exploreHD Heavy Technical Specifications

Physical Specifications

Property	Value
Depth Rating	1000 meters
Safety Margin	50%
Ingress Protection Rating	IP69K+ equivalent
Mass in Air	120 grams
Mass in Water	50 grams
Material	Naval-grade, Corrosion Resistant Aluminum - Black, Abrasion-Resistant, Hard-Anodized Coating
Front Port	Scratch-Resistant Sapphire with internal AR Coating
Operating Temperature	-20°C to 85°C
Max Cable Length*	5m (USB 2.0)

**Cameras ship with a ~1m cable by default. For longer cables, contact sales@dwe.ai.*

Lens Specifications

Specification	Fisheye	Aquagon
Type	Fisheye	Low-Distortion
Focus Type	Fixed Focus	Fixed Focus
Focal Length	2.65mm	3.0mm
Lens Aperture	f/1.9	f/1.6
Minimum Focus Distance	20-30cm	25cm

Specification	Fisheye	Aquagon
Lens Element Count	-	7 with 2 aspherical, 2 extra-low dispersion
Lens Coatings	-	DGS™ MULTI-COATING
Distortion	-	<-1.5%
Back Focal Length	-	2.05mm
IR Filter	650nm	650nm
Horizontal FOV (In Air)	138°	-
Vertical FOV (In Air)	70°	-
Diagonal FOV (In Air)	168°	-
Horizontal FOV (In Water)	~82°	87°
Vertical FOV (In Water)	-	56°
Diagonal FOV (In Water)	-	95°

Image Sensor Specifications

Property	Value
Image Sensor	1/2.8" Sony Exmor™ **STARVIS** CMOS
Sensor Color	RGB
Sensor Type	Back-Side Illuminated
Pixel Size	2.9 µm (H) × 2.9 µm (V)
Electronic Shutter Type	Rolling Shutter
Max Resolution	1920x1080
Max Framerate	30fps with H.264/MJPEG
Color Channels	3
Bits Per Channel	8 bits
Compression Formats	H.264 (Baseline), MJPEG, YUY2

Property	Value
Connection	USB 2.0 High Speed / UVC Compliant / V4L2 Compatible
Spectral Sensitivity	See Graph Below

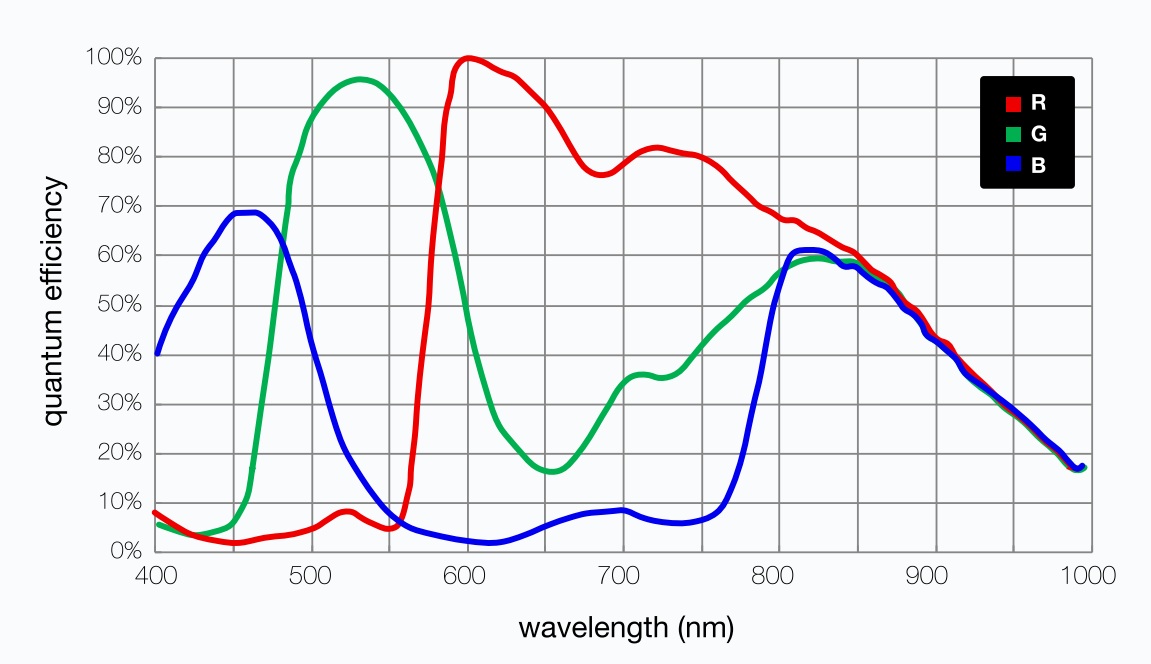


Image Compression Specifications

	H.264	MJPEG	YUY2
Type	Baseline	--	--
Chroma Subsampling	4:2:0	4:2:2	4:2:2

Supported Resolutions and Framerates

Resolution	MJPEG & H.264	YUY2
1920x1080	10, 15, 20, 25, 30 fps	5 fps
1280x720	10, 15, 20, 25, 30 fps	5, 10 fps
800x600	10, 15, 20, 25, 30 fps	5, 10, 15 fps
640x480	10, 15, 20, 25, 30 fps	5, 10, 15, 20, 25, 30 fps
640x360	10, 15, 20, 25, 30 fps	5, 10, 15, 20, 25, 30 fps

Resolution	MJPEG & H.264	YUY2
352x288	10, 15, 20, 25, 30 fps	5, 10, 15, 20, 25, 30 fps
320x240	10, 15, 20, 25, 30 fps	5, 10, 15, 20, 25, 30 fps

Software Requirements

Property	Value
External Software	None Required (Plug-and-Play)
Protocol	UVC (USB Video Class) Compliant
Windows Support	Native Support - No drivers needed
macOS Support	Native Support - No drivers needed
Linux Support	Native Support - V4L2 compatible

> **Zero Software Required** Because it is fully UVC compliant, it requires absolutely **no proprietary drivers, external software, or libraries** for retrieving images.
> While we provide helpful optional utilities like our Camera Tester and dweOS, **these are strictly optional**. You can plug the camera into your system and immediately view the feed using standard built-in camera applications (like Windows Camera, OBS, etc).

