PigCounter

Web Dashboard (Network Edition) — User Manual

AI-based Pig Counting System

Figure 0: PigCounter Web Dashboard (example screen)

System version: objectbox-2026.09.01-r5.2.17-dev
Operating mode: video (AI camera-based detection)
Document version: v2.0 Date: 2026-09-01

1. About This Document

This manual is intended to help on-site farm staff, farm managers, and installation/maintenance engineers connect to the PigCounter system's "Web Dashboard" (network edition) through a browser, understand every number, button, and record table on the screen, and independently perform daily tasks such as starting/stopping a count, reviewing statistics, cross-checking per-pig records, managing recordings/video downloads, and doing a basic engineering status check.

The content below was compiled by reviewing actual screen-recordings (.mp4) of the system in operation, frame by frame. The on-screen text and the descriptions in this document correspond exactly to one another. Readers can follow the steps in "Chapter 9: Standard Operating Procedure" and reproduce them on the real screen.

> *⚠ Note: This is version 2.0 of this manual, updated 2026-09-01 to cover a newer system build (objectbox-2026.09.01-r5.2.17-dev) that adds Meter Timezone, Network Time, Recording status, a Recording History & Downloads screen, and a Shutdown button. If your device shows an older version number (e.g. objectbox-2026.08.xx), some of the newer screens described here (Chapters 4.7–4.8 and Chapter 6) may not yet be present on your unit.*

Intended Audience

- On-site farm staff (day-to-day Start / Stop / Reset / Shutdown operations)
- Farm managers / site supervisors (reviewing statistics, downloading recorded video, tracking outbound pig counts)
- System installation and maintenance engineers (reading connection status in the Engineering Information section, setting the correct Meter Timezone)

Applicable Version

This document corresponds to system version objectbox-2026.09.01-r5.2.17-dev, running in "video" mode (i.e. counting is performed via AI vision analysis of a camera feed, rather than infrared, load-cell, or other sensor modes). If the system is later upgraded and the interface changes, please treat the actual on-screen content as authoritative.

2. System Overview

PigCounter is an AI vision-based automatic pig counting system. The device is installed above a pig passage or loading chute. A camera continuously films pigs as they pass through, and a computer-vision model automatically detects and draws a bounding box around each pig, determines its direction of travel (in / out), and estimates its body length and width, from which an approximate body weight is derived. Every detected "per-pig event" is logged, and the system aggregates these events in real time into a running total headcount and average statistics, all viewable instantly through the local web page (the network edition).

The biggest advantage of the network edition is that no separate app needs to be installed. Any phone, tablet, or laptop on the same local network (LAN) as the farm equipment can open a browser, enter the device's local address (shown in the recording as *counter.local — the exact name depends on the device configuration), and the live dashboard opens immediately. The system also supports "Mobile Preview Viewers", allowing up to 2 mobile devices to view the live detection feed at the same time, so multiple people on site can confirm the count simultaneously.

2.1 Key Features

- Real-time headcount: automatically tallies the number of pigs passing the camera
- Average body-size estimation: live calculation of average length, width, and weight
- Live video preview: can be shown or hidden, overlaid with AI detection boxes
- Per-pig record table: logs the time, direction, body size, and weight of every individual pig, plus its cloud-upload status
- Multi-device preview: up to 2 mobile devices can view the live feed at the same time
- Start / Stop / Reset: full control over when counting begins, pauses, and resets
- Engineering Information: shows USB Button, RS485, and MQTT connection status plus the device's MAC address, for engineering troubleshooting

3. Getting Started (Connecting to the Dashboard)

1. Make sure your phone or computer is connected to the same Wi-Fi / local network as the PigCounter device.
2. Open a browser (Chrome is recommended) and type the device's local address into the address bar — for example, the "…counter.local" address shown in the recording. (Confirm the exact address from the device's label or with your installation engineer.)
3. On first connection, the browser may show a "⚠" warning icon in the address bar. This simply means the local address does not use a publicly issued certificate; it is normal and does not affect the accuracy of the data — you can proceed safely.
4. Once the page loads, the "PigCounter" web dashboard appears. A green-outlined "Online" badge in the top-right corner confirms the page is successfully connected to the device.

> *⚠ Note: If the "Online" badge does not appear, or the page fails to load for an extended period, check the device's power and network connection, or contact an engineer to check the RS485 / MQTT status (see Chapter 8).*

Figure 3-1: The web dashboard home screen after a successful connection (count = 0, not yet started)

4. Dashboard Overview

From top to bottom, the web dashboard is organized into several main areas: the title bar and connection status, the current-count card, the average-measurement cards, the live-preview area, the system status list (including recording status, meter timezone, and network time), and finally the control buttons and record tables. Each is explained below.

