BASIK

by IED.

ENG

WIND ULTRA SONIC: WUS4423

WUS4423 range of IED. Ultrasonic Wind speed and direction sensor designed for different industries and sectors.

WUS4423 measures the wind movement by using ultrasonic transducers to detect wind speed and direction. Using this principle avoids wear and tear. It generates RS485 MODBUS signal.

- High resistance to radio frequency interference (RFI) and electromagnetic interference (EMI).
- RS485 MODBUS signal output .
- Ultrasonic transducers, with no wear and tear or dead zones.
- Wind speed and direction in one unit.

APPLICATIONS

WUS4423 has been designed to be used in industrial applications. It measures the wind speed and direction and normally is connected to PLCs or similar devices.

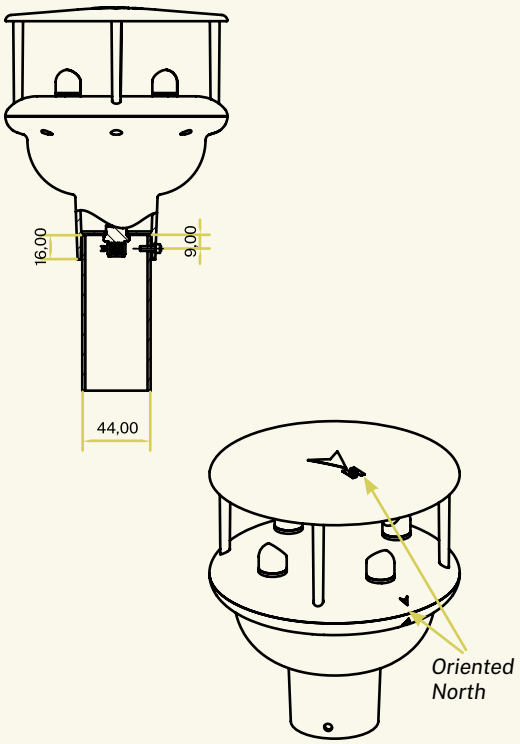
Application examples:
Irrigation control system, automation in greenhouses, solar trackers, ropeways at ski resorts, cranes, wind turbines, weather stations etc.
All those applications that contribute to a greater control and greater security.

OPERATION

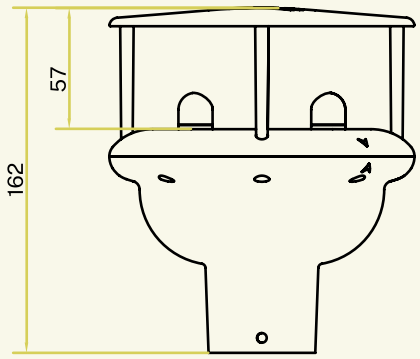
- Survival speed: 200 km/h of wind speed.
- It gives a RS485 MODBUS signal output. (see modbus section).
- The WUS4423 must be orientated north as shown in the mounting section to obtain a correct output.
- The unit must be fixed on a vertical position.

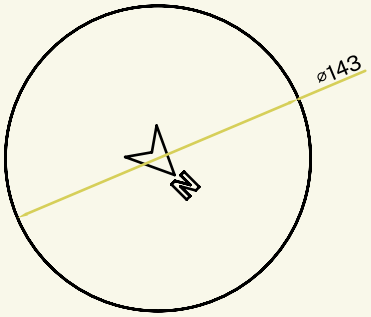
Maintenance:
Maintenance is not needed.

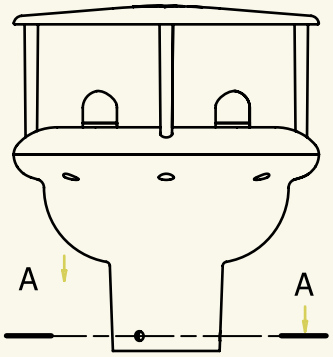
MOUNTING

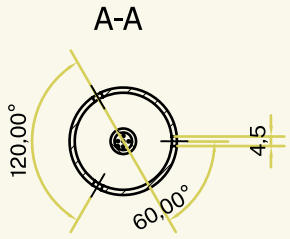


DIMENSIONS







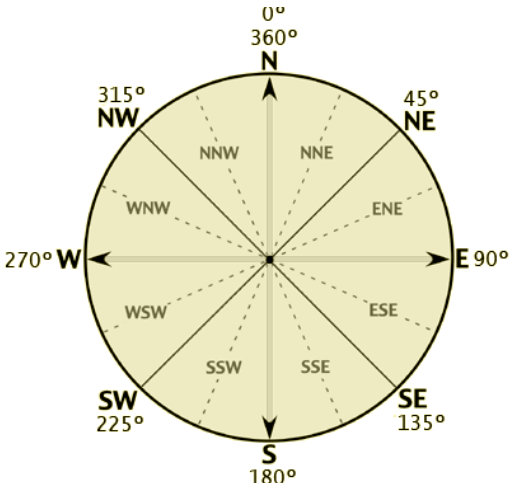


** Dimensions in mm.*

WIND DIRECTION - OUTPUT RATIO TABLE

To orientate the vane north, the arrows shown at the mounting section must be oriented north.

Once the vane has been orientated north, the output signal will correspond to the angles and directions in the table.



