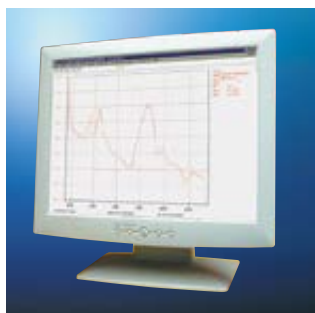


# WIND



# THE WORLD OF WEATHER DATA

## Measurement and Documentation: Thies' range of service for meteorology, environmental protection and industry



Today more than ever the measurement, processing and analysis of meteorological data requires a high degree of measurement instrument precision and an optimal adaptation of the data acquired to the task at hand.

For more than 60 years, we have been developing, producing and supplying practical instruments and systems for the analysis of weather data. Today, we are one of the world's largest suppliers of such equipment.

Our close cooperation with scientific institutions and governmental agencies in many countries guarantees a constant and up-to-date flow of information about all aspects of individual national problems and projects and the rapid implementation of state-of-the-art developments and measurement techniques.

Our instruments and systems fulfil in all respects both to the requirements of national weather services as well as those of the World Meteorological Organization in Geneva. Meteorological observations without computer-aided measurement and documentation systems are unthinkable today.

THIES develops complete ready-for-use-systems which include precision data transmitters, data loggers, power supply units and personal computers with adapted software.



# Wind Table of Contents

Glossary . . . . .	2
Ultrasonic Anemometer . . . . .	5
First Class (Anemometer and Wind Direction Transmitter) . . . . .	17
Classic (Anemometer and Wind Direction Transmitter) . . . . .	25
Compact (Anemometer and Wind Direction Transmitter) . . . . .	31
Cold Climate (Anemometer, Wind Transmitters and Wind Direction Transmitters) . . . . .	37
Small Wind Transmitters . . . . .	41
Wind Transmitters for Air Flow . . . . .	43
Hand Instruments, Mechanical Anemometer . . . . .	45
Integrated Sensors: METEO comp, Clima Sensor, Weather Station . . . . .	47
Messuring Transformers . . . . .	53
Indicators, Records, Software . . . . .	55
Wind Alarm . . . . .	63
Masts and Mechanical Accessories . . . . .	65
Power Supply . . . . .	71

**NEW**

# Wind Glossary

<b>Damping coefficient</b>	The damping coefficient characterises the oscillations of the wind vane. It is an important characteristic quantity for the qualitative evaluation of the wind vane. The damping coefficient is determined from the amplitudes of two successive excursions and is calculated by means of an equation.																																								
<b>Damping ratio</b>	Measure for the damping of wind vanes. It represents the ratio between the consecutive damped deflection amplitudes (for example 3 <sup>rd</sup> amplitude to 1 <sup>st</sup> amplitude) in one direction.																																								
<b>Wind run</b>	The path covered by the wind for a certain period of time.																																								
<b>Delay distance</b>	The path covered by the wind which is reached when, after a sudden change in wind speed, the speed reaches 63% of its end value.																																								
<b>Stress</b>	Maximum allowable wind speed at which no damage occurs on the wind measuring instruments.																																								
<b>Wind force</b>	<p>”Beaufort“ (bft) classes for certain wind speed ranges.</p> <table> <thead> <tr> <th>bft</th> <th>m/s</th> <th>bft</th> <th>m/s</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0 - 0.2</td> <td>9</td> <td>20.8 - 24.4</td> </tr> <tr> <td>1</td> <td>0.3 - 1.5</td> <td>10</td> <td>24.5 - 28.4</td> </tr> <tr> <td>2</td> <td>1.6 - 3.3</td> <td>11</td> <td>28.5 - 32.6</td> </tr> <tr> <td>3</td> <td>3.4 - 5.4</td> <td>12</td> <td>32.7 - 36.9</td> </tr> <tr> <td>4</td> <td>5.5 - 7.9</td> <td>13</td> <td>37.0 - 41.4</td> </tr> <tr> <td>5</td> <td>8.0 - 10.7</td> <td>14</td> <td>41.5 - 46.1</td> </tr> <tr> <td>6</td> <td>10.8 - 13.8</td> <td>15</td> <td>46.2 - 50.9</td> </tr> <tr> <td>7</td> <td>13.9 - 17.1</td> <td>16</td> <td>51.0 - 56.0</td> </tr> <tr> <td>8</td> <td>17.2 - 20.7</td> <td>17</td> <td>56.1 - 61.2</td> </tr> </tbody> </table>	bft	m/s	bft	m/s	0	0 - 0.2	9	20.8 - 24.4	1	0.3 - 1.5	10	24.5 - 28.4	2	1.6 - 3.3	11	28.5 - 32.6	3	3.4 - 5.4	12	32.7 - 36.9	4	5.5 - 7.9	13	37.0 - 41.4	5	8.0 - 10.7	14	41.5 - 46.1	6	10.8 - 13.8	15	46.2 - 50.9	7	13.9 - 17.1	16	51.0 - 56.0	8	17.2 - 20.7	17	56.1 - 61.2
bft	m/s	bft	m/s																																						
0	0 - 0.2	9	20.8 - 24.4																																						
1	0.3 - 1.5	10	24.5 - 28.4																																						
2	1.6 - 3.3	11	28.5 - 32.6																																						
3	3.4 - 5.4	12	32.7 - 36.9																																						
4	5.5 - 7.9	13	37.0 - 41.4																																						
5	8.0 - 10.7	14	41.5 - 46.1																																						
6	10.8 - 13.8	15	46.2 - 50.9																																						
7	13.9 - 17.1	16	51.0 - 56.0																																						
8	17.2 - 20.7	17	56.1 - 61.2																																						
<b>Wind speed</b>	The most common units of measurement are: 1 m/s = 3.6 km/h = 1.9455 knots																																								
<b>Wind direction</b>	Information on the direction from which the wind is coming. Information appears clockwise from North to East (90°), South (180°), West (270°) and North (360°).																																								
<b>Starting value</b>	The wind speed at which a cup anemometer respectively the wind vane starts to move.																																								
<b>Detection limit</b>	The lowest value of wind speed and wind direction at which a stable value sets in.																																								
<b>Variation</b>	The range within which wind direction has changed within the preceding 10 minutes (in accordance with ICAO).																																								
<b>Gliding mean value</b>	The mean value which is updated as the mean value time at short time intervals. (for example the 10 min.-mean value is updated once a second )																																								

<b>Arithmetic mean value</b>	The quotient from the sum of all the individual values and the number of values within the mean value time.
<b>Vectorial mean value</b>	Method of calculation: The individual vectors, measured as wind speed and direction, are decomposed into rectangular components. The components are averaged arithmetically, these mean values are then composed into a vectorial mean value.
<b>Vectorial mean value with standard vectors</b>	Only used for wind direction. A constant wind speed is assumed for the individual vectors.
<b>Orthogonal Wind velocity vector</b>	A straight line standing vertically to another straight line. By arranging two measurement distances standing vertically on each others you achieve the amount and angle of the wind velocity vector in the form of rectangular components. After measurement of the rectangular wind velocity components the amount and angle of the wind velocity can be calculated.
<b>Scalar wind velocity</b>	Wind velocity amount without indication of direction
<b>Acoustic virtual temperature</b>	The acoustic virtual temperature is the air temperature referred to dry air without any portion of water vapour. It is acquired by propagation measurements of sonic pulses. After respective correction of the humidity influence the procedure exceeds the accuracy of the classic procedures of the temperature measurement in a weather and thermal radiation shield.
<b>Gray-code</b>	One-increment binary code, on the changeover of one value to the next one only one single data bit modifies each to the previous and the next value respectively. The Gray-code is used for the digital determination of distances, for ex. the wind direction of a wind vane. The code can be set up by means of any number of digits, it depends only on the required accuracy of resolution.
<b>8-bit wind direction Gray-code</b>	The wind direction (0 ... 360°) is converted into an 8 bit Gray code (Thies special) and transmitted. The resolution is 2,5°, 144 increments per revolution. Increment 0 = 0° = North and corresponds to the sector 0 ... 2.5° Increment 143 = 357.5° corresponds to the sector 357.5 ... 0°.
<b>Serial-synchron. output</b>	The serial-synchronous interface is a unidirectional two-wire-interface with Thies specifications. It allows the connection between Thies wind sensors with serial-synchronous output and respective periphery (for ex. display instruments)

# Your Notice

# Wind Ultrasonic Anemometer

The Ultrasonic Anemometer with acoustic measuring principle allows a high-precision measurement of running variable wind dimensions and an inertia-free peak value acquisition.

Applications:

- Meteorology
- Climatic Network
- Wind Power Systems
- Research
- Development



THIES projects, configures, and supplies your individual system. Of course, your measurement tasks and the existing system pre-conditions will be in our focus.

Please do not hesitate to contact us for a detailed information.

# Wind Ultrasonic Anemometer



## Description

### Ultrasonic Anemometer 3D

The Ultrasonic Anemometer 3D serves for the 3-dimensional acquisition of the horizontal and vertical components of the wind velocity, the wind direction as well as of the acoustic-virtual temperature.

More than 70 different measurement values are available, for ex.:

- Wind velocity in X/Y/Z-direction
- Total wind velocity
- Wind velocity azimuth
- Wind direction azimuth
- Wind velocity elevation
- Wind direction elevation
- Acoustic-virtual temperature
- Standard deviation of the wind velocity in X/Y/Z-direction
- Standard deviation of the total wind velocity
- Standard deviation of the wind velocity azimuth
- Standard deviation of the wind direction azimuth
- Standard deviation of the wind direction elevation
- Standard deviation of the acoustic-virtual temperature
- Statistic functions such as variance, co-variance, turbulence intensity
- Wind velocity X/Y/Z of the gust acc. to WMO
- Wind direction of the gust (elevation) acc. to WMO

The instrument is especially suitable for the use in the fields of

- Meteorology
- Climatology
- Traffic engineering, aviation and navigation
- Indoor flow measurement
- And in alpine field of application

The ultrasonic measurement principle allows, compared to the classic anemometers, an inertia-free measurement of running variable dimensions with highest precision and accuracy. It is especially suitable for the measurement of gust- and peak values.

## Order-No.

4.3830.2x.xxx

## Technical Data

<b>With heating</b>	of sensor arms, ultrasonic transducers, and center bar
<b>Wind velocity</b>	
Measuring range	0-85 m/s
Resolution	0.1 m/s (standard) 0.01 (user-defined)
Accuracy	±0.1 m/s rms (0-5 m/s) ±1% rms (>5-35 m/s)
<b>Direction</b>	
Measuring range	
Azimuth	0-360°/540°/720°
Elevation	-90°... +90°
Resolution	1°
Accuracy	±1° (1-35 m/s) ±2° (35-65 m/s)
<b>Virtual temp.</b>	
Measuring range	-40 ... +70 °C
Resolution	0.1 K
Accuracy	±0.5 K
<b>Data output digital</b>	
Interface	RS 485/422
Baud rate	1200 - 921600
Output	instantan. values, mean values, standard deviations, etc.
Output rate	1 per 1 msec. up to 1 per 60 sec.
Status signal	Heating, failure measurement path, path deviation of acoustical temperature.
<b>Data output analogue</b>	
Electr. output (for wind vectors XYZ or vv (azimuth), wd (azimuth) and acoustic-virtual temp. Load	0-20 mA/0-10 V or 4-20 mA/2-10 V
Current output	max. 400 Ω
Voltage output	min. 4000 Ω
<b>or as:</b>	
Data input	3 x 0-10 V
Output	serial
Dissolution	16 bit

Continuation on page 7



# Wind Ultrasonic Anemometer

## Description

Continuation of page 6

The measurement values can be transmitted digitally and/or in analogue form.

The serial or analogue output of the data is carried out alternatively as instantaneous value or with selectable time frame.

If necessary, the sensor arms, the center bar, and the ultrasonic transducers are automatically heated at critical ambient temperatures, and provide for a safe function in case of icing situations and snow fall.

## Order-No.

## Technical Data

### General

Bus operation	up to 98 instruments
Operat. voltage	8-78 V DC or 12-55 V AC/2.5 VA
Electronics	24 V AC/DC, typ 150 VA
With heating	8 pole plug onto a mast tube 1½"
Electr. connection	Ø 50 x 40 mm
Mounting	stainless steel (V4A)
Fixing boring	AISI 316L
Housing material	IP 65
Protection	600 x 300 mm
Dimensions	3.4 kg
Weight	



# Wind Ultrasonic Anemometer



## Description

### Anemometer Ultrasonic 2D

The Ultrasonic Anemometer 2D serves for the 2-dimensional acquisition of the horizontal components of the wind velocity, the wind direction as well as of the acoustic-virtual temperature.

More than 35 different measurement values are available, for ex.:

- Orthogonal wind velocity vectors (X- and Y-distance)
- Scalar wind velocity
- Wind direction
- Acoustic-virtual temperature
- Acoustic-virtual temperature of the orthogonal measurement distances (X- and Y-distance)
- Standard deviation of the vectorial wind velocity (X and Y-distance)
- Standard deviation of the scalar wind velocity
- Standard deviation of the wind direction
- Standard deviation of the acoustic-virtual temperature
- Wind velocity of the gust acc. to WMO
- Wind direction of the gust acc. to WMO

The instrument is especially suitable for the use in the fields of

- Meteorology
- Climatology
- Regenerative energy, wind energy plant
- Traffic engineering, aviation and navigation
- Pollutant dispersal
- Wind alarm devices, building construction and building safety
- Indoor flow measurement
- And in alpine field of application

The ultrasonic measurement principle allows, compared to the classic anemometers, an inertia-free measurement of running variable dimensions with highest precision and accuracy. It is especially suitable for the measurement of gust- and peak values.

The measurement values can be transmitted digitally and/or in analogue form.

## Order-No.

4.3820.xx.xxx  
.0x.  
.3x.

## Technical Data

With heating	for sensor arms
With heating	for sensor arms and ultrasonic-sensors

### Velocity

Measuring range	0-75 m/s
Resolution	0.1 m/s (standard) 0.01 (user-defined)
Accuracy	±0.1 m/s rms (0-5 m/s) ±2% rms (> 5 m/s)

### Direction

Measuring range	0-360°/540°/720°
Resolution	1° (standard) < 1° (user-defined)
Accuracy	±1°

### Virtual temperature

Measuring range	-40 ... +70 °C
Resolution	0.1 K
Accuracy	±0.5 K

### Data output digital

Interface	RS 485/422
Baud rate	1200-921600
Output	instantan. values, mean values, standard deviations, etc.
Output rate	1 per 1 ms. up to 1 per 60 sec.
Status signal	heating distance error, distance temperat.

### Data output analogue

Electr. output	0-20 mA/0-10 V or 4-20 mA/2-10 V
for wv, wr, acoustic-virtual temperature	
Load	
Current output	max. 400 Ω
Voltage output	min. 4000 Ω

### or as:

Data input	3 x 0-10 V
Output	serial
Resolution	16 bit

Continuation on page 9

# Wind Ultrasonic Anemometer

## Description

Continuation of page 8

The serial or analogue output of the data is carried out alternatively as instantaneous value or with selectable time frame.

If necessary, the sensor arms are automatically heated in case of critical ambient temperatures. The possibility of malfunction, caused by icing, is minimized.

Model no. 4.3820.3x.xxx, thanks to the additionally installed ultrasonic converter heating, is suitable even for the more difficult use in locations where frequently icing is to be expected.

## Order-No.

## Technical Data

### General

Bus operation	up to 99 instruments
Operat. voltage	8-78 V DC or
Electronics	12-55 V AC/2.5 VA
With heating	24 V AC/DC, typ. 80 VA
Electr. connection	8 pole plug
Mounting	onto a mast tube 1½"
Fixing boring	Ø 50 x 40 mm
Housing material	stainless steel (V4A) AISI 316L
Protection	IP 65
Dimensions	600 x 300 mm
Weight	2.5 kg



# Wind Ultrasonic Anemometer



## Description

### Ultrasonic Anemometer 1D

The ultrasonic anemometer 1D serves for the measurement of the horizontal air flow of a specified flow direction as well as of the acoustic-virtual temperature.

Several data are available, among others:

- flow vector
- scalar flow speed
- acoustic-virtual temperature
- standard deviation of the wind speed
- standard deviation of the scalar air flow
- standard deviation of the acoustic-virtual temperature
- flow speed of the gust

The instrument is particularly suitable for the use in

- traffic engineering
- indoor flow measurement
- tunnels
- tubes

The measuring principle allows – compared with the classic anemometer – an inertia-free measurement of quickly changing values with highest precision and accuracy. It is particularly suitable for gust- and peak value measurement.

The measurement values can be transmitted in digital and/or analogue form.

The serial or analogue output data can be preselected alternatively as instantaneous value or moving average with selectable time frame.

If necessary, the sensor arms are automatically heated at critical ambient temperatures.

## Order-No.

4.3865.0x.xxx

4.3866.0x.xxx

## Technical Data

### Technical Data

<b>Flow speed</b>	
Measuring range	0-75 m/s
Resolution	0.1 m/s
Accuracy	±0.1 m/s rms (0-5 m/s) ±2% rms (> 5 m/s)
<b>Flow direction</b>	
Measuring range	1° or 181°
<b>Virtual temp.</b>	
Measuring range	-50 ... +70 °C
Resolution	0.1 K
Accuracy	±0.5 K
<b>Data output digital</b>	
Interface	RS 485 / 422
Baud rate	1200-921600
Output	instant. values, mean values, standard deviation, etc.
Output rate	1 per 1 ms. to 1 per 60 sec
Status signal	heating, distance error, distance temperature
<b>Data output analogue</b>	
Electr. output for flow, direction and virtual temp.	0-20 mA / 0-10 V or 4-20 mA / 2-10 V
Resolution	16 bit
Load	
Current output	max. 400 Ω
Voltage output	min 4000 Ω
<b>General</b>	
Bus operation	up to 99 instruments
Operating voltage Electronics	8-42 V DC or 12-28 V AC/2.5 V A
With heating	24 V AC/DC, typ. 40 VA
Electr. connection	5 m cable flange
Mounting	plate with bore holes
Housing material	stainless steel (V4A) AISI 316L
Protection	IP 65
Dimensions	424 x 278 mm
Weight	2.5 kg
As above, however:	
Electr. connection	8-pole plug connection

# Wind Ultrasonic Anemometer

## Description

### Accessories

#### Ultrasonic Bird Deflector

The Ultrasonic Bird Deflector protects the ultrasonic anemometer against measurement faults, which might be caused by different species of birds.

The Ultrasonic Bird Deflector uses a Doppler radar for the recognition of birds. When a motion is detected, the instrument runs fast movements with a beating arm. The beating arm is designed in a way that the birds are not hurt with contact, but are startled only by this unexpected movement.

The instrument is equipped with a microcontroller, and can be configured via a serial RS485 interface. A switching output can be used to transfer, for example, a signal to other instruments.

In order to prevent the beating arm from freezing, and to avoid a blocking of the servomotor the ultrasonic bird control is equipped with a controlled heating.

- suitable for Ultrasonic Anemometer 1D, 2D

#### Device to refuse birds

The device to refuse birds shall prevent smaller birds in the distance of the US transformer from sitting on the instrument, thus providing for an undisturbed operation.

- consisting of:  
1x wire and 2 x clip
- suitable for:  
Ultrasonic Anemometer  
1D, 2D

Remark: For the Ultrasonic 2 D this device is required twice.

