



## World Wide Wind Energy

### Wind sensors for world wide weather conditions

Operational safety, durability and optimum yield are the fundamental requirements that manufacturers and operators of wind power plants need from the technology that they deploy.

LAMBRECHT wind sensors fulfil these requirements with the highest reliability and offer excellent value for money.

Wherever the location of your wind power plant may be; off shore, on the coast, in deserts, in rainforests or in extremely cold and icy climates, LAMBRECHT wind sensors are the right choice.

In addition to a unique range of standard sensors, Lambrecht's modular sensor design provides the opportunity to realise your individual customer requests and thus to design the optimal wind sensor for every application.



# NEW u[sonic]

## Combined Ultrasonic Wind Sensor



### Advantages of Lambrecht Wind Sensors

- Wide measuring and temperature ranges
- High resolution and accuracy
- Sea water resistant materials
- All aluminium design
- High quality axis and bearings
- Non-contact abrasion free measuring system
- Integrated heating system
- Fully heated ice-free sensor
- Surviving above 100 m/s
- Various output signals and cable lengths
- Universal mounting device



In the wind energy business Lambrecht is the only supplier of wind sensors who can provide all the essential wind measuring technologies.

- ▶ Mechanical wind sensors with moving parts
- ▶ Ultrasound wind sensors
- ▶ Thermal wind sensors

More than 35 special customised wind sensor types are doing a great job on thousands of wind power plants in the world.

If you are looking for wind measuring technology that guarantee safe function and optimized energy output, Lambrecht is the right supplier for you.



## World Wide Wind Energy

### Moderate Weather Conditions



- wide measuring range
- integrated heating system
- safe data acquisition



### Off-Shore and Seaside

- all aluminium design
- seawater resistant
- surviving above 100 m/s





## World Wide Wind Energy



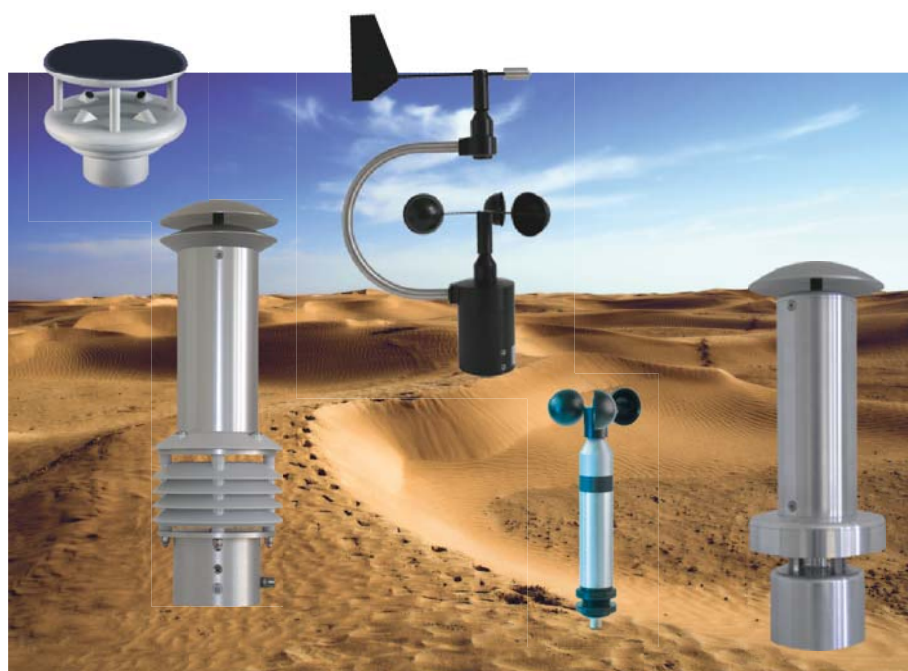
### Cold Climate and Icing

- fully heated ice-free sensor
- high resolution and accuracy
- robust all aluminium design



### Tropics and Deserts

- high quality axis and bearings
- wide temperature range
- various output signals





