

SWIR Hyperspectral Camera

ATH1010-17

Features

- Wavelength: 900~1700nm
- Spectral resolution: 3.3~4.8 nm
- Optical bench: PGP design
- Max. FOV: 31.7°
- Min. FOV: 1.2 mrad
- Excellent imaging quality
- Advanced algorithm for impression images
- Compact size
- Light weight < 1450g
- No mechanical scan improve reliability

Application

- Geology and mine exploration
- Agricultural growth and output appraisal
- Forestry and plant disease monitor
- Fire prevention monitor
- Coastline and sea environment monitor
- Pasture grass production and growth monitor
- Lake and river monitor
- Remote sensing teaching & research
- Meteorological research
- Ecosystem protection and mine monitor
- Water quality, soils monitor
- Agriculture and animal products quality
- Military, defense and land security
- Disaster prevention

Description

ATH1010-17 is compact and light SWIR hyperspectral camera fit to be mounted to the drone. With features of high spatial and spectral resolution, wide field imaging.

ATH1010-17 is made of two parts, imaging camera and hyperspectrometer applied transmission grating technology and excellent aberration.

ATH1010-17 uses high resolution & performance cooled InGaAs CCD with 640×512 pixels or 1280×1024 pixels, clear imaging and low noise. ATH1010-17 shape long tube fit to multi-rotor drone. But ATH1010-17L shape bending optical bench design can fit more to fixed wing drone or short landing gear drone.

ATH1010-17 can fit to in field measure spectral information of plants, water, soils, the obtained spectrum used for analysis. The physical and chemical properties of plants build modeling with spectral database to be applied to plants classification, plants growth etc. With compact design, high resolution, push broom imaging, this hyper camera can be extended to many application in field, including rotary and indoor scan system, mounted on the drone for remote sensing.

Model	Features
ATH1010-17	640×512 pixels, cooled down to 0°C
ATH1010-17HR	High resolution, 1280×1024 pixels, cooled down to -10°C
ATH1010-17DP	Deep cooled down to -70°C, 640×512 pixels
ATH1010L-17	L-shape design fit to fixed wing drone or with short landing gear
ATH1010L-17HR	L-shape design, 1280×1024 pixels, fit to fixed wing drone or with short landing gear
ATH1010L-17DP	L-shape design, cooled down to -70°C, 640×512 pixels