## Order-No.

4.3800.90.000

507245

## Technical Data

### Interface

Type RS 485  
Data format 8N1  
Baud rate 2400 ... 115200

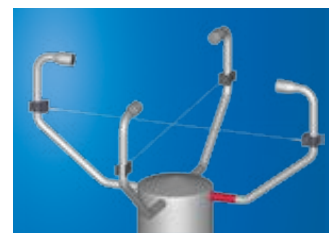
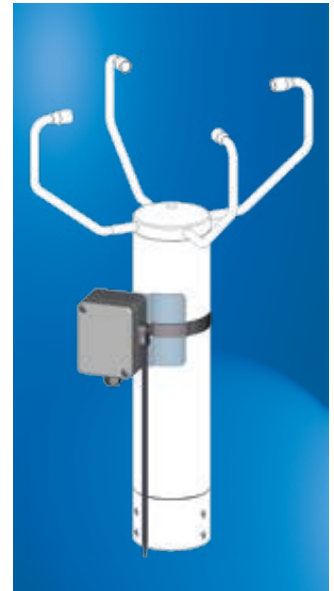
Switching output max. 24 V AC / DC

### Housing

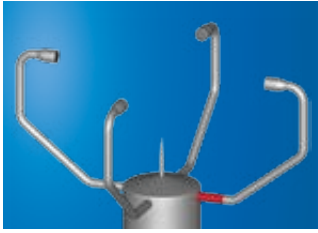
Material Polycarbonate  
Protection IP 65

### General

Operating voltage 12 ... 24 V DC/24 V AC  
Weight 0.2 kg  
Connection cable gland



# Wind Ultrasonic Anemometer



## Description

### Bird spike

The bird spike prevents bigger birds from resting in the measurement path between the ultrasonic transducers, providing an undisturbed operation.

Consisting of:

- one spike and protective cap

Suitable for Ultrasonic Anemometer 1D, 2D, 3D



### Bird spikes, long and flexible

This bird spikes are made of stainless spring steel and prevent most kind of birds from resting on the instrument, thus providing for an undisturbed operation.

The slim and flexible construction of the spikes hinders a growing of ice under icing conditions

Consisting of:

- 1 x pin with thread (for shaft)
- 4 x pin with holder (for US transducer arm)

suitable for:

- Ultrasonic 1D, 2D

### Connecting cable

Suitable for 4.3820/30.....  
Shielded cable, ready for connection with plug on sensor and cable end sleeve on the other end.

### Software Meteo-Online

## Order-No.

508396  
212352

509528

507751  
507752  
507753

9.1700.98.000

## Technical Data

Material V4A (AISI 316L)

Material V4A (AISI 316L)

Cable length 15 m  
20 m  
25 m

s. page 60

# Wind Ultrasonic Anemometer



## Description

### Ultrasonic Anemometer compact

The Ultrasonic Anemometer compact serves for the 2-dimensional acquisition of the horizontal components of the wind velocity, the wind direction and the acoustic-virtual temperature.

The following measurement data are available:

- Orthogonal wind velocity vectors (X- and Y-distance)
- Scalar / vectorial wind velocity wind direction
- Acoustic-virtual temperature

The instrument is especially suitable for the use in the fields of:

- Regenerative power generation, wind power plants
- Industry automation
- Wind warning devices, building construction and building security
- Traffic engineering, aviation and navigation
- Meteorology
- Climatology

The measurement principle allows, compared to the classic anemometers, an inertia-free measurement of running variable dimensions with highest precision and accuracy.

The data can be served

- analogically\*, as standard signal or / and digitally in
- ASCII THIES- Format or
- binary as MODBUS RTU protocol

If necessary, the instrument is automatically heated at critical ambient temperatures. Thus, the risk of malfunction caused by icing is minimized.

The model no. 4 3875 2x xxx is equipped with an additional baro transmitter.

- \*• only in HD (half duplex) operation
- no output of virtual temperature

## Order-No.

4.3875.xx.xxx  
.1x.xxx

.2x.xxx

## Technical Data

With heating for sensor housing, bottom plate and cover plate  
Additionally baro transmitter, built-in

### Velocity

Measuring range 0-75 m/s  
Resolution 0.1 m/s (standard)  
0.01 m/s (user-defined)  
Accuracy ±0.2 m/s rms (5 m/s)  
±2% rms (5-60 m/s)

### Direction

Measuring range 0-360°  
Resolution 1° (standard)  
< 1° (user-defined)  
Accuracy ±2° @ v > 1m/s

### Virtual Temp.

Measuring range -50 ... +70 °C  
Resolution 0.1 K  
Accuracy ± 2 K

### Air pressure

Measuring range 300-1100 hPa  
Resolution 0.1 hPa  
Accuracy ± 2 hPa

### Data output digital

Interface Baud rate RS 485 / 422  
Output 1200-921600  
instantan. values, mean values  
Output range 1 per 10 msec. up to 1 per 10 sec.  
Status signal heating, distance error, distance temperature  
Protocol ASCII / MODBUS RTU

### Data output analogue

Electr. output for WV, WD 0-20 mA / 0-10 V or 4-20 mA / 2-10 V

### Load

Current output max. 300 Ω  
Voltage output min. 2000 Ω  
Resolution 16 bit

### General

Bus operation up to 99 instruments  
Operation voltage Electronic 8-60 V DC or 12-42 V AC/1.2 VA  
With heating 24 V AC/DC, max. 250 VA  
Electr. connection 8 pol. plug  
Housing AL, hard-anodized, seawater-resistant  
Protection IP 67  
Dimension Ø 200 x 144 mm  
Weight approx. 2 kg

# Wind Ultrasonic Anemometer



## Description

### CLIMA SENSOR US

### CLIMA SENSOR US

The CLIMA SENSOR US serves for the measurement of environmental parameters. These are available for further processing as

- serial telegram via RS485/422 and/or as
- analogue signals via voltage outputs

Compact construction, easy mounting, and the diverse features for data output, are the basis for application in several fields

- building control system, traffic control system, meteorology, energy supply, ecological monitoring

The data can be served

- analogically, as standard signal or/and as
- ASCII (THIES-Format) or
- Binary (MODBUS RTU Protocol)

## Order-No.

4.9203.00.000

4.9203.00.001

### Wind velocity

### Wind direction

### Virtual-temp.

### Output serial

### analog

### General

## Technical Data

Wind speed and direction	Virtual-temp.	Configuration
X X	X	10 V/RS485/*
X X	X	10 V/RS485/**

Measuring range	Accuracy
0 ... 60 m/s/	±0.3 m/s @ WG
< 5 m/s	±3% @ WS > 5 m/s

Measuring range	Accuracy
0 ... 360°	±2.0° @ WS > 2 m/s

Measuring range	Accuracy
-40 ... +80 °C	±0.5°

Type	Baud rate	Operation	Protocol	Output parameter
RS 422 / 485	1200 ... 921600 baud	full duplex / half duplex	ASCII / MODBUS RTU	div meas. data, date, time, check sum etc.

Type	Output parameter	Load resistance
3 x 0 ... 10 V	- wind speed - wind direction - virtual-temperature	≥ 2 kΩ

Operating voltage	Current consumpt.	Ambient temperature	Connection	Mounting	Weight	Dimensions
6 ... 60 V DC or 10 ... 42 V AC	50/60Hz, appr. 25 mA @ 24 V	-30 °C ... +70 °C	19-pole plug	on tube (max. Ø 50 mm)	0.7 kg	Ø150 x 175 mm

\* Data protocol, pre-set:  
ASCII-Thies-format

\*\* Data protocol, pre-set:  
BINARY-Modbus RTU,  
in half duplex mode



# Wind Ultrasonic Anemometer

Description	Order-No.	Technical Data	
<b>Accessories</b>			
<b>Cable</b> assembled, 16-core connecting cable for CLIMA SENSOR US equipment: <ul style="list-style-type: none"> <li>• 19-pole cable socket, instrument-site,</li> <li>• open ends receive-site,</li> <li>• shielded,</li> <li>• non-halogen,</li> <li>• UV-resistant</li> </ul>	509311	Length	10 m
<b>Cable</b> assembled, 8-core connecting cable for the exclusively serial operation of a CLIMA SENSOR US Equipment: <ul style="list-style-type: none"> <li>• 19-pole cable socket, instrument-site,</li> <li>• open ends receive-site,</li> <li>• shielded,</li> <li>• non-halogen,</li> <li>• UV-resistant</li> </ul>	509427	Length	10 m
<b>Power Supply Unit</b> Serves for the power supply of the CLIMA SENSOR US as well as for the connection and distribution of cable resp. cable wires. Equipment: Toroidal transformer, series terminals, housing with cable glad	9.3389.20.000	Primary Secondary Series terminals Housing Dimension (LxWxH) Cable gland Protection Weight	230 V AC / 115 V AC 24 V AC / 30 VA 16 plastic approx. 125 x 1125 x 104 mm 3 x M16x1.5 1 x M20x1.5 IP 66 approx. 1.5 kg
<b>Thies Device Utility</b> The PC program "Thies Device Utility" serves for the initial operation and configuration of Thies sensors with serial interface. The program can find all sensors connected to the PC, and facilitates an initial operation via terminal function. Thanks to a user-friendly surface design the communication with the sensors is very easy.  Detailed description, s. page 61	9.1700.81.000	Function           Connectable instruments, Examples           System requirements Operating system	- searching for Thies sensors - settings for communication - monitor presentation of instantaneous measuring values and settings           Clima Sensor US 4 920x 00 000 US-Anemometer 2D 4 38xx xx xxx US-Anemometer 3D 4 3830 xx xxx US-Anemometer 2D compact 4 3875 xx xxx   Windows XP or higher

## Your Notice

# Wind First Class (Anemometer and Wind Direction Transmitter)

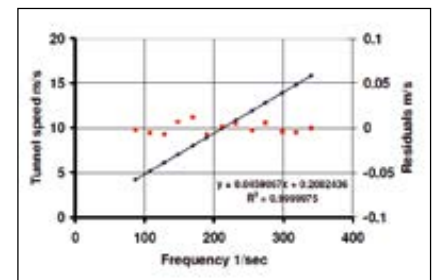
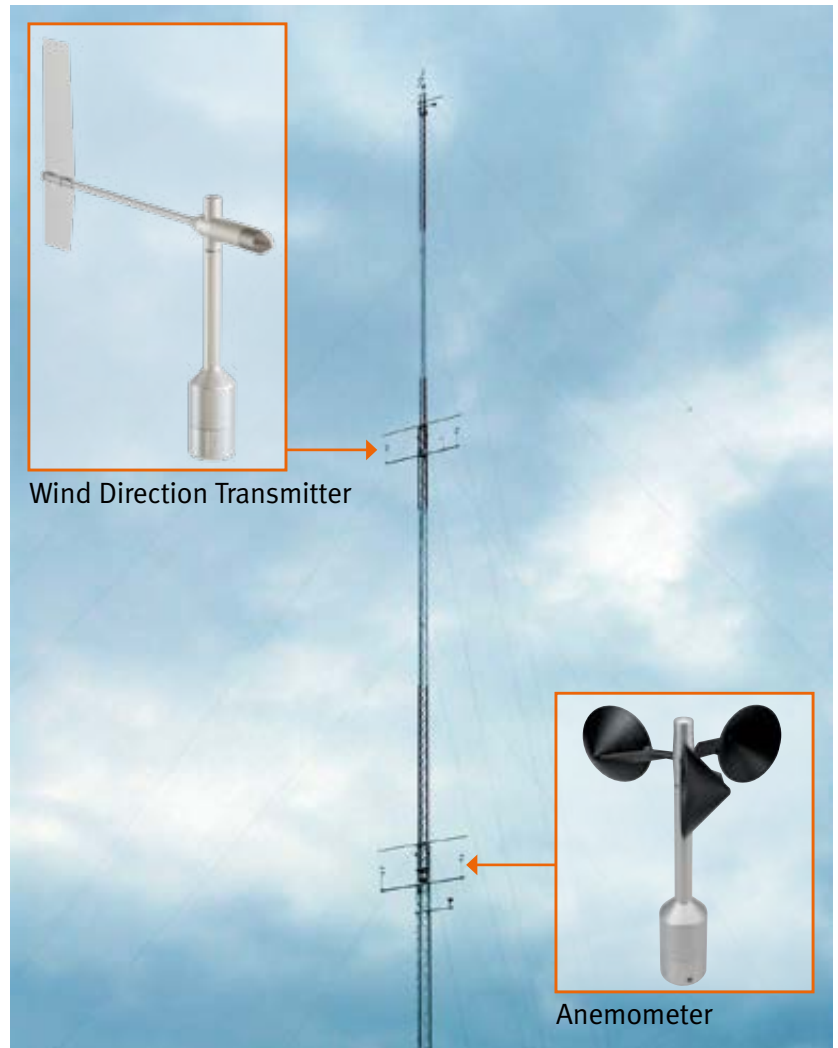
Wind Transmitter and  
Wind Direction Transmitter  
For exact acquisition and  
evaluation of measuring data

Applications:

- Power curve measurement  
at wind power plants
- Wind potential studies
- Site appraisals
- Research purposes
- Meteorological  
Applications



Classification acc. to IEC 61400-12-1



THIES projects, configures, and supplies your individual system. Of course, your measurement tasks and the existing system pre-conditions will be in our focus.

Please do not hesitate to contact us for a detailed information.

# Wind

## First Class (Anemometer and Wind Direction Transmitter)



### Description

#### Wind Velocity Transmitter

#### Wind Transmitter "First Class" Advanced

- Very Low Power Instrument
- Digital output

The wind transmitter is designed for the acquisition of the horizontal component of the wind velocity in the field of meteorology and environmental measuring technology, evaluation of location, and measurement of capacity characteristics of wind power systems. In the plain country the wind transmitter meets all requirements of IEC 61400-12-1 for an Instrument of the accuracy class 0.5.

Special characters are a defined and optimised, dynamic behaviour also at high turbulence intensity, minimal over-speeding, and a low starting value.

The measuring value is available at the output as digital signal. It can be transmitted to display instruments, recording instruments, data loggers as well as to process control systems.

For winter operation the instrument (4.3352.00.000) is equipped with an electronically regulated heating, which guarantees a smooth running of the ball bearings, and prevents the shaft and slot from icing-up.

\*acc. to ASTM D 5096-96

### Order-No.

4.3352.00.000  
.10.

### Technical Data

With heating W/o heating	
Measuring range Accuracy	0.3 ... 75 m/s 0.3 ... 50 m/s
Linearity	< 2% of meas. value or < 0.2 m/s r > 0.999 95 (4 ... 20 m/s)
Inclined flow - mean deviation from the cosinus line	< 0.1% (@ 12m/s; ±20°)
Electr. output Delay distance Survival speed	1090 Hz @ 50 m/s < 3 m* 80 m/s (max. 30 minutes)
Operating voltage Electronics	3.3 ... 42 V DC 130 µA from 3.3 V to 15 V 180 µA > 15 V 24 V AC/DC; 25 W
Heating Ambient temp. Electr. connection	-50 ... +80 °C 8-pole plug connection onto mast tube R 1" Ø
Mounting	
Fixing boring Dimensions Protection Weight	35 x 25 mm 290 x 240 mm IP 55 0.5 kg
Material Housing Cup star	aluminium, anodised carbon-fiber glass reinforced

## First Class (Anemometer and Wind Direction Transmitter)

Description	Order-No.	Technical Data
<p><b>Wind Transmitter "First Class" Advanced</b></p> <ul style="list-style-type: none"> <li>• Analog output and</li> <li>• Digital output</li> </ul> <p>The wind transmitter is designed for the acquisition of the horizontal component of the wind speed in the field of meteorology and environmental measuring technology, evaluation of location, and measurement of capacity characteristics of wind power systems. In the plain country the wind transmitter meets all requirements of IEC 61400-12-1 for an accuracy class 0.5 instrument.</p> <p>Special characters are a defined and optimised, dynamic behaviour also at high turbulence intensity, minimal over-speeding, and a low starting value.</p> <p>The measuring value is available at the output as <b>analogue signal</b> and as rectangular digital signal.</p> <p>For winter operation the instrument (4 .3352 .00 .xxx) is equipped with an electronically regulated heating.</p> <p>*acc. to ASTM D 5096-96</p>	4.3352.00.xxx .10.xxx	<p>With heating W/o heating</p>
	.x0.140	<p>Electr. output Analogue</p> <p>0-20 mA (0.3-75 m/s)</p> <p>Digital Sink output Source output</p> <p>1090 Hz at 50 m/s 1 max. 250 mA 1 max. 100 mA</p>
	.x0.141	<p>Electr. output Analogue</p> <p>4-20 mA (0.3-75 m/s)</p> <p>Digital Sink output Source output</p> <p>1090 Hz at 50 m/s 1 max. 250 mA 1 max. 100 mA</p>
	.x0.161	<p>Electr. output Analogue</p> <p>0-10 V DC (0.3-75 m/s)</p> <p>Digital Sink output Source output</p> <p>1090 Hz @ 50 m/s 1 max. 250 mA 1 max. 100 mA</p>
	.x0.173	<p>Electr. output Analogue</p> <p>0-5 V DC (0.3-75 m/s)</p> <p>Digital Sink output Source output</p> <p>1090 Hz @ 50 m/s 1 max. 250 mA 1 max. 100 mA</p> <p><b>General</b></p> <p>Measuring range 0.3-75 m/s Accuracy &lt; 1% of meas. range 0.3-50 m/s or &lt; 0.2 m/s Linearity &gt; 0.99999 (4-20 m/s) - mean deviation &lt; 0.1% from the cosinus line (@ 12m/s; ±20°)</p> <p>Survival speed 80 m/s (min. 30 minutes)</p> <p>Distance constant &lt; 3 m*</p> <p>Operating voltage Electronics 15-24 V DC Heating 24 V AC/DC; 25 W</p> <p>Ambient temperature -50 ... +80 °C</p> <p>Electr. connection 8-pole plug connection</p> <p>Mounting onto mast tube R 1" Ø</p> <p>Fixing boring 35 x 25 mm</p> <p>Dimensions 290 x 240 mm</p> <p>Protection IP55</p> <p>Weight 0.5 kg</p> <p>Material Housing aluminium, anodised Cup star carbon-fibre glass reinforced</p>



# Wind

## First Class (Anemometer and Wind Direction Transmitter)



### Description

#### Wind Direction Transmitter

##### Wind Direction Transmitter "First Class"

- Low Power Instrument With digital output (This serial-synchronous)

The wind transmitter is designed for the acquisition of the horizontal component of the wind direction in the field of meteorology and environmental measuring technology, evaluation of location, and measurement of capacity characteristics of wind power systems.

Special characters are a defined and optimised, dynamic behaviour as well as:

- High measurement accuracy and resolution
- High damping with small distance constant
- Low starting value
- Low power consumption
- Simple mounting

The measuring value is available at the output as **digital signal**. The output signal can be transmitted to display instruments, recording instruments, data loggers as well as to process control systems.

For winter operation the instrument (4.3150.00.xxx) is equipped with an electronically regulated heating.

