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

I_{PN} = 50 .. 400 A

For the electronic measurement of currents: DC, AC, pulsed..., with a galvanic isolation between the primary circuit (high power) and the secondary circuit (electronic circuit).



Electrical data

Primary nominal current rms I_{PN} (A)	Primary current measuring range I_{PM} (A)	Type
± 50	± 150	**HTB 50-P, HTB 50-TP**[1]
± 100	± 300	**HTB 100-P, HTB 100-TP**[1]
± 150	± 450	**HTB 150-P**
± 200	± 500	**HTB 200-P**
± 300	± 600	**HTB 300-P**
± 400	± 600	**HTB 400-P**

V_C	Supply voltage (± 5 %)[2]	± 12 ..15	V
I_C	Current consumption	± 15	mA
V_d	Rms voltage for AC isolation test, 50 Hz, 1 min	2.5	kV
R_{IS}	Isolation resistance @ 500 VDC	> 500	MΩ
V_{OUT}	Output voltage (Analog)@ ± I_{PN}, R_L = 10kΩ, T_A = 25°C	± 4	V
R_{OUT}	Output internal resistance	100	Ω
R_L	Load resistance	> 10	kΩ

Accuracy - Dynamic performance data

X	Accuracy @ I_{PN}, T_A = 25°C (excluding offset)	< ± 1	% of I_{PN}
ε_L	Linearity error (0 .. ± I_{PN})	< ± 1	% of I_{PN}
V_{OE}	Electrical offset voltage @ T_A = 25°C	< ± 30	mV
V_{OH}	Hysteresis offset voltage @ I_P = 0; after an excursion of 1 x I_{PN}	< ± 1	% of I_{PN}
TCV_{OE}	Temperature coefficient of V_{OE} HTB 50-(T)P	< ± 2.0	mV/K
	HTB 100-(T)P .. 400-P	< ± 1.0	mV/K
TCV_{OUT}	Temperature coefficient of V_{OUT} (% of reading)	< ± 0.1	%/K
t_r	Response time to 90% of I_{PN} step	< 3	µs
BW	Frequency bandwidth (- 3 dB)[3]	DC .. 50	kHz

General data

T_A	Ambient operating temperature	- 40 .. + 80	°C
T_S	Ambient storage temperature	- 40 .. + 85	°C
m	Mass	< 30 (< 36)	g
	Standards	EN 50178 :	1997
	2 pins of Ø2mm diameter are available on transducer for PCB soldering		

Notes : [1] -TP version is equipped with a primary bus bar.
[2] Operating at ±12V ≤ Vc < ±15V will reduce the measuring range.
[3] Derating is needed to avoid excessive core heating at high frequency.

Features

- Hall effect measuring principle
- Galvanic isolation between primary and secondary circuit
- Isolation voltage 2500 V
- Low power consumption
- Wide power supply: ± 12 ..15 V
- Primary bus bar option for 50 A and 100 A version for ease of connection

Advantages

- Small size and space saving
- Only one design for wide current ratings range
- High immunity to external interference.

Applications

- AC variable speed 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

LEM reserves the right to carry out modifications on its transducers, in order to improve them, without prior notice.

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

Isolation characteristics

$\mathbf{V_d}$	Rms voltage for AC isolation test, 50 Hz, 1 min	2.5	kV
$\mathbf{V_e}$	Partial discharge extinction voltage rms @ 10pC	> 500	V
$\mathbf{V_w}$	Impulse withstand voltage 1.2/50 µs	4	kV

dCp	Creepage distance	> 4.5	mm
dCl	Clearance distance	> 4.5	mm
CTI	Comparative tracking index (Group IIIa)	275	

Application examples

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

- Over voltage category III
- Pollution degree 2
- Heterogeneous field

	EN 50178	IEC 61010-1
Single isolation	300 V	300 V
Reinforced isolation	150 V	150 V

Safety



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.



