



Thermal Imaging Specialists

# Qualitative Inspection Report

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<b>CLIENT:</b>	<b>EXAMPLE REPORT</b>
<b>SITE ADDRESS:</b>	<b>SITE NAME</b>
	<b>ADDRESS</b>
<b>DATE COMPLETED:</b>	<b>DD MM YYYY</b>
<b>REPORT PREPARED FOR:</b>	<b>CONTACT PERSON</b>
<b>INSPECTION PERSONNEL:</b>	SHAUN CHALWELL – Electrician No. 135903 Level 2 Thermographer – No. 213239829 CAT I AINDT Thermographer – No. 8929
<b>TEST EQUIPMENT:</b>	FLIR T540 #79318646   Calibration Due 08/01/2027

## Executive Summary

### 1. PRIORITIES

The thermal exception priority levels used through this report are based on  $\Delta$  Temp (temperature differences) and absolute temperatures. The  $\Delta$  Temp is measured between the component which has a thermal exception and the reference. The 'reference' also referred to as 'spot A', refers to components that are operating at what is considered to be 'normal' operating temperature, usually found on adjacent phases or similar components under comparable loads. In any case where a reference temperature is unable to be established, our qualified thermographer will then rely on previous experience to determine a reference temperature.

Thermal Scanners will utilise either Spot A and Spot B with  $\Delta$  Temp or a hot box with a maximum temperature to display the thermal exceptions. Thermograms that do not display a thermal exception will have the hottest part of the thermogram identified with either A! point or Spot A.

Absolute temperature is the reading from the thermal camera at the time of scanning and is calculated using the stated values for emissivity, reflected temperature and ambient conditions. The absolute temperature may be different from the true temperature due to a range of factors including, but not limited to, atmospheric conditions, specific emissivity considerations and infrared reflection; however, all care will be taken to ensure accuracy of temperature readings.

The absolute temperature criterion range is to be used as a guide only and will differ based upon the electrical component being assessed.

In the majority of cases, the temperature differential criterion will be utilised to determine the priority level of importance. However, it is at the thermographer's discretion as to when the absolute temperature criterion is utilised.

### Thermal Exception Priority Levels of Importance

Priority	$\Delta$ Temp.	Absolute Temp.	Suggested Action
1	>40°C	>95°C	<b>Critical</b> Indicates a critical problem that requires corrective measures <b>immediately</b> , as the component may be close to failure.
2	20°C - 40°C	80°C - 95°C	<b>Significant</b> The identified problem should be corrected <b>as soon as possible</b> , if left in its present condition could lead to a critical incident.
3	10°C - 20°C	60°C - 80°C	<b>Caution</b> Indicates a minor problem, corrective measures required <b>as scheduling permits</b> .
4	<10°C	<60°C	<b>Abnormal Thermal Pattern</b> Indicates an abnormality that fall outside our temperature classifications. This should be investigated <b>during the next routine maintenance</b> .

*Emissivity and reflected temperatures utilised are 0.95 and 30°C respectively, however if the values used are different, they will be noted within the report. For most applications, this will give the more conservative temperature readings. Further when a temperature difference is on the border the higher thermal exception priority rating shall be utilised.*

## 2. ASSET REGISTER

A list of all electrical equipment scanned can be found in the asset register within this report.

Thermal Scanners have a constant drive and pursuit for high quality work, as such additional time is required for larger multi-tiered boards to be broken down into individual vertical tiers. These applicable board tiers are noted from left to right and recorded in the asset register.

## 3. LIMITATIONS

Infrared radiation cannot pass through materials and mediums such as plastic, glass, perspex, panel doors, aluminum and other opaque materials.

The results presented within this report are true and correct at the time of scanning and may be different under altered circumstances such as load and/or atmospheric conditions.

Any boards at the time of thermal inspection which either possess interlocks (equipment that cannot be opened safely whilst under load), or non-energised equipment will be noted in the asset register, however no thermal observations can be made due to the state of the equipment. In addition, there may be visual rounding errors for delta temperature measurements (differences) of up to 0.1°C due to limitations of post processing reporting software.

If the technician deems it unsafe to remove escutcheon panels potentially due to side flarings, connecting components, post installation modifications, risk of compromising facility operations, large presence of dust or other serious safety hazards, then the board will be scanned externally with the escutcheon panels present and this will be noted in the scope of works. It is recommended during the next routine maintenance schedule that these panels are removed, and the electrical equipment is checked by a licensed electrician.