4.1 Title Bar and Connection Status

At the very top of the screen is the system name “PigCounter”, with the current firmware/system version (e.g. objectbox-2026.09.01-r5.2.17-dev) and the current operating mode (video) shown underneath in small text. In the top-right corner is a green-outlined status badge, “Online”, indicating the connection between the web page and the on-site device is healthy. If the device goes offline, this label's text and color will change (for example, turning grey or reading “Offline”), and none of the figures on the page will keep updating.

4.2 Current Count Card

This is the centerpiece of the dashboard: a large number labeled “Current Count” showing the total number of pigs the system has detected so far. Underneath the number is a status label:

- “Reset” (grey): the count has been reset to 0 and counting has not yet started.

- “Counting” (teal): the system is actively running — the headcount increases in real time whenever a new pig is detected.
- “Stopped” (teal): counting has been paused with the Stop button; the count shown is held at its last value until Start or Reset is pressed again.

This number increases the instant a pig passes the camera, and is the field on-site staff refer to most often to check “how many have been counted so far.”

4.3 Average Measurement Cards

Below the count card is a 2×2 grid of four small cards:

- Average Length (cm): the average body length of all pigs counted so far
- Average Width (cm): the average body width of all pigs counted so far
- Average Weight (kg): the average estimated weight, derived from body size
- FPS (frames per second): the camera feed's current processing frame rate — higher generally means smoother image processing (roughly 14–20 FPS in the recording is within normal range)

Before counting starts, or if no pigs have passed yet, the length/width/weight fields show “--” (no data). Once counting starts and pigs are detected, these values update live to reflect the current average.

Figure 4-1: While counting — headcount and average length/width/weight update in real time

4.4 Show / Hide Live Preview

This full-width button toggles between “Show Live Preview” and “Hide Live Preview”. Tapping it expands a live video panel below the button, showing exactly what the camera currently sees, overlaid with the AI detection results, including:

- Each pig outlined with a green bounding box, labeled with an ID number and its estimated length (L) and width (W)
- Yellow text in the top-left corner of the video showing the current “Pig Count” and running average length/width
- A vertical reference line (red) and grid guide lines (yellow) across the middle of the frame, used by the system to judge whether a pig has “crossed” the counting line — this is the basis for both counting and direction detection
- A timestamp in the top-left corner, useful for cross-referencing detection behavior at a specific moment

This feature is mainly used by on-site staff to confirm the camera angle is correct, that nothing is obstructing the view, and that the AI bounding boxes look accurate — it is the most intuitive tool for daily checks and troubleshooting.

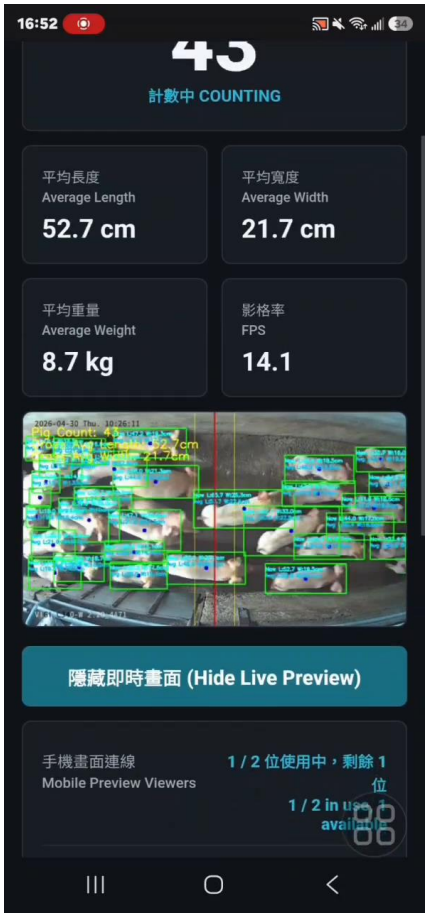

Figure 4-2: Live preview open, showing AI detection boxes, the counting reference line, and live overlay text

4.5 Mobile Preview Viewers

This field shows how many mobile devices are currently watching the live preview, in the format “in use / limit, remaining” — for example “0 / 2 in use, 2 available” means nobody is currently watching and up to 2 people can connect. As soon as someone opens the live preview, the number updates in real time to “1 / 2 in use, 1 available.” This limit prevents too many devices from streaming the live feed at once and overloading bandwidth or device performance; allocate viewing slots according to actual on-site needs.

