

DJI Osmo Action 6 Underwater Guide

Comprehensive Reference Guide



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Table of Contents

Underwater Quick-Settings Cheat Card	7
Settings by Scenario	7
Depth & Case Quick Facts	7
Pre-Dive Checklist (topside)	7
White Balance Cheat	8
Lens Quick-Pick	8
Filter Rule of Thumb	8
DJI Osmo Action 6 — Comprehensive Reference & Buyer's Guide	8
1. Product Overview, Release, Price & Variants	9
1.1 Overview	9
1.2 Release date	9
1.3 Pricing & variants / bundles	9
2. Full Technical Specifications	10
2.1 Sensor & optics	10
2.2 Physical	10
3. Video Specifications	10
3.1 Resolutions & frame rates	10
3.2 Slow motion	11
3.3 Bitrate, codec, color	11
4. Photo Specifications	11
5. 2x Zoom — Exhaustive Detail	11
5.1 What it is and how it works	12
5.2 Maximum and resolution availability	12
5.3 Where it is NOT available (important limitations)	12
5.4 How to activate it	12

5.5 Quality implications & real-world findings	12
5.6 Use cases	13
6. Low Light — Exhaustive Detail	13
6.1 Hardware advantages	13
6.2 Variable aperture for low light	13
6.3 SuperNight mode	14
6.4 Noise reduction philosophy & real-world performance	14
6.5 Recommended low-light settings (from a POV reviewer, photorox.art)	14
7. Stabilization	15
8. Displays, Touch Interface & Controls	15
9. Battery	15
10. Audio	15
11. Connectivity, App & Storage	16
12. Mounting Ecosystem & Accessories	16
13. Comparisons	16
13.1 vs. predecessor — Osmo Action 5 Pro	17
13.2 vs. GoPro Hero 13 Black (current shipping GoPro)	17
13.3 vs. Insta360 Ace Pro 2	17
14. Firmware Features, Tracking, Timecode, Voice & Gestures	18
15. Known Limitations, Criticisms & Pros / Cons	18
15.1 Criticisms / limitations	18
15.2 Pros	19
16. Tips & Recommended Settings	19
16.1 General / everyday	19

16.2 Low light / night	19
16.3 2x zoom	19
17. Sources	20
18. Underwater Use — Complete Guide	20
18.1 Bare Camera Underwater (No Case)	21
Depth rating and what the IP68 number really means	21
Real-world reliability at recreational depth	21
The Scuba Diving Mode mechanism (critical for bare/cased button use)	21
Touchscreen behavior when wet — this is the big one	21
Lens fogging / internal condensation (bare)	22
Saltwater rinse and care (bare)	22
Glass Lens Cover / lens guard	22
18.2 The Dedicated DJI Waterproof Case (60 m)	22
What it is and what it adds	22
When you actually need it	23
The DJI Diving Accessory Kit (\$99)	23
O-ring care — and a real flood report	23
18.3 Telesin Case — Detailed	23
Confirmed specs (Action 6 model)	23
Filters	24
Pricing	24
Telesin vs DJI vs other third parties	24
18.4 Red / Magenta Correction Filters	25
Why filters exist	25
Which filter, which water, which depth	25
Screw-on vs slide/clip-on	25
Filter WITH auto WB, or with manual WB?	26
The contrarian view (no filter at all)	26
18.5 White Balance Underwater — Critical	26
The Action 6's headline advantage	26
Three approaches, ranked for a diver	26
D-Log M underwater + grading	27

Recommended combos	27
18.6 Best Settings by Scenario	27
18.6a Shallow snorkel / reef, bright tropical sun (blue water, 0–5 m)	27
18.6b Scuba 10–20 m, blue water (ambient light)	28
18.6c Deep / low-light / green or murky water	28
18.6d Wreck / cave / dark water (the f/2.0 + SuperNight scenario)	28
18.6e Split-level / over-under	28
18.6f Fast action — sharks, dolphins, drift dives	29
18.6g Night diving with video lights	29
18.7 Macro Lens Underwater	29
The accessory	29
The hard constraint divers must know	29
Optics and technique	30
18.8 Wide-Angle Lens Underwater	30
The DJI FOV Boost Lens — and why it is the wrong tool for diving	30
The flat-port FOV problem (this is the real wide-angle issue underwater)	30
How divers actually get true wide underwater	30
Split-shot implication	31
18.9 Lighting & Accessories Underwater	31
Continuous video light, not strobes	31
Lumens and beam	31
Tray, handles, arms	31
Buoyancy — does the Action 6 sink?	31
Anti-fog	32
Mounting to mask / wrist	32
18.10 Stabilization Underwater	32
18.11 Practical Dive Workflow & Pitfalls	32
Pre-dive (topside) checklist	32
At depth	33
Battery & cold	33
Condensation prevention	33
Common mistakes (the greatest hits)	33
Post-dive	33
Color-grading workflow (DaVinci Resolve — your tool)	33

18.12 What Reviewers and Divers Actually Report	34
Color rendition	34
Low light at depth / value of the big sensor + f/2.0	34
vs GoPro Hero 13 and Insta360 Ace Pro 2 underwater (the decisive comparison)	34
The honest reliability caveat	34
18.13 Field Report — Inon Wet Lenses on the Action 6 (Wide & Macro)	35
The mount: an Inon DJI Action faceplate	35
Inon GR140 ZD Pro — wide angle	35
Inon UCL-G100 and UCL-G55 — close-up / macro	35
What this adds for a diver	36
Sources	36

Underwater Quick-Settings Cheat Card

Grab-and-go reference. Full detail in Section 18. Set EVERYTHING topside — the touchscreen is unusable submerged; shoot button-only with the QS (Quick Switch) button.

Settings by Scenario

Scenario	Res / FPS	Color + WB	Aperture / ISO	Filter	Key reminder
Snorkel / reef, bright sun (0–5 m)	4K 30 (or 4K 4:3)	D-Log M; Auto WB or 5600K	f/4.0 / ISO 100–400	Light-red or none	Tame glare; sunbeams cleaner at f/4
Scuba blue water (10–20 m)	4K 30	D-Log M; custom WB at depth or 6500–7500K	f/2.0 / ISO 100–3200	Red	Get close; let f/2.0 carry the light
Deep / green / murky	4K 24–30	D-Log M or normal; magenta+Auto for green	f/2.0 / ISO cap ~6400	Magenta	Don't push fps; add lights
Wreck / cave / dark	4K 30, or 4K 60 SuperNight	WB to lights ~5000–5600K	f/2.0 / ISO last-resort 51200	None	Lights mandatory for color
Split-level / over-under	4K 30, 4:3 open-gate	D-Log M; ~5600K compromise	f/4.0 / low ISO	None	Keep top of port dry; shoot fast
Fast action (sharks, drift)	4K 120 (slow-mo) or 4K 60	Auto or locked WB	f/2.0 / shutter 1/120–1/250	Red (blue water)	Raise shutter to freeze motion
Night + video lights	4K 30, or 4K 60 SuperNight	WB to lights ~5000–5600K	f/2.0 / ISO <=3200	None	Lights carry exposure, not ISO

All scenarios: Stabilization RockSteady 3.0 (HorizonSteady/Balancing only at 4K/60 or lower); Bitrate High; Noise Reduction and Sharpening -1 to -2; keep ISO as low as the scene allows.

Depth & Case Quick Facts

- **Bare camera: 20 m / IP68.** Realistically dive bare only to ~10–12 m; case it deeper. Zero margin at 20 m.
- **DJI case / Telesin case: 60 m.** Use below ~16–20 m, in cold water, or whenever you want reliable buttons.
- **Scuba Diving Mode:** auto-engages ~14–16 m, or hold Record ~5 s. Main Record button dies under pressure — **start/stop with the QS button.** Exit = press Record 5x fast.

Pre-Dive Checklist (topside)

- 1 Set res / fps / color / WB / aperture / ISO cap / stabilization on the surface.
- 2 Program the QS button for record (button-only diving).
- 3 **O-ring:** clean groove; inspect for salt, sand, hair (the #1 flood cause).

- 4 Anti-fog insert in; assemble in cool, dry / A-C air.
- 5 Battery 100%; fast SD card with space.
- 6 Float strap / handle on; lens cover (bare) or port (cased) clean and tight.
- 7 Optional: weighted leak-check dunk before committing the camera.

White Balance Cheat

- **Default:** Auto WB (the Action 6's built-in color-temp sensor is genuinely good — best out-of-camera color in the class).
- **Lock for grading:** ~5600K topside/shallow; push warmer with depth, ~6500–7500K at 10–20 m blue water.
- **Most accurate:** custom WB off a gray slate or light sand at your working depth; redo it each time depth changes by a few meters.
- **With video lights:** no filter; match WB to your lights (~5000–5600K).

Lens Quick-Pick

- **Wide:** a glass-dome wet lens (**Inon GR140 ZD Pro**, **AOI UWL-03/03Pro**) restores underwater FOV and fixes the Action 6's edge softness/distortion. Behind a bare flat port the native 155° shrinks to ~110–120°.
- **Macro:** **Inon UCL-G55 + the 2x lossless zoom**, shot at **f/4.0** for depth of field, using the lens focus markers — best small-critter combo for this camera.
- **DO NOT dive** the **DJI FOV Boost Lens** (rated 5 m, distorts underwater, "not for diving").
- **DJI Macro Lens** does not fit inside the slim cases — **bare / shallow only**, no published depth rating.

