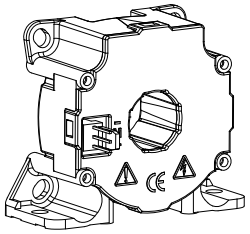
Current Transducer LF 205-S

I_{PN} = 200 A

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



Electrical data

				T_A = 70 °C		T_A = 85 °C		
				$R_{M\,min}$	$R_{M\,max}$	$R_{M\,min}$	$R_{M\,max}$	
I_{PN}	Primary nominal rms current			200				A
I_{PM}	Primary current, measuring range			0 .. ± 420				A
R_M	Measuring resistance @							
	with ± 12 V	@ ± 200 A_{max}		0	71	0	69	Ω
		@ ± 420 A_{max}		0	14	0	12	Ω
	with ± 15 V	@ ± 200 A_{max}		0	100	23	98	Ω
		@ ± 420 A_{max}		0	28	23	26	Ω
I_{SN}	Secondary nominal rms current			100				mA
K_N	Conversion ratio			1 : 2000				
U_C	Supply voltage (+ 5 %)			± 12 .. 15				V
I_C	Current consumption @ ± 15 V			17 + I_S				mA

Accuracy - Dynamic performance data

			Typ	Max	
X_G	Overall accuracy @ I_{PN}, T_A = 25 °C		± 0.5		%
ε_L	Linearity error		< 0.1		%
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	± 0.12	± 0.4	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
d*i*/d*t*	d*i*/d*t* 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	33	Ω
		@ T_A = 85 °C	35	Ω
m	Mass		78	g
	Standard		EN 50178: 1997	

Notes: [1] The result of the coercive force (Hc) of the magnetic circuit
[2] With a d*i*/d*t* of 100 A/µs.

Features

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

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

Current Transducer LF 205-S

Isolation characteristics

U_d	Rms voltage for AC insulation test, 50/60 Hz, 1 min	3.5	kV
$\hat{U}_W$	Impulse withstand voltage 1.2/50 µs	8.8	kV
U_e	Partial discharge extinction voltage rms @ 10 pC	> 2	kV
		Min	
d_{Cp}	Creepage distance	11	mm
d_{Cl}	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
d_{Cp}, d_{Cl}, $\hat{U}_W$	Rated insulation voltage	Nominal voltage
Basic insulation	500 V	500 V
Reinforced insulation	250 V	250 V

Safety

This transducer must be used in limited-energy secondary circuits according to IEC 61010-1.



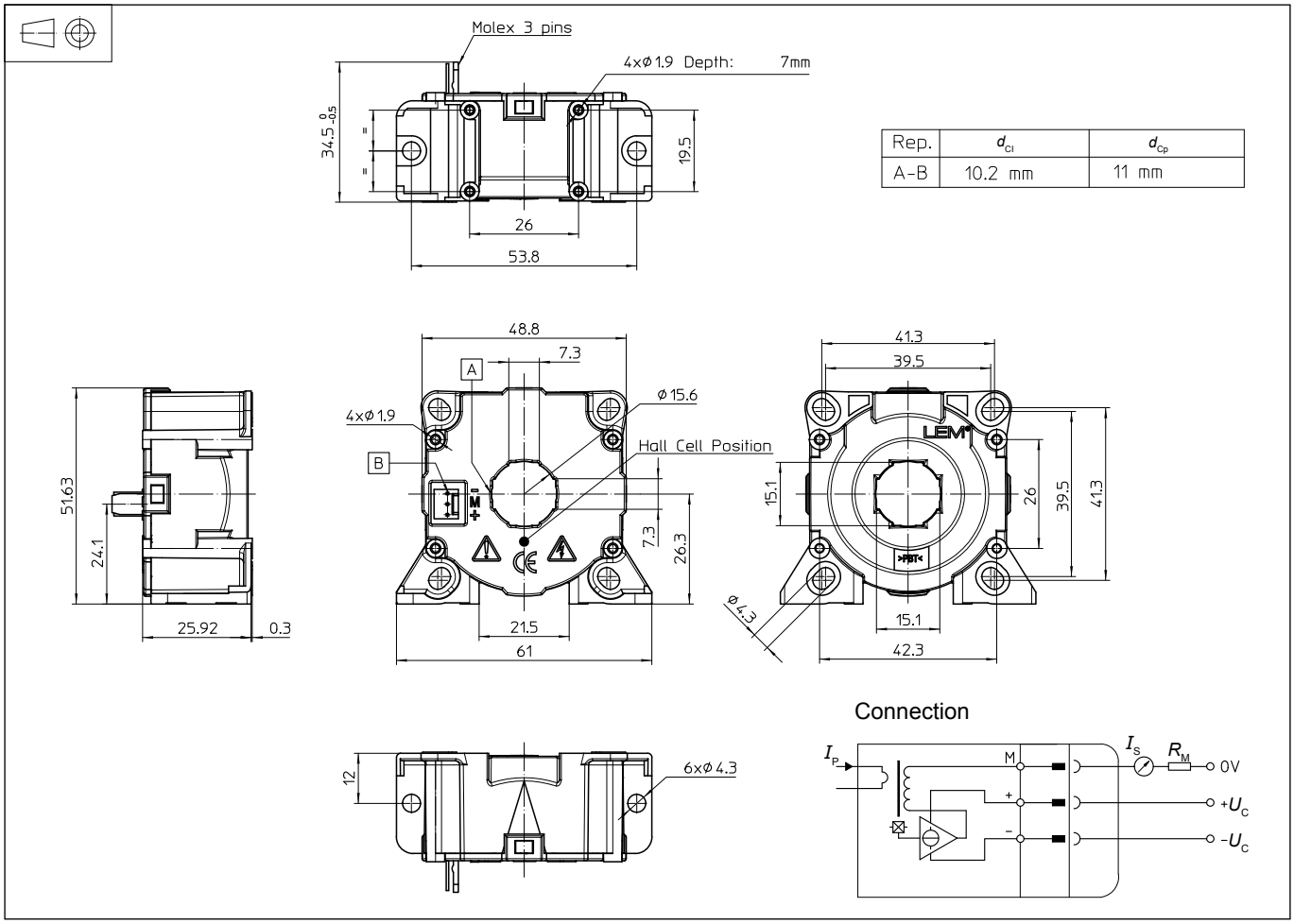
This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the manufacturer's operating instructions.



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 (in 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 2.3 N·m
  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 N·m
  Or 4 holes Ø 1.9 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 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 (d*i*/d*t* and response time) are best with a single bar completely filling the primary hole.
- This is a standard model. For different versions (supply voltages, turns ratios, unidirectional measurements...), please contact us.

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