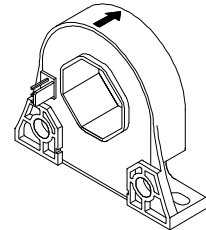


# Current Transducer LF 306-S

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

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).



## Electrical data

$I_{PN}$	Primary nominal r.m.s. current	300	A
$I_P$	Primary current, measuring range	0 .. $\pm 500$	A
$R_M$	Measuring resistance	$R_{Mmin}$ $R_{Mmax}$	
	with $\pm 12 \text{ V}$	@ $\pm 300 \text{ A}_{max}$	0   37 $\Omega$
		@ $\pm 500 \text{ A}_{max}$	0   8 $\Omega$
	with $\pm 15 \text{ V}$	@ $\pm 300 \text{ A}_{max}$	10   56 $\Omega$
		@ $\pm 500 \text{ A}_{max}$	10   20 $\Omega$
$I_{SN}$	Secondary nominal r.m.s. current	150	mA
$K_N$	Conversion ratio	1 : 2000	
$V_C$	Supply voltage ( $\pm 5 \%$ )	$\pm 12 \dots 15$	V
$I_C$	Current consumption	20 (@ $\pm 15 \text{ V}$ ) + $I_S$	mA

## 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   Max	
$I_{OM}$	Residual current <sup>1)</sup> @ $I_P = 0$ , after an overload of $3 \times I_{PN}$	$\pm 0.20$	mA
$I_{OT}$	Thermal drift of $I_O$ - $25^\circ\text{C} \dots +70^\circ\text{C}$	$\pm 0.20$ $\pm 0.64$	mA
$t_{ra}$	Reaction time @ 10 % of $I_{Pmax}$	$< 500$	ns
$t_r$	Response time <sup>2)</sup> @ 90 % of $I_{PN}$	$< 1$	$\mu\text{s}$
$di/dt$	$di/dt$ accurately followed	$> 100$	A/ $\mu\text{s}$
$f$	Frequency bandwidth (- 1 dB)	DC .. 100	kHz

## General data

$T_A$	Ambient operating temperature	- 25 .. + 70	$^\circ\text{C}$
$T_S$	Ambient storage temperature	- 40 .. + 90	$^\circ\text{C}$
$R_S$	Secondary coil resistance @ $T_A = 70^\circ\text{C}$	34	$\Omega$
$m$	Mass	60	g
	Standards	EN 50178 : 1997	

## Features

- Closed loop (compensated) current transducer using the Hall effect
- Insulated 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.

## 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.

Notes : <sup>1)</sup> The result of the coercive field of the magnetic circuit

<sup>2)</sup> With a  $di/dt$  of 100 A/ $\mu\text{s}$ .

## Current Transducer LF 306-S

### Isolation characteristics

$V_d$	R.m.s. voltage for AC isolation test, 50/60 Hz, 1 mn	6	kV
$\hat{V}_w$	Impulse withstand voltage 1.2/50 $\mu$ s	>7.3	kV
		Min	
dCp	Creepage distance	8	mm
dCI	Clearance distance	7.15	mm
CTI	Comparative Tracking Index (Group III a)	175	

### Application 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, dCI, $\hat{V}_w$	Rated isolation voltage	Nominal voltage
Single isolation	600 V	600 V
Reinforced isolation	300 V	300 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

