

# Thermo-Sensor-compact

## Instruction for Use

2.1280.xx.xxx



Dok. No. 020967/10/22

THE WORLD OF WEATHER DATA

### Safety Instructions

- Before operating with or at the device/product, read through the operating instructions. This manual contains instructions which should be followed on mounting, start-up, and operation. A non-observance might cause:
  - failure of important functions
  - endangerment of persons by electrical or mechanical effect
  - damage to objects
- Mounting, electrical connection and wiring of the device/product must be carried out only by a qualified technician who is familiar with and observes the engineering regulations, provisions and standards applicable in each case.
- Repairs and maintenance may only be carried out by trained staff or **Adolf Thies GmbH & Co. KG**. Only components and spare parts supplied and/or recommended by **Adolf Thies GmbH & Co. KG** should be used for repairs.
- Electrical devices/products must be mounted and wired only in a voltage-free state.
- **Adolf Thies GmbH & Co KG** guarantees proper functioning of the device/products provided that no modifications have been made to the mechanics, electronics or software, and that the following points are observed:
- All information, warnings and instructions for use included in these operating instructions must be taken into account and observed as this is essential to ensure trouble-free operation and a safe condition of the measuring system / device / product.
- The device / product is designed for a specific application as described in these operating instructions.
- The device / product should be operated with the accessories and consumables supplied and/or recommended by **Adolf Thies GmbH & Co KG**.
- Recommendation: As it is possible that each measuring system / device / product may, under certain conditions, and in rare cases, may also output erroneous measuring values, it is recommended using redundant systems with plausibility checks for **security-relevant applications**.

### Environment

- As a longstanding manufacturer of sensors Adolf Thies GmbH & Co KG is committed to the objectives of environmental protection and is therefore willing to take back all supplied products governed by the provisions of "ElektroG" (German Electrical and Electronic Equipment Act) and to perform environmentally compatible disposal and recycling. We are prepared to take back all Thies products concerned free of charge if returned to Thies by our customers carriage-paid.
- Make sure you retain packaging for storage or transport of products. Should packaging however no longer be required, please arrange for recycling as the packaging materials are designed to be recycled.



### Documentation

- © Copyright **Adolf Thies GmbH & Co KG**, Göttingen / Germany
- Although these operating instruction has been drawn up with due care, **Adolf Thies GmbH & Co KG** can accept no liability whatsoever for any technical and typographical errors or omissions in this document that might remain.
- We can accept no liability whatsoever for any losses arising from the information contained in this document.
- Subject to modification in terms of content.
- The device / product should not be passed on without the/these operating instructions.

## Contents

1	Models Available.....	3
2	Application .....	4
3	Installation.....	4
4	Maintenance .....	4
5	Connection Diagrams .....	5
6	Technical Data.....	9
7	Accessories (optional).....	10
8	More Information / Documents as download .....	10
9	EC-Declaration of Conformity .....	11
10	UK-CA-Declaration of Conformity.....	12

## 1 Models Available

Order - No.	Meas. Range	Electr. Output	Connection
2.1280.00.000	-30...+70°C	Pt 100	Cable gland (Ms), 5m cable
2.1280.15.000	-30...+70°C	Pt 100	Cable gland (Ms), 15m cable
2.1280.00.141	-30...+70°C	4...20mA	Cable gland (Ms), 5m cable
2.1280.00.160	-30...+70°C	0...1V	Cable gland (Ms), 5m cable
2.1280.00.161	-30...+70°C	0...10V	Cable gland (Ms), 5m cable
2.1280.00.173	-30...+70°C	0...5V	Cable gland (Ms), 5m cable
2.1280.00.700	-30...+70°C	Pt 100	Plug with mating plug
2.1280.00.760	-30...+70°C	0...1V	Plug with mating plug
2.1280.00.761	-30...+70°C	0...10V	Plug with mating plug
2.1280.01.141	0...+100°C	4...20mA	Cable gland (Ms), 5m cable
2.1280.10.441	-40...+60°C	4...20mA	Cable gland (Ms), 10m cable
2.1280.20.141	-30...+70°C	4...20mA	Cable gland (Ms), 20m cable

The following parts are included in delivery:

- 1 Instrument
- 1 Instruction for Use

The instructions for use are available for download under the following link:

[https://www.thiesclima.com/db/dnl/4.3351.x0.000\\_Wind\\_Transmitter\\_First\\_Class\\_Advanced\\_frequency\\_eng.pdf](https://www.thiesclima.com/db/dnl/4.3351.x0.000_Wind_Transmitter_First_Class_Advanced_frequency_eng.pdf)

## 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 *Membrane-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.

