Product Description

ASI1600MM Pro
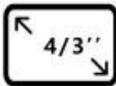
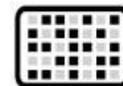|			
CMOS Sensor MN34230	4/3'' 4/3'' 17.7*13.4mm	Resolution 4656*3520	ADC 12bit
Read Noise 1.2e	Cooling Temp ↓45℃	DDR3 Buffer 256mb	USB 3.0
FPS 23	Full well 20000e	QE 60%	Pixel Size 3.8μm

DDR Memory Buffer

DDR memory buffer is the main difference between ASI "Cool" and "Pro" cameras.

ASI1600 Pro camera includes a 256MB DDR3 memory buffer to help improve data transfer reliability. Additionally, the use of a memory buffer minimizes amp-glow, which is caused by the slow transfer speeds when the camera is used with a USB 2.0 port.
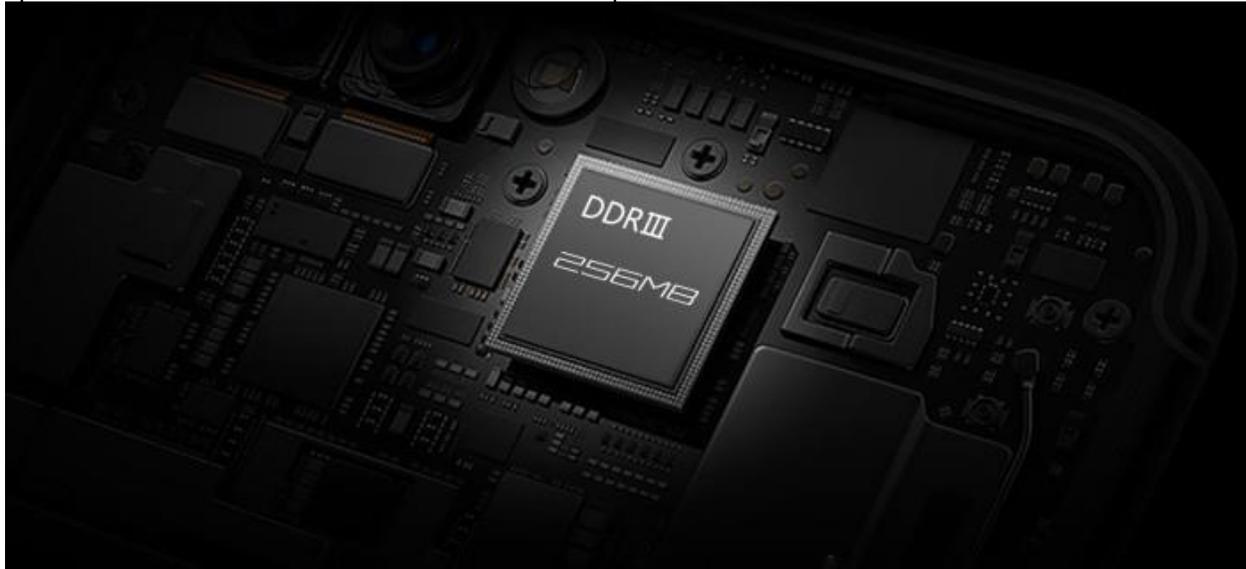

Astrophotography Performance

ASI1600 Pro offers very good performance for astrophotography. Low read noise, Low dark current, high dynamic range.
ASI1600 build in 12bit ADC but can provide 12.5 stops dynamic range which is even better than KAF8300 due to its super low read noise.

Read noise, full well, gain and dynamic range for ASI1600

FW=20k

FW(e-)

GAIN(e-/ADU)

Gain=139

DR(stops)

Read noise(e-rms)