Filter Rule of Thumb

- **Red** = blue tropical water, ~5–25 m, ambient light. - **Light red** = very shallow / snorkel.
- **Magenta** = green / temperate / murky / freshwater. - **No filter** = whenever you run video lights.
- Don't stack a strong red filter + heavy manual red WB + post red-recovery — you'll clip the red channel.

DJI Osmo Action 6 — Comprehensive Reference & Buyer's Guide

Camera documented: DJI Osmo Action 6 (DJI's official product name — note that "DJI Action Pro 6" is not an official name; "Pro" was the suffix on the prior generation, the *Osmo Action 5 Pro*). The Osmo Action 6 is DJI's newest flagship action camera, announced and launched **November 18, 2025**, and is the model this guide covers. It supersedes the **Osmo Action 5 Pro** (Sept 2024). There

is no "Action 6 Pro" — the Action 6 dropped the "Pro" suffix.

*Note on naming: As of mid-2026 the current shipping GoPro flagship for comparison is the **Hero 13 Black**; the **Hero 14 Black** was delayed and is expected to ship in 2026, so comparisons below use the Hero 13 Black as the live competitor and flag the Hero 14 as upcoming.*

Sources are cited inline throughout; a consolidated list appears at the end.

1. Product Overview, Release, Price & Variants

1.1 Overview

The Osmo Action 6 is positioned by DJI as an "All-In-One Flagship Action Camera." Its three headline innovations versus all prior action cameras (its own and competitors') are:

- 1 **A variable aperture (f/2.0–f/4.0)** — the first ever on an action camera.
- 2 **A custom 1/1.1-inch square CMOS sensor** (98 mm²) — the largest sensor in any action camera, and square so you can shoot once and crop to 16:9 or 9:16 later with no resolution loss.
- 3 **2x Lossless Zoom** and a strong low-light / SuperNight system built on the big sensor and bright aperture.

It retains DJI's class-leading 20 m bare-camera waterproofing, dual touchscreens, RockSteady stabilization, magnetic quick-release mounting, and (added by firmware) 8K recording.

1.2 Release date

- **Announced / launched: November 18, 2025.** US market availability was confirmed (DJI had pulled back from the US on some prior launches, so this was notable). (dronexl.co, dronedj.com)
- A major **free firmware update (v01.02.05.21) rolled out around December 22–23, 2025** adding 8K recording, cloud/NAS upload, and more. (petapixel.com, newsshooter.com, cined.com)

1.3 Pricing & variants / bundles

Approximate launch pricing (USD/EUR; varies by region and promotions):

Bundle	Price (approx.)	Contents
Standard Combo	~\$379–\$436 USD / €379	Camera, one battery, horizontal-vertical protective frame, quick-release adapter mount, curved adhesive base, anti-slip pad, USB-C cable, lanyard
Adventure Combo	~\$479–\$546 USD / €479	Everything in Standard + two extra batteries (3 total), multifunction battery case, 1.5 m extension rod / selfie stick , extra quick-release mount
Essential Combo (retailer listing)	varies	Camera + minimal accessories

Bundle	Price (approx.)	Contents
Enhanced Combo (retailer listing)	varies	Camera + 2 batteries + 1.5 m extension rod + battery case

(Sources: [sweetwater.com](https://www.sweetwater.com), [bestbuy.com](https://www.bestbuy.com), [bhphotovideo.com](https://www.bhphotovideo.com), [heliguy.com](https://www.heliguy.com), [amazon.com](https://www.amazon.com), [dji.com](https://www.dji.com) media center)

Note: DJI requires **activation via the DJI Mimo app** before first use (a common criticism — see Section 15).

2. Full Technical Specifications

2.1 Sensor & optics

- **Sensor:** 1/1.1-inch **square** CMOS, ~98 mm² active area — the largest in any action camera. Uses **2.4 μm "fusion" large pixels**.
- **Dynamic range:** up to **13.5 stops**. DJI claims roughly a **0.5-stop low-light advantage** over competing action cameras.
- **Aperture: variable f/2.0–f/4.0** (first on an action cam). See Sections 5 & 6 for control modes.
- **Lens FOV: 155°** (ultra-wide) native; expandable to **182°** with the optional FOV Boost Lens.
- **Focus range:** 0.2 m to infinity (at f/4.0). Minimum focus distance is **35 cm** in Fixed f/2.8 mode, **20 cm** in Starburst f/4.0 mode, and **11 cm** with the optional Macro Lens.
- **ISO (photo):** 100–25600.
- **ISO (video):** 100–51200 (51200 available **only in SuperNight mode**). In 8K, FAQ lists max ISO 12800 (normal color) / 6400 (D-Log M).
- **Shutter (photo):** 1/8000 s – 30 s. **Shutter (video):** 1/8000 s up to the frame-rate limit.

2.2 Physical

- **Dimensions:** 72.8 x 47.2 x 33.1 mm (LxWxH).
- **Weight:** 149 g.
- **Waterproof:** **20 m without a case, 60 m with the dedicated Waterproof Case; IP68** rating.
- **Operating temperature:** -20 °C to 45 °C. **Charging temperature:** 5 °C to 40 °C.

(Source: [dji.com/osmo-action-6/specs](https://www.dji.com/osmo-action-6/specs))

3. Video Specifications

3.1 Resolutions & frame rates

- **8K:** 7680 x 4320 @ 24/25/30 fps (16:9; added by Dec 2025 firmware; H.265, supports D-Log M 10-bit). Restricted FOV/EIS options; increases file size and thermal load.

- **4K:**
- 3840 x 2160 @ 24/25/30/48/50/60 fps
- 3840 x 2160 @ 100/120 fps (slow motion)
- 3840 x 2880 (4:3)
- 3840 x 3840 (Custom square / "shoot-first, crop-later")
- **2.7K:** 2688 x 1512 and 2688 x 2016 @ 24/25/30/48/50/60 fps; up to 120 fps.
- **1080p:** 1920 x 1080 (and 1080 x 1920 vertical) @ up to 240 fps.

3.2 Slow motion

- **4x slow motion at 120 fps** in 4K and 2.7K.
- **8x slow motion at 240 fps** in 1080p.
- DJI also advertises generating **up to 32x Super Slow Motion playback at 1080p** (frame-interpolated, in-app/in-camera). One review cited "1080p/960fps," but DJI's official capture spec tops out at 240 fps optically, with higher multiples being interpolated playback — treat 240 fps as the true sensor read-out limit.

3.3 Bitrate, codec, color

- **Max bitrate:** ~120 Mbps (official; one review cited 130 Mbps).
- **Codec:** MP4, HEVC (H.265).
- **Color depth:** 10-bit, with **D-Log M** flat profile for grading (and HLG-style HDR output). 8K supports D-Log M 10-bit in H.265.
- **HDR video** supported (in standard color modes; note HDR/D-Log M and certain modes like SuperNight are mutually exclusive).

(Sources: dji.com specs/FAQ, dpreview.com, digitalcameraworld.com, cined.com)

4. Photo Specifications

- **Resolution:** up to ~38 MP (7168 x 5376 single shot). A 34 MP mode also exists in some aspect ratios.
- **Formats:** JPEG and **RAW (DNG)**.
- **Modes:** Single, **Burst (up to 30 images / 3 s)**, **Countdown timer** (off/0.5/1/2/3/5/10 s), Timelapse, **Long-exposure / night timelapse**, and **film-style tone presets** (added by firmware) for stylized JPEGs straight from camera.
- **Starburst effect:** at the f/4.0 aperture setting, point light sources render as clean 6-point sunstars.

5. 2x Zoom — Exhaustive Detail

5.1 What it is and how it works

The Osmo Action 6 offers a "**2x Lossless Zoom.**" It is **not an optical zoom** — the lens is a fixed focal length. Instead it is a **sensor-crop / oversampling zoom**: because the 1/1.1-inch sensor captures far more pixels than a 4K frame needs (the sensor can feed 8K, ~33 MP), the camera can crop into the center of the sensor by 2x and still read out a **full-resolution 4K image with no upscaling/interpolation** — hence "lossless" at 4K. DJI markets it as letting you "zoom in up to 2x without compromising 4K quality, ensuring faraway details remain clear and sharp." It is conceptually the same as Insta360's "**Clarity Zoom**" on the Ace Pro 2. (dji.com media center, slashgear.com, dronexl.co)

5.2 Maximum and resolution availability

- **Maximum zoom: 2x** (digital), available in both **photo and video**.
- The "lossless" claim holds best when the **output resolution is well below the sensor's full readout** (i.e., 4K and below). At 4K you are cropping from an 8K-class sensor, so detail is genuinely preserved. The advantage shrinks at higher output resolutions where there is less spare sensor to crop into.

