Current Transducer HTFS 200..800-P/SP2

I_{PN} = 200 - 400 - 800 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

Primary nominal r.m.s. current I_{PN} (A)	Primary current measuring range I_P (A)	Type
200	±300	**HTFS 200-P/SP2**
400	±600	**HTFS 400-P/SP2**
800	±1200	**HTFS 800-P/SP2**

V_{OUT}	Analog output voltage @ I_P		V_{REF} ±(1.25·I_P/I_{PN})	V
		I_P = 0	V_{REF} ± 0.025	V
V_{REF}	Internal Reference[1] - Output voltage		1/2V_C ± 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 .. 1.5 x I_{PN}	≤±0.5	% of I_{PN}
TCV_{OUT}	Thermal drift of V_{OUT} @ I_P = 0	≤±0.3	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 $I_{PN\,DC}$	<±0.5	% of I_{PN}
t_{ra}	Reaction time @ 10 % of I_{PN}	< 3	µs
t_r	Response time @ 90 % of I_{PN}	< 7	µs
di/dt	di/dt accurately followed	> 100	A/µs
	Output noise (DC ..10 kHz)	< 15	mVpp
	(DC .. 1 MHz)	< 40	mVpp
f	Frequency bandwidth (-3 dB) [3]	DC .. 20	kHz

General data

T_A	Ambient operating temperature	- 40 .. + 105	°C
T_S	Ambient storage temperature	- 40 .. + 105	°C
dCp	Creepage distance	> 4	mm
dCl	Clearance distance	> 4	mm
CTI	Comparative tracking index (Group IIIa)	220	V
	UL94 classification	V0	
m	Mass	60	g
	Standards	EN 50178 (97-10-01)	

Features

- Hall effect measuring principle
- Galvanic isolation between primary and secondary circuit
- Low power consumption
- Single power supply +5V
- Ratiometric offset
- T_A = -40..+105 °C
- PCB fixation by 4 Ø1 pins

Advantages

- Small size and space saving
- Only one design for wide current ratings range
- High immunity to external interference.
- $V_{REF.}$ IN/OUT

Applications

- Forklift drives
- 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	150	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	4	kV

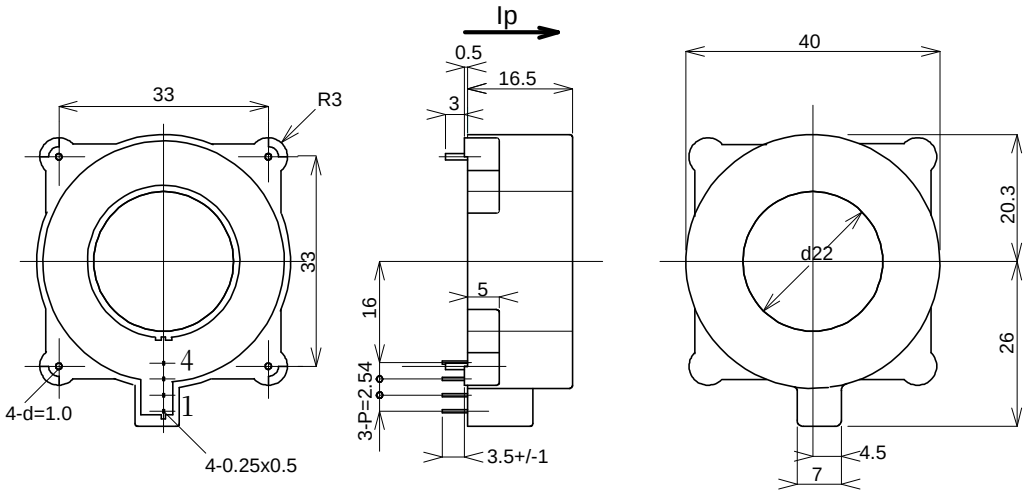
If insulated cable is used for the primary circuit, the voltage category could be improved with the following table :

Cable insulation (primary)	Category
HAR 03	300V CAT III
HAR 05	400V CAT III
HAR 07	500V CAT III

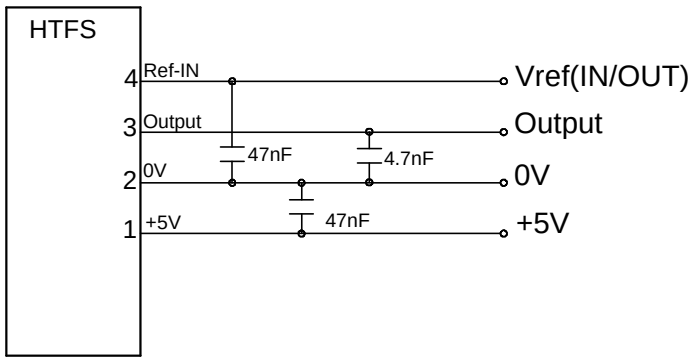
Notes : [1] It is possible to overdrive V_{REF} with an external reference voltage between 2 - 2.8 V providing its ability to sink or source approx. 2.5 mA.
[2] Excluding offset.
[3] Small signal only to avoid excessive heatings of the magnetic core.

Safety :  Caution, risk of danger  Caution, risk of electrical shock	This transducer shall be used in accordance with manufacturer instruction. 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.

HTFS 200..800-P/SP2
Dimensions (in mm)



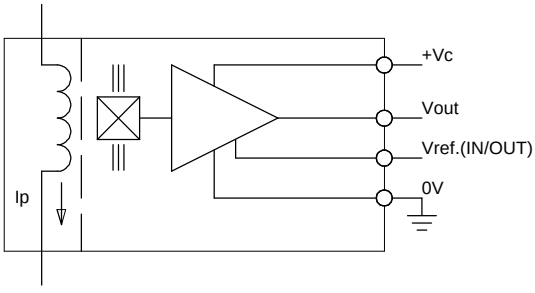
Required Connection Circuit



Terminal Pin

1...+5V
2...0V
3...Output
4...Vref(IN/OUT)

Operation Principle



Mechanical characteristics

• General tolerance	± 0.2 mm
• Fixation	4 pins x Ø 1.0
• Recommended PCB hole	Ø 1.2 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 in the direction of the arrow.
- Temperature of the primary conductor should not exceed 120°C.