Gain(unit 0.1dB)
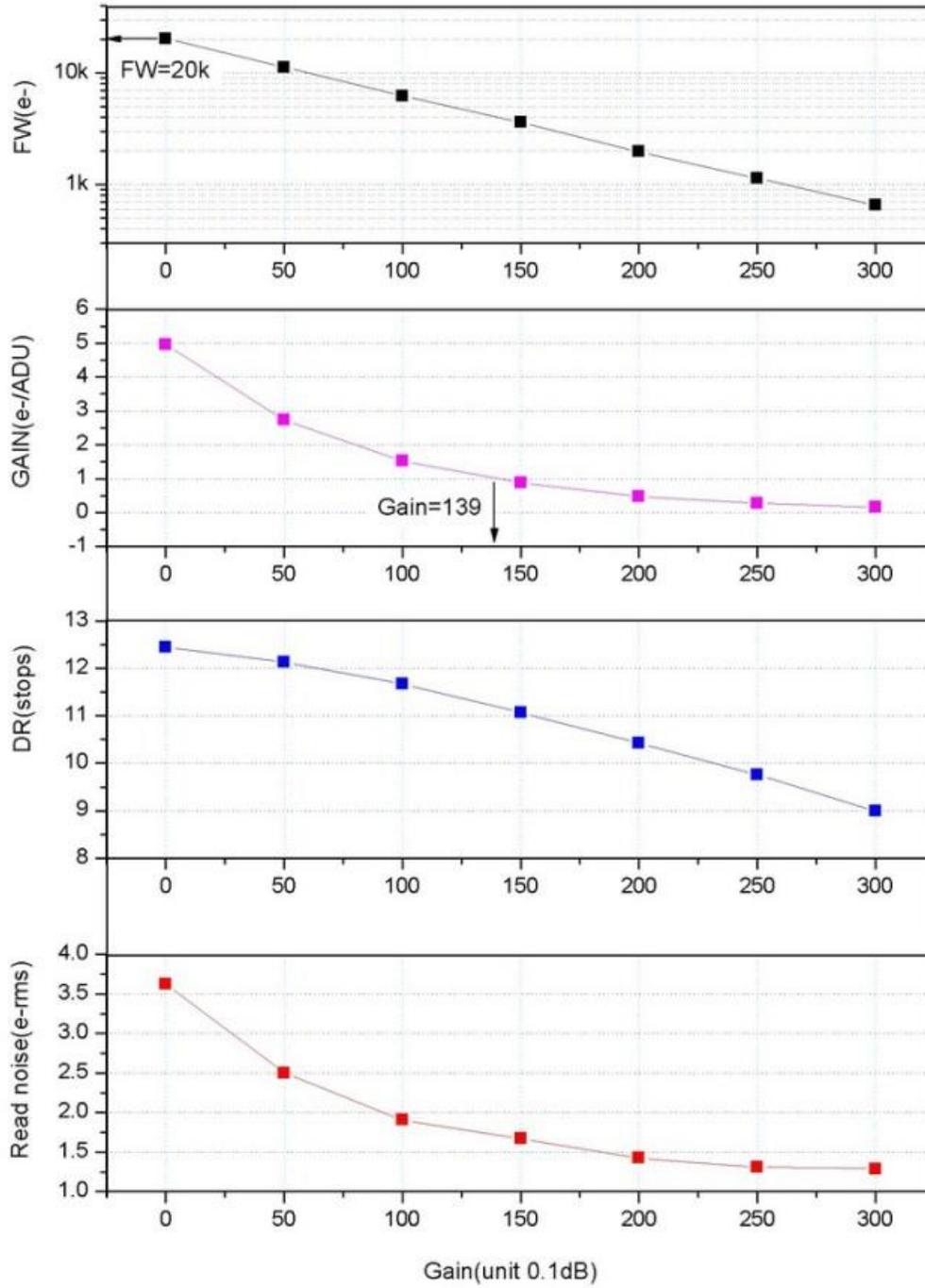
QE Graph

We suppose the QE peak value is more than 60%.
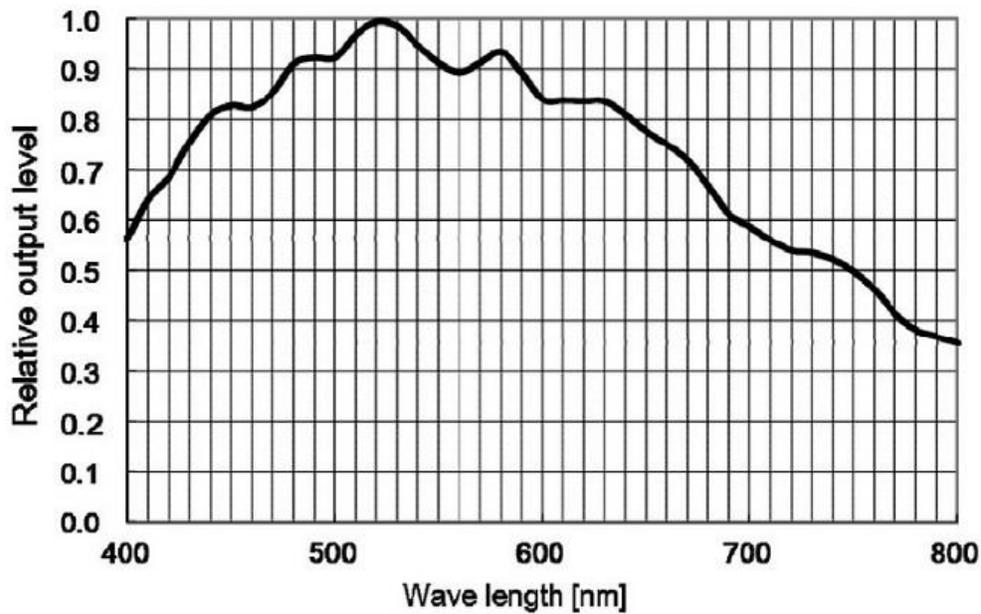
Dark Current

The dark current of ASI1600 from out test result.
