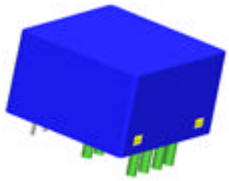
Current Transducer HXS 20-NP

I_{PN} = 5 - 10 - 20 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).



All Data are given with a R_L = 10 kΩ

Electrical data

I_{PN}	Primary nominal r.m.s. current	±20	A
I_P	Primary current measuring range	±60	A
V_{OUT}	Analog output voltage @ I_P	V_{REF} ±(0.625·I_P/I_{PN})	V
	I_P = 0	V_{REF} ± 0.0125	V
V_{REF}	Internal Reference [1] - Output voltage	2.5 ± 0.025	V
	V_{REF} Output impedance	typ. 200	Ω
	V_{REF} Load impedance	≥ 200	kΩ
R_L	Output load resistance	≥ 2	kΩ
R_{OUT}	Output impedance	< 10	Ω
C_L	Max. output capacitive load	< 1	µF
V_C	Supply voltage (± 5 %)	5	V
I_C	Current consumption @ V_C = 5 V	22	mA

Accuracy - Dynamic performance data

X	Accuracy [2] @ I_{PN} , T_A = 25°C	≤±1	% of I_{PN}
e_L	Linearity 0 .. I_{PN}	≤±0.5	% of I_{PN}
	.. 3 x I_{PN}	≤±1	% of I_{PN}
TCV_{OUT}	Thermal drift of V_{OUT} @ I_P = 0	≤±0.4	mV/K
TCV_{REF}	Thermal drift of V_{REF}	≤±0.01	%/K
TCV_{OUT} / V_{REF}	Thermal drift of V_{OUT} / V_{REF} @ I_P = 0	≤±0.2	mV/K
TCe_G	Thermal drift of the gain	≤±0.05% of reading/K	
V_{OM}	Residual voltage @ I_P = 0, after an overload of 3 x $I_{PN\,DC}$	<±0.7	% of I_{PN}
t_{ra}	Reaction time @ 10 % of I_{PN}	< 3	µs
t_r	Response time @ 90 % of I_{PN}	< 5	µs
di/dt	di/dt accurately followed	> 50	A/µs
	Output noise (DC ..10 kHz)	< 15	mVpp
	(DC .. 1 MHz)	< 40	mVpp
f	Frequency bandwidth (-3 dB) [3]	DC .. 50	kHz

General data

T_A	Ambient operating temperature	- 40 .. + 85	°C
T_S	Ambient storage temperature	- 40 .. + 85	°C
dCp	Creepage distance	> 5.5	mm
dCl	Clearance distance	> 5.5	mm
CTI	Comparative tracking index (Group I)	> 600	V
	UL94 classification	V0	
m	Mass	10	g
	Standards	EN 50178 (97-10-01)	

Features

- Hall effect measuring principle
- Multirange current transducer through PCB pattern lay-out
- Galvanic isolation between primary and secondary circuit
- Isolation test voltage 2500V
- Low power consumption
- Extremely low profile, 10mm
- Single power supply +5V
- Fixed offset & gain

Advantages

- Small size and space saving
- Only one design for wide current ratings range
- High immunity to external interference.
- Internal & external reference

Applications

- AC variable speed drives
- Static converters for DC motor drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Power supplies for welding applications.

