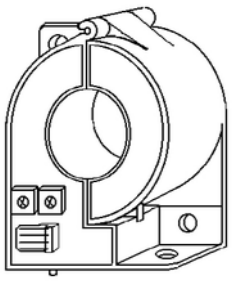
Current Transducer HTR 50 to 500-SB

I_{PN} = 50 .. 500 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)
HTR 50-SB	50	± 100
HTR 100-SB	100	± 200
HTR 200-SB	200	± 400
HTR 300-SB	300	± 600
HTR 400-SB	400	± 800
HTR 500-SB	500	± 1000

V_{OUT}	Output voltage (Analog)	± 4	V
R_L	Load resistance	> 10	kΩ
V_C	Supply voltage (± 5 %)	± 12 .. 15	V
I_C	Current consumption (max)	20	mA

Accuracy - Dynamic performance data

		Typ	Max	
X	Accuracy [1] @ I_{PN}, T_A = 25°C, @ ± 12 .. 15 V (± 5 %)	≤ ± 2		%
ε_L	Linearity error [1]	≤ ± 1		%
V_{OE}	Electrical offset voltage @ I_P = 0, T_A = 25°C	± 45	± 65	mV
V_{OM}	Magnetic offset voltage @ I_P = 0 and specified R_M, after an overload of 3 x I_{PN}	± 10	± 20	mV
V_{OT}	Temperature variation of V_O - 10°C .. + 70°C	± 70	± 240	mV
$TC\varepsilon_G$	Thermal drift of the gain, T_A = - 10 .. + 70°C	± 140	± 450	mV
t_r	Response time to 90 % of I_{PN} step	< 10		µs
di/dt	di/dt accurately followed	> 50		A/µs
BW	Frequency bandwidth (- 1 dB)	DC .. 10		kHz

General data

T_A	Ambient operating temperature	- 10 .. + 70	°C
T_S	Ambient storage temperature	- 20 .. + 85	°C
m	Mass	80	g
	Standard	EN 50178	

Note: [1] Execludes the electrical offset.

Features

- Open loop Hall effect transducer
- Busbar mounting or panel mounting.
- Isolated plastic case recognized according to UL 94-V0.

Advantages

- Low power consumption
- Split core easy for mounting
- High isolation between the primary and the secondary circuit
- Through-hole, no insertion losses.

Applications

- Power supplies for TELECOM (monitoring & measuring)
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Electrical chemistry
- Chooper
- Battery supplied applications.

Application domain

- Industrial.

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Isolation characteristics

$\mathbf{V}_d$	Rms voltage for AC isolation test, 50 Hz, 1 min	3	kV
$\hat{\mathbf{V}}_w$	Impulse withstand voltage 1.2/50 µs	> 6	kV
$\mathbf{V}_e$	Partial discharge extinction voltage rms	> 1.5	kV
		Min	
dCp	Creepage distance [1]	28.1	mm
dCl	Clearance distance [2]	17.1	mm
CTI	Comparative Tracking Index (group IIIa)	225	

Applications 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**, $\hat{\mathbf{V}}_w$	Rated isolation voltage	Nominal voltage
Single isolation	1000 V	1000 V
Reinforced isolation	500 V	500 V

