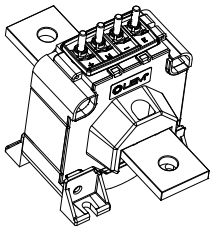
# Current Transducer LTC 600-TF/SP19

$I_{PN}$ = 500 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 | | | 500 | A |
| $I_{PM}$ | Primary current, measuring range @ ±24 V | | | 0 ... ±1500 | A |
| $\hat{I}_P$ | Overload capability | | | 10/10 | kA/ms |
| $R_M$ | Measuring resistance | | | $R_{M\,min}$ $R_{M\,max}$ | |
| | with ±15 V | @ ±500 $A_{max}$ | | 0 70 | Ω |
| | | @ ±1200 $A_{max}$ | | 0 5 | Ω |
| | with ±24 V | @ ±500 $A_{max}$ | | 0 150 | Ω |
| | | @ ±1500 $A_{max}$ | | 0 20 | Ω |
| $I_{SN}$ | Secondary nominal RMS current | | | 100 | mA |
| $K_N$ | Conversion ratio | | | 1 : 5000 | |
| $U_C$ | Supply voltage (±5 %) | | | ±15 ... 24 | V |
| $I_C$ | Current consumption | | | < 32 (@ ±24 V) + $I_S$ | mA |

## Accuracy - Dynamic performance data

| | | | | |
|---|---|---|---|---|
| $X_G$ | Overall accuracy @ $I_{PN}$, $T_A$ = 25 °C | | < ±0.7 | % |
| | @ $I_{PN}$, $T_A$ = −40 °C ... +85 °C | | < ±1.6 | % |
| $\varepsilon_L$ | Linearity error | | < 0.1 | % |
| | | | Max | |
| $I_O$ | Offset current @ $I_P$ = 0, $T_A$ = 25 °C | | ±0.5 | mA |
| $I_{OT}$ | Temperature variation of $I_O$ | −40 °C ... +85 °C | ±1 | mA |
| $t_r$ | Step response time to 90 % of $I_{PN}$ [1)] | | < 1 | µs |
| $BW$ | Frequency bandwidth (−1 dB) | | DC ... 100 | kHz |

## General data

| | | | |
|---|---|---|---|
| $T_A$ | Ambient operating temperature | −40 ... +85 | °C |
| $T_S$ | Ambient storage temperature | −45 ... +90 | °C |
| $R_S$ | Resistance of secondary winding @ $T_A$ = 85 °C | 44 | Ω |
| $m$ | Mass | 1360 | g |
| | Standards | EN 50155: 2007 | |
| | | UL 508: 2013 | |

## Features

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

## Special Feature

- Different busbar.

## 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 choppers
- Propulsion converters
- Auxiliary converters
- Battery chargers.

## Application Domain

- Traction.

Note: [1)] For a $di/dt$ = 100 A/µs.

## Current Transducer LTC 600-TF/SP19

### Insulation coordination

| | | | |
|---|---|---|---|
| $U_d$ | RMS voltage for AC insulation test, 50 Hz, 1 min | 13.4 [1] | kV |
| | | 1.5 [2] | kV |
| $U_e$ | Partial discharge extinction RMS voltage @ 10 pC | > 2.8 [3] | kV |
| | | Min | |
| $d_{Cp}$ | Creepage distance | 83.2 | mm |
| $d_{Cl}$ | Clearance | 54.4 | mm |
| $CTI$ | Comparative tracking index (group I) | 600 | |

Notes: [1] Between primary and secondary + shield
[2] Between secondary and shield
[3] Test carried out with a busbar ⌀ 40 mm centred in the through-hole.

