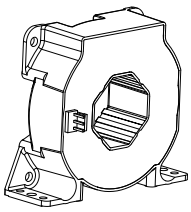
Current Transducer LF 1005-S/SP16

I_{PN} = 1000 A

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



Electrical data

I_{PN}	Primary nominal RMS current				1000		A
I_{PM}	Primary current, measuring range @ ±24 V				0 ... ±2100		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 ±15 V	@ ±1000 A $_{max}$	0	21	0	18	Ω
		@ ±1200 A $_{max}$	0	9	0	7	Ω
		@ ±1300 A $_{max}$	0	5			Ω
	with ±24 V	@ ±1000 A $_{max}$	0	60.5	10	58.5	Ω
		@ ±1800 A $_{max}$	0	14	10	12	Ω
		@ ±2100 A $_{max}$	0	4			Ω
I_{SN}	Secondary nominal RMS current				200		mA
N_P/N_S	Turns ratio				1 : 5000		
U_C	Supply voltage (±5 %)				±15 ... 24		V
I_C	Current consumption				28 (@ ±24 V) + I_S		mA

Accuracy - Dynamic performance data

ε_{tot}	Total error @ I_{PN}, T_A = 25 °C		±0.4		%
ε_L	Linearity error		< 0.1		%
			Typ	Max	
I_O	Offset current @ I_P = 0, T_A = 25 °C			±0.4	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	−10 °C ... +70 °C	±0.3	±0.4	mA
		−40 °C ... +85 °C		±0.8	mA
$t_{D\,90}$	Delay time to 90 % of the final output value for I_{PN} step [1]		< 1		µs
BW	Frequency bandwidth (−1 dB)		DC ... 150		kHz

General data

T_A	Ambient operating temperature		−40 ... +85	°C
$T_{A\,st}$	Ambient storage temperature		−50 ... +90	°C
R_S	Coil resistance	@ T_A = 70 °C	48	Ω
		@ T_A = 85 °C	50	Ω
m	Mass		500	g
	Standards		EN 50178: 1997	

Note: [1] For a di/dt = 100 A/µs.

Features

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

Special features

- I_{PM} = 0 ... ±2100 A
- Connection to secondary circuit on JST B 3P-VH connector.

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.

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Insulation coordination

U_d	RMS voltage for AC insulation test, 50 Hz, 1 min	3	kV
U_{Ni}	Impulse withstand voltage 1.2/50 µs	14.1	kV
		Min	
d_{Cp}	Creepage distance	17.4	mm
d_{Cl}	Clearance	16.6	mm
CTI	Comparative tracking index (group IIIa)	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
d_{Cp}, d_{Cl}, U_{Ni}	Rated insulation voltage	Nominal voltage
Basic insulation	1600 V	1600 V
Reinforced insulation	800 V	800 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.