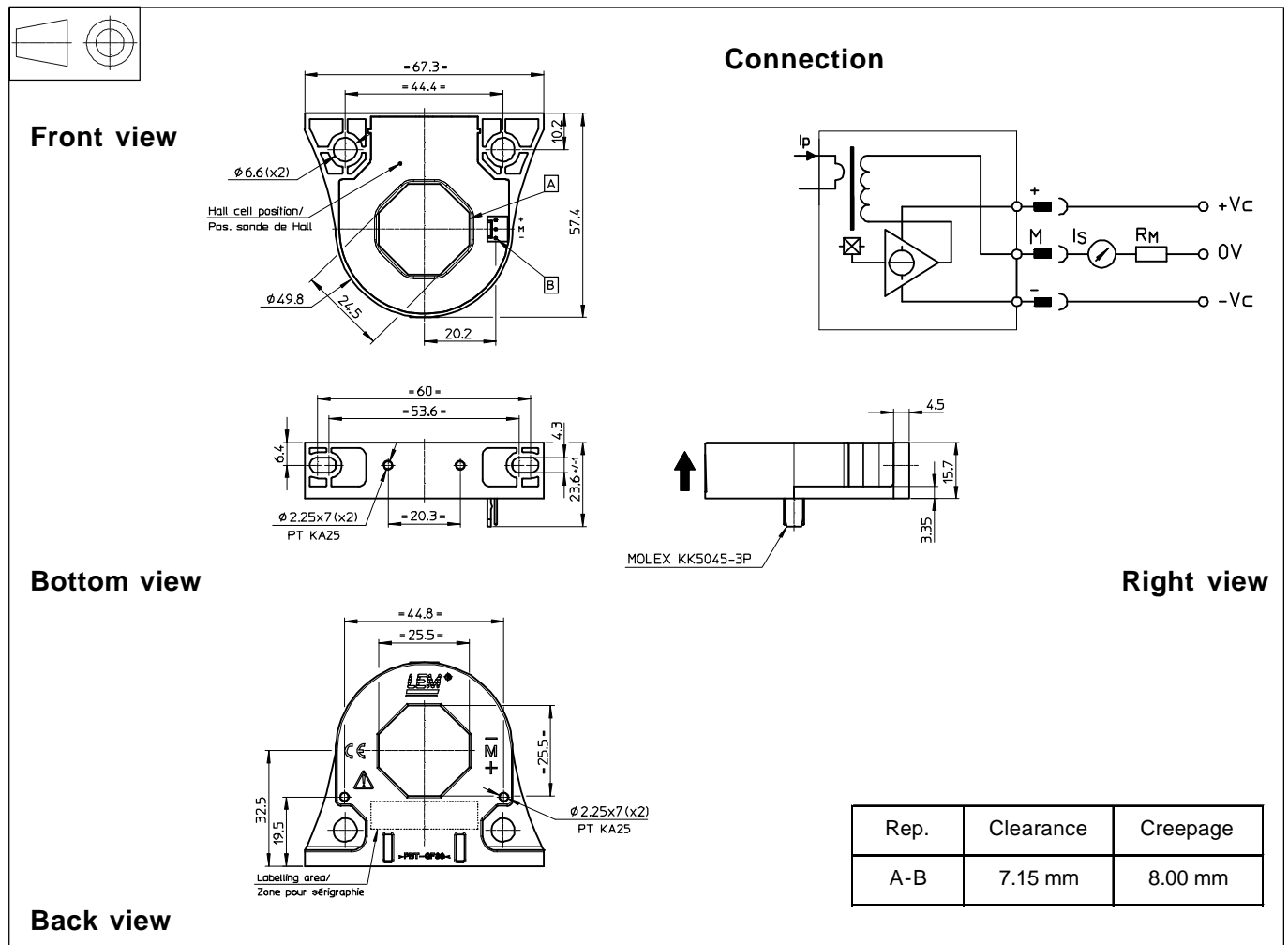
When operating the transducer, certain parts of the module can carry hazardous voltage (eg. primary busbar, power supply). Ignoring this warning can lead to injury and/or cause serious damage.

