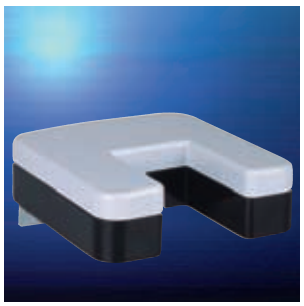
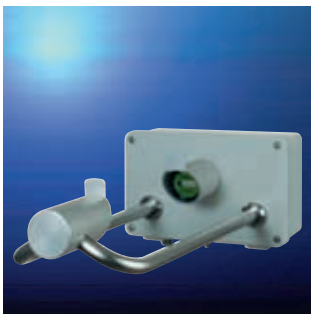
WIND

THE WORLD OF WEATHER DATA

THE WORLD OF WEATHER DATA

Measurement and Documentation: Thies' range of service for meteorolgy, 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 adaption of the data acquired to the task at hand.
For more than 50 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 fulfill 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
Glossary

Damping coefficient

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.

Damping ratio

Measure for the damping of wind vanes. It represents the ratio between the consecutive damped deflection amplitudes (for example 3rd amplitude to 1st amplitude) in one direction.

Wind run

The path covered by the wind for a certain period of time.

Gray-Code

A digital code for wind direction whereby the codes for consecutive numbers differ by only one bit.

Delay distance

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.

Stress

Maximum allowable wind speed at which no damage occurs on the wind measuring instruments.

Wind force

»Beaufort« (bft) classes for certain wind speed ranges.

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

Wind speed

The most common units of measurement are: 1 m/s = 3.6 km/h = 1.9455 knots

Wind direction

Information on the direction from which the wind is coming.
Information appears clockwise from North to East (90°), South (180°) and West (270°) and North (360°).

Starting value

The wind speed at which a cup anemometer respectively the wind vane starts to move.

Detection limit

The lowest value of wind speed and wind direction at which a stable value sets in.

Variation

The range within which wind direction has changed within the preceding 10 minutes (in accordance with ICAO).

Gliding mean value

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)

Arithmetic mean value

The quotient from the sum of all the individual values and the number of values within the mean value time.

Vectorial mean value

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.

Vectorial mean value with standard vectors

Only used for wind direction. A constant wind speed is assumed for the individual vectors.

Wind
Ultrasonic

System Examples:

The Ultrasonic Anemometer 2D 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
- Research
- Development

ultrasonic anemometer 2D

power supply unit connection box

displays

pc-software »Online-Wind«

datalogger

standard input for example: 0 ... 20 mA

- 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.

Description	Order-No.	Technical Data
Anemometer Ultrasonic 2D The Ultrasonic-Anemometer serves for the acquisition of the horizontal components of the wind speed, wind direction, and virtual temperature. The measuring values are output in digital and analogue form. The analogue values are available as voltage- or current signals for wind speed and wind direction. The measuring values can be output alternatively as instantaneous values or as gliding mean values of 1s, 10 s, 1, 2 and 10 minutes. The output formats of the data telegrams and analogue signals as well as the user-specific parameters such as north correction, are selectable via the serial interface. The sensor arms are automatically heated in case of critical ambient temperatures, so that the function is guaranteed even with snow and icing rain. The instrument can be mounted onto a mast of ø 50 mm.	4.3800.00.XXX	Wind Speed Meas. range: 0 - 65 m/s Resolution: 0,1 m/s Accuracy: ± 0,1 m/s (0 - 5 m/s) ± 2% rms (> 5 m/s) Wind direction Meas. range: 1 - 360° Resolution: 1° Accuracy: ± 1° Virtual Temp Meas. range: - 40 - + 70 °C Resolution: 0,1 K Accuracy: ± 0,5 K Data output digital Interface: RS 485 / 422 Baud rate: 1200...19200 output: selectable instantaneous value or gliding mean value output rate: 1 per 100 m/sec. up to 1 per 25 sec. selectable Status signal: heating, meas. distance error, δT distance temp. Data output analogue Electr. output only WS and WD: 0 - 10 V (>1 kΩ) or 0/4 - 20 mA (< 250 Ω) Output: Instantaneous value or gliding mean value Output rate: 1 pro 100 msec. Resolution: 12 bit General Internal meas. rate: 400 Hz at 25° Averaging for WS and WD: vectorial or scalar Operating voltage w/o heating: 12 - 24 V AC/DC , 3 VA with heating Electr.: 24 V AC/DC, 70 VA connection: 16 pole plug Housing material: stainless steel, V4A Protection: IP 65 Dimensions: 420 x 270 mm Weight: 2.5 kg
Anemometer Ultrasonic 2D Thanks to the additionally installed US transducer heating the anemometer is especially suited for the difficult use in high mountains or other critical measuring places where you have to reckon on snow or icing.	4.3800.20.XXX	Techn. Data see above

Accessories

Connection Cable, compl. (not depicted) Shielded cable with plug to the transmitter and multi-core cable end.	506702 506872 506883	Cable length: 15 m 25 m 30 m
Software Meteo- Online	9.1700.98.XXX	see page 28

For other accessories such as masts, lightning rods, power supply etc. please refer to pages 32 - 36

Wind
Ultrasonic, Advance

Model Brief Description

Anemometer Ultrasonic 2D a

The Ultrasonic-Anemometer serves for the acquisition of the horizontal components of the **wind speed**, **wind direction**, and **virtual temperature**.

More efficient instrument compared with Ultrasonic 4.3800 due to broaden technology. Therefore especially suited for the use in the domain of science.

- configurations acc. to customer or factory requirements with many alternatives for commands .
- other pre-defined data telegrams, for ex. scientific diagnosis telegram, error telegram.

The measuring values can be output as digital and/or analogue values.

Digital output:
An interface RS485/422 is available for serial communication. It can be operated in full- or semi-duplex mode.

For the output of measuring values are available: some pre-defined telegrams or a user-defined telegram (for ex. WS, WD, virtual-temp., standard deviation, status information, NMEA etc.)

Analogue outputs:
Wind speed and direction are output alternatively as current or voltage signal.

The scaling of measuring range of the analogue outputs are selectable for WS and WD.

The analogue outputs can be connected optionally as analogue voltage inputs (max. 3 units.) Output via serial interface with user-defined telegram.

The sensor arms are automatically heated in case of critical ambient temperatures, so that the function is guaranteed even with snow and icing rain.

The instrument can be mounted onto a mast of Ø 50 mm.

Order-No.

4.3810.00.xxx

Technical Data

Wind speed	
Measuring range	0 - 65 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)
Wind direction	
Measuring range	0 - 360°
	(0-540°, 0-720°)
Resolution	1°
Accuracy	± 1°
Virtual Temp.	
Measuring range	- 40 - + 70 °C
Resolution	0,1 K
Accuracy	± 0,5 K
Data output digital	
Interface	RS 485 / 422
Baud rate	1200...921600 selectable
Output	instantaneous values or gliding mean values of 0,5 sec.- 100 min.
Output rate	1 per 1 msec. to 1 per 60 sec. selectable
Status signal	heating, meas. distance error, δT distance temp.
Data output analogue	
Electr. output (only WS and WD)	0- 20 mA / 0 - 10 V or 4 - 20 mA / 2 – 10 V
Load	
Current output	max. 400 Ω
Voltage output	min. 4000 Ω
or as:	
Data input	0...10 V
Output	instantaneous values or gliding mean values of 0,5 sec.- 100 min.
Output rate	1 per 100 msec.
Resolution	12 bit
General	
Internal meas.rate	max. 1500 Hz at 25°
Averaging for WS and WD	vectorial or scalar
Operating voltage	
w/o heating	12 - 24 V AC/DC , 3 VA
with heating	24 V AC/DC, max. 70 VA
Electr. connection	8 pole plug
Housing material	stainless steel, V4A
dimensions	420 x 270 mm
Weight	2,5 kg
EMC	EN 55022 5/95 B EN 50082-2 2/96

Wind
Ultrasonic, Advance

Model Brief Description	Order-No.	Technical Data
Anemometer Ultrasonic 2D a Thanks to the additionally installed US transducer heating the anemometer is especially suited for the difficult use in high mountains or other critical measuring places where you have to reckon on snow or icing.	4.3810.20.XXX	Techn. Data See above
Device to Refuse Birds The device to refuse birds prevents the birds from sitting on, thus avoiding possible damages at the instrument. Suitable for: Ultrasonic Anemometer 4.3800.... u. 4.3810....	507245	

