GUARD-1®

UNDERWATER SMART CAMERA

User Manual — Web Interface

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Quick start — first session

1. **Connect** — Join the same network as the camera (LAN or device WiFi). Open the device URL in Chrome, Edge, or Safari.
2. **Sign in** — Enter **Username** and **Password**, then **Sign in**. Default built-in username (as supplied with the unit): `admin` . Use the **password provided with the unit** (delivery sheet / commissioning notes) — it is not printed in this manual. See Part 2.
3. **Confirm status** — Sidebar (desktop) or top bar (mobile) must show **Connected** and the correct device ID.
4. **Open Camera** — Confirm the latest image loads and the **SD** indicator shows storage information.
5. **Review Acquisition** — Go to **Settings → Acquisition**. Read **Status saved on device** (what the camera is doing now). Press **Edit settings** only when you need to change capture mode or schedule.
6. **Save on device** — After editing Settings or Device pages, use **Save Changes** (**Desktop:** left sidebar; **Mobile: More** sheet). Until you save, those edits are **drafts only** (not active on the device).

> **Important — draft vs saved** Most Settings and Device fields stay local until **Save Changes** applies them. Some actions apply **immediately** after confirmation (Energy Save, Sync RTC, Calibrated Values / Mirror / Flip, Camera one-shot commands, Users CRUD, Gallery download/delete). See Part 10.

> **Note — Modem fitted / Wiper fitted** After the confirmation dialog, these flags become **drafts** and are included in **Save Changes**. They are **not** applied by the confirm alone.

> **Important — Wake Cycle and External Box Wake Cycle** (and the sleep/wake power cycle that goes with **Energy Save**) is recommended **only** if an On AIR **External Box** was supplied with the GUARD-1® unit. The External Box provides a hardware control to **force-wake** the device. **Without** it, there is no reliable HW way to wake the camera if it has entered sleep — the unit can remain in the wake/sleep cycle **indefinitely**, with no practical way for the operator to bring it back from the web UI alone. If you do **not** have an External Box, prefer **Manual** or **Automatic · Always On**, and do **not** enable Energy Save with Wake Cycle. Details: §7.1 Acquisition · Part 12.

> **Note — Upload and cloud / local servers** Upload (all options in **Settings → Upload**) has been **tested and works with the On AIR Cloud**. Automatic upload to a **local server** is also possible, but it needs extra software integration and configuration on that server. For a local-server setup, contact the **On AIR team** so they can arrange the integrations required for a correct configuration. Details: §7.2 Upload.

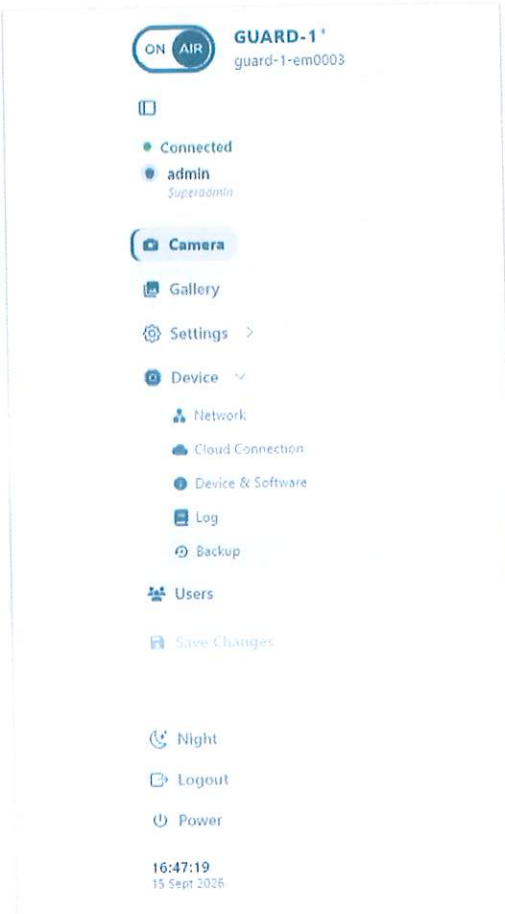


Figure 1.2 — Sidebar header: Connected, device ID, signed-in user (desktop)

Assignable when creating a user: **User**, **Admin**, **Read-only**. Account limit hint in UI: *Limit: 1 administrator and up to 9 user or read-only accounts...*

Full matrix: Appendix A.

2.3 Session timeout

Timing	Behaviour
~4 min 30 s idle	Modal title **Session is closing** — countdown; *No activity for 5 minutes. You will be signed out in N seconds...* · **Stay signed in** / **Sign out now**
5 min idle	Automatic sign-out; **unsaved drafts are lost**
Close / leave tab	May show **Leave this tab?** (beacon logout risk) with the same Stay / Sign out actions
Logout / Change user	See below; leave-guard applies if Settings drafts exist

2.4 Logout and Change user

1. Press **Logout** (sidebar footer or mobile top bar).
2. Session menu title **Logout** — *Signed in as {user}...*
   - **Log out** → confirm **End session?** (**Back** / **Log out**; busy *Signing out...*)
   - **Change user** → inline form (Username / Password · **Back** / **Sign in**). Copy: *Sign in with another account. You will stay on the current page.*
   - **Cancel** — stay signed in

If Settings/Device drafts exist, **Save changes** (Global Save) appears **before** this menu. See Part 11.

