



# A Passion for Precision

# VENTUS

*VENTUS ultrasonic cold weather anemometer was tested under MIL standard-810F method 521.2 proving success in ice free operation. Ventus is corrosion tested for seawater and vibration resistance. It gives the best accuracy with maintenance-free operation.*

*HALT test*

*Vibration test According to IEC 60945*

*Corrosion test According to MIL-STD-810  
Method 509.3*

*Ice-free test According to MIL-STD-810F  
Method 521.2*

*Now UL-certified  
Underwriters Laboratories Inc.*



# Lufft VENTUS-UMB– Ultrasonic Wind Sensor

## Metal Housing, 240W-Heater



**Extremely precise and maintenance-free measurement of wind velocity and wind direction, as well as calculation of acoustic virtual temperature.**

Belongs to Lufft's WS family of professional intelligent sensors with digital and analog interfaces.

The ultrasonic wind sensor is designed without mechanical parts – traditionally known as “cups and vane”.

The digital or analog output delivers instantaneous, average, min or max value with flexible measuring rate. The VENTUS is heated in case of critical ambient conditions. Made for cold climates!

### Recommended for:

- Wind turbines
- Marine/ships
- Meteorology
- Building automation

### The following outputs/protocols are available:

- NMEA
- UMB-ASCII
- UMB-Binary
- MODBUS (ASCII, RTU)
- SDI-12
- 4 ... 20mA, 0...10V, 0...20 mA, 2...10V frequency (analog)

Lufft VENTUS-UMB Wind Sensor		Order No.
<b>VENTUS-UMB for wind energy applications</b>		<b>8371.UMT</b>
<b>Technical data</b>	Dimensions	Ø approx. 150mm, height approx. 170mm
	Weight	Approx. 1.62kg
<b>Wind direction</b>	Principle	Ultrasonic
	Measuring range	0 ... 359.9°
	Resolution	0.1°
	Accuracy	<2° RMSE >1.0m/s
	Start-up threshold	0.1 m/s
	Measuring rate	60 partial measurements/ 15 measurements per second
	Measurement output rate	1-10 seconds adjustable – default 10s
<b>Wind speed</b>	Principle	Ultrasonic
	Measuring range	0 ... 90m/s
	Resolution	0.1 m/s
	Accuracy	± 0.2 m/s or ± 2% RMS of reading, whichever is greater (0...65m/s) else ± 5%
	Start-up threshold	0.1 m/s
	Measuring rate	60 partial measurements/ 15 measurements per second
	Measurement output rate	1-10 seconds adjustable – default 10s
<b>Virtual temperature</b>	Principle	Ultrasonic
	Measuring range	-50 ... 70 °C
	Resolution	0.1 °C
	Accuracy	± 2.0 °C (without heater and without sun exposure or wind > 4m/s)
	Measuring rate	60 partial measurements/ 15 measurements per second
<b>Air pressure</b>	Principle	MEMS Capacitive
	Measuring range	300 ... 1200hPa
<b>Data output digital</b>	Accuracy	± 1.5hPa
	Interface	RS485 semi-/full duplex, isolated
	Baudrate	1200-57600
	Meas. rate instant. value	1-10s
	Measuring rate Avg (arithmetic, vector)	1-10 min
	Status	Heating, sensor failure
<b>Data output analog</b>	Only semi-duplex mode	
	Output signal	0 ... 20 mA, 4 ... 20 mA, 0 ... 10V, 2 ... 10V, 2 ... 2,000 Hz only output 1 (instantaneous, avg, min, max)
	Load	max. 500 Ohm
	Resolution	16 Bit
<b>General information</b>	Operating temperature	-40 ... 60 °C (with heating) -20 ... 60 °C (without heating)
	Bus operation	Up to 32 devices
	Operating voltage electronics	12-24VDC / 1,2VA, without heating
	with heating	24VDC / 240VA (140VA + 100VA)
	Connection	8-pole plug
	Housing material	Aluminum, seawater-proof
	Protection	IP66
	Pole diameter	50mm/2"
	Factory certificate	yes
	<b>Accessories</b>	Surge protection
Power supply 24V/10A		<b>8366.USV2</b>
UMB Interface converter ISOCON-UMB		<b>8160.UISO</b>
Connection cable, 15m incl. connector		<b>8371.UK015</b>
Connection cable, 50m incl. connector		<b>8371.UK050</b>
Connector		<b>8371.UST1</b>

# Lufft V200A-UMB – Ultrasonic Wind Sensor

## Plastic Housing, 20 W-Heater



**Extremely precise and maintenance-free measurement of wind velocity and wind direction as well as calculation of acoustic virtual temperature.**

Belongs to Lufft's WS family of professional intelligent sensors with digital and analog interfaces.

