



UNIVERSITY OF KERALA
DEPARTMENT OF AQUATIC BIOLOGY & FISHERIES

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QUOTATION NOTICE 2- Cameras and Drones

Sealed quotations are invited from the Original Equipment Manufacturers (OEM) or their authorized dealers for supply and installation of the following drone and cameras for implementing the **European Union- supported Erasmus+ research project titled "ECOMARINE" (Building a Comprehensive Mechanism for Preserving Marine Ecosystems and Life from the negative consequences of Climate Change and the disposal of Plastic Debris)** at the Department of Aquatic Biology and Fisheries, University of Kerala as per the specification mentioned here.

Last date and time of receipt of quotations: **12-01-2024; 03.00 PM**

Quotation may be addressed to: Prof A Biju Kumar, ECOMARINE project leader, Department of Aquatic Biology and Fisheries, University of Kerala, Karyavattom, Thiruvananthapuram 695581

1. MAVIC 3 Drone with camera

Aircraft

Takeoff Weight: 895 g

Dimensions (Folded/Unfolded): Folded (without propellers) 221×96.3×90.3 mm

(Length×Width×Height); Unfolded (without propellers) 347.5×283×107.7 mm

(Length×Width×Height)

Max Ascent/Descent Speed: 1 m/s (C mode); 6 m/s (N mode); 6-8 m/s (S mode)

Max Flight Speed (at sea level, no wind): 5 m/s (C mode); 15 m/s (N mode)

21 m/s (S mode)

Max Flight Time: min. 45 minutes; Max Flight Distance: 30 km; Max Wind Speed Resistance:

12 m/s

Internal Storage: 8 GB

Hasselblad Camera: Sensor 4/3 CMOS, Effective pixels: 20 MP

Lens: FOV: 84°; Format Equivalent: 24 mm; Aperture: f/2.8 to f/11; Focus: 1 m to ∞ (with autofocus)

ISO Range: Video: 100-6400; Still Image: 100-6400

Shutter Speed: Electronic Shutter: 8-1/8000 s

Max Image Size: Main Unit: 5280×3956

Still Photography Modes with single shot: 20MP Photos; Video Resolution; 4K:

3840×2160@24/25/30/48/50/60/120*fps; Photo Format: JPEG/DNG (RAW): Video

Format: MP4/MOV (MPEG-4 AVC/H.264, HEVC/H.265)

Tele Camera: Sensor: 1/2-inch CMOS; Lens; FOV: 15°; Format Equivalent: 162mm

Aperture: f/4.4; Focus: 3 m to ∞

Max Image Size: 4000×3000; Photo Format Single shot: 12MP Photos

Digital Zoom: 4x

Gimbal Stabilization: 3-axis motorized (tilt, roll, pan)
Mechanical Range: Tilt: -135° to 100°; Roll: -45° to 45°; Pan: -27° to 27°
Sensing System: Omnidirectional binocular vision system, supplemented with an infrared sensor at the bottom of the aircraft
Operating Environment
Forward, Backward, Left, Right, and Upward: Surface with a clear pattern and adequate lighting (lux>15)
Downward: Surface with a clear pattern and adequate lighting (lux >15). Diffuse reflective surface with diffuse reflectivity>20% (e.g. wall, tree, person)
Video Transmission System: O3+; Live View Quality: Remote Controller:
1080p@30fps/1080p@60fps
Max Transmission Distance (unobstructed, free of interference and aligned with controller):
2.400-2.4835 GHz; 5.725-5.850 GHz; FCC: 15 km; CE: 8 km
SRRC: 8 km; MIC: 8 km
Signal Transmission Ranges (FCC)
Strong Interference (urban landscape, limited line of sight, many competing signals):
Approx. 1.5-3 km: Medium Interference (suburban landscape, open line of sight, some competing signals): Approx. 3-9 km: Low Interference (open landscape abundant line of sight, few competing signals): Approx. 9-15 km
Max Download Bitrate: O3+: 5.5MB/s (with RC-N1 remote controller); 15MB/s (with DJI RC Pro remote controller); Wi-Fi 6: 80MB/s*
Antennas: 4 antennas, 2T4R
Battery Capacity: 5000 mAh; Voltage: 15.4 V; Battery Type: Li-ion 4S; Battery Charger Input: 100-240 V AC, 47-63 Hz, 2.0 A; USB-C Output: USB-C: 5.0 V=5.0 A/9.0 V=5.0 A/12.0 V=5.0 A/15.0 V=4.3 A/20.0 V=3.25 A/5.0~20.0 V=3.25 A; USB-A output: USB-A: 5 V=2 A
Charging Hub Input: USB-C: 5-20 V=5.0 A max; Output: Battery: 12-17.6 V=5.0 A max;
Storage microSD Cards: High Endurance 128GB V30 microSDXC: SSD Specs: 8 GB
Remote Controller Transmission System: O3+
Max Supported Mobile Device Size: 180×86×10 mm (Length×Width×Height)
Transmitter Power (EIRP): 2.400-2.4835 GHz: <26 dBm (FCC), <20 dBm; (CE/SRRC/MIC) 5.725-5.850 GHz: <26 dBm (FCC), <23 dBm (SRRC), <14 dBm (CE)
Battery Life: 6 hrs
Supported USB Port Types: Lightning, Micro USB, USB-C
Accessories: Additional one set batteries as specified; microSD card: High Endurance 128GB
One year warranty

