Current Transducer LT 505-S

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>( I_{PN} )</td>
<td>500 A</td>
</tr>
<tr>
<td>( I_h )</td>
<td>0 .. ±1200 A</td>
</tr>
</tbody>
</table>
| \( R_m \)          | Measuring resistance @  
                      | \( T_A = 70°C \) \( T_A = 85°C \)  
                      | \( R_{\text{min}} \) \( R_{\text{max}} \) \( R_{\text{min}} \) \( R_{\text{max}} \)  
                      | with ±15 V @ ±500 A \( \text{max} \) 0 65 0 60 Ω  
                      | @ ±800 A \( \text{max} \) 0 15 0 12 Ω  
                      | with ±24 V @ ±500 A \( \text{max} \) 0 145 15 140 Ω  
                      | @ ±1200 A \( \text{max} \) 0 22 15 18 Ω  |
| \( I_{SN} \)       | 100 mA      |
| \( K_N \)          | Conversion ratio | 1 : 5000 |
| \( V_C \)          | Supply voltage (±5%) | ±15 .. 24 V |
| \( I_C \)          | Current consumption | 30 (±24 V) + \( I_b \) mA  
                      | \( V_b \) R.m.s. voltage for AC isolation test, 50 Hz, 1 mn | 6 kV  
                      | \( V_b \) R.m.s. rated voltage \(^1\), safe separation | 1750 V  
                      | basic isolation | 3500 V  
| \( X_G \)          | Overall accuracy @ \( I_{PN} \), \( T_A = 25°C \) | ±0.6 % |
| \( \varepsilon_L \) | Linearity error | <0.1 % |
| \( I_O \)          | Offset current @ \( I_b = 0 \), \( T_A = 25°C \) | Typ Max  
                      | @ 10°C .. +85°C | ±0.4 mA ±0.5 mA  
| \( t_r \)          | Response time \(^2\) @ 90% of \( I_{PN} \) | <1 μs |
| \( f \)            | Frequency bandwidth (±1 dB) | DC .. 150 kHz |

### Accuracy - Dynamic performance data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>( T_s )</td>
<td>Ambient operating temperature</td>
</tr>
<tr>
<td>( T_s )</td>
<td>Ambient storage temperature</td>
</tr>
</tbody>
</table>
| \( R_s \)          | Secondary coil resistance @  
                      | \( T_A = 70°C \) 65 Ω  
                      | \( T_A = 85°C \) 69 Ω  |
| \( m \)            | Mass | 400 g |

### Notes

- \(^1\) Pollution class 2. With a non insulated primary bar which fills the through-hole
- \(^2\) With a di/dt of 100 A/μs.

**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.

**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.
Dimensions LT 505-S (in mm. 1 mm = 0.0394 inch)

**Secondary terminals**
- Terminal +: supply voltage +15 .. 24 V
- Terminal M: measure
- Terminal -: supply voltage -15 .. 24 V

**Connection**

**Mechanical characteristics**
- General tolerance ± 0.5 mm
- Fastening 4 holes Ø 6.5 mm
- Primary through-hole 40.5 x 40.5 mm
- Connection of secondary Faston 6.3 x 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.
- 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.

LEM reserves the right to carry out modifications on its transducers, in order to improve them, without previous notice.