Environmental Monitoring Solutions

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 sized 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 sizes 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**	**DNB202 - DNB202.2**
			
Wind speed	x	x	x
Wind direction	x	x	x
Air Temperature	x	x	x
Relative Humidity and Dew Point	x	x	x
Pressure	x	x	x
Solar radiation	-	-	x
Rain	-	x	-
Material	Plastic		
Output	DNB200: RS485 DNB200.2: RS232	DNB201: RS485 DNB201.2: RS232	DNB202: RS485 DNB202.2: RS232
Power supply	12...30 V DC		
Power consumpt.@12 V DC	13 mA	55 mA	18 mA
Size	Ø 126 × H 170 mm	Ø 126 × H 195 mm	Ø 126 × H 228 mm
Weight	0.7 kg	0.75 kg	0.95 kg
Protection	IP65		

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

Technical Specifications

		Compact Series	Standard Series
Wind speed	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	0.1 m/s	0.1 m/s
	Resolution	0.1 m/s	0.1 m/s
	Response time	250 ms	250 ms
Wind direction	Principle	Ultrasonic	Ultrasonic
	Range	0...360°	0...360°
	Accuracy	±3° (>1 m/s)	±2° (>1 m/s)
	WS threshold for WD calculation	0.2 m/s	0.2 m/s
	Resolution	0.1°	0.1°
	Response time	250 ms	250 ms
Temperature	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
RH%	Principle	Capacitive	Capacitive
	Range	0...100%	0...100%
	Accuracy	3%	3%
	Resolution	0.1%	0.1%
	Response time	1 s	1 s
Dew Point	Type	Calculation	Calculation
Pressure	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
Solar Radiation	Principle	Photodiode	Photodiode
	Spectral range	300...3000 nm	300...3000 nm
	Range	0...2000 W/m^2	0...2000 W/m^2
	Resolution	1 W/m^2	1 W/m^2
	Accuracy	5%	5%
	Temperature response	5%	5%
	Directional error $0<\theta<80°$	<±10 W/m^2 (@ 1000 W/m^2)	<±10 W/m^2 (@ 1000 W/m^2)
	Non-linearity	Max 3% (0...1000 W/m²)	Max 3% (0...1000 W/m²)
	Response time	1 s	1 s

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

Common Technical Specifications

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

Accessories

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

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