Wind
Classic

System Examples:

combined
wind transmitter

wind
transmitter

wind direction
transmitter

traverse

power supply unit
connection box

standard input
for example:
0 ... 20 mA

displays

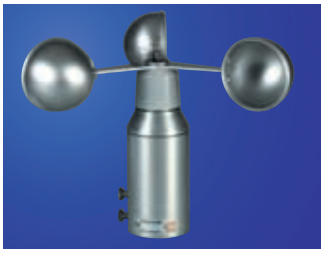
pc-software
»Online-Wind«

datalogger

- visualisation
- recording

- data processing
- controlling
- recording

Description	Order-No.	Technical Data	
Wind Speed Transmitters			
Wind Transmitter The wind transmitters 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, and are additionally varnished.	4.3303.22.xxx .000 .007	Meas. range Electr. output (for datalogger) Load Delay distance Accuracy Operating voltage Electronics Heating General Ambient temp. Electr. connection with x.xxxx.xx.000 with x.xxxx.xx.007 Mounting Fixing boring Dimensions Protection Weight	0.3 ... 50 m/s 3 ... 1042 Hz (live zero) 3 ... 1042 Hz (no live zero) max. 60 m/s 5 m ± 0.3 m/s / ± 2% of m.v. 4...18 V DC 24 V AC/DC ; 20 W -35 ... +80°C 5-pole plug connection 7-pole plug connection onto mast tube 1 1/2” Ø 50 x 50 mm Ø 315 x 230 mm IP 55 1 kg
Wind Transmitter This wind transmitter is designed for high wind speeds.	4.3303.22.0xx 008 018	Meas. range Electr. output Accuracy Operating voltage Electronics Heating Electr. connection	0.5 ... 75 m/s 0 ... 754 Hz (live zero) 0 ... 754 Hz (no live zero) ± 0.5 m/s / ± 2% of m.v. 4...18 V DC 24 V AC/DC ; 20 W 5-pole plug connection
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.	4.3303.22.xxx .0xx .6xx .x40 .x41 .x60 .x61 .x73	Meas. range Electr. output Accuracy Operating voltage Electronics Heating Electr. connection	0,3 ... 50 m/s 0,3 ... 60 m/s 0 ... 20 mA 4 ... 20 mA 0 ... 1 V 0 ... 10 V 0 ... 5 V ± 0,4 m/s / ± 2,5% v. Mw. 15...24 V DC 24 V AC/DC ; 20 W 5-pole plug connection
Wind Transmitter This wind transmitter is equipped with a DC-generator which produces a d.c-voltage with the rotation of the cup star. It is able to operate a respective display instrument directly (without current supply).	4.3105.22.000	Meas. range Electr. output Load Accuracy Heating Electr. connection	0.5 ... 35 m/s 0 ... 4.67 mA DC, linear Ra = 400 Ω max. 60 m/s ± 0.5 m/s / ± 2% v. Mw. 24 V AC/DC; 20 W 5-pole plug connection



Wind Direction Transmitter

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, and are additionally varnished.

Order-No.: 4.3120.22.xxx
.012
.018

Potentiometer	Measuring Range
0 - 2000 Ω	358 ° (± 3°) 5
0 - 400 Ω	-lead circuit
Measuring range	0 - 360°
Resolution	1°
Accuracy	± 1.5°
Operating voltage	
Potentiometer	12 V DC, max 1.5 W
Heating	24 V AC/DC, max. 20W
Load	max. 60 m/s
Starting value	0.5 m/s at 90°
Damping coefficient	0.2 ... 0.3
Ambient temperature	- 35 ... + 80 °C
Electr. connection	8-pole plug connection
Mounting	onto mast tube 1 1/2"
Dimensions	415 mm high
Protection	IP 55
Weight	1.8 kg

Wind Direction Transmitter

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

The wind direction transmitter is equipped with an opto-electronic scanner (code disc), 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.

Order-No.: 4.3125.32.xxx
.040
.041
.060
.061
.073

Analogue Output	0 - 20 mA
	4 - 20 mA
	0 - 1 V
	0 - 10 V
	0 - 5 V
Measuring range	0 - 360°
Resolution	2,5°
Accuracy	± 2,5°
Load	max. 60 m/s
Starting value	< 0.6 m/s at 90°
Damping coefficient	0.2 ... 0,3
Operating voltage	14 - 18 V DC
Heating	24 V AC/DC, max. 20 W
Ambient temperature	- 35 ... + 80 °C
Electr. connection	5-pole plug connection
Mounting	onto a mast tube 1 1/2"
Dimensions	415 mm high
Weight	1,8 kg

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.

Order-No.: 4.3121.32.000
4.3125.32.100

Digital Output	8-bit parallel
	8-bit THIES serial
Measuring range	0 - 360°
Resolution	2.5°
Accuracy	± 2.5°
Load	max. 60 m/s
Starting value	< 0.6 m/s at 90°
Damping coefficient	0.2 ... 0.3
Operating voltage	
Electronics	5 / 3.5 - 18 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 a mast tube 1 1/2"
Dimensions	415 mm high
Weight	1.8 kg

Desription	Order-No.	Technical Data	

Combined Wind Transmitter

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, and are additionally varnished.

Order-No.: 4.3324.31.xxx
.0xx
.6xx
.x40
.x41
.x61
.x73

Meas. range WS	0.3 ... 50 m/s 0.3 ... 60 m/s
Electr. output	0 - 20 mA 4 - 20 mA 0 - 10 V 0 - 5 V
Meas. range WD	0 - 360°
Accuracy	±0.5 m/s or ±2.0 % of meas. value ±2.5°
Load	max. 60 m/s
Delay distance	5 m
Responsiveness	< 0,6 m/s at 90°
Damping coefficient	0.2 ... 0.3
Operating voltage	14 ... 18 V DC or 24 V AC/DC w. heating
Heating	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	3.4 kg

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 output signals are available as frequency for wind speed, and as 8-bit-Gray-code (parallel) for wind direction.

The ship-version is equipped with a strengthened cup star and a smaller wind vane.

Order-No.: 4.3324.31.000
.001

Model	Standard land version Ship version
Meas. range	0.3 ... 50 m/s 0 ... 360°
Electr. output	3 ... 1042 Hz 8-bit-Gray-code (parallel)
Resolution	0.05 m ; 2.5°
Accuracy	±0,3 m/s or ±2 % of meas. value ±1,5°
Operating voltage	15 V DC (5 ... 18 V) or 24 AC/DC, w. heating
Load	max. 60 m/s
Delay distance	5 m
Responsiveness	< 0.6 m/s at 90°
Damping coefficient	0.2 ... 0.3
Heating	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
Weight	3,4 kg

Wind Classic

Desription

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 output signals are available as frequency for the wind speed and as serial-synchronous 8-bit for wind direction.

The ship-version is equipped with a strengthened cup star and a smaller wind vane.

Order-No.

4.3336.21.000
4.3336.31.000
.001

Technical Data

Model	for data logger standard land ship version
Meas. range ws	0.3 ... 50 m/s
Meas. range wd	0 ... 360°
Electr. output ws	3 ... 1042 Hz
Electr. output wd	serial synchron. 16 bit
Resolution	0.05 m ; 2.5°
Accuracy	± 0.3 m/s or ± 2 % of meas. value ± 1.5°
Load	max. 60 m/s
Delay distance	5 m
Starting value	< 0.6 m/s at 90°
Damping coefficient	0.2 ... 0.3
Operating voltage	4 ... 18 V DC
Heating	40 W, 24 V AC/DC
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	3.4 kg

