

# Product Document

# Tunable Lighting Smart System Sensor

[www.ams.com/AS7225](http://www.ams.com/AS7225)



## AS7225 – Tunable Lighting Smart System Sensor

- Accurate supervision of variable CCT and spectrally tunable lighting
- Built-in support for daylighting
- Automatic spectral and lumen maintenance over temperature and time
- Simple addressable system interface
- Rapid luminaire integration
- Complete data on lit environment

Sensing  
is life.

## General Description

The ams Cognitive Lighting™ family of products is enabling the Internet of Awareness™ through the combination of embedded sensing, sensor hub functionality, and autonomous management capabilities. IoT smart lighting adapts to the surroundings to deliver energy efficiency while meeting the aesthetic and quality of light needs of the users and spaces it serves. The AS7225 IoT Smart Lighting Director incorporates an embedded digital tri-stimulus chromatic 'calibrated for life' nano-optic sensor providing direct

CIE1931 XYZ and CIE 1976 u'v' coordinate mapping. Adaptive algorithmic support enables a companion microprocessor to implement closed-loop, autonomous adjustment of variable CCT and daylight responsive LED lamps and luminaires. The AS7225 arrives pre-calibrated, and is designed for rapid integration into white-tunable and daylight responsive luminaire designs, delivering directives to the local microprocessor via an industry-standard I<sup>2</sup>C bus.

## Benefits

- Accurate supervision of variable CCT and spectrally tunable lighting
- Built-in support for daylighting
- Automatic spectral and lumen maintenance over temperature and time
- Simple addressable system interface
- Rapid luminaire integration
- Complete data on lit environment
- Lifetime-calibrated sensing with no drift over time or temperature
- Small package, wide operating range with critical optics built-in

## Applications

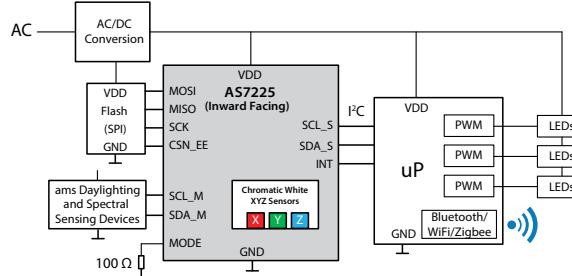
- Variable CCT chromatic tuning luminaires and systems
- Daylighting-responsive luminaires and systems
- Commercial, retail, and residential white tunable/Kelvin-changing LED lighting systems
- Smart lighting systems

## Features

- XYZ tri-stimulus chromatic sensing complemented by algorithmic closed loop target CCT and lux tuning directives
- Native support for specific I<sup>2</sup>C add-in ambient light sensors, such as the ams TSL4531
- Autonomous color point and lumen output adjustment resulting in automatic spectral and lumen maintenance
- Direct register/tuning command read and write (I<sup>2</sup>C), with interrupt on directive-ready
- Simple register-based commands to control and configure key light-tuning supervisory and IoT sensor expansion functions
- Readable registers for CIE 1931 and 1975 color-point coordinates, CCT, duv and lux
- Nano-optic silicon interference filters
- 20-pin LGA package 4.5 x 4.7 x 2.5mm, 0°C to +85°C

## Block Diagrams

AS7225 Color Tuning, Daylighting & Spectral Presence Application  
(Inward looking plus ambient light and spectral presence sensor expansion)



AS7225 Daylighting & Spectral Presence-only Application (Outward looking)

