

TECHNICAL DATASHEET

KHTB-250P4

Product Code : 11000250031200002

Board-mount open-loop Hall-effect current transducer for DC, AC, pulsed and mixed-current measurement

The KHTB-250P4 is an open-loop Hall-effect current transducer of the KHTB series, designed for precise electronic measurement of DC, AC, pulsed and mixed currents up to 250 A, providing full galvanic isolation between the primary (high-power) and secondary (electronic) circuits. It delivers a proportional analog output voltage centred on a 2.5 V offset, with a measuring range of ± 500 A.

Its compact board-mount design, low power consumption and high linearity make it well suited to power inverters, electric-vehicle power systems, industrial motor control and renewable-energy conversion systems where a robust, cost-effective current measurement is required.

**250 A**

Rated nominal current

 ± 500 A

Measuring range

4.0 kV

Isolation voltage

1 μ s

Typ. response time

ENGINEERING VALUE

High accuracy — excellent linearity ($\pm 0.15\%$ typ.) and low temperature coefficient over the full operating range.

Fast response — 1 μ s typical response time with a 300 kHz bandwidth (-3 dB, DC).

Galvanic isolation — reliable separation between primary and secondary circuits, isolation voltage up to 4 kV (50 Hz, 1 min).

Compact, low-power design — board-mount package suited to space-constrained, energy-efficient applications.

Proportional analog output — linear voltage output centred on a stable 2.5 V offset, single 5 V supply.

BEST-FIT APPLICATIONS

Power electronics — power inverters, switched-mode power supplies and uninterruptible power supplies (UPS).

Mobility — electric-vehicle (EV) power systems.

Industrial — industrial electronics and variable-frequency motor control (VFD).

Renewable energy — solar inverters and wind-turbine power-conversion systems.

Compliance and warranty markings

**RÖHS**
COMPLIANT

Standards: IEC 61010-1 EN 50178

Electrical and performance data

Unless otherwise stated: $T_A = +25^{\circ}\text{C}$, $V_{CC} = \pm 5\text{ V}$, $R_L = 10\text{ k}\Omega$.

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Primary nominal current	IPN	-	-	250	-	A
Measurement range	IPM	-	-500	-	+500	A
Sensitivity	S	-	-	2.7	-	mV/A
Supply voltage	V _{CC}	$\pm 5\%$	-	5	-	V
Offset voltage	VOFF	-	-	2.5	-	V
Accuracy	XG	$T_A = 25^{\circ}\text{C}$, IP=0 to $\pm\text{IPN}$	-0.8	-	0.8	% IPN
Accuracy	XG	$T_A = 85^{\circ}\text{C}$, IP=0 to $\pm\text{IPN}$	-2.5	-	2.5	% IPN
Linearity error	EL	IP=0 to $\pm\text{IPN}$	-	± 0.15	-	% IPN
Reference output voltage	VREF	-	2.485	2.5	2.515	V
Output voltage	VOUT	IP=0 to $\pm\text{IPM}$	-	$\text{VOFF} + S \times \text{IP}$	-	V
Current consumption	I _C	IP=0	-	16	-	mA
Symmetry	ESYM	$T_A = -40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$, IP=0 to $\pm\text{IPN}$	99	100	101	%
Offset error	VOE	$T_A = 25^{\circ}\text{C}$, IP=0	-	-	5	mV
Response time	t _R	di/dt > 50 A/ μs , 10% to 90% of IPN	-	1	-	μs
Bandwidth	BW	-3 dB	DC	300	-	kHz

Environmental and mechanical characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Dielectric strength	VD	-	4	-	kV (50Hz,1mn)
Insulation resistance	RIS	-	1000	-	M Ω
Creepage distance	dCP	-	22	-	mm
Clearance	dCL	-	14.5	-	mm
Ambient operating temperature	T _A	-40	...	+85	$^{\circ}\text{C}$
Ambient storage temperature	TSTG	-50	...	+105	$^{\circ}\text{C}$
Mass	m	-	60	-	g

