

CURRENT SENSOR

PRODUCT SERIES: STB-CAB540

PRODUCT PART NUMBER: STB-CAB540

VERSION: Ver 1.2



Sinomags Technology Co., Ltd.

Web site: www.sinomags.com

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1. Characteristic

STB-CAB540 Series current sensor is based on Sinomags Active Close Loop technology, with CANBUS digital output. It can be used to measure 540A rated current. Using a proprietary Digital Compensation technology. This product brings the best combination of performance and reliability.

- Error $\pm 0.2A$ @ $\pm < 30A$, Error $\pm 0.5A$ @ $\pm < 100A$; Error $\pm 1.0A$ @ $\pm 100A-300A$; Error $\pm 1.5A$ @ $> \pm 300-540A$.
- 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: $-40^{\circ}C \sim +85^{\circ}C$;
Insulation resistance: $\geq 500 M\Omega$;
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	-540		540	
Supply Voltage	U_C	V	7.2	12	18	Full accuracy
Current Consumption @ $I_P=0A$	I_C	mA		26		$U_C=12V, T=25^\circ C$
Current Consumption @ $I_P=540A$	I_C	mA		250		$U_C=12V, T=25^\circ C$
Sensitivity error Accuracy	X_G	%	-0.5		0.5	$=-40$ to $85^\circ C$; ± 3 sigma ($> \pm 30A$)
Offset=0A	I_{OS}	A		± 0.2		$=-40$ to $85^\circ C$; ± 3 sigma
Linearity error with I_{PN}	ϵ_L	%		0.1		@room temperature
Temperature coefficient of G	TCG	ppm/ $^\circ C$		20		
Limiting Current@ $25^\circ C$	I_m	A			580	$T=25^\circ C$
Limiting Current@ $45^\circ C$	I_m	A			560	$T=45^\circ C$
Limiting Current@ $65^\circ C$	I_m	A			540	$T=65^\circ C$
Limiting Current@ $85^\circ C$	I_m	A			520	$T=85^\circ C$

Remark: the unrecoverable damage may occur when the product works on the conditions over the absolute maximum ratings. Long-time working on the absolute maximum ratings may cause the degradation on performance and reliability.

4. STB-CAB540 CAN Output specification

CANBUS speed refer to product version table,

CANBUS protocol: version 2.0A/B

CAN oscillator tolerance: 0.3125%

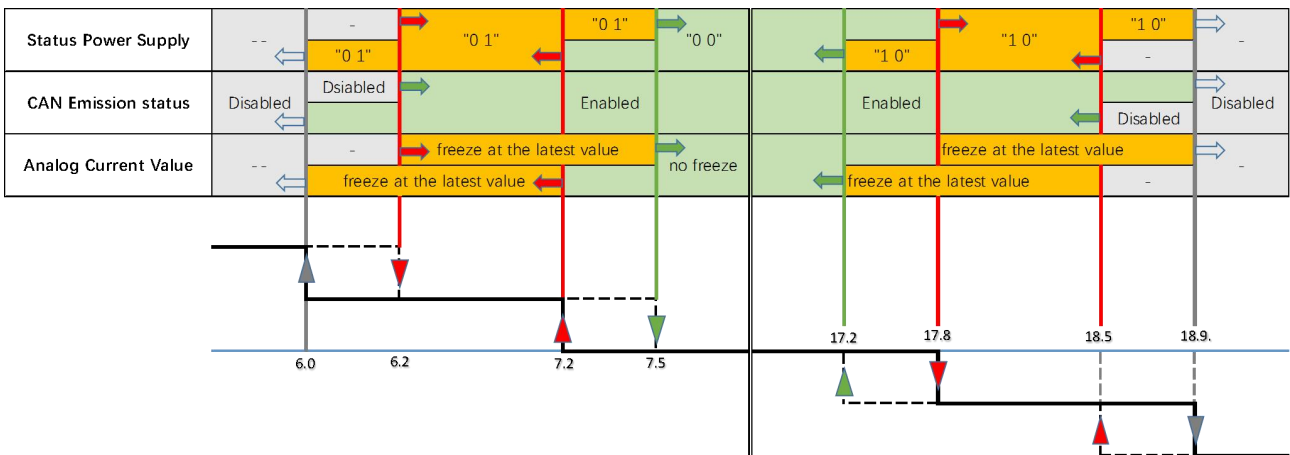
Byte order: big endian (Motorola)

120 ohm termination resistor to be added externally, internal CAN impedance = 2.4Kohm

