Wind Direction Transmitter - compact

Instruction for Use

4.3129.xx.712

- with Poti-Output -

Dok. No. 021434/08/22

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

Order-No.	Meas. range	Electr. Output	Operating Voltage Potentiometer	Heating	Connection
4.3129.00.712	0...360°	Potentiometer: 2kΩ	0…24V DC	24V, 20W	7 pol. plug
4.3129.10.712	0...360°	Potentiometer: 2kΩ	0…24V DC	w/o heating	7 pol. plug

2 Application

The wind direction transmitter is designed for the acquisition of the horizontal wind direction. The measuring value is output proportionally to wind direction as analogue voltage in case the potentiometer is supplied by a constant voltage. The measuring data available are ideally adapted to the supply in display instruments, recording instruments, datalogger, as well as process control systems.

For winter time use the instrument is optionally equipped with an electronically regulated heating, in order to guarantee a smooth-running of the ball bearing, and to prevent a blocking of the gap between the external rotation parts by ice aggregation.

Power for the heating system could be provided for instance by our Power Supply Unit, Order No. 9.3388.00.000

3 Construction and Mode of Operation

The outer parts of the instrument are made of corrosion-resistant material (aluminum, stainless steel, plastic). The aluminum parts are additionally protected by means of an anodic coat. Labyrinth sealing protects sensitive parts inside the instrument against humidity.

The wind direction is acquired by an inertia-free wind vane. The axis of the wind vane is held in ball bearings. A magnetic coupling connects the axis with the potentiometer in contact-free mode, thus providing for a smooth starting of the instrument.

4 Recommendation Side Selection / Standard Installation

In general wind measurement instruments should be able to detect the wind conditions of a large area. In order to obtain comparable values when determining the surface wind, measurements should be taken at a height of 10 meters over an even unobstructed area. An unobstructed area means, that the distance between the wind transmitter and an obstacle should be at least 10 times the height of the obstacle (s. VDI 3786).

If it is not possible to fulfil this condition, then the wind transmitter should be set up a height where local obstacles do not influence the measured values to any significant extent (approx. 6-10m above the obstacle).

5 Installation

Attention:

Storing, mounting and operation under weather conditions is permissible only in vertical position, as otherwise water can get into the instrument.

Remark:

When using fastening adapters (angle, traverses, hangers etc.) please take a possible effect by turbulences in their slipstream into consideration.

5.1 Mechanical Mounting

The mounting of the transmitter could be done for example at a support with a boring of PG 21 or on hangers with a boring of 29mm ∅.

Tools:

Hexagonal wrench SW36

Procedure:

1. Push cable/ plug connector of the wind direction transmitter through the bore hole of the mast, tube, arm etc.
2. Put wind direction transmitter on mast, tube, arm etc.
3. Align the wind direction transmitter “northwards” **(procedure see chapter 5.1.1)**.
4. Safeguard the wind direction transmitter by two hexagonal nuts (PG21, SW 36).

   Caution: ***The Hexagon nuts must be tightened to 6Nm.***

Remark:
The support is not included in delivery.

5.1.1 North Alignment

For the precise determination of the wind direction the wind direction transmitter must be aligned **northwards** (geographical north).

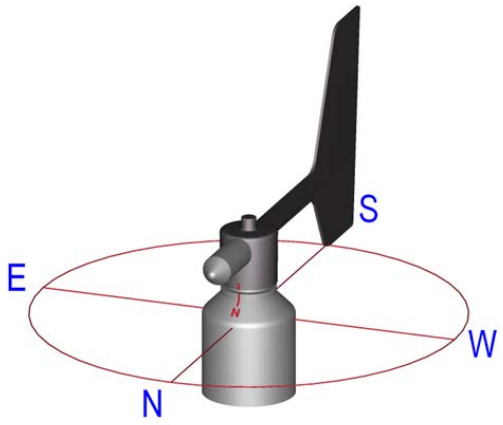
Tools:

Hexagonal wrench SW36

Procedure:

1. Rotate north marking (**N**) at the housing and wind vane axially one above the other, acc. to figure.
2. Determine a prominent spot in the surrounding area (tree, building etc.) in northward direction, by means of a compass.
3. Locate the prominent spot over wind vane and balance weight of the wind direction transmitter.
4. Align wind direction transmitter.
   The north marking must indicate the *geographical north*.
5. In case of conformity, safeguard the wind direction transmitter by two hexagonal nuts (PG21, SW 36).

