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THERMAL INSPECTION REPORT

Demo installation (synthetic images)

Report number	ST-20261015-M8PM-V1	Version	1
Issue date	15 October 2026	Inspection date	15 October 2026

Prepared by	
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1 SUMMARY

The roof-mounted PV array on the farm barn (24 modules, 9.6 kWp) was inspected with a drone-mounted thermal camera. All three thermal images were reviewed. Two thermal anomalies were documented: a warm sub-string in Row 3 / Module 5 that is consistent with an active bypass diode (Finding 2, high priority) and a single warm cell in Row 2 / Module 3 (Finding 1, medium priority). No further abnormal temperature patterns were visible in the reviewed images.

1.1 Overall assessment

Apart from the two findings, the array shows an even temperature pattern. Finding 2 should be checked promptly: a sub-string that stays bypassed reduces the output of the module and can point to a defective diode. Finding 1 should be checked at the next visit. The images were taken under suitable conditions (720 W/m² measured in the module plane, wind 2.5 m/s, 1 okta cloud cover). This is a qualitative image review; temperature differences were not measured radiometrically.

1.2 Results at a glance

Images (reviewed / total)	3 / 3	Findings	2
Priority: Medium	1	Priority: High	1
Affected modules	2	Inspected modules	24
Affected share of inspected modules	8.3 %		

1.3 List of findings

#	Module/component	Observation	Priority	Cause
1	Row 2 / Module 3	Hotspot – single cell	■ Medium	Cause unconfirmed
2	Row 3 / Module 5	Sub-string warmer (bypass diode active)	■ High	Plausible after visual check

2 INSTALLATION AND INSPECTION

2.1 Installation

Installation	Demo installation (synthetic images)	Country	United States
Time zone	America/Chicago	Module type	Generic 400 W mono
Module power	400 Wp	Module count	24
Capacity (stated)	9.6 kWp	Capacity (calculated)	9.6 kWp

2.2 Inspection conditions and method

Irradiance	720 W/m ² (measured)	Ambient temperature	21 °C
Wind	2.5 m/s	Cloud cover	1/8

Qualitative image review; no radiometric temperature measurement was performed.

2.3 Scope

Purpose	Routine inspection
Scope	Barn roof, all 24 modules in one array
Areas not inspected	None
Inspector	Demo user

3 FINDINGS

Priority scale

■ Note	Documented for information; no action derived.
■ Low	Monitor at the next routine inspection.
■ Medium	Plan a follow-up check.
■ High	Arrange a prompt follow-up check by a qualified person.

Priority uses the author's own scale. It is not an IEC classification.

3.1 Finding 1: Hotspot – single cell

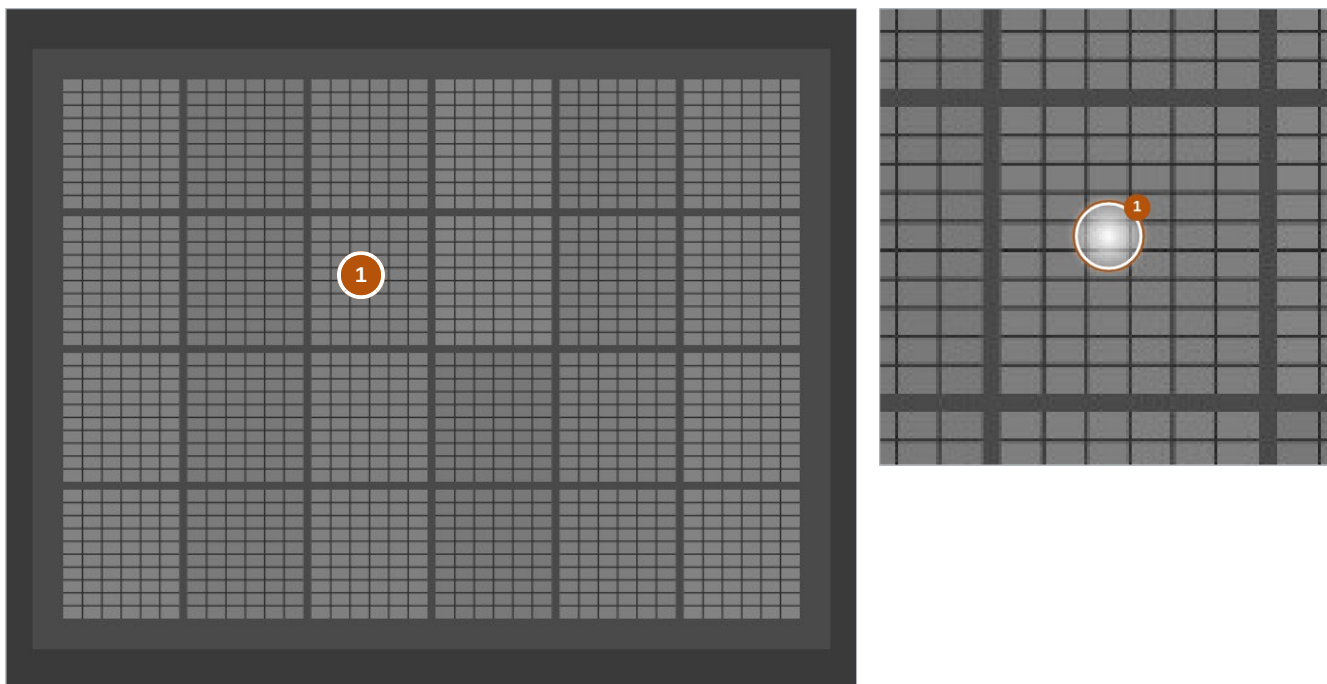
Priority: Medium

Figure 1: File DEMO_0001_T.JPG

Observation	Hotspot – single cell	Priority	Medium
Cause	Cause unconfirmed	Module/component	Row 2 / Module 3
Action status	open		

Assessment

One cell in Row 2 / Module 3 is clearly warmer than the neighbouring cells. Such a pattern can be caused by local soiling or shading, a cracked cell or a cell defect. The thermal image alone does not establish the cause, and a visual check of the module surface has not yet been documented.

