

TBC500LTHB03 Mode High Precision Closed Loop Mode Hall Effect Current Sensor



TBC500LTHB03 mode current sensor is a closed loop device based on the measuring principle of the hall effect and null balance method, with galvanic isolation between primary and secondary circuit, the size of primary not affect test precision, no matter the location of primary in the hole of current sensor, it can really measure resolution 1000:1 and it is used for precision measurement of DC, AC and pulse current.

Electrical data (Ta=25°C±5°C)

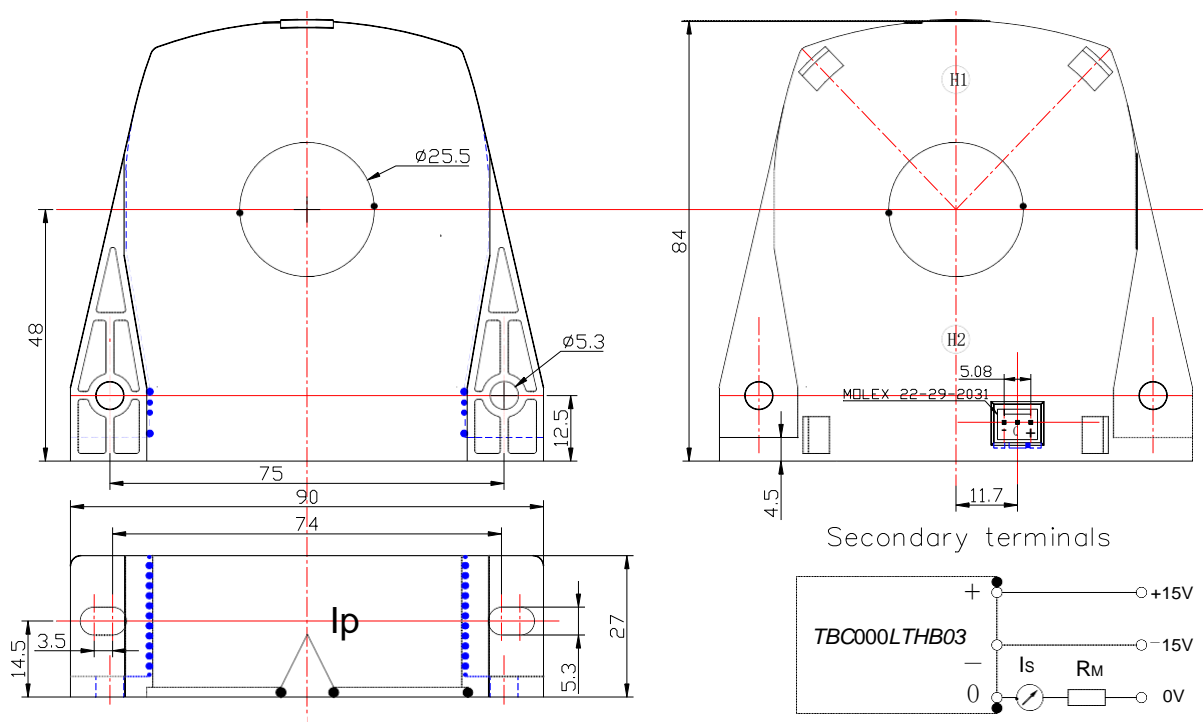
Parameter	Type	TBC500LTHB03	Unit
Rated input (I _{pn})		±500	A
Measure range (I _p)		±1500 (±18V , 1Ω)	A
Turns ratio (N _p /N _s)		1:5000	T
Measure resister with ±15V		@±500Amax 75(max)	Ω
		@±1000Amax 15(max)	Ω
Measure resister with ±18V		@±500Amax 100(max)	Ω
		@±1500Amax 1.0max)	Ω
Rated output (I _{sn})	@I _p =±I _{pn} , 25°C±5°C	±100±0.2%	mA
Supply voltage		±15 ~ ±18	V
Power consumption		≤20+I _p X (N _p /N _s)	mA
Offset current	@I _p =0	≤±0.2	mA
Offset drift		≤±0.5 (Typ) , ≤±0.75 (Max) ,	mA
Response time	@100A/μS,10%-90%	< 1	μs
Linearity	@I _p =0-±I _{pn}	≤0.1	%FS
Galvanic isolation	@ 50HZ, AC,1min	6	KV
di/dt accurately followed		> 100	A/μs
Bandwidth	@-3dB	DC-200	KHz
Coil resister	@ 85°C	55	Ω

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Applications

- Variable speed drives
- Welding machine
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Electrochemical

Mechanical dimension (for reference only)



Remarks :

1. All dimensions are in mm.
2. General tolerance ± 1 mm

Directions for use

1. I_s will be in a forward direction when the I_p flows according to the direction of the arrowhead.
2. The primary conductor should be $\leq 120^\circ\text{C}$.
3. The dynamic performance (di/dt and the response time) is the best when the primary hole is fully filled with the bus bar.
4. The primary turns should be at the top of the sensor for the best magnetic coupling.

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Standards

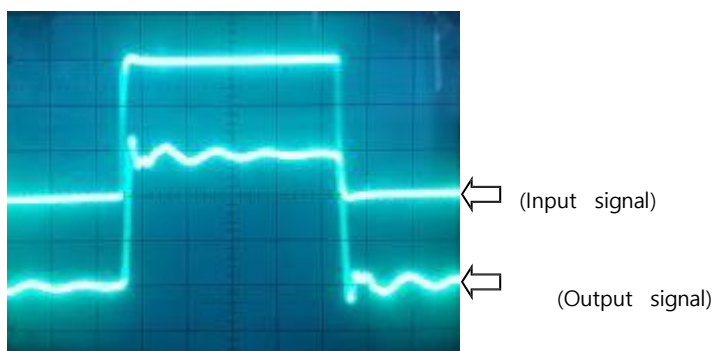
- UL94-V0
- EN60947-1:2004
- IEC60950-1:2001
- EN50178:1998
- SJ 20790-2000

General data

	Value	Unit	Symbol
Operating temperature	-40 to +85	°C	TA
Storage temperature	-40 to +125	°C	TS
Mass(approx)	250	g	M

Characteristics chart

Pulse current signal response characteristic



Effects of impulse noise

