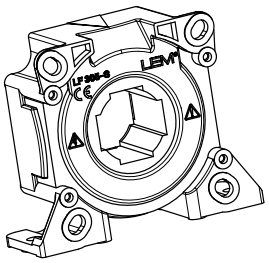
Current Transducer LF 305-S/SP10

I_{PN} = 300 A

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

16177



Electrical data

				T_A = 70°C		T_A = 85°C		
				$R_{M\,min}$	$R_{M\,max}$	$R_{M\,min}$	$R_{M\,max}$	
I_{PN}	Primary nominal current rms			300				A
I_{PM}	Primary current, measuring range			0 .. ± 500				A
R_M	Measuring resistance @							
	with ± 12 V	@ ± 300 A_{max}		0	39	0	37	Ω
		@ ± 500 A_{max}		0	10	0	8	Ω
	with ± 15 V	@ ± 300 A_{max}		0	58	0	56	Ω
		@ ± 500 A_{max}		0	21	0	19	Ω
	with ± 20 V	@ ± 300 A_{max}		0	90	0	88	Ω
		@ ± 500 A_{max}		0	40	0	38	Ω
I_{SN}	Secondary nominal current rms			150				mA
K_N	Conversion ratio			1 : 2000				
V_C	Supply voltage (± 5 %)			± 12 ..20				V
I_C	Current consumption			16 (@ ± 20V) + I_S				mA

Accuracy - Dynamic performance data

			Typ	Max	
X_G	Overall accuracy @ I_{PN}, T_A = 25°C		± 0.47		%
ε_L	Linearity error		< 0.1		%
I_O	Offset current @ I_P = 0, T_A = 25°C			± 0.2	mA
I_{OM}	Magnetic offset current [1] @ I_P = 0 and specified R_M, after an overload of 3 x I_{PN}			± 0.2	mA
I_{OT}	Temperature variation of I_O	- 10°C .. + 70°C	± 0.1	± 0.30	mA
		- 40°C .. + 85°C	± 0.2	± 0.70	mA
t_{ra}	Reaction time @ 10 % of I_{PN}		< 500		ns
t_r	Response time [2] to 90 % of I_{PN} step		< 1		µs
di/dt	di/dt accurately followed		> 100		A/µs
BW	Frequency bandwidth (- 3 dB)		DC .. 100		kHz

General data

T_A	Ambient operating temperature	- 40 .. + 85	°C
T_S	Ambient storage temperature	- 40 .. + 85	°C
R_S	Secondary coil resistance @ T_A = 70°C	30	Ω
	@ T_A = 85°C	32	Ω
m	Mass	95	g
	Standards	EN 50178: 1997	
		EN 50155: 1995 [3]	

Notes: [1] The result of the coercive force (Hc) of the magnetic circuit
[2] With a di/dt of 100 A/µs
[3] Excepted test according to IEC 61000-4-5.

Features

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

Special features

- T_A = - 40°C .. + 85°C
- Connection to secondary circuit on Molex Minifit Jr 5566 with gold -plated pins.

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 domains

- Industrial
- Traction.

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Isolation characteristics

V_d	Rms voltage for AC isolation test, 50/60 Hz, 1 min	3	kV
$\hat{V}_w$	Impulse withstand voltage 1.2/50 µs	9.5	kV
		Min	
dCp	Creepage distance	23.9	mm
dCl	Clearance distance	10.5	mm
CTI	Comparative Tracking Index (group II)	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
dCp, dCl, $\hat{V}_w$	Rated isolation voltage	Nominal voltage
Single isolation	1000 V	2000 V
Reinforced isolation	690 V	600 V