## 4. STANDARD VALUES

The camera utilised for the purpose of the thermal survey will be at minimum, of the make and model **FLIR T-540** with the below minimum stated specifications and utilise the variables of:

Name	Value
Infrared Resolution	464 x 348 pixels
Field Of View (FOV)	24° x 18°
Spatial Resolution (IFOV)	0.90 mrad/pixel, 24°
Noise Equivalent Thermal Difference (NETD)	<40mK
Emissivity	0.95
Reflected temperature	30°C

## 5. STANDARDS

All thermographic inspections / surveys shall be completed in accordance and in line with the following standards:

- AS/NZS 4836:2011
- AS/NZS 61349.1:2016
- AS/NZS 18436-7:2014

### NOTE

All boards on site shall be thermally scanned with a minimum of 10% of boards being analysed and reported upon unless otherwise requested, however all thermal anomalies will always be captured and reported. If no anomalies are identified, then reference photos in line with the minimum 10% shall be provided to show the conditions found on the electrical systems at the time of scanning, unless otherwise requested.

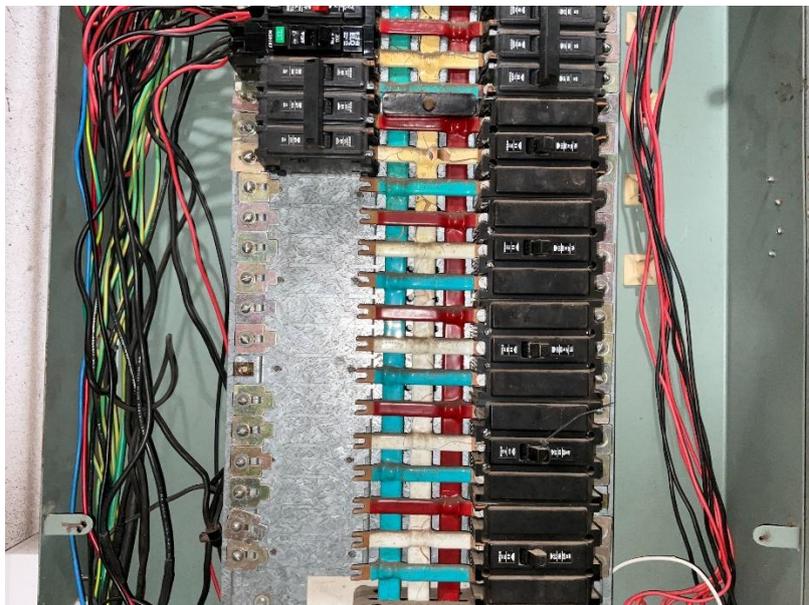
## Summary of Thermal & Visual Exceptions

Location	Switchboard	Priority Rating	Temp. / Type	Page
Warehouse - Plant Room	MSSB-1	<b>P1</b>	<b>137.4°C</b>	<b>6</b>
Warehouse - Production Area	Distribution Board D-2	<b>P3</b>	<b>44.2°C</b>	<b>9</b>
Warehouse - Rear Section of Warehouse	MSB - Tier 3 - DB Section + Cable Zone	<b>Visual</b>	<b>Corrosion</b>	<b>10</b>
Warehouse - Production Area	Distribution Board D-5	<b>Visual</b>	<b>Dust Buildup</b>	<b>10</b>

### General Comments

Please note the following:

- Missing busbar boots were identified at the time of scanning on the following switchboard(s), as shown below, this presents the risk of coming into contact with live electrical components. It is recommended to rectify by replacing boots or insulating the components
  - Warehouse - Rear Section of Warehouse - MSB - Tier 3 - DB Section + Cable Zone
  - Warehouse - Rear Section of Warehouse - Distribution Board D-1
  - Level 1 - Hallway - Distribution Board D-4