2. Mirrorless Digital Camera with kit lens

Mirrorless Digital camera with support for interchangeable lenses
24.5MP FX-Format BSI CMOS Sensor
LENS MOUNT Z mount
PICTURE ANGLE: Full-frame/FX-format
TOTAL PIXELS: 25.28 million
SENSOR SIZE 35.9 mm x 23.9 mm; IMAGE SENSOR TYPE CMOS
FILE FORMAT STILL IMAGES NEF (RAW): 12- or 14-bit (lossless compressed, compressed, or uncompressed) Dual EXPEED 6 Image Processors
UHD 4K30 Video; N-Log & 10-Bit HDMI Out
14 fps Cont. Shooting, ISO 100-51200; 273-Point Phase-Detect AF System; 3.6m-Dot OLED Electronic Viewfinder; 3.2" 2.1m-Dot Tilting Touchscreen LCD; 5-Axis In-Body Vibration Reduction

Dual Memory Card Slots

STORAGE MEDIA: CFexpress (Type B) XQD Type Memory SD (Secure Digital) and UHS-II compliant SDHC and SDXC memory cards

VIEWFINDER 1.27-cm (0.5-in.) approx. 3690k-dot (Quad VGA) OLED with color balance and auto and 11-level manual brightness controls

EYE SENSOR: Automatically switches between monitor and viewfinder displays

COMPATIBLE LENSES Z mount with mount adapter;

SHUTTER TYPE Electronically-controlled vertical-travel focal-plane mechanical shutter; electronic front-curtain shutter; electronic shutter

SHUTTER RELEASE MODES Single frame Low-speed continuous High-speed continuous High-speed continuous (extended) Self-timer

FLASH SYNC SPEED X=1/200 sec.; synchronizes with shutter at 1/200 sec. or slower; Auto FP High-Speed sync supported

CONTINUOUS SHOOTING OPTIONS Low-speed continuous: 1-5 fps High-speed continuous: 5.5 fps High-speed continuous (extended): 14 fps (14-bit NEF/RAW: Approx. 10 fps)

ISO SENSITIVITY ISO 100 - 51,200 in steps of 1/3 or 1/2 EV Can also be set to approx. 0.3, 0.5, 0.7 or 1 EV (ISO 50 equivalent) below ISO 100 or to approx. 0.3, 0.5, 0.7, 1 or 2 EV (ISO 204,800 equivalent) above ISO 51,200; auto ISO sensitivity control available

SINGLE-POINT AF MODE Yes

FOCUS / AUTOFOCUS; FOCUS POINT 273 (single-point AF)

FOCUS MODES: Pinpoint Single-point Dynamic-area AF Wide-area AF (S) Wide-area AF (L) Auto-area AF Pinpoint and Dynamic-area AF available in photo mode only

