Current Transducer LT 4000-S/SP34

I_{PN} = 4000 A

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

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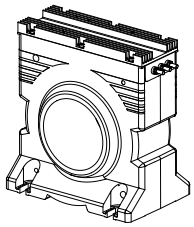

Electrical data

I_{PN}	Primary nominal current rms		4000	A
I_{PM}	Primary current, measuring range		0 .. ± 6000	A
R_M	Measuring resistance		$R_{M\,min}$ $R_{M\,max}$	
	with ± 24 V	@ ± 4000 A $_{max}$	0 10	Ω
		@ ± 6000 A $_{max}$	0 2	Ω
I_{SN}	Secondary nominal current rms		800	mA
K_N	Conversion ratio		1 : 5000	
V_C	Supply voltage (± 5 %)		± 24	V
I_C	Current consumption		< 26 + I_S	mA

Accuracy - Dynamic performance data

X_G	Overall accuracy [1] @ I_{PN}, T_A = 25°C		± 0.5		%
ε_L	Linearity error		< 0.1		%
			Typ	Max	
I_O	Offset current @ I_P = 0, T_A = 25°C			± 0.8	mA
I_{OT}	Temperature variation of I_O	- 40°C .. + 70°C	± 0.6	± 1.0	mA
t_r	Response time [2] to 90 % of I_{PN} step		< 1		µs
di/dt	di/dt accurately followed		> 50		A/µs
BW	Frequency bandwidth (- 1 dB)		DC .. 100		kHz

General data

T_A	Ambient operating temperature	- 40 .. + 70	°C
T_S	Ambient storage temperature	- 50 .. + 85	°C
R_S	Secondary coil resistance @ T_A = 70°C	15	Ω
m	Mass	6	kg
	Standards	EN 50155: (2001) EN 50178: (1997)	

Notes: [1] The overall accuracy is ± 1.2 % at ambient temperature -50°C, including a maximum offset drift 2.4 mA

[2] With a di/dt of 100 A/µs.

Features

- Closed loop (compensated) current transducer using the Hall effect
- Isolated plastic case recognized according to UL 94-V0.

Special feature

- V_d = 12 kV.

Advantages

- Excellent accuracy
- Very good linearity
- Low temperature drift
- Optimized response time
- Wide frequency bandwidth
- No insertion losses
- High immunity to external interference
- Current overload capability.

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.

Applications domain

- Industrial
- Traction.

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Isolation characteristics

V_d	Rms voltage for AC insulation test, 50 Hz, 1 min	12	kV
$\hat{V}_W$	Impulse withstand voltage 1.2/50 µs	48	kV
		Min	
dCp	Creepage distance	75.8	mm
dCl	Clearance	69.8	mm
CTI	Comparative Tracking Index (group II)	500	

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
dCp, dCl, $\hat{V}_W$	Rated insulation voltage	Nominal voltage
Basic insulation	6000 V	6000 V
Reinforced insulation	3000 V	5000 V

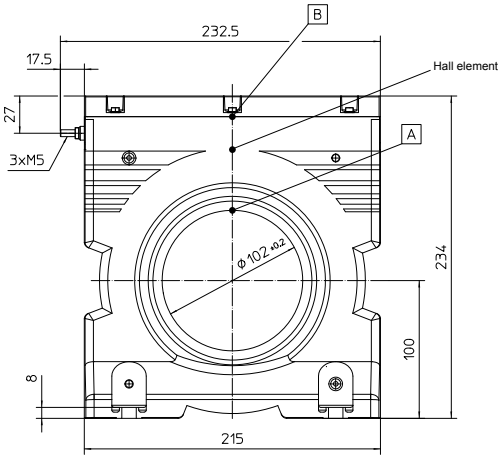
Safety

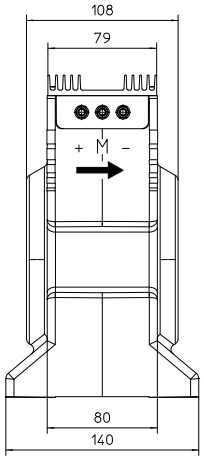
This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the manufacturer's operating instructions.

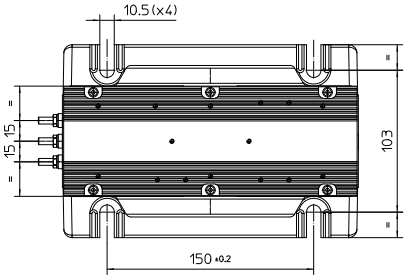
Caution, risk of electrical shock

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 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 LT 4000-S/SP34 (in mm)

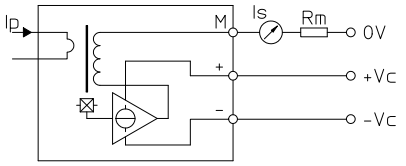






	dCl (mm)	dCp (mm)
A-B	69.8	75.8

Connection



Mechanical characteristics

- General tolerance ± 1 mm
- Transducer fastening 4 slots Ø 10.5 mm
  4 M10 steel screws
  Recommended fastening torque 11.5 Nm
- Primary through-hole Ø 102 mm
- Connection of secondary M5 threaded studs
  Recommended fastening torque 2.2 Nm

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.
- Dynamic performances (di/dt and response time) are best with a single bar completely filling the primary hole.