## 3 Installation

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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

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

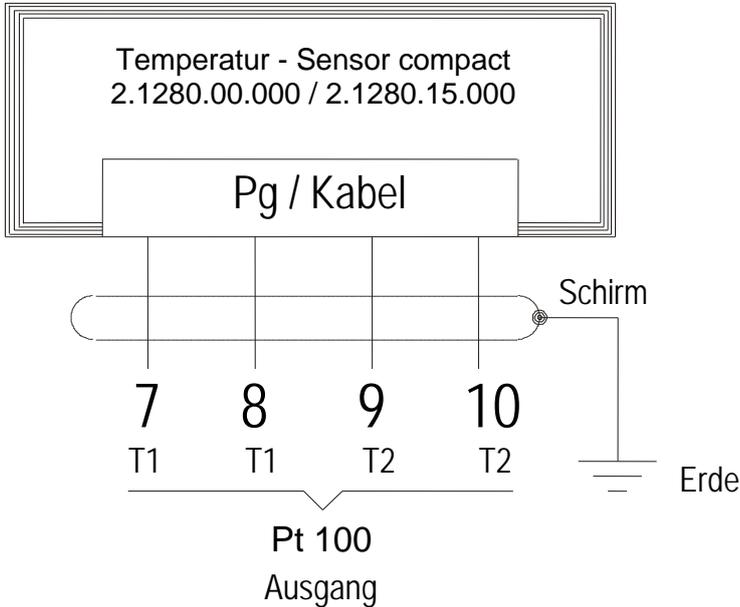
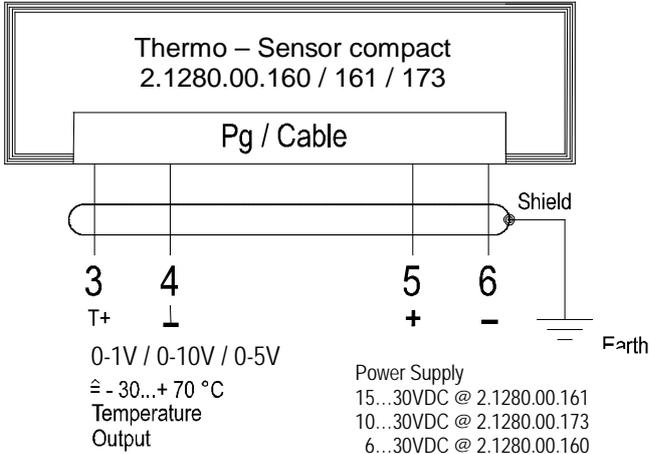
Dust does not damage the Pt100- temperature sensor but does influence the dynamic behaviour negatively. If the instrument is very dirty, the Pt100- temperature sensor can be cleaned or carefully rinsed in distilled water. Make sure you do not touch the highly-sensitive sensor element.

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

<p>2.1280.00.000 2.1280.15.000</p>	 <p>Temperatur - Sensor compact 2.1280.00.000 / 2.1280.15.000</p> <p>Pg / Kabel</p> <p>Schirm</p> <p>7 8 9 10</p> <p>T1 T1 T2 T2</p> <p>Pt 100 Ausgang</p> <p>Erde</p>
<p>2.1280.00.160 2.1280.00.161 2.1280.00.173</p>	 <p>Thermo - Sensor compact 2.1280.00.160 / 161 / 173</p> <p>Pg / Cable</p> <p>Shield</p> <p>3 4 5 6</p> <p>T+ ⊥ + -</p> <p>0-1V / 0-10V / 0-5V</p> <p>Earth</p> <p>Power Supply 15...30VDC @ 2.1280.00.161 10...30VDC @ 2.1280.00.173 6...30VDC @ 2.1280.00.160</p>