4.6 System Status List

This section lists several operational status indicators so staff can quickly gauge system health:

- MIC Upload: shows the result of uploading microphone/audio data to the cloud; “OK HTTP 200” indicates the upload server responded successfully
- Recording: shows whether the device is currently recording video (“Recording”) or has finished and saved the current clip (“Saved”), together with the remaining free storage space on the device (e.g. “176.0 GB Free”)
- Measurements: the total number of measurement records accumulated so far, which keeps increasing as counting proceeds
- Mode: the system's current operating mode — “video” (AI vision mode) in this demonstration

All of these values update live. If “MIC Upload” fails to show HTTP 200 for an extended period, or “Measurements” unexpectedly stops increasing, refer to the troubleshooting notes in Chapter 10. If “Recording” free space runs low, see Chapter 6 for how to review and delete old recordings.

Figure 4-3: Full System Status List, including Recording, Meter Timezone, and Network Time

4.7 Meter Timezone (Local City Time)

“Meter Timezone” lets you tell the device which city/country's local time it should display and record against, using a dropdown list of supported locations (e.g. Taiwan, Thailand, Vietnam, Japan, Philippines, Indonesia West/Central/East, Malaysia, Singapore, and others).

- Tap the dropdown to open the list of available cities/countries and select the one matching where the device is physically installed.
- Tap the teal “Apply” button underneath to confirm and save the selected timezone.
- This setting affects the timestamps shown throughout the dashboard — including the live-preview overlay clock (Section 4.4), the Per-Pig Records table (Chapter 7), and the file names/timestamps in Recording History (Chapter 6) — so it should be set correctly during installation, especially for farms outside Taiwan.

Figure 4-4: Meter Timezone dropdown open, showing supported cities/countries

> ⚠ *Note: If the displayed time on-screen doesn't match the actual local time on site, check Meter Timezone first before assuming there is a system fault.*

4.8 Network Time

“Network Time” shows whether the device has successfully synchronized its internal clock over the network. “Synchronized” means the device's clock is accurate and up to date; this underpins the correctness of every timestamp shown elsewhere on the dashboard. If this ever shows an unsynchronized state, check the device's internet connection.

5. Control Buttons (Start / Stop / Reset / Shutdown)

In the middle of the screen are the four main control buttons for operating the system:

Figure 5-1: Start / Stop / Reset / Shutdown button row

5.1 Start

A green button. Tapping it tells the system to begin detecting and counting pigs, and also begins recording video of the session (see Chapter 6). After tapping, a confirmation message appears below — “Start command accepted” — and the Start button turns a lighter shade (disabled, to prevent accidentally starting twice), while the Stop button becomes active and turns red. Once started, the status text under “Current Count” changes from “Reset” to “Counting,” confirming the system is now actively counting, and “Recording” in the System Status List changes to “Recording.”

5.2 Stop

A red button. Tapping it stops the system from detecting and adding to the headcount, and finalizes/saves the current video recording (its status changes from “Recording” to “Saved,” and it becomes available to download in Recording History — see Chapter 6). The current count, average statistics, and record table contents are preserved — nothing is cleared — so staff can still review this round's results after stopping. The status under “Current Count” changes to “Stopped.” To begin a new counting round, first tap “Reset”, then tap “Start” again.

5.3 Reset

A blue-grey button. Tapping it opens a confirmation dialog — “Clear the count, averages, and detection records?” — with Cancel and OK options, to prevent accidental data loss. Confirming resets the on-screen “Current Count” and average length/width/weight values back to 0 or “--”. Note: Reset clears the live summary values on the

dashboard and the current Per-Pig Records; it does not stop or delete any video recording already in progress. As a general rule, it is recommended to tap Reset before each new batch (e.g. each day, each truckload, or each pen) begins loading, to ensure this batch's count is accurate.

Figure 5-2: Reset confirmation dialog

> ⚠ *Note: Recommended sequence: Reset → Start → drive pigs through the chute → tap Stop once all pigs have passed → record / cross-check the batch total. Do not tap Reset while pigs are still passing through, or the count will be interrupted and the statistics will be inaccurate.*

5.4 Shutdown

A red button labeled “Shutdown”, requiring a 3-second press-and-hold (“Hold 3s”) to trigger — this deliberately makes it hard to shut the device down by accident. Use this to safely power off the device before physically disconnecting it (e.g. for maintenance or relocation), rather than simply cutting power, which can risk data corruption.

> ⚠ *Note: Only use Shutdown when you intend to power off the device. If counting is simply finished for the day but the device will stay powered on and connected, use Stop instead — Shutdown ends the web dashboard session entirely*

6. Recording History & Downloads

PigCounter automatically records video of every counting session (from Start to Stop). This chapter covers where those recordings are stored, how to review them, and how to download or delete them.