   Caution: The Hexagon nuts must be tightened to 6Nm.



Remark:

If the north alignment is carried out by compass, please consider the local declination (= deviation of direction of the magnetic needle from the true north), and local magnetic interferences (e.g. hardware, electric cable).

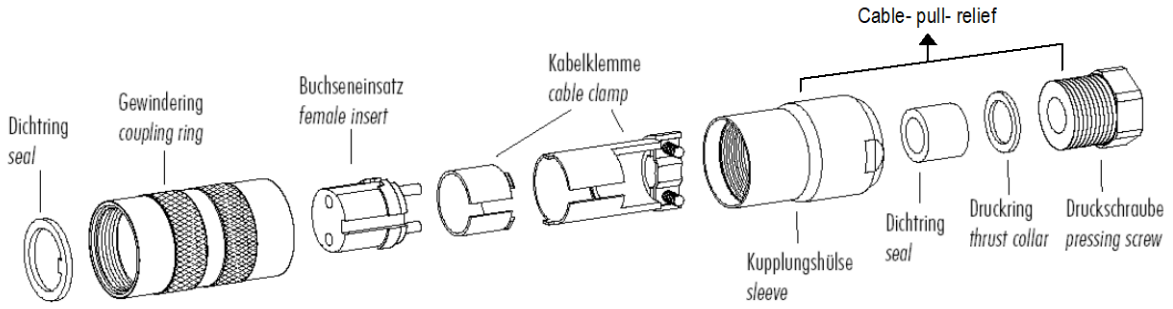
When aligning the wind direction transmitter on a moving object (e.g. vehicle, wind wheel, ship etc.) please consider that the “north point” to be determined, might possibly be located on the object.

5.2 Electrical Mounting

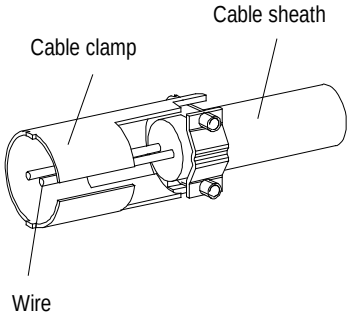
For electrical connection please refer to the connecting diagram.

5.3 Plug Mounting

Coupling socket, Typ:Binder, Serial 423, EMC with cable clamp
Cable connection: without cable shield



1. Stringing parts on cable acc. to plan given above.
2. Stripping cable sheath 20mm.
3. Cutting uncovered shield 20mm.
4. Stripping wire 5mm.
5. Soldering wire to the insert.
6. Positioning shield in cable clamp.
7. Screwing-on cable clamp.
8. Assembling remaining parts acc. to upper plan.
9. Tightening pull-relief of cable by screw-wrench (SW16 und 17).



6 Maintenance

After proper mounting the instrument works maintenance free.

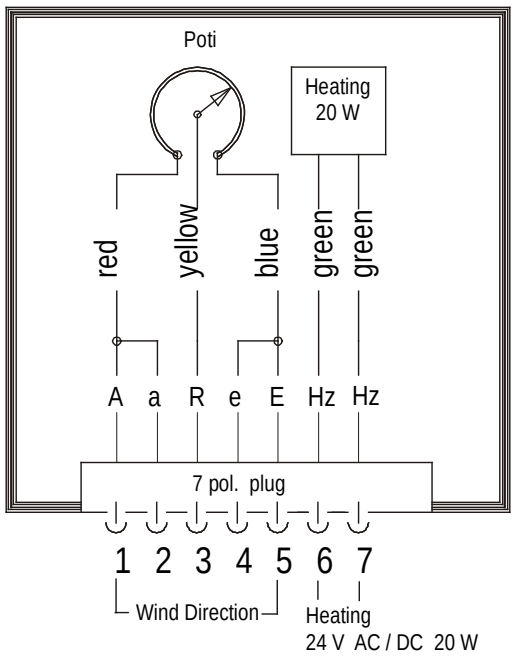
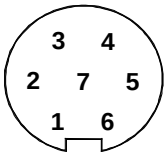
Heavy pollution can clog up the slit between the rotating and the stationary parts of the wind transmitter. This slit must be kept clean.