## The right wind sensor for all weather conditions.

	<p><b>INDUSTRY</b></p> <p>Range of application: -30...+70 °C • 0...60 m/s</p> <p>Robust, seawater-proof materials</p>	<p>Measuring range: 0...360° • 0.7...50 m/s</p> <p>Accuracy: <math>\pm 2^\circ</math> • <math>&lt; \pm 2\%</math> FS</p> <p>Starting value: <math>&lt; 0.7</math> m/s • <math>&lt; 0.7</math> m/s</p> <p>Output: 4...20 mA = 0...360° • 0/4...20 mA = 0...50 m/s</p>
	<p><b>PRO-WEAR/F</b></p> <p>Range of application: -40...+70 °C •</p> <p>max. gusts 100 m/s</p> <p>Reinforced measuring elements</p>	<p>Measuring range: 0...360° • 0.6...60 m/s</p> <p>Accuracy: <math>\pm 2^\circ</math> • <math>\pm 0.3</math> m/s <math>\leq 10</math> m/s; <math>\pm 0.6</math> m/s...60 m/s</p> <p>Starting value: <math>&lt; 0.5</math> m/s • <math>&lt; 0.6</math> m/s</p> <p>Output: 4...20 mA = 0...360° • 4...20 mA = 0...60 m/s</p>
	<p><b>PROFESSIONAL</b></p> <p>Range of application: -40...+70 °C •</p> <p>max. gusts 100 m/s</p> <p>Highest reliability, seawater resistant</p>	<p>Measuring range: 0...360° • 0.3...75 m/s</p> <p>Accuracy: <math>\pm 1^\circ</math> • <math>\pm 0.3</math> m/s <math>\leq 10</math> m/s; <math>\pm 1\%</math> FS ...50 m/s</p> <p>Starting value: <math>&lt; 0.3</math> m/s • <math>&lt; 0.3</math> m/s</p> <p>Output: 4...20 mA = 0...360° • 4...20 mA = 0...75 m/s</p>
	<p><b>ARCO</b></p> <p>Range of application: -30...+70 °C • 0...80 m/s</p> <p>Combined Wind Sensor</p>	<p>Measuring range: 0...360° • 0.6...75 m/s</p> <p>Accuracy: <math>\pm 1^\circ</math> • <math>\pm 2\%</math> FS at 0.3...50 m/s</p> <p>Output: serial RS 422 • NMEA 0183</p>
	<p><b>PROFESSIONAL-IX 3.0</b></p> <p>Range of application: -40...+70 °C • 0...60 m/s</p> <p>Cold Climate</p>	<p>Measuring range: 0...360° • 0.4...50 m/s</p> <p>Accuracy: <math>\pm 1^\circ</math> • <math>\pm 2\%</math> FS at 0.4...50 m/s</p> <p>Starting value: 0.4 m/s • 0.4 m/s</p> <p>Output: 4...20 mA = 0...360° • 0/4...20 mA = 0...50 m/s</p>
	<p><b>PREOS</b></p> <p>Range of application: -40...+70 °C • 0...100 m/s</p> <p>Combined Static Sensor</p>	<p>Measuring range: 0...360° • 0.1...65 m/s</p> <p>Accuracy: <math>\pm 3^\circ</math> • <math>\pm 0.5</math> m/s <math>\pm 5\%</math> of meas. value</p> <p>Output: NMEA 0183</p>
	<p><b>BLUESONIC</b></p> <p>Range of application: -40... +60 °C</p> <p>Combined Ultrasonic Sensor</p>	<p>Measuring range: 0...359.9° • 0...65 m/s</p> <p>Accuracy: <math>&lt; 2^\circ</math> (<math>&gt;1</math> m/s) RMSE •</p> <p><math>\pm 0.2</math> m/s RMSE (<math>v &lt; 10</math> m/s); <math>\pm 2\%</math> RMSE (<math>v &gt; 10</math> m/s)</p> <p>Output: NMEA 0183</p>
	<p><b>EOLOS</b></p> <p>Range of application: -40...+70 °C • 0...100 m/s</p> <p>Combined Static Sensor</p>	<p>Measuring range: 0...360° • 0.1...85 m/s</p> <p>Accuracy: <math>\pm 3^\circ</math> • <math>\pm 0.5</math> m/s <math>\pm 5\%</math> of meas. value</p> <p>Output: NMEA 0183</p>

Photo credits/Copyright:

