

# 11-Channel Multi-Spectral Sensor Module

AS7341 Breakout

Light for the future

**Ewellite Photonics**

## Description

Ewellite Photonics has taken the AS7341 multi-spectral sensor ([https://ams.com/documents/20143/36005/AS7341\\_DS000504\\_3-00.pdf](https://ams.com/documents/20143/36005/AS7341_DS000504_3-00.pdf)) and created a convenient breakout board with selectable LED spectra. The AS7341 is a multi-spectral sensor produced by AMS. It is capable of measuring the color and amount of light in discrete channels ranging from visible to NIR. The breakout board and LEDs are controllable using I<sup>2</sup>C and GPIO interface. Additionally, the Ewellite Photonics AS7341 module is *Arduino and Raspberry Pi compatible* with existing libraries.



***Ewellite Photonics give the option of 6 different LED spectral configurations*** (see options below).

## Features

- 11 optical channels
  - 8 visible channels
  - 1 NIR channel
  - 1 clear channel
  - 1 FD (flicker detection) channel
- 16-bit 6-channel ADC
- Independent configurable timing and gain
- Auto gain adjustment
- 50 and 60Hz flicker detection flags
- Electronic shutter/trigging through GPIO
- Extended head for contact applications and small form factor requirements

## Electro-Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
Storage Temp.	T <sub>st</sub>		<40		°C	
Operating Temp	T <sub>ot</sub>	-30		85	°C	
Soldering Temp.	T <sub>sol</sub>			260	°C	Max 10 sec
Supply Voltage	V <sub>cc</sub>	2	3.3, 5	6	V	
Supply Current	I <sub>Q</sub>		±100		mA	Latch-up immunity
Spectral Detection Range	λ	350		1050	nm	Clear channel
I <sup>2</sup> C Clock Freq	f <sub>SCL</sub>			400	kHz	Adjustable

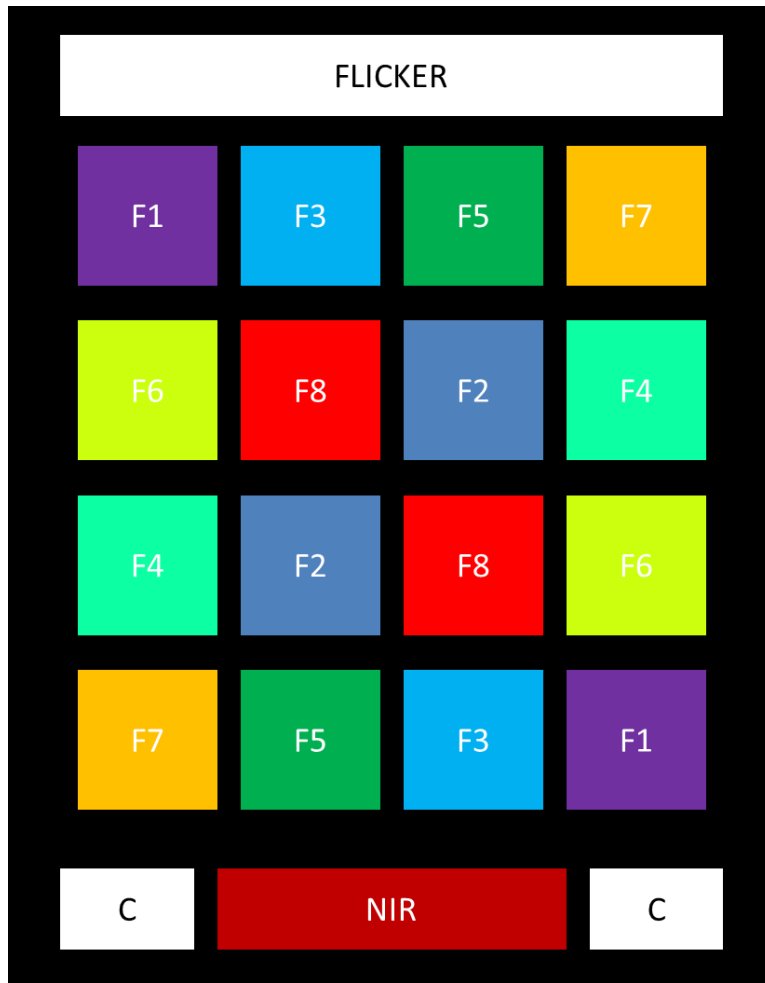


Figure 1. AS7341 spectral sensor layout. Typical central wavelength - F1(415nm), F2(445nm), F3(480nm), F4(515nm), F5(555nm), F6(590nm), F7(630nm), F8(680nm), NIR(910nm)

## LED Spectra Options

Ewellite Photonics has 4 standard LED spectral options (see Fig. 2 and Fig. 3).

