

Current Transducer LF 2005-S/SP4

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

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



Electrical data

I_{PN}	Primary nominal current rms	2000	A
I_{PM}	Primary current, measuring range	0 .. ± 3000	A
I_P	Overload capability @ 10 ms	20	kA
R_M	Measuring resistance	$R_{M \text{ mini}}$	$R_{M \text{ maxi}}$
	with $\pm 15 \text{ V}$	@ $\pm 2000 \text{ A}_{\text{maxi}}$	0 7 Ω
		@ $\pm 2200 \text{ A}_{\text{maxi}}$	0 4 Ω
	with $\pm 24 \text{ V}$	@ $\pm 2000 \text{ A}_{\text{maxi}}$	0 27.5 Ω
	@ $\pm 3000 \text{ A}_{\text{maxi}}$	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	%
e_L	Linearity error	< 0.1	%
I_O	Offset current @ $I_P = 0, T_A = 25^\circ\text{C}$	Typ	Maxi
I_{OM}	Magnetic offset current @ $I_P = 0$ and specified R_M , after an overload of $3 \times I_{PN}$		± 0.5 mA
I_{OT}	Temperature variation @ of I_O - $40^\circ\text{C} \dots +70^\circ\text{C}$	± 0.1	± 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 Standards	1.5	kg
		EN 50155: 1995	

Features

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

Special features

- $V_d = 10 \text{ kV}$
- $T_A = -40^\circ\text{C} \dots +70^\circ\text{C}$
- Internal shield
- Hall cell mounted vertically
- 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

- 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

- Traction.

Note: ¹⁾ With a di/dt of 100 A/ μs .

Current transducer LF 2005-S/SP4

Isolation characteristics

V_d	Rms voltage for AC isolation test, 50 Hz, 1 min	10 ²⁾	kV
		0.5 ³⁾	kV
V_e	Rms voltage for partial discharges extinction @ 10 pC	> 4.8	kV
		Mini	
dCp	Creepage distance	81.7	mm
dCl	Clearance distance	59.8	mm
CTI	Comparative Tracking Index (Group I)	600	

Notes: ²⁾ Between primary and secondary + shield

³⁾ 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

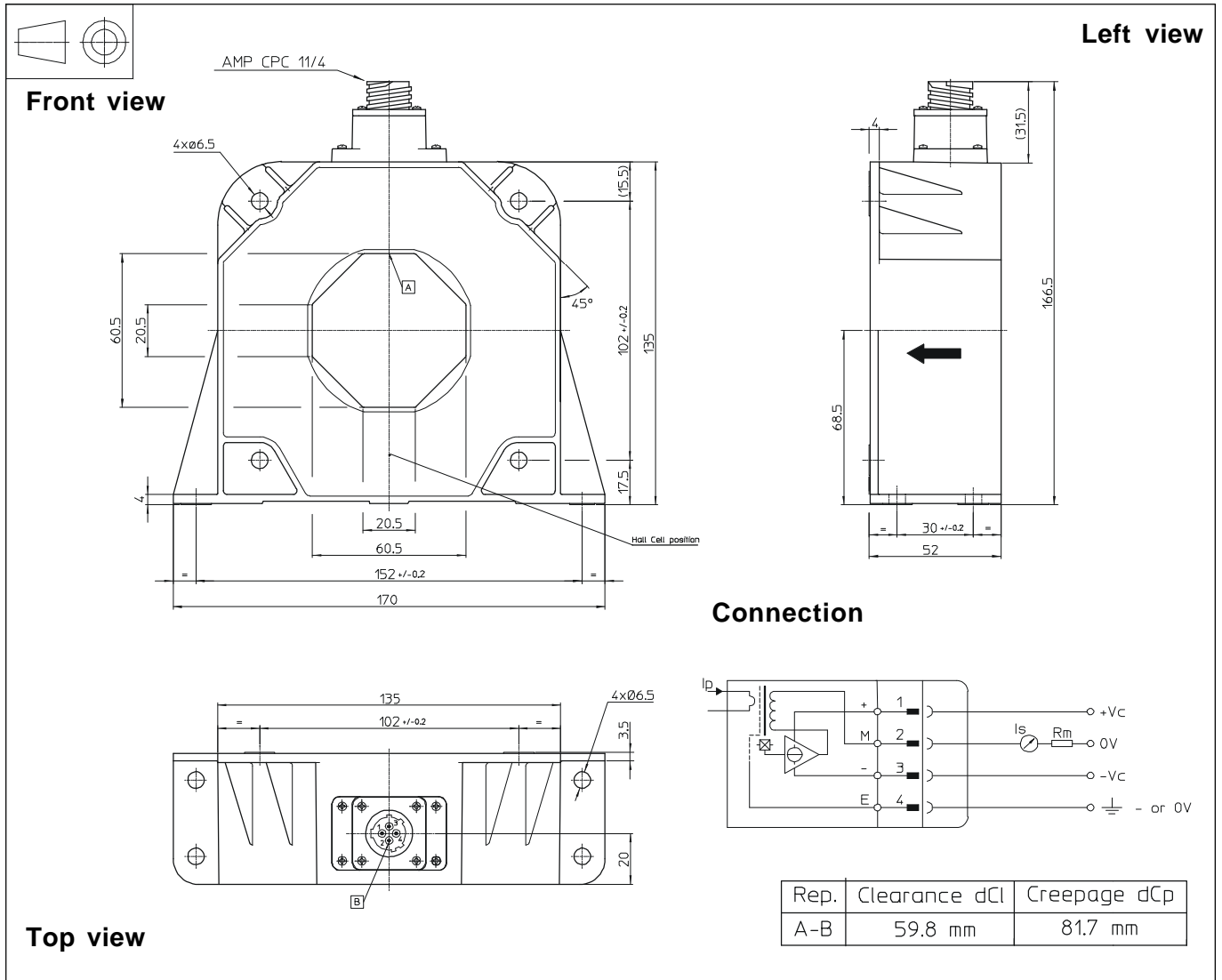
When operating the transducer, certain parts of the module can carry hazardous voltage (eg. primary busbar, power supply).

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

This transducer is a built-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/SP4 (in mm. 1 mm = 0.0394 inch)

Mechanical characteristics

- General tolerance ± 0.5 mm
- Fastening transducer 4 holes $\varnothing 6.5$ mm
Flat or vertical position 4 M6 steel screws
Recommended fastening torque 5.5 Nm or 4.07 Lb. - Ft.
- Primary through-hole 60.5 x 20.5 mm
Or $\varnothing 56$ 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.