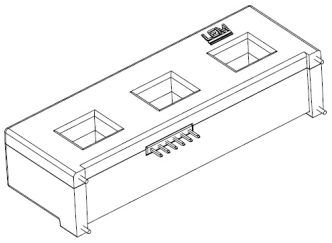
Current Transducer HTT 25 ... 75-P

I_{PN} = 25 ... 75 A

For the electronic measurement of currents: DC, AC, pulsed..., with galvanic isolation between the primary circuit (high power) and the secondary circuit (electronic circuit).



Electrical data

Type	Primary nominal current rms I_{PN} (A)	Primary current, measuring range I_{PM} (A)
HTT 25-P	25	75
HTT 50-P	50	150
HTT 75-P	75	225

V_{OUT}	Output voltage (Analog) @ I_{PN}, R_L=10 kΩ, T_A=25°C		± 4	V
R_{OUT}	Output internal resistance	approx.	100	Ω
R_L	Load resistance		≥ 10	kΩ
V_C	Supply voltage (± 5%)		± 12 ..15	V
I_C	Current consumption		≤ 40	mA

Accuracy - Dynamic performance data

X	Accuracy @ I_{PN} , T_A = 25°C, without offset			
		HTT 25-P	± 3.6	%
		HTT 50-P & HTT 75-P	± 2.5	%
ε_L	Linearity error (0 .. ± I_{PN})		± 1	% of I_{PN}
V_{OE}	Electrical offset voltage @ I_P = 0, T_A = 25°C		Typ: ± 50	mV
			Max: ± 100	mV
V_{OM}	Magnetic offset voltage @ I_P = 0,		Typ: ± 20	mV
	after an overload of 3 x I_{PN}		Max: ± 30	mV
t_r	Response time @ 90 % of I_{PN}		≤ 10	µs
di/dt	di/dt accurately followed		100	A/µs
TCV_{OE}	Temperature coefficient of V_{OE}		2	mV/°C
TCV_{OUT}	Temperature coefficient of V_{OUT}		4	mV/°C
BW	Frequency bandwidth (-3 dB)		DC .. 10	kHz

General data

T_A	Ambient operating temperature	- 10 .. + 75	°C
T_S	Ambient storage temperature	- 15 .. + 85	°C
m	Mass	67	g
	Standards	EN 50178: 1997	
	UL94 Classification	V0	

Features

- Open loop transducer technology using Hall effect
- PCB mounting
- Galvanic isolation between the primary and secondary circuit
- Extended measuring range (3 x I_{PN})
- Three measurements in one device
- Isolation voltage: 2.5 kV rms / 50 Hz /1 min.

Advantages

- Only one design for wide current ratings range
- Small size and space saving
- Easy mounting
- Through-hole, no insertion losses.

Application

- AC variable speed drives and servo motor drives
- Power supplies for welding application
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Static converters for DC motor drives.

Application domain

- Industrial.

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Current Transducer HTT 25 ... 75-P

Isolation characteristics

V_d	Rms voltage for AC isolation test, 50 Hz, 1 min	2.5	kV
$\hat{V}_w$	Impulse withstand voltage 1.2/50 us	> 6	kV
V_e	Rms voltage for partial discharge extinction @ 10pC	> 1.5	kV
dCp	Creepage distance [1)]	7.7	mm
dCl	Clearance distance [2)]	7.7	mm
CTI	Comparative Tracking Index (Group III a)	225	V

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

Notes: [1)] On housing from pin to primary V_1 hole
[2)] On housing from pin to primary V_1 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.

