

## Built-In Push-Broom Portable Hyperspectral Imaging System

### ATH6100

#### Features

- Built-in push-broom structure, Auto focus system
- Built-in large-capacity lithium battery, can work in the field
- Maximum band range: 400~2500nm
- High spectral resolution:  $\leq 1.3\text{nm}$
- Wide field of view:  $23.5^\circ @ f=25\text{mm}$
- Can be controlled by mobile phones, iPads, laptops and other devices
- Automatic integration time recommendation, recommended exposure time based on sample reflectivity

#### Application

- Scanning and restoration of cultural relics, restoration of murals
- Digitization of Calligraphy and Painting
- Textiles: copying of patterns, reproduction of pictures
- Mineral Screening
- Agriculture: Leaf, Tobacco Leaf Scanning

#### Description

ATH6100 is a series of ultra-portable hyperspectral imaging instruments independently developed and designed by AOPU Tiancheng with independent technical intellectual property rights. The system covers visible light to short-wave infrared bands. The ATH6100 has a built-in scanning mechanism, which can perform hyperspectral scanning and imaging of the target without large-scale rotation of the camera; in addition, the ATH6100 also has a built-in lithium battery, a central processing unit, etc., and an optional autofocus system, and has a high-resolution rate, high definition, high quality, etc.

ATH6100 can be controlled by mobile phones, iPads, laptops and other terminal devices, enabling the system to perform real-time image acquisition and scanning, real-time calibration, and real-time result output. Spectral information, to achieve the goal of "map integration". ATH6100 adopts high-resolution CCD imaging device, with clear imaging and less noise. It is especially suitable for scanning and imaging large-sized flat samples, such as murals, calligraphy and paintings, and textiles.



## 1. Selection Guide

Items	Specification	
ATH6100	380-1000nm Spectral Range	
ATH6100-17	900-1700nm Spectral Range	
ATH6100-25	1200-2500nm Spectral Range	
ATH6100-4-17	380-1700nm Spectral Range	

## 2. Technical Parameters

Number	Index	ATH6100	ATH6100-17	ATH6100-25	ATH6100-4-17	NA	
1	Spectral range	380~1000nm	900~1700nm	1200~2500nm	380~1700nm		
2	Spectral resolution	Superior to 1.3nm	Superior to 4.5nm	Superior to 8nm	Visible: Superior to 1.3nm SWIR: Superior to 4.5nm		
3	Maximum number of spatial channels	1200	512	512	1200		
4	Maximum number of spectral channels	1920	640	640	2560		
5	Dynamic Range	12bit	16bit	16bit	Visible: 12bit SWIR: 16bit		
6	Imaging lens*1	Manual focus (autofocus optional)	Infrared Enhanced Lens (autofocus optional)	Infrared Enhanced Lens (autofocus optional)	Infrared Enhanced Lens (autofocus optional)		
7	Lithium battery life	>3h	>2.5h	>2.5h	>2.5h		
8	Data interface	USB3.0					
9	Power supply	24VDC, 5A					
10	Visible light camera resolution	>8,000,000 pixels					

Note:

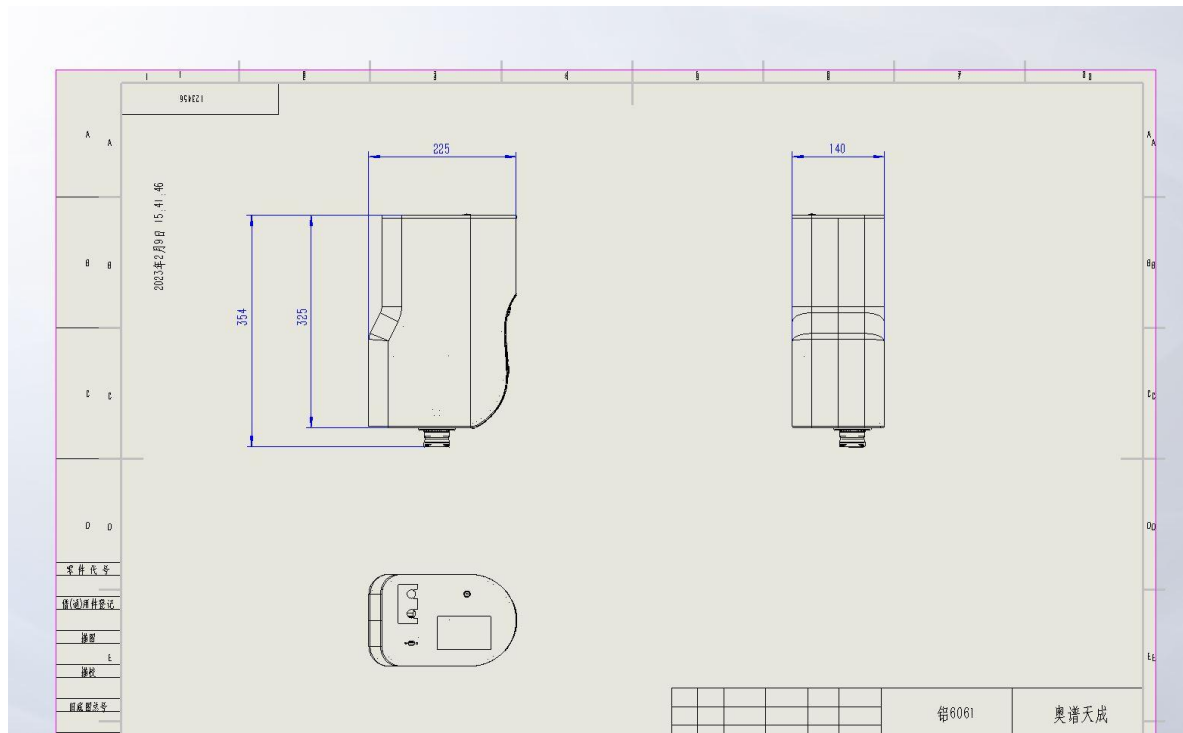
\*1: The imaging lens is standard with a focal length of 25mm, and other focal length lenses are optional;

\*2: This product is independently developed by Opu Tiancheng. The parameters in the table are for reference only, and other parameters can be customized.

## 3. Appearance



## 4. Dimensions



## 5. Application effect display

### 5.1 Restoration of ancient calligraphy, paintings and murals

The background color of the heart of "Lun Dao Tu" is dark yellow due to the long-term aging of rice paper. Through image processing, it is found that the grayscale image of the second band of MNF highlights the ink line information in the painting, dilutes the color of the paper, improves the resolution of the font, and is easy to recognize. The effect comparison before and after processing is shown in Figure 2.