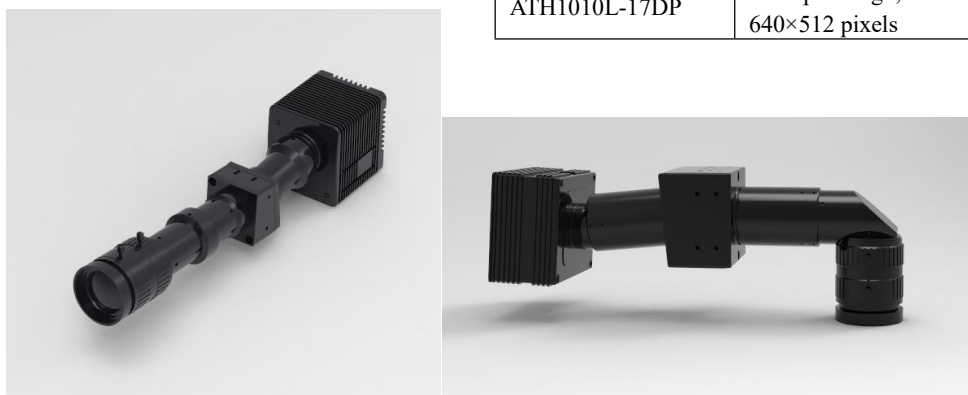


Fig 1 ATH1010-17 straight tube shape ATH1010L-17 L-shape design for fixed wings

SN	ITEMS	Specification		
		ATH1010-17	ATH1010-17HR	ATH1010-17DP
1	Spectral Range	900~1700nm	900~1700nm	900~1700nm
2	Max spatial Bands	512	1024	512
3	Max Spectral Bands	640	1280	640
4	Spectral Resolution (FWHM)	< 4.3 nm	< 3.5 nm	< 4.3 nm
5	Sampling Interval	1.25 nm	0.64 nm	1.25 nm
6	F/#	F/2.0	F/2.0	F/2.0
7	(FOV)	15.2°@f=35 mm	14.6°@f=35 mm	15.2°@f=35 mm
8	(IFOV)	2 mrad@f=35 mm	1.1 mrad@f=35 mm	2 mrad@f=35 mm
9	Sensor	Cooled InGaAs CCD	Cooled InGaAs CCD	Vacuum Cooled InGaAs CCD
10	Max frame rate	240 fps	66 fps	100 fps
11	Data interface	USB3.0	USB3.0	CameraLink
12	Power supply	12V DC, 2.5A	12V DC, 3.5A	12V DC, 15A
13	Power Consumption	11W	16W	120W
14	Sensor Resolution	640×512	1280×1024	640×512
15	Raw Pixel Size	15 μm x 15 μm	5 μm x 5 μm	15 μm x 15 μm
16	Bit Depth	14 bits	12 bits	16 bits
17	SNR	45 dB	43 dB	62 dB
18	Slit Width	15 μm, 25μm optional	15 μm, 25μm optional	10 μm, 25μm optional
19	Binning Mode	2×2	4×4 / 2×4	2×2
20	Dimension	319 mm × 127 mm × 125 mm	335mm × 96 mm × 96 mm	355mm × 147 mm × 115 mm
21	Weight	1450 g	1550 g	2650g
22	Working Temperature	-20 ~ 50°C		
23	Storage Temperature	-30 ~ 70°C		

Remarks:

