TBC-TAH Series High Precision Closed Loop Mode Hall Effect Current Sensor

TBC-TAH Series current sensor is a closed loop device based on the measuring principle of the hall effect and null balance method, with a galvanic isolation between primary and secondary circuit, the size of primary doesn't 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.

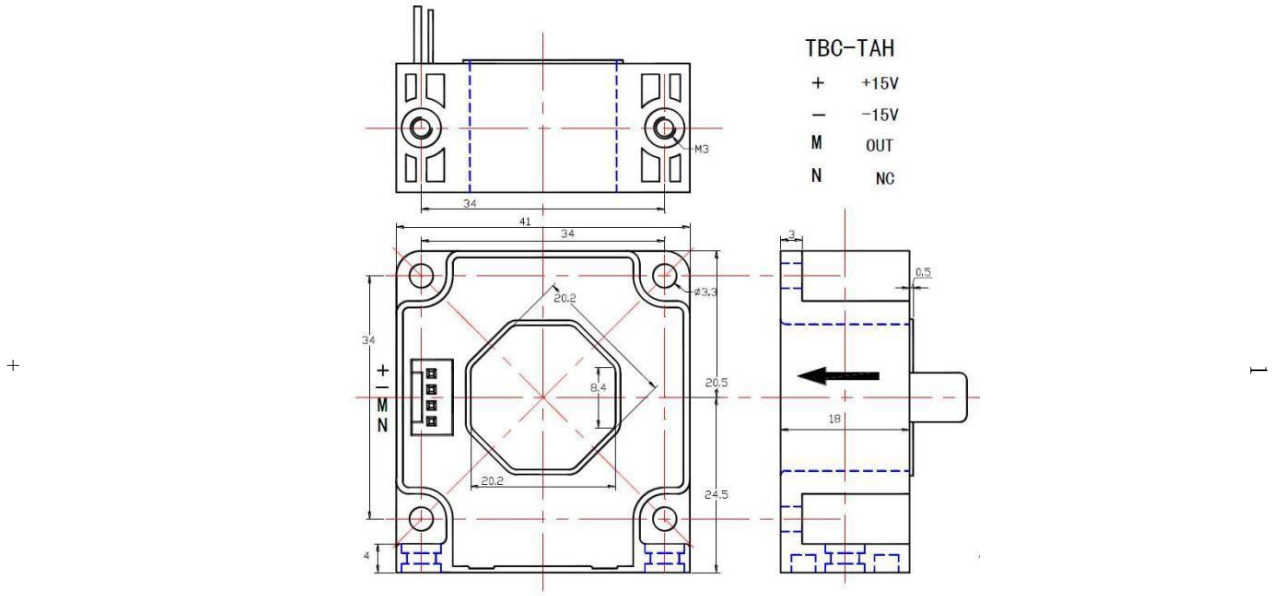
Electrical data (Ta=25℃±5℃)

Parameter \ Type	TBC50TAH	TBC100TAH	TBC200TAH	TBC300TAH	Unit
Rated current (Ipn)	±50	±100	±200	±300	A
Measure range (Ip)	±150 (±18V , 80Ω)	±300 (±18V , 30Ω)	±700 (±18V , 18Ω)	±900 (±18V , 2.0Ω)	A
Turns ratio (Np/Ns))	1:1000	1:1000	1:2000	1:3000	T
Measure resister with ±12V	@50Amax 180(max)	@100Amax 75(max)	@200Amax 75(max)	@300Amax 5(max)	Ω
	@150Amax 40(max)	@300Amax 10(max)	@600Amax 5.0(max)	@600Amax 2(max)	Ω
Measure resister with ±15V	@50Amax 240(max)	@100Amax	@200Amax	@300Amax 82	Ω
	@150Amax 60(max)	@300Amax 15(max)	@700Amax 10(max)	@750Amax	Ω
Rated output (Isn)	±50±0.5%	±100±0.5%	±100±0.5%	±100±0.5%	mA
Coil resister	25	25	25	53	Ω
Supply voltage	±12 ~ ±18				V
Power consumption	≤20+IpX(Np/Ns)				mA
Offset current	@Ip=0	≤±0.2			mA
Offset drift	≤±0.5 (Typ) ,≤±0.75 (Max)				mA
Response time	@100A/μ S, 10%-	< 1.0			us
Linearity	@Ip=0-±Ipn	≤0.1			%FS
Galvanic isolation	@ 50Hz,AC,1min	3			KV
di/dt accurately followed	> 100				A/μ s
Band - wi dth	@ -3db	DC-200			KHz

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 ±1mm

Directions for use

1 . Is will be in a forward direction when the Ip flows according to the direction of the arrowhead.

2 . The primary conductor should be≤120℃.

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.

5 . When the current will be measured goes through a sensor, the voltage will be measured at the output end. (Note: The false wiring may result in the damage of the sensor).

6 . Custom design in the different rated input current and the output current are available.

Standards

UL94-V0

EN60947-1:2004

IEC60950-1:2001

EN50178:1998

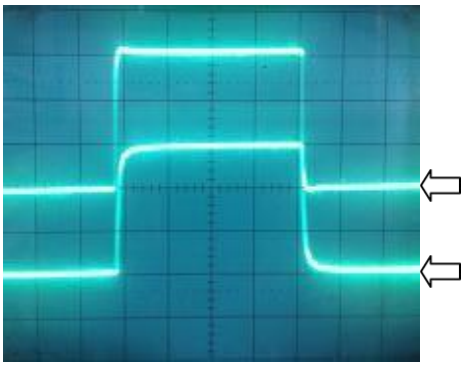
SJ 20790-2000

General data

	Value	Unit	Symbol
Operating temperature	-40 to +85	ºC	TA
Storage temperature	-40 to +125	ºC	TS
Mass(approx)	50	g	M

Characteristics chart

Pulse current signal response characteristic



Effects of impulse noise