



DRONEHAB AUSTRALIA

CAPABILITY STATEMENT · 2026

Solar PV Thermography

Aerial radiometric thermal and RGB inspection of photovoltaic plants
— every module, referenced to block, row and string, delivered as an
anomaly register your O&M team can act on.

UTILITY-SCALE · MINE-SITE & REMOTE SOLAR + BESS · COMMERCIAL & INDUSTRIAL ROOFTOP

Dronehab Pty Ltd · ABN 18 664 915 557 · CASA ReOC holder · ARN 1210588 · +61 456 902 327 · Enquiries@dronehab.com.au

Every module, radiometric, referenced and actionable

Dronehab inspects photovoltaic plants from the air with radiometric thermal and high-resolution RGB captured together in one pass, and hands back a georeferenced anomaly register rather than a folder of images.

Capture and classification follow the IEC TS 62446-3 methodology for outdoor infrared thermography of PV systems. Every module in the plant is inspected, not a sample; every anomaly is measured as a temperature difference against comparable modules, classified by severity, and located to block, row, string and module so a technician can walk straight to it.

1280×1024 RADIOMETRIC THERMAL	≤50mK THERMAL SENSITIVITY	600W/m² MINIMUM CAPTURE IRRADIANCE	5×5 MINIMUM PIXELS PER CELL
---	---	---	---

WHERE WE WORK

UTILITY-SCALE PLANTS

Ground-mount and single-axis tracker arrays

Whole-plant inspection in a single campaign

Commissioning baseline and warranty programs

Annual O&M and post-event assessment

Register formatted for CMMS import

MINE-SITE & REMOTE SOLAR + BESS

Hybrid and off-grid plants on mine and remote sites

Mine-inducted crews, self-contained mobilisation

External thermal survey of BESS enclosures, inverters and transformers

HV yard connections and switchgear, externally

Vegetation and weed control on the same visit

COMMERCIAL & INDUSTRIAL ROOFTOP

Rooftop arrays without foot traffic on the roof

Operations planned to CASA requirements for the site

Module, isolator and inverter heat signatures

Shading and soiling from the same flight

Warranty and insurance evidence

WHOLE PLANT

Every module inspected. Anomalies are counted, located and classified, not sampled.

INDEPENDENT

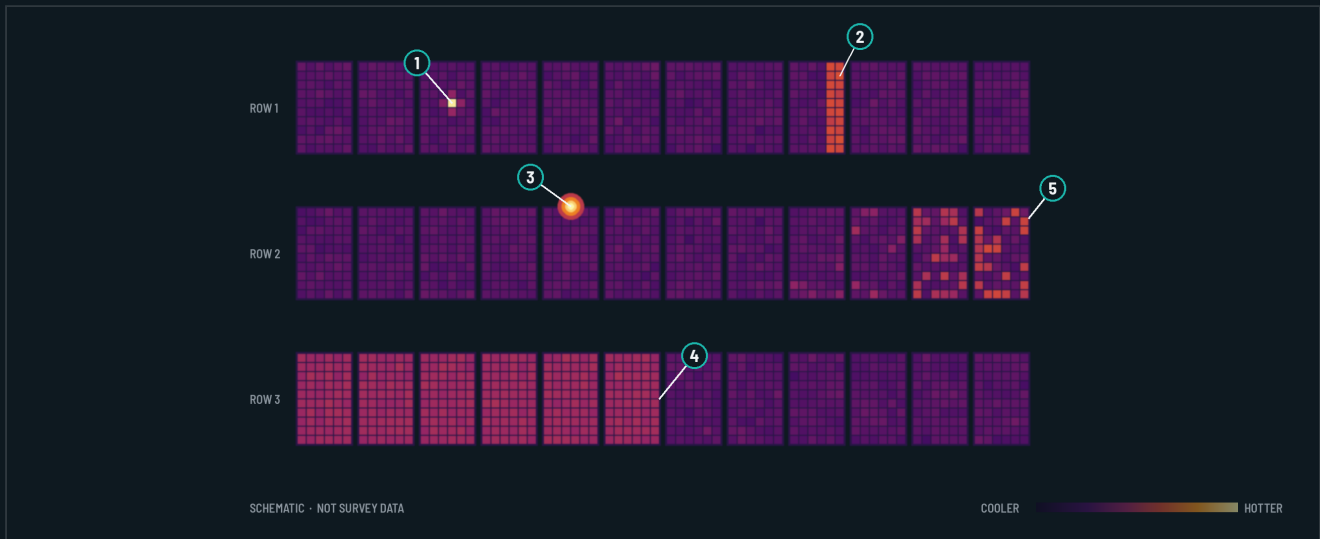
Inspection independent of the owner, operator, EPC and module supplier.

RADIOMETRIC

Temperature in every pixel, so ΔT is measured, not judged by eye from a coloured image.

FINDINGS

What we flag, and how it is classified



SCHEMATIC – TYPICAL ANOMALY SIGNATURES ON A PV ARRAY. ILLUSTRATIVE, NOT SURVEY DATA

- 1 Hot-spot signature
- 2 Sub-string pattern (suspected diode)
- 3 Junction box heating
- 4 Suspected offline string
- 5 PID-consistent pattern

THERMAL – SIGNATURES WE FLAG

Hot-spot signatures consistent with cell defects or cracking

Sub-string patterns suggesting bypass diode activation

Suspected open-circuit or offline strings

Patterns consistent with potential-induced degradation

Elevated temperatures at junction boxes and connectors

Suspected combiner box, isolator and inverter hot spots

RGB – SAME FLIGHT

Visible glass and frame damage

Soiling and bird fouling

Shading and vegetation encroachment

Tracker misalignment and stow faults

Missing or displaced modules

Drainage, fence and access condition

CLASSIFICATION

Class 1

No abnormality. Module within the normal thermal range of its neighbours. Recorded for the baseline.