Notes: [1] On housing from pin to primary hole
[2] On housing from pin to primary 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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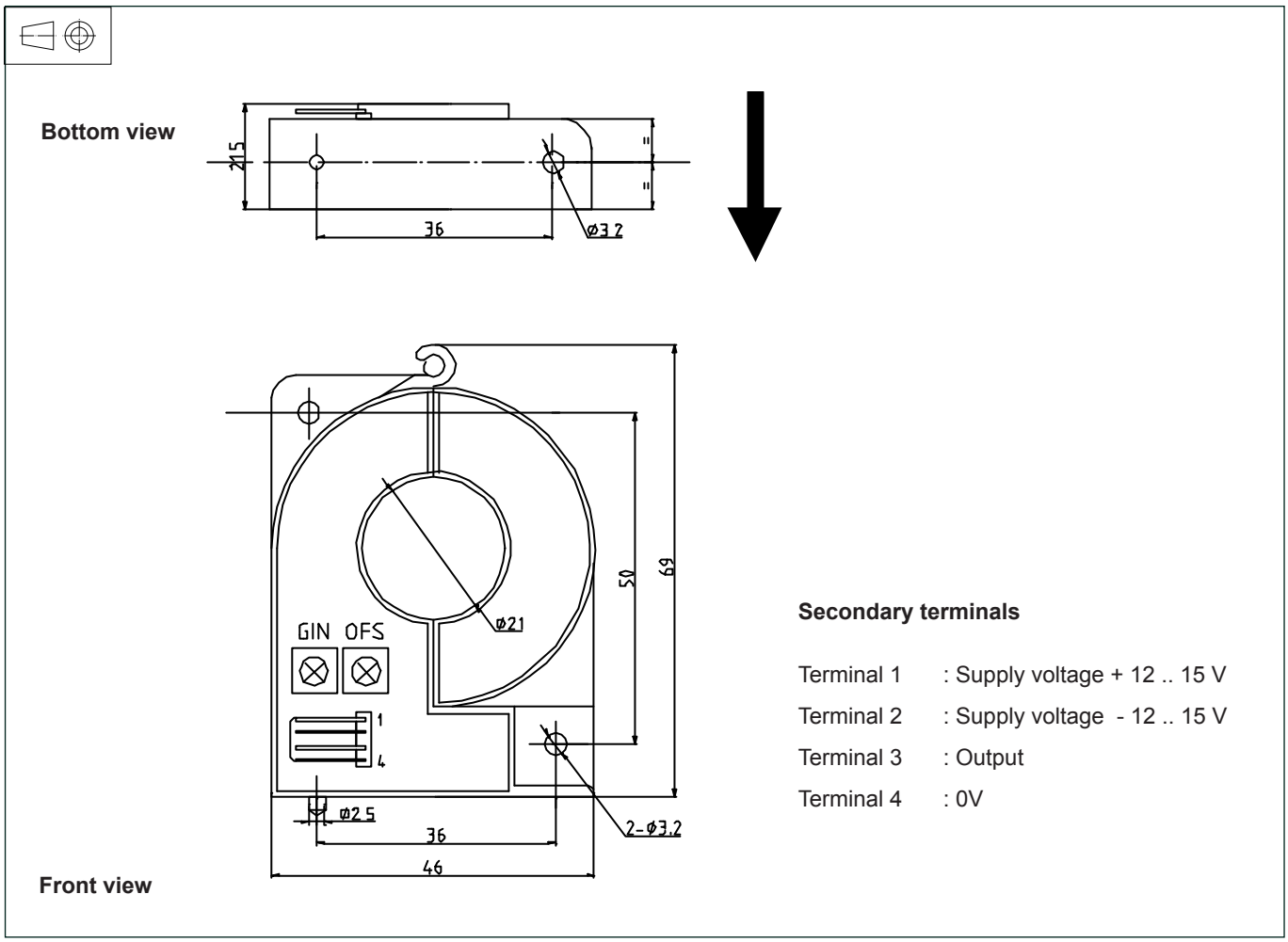
Dimensions HTR 50 to 500-SB (in mm. 1 mm = 0.0394 inch)



Secondary terminals

Terminal 1	: Supply voltage + 12 .. 15 V
Terminal 2	: Supply voltage - 12 .. 15 V
Terminal 3	: Output
Terminal 4	: 0V

Mechanical characteristics

- General tolerance ± 1 mm
- Primary through hole Ø 21 mm
- Fastening 2 holes Ø 3.2
  Distance between holes axes 50 x 36 mm
  or 1 hole Ø 3.2 and
  1 spigot Ø 2.5
  Distance between hole and sigot axes 36 mm
- Connection of secondary Molex 5046-04/AG
  "Malting connector provided with the transducer"

Remarks

- $\mathbf{V}_{OUT}$ is positive when $\mathbf{I}_P$ flows in the direction of the arrow.
- The return busbar and primary conductor elbow must be located at least at 2.5 x window length more far away from the transducer case.
- Temperature of the primary busbar cannot exceed 90°C.
- Dynamic performances are best with a primary busbar completely filling the primary aperture.
- This is a standard model. For different versions (supply voltages, different output, unidirectional measurements ...), please contact us.

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