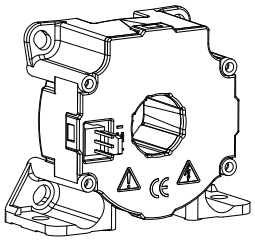
Current Transducer LF 205-S/SP3

I_{PN} = 100 A

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

16144



Electrical data

I_{PN}	Primary nominal current rms			100			A
I_{PM}	Primary current, measuring range			0 .. ± 200			A
R_M	Measuring resistance @		T_A = 70°C		T_A = 85°C		
			$R_{M\,min}$	$R_{M\,max}$	$R_{M\,min}$	$R_{M\,max}$	
	with ± 12 V	@ ± 100 A $_{max}$	0	95	15	94	Ω
		@ ± 200 A $_{max}$	0	40	15	39	Ω
	with ± 15 V	@ ± 100 A $_{max}$	16	123	47	122	Ω
		@ ± 200 A $_{max}$	16	55	47	54	Ω
I_{SN}	Secondary nominal current rms			100			mA
K_N	Conversion ratio			1 : 1000			
V_C	Supply voltage (+ 5 %)			± 12 .. 15			V
I_C	Current consumption @ ± 15 V			17 + I_S			mA

Accuracy - Dynamic performance data

X_G	Overall accuracy @ 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			± 0.2	mA
I_{OM}	Magnetic offset current [1] @ I_P = 0 and specified R_M, after an overload of 3 x I_{PN}			± 0.1	mA
I_{OT}	Temperature variation of I_O	- 40°C .. + 85°C	± 0.25	± 0.65	mA
t_{ra}	Reaction time to 10 % of I_{PN} step		< 500		ns
t_r	Response time [2] to 90 % of I_{PN} step		< 1		µs
di/dt	di/dt accurately followed		> 100		A/µs
BW	Frequency bandwidth (- 3 dB)		DC .. 100		kHz

General data

T_A	Ambient operating temperature		- 40 .. + 85		°C
T_S	Ambient storage temperature		- 40 .. + 90		°C
R_S	Secondary coil resistance	@ T_A = 70°C	10		Ω
		@ T_A = 85°C	11		Ω
m	Mass		78		g
	Standards		EN 50178: 1997		

Notes: [1] The result of the coercive force (Hc) of the magnetic circuit
[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 features

- I_{PN} = 100 A
- I_{PM} = 0 .. ± 200 A
- K_N = 1 : 1000.

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.

Application domain

- Industrial.

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

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Isolation characteristics

V_d	Rms voltage for AC insulation test, 50/60 Hz, 1 min	3.5	kV
$\hat{V}_w$	Impulse withstand voltage 1.2/50 µs	8.8	kV
V_e	Partial discharge extinction voltage rms @ 10 pC	> 2	kV
		Min	
dCp	Creepage distance	11	mm
dCl	Clearance	10.2	mm
CTI	Comparative Tracking Index (group IIIa)	175	

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	500 V	500 V
Reinforced insulation	250 V	250 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.