2.5 Session handover (same account, second browser)

When the same account tries to sign in while another session is active:

Actor	Modal title	Actions
Holder (already signed in)	**Another session wants to sign in**	**Keep this session** / **Hand over** · countdown *They will be refused in N seconds...* · optional note *Unsaved settings will ask to save before you hand over.*
Challenger (new browser)	**Waiting for the other session**	Overlay + *N seconds left* · **Cancel**

Outcomes:

- Holder **Keep this session** → challenger is refused (*The other session kept control...*).
- Holder **Hand over** → drafts may trigger Global Save first; then the challenger can proceed.
- Timeout with no answer → challenger sees *The other session did not answer. This sign-in was refused.*

Part 3 — Navigation

3.1 Desktop (width 701 px or more)

Purpose: Persistent left sidebar for all sections.

Area	Items	Notes
Header	Logo → Home, **GUARD-1®**, device ID	Logo opens Home
Status	**Connected / Disconnected**, avatar + name + role	Display-only; tip *Logged as {name} · {Role}*
Main	**Camera, Gallery**	
Settings ▼	**Acquisition, Upload, Wiper**	Expandable
Device ▼	**Network, *Cloud Connection*, Device & Software, Log, Backup***	*Admin
Admin	**Users***	*Admin
Global save	**Save Changes**	Always visible when the control is shown; **enabled** only when dirty packages exist
Footer	**Night / Day, Logout, Power***, clock	*Admin; theme is browser-only

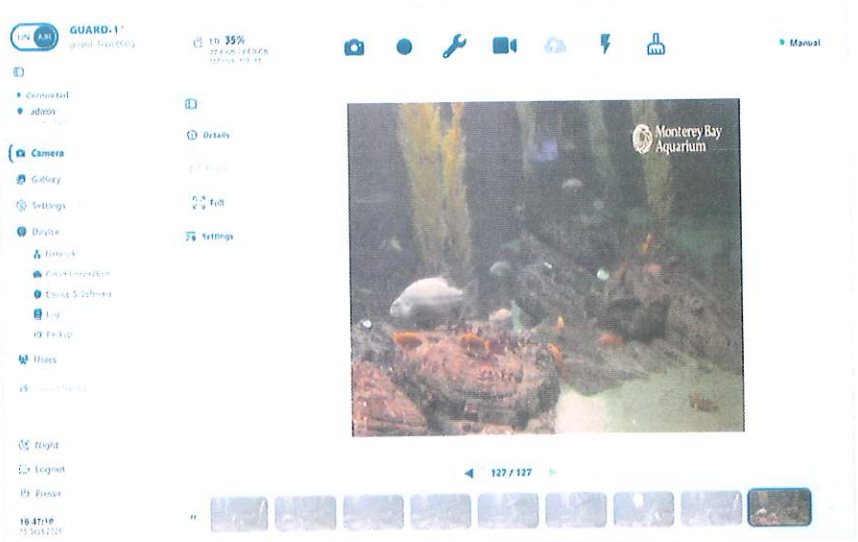


Figure 3.1 — Desktop sidebar with Settings and Device expanded

3.2 Mobile (width 700 px or less)

Purpose: Thumb-friendly tabs and slide-up sheets instead of a sidebar.

Element	Location	Content
Top bar	Top	Logo/Home, **GUARD-1®**, username, **Connected/Disconnected, Logout**
Tab bar	Bottom	**Camera, Gallery, Settings, Device, Users*** (admin), **More**
Settings sheet	Overlay	**Acquisition, Upload, Wiper** only
Device sheet	Overlay	**Network, *Cloud Connection*, Device & Software, Log, Backup***
More sheet	Overlay	**Save Changes** (first) → **Turn ON Energy Save** (when applicable) → **Night mode / Day mode** → **Power***

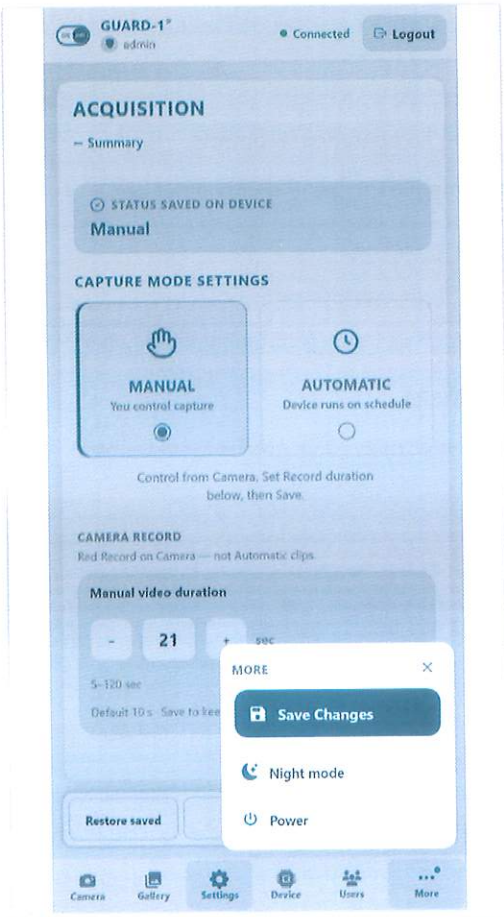


Figure 3.4 — Mobile More sheet (Save Changes, Energy Save, Power)

> **Important (mobile) Save Changes** and **Turn ON Energy Save** live under **More**, not in the Settings sheet.



