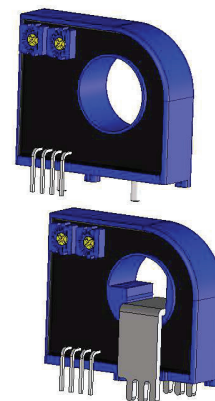


# Current Transducer HTB 50 ... 400-P and HTB 50 ... 100-TP

For the electronic measurement of currents: DC, AC, pulsed..., with galvanic separation between the primary circuit and the secondary circuit.



$$I_{PN} = 50 \dots 400 \text{ A}$$



## Electrical data

Primary nominal RMS current $I_{PN}$ (A)	Primary current measuring range $I_{PM}$ (A)	Type
±50	±150	HTB 50-P, HTB 50-TP <sup>1)</sup>
±100	±300	HTB 100-P, HTB 100-TP <sup>1)</sup>
±150	±450	HTB 150-P
±200	±500	HTB 200-P
±300	±600	HTB 300-P
±400	±600	HTB 400-P

$U_{out}$	Output voltage (Analog) @ $\pm I_{PN}$ , $R_L = 10 \text{ k}\Omega$ , $T_A = 25 \text{ }^\circ\text{C}$	±4	V
$R_{out}$	Output internal resistance	100	$\Omega$
$R_{INS}$	Insulation resistance @ 500 V DC	> 500	M $\Omega$
$R_L$	Load resistance	> 10	k $\Omega$
$U_C$	Supply voltage ( $\pm 5 \%$ ) <sup>1)</sup>	±12 ... 15	V
$I_C$	Current consumption	15	mA

## Features

- Hall effect measuring principle
- Galvanic separation between primary and secondary circuit
- Insulation voltage 2500 V
- Low power consumption
- Wide power supply  $\pm 12 \dots 15 \text{ V}$
- Primary busbar option for 50 A and 100 A version for ease of connection
- Insulating plastic case recognized according to UL 94-V0.

## Accuracy - Dynamic performance data

$\varepsilon$	Error @ $I_{PN}$ , $T_A = 25 \text{ }^\circ\text{C}$ (excluding offset)	< ±1	%
$\varepsilon_L$	Linearity error (0 ... $\pm I_{PN}$ )	< ±1	%
$U_{OE}$	Electrical offset voltage @ $T_A = 25 \text{ }^\circ\text{C}$	< ±30	mV
$U_{OH}$	Hysteresis offset voltage @ $I_p = 0$ , after an excursion of $1 \times I_{PN}$	< ±1	%
$TCU_{OE}$	Temperature coefficient of $U_{OE}$ HTB 50-P or TP	< ±2	mV/K
	HTB 100-P/TP to HTB 400-P	< ±1	mV/K
$TCU_{out}$	Temperature coefficient of $U_{out}$ (% of reading)	< ±0.1	%/K
$t_{D90}$	Delay time to 90 % of the final output value for $I_{PN}$ step	< 3	$\mu\text{s}$
$BW$	Frequency bandwidth (-3 dB) <sup>3)</sup>	DC ... 50	kHz

## General data

$T_A$	Ambient operating temperature	-40 ... +80	$^\circ\text{C}$
$T_{Ast}$	Ambient storage temperature	-40 ... +85	$^\circ\text{C}$
$m$	Mass	< 30 for -P < 36 for -TP	g
	Standards	EN 50178: 1997	
	2 pins of $\varnothing 2 \text{ mm}$ are available on transducer for PCB.		

- Notes:**
- <sup>1)</sup> TP version is equipped with a primary busbar
  - <sup>2)</sup> Operating at  $\pm 12 \text{ V} \leq U_C < \pm 15 \text{ V}$  will reduce the measuring range
  - <sup>3)</sup> Derating is needed to avoid excessive core heating at high frequency.

## Applications

- AC variable speed drives and servo motor drives
- Static converters for DC motor drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Power supplies for welding applications.

## Application domain

- Industrial.

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### Insulation coordination

$U_d$	Rms voltage for AC insulation test, 50 Hz, 1 min	2.5	kV
$U_e$	Partial discharge extinction rms voltage @ 10 pC	> 500	V
$U_{Ni}$	Impulse withstand voltage 1.2/50 $\mu$ s	4	kV
$d_{Cp}$	Creepage distance	> 4.5	mm
$d_{Cl}$	Clearance	> 4.5	mm
$CTI$	Comparative Tracking Index (group IIIa)	275	

### Applications examples

According to EN 50178 and IEC 61010-1 standards and following conditions:

- Over voltage category OV 3
- Pollution degree PD2
- Non-uniform field

	EN 50178	IEC 61010-1
$d_{Cp}, d_{Cl}, U_{Ni}$	Rated insulation voltage	Nominal voltage
Basic insulation	300 V	300 V
Reinforced insulation	150 V	150 V

### Safety

This transducer must be used in limited-energy secondary circuits according to IEC 61010-1.



This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the manufacturer's operating instructions.



