

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 accreditate 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 | 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 | Aluminium | | | |
| 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<θ<80° | <±10 W/m ² (@ 1000 W/m ²) | <±10 W/m ² (@ 1000 W/m ²) |
| | Non-linearity | Max 3% (0...1000 W/m ²) | Max 3% (0...1000 W/m ²) |
| | 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 |