

Current Transducer LF 2005-S/SP26

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



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

Electrical data

I_{PN}	Primary nominal current rms	2000	A
I_{max}	Primary current, measuring range @ $\pm 24 \text{ V}$	0 .. ± 3000	A
$\hat{I}_p$	Overload capability 10 ms	20 ¹⁾	kA
R_M	Measuring resistance	$R_{M \min}$ $R_{M \max}$	
	with $\pm 15 \text{ V}$	@ $\pm 2000 \text{ A}_{\max}$	0 8 Ω
		@ $\pm 2500 \text{ A}_{\max}$	0 3 Ω
	with $\pm 24 \text{ V}$	@ $\pm 2000 \text{ A}_{\max}$	5 25 Ω
		@ $\pm 3000 \text{ A}_{\max}$	5 11 Ω
I_{SN}	Secondary nominal current rms	500	mA
K_N	Conversion ratio	1 : 4000	
V_C	Supply voltage ($\pm 5 \%$)	$\pm 15 \dots 24$	V
I_C	Current consumption	33 (@ $\pm 24 \text{ V}$) + I_S	mA

Accuracy - Dynamic performance data

X_G	Overall accuracy @ I_{PN} , $T_A = 25^\circ\text{C}$	± 0.4	%
$\mathcal{E}_L$	Linearity error	< 0.1	%
		Max	
I_O	Offset current @ $I_p = 0$, $T_A = 25^\circ\text{C}$	± 1.0	mA
I_{OM}	Magnetic offset current @ $I_p = 0$ and specified R_M , after an overload of $3 \times I_{PN}$	± 0.2	mA
I_{OT}	Temperature variation of I_O - $40^\circ\text{C} \dots +85^\circ\text{C}$	± 0.8	mA
t_r	Response time ²⁾ to 90 % of I_{PN} step	< 1	μs
di/dt	di/dt accurately followed	> 50	A/ μs
BW	Frequency bandwidth (-1 dB)	DC .. 100	kHz

General data

T_A	Ambient operating temperature	-40 .. +85	$^\circ\text{C}$
T_S	Ambient storage temperature	-45 .. +85	$^\circ\text{C}$
R_S	Secondary coil resistance @ $T_A = 85^\circ\text{C}$	18	Ω
m	Mass	1.6	kg
	Standard	EN 50155: 2001	

Features

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

Special features

- $K_N = 1 : 4000$
- $V_d = 12 \text{ kV}$
- $T_A = -40^\circ\text{C} \dots +85^\circ\text{C}$
- Shield
- Connection to secondary circuit on M5 threaded studs
- Customer marking Alstom N° DTR0000041015.

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.

Notes: ¹⁾ Once daily

²⁾ 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	12 ¹⁾	kV
		1 ²⁾	kV
V_e	Partial discharge extinction voltage rms @ 10 pC	≥ 4.8 ³⁾	kV
		Min	
dCp	Creepage distance	55.4	mm
dCl	Clearance	53.2	mm
CTI	Comparative Tracking Index (group I)	600	

Notes: ¹⁾ Between primary and secondary + shield
²⁾ Between shield and secondary
³⁾ Test carried out with a non-insulation busbar, dimension 290 x 50 x 10 mm, centered in the through hole.

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).

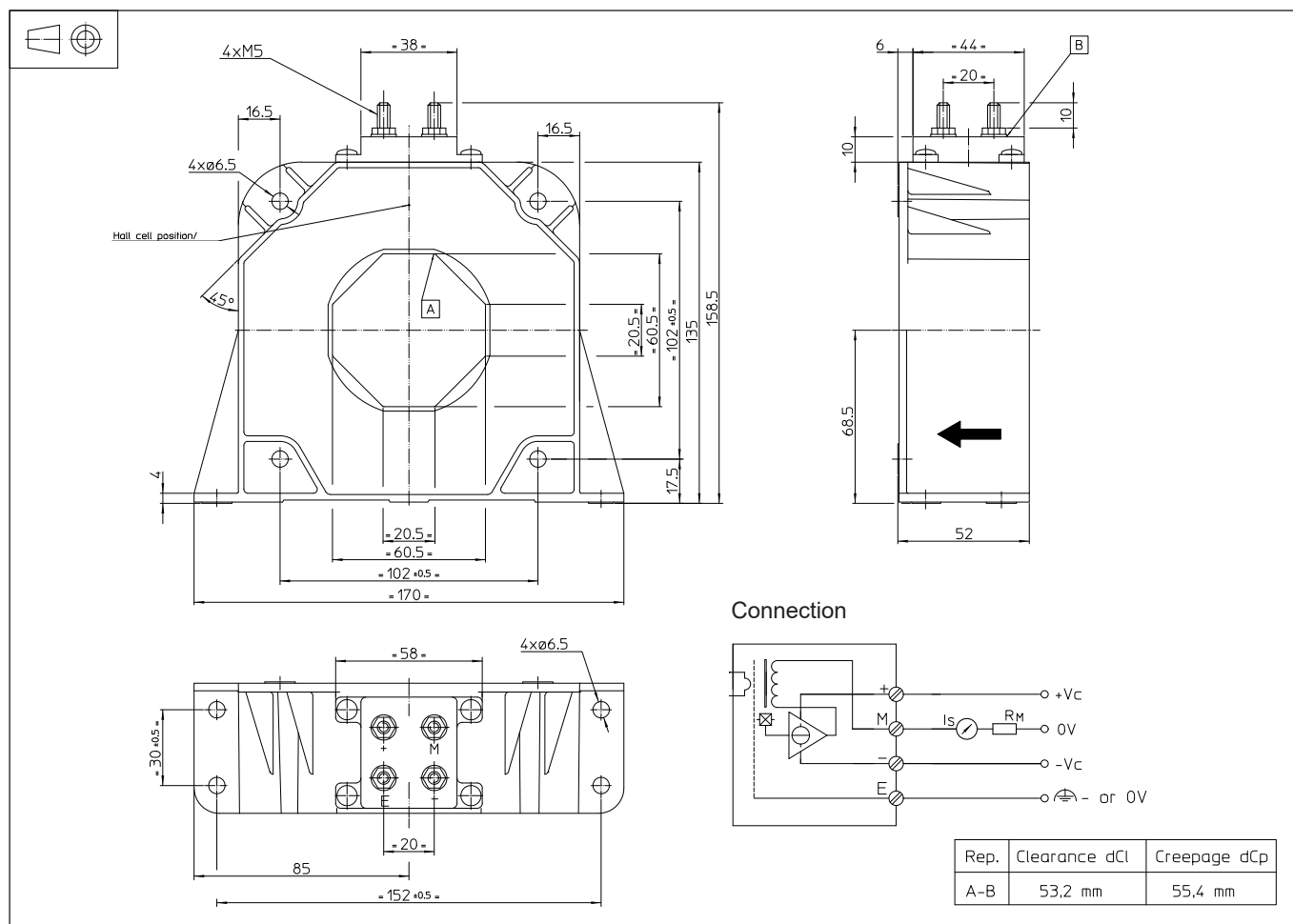
Ignoring this warning can lead to injury and/or cause serious damage.

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/SP26 (in mm)



Mechanical characteristics

- General tolerance ± 1 mm
- Transducer fastening
 - Vertical or flat position 4 holes Ø 6.5 mm
 - 4 M6 steel screws
 - Recommended fastening torque 4.2 Nm
- Primary through-hole
 - 60.5 x 20.5 mm
 - Or Ø 56 mm
- Connection of secondary
 - 4 M5 threaded studs
 - Recommended fastening torque 2.2 Nm

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.

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