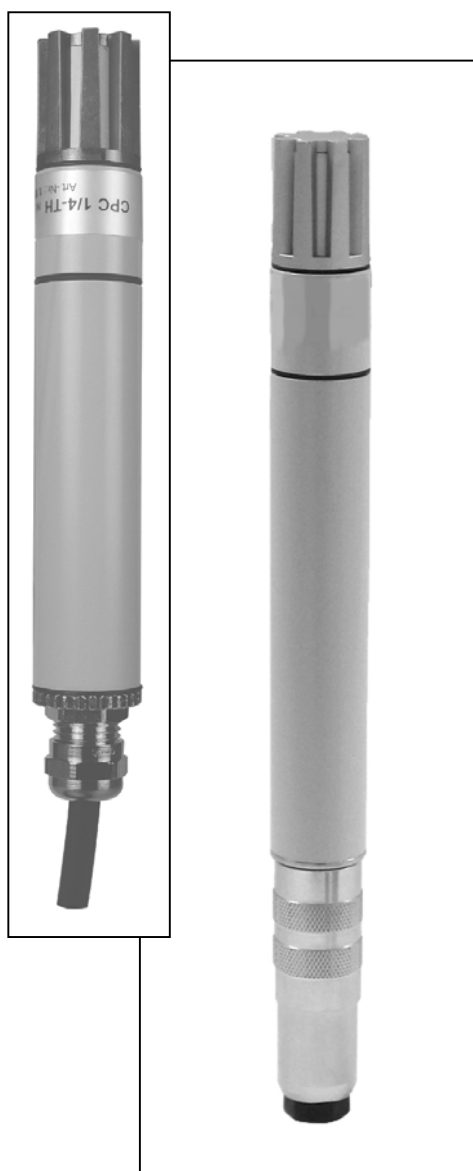


Instruction for use

020967/04/13

Thermo-Sensor-compact

2.1280.xx.xxx



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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
 - Endangering of persons by electrical or mechanic effect
 - Damages at 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 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 under certain conditions, and in rare cases, may also output erroneous measuring values, it is recommended to use redundant systems with plausibility checks with **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, arrange for recycling as the packaging materials are designed to be recycled.



Documentation

- © Copyright **Adolf Thies GmbH & Co KG**, Göttingen / Germany
- Although this 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.

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1 Models available

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

2 Application

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 10 m/s.

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

3 Mounting

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 adjusted and its characteristics remain stable for years.

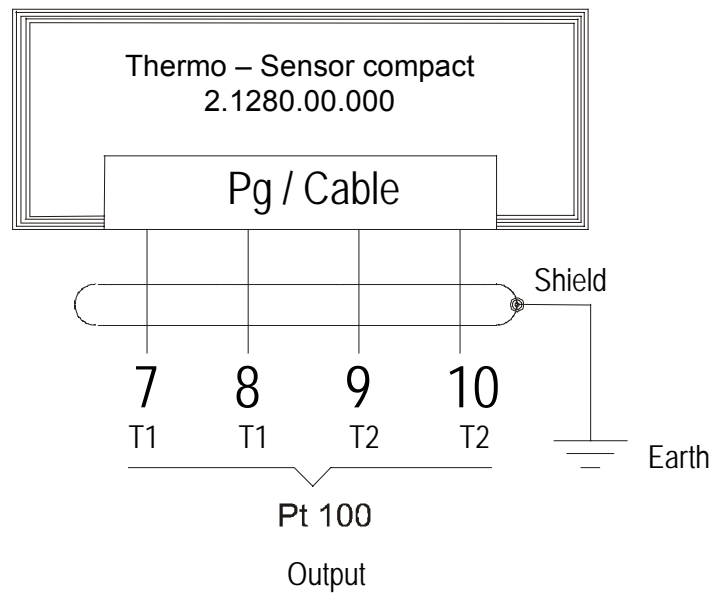
Dust does not damage the Pt100- temperature sensor but does influence the dynamic behaviour negatively. If the instrument is very dirty, the Pt100- temperature sensor can be cleaned or carefully rinsed in distilled water. Make sure you do not touch the highly-sensitive sensor element. Before cleaning the Pt100- temperature sensor please remove the protecting filter; it should be cleaned, as well.

Attention:

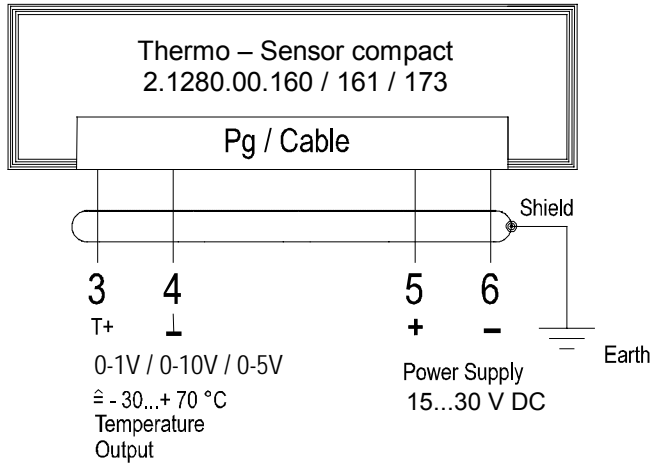
The instrument housing with the electronics included should be opened only in the factory.