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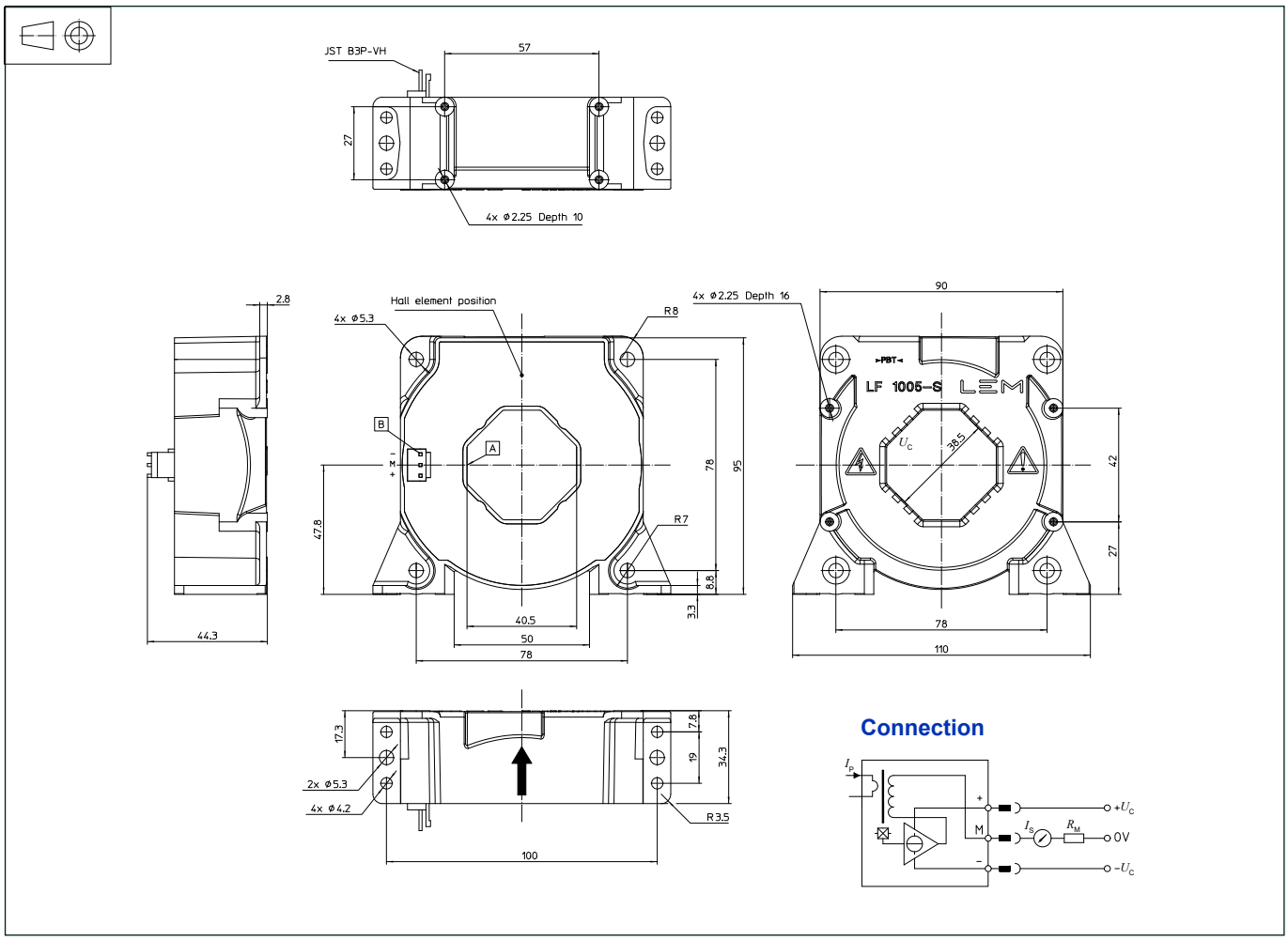
Dimensions LF 1005-S/SP16 (in mm)



Mechanical characteristics

- General tolerance ±0.5 mm
- Transducer fastening
  Vertical position 2 holes ⌀ 5.3 mm
  2 M5 steel screws
  Recommended fastening torque 4 Nm
  or 4 holes ⌀ 4.2 mm
  4 M4 steel screws
  Recommended fastening torque 3.2 Nm
  or 4 holes ⌀ 2.25 mm
  depth: 10 mm
  4 × PTKA 30 screws
  length: 10 mm
  Recommended fastening torque 0.9 Nm
- Transducer fastening
  Horizontal position 4 holes ⌀ 5.3 mm
  4 M5 steel screws
  Recommended fastening torque 4 Nm
  or 4 holes ⌀ 2.25 mm
  depth: 16 mm
  4 × PTKA 30 screws
  length: 16 mm
  Recommended fastening torque 1 Nm
- Primary through-hole 40.5 × 13 mm
  or ⌀ 38 mm
  Connection of secondary JST B 3P-VH

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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