

# Current Transducer LF 305-S

**$I_{PN} = 300 \text{ A}$**

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).



16167

## Electrical data

$I_{PN}$	Primary nominal current rms	300	A		
$I_{PM}$	Primary current, measuring range	0 .. $\pm 500$	A		
$R_M$	Measuring resistance	$R_{M \text{ mini}}$	$R_{M \text{ maxi}}$		
				with $\pm 12 \text{ V}$	@ $\pm 300 \text{ A}_{\text{max}}$
		@ $\pm 500 \text{ A}_{\text{max}}$	0	12	$\Omega$
	with $\pm 15 \text{ V}$	@ $\pm 300 \text{ A}_{\text{max}}$	0	58	$\Omega$
		@ $\pm 500 \text{ A}_{\text{max}}$	0	22	$\Omega$
	with $\pm 20 \text{ V}$	@ $\pm 300 \text{ A}_{\text{max}}$	15	93	$\Omega$
	@ $\pm 500 \text{ A}_{\text{max}}$	15	45	$\Omega$	
$I_{SN}$	Secondary nominal current rms	150	mA		
$K_N$	Conversion ratio	1 : 2000			
$V_C$	Supply voltage ( $\pm 5 \%$ )	$\pm 12 \dots 20$	V		
$I_C$	Current consumption	26 (@ $\pm 20 \text{ V}$ ) + $I_S$	mA		

## Features

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

## 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.

## Accuracy - Dynamic performance data

$X_G$	Overall accuracy @ $I_{PN}$ , $T_A = 25^\circ\text{C}$	$\pm 0.4$	%	
$e_L$	Linearity error	$< 0.1$	%	
$I_O$	Offset current @ $I_p = 0$ , $T_A = 25^\circ\text{C}$	Typ	Maxi	
$I_{OM}$	Magnetic offset current <sup>1)</sup> @ $I_p = 0$ and specified $R_M$ after an overload of $3 \times I_{PN}$		$\pm 0.20$	mA
			$\pm 0.08$	mA
$I_{OT}$	Temperature variation of $I_O$ - $10^\circ\text{C} \dots +70^\circ\text{C}$	$\pm 0.1$	$\pm 0.30$	mA
$t_{ra}$	Reaction time @ 10 % of $I_{PN}$	$< 500$	ns	
$t_r$	Response time <sup>2)</sup> to 90 % of $I_{PN}$ step	$< 1$	$\mu\text{s}$	
<b>di/dt</b>	di/dt accurately followed	$> 100$	A/ $\mu\text{s}$	
<b>BW</b>	Frequency bandwidth (- 1 dB)	DC .. 100	kHz	

## 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.

## General data

$T_A$	Ambient operating temperature	- 10 .. + 70	$^\circ\text{C}$
$T_S$	Ambient storage temperature	- 25 .. + 85	$^\circ\text{C}$
$R_S$	Secondary coil resistance @ $T_A = 70^\circ\text{C}$	25	$\Omega$
<b>m</b>	Mass	95	g
	Standards	EN 50178: 1997	

