

Current Transducer LA 03..20-PB

$$I_{PN} = 3 \dots 20 \text{ A}$$

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



Electrical data

Primary nominal r.m.s. current ¹⁾ I_{PN} (A)	Primary current, measuring range I_p (A)	Primary Current Limitation ³⁾ (A)	Primary Conductor Diameter (mm)	Type
3	± 4.5	3	0.5	LA 03-PB
5	± 7.5	3	0.5	LA 05-PB
10	± 15	5	0.65	LA 10-PB
15	± 22.5	7.5	0.8	LA 15-PB
20	± 30	10	1.0	LA 20-PB

V_C	Supply voltage (± 5 %)	± 15	V
I_C	Current consumption	app. 20mA + $I_{PN}/1200$ mA	
R_{IS}	Isolation resistance @ 500 VDC	> 500	MΩ
V_{OUT}	Output voltage @ ± I_{PN} , $R_L = 10 \text{ k}\Omega$, $T_A = 25^\circ\text{C}$	± 4	V
R_L	Load resistance	> 10	kΩ

Accuracy-Dynamic performance data

X	Accuracy @ I_{PN} , $T_A = 25^\circ\text{C}$ (without offset)	<± 1.5	% of I_{PN}
e_L	Linearity error (0 .. ± I_{PN})	<± 1	% of I_{PN}
V_{OE}	Electrical offset voltage, $T_A = 25^\circ\text{C}$	<± 30	mV
V_{OH}	Hysteresis offset voltage @ $I_p = 0$; after an excursion of 1 x I_{PN}	<± 15	mV
V_{OT}	Thermal drift of V_{OE} (-10..+80°C)	<± 1	mV/K
	(-20..-10°C)	<± 2	mV/K
TCE_G	Thermal drift of the gain (% of reading) (-10..+80°C)	<± 0.04	%/K
	(-20..-10°C)	<± 0.08	%/K
t_r	Response time @ 90% of I_p	< 3	μs
f	Frequency bandwidth (- 1dB) ²⁾	DC .. 150	kHz

General data

T_A	Ambient operating temperature	- 20 .. + 80	°C
T_S	Ambient storage temperature	- 30 .. + 85	°C
m	Mass	< 12	g

Features

- Closed loop (compensation) current transducer using the Hall effect
- Voltage output
- Printed circuit board mounting

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 capacity

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

Notes : 1) Calibration for 4V output is carried out at the primary nominal r.m.s. current.

2) Derating is needed to avoid excessive core heating at high frequency.

3) Primary current is limited by primary wire size. Permanent primary current should not exceed the specified value.

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Isolation characteristics

V_d	R.m.s. voltage for AC isolation test, 50 Hz, 1 mn	2.5 ⁴⁾	kV
dCp	Creepage distance	> 10	mm
dCl	Clearance distance	> 10	mm
CTI	Comparative Tracking Index (Group IIIa)	> 220	

Application examples

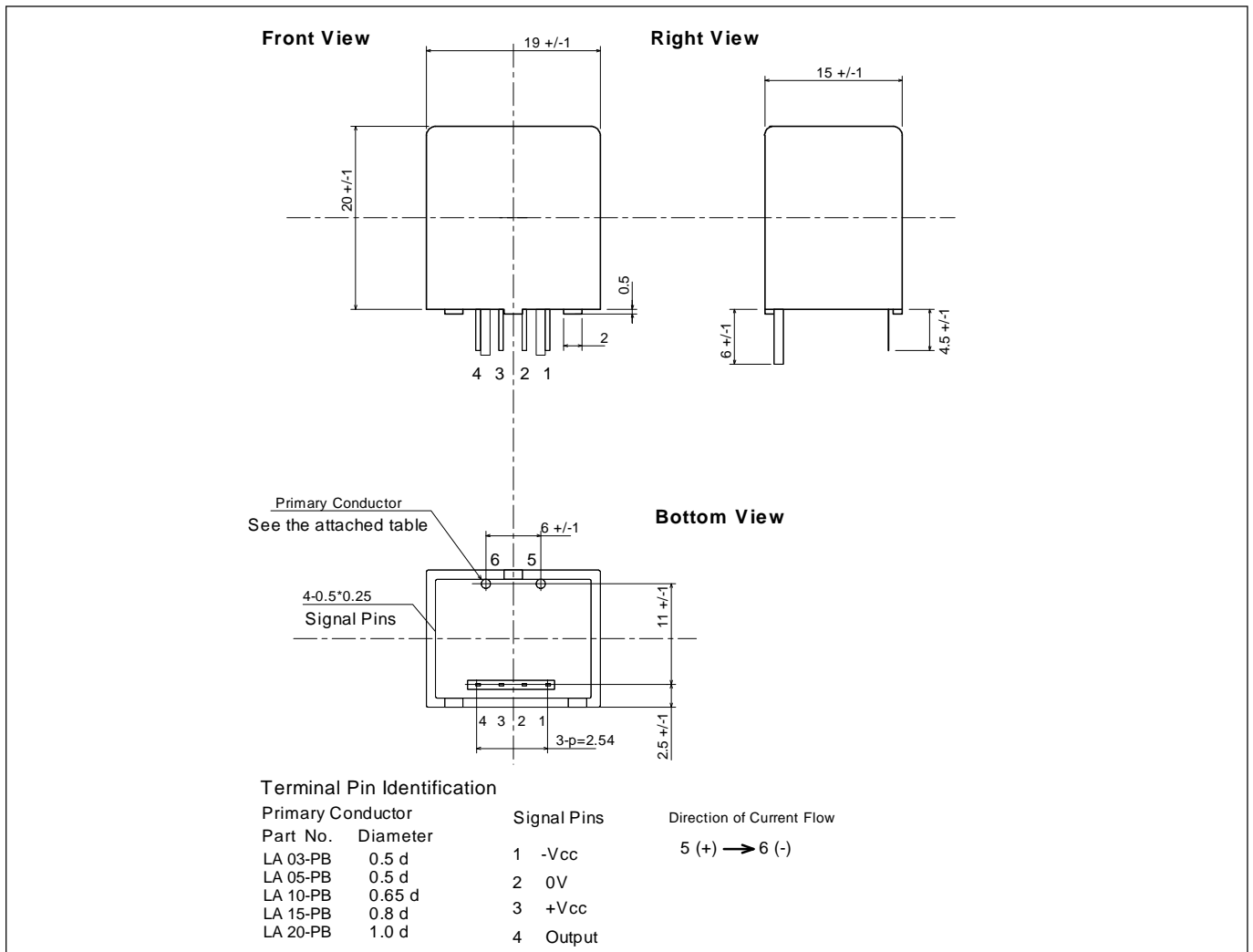
According to EN 50178 and CEI 61010-1 standards and following conditions :

- 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	1000 V	Cat III 1000 V rms
Reinforced isolation	500 V	Cat III 300 V rms

Notes : ⁴⁾ Between primary and secondary

Dimensions LA 03..20-PB (in mm. 1 mm = 0.0394 inch)



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.