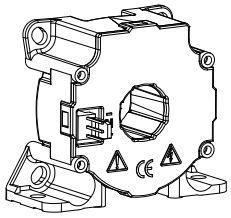
# Current Transducer LF 205-S

# $I_{PN}$ = 200 A

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

16135



## Electrical data

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $I_{PN}$ | Primary nominal current rms | | | 200 | | | A |
| $I_{PM}$ | Primary current, measuring range | | | 0 .. ± 420 | | | 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 | @ ± 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 current rms | | | 100 | | | mA |
| $K_N$ | Conversion ratio | | | 1 : 2000 | | | |
| $V_C$ | 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 | | % |
| $\varepsilon_L$ | 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 | ± 0.12 | ± 0.4 | mA |
| $t_{ra}$ | Reaction time @ 10 % of $I_{PN}$ | | < 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 | 33 | Ω |
| | | @ $T_A$ = 85°C | 35 | 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.

## 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.

## Current Transducer LF 205-S

## Isolation characteristics

| | | | |
|---|---|---|---|
| $V_d$ | Rms voltage for AC isolation 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 distance | 10.2 | mm |
| **CTI** | Comparative Tracking Index (group III a) | 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 |
| Single insulation | 500 V | 500 V |
| Reinforced insulation | 250 V | 250 V |

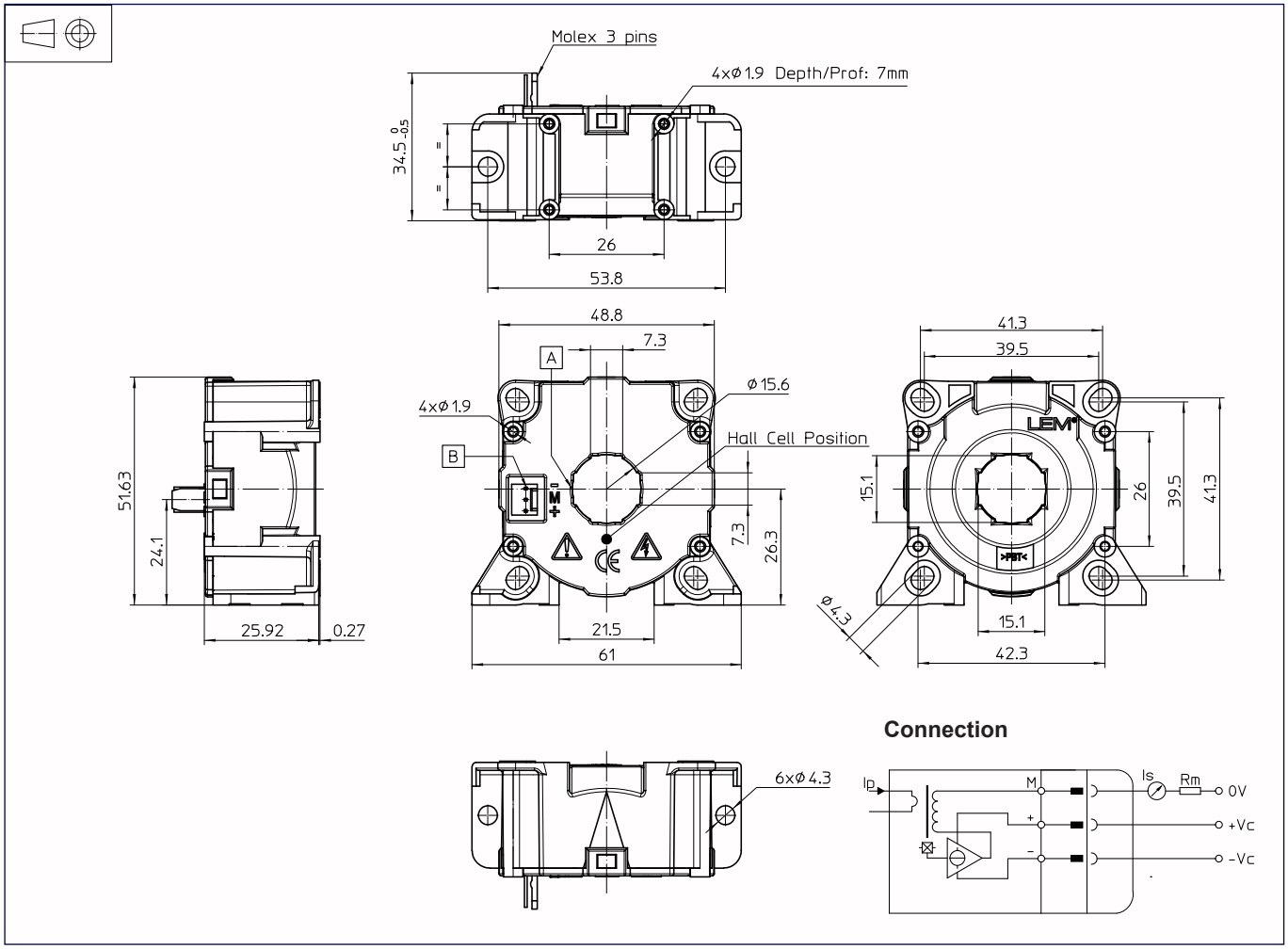
## Safety

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.

## 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 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.
- This is a standard model. For different version (supply voltages, turns ratios, unidirectional measurements...), please contact us.