This transducer is a built-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 306-S (in mm. 1 mm = 0.0394 inch)



## Mechanical characteristics

- General tolerance  $\pm 0.5$  mm
- Fastening transducer
  - Flat position
    - 2 holes  $\phi 6.6$  mm
    - 2 M6 steel screws
    - Recommended fastening torque 4.2 Nm or 3.1 Lb.-Ft.
  - Or
    - 2 holes  $\phi 2.25$  mm
    - 2 x PT KA25 screws
    - Recommended fastening torque 0.3 Nm or 0.22 Lb.-Ft.
  - Vertical position
    - 2 holes  $\phi 4.3$  mm
    - 2 M4 steel screws
    - Recommended fastening torque 3 Nm or 2.21 Lb. - Ft.
  - Or
    - 2 holes  $\phi 2.25$  mm
    - 2 x PT KA25 screws
    - Recommended fastening torque 0.3 Nm or 0.22 Lb.-Ft.
- Primary through-hole 25.5 x 25.5 mm
- Connection of secondary Molex 5045-03/AG

## Remarks

- $I_s$  is positive when  $I_p$  flows in the direction of the arrow.
- Temperature of the primary conductor should not exceed  $100^\circ\text{C}$ .
- 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...),

## IMPORTANT NOTICE

The information in this document is considered accurate and reliable. However, LEM International SA and any company directly or indirectly controlled by LEM Holding SA ("LEM") do not provide any guarantee or warranty, expressed or implied, regarding the accuracy or completeness of this information and are not liable for any consequences resulting from its use. LEM shall not be responsible for any indirect, incidental, punitive, special, or consequential damages (including, but not limited to, lost profits, lost savings, business interruption, costs related to the removal or replacement of products, or rework charges) regardless of whether such damages arise from tort (including negligence), warranty, breach of contract, or any other legal theory.

LEM reserves the right to update the information in this document, including specifications and product descriptions, at any time without prior notice. Information in this document replaces any previous versions of this document. No license to any intellectual property is granted by LEM through this document, either explicitly or implicitly. Any Information and product described herein is subject to export control regulations.

LEM products may possess either unidentified or documented vulnerabilities. It is the sole responsibility of the purchaser to design and operate their applications and products in a manner that mitigates the impact of these vulnerabilities. LEM disclaims any liability for such vulnerabilities. Customers must select products with security features that best comply with applicable rules, regulations, and standards for their intended use. The purchaser is responsible for making final design decisions regarding its products and for ensuring compliance with all legal, regulatory, and security-related requirements, irrespective of any information or support provided by LEM.

LEM products are not intended, authorized, or warranted for use in life support, life-critical, or safety-critical systems or equipment, nor in applications where failure or malfunction of an LEM product could result in personal injury, death, or significant property or environmental damage. LEM and its suppliers do not assume liability for the inclusion and/or use of LEM products in such equipment or applications; thus, this inclusion and/or use is at the purchaser's own and sole risk. Unless explicitly stated that a specific LEM product is automotive qualified, it should not be used in automotive applications. LEM does not accept liability for the inclusion and/or use of non-automotive qualified products in automotive equipment or applications.

Applications that are described herein are for illustrative purposes only. LEM makes no representation or warranty that LEM products will be suitable for a particular purpose, a specified use or application. The purchaser is solely responsible for the design and operation of its applications and devices using LEM products, and LEM accepts no liability for any assistance with any application or purchaser product design. It is purchaser's sole responsibility to determine whether the LEM product is suitable and fit for the purchaser's applications and products planned, as well as for the planned application and use of purchaser's third-party customer(s).

Stressing and using LEM products at or above limiting values will cause permanent damage to the LEM product and potentially to any device embedding or operating with LEM product. Limiting values are stress ratings only and operation of the LEM product at or above conditions and limits given in this document is not warranted. Continuous or repeated exposure to limiting values will permanently and irreversibly affect the quality and reliability of the LEM product.

LEM products are sold subject to the general terms and conditions of commercial sale, as published at [www.lem.com](http://www.lem.com) unless otherwise agreed in a specific written agreement. LEM hereby expressly rejects the purchaser's general terms and conditions for purchasing LEM products by purchaser. Any terms and conditions contained in any document issued by the purchaser either before or after issuance of any document by LEM containing or referring to the general terms and conditions of sale are explicitly rejected and disregarded by LEM, and the document issued by the purchaser is wholly inapplicable to any sale or licensing made by LEM and is not binding in any way on LEM.

© 2025 LEM INTERNATIONAL SA – All rights reserved