



DATA SHEET

Hall Effect Current Sensor

P/N: CHB400CAB24SCAN-F1/F2/F3

I_{PN}=400A

Description

The CHB_CAB series current sensors are based on temperature calibration technology, the closed-loop hall sensor principle, using a single power supply, CAN total line output, automotive grade product design, suitable for pure electric vehicles, plug-in the peak current of electric hybrid vehicles and other energy storage equipment is ±400A DC, AC or pulse current measurement.

Feature

- High precision, low temperature drift, to help customers accurately calculate the battery SOC
- Excellent anti-interference ability, suitable for small space, save installation cost.
- Wide working voltage range, and strong self-recovery ability, ensure CAN communication is stable and reliable.
- Installation and software interface compatible with many products on the market, easy to replace.
- Multiple output options, convenient for different applications.

Advantages

- High overall accuracy:
 - Error is 0.3% at room temperature
 - Error is 0.5% under overtemperature environment
- Full range current isolation;

Applications

- Hybrid and electric battery packs
- Traditional lead-acid batteries
- Battery management applications for precise current measurement (SOC, SOH, SOF)



Absolute parameters (non working parameters):

PARAMETERS	SYMBOL	UNIT	VALUE	CONDITIONS
Overvoltage	U _c	V	30	10 minutes
Overvoltage	U _c	V	28	Continuity
Overvoltage	U _c	V	32	60sec
Reverse voltage	U _c	V	-50	10 minutes



Cheemi Technology Co., Ltd

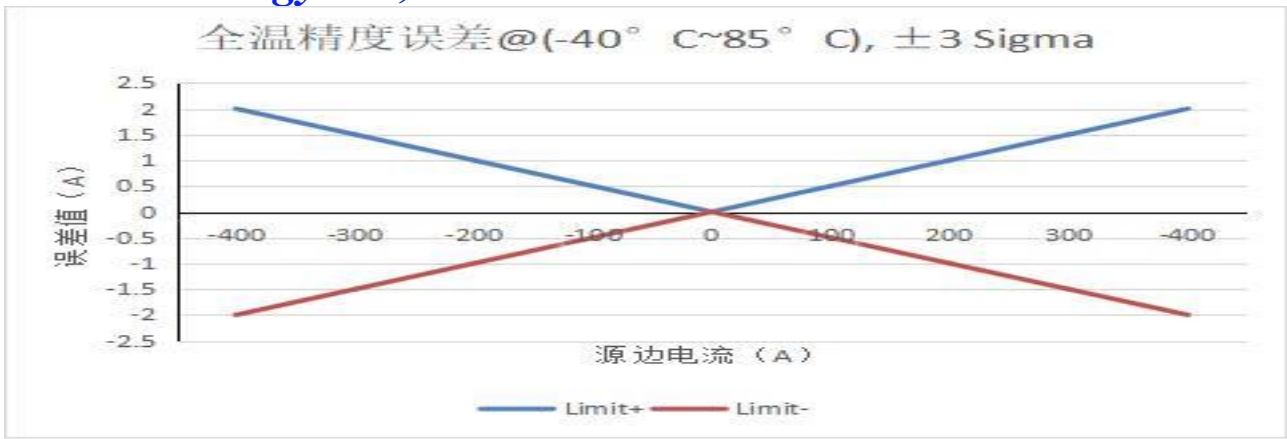
Minimum power supply voltage	U _C	V	8	Continuity
Maximum power supply voltage	U _C	V	28	Continuity
CAN work low voltage alarm, non - measurement	U _C	V	17~18	CAN continuous
CAN work low voltage alarm, non - measurement	U _C	V	28~30	CAN continuous
Insulation resistance	R _{IS}	MΩ	500	500 V, 1min
Creepage distance	d _{Cp}	mm	7.2	
Electrical clearance	d _{Cl}	mm	7	
Insulation AC test voltage	V _d	KV	2.5	50Hz, 1min
Insulation DC test voltage	V _d	KV	3	1min

General working parameters:

PARAMETERS	SYMBOL	UNIT	VALUE			CONDITIONS
			MIN.	TYP.	MAX.	
Primary current measurement range	I _{PN}	A	-400		400	
Supply voltage	U _C	V	9	24	30	Full accuracy
Current consumption @I _p =0A	I _C	mA		20	30	V _C =24V, T=25°C
Current consumption @I _p =500A	I _C	mA		150	200	V _C =24V, T=25°C
Working temperature	T _A	°C	-40		85	Temperature range to ensure accuracy Guaranteed ± 3 sigma
Maximum voltage hysteresis	U _{UP}	V		30		When U _C rises
		V		29		When U _C decreases
Minimum voltage hysteresis	U _{LOW}	V		9		When U _C rises
		V		8		When U _C decreases
Total accuracy	X _G	%	-0.5		0.5	T=-40 to 85°C; ± 3 sigma
Linearity error	ε _L	%	-0.1		0.1	Room temperature
Zero error @I _p =0A	X _O	A	-0.2		0.2	T=-40 to 85°C; ±3sigma
Gain temperature coefficient	TCG	ppm/°C		20		T=-40 to 85°C; ±3sigma

Full temperature accuracy error@(-40°C~85°C), ± 3sigma





To ensure product accuracy, the safety distance between sensors, relays, and copper bars needs to be confirmed in practice.