The ultrasonic wind sensor is designed without mechanical parts – traditionally known as "cups and vane".

The digital or analog output delivers instantaneous, average, min or max value with flexible measuring rate. The V200A is heated to remove frost and ice formation from the sensor.

### Recommended for:

- Meteorology
- Building automation

### The following outputs/protocols are available:

- NMEA
- UMB-ASCII
- UMB-Binary
- MODBUS (ASCII, RTU)
- SDI-12
- 4 ... 20 mA, 0...10V, 0...20mA, 2...10V frequency (analog)

Lufft V200A-UMB Ultrasonic Wind Sensor			Order No.
<b>V200A-UMB</b>			<b>8371.UA01</b>
<b>Technical Data</b>	Dimensions	Ø approx. 150 mm, height approx. 170 mm	
	Weight	Approx. 0.8 kg	
<b>Wind direction</b>	Principle	Ultrasonic	
	Measuring range	0 ... 359.9°	
	Resolution	0.1° (standard)	
	Accuracy	< 3° RMSE > 1.0 m/s	
	Start-up Threshold	0.3 m/s	
	Measuring rate	60 partial measurements/ 15 measurements per second	
	Measurement output rate	1-10 seconds adjustable – default 10 s	
<b>Wind speed</b>	Principle	Ultrasonic	
	Measuring range	0 ... 75 m/s	
	Resolution	0.1 m/s	
	Accuracy	± 0.3 m/s or 3% (0 ... 35 m/s) RMS of reading, whichever is greater ± 5% (> 35 m/s) RMS	
	Start-up threshold	0.3 m/s	
	Measuring rate	60 partial measurements/ 15 measurements per second	
	Measurement output rate	1-10 seconds adjustable – default 10 s	
<b>Virtual temperature</b>	Principle	Ultrasonic	
	Measuring range	-50 °C ... +70 °C	
	Resolution	0.1 °K	
	Accuracy	± 2.0 K (without heater and without sun exposure or wind > 4 m/s)	
<b>Air pressure</b>	Principle	MEMS Capacitive	
	Measuring range	300 ... 1200 hPa	
	Accuracy	± 0.5 h Pa (0 ... +40 °C)	
	Measurement output rate	1-10 seconds adjustable – default 10 s	
<b>Data output digital</b>	Interface	RS485 semi-/full duplex, isolated	
	Baudrate	1200-57600	
	Meas. rate instant. value	1-10 s	
	Measuring rate Avg (arithmetic, vector), Min, Max	1-10 min	
	Status	Heating, sensor failure	
<b>Data output analog</b>	Only semi-duplex mode		
	Output signal	0 ... 20 mA, 4 ... 20 mA, 0 ... 10V, 2 ... 10V, 2 ... 2,000 Hz only output 1 (instantaneous, avg, min, max)	
	Load	max. 500 Ohm	
	Resolution	16 Bit	
<b>General Information</b>	Operating temperature	-40 ... +60 °C (with heating)	
	max. operating height	3500 m	
	Bus operation	Up to 32 devices	
	Operating voltage electronics	24 VDC ± 10% or 24 VDC/1,2 VA without heating: 12 VDC	
	with heating	24 VDC, max. 20 VA	
	Connection	8-pole plug	
	Housing material	Plastic	
	Protection	IP66	
	Pole diameter	50 mm/2"	
	Factory certificate	yes	
<b>Accessories</b>	Surge protection		<b>8379.USP-V</b>
	Power supply 24V/4A		<b>8366.USV1</b>
	UMB Interface converter ISOCON-UMB		<b>8160.UIISO</b>
	Connection cable, 15 m incl. connector		<b>8371.UK015</b>
	Connection cable, 50 m incl. connector		<b>8371.UK050</b>
	Connector		<b>8371.UST1</b>

# Wind Sensor BASIC



The Wind Sensors without heating offer:

- wearfree data acquisition
- robust housing
- dimensionally stable blade wind vane
- fail-safe cup
- double precision bearing

