

Current Transducer LF 2005-S/SP3

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

$$I_{PN} = 2000 \text{ A}$$



16207

Electrical data

| | | | | | |
|----------|----------------------------------|------------------------------------|-------------------------------|----------|----------|
| I_{PN} | Primary nominal current rms | 2000 | A | | |
| I_{PM} | Primary current, measuring range | 0 .. ± 3500 | A | | |
| I_P | Overload capability @ 10 ms | 20 | kA | | |
| R_M | Measuring resistance | $R_{M \min}$ | $R_{M \max}$ | | |
| | | with $\pm 15 \text{ V}$ | @ $\pm 2000 \text{ A}_{\max}$ | 0 | 7 |
| | | @ $\pm 2200 \text{ A}_{\max}$ | 0 | 4 | Ω |
| | with $\pm 24 \text{ V}$ | @ $\pm 2000 \text{ A}_{\max}$ | 0 | 27.5 | Ω |
| | @ $\pm 3000 \text{ A}_{\max}$ | 0 | 10 | Ω | |
| I_{SN} | Secondary nominal current rms | 400 | mA | | |
| K_N | Conversion ratio | 1 : 5000 | | | |
| V_C | Supply voltage | $\pm 15 \dots 24$ | V | | |
| I_C | Current consumption | 33 (@ $\pm 24 \text{ V}$) + I_S | mA | | |

Accuracy - Dynamic performance data

| | | | | |
|-----------------|--|-----------|------------------|----|
| X | Accuracy @ I_{PN} , $T_A = 25^\circ\text{C}$ | ± 0.3 | % | |
| ε_L | Linearity error | < 0.1 | % | |
| I_O | Offset current @ $I_p = 0$, $T_A = 25^\circ\text{C}$ | Typ | Max | |
| I_{OM} | Magnetic offset current @ $I_p = 0$ and specified R_M , after an overload of $3 \times I_{PN}$ | | ± 0.5 | mA |
| | | | ± 0.2 | mA |
| I_{OT} | Temperature variation of I_O - $40^\circ\text{C} \dots +70^\circ\text{C}$ | ± 0.2 | ± 0.3 | mA |
| t_r | Response time ¹⁾ to 90 % of I_{PN} step | < 1 | μs | |
| di/dt | di/dt accurately followed | > 100 | A/ μs | |
| BW | Frequency bandwidth (-1 dB) | DC .. 150 | kHz | |

General data

| | | | | |
|-------|-------------------------------|----------------------------|------------------|----------|
| T_A | Ambient operating temperature | - 40 .. + 70 | $^\circ\text{C}$ | |
| T_S | Ambient storage temperature | - 50 .. + 85 | $^\circ\text{C}$ | |
| R_S | Secondary coil resistance | @ $T_A = 70^\circ\text{C}$ | 24 | Ω |
| m | Mass | 1.5 | kg | |
| | Standard | EN 50155: 1995 | | |

Features

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

Special features

- $V_d = 10 \text{ kV}$
Test with piece ABB GVT 7 209 019
- $T_A = -40^\circ\text{C} \dots +70^\circ\text{C}$
- Connection to secondary circuit on AMP CPC 11/4.

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

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

Application Domain

- Traction.

Note: ¹⁾ With a di/dt of 100 A/ μs .

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Isolation characteristics

| | | | |
|----------------------|--|-------------------|----|
| V_d | Rms voltage for AC insulation test, 50 Hz, 1 min | 10 ¹⁾ | kV |
| | | 0.5 ²⁾ | kV |
| V_e | Partial discharge extinction voltage rms @ 10 pC | ≥ 4.8 | kV |
| | | Min | |
| dCp | Creepage distance | 81.7 | mm |
| dCI | Clearance | 59.8 | mm |
| CTI | Comparative Tracking Index (group I) | 600 | |

Notes: ¹⁾ Between primary and secondary + shield

²⁾ Between shield and secondary.

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).

