

## Instruction for use

020967/04/09

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# *Thermo-Sensor-compact*

2.1280.0x.000 / ..141 / ..160 / ..161 / 173



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## 1 Models available

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Order-No.	Meas. range	Electr. Output
2.1280.00.000	-30...+70°C	Pt 100
2.1280.00.141	-30...+70°C	4...20 mA
2.1280.00.160	-30...+70°C	0... 1 V
2.1280.00.161	-30...+70°C	0...10 V
2.1280.00.173	-30...+70°C	0... 5 V
2.1280.00.141	0...+100°C	4...20 mA

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## 2 Application

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The *Thermo-Sensor-compact* with connected cable is designed to measure the air temperature and other non-aggressive gases.

The standard equipment of the *Thermo-Transmitter compact* includes a *teflon*-filter ZE20 (order-no. 1.1005.54.901) for field work. It protects the instrument against dust and wind speeds up to 10m/s.

For field work, it is advisable to use a „Weather and Thermal Radiation Shield“. It is optionally available as accessory.

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## 3 Mounting

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For correct measurements, the *Temperature-Sensor-compact* should be mounted at a site of the room which is representative of the climate within the room. The mounting position itself is arbitrary. Mount the sensor such that water cannot penetrate the inside of the sensor. Dew and jets of water do not harm the sensor.

Moreover, you should care for a minimum air flow and the operating voltage to be maintained. Deviations can lead to errors (e.g. due to self-heating) in the measuring values. Preferably, the sensor should be mounted vertically facing downwards to a wall (indoor mounting) and should be mounted horizontally facing backwards in canals. When using the sensor in the open air a Weather- and Thermal Radiation Shield is recommended. It reduces to a minimum the possibility of direct radiation or precipitation influencing the data in a negative manner. In addition, it protects the *Temperature-Sensor-compact* from damaging environmental influences. If the measuring place is

badly ventilated, it is recommendable to use a Weather- and Thermal Radiation Shield with force ventilation.

## 4 Maintenance

The **Temperature-Sensor-compact** is supplied already calibrated and its characteristics remain stable for years.

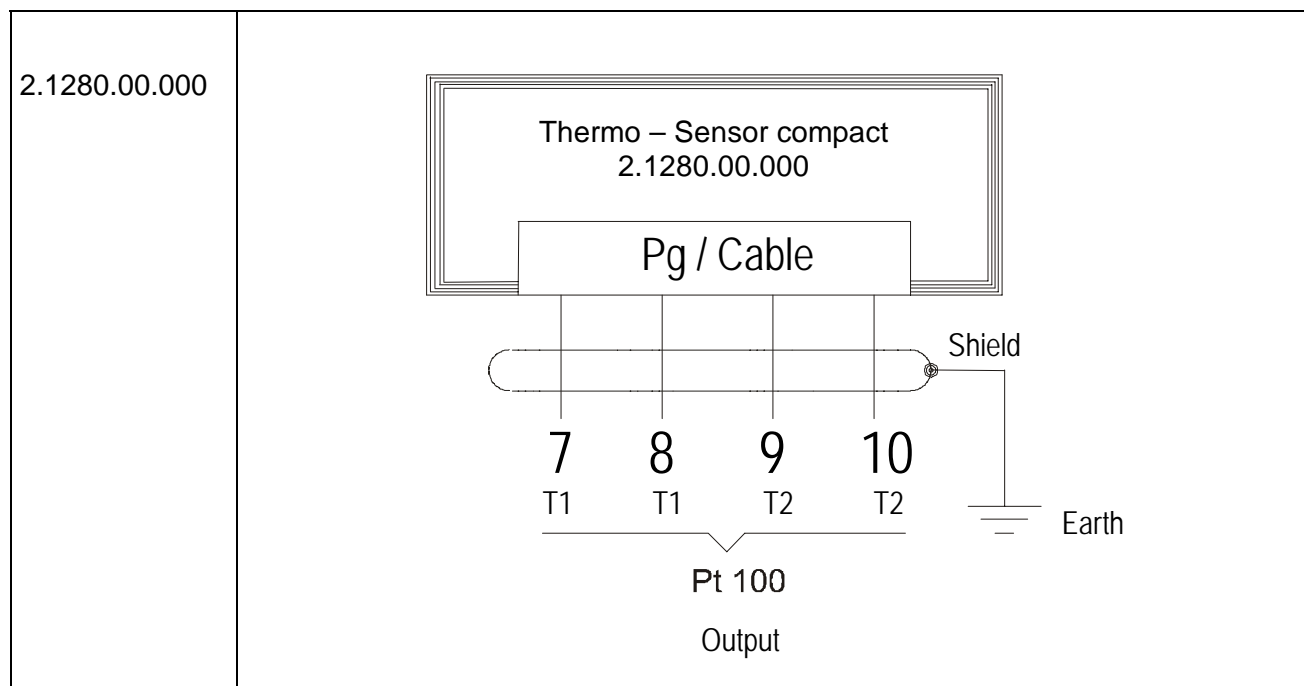
Dust does not damage the Pt100- temperature sensor but does influence the dynamic behaviour negatively. If the instrument is very dirty, the Pt100- temperature sensor can be cleaned or carefully rinsed in distilled water. Make sure you do not touch the highly-sensitive sensor element.