5.3 Where it is NOT available (important limitations)

Per DJI's FAQ, 2x lossless zoom is **not supported in**:

- 38 MP / 34 MP photo modes
- **SuperNight mode**
- **Subject Tracking**
- **Slow Motion**
- **Timelapse**

So you cannot combine the zoom with the low-light SuperNight mode or with high-frame-rate slow motion. (dji.com/osmo-action-6/faq)

5.4 How to activate it

- **QS (Quick Switch) button**: the Dec 2025 firmware added a **Zoom function to the customizable QS button**, so you can map zoom to the physical button for one-press access. (cined.com, 4kshooters.net)
- **Touchscreen**: zoom can also be controlled from the rear touchscreen / preview, and via the DJI Mimo app.

5.5 Quality implications & real-world findings

- **Bright light:** Reviewers confirm the 2x crop delivers **noticeably better quality than ordinary digital zoom** and retains sharp detail on distant subjects — useful when you can't physically get closer.
- **Low light:** Multiple reviewers found the benefit **evaporates in dim conditions** — Amateur Photographer and others noted "noise dancing around" in the Lossless Zoom such that it was **no better than cropping in post**, and sometimes worse. Because it's a center crop, you're using a smaller portion of the sensor, which costs you light-gathering — exactly when low light is challenging.
- **Net guidance:** Treat 2x zoom as a **good-light tool**. In low light, shoot wide and crop in your editor instead.

5.6 Use cases

- Wildlife / distant subjects in daylight, framing tighter shots without a second lens, "punch-in" emphasis on POV/vlog footage, and reducing the ultra-wide 155° distortion by effectively tightening the field of view.

6. Low Light — Exhaustive Detail

6.1 Hardware advantages

- **Largest action-cam sensor (1/1.1-inch, 98 mm²) with 2.4 μm large pixels** — more light per pixel than the Action 5 Pro's 1/1.3-inch (75 mm²) sensor or any GoPro/Insta360 rival.
- **Bright f/2.0 maximum aperture** (the variable aperture's widest setting) — roughly **2x the light** of a typical f/2.8 fixed action-cam lens.
- **13.5 stops of dynamic range** and a claimed **~0.5-stop low-light edge** over competitors.
- Reviewers (SlashGear, TechRadar, Digital Camera World) repeatedly call it "**the best low-light performance in any action camera,**" with image quality "far closer to what I'd expect from a Nikon Z8 than a typical action cam."

6.2 Variable aperture for low light

Aperture is selectable (camera: tap the image/audio settings button, then "Variable Aperture"; or in Mimo via the "... " menu):

- **Auto** — aperture adapts to the scene and **opens up to f/2.0 in low light**. Within Auto you can cap the range: **f/2.0–f/4.0 (default), f/2.2–f/4.0, f/2.4–f/4.0, f/2.6–f/4.0, or f/2.8–f/4.0**.
- **Large Aperture (f/2.0)** — locks wide open at f/2.0 for maximum light gathering (best for night).
- **Fixed (f/2.8)** — classic action-cam behavior; 35 cm min focus.
- **Starburst (f/4.0)** — for sunstars; 20 cm min focus.

(dji.com media center; megadron FAQ)

6.3 SuperNight mode

- **What it is:** a dedicated low-light video mode that **digitally lifts exposure and applies AI noise-reduction algorithms** to produce a brighter, cleaner image in extreme darkness. DJI: "In extremely low-light conditions, Osmo Action 6 shines with its AI noise reduction algorithms."
- **Resolutions / frame rates:** 4K, 2.7K, and 1080p at **24/25/30/48/50/60 fps** (i.e., **up to 4K/60fps**). Supports **10-bit color**.
- **ISO:** SuperNight is the only mode that unlocks the top **ISO 51200**.
- **Stabilization:** works with **RockSteady 3.0 / 3.0+**.
- **Limitations / incompatibilities:** SuperNight does **NOT** support **HorizonBalancing, HorizonSteady, the 155° ultra-wide angle, or 4:3 aspect ratio**, and is incompatible with **2x zoom, subject tracking, and slow motion**.
- **How to enable:** swipe left/right on the center of the screen to the camera-mode carousel and select **SuperNight**.
- **Best use case (per DJI and reviewers): nighttime urban/city shooting** — street scenes, neon, low-light walking/cycling POV. It dramatically reduces distracting noise and brightens shadows; results are "usable for YouTube and Shorts."

(Sources: support.dji.com SuperNight article; dji.com FAQ; photorox.art; 220triathlon, pinoymetrogeek)

6.4 Noise reduction philosophy & real-world performance

- AI NR in SuperNight is strong but can **over-smooth** if pushed. Reviewers and DJI's own community recommend not relying on maximum in-camera NR for serious work.
- Real-world: significantly cleaner than older GoPros; "night street clips look fine" if you avoid extreme in-camera NR and do light cleanup in post.

6.5 Recommended low-light settings (from a POV reviewer, photorox.art)

- **4K @ 24/25 fps, D-Log color, Custom 1:1 open-gate** (reframe later).
- **Manual exposure:** shutter **locked at 1/50** (keeps motion natural), **ISO 100–12,800** (auto-climb), **auto white balance**.
- **Texture: 0, Noise Reduction: 0, Sharpening: 0** — a clean neutral base; denoise in post rather than letting the camera smear detail. (The reviewer found -2/-2 produced footage "too soft and too noisy.")
- Set **bitrate to High** (the camera has a habit of reverting to Medium).
- For the cleanest night results, use **SuperNight mode** for social/quick delivery, or **Large Aperture f/2.0 + manual ISO** for graded D-Log work.
- **Caveat:** D-Log and the f/2.0 setting cannot always be combined in standard video modes — verify in your firmware before a critical shoot.

7. Stabilization

- **RockSteady 3.0** and **RockSteady 3.0+** (3.0+ trades some FOV for stronger stabilization).
- **HorizonBalancing** (keeps horizon level through moderate tilt) and **HorizonSteady** (full 360° horizon lock).
- **FOV impact:** RockSteady 3.0+ and HorizonSteady crop in more than the standard modes; HorizonSteady has the largest crop. The 155° ultra-wide and 4:3/SuperNight modes restrict which stabilization options are available. Reviewers rate stabilization on par with GoPro and Insta360 flagships ("beautifully stable from any of them").

8. Displays, Touch Interface & Controls

- **Front screen:** 1.46-inch, 342 x 342, **331 ppi**, up to ~800 cd/m² — for framing selfies/vlogs.
- **Rear screen:** 2.5-inch touchscreen, 400 x 712, **326 ppi**, ~800 cd/m² typical, **up to 1000 cd/m² peak** brightness (bright enough for sunlight).
- **Controls:** physical shutter/record button, power/Quick-Switch (**QS**) button (customizable — can be mapped to Zoom, Screen Off, mode switching, etc., via firmware). Touch UI uses swipes (left/right = mode carousel; down = settings; up = quick toggles).
- **Voice Control:** English and Mandarin; best within ~1 m in a quiet environment.
- **Gesture Control:** raise an open palm (detected within ~2 m, either hand) to start/stop recording or take a photo — handy for remotely mounted cameras.

9. Battery

- **Type:** Li-ion 1S, **1950 mAh**, **7.5 Wh**, 3.87 V.
- **Runtime:** up to **240 minutes (4 hours)** at 1080p/24 fps, 25 °C — class-leading.
- **Cold-weather:** up to **167 minutes at -20 °C** (operating temp rated to -20 °C) — strong cold endurance.
- **Fast charging:** to **80% in ~22 minutes**.
- **Adventure Combo** includes **3 batteries total** and a **multifunction battery case** that charges and stores batteries and can act as a power bank for the camera.
- **Thermal note:** at maximum 8K/30 the camera can overheat after ~65 minutes (still longer than rivals at 4K) — expected for 8K in a body this small.

10. Audio

- **Built-in: 3-microphone array** with **intelligent wind-noise reduction**. Internal audio recorded at **48 kHz, 16-bit, AAC**.

- **OsmoAudio direct connection:** pair up to two DJI Mic transmitters directly to the camera via Bluetooth — no receiver/adaptor needed. Compatible with **DJI Mic 2, DJI Mic 3, DJI Mic Mini, DJI Mic Mini 2**.
- Pairing: hold the transmitter's link button ~2 s; camera shows "Connected."
- **Quality caveat:** Bluetooth-direct audio is capped at **16 kHz / 16-bit** (lower than using the DJI Mic receiver + adapter, which delivers full quality). For top audio fidelity, use the receiver via USB-C.
- Standard Bluetooth audio devices and the wired USB-C path are also supported.

11. Connectivity, App & Storage

- **Wi-Fi 6** (802.11 a/b/g/n/ac/ax; 2.4 GHz + 5 GHz bands).
- **Bluetooth BLE 5.1.**
- **USB 3.1 (USB-C)** for fast wired transfer and timecode sync.
- **Quick Transfer:** wireless data transfer up to **~300 MB/s** to phone via DJI Mimo.
- **App: DJI Mimo** (requires v2.6.8 or later for the 8K firmware) — control, live view, settings, editing, and activation.
- **Cloud/NAS Upload (firmware-added):** auto-upload footage to Baidu Netdisk, Quark, OneDrive, Google Drive, or a personal NAS, e.g. while charging.
- **Storage: 64 GB internal (~50 GB usable) + microSD up to 1 TB (exFAT).** Verified compatible 1 TB cards include Kingston Canvas Go! Plus and Lexar Professional Silver Plus (U3/A2/V30).