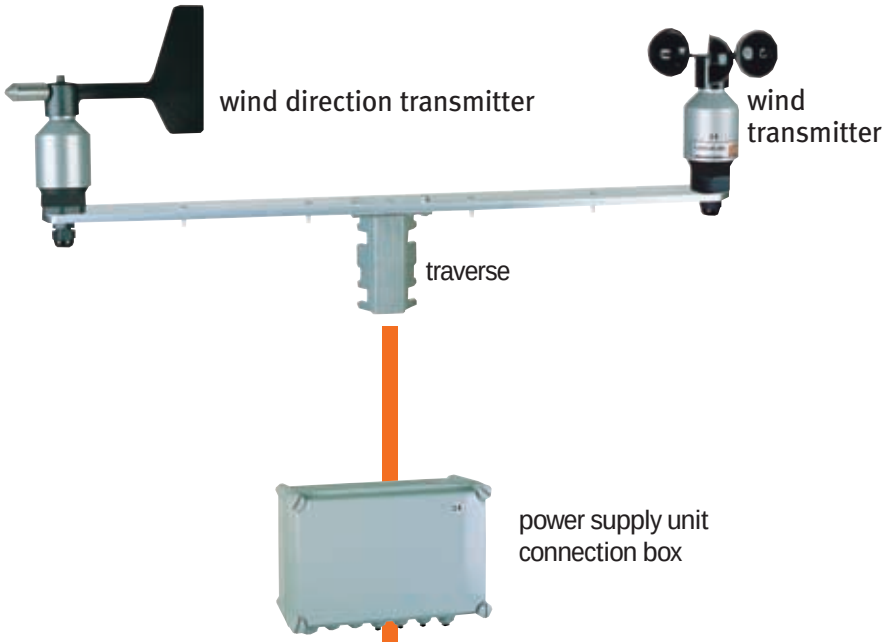
Description	Order-No.	Technical Data	
Wind Speed Transmitter			
Wind Transmitter "First Class" The wind transmitter is designed for the acquisition of the horizontal component of the wind speed in the field of meteorology and environmental measuring technology, evaluation of location, and measurement of capacity characteristics of wind power systems. In the plain country the wind transmitter meets all requirements of IEC 61400.121-CD for a 1. class instrument. 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 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	4.3350.00.000 .10.	With heating W/o heating	
		Measuring range	0.3...75 m/s
		Accuracy	
		0,3 ... 50 m/s	< 3% of meas. value or < 0.3 m/s
		50 ... 75 m/s	< 6% of meas. value
		Linearity	r > 0.999 95 (4..20m/s)
		Inclined flow	
		...mean deviation from the cosinus line	1% (in the range ±20°)
		Turbulence effect	<1% (in the range up to 30%turbulence intensity)
		Electr. output	1000 Hz at 50 m/s
		Load	max. 85 m/s
		Delay distance	< 3 m
		Operating voltage	
		Electronics	3.3 ... 42 V DC
		Heating	24 V AC/DC; 25 W
		Ambient temp.	-50 ..+ 80°C
		Electr. connection	8-pole plug connection
		Mounting	onto mast tube R 1"
		Fixing boring	Ø 35 x 25 mm
		Dimensions	290 x 240 mm
		Protection	IP 55
		Weight	0.5 kg
		Material	
		Housing	alu, anodised
		Cup star	carbon-fibre-reinforced plastic
Wind Direction Transmitter			
Wind Direction Transmitter "First Class" 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. Depending on the transmitter model the measuring value is available at the output as digital or 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 is equipped with an electronically regulated heating.	4.3150.x0.0xx .10.	With heating W/o heating	
		Meas. range	0...360°
		Accuracy	1.5°
	.000	Electr. output	digital, 9- bit Thies serial synchronous
		Resolution	1°
	.110	Electr. output	Potentiom. 0 ... 10 000 W
		Resolution	1°
		General	
		Operating voltage	
		Electronics	3,3 ... 42 V DC
		Potentiometer	max. 0.5 W
		Heating	24 V AC/DC; 25 W
		Ambient temp.	-50 ..+ 80°C
		Starting value	0.5 m/s at 10° (acc. to ASTM D5366-96)
		Damping coefficient	≥ 0.4
		Electr. connection	8-pole plug connection
		Mounting	onto a mast tube R 1"
		Fixing boring	Ø 35 x 25 mm
		Dimensions	390 x 240 mm
		Protection	IP 55
		Weight	0.5 kg
		Material	alu, anodised

Wind
Compact

System Examples:

Wind Sensor and Wind Direction Sensor for qualified technical Requirements.

Applications:
- Building Control Technology
- Industry
- Wind Power Systems
- Environmental Protection Sector
- Wind Warning Systems



displays

pc-software »Online-Wind«

- visualisation
- recording

datalogger

- 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.

Description	Order-No.	Technical Data	
Wind Speed Transmitters			
Wind Transmitter compact Measuring transmitter for the measurement of the horizontal wind speed with digital output signal (open collector). The cup-star consists of plastic, the housing is made of anodised aluminium and plastic. The instrument has a threaded pin PG 21 with 2 nuts for mounting.	4.3518.00.000 4.3520.00.000 4.3520.10.000	With heating With heating W/o heating Measuring range Accuracy Resolution Electr. output Operating voltage Current supply Heating Ambient temp. Cable Dimensions Protection Weight	open collector sink open collector source open collector source 0.5 ... 50 m/s ± 3 % of meas. value or ± 0.5 m/s < 0.1 m/s 2 ... 573 Hz 12 - 24 V DC 20 mA max. 20 W ; 24 V AC/DC - 30 ... + 70 °C 5m, LiYCY 5 x 0.25 mm² Ø 135 x 165 mm IP 55 0.4 kg
Wind Transmitter compact Measuring transmitter for the measurement of the horizontal wind speed with digital output signal (active signal). Suitable for data loggers. The cup-star consists of plastic, the housing is made of anodised aluminium and plastic. The instrument has a threaded pin PG 21 with 2 nuts for mounting.	4.3519.00.000	Measuring range Accuracy Resolution Electr. output Operating voltage Current consumpt. Heating Ambient temp. Cable Dimensions Weight	0.5 ... 50 m/s ± 3 % of meas. value or ± 0.5 m/s < 0.1 m/s 2 ... 630 Hz 4 - 18 V DC < 1 mA max. 20 W ; 24 V AC/DC - 30 ... + 70 °C 12m , LiYCY 6 x 0.25 mm² Ø 135 x 165 mm 0.75 kg
Wind Transmitter compact Measuring transmitter for the measurement of the horizontal wind speed with analogue output signals. The cup-star consists of plastic, the housing is made of anodised aluminium and plastic. The instrument has a threaded pin PG 21 with 2 nuts for mounting	4.3519.00.xxx .140 .141 .161 .167 .173	Electr. Output 0 - 20 mA 4 - 20 mA 0 - 10 V 0 - 2 V 0 - 5 V Measuring range Accuracy Resolution Operating voltage for 0 - 10 V output. Current supply Heating Ambient Temp. Cable Dimensions Weight:	Load (with operat. volt.) max. 500 Ω ; (>13 V DC) max. 500 Ω ; (>13 V DC) min. 1 kΩ min. 1 kΩ min. 1 kΩ 0.5 ... 50 m/s ± 3 % of meas. value or ± 0.5 m/s < 0.1 m/s 9 - 30 V DC or 24 V AC/DC 13 - 30 V DC approx. 10 mA, unloaded max. 20 W ; 24 V AC/DC - 30 ... + 70 °C 12 m, LiYCY 6 x 0.25 mm² Ø 135 x 165 mm 0.75 kg
Wind Transmitter compact Model with plug connection (without cable)	4.3518.00.700 4.3519.00.700 4.3519.00.741 4.3519.00.761	Plug connection Weight Other technical data see above	Multi-pole 0.4 kg

Wind Compact

Description	Order-No.	Technical Data	
Wind Direction Transmitters			
 **Wind Direction Transmitter compact** Measuring transmitter for the measurement of the horizontal wind direction with digital output signal (Gray-code). The wind vane consists of plastic, the housing is made of anodised aluminium and plastic. The instrument has a threaded pin PG 21 with 2 nuts for mounting.	4.3128.xx.000 .00... .10...	With heating Without heating Measuring range Accuracy Resolution Electr. output Starting value Operating voltage Current supply Ambient temp. Cable Dimensions Protection Weight	max. 20 W ; 24 V AC/DC 0 ... 360° ± 5° 90° , 45° , 22,5° 2 , 3 , 4 bit Gray-code 0.3 m/s at 90° 18 ... 27 V DC 20 mA - 30 ... + 70 °C 5 m, LiYCY 8 x 0.25 mm^2 50 x 220 mm IP 55 0.6 kg
 **Wind Direction Transmitter compact** Measuring transmitter for the measurement of the horizontal wind direction with digital output signal (Gray-code). Suited for data logger operation. The wind vane consists of plastic, the housing is made of anodised aluminium and plastic. The instrument has a threaded pin PG 21 with 2 nuts for mounting.	4.3129.00.000	Measuring range Accuracy Resolution Electr. output Operating voltage Current supply Heating Ambient temp. Cable Dimensions Weight	0 ... 360° ± 5° 11.25° serial synchronous 5 bit Gray-code 5 - 18 V DC standby < 15 mA (5 V) active approx. 500 mA (5 V) max. 20 W ; 24 V AC/DC - 30 ... + 70 °C 12 m, LiYCY 6 x 0.25 mm^2 50 x 220 mm 1.1 kg
 **Wind Direction Transmitter compact** Measuring transmitter for the measurement of the horizontal wind direction with analogue output signals. The wind vane consists of plastic, 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 .141 .161 .167 .173	Electr. output 0 - 20 mA 4 - 20 mA 0 - 10 V 0 - 2 V 0 - 5 V Measuring range Resolution Accuracy Operating voltage for 0 - 10 V-output Heating Ambient temp. Cable Dimensions Weight	Load (operat. Volt.) max. 500 Ω ; (>13 V DC) max. 500 Ω ; (>13 V DC) min. 1 kΩ min. 1 kΩ min. 1 kΩ 0 ... 360° 11.25° ± 5° 9 - 30 V DC or 24 V AC/DC 13 - 30 V DC max. 20 W ; 24 V AC/DC - 30 ... + 70 °C 12m, LiYCY 6 x 0.25 mm^2 50 x 220 mm 1.1 kg
Wind Transmitter compact Model with plug connection (without cable)	4.3129.00.700 4.3129.00.741 4.3129.00.761 4.3129.00.767	Plug connection Weight Other technical data see above	Multi-pole 0.4 kg