Wind Sensor BASIC			Order Nr.
<p><i>The slender, flow-optimized external geometry ensures certain and precise measurement. For highest stability under load and safe long-term use we rely on robust materials, such as the anodised aluminium housing. The compact sensors with their simple mounting principles additionally provide a high degree of flexibility. Without heating.</i></p>			
<b>Technical data</b>	<b>Wind Sensor BASIC</b>		
<b>Wind direction</b>	Dimensions	Blade wind fane L 232 mm / H 260 mm	<b>8368.100</b>
	Weight	Approx. 0.95 kg	
	Principle	magnetic	
	Measuring range	0...360°	
	Resolution	3°	
	Accuracy	± 5°	
	Starting value	0.7 m/s	
	Outputs	0...5 V	
	Supply voltage	24 VDC (6...28 VDC)	
	Current consumption	15 mA at 12 V / 18 mA at 28 V	
<b>Wind speed</b>	Dimensions	3-armed cup-Ø 95 mm / H 180 mm	<b>8368.110</b>
	Weight	Approx. 0.9 kg	
	Principle	Magnetic	
	Measuring range	0.7...50 m/s	
	Resolution	0.26 m/s	
	Accuracy	± 2 % FS	
	Starting value	0.7 m/s	
	Outputs	0...192 Hz	
	Supply voltage	24 VDC (4.7...28 VDC)	
Current consumption	max. 8 mA   <4 mA at 5 V		
<b>Temperature-measuring range</b>	-30... +70 °C under non-icing environmental conditions		
<b>Housing</b>	Sea water resistant aluminium, anodized, IP53 for boreswith Ø 30 mm at max. 10 mm material thickness incl. 5 m fixed cable		
<b>Accessories</b>	Mast adapter Ø 50 mm		<b>8368.Z100</b>
	Traverse		<b>8368.Z101</b>

Wind Sensors BASIC are recommended for use in:

- Building services
- Environmental measurements
- Wind power plants
- Stadiums
- Industrial meteorology
- Solar plants
- Controlling of jalousies

Further information about our products can be found on our website [www.lufft.de](http://www.lufft.de)

# Wind Sensor INDUSTRY



The optimal heating of the sensor head and minimum power demand of the system are made possible by thermal decoupling of the housing shaft.

- precision, tradition and future reliability
- large operative measuring and temperature range
- simplest mast mounting
- very good starting values through magnetic, contactless measuring principle
- optimal heating concept

Wind Sensor INDUSTRY		Order No.	
<b>The wind sensors impress with high accuracy, simplest mounting methods and ultimately robust, seawater-proof materials.</b>			
<b>Technical Data</b>		<b>Wind Sensor INDUSTRY</b>	
<b>Wind direction</b>	Dimensions	Blade wind fane, L 232 mm, H 307 mm dimensionally stable, plastic	
	Weight	Approx. 0.35 kg	
	Measuring range	0...360°	
	Resolution	2°	
	Accuracy	± 2°	
	Starting value	< 0.7 m/s	
	Outputs	0(4)...20 mA / max. load 600 Ohm	
<b>Wind speed</b>	Dimensions	3-armed cup-Ø 95 mm / H 230 mm	
	Weight	Approx. 0.25 kg	
	Measuring range	0.7...50 m/s	
	Resolution	< 0.02 m/s	
	Accuracy	± 2% FS	
	Starting value	< 0.7 m/s	
	Outputs	0(4)...20 mA = 0...50 m/s, max. load 600 Ohm	
<b>General Information</b>	Measuring principle	Hall Sensor Array	
	Range of application	temperatures -30...+70 °C heated, wind speed 0...60 m/s	
	Supply voltage	24 (20...28) VDC, max. 800 mA electr. controlled heating, 18 W	
	Housing	Aluminium, anodized, IP53, Ø 32 mm	
	Bore	Ø 30 mm for mounting at traverse	
<b>Included in delivery</b>	Cable with plug 12m, ready-made		
<b>Varieties</b>	<b>(Sensors with fixed cable or without heating on request)</b>		
	Wind direction	0...20 mA – output	<b>8368.200</b>
	Wind speed	0...20 mA – output	<b>8368.210</b>
	Wind direction	4...20 mA – output	<b>8368.220</b>
	Wind speed	4...20 mA – output	<b>8368.230</b>
	Wind direction	0...10 VDC output = 0...360 °C	<b>8368.240</b>
	Wind speed	0...10 VDC output = 0...50 m/s	<b>8368.250</b>

Further information about our products can be found on our website [www.lufft.de](http://www.lufft.de)

Wind Sensors INDUSTRY are recommended for use in:

- Wind power plants
- Building services
- Wind warning devices on cranes
- Industrial applications
- In all climatic zones
- Environmental measurements

# Wind Sensor PROFESSIONAL



The titan in the category „professional wind sensors“ meets the challenge of highest reliability over a very large measuring range.