Bitrate Control Library

For specific advanced application using H.264 mode, you can manage the camera's bitrate via our open-sourced bitrate control code.

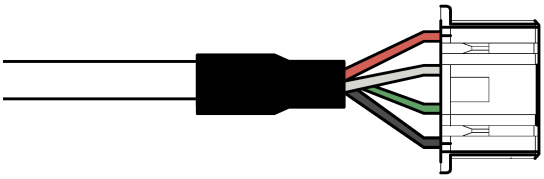
Bitrate Control Code
Bitrate Control README document.

Electrical Specifications

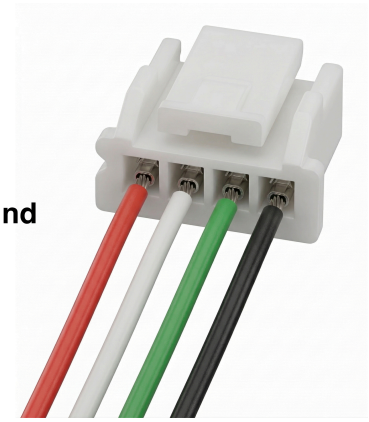
Property	MJPEG Mode	H.264 Mode
Voltage	5V	5V
Current	250mA	300mA
Current (Max)	260mA	320mA
Operating Wattage	1.25W	1.5W
Wattage (Min)	0.004W	0.004W
Wattage (Max)	1.3W	1.6W

Connector Pinout

WetLink



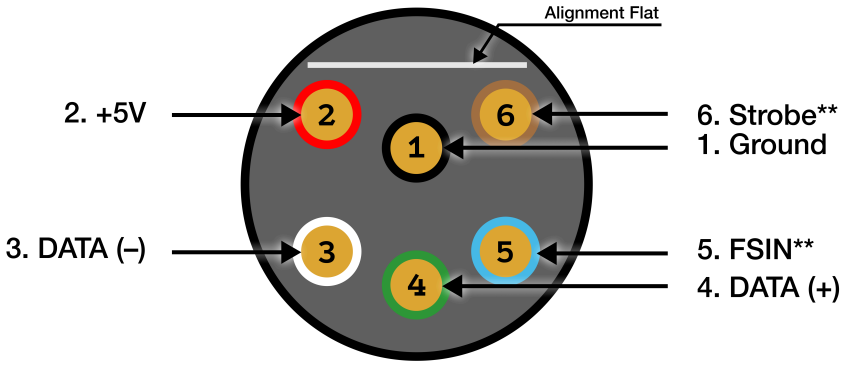
Red: 5v
White: D-
Green: D+
Black: Ground



Color	Function	Wire Gauge (AWG)
Red	5V	24
White	D- (Data Negative)	28
Green	D+ (Data Positive)	28
Black	Ground	24

Cobalt 6-Pin

Cobalt 6-Pin* (USB) Cable - COB-1461



*Cable connector pinouts (looking at mating face of connector)

**Only Applicable for products with those pins

Cobalt (6 Pin) USB Cable	COB-1461
1	**Black : Ground**
2	**Red : +5V**
3	**White : DATA -**
4	**Green : DATA +**
5	Blue : NC
6	Brown : NC

CAD Files

Wetlink

Standard Lens

STEP File
exploreHD Heavy (WetLink) STEP File

Technical Drawing
exploreHD Heavy (WetLink) Technical Drawing (PDF)

Aquagon Lens

STEP File
exploreHD Heavy with Aquagon Lens (WetLink) STEP File

Technical Drawing
exploreHD Heavy with Aquagon Lens (WetLink) Technical Drawing (PDF)

Cobalt

Standard Lens

STEP File
exploreHD Heavy (Cobalt) STEP File

Technical Drawing
exploreHD Heavy (Cobalt) Technical Drawing (PDF)

Aquagon Lens

STEP File
exploreHD Heavy with Aquagon Lens (Cobalt) STEP File

Technical Drawing
exploreHD Heavy with Aquagon Lens (Cobalt) Technical Drawing (PDF)

SubConn (1K)

Standard Lens

STEP File
exploreHD Heavy (SubConn) STEP File

Technical Drawing
exploreHD Heavy (SubConn) Technical Drawing (PDF)

Aquagon Lens

STEP File
exploreHD Heavy with Aquagon Lens (SubConn) STEP File

Technical Drawing
exploreHD Heavy with Aquagon Lens (SubConn) Technical Drawing (PDF)

Mounting Bracket

Download
exploreHD Heavy Mounting Bracket STEP File

Download
exploreHD Heavy Mounting Bracket Technical Drawing (PDF)

Updating Firmware

Guide
Follow this simple guide to updating firmware.