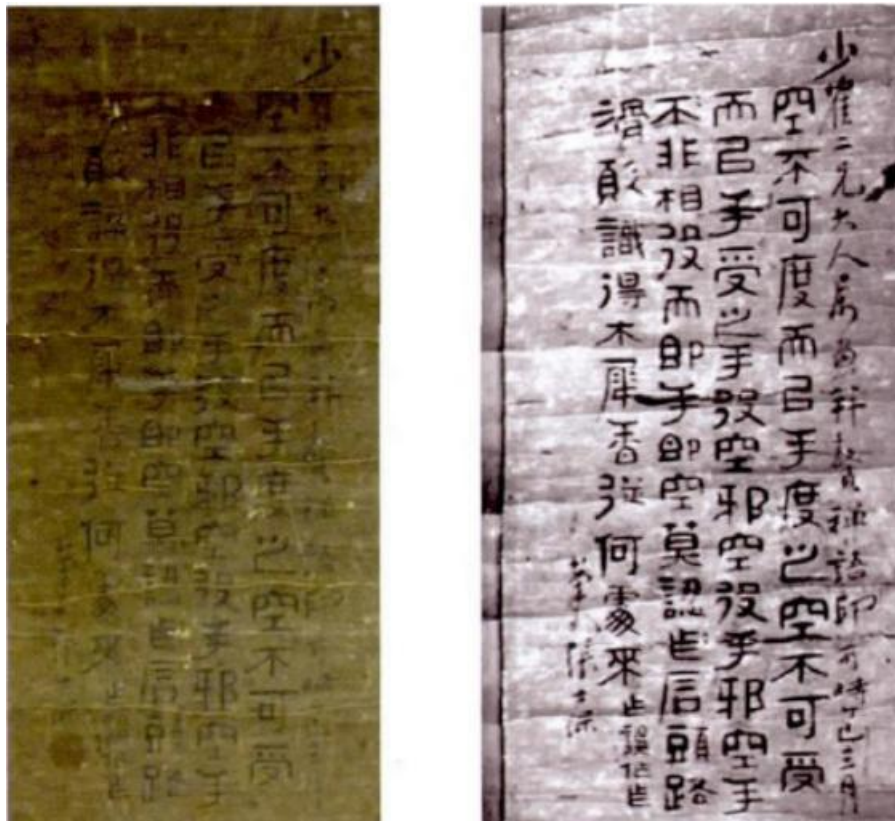


Figure 2 text part image and MNF-Band2 enhancement effect.



Figure 3 Two digital images of the seal, the original image of the seal is in the middle, and the image of the seal after hyperspectral processing is on the right.



Figure 4 is the image of the person after hyperspectral enhancement, the left is the original image, and the right is the image after hyperspectral processing.

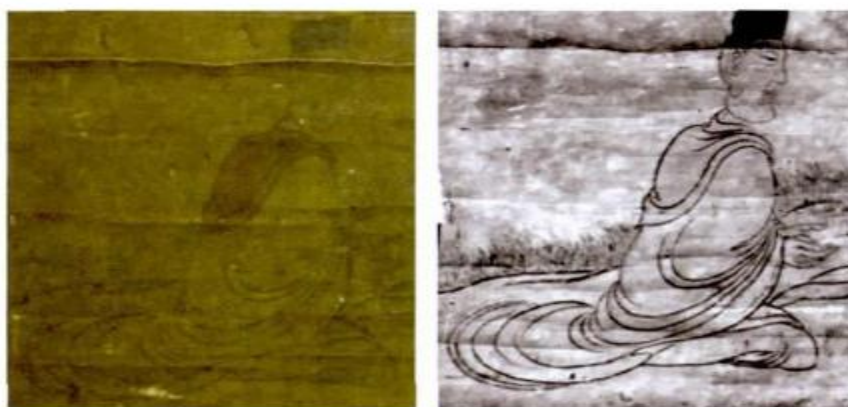


Figure 5 is the image of the person after hyperspectral enhancement, the left is the original image, and the right is the image after hyperspectral processing.

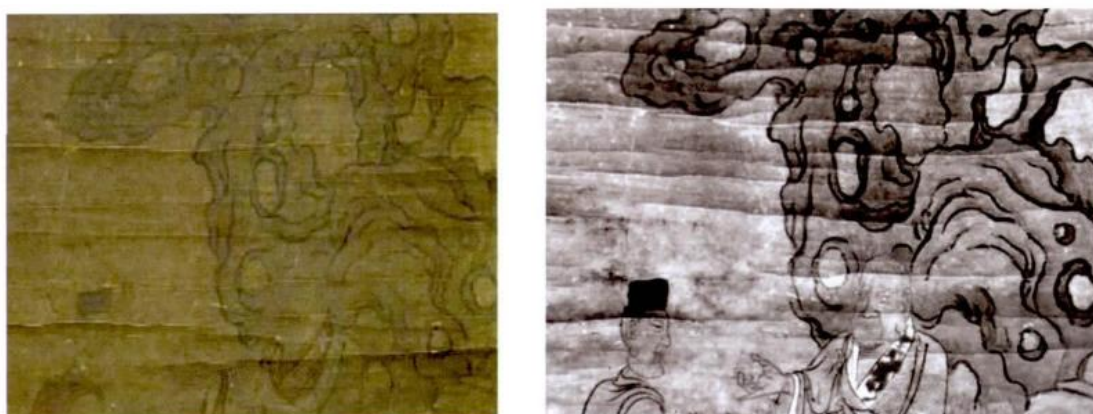


Figure 6 is the image of the rockery enhanced by hyperspectral, the left is the original image, and the right is the image after hyperspectral processing.