© sharply\_done - fotolia.com • © Alexander Ivanov - fotolia.com








© Galyna Andrushko - fotolia.com • © Carles Palle - fotolia.com

© Volker Beck - fotolia.com • © Wilh. Lambrecht GmbH, Germany

42.15



## Ident Numbers

	<p><b>INDUSTRY</b></p> <p>Range of application: -30...+70 °C • 0...60 m/s</p> <p>Robust, seawater-proof materials</p>	<p>00.14567.100040 Wind direction</p> <p>00.14577.100040 Wind speed</p>
	<p><b>PRO-WEA/RF</b></p> <p>Range of application: -40...+70 °C •</p> <p>max. gusts 100 m/s</p> <p>Reinforced measuring elements</p>	<p>00.14523.130040 Wind direction PRO-WEA</p> <p>00.14524.100040 Wind speed PRO-WEA</p> <p>00.14523.230040 Wind direction PRO-WEA/RF</p> <p>00.14524.200040 Wind speed PRO-WEA/RF</p>
	<p><b>PROFESSIONAL</b></p> <p>Range of application: -40...+70 °C •</p> <p>max. gusts 100 m/s</p> <p>Highest reliability, seawater resistant</p>	<p>00.14521.100040 Wind direction</p> <p>00.14522.100040 Wind speed</p>
	<p><b>ARCO</b></p> <p>Range of application: -30...+70 °C • 0...80 m/s</p> <p>Combined Wind Sensor</p>	<p>00.14581.070080 Combined wind sensor</p>
	<p><b>PROFESSIONAL-IX 3.0</b></p> <p>Range of application: -40...+70 °C • 0...60 m/s</p> <p>Cold Climate</p>	<p>00.14601.300004 Wind direction</p> <p>00.14602.300004 Wind speed</p>
	<p><b>PREOS</b></p> <p>Range of application: -40...+70 °C • 0...100 m/s</p> <p>Combined Static Sensor</p>	<p>00.16440.014002 Static wind sensor</p>
	<p><b>BLUESONIC</b></p> <p>Range of application: -40... +60 °C</p> <p>Combined Ultrasonic Sensor</p>	<p>00.16461.000010 BLUESONIC NMEA</p> <p>00.16461.000040 BLUESONIC ANALOG</p>
	<p><b>EOLOS</b></p> <p>Range of application: -40...+70 °C • 0...100 m/s</p> <p>Combined Static Sensor</p>	<p>00.16430.010002 EOLOS-IND H</p> <p>00.16430.410002 EOLOS-MET TH</p> <p>00.16430.000002 EOLOS-IND</p> <p>00.16430.400002 EOLOS-MET T</p>

Most sensors without connecting cable.  
Please ask for different variants of sensors.

## The all new combined ultrasonic sensor...

for wind direction and wind speed. This seawater resistant sensor is perfectly heated and ideal for use under cold climate conditions. The equipment is connected by an 8 pole screw connector. The measured values can be requested over a variety of interfaces.

- ▶ without moving measuring elements
- ▶ 2 parameters measurable
- ▶ intelligent heating depending on wind speed and wind direction
- ▶ easy installation, easy to maintain

professional meteorological application • wind turbines on- and off-shore • ship weather station • building automation • traffic meteorology • industrial meteorology • wind warning



Professional Line	(16470)	Combined Ultrasonic Wind Sensor u[sonic]		
Parameter:		<b>Measuring range:</b>	<b>Accuracy:</b>	<b>Resolution:</b>
<b>Wind direction:</b>		0...359.9°	< 2° (> 1 m/s) RMSE	0.1°
<b>Wind speed:</b>		0...75 m/s	± 0.2 m/s RMSE (v < 10 m/s); ± 2 % RMSE (10 m/s < v < 65 m/s)	0.1 m/s
Response threshold:		0.1 ms (adjustable for wind direction)		
Measuring rate:		0.1...10 Hz • (internal measurement > 60 Hz)		
Operating conditions:		-40...+70 °C (with heating -50...+70 °C) • 0...100 % r. h.		
Protocols:		NMEA 0183 • WIMWV • WIMTA • SDI-12 • Modbus (update in progress)		
Power supply:		6...60 V <sub>DC</sub> • 24 V <sub>AC/DC</sub>		
Current consumption and power input:		sensor: approx. 25 mA at 24 V <sub>DC</sub> typical • with heating: configurable 60 W/ 120 W/ 240 W/ max. 310 W at 24 V <sub>AC/DC</sub>		
Housing:		seawater-resistant aluminium • IP 65		
Dimensions/ Weight:		Ø 199 mm • height 149 mm • approx. 2 kg		
Analog output:		0...20 mA • 4...20 mA • 0...5 V • 0...10 V • free scalable		

Subject to change without notice.