12. Mounting Ecosystem & Accessories

- **Magnetic quick-release** mounting with **reversible magnetic mounts** (firmware/design improvement) — no thumbscrews needed; flip orientation fast.
- **Horizontal-and-vertical protective frame** for quick portrait/landscape switching.
- **Lens accessories (auto-detected; camera adjusts settings on attachment):**
- **Macro Lens** — drops minimum focus from 35 cm to **11 cm** for close-ups with shallow depth of field; firmware adds **focus peaking** when attached.
- **FOV Boost Lens** — widens field from **155° to 182°**.
- **Glass Lens Cover / ND filters** and protective covers.
- **Extension rod / selfie stick (1.5 m)** in Adventure Combo.
- **Caveats:** the camera is **not compatible with older DJI Action mount systems**, and there is **no native 1/4-20 tripod thread** (needs an adapter). The standard lens itself is **not user-swappable** (only the screw-on accessory lenses/covers).

13. Comparisons

13.1 vs. predecessor — Osmo Action 5 Pro

Feature	Action 5 Pro	Action 6
Sensor	1/1.3" (75 mm ²), 4:3	1/1.1" (98 mm²), square
Aperture	Fixed f/2.8	Variable f/2.0–f/4.0
Max video	4K/120	8K/30 (firmware), 4K/120
Dynamic range	~13.5 stops	up to 13.5 stops
Stabilization	RockSteady 3.0	RockSteady 3.0 / 3.0+
Battery	up to 240 min	up to 240 min
Zoom	digital	2x lossless
Lens accessories	—	auto-detect macro / FOV boost

Reviewers' verdict: the new sensor + variable aperture are real upgrades, but for **standard 16:9 video the quality jump is modest**. The biggest practical wins are the **square sensor (shoot-once, reframe to 16:9 or 9:16 with no loss)**, better low light, the variable aperture's creative control, 2x lossless zoom, and 8K. (digitalcameraworld.com, dpreview.com)

13.2 vs. GoPro Hero 13 Black (current shipping GoPro)

- **Sensor:** Hero 13 uses a smaller **1/1.9"** sensor, so the Action 6 is markedly better in low light.
- **Resolution:** Hero 13 tops out at **5.3K/60** (4K/120); Action 6 does **8K/30, 4K/120**.
- **Waterproof:** Hero 13 = **10 m**; Action 6 = **20 m** bare.
- **Aperture:** Hero 13 fixed; Action 6 **variable f/2.0–f/4.0**.
- GoPro's edge: broadest accessory/mod ecosystem (HB-series lens mods, etc.).
- **Hero 14 Black** (delayed, expected 2026 on the new GP3 processor) is rumored to bring 5.3K/240, possible 8K, and big low-light/battery gains — but was **not yet shipping** as of mid-2026.

13.3 vs. Insta360 Ace Pro 2

- **Sensor:** Ace Pro 2 = **1/1.3"** with **Leica f/2.6** fixed lens; Action 6's **1/1.1"** is larger.
- **Resolution:** both reach **8K/30** and **4K/120**.
- **Waterproof:** Ace Pro 2 = **12 m**; Action 6 = **20 m**.
- **AI:** Ace Pro 2 has more AI editing features (AI tracking, auto-framing, AI highlights). Action 6 counters with the variable aperture, larger square sensor, deeper waterproofing, and 2x lossless zoom.
- Both are excellent low-light performers; Action 6's bigger sensor + f/2.0 give it the imaging edge, Ace Pro 2 the software/editing edge.

(Sources: redsharknews.com, techradar.com comparison, mojogear.eu, road.cc)

14. Firmware Features, Tracking, Timecode, Voice & Gestures

- **8K recording** (firmware v01.02.05.21, Dec 2025): 7680x4320 @ 24/25/30, H.265, D-Log M 10-bit.
- **Cloud/NAS auto-upload** (Baidu, Quark, OneDrive, Google Drive, NAS).
- **Subject Centering & Tracking:** detects and keeps the subject framed; **horizontal-only**, up to **2.7K/60 fps** in 16:9 or 9:16.
- **Timecode:** built-in; reset or sync to system time, and sync via timecode generator over USB-C for multi-cam shoots.
- **Voice Control:** English + Mandarin (within ~1 m, quiet).
- **Gesture Control:** open-palm to start/stop or shoot, within ~2 m.
- **Film-style tone presets** for stylized JPEGs in-camera.
- **QS button customization:** Zoom, Screen Off, mode switching.
- **Focus peaking** when the macro lens is attached; **Custom aspect ratio** support with macro/FOV-boost lenses.
- **4K free-crop / "shoot-first, decide-later"** square capture for 16:9 or 9:16 reframing without resolution loss.

15. Known Limitations, Criticisms & Pros / Cons

15.1 Criticisms / limitations

- **Mandatory activation** via DJI Mimo before first use (annoyance; connectivity required).
- **2x "lossless" zoom degrades in low light** — noise creeps in; often no better than cropping in post when dim.
- **Standard 16:9 image quality is only a modest step up** over the Action 5 Pro — the big sensor mostly pays off via square-crop flexibility and low light, not raw 16:9 sharpness.
- **No native 1/4-20 thread; not compatible with older DJI mounts** — may require re-buying mounts.
- **Many feature exclusions:** SuperNight blocks HorizonSteady/HorizonBalancing, 155° ultra-wide, 4:3, zoom, tracking, and slow motion; conversely zoom blocks SuperNight/tracking/slow-mo/high-MP photo. Plan modes in advance.
- **8K causes thermal limits** (~65 min) and large files.
- **Bluetooth-direct DJI Mic audio capped at 16 kHz/16-bit** (use receiver for full quality).
- **Variable aperture mechanism** is a new moving part — long-term durability unproven (DJI Care Refresh recommended).
- **US availability/trade-restriction concerns** noted by some reviewers at launch.

15.2 Pros

- Largest action-cam sensor + bright **f/2.0**, giving **best-in-class low light**.
- **Variable aperture** = real creative control (exposure, depth, sunstars).
- **Square sensor**: shoot once, reframe 16:9/9:16 with no loss — ideal for multi-platform creators.
- **8K** (via firmware), 4K/120, 10-bit D-Log M.
- **20 m waterproof** bare (deepest in class), rugged, cold-resistant to -20 °C.
- **4-hour battery**, 22-min 80% fast charge.
- Excellent dual touchscreens, OsmoAudio DJI Mic pairing, subject tracking, timecode, voice/gesture control.
- Generally rated **the most capable action camera available** (Digital Camera World 5/5; TechRadar, SlashGear, Tom's Guide all very positive).

16. Tips & Recommended Settings

16.1 General / everyday

- Shoot **4K/60** in standard color for crisp, gradable footage; **4K Custom (square) at 1:1** when you'll publish to both YouTube and Shorts/Reels.
- Keep **bitrate on High** (it can silently drop to Medium).
- Use **RockSteady 3.0** for most action; **HorizonBalancing** for everyday level horizons; **HorizonSteady** only when you need full 360° lock (largest crop).

16.2 Low light / night

- For quick social delivery: **SuperNight mode**, 4K/60 or 4K/30, RockSteady 3.0. Don't expect to combine it with zoom, tracking, ultra-wide, or 4:3.
- For graded work: **Large Aperture f/2.0** (or Auto f/2.0–f/4.0), **D-Log M 10-bit, manual shutter ~1/50** (24/25 fps), **ISO capped ~12,800**, set **NR/Texture/Sharpening to 0**, then denoise/grade in post.
- Keep ISO as low as the scene allows; let the **f/2.0 aperture** do the light-gathering before pushing ISO.
- For city night b-roll, SuperNight + a stable mount produces clean, bright results with minimal grain.

16.3 2x zoom

- Use it mainly in **good light**, where the 4K crop stays sharp and "lossless."
- Map **Zoom to the QS button** (firmware) for fast access.

- In **low light, skip in-camera zoom** — shoot wide at f/2.0 and crop in your editor, or it'll be noisier than a post crop.
- Remember it's disabled in SuperNight, tracking, slow-mo, and high-MP photo — pick your mode first.