Wind
Small Wind Transmitter

Wind Speed Transmitters

Description	Order-No.	Technical Data	
Small Wind Transmitter 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. The transmitter is made of synthetic material	4.3400.30.000	Measuring range Accuracy Electr. output Load Fixing boring Mounting Ambient temp. Cable Dimensions Protection Weight	0.5 ... 35 m/s ± 5% of meas.range or ± 0.5 m/s 0 ... 1 mA DC Ra = 800 Ω max. 60 m/s Ø 35 x 35 mm onto a mast tube 1" -25 ... +60°C, ice-free 20 m, LiYY 2 x 0.25 mm² Ø 134 x 175 mm IP 54 0.3 kg
Small Wind Transmitter 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 transmitter is made of synthetic material	4.3515.30.000	Measuring range Accuracy Electr. output Resolution Load Contact load RV Fixing boring Mounting Ambient temp. Cable Dimensions Protection Weight	0.5 ... 40 m/s ± 5% of meas. range or ± 0.5 m/s 50 Hz at 40 m/s 0.8 m wind run max. 60 m/s max. 24 V DC 0.5 W, 100 Ω Ø 35 x 35 mm onto a mast tube 1" -25 ... +60°C, ice-free 20 m, LiYY 2 x 0.25 mm² Ø 134 x 175 mm IP 54 0.3 kg
Small Wind Transmitter 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.	4.3515.xx.xxx .50.xxx .51.xxx .0xx .1xx .x00 .x61	With heating Without heating Instrument colour Electr. output Measuring range Accuracy Resolution Load Contact load Fixing boring Mounting Ambient temp. Cable Dimension Protection Weight	max. 24 V DC; 24 W white black 0 ... 100 Hz 0 ... 10 V 1 ... 40 m/s ± 5% of meas. range or ± 0.5 m/s 0.4 m wind run (..x00) max. 60 m/s 10 VA, max. 42 V DC max. 0.4 A Ø 35 x 35 mm on mounting angle -25 ... +60°C 3 m; LiYY 4 x 0.5 mm² or 2 x 0.5 mm² Ø 134 x 160 mm IP 54 0.3 kg

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

Applications:
- Control technique
- Building control system

Wind
Small Wind Transmitter

	Description	Order-No.	Technical Data	
	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. The instrument is made of synthetic material.	4.3124.30.018	Electr. output Resolution	0 - 400 Ω (358°) 0.5°, 5-lead circuit
		4.3127.40.000	Electr. output Resolution Measuring range Potentiometer load Contact load Load Ambient temp. Cable Mounting Dimension Protection Weight	8 Reed contacts 22.5° 0 ... 358° / 0 ... 360° max. 100 ma, 24 V, 2.5 W 0.5 W, max. 60 V DC max. 60 m/s -25 ... + 60° C, ice-free 20 m; LiYY 5 x 0.25 mm^2 or 9 x 0.14 mm^2 onto a mast tube 1” 210 mm high IP 54 0.55 kg
	**Wind Direction Transmitter** Measuring transmitter for the measurement of the horizontal wind direction. The measuring values are output 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 against humidity.	4.3140.51.010	Measuring range Electr. output Responsiveness Potentiometer load Ambient temperature Electr. connection Dimensions Protection Weight	10°... 350° (20° dead-zone in the north) Potentiometer 0 ... 1 KΩ (±3%) 1 m/s max. 1.5 W -25 ... + 60° C, ice-free 3 m cable 210 mm high IP 54 0.3 kg

Wind
Direction-dependent

Description	Order-No.	Technical Data	
Anemometer Ultrasonic 1D The Ultrasonic Anemometer 1D serves for the acquisition of the horizontal air flow and direction in tunnels, tubes or similar applications. Due to the high measuring rate the instrument can be used also for the inertia-free measurement of gust- and peak-values. The measuring values are available as analogue signals and/or data telegram. The analogue output of the flow speed is effected with or without direction detecting. The digital output of the flow speed is effected with direction detecting, and virtual-temperature. If necessary, the sensor branches are automatically heated with critical ambient temperatures. Thus, the function is guaranteed also with negative temperatures.	4.3860.00.340	Flow Speed Meas. range Resolution Accuracy Direction detecting Meas. range Virtual Temp. Meas. range Resolution Accuracy Data output digital Interface Baud rate Output Status identification Data output analogue Electr. output only WS and WD output Operating voltage w/o heating with heating Electr. connection Housing material Dimensions Protection Weight	0 - 20 m/s 0.1 m/s ± 0.1 m/s (0 - 5 m/s) ± 2% rms (> 5 m/s) 1° / 181° - 40 - + 70 °C 0,1 K ± 0.5 K RS 485 / 422 9600 10 sec. gliding mean value heating, path disturbance 0 - 20 mA (< 250 W) 10 sec. gliding mean value 12 - 24 V AC/DC, 3 VA 24 V AC/DC, 70 VA 3 m cable stainless steel, V4A 420 x 270 mm IP 66 2.5 kg
Wind Transmitter for tunnel application For the measurement of directional air flows especially in tunnels. Instrument sends frequency signals, depending on speed and related to the flow direction. Instrument is equipped with a mounting bar. Suitable for connection to the Measuring Transducer TW, order-no. 4.3348.xx.xxx	4.3308.10.000	Measuring range Resolution Delay distance Electr. output Propeller type Dimension Operating voltage Current supply Ambient temp. Cable Dimensions Weight	0.3 ... 20 m/s approx. 0,05 m wind run 3.3 m 0 ... 410 Hz resp. 418 Hz 4-blade, polypropylene Ø 180 mm 15 V DC (10 - 16 V DC) approx.. 15 mA -20 ... +70 °C, ice-free 3 m, LiYCY 4 x 0.25 mm^2 Ø 200 x 350 mm 5 kg

Measuring transmitter for directional air flows.

Applications:
- Air Channels Shafts
- Climatic Ducts
- Street and Railway Tunnels

Wind
Direction-dependent

Description	Order-No.	Technical Data	
Wind Transmitter for duct application	4.3311.30.000	Operating voltage	15 V DC / approx. 0.3 mA 24 V DC
	4.3311.32.000	Measuring range	< 0.25 ... 20 m/s
		Resolution	0.083 m wind run
		Electr. output	0 ... 240 Hz
		Fan wheel type	8-blade aluminium
		dimensions	Ø 100 mm
		Ambient temp.	-20 ... +80°C, ice-free
		Cable	1 m long
		Fixing boring	Ø 37 x 20 mm
		Dimensions	108 x 148 x 65 mm
		Weight	0.9 kg

A fan wheel to determine the directional air flow in ducts. Mounting on a mast tube.

The fan wheel revolutions are scanned opto-electronically by a reflective light barrier in a contact-free manner, thus causing a low starting speed.

See also :
Measuring Transducer WG, order-no.. 4.3339.xx.xxx

Measuring transmitter for directional air flows.

Applications:
- Air Channels Shafts
- Climatic Ducts
- Street and Railway Tunnels

Hand Instruments, Mech. Anemometer, Wind Measuring Systems

Description	Order-No.	Technical Data	
Cup-Anemometer A measuring instrument designed for hand use to take direct wind speed readings. Made of plastic.	4.3008.01.000	Measuring range Dimensions Weight	0 ... 120 km/h 0 ... 12 Beaufort 0 ... 35 m/s 0 ... 70 kn ø 100 x 205 mm 0.32 kg
Instrument case (not depicted) Transport and storage case for the above-mentioned anemometer.	4.3008.01.005	Material Dimensions Weight	wood 155 x 145 x 135 mm 1.15 kg
Wind Run Meter Mechanical measuring instrument for direction-independent measurement of the horizontal air flow and display of the wind run. The display count cumulatively the wind run. Instrument is mounted on the top of a mast. All main parts are made of anodised or varnished aluminium	4.3018.10.000	Counting range Resolution Digit height Inclination of counter Operating range Load Delay distance Ambient temp. Mounting Fixing boring Dimensions Weight	0 ... 999 999.9 km 100 m wind run 7 mm 50 ° 0.5 - 60 m/s max. 60 m/s 5 m - 35 ... + 80 °C onto a mast tube $1\,^1/_2$" acc.to DIN 2441 ø 50 x 50 mm 318 x 260 mm 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 Scale division Recording width ws wd Period of registration Paper advance Operating range Ambient temp. Mounting Dimensions Weight	0 ... 10 km wind run 0 ... 360° 1 km ; 30° 50 mm = 10 km 36 mm = 360° 31 days 10 mm/h. 0,5 ... 60 m/s - 35 ... + 60 °C onto a mast tube, ø 48 mm 155 x 200 x 725 mm 10.5 kg
Recording Roll (not depicted.) Wax coated paper for above-mentioned wind recorder.	205242	Paper length Width of roll	sufficient for 31 days 120 mm
Instrument Case (not depicted.) For a safe transport of the above instrument to varying measuring places.	4.3905.20.000	Material Dimension Weight	wood, unvarnished 710 x 320 x 290 mm 12.5 kg

Wind
Hand Instruments, Mech. Anemometer, Wind Measuring Systems

	Description	Order-No.	Technical Data	
	**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 Division Alignment Stand, telescopic Dim. of case Weight	0 ... 360° 10° and N-NW-W ...N by compass 28 to 115 cm 395 x 285 x 120 mm 1 kg
	**METEO comp** Complete measuring instrument, ready for connection, consisting of the following components:		Measuring value	wind direction wind speed temperature wind-chill min.- and max.-values of the past 24 h.
	Comb. Wind Transmitter Small combined measuring transmitter for acquisition of the wind speed and wind direction as well as of the ambient temperature.	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
	**Display Instrument** 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 suited for wall mounting.	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
	Software Meteo-Online	9.1700.98.000	See page 28	

Wind
Precipitation, Brightness, Temperature, Air humidity

Description	Order-No.	Technical Data				
Clima Sensor 2000		Wind	Precipitation	Brightness	Temperature	Air humidity
Clima Sensor 2000 WNHTF	4.9010.00.061	X	X	X	X	X
Clima Sensor 2000 WNH	4.9000.00.061	X	X	X		
Clima Sensor 2000 NHTF	4.9011.00.061		X	X	X	X
Clima Sensor 2000 NH	4.9001.00.061		X	X		

The Clima Sensor 2000 serves for the measurement of important environmental data. Depending on the type of task it is available as combined measuring instrument.
The analogue outputs are configured as standard signals so that they can be used for the coupling on commercially available bus systems.