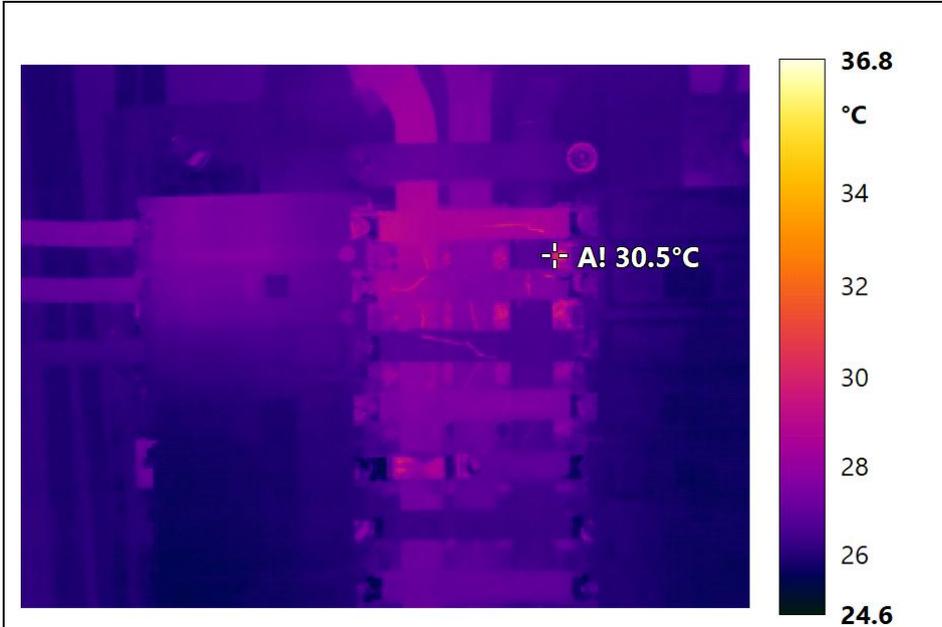


<b>Location:</b>	Warehouse - Rear Section of Warehouse
<b>Switchboard:</b>	MSB - Tier 1 - Submains
<b>Thermal Results:</b>	No thermal exceptions were found at the time of scanning

FLIR0008

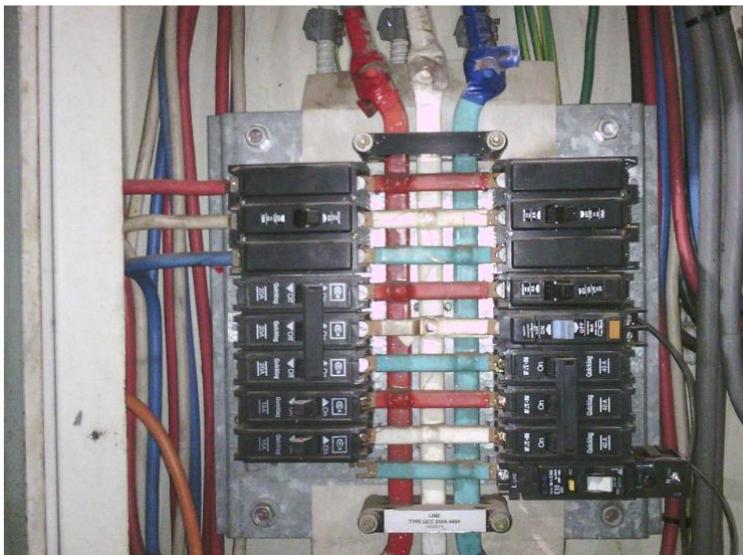
Date: 17.09.2025

Time: 10:53:40



**Results Table**

Spot A!	30.5°C
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**Recommendations**

No further action required

**Comments**

We recommend scheduling annual thermal scanning inspections as a proactive measure to monitor equipment health, detect early signs of wear, and prevent potential failures. Regular maintenance ensures optimal system performance and safety.

<b>Location:</b>	Warehouse - Plant Room
<b>Switchboard:</b>	MSSB-1
<b>Thermal Results:</b>	Thermal anomaly detected on Bottom Connection of Fuse.