6.1 Opening Recording History

On the main dashboard, tap the teal outlined button labeled “Recording History & Downloads.” This opens a dedicated “Recording History” page. A “Back” button in the top-right corner returns you to the main dashboard at any time.

6.2 Recording History Overview

At the top of the Recording History page are two summary figures:

- Free Space: the remaining video-storage capacity on the device, in GB
- Completed Videos: the number of finished (saved) recording sessions currently stored on the device

Below the summary is a list of recording sessions, newest first. Each entry shows a thumbnail, the session's start date and time, its duration, and the headcount recorded during that session (e.g. “0h 11m | 595 Pigs”).

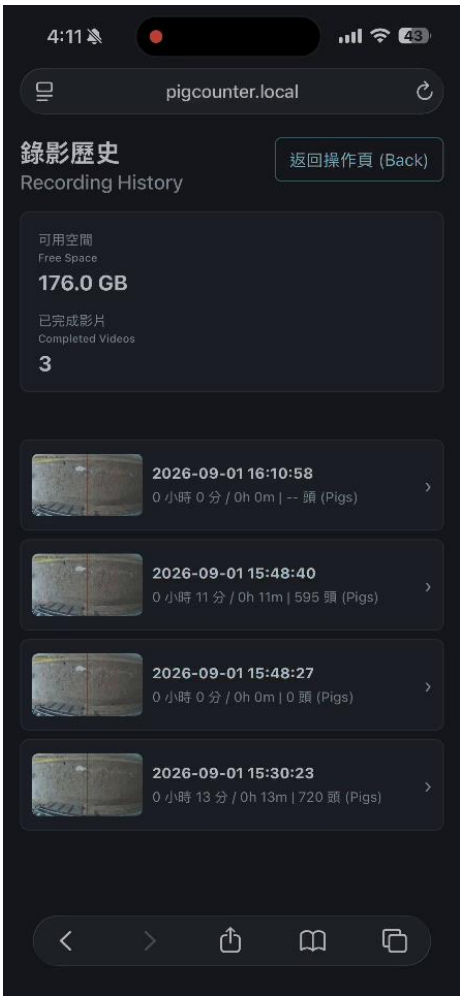

Figure 6-1: Recording History list — Free Space, Completed Videos, and individual sessions

6.3 Session Detail

Tapping a session expands it to show full detail:

- File name (e.g. pigcounter_session_20260901_154840.mp4)
- Start and End timestamps
- Recording Part (an index number, used when a long session is split into multiple video files)
- Duration
- Size (the video file size, e.g. 458.8 MB)

- Count (the headcount recorded during that session)
- Average Weight, Average Length, and Average Width for that session

The buttons shown at the bottom of an expanded session depend on whether it is still in progress or already finished:

- While a session is still being recorded (i.e. Start has been pressed but Stop has not yet), the buttons show “Available After Stop” (disabled) and “Active” in place of Delete — an active recording cannot be downloaded or deleted until it is stopped.

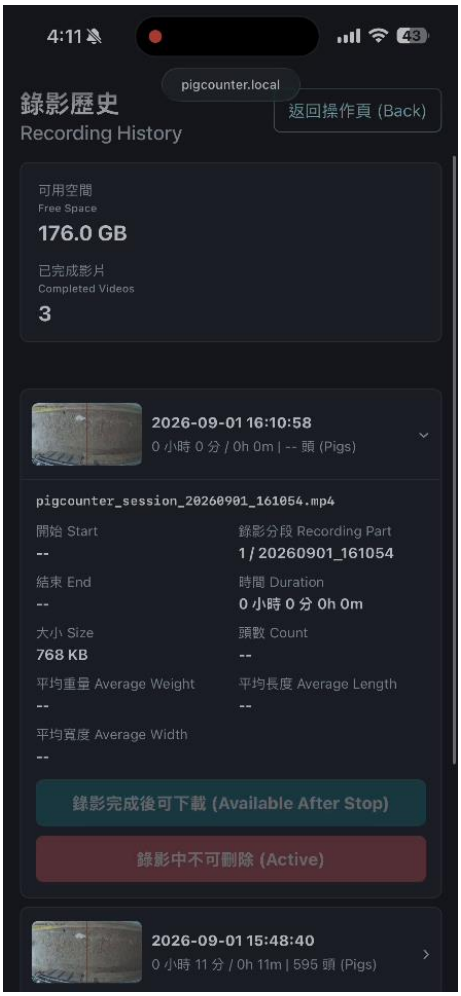

Figure 6-2: An in-progress session — Download and Delete are disabled until the recording is stopped

