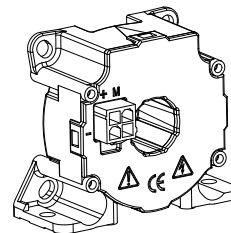


Current Transducer LF 205-S/SP5

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



$$I_{PN} = 100 \text{ A}$$



Features

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

Special feature

- $I_{PN} = 100 \text{ A}$
- $I_{PM} = 0 \dots \pm 200 \text{ A}$
- $N_P/N_S = 1 : 1000$
- Connection to secondary circuit on MOLEX MINIFIT Jr 5566 with gold-plated pins or equivalent.

Advantages

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

Applications

- Single or three phase inverter
- Propulsion and braking chopper
- Propulsion converter
- Auxiliary converter
- Battery charger.

Application domain

- Railway (fixed installations and onboard).

Electrical data

I_{PN}	Primary nominal RMS current	100	A
I_{PM}	Primary current, measuring range	0 ... ± 200	A
R_M	Measuring resistance @	$T_A = 70^\circ\text{C}$ $T_A = 85^\circ\text{C}$ $R_{M \min}$ $R_{M \max}$ $R_{M \min}$ $R_{M \max}$	
	with $\pm 12 \text{ V}$	@ $\pm 100 \text{ A}_{\max}$	0 95 15 94 Ω
		@ $\pm 150 \text{ A}_{\max}$	0 59 15 58 Ω
		@ $\pm 200 \text{ A}_{\max}$	0 40 15 39 Ω
	with $\pm 15 \text{ V}$	@ $\pm 100 \text{ A}_{\max}$	16 123 47 122 Ω
		@ $\pm 150 \text{ A}_{\max}$	16 78 47 77 Ω
		@ $\pm 200 \text{ A}_{\max}$	16 55 47 54 Ω
I_{SN}	Secondary nominal RMS current	100	mA
N_P/N_S	Turns ratio	1 : 1000	
U_C	Supply voltage (+5 %)	$\pm 12 \dots 15$	V
I_C	Current consumption @ $\pm 15 \text{ V}$	$17 + I_S$	mA

Accuracy - Dynamic performance data

ε_{tot}	Total error @ I_{PN} , $T_A = 25^\circ\text{C}$	± 0.6	%
ε_L	Linearity error	< 0.1	%
I_{OE}	Electrical offset current @ $I_P = 0$, $T_A = 25^\circ\text{C}$	Typ Max	
I_{OM}	Magnetic offset current ¹⁾ @ $I_P = 0$ and specified R_M , after an overload of $3 \times I_{PN}$	± 0.2	mA
I_{OT}	Temperature variation of I_O $-40^\circ\text{C} \dots +85^\circ\text{C}$	± 0.25 ± 0.65	mA
t_{D10}	Delay time to 10 % of the final output value for I_{PN} step	< 500	ns
t_{D90}	Delay time to 90 % of the final output value for I_{PN} step ²⁾	< 1	μs
BW	Frequency bandwidth (-3 dB)	DC ... 100	kHz

General data

T_A	Ambient operating temperature	$-40 \dots +85$	$^\circ\text{C}$
$T_{A \text{ st}}$	Ambient storage temperature	$-40 \dots +90$	$^\circ\text{C}$
R_S	Secondary coil resistance	@ $T_A = 70^\circ\text{C}$ @ $T_A = 85^\circ\text{C}$	10 11 Ω
m	Mass	78	g
	Standard	EN 50155: 2017 ³⁾ EN 50121-3-2: 2016	

Notes: ¹⁾ The result of the coercive force of the magnetic circuit

²⁾ For a $di/dt = 100 \text{ A}/\mu\text{s}$

³⁾ Additional information available on request.

Current Transducer LF 205-S/SP5

Insulation coordination

U_d	RMS voltage for AC insulation test, 50/60 Hz, 1 min	3.5	kV
U_{Ni}	Impulse withstand voltage 1.2/50 μ s	8.8	kV
U_t	Partial discharge RMS test voltage ($q_m < 10$ pC)	> 2	kV
		Min	
d_{cp}	Creepage distance	9.5	mm
d_{cl}	Clearance	9.5	mm
CTI	Comparative Tracking Index (group IIIa)	175	

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).