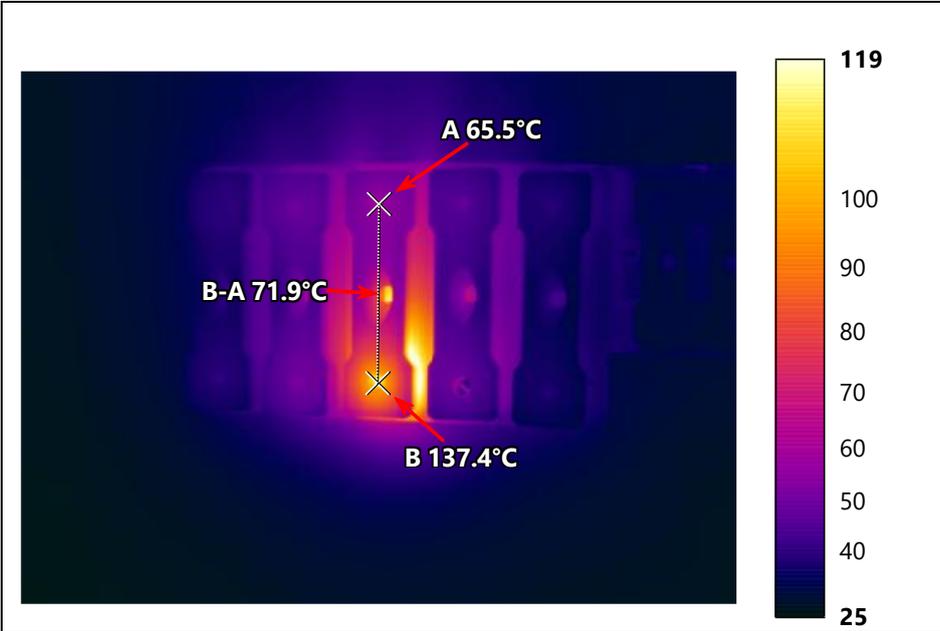
**Priority Rating**



FLIR0018

Date: 17.09.2025

Time: 11:55:20



**Results Table**

Spot A	65.5°C
Spot B	137.4°C
B-A	71.9°C



**Recommendations**

Repair immediately; Check & clean contacts ensuring no rust or foreign substances, re-terminate connection to manufactures torque settings; Replace fuse if required; Check fuse holder & clean if required; Further investigation required

**Comments**

We recommend scheduling annual thermal scanning inspections as a proactive measure to monitor equipment health, detect early signs of wear, and prevent potential failures. Regular maintenance ensures optimal system performance and safety.

Repairer's Comments:

Signed:

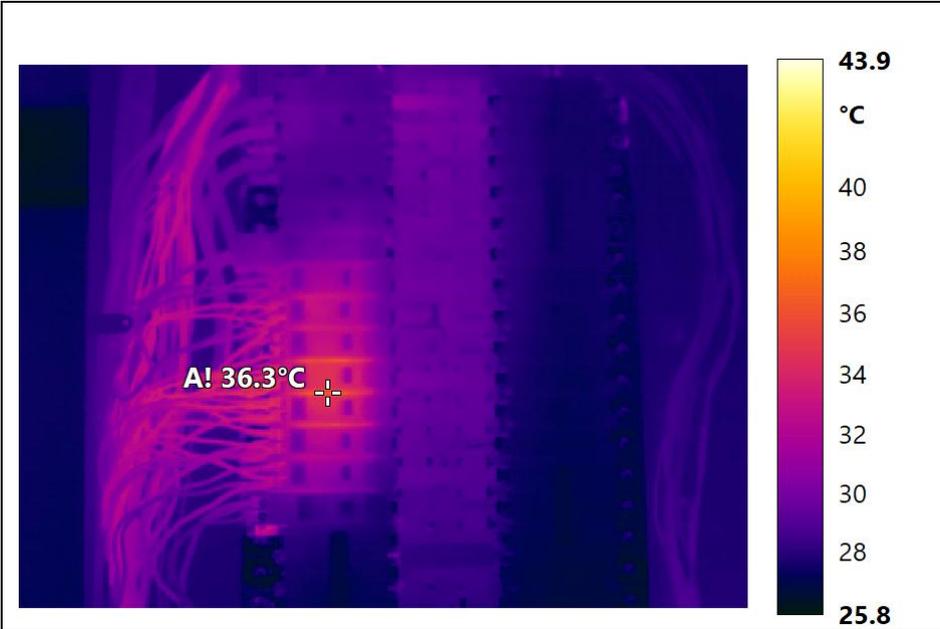
Date:

<b>Location:</b>	Warehouse - Rear Section of Warehouse
<b>Switchboard:</b>	Distribution Board D-1
<b>Thermal Results:</b>	No thermal exceptions were found at the time of scanning