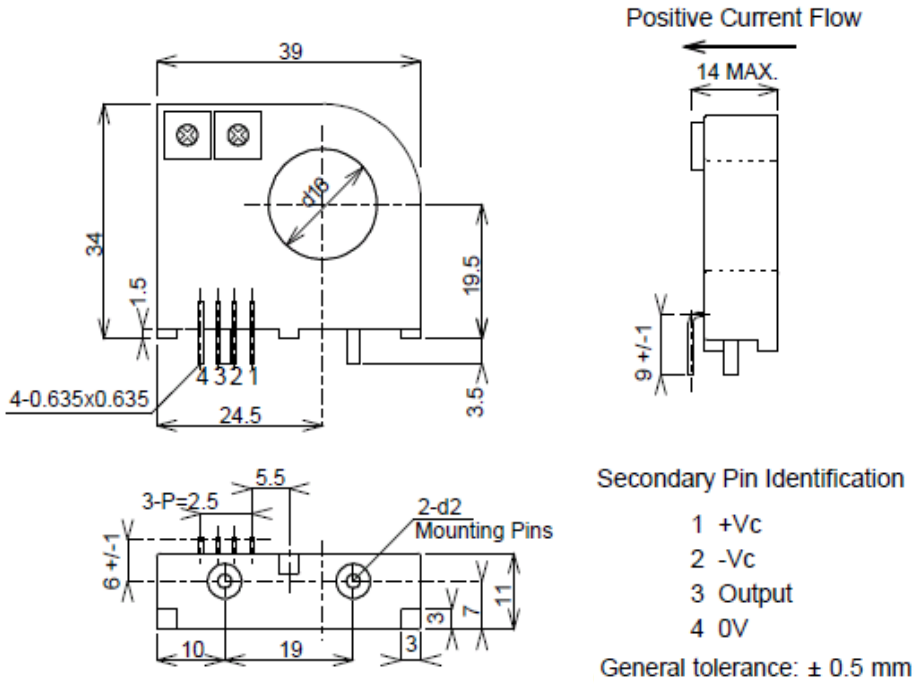
Caution, risk of electrical shock

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 built-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.

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Dimensions HTB 50 .. 400-P and HTB 50 .. 100-TP (in mm. 1 mm = 0.0394 inch)

HTB 50..400-P

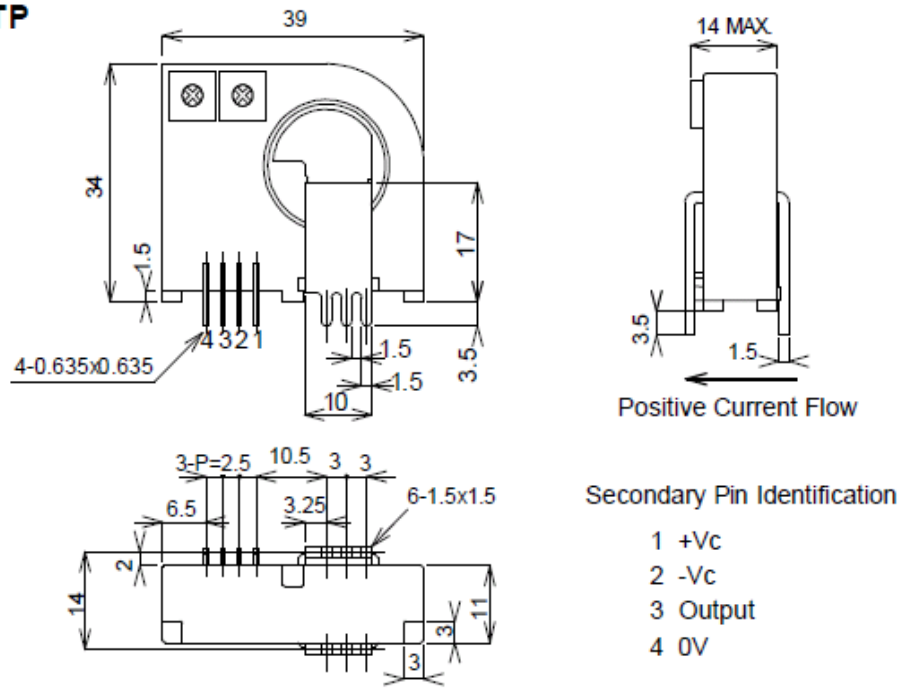


Secondary Pin Identification

1 +Vc
2 -Vc
3 Output
4 0V

General tolerance: ± 0.5 mm

HTB 50..100-TP



Secondary Pin Identification

1 +Vc
2 -Vc
3 Output
4 0V

General tolerance: ± 0.5 mm

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