Figure 4.2 — Home screen (mobile)

5.1 Top bar and status

Element	Description
SD	Compact storage indicator; tooltip/detail shows usage, capacity, image/video counts
Action buttons	Snapshot, Record, Calibrate, Stream, Upload, Flash, Wiper — visibility depends on role and hardware flags
Acquisition status chip	Shows **Manual**, **Auto · Always On**, or **Auto · Wake** (short labels). **Informational only** — not a button; it does **not** open Settings
Recording badge	When active: **Recording live**, **Recording clip**, or **Recording active**

> **Note** On **Settings → Acquisition**, the committed wording is longer: *Automatic · Always On / Automatic · Wake Cycle*. The Camera chip uses the shorter **Auto · …** form.

5.2 Toolbar actions (detail)

Control	Who (typical)	When Manual is saved	When Automatic is saved	Apply model
Snapshot	Roles with take-picture permission	Enabled (unless another lock)	Visible but **disabled** — tip *Switch to Manual in Acquisition to enable*	Immediate
Record / Stop	Roles with record permission	Starts Manual clip (duration from Acquisition **Manual video duration**) or stops live record	Disabled for one-shot start (live **Stop** may still apply if already recording)	Immediate
Calibrate	Admin	Enabled unless busy	Locked in Automatic	Immediate
Stream	Admin	Toggle live stream	Locked in Automatic	Immediate
Upload (cloud icon)	Admin	Needs Upload activation **other than Off**	Same rule + Automatic lock as other one-shots	Immediate
Flash	Admin	Test flash; blocked while stream is on	Locked in Automatic	Immediate
Wiper	When wiper is fitted (saved) + role	One cleaning cycle	Locked while Automatic / busy	Immediate

While Automatic is saved on the device: one-shot Camera controls stay locked in the UI. Scheduled capture, timed flash, and automatic wiper **continue on the device**. Tooltip (summary): *Automatic is on. Camera one-shot controls are locked — switch to Manual in Acquisition to enable…*

Busy overlays / locks also apply during calibration, antifouling, and recording (e.g. *Recording video* overlay with countdown).

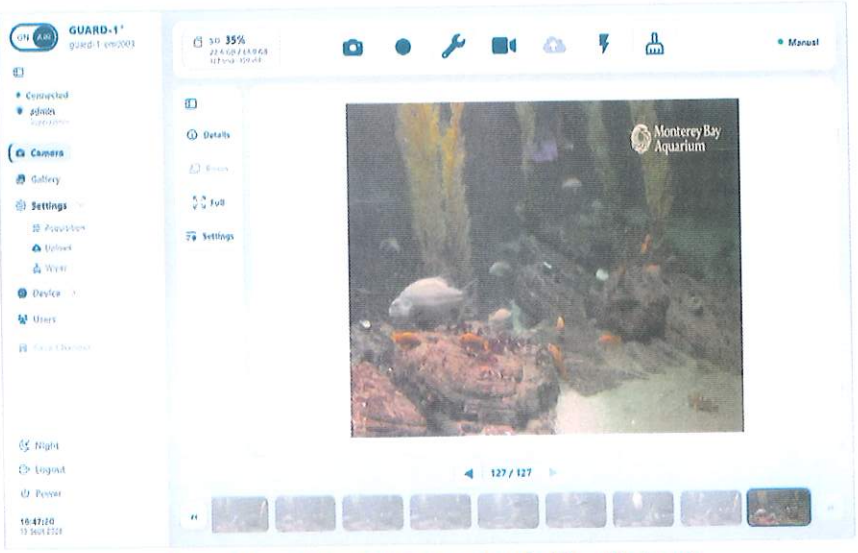


Figure 5.4 — Camera settings panel with sliders (desktop)

5.4 In-page notices and reminders

Notice	When	Actions
Timed capture stopped	Always On is saved but the timed schedule is not running	**Restart**; FAB may also offer **Options**
Energy Save still off (desktop FAB)	Wake Cycle is saved and Energy Save is off	**Turn ON Energy Save**
Recording / calibration / wiper overlays	Operation in progress	Wait until finished; Camera controls locked

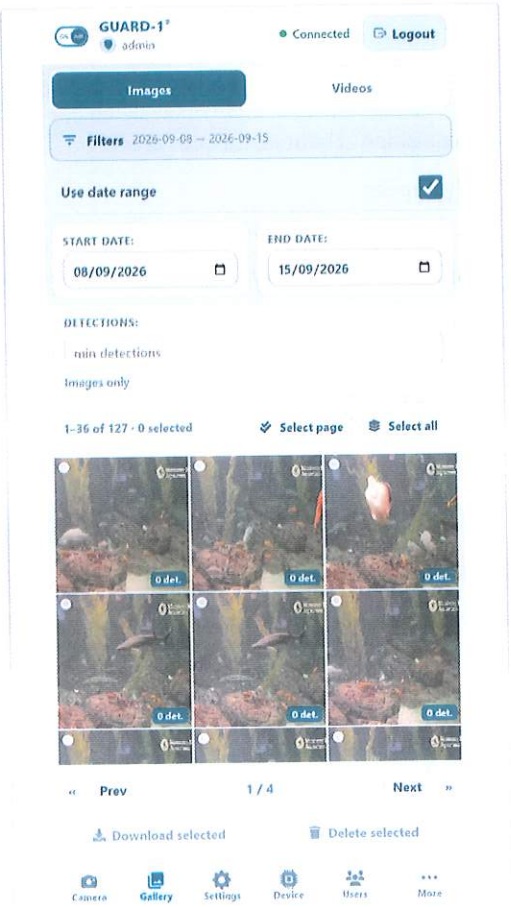


Figure 6.2 — Gallery filters on mobile

6.2 Permissions

Action	Admin / User	Read-only
Preview	Yes	Yes
Download	Yes	Yes
Delete / Select all across pages	Yes	Hidden / not available

6.3 Detection badge on cards

Image cards may show a badge such as `{n} det.` when a detection count is present (number of detections reported for that image).