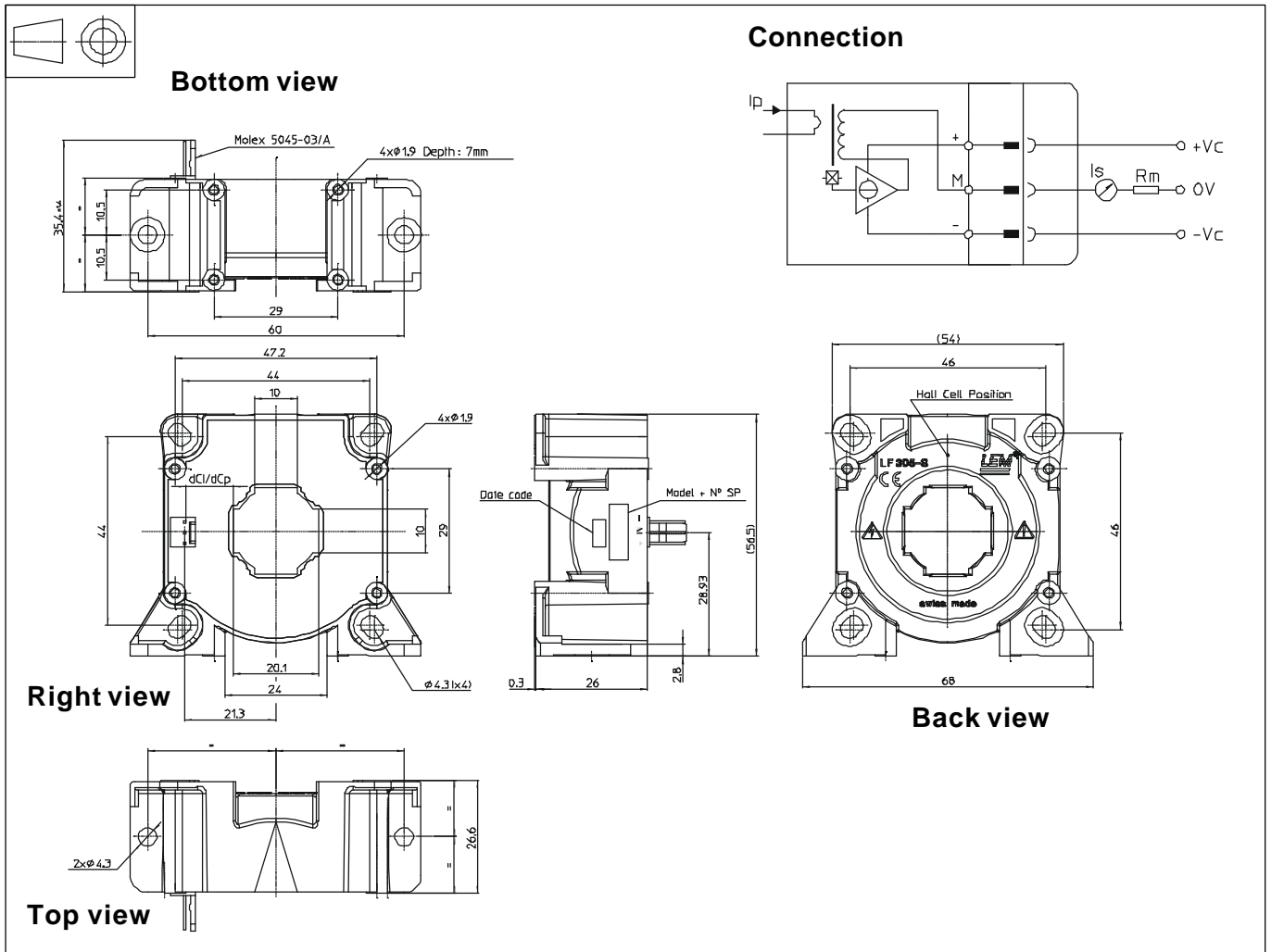
## Application domain

- Industrial.

Notes: <sup>1)</sup> The result of the coercive field of the magnetic circuit  
<sup>2)</sup> With a di/dt of 100 A/ $\mu\text{s}$ .



## Dimensions LF 305-S (in mm. 1 mm = 0.0394 inch)



## Mechanical characteristics

- General tolerance  $\pm 0.5$  mm
- Transducer fastening
  - Vertical position
    - 2 holes  $\varnothing 4.3$  mm
    - 2 steel screws M4
    - Recommended fastening torque 3.2 Nm or 2.37 Lb.-Ft.
  - or
    - 4 holes  $\varnothing 1.9$  mm, depth: 7 mm
    - 4 screws PTKA25, length: 6 mm
    - Recommended fastening torque 0.7 Nm or 0.52 Lb.-Ft.
  - Flat lying position
    - 4 holes  $\varnothing 4.3$  mm
    - 4 steel screws M4
    - Recommended fastening torque 2.9 Nm or 2.14 Lb.-Ft.
  - or
    - 4 holes  $\varnothing 1.9$  mm, crossing
    - 4 screws PTKA25, length: 10 mm
    - Recommended fastening torque 0.75 Nm 0.55 Lb.-Ft.
- Primary through-hole  $\varnothing 20$  mm
- Connection of secondary Molex 5045-03/A

## 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
- This is a standard model. For different versions (supply voltages, turns ratios, unidirectional measurements...), please contact us.