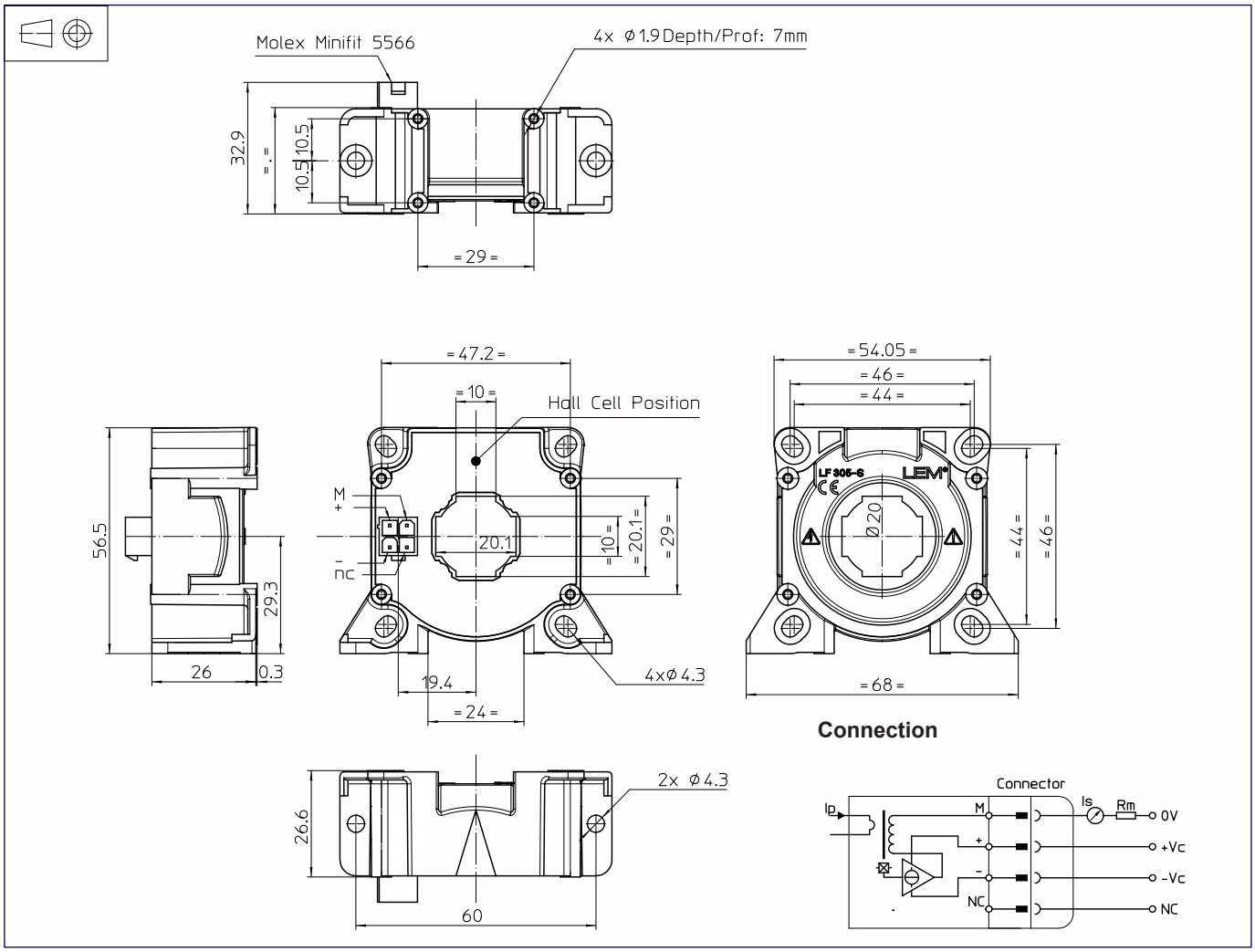
Safety

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.

Dimensions LF 305-S/SP10 (in mm)



Mechanical characteristics

• General tolerance	± 0.5 mm
• Transducer fastening	
Vertical position	2 holes Ø 4.3 mm
	2 M4 steel screws
Recommended fastening torque	3.2 Nm
or	4 holes Ø 1.9 mm, depth: 7 mm
	4 PTKA 25 screws, length: 6 mm
Recommended fastening torque	0.7 Nm
• Transducer fastening	
Horizontal position	4 holes Ø 4.3 mm
	2 M4 steel screws
Recommended fastening torque	3.2 Nm
or	4 holes Ø 1.9 mm
	4 PTKA 25 screws
	length: 10 mm
Recommended fastening torque	0.75 Nm
• Primary through-hole	Ø 20 mm
• Connection of secondary	MOLEX Minifit Jr 5566 gold-plated pins

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.