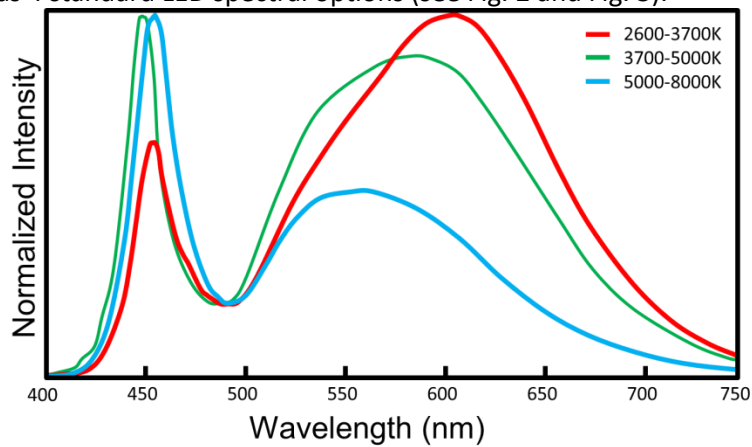


Figure 2. Visible LED spectra options. Ewellite Photonics can customize the emission spectra.

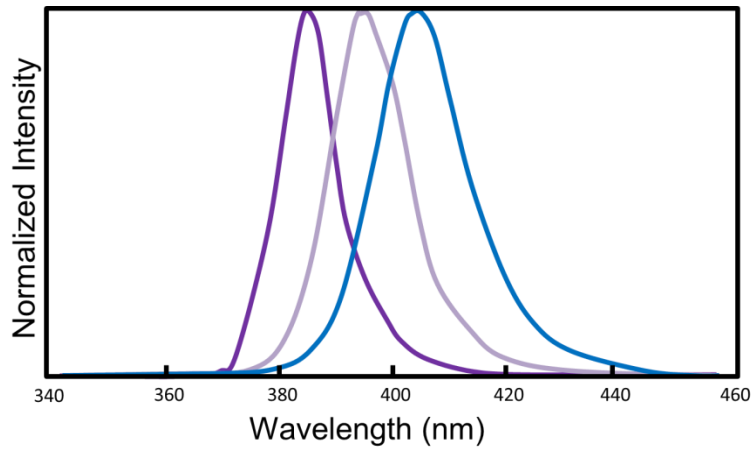
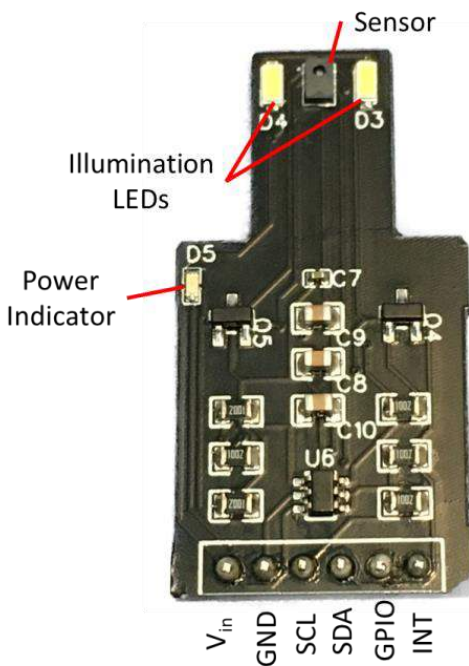


Figure 3. UV/Violet LED spectra options. UV/Violet LEDs are used for emission spectra measurements.

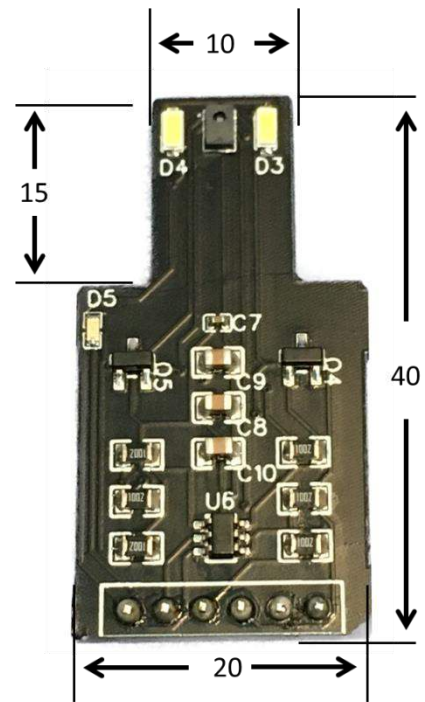
### Example Applications

- Color measurements / L\*A\*B\* determination / Test strip color measurement
- Spectral power distribution / Color de-mixing
- Flow spectrometry
- Display color management
- Light color temperature adjustment
- Agricultural plant health measurement
- Emission spectral measurements

### Board Layout



### Board Measurements



Dimensions (mm)

Vin – Power pin for 2 – 6V input  
GND – Common ground  
SCL – I2C clock pin with a 10K pullup resistor  
SDA – I2C data pin with a 10K pullup resistor  
INT – Interrupt pin for programming conditions  
GPIO – General Purpose Input Output for controlling the AS7341 and triggering measurements

### **Part numbers for LED customization**

EP-AS7341-2600	(for LED 2600-3700K)
EP-AS7341-3700	(for LED 2700-5000K)
EP-AS7341-5000	(for LED 5000-8000K)
EP-AS7341-385	(for LED 385nm)
EP-AS7341-395	(for LED 395nm)
EP-AS7341-405	(for LED 405nm)

Custom board sizes and customized LED spectra is available by contacting [ewellitephotonics@gmail.com](mailto:ewellitephotonics@gmail.com)

**Caution:** ESD can damage the device. Please use proper grounding protocols to avoid malfunctioning and potential damage to the device.