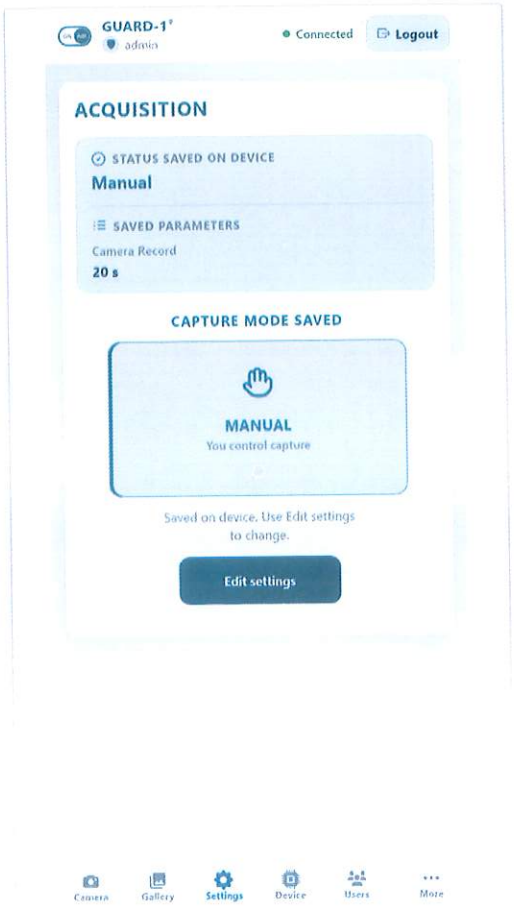


Figure 7.2 — Acquisition summary (mobile)

Editor view — capture mode

Step	Action	Result
1	Press **Edit settings**	Editor opens
2	Choose **Manual** or **Automatic**	Automatic reveals *How it runs*
3	Automatic → **Always On** or **Wake Cycle**	Schedule and capture panels appear
4	Edit fields (below)	Values are **drafts** until Save Changes
5	← **Summary**	Returns to committed summary; draft is kept until Save / Undo / Restore saved
6	**Save Changes** (sidebar or **More**)	Writes packages to the device

Automatic — common schedule fields

Control	Description	Save model
Daily window (Always On) or **Wake window** (Wake Cycle)	**Start** / **First** and **Stop** hours (0–23)	Draft until Save Changes
All day	Sets a 24 h window (hours 0–0 style in device terms)	Draft until Save Changes
Image acquisition	Master switch for stills	Draft until Save Changes
Video acquisition	Master switch for timed clips (*Timed clips while Automatic is on — not the Camera Record button*)	Draft until Save Changes
Soft warning	If both Image and Video are off, save is blocked / warned — at least one acquisition path must be valid to save	—

Always On — image & video detail

Control	Description	Save model
Photo every	Interval between stills when Image is on and Video is off	Draft until Save Changes
When **Video acquisition** is ON	Stills follow **Clip Cycle** (one still per clip). Photo every is kept for when Video is off — UI explains this	Draft until Save Changes
Enable detector	Fish / object detector on acquired images	Draft until Save Changes
Detector mode	e.g. RT-DETR, NanoDet-lite, NanoDet-quad (help warns RT-DETR uses most power)	Draft until Save Changes
Clip Cycle	Period that must cover each Automatic video clip	Draft until Save Changes
Video duration	Length of each Automatic clip	Draft until Save Changes
Clip Cycle timeline	Visual of record vs pause between clips	—
Run calibration for each acquisition	Help: *Always On — measure exposure again before every Automatic video clip*	Draft until Save Changes
Rule	**Clip Cycle** must be **at least** as long as **Video duration**, or Save is blocked with an explicit warning	—

Wake Cycle — detail

> **Important** — Use Wake Cycle only with an On AIR **External Box**. Without it, a sleeping unit may not be recoverable from the web UI. See the note before Part 1.

Control	Behaviour	Draft / immediate
Modem fitted	Confirm **Modem fitted on this unit? → Modem is fitted**	Confirm → **draft** → **Save Changes**
Upload activation	**Off / Schedule / Each shot**	Draft
Off	No upload schedule; modem off except Maintenance if set	Draft
Schedule	Modem on inside **Upload window**	Draft
Each shot	Upload after each saved acquisition when connection allows	Draft
Upload window	**From, To, Retries**	Draft
Maintenance	Extra modem-on window for remote access (no upload) — **From / To**	Draft

Without a fitted modem, activation modes remain available with help text explaining that files stay on the SD card / push after save depending on mode.