Wind
A cup star, the revolution-no. of which is linear-proportional to the wind speed, supplies a frequency through a Reed-contact to a connected frequency-voltage-converter. The frequency is dependent on the revolution number.

Precipitation
The detection is carried out optically acc. to the reflection-method with modulated infrared-light on precipitation particles.

Brightness
The brightness is detected by means of three independent photo-diodes which are arranged in 90°-segments. Three independent output voltages are linear to the brightness.

Temperature
The temperature sensor is a standardised resistance thermometer – Pt 100 – of long-term stability.

Air humidity
The measurement is carried out with a capacitive humidity sensor changing its capacity according to the relative humidity.

Wind	Measuring range	1 ... 40 m/s
	Accuracy	± 0.5 m/s res. ± 5% of mr.
	Electr. output	0 ... 10 V (= 0..40 m/s)
	Load	> 10 kΩ
Precipitation	Measuring range	rain yes / no
	Electr. output	0 V for rain, 10 V with dryness
	Sensitivity	fine drizzle
	Load	> 100 kW
	Switch-on-delay	approx. 3 rain particles
	Switch-off-delay	approx. 2 minutes
Brightness	Measuring range	0 ... 100 k Lux
	Spectral range	700 ... 1050 nm
	Accuracy	± 10 % of measuring value
	Electr. output	3 x 0 ... 10 V, Eastern Southern and Western direction
	Load	> 10 kΩ
Temperature	Measuring range	- 20 ... + 60 °C
	Measuring element	Pt100 acc. to IEC 751 1/3 DIN class B
	Accuracy	± 0.15 °C at 0 °C
	Electr. output	0 ... 10 V
	Load	> 10 kΩ
Air humidity	Measuring range	0 ... 100 % rel. humidity
	Accuracy	± 3 % in the range 10 ... 90 % rel. F.
	Electr. output	0 ... 10 V
	Load	> 10 kΩ
General	Operating voltage	24 V AC ±15% 24 V DC ±25%
	Current consumpt.	< 100 mA
	Ambient temp.	- 40 °C... + 60 °C
	Connecting cable	10 m ; LiYCY 12 x 0.14 mm², uv-resistant max. 100 m at a supply with nominal 24 V
	Mounting	retaining clamp, stainless steel, for mast or wall
	Weight	max. 1.5 kg

Wind
Measuring Transformers

Measuring Transformers

Measuring Transformer WS

Instantaneous value

The speed-dependent frequency generated by the wind transmitters is converted into a current or voltage signal. This allows the control of connected recording, display or switching devices.

Suitable for wind transmitters
4.331.3x.000
4.3303.22.000 / 007
4:3303.22.008 / 018

Order-No.	
4.3339.xx.xxx	
4.3340.xx.xxx	
.00...	
.10...	
.040	
.041	
.060	
.061	
.080	
.081	
.100	
.101	

Technical Data	
Electr. output	Measuring range
0 ... 240 Hz, 15V	0 ... 20 m/s
3... 1042 Hz, 15V	0 ... 40/50/75 m/s
Model	wall mounting case pc-board
Electr. output	0 - 20 mA (max. 600 Ω)
	4 - 20 mA (max. 600 Ω)
	0 - 1 V (max. 10 mA)
	0 - 10 V (max. 10 mA)
	0 - 20 mA / 0 - 1 V
	0 - 20 mA / 0 - 10 V
	4 - 20 mA / 0 - 1 V
	4 - 20 mA / 0 - 10 V
Measuring value	instantaneous value
Operating voltage	230 V / 50 Hz
Ambient temp.	0 ... +40°C
Protection	IP 65 (wall mounting case)
Dimensions	
Wall mount. case	200 x 120 x 75 mm
PC-board	170 x 100 x 30 mm
Weight	
Wall mount. case	0.65 kg
PC-board	0.25 kg

Measuring Transformer WSM

Mean value

The speed-dependent frequency generated by the wind transmitters is totalled up over the selected integration time and, as a mean value, converted into a current or voltage signal. This allows the control of connected recording, display or switching devices.

Suitable for the wind transmitters of the classic-line with frequency output
4.3303.22.000 / 007
4.3303.22.008 / 018

Order-No.	
4.3341.xx.xxx	
.00...	
.10...	
.040	
.041	
.060	
.061	
.080	
.081	
.100	
.101	

Technical Data	
Model	Wall mounting case PC-board
Electr. output	0 - 20 mA (max. 600 Ω)
	4 - 20 mA (max. 600 Ω)
	0 - 1 V (max. 10 mA)
	0 - 10 V (max. 10 mA)
	0 - 20 mA / 0 - 1 V
	0 - 20 mA / 0 - 10 V
	4 - 20 mA / 0 - 1 V
	4 - 20 mA / 0 - 10 V
Electr. input	0 ... 1042 Hz (50 m/s)
Measuring value	mean value
Measuring range	selectable in 5 m/s-steps up to 50 m/s
Time of integration	2.5/ 5 / 10 / 15 / 30 / 60 / 120 min, selectable
Operating voltage	230 V / 50 Hz
Ambient temp.	0 ... +40°C
Protection	IP 65 (wall mounting case)
Dimensions	
Wall mount. case	200 x 120 x 75 mm
PC-board	170 x 100 x 30 mm
Weight	
Wall mount. case	0.7 kg
PC-board	0.3 kg

Wind
Measuring Transformers

Description	Order-No.	Technical Data	
Digital-Analog-Transducer TW mean value The pulses from wind sensor 4.3308.10.000 are converted by the measuring transducer into standardized analogue output signals. These output signals are available 1. as direction-dependent or 2. as direction-independent value. Moreover, the following settings can be effected through the coding switch: ■ Measuring range adaptation ■ Delays for analogue signals ■ Relay-output delay for dampening of switching processes in case of short-time flow-turbulence.	4.3348.xx.xxx .00. .10. .040 .041 .060 .061	Model Electr. output Measuring value Measuring range codable Time of integration codable Relays-delay Relay-load Electr. input Operating voltage Ambient temp. Protection Dimensions Wall mounting case PC-board Weight Wall mounting case PC-board	wall mounting case PC-board 0 - 20 mA (max. 600 Ω) 4 - 20 mA (max. 600 Ω) 0 - 1 V (max. 10 mA) 0 - 10 V (max. 10 mA) mean value 6 values up to 50 m/s, 5; 10; 20; 30; 40; 50 m/s 24; 48; 120; 240 s codable, 1.5 ... 45 s max. 200 W / 220 V / 8 A 2 x 15 V pulse 230 V / 50 Hz 0 ... +40°C IP 65 (wall mounting case) 200 x 120 x 75 mm 170 x 100 x 30 mm 0.65 kg 0.25 kg
Windinterface 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 suited for outside mounting.	4.4070.01.00x 4.4070.01.70x x	Electr. output Telegram variant Input WS WD Measuring value Operating voltage Protection Dimensions Weight	Fibre-optic-interface RS 422 On request 0...713 Hz (50 m/s) 5-bit serial synchronous 1 s instantaneous value for WS and WD 24 V AC/DC ± 15 % IP 65 84 x 179 x 67 mm 0.85 kg
For wind transmitters: 4.3518.0x.x00 / 4.3128.xx.xx0	4.4071.01.xxx	Input WS WD	0...648 Hz (50 m/s) 4-bit serial parallel
For wind transmitters: 4.3303.22.000 / 4.3125.32.100	4.4072.01.xxx	Input WS WR	0...1042 Hz (50 m/s) 8-bit serial synchronous
Mounting Set compact Mounting clamp with straps to mount the wind interface onto masts	506614	Clamping range Material Weight	Ø 48 ... 102 mm stainless steel 0.18 kg