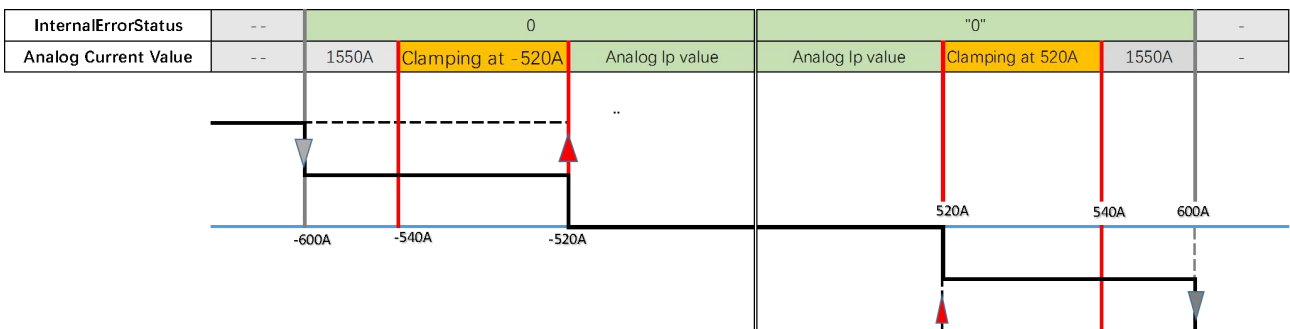
Message Description	CAN ID	name	Data Length (bytes)	Type of frame	Message launch type	Signal description	Signal Name	Start bit	End bit
Current Ip (mA)	0x3C2	STB-CAB540	8	stand ard	Cyclic message every 10ms	BYTE0		0	7
						Ip Value: 800000H= 0mA, 7FFFFFFH= - 1mA, 800001H= 1mA	IP_VALUE	8	31
							Undefined	32	39
						Vacant bits (fix to 0)	PCBA Ver	40	47
							FirmWare Ver	48	55
							CRC	56	63

CAN Frame Content								
	7	6	5	4	3	2	1	0
BYTE 0	Sequence Counter I _p			Status Power Supply		Status Internal		Reserved
	MSB			LSB	MSB	LSB		
BYTE 1	Analog Current							
BYTE 2	Analog Current							
BYTE 3	Analog Current							
BYTE 4	Reserved							
BYTE 5	PCBA Ver							
BYTE 6	FirmWare Ver							
BYTE 7	CRC I _p							LSB
	MSB							

Status Power Supply signal

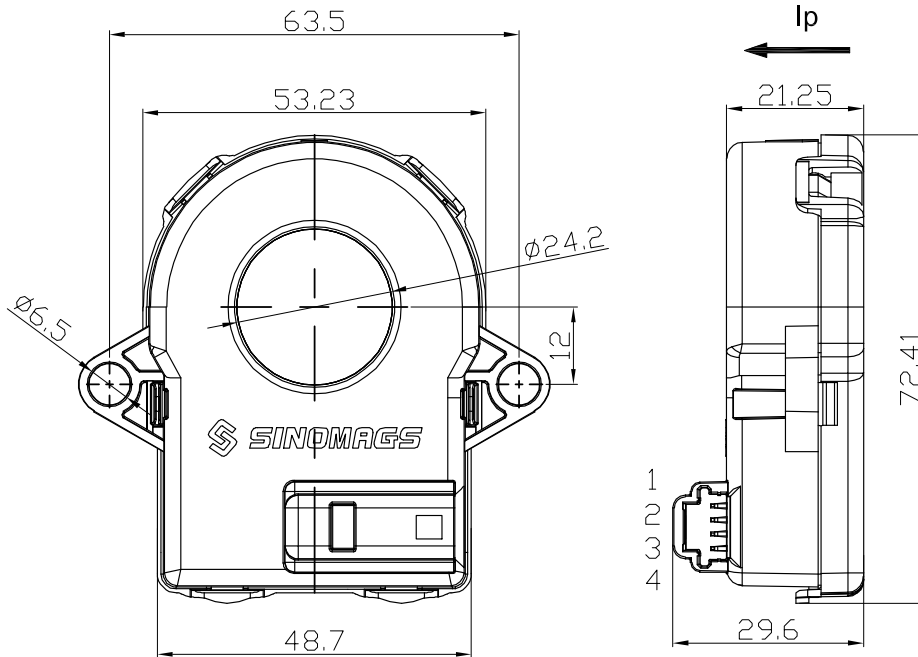


Analog Current signal



5. Dimensions: (in mm)

Connector type: TYCO 1-473672-1



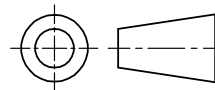
Terminals

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: ± 0.5 mm
2. Plastic housing material: PA6T+30%GF
3. Mounting screw M6, torque max 6 Nm
4. Mass: $78\text{g} \pm 5\text{g}$

6. Application

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

7. Product definition statement

	STB	-	CAB	540	M	-	5	1	X
Current sensor									
Product information									
Rated current									
Installing form									
M:	Perforation \varnothing 24.2mm, mounting hole \varnothing 6.5mm								
N:	Perforation \varnothing 24.2mm, mounting hole \varnothing 4.3mm								
Baud rate									
1:	125k								
2:	250k								
5:	500k								
CAN ID									
1:	3C1								
2:	3C2								
3:	3C3								
4:	3C4								
5:	3C5								
9:	3C0								
Version									
X:	customer specific product								