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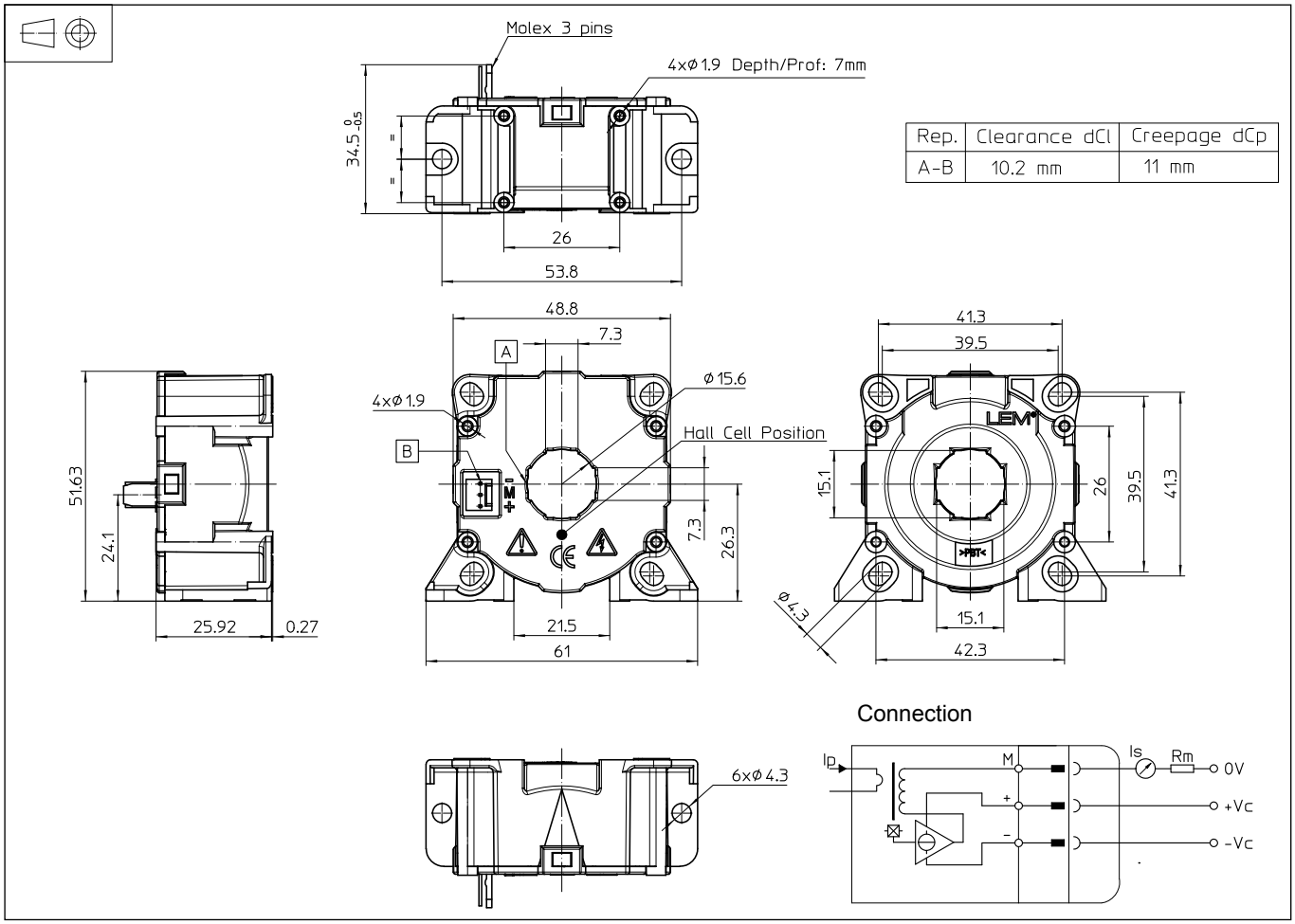
Dimensions LF 205-S/SP3 (in mm)



Rep.	Clearance dCl	Creepage dCp
A-B	10.2 mm	11 mm

Mechanical characteristics

- General tolerance ± 0.2 mm
- Transducer fastening
  Vertical position 2 holes Ø 4.3 mm
  2 steel screws M4
  Recommended fastening torque 3.2 Nm
  Or 4 holes Ø 1.9 mm
  depth: 7 mm
  4 screws PTKA 25
  length: 6 mm
- Transducer fastening
  Horizontal position 4 holes Ø 4.3 mm
  4 steel screws M4
  Recommended fastening torque 3.2 Nm
  Or 4 holes Ø 1.9 mm
  4 screws PTKA 25
  Recommended fastening torque 0.7 Nm
- Primary through-hole Ø 15.5 mm
- Connection of secondary Molex 6410
  3 Tin plated pins

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.