17. Sources

- DJI official: Osmo Action 6 product page (dji.com/osmo-action-6), Specs (dji.com/osmo-action-6/specs), FAQ (dji.com/osmo-action-6/faq), Announcement (dji.com/media-center/announcements/dji-release-osmo-action-6)
- DJI Support: SuperNight Mode article (support.dji.com), Low-light shooting recommendations, DJI Mic compatibility
- Osmo Action 5 Pro specs (dji.com/osmo-action-5-pro/specs)
- DPReview announcement (dpreview.com)
- Digital Camera World review (digitalcameraworld.com)
- SlashGear review (slashgear.com)
- Amateur Photographer review (amateurphotographer.com)
- Tom's Guide review (tomsguide.com)
- TechRadar review (techradar.com)
- Photorox POV settings / low-light guide (photorox.art)
- DroneXL long-term review (dronexl.co, Feb 2026) and launch review (Nov 2025)
- Firmware / 8K: PetaPixel, Newsshooter, CineD, 4K Shooters (Dec 2025)
- Comparisons: RedShark News best action cameras 2025; TechRadar 3-way comparison
- Bundles / pricing: Sweetwater, B&H, Heliguy combo comparison
- GoPro Hero 14 status: DC Rainmaker, Digital Camera World

18. Underwater Use — Complete Guide

Scope note: The Osmo Action 6 launched in November 2025, so the dedicated underwater literature is still thin compared to GoPro. Where a claim is Action-6-specific and confirmed by DJI or a hands-on source it is stated as such; where the only data is from the Action 5 Pro / Action 4 (which share the same scuba architecture) or from general flat-port optics, that is flagged. Third-party case pricing in particular is not consistently published yet — treat dollar figures as "verify before buying."

The Action 6 is, on paper, the most dive-capable mainstream action camera ever shipped: a comparatively huge **1/1.1-inch sensor** (2.4 um fused pixels, up to 13.5 stops DR), a **mechanical variable aperture f/2.0–f/4.0** (a first for the category), a **built-in color-temperature sensor** for underwater white balance, a **20 m bare depth rating**, a **built-in depth/pressure gauge**, and **10-bit D-Log M**. For an experienced diver this combination matters more underwater than anywhere else, because depth steals light and color faster than any topside condition. (Sources: DJI specs, DJI

announcement.)

18.1 Bare Camera Underwater (No Case)

Depth rating and what the IP68 number really means

- **20 m (65 ft) bare, IP68.** This is a genuine static-immersion rating, not a splash rating. DJI explicitly states the camera is "waterproof up to 20 meters without a case."
- **Three seals you personally must close every time:** the **battery-compartment door**, the **USB-C port cover**, and the **Glass Lens Cover** (it must be hand-tightened). DJI lists all three as prerequisites for the IP68 rating. Most "bare camera flooded" failures are an unlatched battery door, not a seal defect.
- **Hard limits:** no hot springs, no corrosive liquids, and DJI cautions that the bare rating assumes relatively low water impact — i.e. it is a *depth* rating, not a *velocity* rating. Giant-stride entries, wakeboard wipeouts, etc. impose pressure spikes the static rating does not cover.

Real-world reliability at recreational depth

- Multiple snorkeling/dive testers treat 20 m as reliable **but warn that the doors "open too easily,"** and recommend a housing for any real diving for that reason alone. (tropicalsnorkeling.com)
- 20 m bare leaves **zero safety margin** for a recreational dive that drifts to 18–20 m. Cold water also stiffens the door gasket. For repetitive sport diving most reviewers say: dive bare only to ~10–12 m, and case it below that. See 18.2.

The Scuba Diving Mode mechanism (critical for bare/cased button use)

DJI's **Scuba Diving Mode** exists precisely because the touchscreen and the main record button stop working under pressure:

- It can be enabled manually, or the camera **auto-enters it at roughly 14–16 m depth**; you can also force it by **holding the Record button for ~5 seconds**.
- Once active, **the main Record button is disabled** (water pressure on the membrane makes it unreliable), so you **start/stop with the side QS (Quick Switch) button**.
- Exit by **pressing the Record button five times quickly**.
- (Source: DJI Support — Osmo Action Series Scuba Diving Mode.)

Touchscreen behavior when wet — this is the big one

The rear screen is **capacitive**, and capacitive touch is fundamentally unreliable underwater and on a wet finger:

- Snorkel/dive testers report the touchscreen is **"not practical underwater"** — it functions out of the water but you **cannot reliably operate it submerged**, and replaying clips in-water is "not something you should plan on doing." (tropicalsnorkeling.com)

- Wet capacitive screens also **ghost-trigger** (phantom taps) as droplets bridge the surface, which can silently change settings.
- **Practical rule:** treat the Action 6 underwater as a **button-only device**. Set resolution, color, WB, aperture and stabilization **topside, before entry**, and drive recording with the QS button. Program the QS/custom button before the dive (see 18.11).

Lens fogging / internal condensation (bare)

- Bare, the camera has no sealed air gap in front of the sensor stack, so true *internal* fogging is uncommon — but a **cold camera carried into warm humid air, then submerged** can fog the inside of the Glass Lens Cover. Seal/assemble in cool, dry (A/C) air; do not open the battery door on a hot wet boat. One long-term diver specifically "prevents lens fogging by sealing the housing in air-conditioned spaces before use." (Hyder Sea Travels)

Saltwater rinse and care (bare)

- **Soak, do not just rinse.** Immerse the whole camera in fresh water for 10–15 minutes after every saltwater dive, working the buttons under water so salt does not crystallize in the membranes/QS switch.
- **Remove the camera from any mount/frame before soaking** so salt does not dry in the trapped gap between camera and mount. (tropicals snorkeling.com)
- Dry fully before opening the battery door; salt water in the battery bay is what kills these cameras.

Glass Lens Cover / lens guard

- The Action 6's front element is protected by a **user-replaceable Glass Lens Cover** that screws on. **It is the depth seal at the front and a sacrificial scratch shield.** Sand, coral and boat decks will scratch it; keep a spare. Always confirm it is fully tight before entry — a partially threaded lens cover is a classic flood path. A scratched cover is a cheap swap; a scratched fixed lens would not be.

18.2 The Dedicated DJI Waterproof Case (60 m)

What it is and what it adds

- **Depth rating 60 m (197 ft), IP68.**
- **Optical-glass flat port** in front of the lens (so image quality is preserved; cheap acrylic ports soften corners).
- **Physical mechanical buttons** that press the camera's controls through the shell — so you keep Record/QS/power control at depth without relying on the dead touchscreen.
- **Weight ~110 g; dimensions 94.7 x 45.9 x 84.1 mm.**
- Accepts **anti-fog inserts** inside the sealed air volume.

When you actually need it

- **Below ~16–20 m**, and as a **safety margin** on any serious dive. The case turns a 20 m hard limit into a 60 m rating, covering all recreational and most tech depths.
- For **cold water**, where the bare door gasket stiffens.
- Whenever you want **reliable button feel** and will not fiddle with a wet capacitive screen.

The DJI Diving Accessory Kit (\$99)

The cleanest way to buy it. Contents:

- Osmo Action 6 Waterproof Case (60 m)
- **Anti-Fog Inserts — 6 pairs**
- **DJI Wrist Strap**
- **DJI Floating Handle** (positively buoyant — see buoyancy in 18.9)
- **Osmo Locking Screw**
- (Source: DJI USA. The case is also sold standalone, e.g. B&H CP.OS.00000531.02.)

O-ring care — and a real flood report

A diver on ScubaBoard reported the **official DJI case flooded on the very first dive** (camera initially dead, later recovered). Experienced responders pinned the likely cause on the **case O-ring, a button, a cracked shell, or a manufacturer defect** — with the O-ring the prime suspect — and one diver with 24 dives on the DJI case stressed staying "**vigilant about checking the O-ring for salt, sand and hair.**" Takeaways:

- **Inspect and clean the O-ring before every dive** — a single hair or grain of sand breaks the seal. Wipe the groove, lightly grease only if DJI specifies it, never stretch the ring.
- **Vacuum/leak-check or do a weighted no-camera dunk** when feasible.
- **Buy DJI Care Refresh** for diving; floods are not always covered otherwise, and one OP could not even return to Amazon because he was traveling.
- (Source: ScubaBoard — DJI Osmo Action 6 Underwater Case FLOODED.)

18.3 Telesin Case — Detailed

There **is** an Action-6-specific Telesin dive housing already shipping, and it is the most popular third-party case for the camera.

Confirmed specs (Action 6 model)

- **Depth rating: 60 m / 196 ft.** (Telesin store; Amazon B0FZQDDCXL; B&H S4-WTP-12)
- **Build:** PC hard outer shell with **stainless-steel parts**, an **inner high-elasticity rubber sealing ring**, and an **upgraded seal ring + tightened buckle** marketed for leak resistance and pressure resistance.
- **Port: ultra-thick tempered optical glass** with high light transmittance (not acrylic).

- **Anti-fog: 6 anti-fog inserts included.**
- **Mount:** integrated **2-prong action-camera finger mount** on the base with a **locking thumbscrew** (standard GoPro-style interface, so it drops onto any tray/handle).
- **Buttons:** mechanical pass-through buttons for shooting underwater.
- **Combo option** exists bundling the case with a **floating stick/handle** (Amazon B0G1BZ237D).



The Action 6 beside the clear Telesin 60 m housing, showing the tempered-glass port and filter-ring bezel.

Filters

- **Filters are sold separately, not in the base case.** Telesin's long-standing Osmo-Action dive filter set is a **3-pack: Red, Light Red, and Magenta**, designed to **clip/seat over the case's flat port** (the Action-series Telesin filters are a frame that snaps onto the housing's lens bezel rather than a thread). Confirm the new Action-6 housing's bezel diameter before buying older Action-4/5 filter frames — Telesin historically changes the bezel between generations.

