

# Spectral Tuning IoT Smart Lighting Manager

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## **AS7221 Spectral Tuning IoT Smart Lighting Manager: World's first chip-scale white-color tuning integrated lighting manager**

- Accurate measurements of ambient brightness and color in luminaires
- Direct mapping to CIE 1931 standard observer color space
- Automatic lumen and color maintenance over temperature and time
- PWM drive for control of LED channels, 0-10V for dimming control
- Serial UART for simple interface to standard network clients

**We provide innovative analog solutions to the most challenging applications in sensor and sensor interfaces, power management, and wireless.**

## General Description

The AS7221 Cognitive Lighting™ family of products enable lights to be “aware” adapting to their surroundings to autonomously manage lighting to meet esthetic, quality and energy efficiency needs. This network-enabled Smart Lighting Manager incorporates an embedded digital tri-stimulus true color nano-optic sensor providing direct CIE1931 XYZ and CIE 1976 u'v' coordinate mapping for closed-loop, autonomous adjustment of variable CCT and spectrally-tunable LED lamps and luminaires. Luminaire control is accomplished through 0-10V compatible dimming input, plus 3 direct PWM channels,

one of which can be optionally enabled for 0-10V analog dimming output. Access to the simple text-based Smart Lighting Command Set is enabled by inclusion of a serial UART interface, which allows easy integration to standard network clients. Built-in support for daylight harvesting is available with the addition of supported ams ambient light sensors, such as the TSL4531. Wider IoT-connected sensor expansion is accomplished via the integrated I<sup>2</sup>C interface that is fully supported with bridge commands within the Smart Lighting Command Set.

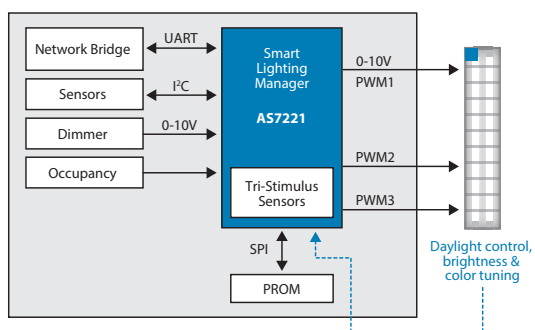
### Applications

- Smart home and smart building
- Variable CCT general lighting industrial lighting
- Retail and hospitality lighting with white-color tuning
- LED troffers, panel and downlights
- LED replacement lamps (LED bulbs)

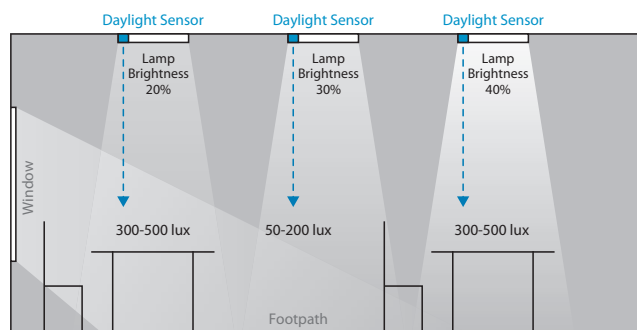
### Features

- Integrated sensing with autonomous luminaire management
- CCT-tunability corresponding to CIE 1931 color space
- Extensible capabilities to support daylight harvesting
- Configurable scene-based operation options
- IoT sensor hub capabilities via I<sup>2</sup>C expansion bus and networking

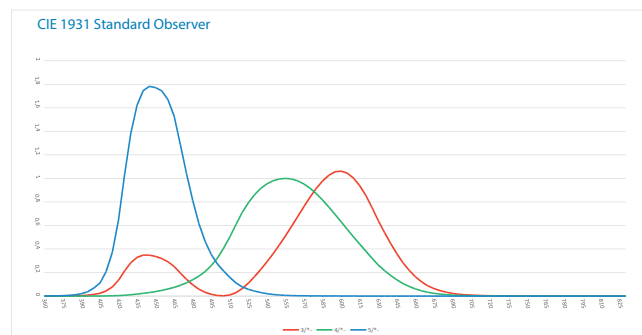
### Color and brightness control



### Daylight harvesting



### XYZ tri-stimulus sensor



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