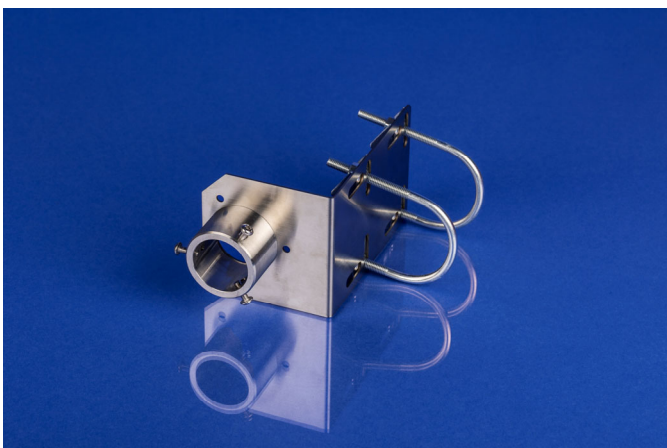




WSDU 420



BMW WSDU

Features

- No moving parts
- Extreme Wind Speed 60 m/s
- Output signals
0-10 Vdc, 4-20 mA, 0-5 V, Modbus RS485 or RS232.
- Wind speed
range 0-60 m/s (on request 0-45 m/s)
resolution 0.01m/s
accuracy
≤10m/s : ±0.2m/s
>10m/s : <±2% the current value
Starting Threshold 0.1m/s
- Wind direction
range 0-360°
resolution 1°
accuracy ±3°
0.1m/s
- Power supply 12-24Vdc
- Cable length 4 meters
- IP66
- Automatic heating anti-frozen
- Carbon Fiber Material
- Power consumption
<1W(Heating not activated)
<3W(Heating activated)
- Operating Temperature -40°C to +80°C
- Heating power 3W max.
- CE approved
- Mounting bracket for mast and wall available (BMW WSDU)

Ordering

Type no.	Description
WSDU 010	Wind speed and direction transmitter Output signal 0-10 Vdc
WSDU 420	Wind speed and direction transmitter Output signal 4-20 mA
WSDU 05	Wind speed and direction transmitter Output signal 0-5 V
WSDU RS485	Wind speed and direction sensor Output signal Modbus RS485
WSDU RS232	Wind speed and direction sensor Output signal Modbus RS232
BMW WSDU	Mounting bracket for Mast or Wall

MOUNTING

- There is rotary adjustable mounting holes at the top of the sensor, when mounting the sensor, to ensure the indicator on ultrasonic wind sensor on the sensor **comply with the geographic north**;
- The product upward or downward vertical ground installation.

OUTPUT CHARACTERISTICS

Current(4-20mA)

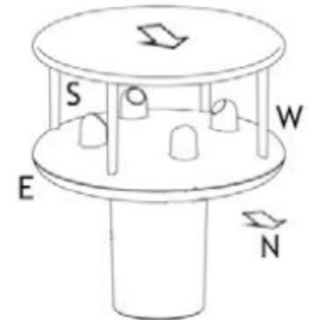
Characteristic transfer function: $V(m/s) = (I_s - 4) / (20 - 4) * \text{Range}$;
 $A(^{\circ}) = (I_d - 4) / (20 - 4) * 360 (\text{Range: } 0-360^{\circ})$
 (V: wind speed, I_s : wind speed current(mA), A: wind direction, I_d : wind direction current(mA))

Voltage

Characteristic transfer function:
 $V(m/s) = U_s / (\text{full scale voltage} - \text{zero point voltage}) * \text{Range}$;
 $A(^{\circ}) = U_d / (\text{full scale voltage} - \text{zero point voltage}) * 360 (\text{Range: } 0-360^{\circ})$
 (V: wind speed, U_s : wind speed voltage(V), A: wind direction, U_d : wind direction voltage(V))

RS485

See appendix for communication protocol.



ELECTRICAL CONNECTIONS

Cable	Voltage/Current	RS485	RS232
Red(Pin1)	V+	V+	V+
Black/Blue(Pin2)	V-	V-	V-
Yellow(Pin3)	Signal(WD)	RS485A	TXD
Green/Brown(Pin4)	Signal(WS)	RS485B	RXD
White	Signal GND		Signal GND

Communication Protocol (MODBUS)

Transmission mode: MODBUS-RTU, **Baud rate:** 9600bps, **Data bits:** 8, **Stop bit:** 1, **Check bit:** no

Slave address: the factory default is 01H (set according to the need, 00H to FFH)

● The 03H Function Code Example: Read The Wind speed & Wind direction

Host Scan Order (slave address: 0x01)

01 03 00 51 00 02 95DA

Slave Response

01 03 04 00 36 01 28 1BB3

Wind direction: (0036)H=(54)D=54(°)

Wind speed: (0128)H=(296)D, $296/100=2.96(\text{m/s})$;

● The 06H Function Code Example: Modify the slave address

Host Scan Order (Changed from 09H to 01H):

09 06 00 42 00 01 E956

Slave Response:

09 06 00 42 00 01 E956

If you forget the original address, you should use the broadcast address(00H) (ensure that no other devices on the bus at this time).

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● The 06H Function Code Example: Modify the band rate

Host Scan Order (Change to 19200):

09 06 00 40 00 05 4955

Slave Response:

09 06 00 40 00 05 4955

Code	Band Rate	Code	Band Rate
0	1200	6	28800
1	2400	7	38400
2	4800	8	56000
3	9600	9	57600
4	14400	10	115200
5	19200		

● The 06H Function Code Example: Modify the check bit and stop bit

Host Scan Order (Change to NONE, 1):

09 06 00 41 00 03 9897

Slave Response:

09 06 00 41 00 03 9897

Code	Data bits	check bit	stop bit
0	8	NONE	2
1	8	ODD	1
2	8	EVEN	1
3	8	NONE	1

- Note:**
1. All underlined is fixed bit;
 2. The last two bytes is CRC check command;
 3. If you changed the address, restart the device to take effect.