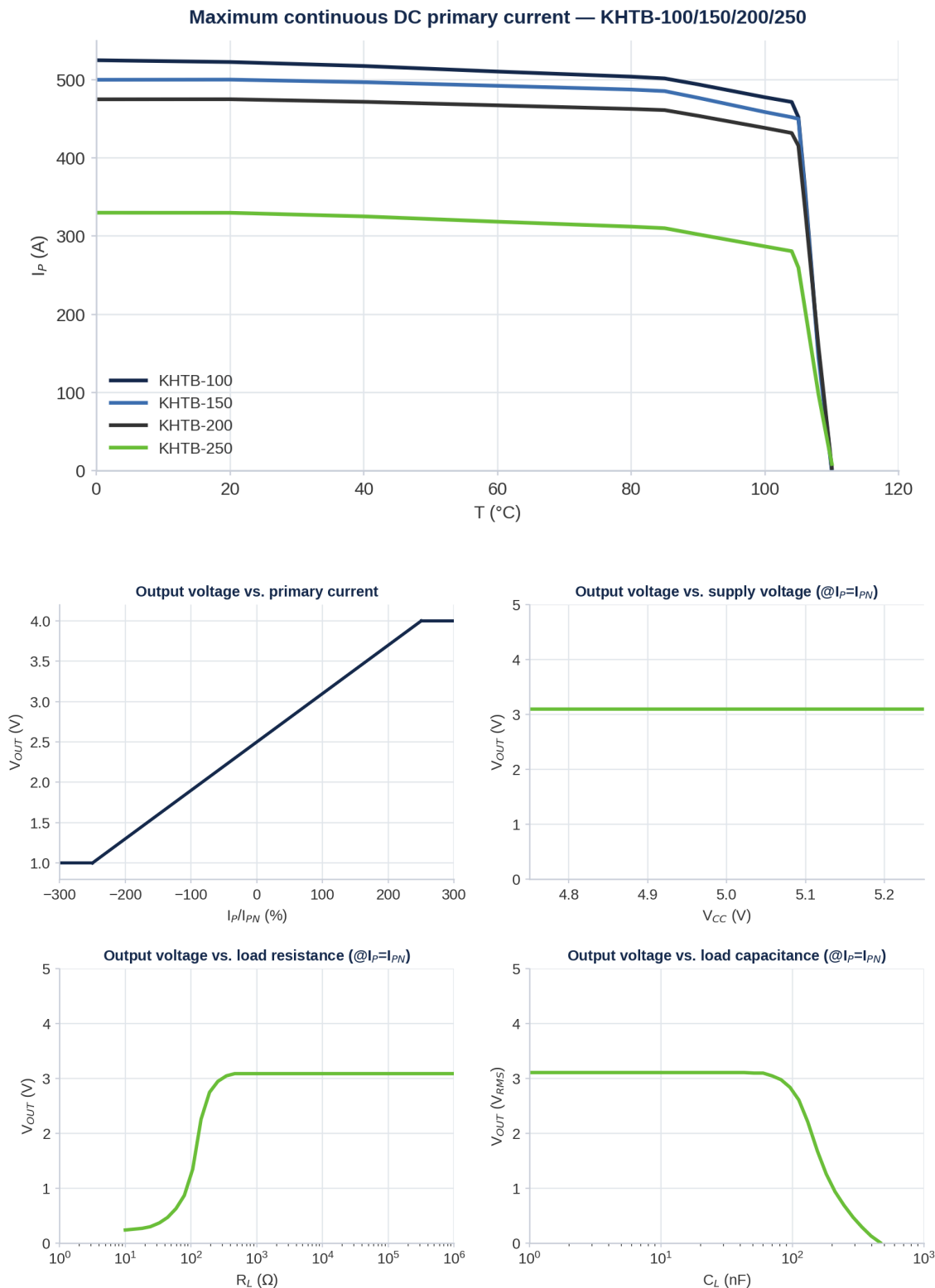
Ordering information

Part number	Product code	Rated current / measuring range
KHTB-250P4	11000250031200002	250 A / $\pm 500\text{ A}$

The specified measurement performance is achieved only when the sensor is used within the stated electrical, thermal and load conditions.