Pricing

- **Not yet consistently published.** Telesin Action-series 60 m housings have historically street-priced around **\$40–\$60**, and the filter 3-pack around **\$15–\$25** — but treat these as estimates pending the Action-6 listings settling.

Telesin vs DJI vs other third parties

Case	Depth	Port	Filters	Notes
DJI official	60 m	Optical glass flat	None included; no native filter slot	Best fit/finish, part of \$99 kit, but a confirmed first-dive flood report exists — O-ring vigilance required
Telesin	60 m	Tempered glass flat	Clip-on Red/Light-Red/Magenta 3-pack sold separately	Cheapest credible option; GoPro-style mount; 6 anti-fog sheets; combo with float stick
Sea Frogs / Salted Line	40 m polycarbonate; 200 m aluminum (older models)	Glass, accepts threaded wet lenses on some models	Most "system" oriented — can take 52/67 mm wide & macro wet lenses; heavier/pricier	
FitStill / GEPULY / generic	60 m	Acrylic/glass varies	Often bundled with filters + buoyancy handle	Budget kits; QC variable
AOI / Weefine	—	Premium glass + dedicated wet-lens ecosystem	Best optics for add-on wide/macro wet lenses	AOI makes the UWL-03 wet lens; a confirmed Action-6 <i>housing</i> from AOI/Weefine was not found at writing

Bottom line: For a diver who wants the cheapest reliable 60 m housing **with a real filter option**, the **Telesin** is the pragmatic pick; for a "no-thinking" matched system buy the **DJI kit** (and the DJI Care); for serious **wet-lens wide/macro** work step up to a **Sea Frogs** housing with threaded ports.

18.4 Red / Magenta Correction Filters

Why filters exist

Water absorbs the visible spectrum from the long (red) end first: **red is essentially gone by ~5 m (15 ft), orange by ~10 m, yellow by ~20 m**, leaving everything blue-green at depth with ambient light. A correction filter is a band-limited absorber that knocks down blue/green so the camera's remaining red/orange channels balance back to neutral.

Which filter, which water, which depth

- **Red filter** — blue/tropical water, ~15–80 ft (5–25 m). The standard reef-diving filter.
- **Light red / shallow ("snorkel" or pink) filter** — very shallow, ~2–15 ft. Less aggressive, for surface/snorkel where lots of red still remains.
- **Magenta filter** — green / temperate / freshwater (kelp, quarries, lakes), and green water deeper than ~7 ft. Magenta corrects the green cast that a red filter cannot.

Screw-on vs slide/clip-on

- The **DJI and Telesin slim cases do not have a filter thread**. Filters for them are **clip/snap frames that seat over the flat port bezel** (Telesin 3-pack) — fast to swap topside, fiddly to swap at depth.

- **Magnetic filter sets** exist for some third-party "T-housings," letting you flip between two reds + a magenta and "park" the unused one sideways — convenient but verify Action-6 fit.
- **Bare-camera filters** would thread onto the Glass Lens Cover bezel, but check thread availability for the Action 6 specifically; this ecosystem is still forming.

Filter WITH auto WB, or with manual WB?

This is the key technique question, and it splits two ways:

- **Filter + Auto WB (with the Action 6's color-temp sensor):** Recommended for most divers. The filter does the coarse spectral correction; the camera's industry-first **underwater color-temperature sensor** fine-tunes. This is the most "set and forget" path and the Action 6's AWB is genuinely good (18.5).
- **Filter + locked manual WB:** Best when you want **color consistency for editing/grading** and to stop the mid-clip color jumps reviewers complain about. Lock WB after the filter is on, at depth.
- **Do NOT** stack a strong red filter *and* a big manual red WB push *and* heavy red recovery in post — you will clip the red channel and get magenta-blocked, noisy faces. Pick filter-led **or** WB-led correction, not both at full strength.

The contrarian view (no filter at all)

Several DJI-specific testers argue **skip the filter** on the Action/Action 6 because: (a) a filter is "an extra layer of glass that reduces light" on an already light-starved underwater scene, and (b) the camera's underwater WB "**adds a red/purple tint**" **automatically and gives really good color straight out of camera**. For an experienced shooter the honest split is:

- **Shooting with video lights** -> **no filter** (your lights restore full-spectrum color; a red filter would over-warm the lit subject).
- **Ambient light only, blue water, 5–20 m** -> **red filter helps** noticeably.
- **Green/murky water, ambient only** -> **magenta filter**.

18.5 White Balance Underwater — Critical

The Action 6's headline advantage

DJI built an "**industry-leading, built-in color-temperature sensor**" specifically to read ambient water color and drive underwater WB. In practice this is the single biggest reason the Action line beats GoPro on out-of-camera underwater color.

Three approaches, ranked for a diver

- 1 **Auto WB (color-temp sensor) — best default.** Colors are "really good straight out of camera without a filter or post-processing." **Caveat:** the well-documented Action-4/5 failure mode is that "**the color will suddenly change right in the middle of a clip**" as depth or sun angle shifts. The **Action 6 reportedly improves this**, though some testers now see **exposure** jumping mid-clip instead.

- 2 **Manual / locked WB — best for clean grading.** Lock a Kelvin value so the footage does not pulse color. General guidance from Action 6 settings sources:
 - ~**5600 K** as a do-everything lock that "prevents color shifts" topside-to-shallow.
 - Underwater specifically you generally push **warmer** as you go deeper — typically **6000–8000 K+** at 10–20 m of blue water — to counteract the cold cast. Set it by eye on a known-neutral target.
- 1 **Custom WB by depth off a slate/sand — most accurate, most work.** At your working depth, fill the frame with a **gray/white dive slate or a patch of light sand** and set custom WB there. Re-do it each time you change depth by more than a few meters, because the correct Kelvin climbs with depth. This is the cleanest possible underwater color and the best foundation for grading.

D-Log M underwater + grading

- **D-Log M 10-bit** is the right capture profile for serious underwater work: it preserves the highlight (sun shafts, surface) and shadow (under-ledge) detail you need, and 10-bit gives the **bit depth to push blue->neutral in post without banding.**
- **Watch the ISO ceiling:** DJI lists **D-Log M capped at ISO 6400** in its higher-quality modes — so in dark water D-Log M can run out of headroom before the standard profile does. Use the **on-screen D-Log M color-recovery preview** so you can still judge color on a flat profile.
- **Limits of fixing color in post:** if blue water has fully crushed the red channel (deep, no light, no filter), there is **no red data to recover** — you will just amplify red noise into magenta blotches. In-camera correction (filter and/or WB and/or lights) beats post every time once you are past ~12–15 m on ambient light.

Recommended combos

- **Run-and-gun reef, no lights: red filter + Auto WB** (let the color-temp sensor work).
- **Cinematic / gradeable: D-Log M + locked or custom WB**, filter optional by water color.
- **With video lights: no filter + Auto or ~5000–5600 K WB** matched to your lights' color temperature.

18.6 Best Settings by Scenario

All of these assume you set everything **topside** and shoot **button-only**. Stabilization = **RockSteady 3.0** unless noted (HorizonSteady/Balancing are limited to 4K/60 or lower — see 18.10).

Texture/sharpening **-1 to -2** and Noise Reduction **-1 to -2** to avoid the over-sharpened, over-denoised "wax" look common to action cams. Bitrate **High**.

18.6a Shallow snorkel / reef, bright tropical sun (blue water, 0–5 m)

- **Resolution/fps:** 4K 16:9 @ 30 (or 4K 4:3 @ 30/60 for vertical-friendly framing).
- **Color:** D-Log M 10-bit (or normal if you will not grade).
- **WB:** Auto (color-temp sensor) — lots of red still present this shallow; or lock ~5600 K.

- **Aperture: f/4.0** to tame blown highlights and surface glare; bright sun gives you the light to afford it. (f/4.0 also yields cleaner sunbeams.)
- **ISO:** 100, capped low (100–400).
- **Shutter:** ~1/60 (2x rule at 30p) — let the camera hold it.
- **Filter:** shallow/light-red or none. Stabilization RockSteady.

18.6b Scuba 10–20 m, blue water (ambient light)

- **Resolution/fps:** 4K 16:9 @ 30 (best light gathering / lowest noise).
- **Color:** D-Log M 10-bit.
- **WB: Custom off slate/sand at depth**, or locked ~6500–7500 K; or red filter + Auto.
- **Aperture: f/2.0** (you need the light at depth).
- **ISO:** Auto 100–3200 (cap to control noise).
- **Filter: Red** (blue water).
- Stabilization RockSteady; consider HorizonBalancing if shooting level reef walls.

18.6c Deep / low-light / green or murky water

- **Resolution/fps:** 4K @ 24–30 (never push fps here — frame rate costs light).
- **Color:** D-Log M if light allows; switch to **normal profile** if you are hitting the D-Log M ISO 6400 ceiling and need the standard mode's higher ISO.
- **WB:** Custom at depth, or **magenta filter + Auto** for green water.
- **Aperture: f/2.0** wide open.
- **ISO:** Auto, cap ~6400; accept some noise rather than crushing shadows.
- **Lights strongly recommended** (18.9) — at this point ambient correction has little to work with.