Before cleaning the Pt100- temperature sensor please remove the protecting filter; it should be cleaned, as well.

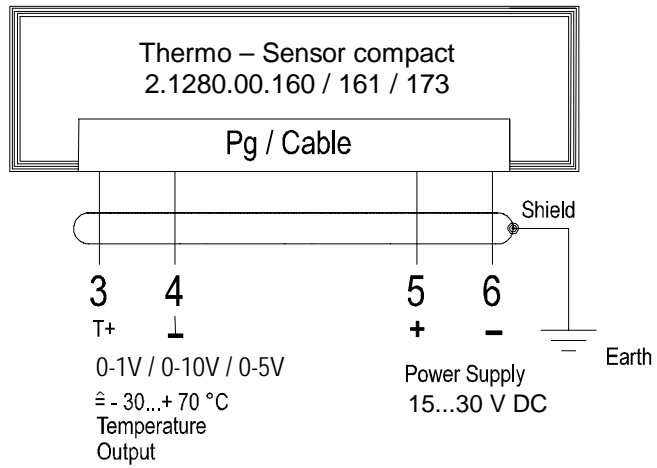
**Attention:**

*The instrument housing with the electronics included should be opened only in the factory.*

## 5 Connection Diagrams



2.1280.00.160  
 2.1280.00.161  
 2.1280.00.173



2.1280.00.141  
 2.1280.01.141

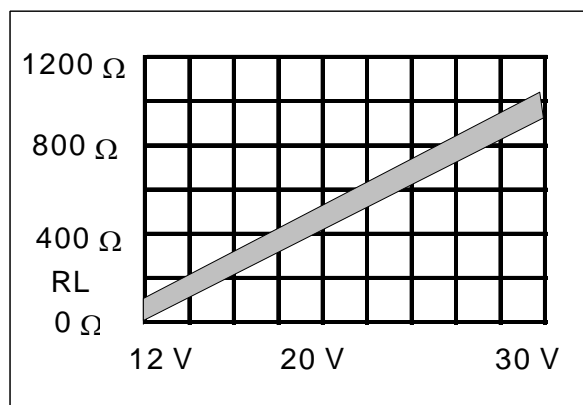
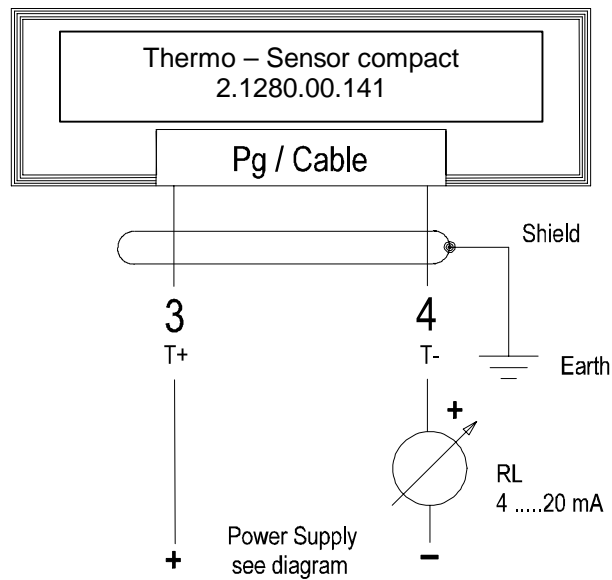