\* acc. to ASTM D 5096-96

\*\* acc. to VDI 3786 page 2



##### Wind Direction Transmitter "First Class"

- Digital output RS 485

The wind transmitter is designed for the acquisition of the horizontal component of the wind direction in the field of meteorology and environmental measuring technology, evaluation of location, and measurement of capacity characteristics of wind power systems. Special characters are a defined and optimised, dynamic behaviour as well as:

- High measurement accuracy and resolution
- High damping with small distance constant
- Low starting value
- Low power consumption
- Simple mounting

### Order-No.

4.3151.00.00x  
.10.00x

.x0.000

.x0.001

4.3151.00.400  
.10.400

### Technical Data

With heating	
W/o heating	
Measuring range	0-360°
Accuracy	1° (0.5°)
Electr. output Resolution	8 bit serial-synchron 2.5°
Electr. output Resolution	10 bit serial-synchron 0.35°
Operating voltage Electronics	3.3-42 V DC
Current consumption	1.4 mA. standby
Heating	24 V AC/DC; 25 W
Ambient temp.	-50 ... +80 °C
Starting value	< 0.5 m/s at 10 <sup>o*</sup> < 0.2 m/s at 90 <sup>o**</sup>
Distance constant	< 1.8 m*
Damping ratio	D > 0.3*
Electr. connection	8-pole plug connection
Mounting	onto mast tube R 1" Ø 35 x 25 mm
Fixing boring	H: 410, D: 450 mm
Dimensions	IP 55
Protection	0.7 kg
Weight	aluminium, anodised
Material	

With heating	
W/o heating	
Measuring range	0-360°
Accuracy	1°
Resolution	0.1°
Electr. output Interface	RS 485
Baud rate	1200-57600 baud
Output telegram	xxx.xx for ex. 075.1
Operating voltage Electronic	3.3-42 V DC
Current consumption	approx. 1 mA @ 3.3V approx. 1.5 mA @ 5V
Heating	24 V AC/DC; 25 W
Ambient temperature	-50 ... +80 °C
Starting value	< 0.5 m/s at 10 <sup>o*</sup> < 0.2 m/s at 90 <sup>o**</sup>

Continuation on page 21

## First Class (Anemometer and Wind Direction Transmitter)

Description	Order-No.	Technical Data
<p>Continuation of page 20</p> <p>The measuring value is available at the output as <b>digital signal</b>. The output signal can be transmitted to display instruments, recording instruments, data loggers as well as to process control systems.</p> <p>Characteristic: The WD transmitter can acquire the WS signals of 4.3352.x.000, and add the parameter wind speed to its serial data telegram</p> <p>* acc. to ASTM D 5096-96 ** acc. to VDI 3786 page 2</p>		<p>Distance constant &lt; 1.8 m*</p> <p>Damping ratio <math>D &gt; 0.3^*</math></p> <p>Electr. connection 8-pole plug connection onto a mast tube R 1"</p> <p>Mounting onto a mast tube R 1"</p> <p>Fixing boring <math>\varnothing 35 \times 25</math> mm</p> <p>Dimensions H: 410, D: 450 mm</p> <p>Protection IP 55</p> <p>Weight 0.7 kg</p> <p>Material aluminium, anodised</p>
<p><b>Wind Direction Transmitter "First Class"</b></p> <ul style="list-style-type: none"> <li>• Analogue output</li> </ul>	<p>4.3151.00.xxx .10.xxx</p>	
<p>The wind transmitter is designed for the acquisition of the horizontal component of the wind direction in the field of meteorology and environmental measuring technology, evaluation of location, and measurement of capacity characteristics of wind power systems.</p>	<p>.x0.140</p>	<p>With heating W/o heating</p> <p>Measuring range 0-360°</p> <p>Accuracy 1°</p> <p>Resolution 0.35°</p>
<p>Special characters are a defined and optimised, dynamic behaviour as well as:</p> <ul style="list-style-type: none"> <li>• High measurement accuracy and resolution</li> <li>• High damping with small distance constant</li> <li>• Low starting value</li> <li>• Low power consumption</li> <li>• Simple mounting</li> </ul>	<p>.x0.141</p>	<p>Electr. output 0-20 mA</p> <p>Operating voltage Electronics 15-24 V DC</p> <p>Current consumption approx. 4.5 mA + Iout</p>
<p>The measuring value is available at the output as <b>analogue signal</b>. The output signal can be transmitted to display instruments, recording instruments, data loggers as well as to process control systems.</p>	<p>.x0.161</p>	<p>Electr. output 4-20 mA</p> <p>Operating voltage Electronics 15-24 V DC</p> <p>Current consumption approx. 4.5 mA + Iout</p>
<p>For winter operation the instrument (4.3150.00.xxx) is equipped with an electronically regulated heating.</p>	<p>.x0.173</p>	<p>Electr. output 0-10 V</p> <p>Operating voltage Electronics 15-24 V DC</p> <p>Current consumption approx. 4.5 mA</p>
<p>* acc. to ASTM D 5096-96 ** acc. to VDI 3786 page 2</p>		<p>Electr. output 0-5 V DC</p> <p>Operating voltage Electronics 12-24 V DC</p> <p>Current consumption approx. 4.5 mA</p> <p>Heating 24 V AC/DC; 25 W</p> <p>Ambient temperature -50 ... +80 °C</p> <p>Starting value &lt; 0.5 m/s at 10°* &lt; 0.2 m/s at 90°**</p> <p>Distance constant &lt; 1.8 m*</p> <p>Damping degree <math>D &gt; 0.3^*</math></p> <p>Electr. connection 8-pole plug connection onto a mast tube R 1"</p> <p>Mounting onto a mast tube R 1"</p> <p>Fixing boring <math>\varnothing 35 \times 25</math> mm</p> <p>Dimensions H: 410, D: 450 mm</p> <p>Protection IP 55</p> <p>Weight 0.7 kg</p> <p>Material aluminium, anodised</p>



# Wind

## First Class (Anemometer and Wind Direction Transmitter)



### Description

#### Wind Direction Transmitter "First Class"

- Potentiometer output with protective circuit

The wind transmitter is designed for the acquisition of the horizontal component of the wind direction in the field of meteorology and environmental measuring technology, evaluation of location, and measurement of capacity characteristics of wind power systems.

Special characters are a defined and optimised, dynamic behaviour as well as:

- High measurement accuracy and resolution
- High damping with small distance constant
- Low starting value
- Hysteresis-free and non-wearing magnetic coupling between vane- and potentiometer-axis
- Electronic protective circuit for current limiting and against erroneous connection
- Simple mounting

The measuring value is available at the output as **analogue signal**. The output signal can be transmitted to display instruments, recording instruments, data loggers as well as to process control systems.

The electronic protective circuit prevents the potentiometer from overloading in case of erroneous connection and on transition from 0° to 360°.

For winter operation the instrument (4.3151.00.xxx) is equipped with an electronically regulated heating.

\* acc. to ASTM D 5096-96

\*\* acc. to VDI 3786 page 2

### Order-No.

4.3151.00.x1x  
.10.x1x

.x0.110

.x0.012

### Technical Data

With heating  
W/o heating

Measuring range 0-360°  
Accuracy < 1.5°

Electr. output potentiometer 10 kΩ  
Multiplier 50 Ω  
Operating voltage  
Potent./electronics 4-42 V DC  
Current consumption ≤ Us / 10 kΩ

Electr. output potentiometer 2 kΩ  
Operating voltage  
Potent./electronics 4-42 V DC  
Current consumption ≤ Us / 2 kΩ

Heating 24 V AC/DC; 25 W  
Ambient temp. -50 ... +80 °C  
Starting value < 0.5 m/s at 10°\*  
Distance constant < 0.2 m/s at 90°\*\*

Damping ratio D > 0.3\*  
Electr. connection 8-pole plug connection

Mounting onto a mast tube R 1"  
Fixing boring Ø 35 x 25 mm  
Dimensions H: 410, D: 450 mm  
Protection IP 55  
Weight 0.7 kg  
Material aluminium, anodised



## First Class (Anemometer and Wind Direction Transmitter)

### Description

#### Wind Direction Transmitter "First Class"

- Potentiometer output

The wind transmitter is designed for the acquisition of the horizontal component of the wind direction in the field of meteorology and environmental measuring technology, evaluation of location, and measurement of capacity characteristics of wind power systems.

Special characters are a defined and optimised, dynamic behaviour as well as:

- High measurement accuracy and resolution
- High damping with small distance constant
- Low starting value
- Hysteresis-free and non-wearing magnetic coupling between vane- and potentiometer-axis
- Electronic protective circuit for current limiting and against erroneous connection
- Simple mounting

The measuring value is available at the output as analogue signal. The output signal can be transmitted to display instruments, recording instruments, data loggers as well as to process control systems.

For winter operation the instrument (4.3151.00.xxx) is equipped with an electronically regulated heating.

\* acc. to ASTM D 5096-96

\*\* acc. to VDI 3786 page 2

### Order-No.

4.3151.00.212  
.10.212

### Technical Data

With heating	
W/o heating	
Measuring range	0-360°
Accuracy	< 1°
Electr. output	potentiometer 2 kΩ
Operating voltage	0-30 V DC
Potent./electronics	≤ Us / 2 kΩ
Current consumption	
Heating	24 V AC/DC; 25 W
Ambient temp.	-50 ... +80 °C
Starting value	< 0.5 m/s at 10°* < 0.2 m/s at 90°**
Distance constant	< 1.8 m*
Damping ratio	D > 0.3
Electr. connection	8-pole plug connection
Mounting	onto a mast tube R 1"
Fixing boring	Ø 35 x 25 mm
Dimensions	H: 410, D: 450 mm
Protection	IP 55
Weight	0.7 kg
Material	aluminium, anodised



## Your Notice

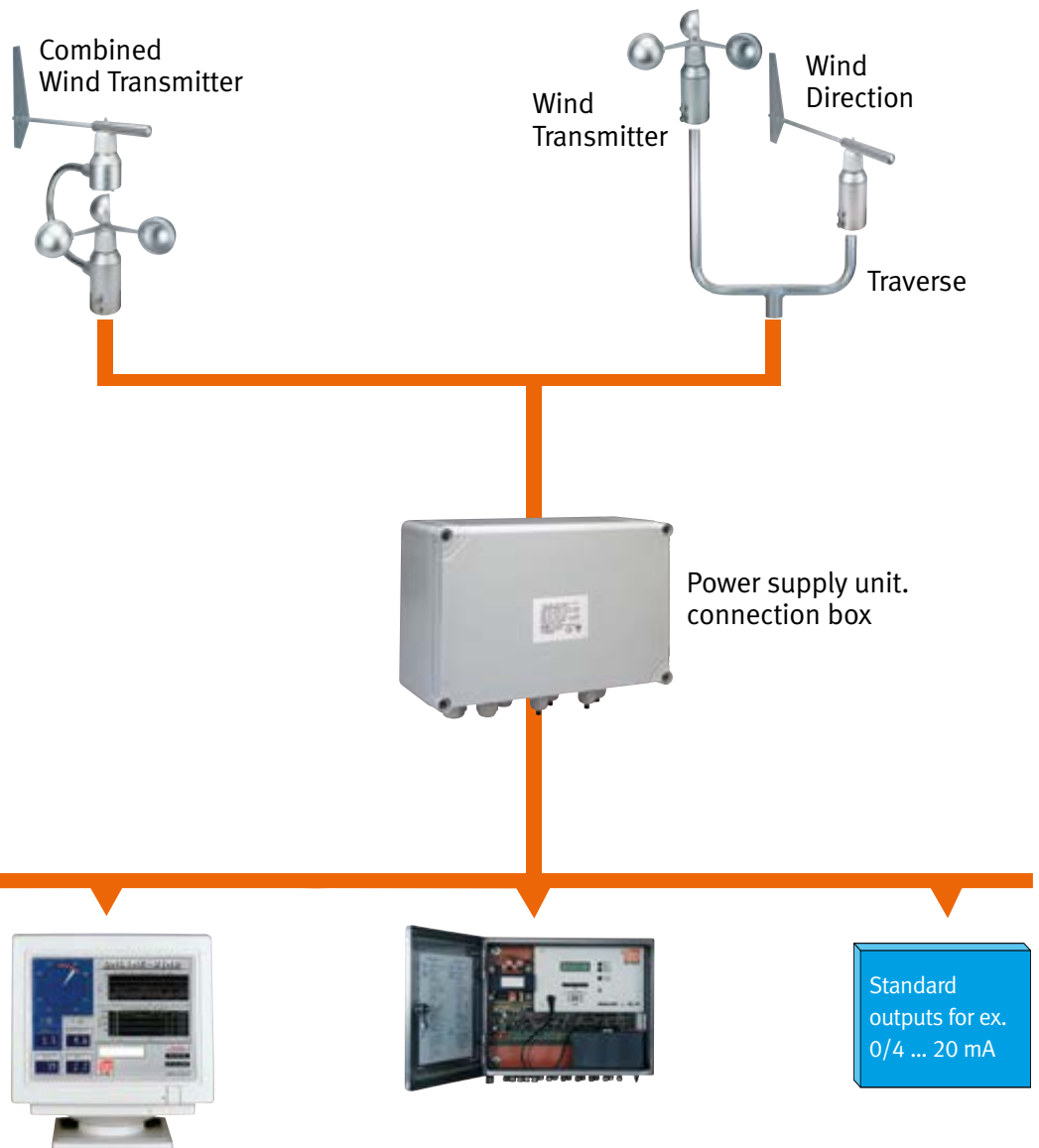
# Wind Classic (Anemometer and Wind Direction Transmitter)

## System Example

Wind Transmitter and Wind Direction Transmitter for qualified control-technical requirements.

### Applications:

- Building services engineering
- Industry
- Wind power plants
- Environmental technology
- Warning systems



Displays

PC-Software „Meteo-Online“

Datalogger

- Visualisation
- Recording

- Recording
- Controlling
- Data processing

THIES projects, configures, and supplies your individual system. Of course, your measurement tasks and the existing system pre-conditions will be in our focus.

Please do not hesitate to contact us for a detailed information.

# Wind

## Classic (Anemometer and Wind Direction Transmitter)

### Description

#### Wind Velocity Transmitter



#### Wind Transmitter

The wind transmitter is designed for the direction-independent measurement of the horizontal air flow.

The wind transmitter is equipped with a contact-free opto-electronic scanner, which causes an extremely low starting speed. At the output the measuring value is available as digital signal.

The heating is electronically controlled. A plug-connection is situated in the shaft of the instrument. The instrument is mounted preferably onto a mast or traverse. All essential parts are made of anodised aluminium.

#### Wind Transmitter

This wind transmitter is designed for high wind velocities.

The instrument is equipped with a reinforced cup star.



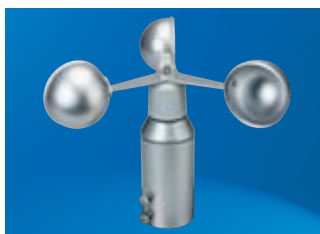
#### Wind Transmitter

The wind transmitter is equipped with a contact-free opto-electronic scanner. A connected electronics converts the speed-dependent frequency into an analogue output signal.



#### Wind Transmitter

This wind transmitter is equipped with a DC-generator which produces a DC-voltage with the rotation of the cup star. It is able to operate a respective display instrument directly (without current supply).



### Order-No.

4.3303.22.xxx  
.000  
.007

4.3303.22.0xx  
008  
018

4.3303.22.xxx  
.0xx  
.6xx  
.x40  
.x41  
.x60  
.x61  
.x73

4.3105.22.000

### Technical Data

Measuring range 0.3-50 m/s  
Electr. output 3-1042 Hz (live zero)  
3-1042 Hz (no live zero)  
Load max. 60 m/s  
Distance constant 5 m  
Accuracy  $\pm 0.3$  m/s/ $\pm 2\%$  of m.v.

Operating voltage  
Electronics 3.3 ... 47 V DC  
Heating 24 V AC/DC; 20 W

#### General

Ambient temp. -35 ... +80 °C  
Electr. connection  
with x.xxxx.xx.000 5-pole plug connection  
with x.xxxx.xx.007 7-pole plug connection

Mounting onto mast tube 1 1/2"  
Fixing boring  $\varnothing$  50 x 50 mm  
Dimensions  $\varnothing$  315 x 230 mm  
Protection IP 55  
Weight 1 kg

Measuring range 0.5-75 m/s  
Electr. output 0-754 Hz (live zero)  
0-754 Hz (no live zero)  
Accuracy  $\pm 0.5$  m/s/ $\pm 2\%$  of m.v.

Operating voltage  
Electronics 3.3 ... 47 V DC  
Heating 24 V AC/DC; 20 W  
Electr. connection 5-pole plug connection

Measuring range 0.3-50 m/s  
0.3-60 m/s  
Electr. output 0-20 mA  
4-20 mA  
0-1 V  
0-10 V  
0-5 V  
Accuracy  $\pm 0.4$  m/s /  $\pm 2.5\%$  of m.v.

Operating voltage  
Electronics 15-24 V DC  
Heating 24 V AC/DC; 20 W  
Electr. connection 5-pole plug connection

Measuring range 0.5-35 m/s  
Electr. output 0-4.67 mA DC.  
linear.  $R_a = 400$  W  
Load max. 60 m/s  
Accuracy  $\pm 0.5$  m/s /  $\pm 2\%$  of m.v.  
Heating 24 V AC/DC; 20 W  
Electr. connection 5-pole plug connection

# Wind Classic (Anemometer and Wind Direction Transmitter)

## Description

### Wind Direction Transmitters

#### Wind Direction Transmitter

Measuring value transmitter for measuring the direction of the horizontal air flow.

Potentiometer-wind-direction-transmitters are equipped with a sliding potentiometer which offers a theoretically unlimited resolution.

The heating is electronically controlled. A plug-connection is situated in the shaft of the instrument. The instrument is mounted preferably onto a mast or traverse. All main parts are made of anodised aluminium.

\*acc. to ASTM D 5096-96

#### Wind Direction Transmitter

Measuring value transmitter for measuring the direction of the horizontal air flow.

The wind direction transmitter is equipped with a contact-free scanning system which causes an extremely low starting speed, and operates in wear-resistant manner. The digital measuring signals are transformed by an internal measuring transformer.

The output is available as analogue current- or voltage signal.

\*acc. to ASTM D 5096-96

## Order-No.

4.3120.22.xxx  
.012  
.018

4.3125.33.xxx  
.040  
.041  
.060  
.061  
.073

## Technical Data

<b>Potentiometer</b>	<b>Measuring range</b>
0-2000 Ω	360° (±2°)
0-400 Ω	358° (±3°)
	5-lead circuit
<b>Measuring range</b>	0-360°
<b>Resolution</b>	1°
<b>Accuracy</b>	±1.5°
<b>Operating voltage</b>	
Potentiometer	12 V DC, max. 1.5 W
Heating	24 V AC/DC, max. 20 W
<b>Load</b>	max. 60 m/s
<b>Starting value</b>	0.5 m/s at 90°
<b>Damping ratio</b>	D > 0,3*
<b>Ambient temperature</b>	-35 ... +80 °C
<b>Electr. connection</b>	8-pole plug connection
<b>Mounting</b>	onto mast tube 1 1/2"
<b>Dimensions</b>	415 mm high
<b>Protection</b>	IP 55
<b>Weight</b>	1.8 kg

<b>Analogue output</b>	0-20 mA
	4-20 mA
	0-1 V
	0-10 V
	0-5 V
<b>Measuring range</b>	0-360°
<b>Resolution</b>	2.5°
<b>Accuracy</b>	±1.5°
<b>Load</b>	max. 60 m/s
<b>Starting value</b>	< 0.6 m/s at 90°
<b>Damping ratio</b>	D > 0,3*
<b>Operating voltage</b>	15-24 V DC
<b>Heating</b>	24 V AC/DC, max. 20 W
<b>Ambient temperature</b>	-35 ... +80 °C
<b>Electr. connection</b>	5-pole plug connection
<b>Mounting</b>	onto mast tube 1 1/2"
<b>Dimensions</b>	415 mm high
<b>Protection</b>	IP 55
<b>Weight</b>	1.8 kg



# Wind Classic (Anemometer and Wind Direction Transmitter)



## Description

### Wind Direction Transmitter

Measuring value transmitter for measuring the direction of the horizontal air flow.

The position of the wind vane is detected opto-electronically by a code disc, which causes an extremely low starting speed, and operates in wear-resistant manner.

The output is available as serial or as parallel digital signal.