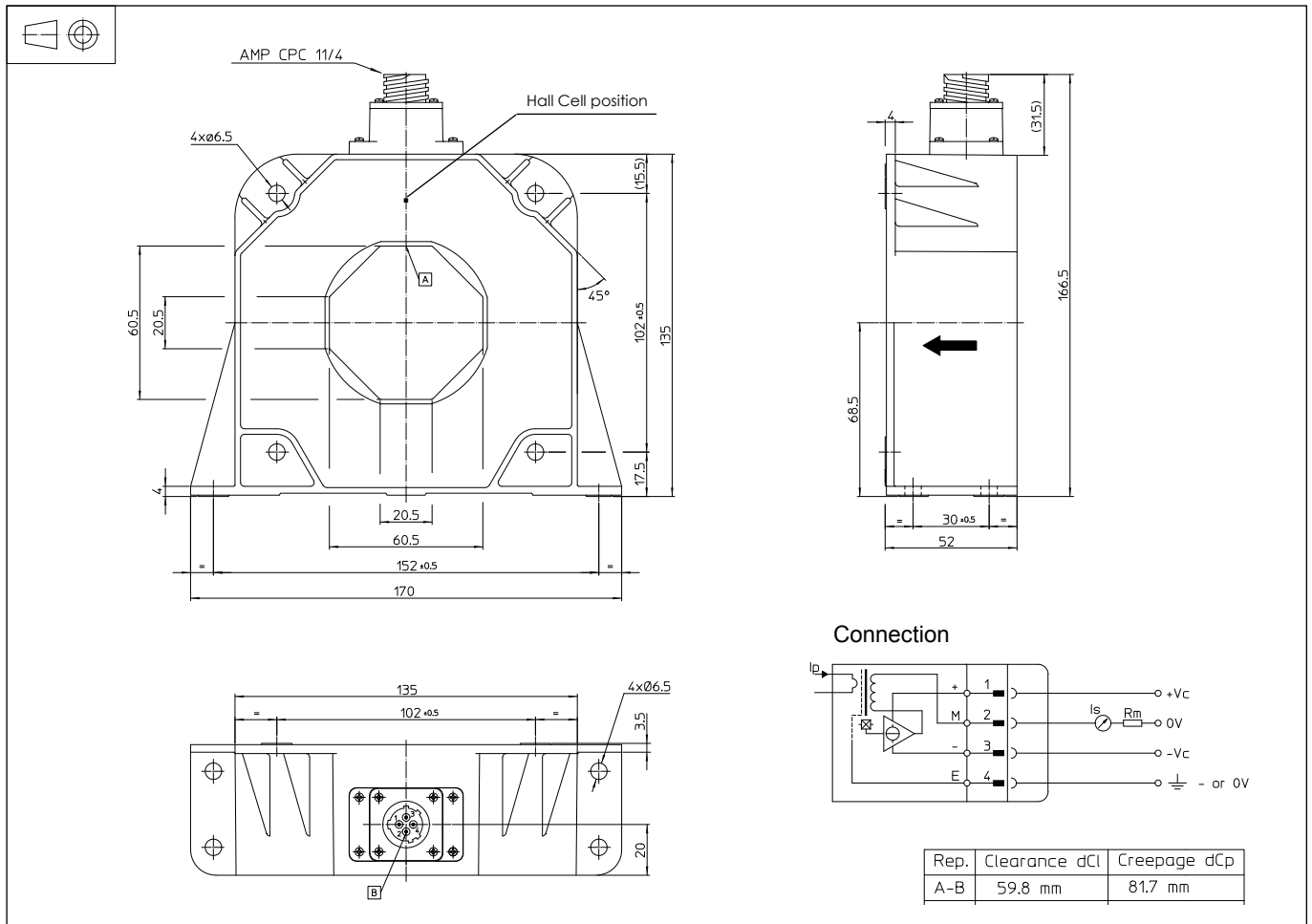
Ignoring this warning can lead to injury and/or cause serious damage.

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 2005-S/SP3 (in mm)



Mechanical characteristics

- General tolerance ± 1 mm
- Transducer fastening
Flat or vertical position 4 holes Ø 6.5 mm
4 M6 steel screws
- Recommended fastening torque 5.5 Nm
- Primary through-hole 60.5 x 20.5 mm
Or Ø 56 mm
- Connection of secondary AMP CPC 11/4

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.