We recommend the threads of the plugs with a suitable corrosion inhibitors to protect against corrosion.

7 Connecting Diagrams

Attention:

When the wind vane rotates over the north point (0 / 360°) the potentiometer slider connects beginning and end of the potentiometer. Therefore, the supply voltage of the potentiometer must show a current limitation of max. 1mA. When using power supply units temporary current peaks with the power control might lead to damages. Therefore, an additional protective resistance Is strongly recommended.

Order – No.		View on the soldered joint of the counter plug
4.3129.00.712 4.3129.10.712*		
*Order-no. 4.3129.**10**.xxx (w/o heating) PIN 6 and 7 are not connected		

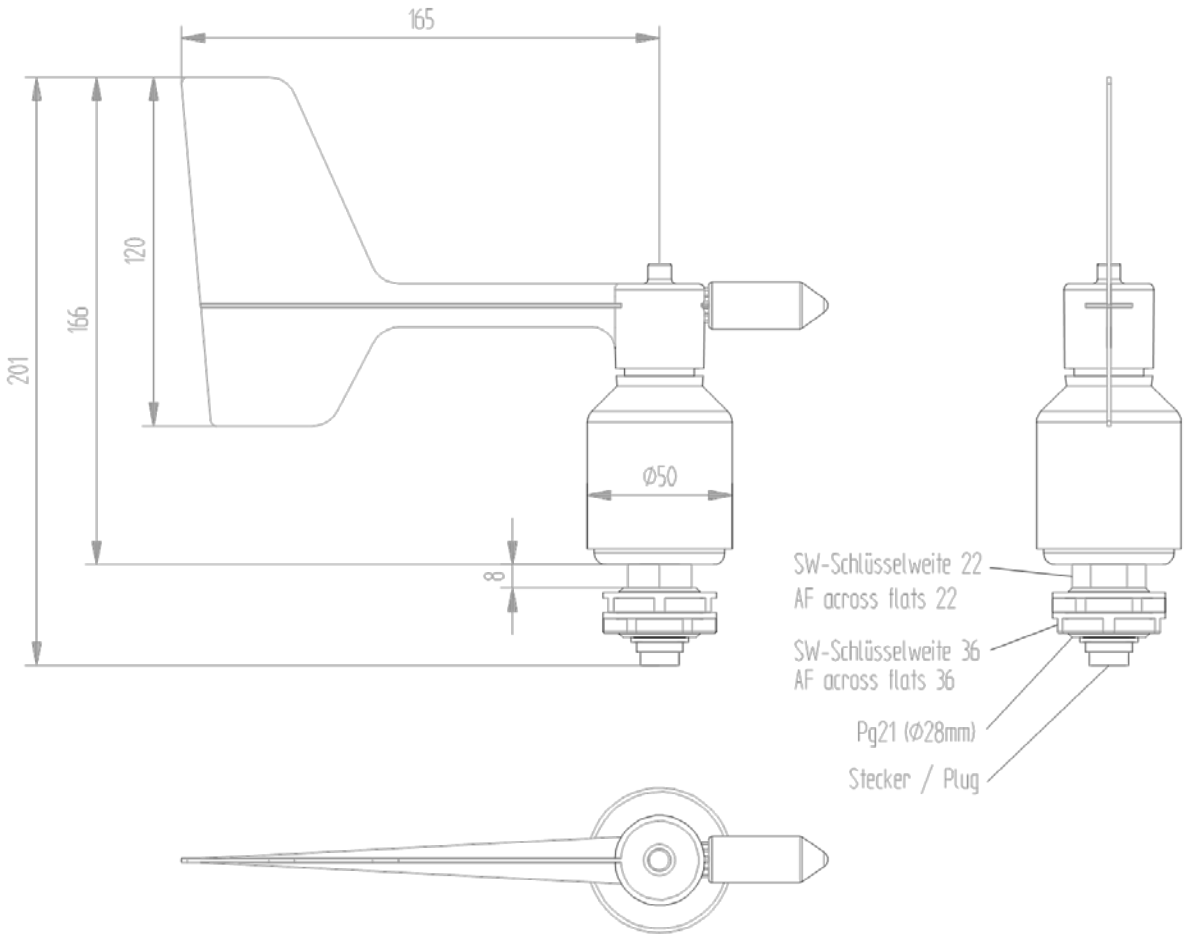
Order – No.	Contact	Name	Function
4.3129.00.712 4.3129.10.712*	1	A (AGND)	Sense (-)
	2	a (GND)	Supply voltage (-)
	3	R (SIG)	Meas. signal (potent. slider)
	4	e (+Us)	Supply voltage (+) 0 ...24V DC
	5	E (Sense)	Sense (+)
	6	HZG	Heating supply: Voltage: 24V AC/DC Power: 20W
	7		
*Order-no. 4.3129.**10**.xxx (w/o heating) PIN 6 and 7 are not connected			

