

## Current Transducers HAZ 4000..20000-SB

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

$$I_{PN} = 4000..20000A$$

$$V_{OUT} = \pm 10 V$$



### Electrical data

	Primary nominal DC current or AC peak $I_{PN}$ (A)	Primary current measuring range $I_{PM}$ (A)	Type
	4000	$\pm 4000$	<b>HAZ 4000-SB</b>
	6000	$\pm 6000$	<b>HAZ 6000-SB</b>
	10000	$\pm 10000$	<b>HAZ 10000-SB</b>
	12000	$\pm 12000$	<b>HAZ 12000-SB</b>
	14000	$\pm 14000$	<b>HAZ 14000-SB</b>
	20000	$\pm 20000$	<b>HAZ 20000-SB</b>

$V_C$	Supply voltage ( $\pm 5\%$ )	$\pm 15$	V
$I_C$	Current consumption	$\pm 30$	mA
$I_P$	Overload capability	30,000	A
$R_{IS}$	Isolation resistance @ 500 VDC	$> 1,000$	M $\Omega$
$V_{OUT}$	Output voltage (Analog) @ $\pm I_{PN}$ , $R_L = 10k\Omega$ , $T_A = 25^\circ C$	$\pm 10$	V
$R_{OUT}$	Output internal resistance	approx. 100	$\Omega$
$R_L$	Load resistance	$> 10$	k $\Omega$

### Accuracy - Dynamic performance data

$X$	Accuracy @ $I_{PN}$ , $T_A = 25^\circ C$ (excluding offset)	$< \pm 1$	%
$\epsilon_L$	Linearity error <sup>1)</sup> ( $0 \dots \pm I_{PN}$ )	$< \pm 0.5$	% of $I_{PN}$
$V_{CE}$	Electrical offset voltage, $T_A = 25^\circ C$	$< \pm 50$	mV
$V_{OH}$	Hysteresis offset voltage @ $I_P = 0$ after an excursion of $1 \times I_{PN}$	$< \pm 12.5$	mV
$TCV_{CE}$	Temperature coefficient of $V_{OE}$	$< \pm 1$	mV/K
$TCV_{OUT}$	Temperature coefficient of $V_{OUT}$ (% of reading)	$< \pm 0.05$	%/K
$t_r$	Response time to 90% of $I_{PN}$ step	$< 10$	$\mu s$
$t_{ra}$	Response time @ 10% of $I_{PN}$	$< 2$	$\mu s$
$di/dt$	di/dt accurately followed	$> 50$	A/ $\mu s$
<b>BW</b>	Frequency bandwidth $\pm 3$ dB, small signal <sup>2)</sup>	DC .. 3	kHz

### General data

$T_A$	Ambient operating temperature	- 25 .. + 85	$^\circ C$
$T_S$	Ambient storage temperature	- 30 .. + 90	$^\circ C$
	Housing PBT 30% glassfiber		
$m$	Mass	approx. 6	kg
	Standards <sup>3)</sup>	EN 50178: 1997, EN 50155: 1995	

**Note:** <sup>1)</sup> Linearity data exclude the electrical offset.

<sup>2)</sup> To avoid excessive core heating

<sup>3)</sup> Please consult characterisation report for more technical details and application advice.

### Features

- Hall effect measuring principle
- Galvanic isolation between primary and secondary circuit
- Isolation voltage 17kV Rms /50 Hz /1 min
- Low power consumption
- Package in PBT meeting UL 94-V0
- Instantaneous voltage output

### Advantages

- Easy installation
- Small size and space savings
- Only one design for wide current ratings range
- High immunity against external interference

### Applications

- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Power supplies for welding and telecom applications.

### Application domain

- Industrial
- Traction

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### Isolation characteristics

$V_{de}$	Rms voltage for AC isolation test, 50 Hz, 1 min	17	kV
$V_e$	Partial discharge extinction voltage rms @ 10pC	>3.75	kV
$\hat{V}_w$	Impulse withstand voltage 1.2/50 $\mu$ s	32	kV
<b>dCp</b>	Creepage distance	>45	mm
<b>dCI</b>	Clearance distance	>45	mm
<b>CTI</b>	Comparative Tracking Index (group I)	>600	V

### 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
<b>dCp, dCI, <math>\hat{V}_w</math></b>	Rated insulation voltage	Nominal voltage
Basic insulation	8000V	9000V
Reinforced insulation	3000V	4000V