\*acc. to ASTM D 5096-96

## Order-No.

4.3121.33.000  
4.3125.33.100

## Technical Data

<b>Digital output</b>	8-bit parallel 8-bit serial-syn.
Measuring range	0-360°
Resolution	2.5°
Accuracy	±1.5°
Load	max. 60 m/s
Starting value	< 0.6 m/s at 90°
Damping ratio	D > 0,3*
Operating voltage	
Electronics	3.3 ... 28 V DC
Heating	24 V AC/DC, max. 20 W
Ambient temperature	-35 ... +80 °C
Electr. connection	
with xx.xxxx.000	19-pole plug connection
with xx.xxxx.100	7-pole plug connection
Mounting	onto mast tube 1 1/2"
Dimensions	415 mm high
Protection	IP 55
Weight	1.8 kg

## Combined Wind Transmitters

### Combined Wind Transmitter

Measuring value transmitter for the measurement of the wind speed and wind direction of the horizontal air flow.

The cup star revolution is scanned opto-electronically in contact-free and wear-resistant manner. It has an extremely low starting speed.

The position of the wind vane is detected opto-electronically by a code disc.

The digital measuring signals are transformed by an internal measuring transformer.

The output signals are available as current or voltage signals.

The heating is controlled electronically. A plug connection is situated in the shaft of the instrument. The instrument is mounted preferably onto a mast.

All main parts are made of anodised aluminium.

\*acc. to ASTM D 5096-96

4.3324.32.xxx  
.0xx  
.6xx  
.x40  
.x41  
.x61  
.x73

Measuring range WV	0.3-50 m/s 0.3-60 m/s
Electr. output	0-20 mA 4-20 mA 0-10 V 0-5 V
Measuring range WD	0-360°
Accuracy	±0.5 m/s or ±2.0% of meas. value ±1.5°
Load	max. 60 m/s
Delay distance	5 m
Starting value	< 0.6 m/s at 90°
Damping ratio	D > 0.3*
Operating voltage	
With heating	24 V AC/DC, 40 W
without heating	8/15 ... 28 V DC max. 40 W
Ambient temp.	-35 ... +80°C
Electr. connection	multi-pole plug
Fixing boring	Ø 50 x 50 mm
Mounting	onto mast tube 1 1/2"
Total height	620 mm
Protection	IP 55
Weight	2.8 kg



## Classic (Anemometer and Wind Direction Transmitter)

Description	Order-No.	Technical Data	
<p><b>Combined Wind Transmitter</b> Measuring value transmitter for the measurement of the wind speed and wind direction of the horizontal air flow.</p> <p>The cup star revolution is scanned opto-electronically in contact-free and wear-resistant manner. It has an extremely low starting speed.</p> <p>The position of the wind vane is detected opto-electronically by a code disc.</p> <p>The output signals are available as frequency for wind speed, and as 8-bit-Gray-code (parallel) for wind direction.</p> <p>The ship-version is equipped with a strengthened cup star and a smaller wind vane.</p> <p>*acc. to ASTM D 5096-96</p>	<p>4.3324.32.000 .001</p>	<p><b>Model</b> standard land version ship version</p> <p><b>Measuring range</b> 0.3-50 m/s 0-360°</p> <p><b>Electr. output</b> 3-1042 Hz 8-bit-gray-code (parallel)</p> <p><b>Resolution</b> 0.05 m; 2.5°</p> <p><b>Accuracy</b> ±0.3 m/s or ±2% of meas. value ±1.5°</p> <p><b>Load</b> 60 m/s</p> <p><b>Operating voltage</b> Electronik 3.3 ... 28 V DC Heating 24 V DC/AC, 40W</p> <p><b>Delay distance</b> 5 m</p> <p><b>Starting value</b> &lt; 0.6 m/s at 90° D &gt; 0.3*</p> <p><b>Damping ratio</b> D &gt; 0.3*</p> <p><b>Ambient temp.</b> -35 ... +80 °C</p> <p><b>Electr. connection</b> multi-pole plug</p> <p><b>Fixing boring</b> Ø 50 x 50 mm</p> <p><b>Mounting</b> onto mast tube 1 1/2"</p> <p><b>Total height</b> 620 mm</p> <p><b>Protection</b> IP 55</p> <p><b>Weight</b> 2.8 kg</p>	



<p><b>Combined Wind Transmitter</b> Measuring value transmitter for the measurement of the wind speed and wind direction of the horizontal air flow.</p> <p>The cup star revolution is scanned opto-electronically in contact-free and wear-resistant manner. It has an extremely low starting speed.</p> <p>The position of the wind vane is detected opto-electronically by a code disc.</p> <p>The output signals are available as frequency for the wind speed and as serial-synchronous 8-bit for wind direction.</p> <p>The ship-version is equipped with a strengthened cup star and a smaller wind vane.</p> <p>*acc. to ASTM D 5096-96</p>	<p>4.3336.22.000 4.3336.32.000 .001</p>	<p><b>Model</b> for Datalogger standard land version ship version</p> <p><b>Measuring range WV</b> 0.3-50 m/s <b>Measuring range WD</b> 0-360°</p> <p><b>Electr. output WV</b> 3-1042 Hz <b>Electr. output WD</b> 8-bit serial-synchronous</p> <p><b>Resolution</b> 0.05 m; 2.5°</p> <p><b>Accuracy</b> ±0.3 m/s or ±2% of meas. value ±1.5°</p> <p><b>Load</b> max. 60 m/s</p> <p><b>Delay distance</b> 5 m</p> <p><b>Starting value</b> &lt; 0.6 m/s at 90° D &gt; 0.3*</p> <p><b>Damping ratio</b> D &gt; 0.3*</p> <p><b>Operating voltage</b> Electronic 3.3 ... 28 V DC Heating 24 V AC/DC, 40 W</p> <p><b>Ambient temp.</b> -35 ... +80 °C</p> <p><b>Electr. connection</b> multi-pole plug</p> <p><b>Fixing boring</b> Ø 50 x 50 mm</p> <p><b>Mounting</b> onto mast tube 1 1/2"</p> <p><b>Total height</b> 620 mm</p> <p><b>Protection</b> IP 55</p> <p><b>Weight</b> 2.8 kg</p>	
---	---	--	--



## Your Notice



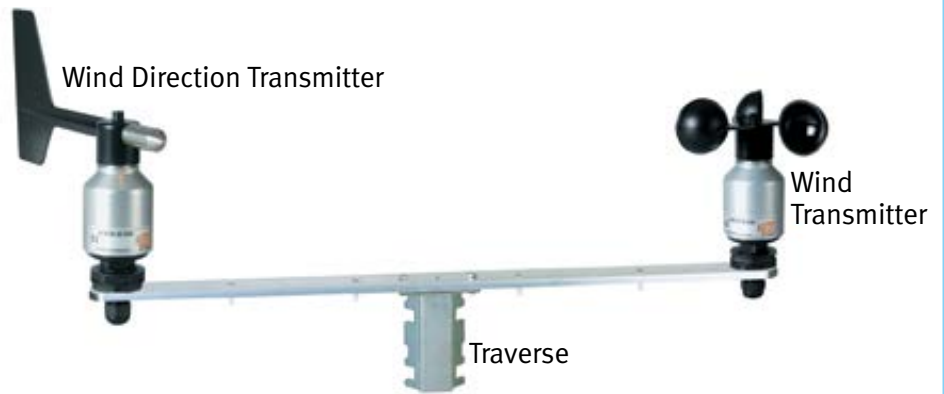
# Wind Compact (Anemometer and Wind Direction Transmitter)

## System example

Wind Transmitter and Wind Direction Transmitter for qualified control-technical requirements

### Applications:

- Building services engineering
- Industry
- Wind power plants
- Environmental technology
- Warning systems



Standard outputs for ex. 0/4 ... 20 mA

Displays

PC-Software  
"Meteo-Online"

Datalogger

- Visualisation
- Recording

- Recording
- Controlling
- Data processing

THIES projects, configures, and supplies your individual system. Of course, your measurement tasks and the existing system pre-conditions will be in our focus.

Please do not hesitate to contact us for a detailed information.

# Wind Compact (Anemometer and Wind Direction Transmitter)

## Description

### Wind Velocity Transmitters

#### Wind Transmitter Compact

- Frequency output

Measuring transmitter for the wind velocity with frequency output (open collector).

The cup star consists of fibre-glass reinforced, the housing is made of anodised aluminium and plastic.

The instrument has a threaded pin PG 21 with 2 nuts for mounting.



#### Wind Transmitter Compact

- Low Power Instrument with frequency output

Measuring transmitter for the measurement of the horizontal wind velocity with frequency output (active signal).

Suitable for data loggers. The cup star consists of fibre-glass reinforced, the housing is made of anodised aluminium and plastic.

The instrument has a threaded pin PG 21 with 2 nuts for mounting.



#### Wind Transmitter Compact

- Analogue output

Measuring transmitter for the measurement of the horizontal wind speed with analogue output signals.

The cup star consists of fibre-glass reinforced, the housing is made of anodised aluminium and plastic.

The instrument has a threaded pin PG 21 with 2 nuts for mounting.



## Order-No.

4.3518.00.000  
4.3520.00.000  
4.3520.10.000

4.3519.00.000

4.3519.00.xxx

.140  
.141  
.161  
.167  
.173

## Technical Data

With heating open collector sink  
With heating open collector source  
W/o heating open collector source  
Measuring range 0.5-50 m/s  
Accuracy  $\pm 3\%$  of meas. value or  $\pm 0.5$  m/s  
Resolution  $< 0.1$  m/s  
Electr. output 2-573 Hz  
Operating voltage 10-28 V DC  
Current supply 20 mA  
Heating max. 20 W; 24 V AC/DC  
Ambient temp. -40 ... +70 °C  
Connection 5 m cable. LiYCY 5 x 0.25 mm<sup>2</sup>  
Dimensions  $\varnothing 135$  x 165 mm  
Protection IP 55  
Weight 0.4 kg

Measuring range 0.5-50 m/s  
Accuracy  $\pm 3\%$  of meas. value or  $\pm 0.5$  m/s  
Resolution  $< 0.1$  m/s  
Electr. output 2-630 Hz  
Operating voltage 3.3-42 V DC  
Current consumpt.  $< 1$  mA  
Heating max. 20 W; 24 V AC/DC  
Ambient temp. -40 ... +70 °C  
Connection 12 m cable. LiYCY 5 x 0.25 mm<sup>2</sup>  
Dimensions  $\varnothing 135$  x 165 mm  
Protection IP 55  
Weight 0.75 kg

Electr. output load (at with operat. volt.)  
0-20 mA max. 500  $\Omega$ ; ( $> 13$  V DC)  
4-20 mA max. 500  $\Omega$ ; ( $> 13$  V DC)  
0-10 V min. 1 k $\Omega$   
0-2 V min. 1 k $\Omega$   
0-5 V min. 1 k $\Omega$   
Measuring range 0.5-50 m/s  
Accuracy  $\pm 3\%$  of meas. value or  $\pm 0.5$  m/s  
Resolution  $< 0.1$  m/s  
Operating voltage 9-30 V DC or 24 V AC for 0-10 V output.  
Current consumption 50 mA  
Heating max. 20 W; 24 V AC/DC  
Ambient temp. -40 ... +70 °C  
Connection 12 m cable, LiYCY 6 x 0.25 mm<sup>2</sup>  
Dimensions  $\varnothing 135$  x 165 mm  
Protection IP 55  
Weight 0.75 kg

# Wind

## Compact (Anemometer and Wind Direction Transmitter)

### Description

#### Wind Transmitter Compact

- Model with plug connection

As execution

4.3518...

4.3519...

4.3520...

however with implemented plug instead of connected cable.

#### Wind Direction Transmitters

#### Wind Direction Transmitters Compact

- Digital Parallel Output

Measuring transmitter for the measurement of the horizontal wind direction with digital output signal (Gray-code).

The wind vane consists of fibre-glass reinforced, the housing is made of anodised aluminium and plastic.

The instrument has a threaded pin PG 21 with 2 nuts for mounting.

#### Wind Direction Transmitters Compact

- Digital Serial Output

Measuring transmitter for the measurement of the horizontal wind direction with digital output signal (Gray-code).

The wind vane consists of fibre-glass reinforced, the housing is made of anodised aluminium and plastic.

The instrument has a threaded pin PG 21 with 2 nuts for mounting.

### Order-No.

4.3518.x0.7xx

4.3519.x0.7xx

4.3520.x0.7xx

4.3128.xx.000

.00....

.10....

4.3129.00.000

### Technical Data

Connection	7-pole plug
Dimensions	
Height (with plug)	225 mm
Cup star	Ø 135 mm
Housing	Ø 50 mm
Weight	0.4 kg

With heating  
W/o heating

Measuring range	0-360°
Accuracy	±5°
Resolution	90°; 45°; 22.5°
Output	2; 3; 4-bit gray-code
Electr. output	open collector (source)
Operating voltage	10-28 V DC
Heating	24 V AC/DC max. 20 W
Ambient temperat.	-30 ... +70 °C
Connection	5 m cable LiYCY 6 x 0.25 mm <sup>2</sup>

Dimensions	
Height	220 mm
Wind vane	215 mm
Housing	Ø 50 mm
Protection	IP 55
Weight	0.6 kg

Measuring range	0-360°
Accuracy	±5°
Resolution	11.25°
Electr. output	5-bit serial-synchronous
Operating voltage	5-30 V DC
Current consumption	
standby	< 15 µA (5V)
active	< 200 µA (5V)
Heating	24 V AC/DC max. 20 W
Ambient temp.	-50 ... +70 °C
Connection	12 m cable, LiYCY 6 x 0.25 mm <sup>2</sup>

Dimensions	
Height	220 mm
Wind vane	215 mm
Housing	Ø 50 mm
Protection	IP 55
Weight	1.1 kg



# Wind Compact (Anemometer and Wind Direction Transmitter)



**Description**

**Wind Direction Transmitter Compact**

- Digital Serial Output
- TMR-Sensor for high resolution (2.5° WD)

Measuring transmitter for the measurement of the horizontal wind direction with digital output signal (Gray-code).

The wind vane consists of fibre-glass reinforced, the housing is made of anodised aluminium and plastic.

The instrument has a threaded pin PG 21 with 2 nuts for mounting.

**Order-No.**

4.3129.60.000

**Technical Data**

Measuring range	0-360°
Accuracy	±5°
Resolution	2.5°
Electr. output	8-bit serial-synchronous
Operating voltage	3.3-30 V DC or 24 V AC
Current consumption	< 1 mA (5V)
Heating	24 V AC/DC max. 20 W
Ambient temp.	-30 ... +70 °C
Connection	12 m cable, LiYCY 6 x 0.25 mm <sup>2</sup>
Dimensions	
Height	220 mm
Wind vane	215 mm
Housing	Ø 50 mm
Protection	IP 55
Weight	1.1 kg



**Wind Direction Transmitter Compact**

- Digital Serial Output
- TMR-Sensor for high resolution (0.35° WD)

Further description and data as 4.3129.60.000

4.3129.60.001

Measuring range	0-360°
Accuracy	±1°
Resolution	0.35°
Electr. output	10-bit serial-synchronous



**Wind Direction Transmitter Compact**

- Analogue Output

Measuring transmitter for the measurement of the horizontal wind direction with analogue output signals.

The wind vane consists of fibre-glass reinforced, the housing is made of anodised aluminium and plastic.

The instrument has a threaded pin PG 21 with 2 nuts for mounting.

4.3129.00.xxx

.140	0-20 mA	load operating voltage @ 500 Ω; (> 15 V DC)
.141	4-20 mA	@ 500 Ω; (> 15 V DC)
.161	0-10 V	@ 1 k Ω; (> 15 V DC)
.167	0-2 V	@ 1 k Ω
.173	0-5 V	@ 1 k Ω

Electr. output	load operating voltage @ 500 Ω; (> 15 V DC)
	@ 500 Ω; (> 15 V DC)
	@ 1 k Ω; (> 15 V DC)
	@ 1 k Ω
	@ 1 k Ω
Measuring range	0-360°
Resolution	11.25°
Accuracy	±5°
Operating voltage	8-30 V DC or 24 V AC
for 0-10 V-output	15-30 V DC or 24 V AC
Heating	24 V AC/DC max. 20 W
Ambient temp.	-40 ... +70 °C
Connecton	12 m cable, LiYCY 6 x 0.25 mm <sup>2</sup>
Dimensions	
Height	210 mm
Wind vane	215 mm
Housing	Ø 50 mm
Protection	IP 55
Weight	1.1 kg

# Wind

## Compact (Anemometer and Wind Direction Transmitter)

Description	Order-No.	Technical Data	
<p><b>Wind Direction Transmitter Compact</b></p> <ul style="list-style-type: none"> <li>• Analogue Output</li> <li>• TMR-Sensor for high resolution (0.4° WD)</li> </ul> <p>Measuring transmitter for the measurement of the horizontal wind direction with analogue output signals.</p> <p>The wind vane consists of fibre-glass reinforced, the housing is made of anodised aluminium and plastic.</p> <p>The instrument has a threaded pin PG 21 with 2 nuts for mounting.</p>	<p>4.3129.60.xxx</p> <p>.140</p> <p>.141</p> <p>.161</p> <p>.167</p> <p>.173</p>	<p>Electr. output</p> <p>0-20 mA</p> <p>4-20 mA</p> <p>0-10 V</p> <p>0-2 V</p> <p>0-5 V</p> <p>Measuring range</p> <p>Resolution</p> <p>Accuracy</p> <p>Operating voltage</p> <p>for 0-10 V-output</p> <p>Heating</p> <p>Ambient temp.</p> <p>Connecton</p> <p>Dimensions</p> <p>Height</p> <p>Wind vane</p> <p>Housing</p> <p>Protection</p> <p>Weight</p>	<p>load operating voltage</p> <p>@ 500 Ω; (&gt; 12 V DC)</p> <p>@ 500 Ω; (&gt; 12 V DC)</p> <p>@ 1 k Ω; (&gt; 12 V DC)</p> <p>@ 1 k Ω</p> <p>@ 1 k Ω</p> <p>0-360°</p> <p>0.4°</p> <p>±2°</p> <p>8-30 V DC or 24 V AC</p> <p>15-30 V DC or 24 V AC</p> <p>24 V AC/DC</p> <p>max. 20 W</p> <p>-30 ... +70 °C</p> <p>12 m cable, LiYCY</p> <p>6 x 0.25 mm<sup>2</sup></p> <p>210 mm</p> <p>215 mm</p> <p>Ø 50 mm</p> <p>IP 55</p> <p>1.1 kg</p>
<p><b>Wind Direction Transmitter Compact</b></p> <ul style="list-style-type: none"> <li>• Model with plug connection</li> </ul> <p>Instrument with plug instead of a fixed cable, otherwise as 4.3129.00 / 60.xxx.</p> <p>Please contact us for the required model, order-no., and availability.</p>	<p>4.3129.00.7xx</p> <p>4.3129.60.7xx</p>	<p>Connection</p> <p>Dimensions</p> <p>Height (with plug)</p> <p>Wind vane</p> <p>Housing</p> <p>Weight</p>	<p>7-pole plug</p> <p>270 mm</p> <p>215 mm</p> <p>Ø 50 mm</p> <p>0.4 kg</p>
<p><b>Wind Direction Transmitter Compact</b></p> <ul style="list-style-type: none"> <li>• Potentiometer-output</li> <li>• Model with plug connection</li> </ul> <p>Measuring transmitter for the measurement of the horizontal wind direction with Potentiometer-output</p> <p>The wind vane consists of fibre-glass reinforced, the housing is made of anodized aluminium and plastic.</p>	<p>4.3129.xx.712</p> <p>.00....</p> <p>.10....</p>	<p>With heating</p> <p>W/o heating</p> <p>Measuring range</p> <p>Accuracy</p> <p>Resolution</p> <p>Output</p> <p>Operating voltage</p> <p>Heating</p> <p>Ambient temp.</p> <p>Connection</p> <p>Dimensions</p> <p>Height</p> <p>Wind vane</p> <p>Housing</p> <p>Protection</p> <p>Weight</p>	<p>0-360°</p> <p>±2°</p> <p>0.5°</p> <p>0-2 KΩ</p> <p>0-24 V DC</p> <p>max. load: 1 mA</p> <p>24 V AC/DC</p> <p>max. 20 W</p> <p>-40 ... +70 °C</p> <p>7-pol plug</p> <p>270 mm</p> <p>215 mm</p> <p>Ø 50 mm</p> <p>IP 55</p> <p>0.4 kg</p>



## Your Notice

# Wind Cold Climate (Anemometer, Wind Transmitters and Wind Direction Transmitters)

Anemometer, Wind Transmitters  
and Wind Direction Transmitters  
with additionally integrated heating  
components.

