Current Transducer LT 4000-T/SP42

I_{PN} = 4400 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).

0650

Electrical data

I_{PN}	Primary nominal r.m.s. current		4400	A
I_{PC}	Primary nominal cycle r.m.s. currents [1]		8500/60s	A
			4000/260s	A
I_P	Primary current, measuring range @ ± 60 V		0 .. ± 12000	A
$\hat{I}_P$	Max overload capability (not measurable)		150/10	kA/ms
			80/120	kA/ms
R_M	Measuring resistance		$R_{M\,min}$ $R_{M\,max}$	
	with ± 60 V	@ ± 9200 A_{max}	9 15	Ω
		@ ± 12000 A_{max}	9 9	Ω
I_{SN}	Secondary nominal r.m.s. current		880	mA
K_N	Conversion ratio		1 : 5000	
V_C	Supply voltage (± 5 %)		± 60	V
I_C	Current consumption @ ± 60 V		< ± 30 + I_S	mA

Accuracy - Dynamic performance data

X_G	Overall accuracy @ I_{PN}, T_A = 25°C	< ± 0.2	%
ε_L	Linearity	< 0.1	%
		Max	
I_O	Offset current @ I_P = 0, T_A = 25°C	± 0.8	mA
I_{OT}	Thermal drift of I_O T_A - 25°C .. + 50°C	± 0.8	mA
t_r	Response time [2] @ 90 % of I_{PN}	< 1	µs
di/dt	di/dt accurately followed	> 50	A/µs
f	Frequency bandwidth	DC .. 100	kHz

General data

T_A	Ambient operating temperature	- 25 .. + 50	°C
T_S	Ambient storage temperature	- 40 .. + 85	°C
R_S	Secondary coil resistance @ T_A = 50°C	14	Ω
m	Mass	11.4	kg
	Standards	EN 50178: 2001	

Notes: [1] With a ventilation V_{Air} > 0.5 m/s
[2] With a di/dt ≥ 100 A/µs.

Features

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

Special features

- I_P = 0 .. ± 12000 A
- V_C = ± 60 V (± 5 %)
- T_A = - 25°C .. + 50°C
- Shield, can be turned by 180°
- Primary busbar with cylindric mid-section ∅ 60 mm
- Overload capability very high.

Advantages

- 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.

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Isolation characteristics

V_d	R.m.s. voltage for AC isolation test, 50 Hz, 1 mn	12 [3]	kV
		1 [4]	kV
$\hat{V}_w$	Impulse withstand voltage 1.2/50 µs	41	kV
		Min	
V_e	R.m.s. voltage for partial discharge extinction @ 10pC	6.3	kV
		Min	
dCp	Creepage distance [5]	113.5	mm
dCl	Clearance distance [5]	92.2	mm
CTI	Comparative Tracking Index (Group II)	550	