- Once a session is finished (after Stop is pressed), it shows an active teal “Download Video” button and a red “Delete” button

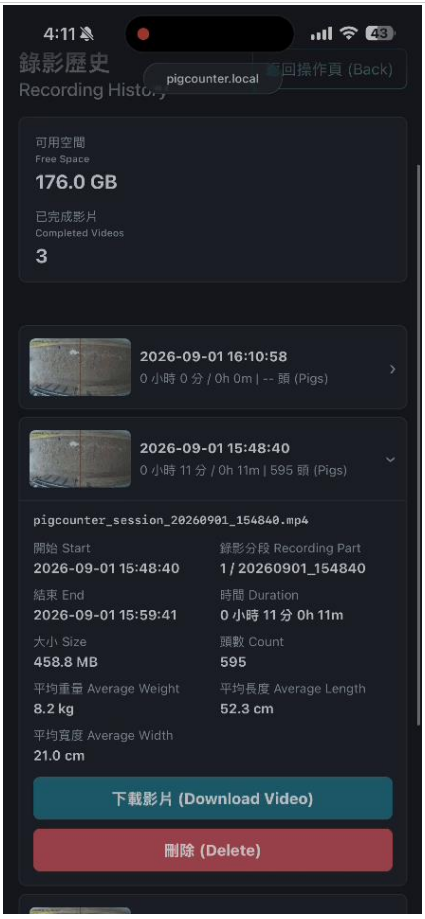

Figure 6-3: A completed session — Download Video and Delete are both available

6.4 Downloading a Video

Tap “Download Video” on any completed session to save that session's .mp4 file to the device you're browsing from (phone, tablet, or computer). This is useful for keeping an offline copy for a specific batch, or for sharing footage with a manager or buyer as proof of count.

6.5 Deleting a Video

Tap “Delete” on any completed session to permanently remove that recording from the device and free up its storage space. This action cannot be undone, so make sure you have downloaded a copy first if you may need it later. Recordings that are still active (in progress) cannot be deleted.

> *⚠ Note: If “Free Space” on the Recording History page is running low, download and then delete older sessions you no longer need on-device. Downloaded copies are unaffected by deleting the on-device recording.*

7. Per-Pig Records Table

This section sits below the control buttons, titled “Per-Pig Records,” with the current total number of records shown on the right (e.g. “89 Records”). Tapping the title row expands or collapses the full table; once expanded, it can be scrolled vertically (to browse records from different times) and horizontally (to browse different columns) — each row corresponds to one “single pig detected” event. Because there are many columns and limited screen width, the system splits the columns across a scrollable view; swipe left/right to see every field. The meaning of each column is as follows:

On-screen Label	Field	Description
Time	Time	The system time at which this pig was detected (i.e. crossed the counting line), in hh:mm:ss format
Direction	Direction	The direction the pig traveled, shown as “Right” or “Left”, used to distinguish inbound vs. outbound movement
Total	Total (Cumulative)	The cumulative headcount up through this record; the value increases with every new row (e.g. 84, 85, 86…)
In Average	In Average	Shows “Yes” or “No” — whether this record is included in the “Average Length / Width / Weight” calculation shown at the top of the page. Records may be excluded due to data-quality filtering or system judgment
Length (cm)	Length (cm)	This pig's estimated body length, in centimeters
Width (cm)	Width (cm)	This pig's estimated body width, in centimeters
Upload Weight (kg)	Upload Weight (kg)	The estimated weight value actually uploaded to the back-end/cloud, in kilograms
Raw Weight (kg)	Raw Weight (kg)	The raw estimated weight before conversion/calibration, in kilograms; some rows match the upload weight exactly, others differ slightly due to system correction
Upload	Upload Status	“OK” (green) means this record was successfully uploaded to the back-end server; any other status indicates a failed upload, and the network connection should be checked

