Current Transducer LF 2005-S/SP1

I_{PN} = 2000 A

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

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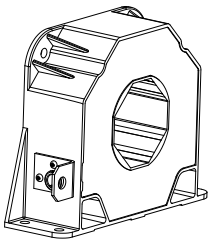

Electrical data

I_{PN}	Primary nominal RMS current			2000	A
I_{PM}	Primary current, measuring range @ ±24 V			0 ... ±3500	A
$\hat{I}_{P\,max}$	Primary withstand peak current (maximum)			20	kA
R_M	Measuring resistance		$R_{M\,min}$	$R_{M\,max}$	
	with ±15 V (±5 %)	@ ±2000 A $_{max}$	0	7.5	Ω
		@ ±2500 A $_{max}$	0	0.8	Ω
	with ±24 V (0/+20 %)	@ ±3500 A $_{max}$	3	6	Ω
	with ±28.8 V (0 %)	@ ±3000 A $_{max}$	3	19	Ω
I_{SN}	Secondary nominal RMS current			400	mA
N_P/N_S	Turns ratio			1 : 5000	
U_C	Supply voltage [1]			±15 ... 24	V
I_C	Current consumption			33 (@ ±24 V) + I_S	mA

Accuracy - Dynamic performance data

ε_{tot}	Total error @ I_{PN}, T_A = 25 °C			±0.3	%
ε_L	Linearity error			< 0.1	%
			Typ	Max	
I_O	Offset current @ I_P = 0, T_A = 25 °C			±0.5	mA
I_{OM}	Magnetic offset current @ I_P = 0 and specified R_M, after an overload of 3 × I_{PN}			±0.2	mA
I_{OT}	Temperature variation of I_O	−25 °C ... +85 °C	±0.2	±0.5	mA
		−40 °C ... −25 °C		±1.5	mA
$t_{D\,90}$	Delay time to 90 % of the final output value for I_{PN} step [2]			< 1	µs
BW	Frequency bandwidth (−1 dB)			DC ... 150	kHz

General data

T_A	Ambient operating temperature	−40 ... +85	°C
T_{Ast}	Ambient storage temperature	−50 ... +85	°C
R_S	Resistance of secondary winding @ T_A = 85 °C	26	Ω
m	Mass	1.5	kg
	Standards	EN 50155: 2017 [3]	
		EN 50121-3-2: 2016	

Notes: [1] ±15 V (−5 %) ... ±24 V (+20 %)
[2] For a di/dt = 100 A/µs
[3] Additional information available on request.

Features

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

Special features

- U_C = ±15 ... 24 V [1]
- U_d = 10 kV
- T_A = −40 °C ... +85 °C
- Internal shield connected to "−U_C"
- Connection to secondary circuit on LEMO EEJ.1B.304.CYC.

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 inverters
- Propulsion and braking chopper
- Propulsion converter
- Auxiliary converter
- Battery charger.

Application Domain

- Railway (fixed installations and onboard).

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Current Transducer LF 2005-S/SP1

Insulation coordination

U_d	RMS voltage for AC insulation test, 50 Hz, 1 min	10	kV
U_t	Partial discharge RMS test voltage (q_m < 10 pC)	≥ 4.8 [1] Min	kV
d_{Cp}	Creepage distance	43.2	mm
d_{Cl}	Clearance	42.2	mm
CTI	Comparative tracking index (group I)	600	

Note: [1] Test carried out with a non-insulated busbar, dimensions 290 × 50 × 10 mm, centered in the through hole.

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.