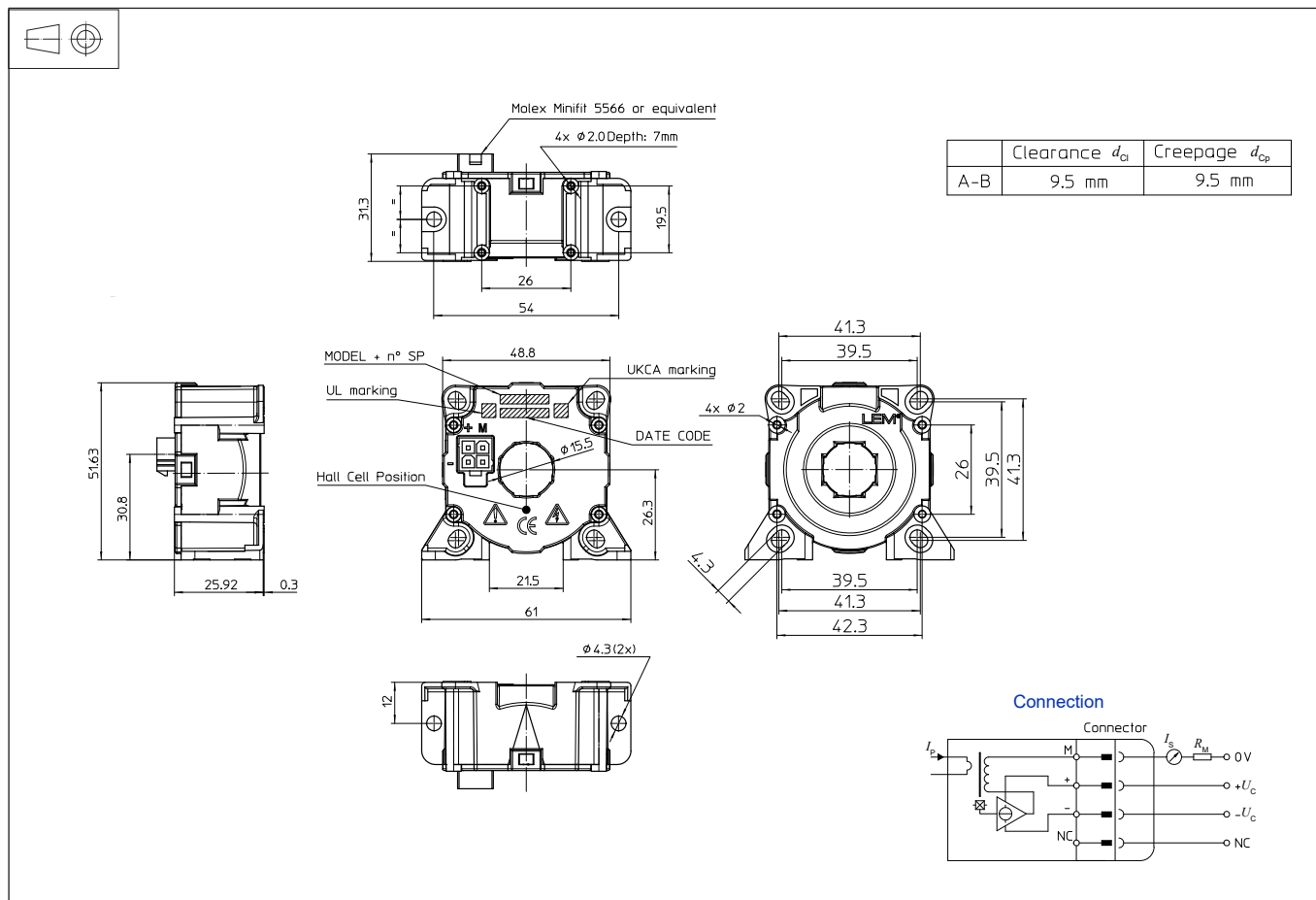
Ignoring this warning can lead to injury and/or cause serious damage.

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 LF 205-S/SP5 (in mm)



Mechanical characteristics

- General tolerance ± 0.2 mm
- Transducer fastening
 - Vertical position
 - 2 holes $\phi 4.3$ mm
 - 2 M4 steel screws
 - Recommended fastening torque 1.5 N·m
 - Or
 - 4 holes $\phi 2.0$ mm
 - depth: 7 mm
 - 4 screws PTKA 25
 - length: 6 mm
 - Recommended fastening torque 0.7 N·m
- Transducer fastening
 - Horizontal position
 - 4 holes $\phi 4.3$ mm
 - 4 M4 steel screws
 - Recommended fastening torque 1.5 N·m
 - Or
 - 4 holes $\phi 2.0$ mm
 - 4 screws PTKA 25
 - min length: 11.5 mm with thickness of fixed plate
 - Recommended fastening torque 0.7 N·m
- Primary through-hole $\phi 15.5$ mm
- Connection of secondary Molex Minifit 5566 with gold-plated pins or equivalent

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: <https://www.lem.com/en/file/3137/download>.
- Dynamic performances (di/dt and delay time) are best with a single bar completely filling the primary hole.

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