Applications:



Cold climate areas

- Meteorology
- Wind power plants
- Climatology
- Research
- Environmental technology



# Wind

## Cold Climate (Anemometer, Wind Transmitters and Wind Direction Transmitters)

Description	Order-No.	Technical Data	
<p><b>Anemometer</b></p> <p><b>Ultrasonic Anemometer 3D</b> The model no 4.3830.4x.xxx is equipped with an additional case heating (supply: <b>48 V AC/DC, 360 V A</b>) for the use at extremely critical sites, where frequent icing might be expected.</p> <p>Further description and technical data see 4.3830.2x.xxx page 6</p>	4.3830.4x.xxx	With heating	for sensor arms, ultrasonic transducers, center bar and housing 48 V AC/DC, 360 V A
 <p><b>Ultrasonic Anemometer 2D</b> The model no. 4.3820.4x.xxx is equipped with an additional case heating (supply: <b>48 V AC/DC, 280 V A</b>) for the use at extremely critical sites, where frequent icing might be expected</p> <p>Further description and technical data see 4.3820.xx.xxx page 8</p>	4.3820.4x.xxx	With heating	for sensor arms, ultrasonic transducers and housing 48 V AC/DC, 280 V A
 <p><b>Ultrasonic Anemometer 2D</b> The model no. 4.3820.4x.xxx is equipped with an additional case heating (supply: <b>24 V AC/DC, 240 V A</b>) for the use at extremely critical sites, where frequent icing might be expected</p> <p>Further description and technical data see 4.3820.xx.xxx page 8</p>	4.3820.34.398	With heating	for sensor arms, ultrasonic transducers and housing 24 V AC/DC, 240 V A



# Wind Cold Climate (Anemometer, Wind Transmitters and Wind Direction Transmitters)

Description	Order-No.	Technical Data		
<p><b>Ultrasonic Anemometer compact</b> The model no. 4.3875.0x.xxx is equipped with an additionally integrated US transformer heating for the use at extremely critical sites, where frequent icing might be expected.</p> <p>Further description and technical data see 4.3875.xx.xxx page 13</p>	4.3875.0x.xxx	With heating	for sensor receptacle, Ultrasonic transducers, ground plate and cover plate	
		Operating voltage	24 V AC/DC, 250 VA	
<p><b>Wind Transmitter compact</b></p> <ul style="list-style-type: none"> <li>• with 60 W heating</li> </ul> <p>For the more difficult use in the high mountains or at other critical sites, where icing might be expected frequently, the wind transmitters can be equipped with a reinforced heating. Please contact us for the required model, order-no., and availability.</p> <p>Further description and technical data see 4.3518.00.000, 4.3519.00.000/xxx, 4.3520.00.000 page 32</p>	<p>4.3518.40.xxx 4.3519.40.xxx 4.3520.40.xxx</p>	With heating	24 V AC/DC, 60 W	
<p><b>Wind Direction Transmitter compact</b></p> <ul style="list-style-type: none"> <li>• with 60 W heating</li> </ul> <p>For the more difficult use in the high mountains or at other critical sites, where icing might be expected frequently, the wind transmitters can be equipped with a reinforced heating. Please contact us for the required model, order-no., and availability.</p> <p>Further description and techn. data see 4.3128.00.000, 4.3129.00.000, 4.3129.60.000/001, 4.3129.00.712 page 33-35</p>	4.3129.80.xxx	With heating	24 V AC/DC, 60 W	

## Your Notice

# Wind Small Wind Transmitters

Small Wind Transmitters are ideal measuring transmitters with best price/performance-ratio for standard requirements.

Applications:

- Control technique
- Building control system

Description	Order-No.	Technical Data	
<p><b>Wind Velocity Transmitters</b></p> <p><b>Small Wind Transmitters</b> Measuring instrument for the direction-independent measurement of the horizontal air flow in the open. The sensor is a small construction with a DC-generator, which is moved by the revolution of the cup star. Cup star consists of fiber glass reinforced, and shaft is made of plastic. The mast boring is made of aluminum.</p>	4.3400.30.000	<p>Measuring range</p> <p>Accuracy</p> <p>Electr. output</p> <p>Load</p> <p>Fixing boring</p> <p>Mounting</p> <p>Ambient temp.</p> <p>Cable</p> <p>Dimensions</p> <p>Protection</p> <p>Weight</p>	<p>0.5-35 m/s</p> <p>±0.5 m/s or ±5% of meas. value</p> <p>0-1 mA DC Ra = 800 Ω</p> <p>max. 60 m/s</p> <p>Ø 35 x 35 mm</p> <p>onto a mast tube 1"</p> <p>-25 ... +60 °C, ice-free</p> <p>20 m; LiYY 2 x 0.25 mm<sup>2</sup></p> <p>Ø 134 x 175 mm</p> <p>IP 54</p> <p>0.3 kg</p>
<p><b>Small Wind Transmitters</b> Measuring instrument for the direction-independent measurement of the horizontal air flow in the open. The sensor is a small construction with a Reed-contact, which is activated by the revolution of the cup star. Cup star consists of fiber glass reinforced, and shaft is made of aluminum.</p>	4.3515.30.000	<p>Measuring range</p> <p>Accuracy</p> <p>Electr. output</p> <p>Resolution</p> <p>Load</p> <p>Contact</p> <p>Contact load</p> <p>RV</p> <p>Fixing boring</p> <p>Mounting</p> <p>Ambient temp.</p> <p>Cable</p> <p>Dimensions</p> <p>Protection</p> <p>Weight</p>	<p>0.5-40 m/s</p> <p>±0.5 m/s or ±5% of meas. value</p> <p>50 Hz at 40 m/s</p> <p>0.8 m wind run</p> <p>max. 60 m/s</p> <p>Reed-contact</p> <p>max. 24 V DC</p> <p>0.5 W; 100 Ω</p> <p>Ø 35 x 35 mm</p> <p>onto a mast tube 1"</p> <p>-25 ... +60 °C, ice-free</p> <p>20 m; LiYY 2 x 0.25 mm<sup>2</sup></p> <p>Ø 134 x 175 mm</p> <p>IP 54</p> <p>0.3 kg</p>
<p><b>Small Wind Transmitters</b> Measuring instrument for the direction-independent measurement of the horizontal air flow in the open. The sensor is a small construction with a Reed-contact, which is activated by the revolution of the cup star. The housing is made of synthetic material.</p>	4.3515.xx.xxx .50.xxx .51.xxx .0xx .1xx .x00 .x61	<p>With heating</p> <p>W/o heating</p> <p>Instrument colour</p> <p>Electr. output</p> <p>Measuring range</p> <p>Accuracy</p> <p>Resolution</p> <p>Load</p> <p>Contact load</p> <p>Fixing boring</p> <p>Mounting</p> <p>Ambient temp.</p> <p>Cable</p> <p>Dimension</p> <p>Protection</p> <p>Weight</p>	<p>max. 24 V DC; 24 W</p> <p>white black</p> <p>0-100 Hz 0-10 V</p> <p>0.9-40 m/s</p> <p>±0.5 m/s or ±5% of meas. range</p> <p>0.4 m wind run (.x00)</p> <p>max. 60 m/s</p> <p>10 V A, max. 42 V DC max. 0.4 A</p> <p>Ø 35 x 35 mm</p> <p>on mounting angle</p> <p>-25 ... +60 °C</p> <p>3 m; LiYY 4 x 0.5 mm<sup>2</sup> resp. 2 x 0.5 mm<sup>2</sup></p> <p>Ø 134 x 160 mm</p> <p>IP 54</p> <p>0.3 kg</p>



# Wind

## Small Wind Transmitters

### Description

#### Wind Direction Transmitters



#### Wind Direction Transmitter

Measuring sensor for the measurement of the horizontal wind direction in the open. The instrument is a small construction with a potentiometer or Reed-contact, which are activated in correspondence to the position of the wind vane. Wind vane consists of fiber glass reinforced, and shaft is made of plastic. The mast boring is made of aluminum.

### Order-No.

4.3124.30.018

4.3127.40.000

### Technical Data

Electr. output	0-400 Ω (358°)
Resolution	0.5°, 5-lead circuit
Electr. output	8 Reed contacts
Resolution	22.5°
Accuracy	±4°
Measuring range	0-358°/0-360°
Potentiometer load	max. 100 mA, 24 V, 2.5 W
Contact load	0.5 W, max. 60 V DC
Load	max. 60 m/s
Ambient temp.	-25 ... +60 °C, ice-free
Cable	20 m, LiYCY 5 x 0.25 mm <sup>2</sup> or 9 x 0.14 mm <sup>2</sup>
Mounting	onto a mast tube 1"
Dimension	210 mm high
Protection	IP 54
Weight	0.55 kg



#### Wind Direction Transmitter

Measuring transmitter for the measurement of the horizontal wind direction. The measuring values are transmitted as ohmic resistance-signals. The wind direction is detected by a wind vane, and is then transmitted to a potentiometer. The outer parts of the instrument are made of corrosion-resistant materials (plastic). Labyrinth gaskets protect the parts inside the instrument.

4.3140.51.010

Measuring range	10°-350° (20° dead-zone in the north)
Electr. output	potentiometer 0-1 KΩ (±3%)
Responsiveness	1 m/s
Potentiometer load	max. 1.5 W
Ambient temperature	-25 ... +60 °C, ice-free
Electr. connection	3 m cable
Dimensions	210 mm high
Protection	IP 54
Weight	0.3 kg



#### Combined Transmitter

Measuring transmitter for the measurement of wind velocity, wind direction and air temperature. Compact wind transmitter construction for simple instrument mounting.

Wind vane, cup star and housing consist partially of fibre glass reinforced, housing brackets and mast boring of stainless steel and aluminium.

4.3329.00.510

Wind velocity	
Measuring range	1 ... 40 m/s 1 Reed contact / 2 magnets
Output	potential-free pulses
Resolution	typ. 2.3 Hz / ms <sup>-1</sup>
Contact load	max. 10 VA, 0.5 A, 42 V DC
Wind direction	
Measuring range	2.5 ... 357.5°
Sensor	potentiometer
Output	0 ... 1 KΩ, 5° dead-zone in the North
Temperature	
Sensor	NTC, 10 KΩ
Ambient. temperature	-25 ... +60 °C (ice-free)
Connection	15 m cable, LiYCY 6 x 0.25 mm <sup>2</sup>
Dimensions	
Height	418 mm
Housing	Ø 50 mm
Mast boring	Ø 31 mm 26 mm depth
Protection	IP 54
Weight	1 kg




For other accessories such as masts, lightning rods, power supply etc. please refer to page 65-72.

# Wind Transmitters for Air Flow

Wind Transmitters for directional air flow

Applications:

- Ventilation shafts
- Air conditioning ducts
- Road- and railway tunnels

Description	Order-No.	Technical Data		
<p><b>Wind Transmitter</b> for tunnel application</p> <p>For the measurement of directional air flows especially in tunnels. Instrument sends frequency signals, depending on speed and related to the flow direction.</p> <p>Instrument is equipped with a mounting bar.</p> <p>Suitable for connection to the Measuring Transducer TW, order-no. 4.3348.xx.xxx</p>	<p><b>4.3308.10.000</b></p>	<p>Measuring range Resolution</p> <p>Delay distance Electr. output Propeller type</p> <p>Dimension Operating voltage Current supply</p> <p>Ambient temp. Cable</p> <p>Dimensions Weight</p>	<p>0.3-20 m/s approx. 0.05 m wind run</p> <p>3.3 m 0-410 or 418 Hz 4-blade, polypropylene 180 mm</p> <p>15 V DC (10-16 V DC) approx. 15 mA</p> <p>-20 ... +70 °C, ice-free 3 m, LiYCY 4 x 0.25 mm<sup>2</sup></p> <p>Ø 200 x 350 mm 5 kg</p>	
<p><b>Wind Transmitter</b> for duct application</p> <p>A fan wheel to determine the directional air flow in ducts. Mounting on a mast tube.</p> <p>The fan wheel revolutions are scanned opto-electronically by a reflective light barrier in a contact-free manner, thus causing a low starting speed.</p> <p>See also : Measuring Transducer WG, order-no.. 4.3339.xx.xxx</p>	<p><b>4.3311.30.000</b> <b>4.3311.32.000</b></p>	<p>Operating voltage</p> <p>Measuring range Resolution Electr. output Fan wheel type dimensions Ambient temp. Cable Fixing boring Dimensions Weight</p>	<p>15 V DC / approx. 0.3 mA, 24 V DC</p> <p>&lt; 0.25-20 m/s 0.083 m wind run</p> <p>0-240 Hz 8-blade aluminium Ø 100 mm</p> <p>-20 ... +80 °C, ice-free 1 m Ø 37 x 20 mm 108 x 148 x 65 mm 0.9 kg</p>	
<p><b>Ultrasonic Anemometer 1D</b> The Ultrasonic Anemometer 1D serves for the measurement of the horizontal air flow of a fixed flow direction and the acoustic-virtual temperature.</p> <p>Further description and techn. data see page 10.</p>	<p><b>4.3865.0x.xxx</b></p>			



## Your Notice

# Wind Hand Instruments, Mechanical Anemometer

Autarkic measuring instruments are especially suitable for portable use, where no power supply is available.

## Applications:

- Agriculture
- Environmental measurements
- Building control system
- Meteorology
- Control technique

Description	Order-No.	Technical Data	
<p><b>Cup-Anemometer</b> A measuring instrument designed for hand use to take direct wind velocity readings. Made of plastic.</p>	4.3008.01.000	<p>Measuring range</p> <p>Dimensions</p> <p>Weight</p>	<p>0-120 km/h 0-12 beaufort 0-35 m/s, 0-70 kn Ø 100 x 205 mm 0.32 kg</p>
<p><b>Instrument case</b> (not depicted) Transport and storage case for the above-mentioned anemometer.</p>	4.3008.01.005	<p>Material</p> <p>Dimensions</p> <p>Weight</p>	<p>wood 155 x 245 x 135 mm 1.15 kg</p>
<p><b>Digital Anemometer</b> The portable instrument serves for the display of wind velocities</p> <p>The system consists of a wind transmitter with connected cable, a display instrument and a transport case.</p> <p>Wind transmitter and display instrument are made of corrosion-free materials (alu, plastic).</p> <p>The control key is installed in a way that the instrument can be easily operated.</p> <p>A 9 V battery for the power supply of the system is situated in a compartment on the back side</p>	4.3406.00.000 <b>Wind transmitter</b>	<p>Measuring range</p> <p>Accuracy</p> <p>Cable length</p> <p>Dimensions</p> <p>Weight</p> <p>Ambient temperat.</p> <p>Protection</p>	<p>0.5 ... 50 m/s ±3% of meas. value or ±0.5 m/s 0.5 ... 1.5 m (helix cable) Ø 135 x 270 250 g -30 ... +70 °C (ice-free) IP 54</p>
	<b>Display Instrument</b>	<p>Accuracy</p> <p>Resolution</p> <p>Measuring value</p> <p>Display</p>	<p>1 digit 0.1 m/s wind velocity as instantan. value or 10 s gliding mean value: LCD-display 3-digits, 7-segment, 11.5 mm high</p>
	<b>Transport case</b>	<p>General</p> <p>µC-technology, Compensation of starting value, battery control</p> <p>Power supply</p> <p>Connection</p> <p>Ambient temperat.</p> <p>Dimensions</p> <p>Weight</p> <p>Protection</p>	<p>9 V-, alkali-manganese battery 5-pole-plug 0 ... 60 °C 145 x 80 x 35 (l x w x h) 190 g IP 50</p>
		<p>Material</p> <p>Dimensions</p> <p>Weight</p>	<p>plastic 420 x 330 x 130 2 kg</p>



# Wind Hand Instruments, Mechanical Anemometer

## Description

### Telescope

- suitable for Digital  
Anemometer 4.3406.00.000

Serves as extended handhold  
of the wind transmitter  
for carrying out measurements  
at places which are difficult  
to reach.

## Order-No.

4.3405.50.007

## Technical Data

Length 0.45-1.45 m  
Weight 0.5 kg



### Wind Run Meter

Mechanical measuring instru-  
ment for direction-independent  
measurement of the horizontal  
air flow and display of the wind  
run. The display count cumula-  
tively the wind run.

Instrument is mounted on the  
top of a mast.  
All main parts are made of ano-  
dised or varnished aluminium.

4.3018.10.000

Counting range 0-999 999.9 km  
Resolution 100 m wind run  
Digit height 7 mm  
Inclination of counter 50°  
Operating range 0.5-60 m/s  
Load max. 60 m/s  
Delay distance 5 m  
Ambient temp. -35 ... +80 °C  
Mounting onto a mast tube  
1 1/2"  
Fixing boring acc. to DIN 2441  
Dimensions Ø 50 x 50 mm  
318 x 260 mm  
Weight 1.3 kg



### Mechanical Wind Recorder

A mechanical instrument  
designed to measure and  
record wind run and direction.  
A reading rule to determine  
both instantaneous and mean  
wind speed values is included  
in the shipment.

The paper transport is carried  
out by a band mechanism with  
spring wound drive.

4.3900.20.000

Measuring range 0-10 km wind run  
0-360°  
Scale division 1 km; 30°  
Recording width WV 50 mm = 10 km  
WD 36 mm = 360°  
Period of registration 31 days  
Paper advance 10 mm/h  
Operating range 0.5-60 m/s  
Ambient temp. -35 ... +45 °C  
Mounting onto a mast tube,  
Ø 48 mm  
Dimensions 155 x 200 x 725 mm  
Weight 10.5 kg

### Recording Roll

(not depicted.)  
Wax coated paper for above-  
mentioned wind recorder.

205242

Paper length sufficient for 31 days  
Width of roll 120 mm

### Instrument Case

(not depicted.)  
For a safe transport of the  
above instrument to varying  
measuring places.

4.3905.20.000

Material wood, unvarnished  
Dimension 710 x 320 x 290 mm  
Weight 12.5 kg



### Wind Direction Measuring Instrument

Simple portable instrument,  
consisting of a mechanical  
wind vane, and a telescopic  
tripod stand.  
There is a built-in compass to  
align the instrument to  
"North".  
Supplied in a carrying case.