FLASH COMPENSATION: -3 to +1 EV in increments of 1/3 or 1/2 EV in modes P, S, A, and M

FLASH-READY INDICATOR Lights when optional flash unit is fully charged; flashes as underexposure warning after flash is fired at full output

MONITOR SIZE: 8-cm (3.2-in.) diagonal; MONITOR RESOLUTION approx. 2100k-dot;

MONITOR TYPE: Tilting TFT Touch-Sensitive LCD; MONITOR ANGLE OF VIEW: 170° viewing angle

INTERFACE-USB: Type C USB connector (SuperSpeed USB); connection to built-in USB port is recommended HDMI: Type C HDMI connector Accessory terminal: Can be used with MC-

DC2 and other optional accessories Audio Input: Stereo mini-pin jack (3.5 mm diameter; plug-in power supported) Audio Output: Stereo mini-pin jack (3.5 mm diameter)

WI-FI FUNCTIONALITY : Standards: IEEE 802.11b/g/n; Operating frequency: 2412–2462 MHz

GPS: Via the app

SUPPORTED LANGUAGES: English

WORLD TIME SETTING

BATTERY / BATTERIES One EN-EL15c rechargeable Li-ion battery EN-EL15b/EN-EL15a/EN-

AC ADAPTER EH-7P Charging AC Adapter EH-5d/EH-5c/EH-5b AC adapter; requires EP-5B power connector (available separately)

BATTERY CHARGER: MH-25A Battery Charger

KIT Lens specification

MINIMUM FOCUS DISTANCE 0.35 m (1.15 ft) at all zoom positions

INTERNAL FOCUSING, AUTOFOCUS

MOUNT TYPE Z mount

MAXIMUM APERTURE: f/4 and MINIMUM APERTURE f/ 22; FOCAL LENGTH 24-120mm

NANO CRYSTAL COAT

FILTER SIZE- 77mm: FORMAT Full-frame/FX-format; FOCUS MODE Auto, Manual

LENS CATEGORY: Z Series

DIMENSIONS (L X H X W) (MM): Approx. 84 mm x 118 mm (3.4 in. x 4.7 in.)

Macro Lens Specification:

MINIMUM FOCUS DISTANCE 0.16 m (0.53ft) from focal plane

AUTOFOCUS, VR (VIBRATION REDUCTION) IMAGE STABILIZATION

MOUNT TYPE: Z mount; MAXIMUM APERTURE: f/2.8, MINIMUM APERTURE: f/22

FOCAL LENGTH: 50mm; MICRO; FILTER SIZE 46mm

FORMAT: Full-frame/FX-format:

FLUORINE COAT; FOCUS MODE: Autofocus Manual

DIMENSIONS (L X H X W) (MM) 74.5 mm (3 in.) x 66 mm (2.6 in.)

MAXIMUM ANGLE OF VIEW (FULL-FRAME/FX-FORMAT): 47°

MAXIMUM ANGLE OF VIEW (APS-C SIZE/DX-FORMAT): 31°30'

COMPATIBLE FORMAT(S): Full-frame/FX-format & APS-C size/DX-format

FEATURE: Autofocus, Micro

Accessories: Carry bag for the camera and lens

Two year warranty on body

3. Underwater video camera with underwater case

Product Specs

Dimensions (W x H x D) (mm); 71.8 W x 50.8 H x 33.6 D (mm); Weight (Camera w/mounting fingers + Embedded Battery) - 154g; Battery; Removable 1720mAh Enduro Battery; Rugged + Waterproof – upto 10m (33ft)

Image Quality / Hardware Spec: System Processor :GP2; Image Sensor : 1/1.9" CMOS

Video: Max Video Res : 5.3K: 8:7 (5312x4648), 5.3K: 4:3 (5312x3984), 5.3K: 16:9 (5312x2988); Photo: Photo Megapixels (MP) + Pixel Dims 27.13MP (5568x4872)

Time Lapse: Includes TimeWarp, Star Trails, Light Painting and more.