© sharply\_done - Fotolia.com



# WIND SENSORS "PRO-WEA"

Wind direction and wind speed

## The universal-genius...

with improved protection against electrostatic discharge!  
 Thus these high-tech sensors are predestinated for operation in lightning-prone regions.  
 The design is aerodynamically optimised, the housing and the measuring elements are made of seawater resistant aluminium.  
 The integrated, controlled heating and the optionally available cable with high UV-resistance are further advantages. PRO-WEA sensors are robust and best suited for year-round applications in most climatic zones.

- ▶ improved protection against electrostatic discharge
- ▶ especially robust due to reinforced axis
- ▶ high measuring range of 60 m/s
- ▶ low starting values of < 0.5 m/s
- ▶ very high resolution of measuring values

wind power plants • lightning-prone regions • all kinds of industrial applications • crane systems • open-pit mining



Standard Line	Wind Sensors PRO-WEA	
<b>Id-No.</b>	<b>(14523) Wind direction</b> <b>00.14523.130 040</b>	<b>(14524) Wind speed</b> <b>00.14524.100 040</b>
Measuring elements:	wind vane • aluminium • special surface	3-armed cup • aluminium • special surface
Measuring range:	0...360°	0.5...60 m/s
Accuracy:	± 2°	± 0.3 m/s ≤ 10 m/s • ± 0.5 m/s...60 m/s
Resolution/ Starting value:	< 1° • < 0.5 m/s	< 0.1 m/s • < 0.5 m/s
Output:	4...20 mA = 0...360° • 4 Hz update rate	4...20 mA = 0...60 m/s • 4 Hz update rate
Weight:	0.4 kg	0.35 kg
Measuring principle:	Hall Sensor Array, non-contact	
Range of application:	temperatures -40...+70 °C • heated • wind speed max. gusts 100 m/s • humidity 0...100 % r.h.	
Supply voltage:	24 V <sub>DC</sub> (20...28 V <sub>DC</sub> ) • 18 W heating • max. 800 mA • The heating within the sensor head prevents blocking of the moving parts under most climatological conditions.	
Housing:	seawater-resistant aluminium • IP 65 in upright position • M12 cable-plug connection • stainless steel nut and lock washer	
Included in delivery:	1 sensor • 15 m cable • with 4 pin M12 plug connector	



# WIND SENSORS "PRO-WEA/RF"

Wind direction and wind speed

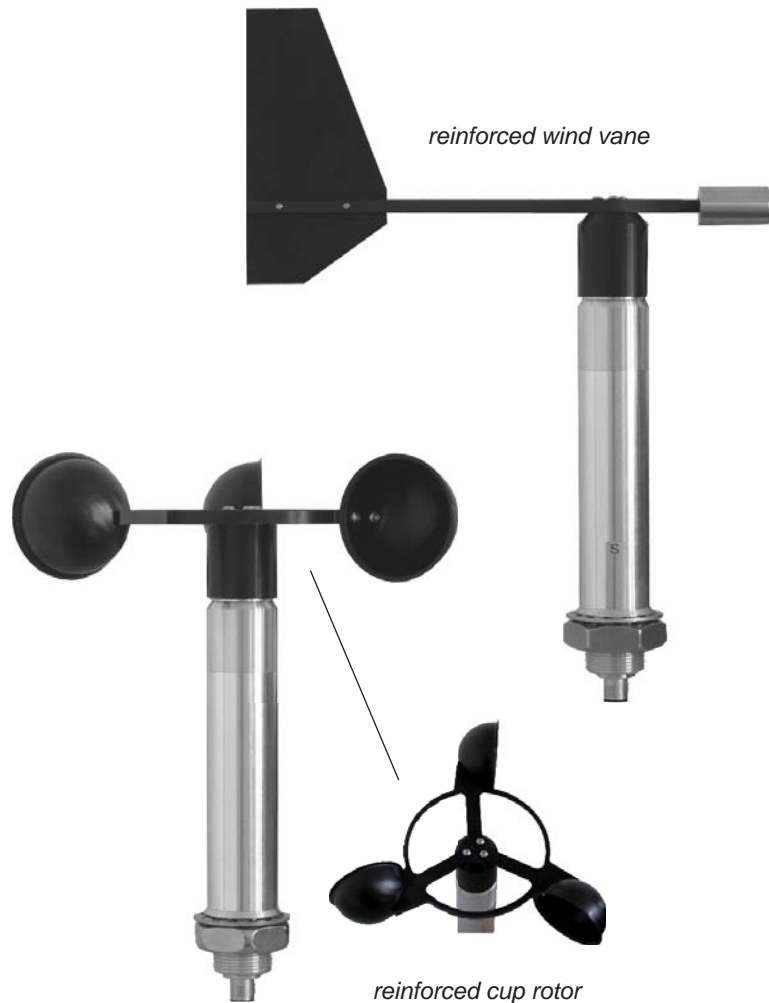
## Ultra robust and storm proof...