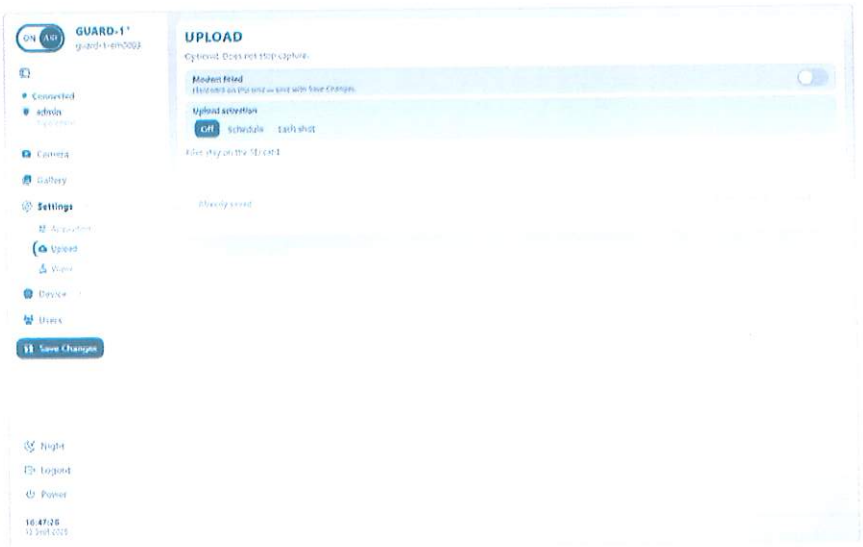


Figure 7.6 — Upload page (desktop)

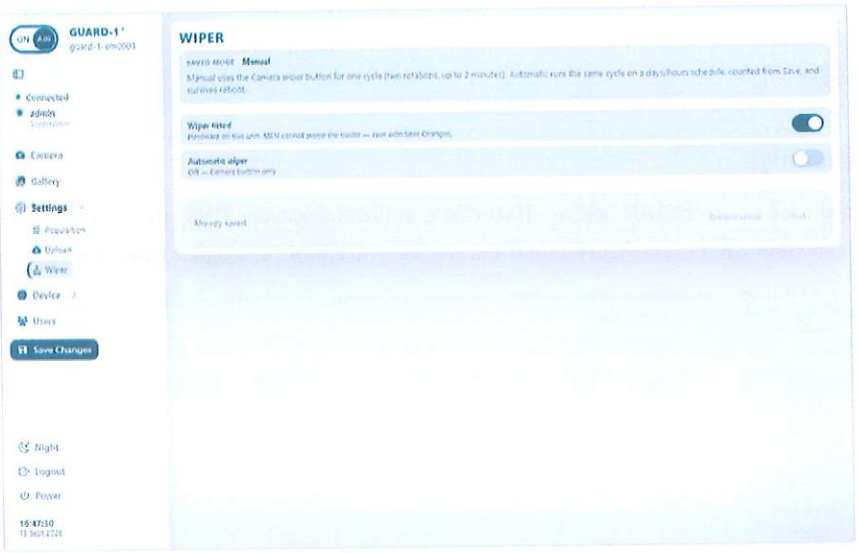


Figure 7.8 — Wiper settings (desktop)

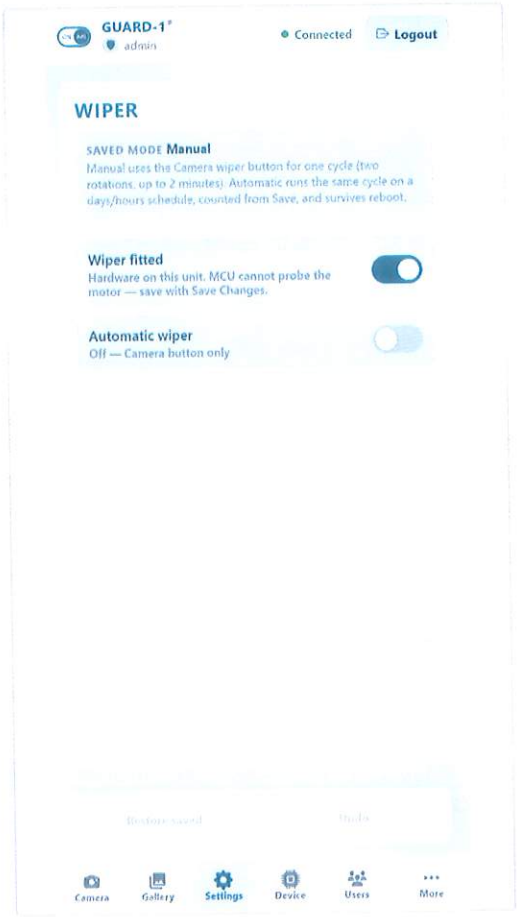


Figure 7.9 — Wiper settings (mobile)