2.1280.00.141  
 2.1280.01.141  
 2.1280.10.441  
 2.1280.20.141

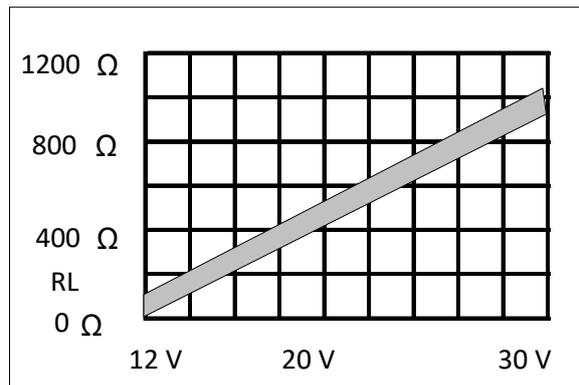
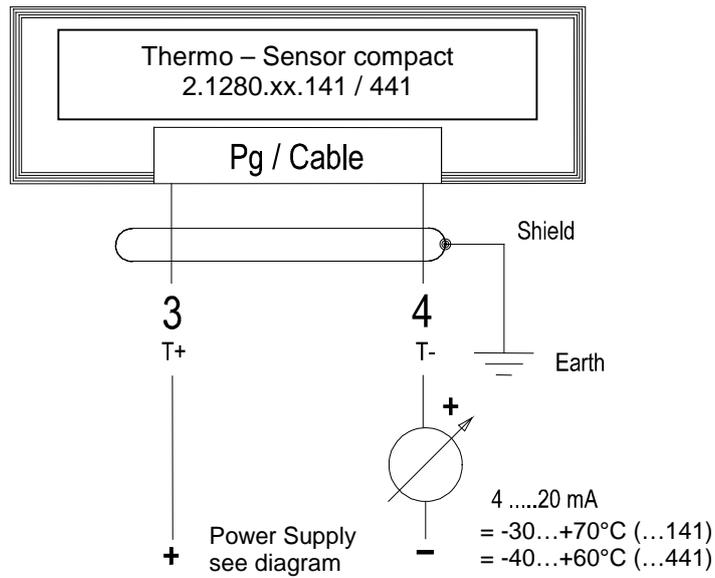
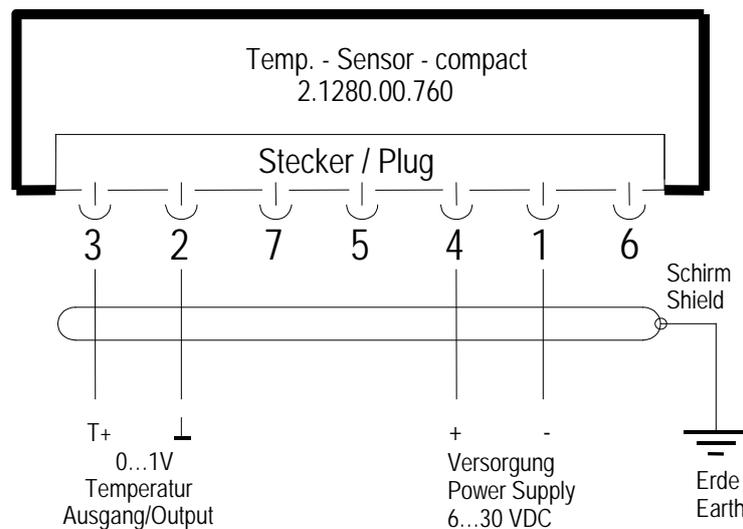
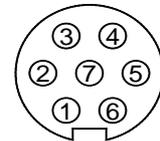


Diagram RL as function of Power Supply

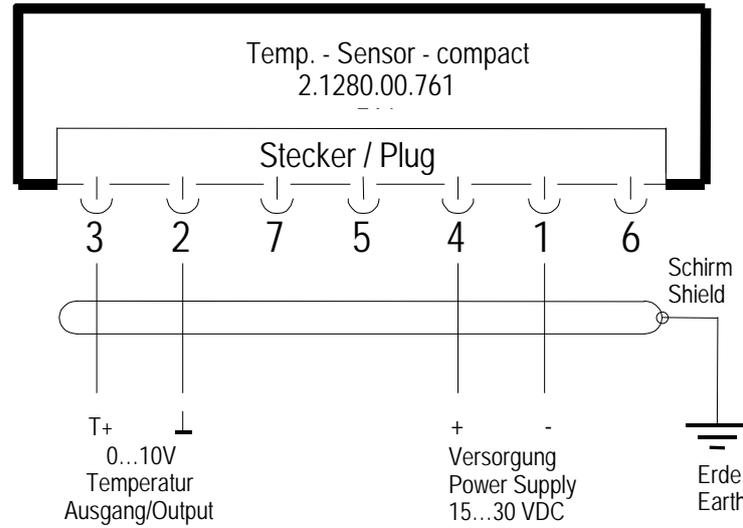
2.1280.00.760



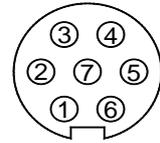
Position of pins



2.1280.00.761



Position of pins



<p>2.1280.00.700</p>		<p>Position of pins</p>
<p>Fig. with additional cable assembly 0.1280.00.710</p>		