due to reinforced measuring elements! Improved protection against electrostatic discharge due to special surface! Thus these high-tech sensors are perfectly suitable for use in all regions that are at risk from lightning and storms.

The design is aerodynamically optimised, the housing and the measuring elements are made of seawater resistant aluminium. The integrated, controlled heating and the optionally available cable with high UV-resistance are further advantages.

- ▶ reinforced measuring elements and stronger axis
- ▶ high vibration resistance
- ▶ improved protection against electrostatic discharge
- ▶ high measuring range of 60 m/s
- ▶ low starting values
- ▶ very high resolution of measuring values

wind power plants • for use in all regions that are at risk from lightning and storms • robust industrial applications • crane systems • open-pit mining



Professional Line	Wind Sensors PRO-WEA/RF	
<b>Id-No.</b>	<b>(14523 RF) Wind direction</b> <b>00.14523.230 040</b>	<b>(14524 RF) Wind speed</b> <b>00.14524.200 040</b>
Measuring elements:	reinforced wind vane • aluminium • special surface	reinforced 3-armed cup • aluminium • special surface
Measuring range:	0...360°	0.6...60 m/s
Accuracy:	± 2°	± 0.3 m/s ≤ 10 m/s • ± 0.6 m/s ...60 m/s
Resolution/ Starting value:	< 1° • < 0.5 m/s	< 0.1 m/s • < 0.6 m/s
Output:	4...20 mA = 0...360° • 4 Hz update rate	4...20 mA = 0...60 m/s • 4 Hz update rate
Weight:	0.4 kg	0.35 kg
Measuring principle:	Hall Sensor Array, non-contact	
Range of application:	temperatures -40...+70 °C • heated • wind speed max. gusts 100 m/s • humidity 0...100 % r.h.	
Supply voltage:	24 V <sub>DC</sub> (20...28 V <sub>DC</sub> ) • 18 W heating • max. 800 mA • The heating within the sensor head prevents blocking of the moving parts under most climatological conditions.	
Housing:	seawater-resistant aluminium • IP 65 in upright position • M12 cable-plug connection • stainless steel nut and lock washer	
Included in delivery:	1 sensor • 15 m cable • with 4 pin M12 plug connector	





# STATIC WIND SENSOR "EOLOS-MET T"

Wind direction · Wind speed · Air temperature

## Compact, robust, reliable...

three characteristics that describe the ingenious static construction of this sensor. Without any moving measuring parts it is extremely resistant to wear. Wind movement is registered highly responsive, competently and very accurate by means of a thermal measuring principle. The integrated temperature sensor determines the air temperature, which will also be send via the serial output.

- ▶ very high wind velocities up to 85 m/s measurable!
- ▶ without moving measuring elements
- ▶ 3 parameters measurable
- ▶ lamella shelter for accurate measurements of the temperature sensor
- ▶ optimal heatable
- ▶ easy installation, easy to maintain

land applications under any conditions · wind turbines · railway line monitoring · traffic meteorology · chemical and industrial facilities · power plants, sewage plants and landfills