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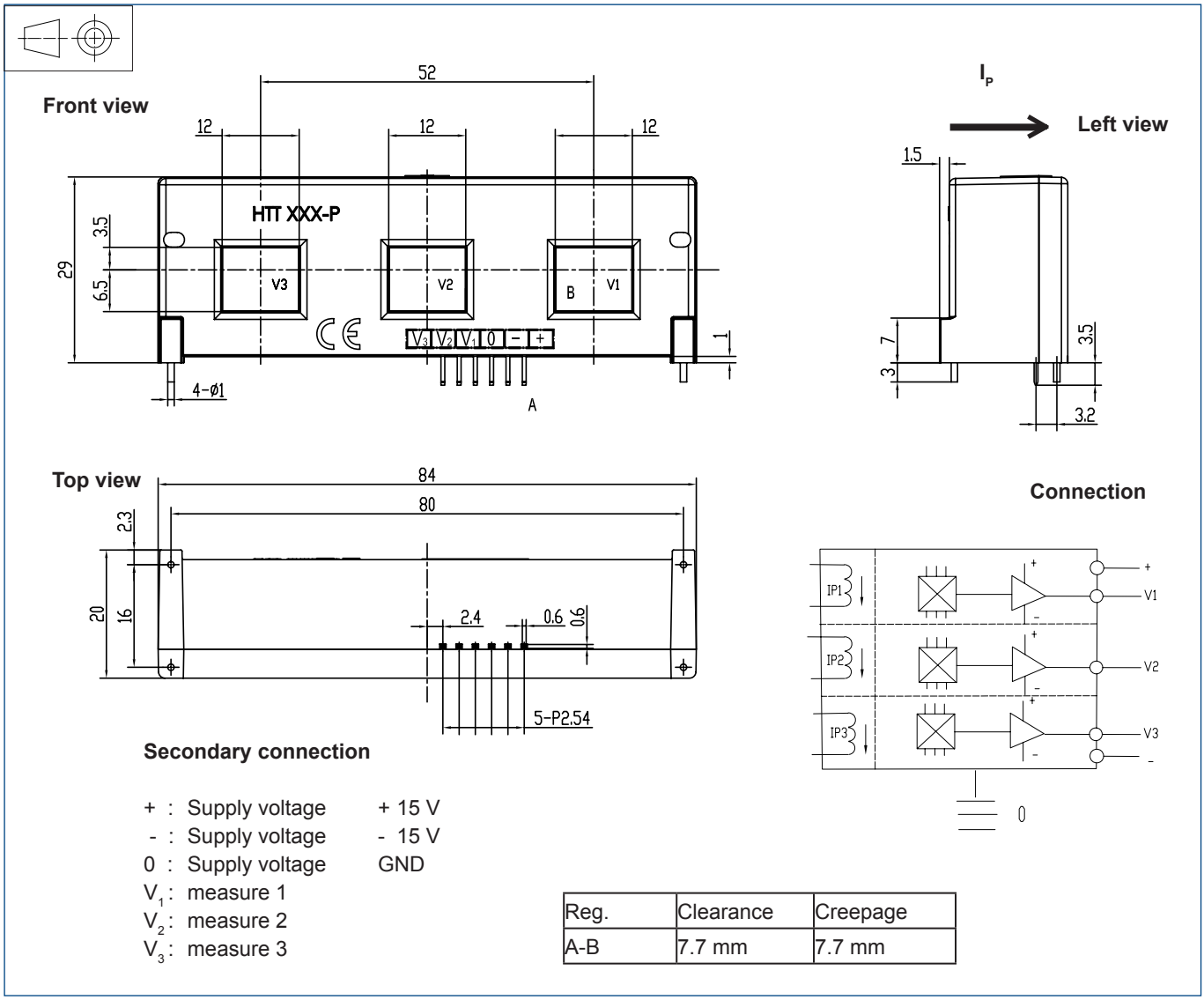
Dimensions HTT 25 ... 75-P (in mm. 1 mm = 0.0394 inch)



Secondary connection

+ :	Supply voltage	+ 15 V
- :	Supply voltage	- 15 V
0 :	Supply voltage	GND
V_1 :	measure 1	
V_2 :	measure 2	
V_3 :	measure 3	

Reg.	Clearance	Creepage
A-B	7.7 mm	7.7 mm

Mechanical characteristics

• General tolerance	± 0.2 mm
• Primary through-hole	12 x 10 mm
• Connection of secondary	L-PIN 0.6 X 0.6 mm
• Recommended PCB holes for	
Secondary connections	1.0 mm
Fixing pins	4 x 1.2 mm

Remarks

- Terminals V_1,V_2,V_3 obtain the same voltage, when the primary current flows in the direction of arrow.
- The temperature of the primary busbar should not exceed 90°C.
- $\mathbf{V_{OUT}}$ is positive when $\mathbf{I_P}$ flows in the direction of the arrow.
- Dynamic performances (di/dt and response time) are best with a single bar completely filling the primary hole.

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