OPTOSKY
Spectroscopy Solutions

Rotating Scanning Hyperspectral Imager	ATH3110

Features

- Rotating scanning imaging, the scanning angle range is adjustable;
- High sensitivity hyperspectral imager;
- High stability and high blue synthetic lighting source, and the power and spectrum type are adjustable;
- High-performance image sensor, extremely cost-effective
- Optical design with high imaging quality on the whole target surface, the spot diameter is smaller than 0.5 pixels
- The objective lens interface is a standard C-Mount, which can be changed according to user needs change objective lens
- Wavelength range: 400-1000nm, 900-1700nm or 400-1700nm
- High spectral resolution: 1.3 nm@visible light, 3.5nm@short wave infrared
- Excellent imaging performance

Application

- Universities and research institutes;
- Biomedicine
- Agricultural applications: pest monitoring, nutrient monitoring, disaster assessment, crop yield estimation, etc.
- Forestry applications: tree species identification, biomass estimation, nutrient element monitoring, forest health, etc.
- Water environment application: inversion of water quality parameters, analysis of spatial distribution and migration characteristics of water pollution
- Soil monitoring: soil water content monitoring, soil fertility monitoring
- Geological applications: mineral mapping, mineral composition detection, ore-forming prediction

Description

ATH3100 is a miniature hyperspectral imager with small size and light weight. In addition to small size and light weight, ATH3100 has high spatial resolution, High spectral resolution, wide imaging range and other characteristics. ATH3100 also comes with a high stability and high blue synthetic lighting source, and the power and spectrum type are adjustable.

ATH3100 consists of two parts: a hyperspectral imager, a fully automatic electric rotating stage, and 4 fixed lighting sources. The hyperspectral instrument is based on high-efficiency transmission grating technology and has good aberration characteristics.

ATH3100 can also be installed on a tripod or pole, and Automatic calibration devices, weather monitoring sensors, etc., so as to realize long-term and large-area scanning of targets.

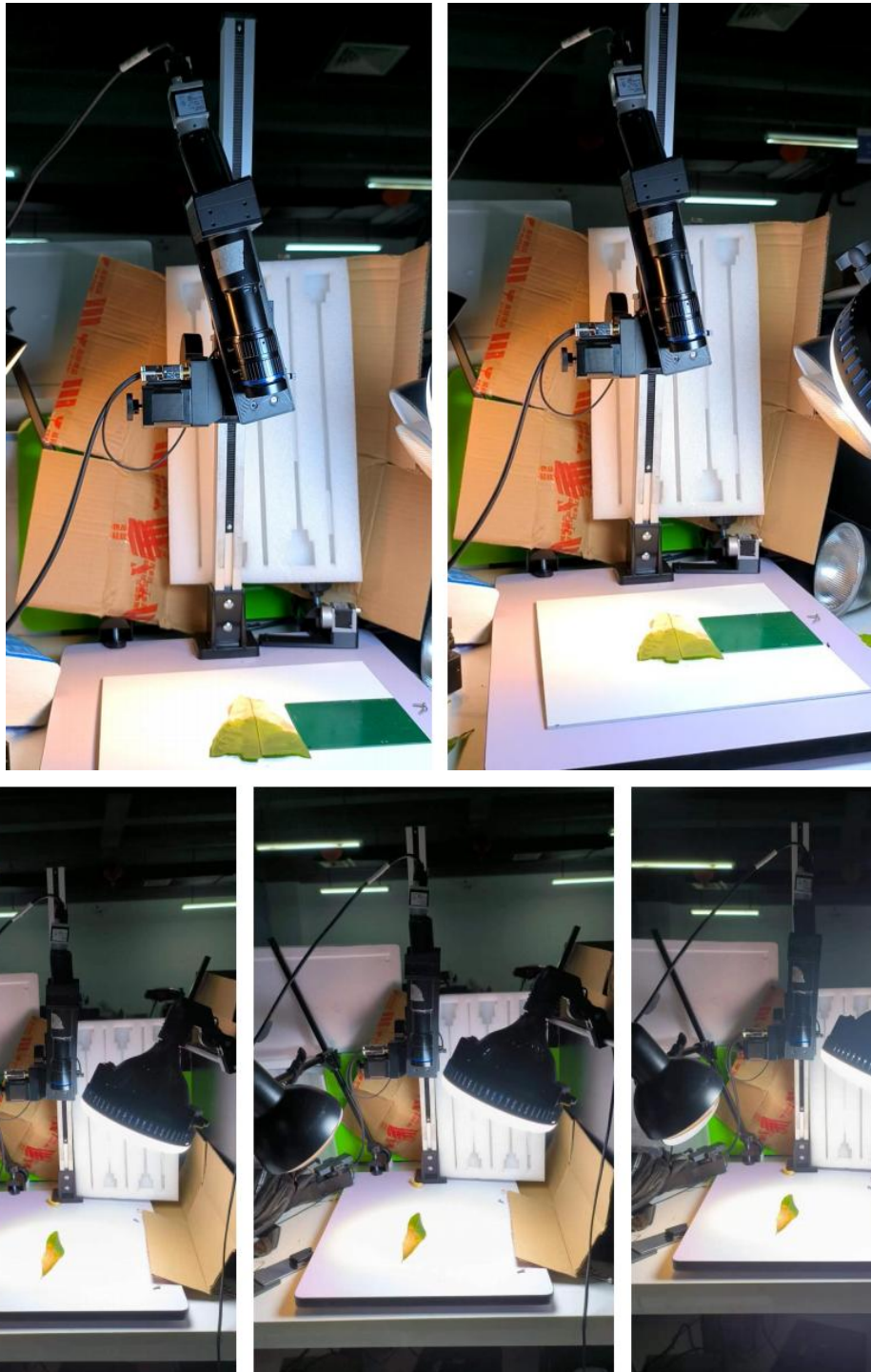| Model	Feature Description
ATH3100	basic type, 370~1000nm
ATH3100W	wide field of view, 370~1000nm
ATH3100-17	Shortwave Infrared Hyperspectral, 900~1700nm
ATH3100-25	shortwave infrared hyperspectral, 1200~2500nm
ATH3100-4-17	Broadband range, 370~1700nm