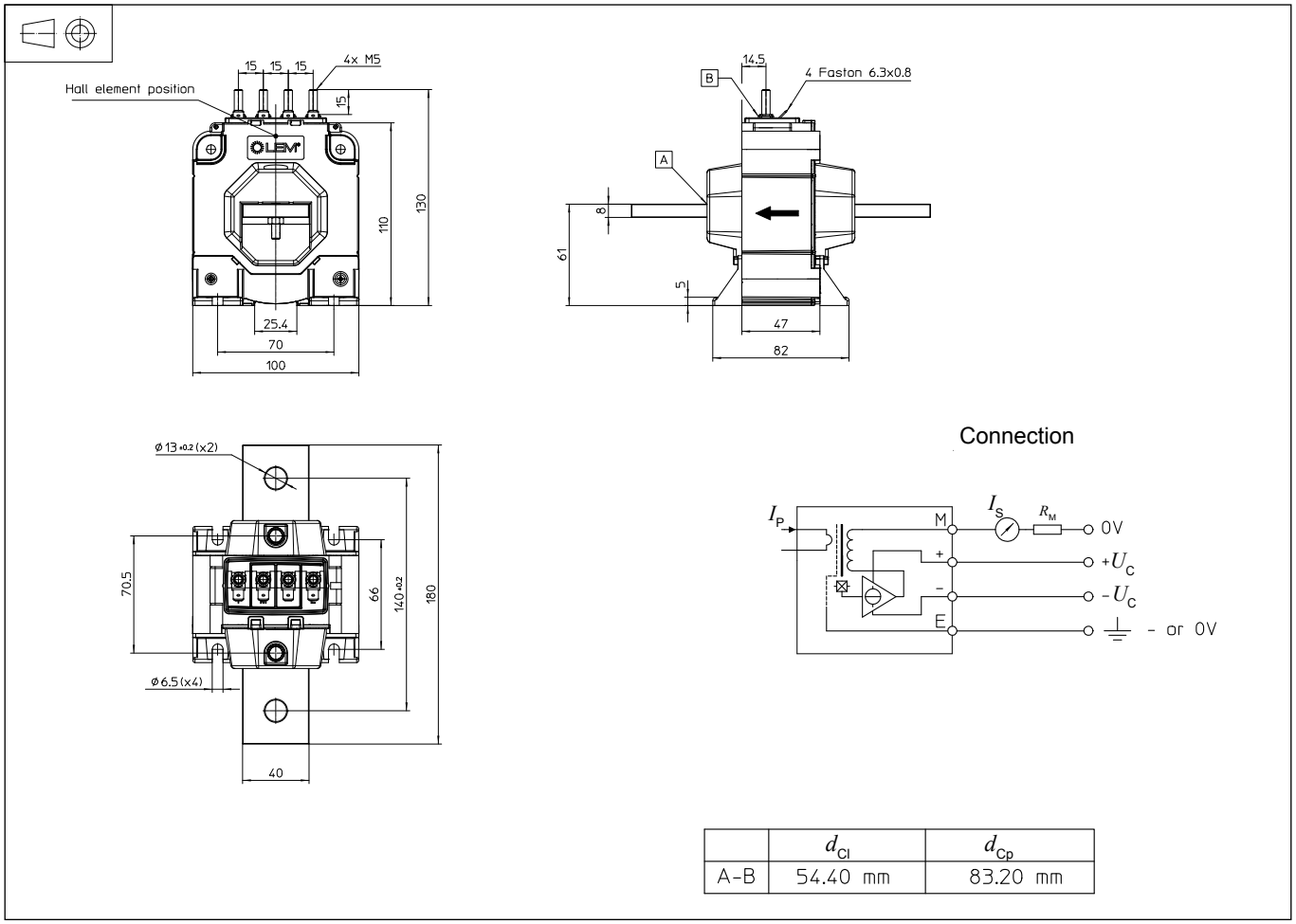
## Safety

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 LTC 600-TF/SP19 (in mm)




| | $d_{Cl}$ | $d_{Cp}$ |
|---|---|---|
| A-B | 54.40 mm | 83.20 mm |

## Mechanical characteristics

- General tolerance ±1 mm
- Transducer fastening 4 slots ⌀ 6.5 mm
  4 M6 steel screws
  Recommended fastening torque 4.7 N·m
- Primary connection 2 holes ⌀ 13 mm
  2 steel screws M12
  Recommended fastening torque 24.5 N·m
- Connection of secondary 4 M5 threaded studs
  Recommended fastening torque 2.2 N·m
  Faston 6.3 × 0.8 mm

## 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.
- Installation of the transducer must be done unless otherwise specified on the datasheet, according to LEM Transducer Generic Mounting Rules. Please refer to LEM document N°ANE120504 available on our Web site: **Products/Product Documentation**.
- Dynamic performances ($di/dt$ and response time) are best with a single bar completely filling the primary hole.