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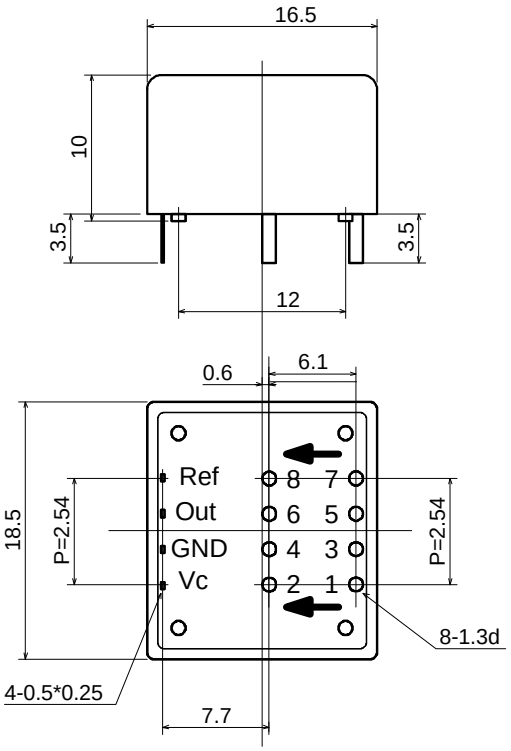
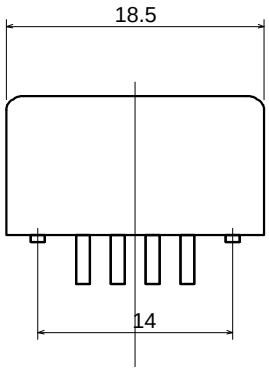
Insulation category			
V_b	Nominal Voltage with IEC 61010-1 standards and following conditions - Single insulation - Over voltage category III - Pollution degree 2 - Heterogeneous field	150	V r.m.s.
V_b	Nominal Voltage with EN 50178 standards and following conditions - Reinforced insulation - Over voltage category III - Pollution degree 2 - Heterogeneous field	300	V r.m.s.
V_d	R.m.s. voltage for AC isolation test, 50/60 Hz, 1 mn	2.5	kV
V_e	R.m.s. voltage for partial discharge extinction @ 10pC	> 1	kV
V_w	Impulse withstand voltage 1.2/50µs	6	kV

Notes : [1] It is possible to overdrive V_{REF} with an external reference voltage between 2 - 2.8 V providing its ability to sink or source approximately 2.5 mA.
[2] Excluding offset and hysteresis.
[3] Small signal only to avoid excessive heatings of the magnetic core.

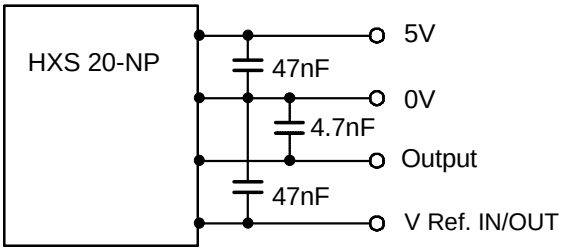
Safety :	This transducer shall be used in accordance with manufacturer instruction. The temperature of the primary conductor shall not exceed 100°C Power supply shall be a low voltage source and shall have an efficient protective system against over current. Power supply must incorporate a circuit breaker. This transducer shall be used in an electric/electronic equipment in respect of standards rules and applicable safety requirements. Primary bar and output terminals can provide hazardous voltage. This transducer is a built in device, of which conducting parts must be inaccessible by installation. Protective envelope or additional shield must be used.
 Caution, risk of danger  Caution, risk of electrical shock	

HXS 20-NP
Dimensions (in mm)

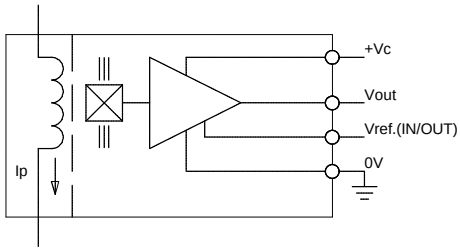




Required Connection Circuit



Operation Principle



Number of primary turns	Primary current		Primary resistance	Primary insertion inductance	Recommended PCB connections
	nominal I_{PN} [A]	maximum I_P [A]	R_P [m ohm]	L_P [uF]	
1	20	60	0.05	0.025	IN 1 3 5 7 / 2 4 6 8 OUT
2	10	30	0.2	0.1	IN 1 3 5 7 / 2 4 6 8 OUT
4	5	15	1	0.4	IN 1 3 5 7 / 2 4 6 8 OUT

Mechanical characteristics

- General tolerance ± 0.2 mm
- Fastening & connection of primary jumper 8 pins Ø 1.3 mm
  Recommended PCB hole Ø 1.5 mm
- Fastening & connection of secondary 4 pins 0.5 x 0.25
  Recommended PCB hole Ø 0.7 mm

Remarks

- $\mathbf{V}_{OUT}$ is positive when $\mathbf{I}_P$ flows from terminals 1, 3, 5, 7 (IN) to terminals 2, 4, 6, 8 (OUT).
- Temperature of the primary conductors should not exceed 100°C.