<b>Professional Line</b>	<b>(1643)</b>	<b>Static Wind Sensor EOLOS-MET TH</b>	<b>Id-No. 00.16430.410 002</b>
<b>Parameters:</b>		<b>Meas. range:</b>	<b>Accuracy:</b>
<b>Wind direction:</b>		0...360°	± 3°
<b>Wind speed:</b>		0.1...85 m/s	± 0.5 m/s ± 5 % of the meas. value
<b>Air temperature:</b>		-40...+70 °C	± 0.8 °C (v > 2 m/s)
<b>Resolution:</b>			1°
<b>Range of application:</b>		temperature -40...+70 °C heated · wind speed 0...100 m/s · 0...100 % r. h.	
<b>Protocols:</b>		NMEA 0183 · WIMWV · WIMTA	
<b>Interface:</b>		serial · RS 422/ talker · baud rate 4800 · 1 Hz (meas. cycle of 10 Hz) · 8 N 1	
<b>Supply voltage:</b>		24 V <sub>DC</sub> (-22 %/ +34 %) · max. 2.5 A · heating: 24 V <sub>DC</sub> / 70 W (max. 3 A) · electr. controlled	
<b>Housing:</b>		aluminium · anodized · IP 65	
<b>Dimensions/ Weight:</b>		H 382 mm · Ø 120 mm · mast adapter Ø 50 mm for mounting on standard pipe · 2.5 kg	
<b>Version:</b>	<b>(1643)</b>	<b>Static Wind Sensor EOLOS-MET T unheated</b>	<b>Id-No. 00.16430.400 002</b>
<b>Accessories:</b>		Range of application: -30...+70 °C · under non-icing conditions	
<b>32.16420.066 100</b>		<b>(1642 U66) Cable</b> 10 m · 12-pole bayonet plug · ready-made	
<b>Options:</b>		<b>Indicator unit</b> e. g. (14742) METEO-LCD · <b>Data logger</b> e. g. (95665) SYNMET-LOG	
		<b>Mast and power supply unit</b> · <b>(9339)</b> Visualization software "SSDL"	
		<b>(9337)</b> Visualization and evaluation software "MeteoWare-CS-SSDL"	



# STATIC WEATHER SENSOR "EOLOS-IND"

Wind · Air temperature · Rel. humidity · Barometric pressure  
5 parameters plus dew point!

## The perfect weather sensor...

for a wide range of applications, especially for use under harsh environmental conditions. The integrated sensors in the weather module are measuring the ambient parameters with high precision. The compact construction of the static measuring system and the space saving, robust housing make the sensor extremely reliable and durable.

- ▶ very high wind velocities up to 85 m/s measurable!
- ▶ without moving measuring elements
- ▶ 5 weather parameters measurable
- ▶ lamella shelter for accurate measurements of the temperature-humidity sensor
- ▶ optimal heatable
- ▶ easy installation, easy to maintain

land applications under any conditions · wind turbines · railway line monitoring · traffic meteorology · weather services and Offices of the Environment · chemical and industrial facilities · power plants, sewage plants and landfills



Professional Line	(1643)	Static Weather Sensor EOLOS-IND H	Id-No. 00.16430.010 002																		
Parameters:		<table border="1"> <thead> <tr> <th>Meas. range:</th> <th>Accuracy:</th> <th>Resolution:</th> </tr> </thead> <tbody> <tr> <td>0...360°</td> <td>± 3°</td> <td>1°</td> </tr> <tr> <td>0.1...85 m/s</td> <td>± 0.5 m/s ± 5 % of the meas. value</td> <td>0.1 m/s</td> </tr> <tr> <td>-40...+70 °C</td> <td>± 0.8 °C (v &gt; 2 m/s)</td> <td>0.1 °C</td> </tr> <tr> <td>0...100 % r. h.</td> <td>± 3 % (10...90 %) • ± 4 % (0...100 %)</td> <td>0.5 r. h.</td> </tr> <tr> <td>600...1100 hPa</td> <td>± 2 hPa (-30...+70 °C)</td> <td>0.1 hPa</td> </tr> </tbody> </table>	Meas. range:	Accuracy:	Resolution:	0...360°	± 3°	1°	0.1...85 m/s	± 0.5 m/s ± 5 % of the meas. value	0.1 m/s	-40...+70 °C	± 0.8 °C (v > 2 m/s)	0.1 °C	0...100 % r. h.	± 3 % (10...90 %) • ± 4 % (0...100 %)	0.5 r. h.	600...1100 hPa	± 2 hPa (-30...+70 °C)	0.1 hPa	
Meas. range:	Accuracy:	Resolution:																			
0...360°	± 3°	1°																			
0.1...85 m/s	± 0.5 m/s ± 5 % of the meas. value	0.1 m/s																			
-40...+70 °C	± 0.8 °C (v > 2 m/s)	0.1 °C																			
0...100 % r. h.	± 3 % (10...90 %) • ± 4 % (0...100 %)	0.5 r. h.																			
600...1100 hPa	± 2 hPa (-30...+70 °C)	0.1 hPa																			
Range of application:		temperature -40...+70 °C heated · wind speed 0...100 m/s · 0...100 % r. h.																			
Protocols:		NMEA 0183 · WIMWV · WIMHU · WIMMB · WIMTA																			
Interface:		serial · RS 422/ talker · baud rate 4800 · 1 Hz (meas. cycle of 10 Hz) · 8 N 1																			
Supply voltage:		24 V <sub>DC</sub> (-22 %/ +34 %) · max. 2.5 A · heating: 24 V <sub>DC</sub> / 70 W (max. 3 A) · electr. controlled																			
Housing:		aluminium · anodized · IP 65																			
Dimensions/ Weight:		H 382 mm · Ø 120 mm · mast adapter Ø 50 mm for mounting on standard pipe · 2.5 kg																			
Variety:	(1643)	<b>Static Weather Sensor EOLOS-IND unheated</b>	<b>Id-No. 00.16430.000 002</b>																		
Accessories:		Range of application: -30...+70 °C · under non-icing conditions																			
32.16420.066 100	(1642 U66)	Cable 10 m · 12-pole bayonet plug · ready-made																			
Options:		Indicator unit e. g. (14742) METEO-LCD · Data logger e. g. (95665) SYNMET-LOG																			
		Mast and power supply unit · (9339) Visualization software "SSDL"																			
		(9337) Visualization and evaluation software "MeteoWare-CS-SSDL"																			



