

SITRANS T temperature transmitters –
A broad product family for every application



sitrans



SIEMENS

The SITRANS T family – High-precision, intrinsically safe, and available for a wide variety of sensors

Whether you need a complete temperature measurement system or individual components, you can get everything you need from Siemens.

The SITRANS T family

- Control room transmitters SITRANS TW
- Field transmitters SITRANS TF and TF2
- Head transmitters SITRANS TK-L, TK and TK-H
- Head transmitter SITRANS T3K PA

The field transmitters, control room transmitters and the small, economical head transmitters of the SITRANS T family are highly accurate. They can be quickly connected to a wide variety of thermocouples and resistance thermometers as well as via millivolt sensors and ohmmeters. They are galvanically isolated and have selectable AC rejection.

Intrinsically safe and explosion-proof versions are also available

You also have a choice between non-intrinsically safe, intrinsically safe and explosion-proof versions. And you don't have to wait, either, because our SITRANS T temperature transmitters are generally in stock.

Easy configuration

For SITRANS TK-H, T3K PA and TW configuration can be done in no time with the user-friendly SIMATIC PDM software package. PDM guides you in a logical sequence through all parameters. It is so intelligent that input errors are virtually eliminated.

Temperature transmitter	SITRANS TK-L	SITRANS TK	SITRANS TK-H
Types of installation	For sensor head installation	For sensor head installation	For sensor head installation
Connection system	Two-wire technology	Two-wire technology	Two-wire technology
Housing	Molded plastic	Molded plastic	Molded plastic
Degree of protection	IP40	IP40	IP40
Power supply	8 to 35 V DC (28 V for Ex)	6.5 to 35 V DC (30 V for Ex ia)	8 to 35 V DC (30 V for Ex ia)
Connectable sensors	Pt100 resistance thermometers	Resistance-type sensors, resistance thermometers, thermocouples and direct voltage sources	Resistance-type sensors, resistance thermometers, thermocouples and direct voltage sources
Operator input/settings/ parameter assignments	SIPROM T configuration software	SIPROM T configuration software	SIMATIC PDM configuration software
Local display			
Output	4 to 20 mA	4 to 20 mA	4 to 20 mA
Communication			HART
Certificates/Approvals	ATEX EEx ia ATEX EEx n	ATEX EEx ia ATEX EEx n FM intrinsically safe	ATEX EEx ia ATEX EEx n FM intrinsically safe



SITRANS T3K-PA	SITRANS TW	SITRANS T	SITRANS TF2	SITRANS TF
For sensor head installation	Control room transmitter for mounting channel installation	Control room transmitter for mounting channel installation	Field transmitter for direct installation, incl. Pt100	Field transmitter for separate signal sensor (e.g. thermometer)
PROFIBUS PA interface	Four-wire technology	Two-wire technology	Two-wire technology	Two-wire technology
Molded plastic	Molded plastic	Molded plastic	High-grade steel	Varnished die-cast aluminum or high-grade steel
IP40	IP20	IP20	IP65	IP68
11 mA bus supply	115 / 230 V UC or 24 V UC	12 to 45 V DC	12 to 30 V DC	See Head transmitters
Resistance-type sensors, resistance thermometers, thermocouples and direct voltage sources	Resistance-type sensors, resistance thermometers, thermocouples, direct voltage sources and direct current sources	Resistance-type sensors, resistance thermometers, thermocouples, direct voltage sources and direct current sources	Integrated Pt100	Resistance-type sensors, resistance thermometers, thermocouples and direct voltage sources
SIMATIC PDM configuration software	SIMATIC PDM configuration software	TransWin configuration software	3 keys	TK-H with SIMATIC PDM TK with SIPROM T
			LC display	LC display
Digital PROFIBUS PA	0 to 20 mA, 4 to 20 mA 0 to 10 V, 2 to 10 V	4 to 20 mA	4 to 20 mA	4 to 20 mA
PROFIBUS PA, Profile 3	HART			Dependent on built-in head transmitter
ATEX EEx ia or EEx ib ATEX EEx n FM intrinsically safe	ATEX EEx [ia] or EEx [ib]			Dependent on built-in head transmitter ATEX EEx d FM intrinsically safe and FM xp

SITRANS TK: The right head transmitter for every task

SITRANS TK – The smallest in the family –
Suitable for every requirement.

Small, user-friendly, reliable, safe

Thanks to its small size, the SITRANS TK fits into a form B connection head. Internal compensation eliminates the need for cold junction compensation usually required for thermocouples. It is also extremely user-friendly, reliable and safe. Other features are galvanic isolation up to 500 V AC, approval for use in hazardous areas, and usage at temperatures from a biting cold $-40\text{ }^{\circ}\text{C}$ to an unbearably hot $+85\text{ }^{\circ}\text{C}$.

And configuration parameters? They are assigned using SIPROM T or, in the case of SITRANS TK-H, also using HART Communicator or SIMATIC PDM.

For less exacting demands on measuring accuracy, the SITRANS TK-L is the perfect solution for Pt100 measurements. Lacking galvanic isolation and a universal sensor interface, SITRANS TK-L is an economical alternative to SITRANS TK-H.



SITRANS T3K PA: With PROFIBUS capability and access to Totally Integrated Automation

The bus-capable device with PROFIBUS PA inter-
face can be used in all sectors of industry.

The SITRANS T3K PA converts signals from resi-
stance thermometers, resistance-type sensors,



thermocouples and voltage sensors into digital signals. The measured value from the micro-processor is then placed on PROFIBUS PA. Sensor, limit values, failure mode, etc. are programmable. SITRANS T3K PA offers you a wide variety of diagnostic and simulation options.

