



The active road sensor ARS31Pro detects freezing point temperatures independently from de-icing materials and has a two-part housing for easy maintenance

- **Parameters measured**  
road surface temperature, freezing point
- **Measurement technology**  
active cooling and heating (Peltier element), NTC (road surface temp.)
- **Product highlights**  
Two part housing design allows easy maintenance/re-calibration, low energy consumption allows solar operation, freezing point determined independently from de-icing material
- **Interfaces**  
RS485
- **Article number**  
8810.U051

The active ARS31Pro-UMB sensor is flush-mounted in the road or runway surface and measures the freezing temperature by means of active cooling and heating of the sensor surface. through this, it's independent from the de-icing material. In addition, it measures the road surface temperature. This surface temperature sensor is integrated into a second housing which is connected to the ARS31Pro-UMB. The distance between the two housings is 50 cm. One additional measurement is carried out to find out critical conditions in the next few hours. This early alert message delivers extra road surface condition information in addition to the real time road conditions. The two-section housing design allows the

combined electronics unit to be removed for maintenance purposes at any time, in just a few minutes. In conjunction with the interface converter 8160.UISO, the sensor can be built into new and existing UMB networks. The sensors are addressable and can be networked.

| General                 |   |
|-------------------------|---|
| Dimensions              | Ø 120mm, height 50mm                                      |
| Weight                  | Approx. 1100g   |
| Storage temperature     | -40...70°C (in packaging)                                 |
| Protection type         | IP68  |
| Power supply            | 24 VDC ±10%   |
| Connector               | CAGE CLAMP, WAGO, (cross-section <0.5mm <sup>2</sup> )    |
| Operating temperature   | -40...80°C  |
| Operating rel. humidity | 0...100% RH   |
| Power consumption       | Approx. 30 W  |
| Interface               | RS485, baud rate: 2,400...38,400 bit/s (default: 19,200), |
| Cable length            | 50m   |

| External road surface temperature |                               |
|-----------------------------------|-------------------------------|
| Principle                         | NTC                           |
| Measuring range                   | -40 ... 80 °C                 |
| Unit                              | °C                            |
| Accuracy                          | ±0.2°C (-10...10°C), or ±0.5° |
| Resolution                        | 0.1                           |

| Freezing point   |  |
|------------------|--|
| Measuring range  | -40 ... 0 °C   |
| Unit             | °C   |
| Accuracy > -15°C | ±0,5°C for T <sub>g</sub> > -15°C (with NaCl, determined according to CEN/TS 15518-4); |
| Accuracy < -15°C | ±1,5°C for T <sub>g</sub> < -15°C (with NaCl, determined according to CEN/TS 15518-4)  |