

CURRENT SENSOR

PRODUCT SERIES: STB-LF/4

PRODUCT PART NUMBER: STB-300LF/4

VERSION: Ver 1.1



Sinomags Technology Co., Ltd.

Web site: www.sinomags.com

CONTENT

1.	Description	2
2.	Electrical parameters	3
3.	Dimensions:	5

1. Description

STB-LF4 series current sensors are based on close loop principle. The sensor can detect the current with DC, AC, pulse and irregular wave shape with current output.

Typical application

- Industrial
- Windmill inverters
- Test and measurement
- UPS
- AC variable speed and servo motor drives
- Static converters for DC motor drives
- Switched model power supplies (SMPS)

General parameters

Parameter	Symbol	Unit	Value
Sensor operating temperature	T_A	$^{\circ}\text{C}$	-40 ~ 85
Storage temperature	T_S	$^{\circ}\text{C}$	-40 ~ 85
Mass	m	g	95

Absolute parameters

Parameters	Symbol	Unit	Value
Supply voltage (-40 $^{\circ}\text{C}$...85 $^{\circ}\text{C}$)	V_{CC_max}	V	± 20
Maximum primary conductor temperature	T_{B_max}	$^{\circ}\text{C}$	100
Maximum steady state primary current (-40 $^{\circ}\text{C}$...85 $^{\circ}\text{C}$)	I_{PN_max}	A	300

Ratings

Parameter	Unit	Value
Primary involved potential	V AC/DC	1500
Maximum surrounding air temperature	$^{\circ}\text{C}$	85
Primary current	A	0...300

Isolation parameters

Parameter	Symbol	Unit	Value	Remark
RMS voltage for AC test 50Hz/1 min	U_d	kV	3.8	
Impulse withstand voltage 1.2/50 μs	$\hat{U}_w$	kV	10	
Clearance distance (pri. -sec)	dCl	mm	10.6	Shortest distance through air
Creepage distance (pri. -sec)	dCp	mm	11.1	Shortest path along device body
Case material	-	-	V0	According to UL 94
Comparative tracking index	CTI		175	

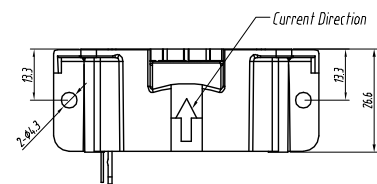
2. Electrical parameters

Condition: $V_{CC} = \pm 12V \sim \pm 20V$, $T_A = 25^\circ C$, unless specified.

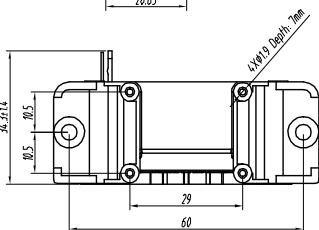
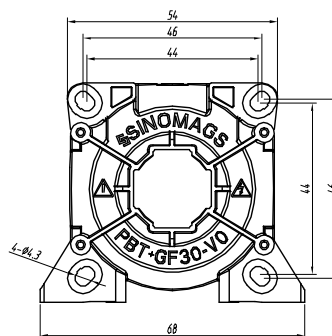
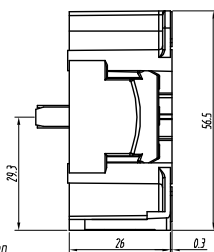
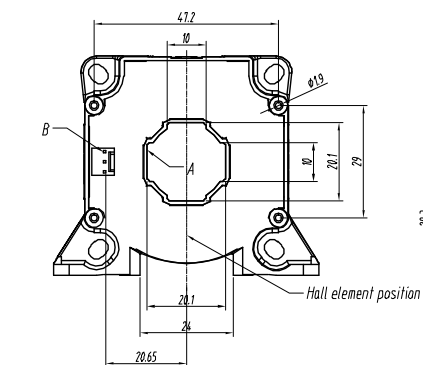
Parameters	Symbol	Unit	Min	Typ	Max	Remark
Primary nominal RMS current	I_{PN}	A			300	
Primary current measuring range	I_{PM}	A	-500		500	
Measuring resistance	R_M	Ω	0		37	@ $\pm 300A$ with $\pm 12V$ $T_A = 70^\circ C$
	R_M	Ω	0		35	@ $\pm 300A$ with $\pm 12V$ $T_A = 85^\circ C$
	R_M	Ω	0		10	@ $\pm 500A$ with $\pm 12V$ $T_A = 70^\circ C$
	R_M	Ω	0		8	@ $\pm 500A$ with $\pm 12V$ $T_A = 85^\circ C$
	R_M	Ω	0		56	@ $\pm 300A$ with $\pm 15V$ $T_A = 70^\circ C$
	R_M	Ω	0		54	@ $\pm 300A$ with $\pm 15V$ $T_A = 85^\circ C$
	R_M	Ω	0		21	@ $\pm 500A$ with $\pm 15V$ $T_A = 70^\circ C$
	R_M	Ω	0		19	@ $\pm 500A$ with $\pm 15V$ $T_A = 85^\circ C$
	R_M	Ω	0		88	@ $\pm 300A$ with $\pm 20V$ $T_A = 70^\circ C$
	R_M	Ω	0		86	@ $\pm 300A$ with $\pm 20V$ $T_A = 85^\circ C$
	R_M	Ω	0		40	@ $\pm 500A$ with $\pm 20V$ $T_A = 70^\circ C$
	R_M	Ω	0		38	@ $\pm 500A$ with $\pm 20V$ $T_A = 85^\circ C$
Secondary nominal RMS current	I_{SN}	A	-0.15		0.15	
Turns ratio	N_S	NT		2000		