Typical performance characteristics (1/2)

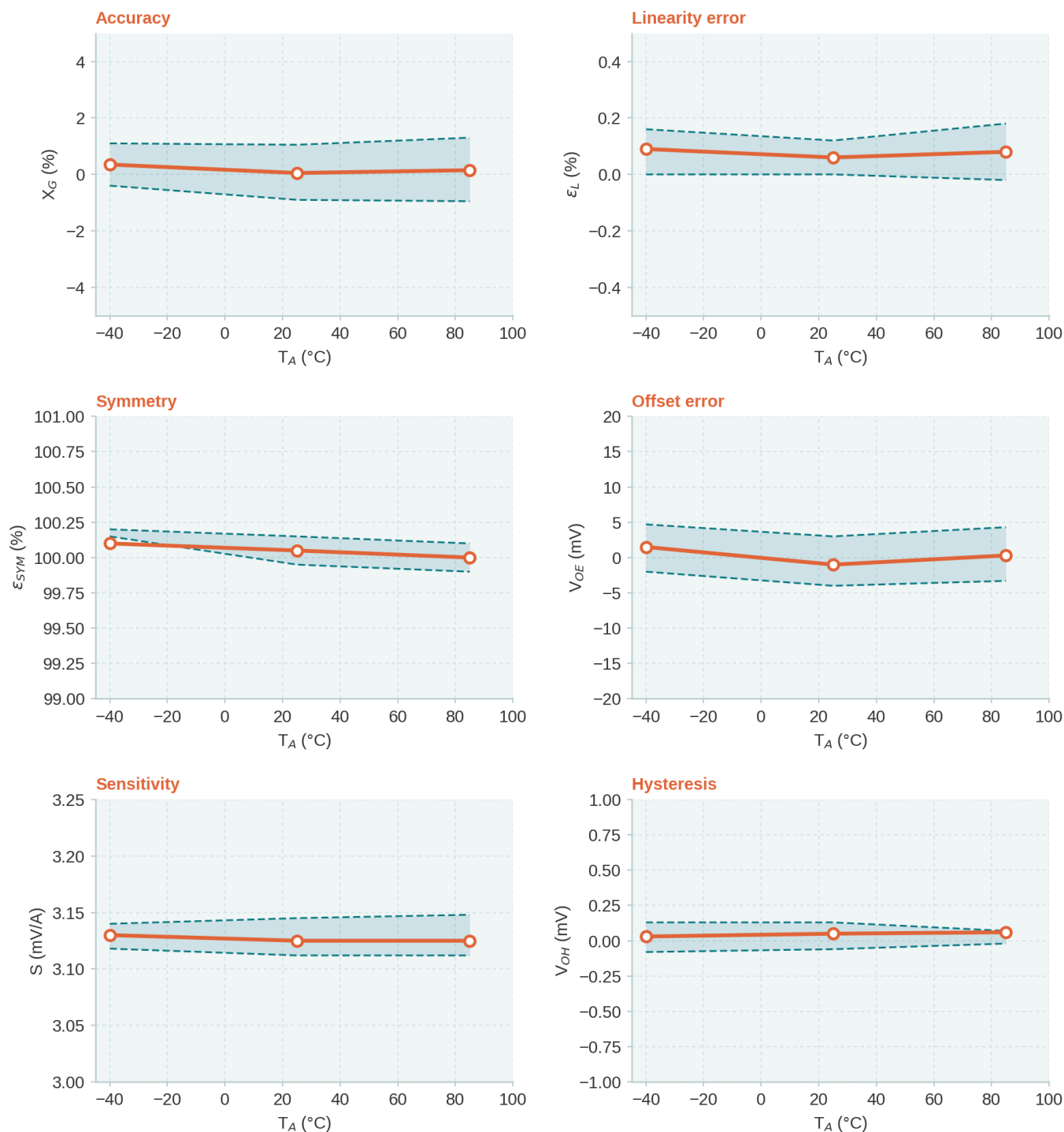
Sample characterization data from the ADISENS KHTB production test bench, common to the KHTB-100/150/200/250 range; individual units are guaranteed only to the Min./Max. limits specified in the electrical and performance data table.