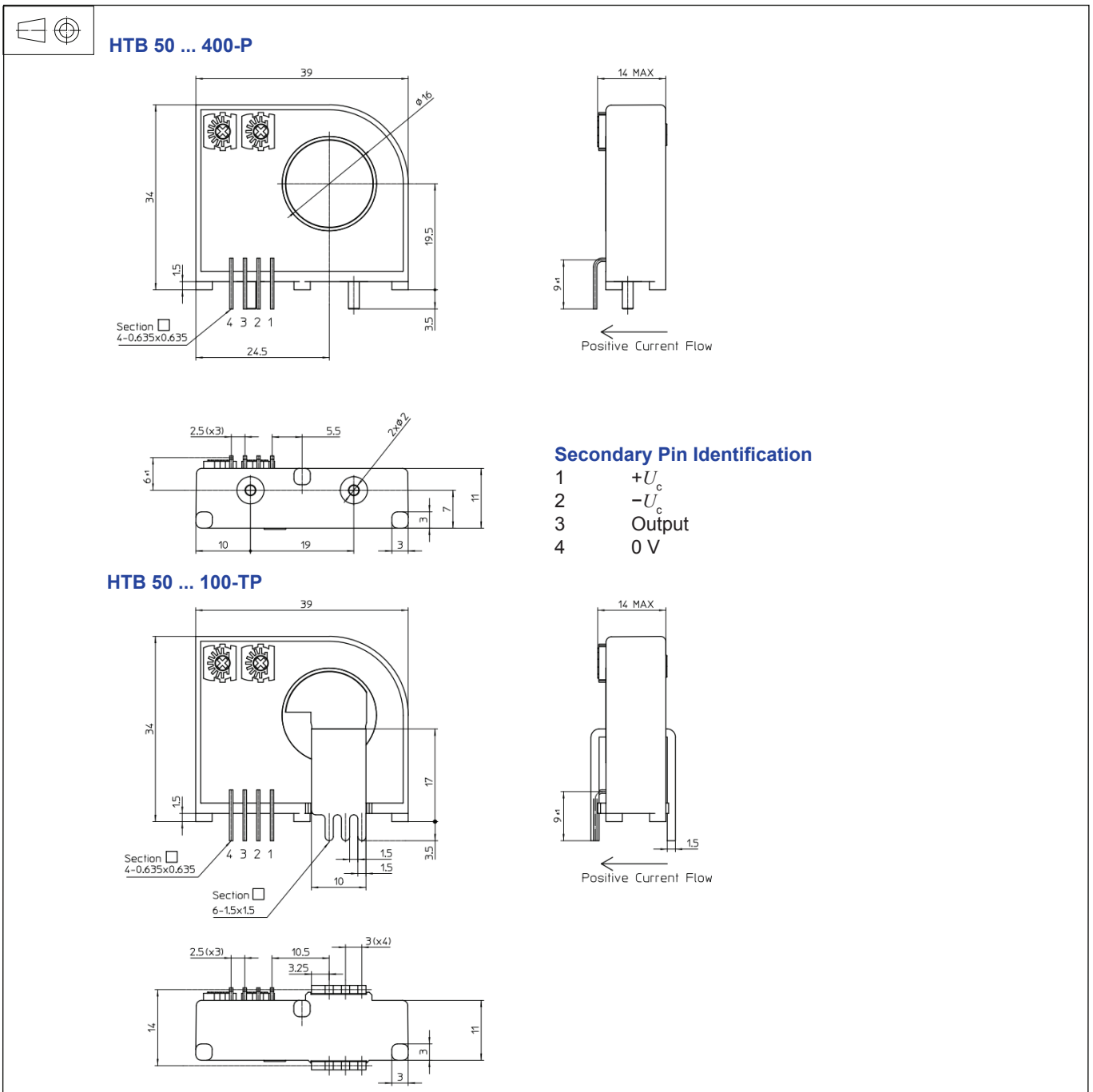
Caution, risk of electrical shock

When operating the transducer, certain parts of the module can carry hazardous voltage (eg. primary busbar, power supply). Ignoring this warning can lead to injury and/or cause serious damage.

This transducer is a build-in device, whose conducting parts must be inaccessible after installation. A protective housing or additional shield could be used.

Main supply must be able to be disconnected.

## Dimensions HTB 50 ... 400-P and HTB 50 ... 100-TP (in mm)



### Mechanical characteristics

- General tolerance ±0.5 mm
- Primary through-hole Ø 16 mm
- Connection of secondary 4 pins  
0.635 mm × 0.635 mm

### Remarks

- $I_s$  is positive when  $I_p$  flows in the direction of the arrow.
- Temperature of the primary conductor should not exceed 100 °C.
- Installation of the transducer must be done unless otherwise specified on the datasheet, according to LEM Transducer Generic Mounting Rules. Please refer to LEM document N°ANE120504 available on our Web site: [Products/Product Documentation](#).
- Dynamic performances ( $di/dt$  and response time) are best with a single bar completely filling the primary hole.