Diagram RL as function of Power Supply

## 6 Technical Data

Measuring element	Pt 100 Class B, 1/3 DIN tolerance	
Measuring range	See models available	
Deviation		
with output 0- 1 V	± 0,2 K	
with output 0-10 V	± 0,2 K	
with output 4-20 mA	± 0,3 K	
Add. error (<10°C, >40°C)	± 0,0073 K/K	
Response time (T 90)	< 20 s	(at v = 1,5 m/s) w/o filter
Response time (T 90)	< 1,5 min.	(at v = 1,5 m/s) with Teflon filter ZE 20
Response time (T 90)	< 1,5 min.	(at v = 1,5 m/s) with Sinter filter ZE 21
Ambient Temperature	-40...+80°C	
Protection		
Sensor / Electronic	IP 30 / IP 65	
Operating Voltage		
I-Output	12 ... 30 V DC	
U- Output (0...10 V)	15...30 V DC	
U- Output (0...5 V)	10...30 V DC	
U- Output (0...1 V)	6 ... 30 V DC	
Load Resistor		
I- Output	see diagram	
U- Output (0...10 V/ 0...5 V)	≥ 10 kΩ /	
U- Output (0...1 V)	≥ 2 kΩ	
Power Consumption		
U-Output (0...10 V / 0...5 V)	<5 mA	
U-Output (0.. 1 V)	<1 mA	
Cable	5 m long	
Dimensions	Ø 20 x 138 mm	
Weight	0,35 kg	

## 7 Accessories (optional)

<p><b>Weather and Thermal Radiation Shield</b></p> <p>The use of the Weather and Thermal Radiation Shield in an appropriate combination with suitable temperature sensors reduces to a minimum the possibility of influencing the data in a negative manner by radiation, precipitation or damage.</p> <p>More exactly measuring results are achieved by using the ventilated Weather and Thermal Radiation Shield (mod. 1.1025.55.10x with ventilation). The ventilation reduces those errors which might occur during the measurements in a weather hut caused by the so-called „proper climate“ .</p>	<p>1.1025.55.00x .10x .xx0 .xx1</p>	<p>w/o ventilator with ventilator 12 V DC / 2,5 W , incl. 5 m cable for mast tube mounting <math>\varnothing</math> 30 - 50 mm for mast tube mounting <math>\varnothing</math> 55 – 60 mm</p> <p><b>Remark:</b> It is recommendable to use the weather and thermal radiation shield-compact with ventilation order-no. 1.1025.55.10x for Thermo- Sensor compact model ..141 (4-20 mA)</p>
<p><b>Sinter Filter ZE21</b></p> <p>The fine-pore sinter filter serves to protect the sensor elements of the Thermo- Sensor <i>compact</i> against high wind speeds (&gt;5m/s) and dust...</p>	<p>1.1005.54.902</p>	<p>Material: stainless steel Dimensions: <math>\varnothing</math> 20 x 25 mm</p>

# 8 EC-Declaration of Conformity

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Document-No.: **000700**

Month: 04 Year: 09

Manufacturer: **ADOLF THIES GmbH & Co. KG**

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Description of Product: **Thermo-Sensor-compact**

Article No.	<b>2.1280.00.000</b>	<b>2.1280.00.141</b>	<b>2.1280.00.160</b>	<b>2.1280.00.161</b>
	<b>2.1280.00.173</b>	<b>2.1280.01.141</b>		

specified technical data in the document: **020957/04/09**

The indicated products correspond to the essential requirement of the following European Directives and Regulations:

- 2004/108/EC DIRECTIVE 2004/108/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC
- 2006/95/EC DIRECTIVE 2006/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits
- 552/2004/EC Regulation (EC) No 552/2004 of the European Parliament and the Council of 10 March 2004 on the interoperability of the European Air Traffic Management network (the interoperability Regulation)

The indicated products comply with the regulations of the directives. This is proved by the compliance with the following standards:

Reference number	Specification
IEC 61000-6-2: 2005	Electromagnetic compatibility Immunity for industrial environment
IEC 61000-6-3: 2006	Electromagnetic compatibility Emission standard for residential, commercial and light industrial environments
IEC 61010-1: 2001	Safety requirements for electrical equipment for measurement, control and laboratory use. Part 1: General requirements

Place: Göttingen

Date: 02.04.2009

Legally binding signature:

issuer:

.....  
Wolfgang Behrens, General Manager

.....  
Joachim Beinhorn, Development Manager

This declaration certifies the compliance with the mentioned directives, however does not include any warranty of characteristics. Please pay attention to the security advises of the provided instructions for use.



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