here is a 300S dark frame tested with the cooler running at -25 degree.

Reliable Mechanical Structures

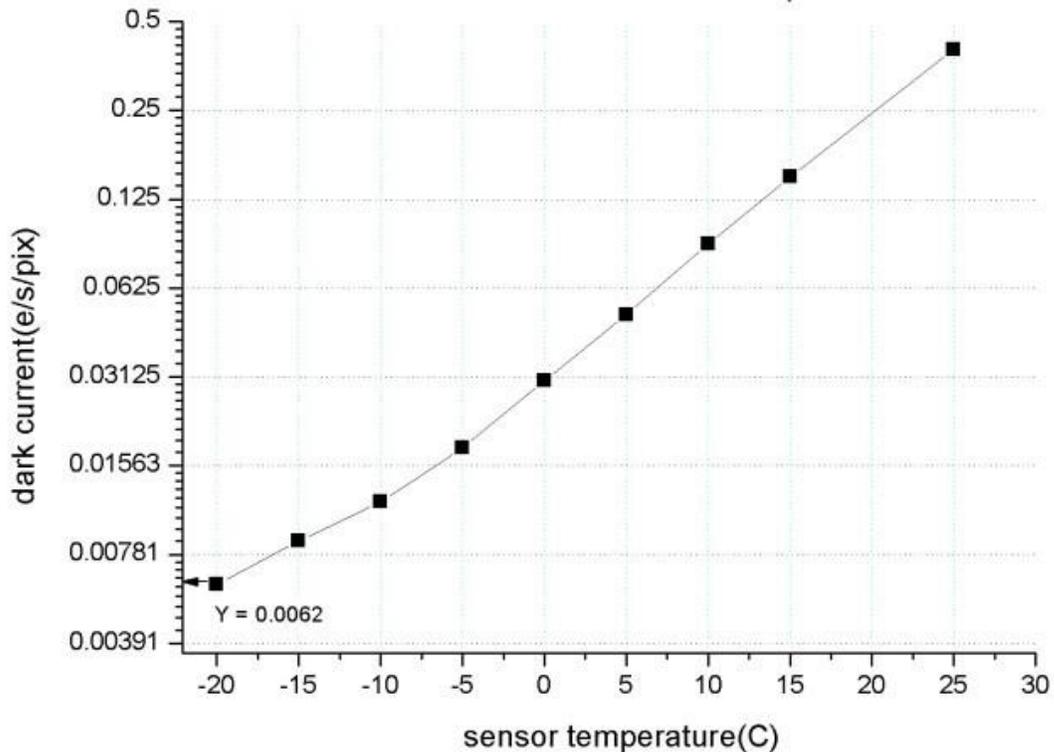There are four screws that seal the sensor chamber. Our camera design has been extensively tested and is very stable.

