

CURRENT SENSOR

PRODUCT SERIES: STB-LF/5

PRODUCT PART NUMBER: STB-500LF/5

VERSION: Ver 1.1



Sinomags Technology Co., Ltd.

Web site: www.sinomags.com

CONTENT

1.	Description	2
2.	Electrical parameters	3
3.	Dimensions:	4

1. Description

STB-LF5 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

- Windmill inverters
- AC variable speed and servo motor drives
- Uninterruptible Power supplies(UPS)
- Power supplies for welding applications
- Test and measurement
- Battery supplied applications
- Switched Mode Power Supplies(SMPS)
- Static converts for DC motor drives

General parameters

Parameter	Symbol	Unit	Value
Sensor operating temperature	T_A	°C	-40 ~ 85
Storage temperature	T_S	°C	-50 ~ 90
Mass	m	g	240

Absolute parameters

Parameters	Symbol	Unit	Value
Supply voltage (-40°C...85°C)	V_{CC_max}	V	± 24
Maximum primary conductor temperature	T_{B_max}	°C	100
Maximum steady state primary current (-40°C...85°C)	I_{PN_max}	A	500

Ratings

Parameter	Unit	Value
Primary involved potential	V AC/DC	1500
Maximum surrounding air temperature	°C	85
Primary current	A	0...500

Isolation parameters

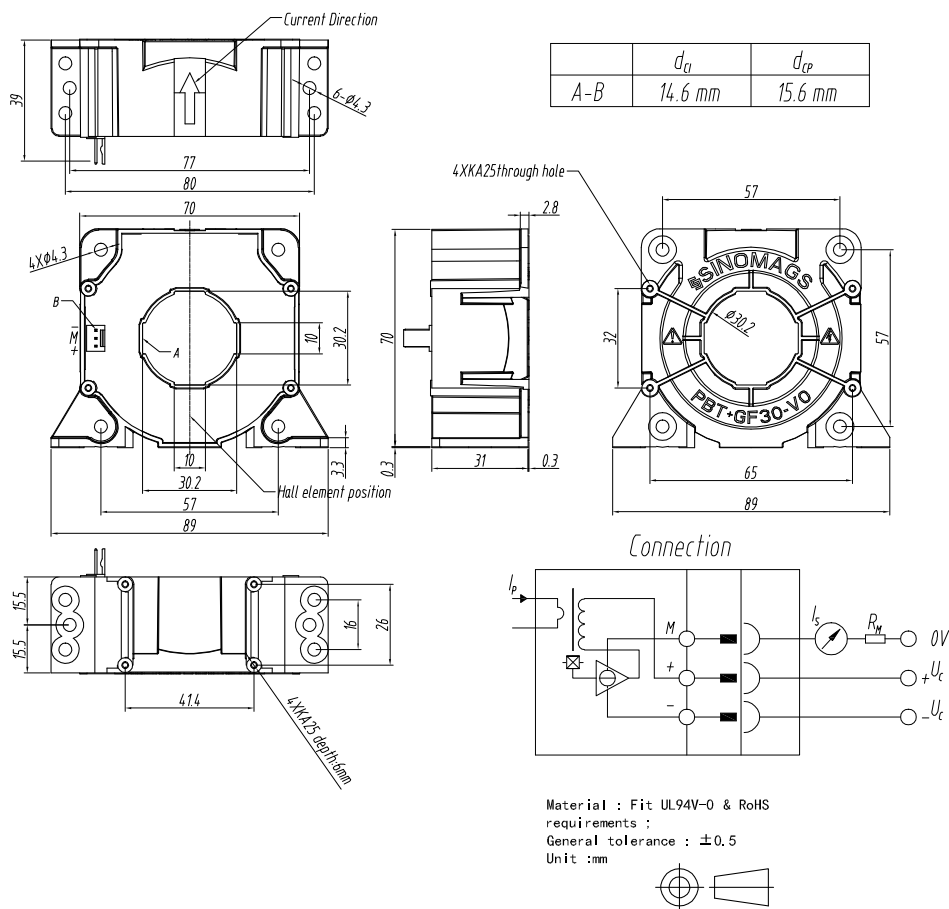
Parameter	Symbol	Unit	Value	Remark
RMS voltage for AC test 50Hz/1 min	U_d	kV	3.8	
Impulse withstand voltage 1.2/50μs	$\hat{U}_w$	kV	12.5	
Clearance distance (pri. -sec)	dCl	mm	14.6	Shortest distance through air
Creepage distance (pri. -sec)	dCp	mm	15.6	Shortest path along device body
Case material	-	-	V0	According to UL 94
Comparative tracking index	CTI		600	

2. Electrical parameters

Condition: $V_{CC} = \pm 14.25V \sim \pm 25.2V$, $T_A = 25^\circ C$, unless specified.

Parameters	Symbol	Unit	Min	Typ	Max	Remark
Primary nominal RMS current	I_{PN}	A			500	
Primary current measuring range	I_{PM}	A	-800		800	
Measuring resistance	R_M	Ω			70	@ $\pm 500A$ with $\pm 14.25V$
	R_M	Ω			18	@ $\pm 800A$ with $\pm 14.25V$
	R_M	Ω			95	@ $\pm 500A$ with $\pm 17.1V$
	R_M	Ω			35	@ $\pm 800A$ with $\pm 17.1V$
	R_M	Ω			155	@ $\pm 500A$ with $\pm 22.8V$
	R_M	Ω			70	@ $\pm 800A$ with $\pm 22.8V$
Secondary nominal RMS current	I_{SN}	A	-0.16		0.16	
Turns ratio	N_s	NT		5000		
Resistance of secondary winding	R_s	Ω			52.8	@ $T_a=15^\circ C$
Supply voltage	V_{CC}	V	± 14.25		± 25.2	
Current consumption	I_{CC}	mA		$44 + I_s$ $49 + I_s$		@ $\pm 15V$ @ $\pm 24V$
Norminal sensitivity	S_N	mA/A		0.2		
Offset current, referred to primary	I_O	A	-1		1	
Offset current temperature drift, referred to primary	I_{OT}	A	-0.6		0.6	
Total error at I_{PN}	ξ_{tol}	% of I_{PN}	-0.5 -0.6		0.5 0.6	$25 \dots 70 \dots 85^\circ C$ $-40^\circ C \dots 85^\circ C$
Linearity error	ξ_L	% of I_{PN}	-0.1		0.1	
RMS noise current reffered to pri.	I_{no}	mA		90		1Hz to 20kHz
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			0.5	@90% of I_{pn}
Frequency bandwidth (-1dB)	BW	kHz		200		-3dB, small signal bandwidth

3. Dimensions:



Mechanical characteristics

- General tolerance ± 0.5 mm
- Transducer fastening
 - Vertical position
 - 6 holes $\varnothing 4.3$ mm
 - 6 M4 steel screws
 - Recommended fastening torque 2.1 N·m($\pm 10\%$)
- Primary through-hole
 - $\varnothing 30$ mm
 - Or 30mm $\times$ 10mm
- Transducer fastening
 - Horizontal position
 - 4 holes $\varnothing 4.3$ mm
 - 4 M4 steel screws
- Connection of secondary Molex 6410