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

TBC-ECH 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 not affect test precision, no matter the location of primary in the hole of current sensor, It really measuring resolution 1000:1 and it uses for precision measurement of DC, AC and pulse current.

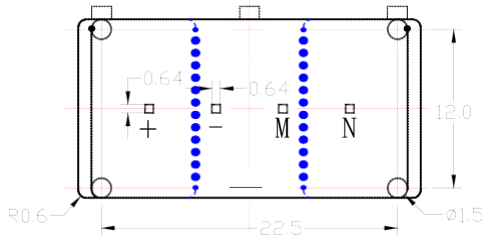
Electrical data (Ta=25℃±5℃)

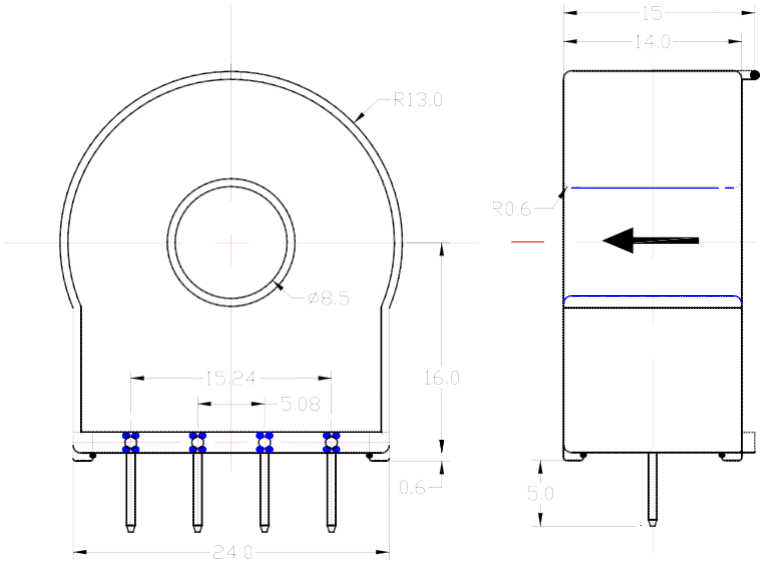
Parameter \ Type	TBC25ECH	TBC50ECH	TBC75ECH	TBC100ECH	Unit
Rated input (Ipn)	±25	±50	±75	±100	A
Measure range (Ip)	±75(±18V ,180Ω)	±150(±18V ,75Ω)	±225(±18V , 60Ω)	±300(±18V , 45Ω)	A
Turns ratio (Np/Ns)	1:1000	1:1000	1:1500	1:2000	T
Coil resister	35	30	40	55	Ω
Measure resister with ±12V	@±50Amax	@±50Amax	@±75Amax	@±100Amax	Ω
	@±75Amax	@±75Amax	@±150Amax	@±300Amax	Ω
Measure resister with ±15V	@±50Amax	@±50Amax	@±50Amax	@±100Amax	Ω
	@±75Amax	@±75Amax	@±150Amax	@±300Amax	Ω
Rated output (Isn)	±25±0.5%FS	±50±0.5%FS	±50±0.5%FS	±50±0.5%FS	mA
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
Linearity	@Ip=0-±Ipn	≤0.1			%FS
Bandwidth	@-3dB	DC-200			KHz
Response time	@100A/μS,10%-90%	< 1.0			μs
Galvanic isolation	@ 50Hz, AC,1min	3			KV

Applications

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

Mechanical dimension (for reference only)





PINS	
+	+15V
−	−15V
M	OUT
N	NC

Remarks :

1. All dimensions are in mm.
2. General tolerance ±1.0mm

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 voltage are available.

Standards

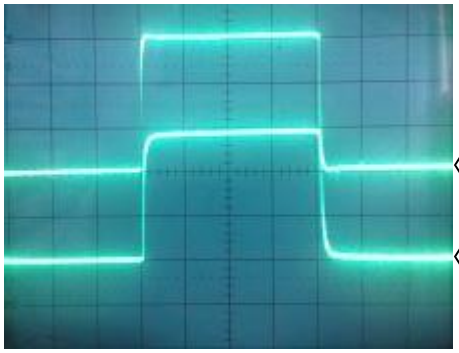
- UL94-V0
- EN60947-1:2004
- IEC60950-1:2001
- EN50178:1998
- SJ 20790-2000

General data

	Value	Unit	Symbol
Operating temperature	-40 to +85	ºC	TA
Storage temperature	-40 to +125	ºC	TS
Mass(approx)	15	g	M

Characteristics chart

Pulse current signal response characteristic



Effects of impulse noise