Class 2

Thermal abnormality. Sustained ΔT against comparable modules; schedule detailed inspection, monitor at the next campaign.

Class 3

Safety-relevant. High ΔT or a credible fire or shock pathway; priority electrical inspection, isolate if confirmed.

Thermal findings are reported as signatures and suspected causes. Root cause is confirmed by the electrical inspection the register directs.

METHOD

From flight to work order

01

Plan

Plant layout and string map loaded. Altitude set from module cell size and sensor geometry so every cell resolves at 5x5 thermal pixels or better.

02

Capture

Flown near solar noon under clear or lightly hazy sky, at or above 600 W/m² in-plane irradiance, near-nadir, at steady altitude. Conditions logged.

03

Analyse

Radiometric frames reviewed module by module. Each anomaly measured as ΔT against comparable modules and classified 1-3.

04

Report

Anomalies referenced to block, row, string and module with thermal and RGB evidence, class and recommended action.

CAPTURE CONDITIONS

Irradiance	At or above 600 W/m ² in-plane for the whole capture window, confirmed from on-site measurement or the plant's pyranometer data
Sky and wind	Clear or lightly hazy sky, low wind — wind cools module glass and suppresses the ΔT the inspection depends on
Geometry	Near-nadir view to limit sky reflection, steady altitude, no motion blur, thermal gain set to preserve scene contrast
Record	Irradiance, ambient temperature, wind and sky state logged and reported with the findings, so results are repeatable campaign to campaign

RESOLUTION

THERMAL GSD PER METRE OF HEIGHT

H30T 0.50 mm · M4T 1.0 mm

12 μm pixel pitch at 24 mm and 12 mm focal length respectively.

FULL CELL, ~182 MM

H30T ≤ ~70 m · M4T ≤ ~35 m

Height ceiling for 5x5 pixels per cell.

HALF-CUT CELL, ~91 MM

H30T ≤ ~35 m · M4T ≤ ~18 m

Ceiling halves with the cell. Module type is confirmed at planning and the flight set to it.

Derived from published sensor geometry. Flight height is set per plant from the installed module type, never from a fixed template.



DRONEHAB CREW AND ENTERPRISE UAV ON SITE

DELIVERABLES

A register, not a folder of images

Anomaly register	CSV / XLSX ready for CMMS import — location ID, coordinates, anomaly type, ΔT, class and recommended action per record
Orthomosaics	Georeferenced thermal and RGB GeoTIFF of the full plant
Field layers	KML / SHP anomaly layers so technicians navigate straight to the module on a phone or tablet
Report	PDF with capture conditions, equipment, method, findings by class and block, and limitations

ID	LOCATION	ANOMALY	ΔT	CLASS	ACTION
A-0142	B03 · R12 · S04 · M17	Hot-spot signature	24.6 °C	2	Warranty review / detailed inspection
A-0143	B03 · R14 · S02 · M05	Junction box heating	47.3 °C	3	Priority electrical inspection / isolate if confirmed
A-0144	B05 · R02 · S07 · —	Suspected offline string	3.2 °C	2	String, fuse and connector inspection

Sample register format — example values only.

REPEAT PROGRAMS

Commissioning baseline

Every module recorded at handover, before defects are argued over. The reference every later campaign is compared to.

Annual O&M

Same flight plan, same module IDs, so change is tracked module by module and degradation shows as a trend, not a surprise.

Post-event

Hail, storm and grid-fault assessment on short notice, with the baseline to separate new damage from old.

WHAT WE NEED FROM YOU

Layout	As-built layout with block, row, string and module IDs — CAD, GIS or PDF. Without it we build the reference grid from the RGB capture
Access	Site access, inductions, and an electrical contact for Class 3 findings on the day
Plant data	Pyranometer / SCADA irradiance for the capture window if available, and prior inspection reports for comparison

Certified, registered, site-ready

AERIAL PLATFORMS

DJI Matrice 400 — primary

- Zenmuse H30T — 1280×1024 radiometric thermal, ≤50 mK, wide + zoom + laser rangefinder

DJI Matrice 4T — rapid and rooftop

- 640×512 radiometric thermal, 48 MP zoom

RTK positioning on both platforms

PROCESSING

Radiometric R-JPEG analysis

Thermal and RGB orthomosaics

GIS referencing to plant layout

Anomaly register and field layers

Baseline-to-campaign comparison

SAME CONTRACTOR

Topographic and as-built survey

Drainage and earthworks design support

Vegetation mapping between rows

Weed control across the site, in-house

One mobilisation, one coordinate framework

CASA REOC HOLDER

ARN 1210588

CHIEF REMOTE PILOT · REPL HOLDER

ARN 1210579

SAFETY RECORD

Zero recordable injuries since May 2023

SITE READINESS

Mine-inducted crews

ICN GATEWAY

Business ID 1890843

SUPPLIER SYSTEMS

Avetta · Pegasus / Onsite Track Easy

STANDARD

IEC TS 62446-3 methodology

DATA HANDLING

Commercial-in-confidence

APPROVED VENDOR & SUPPLIER

BHP



Registered / approved supplier to the organisations above.

ENQUIRIES

Director

Buster Shoesmith — +61 456 902 327 · Buster.s@dronehab.com.au

Locations

Mackay QLD · Brisbane QLD · Gold Coast QLD · Sydney NSW