Audio Features: 3-mics | 3.5mm Audio Mic Input with Media Mod for HERO11 Black or Pro 3.5 Mic Adapter (Sold Separately) | RAW Audio Capture (.wav Format)

Hardware Features: Built-In Mounting with Folding Fingers; Rear Display Size : .27" Touch LCD; Front Display Size: 1.4" Color LCD

Connected Features

Uploads Automatically to the Cloud + Get a Highlight Video Automatically with GoPro Subscription | Wi-Fi + Bluetooth®

User Interface: Voice Control 14 Commands 11 Languages with 6 accents

Accessories: Underwater case for the above camera; camera carrybag; additional one battery set; compatible SD card 128GB

Two year warranty

4. Waterproof camera with adapter lens and case

Camera with 12MP BSI CMOS Sensor

TruePic VIII Image Processor; 4x Optical Zoom f/2 Lens; 25-100mm (35mm Equivalent) 3.0" 1.04m-Dot LCD Monitor; Water, Crush, Shock, Freeze & Dustproof; 4K Video Recording and Full HD at 120p; Built-In Wi-Fi, GPS, Field Sensor System; ISO 12800 and up to 20-fps Shooting; Pro Capture Mode & Variable Macro System; Underwater photography upto 15m without case.

Macro and microscope modes in still photos; Lithium battery and charger, and USB cable for downloading.

Accessories: Fisheye adapter lens pack; underwater case (compatible, resistant up to 45 m); lens cap cover protector, carry bag

Two year warranty

Terms and Conditions

1. The bidder should submit following documents along with bid:
 - Detailed technical compliance of product quoted with cross reference
 - Brochure and literature of the product quoted establishing its Brand, Make, Model and Technical Specifications
 - List of addresses of Offices/Company's Service Centres
 - Original Equipment Manufacturer (OEM) Certificate/ Undertaking. If the bidder is not an OEM, Certificate of authorized dealership/ distributorship from the OEM.
 - Certificate from the OEM for technical support to the bidder and supply of spares.
 - **Earnest Money Deposit (EMD): EMD calculated @ 1% of the Purchase Assessment Cost (PAC- excluding GST) should be paid by the firm. The EMD should be remitted by way of Demand Draft drawn in favour of 'The Finance Officer, University of Kerala' payable at 'SBI, University Office Campus, Palayam' and to be submitted along with sealed quotations.**
2. Incomplete & conditional quotations received after the due date will be summarily rejected without assigning any reasons thereof
3. The Price/Rate quoted should be inclusive of all Taxes Freight, Packing & Forwarding Charges, Handling, Delivery Charges, installation charges etc.
4. The configuration given is the minimum configuration that is/are required. Vendors may choose to supply higher/better/ enhanced systems, but their financial quotes shall be treated as if they have been offered for the specified configuration only.
5. The bid shall be typed and shall be signed by the bidder or a person duly authorized to bind the bidder to the contract.
6. The bidder is expected to examine all instructions, forms, terms, condition, and technical specifications in the quotation Documents. Failure to furnish all information required by the quotation documents or submission of a bid not substantially responsive may result in the rejection of its bid.
7. The bidders shall give undertaking that all the Components used in the equipments shall be original make as per the technical specifications submitted and the hardware/software shall be supplied with the authorized license certificates, if found contrary the supplier shall replace the component/equipment with original one at their own cost 8.
8. All prices should be in INR
9. Delivery and installation: Proposed delivery schedule should be mentioned clearly. Delivery and installation should be made at the Department in Karyavattom campus without any extra cost. Complete installation, testing of the system and demonstration are to be provided at site.
11. Service facility: Supplier should mention their details of service setup and manpower in Kerala who are responsible for service and supply of AMC, if any.
12. In case of any dispute, the decision of the University authority shall be final and binding on the bidders. The undersigned reserves the right to reject any or all of the tenders received without assigning any reason thereof.

The quotations should be submitted in sealed over with title **“Quotation for the cameras for implementing ECOMARINE project at the Department of Aquatic Biology & Fisheries, University of Kerala”**

Sd/-

Dr A BIJU KUMAR