4.3019.21.000

Measuring range 0-360°  
Division 10° and N-NW-W-N  
Alignment by compass  
Stand, telescopic 28 to 115 cm  
Dimension of case 395 x 285 x 120 mm  
Weight 1 kg



# Integrated Sensors: METEO comp, Clima Sensor, Weather Station

By means of the below stated compact and easy to mount measurement systems the following parameters can be measured, displayed or remotely transmitted – depending on the model:

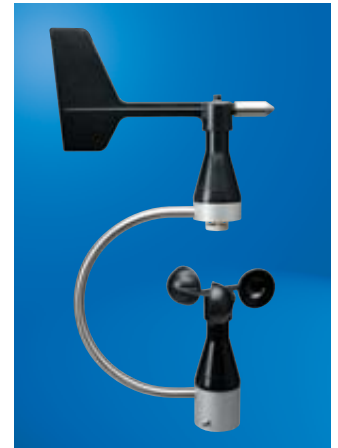
**Parameters:**

- Wind speed
- Wind direction
- Precipitation intensity
- Precipitation type
- Brightness
- Twilight
- Temperature
- Relative Humidity
- Barometric air pressure
- Global radiation

**Application:**

- Meteorology
- Environmental measurement
- Control technique
- Building control system
- Traffic engineering
- Greenhouse technology
- etc.

Description	Order-No.	Technical Data	
<p><b>METEO comp</b> Complete measuring instrument, ready for connection, consisting of the following components:</p>		Measuring value	wind direction wind velocity temperature wind-chill min.- and max.-values of the past 24 h
<p><b>Comb. Wind Transmitter</b> Small combined measuring transmitter for acquisition of the wind speed and wind direction as well as of the ambient temperature.</p>	4.3329.00.000	Operating voltage Ambient temp. Cable Mounting Dimensions Weight	from display unit -30 ... +60 °C 20 m long, with plug on pin Ø 30 mm 200 x 450 mm 1 kg
<p><b>Display Instrument</b> Digital LED-indicator inclusive power supply unit, with plug for the display of the above-mentioned measuring values. The changing-over to the single values is carried out via keypad. Plug-connection of wind sensor, power supply unit and serial data output. Housing is suitable for wall mounting.</p>	9.3229.00.000	Display WS Resolution Display WD Resolution Display temp. Resolution Electr. output Operating voltage Ambient temp. Dimensions Display Power supply unit Weight	m/s; km/h; Bft 0.1 m/s; 1 km/h; 1 Bft 0 ... 360° 22.5° -30 ... +60 °C -22 ... +140 °F 0.1 K; 0.1 °F RS 232/V.24, serial 9 V DC/max. 500 mA -30 ... +60 °C, ice-free 95 x 155 x 35 mm 65 x 100 x 55 mm 0.23 kg; 0.51 kg
<p><b>Software Meteo-Online</b></p>	9.1700.98.000	See page 60	



# Wind

## Integrated Sensors: METEO comp, Clima Sensor, Weather Station



### Description

#### Clima Sensors D

**Clima Sensor D, WTF**

**Clima Sensor D, W**

**Clima Sensor D, TF**

**Clima Sensor D**

The Clima Sensor D serves for the measurement of environmental data. These are available as

- Serial RS 485/422 telegram and as
- Analogue outputs for further processing

The CLIMA Sensor D has an internal DCF77 receiver, which takes the time signal of an atomic clock, and integrates it into the data telegram.

Ranges of application are:

- Building control systems
- Control technique
- Green house technique
- Processing of the acquired data to recording or display instruments

Depending on the model, the following data can be measured by the Clima Sensor D:

- Wind velocity
- Precipitation (yes/no)
- Brightness in Eastern, Southern and Western direction
- Twilight
- Temperature
- Rel. humidity

The respective holder serves for the mounting at masts or plane surfaces, depending on the range of application.

Instrument with internal condensation shield

### Order-No.

4.9110.00.061

4.9100.00.061

4.9111.00.061

4.9101.00.061

### Wind

Measuring range  
Accuracy

1 ... 40 m/s  
±0.5 m/s or  
±5% of meas. range

### Precipitation

Measuring range  
Sensitivity  
Switch-off-delay

precipitation yes/no  
fine drizzle  
approx. 2 minutes

### Brightness for South East, West

Measuring range  
Spectral range  
Accuracy

0 ... 150 k Lux  
700 ... 1050 nm  
±10% of meas. value

### Twilight

Measuring range  
Spectral range  
Accuracy

0 ... 250 Lux  
700 ... 1050 nm  
±10% of meas. value

### Temperature

Measuring range  
Measuring element  
Accuracy

-20 ... +60 °C  
Pt100 1/3 DIN  
±0.5 k at > 2.5 m/s

### Air humidity

Measuring range  
Accuracy

0 ... 100% rel. humidity  
±3% in the range  
10 ... 90% rel. humidity  
at 2.5 m/s

### Output serial

Type  
Output

RS 422 / 485  
1200-19200 baud  
8N1, full-duplex/  
half-duplex-operation  
environmental data,  
housing, temperature,  
date, time, sensor  
status, checksum

Output parameter

### analogue

Signal  
0 ... 10 V  
0V/10V

depending on parameter  
with precipitation yes/no

Load resistance

≥ 10 kΩ  
(≥ 100 kΩ with  
precipitation)

### General

Operating voltage  
Current consumption

16-28 VDC or 24 V AC  
≤ 150 mA w/o conden-  
sation shield,  
approx. 600 mA with  
condensation shield

Ambient temperature  
Connection

-40 °C ... +60 °C  
10 m cable; LiYCY  
16 x 0.14 mm<sup>2</sup>,  
UV-resistant

Mounting

retaining clamp,  
stainless steel

Weight

max. 1.5 kg

### Dimensions

4.9110.00.061  
4.9100.00.061  
4.9111.00.061  
4.9101.00.061

Ø 130 x 430 mm  
Ø 130 x 335 mm  
Ø 130 x 310 mm  
Ø 130 x 215 mm

# Wind Weather Station

## Integrated Sensors: METEO comp, Clima Sensor,

Description	Order-No.	Technical Data			
<b>Clima Sensors US</b>					
<b>Clima Sensor US NHTFB</b>	4.9200.00.000	X	X	X	10V/RS485/GPS/*
<b>Clima Sensor US TFB</b>	4.9201.00.000	X	X		10V/RS485/*
<b>Clima Sensor US NH</b>	4.9202.00.000	X		X	10V/RS485/GPS/*
<b>Clima Sensor US Wind</b>	4.9203.00.000	X			10V/RS485/*
<b>Clima Sensor US</b>	4.920x.00.001				As above, however**
<p>The CLIMA SENSOR US serves for the measurement of environmental parameters. These are available for further processing as</p> <ul style="list-style-type: none"> <li>• Serial telegram via an RS485/422 and /or as</li> <li>• Analogue signals via voltage outputs</li> </ul> <p>Some instrument models have a GPS receiver. It serves for the determination of position and time, the sun position is additionally calculated herefrom. Position, Time and sun position are transmitted serially.</p> <p>The compact construction, easy mounting, and diverse options of data output are the basis for the use in several fields:</p> <ul style="list-style-type: none"> <li>• Building control system</li> <li>• Traffic engineering</li> <li>• Meteorology</li> <li>• Energy supply</li> <li>• Ecological monitoring</li> </ul> <p>The following parameters can be measured by the CLIMA SENSOR US, depending on the instrument model:</p> <ul style="list-style-type: none"> <li>• Wind speed</li> <li>• Wind direction</li> <li>• Intensity and type of precipitation</li> <li>• Brightness</li> <li>• Brightness direction</li> <li>• Temperature</li> <li>• Relative air humidity</li> <li>• Air pressure</li> </ul> <p>* Data protocol, pre-set: ASCII-Thies-Format                      ** Data protocol, pre-set: BINARY - Modbus RTU, in half duplex mode</p>	<b>Wind speed</b>	Measuring range Accuracy	0 ... 60 m/s / ±0.3 m/s @ WG < 5 m/s ±3% @ WG > 5 m/s		
	<b>Wind direction</b>	Measuring range Accuracy	0 ... 360° ±2.0° @ WG > 2 m/s		
	<b>Precipitation</b>	Measuring range	0.001 ... 10 mm/min		
	<b>Brightness</b>	Measuring range Accuracy	0 ... 150 kLux 3% of rel meas. value		
	<b>Air pressure</b>	Measuring range Accuracy	300 ... 1100 hPa ±0.25 hPa @ +10 ... +35 °C		
	<b>Temperature</b>	Measuring range Accuracy	-40 ... +80 °C ±0.3 K @ 25 °C		
	<b>Air humidity</b>	Measuring range Accuracy	0 ... 100% rel humidity ±1.8% @ 10 ... 90% rel. humidity		
	<b>Output serial</b>	Type Baud rate Operation Protocol Output parameter	RS 422 / 485 1200 ... 921600 baud full duplex / half duplex ASCII / MODBUS RTU div. meas. data, date, time, check sum etc.		
	<b>analogue</b>	Type Output parameters	max. 8 x 0 ... 10 V wind speed and -direction, brightness, direction of brightness, precipitation, rel. humidity, temperature, air pressure		
	<b>Load</b>		≥ 2 kΩ		
<b>General</b>	Operating voltage Current consum. (Electronics when fully equipped) Heating w. full load Ambient temperature Connection Mounting	6 ... 60 V DC or 10 ... 42 V AC 50/60 Hz 50 mA @ 24 V 24 V AC / DC 25 VA -30 ... +70 °C 19-pole plug on tube (max. Ø 50 mm)			
<b>Weight</b>		0.9 / 0.7 kg			
<b>Dimension</b>	4.9200(1).00.000 4.9202(3).00.000	Ø150 x 220 mm Ø150 x 175 mm			



# Wind

## Integrated Sensors: METEO comp, Clima Sensor, Weather Station

Description	Order-No.	Technical Data	
<b>Accessories</b>			
<b>Cable</b> 16-core assembled connecting cable for CLIMA SENSOR US equipment: <ul style="list-style-type: none"> <li>• 19-pole cable socket, instrument-site,</li> <li>• open ends receive-site,</li> <li>• shielded,</li> <li>• non-halogen,</li> <li>• UV-resistant</li> </ul>	509311	Length	10 m
<b>Cable</b> 8-core assembled connecting cable for the exclusively serial operation of a CLIMA SENSOR US equipment: <ul style="list-style-type: none"> <li>• 19-pole cable socket, instrument-site,</li> <li>• open ends, receive-site,</li> <li>• shielded,</li> <li>• non-halogen,</li> <li>• UV-resistant</li> </ul>	509427	Length	10 m
<b>Power Supply Unit</b> Serves for the power supply of the CLIMA SENSOR US as well as for the connection and distribution of cable resp. cable wires equipment: Toroidal transformer, series terminals, housing with cable gland.	9.3389.20.000	Primary Secondary Series terminals Housing Dimension (LxWxH)	230 V AC/115 V AC 24 V AC/30 VA 16 plastic ca. 125 x 1125 x 104 mm 3 x M16 x 1.5 1 x M20 x 1.5 IP 66 approx 1.5 kg
<b>PC Program Thies Device Utility</b> For initial operation and configuration of Thies-sensors with serial interface.	9.1700.81.000	see page 61	

# Integrated Sensors: METEO comp, Clima Sensor, Weather Station Wind



Description	Order-No.	Technical Data	
<b>Weather Station COMPACT WSC11</b>	4.9056.10.000	Data protocol, pre-set	ASCII-Thies-Format, in half duplex mode
<b>Weather Station COMPACT WSC11</b>	4.9056.10.001	Data protocol, pre-set	BINARY-Modbus RTU, in half duplex mode
The weather station COMPACT WSC11 is designed for the use in the building automation (for ex. shadowing control)	<b>Wind speed</b>	Measuring range Accuracy	0 ... 40 m/s ±5% v Mb
The interface for the instrument is digital, and consists of an RS485 interface.	<b>Wind direction</b>	Measuring range Accuracy	0 ... 360° ±10°
Together with the ID-based communication the interface facilitates the operation of the weather station in a bus.	<b>Precipitation</b>	Measuring range	1/0 (yes/no)
The instrument has a GPS receiver. It serves for the determination of position and time. The sun position is calculated herefrom additionally.	<b>Brightness</b>	Measuring range Accuracy	0 ... 150 kLux ±3% v Mb
The following parameters can be measured:	<b>Twilight</b>	Measuring range Accuracy	0 ... 500 Lux ± 10 Lux
<ul style="list-style-type: none"> <li>• Wind speed</li> <li>• Wind direction</li> <li>• Brightness (in North, East, South, West)</li> <li>• Twilight</li> <li>• Global radiation</li> <li>• Precipitation</li> <li>• Temperature</li> <li>• Relative air humidity</li> <li>• Air pressure</li> <li>• Time / date</li> <li>• Geostationary data                             <ul style="list-style-type: none"> <li>-Longitude</li> <li>-Latitude</li> </ul> </li> <li>• Sun position                             <ul style="list-style-type: none"> <li>-Elevation</li> <li>-Azimuth</li> </ul> </li> </ul>	<b>Global radiation</b>	Measuring range Accuracy	0 ... 1300 W/m <sup>2</sup> ±10% v Mb
	<b>Air pressure</b>	Measuring range Accuracy	300 ... 1100 hPa ±0.5 hPa @ 20 °C
	<b>Temperature</b>	Measuring range Accuracy	-30 ... +60 °C ±1 °C @ -5 ... +25 °C, >2m/s)
	<b>Air humidity</b>	Measuring range Accuracy	0 ... 100% rel. ±5% rel F @ 0 ... 20 °C
	<b>Output (serial)</b>	Type Baud rate Operation Protocol	RS 485 1200 ... 115200 half duplex ASCII / MODBUS RTU
	<b>General</b>	Operating voltage  Current consumpt. Ambient temperature Connection mounting  Weight Dimension	18 ... 30 V DC or 18 ... 28 V AC 50/60 Hz  < 300 mA @ 24 V DC -30 ... +60 °C connection: plug mounting; on tube (max. Ø 25 mm) 0.2 kg Ø 130 x 70 mm

# Wind

## Integrated Sensors: METEO comp, Clima Sensor, Weather Station



### Description

#### Mounting angle

Serves for the lateral mounting of the Weather Station COMPACT WSC11 at a vertical surface.

#### Cable

Assembled 7-pole connecting cable for Weather Station COMPACT WSC11 Equipment:

- cable socket, instrument-site
- open ends, receive-site
- shielded

#### PC Program Thies Device Utility

For initial operation and configuration of Thies-sensors with serial interface

### Order-No.

509564

509584  
509585

9.1700.81.000

### Technical Data

Length	250 mm
Width	60 mm
Material	stainless steel 1.4301

Length	5 m 10 m
--------	-------------

see page 61

# Wind Measuring Transformers

Measuring transformers serve for the transforming and preparing of wind transmitter signals; the outputs operate recording- and display instruments, or control contactor units.

## Applications:

- Control technique
- Building control system
- Meteorology
- Wind energy

Description	Order-No.	Technical Data
<h3>Measuring Transformers</h3>		
<h4>Measuring Transformer TW</h4>		
<p>The Measuring Transformer TW processes the frequency from the wind transmitter 4.3308.10.000 into analogue and serial signals.</p> <p>The following outputs are available:</p> <p><b>Analogue output</b>            1 x air flow velocity                detection of direction            1 x air flow speed                w/o detection of direction</p> <p><b>Relay output</b>            1 x lead flow            1 x return flow</p> <p><b>Serial interface</b>            for communication and measuring value output</p> <p>By means of a coding switch the measuring transformer TW can be set for</p> <ul style="list-style-type: none"> <li>• the measuring range of the analogue output</li> <li>• the mean value of the analogue output</li> <li>• the switch-on delay of the relays</li> </ul>	<p>4.3348.20.xxx .040</p> <p>.041</p> <p>.060</p> <p>.061</p>	<p><b>Electric output</b></p> <p>0 ... 20 mA            RS 485/422            relay 1 (return flow)            relay 2 (lead flow)</p> <p>4 ... 20 mA            RS 485/422            relay 1 (return flow)            relay 2 (lead flow)</p> <p>0 ... 1 V            RS 485/422            relay 1 (return flow)            relay 2 (lead flow)</p> <p>0 ... 10 V            RS 485/422            relay 1 (return flow)            relay 2 (lead flow)</p> <p><b>Input signal</b>            2 x frequency, 90° phase-delayed</p> <p><b>Measuring range scaling</b>            5; 10; 20; 30; 40; 50 m/s settable</p> <p><b>Analogue outputs</b>            Example:            output 1            direction-dependent            0 ... 10 ... 20 mA =            -20 ... 0 ... 20 m/s</p> <p>output 2            direction-dependent            0 ... 20 mA =            0 ... 20 m/s</p> <p><b>Relay outputs</b>            Relay 1           return flow            Relay 2           lead flow            Relay load       250 V AC /2A</p> <p><b>Serial Interface</b>            Type             RS485/422            Data format     8N1            Baud rate       2400 ... 38400</p> <p><b>General</b>            Ambient temperature   -20 ... +50 °C,                                              non-condensing            Operating voltage     230 V /50 Hz            Construction         wall housing            Protection           IP 65            Dimension           120 x 200 x 75 mm            Weight                0.65 kg</p>



# Wind Measuring Transformers



## Description

### Wind Interface

Suitable wind transmitters:  
4.3519.x0.x00 / 4.3129.0x.x00  
The wind interface transforms the digital signals of the wind speed- and wind direction transmitters into serial data telegrams. The interface allows the connection to different instruments, thanks to the interface variants available and the possibilities of forming the data telegram.

The voltage supply of the wind transmitter is effected via the wind interface. The housing is made of aluminium, and is suitable for outside mounting.

For wind transmitters:  
4.3518.0x.x00 / 4.3128.xx.xx0

For wind transmitters:  
4.3303.22.000 /  
4.3125.32.100

### Mounting Set compact

Mounting clamp with straps to mount the wind interface onto masts.

## Order-No.

4.4070.01.00x  
4.4070.01.70x  
x

4.4071.01.xxx

4.4072.01.xxx

506614

## Technical Data

Electr. output	fibre-optic-interface RS 422
Telegram variant	on request
Input WV WD	0-630 Hz (50 m/s) 5-bit serial synchronous
Measuring value	1 s instantaneous value for WS and WD
Operating voltage Protection Dimensions Weight	24 V AC/DC ±15% IP 65 84 x 179 x 67 mm 0.85 kg
Input WS WD	0-573 Hz (50 m/s) 4-bit serial parallel
Input WS WR	0-1042 Hz (50 m/s) 8-bit serial synchronous
Clamping range Material Weight	Ø 48-102 mm stainless steel 0.18 kg



# Wind Indicators, Records, Software

Display instruments serve for the visualization of wind data. Depending on the system, they prepare data for further processing or storing.

Applications:

- Meteorology
- Navigation

- Traffic engineering
- Airport technology

Description

Order-No.

Technical Data

## Display Instruments WV

### Digital Indicator WV

Flat-section indicator for the display of wind velocity values. The background of the indicator is black to facilitate reading of the red digits. Preferably switch panel or front panel mounting

4.1044.00.xxx  
.040  
.041  
.061

Electric input 0-20 mA  
4-20 mA  
0 ... +10 V  
Display range 0-40.0 m/s, or depending on sensor type  
Resolution ±1 digit  
Display LED, red, 13 mm high  
Operating voltage 230 V AC, 48 ... 62 Hz  
or  
115 V AC, 48 ... 62 Hz  
or 24 V DC  
Model switch panel mounting  
Protection IP 20  
Dimensions 96 x 48 x 104 mm  
Weight 0.3 kg



### Digital Indicator WV

with 2 adjustable limit contacts

Flat-section indicator for the display of wind velocity values. Two setting knobs on the front panel serve for setting the two potential-free relay-contacts. LED-digits show the switching functions. The background of the indicator is black to facilitate reading of the red digits. Preferably switch panel or front panel mounting.