5 Connection Diagrams

2.1280.00.000



2.1280.00.160
 2.1280.00.161
 2.1280.00.173



2.1280.00.141
 2.1280.01.141
 2.1280.20.141

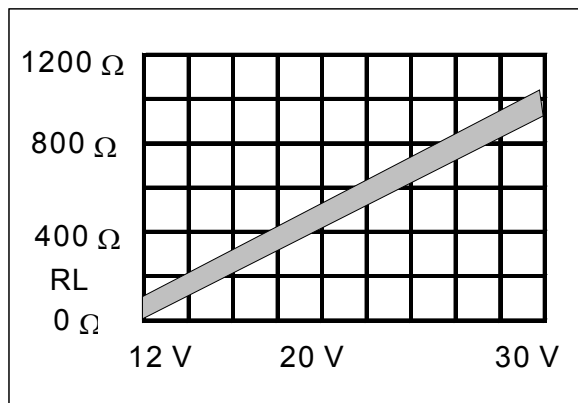
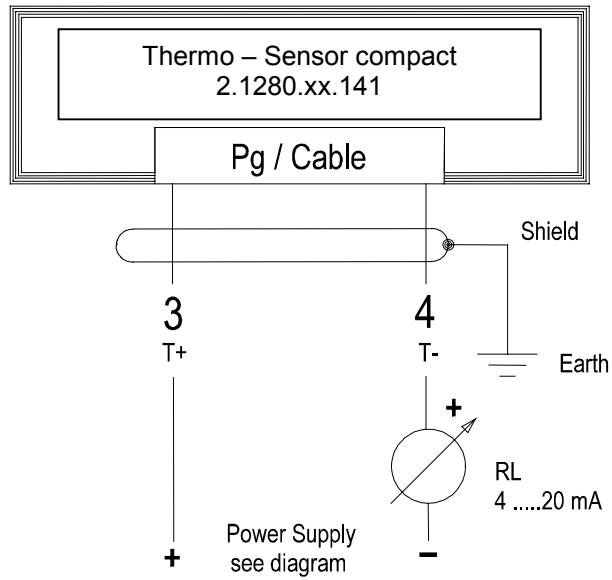
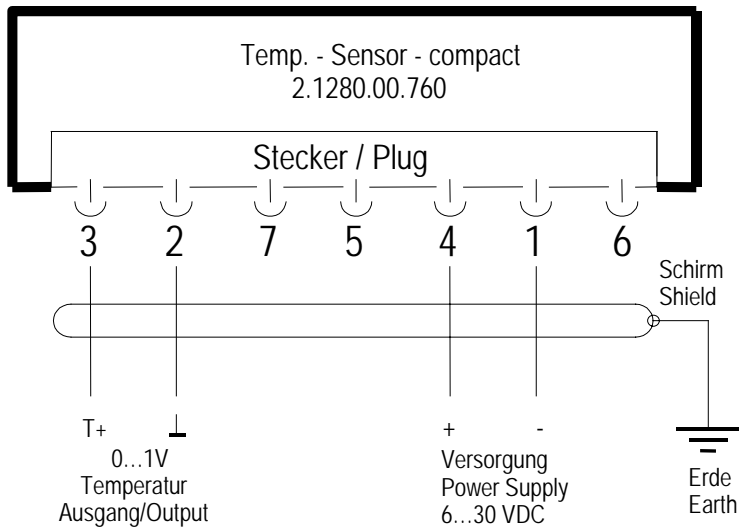
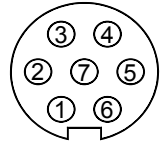