CAN output specifications:

CAN bus protocol: 2.0A/B

CAN oscillation error: 0.3125%

Byte order: big end ian (Motorola)

No sleep mode function

External 120 ohm terminal resistor added, internal CAN impedance=2.4Kohm

Message Description	CAN ID	Data length	Message Launch type	Period of transmission	Signal description	Signal name	Start bit	End bit				
Primary current IP (mA)	0x18FF6130	8	Extended Frame	100ms Circular transmission	IP value:	IP_VALUE	0	31				
					80000000 h=0mA							
					7FFFFFFFh=-1mA							
										80000001h=1mA		
					Error indication (0=normal, 1=failure)	ERROR_INDICATION	32	32				
					Fault information (when the fault identification bit is 0, it is 0X64)	ERROR_INFORMATION	33	39				
					Fixed as 0X48 0X11	SENSOR_NAME	40	55				
Software version	SW_Revision	56	63									

Fault diagnosis code (fault information)

Failure mode	IP value	Error indication	Error information
CRC verification error fault	0xFFFFFFFF	1	0x02
AFE over range happens	0xFFFFFFFF	1	0x09
AFE error happens	0xFFFFFFFF	1	0x03
Internal LUT error	0xFFFFFFFF	1	0x04
Power Minimum Limit	0xFFFFFFFF	1	0x0D

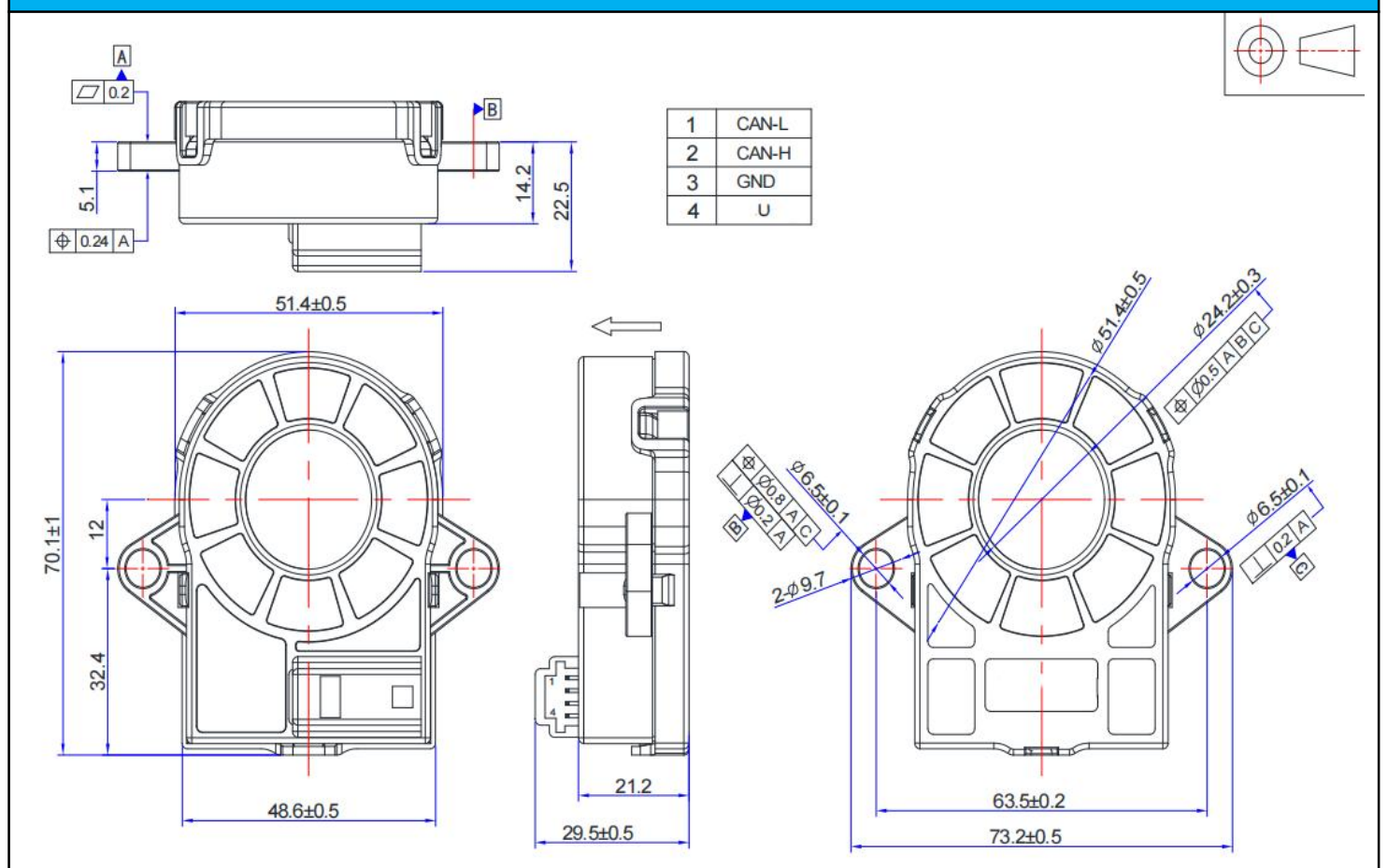


Power Maximum Limit	0xFFFFFFFF	1	0x0F
---------------------	------------	---	------

Part Numbers List:

No.	P/N	CAN ID
1	CHB400CAB24SCAN-F1	0x18FF6130
2	CHB400CAB24SCAN-F2	0x18FF6230
3	CHB400CAB24SCAN-F3	0x18FF6330

Dimensions (Undeclared tolerance $\pm 0.5\text{mm}$):



Connect

Bill of Materials

	Plastic shell PA66+GF30
	Magnetic core: permalloy
	Connector terminal: Tinned brass
	Weighing: About 65g
Mounting recommendation	



	Connector model TYCO: 1473672-1 Recommended maximum torque M6=4.5Nm
--	--

WARNING: Incorrect wiring may cause damage to the sensor.