### 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).

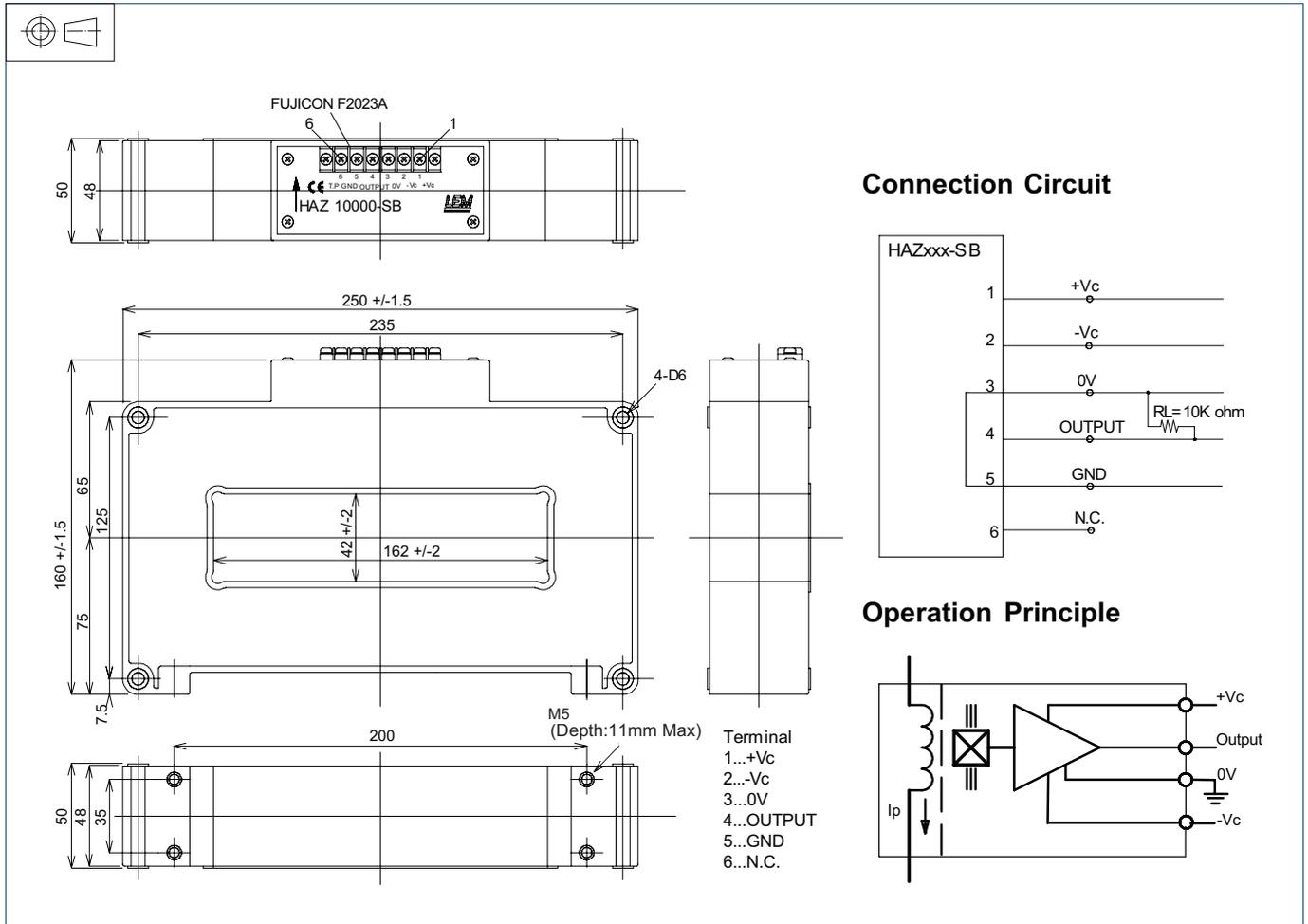
Ignoring this warning can lead to injury and/or cause serious damage.

This transducer is a 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 HAZ 4000..20000-SB.... (in mm. 1 mm = 0.0394 inch)



### Mechanical characteristics

- General tolerance  $\pm 0.5$  mm
- Aperture for primary conductor 162 mm x 42 mm ( $\pm 2$  mm)
- Transducer fastening 4 x M5 (not supplied)
- Recommended fastening torque < 5 Nm
- Connection of secondary Fujicon F2023A (6 terminals)

### Remarks

- Temperature of the primary conductor should not exceed 120°C.
- $V_{OUT}$  is positive when  $I_p$  flows in the direction of the arrow.