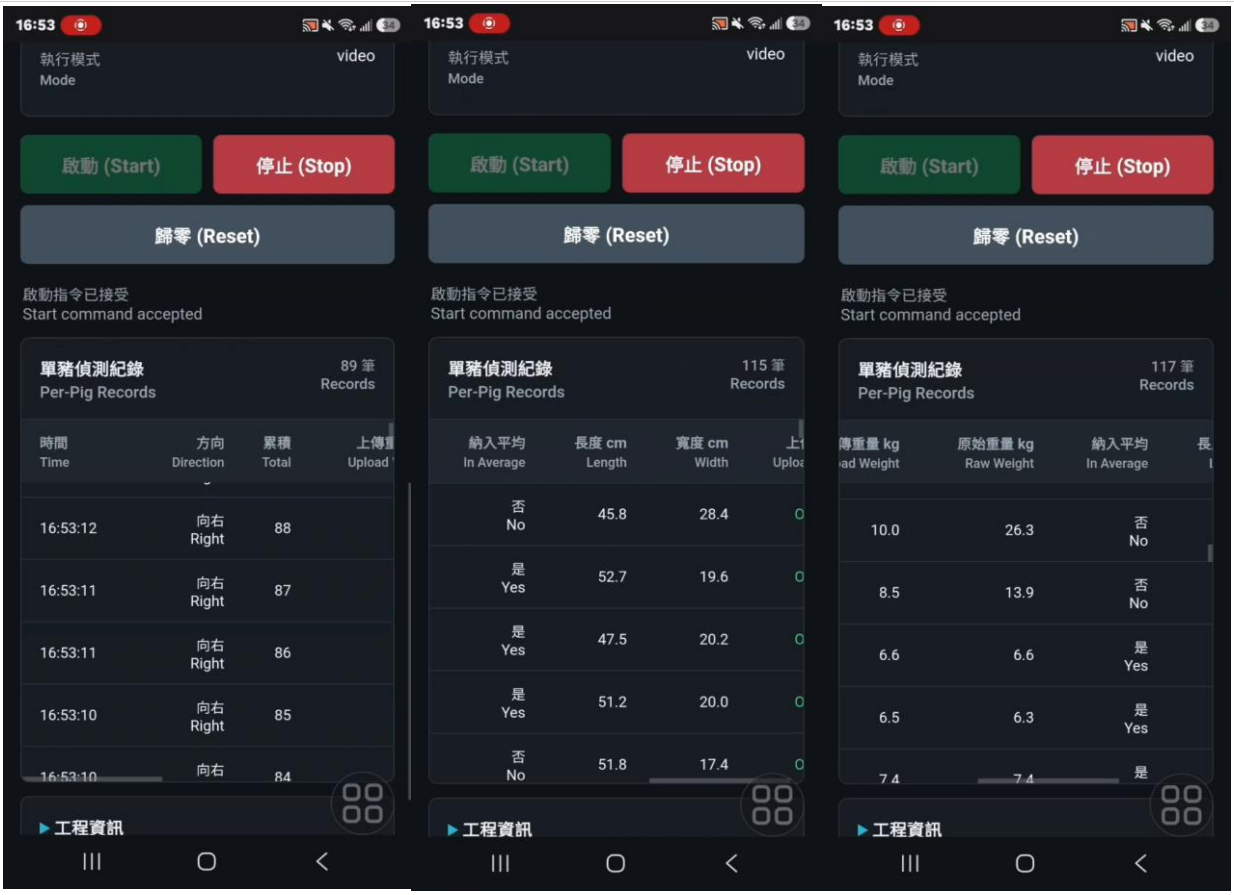

Figure 6-1: Record table (leftmost columns) — Time / Direction / Total / Upload

Figure 6-2: Record table (scrolled) — In Average / Length / Width

Figure 6-3: Record table (scrolled further) — Upload Weight / Raw Weight / In Average

> ⚠ *Note: A record with "In Average = No" may indicate an outlier (e.g. overlapping pigs, a pig only partially in frame, measurement noise). The system automatically excludes such rows from the average calculation, but still keeps them in the table in full for manual review later.*

8. Engineering Information

This section sits below the Per-Pig Records table. A triangle icon (▶ / ▼) next to the title can be tapped to expand or collapse it. It is mainly intended for engineering and maintenance staff to quickly verify that the device's communication modules are functioning correctly. Day-to-day farm staff generally do not need this section, but if the system misbehaves (e.g. the count stops updating, or the connection fails), this is a good first place to check.