*1: Measure in the 2X2 binning, Binning can improve SNR, ATH1010 imaging test

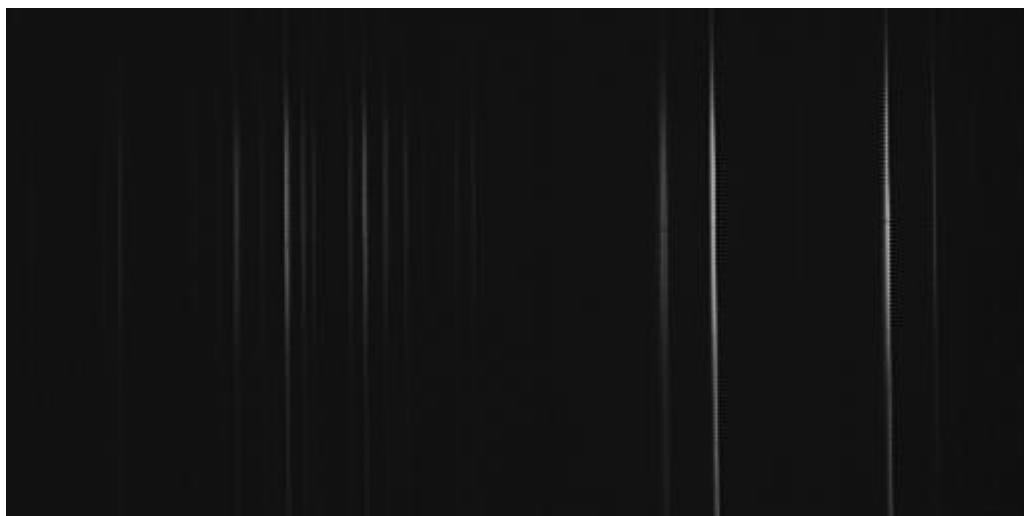


Fig 1 ATH1010-17spectrum

1.ATH1010-17 Dimension

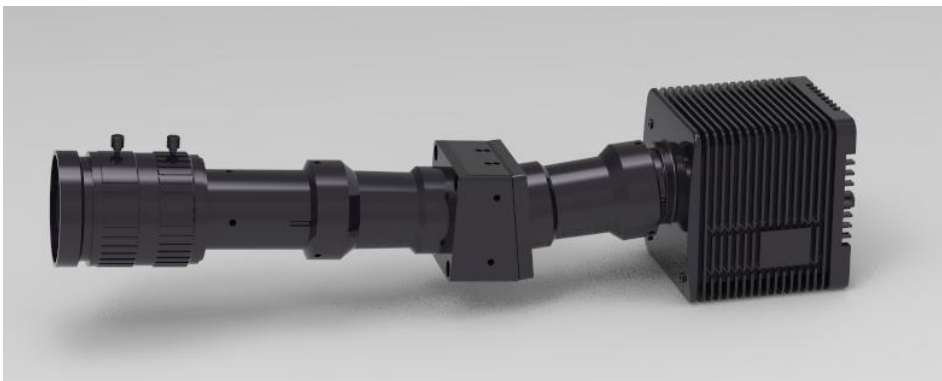




Fig 2 ATH1010 outlook design

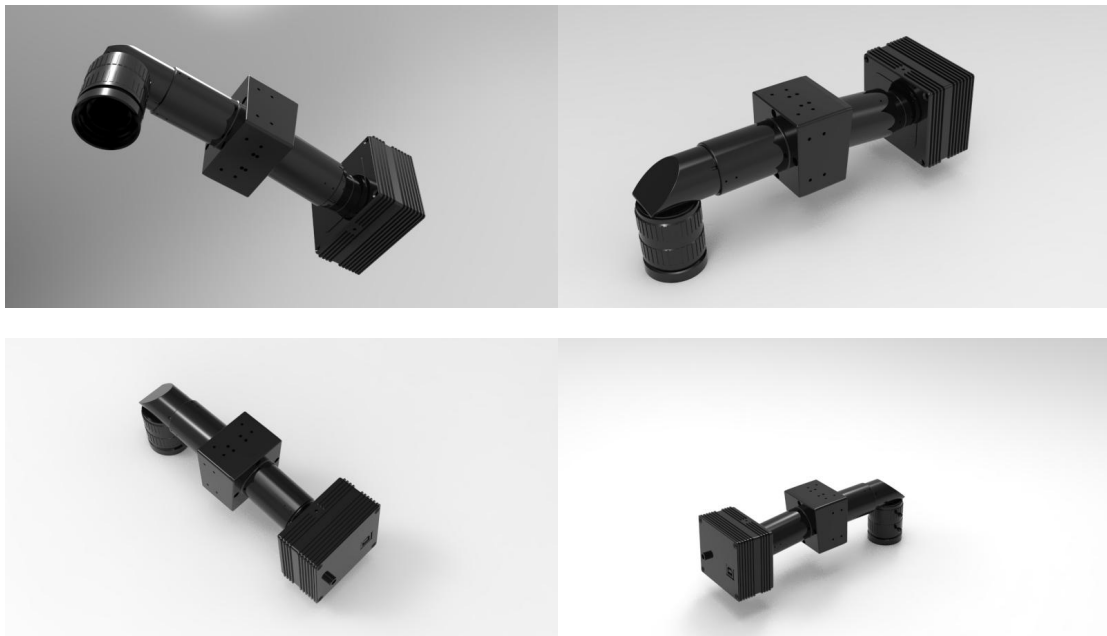


Fig 3 ATH1010L-17 outlook design

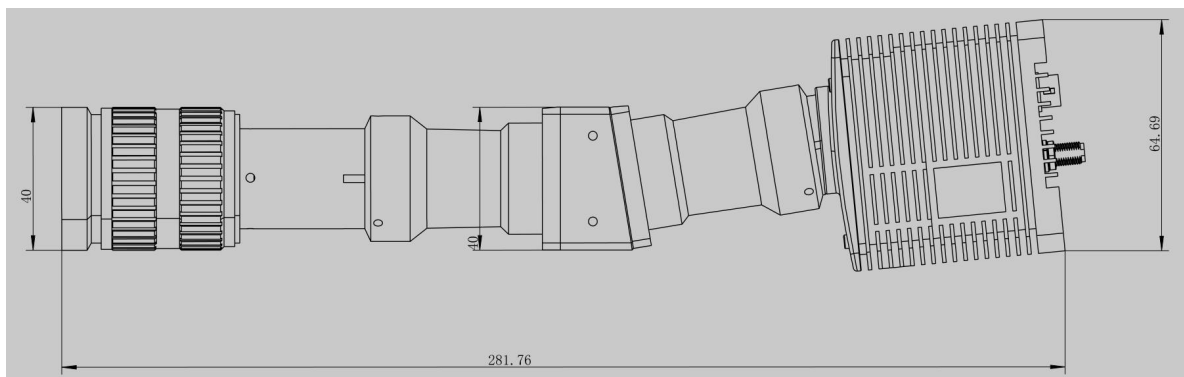


Fig 7 ATH1010-17 outlook drawing