4.1045.00.xxx  
.040  
.041  
.061

Electric input 0-20 mA  
4-20 mA  
0 ... +10 V  
Display range 0-40.0 m/s, or depending on sensor type  
Resolution ±1 digit  
Display LED, red, 13 mm high  
Contact throw-over-switch  
Operating voltage 230 V AC, 48 ... 62 Hz  
or  
115 V AC, 48 ... 62 Hz  
or 24 V DC  
Model switch panel mounting  
Protection IP 20  
Dimensions 96 x 48 x 104 mm  
Weight 0.3 kg



### Digital Indicator WV

- with frequency input
- with 2 limit contacts

For the connection of wind transmitter with frequency output.

4.1044.00.000

Electric input frequency (adjustable)  
Display range acc. wind transmitter-type  
Resolution 1 digit  
Display LED, red, 13 mm high  
Limit contact potential-free  
Quantity 2  
Load 250 V AC, max. 8 A  
Operating voltage 100 ... 264 V AC  
47... 63 Hz, 7 VA  
or  
24 V DC, max. 350 mA  
Model switch panel mounting  
Protection IP 20  
Dimensions 96 x 48 x 135 mm  
Weight 0.320 kg



# Wind Indicators, Records, Software



## Description

### Display Instruments WD

#### Digital Indicator WD

Flat-section indicator for display of wind direction values.

The background of the indicator is black to facilitate reading of the red digits. Preferably switch panel or front panel installation.

## Order-No.

4.1044.10.xxx  
.040  
.041  
.061

## Technical Data

Display range	0-360°
Electr. input	0-20 mA 4-20 mA 0 ... +10 V
Resolution	±1 digit
Display	LED, red, 13 mm high
Operating voltage	230 V AC, 48 ... 62 Hz or 115 V AC, 48 ... 62 Hz or 24 V DC
Model	switch panel mounting
Protection	IP 20
Dimensions	96 x 48 x 104 mm
Weight	0.3 kg

# Wind Indicators, Records, Software



Description	Order-No.	Technical Data
<p><b>Wind Display LED</b> Digital indicator for the display of wind speed and wind direction.</p> <p>Indicates the wind direction in a circle of 72 LED luminous bars, and the speed by 7-segment-LEDs.</p> <p>In addition, the minimum and maximum wind speed values can be indicated by two other digit displays.</p> <p>Display options of the WS:</p> <ul style="list-style-type: none"> <li>instantaneous value</li> <li>or</li> <li>2 min. mean value and maximum value</li> <li>or</li> <li>10 min. mean value and maximum value</li> </ul> <p>Display options of the WD:</p> <ul style="list-style-type: none"> <li>instantaneous value</li> <li>or</li> <li>2 min. mean value and variation</li> <li>or</li> <li>10 min. mean value and variation</li> </ul> <p>The calculation of the mean values and maximum values is carried out according to the ICAO.</p> <p>A built-in RS-422-interface facilitates the connection of other wind indicators LED: Suitable wind transmitters: 4.3303.22.000 / 008 4.3125.32(33).100 4.3336.31(32).000 4.3352.00(10).000 4.3151.00(10).000 4.3820.xx.xxx 4.3519.00.000 4.3129.00.000 4.3129.60.000</p>	<p><b>4.3250.xx.000</b> .00... .01...</p>	<p>Operating voltage 230 V / 50 Hz; 24 V AC 12 V-35 V DC 115 V / 50 Hz; 24 V AC 12 V-35 V DC</p> <p>Display range Wind velocity 0-99.9 / 0-999 m/s / kt / km/h / Bft Direction 0-360°</p> <p>Resolution Wind velocity 0.1 / 1 Wind direction 5°</p> <p>Wind transmitter input WS 0-1600 Hz WD Thies-serial-synchronous or WD + WV serial data telegram via RS 422</p> <p>Interface RS 422</p> <p>Connection screw terminal Ambient temp. -10 ... +50 °C Model switch panel mounting</p> <p>Protection IP 23 Dimensions 144 x 144 x 135 mm Weight 1.5 kg</p>
<p><b>Wind Display LED</b> For the connection of wind transmitter pairs with analogue output values</p> <p>Further description please refer to 4.3250.0x.000</p>	<p><b>4.3250.0x.1xx</b> .00.1xx .01.1xx .140 .141 .161</p>	<p>Operating voltage 230 V / 50 Hz 24 V AC 12 V-35 V DC 115 V / 50 Hz 24 V AC 12 V-35 V DC</p> <p>Measuring value input 0 ... 20 mA 4 ... 20 mA 0 ... 10 V</p>

# Wind Indicators, Records, Software



## Description

### Wind Display LED

- Ship version -

Digital display instrument which indicates the wind speed and wind direction. Indicates the wind direction in a circle of 72 LED luminous bars, and the speed by 7-segment-LEDs.

Ship version with direction circle divided in red and green LED's according to port side and starboard.

Display of WS:

- instantaneous value

Display options of the WD:

- instantaneous value or delayed
- or
- instantaneous value and variation
- or
- delayed and variation

When using a suitable sensor electronics the display of the "true" wind values is possible.

A built-in RS-422-interface facilitates the connection of other wind indicators LED.

Suitable wind transmitters:

4.3303.22.000 / 008  
4.3125.32(33).100/101  
4.3336.31(32).001  
4.3820.xx.xxx

### Wind Display LED

-Ship version-

For the connection of wind transmitter pairs with analogue output values

Further description please refer to 4.3251.0x.000

## Order-No.

4.3251.xx.000  
.00...

.01...

4.3251.0x.1xx  
.00.1xx

.01.1xx

.140  
.141  
.161

## Technical Data

Operating voltage	230 V / 50 Hz; 24 V AC 12 V-35 V DC 115 V / 50 Hz; 24 V AC 12 V-35 V DC
Display range	
Wind velocity	0-99.9 / 0-999 m/s / kn / km/h / Bft
Direction	0°-180°-0° (0-360°)
Resolution	
Wind speed	0.1 / 1
Wind direction	5°
Wind transmitter input	
WS	0-1600 Hz
WD	Thies-serial- synchronous
or	
WD + WS	serial data telegram via RS 422
Interface	1 x RS 422
Data telegram	LED-standard ultrasonic NMEA 0, NMEA 1
Connection	screw terminal
Ambient temp.	-10 ... +50 °C
Model	switch panel mounting
Protection	IP 23
Dimensions	144 x 144 x 135 mm
Weight	1.5 kg

Operating voltage	230 V / 50 Hz 24 V AC 12 V-35 V DC
	115 V / 50 Hz 24 V AC 12 V-35 V DC

Measuring value input	0 ... 20 mA 4 ... 20 mA 0 ... 10 V
-----------------------	--

# Wind Indicators, Records, Software

Description	Order-No.	Technical Data
<p><b>Wind Display LED</b> - Ship version -</p> <p>Data processing measuring- and display instrument for the display and serial output of the wind direction and wind velocity as "true" or "rel." value.</p> <p>"True wind" is the real wind or seeming wind, depending on the selected reference of the wind.</p> <p>"Rel. Wind" are the absolute wind transmitter measuring values.</p> <p>Data from the wind transmitter and data, according to NMEA 0183, coming from a compass system (ship heading "Gyro") and the ship speed (LOG), are used to calculate the "true" wind values via a built-in RS422 interface.</p> <p>The selection for displaying the "true" or "relative" wind values is done through the mode-key on the front side.</p>	<p>4.3251.xx.001 .00...</p> <p>.01...</p>	<p>Operating voltage      230 V / 50 Hz; 24 V AC; 12 V-35 V DC 115 V / 50 Hz; 24 V AC; 12-35 V DC</p> <p>Equipment                1 x wind interface 6 x RS 422 in- and output interface</p> <p>For other technical data please refer to 4.3251.xx.000</p>
<p><b>Wind Display LED</b> - Ship Version -</p> <p>Compared with instrument 4.3251.xx.001 this instrument is equipped with an additional <b>analogue-interface</b> and a <b>baro transmitter</b>. This allows the connection of additional measuring value transmitters for <b>rel. humidity</b> and <b>temperature</b>. The measuring values of the temperature, rel. humidity, and air pressure are emitted serially. The parameters are not displayed.</p>	<p>4.3251.xx.002</p>	<p>Equipment                1 x wind interface 6 x RS422 in- and output interface 1 x (for temperature/ rel. humidity analogue interface</p> <p>For other technical data please refer to 4.3251.xx.001</p>



# Wind Indicators, Records, Software



## Description

### Software

#### Meteo-Online

Meteo-Online is a software for detecting, filing, and displaying data of meteorological measuring instruments. The display of the data is carried out graphically as diagram and/or as text. The user has the possibility to place the display-elements free on the screen, and to save them.

The operation of the program is context-sensitive, i.e. by pressing the right mouse button there are menus displayed in a window, which allow specific settings.

Meteo-Online provides several options for configuration and start of the archive. Hour's- as well as day's-files can be written with settable averaging times.

Meteo-Online is divided into two programs:

- Server
- Visualization

These two independent programs exchange data, where the server has the function to pre-process the data from the connected instruments, to file and to provide them for the visualization (client). The visualization, on the other hand, inquires data cyclically from the server, and presents them in graphic form.

## Order-No.

9.1700.98.x0x  
.001  
.201

## Technical Data

Function	visualization a. filing
Function	demo-version with data monitor
connectable Thies instruments	- US-Anemometer - Datalogger - Clima Sensor - Weather station WSC11 - Wind display - etc.
Monitor-display	figures diagram tables wind rose time date
System requirements	- Windows XP SP3 - Windows Server
Operating system	2003 SP2 - Windows Vista SP1 or higher - Windows Server 2008 - Windows 7 - Windows Server 2008 R2 - Windows 7 SP1 - Windows Server 2008 R2 SP1
Hardware	processor > 1GHz RAM > 1GB

# Wind Indicators, Records, Software

Description	Order-No.	Technical Data	
<p><b>Thies Device Utility</b>            The PC program “Thies Device Utility” serves for the initial operation and configuration of Thies sensors with serial interface.            The program can find all sensors connected to the PC, and facilitates an initial operation via terminal function. Thanks to a user-friendly surface design the communication with the sensors is very easy.</p> <p>Functions:            1 Searching for sensors:            - Selection of serial interface            - Selection of baud rates for the search            - Selection of bus addresses for the search            - Setting of delays in the communication with the interface transformer (RS485/422)</p> <p>2 Display / operation:            - Selection of interpreter “THIES” or “MODBUS-RTU”            - Terminal function to “Thies Interpreter”            - Terminal function to “MODBUS-RTU Interpreter”            - Tabular presentation of the instantaneous measuring values.</p>	<p><b>9.1700.81.000</b></p>	<p>Function</p> <p>Connectable Instruments, Examples</p>	<p>searching for Thies-sensors settings for the communication monitor-presentation of instantaneous measuring values and settings</p> <p>Weather Station Compact WSC11 4.9056.00.000            Clima Sensor US 4.920x.00.000            US-Anemometer 2D 4.38xx.xx.xxx            US-Anemometer 3D 4.3830.xx.xxx            US-Anemometer 2D compact 4.3875.xx.xxx</p>
		<p>System requirements            Operating system</p>	<p>Windows XP or higher</p>

## Your Notice



# Wind Wind Alarm

Wind alarm units in combination with wind transmitters trigger preventive measures to protect wind-endangered objects

## Applications:

- Cranes
- Masts
- Louvers and shutters
- Stages etc.

- Bridges
- Greenhouses
- Awnings

## Description

### Wind Alarm Unit Universal

The wind alarm instrument is designed for application in the field of site- and building security as well as for the security of technical plants. The instrument triggers – in connection with an anemometer or/and wind direction sensor – preventive measures to protect wind-endangered objects such as buildings, crane systems, bridges, masts, green houses, louvers/shutters, awnings etc.

Through mode selections and parameter settings the warn unit can meet diverse requirements.

Option 1:  
1 x wind speed alarm  
here, a threshold value of the wind speed is set, when the preventive measure shall be triggered.

Option 2:  
as 1, however with 2 wind speed alarms (for ex. for early warning and main alarm)

Option 3:  
1 x wind direction-dependent wind speed alarm. Here, a threshold value of the wind speed is set, and is linked with the selected wind sector, from which the protected object might be endangered.

Option 4:  
as 3, however with 2 x wind direction-dependent wind speed alarms for application with a different alignment of the protected objects.

The setting/operation is carried out via button or via the serial interface.

## Order-No.

4.3244.0x.000  
.00.  
.04.

## Technical Data

Operating voltage 230 V / 50 Hz or  
24 V AC/DC  
115 V / 50 Hz or  
24 V AC/DC

### Wind alarm parameter

Wind alarm range 0 ... 50 m/s  
Resolution 1 m/s  
Switch-on delay 0 ... 120 sec  
Switch-off delay 0 ... 240 min

### Input signal

Wind speed  
Digital frequency,  
max. 1600 Hz  
Analogue 4 ... 20 mA  
Wind direct.  
Digital Thies serial-synchron.  
Analogue 4 ... 20 mA

### Wind alarm outputs

Relay 1 for ex. early warning  
Relay 2 for ex. main alarm  
Relay load (AC) 5A 250 V AC cos = 1  
Relay load (DC) 0.01 ... 5A/5 ... 30 V DC

### Serial interface

Type RS485  
Data format 8N1  
Baud rate 300 ... 115200

### General

Ambient condition -20 ... +50 °C,  
non-condensing  
Construction housing for  
carrier rail mounting  
Protection IP 20  
Dimension 105 x 86 x 85 mm  
(w x h x d)  
Weight 0.65 kg



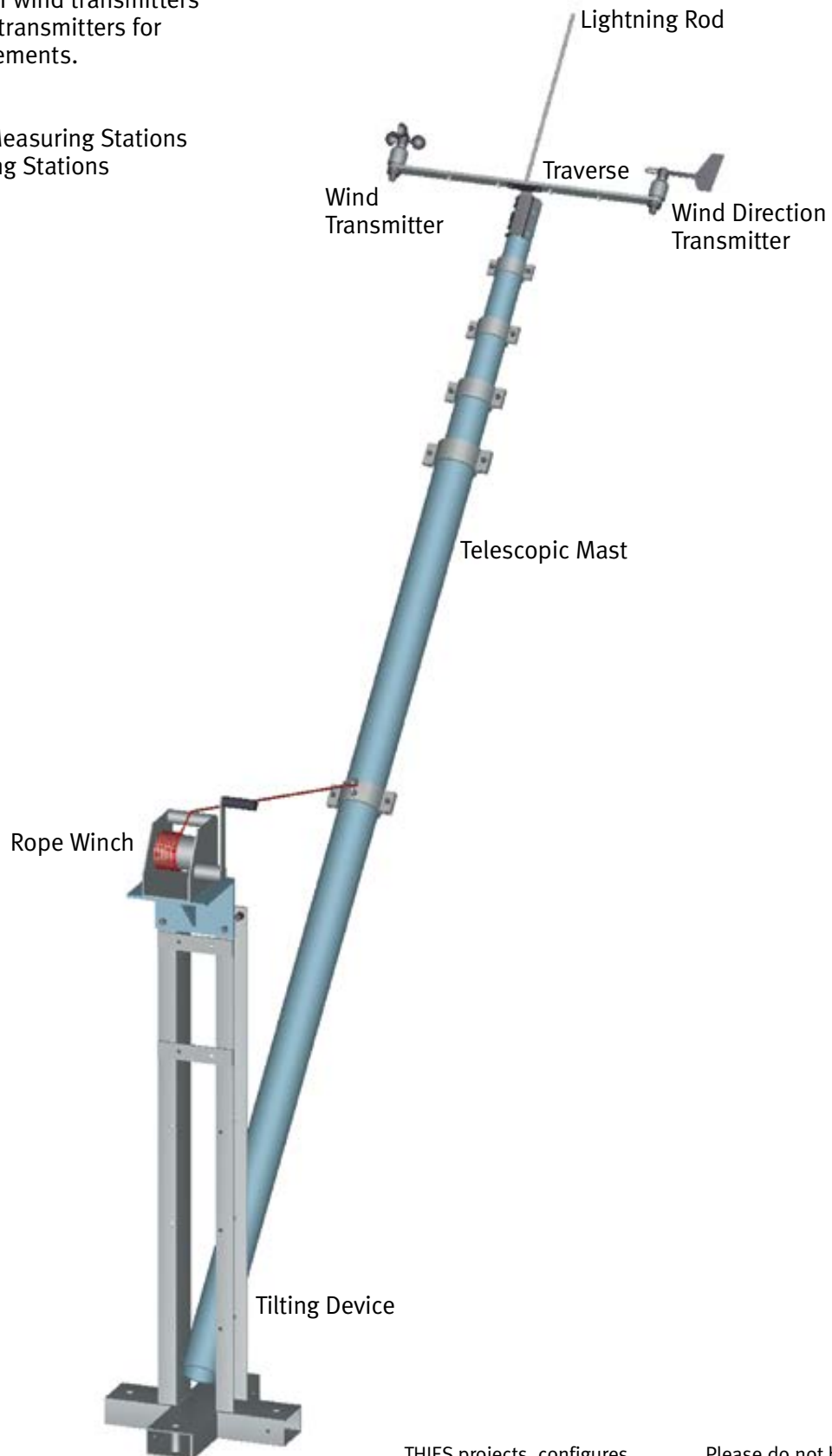
## Your Notice

# Wind Masts and Mechanical Accessories

Mounting options of wind transmitters and wind direction transmitters for professional requirements.

Applications:






- Meteorological Measuring Stations
- Climate Measuring Stations



THIES projects, configures, and supplies your individual system. Of course, your measurement tasks and the existing system pre-conditions will be in our focus.

Please do not hesitate to contact us for a detailed information.

# Wind Masts and Mechanical Accessories

	Description	Order-No.	Technical Data	
	<p><b>Instrument Holders</b></p> <p><b>Instrument Holder</b> For field installation of meteorological measuring instruments. Consisting of mast tube, mounting cross, earth pins for ground installation or dowel pins for fundament as well as a staying and earth clamp.</p>	<p>4.3187.11.000</p>	<p>Length Diameter of tube Material Weight</p>	<p>2.5 m 48 mm steel, galvanised approx. 12 kg</p>
	<p><b>Instrument Holder</b> For the mounting of meteorological measuring instruments in buildings. For wall mounting consists of mast tube, 2 wall clamps and an earth clamp.</p>	<p>4.3187.11.048 4.3187.11.060</p>	<p>Diameter of tube Length Tube Wall clamp Earth clamp Weight</p>	<p>48 mm 60 / 48 mm 4 m steel, galvanised aluminium aluminium approx. 10 kg</p>
	<p><b>Instrument Holder</b> For the mounting of meteorological measuring instruments in buildings. For wall mounting consists of mast tube, 1 wall clamp (above), 1 tilting joint (below) and an earth clamp.</p>	<p>4.3187.13.060</p>	<p>Diameter of tube Length Material Tube Wall clamp Tilting joint Earth clamp Weight</p>	<p>60 / 48 mm 4 m steel, galvanised aluminium steel, galvanised aluminium approx. 10 kg</p>
	<p><b>Telescopic Mast for Field Installation</b></p> <p><b>Telescopic Mast</b> For the field installation of meteorological measuring instruments. Mast with staying, base plate and adapter. The base plate has a tilting mast receptacle.</p>	<p>4.3179.00.000 4.3180.00.000 4.3181.00.000</p>	<p>Length 4 m 6 m 10 m  Material  Top of mast Inserted length Staying  Wind stress</p>	<p>Weight 21 kg 29 kg 44 kg  aluminium, sea-water-proof Ø 49 mm approx. 1.5 m three-fold (4 m, 6 m) six-fold (10 m)  max. 60 m/s</p>
	<p><b>Grounding Set</b> To ground the preceding telescope masts. Consists of a mast ground clamp, a cross-bar, 2m long, and a CU wire Ø 5 mm, 1 m long.</p>	<p>4.3186.00.000 4.3186.00.001 4.3186.00.002</p>	<p>Suitable for 4 m mast 6 m mast 10 m mast  Weight</p>	<p>gripping diameter 60 mm 80 mm 90 mm  4.5 kg</p>

# Wind Masts and Mechanical Accessories

## Description

### Telescopic Mast without Staying

#### Telescopic Mast

For the mounting of meteorological measuring instruments. This telescopic mast can be used at a wall or in the open country, in combination with a respective tilting device, without staying.