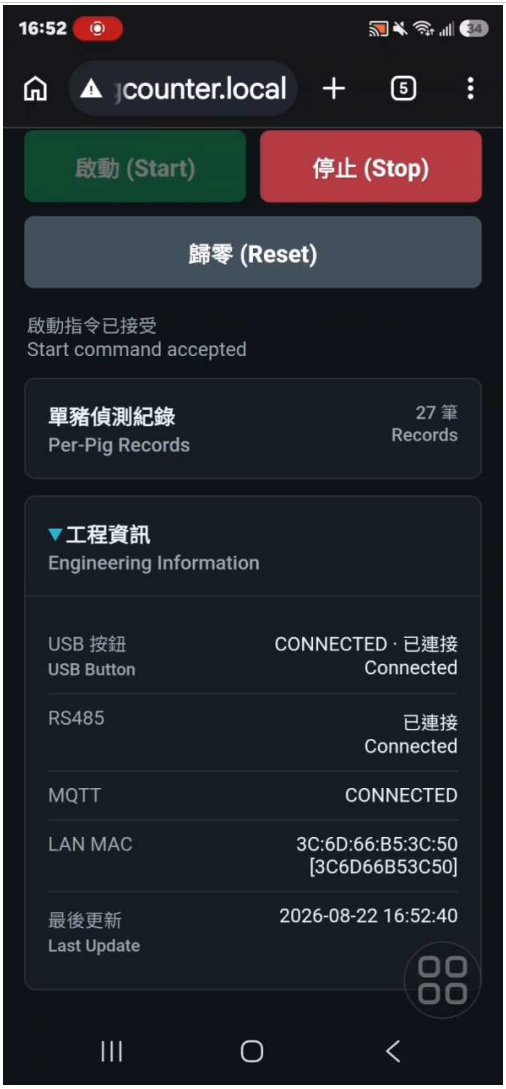

Figure 7-1: Engineering Information section, expanded

On-screen Label	Field	Description
USB Button	USB Button	“CONNECTED” indicates the physical USB trigger button on site (e.g. a manual count-confirm button) is correctly connected
RS485	RS485	“Connected” indicates the RS485 communication interface (commonly used to connect peripherals such as a weight sensor) is functioning normally
MQTT	MQTT	“CONNECTED” indicates the device's MQTT messaging connection to the back-end server is healthy — this is the key channel for real-time data upload
LAN MAC	LAN MAC Address	The device's network interface hardware address (MAC address), which can serve as a unique device identifier when managing multiple units
Last Update	Last Update	The system time at which this Engineering Information section was last refreshed, useful for confirming the data shown is current

⚠Note: If RS485 or MQTT shows as disconnected, weight-data upload or real-time communication may be affected. Contact an engineer to check the device wiring and network status — do not attempt to disassemble the hardware yourself.

9. Standard Operating Procedure (SOP)

The steps below are arranged in the same order shown in the actual screen recording. On-site staff are advised to follow this order to ensure complete and accurate counting data.

5. Open a browser on a phone or computer and connect to the device's local address (e.g. …counter.local). Confirm the “Online” badge appears in the top-right corner.
6. Check whether “Current Count” shows 0 with status “Reset.” If this is not the first use of the day and a number from a previous batch is still showing, tap “Reset” first to clear it.
7. Tap the green “Start” button. Confirm the message “Start command accepted” appears, and that the status under “Current Count” changes to “Counting.”
8. (Optional) Tap “Show Live Preview” to confirm the camera angle and AI bounding boxes look correct and fully cover the pig passage. If the image is blurry, obstructed, or the boxes look wrong, notify an engineer immediately, as this can affect counting accuracy.
9. Begin moving pigs through the counting chute / weigh point. “Current Count” increases in real time as each pig passes, and the average length/width/weight update simultaneously.
10. If you need to verify an individual pig's data mid-batch, expand the “Per-Pig Records” table and cross-check by time or direction.
11. Once all pigs have passed, tap the red “Stop” button to end this counting round. The figures on screen stop updating and remain available for review.
12. Compare “Current Count” against the actual number of pigs on site. If there is a discrepancy, expand the record table and check rows with “In Average = No” or an unexpected “Direction” value as a starting point for reconciliation.
13. If needed, open “Recording History & Downloads”, find this session (it will now show “Saved” instead of “Recording”), and tap “Download Video” to save a video copy of this batch for your records.
14. Once the data has been confirmed correct, repeat steps 2–9 to start the next batch. If the day's work is complete entirely, you may press and hold “Shutdown” (3 seconds) to safely power off the device; otherwise simply close the browser tab — the device keeps running in the background and the data is preserved.

10. Frequently Asked Questions

Q1: The address bar shows a “⚠” warning icon — does this mean something is wrong?

No. This usually just means the browser has flagged the local address (.local) as not using a publicly issued certificate, which is normal for an on-site local network connection. It does not affect data accuracy, and you can continue using the dashboard as usual.

Q2: The FPS value keeps rising and falling — is that normal?

Yes, this is normal. FPS naturally fluctuates with on-site lighting, how many pigs are in frame, network conditions, and device processing load (roughly 14–20 in the demonstration recording). As long as the value doesn't drop drastically and stay low, or the video doesn't visibly stutter, this is within normal range.