8 Technical Data

Meas. range	0 ... 360° (0 Ohm in the North point)
Resolution	0,5°
Starting Threshold	≤ 1 m/s acc. to ASTM Standards D 5366-96 ≤ 0.4m/s acc. to VDI Directive 3786 Part 2
Delay Distance	< 2.5m acc. to ASTM Standards D 5366-96
Accuracy	± 2°
Measuring principle	Potentiometer
Potentiometer output	2KOhm
Electrical supply for potentiometer	Voltage U_s: 0V DC ... 24V DC, **The supply must guarantee a current limiting to max. 1 mA – short cut at the North point!**
Operating voltage heating	24V DC/AC, max. 20W
Ambient temperature*	-40°C ... 70°C
Ambient air humidity	0 … 100% rel. humidity
Survival speed	maximally 80m/s, 30 minutes
Connection	7 pol. Stecker
Dimensions	see dimensional drawing
Montage	For ex. onto a mast tube with receptacle thread PG 21 or boring ∅ 29mm
Protection	IP 55, in position of application.
Weight	ca. 0.4kg
Material Housing Vane Bottom	 Aluminium (AlMgSi1) Synthetic with fibre glass (PC-GF10) Synthetic (POM H2320)

* The ambient temperature, stated for wind direction transmitters without heating, is possible only in ice-free condition.

9 Dimensional Drawing



10 Accessories

The following accessories are available for the wind direction transmitter:

Traverse For mounting the wind speed transmitter and wind direction transmitter *compact* jointly onto a mast.	4.3171.30.000 4.3171.31.000	Clamping range: Ø 48 ... 102mm Clamping range: Ø 116 ... 200mm Sensor distance: 0,8m Material: Aluminum

Traverse, short For mounting the wind direction transmitter *compact* onto a mast.	4.3171.40.000 4.3171.41.000	Clamping range: Ø 48 ... 102mm Clamping range: Ø 116 ... 200mm Length: 0,4m Material: Aluminum

Lightning rod For mounting the a.m. traverses	506351	Length: 0,56m Material: stainless steel

Please contact us for other accessories such as cables, power supply units, masts, as well as for additional mast- or system-constructions.

11 EC-Declaration of Conformity

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

Product: WR – compact digital

Doc. Nr. 1225-44785_CE

Article Overview:

4.3129.00.712	4.3129.04.712	4.3129.10.009	4.3129.10.712	4.3129.10.012A

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 61000-6-2	2019-11	Electromagnetic compatibility Immunity for industrial environment
DIN EN 61000-6-3:2007 + A1:2011	2011-09	Electromagnetic compatibility (EMC). Generic standards. Emission standard for residential, commercial and light-industrial environments
DIN EN 61010-1	2020-03	Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements
DIN EN 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 certificates 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.

12 UK-CA-Declaration of Conformity

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

Product: WR – compact digital

Doc. Nr. 1225-44785_CA

Article Overview:

4.3129.00.712	4.3129.04.712	4.3129.10.009	4.3129.10.712	4.3129.10.012A

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

1091	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 61000-6-2	25.02.2019	Electromagnetic compatibility (EMC). Generic standards. Immunity standard for industrial environments
BS EN IEC 61000-6-3	30.03.2021	Electromagnetic compatibility (EMC). Generic standards. Emission standard for equipment in residential environments
BS EN 61010-1+A1	31.03.2017	Safety requirements for electrical equipment for measurement, control, and laboratory use. 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 Petereit

This declaration certificates 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
Meteorology and environmental metrology
Hauptstraße 76 · 37083 Göttingen · Germany
Phone +49 551 79001-0 · Fax +49 551 79001-65
info@thiesclima.com

www.thiesclima.com