Diagram RL as function of Power Supply

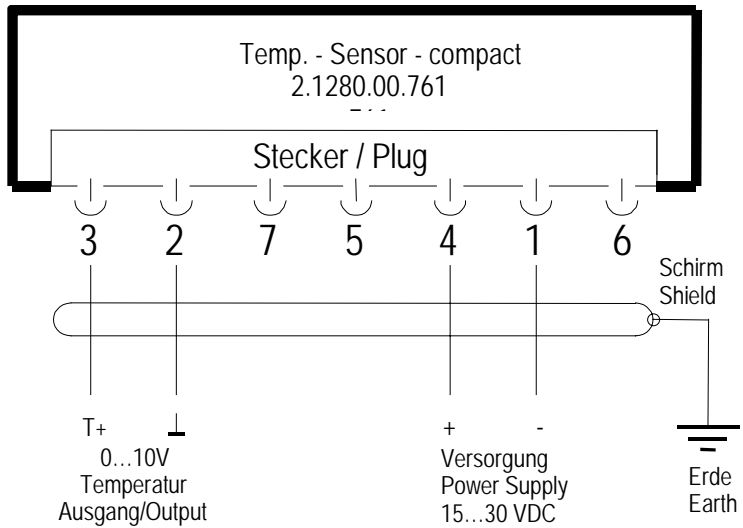
2.1280.00.760



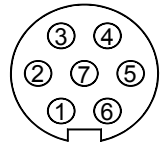
Position of pins



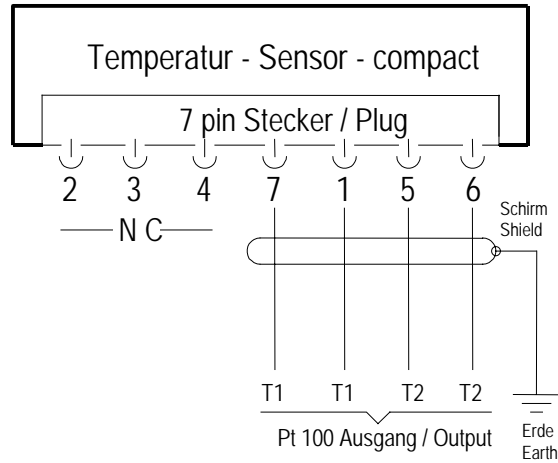
2.1280.00.761



Position of pins



2.1280.00.700



Position of pins

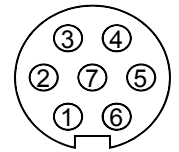
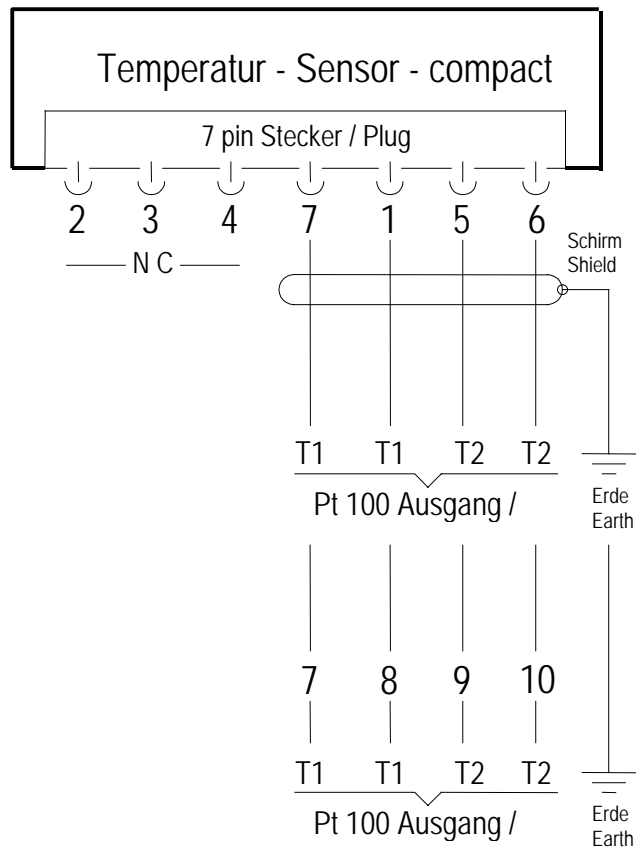


Fig. with
additional
cable assembly
0.1280.00.710



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	± 0.1 K
with output 0-10 V	± 0.2 K
with output 4-20 mA	- 0.3 K...+ 0.6 K (dependent on wind velocity)
Add. error (<10°C, >40°C)	± 0,007 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 Membrane 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)	approx. 5 mA
U-Output (0.. 1 V)	<1 mA
Minimum wind velocity	U- Output ≥ 0.5 m/s across the sensor I- Output ≥ 1.0 m/s across the sensor
Connection	See models available
Dimension to model 2.1280.00/01/20.000 / 141 / 160 / 161 / 173	
Diameter	20 mm
Length	147 mm
Dimension to model 2.1280.00. 700 / 760 / 761	
Diameter	20 mm
Length	155 mm

7 Accessories (optional)

<p>Weather and Thermal Radiation Shield</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 W , incl. 5 m cable for mast tube mounting \varnothing 30 - 50 mm for mast tube mounting \varnothing 55 – 60 mm</p> <p>Remark: 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>Sinter Filter ZE21</p> <p>The fine-pore sinter filter serves to protect the sensor elements of the Thermo- Sensor <i>compact</i> against high wind speeds (>5 m/s) and dust...</p>	<p>1.1005.54.902</p>	<p>Material: stainless steel Dimensions: \varnothing 20 x 25 mm</p>

8 EC-Declaration of Conformity

Document-No.: **000700**

Month: 04 Year: 13

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

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

Article No.	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			
	2.1280.20.000			

specified technical data in the document: **020957/04/13**

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: 2010	Safety requirements for electrical equipment for measurement, control, and laboratory use. Part 1: General requirements

Place: Göttingen

Date: 08.04.2013

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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