18.6d Wreck / cave / dark water (the f/2.0 + SuperNight scenario)

- **Resolution/fps:** 4K/60 max in **SuperNight**, or 4K/30 normal.
- **Color:** SuperNight is the play when it is genuinely dark — DJI rates it to **4K/60** and the variable aperture opens to **f/2.0**; the 1/1.1" sensor's 13.5 stops earn their keep here.
- **WB:** match to your **video lights** (~5000–5600 K), no filter.
- **Aperture: f/2.0.**
- **ISO:** in SuperNight the ceiling rises to **51200** — use as a last resort; expect heavy NR.
- **Lights mandatory** for color; SuperNight is for atmosphere/structure where you cannot light everything.

18.6e Split-level / over-under

- **Resolution/fps:** 4K @ 30; **4:3 / open-gate** is great here for vertical room above and below the waterline.

- **Color:** D-Log M for the wide DR (bright sky over dark water is a brutal exposure split).
- **WB:** ~5600 K compromise (you cannot be perfect both sides).
- **Aperture: f/4.0** for depth of field front-to-back and a cleaner waterline; bright sky usually supplies the light.
- **Technique:** flat port (not a true dome) makes a clean 50/50 waterline hard — keep the lens as dry as possible above and shoot fast; a hydrophobic coating / spit on the upper port helps shed the waterline bead. Shooting toward the sun at **f/4.0 produces a sunstar** for dramatic over-unders.
- **Filter:** none (you need the above-water half neutral).

18.6f Fast action — sharks, dolphins, drift dives

- **Resolution/fps:** 4K/120 (16:9 or 4:3) for slow-mo headroom, or 4K/60 if you want lights/color.
- **Shutter:** raise it — **~1/120–1/250** to freeze fast subjects crisply (accept the slightly "video" motion; sharpness wins for action). Use the 2x–4x frame-rate rule.
- **Aperture: f/2.0** (fast shutter eats light); open up.
- **WB:** Auto or locked; no time to fiddle.
- **Stabilization:** RockSteady 3.0+ for drift surge.
- **Filter:** red if blue water and no lights.

18.6g Night diving with video lights

- **Resolution/fps:** 4K/30 (max light per frame), or 4K/60 SuperNight.
- **Color:** normal profile or D-Log M; **WB matched to lights (~5000–5600 K).**
- **Aperture: f/2.0.**
- **ISO:** keep as low as the lights allow (ideally 3200 or under) — your lights, not ISO, should carry exposure.
- **Filter:** none. Approach critters with lights low/off first, then ramp (18.9).

18.7 Macro Lens Underwater

The accessory

- The **DJI Macro Lens** drops the **minimum focus distance from 35 cm to 11 cm**. That 11 cm working distance is excellent for nudibranchs, shrimp, blennies, anemonefish, and other small reef critters.
- **Subject Tracking is disabled** with the macro lens attached.

The hard constraint divers must know

- The macro lens **attaches directly over the camera's front lens** — it is **not designed to fit inside the slim DJI/Telesin waterproof case**, and DJI does **not** publish a depth rating for the macro lens (unlike the FOV Boost Lens, which is rated only 5 m). **Treat the macro lens as a**

bare-camera, shallow-only accessory — viable for snorkel/shallow macro within the camera's 20 m bare limit, **not** for cased deep dives.

- For real **deep macro**, the diver's path is a **threaded housing (e.g. Sea Frogs) plus a dedicated macro/close-up wet lens** that mounts on the port — not the DJI Macro Lens. Verify availability for the Action 6. (See the Inon field report in 18.13 for a real-world close-up wet-lens result.)

Optics and technique

- A **flat port magnifies ~25% and narrows FOV ~30%**. For macro this **works in your favor** — subjects look bigger and closer, which is exactly what you want for small critters.
- **Depth of field:** stop to **f/4.0** for more DOF on a 3-D critter (and the cleaner contrast DJI markets at f/4.0); open to **f/2.0** only when you want subject isolation/bokeh and have the light. At 11 cm, DOF is razor-thin — f/4.0 is usually the smarter macro choice.
- **Focus:** use **focus peaking** to confirm the eye is sharp; at this distance there is no margin. The Action 6 holds focus from ~0.2 m to infinity at f/4.0 natively, so the macro lens is what unlocks true close-up.
- **Lighting is essential** for macro — you are close, blocking ambient light, and want full color on the subject. A small focused video light or snoot-style beam at low power, off-axis, kills backscatter and pops color.
- **Stability:** macro magnifies hand shake too; brace on a muck stick or steady the rig — RockSteady helps but cannot fix a moving 11 cm subject.

18.8 Wide-Angle Lens Underwater

The DJI FOV Boost Lens — and why it is the wrong tool for diving

- It expands native **155° -> 182°** and forces FOV Boost mode automatically.
- **But DJI rates it waterproof to only 5 m, warns it causes image distortion underwater, and explicitly says it is "not suitable for diving."** Do not take it past snorkel depth, and even then expect distortion.

The flat-port FOV problem (this is the real wide-angle issue underwater)

Behind any flat port (bare Glass Lens Cover, DJI case, or Telesin case), refraction at the water/glass/air interfaces:

- **Magnifies the image ~25%** (same effect as looking through your mask), and
- **Cuts effective FOV ~30%**. A 100° land lens becomes ~70° underwater.
- So the Action 6's **155° native becomes roughly ~110–120° effective underwater** behind a flat port — still wide, but not the dramatic ultra-wide you see on land, and corners soften.

How divers actually get true wide underwater

- **Add a wet wide-angle conversion lens with a glass dome element**, which restores/expands underwater FOV and sharpens corners. The reference product is the **AOI UWL-03 / UWL-03Pro: ~140° underwater**, lets the camera get **~4x closer** to the subject, glass dome with AR coating, depth **60 m (Pro 100 m)**, and it mounts via GoPro-style quick-release. (See also the **Inon GR140 ZD Pro** field report in 18.13.)
- **Caveat for the Action 6:** wet lenses mount to a **flat-port housing with the right interface (GoPro-style flip mount, a 52/67 mm thread, or a maker-specific faceplate)**. The slim DJI/Telesin cases generally **do not accept** these — you would pair a wet lens with a **Sea Frogs-style housing** or a dedicated faceplate adapter. Confirm port compatibility before buying.

Split-shot implication

A flat port and a small lens make a clean over-under harder than a big dome would (small ports give a thin, hard waterline). Get the lens dry above water, shoot fast, treat the upper port to shed water. A wide wet lens with a dome element gives a noticeably better split-shot waterline than the bare flat port.

18.9 Lighting & Accessories Underwater

Continuous video light, not strobes

Action cameras **cannot trigger strobes** (no hot shoe, no flash sync), so underwater video lighting is **continuous video lights** only. Video lights differ from dive torches: a **dive torch has a hot spot that blows out the subject**, while a **video light gives a flat, even flood** with no hot spot.

Lumens and beam

- **Snorkel/shallow fill:** ~700–1000 lumens is enough close up.
- **General reef video:** **2000–4000 lumens** per light is the sweet spot.
- **Wide scenes / bigger sensor / wreck:** **5000+ lumens**, up to ~11,000-lumen units exist, ideally with a **wide ~120° flood** to match wide FOV without a center hotspot.
- **Color temperature ~5000–5600 K** (daylight) so it matches ambient and your WB; avoid cold bluish torches for video.
- **Two lights** beat one — flanking the subject from the handles kills backscatter and shadows.

Tray, handles, arms

- A **tray with one or two ergonomic handles** transforms stability and lets you mount lights on **ball-mount arms**.
- **Float arm segments** add lift and let you trim the rig; flotation rings add **~4 oz (~115 g) of lift each in seawater** and help keep the rig upright.

Buoyancy — does the Action 6 sink?

- **Bare camera is 149 g and negatively buoyant — it sinks.** In a case it is still effectively neutral-to-negative. **Always use a float strap or floating handle**, or a dropped camera is gone.

DJI's own **Floating Handle** (in the \$99 kit) and Telesin's float stick are positively buoyant for exactly this reason.

- A **wrist strap / float lanyard** is the cheap insurance for snorkel/shallow.

Anti-fog

- Use the included **anti-fog inserts** (DJI kit: 6 pairs; Telesin: 6 sheets) inside the sealed case, and **seal the case in cool, dry air**. They absorb the trapped humidity that otherwise condenses on the cold port at depth.

Mounting to mask / wrist

- Mask mounts give a true POV but are awkward to aim and can torque the mask seal; wrist/tray mounts give far better control and let you actually compose. For diving, **tray beats wrist beats mask** for usable footage.

18.10 Stabilization Underwater

- **RockSteady 3.0 / 3.0+** is IMU-based (no GPS needed), works fully underwater, and is the right default — it smooths fin-kick bob and surge. Reviewers note stabilization on the Action 6 is excellent.
- **HorizonBalancing / HorizonSteady** keep the horizon level — useful for reef-wall and wide ambient shots — **but DJI limits them to 1080p/2.7K/4K at 60 fps or lower**. So you cannot use full horizon lock with 4K/120 action.
- **FOV crop trade-off:** stabilization (especially the stronger modes) **croops in**, compounding the flat-port FOV loss from 18.8. If you are already tight underwater, consider RockSteady (Standard/Dewarp) over the most aggressive mode, or a wide wet lens to win the angle back.
- **Neutral buoyancy helps:** a properly trimmed, slightly negative rig in the water column is inherently steadier than a handheld land shot, so underwater you can often run a *lighter* stabilization mode and keep more FOV.