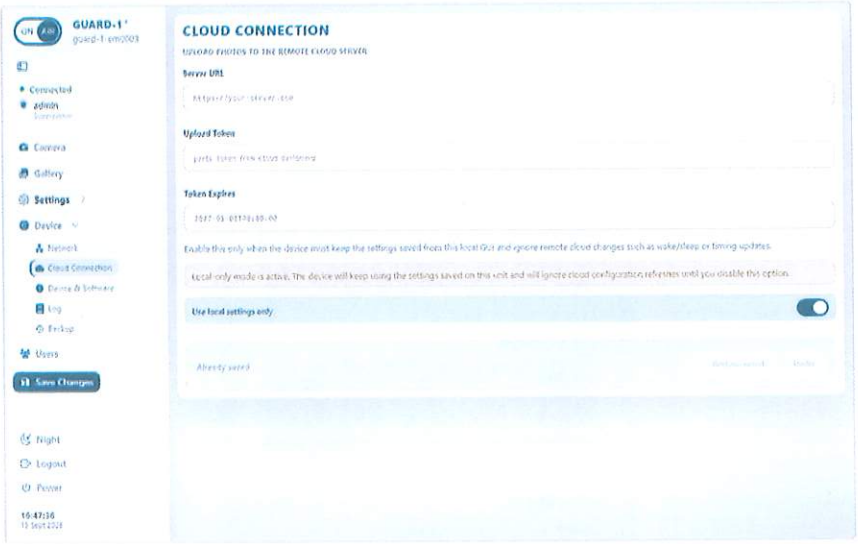


Figure 8.2 — Cloud Connection (desktop)

8.3 Device & Software

Purpose: Device identity, storage, camera backend, time sync.

Block	Content	Mode
Device ID	Editable ID + **Software version** (read-only)	ID is draft → Save Changes
Storage	Usage bar / counts; the device frees space automatically at about **95% of the configured storage quota** (often **64 GB** by default), not necessarily the full card capacity. Quota is set at provisioning — not in the normal operator UI	Live status
Camera	**Camera address, Sensor mode,** detected sensor info	Draft → Save Changes
Time	Browser vs device / RTC; button **Sync RTC ← Browser**	Confirm **Sync RTC from browser? → Sync RTC — immediate** (device clock follows the browser; network time sync is not used after this)

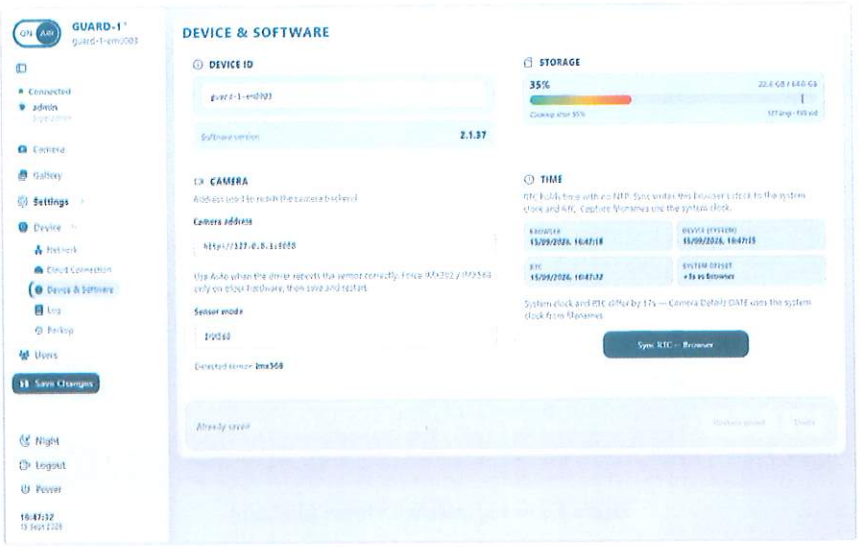


Figure 8.3 — Device & Software (desktop)

2. Review **Included / Not included**.
3. **Export / Import** (also **Export configuration / Import configuration** in the footer on desktop).
4. Confirm: **Export configuration? / Import configuration?**

Included (as listed in UI):

- Acquisition, upload, cloud, and device parameters
- Wiper schedule and fitted flag
- Camera settings stored in device parameters

Not included (as listed in UI):

- Local user accounts
- Event logs and gallery media
- Unsaved Settings drafts

> **Note** Local user accounts are **not** included in the backup file.

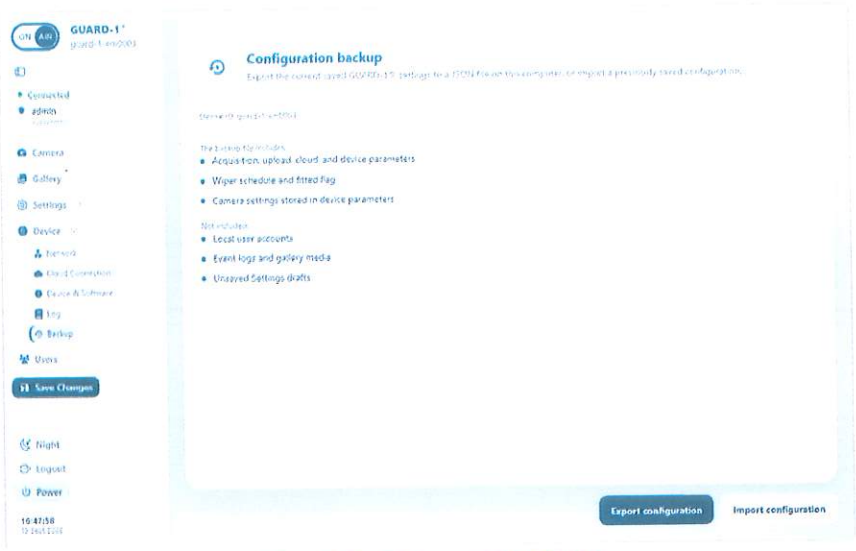


Figure 8.6 — Backup page (desktop)

Part 10 — Saving changes

10.1 Concepts

Term	Meaning
Committed / saved on device	Last values written to the device
Draft	UI value **different from** committed — **not** on the device yet
Save Changes	Opens global **Save changes** and applies **all** listed dirty packages

Free navigation between app pages and Settings sections — no prompt when drafts exist. **Leave-guard** applies only to specific exits — Part 11.