FLIR0012

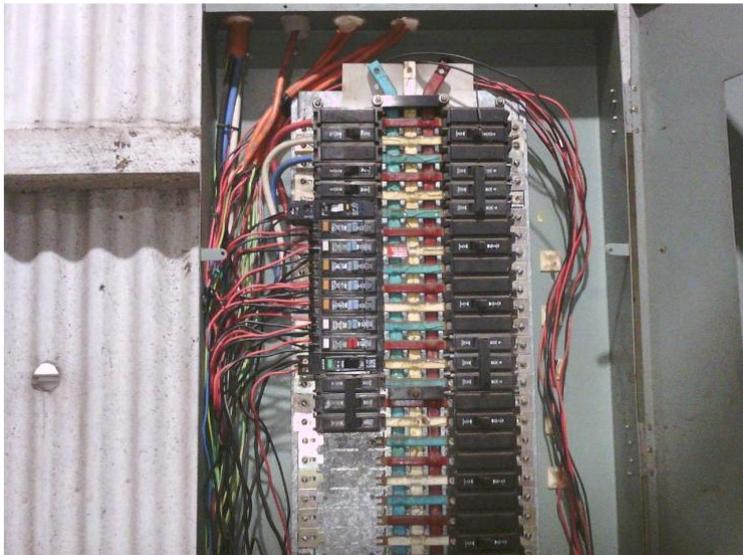
Date: 17.09.2025

Time: 11:24:10



**Results Table**

Spot A!	36.3°C
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**Recommendations**

No further action required

**Comments**

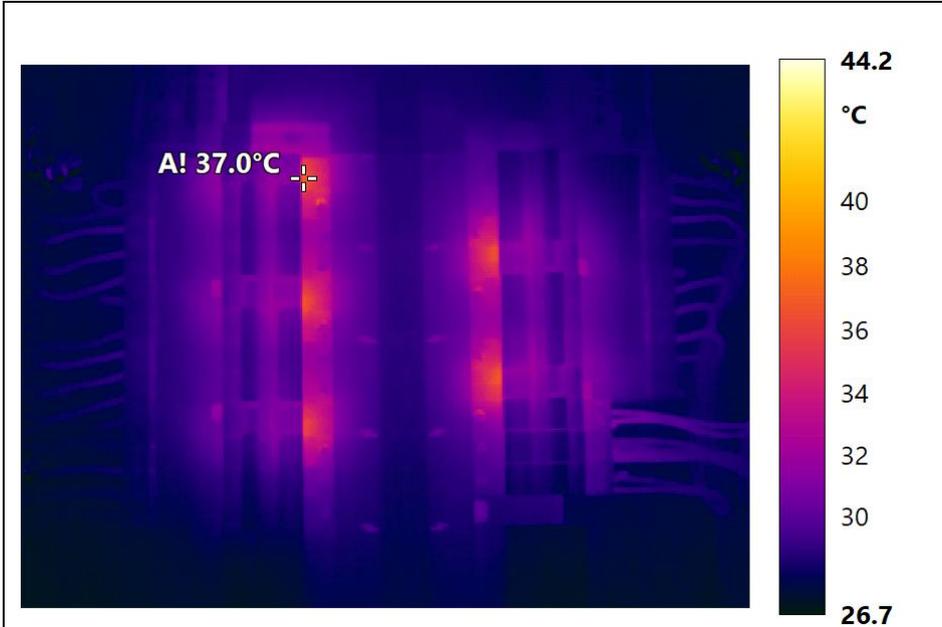
We recommend scheduling annual thermal scanning inspections as a proactive measure to monitor equipment health, detect early signs of wear, and prevent potential failures. Regular maintenance ensures optimal system performance and safety.

<b>Location:</b>	Level 1 - Office
<b>Switchboard:</b>	Distribution Board D-3
<b>Thermal Results:</b>	No thermal exceptions were found at the time of scanning

FLIR0015

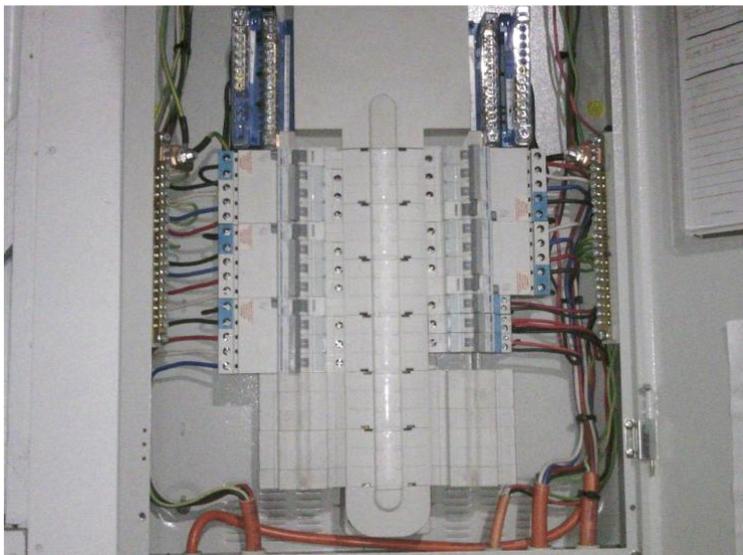
Date: 17.09.2025

Time: 11:41:28



**Results Table**

Spot A!	37.0°C
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**Recommendations**

No further action required

**Comments**

We recommend scheduling annual thermal scanning inspections as a proactive measure to monitor equipment health, detect early signs of wear, and prevent potential failures. Regular maintenance ensures optimal system performance and safety.

