

## ALL-IN-ONE (Wind speed & direction, temperature & RH%, pressure, rain, solar radiation)

### All-in-one weather sensors










**COMPACT SERIES**

**STANDARD SERIES**

- ▶ Up to six parameters from the same sensor body
- ▶ Two size versions with different specifications for a wide range of applications
- ▶ Easy connection, using Modbus-RTU, to third part data loggers and LSI LASTEM's data loggers
- ▶ Heated versions (Standard versions only)
- ▶ In house ISO17025 accredited calibration laboratory

Sensors integrate a unique folded-path sonic anemometer with a multi-element temperature sensor, fast-response capacitive relative humidity sensor, state-of-the-art barometric pressure sensor. Alternative versions are equipped with photodiode radiation sensor or optical rain sensor. The result is a professional grade All-In-One Weather Sensor designed for reliability, longevity, and ease of installation. Two classes of sensors are available: Standard made in aluminum and Compact series made in plastic, with different size and different features concerning the wind measurement. All models can be connected to any LSI LASTEM data logger on serial port COM2 using its Modbus output protocol. All-In-One sensors are particularly suitable for industrial and environmental applications, such as, smart buildings, electric grid, marine coastal and smart cities applications, wherever small devices with low visual impact and not moving parts are required.

Technical Specifications	COMPACT SERIES		
	P/N (without heater )	DNB200 - DNB200.2	DNB201 - DNB201.2
			
<b>Wind speed</b>	x	x	x
<b>Wind direction</b>	x	x	x
<b>Air Temperature</b>	x	x	x
<b>Relative Humidity and Dew Point</b>	x	x	x
<b>Pressure</b>	x	x	x
<b>Solar radiation</b>	-	-	x
<b>Rain</b>	-	x	-
<b>Material</b>	Plastic		
<b>Output</b>	DNB200: RS485 DNB200.2: RS232	DN201: RS485 DNB201.2: RS232	DNB202: RS485 DNB202.2: RS232
<b>Power supply</b>	12...30 Vdc		
<b>Power consumpt.@12 Vdc</b>	13 mA	55 mA	18 mA
<b>Size</b>	Ø 126 × H 170 mm	Ø 126 × H 195 mm	Ø 126 × H 228 mm
<b>Weight</b>	0.7 Kg	0.75 Kg	0.95 Kg
<b>Protection</b>	IP65		

	<b>STANDARD SERIES</b>			
<b>P/N (without heater )</b>	<b>DNB300 - DNB300.2</b>	<b>DNB301 - DNB301.2</b>	<b>DNB302 - DNB302.2</b>	<b>DNB304 - DNB304.2</b>
<b>P/N (with heater)</b>	<b>DNB300.1</b>	<b>DNB301.1</b>	<b>DNB302.1</b>	
				
<b>Wind speed</b>	x	x	x	-
<b>Wind direction</b>	x	x	x	-
<b>Air Temperature</b>	x	x	x	-
<b>Relative Humidity and Dew Point</b>	x	x	x	-
<b>Pressure</b>	x	x	x	-
<b>Solar radiation</b>	-	-	x	-
<b>Rain</b>	-	x	-	x
<b>Material</b>	Aluminium			
<b>Output</b>	DNB300-300.1: RS485  DNB300.2: RS232	DNB301-301.1: RS485  DNB301.2: RS232	DNB302-302.1: RS485  DNB302.2: RS232	DNB304: RS485  DNB304.2 RS232
<b>Power supply</b>	12...30 Vdc			
<b>Power consumption @12 Vdc (sensor only)</b>	13 mA	55 mA	18 mA	45 mA
<b>Power consumption @24 Vdc (heater) (see P/Ns with heater)</b>	10 A			NO
<b>Size</b>	Ø 160 × H 234 mm	Ø 160 × H 240 mm	Ø 160 × H 290 mm	Ø 160 x H 132 mm
<b>Weight</b>	1.5 Kg	1.5 Kg	1.65 Kg	1.05 Kg
<b>Protection</b>	IP66			