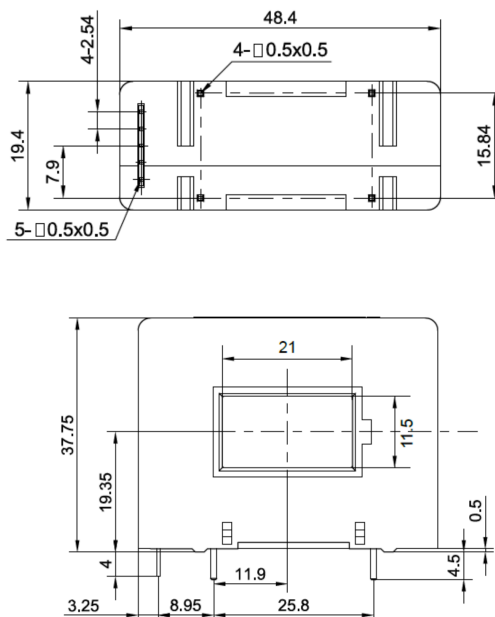
Typical performance characteristics (2/2)

Typical temperature characteristics: AVG-3 σ / AVG / AVG+3 σ distributions across the production population, common to the KHTB-100/150/200/250 range.

AVG $\pm 3\sigma$ range AVG



Mechanical dimensions and connections



All dimensions are in millimetres. Tolerances for scales: ± 1 mm. Board-mount package with 5 through-hole secondary pins (2.54 mm pitch) and 4 mounting/primary-conductor through-holes (0.5x0.5 mm slots), aperture for primary busbar/cable per drawing.

Pin definition

Pin no.	Pin name	Description
1	Vcc	Positive supply voltage, +5 V $\pm 5\%$
2	GND	Supply and signal ground (0 V)
3	VOUT	Analog output voltage, $V_{OUT} = V_{OFF} + S \times IP$
4	VREF	Reference output voltage, 2.5 V typ. (2.485–2.515 V)
5	NC	Not connected

Installation essentials

- Mounting:** compatible with busbars or primary cables passing through the aperture; secure the transducer to prevent movement or vibration during operation.
- Supply and output:** connect Vcc/GND per pin definition; the analog output VOUT is referenced to VREF and centred on the VOFF offset voltage.
- Load:** the output stage is characterized with $R_L = 10$ k Ω ; refer to the load-resistance and load-capacitance characteristics for other loading conditions.
- Grounding:** ensure correct grounding of the secondary circuit in accordance with the electrical system design, to prevent electric shock and improve system safety and performance.

Safety, compliance and quality information

Safety information

The KHTB-250P4 is a component intended for installation in electrical and electronic systems by qualified personnel, in compliance with applicable international standards such as IEC 61010-1 and local regulations. This transducer operates in high-voltage environments and must be handled with care to avoid direct contact with live electrical components; there is a risk of serious injury or death from electric shock if proper precautions are not taken. It must be used exclusively within limited-energy secondary circuits as specified by IEC 61010-1. Galvanic isolation between primary and secondary circuits does not provide absolute protection against electric shock — always de-energize circuits before installation or maintenance.

Compliance and environmental information

Subject	Information
Electrical safety	Designed for integration into equipment assessed to applicable electrical-safety requirements, including IEC 61010-1, EN 50178 where relevant to the end application.
Materials	Moulded plastic housing. Further product material and flammability information is available from ADISENS on request.
CE	EU conformity information and the applicable Declaration of Conformity are available from ADISENS on request.
RoHS / REACH	RoHS & REACH compliant. Product environmental declarations are available from ADISENS on request.
Disposal	Dispose of the product in accordance with local requirements for electrical and electronic equipment. Do not incinerate.

Three-year commercial warranty



ADISENS provides a three-year commercial warranty from the date of delivery, subject to the applicable ADISENS warranty terms and conditions. The warranty does not cover incorrect wiring, operation outside specified ratings, unsuitable environmental exposure, unauthorized modification, mechanical damage or improper system integration.

Document identification and control

Document reference	Revision	Issue date	Language	Product code
FT-KHTB-250P4	V1.0	September 2026	English	11000250031200002

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