Wind
Indicators, Recorder, Software

	Description	Order-No.	Technical Data	
	Indicators, WS			
	**Digital Indicator WG** for panel mounting Flat-section indicator for the display of wind speed 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 .000 .040 .041 .061	Electr. Input Display range Resolution Display Operating voltage Model Protection Dimensions Weight	0 ... 834 Hz 0 ... 20 mA 4 ... 20 mA 0 ... + 10 V 0 ... 40.0 m/s , or depending on sensor type ± 1 digit LED, red, 13 mm high 230 V / 50 Hz switch panel mounting IP 20 96 x 48 x 104 mm 0.3 kg.
	**Digital Indicator WG** for panel mounting with 2 adjustable limit contacts Flat-section indicator for the display of wind speed 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 .000 .040 .041 .061	Electr. Input Display range Resolution Display Contact Operating voltage Model Protection Dimensions Weight	0 ... 834 Hz 0 ... 20 mA 4 ... 20 mA 0 ... + 10 V 0 ... 40.0 m/s, or depending on sensor type ± 1 Digit LED, red, 13 mm high throw-over-switch 230 V / 50 Hz switch panel mounting IP 20 96 x 48 x 104 mm 0.3 kg
	**Indicator** Analogue indicator for the direct connection to the Wind Transmitter (small model), order-no. 4.3400.30.000	4.3421.00.000	Display range Division Electr. input Model Protection Class Dimensions Weight	0 ... 35 m/s 0 ... 65 kn 0 ... 12 Beaufort 2 m/s 5 kn 0 ... 1 mA DC wall mounting case IP 65 2 122 x 120 x 85 mm 0.55 kg

Indicators, WD

Digital Indicator WD
for panel mounting

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, rot, 13 mm high
Operating voltage	230 V / 50 Hz
Model	switch panel mounting
Protection	IP 20
Dimensions	96 x 48 x 104 mm
Weight	0.3 kg

Combined Indicators WS/WD

Combined Indicator
Digital indicator which indicates wind direction in a circle of red LED's and wind speed in digits in the centre of the circle. Yellow scale inscription on black background.

Suitable measuring transmitters of the Small Wind Transmitters-Line:
Small Wind Transmitter
4.3515.30.000
Wind direction transmitter
4.3127.40.000

Order-No.: 4.3228.30.000

Technical Data	
Display range	0 ... 99.9 m/s, or
	0 ... 99.9 kn
	0 ... 360°
Resolution	0.1 m/s resp. kn
	22.5°
Display	3-digits LED
	7 segment red, 8 mm high
	16 LED bars, red
Operating voltage	230 V / 50 Hz or
	11 - 24 V DC
Model	switch panel mounting
Protection	IP 42
Dimension	96 x 96 x 110 mm
Weight	0.6 kg

Combined Indicator
Digital indicator which indicates wind direction in a circle of red LED's and wind speed in digits in the centre of the circle. Yellow scale inscription on black background.

Suitable measuring transmitters of the compact-line :
Wind transmitter
4.3518.00.000
Wind direction transmitter
4.3128.00.000

Order-No.: 4.3228.40.000

Technical Data	
Display range	0 ... 99.9 m/s, or
	0 ... 99.9 kn
	0 ... 360°
Resolution	0.1 m/s resp. kn
	22.5°
Display	3-digits LED
	7 segment red,
	8 mm high
Operating voltage	16 LED bars, red
	220 V / 50 Hz or
	12 - 24 V DC
Model	switch panel mounting
Protection	IP 42
Dimensions	96 x 96 x 110 mm
Weight	0.6 kg

Wind
Indicators, Recorder, Software

Description

Wind Display

Digital indicator for the display of wind speed and wind direction.

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

In addition, the minimum and maximum wind speed values can be indicated by two other digit displays.

Display options of the WS:
- instantaneous value

or
- 2 min. means value and maximum value

or
- 10 min. mean value and maximum value

Display options of the WD:
- instantaneous value

or
- 2 min. mean value and variation

or
- 10 min. mean value and Variation

The calculation of the mean values and maximum values is carried out according to the ICAO.

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

Suitable wind transmitters:
4.3303.22.000 / 008
4.3125.32.100
4.3336.31.000
4.3350.00(10).000
4.3800.00(20).xxx
4.3519.00.000
4.3129.00.000

Order-No.

4.3250.xx.000
.00...

.01...

Technical Data

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
Display range	
Wind speed	0...99.9 / 0...999 m/s / kt / km/h / Bft
Direction	0...360°
Resolution	
Wind speed	0.1 / 1
Wind direction	5°
Wind transmitter input	
WS	
WD	0...1600 Hz Thies- synchronous serial
or	
WD + WS	serial data telegram via RS 422
Interface	RS 422
Connection	Screw terminal
Ambient temp.	-10...+50°C
Model	switch panel mounting
Protection	IP 50
Dimensions	144 x144 x135 mm
Weight	1.5 kg
EMC	EN 60945 EN 61000-6-2 EN 61000-6-3

Description	Order-No.	Technical Data

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 star-board.

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
4.3125.32.100
4.3336.31. 001
4.3350.00(10).000
4.3800.00(20).xxx

Order-No.: 4.3251.xx.000 .00... / .01...

Technical Data	
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
Display range	
Wind speed	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- synchronous serial
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 50
Dimensions	144 x144 x135 mm
Weight	1.5 kg
EMC	EN 60945 EN 61000-6-2 EN 61000-6-3

Wind Display LED
- Ship version -

Order-No.: 4.3251.xx.001

For the display of "true" and "relative" wind values.

True = real wind speed and wind direction
Relative = seeming wind speed and wind direction

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.
The selection for displaying the "true" or "relative" wind values is done through the mode-key on the front side.

Technical Data	
Interface	4 x RS 422
Meas. value input	
WS	0...1600 Hz
WD	Thies- synchronous serial
or	
WD + WS	Serial data telegram via RS 422
and	
LOG + Gyro	Serial data telegram acc. to NMEA 0183 (DM)
Other techn. data see above	

Description	Order-No.	Technical Data	
Recorder			
 **Continuous Line Recorder** Designed for the continuous recording and the direct reading of wind measuring values. Instrument as switch-panel-installation housing. Identification of individual channels by different colour pens.	9.3392.10.040 9.3393.10.040 9.3395.10.040	Number of channels Electr. input Accuracy Print colour Recording width Paper advance Model Operating voltage Ambient temp. Type of protection Dimensions Weight	1 2 3 0 ... 20 mA / 0 ... 10 V class 0.5 blue, red, green 100 mm 20, 60, 120, 240 mm/h switch-panel-mounting 230 V / 50 Hz 0 ... +50°C IP 54 or IP 20 144 x 144 x 295 mm 6.2 kg
Recorder Roll Recording chart in roll format for the above line recorder.	205434	Roll length	32 m
Felt Pen Spare pens for identification of the different channels for above line recorder.	205433 205432 205431	Colour	blue (1. channel) red (2. channel) green (3. channel)
Software			
 **Meteo-Online** The software Meteo-Online is a WINDOWS Program, compatible to WINDOWS 98 / NT / 2000 / ME/XP. It serves for the visualisation and documentation of meteorological measuring values. The visualisation is carried out alternatively in graphical form as diagram and/or with text. The user has the possibility to place the display-elements free on the screen. The documentation can be recorded in hour's- or day's files with selectable averaging periods for the respective parameters. The documentation files are ASCII-files, and can be imported, for example, directly into EXCEL. All THIES-instruments with serial data output can be connected via the serial interface of a PC. According to the number of serial interfaces it is possible to administrate several instruments at the same time. The Client Server Concept offers the possibility of documenting data in the background without active visualisation	9.1700.98.000	Connectable Wind Interface Wind Display Datalogger US-Anemometer Meteo comp Illustration Wind direction Wind speed Time intervals	Thies instruments 4.4070.01.706 4.3250.xx.000 9.1740.xx.x1x 4.3800.xx.xxx 4.3810.xx.xxx 4.3329.00.000 with 9.3229.00.000 numerals diagram wind rose time date instantaneous value variation mean value, gliding instantan, value 1 s mean value, gliding min. and max. value 1, 2, 10, 30, 60 min. for mean values
	9.1700.98.100	Description and data same as above, however with data monitor for checking the incoming measuring values additionally on threshold values or alarm parameters.	