Even when used in higher humidity environments, ASI1600 Pro will still works fine without dew problems.

USB 3.0 Port & USB2.0 HUB

USB 3.0 Port: Provides 5Gb bandwidth to make it possible for ASI1600 Pro to run at 14.7 fps (12bit, normal mode) or 23 fps (10bit, high speed mode) at full resolution (16Mega).

USB 2.0 HUB: Can connect with various accessories, including a filter wheel, guide camera or electronic focuser, allowing you to manage your cables better. There are two short 0.5m USB2.0 cables included with the ASI1600 Pro. The hub is powered by the external power supply if you connect one.

Cooling System

ASI1600 Pro has 2 stage TEC cooling system to enable very deep cooling (40°C-45°C below ambient). The cooler requires an external power supply, which is not included with the camera. You may order a suitable power supply from <u>here</u>.
We recommend using a 12V/3-5A or more DC adapter for cooler power supply (2.1×5.5, center positive).
Using a battery with 9-15V is also suitable for the cooler power supply.

Connecting Diagram
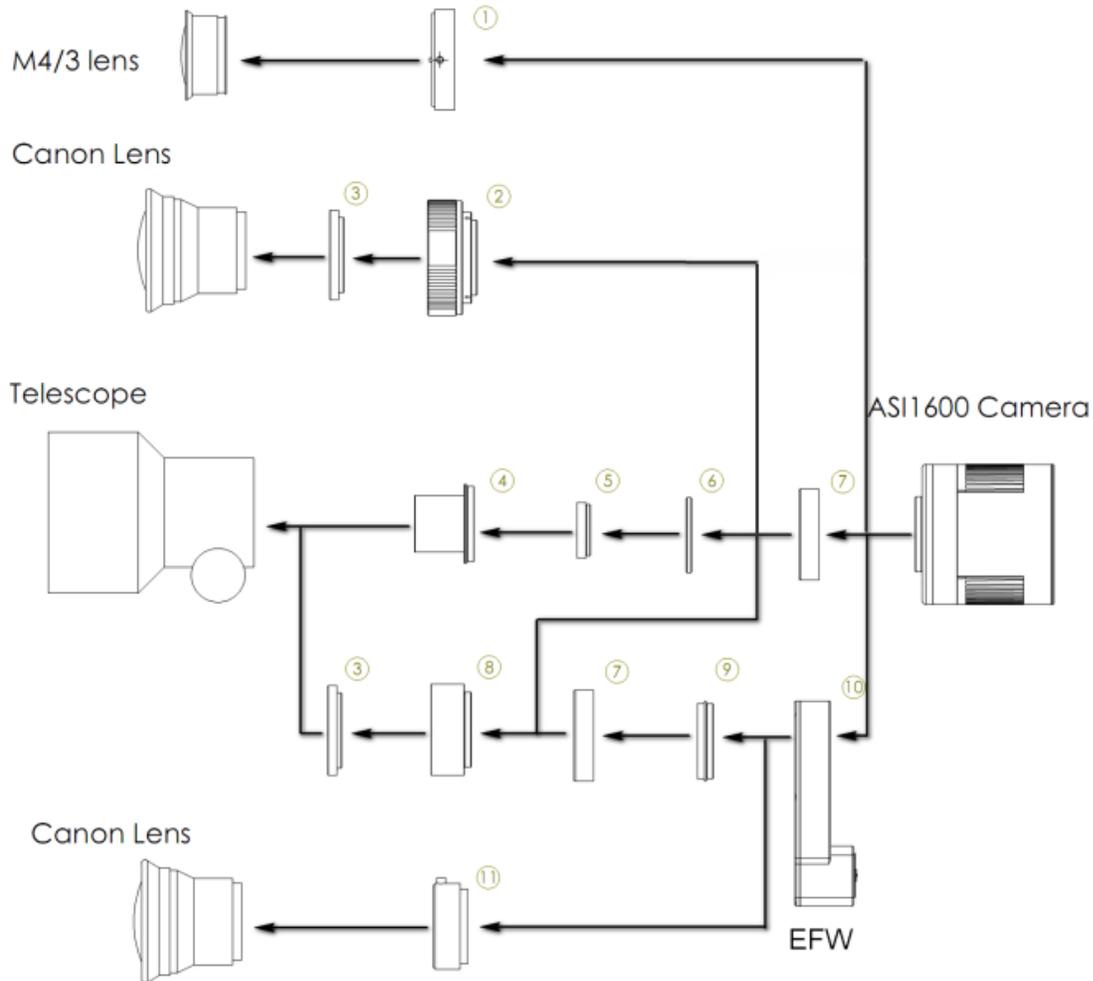
1. M43-T2 adapter
2. EOS-T2 adapter
3. 2"Filter (optional)
4. 1.25" T-Mount
5. 1.25" Filter (optional)
6. M42-1.25" Filter (optional)
7. T2 extender 11mm
8. M42-M48 extender 16.5mm
9. T2-T2 adapter
10. EFW mini
11. EOS adapter for EFW+1600

