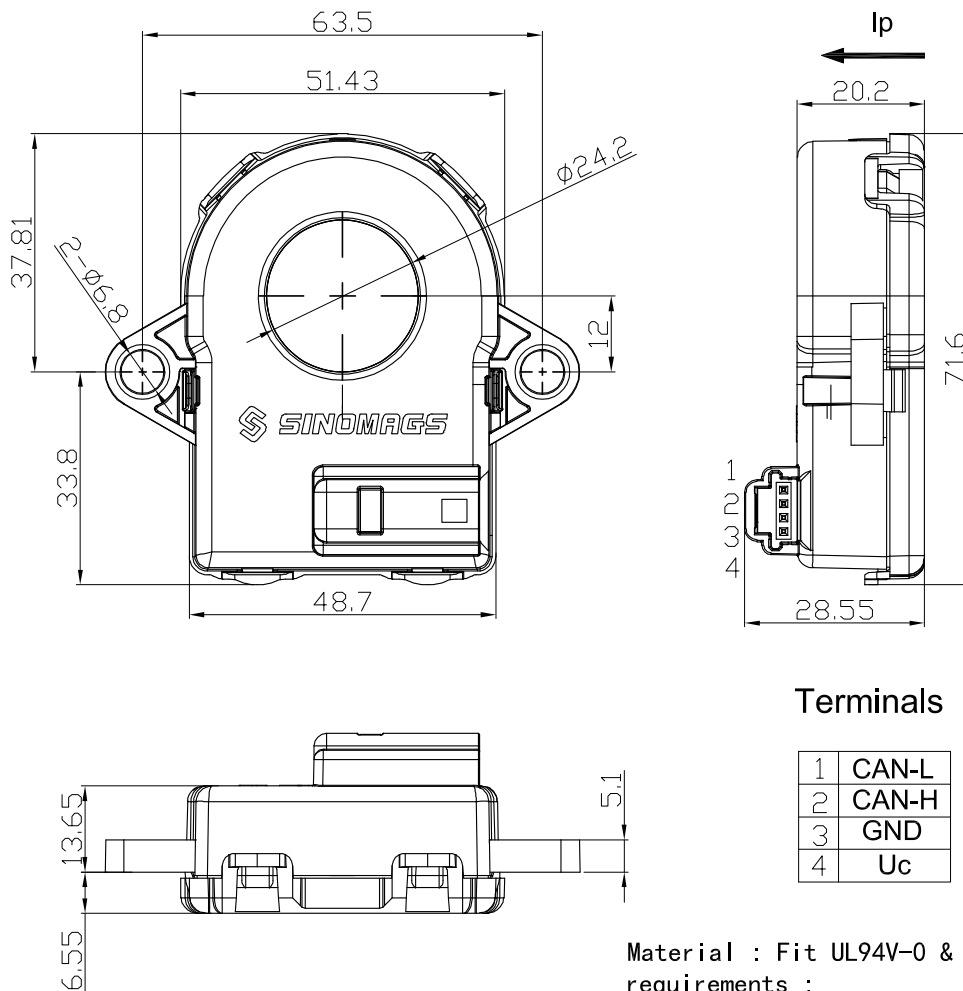
Message Description	CAN ID	name	Data Length (bytes)	Type of frame	Message launch type	Signal description	Signal Name	Start bit	Len-gth
Current Ip (mA)	0x3C2	CAB700	8	stand ard	Cyclic message every 10ms	Ip Value: 80000000H= 0mA, 7FFFFFFFH= - 1mA, 80000001H= 1mA	IP_VALUE	24	32
						b0:Error indication (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
Overcurrent Detection Ip> Approximate 710A	FFFFFFFF	1	0x41
Fluxgate under frequency	FFFFFFFF	1	0x42
Signal not available for more than 100ms	FFFFFFFF	1	0x44
Supply voltage out of range	FFFFFFFF	1	0x46
Flash CRC error	FFFFFFFF	1	0x48

7. Dimensions: (in mm)

Connector type: TYCO 1473672-1



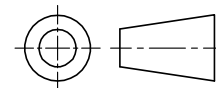
Terminals

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: ± 0.5 mm
2. Plastic housing material: PBT+ GF30%
3. Mounting screw M6, torque recommendation 3 Nm
4. Mass: 58g \pm 5g

8. Application

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

9. Product definition statement

	STB	-	CAB	700	N	-	5	2	F	1
Current sensor										
Product information										
Rated current										
Installing form										
N:	Perforation \varnothing 24.2mm, mounting hole \varnothing 6.8mm									
Baud rate										
1:	125k									
2:	250k									
5:	500k									
CAN ID										
1:	3C1									
2:	3C2									
3:	3C3									
4:	3C4									
5:	3C5									
9:	3C0									
Edition										
F:	Fluxgate									
Resistance of matching										
Blank:	4800 Ω									
1:	120 Ω									