Extremely safe

SITRANS T3K PA's power consumption is less than 11 mA. For purposes of safety, the bus current in the event of a fault is limited to less than 14 mA, and an EMC filter prohibits malfunctions in the event of electromagnetic disturbances. The SITRANS T3K PA is also available in intrinsically safe versions EEX ia, EEx ib and FM intrinsic safety.

Fast, error-free configuration

Thanks to its compact size, the SITRANS T3K PA fits into a type B connection head with raised hinged lid. Configuration parameters are assigned by means of the user-friendly SIMATIC PDM software package.



SITRANS TF:

The field transmitter for rugged industrial environments



Because it has IP68 protection, SITRANS TF is used in environments too tough for other transmitters.

SITRANS TF is available in your choice of a rugged die-cast aluminum or durable stainless-steel housing. It converts signals from resistance thermometers, resistance-type sensors, thermocouples and voltage sensors into direct current signals in accordance with the sensor characteristic. The remote sensor mount capability of the SITRANS TF allows the electronics to be isolated from possible high process temperatures and vibration.

When measuring points are in a tough area, you can install your SITRANS TF in a more easily accessible location. The SITRANS TF is available with local indicating display. There is also a version for explosion-proof hazardous locations.

SITRANS TF2 integrates three elements in one device: a Pt100 resistance thermometer in a stainless-steel thermowell, a high-grade stainless-steel housing with a high degree of protection, and a built-in measuring transmitter with LC display with three configuration pushbuttons.



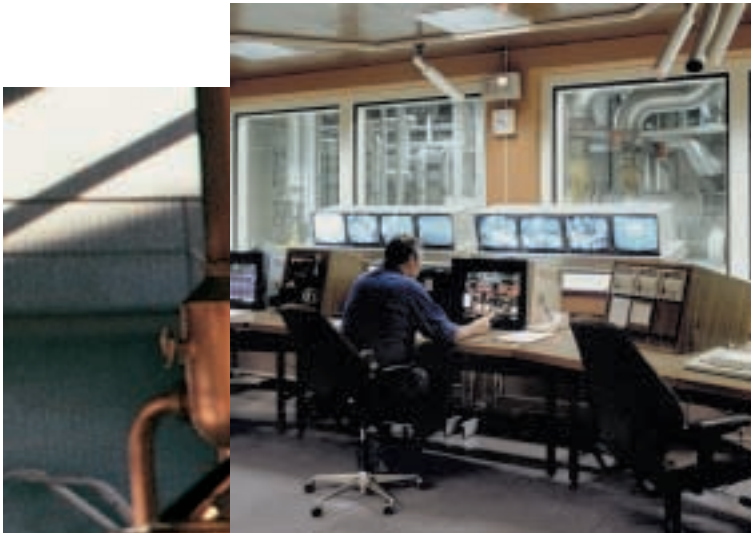
SITRANS TW: The user-friendly transmitter for the control room

SITRANS TW is the result of continuous development of SITRANS T four-wire technology, which has proven itself many hundreds of thousands of times over. The SITRANS TW is designed for DIN rail installation. With many new functions, it sets new standards for temperature transmitters. Diagnostic and simulation functions let you know exactly what is going on during commissioning and during operation.

Thanks to its HART® interface, the SITRANS TW can be easily configured to any measuring task with SIMATIC PDM.

The simulation function is used to specify physical values, making it possible to test the entire signal path from sensor input to control system without additional equipment. The Min/Max registers are used for acquiring the maximum and minimum values of the process variable.

All SITRANS TW control-room devices are available in a non-intrinsically safe version as well, as in an intrinsically safe version for use under the most demanding conditions.



Sensors: A complete range of products!

Complete measuring solutions for all applications

When it comes to transmitters and sensors, the SITRANS T family can meet your every demand. Regardless of the market and application for which measuring points are needed, we provide all the support and know-how you need.

A selection of suitable materials for protective sheath and neck well

Does your application involve high temperatures, high pressure or aggressive media, or are your temperature measurements made in fast-flowing media? We can help you find just the right solution. You also have a choice of mounting options. Whether mounting flange, threaded or weld – no problem.



All conventional sensors

With Siemens universal transmitters, you can have the sensor of your choice. Choose your sensor from a wide variety of thermocouples or resistance thermometers. Whatever your choice, we configure the transmitter to the sensor you select.

It makes no difference whatsoever whether you want to measure low or high temperatures or whether you use thermocouples or resistance thermometers. Even if you want to measure direct voltages or direct currents, the transducers of the SITRANS T family are your smart choice.

The very finest temperature sensors (Pt100, Class A) are available for applications in the pharmaceutical, food & beverage and biotechnology industries. These sensors are equipped with the process connection systems required in these industries, and are designed in accordance with hygiene requirements. Construction and materials meet FDA and EHEDG standards, and are manufactured under GMP guidelines. The temperature sensors can be installed in tubes, containers or as clamp-ons for measuring temperature without media contact.



Your Siemens partners worldwide

You will find a list of contacts near you at
www.siemens.com/processinstrumentation



Siemens AG

Automation and Drives (A&D)
Process Instrumentation and Analytics
D-76181 Karlsruhe
Phone +49 (721) 595-6997
Fax +49 (721) 595-2239

www.siemens.com/processautomation

SITRANS, SIMATIC and SIPROM are registered trademarks of Siemens. Other designations used in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owners.

The information provided in this brochure contains merely general descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.