## Technical Specifications

		<b>Compact Series</b>	<b>Standard Series</b>
<b>Wind speed</b>	Principle	Ultrasonic	Ultrasonic
	Range	0...60 m/s	0...60 m/s
	Accuracy	± 0.3 m/s; 5% (0,02...35 m/s); 10% (>35 m/s)	± 0,2 m/s; 3% (0,02...35 m/s); 5% (>35 m/s)
	Threshold	0.02 m/s	0.01 m/s
	Resolution	0.01 m/s	0.01 m/s
	Response time	250 ms	250 ms
<b>Wind direction</b>	Principle	Ultrasonic	Ultrasonic
	Range	0...360°	0...360°
	Accuracy	±3° (>1 m/s)	±2° (>1 m/s)
	Threshold	0.2 m/s	0.2 m/s
	Resolution	0.1°	0.1°
	Response time	250 ms	250 ms
<b>Temperature</b>	Principle	Diode voltage	Diode voltage
	Range	-40...80 °C	-40...80 °C
	Accuracy	±0.3°C (-35...60°C); ±0.5°C	±0,3°C (-35...60°C); ±0.5°C
	Resolution	0.1°C	0.1°C
	Response time	1 s	1 s
<b>RH%</b>	Principle	Capacitive	Capacitive
	Range	0...100%	0...100%
	Accuracy	3%	3%
	Resolution	0.1%	0.1%
	Response time	1 s	1 s
<b>Dew Point</b>	Type	Calculation	Calculation
<b>Pressure</b>	Principle	Piezoresistor	Piezoresistor
	Range	600...1100 hPa	600...1100 hPa
	Accuracy	±0.5 hPa @ 25°C	±0.5 hPa @ 25°C
	Resolution	0.1 hPa	0.1 hPa
	Response time	1 s	1 s
<b>Solar Radiation</b>	Principle	Photodiode	Photodiode
	Spectral range	300...3000 nm	300...3000 nm
	Range	0...2000 W/m <sup>2</sup>	0...2000 W/m <sup>2</sup>
	Resolution	1 W/m <sup>2</sup>	1 W/m <sup>2</sup>
	Accuracy	5%	5%
	Temperature response	5%	5%
	Directional error 0<θ<80°	<±10 W/m <sup>2</sup> (@ 1000 W/m <sup>2</sup> )	<±10 W/m <sup>2</sup> (@ 1000 W/m <sup>2</sup> )
	Non-linearity	Max 3% (0...1000 W/m <sup>2</sup> )	Max 3% (0...1000 W/m <sup>2</sup> )
	Response time	1 s	1 s

		<b>Compact Series</b>	<b>Standard Series</b>
<b>Rain total</b>	Principle	Optical	Optical
	Measurement	Rain total: mm/min, mm/hr, mm/day, Total	Rain total: mm/min, mm/hr, mm/day, Total
	Range of measurement	0...400 mm/hr	0...400 mm/hr
	Repeatability	3%	3%
	Resolution	0.08 mm/hr	0.08 mm/hr

## Common Technical Specifications

<b>Output</b>	Digital	RS-232, RS-485 (see each PN)
	Protocol	Modbus-RTU
	Baud rate	9600 bits
<b>Cable</b>	Connector	Aerospace type
	Cable	Not included (see Accessories)
<b>Protection</b>	Housing protection	IP66 (with mounting kit attached)
<b>Operative conditions</b>	Temperature	-40...70°C
	Humidity	5...100% RH
<b>Compatibility</b>	LSI LASTEM's data Logger	RS232 output: E-Log. RS485 output: A-Log
<b>Installation</b>	Mounting	On pole Ø 35...50 mm using bracket (included)

## Accessories

	<b>DWA054</b>	Cable L=5 m for non-heated sensors
	<b>DWA104</b>	Cable L=10 m for non-heated sensors
	<b>DWA254</b>	Cable L=25 m for non-heated sensors
	<b>DWA056</b>	Cable L=5 m for heated sensors
	<b>DWA106</b>	Cable L=10 m for heated sensors
	<b>DWA256</b>	Cable L=10 m for heated sensors
	<b>DWA831.1</b>	Cable L=5 m dual-head for sensors bus connectivity. Free wires connection
	<b>DWA832.1</b>	Cable L=10 m dual-head for sensors bus connectivity. Free wires connection
	<b>DWA833.1</b>	Cable L=25 m dual-head for sensors bus connectivity. Free wires connection
	<b>DWA834.1</b>	Cable L=50 m dual-head for sensors bus connectivity. Free wires connection
	<b>DWA835.1</b>	Cable L=100 m dual-head for sensors bus connectivity. Free wires connection
	<b>MG2267.R</b>	Watertight connector for making sensors cable
	<b>DEA602</b>	RS232 DB-9 male connector to connect cable to RS232 female port
	<b>DEA504</b>	Line drive converter RS485->RS232
	<b>XLA005</b>	Converter N.2 RS232-422-485->USB