Application examples

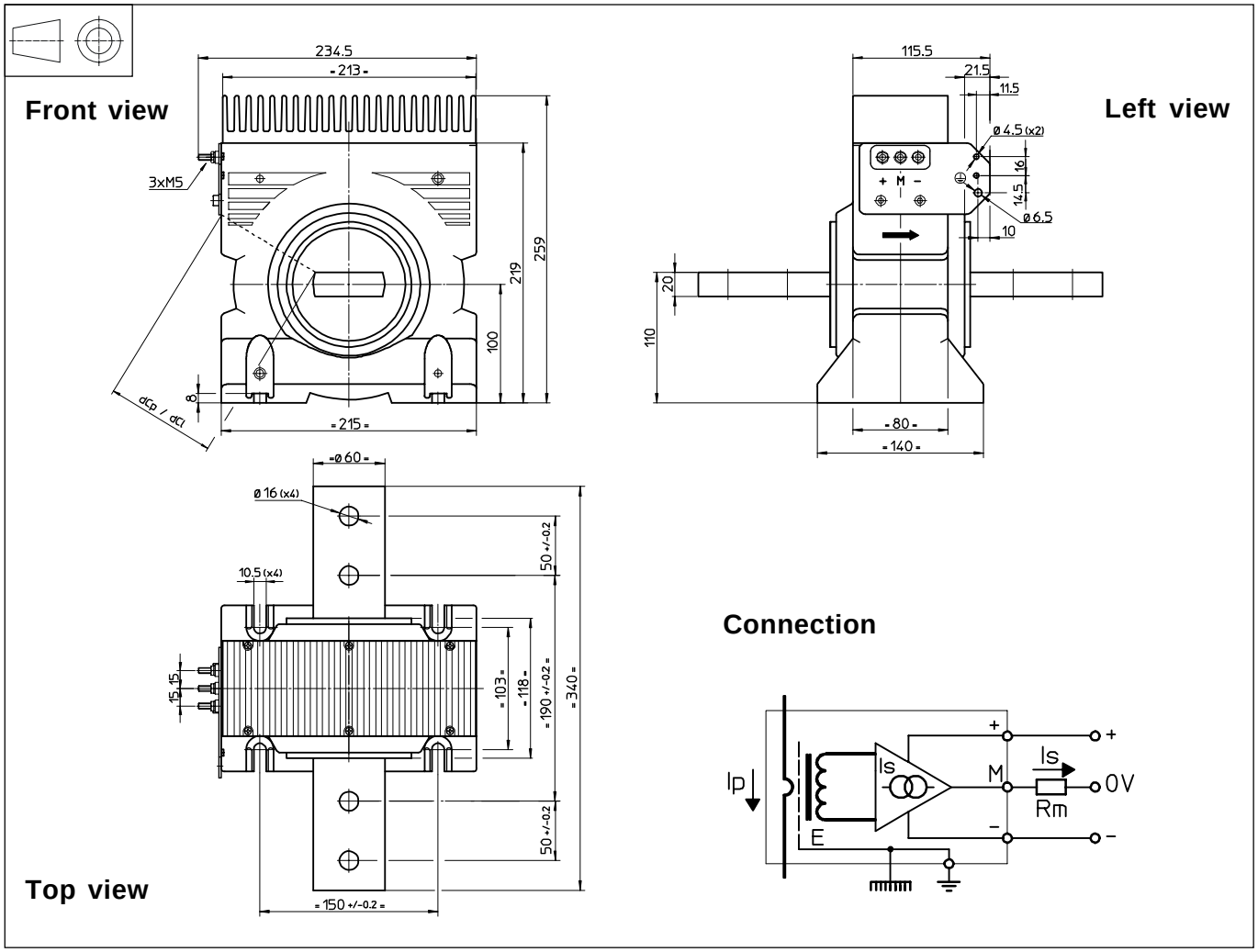
According to EN 50178 and CEI 61010-1 standards and following conditions :

- Over voltage category OV 3
- Pollution degree PD2
- Non-uniform field

	EN 50178	CEI 61010-1
dCp, dCl, $\hat{V}_w$	Rated isolation voltage	Nominal voltage
Single isolation	8490 V	Cat III 1000 V rms
Reinforced isolation	4240 V	Cat III 1000 V rms

Notes : [3] Between primary and secondary + shield
[4] Between secondary and shield
[5] See outline drawing.

Dimensions LT 4000-T/SP42 (in mm. 1 mm = 0.0394 inch)



Mechanical characteristics

• General tolerance	± 1 mm
• Transducer fastening	using primary bar or 4 slots ∅ 10.5 mm 4 M10 steel screws
Max. recommended fastening torque	11.5 Nm or 8.48Lb - Ft
• Connection of primary	4 holes ∅ 16 mm 4 M12 steel screws
Max. recommended fastening torque	24.5 Nm or 18 Lb - Ft
• Connection of secondary	M5 threaded studs
Max. recommended fastening torque	2.2 Nm or 1.62 Lb - Ft
• Earth connection	holes ∅ 6.5 mm and/ or 2 holes ∅ 4.5 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.**

Safety

This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the following 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.

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