Mechanical Diagram
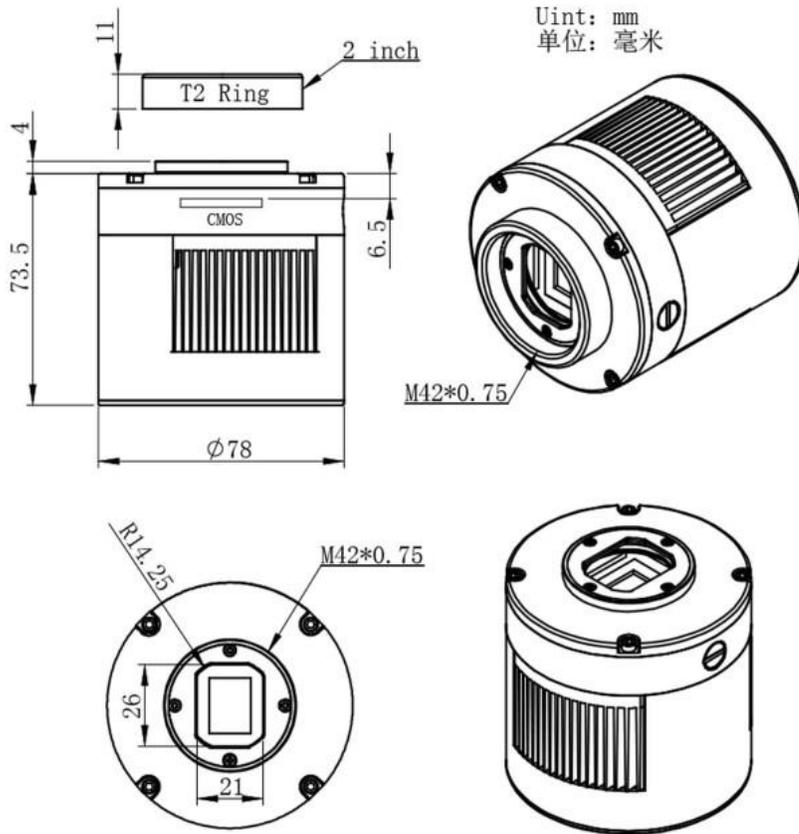
What is in the box?

ASI1600 Pro box includes all necessary cables, adapters, and manuals.

camera bag

camera body

2m USB3.0 cable

quick guide

T2 21mm extender

T2-M48
16.5mm extender

1.25" nose piece

1.25" cover

M42-M48 adapter

0.5m USB 2.0 cable ×2

T2-1.25" adapter

spacer ×2

Notice: Cooled cameras need a 12v power adapter, If you don't have one, please click this link to buy a 12V power adapter. There are 4 different standard for different country, please choose it carefully.

