# Ambient Light Sensor

# ALS-2

## INTRODUCTION

The ALS-2 Ambient Light Sensor is designed to measure background luminance as part of an instrumented Runway Visual Range (RVR) system. Mounted alongside the runway and typically deployed with a visibility sensor, it provides the ambient light data required for accurate RVR calculation.

Developed to comply with ICAO, WMO and FAA specifications and guidelines, the ALS-2 meets all requirements for use in typical aviation RVR systems. Direct connection to a Senseca visibility or present weather sensor allows background luminance data to be embedded into the visibility sensor data string, simplifying system design, cabling and data processing, and making the ALS-2 suitable for both new and legacy installations.

- **DESIGNED TO FAA AND ICAO REQUIREMENTS**
- **0 TO 40,000 CDM-2 MEASUREMENT RANGE**
- **CHOICE OF SERIAL DIGITAL RS232 OR RS422 DIGITAL OUTPUTS**
- **SIMPLE AND QUICK IN FIELD CALIBRATION**
- **DIRECT CONNECTION TO SENSECA VISIBILITY AND PW SENSORS**
- **EXTENSIVE SELF-TEST CAPABILITIES**
- **-60°C TO 70°C OPERATING RANGE**
- **2 YEARS WARRANTY**

## FEATURES

### Background luminance for RVR systems
Provides background luminance specifically for instrumented Runway Visual Range (RVR) applications.

### Stand-alone aviation compliant sensor
Designed to meet ICAO, WMO and FAA guidance for use in aviation RVR systems.

### Flexible data interfaces
Supports integration into both legacy and new RVR installations via configurable digital outputs.

### Simple runway-side installation
Compact sensor with pole-mounting bracket and integral alignment scale for quick, accurate positioning.

### Robust operation and low maintenance
Heated window, contamination adjustment and extensive self-test functions help ensure reliable performance with reduced maintenance effort.

## CONFIGURATION & MEASUREMENT

### RVR-compliant luminance measurement
Measures background luminance in accordance with ICAO, WMO and FAA guidance, providing data suitable for use in RVR calculations.

### Combined outputwith Senseca sensors
When connected to our visibility or present weather sensor, ALS-2 luminance values are embedded in the host sensor's data string, delivering a single integrated output for the RVR system.

### Interfaces and system integration
A choice of serial data outputs allows straightforward connection to RVR controllers and monitoring systems, supporting both retrofit and new installations.

### Field calibration procedure
Using the ALS-2 Field Calibrator accessory, calibration checks and adjustments are carried out on site via an IR link through the optical window, without disconnecting cables or using specialist laboratory equipment.

## General specifications

| | |
|---|---|
| ***OUTPUTS*** | |
| Serial data outputs | RS232, RS422 OR RS485 |
| ***POWER REQUIREMENTS*** | |
| Sensor power | 9-36 Vdc |
| Hood heating power | 24 Vac or dc |
| Sensor & window heater | 2 W |
| Hood heater | 12 W |
| Extended heating | 18 W (includes hood heater) |
| ***ADDITIONAL FEATURES*** | |
| Window heater | Fitted as standard |
| Window contamination monitoring and compensation | Fitted as standard |
| ***ENVIRONMENTAL*** | |
| Operating temperature with extended heating | -40 °C to +70 °C<br>-60 °C to +70 °C |
| Operating humidity | 0 – 100% RH |
| Protection degree | IP 65 |
| ***PHYSICAL*** | |
| Material | Aluminium. Powder paint finish, with hard anodize base layer |
| Weight | 1.5 kg |
| Elevation angle range from horizontal | 0° to 45° |
| Warranty | 2 years |
| Lifetime | >10 years |

***CERTIFICATION & COMPLIANCE***

- CE Certified
- EMC compliance with EN61326-1997, 1998, 2001
- RoHS and WEEE compliant

## Ordering codes

ALS2. | | | |

Configuration
RC = regular configuration
SC = special configuration

Data ouput
B. = VPF connector - 1.5m cable with connector
D. = SWS/RS232 output - 1.5m cable with flying leads
E. = RS422/RS485 output - 1.5m cable with flying leads

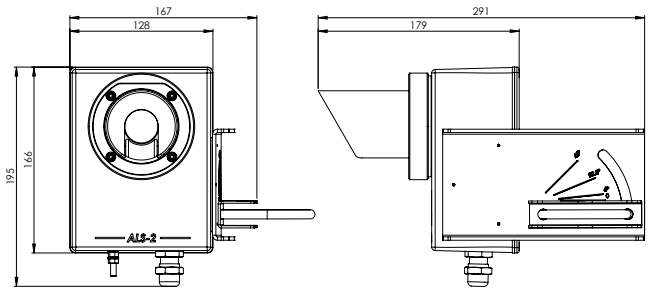
Hood heating
EH. = Extended heating
HV.= With heating
NH. = Without heating

*Example: ALS2.HV.D.RC*

## Measurement specifications

| | | |
|---|---|---|
| Measures | Luminance (ambient light) | |
| Output | Serial data | |
| Measurement range | 0-40,000 cd $m^{-2}$ | (0.5-11,700 fL) |
| Resolution | 1 cd $m^{-2}$ | (0.29 fL) |
| Measurement error | ≤ 10% of value or 2 cd m-2 (0.58 fL), whichever is greatest | |
| Spectral response | Wavelength sensitivity range 420-675 nm, peak 565 nm.<br>Analogous to CIE luminous spectral efficiency. | |
| Field of view | 6° | |
| Averaging period | 60 s | |

## Dimensions




*ALS-2 Calibrator connected to the ALS-2 for in situ calibration*

*Optional heated hood prevents snow accumulating around the optical window.*

## Accessories – Optional

| | |
|---|---|
| ALS-2.CAL | Ambient Light Sensor Calibrator |
| ALS2.WTY | 1 year extended warranty |

*The sensor is delivered in sturdy recyclable foam filled packaging with Pole mounting kit (1 x U-bolt and saddle), user manual and calibration certificates*

DOC101265.11A - vs1.0

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