Direction	Angle	RS485 output
North	0.0	00 00
North-northeast	22.5	00 16
Northeast	45.0	00 2D
East-northeast	67.5	00 43
East	90.0	00 5A
East-southeast	112.5	00 70
Southeast	135.0	00 87
South-southeast	157.5	00 9D
South	180.0	00 B4
South-southwest	202.5	00 CA
Southwest	225.0	00 E1
West-southwest	247.5	00 F7
West	270.0	01 0E
West-northwest	292.5	01 24
Northwest	315.0	01 3B
Northwest-North	337.5	01 51

PROTOCOL

WUS4423 has a RS485 output with a Modbus RTU protocol.
This section describes protocol and adds petition and response examples.

Protocol features	
Data format	1 start bit, 8 data bits and 1 stop bit
	19200 baud (default) or 9600 baud
	Even parity (default) or None
Protocol type	MODBUS RTU
Version	1.2
WUS4423 ID	0xF4 (Factory default)

MODBUS MAP

Register Access	Register Address	(msb.. lsb)	Type	Variable name	Variable description	Range	Unit
Read	81	(15..0)	U16	Wind direction		0..359	°
Read	82	(15..0)	U16	Wind speed (m/s)		0..5000	m/s x 100
Read	30001	(15..0)	U16	Wind speed (km/h)		0..180	km/h
Read	30002	(15..0)	U16	Wind direction		0..359	°
Read	40001	(15..0)	U16	Wind speed (km/h)		0..180	km/h
Read	40002	(15..0)	U16	Wind direction		0..359	°
Read	40003	(15..0)	U16	Wind speed 15s average		0..180	km/h
Read	40004	(15..0)	U16	Wind direction 15s average		0..359	°
Read/Write	50010	(15..0)	U16	Slave ID configuration	**244d (0xF4)**	1..255	
Read/Write	50011	(15..0)	U16	Baudrate configuration	96d (0x60) = 9600 baud **192d (0xC0) = 19200 baud**	96 or 192	baud
Read/Write	50013	(15..0)	U16	Parity configuration	0x00 = none parity **0x01 = even parity**	0..1	
Read/Write	50014	(15..0)	U16	Apply configuration	0x01 must be written to apply configuration	0..1	

**Default values in bold*

COMMUNICATION EXAMPLES

Frame example:

Addr	04	00	00	00	01	CRCH	CRCL

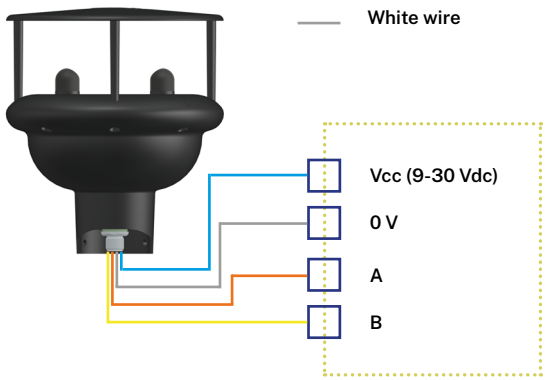
CONNECTION

A 4-pin M12 connector is placed at the bottom. The unit is supplied with a 5 or 10-m long wire depending on version.

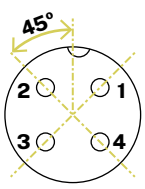
Colors function:

- **VCC:** blue
- **0 V:** white
- **A:** orange
- **B:** yellow

Termination Resistor (120 Ω) depending on version: RT/NO RT



M12 CONNECTOR:



PIN1 A
PIN2 0 V
PIN3 Vcc
PIN4 B

TECHNICAL FEATURES

Electric Features

Power supply	9-30 Vdc
Maximum current	100 mA
Output type	RS485. Contact IED for other options.
Start up time	<5 s

Measurement

Speed Range	0-160 km/h
Starting speed	0 km/h
Survival speed	200 km/h
Accuracy	0.5 km/h (0-15 km/h) 3% (15-120 km/h) 5% (120-160 km/h)
Speed resolution	0.01 m/s (depending on register, see modubs map)
Direction range	0-360°
Accuracy	±3° (wind speed >1 km/h)
Direction resolution	1 °

General

Enclosure material	PA + GF
Conexion type	M12-4 connector + Cable 4x0.65mm^2 Lenght depending on version.
Weight (without cable)	400 g
Dimensions	143x162 mm
Storage temperature	-35°C +80°C
Working temperature	-20°C +70°C
EMC	EN IEC 61000-6-2:2019 EN 61000-6-3: 2007 EN 61000-6-3: 2007/A1:2011
IP Protection	IP65 (UNE 20324:1993)

REFERENCES

References	
TBD	WUS4423 RS485 OUTPUT 5M CABLE RT
TBD	WUS4423 RS485 OUTPUT 10M CABLE RT
TBD	WUS4423 RS485 OUTPUT 5M CABLE NO RT
TBD	WUS4423 RS485 OUTPUT 10M CABLE NO RT

For other references, please contact us.

IED Electronics Solutions S.L.
Pol. Plazaola E 6, 31195 Aizoáin. Navarra (Spain)
www.iedelectronics.com
info@iedelectronics.com

BASIK
e-elements for automation