Q3: The “Average Weight” card and the individual weights in the Per-Pig Records table don't quite match — why?

“Average Weight” is a running average that is recalculated every time a new record is added, while “Upload Weight” and “Raw Weight” in the record table are each individual pig's own measurement, which naturally varies from pig to pig. If a particular row looks clearly abnormal (far too high or too low), check whether its “In Average” column is “No” — the system typically already excludes obvious outliers from the average calculation.

Q4: Mobile Preview Viewers shows “full” or “0 available” and I can't open the live preview — what should I do?

The system currently supports up to 2 mobile devices viewing the live preview at the same time. Ask another user to close “Show Live Preview” to free up a slot, or ask whoever is already connected to confirm the situation on your behalf.

Q5: If I tap Stop, can I tap Start again to keep adding to the same batch's count?

Yes. After Stop, the current total is preserved; tapping Start again continues adding to the existing total rather than starting over. If you need to start an entirely new batch, be sure to tap “Reset” first.

Q6: “MIC Upload” or the record table's “Upload” column shows something other than OK / 200 — what does that mean?

This means that particular record failed to upload to the back-end server, possibly due to an unstable network or a busy server. First check the on-site network connection; if the problem persists, contact an engineer to check the MQTT and RS485 connection status in the Engineering Information section (see Chapter 8).

Q7: The time shown on screen doesn't match the actual local time — what should I check?

Check “Meter Timezone” (Section 4.7) and confirm it is set to the correct city/country for where the device is installed, then tap “Apply.” Also check “Network Time” (Section 4.8) shows “Synchronized” — if it doesn't, the device may have lost its internet connection and cannot keep its clock accurate.

Q8: “Free Space” in Recording History is getting low — what should I do?

Open “Recording History & Downloads” (Chapter 6), download any completed sessions you want to keep a copy of, then tap “Delete” on older sessions you no longer need stored on the device to free up space. Sessions still being recorded cannot be deleted until they are stopped.

11. Appendix: Interface Glossary

On-screen Label	Field	Description
Current Count	Current Count	The total number of pigs the system has detected so far
Reset	Reset	The count has been reset to 0 and counting has not started
Counting	Counting	The system is actively counting
Average Length	Average Length	The average body length of pigs counted so far (cm)
Average Width	Average Width	The average body width of pigs counted so far (cm)
Average Weight	Average Weight	The average estimated weight, derived from body size (kg)
FPS	FPS	The number of image frames the camera processes per second
Show / Hide Live Preview	Show / Hide Live Preview	Opens or closes the live camera feed overlaid with AI detection boxes
Mobile Preview Viewers	Mobile Preview Viewers	The number of mobile devices currently viewing the live preview, and the maximum allowed

On-screen Label	Field	Description
MIC Upload	MIC Upload	The status of uploading microphone/audio data to the cloud server
Measurements	Measurements	The total number of measurement records accumulated so far
Mode	Mode	The system's current operating mode (e.g. video)
Start	Start	Begins pig detection and counting
Stop	Stop	Stops detection while preserving the current totals
Reset	Reset	Resets the current totals back to 0
Per-Pig Records	Per-Pig Records	The table logging every individual pig-detection event
Direction	Direction	The direction in which a pig crossed the counting line (Left / Right)
In Average	In Average	Whether a given record is included in the average calculation
Upload Weight / Raw Weight	Upload Weight / Raw Weight	The estimated weight uploaded to the server / the raw estimated weight before conversion
Engineering Information	Engineering Information	Shows the connection status of the device's communication modules (USB / RS485 / MQTT)
Online	Online	Status badge indicating the device is properly connected to the web dashboard
Stopped	Stopped	Status shown after Stop is pressed; the count is held at its last value
Recording	Recording	Shows whether video is currently being recorded (“Recording”) or has been finalized (“Saved”), plus free storage space
Meter Timezone	Meter Timezone	Dropdown to select the device's local city/country, used for all on-screen and recorded timestamps
Network Time	Network Time	Shows whether the device's clock is synchronized over the network (“Synchronized”)
Recording History & Downloads	Recording History & Downloads	Button that opens the screen listing all recorded sessions, with options to download or delete each one
Free Space	Free Space	Remaining on-device video storage capacity, shown in GB
Completed Videos	Completed Videos	Number of finished, saved recording sessions currently stored on the device
Download Video	Download Video	Saves a completed session's .mp4 file to the browsing device
Delete (recording)	Delete	Permanently removes a completed recording from the device to free up storage
Shutdown	Shutdown	Button requiring a 3-second hold to safely power

On-screen Label	Field	Description
		off the device

— End of Manual —