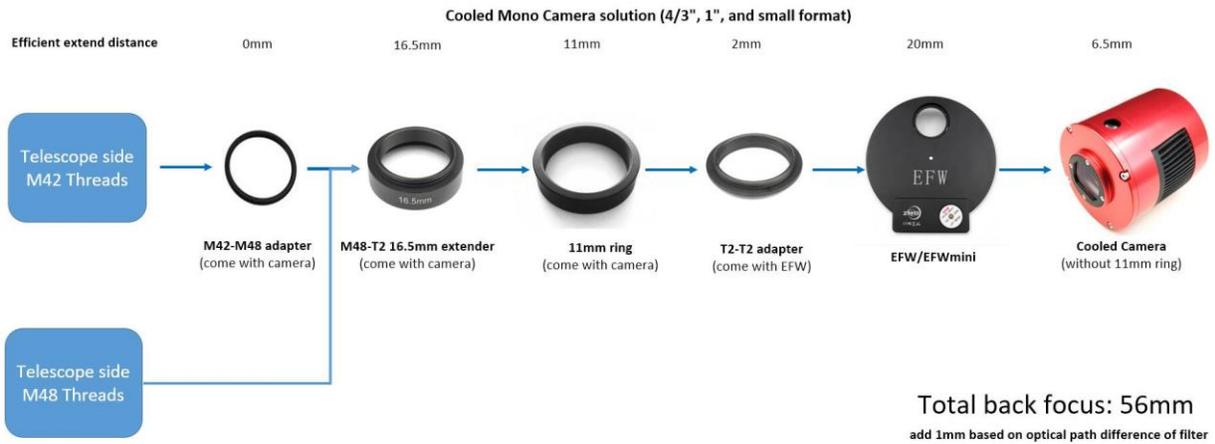**https://squareup.com/store/imagingstarlight/item/zwo-dc-v-a-us**

The best solution of 55mm back focus length

Cooled Mono Camera solution (4/3", 1", and small format)

Efficient extend distance	0mm	16.5mm	11mm	2mm	20mm	6.5mm

Telescope side M42 Threads

Telescope side M48 Threads

M42-M48 adapter (come with camera)

M48-T2 16.5mm extender (come with camera)

11mm ring (come with camera)

T2-T2 adapter (come with EFW)

EFW/EFWmini

Cooled Camera (without 11mm ring)

Total back focus: 56mm
add 1mm based on optical path difference of filter

Cooled Mono Camera with OAG solution (4/3", 1", and small format)

Efficient extend distance	0mm	16.5mm	11mm	2mm	20mm	6.5mm

Telescope side M42 Threads

Telescope side M48 Threads

M48-M42 adapter (come with camera)

OAG

11mm ring (come with camera)

T2-T2 adapter (come with EFW)

EFW/EFWmini

Cooled Camera (without 11mm ring)

Total back focus: 56mm
add 1mm based on optical path difference of filter

Camera technical details

Sensor: 4/3″ CMOS
Diagonal: 21.9mm
Resolution: 16Mega Pixels 4656×3520
Pixel Size: 3.8µm
Max FPS at full resolution :23FPS
Shutter: Rolling shutter
Exposure Range: 32µs-2000s
Read Noise: 1.2e @30db gain
QE peak: 60%
Full well: 20ke
ADC:12bit
DDRIII Buffer: 256MB
Interface: USB3.0/USB2.0
Adaptor: 2″ / 1.25″ / M42X0.75
Protect window: AR window
Dimensions: 78mm Diameter
Weight: 410g
Back Focus Distance: 6.5mm
Cooling: Regulated Two Stage TEC
Delta T: 40-45 below ambient
Cooler Power consumption: 12V at 2A Max
Working Temperature: -5°C—45°C
Storage Temperature: -20°C—60°C
Working Relative Humidity: 20%—80%
Storage Relative Humidity: 20%—95%

Supported resolution

12Bit ADC
4656×3520 14.7fps
3840×2160 23.1fps
1920×1680 32.9fps
1280×960 47.1fps
640×480 80.4fps
320×240 124.4fps
10Bit ADC
4656×3520 23fps
3840×2160 36.2fps
1920×1680 57.7fps
1280×960 73.6fps
640×480 125.7fps
320×240 192.4fps
more resolutions are user defined

Read more: https://astronomy-imaging-camera.com/tutorials/best-back-focus-length-solutions-55mm.html

Drivers and Softwares:

Our website has newest camera drivers and many DSO and Planetary capture software's. Please make sure the newest driver and software has been installed before you start shooting:
https://astronomy-imaging-camera.com/software/