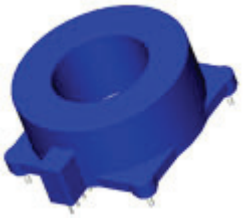
Current Transducer HTFS 200..800-P/SP2

I_{PN} = 200-400-800 A

For the electronic measurement of currents : DC, AC, pulsed, mixed, with 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 current rms I_{PN} (A)	Primary current measuring range I_{PM} (A)	Type	RoHS since datecode
200	± 300	**HTFS 200-P/SP2**	45326
400	± 600	**HTFS 400-P/SP2**	45060
800	± 1200	**HTFS 800-P/SP2**	45060

V_{OUT}	Output voltage (Analog) @ I_P		V_{REF} ± (1.25·I_P/ I_{PN})	V
		I_P = 0	V_{REF} ± 0.025	V
V_{REF}	Reference voltage[1] - Output voltage		1/2V_C ± 0.025	V
		V_{REF} Output impedance	typ. 200	Ω
		V_{REF} Load impedance	≥ 200	kΩ
R_L	Load resistance		≥ 2	kΩ
R_{OUT}	Output internal resistance		< 10	Ω
C_L	Capacitive loading		< 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}
ε_L	Linearity error (0 .. 1.5 x I_{PN})		≤ ± 0.5	% of I_{PN}
TCV_{OE}	Temperature coefficient of V_{OE} @ I_P = 0		≤ ± 0.3	mV/K
TCV_{REF}	Temperature coefficient of V_{REF}		≤ ± 0.01	%/K
TCV_{OUT}/V_{REF}	Temperature coefficient of V_{OUT} / V_{REF} @ I_P = 0		≤ ± 0.2	mV/K
TCV_{OUT}	Temperature coefficient of V_{OUT}		≤ ± 0.05	% of reading/K
V_{OM}	Magnetic offset 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 to 90 % of I_{PN} step		< 7	µs
di/dt	di/dt accurately followed		> 100	A/µs
V_{no}	Output voltage noise	(DC ..10 kHz)	< 15	mVpp
		(DC .. 1 MHz)	< 40	mVpp
BW	Frequency bandwidth (- 3 dB) [3]		DC .. 50	kHz

General data

T_A	Ambient operating temperature	- 40 .. + 105	°C
T_S	Ambient storage temperature	- 40 .. + 105	°C
m	Mass	60	g
	Standard	EN 50178: 1997	

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 and Magnetic offset voltage.

[3] Small signal only to avoid excessive heatings of the magnetic core.

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
- Isolated plastic case recognized according to UL 94-V0.

Special Features

- PCB fixation by 4pins x Ø 1.0

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.

Application domain

- Industrial.

Current Transducer HTFS 200..800-P/SP2

Isolation characteristics

$\mathbf{V_b}$ Rated isolation voltage rms with following conditions
- Over voltage category III
- Pollution degree 2
- Non-uniform field

	EN50178	IEC61010-1
Single insulation	300V	300V
Reinforced insulation	150V	150V

$\mathbf{V_d}$	Rms voltage for AC isolation test, 50 Hz, 1 min	2.5	kV
$\mathbf{V_e}$	Partial discharge extinction voltage rms @ 10pC	> 1	kV
$\mathbf{V_w}$	Impulse withstand voltage 1.2/50 µs	4	kV
dCp	Creepage distance	> 4	mm
dCl	Clearance distance	> 4	mm
CTI	Comparative tracking index (Group IIIa)	> 220	

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

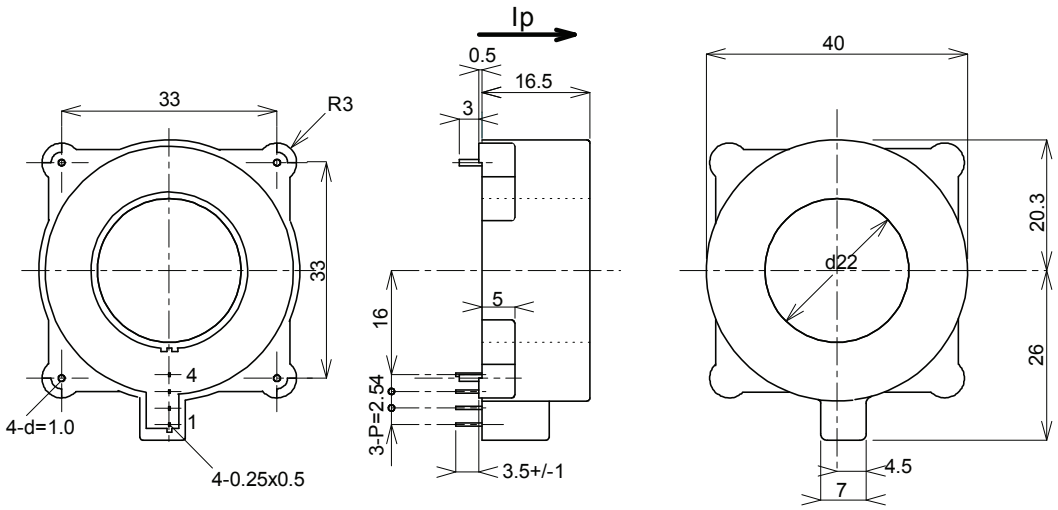
Safety

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.

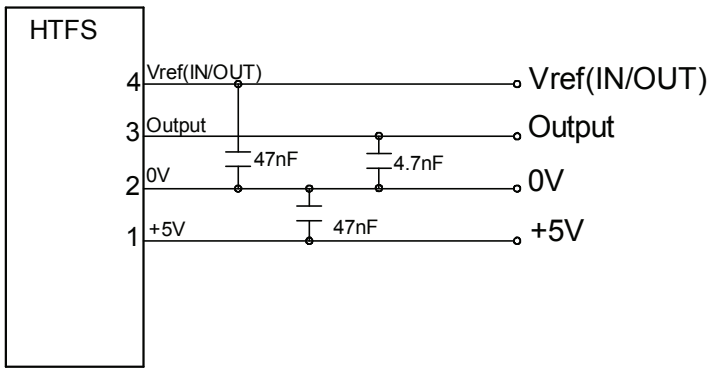
Caution! Risk of electrical shock

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 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.

Dimensions HTFS 200..800-P/SP2 (in mm. 1 mm = 0.0394 inch)



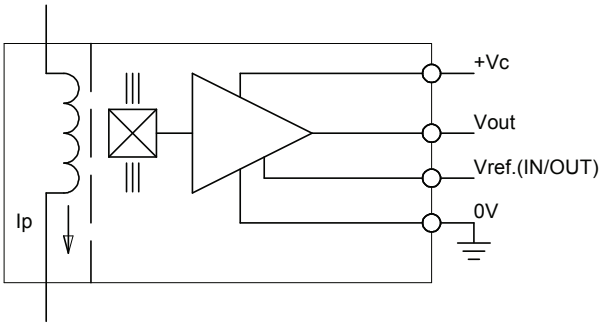
Required Connection Circuit



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

- V_{OUT} is positive when I_P flows in the direction of the arrow.
- Temperature of the primary conductor should not exceed 120°C.