18.11 Practical Dive Workflow & Pitfalls

Pre-dive (topside) checklist

- 1 **Set EVERYTHING on the surface:** resolution, fps, color profile (D-Log M), WB, aperture, ISO cap, stabilization. The touchscreen is unusable submerged (18.1).
- 2 **Program the QS/custom button** for your primary action (start/stop, or mode toggle) so you can dive button-only.
- 3 **O-ring:** remove, clean the groove, inspect for **salt, sand, hair**; reseal evenly. (This is the documented #1 flood cause — 18.2.)
- 4 **Anti-fog insert** in the case; **assemble in cool, dry/A/C air**, not on a hot humid boat.
- 5 **Battery full;** confirm SD card space and that it is a fast card (4K/120 and 8K need it).

- 6 **Float strap/handle attached.** Confirm lens cover (bare) or port (cased) is clean and tight.
- 7 **Optional but smart:** a brief weighted dunk / leak check before committing the camera.

At depth

- Engage/confirm **Scuba Diving Mode**; drive with the **QS button** (main Record is disabled under pressure — 18.1).
- Re-set **custom WB at working depth** if you are chasing accurate color.
- Get **close** — water clarity and color fall off fast; "the best wide lens is swimming closer."

Battery & cold

- Rated **~240 min** topside, but real **~63 min at 4K/60** per a diving reviewer, and **cold water cuts that further**. Start every dive at 100%, **keep spare batteries warm**, and do not plan on changing batteries between dives on a wet boat (flood/condensation risk).

Condensation prevention

- Anti-fog inserts + cool dry assembly + not opening the case dockside. A camera sealed warm-and-humid will fog the cold port the moment you descend.

Common mistakes (the greatest hits)

- Unlatched **battery door / port cover** (bare) -> instant flood.
- **Hair/sand on the O-ring** (cased) -> flood.
- Relying on the **touchscreen** underwater -> cannot change anything, or phantom taps change settings.
- Using the **FOV Boost Lens** at depth (5 m only, not for diving) -> distortion/flood.
- Expecting the **macro lens to fit the case** -> it does not; bare/shallow only.
- **Stacking** strong red filter + heavy manual red WB + post red-recovery -> clipped, magenta-blocked color.
- Pushing **high fps in low light** -> noisy, dark footage; drop to 24–30 fps deep.
- **No float strap** -> lost camera.

Post-dive

- **Soak** the rig in fresh water 10–15 min, working buttons; **remove from mounts first**; dry fully before opening anything.

Color-grading workflow (DaVinci Resolve — your tool)

- 1 Ingest **D-Log M 10-bit**; apply DJI's **D-Log M -> Rec.709 LUT** as a base node.
- 2 **Correct white balance first** (Resolve Color Match off your slate/sand frame, or temp/tint by eye) to neutralize the residual blue/green cast — do this *before* any look.

- 3 Rebuild **red/orange** gently; do not over-push or you will expose red-channel noise from depth.
- 4 Tame the **blue-green backscatter** with HSL qualifiers if needed; mild **denoise** for deep/high-ISO clips.
- 5 **Do not** apply your cinematic "True Detective" crushed-blacks/teal-amber grade to ambient-light dive footage — underwater already skews teal, so that look fights the medium. Reserve stylized grades for **artificially lit** (video-light) night/wreck footage where you control the color.

18.12 What Reviewers and Divers Actually Report

Color rendition

- The strongest recurring finding: the **Action line's underwater color-temperature sensor produces the best out-of-camera underwater color** of the mainstream action cams — "really good colors straight out of the water without filters or post-processing." The Action 6's sensor reportedly **reduces the mid-clip color jumps** that plagued the Action 4/5 Pro (though some testers now see exposure shifts instead).
- General hands-on reviews say the Action 6 "did **not** render murky or desaturated underwater footage" and "preserved colors beautifully," crediting the variable aperture + big sensor for keeping highlights controlled and shadows detailed.

Low light at depth / value of the big sensor + f/2.0

- The **1/1.1" sensor, f/2.0, and SuperNight (to 4K/60)** are repeatedly called the Action 6's underwater trump card — it holds detail and color where smaller-sensor rivals get noisy and blue. There is at least one dedicated dive-footage test (YouTube: "DJI Osmo Action 6 Underwater Test – Real Scuba Dive Footage") and a settings tutorial (YouTube: "USE THESE SETTINGS UNDERWATER for the DJI Action 6") — note: video/audio content of those could not be transcribed, only located.

vs GoPro Hero 13 and Insta360 Ace Pro 2 underwater (the decisive comparison)

- **Depth without a case: Action 6 = 20 m, vs GoPro Hero 13 = 10 m, vs Insta360 Ace Pro 2 = 12 m.** For divers this alone makes the Action 6 the default pick.
- **Underwater color:** DJI's color-temp sensor + (now) variable aperture is the underwater color/exposure leader. GoPro's underwater AWB is weaker and more reliant on filters; Insta360's Ace Pro 2 has a slick "underwater mode" and superb **topside** low light (Leica lens, 8K) but its **12 m depth limit hobbles it for real diving.**
- **Net diver verdict across sources:** for **in-water** use the **Osmo Action 6 (or Action 5 Pro) is the recommended choice**; the Insta360 Ace Pro 2 wins **topside** low light but loses underwater on depth; the GoPro Hero 13 trails on both depth and out-of-camera underwater color.

The honest reliability caveat

The single most important real-world report for a diver: a **confirmed first-dive flood of the official DJI case** on ScubaBoard, attributed to O-ring/button/shell. The camera is superb; the **discipline around sealing it is on you**. Inspect the O-ring religiously, leak-test when you can, and carry DJI Care.

18.13 Field Report — Inon Wet Lenses on the Action 6 (Wide & Macro)

Source: YouTube video "DJI Action 6 with Inon Underwater Lenses TESTED. Go WIDE and get MACRO!" (published Feb 2026), transcript captured directly. This is a diver's hands-on first-impressions of fitting **Inon ZD-range wet lenses** to the Action 6 — the only first-party real-world wet-lens data found for this camera.

The mount: an Inon DJI Action faceplate

- The diver fits Inon ZD lenses to the Action 6 using a **DJI-Action-specific Inon faceplate/mount adapter** (an interface that the Inon bayonet wet lenses lock onto). He sourced it in **Australia from Underwood Australia** (his words: Australia's largest store, not a sponsor). **Takeaway:** wet-lens use on the Action 6 is already viable via a maker faceplate — you do not strictly need a full Sea Frogs-style threaded housing if an Inon (or equivalent) faceplate adapter exists for your case.
- He reports the **faceplate fits perfectly**.

Inon GR140 ZD Pro — wide angle

- "Did a **better job than I ever expected** at getting rid of the **distortion and softness** on the DJI" — he explicitly calls edge softness/distortion one of the Action 6's **negatives** (the bare camera "is very soft and distorted on the edges"), and the wide wet lens **fixes most of that**.
- Confirms the usual wide-wet-lens advantages on any action cam: **more light, more color, more sharpness, and a lower (closer) focusing distance**. His blunt guidance: "**You always want a wide-angle lens.**"
- It is the **only lens of the three that covers the full sensor**: 8:7 on the GoPro, 4:3 on the Insta360 Ace Pro 2, and he was specifically verifying full coverage on the DJI's **1:1 square (open-gate) video** mode — he expected it to fully cover. (He already has an initial GR140 review online with full reviews across GoPro, DJI and Ace Pro 2 promised.)

Inon UCL-G100 and UCL-G55 — close-up / macro

- He used the **UCL-G100** and the stronger **UCL-G55** close-up lenses. The Inon "**focusing sticks**" (focus distance markers) "felt like they're in the right place" — everything **came back in focus** using them, with **no trouble focusing whatsoever** on either lens.
- Felt he had **more depth of field at f/4** (he hedges it may be partly expectation, and notes it is "not a huge amount").
- **Headline claim:** these enable "**the first really macro shots with a DJI action camera**" — because **before the Action 6 there was no lossless 2x zoom**, and the **UCL-G55 is "the most**

macro lens you can get for an action camera." So the Action 6's **2x lossless zoom + the G55** is the combination that finally unlocks true action-cam macro.

- He has a ~30-minute dedicated G55 review and a separate G100 review coming, plus cross-camera testing (GoPro, DJI, Ace Pro 2).

What this adds for a diver

- **Practical mount path confirmed:** Inon faceplate -> Inon ZD wide (GR140) and macro (G55/G100) wet lenses work on the Action 6 today.
- **Fixes a real weakness:** the wide wet lens directly addresses the Action 6's edge softness/distortion that Section 18.8 flags from the flat-port optics.
- **Best macro combo found: Inon UCL-G55 + the Action 6's 2x lossless zoom**, shot at **f/4 for depth of field**, using the lens focus markers — currently the strongest small-critter setup documented for this camera.

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