










## All-in-One: Wind speed&direction, temperature&RH%, Pressure, Rain, Solar radiation

| Models  |   | Order numb.  |
|---|---|--|
|  |  | <p style="color: #0070C0; margin: 0;"><b>All-in one weather sensors</b></p> <p style="margin: 0;">Sensors integrates 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.</p> |
| <b>Standard serie</b>   | <b>Compact serie</b>  |  |

|   | Compact serie  |  |  | Standard serie   |  |  |  |
|---|--|--|--|--|--|--|--|
| P/N (without heater)                                      | <b>DNB200</b>  | <b>DNB201</b>  | <b>DNB202</b>  | <b>DNB300</b>  | <b>DNB301</b>  | <b>DNB302</b>  | <b>DNB304</b>  |
| P/N (with heater)   | <b>DNB200.1</b>  | <b>DNB201.1</b>  | <b>DNB202.1</b>  | <b>DNB300.1</b>  | <b>DNB301.1</b>  | <b>DNB302.1</b>  |  |
|   |  |  |  |  |  |  |  |
| Wind speed  | X  | X  | X  | X  | X  | X  |  |
| Wind direction  | X  | X  | X  | X  | X  | X  |  |
| Air Temperature   | X  | X  | X  | X  | X  | X  |  |
| Relative Humidity and Dew Point                           | X  | X  | X  | X  | X  | X  |  |
| Pressure  | X  | X  | X  | X  | X  | X  |  |
| Solar radiation   |  |  | X  |  |  | X  |  |
| Rain  |  | X  |  |  | X  |  | X  |
| Material  | Plastic  |  |  | Aluminium  |  |  |  |
| Power consumption @12 Vdc (sensor only)                   | 15 mA  | 25 mA  | 25 mA  | 15 mA  | 25 mA  | 25 mA  | 10 mA  |
| Power consumption @24 Vdc (heater) (see P/Ns with heater) | Sensor only: 5 A   |  |  | Sensor&Shell: 10 A   |  |  | NO   |
| Size  | 170x126 mm   | 195x126 mm   | 228x126 mm   | 234x160 mm   | 240x160 mm   | 290x160 mm   | 132x160 mm   |
| Weight  | 0,7 Kg   | 0,75 Kg  | 0,95 Kg  | 1,5 Kg   | 1,5 Kg   | 1,65 Kg  | 1,05 Kg  |

|                       |               | Compact Series                                | Standard Series                     |
|-----------------------|---------------|---|-------------------------------------|
| <b>Wind speed</b>     | Type          | Ultrasonic                                    | Ultrasonic                          |
|                       | Range         | 0÷60 m/s                                      | 0÷60 m/s                            |
|                       | Accuracy      | ±0,3 m/s or ±5% (0÷35 m/s)<br>±10 % (>35 m/s) | ±0,2 m/s or ±3%<br>±5 % (>50 m/s)   |
|                       | Response time | 0,25 s  | 0,25 s                              |
|                       | Resolution    | 0,1 m/s                                       | 0,1 m/s                             |
| <b>Wind direction</b> | Type          | Ultrasonic                                    | Ultrasonic                          |
|                       | Range         | 0÷360°  | 0÷360°                              |
|                       | Accuracy      | ±3°   | ±2°                                 |
|                       | Response time | 0,25 s  | 0,25 s                              |
|                       | Resolution    | 0,1°  | 0,1°                                |
| <b>Temperature</b>    | Type          | Diode voltage                                 | Diode voltage                       |
|                       | Range         | -40÷80 °C                                     | -40÷80 °C                           |
|                       | Accuracy      | ±0.3°C (-35÷60°C), otherwise ±0.5°C           | ±0.3°C (-35÷60°C), elsewhere ±0.5°C |
|                       | Resolution    | 0,1°C   | 0,1°C                               |

|                        |                                       | Compact Series                    | Standard Series                          |
|------------------------|---------------------------------------|-----------------------------------|--|
| <b>RH%</b>             | Type                                  | Capacitive                        | Capacitive                               |
|                        | Range                                 | 0÷100%                            | 0÷100%                                   |
|                        | Accuracy                              | 3%                                | 3%                                       |
|                        | Resolution                            | 0,1%                              | 0,1%                                     |
| <b>Dew Point</b>       | Type                                  | Calculation                       | Calculation                              |
| <b>Pressure</b>        | Type                                  | 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                                  |
| <b>Solar Radiation</b> | Type                                  | Phodiode                          | Phodiode                                 |
|                        | 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<br>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/m <sup>2</sup> ) | Max 3% (0÷1000 W/m <sup>2</sup> )        |
| <b>Rain total</b>      | Type                                  |                                   | Optical                                  |
|                        | Measurement                           |                                   | Rain total: mm/min, mm/hr, mm/day, Total |
|                        | Range of measurement                  |                                   | 0÷400 mm/hr                              |
|                        | Repeatability                         |                                   | 3%                                       |
|                        | Resolution                            |                                   | 0,08 mm/hr                               |

| <b>Common features.</b>     |                          |  |
|-----------------------------|--------------------------|--|
| <b>Output</b>               | Digital                  | SDI-12, RS-232, RS-485, RS-422   |
|                             | Protocols                | SDI-12 (v. 1.3), ASCII automatic & polled, Modbus RTU with query option, NMEA 0183 (v.3.0) |
|                             | Analogue                 | 1÷5 V or 4÷20 mA (using DEA421 external interface, see Accessories)                        |
| <b>Power supply</b>         | Power supply             | 12÷30 Vdc  |
| <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>DL compatibility</b>     | LSI LASTEM's data Logger | M-Log (ELO008) V/X/E-Log (all models),   |
| <b>Installation</b>         | Mounting                 | On pole Ø 50 mm using bracket (included)   |

| <b>Accessories</b> |                 |   |
|--------------------|-----------------|---|
|                    | <b>DEA421</b>   | Converter for analogue outputs<br>- Power supply : 24 Vdc, Digital input : RS485; Number of analog outputs : n.6 (Voltage / Current)<br>- Accuracy: ±0.2% |
|                    | <b>DWA821</b>   | Cable L.5 m for DNB20x sensors  |
|                    | <b>DWA831</b>   | Cable L.5 m for DNB30x sensors  |
|                    | <b>DWA822</b>   | Cable L.10 m for DNB20x sensors   |
|                    | <b>DWA832</b>   | Cable L.10 m for DNB30x sensors   |
|                    | <b>DWA823</b>   | Cable L.25 m for DNB20x sensors   |
|                    | <b>DWA833</b>   | Cable L.25 m for DNB30x sensors   |
|                    | <b>DWA831.1</b> | Cable L.5 m dual-head for sensors bus connectivity. DNB30x sensors. Free wires connection   |
|                    | <b>DWA832.1</b> | Cable L.10 m dual-head for sensors bus connectivity. DNB30x sensors. Free wires connection  |
|                    | <b>DWA833.1</b> | Cable L.25 m dual-head for sensors bus connectivity. DNB30x sensors. Free wires connection  |
|                    | <b>DYA040.4</b> | Support for DNB30x sensor to pole Ø 50 mm   |
|                    | <b>DYA058</b>   | Lateral bar for fixing DYA040.4 to pole Ø 45-55 mm  |
|                    | <b>DEA504</b>   | Line drive converter RS485->RS232   |
|                    | <b>DEA425</b>   | USB cable with software for data display  |