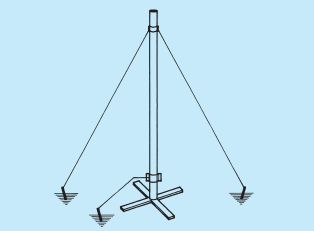
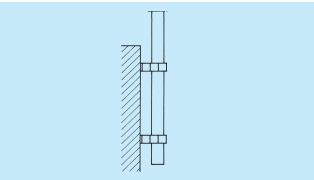
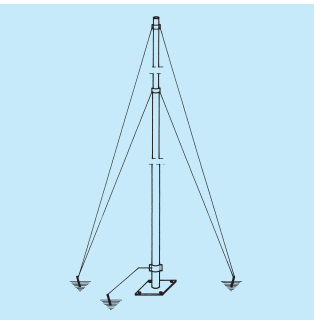
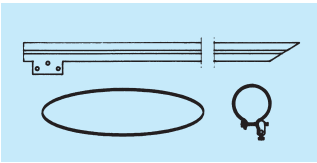
Description	Order-No.	Technical Data	
Wind Alarm Unit 2 Triggers a threshold value contact for a set velocity value. There are two LEDs on the front plate which indicate the operational control and the switching status of the alarm threshold. The delay times, the switching point and the measuring intervals can be set by means of the rotary switch on the front panel. There is a code switch to set the following wind transmitter models: 4.3303.22.000 4.3515.30.000 4.3515.50.000 4.3518.00.000 4.3519.00.000 4.3520.00.000	4.3241.00.000 .00.001 .02.000 .02.001 .03.000	Operating voltage 230 V / 50 Hz 230 V / 50 Hz 24 V AC/DC 24 V AC/DC 12 V AC/DC Alarm range Resolution Electr. input Switching point Switch-on-delay. Switch-off-delay. Measuring interval Relay output Contact load Ambient temp. Operating voltage Protection Dimensions Weight	 incl. supply for heating w/o supply for heating incl. supply for heating w/o supply for heating 1 ... 39 m/s 0.1 m/s see models selectable in 1 m/s 1 - 9 s resp. 2 – 18 s 1 - 9 resp. 2 - 18 min. depends on time intervals 1 s or 2 s selectable change-over switch, one-pole 200 W / 24 V DC 100 W / 250 V DC 1000 VA, max. 8 A -25 - + 55 °C 230 V / 50 Hz IP 65 200 x 120 x 75 mm 1 kg
Wind Alarm Unit 3 For the display of the current wind speed values and for triggering a threshold value contact. Switches on the front plate for setting the switching point and the switch-on/switch-off-delays. Suitable wind transmitter Best.-Nr. 4.3303.22.000	4.3242.01.000	Measuring range Electr. input Display Contact load Switching point Switch-on delay Switch-off delay. Operating voltage Protection Dimensions Weight	0 ... 50 m/s 0 ... 1042 Hz 00.0 ... 99.9 m/s 200 W / 24 V DC 100 W / 250 V DC 2000 VA, max. 8 A 0 ... 50 m/s, selectable 0 - 18 s, in 9 steps 0 - 18 min., in 9 steps 230 V / 50 Hz IP 65 200 x 120 x 75 mm 1 kg
Wind Alarm Unit 4 For digital display of the current wind speed value. Triggers two threshold value contacts, for example early warning and main alarm. Switches on the front plate for setting the switching points and the switch-on/switch-off-delays. Instrument with integrated power supply unit for the supply of the wind transmitter heating. Suitable wind transmitter Best.-Nr. 4.3303.22.000	4.3242.02.000	Measuring range Electr. input Display Contact load Switching point Switch-on delay. Switch-off delay. Operating voltage Protection Dimensions Weight	0 ... 50 m/s 0 ... 1042 Hz 00.0 ... 99.9 m/s 200 W / 24 V DC 100 W / 250 V DC 2000 VA, max. 8 A 2 x 0 - 50 m/s, selectable 2 x 0 - 18 s, in 9 steps 2 x 0 - 18 min, in 9 steps 230 V / 50 Hz IP 65 230 x 300 x 85 mm 2.6 kg

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

Wind
Masts and mechanical Accessories

	Description	Order-No.	Technical Data
	Instrument Holders		
	**Instrument Holder** 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.	4.3187.11.000	Length 2.5 m Diameter of tube 48 mm Material steel, galvanised Weight ca. 12 kg
	**Instrument Holder** For the mounting of meteorological measuring instruments in buildings. For wall mounting consists of mast tube, 2 wall clamps and an earth clamp.	4.3187.11.048 4.3187.11.060	Diameter of Tube 48 mm 60 / 48 mm Length 4 m Material steel galvanised Weight ca. 10 kg
	Telescopic Mast for Field Installation		
	**Telescopic Mast** For the field installation of meteorological measuring instruments. Mast with staying, base plate and adaptor. The base plate has a tilting mast receptacle.	4.3179.00.000 4.3180.00.000 4.3181.00.000	Length / Weight 4 m 21 kg 6 m 29 kg 10 m 44 kg Material al, sea-water-proof Top of mast Ø 49 mm Inserted length approx. 1.5 m Staying three-fold (4 m, 6 m) six-fold (10 m) Wind stress max. 60 m/s
	**Grounding Set** 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.	4.3186.00.000 4.3186.00.001 4.3186.00.002	Suitable for / Gripping diameter 4 m mast 60mm 6 m mast 80 mm 10 m mast 90 mm Weight 4.5 kg
	Telescopic Mast without Staying		
	Telescopic Mast For the mounting of meteorological measuring instruments. This telescopic mast can be used in the open country, in combination with a respective tilting device, without staying.	4.3179.30.080 4.3180.30.090 4.3181.30.116 4.3181.30.132	Length / weight / Diameter of tube 4 m 15 kg 80/71 mm 6 m 16 kg 90/80/71 mm 10 m 43 kg 116/102/90/80/71 mm 12 m 67 kg 132/116/102/90/80/71 mm Top of mast Ø 71 mm Material aluminium

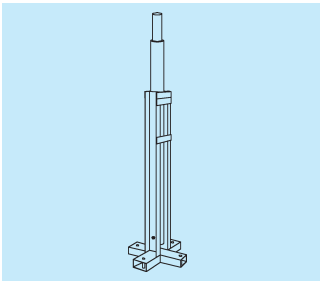
Tilting Devices

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).

Order-No.	Suitable for
4.3181.03.080	4.3179.30.080
.090	4.3180.30.090
.116	4.3181.30.116
.132	4.3181.30.132

Height	1580 mm
Material	steel, galvanised
Weight	60 kg

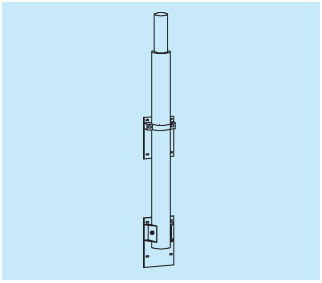


Tilting Device
For wall mounting

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).

Order-No.	Suitable for
4.3181.13.080	4.3179.30.080
4.3181.13.090	4.3180.30.090
4.3181.13.116	4.3181.30.116
4.3181.13.132	4.3181.30.132

Material	Steel, galvanised
Weight	32 kg



Mast Mounting Clamp
Type: LMB 80/90/116/132

For wall mounting of the telescopic mast.

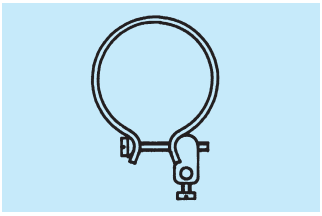
Order-No.	Suitable for
210363	4.3179.30.080
210364	4.3180.30.090
211278	4.3181.30.116
210368	4.3181.30.132

Diameter	80/90/116/132 mm
Material	aluminium
Weight	0,5 / 0,7 / 1,3 / 1,5 kg

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.	Suitable for	Gripping diameter
210457	4.3179.30.080	80 mm
210458	4.3180.30.090	90 mm
211279	4.3181.30.116	116 mm
210460	4.3181.30.132	132 mm

Material	aluminium
Weight	ca. 0.13 kg



Adaptor
Type: LRD 71-50 A-6/16

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.

Order-No.
211545

Material	aluminium
Weight	1 kg

Wind
Masts and mechanical Accessories

Traverses

Traverse
for Classic Wind Transmitters

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.

Order-No.: 4.3170.00.xxx
....000
....001
....003

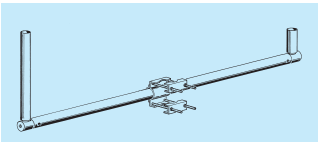
	Wind Transmitt.	Wind Direc. Transm.
	4.3303.22.000	4.3120.22.018
	4.3303.22.000	4.3121.32.000
	4.3105.22.000	4.3120.22.018
Material		steel, galvanised
Tube dimensions		1 1/2" n. DIN 2448 (Ø 48.3 x 2.6 mm)
Fixing boring		Ø 50 x 74 mm
Horizontal Sensor distance		0.6 m
Vertical Sensor distance		0.02 m
Total height		0.71 m
Weight		6.8 kg

Traverse
for Classic Wind Transmitters

For mounting the wind speed transmitter and wind direction transmitter jointly onto a mast. With boring for mounting the lightning rod 4.3100.99.001

Order-No.: 4.3173.01.001

Material	aluminium, anodised	
Tube dimensions	DIN 2448 (Ø 48.3 x 2.6 mm)	
Fixing boring	Ø 71 x 74 mm	
Horizontal- Sensor distance	0.6 m	
Vertical Sensor distance	0,02 m	
Total height	0.71 m	0.8 m
Weight	3 kg	

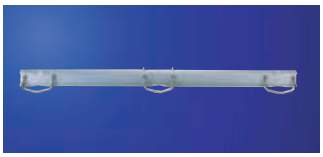


Traverse
for Classic Wind Transmitters

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

Order-No.: 4.3172.00.000

Sensor distance	0.6 m
Vertic. Sensor distance	approx. 400 mm
Total height	650 mm
Mast clamp	Ø 40 ... Ø 80 mm
Material	aluminium
Weight	2.8 kg

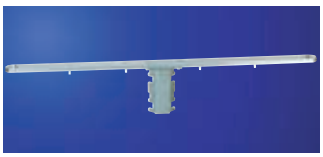


Traverse
For Small Wind Transmitters

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

Order-No.: 4.3171.20.000

Clamping range	Ø 30 ... Ø 50 mm
Sensor distance	0.5 m
Material	
Traverse	aluminium
Gripping clamp	stainless steel
Weight	0.35 kg



Traverse
for Wind Transmitters compact

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

Order-No.: 4.3171.30.000
.31.

