# **TBC-EH** Series High Precision Closed Loop Mode Hall Effect Current Sensor

TBC-EH 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 can really measure resolution 1000:1 and it is used for precision measurement of DC, AC and pulse current.

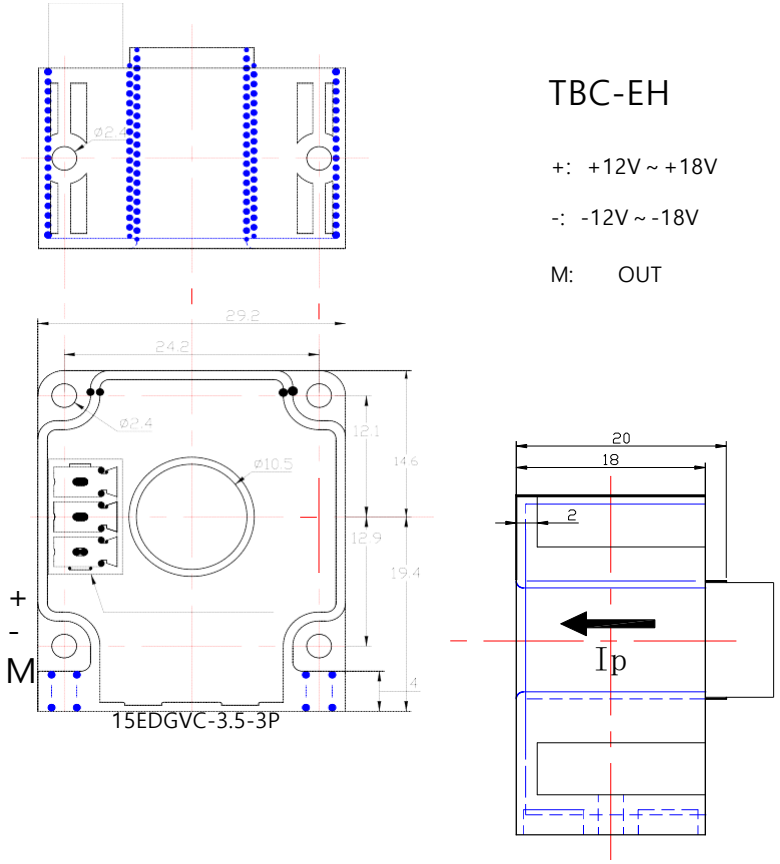
**Electrical data (Ta=25℃±5℃)**

| Type / Parameter | TBC25EH | TBC50EH | TBC100EH | TBC200EH | Unit |
|---|---|---|---|---|---|
| Rated input (Ipn) | ±25 | ±50 | ±100 | ±200 | A |
| Measure range (Ip) | ±75（±18V，190Ω） | ±150（±18V，82Ω） | ±300（±18V，33Ω） | ±600（±18V，10Ω） | A |
| Turns ratio (Np/Ns) | 1:1000 | 1:1000 | 1:1000 | 1:2000 | T |
| Measure resister with ±12V | @±25Amax 390(max) | @±50Amax 190(max) | @±100Amax 90(max) | @±200Amax 82(max) | Ω |
| | @±75Amax 115(max) | @±150Amax 45(max) | @±300Amax 15(max) | @±400Amax 10(max) | Ω |
| Measure resister with ±15V | @±25Amax 510(max) | @±50Amax 250(max) | @100Amax 120(max) | @±200Amax 80(max) | Ω |
| | @±75Amax 150(max) | @±150Amax 68(max) | @±300Amax 25(max) | @600Amax 2.0(max) | Ω |
| Rated output (Isn) | ±25±0.5% | ±50±0.5% | ±100±0.5% | ±100±0.5% | mA |
| Coil resister | 30 | 25 | 20 | 45 | Ω |
| Supply voltage | ±12～±18 | | | | V |
| Power consumption | ≤20+IpX(Np/Ns) | | | | mA |
| Offset current | @Ip=0 | ≤±0.1 | | | mA |
| Offset drift | ≤±0.5（Typ），≤±0.75（Max） | | | | mA |
| Linearity | @Ip=0-±Ipn | ≤0.1 | | | %FS |
| Galvanic isolation | @ 50Hz, AC,1min | 3 | | | KV |
| di/dt | > 100 | | | | A/μ s |
| Response time | @100A/μ S,10%- | < 1.0 | | | us |
| Bandwidth | @ -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 ±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 current are available.

## Standards

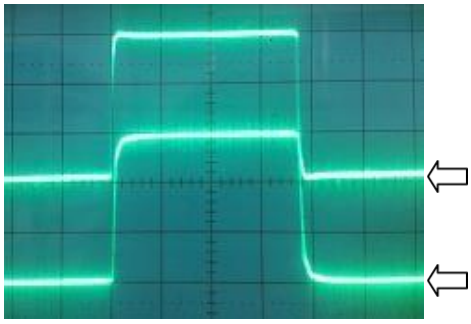
- UL94-V0
- EN60947-1:2004
- IEC60950-1:2001
- EN50178:1998
- SJ 20790-2000

## General data

| | Value | Unit | Symbol |
|---|---|---|---|
| Operating temperature | -40 to +85 | ºC | TA |
| Storage temperature | -40 to +125 | ºC | TS |
| Mass(approx) | 30 | g | M |

## Characteristics chart

Pulse current signal response characteristic




Effects of impulse noise