Recommended action

At the next visit, check the module surface for soiling, shading and visible damage. If the cell stays warm without an external cause, have the module tested electrically (for example with an I-V curve measurement) by a qualified person.

3.2 Finding 2: Sub-string warmer (bypass diode active)

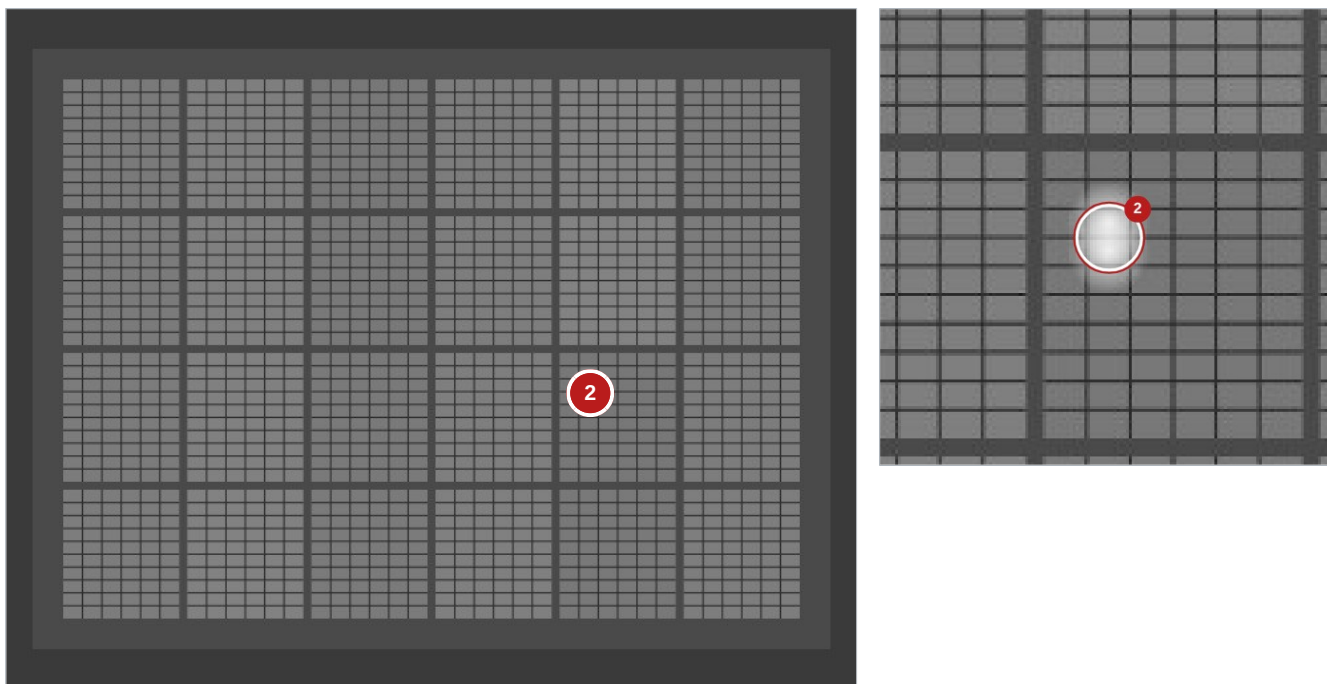
Priority: High

Figure 2: File DEMO_0002_T.JPG

Observation	Sub-string warmer (bypass diode active)	Priority	High
Cause	Bypass diode – Plausible after visual check	Module/component	Row 3 / Module 5
Action status	open		

Assessment

In Row 3 / Module 5, one sub-string section of the module is warmer than the rest of the module. This pattern is consistent with an active bypass diode. According to the author, a defective or permanently conducting bypass diode is plausible after a visual check; it has not been confirmed by an electrical test.

Recommended action

Have the bypass diodes and the junction box of this module checked by a qualified electrician. If a fault is confirmed, replace the diode or the module.

4 NEXT STEPS

1. Finding 2: have the bypass diodes of Row 3 / Module 5 checked by a qualified electrician.
2. Finding 1: check Row 2 / Module 3 for soiling, shading and damage at the next visit.
3. After any repair, repeat the thermal inspection under comparable conditions to confirm the result.

5 LIMITATIONS

- Sample report: the images are synthetic and show the structure of a report, not a real installation.
- Qualitative image review; no radiometric temperature measurement was performed.

6 NOTES

Notes on this report

This report records the data and assessments provided by its author for the stated inspection time and scope. Thermal anomalies alone do not always establish the cause or extent of a defect. Uninspected areas and missing measurements are identified in the report. Using a report template or inspection profile does not constitute independent certification or guarantee acceptance by insurers, authorities or other third parties.

Note on the software

SolarThermography supports the planning, documentation and review of your own PV thermal imagery. The platform does not perform an independent on-site inspection or certify the electrical safety, standards compliance or legal compliance of an installation. Results depend on the supplied data, capture conditions and professional assessment. Decisions about repairs, operation or safety may require additional checks by appropriately qualified professionals.

Release

Prepared by	Date	Signature
Alex Example, Your Company Ltd	15 October 2026	