### Tilting Devices

#### Tilting Device

For field mounting on fundament

The tilting device serves as stand for a telescopic mast. Telescopic mast and tilting device are free-standing, and do not need any staying. For maintenance purpose the telescopic mast can be tilted by means of a rope winch (optional accessory).

#### Tilting Device

For wall mounting

The tilting device serves as wall mounting device for a telescopic mast. For maintenance purpose the telescopic mast can be tilted by means of a rope winch (optional accessory).

#### Mast Mounting Clamp

Type: LMB 80/90/116/132

For wall mounting of the telescopic mast.

#### Mast Ground Clamp LE

Clamp to be mounted at the mast foot for grounding the mast by means of a wire with diameter up to 9 mm.

## Order-No.

4.3179.30.080  
4.3180.30.090  
4.3181.30.116

4.3181.30.132

4.3181.03.080  
.090  
.116  
.132

4.3181.13.080  
4.3181.13.090  
4.3181.13.116  
4.3181.13.132

210363  
210364  
211278  
210368

210457  
210458  
211279  
210460

## Technical Data

Length / Weight  
4 m 15 kg  
6 m 16 kg  
10 m 43 kg

12 m 67 kg

Top of mast  
Material

diameter of tube  
80 / 71 mm  
90 / 80 / 71 mm  
116 / 102 / 90 /  
80 / 71 mm  
132 / 116 / 102 /  
90 / 80 / 71 mm  
Ø 71 mm  
aluminium (AlMgSi1)

Suitable for  
4.3179.30.080  
4.3180.30.090  
4.3181.30.116  
4.3181.30.132

Height  
Material  
Weight

1580 mm  
steel, galvanised  
60 kg

Suitable for  
4.3179.30.080  
4.3180.30.090  
4.3181.30.116  
4.3181.30.132

Material  
Weight

steel, galvanised  
32 kg

Suitable for  
4.3179.30.080  
4.3180.30.090  
4.3181.30.116  
4.3181.30.132  
Diameter

Material  
Weight

80 / 90 / 116 /  
132 mm  
aluminium  
0.5 / 0.7 / 1.3 /  
1.5 kg

Suitable for  
4.3179.30.080  
4.3180.30.090  
4.3181.30.116  
4.3181.30.132






Material  
Weight

gripping diameter  
80 mm  
90 mm  
116 mm  
132 mm

aluminium  
approx. 0.13 kg



# Wind Masts and Mechanical Accessories

	Description	Order-No.	Technical Data	
	<p><b>Traverse</b> for Classic Wind Transmitters</p> <p>For mounting the wind speed transmitter and wind direction transmitter jointly onto a mast. The traverse is connected with plug according to the transmitter combinations.</p>	<p>4.3170.00.xxx ....000 ....001 ....003</p>	<p>Wind Transmitt. 4.3303.22.000 4.3303.22.000 4.3105.22.000</p>	<p>Wind Direc. Transm. 4.3120.22.018 4.3121.32.000 4.3120.22.018</p>
	<p><b>Traverse</b> for Classic Wind Transmitters</p> <p>For mounting the wind speed transmitter and wind direction transmitter jointly onto a mast.</p>	<p>4.3173.01.000 4.3173.01.001</p>	<p>Fixing boring Fixing boring</p>	<p>Ø 50 x 74 mm Ø 71 x 74 mm</p>
	<p><b>Traverse</b> for Wind Transmitters "First Class"</p> <p>For mounting the wind speed transmitter and wind direction transmitter jointly onto a mast.</p>	<p>4.3174.00.000</p>	<p>Material Tube dimensions Fixing boring Horizontal Sensor distance Vertical Sensor distance Total height Weight</p>	<p>aluminium, anodised (AlMgSi0,5) Ø 34 x 4 mm Ø 50 mm 0.6 m 0.2 m 0.76 m 3 kg</p>
	<p><b>Traverse</b> for Classic Wind Transmitters</p> <p>For mounting the wind speed transmitter and wind direction transmitter jointly onto a mast.</p>	<p>4.3172.00.000</p>	<p>Sensor distance Vertic. Sensor distance Total height Mast clamp Material Weight</p>	<p>0.6 m approx. 0.2 m 650 mm Ø 40-Ø 80 mm aluminium (AlMg3) 2.8 kg</p>
	<p><b>Traverse</b> For Small Wind Transmitters</p> <p>For mounting the wind transmitter and wind direction transmitter jointly onto a mast.</p>	<p>4.3171.20.000</p>	<p>Clamping range Sensor distance Material Traverse Gripping clamp Weight</p>	<p>Ø 30-Ø 50 mm 0.5 m aluminium, anodised (AlMgSi0,5) stainless steel 0.35 kg</p>

# Wind Masts and Mechanical Accessories

## Wind

### Description

#### Double Hanger First Class, 2m

For mounting the wind transmitter and wind direction transmitter jointly onto a mast.

#### Traverse

for Wind Transmitters Compact

For mounting the wind speed transmitter and wind direction transmitter jointly onto a mast.

#### Traverse, short

For Wind Transmitters Compact

For mounting the wind speed transmitter and wind direction transmitter jointly onto a mast.

### Lightning Rod / Hangers / Holders / Adaptors

#### Lightning Rod

To be mounted additionally at the telescopic mast, tube or traverse. Protects the wind transmitter against damages caused by lightning strokes.

Suitable for:

Traverse: 4.3174.00.000

Mast or tube with Ø 48-50 mm

Mast or tube with Ø 48-50 mm

Mast or tube with Ø 71 mm

Traverse: 4.3173.01.001

Traverse: 4.3171.30/31/40/41...

Mast or tube with Ø 60 mm

#### Hanger 1 m

The hanger is used for the lateral mounting of a wind transmitter, Classic type or Ultrasonic-Anemometer, onto a mast.

### Order-No.

4.3184.10.000

4.3171.30.000  
.31.

4.3171.40.000  
.41.

4.3100.98.000

4.3100.99.000

4.3100.99.150

4.3100.99.170

4.3100.99.001

506351

4.3180.99.160

4.3185.xx.003

...00....

...01....

...02....

### Technical Data

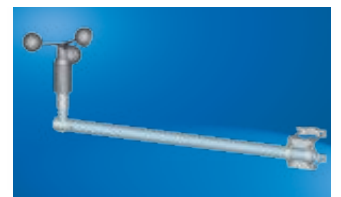
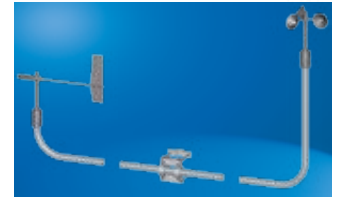
Horizontal sensor distance 2 m  
Vertical sensor distance 0.3 m  
Tube dimensions Ø 34 x 4 mm  
Clamp range for mast diameter Ø 80 ... 132 mm  
Material aluminium (AlMgSi0.5)  
Weight 2.8 kg

Clamping range Ø 48-Ø 102 mm  
Ø 116-Ø 200 mm  
Sensor distance 0.8 m  
Material aluminium (AlMgSi0.5)  
Traverse  
Mounting set stainless steel (V2A)  
Weight 0.30 kg








Clamping range Ø 48-Ø 102 mm  
Ø 116-Ø 200 mm  
Sensor distance 0.4 m from mast  
Material aluminium (AlMgSi0.5)  
Traverse  
Mounting set stainless steel (V2A)  
Weight 0.30 kg

Length	Height	Material	Weight
500 mm	1050 mm	aluminium	1.5 kg
560 mm	800 mm	steel, galvanised	2.4 kg
560 mm	1500 mm	steel, galvanised	4 kg
560 mm	1500 mm	steel, galvanised	4 kg
400 mm	1500 mm	aluminium	2 kg
---	560 mm	stainless steel	0.34 kg
560 mm	1500 mm	steel, galvanised	4 kg

Clamp range For mast diameter 60-132 mm  
40-80 mm  
48-50 mm  
Length 1 m  
Tube diameter 50 mm  
Material aluminium (AlMgSi0,5)  
Weight approx. 1.5 kg



# Wind Masts and Mechanical Accessories

	Description	Order-No.	Technical Data	
	<p><b>Hanger-First Class-1 m</b> The hanger is used for the lateral mounting of a wind transmitter, First Class type, onto a mast.</p>	4.3184.01.000	Clamp range For mast diameter Length Tube diameter Material	40-80 mm 1 m 34 mm aluminium (AlMgSi0.5) approx. 1.5 kg
	<p><b>Holder compact</b> The holder serves for the mounting of a wind transmitter, Compact-type, onto an instrument carrier or mast.</p>	506347	Clamp range Dimensions Hole diameter Material Weight	Ø 35-50 mm 80 x 150 mm 32.5 mm stainless steel (V2A) 0.35 kg
	<p><b>Adaptor</b> Serves for reducing the diameter of the mast end tube from 71 mm to 50 mm so that Classic wind transmitters or US-anemometers can be mounted directly onto the mast top.</p>	211545		
	<p><b>Adaptor</b> Serves for reducing the mast diameter to 50 mm diameter for mounting wind transmitters of the classic types or ultrasonic anemometers onto a mast top. The POM (plastic)-model insulates the measuring instrument with the mast.</p>	507936 508077 507555	Mast diameter   Diameter Material Weight	71 mm 60 mm 50 mm  145 mm high Ø 110 / 95 / 70 mm POM 0.9 / 0.7 / 0.4 kg
	<p><b>Adaptor 1"</b> Serves for reducing a traverse tube diameter from 50 to 34 mm in order to mount a wind transmitter of the first class types.</p>	507620	Material Weight	aluminium (AlMgSi1) 0.8 kg
	<p><b>Adaptor 1"</b> The adaptor is used to mount wind measuring instruments of the compact-series onto a 1"- tube.</p>	506283	Material Weight	aluminium (AlMgSi1) 0.5 kg
	<p><b>Mounting Set compact</b> Mounting holder with straps for mounting of power supply units, connection boxes compact, and wind interfaces onto masts or tubes.</p>	506614 506971	Clamp range  Material Weight	Ø 48-102 mm Ø 116-200 mm stainless steel (V2A) 0.18 kg

Please contact us for other accessories, such as cables and cable connections as well as for additional constructions of masts or systems.



# Wind Power Supply

Power supply units, terminal boxes serve for the power supply of wind transmitters, wind direction transmitters or combined instruments and other measuring value transmitters.

## Applications:

- Wind measuring systems
- Weather stations

Description	Order-No.	Technical Data	
<p><b>Power Supply</b></p> <p><b>Power Supply Unit</b> For the power supply of wind speed transmitters, wind directions transmitters or combined instruments. The in- and outputs are each protected by fuses. The housing is made of plastic fibre.</p> <p>Suitable for: Wind transmitter type:</p> <ul style="list-style-type: none"> <li>• Compact</li> <li>• Classic</li> <li>• First Class</li> <li>• Ultrasonic 2 D, 1D</li> </ul> <p><b>Power Supply Unit</b> For the power supply of wind speed transmitters or wind directions transmitters</p> <p>The in- and outputs are each protected by fuses. The housing is made of plastic fibre.</p> <p>Suitable for: Wind transmitter type:</p> <ul style="list-style-type: none"> <li>• Compact</li> <li>• Classic</li> </ul> <p><b>Power Supply Unit</b> For the power supply of wind speed transmitters, wind direction transmitters or combined instruments.</p> <p>With integrated terminal strip for the connection and distribution of the cables.</p> <p>The in- and outputs are each protected by fuses.</p> <p>The housing is made of plastic fibre.</p> <p>Suitable for: Wind transmitter type:</p> <ul style="list-style-type: none"> <li>• Compact</li> <li>• Classic</li> <li>• First Class</li> <li>• Ultrasonic 1D</li> </ul>	<p><b>9.3388.00.000</b></p> <p><b>9.3388.00.002</b> <b>9.3388.00.112</b></p> <p><b>9.3389.10.000</b> <b>9.3389.10.010</b></p>	<p>Primary Secondary</p> <p>Protection Dimensions Weight</p> <p>Primary Primary Secondary Protection Dimensions Weight</p> <p>Primary voltage Primary voltage Secondary voltage</p> <p>Terminal strip Housing Protection housing Dimensions Weight</p>	<p>230 V / 50 Hz / 0.48 A 26 V AC / 3.46 A 24 V AC / 0.5 A 12 V DC / 0.3 A IP 65 125 x 150 x 125 mm 2.5 kg</p> <p>230 V/50 Hz / 0.091 A 115 V/60 Hz / 0.21 A 24 V AC / 0.83 A IP 65 125 x 150 x 100 mm 1.2 kg</p> <p>230 V / 50Hz / 0.63 A 115 V / 60Hz / 1.3 A 2 x 24 V AC / 27.5 VA 1 x 24 V AC / 75 VA 1 x 24 V AC / 5 VA 1 x 24 V DC / 2 W 20-pole plastic fibre IP 65 300 x 230 x 132 mm 4.2 kg</p>



# Wind Power Supply



## Description

### Power Supply Unit

suitable for wind transmitter type:

- Classic
- First Class
- Ultrasonic 1D, 2D, 3D,
- Ultrasonic 2D-Compact

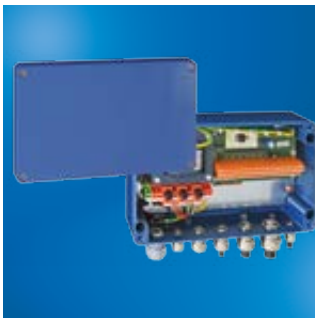
## Order-No.

9.3389.10.100

9.3389.10.110

## Technical Data

Primary	230 V / 50 Hz / 1.45 A
Primary	115 V / 50-60 Hz / 3.0 A
Secondary	1 x 24 V AC / 250 V A 2 x 24 V AC / 27.5 V A 1 x 24 V AC / 5 V A 1 x 24 V DC / 2 W
Terminal strip	20-pole
Protection	IP 65
Dimension	300 x 230 x 132 mm
Weight	4.2 kg



### Connection Box compact 1

For the power supply of wind transmitters, wind direction transmitters or combined instruments.

With integrated over-voltage-protection (varistors) and terminal strip for the connection and distribution of the cables.

Suitable for:  
wind transmitter type

- Compact
- Classic
- First Class
- Ultrasonic 1D, 2D

Measuring value transmitter

- Clima Sensor D
- Clima Sensor US

9.3199.01.100

9.3199.01.110

Primary voltage	230 V / 50 Hz
Primary voltage	115 V / 50-60 Hz
Secondary voltage	1 x 24 V AC / 90 VA 1 x 24 V AC / 27.5VA 1 x 24 V AC / 12.5 VA 1 x 24 V DC / 5 W 1 x 24 V DC / 1.5 W 1 x 12 V DC / 2.5 W
Terminal strip	for 16 measurement lines
Over-voltage-protection	all connections
Housing	aluminium
Protection housing	IP 65
Dimensions	260 x 160 x 90 mm (w x h x d)
Weight	4.5 kg



### Connection Box compact

For the power supply of wind transmitters, wind direction transmitters or combined instruments.

With integrated over-voltage-protection (varistors) and terminal strip for the connection and distribution of the cables.

Suitable for:  
Wind transmitter type

- Compact
- Classic
- First Class
- Ultrasonic 3D, 2D, 1D

Measuring value transmitter

- Clima Sensor D
- Clima Sensor US

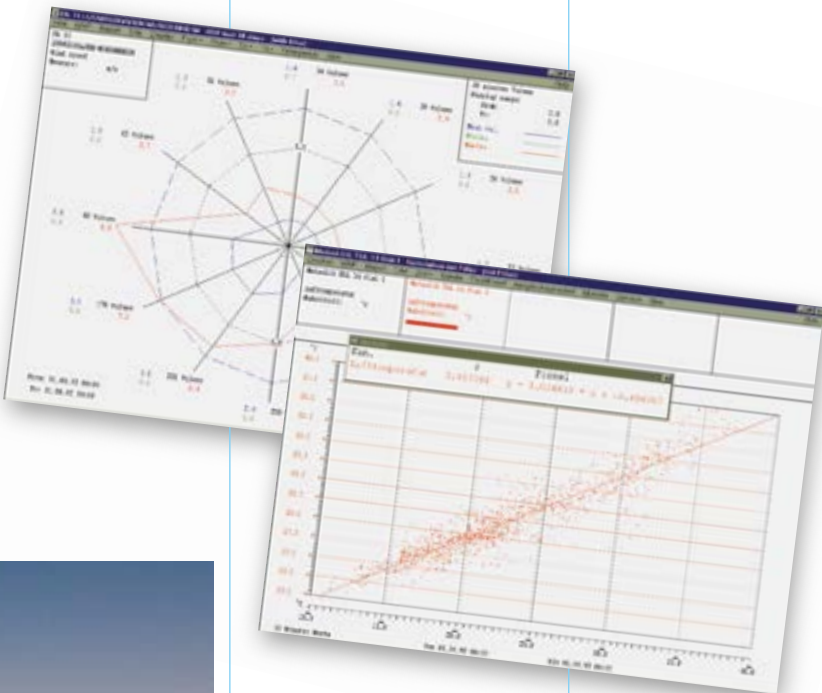
9.3199.03.100

9.3199.03.110

Primary voltage	230 V / 50 Hz
Secondary voltage	115 V / 50-60 Hz 1 x 24 V AC / 170 VA 1 x 24 V AC / 15 VA 1 x 24 V AC / 6 VA 1 x 24 V DC / 5 W 1 x 24 V DC / 1.5 W 1 x 12 V DC / 2.5 W
Terminal strip	for 16 measurement lines
Over-voltage-protection	all connections
Housing	aluminium
Protection housing	IP 65
Dimensions	202 x 232 x 111 mm (w x h x d)
Weight	4.5 kg

More power supply units, connection boxes and over-voltage protection on request.

**THIES –**  
as versatile as the international  
tasks require



## THIES-CLIMA – Worldwide

### Weather and Environmental monitoring technology needs a competent partner

Climatic measurement and intelligent analysis are international tasks. They do not only demand a worldwide cooperation of the responsible authorities, but also a comprehensive network of sensors and analytical systems.

We have developed a smoothly functioning system of partners and subsidiaries throughout the world to provide expert advice there where you need it.

THIES assumes complete supervision of the tasks at hand, from project planning to the installation of the system, from staff training to the processing of the measurement results. Should you want to contact one of our foreign partners, please write or call us first in Göttingen. We will provide you with the exact address.



Information is everything. Please ask for our complete catalogue and product descriptions concerning all questions of weather data acquisition – or attend our internet page: [www.thiesclima.com](http://www.thiesclima.com)



**ADOLF THIES GMBH & CO KG**  
Meteorology-  
Environmental Technology  
Box 3536 + 3541  
37025 Göttingen · Germany  
Phone +49 (0) 551 7 90 01-0  
Fax +49 (0) 551 7 90 01-65  
[info@thiesclima.com](mailto:info@thiesclima.com)  
[www.thiesclima.com](http://www.thiesclima.com)