1

1. parameter

NO.	index	ATH3100	ATH3100W	ATH3100-17	ATH3100-25
1	Spectral range	370~1000nm	370~1000nm	900~1700nm	1200~2500nm
2	best spectral score resolution	1.3 nm	1.3 nm	3.5nm	7.2nm
3	sampling interval	0.37nm	0.37nm	1.56nm	2.54nm
4	F number	F/2.6	F/2.6	F/2.6	F/2.6
5	detector	CMOS	CMOS	InGaAs CCD	Cooled InGaAs CCD
6	Detector interface	USB3.0	USB3.0	USB3.0	USB3.0
7	Detector power supply	USB powered, 3.4W	USB powered, 3.6W	12V, 14.5W	12V, 30W
8	Detector target size	11.26mm x 5.98mm	11.26mm x 11.26mm	NA	6.4X5.12
9	Detector native resolution	2048 × 1088	2048 × 2048	640X512	320X256
10	Detector original pixel size	5.5 µm x 5.5 µm	5.5 µm x 5.5 µm	15 µm x 15 µm	20 µm x 20 µm
11	pixel depth	12 bits	12 bits	14 bits	14 bits
12	Slit width	25 µm, other widths are customizable	25 µm, other widths are customizable	30 µm, other widths are customizable	
13	Recommended way to merge pixels	4x4 or 2x4	4x4 or 2x4	1X2 or none	1X2 or none
14	Number of spatial dimension bands	512 or 1024	512 or 1024	640	640
15	Number of spectral bands	300 or 600	512 or 1024	512	512
16	Field of view (FOV)	15.2°@f=35mm	15.2°@f=35mm	NA	NA
17	Instantaneous field of view (IFOV)	0.7mrad@f=35mm	0.7mrad@f=35mm	NA	NA
18	Maximum frame rate	340 fps	140 fps	270 fps	270 fps

19	Size	306 mm x 300 mm x 162mm	306 mm x 300 mm x 162mm	306 mm x 300 mm x 162mm	306 mm x 300 mm x 162mm
20	Weight	Less than 8.5 Kg	Less than 8.5 Kg	Less than 8.8 Kg	Less than 10.5 Kg
21	Operating temperature	-10 - 50℃	-10 - 50℃	-10 - 50℃	-10 - 50℃
22	storage temperature	-30-70℃	-30-70℃	-30-70℃	-30-70℃
23	scanning method	Rotary Pushbroom Imaging			
24	data acquisition software	Flexible setting of exposure time, dynamic display of real-time hyperspectral images and spectral curves			
25	data analysis software	One-click acquisition of cluster analysis, single-band, true-false color, more than 20 vegetation indices (customizable), image 3D cropping, target spectrum identification and other images without third-party software, all of the above functions can realize unattended batch processing			
26	Software display	Dynamic real-time display of hyperspectral images, scientific light and dark focusing, avoiding artificial visual focusing errors			
27	Hyperspectral camera communication method	USB3.0			
28	Lighting source	● High stability constant power high blue light synthetic surface light source ● Power and spectrum type can be adjusted (it is strongly recommended to use ATP9100 ground object spectrum for spectrum type monitoring).			
29	Number of light sources	2-4			
30	Service life (optional)	≥10000h			

![OPTOSKY Spectroscopy Solutions] **Datasheet**

2. ATH3100 physical photo

Front view of ATH3100

(the top cable is the data cable of the hyperspectral imager, and the cable in the middle is the control signal cable of the turntable)

Product data information is current as of publication data. Products conform to specifications per the terms of Optosky Standard warranty.

4

**Copyright © Optosky(Xiamen) Photonics Inc. 2015
1503 Bld. A04, 3rd Software Park, Jimei, Xiamen, 361005, China
Tel: +86-592-6102588**