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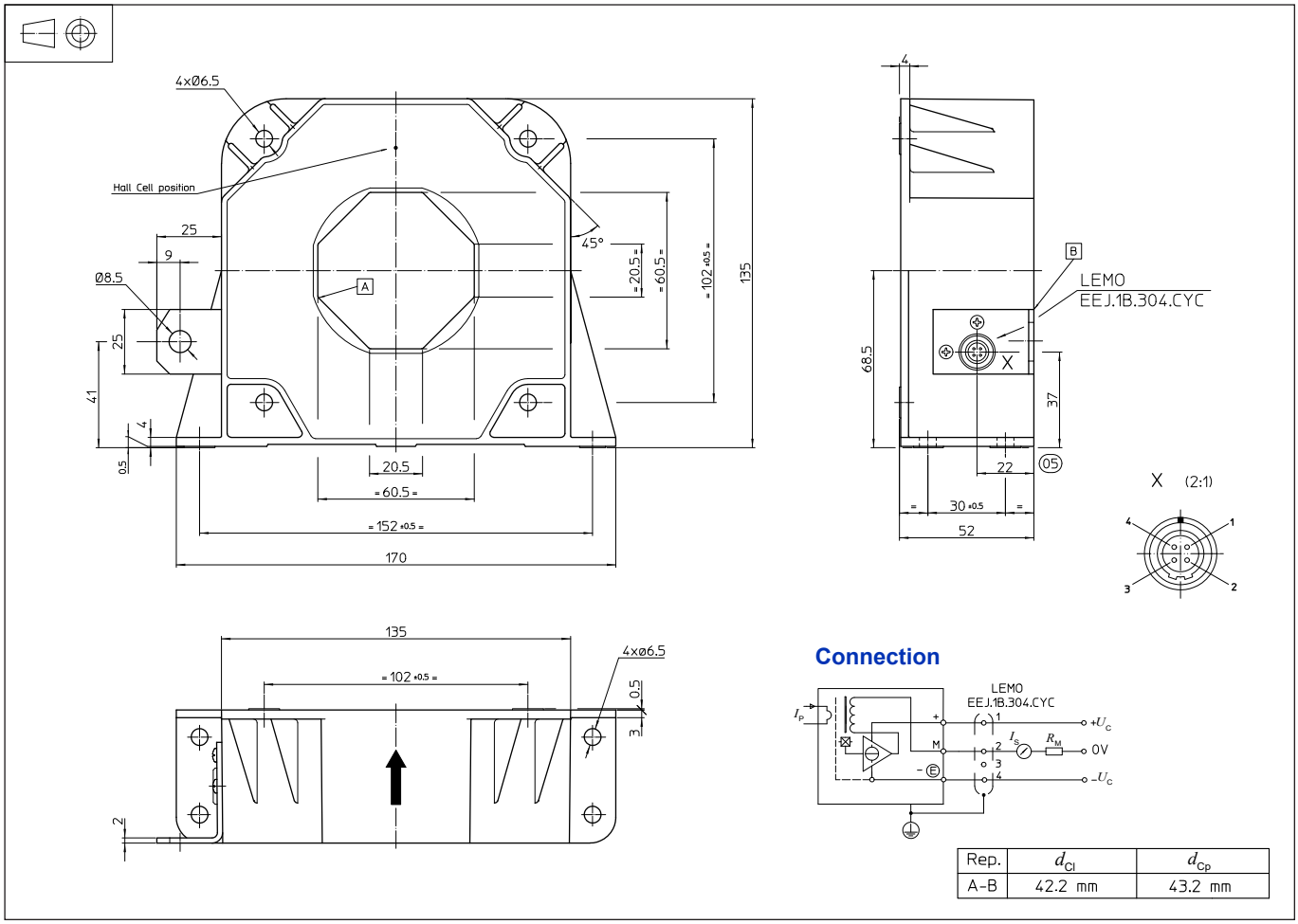
Dimensions LF 2005-S/SP1 (in mm)



Rep.	d_{Cl}	d_{Cp}
A-B	42.2 mm	43.2 mm

Mechanical characteristics

- General tolerance ±1 mm
- Transducer fastening
  Vertical or flat position 4 holes ⌀ 6.5 mm
  4 M6 steel screws
  Recommended fastening torque 5.5 Nm
- Primary through-hole 60.5 × 20.5 mm
  Or ⌀ max 56 mm
- Connection of secondary LEMO EEJ.1B.304.CYC
- Connection to the ground hole ⌀ 8.5 mm
  M8 steel screw
- Recommended fastening torque 9 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 delay time) are best with a single bar completely filling the primary hole.

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