## 6 Technical Data

Measuring element	Pt 100 Class B, 1/3 DIN tolerance
Measuring range	See models available
Accuracy	
with output Pt 100, 1/3 DIN	± 0.1K
with output 0-10V	± 0.2K
with output 4-20mA	± 0.3K
Add. error (<10°C, >40°C)	± 0,007K/K
Response time (T 90)	< 20s (at v = 1.5m/s) w/o filter
Response time (T 90)	< 1.5min. (at v = 1.5m/s) with Membrane filter ZE 20
Response time (T 90)	< 1.5min. (at v = 1.5m/s) with Sinter filter ZE 21
Long-term stability	≤ 0.05 % / year
Admissible environmental conditions	-40 ... +80°C 0 ... 100% relative humidity
Protection	
Sensor / Electronic	IP 30 / IP 65
Operating Voltage	
I-Output	12 ... 30V DC
U- Output (0...10V)	15 ... 30V DC
U- Output (0...5V)	10 ... 30V DC
U- Output (0...1V)	6 ... 30V DC
Load Resistor	
I- Output	see diagram
U- Output (0...10V/ 0...5V)	≥ 10kΩ /
U- Output (0...1V)	≥ 2kΩ
Power Consumption	
U-Output (0...10V / 0...5V)	approx. 5mA
U-Output (0.. 1V)	<1mA
Minimum wind velocity	
U- Output	≥ 0.5m/s across the sensor
I- Output	≥ 1.0m/s across the sensor
Connection	See models available
<b>Dimension to model 2.1280.00/01/15/20.000 / 141 / 160 / 161 / 173 / 441</b>	
Diameter	20mm
Length	147mm
<b>Dimension to model 2.1280.00. 700 / 760 / 761</b>	
Diameter	20mm

Length	155mm
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## 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 12V DC / 2W , incl. 5m cable for mast tube mounting <math>\varnothing</math> 30 - 50mm for mast tube mounting <math>\varnothing</math> 55 – 60mm</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 (4-20mA)</p>
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<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 25mm</p>
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## 8 More Information / Documents as download

Following documents are available for download via the link.

Instruction for use

[https://www.thiesclima.com/db/dnl/4.3351.x0.000\\_Wind\\_Transmitter\\_First\\_Class\\_Advanced\\_frequency\\_eng.pdf](https://www.thiesclima.com/db/dnl/4.3351.x0.000_Wind_Transmitter_First_Class_Advanced_frequency_eng.pdf)

## 9 EC-Declaration of Conformity

**Manufacturer:** Adolf Thies GmbH & Co. KG  
 Hauptstraße 76  
 37083 Göttingen, Germany  
<http://www.thiesclima.com>

**Product:** Thermo-Sensor-compact

Doc. Nr. 700-44847\_CE

**Article Overview:**

2.1280.00.000	2.1280.00.141	2.1280.00.160	2.1280.00.161	2.1280.00.173	2.1280.00.700	2.1280.00.760	2.1280.00.761	2.1280.01.141	2.1280.10.441
2.1280.15.000	2.1280.20.141								

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

2014/30/EU	26.02.2014	DIRECTIVE 2014/30/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.
2017/2102/EU	15.11.2017	DIRECTIVE (EU) 2017/2102 of the European Parliament and of the Council of November 15, 2017 amending Directive 2011/65 / EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.
2012/19/EU	13.08.2012	DIRECTIVE 2012/19/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 on waste electrical and electronic equipment (WEEE).

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

DIN EN 61326-2-3	2013-07	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-3: Particular requirements - Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning (IEC 61326-2-3:2012); German version EN 61326-2-3:2013
DIN EN 61326-1	2013-07	Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements
DIN EN IEC 63000	2019-05	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

Legally binding signature:



General Manager - Dr. Christoph Peper

Legally binding signature:



Development Manager - ppa. Jörg Petereit

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.

# 10 UK-CA-Declaration of Conformity

**Manufacturer:** Adolf Thies GmbH & Co. KG  
 Hauptstraße 76  
 37083 Göttingen, Germany  
<http://www.thiesclima.com>

**Product:** Thermo-Sensor-compact

Doc. Nr. 700-44847\_CA

**Article Overview:**

2.1280.00.000    2.1280.00.141    2.1280.00.160    2.1280.00.161    2.1280.00.173    2.1280.00.700    2.1280.00.760    2.1280.00.761    2.1280.01.141    2.1280.10.441  
 2.1280.15.000    2.1280.20.141

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

1081	08.12.2016	The Electromagnetic Compatibility Regulations 2016
RoHS Regulations 2012	01.01.2021	The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012
3113	01.01.2021	Regulations: waste electrical and electronic equipment (WEEE)

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

BS EN IEC 61326-2-3	10.06.2021	Electrical equipment for measurement, control and laboratory use. EMC requirements. Particular requirements. Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning
BS EN IEC 61326-1	07.06.2021	Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements
BS EN IEC 63000	10.12.2018	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Legally binding signature:



General Manager - Dr. Christoph Peper

Legally binding signature:



Development Manager - ppa. Jörg Peterleit

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.



**Please contact us for your system requirements.  
We advise you gladly.**

**ADOLF THIES GMBH & CO. KG**

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