TECHNICAL DATASHEET

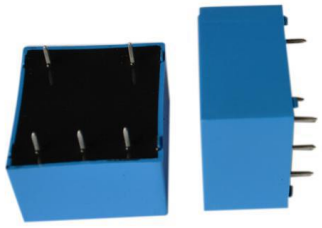
TMH-05P3

Product Code : 21600005021100001

Closed-loop Hall-effect voltage transducer for DC and AC voltage measurement

The TMH-05P3 is a high-precision closed-loop Hall-effect voltage transducer designed for accurate measurement of both DC and AC voltage, with galvanic isolation between the primary and secondary circuits. A series resistor (R1) on the primary side sets a primary current proportional to the voltage to be measured; the Hall-effect sensor and internal compensation amplifier convert it into a secondary output current, which an external measurement resistor (RM) turns into a voltage-image output.

It ensures superior accuracy, excellent linearity and low thermal drift, making it well suited to demanding industrial applications.



5 V	**±7 mA**	**2.5 kV**	**< 40 µs**
Rated input voltage	Primary current measuring range	Insulation voltage	Response time

ENGINEERING VALUE

High accuracy — < ±0.5% accuracy at IPN, T=25°C, with < 0.2% FS linearity error and low temperature drift.

Galvanic isolation — 2.5 kV insulation voltage (50/60 Hz, 1 min AC) between primary and secondary circuits.

High immunity to external interference — closed-loop Hall-effect measurement, easy installation, compact design, can be customized on request.

Fast response — response time < 40 µs (90% of IPN).

BEST-FIT APPLICATIONS

AC/DC variable-speed drives — fast, low-drift DC-bus and motor-side voltage monitoring.

Power inverters & renewable energy systems — stable DC-link voltage measurement across wide temperature swings.

UPS, SMPS — fast transfer detection and clean voltage feedback under high-frequency switching noise.

Industrial automation and control systems — compact, isolated voltage sensing on PCB or DIN-rail assemblies.

Compliance and warranty markings

RoHS COMPLIANT

WARRANTY 3 YEARS ADISENS

Standards: IEC 60950-1 | EN 50178 | SJ 20790

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Electrical and performance data

Unless otherwise stated: T_A = +25°C, V_{CC} = ±15 V.

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Primary nominal r.m.s. current	IPN	-	-	5	-	mA
Primary current measuring range	IPM	-	-7	-	+7	mA
Rated input voltage	VPN	-	-	5 (range ±1200 V)	-	V
Turn ratio	NP/NS	-	-	5000/1000	-	-
Primary coil resistance	RP	-	-	650	-	Ω
Secondary coil resistance	RS	-	-	60	-	Ω
Output current RMS	IS	-	-	±25	-	mA
Inside resistance	RM	[(VC−3.0V)/(IS×0.001)]−RS	-	-	-	Ω
Supply voltage	VC	±5%	±12	-	±15	V
Accuracy	XG	@IPN, T=25°C	-	< ±0.5	-	%
Offset current	IOE	@IP=0, T=25°C	-	< ±0.15	-	mA
Temperature variation of IOE	IOT	@IP=0, -40 … +85°C	-	< ±0.5	-	mA/°C
Linearity error	Er	-	-	< 0.2	-	%FS
Response time	TR	@90% of IPN	-	< 40.0	-	µs
Power consumption	IC	-	-	15 + IS	-	mA
Insulation voltage	VD	@50/60 Hz, 1 min, AC	-	2.5	-	kV
Operating temperature	TA	-	-40	-	+85	°C
Storage temperature	TS	-	-55	-	+125	°C
Mass	M	-	-	22	-	g
Plastic material	-	-	-	PBT G30/G15, UL94-V0	-	-

Ordering information

Part number	Product code	Rated input voltage	Measuring range
TMH-05P3	21600005021100001	5 V	-7 to +7 mA

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

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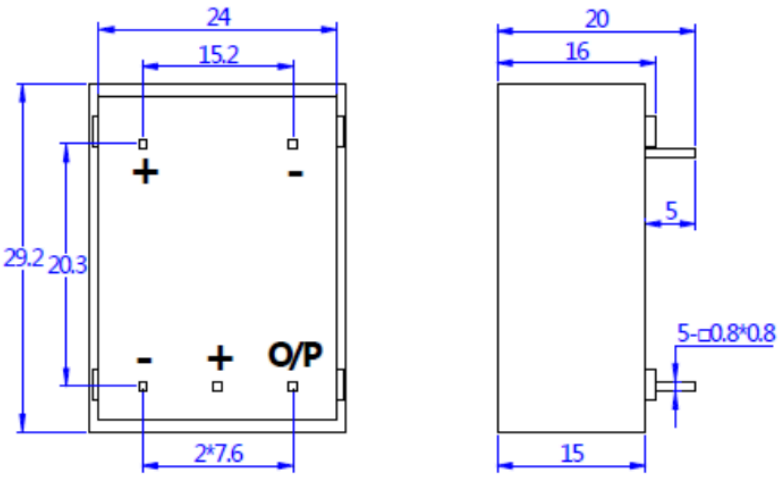
Mechanical dimensions and electrical connection

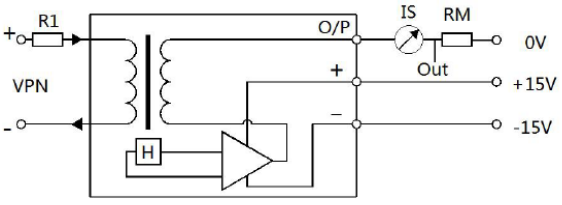


All dimensions are in millimetres. General tolerance: < ±0.2 mm. Primary pin size: 2 pins, 0.8×0.8 ±0.15 mm. Secondary pin size: 3 pins, 0.8×0.8 ±0.15 mm.

Pin definition

Marking	Function	Description
+ / − (primary)	Primary input	VPN, via external series resistor R1
+ / − (secondary)	Supply	+15 V / −15 V DC supply (VCC)
O/P	Measurement output	Output current; connect the external measurement resistor RM from terminal O/P to 0 V

Electrical connection and signal conversion



Installation essentials

1. **Primary connection:** the voltage to be measured is applied across the primary + / − pins through the external series resistor R1, which sets the rated primary current.
2. **Signal output:** the output voltage is obtained across the external measurement resistor RM, connected between terminal O/P and 0 V.
3. **Thermal limit:** keep the transducer within its specified operating temperature range for the stated accuracy and drift figures to apply.
4. **Customization:** custom designs are available on request for different rated input voltages and output configurations.

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Safety, compliance and quality information

Safety information

The TMH-05P3 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 60950-1, EN 50178, SJ 20790 where relevant to the end application.
Materials	Housing in PBT G30/G15, UL94-V0. 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-TMH-05P3	V1.0	September 2026	English	21600005021100001

This document is maintained under the ADISENS quality-management document-control process. Always verify that the revision used is the latest version available from ADISENS. Specifications may be updated as part of continuous product improvement. The customer remains responsible for confirming suitability for the intended application.

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