10.2 Per-section bar (Undo / Restore saved / Review & save)

There is **no** per-section Save on Settings/Device that writes the device by itself. Use local tools, then **Save Changes** / **Review & save**.

Control	Effect
Undo	One step back **within the current page**. Switching Manual ↔ Automatic (or Always On ↔ Wake) is **not** undone with Undo — change the mode again or use **Discard all / Restore saved**
Restore saved	Confirm **Restore saved {section}?** — discards unsaved edits on **that page** and restores the **last saved** values for that section
Review & save	Opens the same Global Save modal as **Save Changes**. Hint: *Not on the device yet*

Idle buttons stay visible but muted, with tooltips such as *Nothing to undo on this page / Already matches last saved values*.

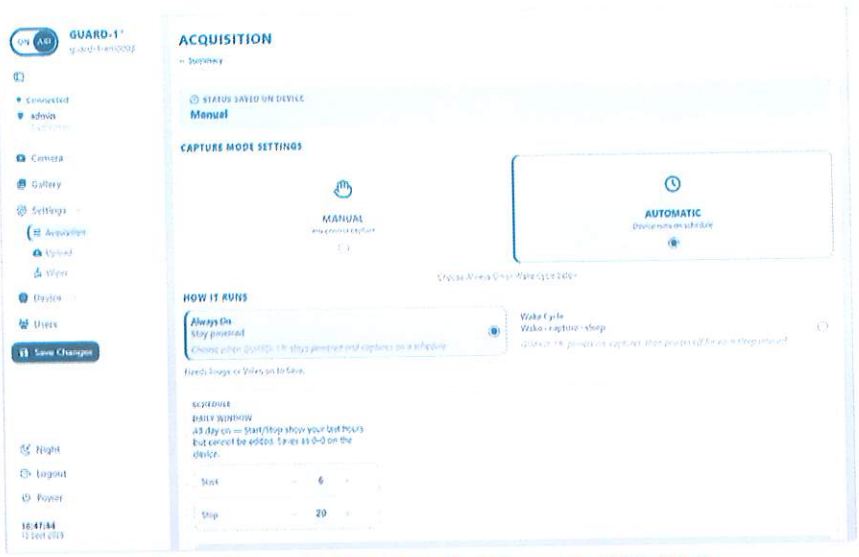


Figure 10.1 — Page bar with Undo / Restore saved (desktop)

10.3 Global Save Changes

Surface	Where
Desktop	Sidebar → **Save Changes** (enabled when drafts exist)
Mobile	**More** → **Save Changes**

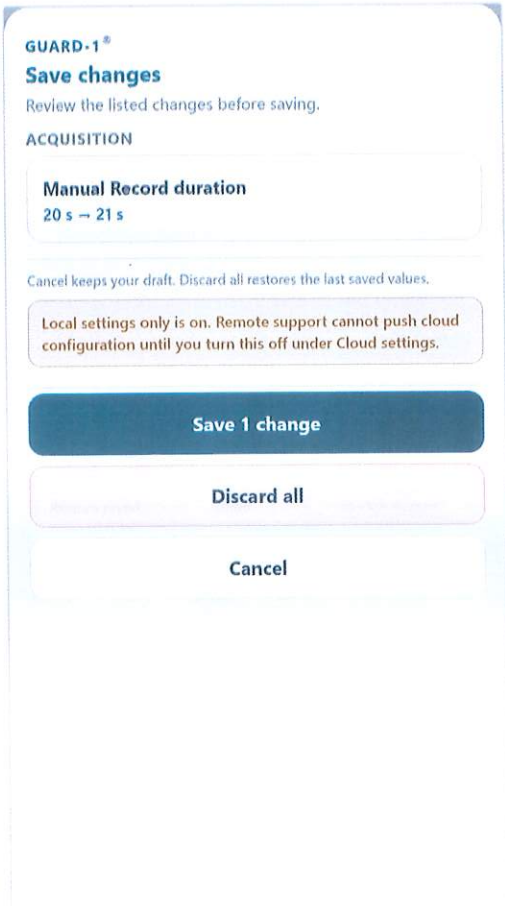


Figure 10.4 — Global Save Changes modal (mobile)

10.4 Immediate actions (not Global Save drafts)

These apply after their own confirm / action — they are **not** waiting for **Save Changes**:

Action	Notes
Energy Save ON/OFF	ON uses **Enable Energy Save?** → **Enable & shut down**
Use local settings only	Cloud page
Sync RTC ← Browser	Device & Software
Calibrated Values, Mirror, Flip	Camera panel
Camera panel **Save**	Optical draft package for Camera settings
Camera one-shots	Snapshot, Record, Calibrate, Stream, Upload, Flash, Wiper
Users create / edit / delete	Immediate after confirm
Gallery download / delete	Immediate after confirm
Power Reboot / Shutdown	Immediate after confirm

Modem fitted and **Wiper fitted:** confirm → **draft** → included in **Save Changes**.