Clamping range	Ø 48 ..... Ø 102 mm Ø 116 ... Ø 200 mm
Sensor distance	0.8 m
Material	
Traverse	aluminium
Mounting set	stainless steel
Weight	0.35 kg

Traverse, short
For Wind Transmitters compact

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

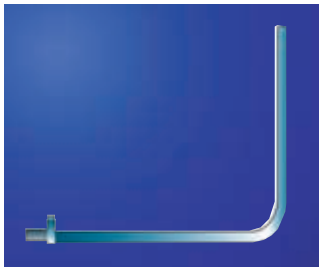
Order-No.: 4.3171.40.000
.41.

Clamping range	Ø 48 ..... Ø 102 mm Ø 116 ... Ø 200 mm
Sensor distance	0.8 m from mast
Material	
Traverse	aluminium
Mounting set	stainless steel
Weight	0.30 kg

Lightning Rod / Hangers / Holders / Adaptors

Lightning Rod

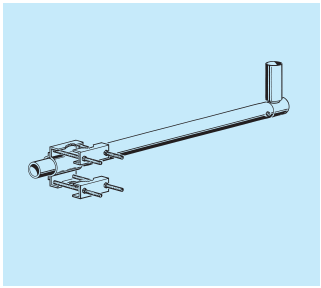
To be mounted additionally at the telescopic mast, tube or traverse. Protects the wind transmitter against damages caused by lightning strokes.



Description	Order-No.	Length	Height	Material	Weight
Suitable for:					
Mast or tube with Ø 50 mm	4.3100.99.000	560 mm	800 mm	steel, galvanised	2,4 kg
Mast or tube with Ø 50 mm	4.3100.99.150	560 mm	1500 mm	steel, galvanised	4 kg
Mast or tube with Ø 71 mm	4.3100.99.170	560 mm	1500 mm	steel, galvanised	4 kg
Traverse: 4.3173.01.001	4.3100.99.001	400 mm	1500 mm	aluminium	2 kg
Traverse: 4.3171.30/31/40/41...	506351	----	560 mm	stainless steel	0,34 kg

Hanger, 1 m

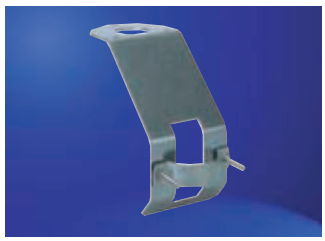
Hangers are used to mount wind measuring instruments to telescope masts. The extension is 1 m from the mast. The outer end has a holder especially designed for the respective data transmitter.
Mounting by bolting connecting clamps or mast clamps.



4.3185.xx.003		
...00....	Clamp range	60-132 mm
...01....		40- 80 mm
...02....		48- 50 mm
	Tube diameter	50 mm
	Clamp range	for telescopic masts
	Material	aluminium
	Weight	1.8 kg (hanger 1 m)

Holder compact

Serves for mounting the wind transmitter compact onto a mast tube.



506347	Material	stainless steel
	Clamp range	Ø 35 – 50 mm
	Dimensions	80 x 150 mm
	Weight	0.35 kg

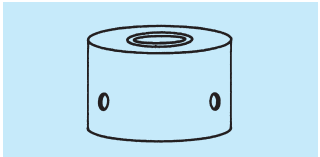
Adaptor 1 "/ 1 1/2"

Serves as reducing unit for mounting the wind transmitters of the First Class type onto a traverse tube of a diameter Ø 50 mm.

507620	Material	aluminium
	Weight	1 kg

Adaptor 1"

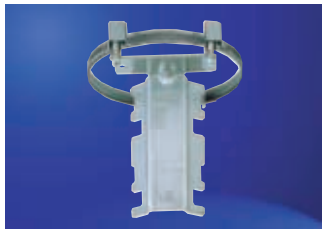
The adaptor is used to mount wind measuring instruments of the compact-series to a 1"- tube.



506283	Material	aluminium, anodised
	Dimensions	Ø 50 x 40 mm
	Weight	0.5 kg

Mounting Set compact

Mounting holder with straps for mounting of power supply units, connection boxes compact, and wind interfaces onto masts or tubes.



506614	Clamping range	Ø 48 –102 mm
506971		Ø 116 –200 mm
	Material	Stainless steel
	Weight	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 supplies

Power Supply

Power Supply Unit

For the power supply of wind speed transmitters, wind directions transmitters or combined instruments.
The outputs are each protected by fuses.
The housing is made of plastic fibre.

Suitable for:
Wind transmitter type: Classic

Order-No.: 9.3388.00.000

Primary	230 V / 50/60 Hz
Secondary	26 V AC / 3.46 A 24 V AC / 0.5 A 12 V DC / 0.3 A
Protection	IP 65
Dimensions	125 x 125 x 125 mm
Weight	2.5 kg

Power Supply Unit compact

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

With integrated terminal strip for the connection and distribution of the cables.
The primary and secondary voltages are protected by safety fuses.

Suitable for:
Wind transmitter type: Classic
: Compact

Order-No.: 9.3389.10.000

Primary voltage	230 V / 50/60 Hz / 0.48 A
Secondary voltage	2 x 24 V AC / 20 VA 1 x 24 V AC / 5 VA 1 x 24 V AC / 70 VA 1 x 24 V DC / 2 W
Terminal strip	20-pole
Housing	plastic fibre
Protection housing	IP 65
Dimensions	190 x 280 x 130 mm
Weight	4.2 kg

Connection Box 1 compact

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

With integrated over-voltage-protection (varistors). Can be used also as junction box.

Suitable for:
Wind transmitter type: Classic
: Compact
Meas. value sensor: Clima - Sensor 2000

Order-No.: 9.3199.00.100

Primary voltage	230 V / 50/60 Hz
Secondary voltage	2 x 24 V AC / 20 VA 1 x 24 V AC / 70 VA or 1 x 24 V AC / 20 VA 1 x 24 V AC / 70 VA 1 x 24 V DC / 1.5 W
Terminal strip	14-pole
Over-voltage-protection	all connections
Housing	aluminium
Protection housing	IP 65
Dimensions	160 x 260 x 90 mm
Weight	4.5 kg

Connection Box 1 compact

Unit for the power supply of the Ultrasonic Anemometer.

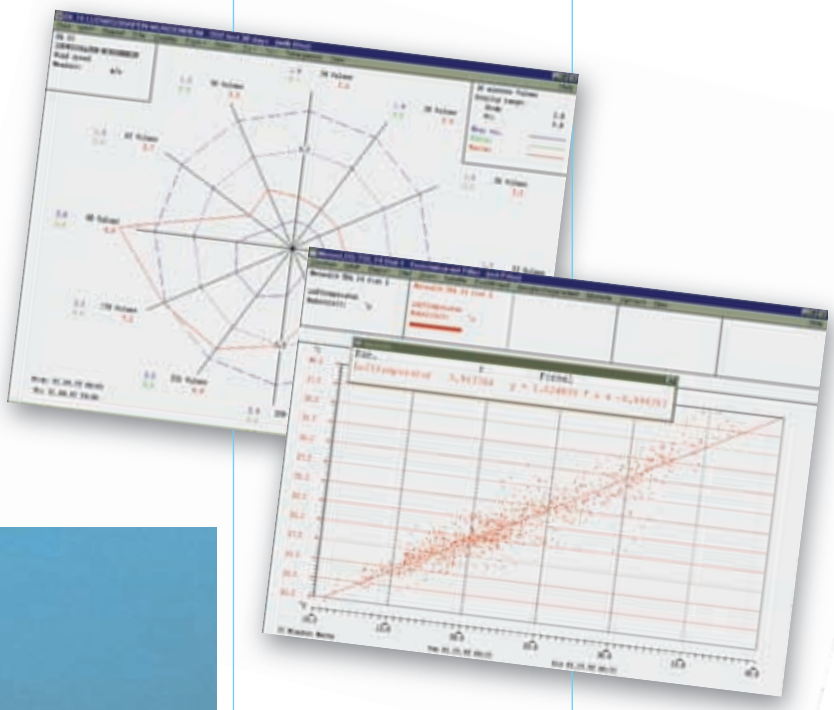
With integrated over-voltage-protection (varistors). Can be used also as junction box.

Order-No.: 9.3199.00.150

Primary voltage	230 V / 50/60 Hz
Secondary voltage	2 x 24 V AC / 20 VA 1 x 24 V AC / 70 VA or 1 x 24 V AC / 20 VA 1 x 24 V AC / 70 VA 1 x 24 V DC / 1.5 W
Terminal strip	14 pole
Over-voltage- protection	all connections
Housing	aluminium
Protection housing	IP 65
Dimensions	160 x 260 x 90 mm
Weight	4.5 kg

More power supply units and connection boxes on request.

as versatile as require
the international tasks



Weather and Environmental monitoring Technology Worldwide

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.

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