Resistance of secondary winding	R _s	Ω			30	@Ta=70℃
	R _s	Ω			32	@Ta=85℃
Supply voltage	V _{cc}	V	±12		±20	
Current consumption	I _{cc}	mA		26 + I _s		I
Norminal sensitivity	S _N	mA/A		0.5		
Offset current	I _o	mA	-0.2		0.2	
Magnetic offset current @ IP = 0 and specified RM after an overload of 3 x IP N	I _{oM}	mA			0.2	
Offset current temperature drift	I _{OT}	mA	±0.1		±0.3	-10℃ ~ 70℃
	I _{OT}	mA	±0.2		±0.7	-40℃ ~ 85℃
Total error at I _{PN}	ξ _{tol}	% of I _{PN}	-0.5		0.5	-40℃...85℃
Linearity error	ξ _L	% of I _{PN}			0.1	
RMS noise current reffered to pri.	I _{no}	mA		20		1Hz to 100kHz
Delay time @ 10 % of I _{PN}	t _{ra 10}	μs			0.5	@10% of I _{pn}
Delay time @ 90 % of I _{PN}	t _{ra 90}	μs			1	@90% of I _{pn}
Frequency bandwidth (-1dB)	BW	kHz		100		

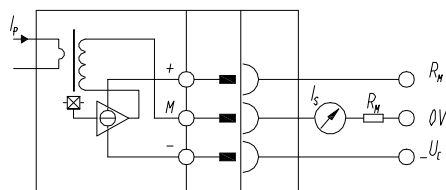
3. Dimensions:



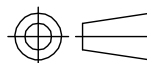
	d_a	d_p
A-B	10.6 mm	10.6 mm



Connection



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



Mechanical characteristics

- General tolerance ± 0.5 mm
- Transducer fastening
 - Vertical position
 - 2 holes $\varnothing 4.3$ mm
 - 2 M4 steel screws
 - Recommended fastening torque 3.2 N·m
 - or
 - 4 holes $\varnothing 1.9$ mm,
 - depth: 7 mm
 - 4 PTKA 25 screws
 - length: 6 mm
 - Recommended fastening torque 0.7 N·m
- Transducer fastening
 - Horizontal position
 - 4 holes $\varnothing 4.3$ mm
 - 4 M4 steel screws
 - Recommended fastening torque 3.2 N·m
 - or
 - 4 holes $\varnothing 1.9$ mm
 - crossing
 - 4 PTKA 25 screws,
 - length: 10 mm
 - Recommended fastening torque 0.75 N·m
- Primary through-hole $\varnothing 20.1$ mm
- Connection of secondary
 - Molex 6410
 - 3 Tin plated pins