Part 12 — Energy Save, Wake, and Power

12.1 Modes at a glance

Mode	Power behaviour	UI while asleep
Always On	Powered during the daily window	Active in window
Wake Cycle (ES off)	Sleep timing between wakes; device stays powered	UI remains reachable
Wake Cycle + Energy Save	CM4 hardware power-off between wakes; UI shows **Device disconnected** until the next wake	Full **Device disconnected** until next wake / power restore

> **Note — brief wake-ups** Outside the wake/acquisition window the unit may still power up briefly on the sleep timer, then sleep again. Short LED or network activity at those intervals can be **normal**, not a fault.

12.2 Recommended Wake Cycle setup

> Requires an On AIR **External Box** for safe force-wake — see the note before Part 1.

1. **Edit settings** → **Automatic** → **Wake Cycle**
2. Set wake window, capture options, **Sleep duration**
3. **Save Changes** (Energy Save may stay OFF)
4. When ready for real power-off cycles, **Turn ON Energy Save**:
    - Desktop FAB: **Energy Save still off** → **Turn ON Energy Save**
    - Mobile: **More** → **Turn ON Energy Save**
5. Confirm **Enable Energy Save?** → **Enable & shut down**

12.3 Power (admin)

Surface	Path
Desktop	Sidebar footer → **Power**
Mobile	**More** → **Power**

Menu title **Device power**:

1. Choose **Reboot** or **Shutdown**
2. Confirm **Reboot device? / Shut down device?**
3. Session disconnects

Shutdown may be **blocked** by the device (for example during a maintenance window). The UI shows why and may keep **Shutdown** disabled until the condition clears.

Part 13 — Desktop versus mobile

Topic	Desktop (701 px or more)	Mobile (700 px or less)
Primary nav	Left **sidebar**	Bottom **tab bar** + sheets
Settings children	Sidebar under **Settings** ▼	**Settings** sheet
Device children	Sidebar under **Device** ▼	**Device** sheet
Save Changes	Sidebar (after Users)	**More** sheet (first item)
Turn ON Energy Save	FAB on relevant screens	**More** sheet
Power	Sidebar footer	**More** sheet
Backup	Device → Backup page	Device sheet → Backup page
Theme	Sidebar **Night / Day**	**More** → Night/Day mode
Config action bar	Below page content	Docked above the tab bar (opaque)
Options strip	May show desktop helpers	Horizontal Options strip hidden (mobile pattern)

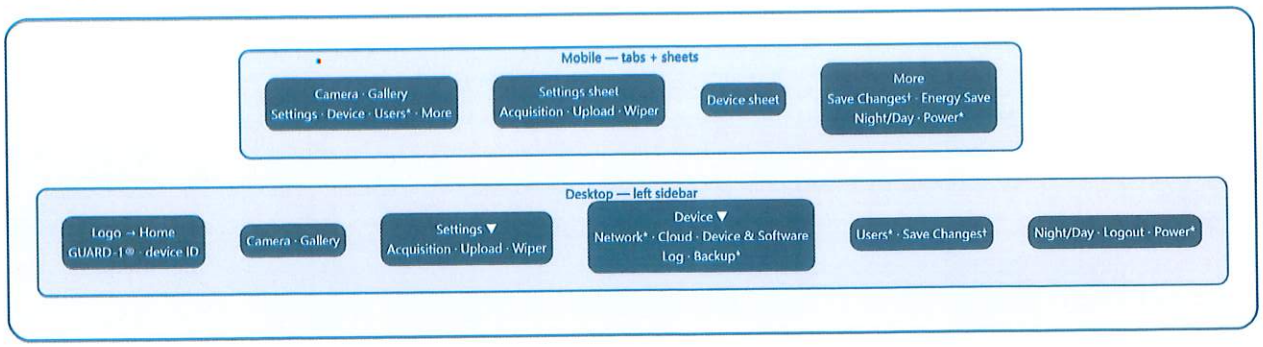
Appendix A — Role permissions

Area	Admin	User	Read-only
Home, Camera view, Gallery view, Log	✓	✓	✓
Settings edit	✓	—	—
Network / Cloud / Device edit	✓	—	—
Users, Backup, Power	✓	—	—
Camera Snapshot / Record	✓*	✓*	—
Gallery delete	✓	✓	—
Gallery download	✓	✓	✓

* Requires **Manual** saved on device for one-shot controls (except stopping an in-progress live recording where applicable).

Appendix B — Visual reference diagrams

B.1 App sections and navigation



MCIL12M pin	Signal	Cable	Notes
1	Ethernet pin 1 — TX_D1+	TLNET — white/orange	
2	Ethernet pin 2 — TX_D1−	TLNET — orange	
3	Ethernet pin 3 — RX_D2+	TLNET — white/green	
4	Ethernet pin 4 — BI_D3+	TLNET — blue	
5	Ethernet pin 5 — BI_D3−	TLNET — white/blue	
6	Ethernet pin 6 — RX_D2−	TLNET — green	
7	Ethernet pin 7 — BI_D4+	TLNET — white/brown	
8	Ethernet pin 8 — BI_D4−	TLNET — brown	
9	MODEM	TL2CS — blue	For GUARD-1® ExtBox
10	FORCE ON	TL2CS — red	For GUARD-1® ExtBox
11	V SYS − (GND)	TLNET — black PWR	
12	V SYS + (24 V)	TLNET — red PWR	

> **Note — External Box** Pins **9 (MODEM)** and **10 (FORCE ON)** are for the On AIR **GUARD-1® ExtBox** (force-wake / related control). See the Wake Cycle / External Box note before Part 1 and Part 12.

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