

Biral's New Ambient Light Sensor

Biral are pleased to announce the introduction of a New Ambient Light Sensor, our ALS-2



Ambient Light Sensor ALS-2

- Designed to Federal Aviation Authority (FAA) requirements
- Built to existing Biral HSS and SWS design standards.
- Optical response to mimic a human observer
- Standalone or integrated to Biral HSS or SWS sensors
- Digital and/or Analogue outputs
- Extensive self-checking
- Field calibration can be carried out using the



ALS-2 Field Calibrator (optional)

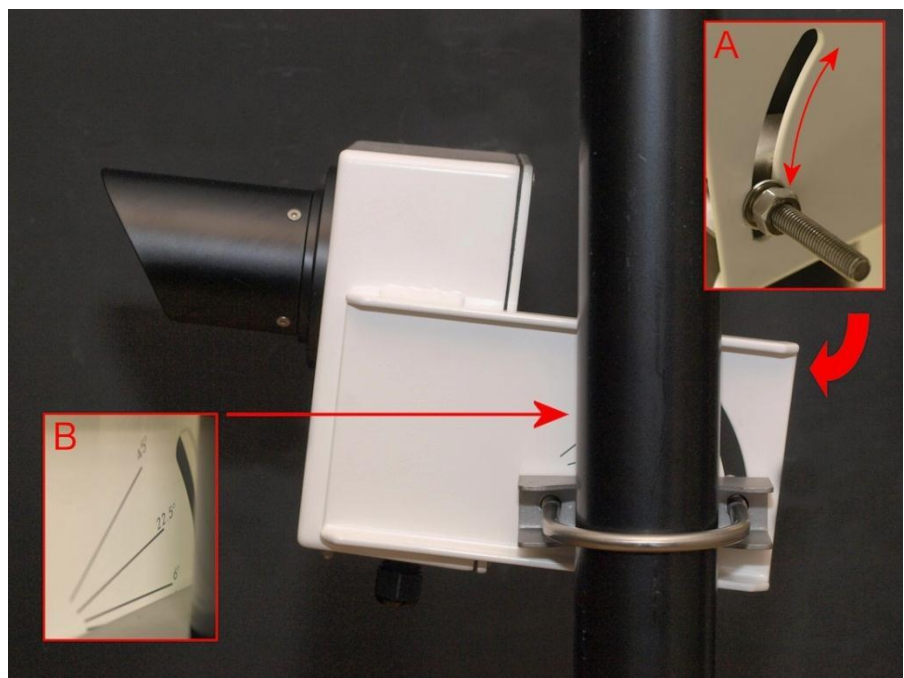
ALS-2 DESCRIPTION

The Biral ALS-2 is a sensor designed to provide an accurate and reliable determination of the amount of background light during all weather conditions. Such a sensor is usually referred to either as an Ambient Light Sensor (ALS) or Background Luminance Sensor. Such sensors are typically used as part of a system to determine the Runway Visual Range at an aerodrome. The ambient light received by the sensor's 6° field of view is focussed onto a photodiode of similar spectral response to the human eye. The output from the photodiode is used to determine the ambient light level using the standard (SI) units of candela per square metre (cd m^{-2}), averaged over one minute.

The Biral ALS-2 sensor is a significantly upgraded version of Biral's original ALS and is designed to meet the world's most stringent ambient light sensor requirements as stated by the US Federal Aviation Authority (FAA) and ICAO recommendations. This sensor offers significant versatility including the option of serial or analogue outputs and the ability to be used standalone or integrated with a Biral visibility/present weather sensor. Calibration can be checked in the field using the custom-designed portable calibration unit. Extensive self-checking is also featured to ensure optimal performance.

To ensure the sensor's viewing window remains unobstructed by precipitation, a hood is fitted around the window that has the option of being automatically heated to prevent the build-up of snow if the temperature falls below 2°C. The amount of contamination on the window is checked automatically and compensated for. The window heater is continuously active to remove any water or ice. For operation in extremely cold (below -40°C) conditions, the Biral ALS-2 has the option of additional internal heaters activated along with that on the hood, permitting full functionality down to a temperature of -55°C.

Biral Ambient Light Sensor ALS-2 – Provisional Specifications	
Dynamic range	2-40,000 Cdm ⁻² (0.5-11,700 fL)
Resolution	Digital O/P: 2 Cdm ⁻² Analogue O/Ps: 2 Cdm ⁻² for low mode (2 - 4,000 Cdm ⁻²) 10 Cdm ⁻² for high mode (10 - 40,000 Cdm ⁻²)
Measurement accuracy	<10% of value
Field of view	6°
Spectral response	Wavelength sensitivity range 420-675 nm, peak 565 nm Analogous to CIE luminous spectral efficiency.
Window contamination monitoring	Yes
Window hood and enclosure heaters	Window heater is standard, but may be disabled Hood heaters is optional Enclosure heater is optional
In-field calibration capability	Yes
Automatic self-checking	Yes
Interfacing	Sensor can operate either standalone or integrated with Biral HSS and SWS visibility and present weather sensors
Output connections	Digital: RS232, or RS422, or RS485 Analogue : Two outputs – Low Mode 0 - 4,000 Cdm ⁻² (0 – 10V) High Mode 10 – 40,000 Cdm ⁻² (0 – 10V)
Operating environment	-40°C (-55°C with optional internal heater) to +70°C 0 to 100% (condensing) relative humidity
Enclosure rating	IP66 (water and dust tight), corrosion resistant
Power	9-36 VDC for sensor and window heater, 24-28V AC or DC for hood and internal heaters. Can draw power directly from Biral HSS or SWS sensor



Biral ALS-2 installation on vertical pole. Insert A shows the adjustable mounting angle arrangement. The guide lines for popular mounting angles above horizontal are shown in insert B.