# WIND SENSORS "PROFESSIONAL-IX 3.0"

Wind direction and wind speed

## Safe operation at ice and snow...

of the sensors PROFESSIONAL-IX 3.0 with 125-watt heating unit! Consequently, these high-quality wind sensors are particularly appropriate for use at extremely low temperatures. The double bearings as well as special alloys enable the large measurement and temperature operating ranges. The contactless measuring principle ensures wear-free, precise and thus certain data acquisition. The simple mounting methods provide a high degree of flexibility.

- ▶ large measuring and temperature operating range, all-season
- ▶ very good starting values due to its contactless measuring principle
- ▶ optimum heating concept
- ▶ extremely high robustness and longevity

cold-climate standard • polar stations • wind power plants • cable railways • environmental measurements in all climatic zones • wind warning devices on cranes



## Professional Line

## Wind Sensors PROFESSIONAL-IX 3.0

	(14601) Wind direction	(14602) Wind speed
Measuring element:	wind vane • inherently stable aluminium • special surface	3-armed cup • aluminium • special surface
Measuring range/ Accuracy:	0...360° • ± 1°	0.4...50 m/s • ± 2 % FS at 0.4...50 m/s
Resolution/ Starting value:	< 1° • 0.4 m/s	< 0.1 m/s • 0.4 m/s
Dimensions:	wind vane L 195 mm • H 295 mm	cup rotor Ø 218 mm • H 241 mm
Weight:	approx. 0.8 kg	approx. 0.8 kg
Measuring principle:	contact-free • Hall Sensor Array	
Range of application:	temperatures -40...+70 °C maximum heated • wind speed 0...60 m/s • humidity 0...100 % r. h.	
Supply voltage:	sensor 24 (20...28) V <sub>DC</sub> • heating 24 V <sub>DC</sub> • 125 W	
Housing:	seawater resistant aluminium • especially anodized • IP 65 in upright position	
Varieties:	<p>(14601) Wind direction sensor</p> <p>(14601) Wind direction sensor</p> <p>(14602) Wind speed sensor</p> <p>(14602) Wind speed sensor</p> <p>(14602) Wind speed sensor</p>	<p>Output:</p> <p>0...20 mA = 0...360°</p> <p>4...20 mA = 0...360°</p> <p>0...20 mA = 0...50 m/s</p> <p>4...20 mA = 0...50 m/s</p> <p>Frequency • 0...500 Hz = 0...50 m/s</p>
Accessories:	<p>15 m cable onesided with connector</p> <p>Mast adapter • Ø 50 mm</p> <p>Traverse</p> <p>Data logger e. g. TROPOS or SYNMET</p>	
	(Please note that the controlling of the heating has to be carried out externally!)	