- Precision, tradition and future reliability
- Large measuring range of 75 m/s!
- Very low starting value of 0.3 m/s through magnetic, contactless measuring principle
- Optimal heating concept at the 4...20mA version

Wind Sensor PROFESSIONAL		Order No.	
<p><i>Two optimized versions are available with regard to power supply and signal output. The design is not only aerodynamically optimized but also effectuates extremely good deep-seaworthiness through the special surface treatment.</i></p>			
<b>Technical Data</b>		<b>Wind Sensor PROFESSIONAL</b>	
<b>Wind direction</b>	Dimensions	Blade wind vane, L 240mm, H 310mm	<b>8368.300</b>
	Weight	Approx. 0.4kg	
	Principle	Magnetical Positioning Encor System	
	Measuring range	0...360°	
	Resolution	< 1°	
	Accuracy	± 1°	
	Outputs	4...20mA analogue	
	Starting value	≤ 0.3m/s	
	Measuring element	Blade wind vane, dimensionally stable, aluminium	
<b>Wind speed</b>	Dimensions	3-armed cup CB, Ø 215mm	<b>8368.310</b>
	Weight	Approx. 0.35kg	
	Principle	Magnetical Positioning Encor System	
	Measuring range	0.3...75 m/s	
	Resolution	< 0.1 m/s	
	Accuracy	± 0.3 m/s ≤10m/s ± 1 % FS...50m/s	
	Outputs	4...20mA analogue	
	Starting value	< 0.3 m/s	
	Measuring element	3-armed cup, dimensionally stable, aluminium	
<b>Range of application</b>	Temperatures -40...+70 °C, heated, max. gusts of 100m/s		
<b>Supply voltage</b>	24VDC (20...28VDC), max 800mA, electr. controlled heated		
<b>Housing</b>	Seawater resistant aluminium, surface (special anodised oxidised Al, black, IP65)		
<b>Measuring element</b>	In upright position, Ø 32mm, bore Ø 30mm for mounting at mast or traverses		
<b>Included in delivery</b>	Cable 12m, plug connection, 4 pin, polarity protection ready-made		
<b>Accessories</b>	Mast adapter Ø 50mm	<b>8368.Z100</b>	
	Traverse, for mast Ø 30-80mm lenght 825mm	<b>8368.Z101</b>	
	Traverse, for mast top 50mm, lenght 600mm	<b>8368.Z102</b>	
	Lightning rod	<b>8368.Z103</b>	

Wind Sensors PROFESSIONAL are recommended for use in:

Offshore  
 Wind power plants  
 Meteorology  
 Wind warning systems  
 Power plants  
 Airports  
 Military and civil ships

Further information about our products can be found on our website [www.lufft.de](http://www.lufft.de)

# Wind Sensor PROFESSIONAL-IX



Dual bearings, coupled with the use of a special alloy, allow a large range of measurements to be taken in a wide variety of temperatures. The frictionless measuring technique delivers precise and reliable measurements without wear and tear. Simple mounting allows the device to be used with a high degree of flexibility.

- able to take a wide range of measurements in a wide variety of temperatures, all year round
- excellent start up speeds due to frictionless measuring technique
- internal heating system offers optimal protection against extreme conditions
- high resilience and durability

Wind Sensor PROFESSIONAL-IX		Order No.	
<b>Robust sensor for reliable measurement of wind direction and wind speed at extremely low temperatures</b>			
<b>Technical Data</b>		<b>Wind Sensor PROFESSIONAL-IX</b>	
<b>Wind direction</b>	Dimensions	Blade wind vane L 195 mm, H 295 mm	
	Weight	Approx. 0.8 kg	
	Principle	Hall Sensor Array contact-free	
	Measuring range	0...360°	
	Resolution	< 1°	
	Accuracy	± 1°	
	Outputs	0/4...20 mA	
	Starting value	< 0.4 m/s	
<b>Wind speed</b>	Dimensions	3-armed cup Ø 218 mm H 241 mm	
	Weight	Approx. 0.8 kg	
	Principle	Hall Sensor Array contact-free	
	Measuring range	0.4...50 m/s	
	Resolution	< 0.1 m/s	
	Accuracy	± 2% FS at 50 m/s	
	Outputs	0...500 Hz, 0/4...20 mA	
	Starting value	< 0.4 m/s	
<b>Varieties</b>	Wind direction	4...20 mA	<b>8368.400</b>
		0...20 mA	<b>8368.410</b>
	Wind speed	4...20 mA	<b>8368.450</b>
		0...20 mA	<b>8368.460</b>

NON-ICING wind sensor with 125W Heating  
 Cold Climate Standard  
 Polar stations  
 Wind power plants  
 Ascents supports  
 Environmental applications  
 Winter sports grounds  
 Wind warning systems for cranes

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