<b>Location:</b>	Warehouse - Production Area
<b>Switchboard:</b>	Distribution Board D-2
<b>Thermal Results:</b>	Thermal anomaly detected on the termination of circuit 3 load side.

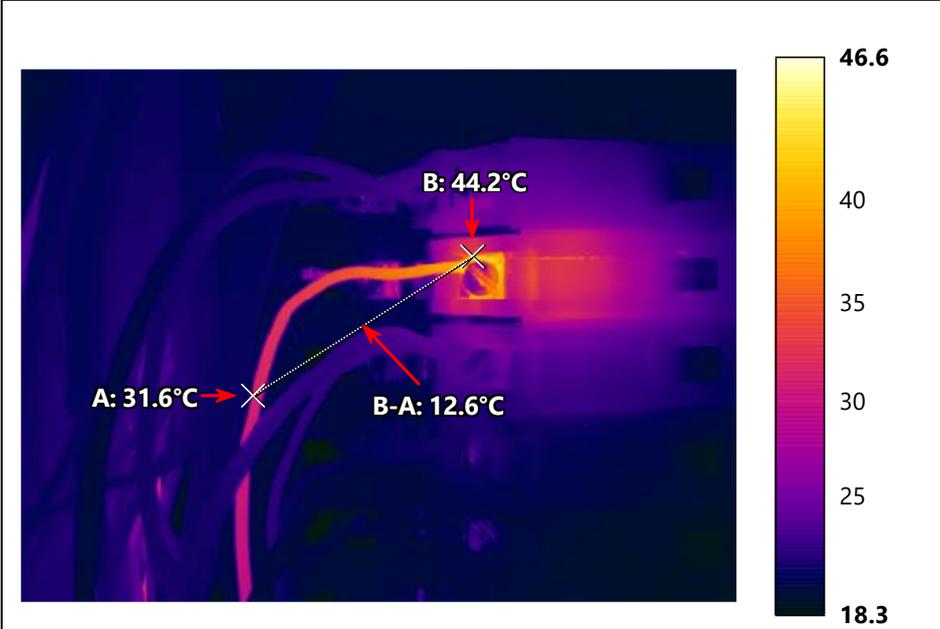
Priority Rating



FLIR0018

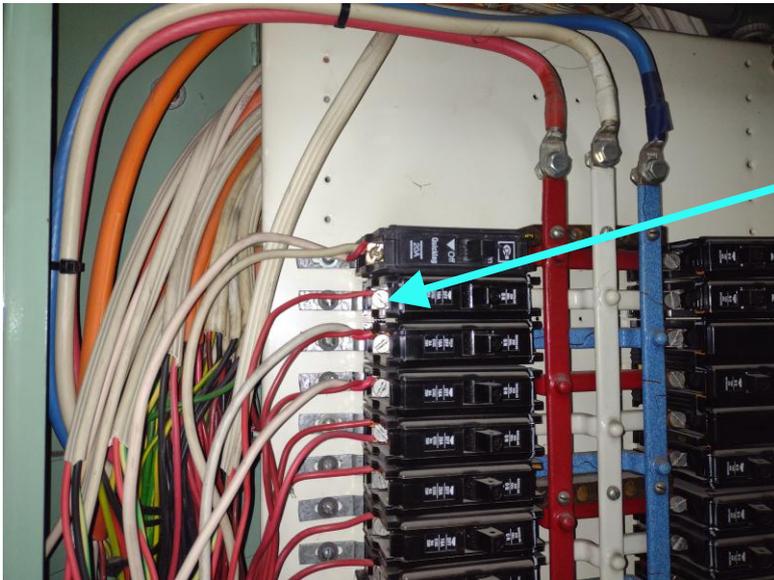
Date: 17.09.2025

Time: 11:55:20



Results Table

Spot A	31.6°C
Spot B	44.2°C
B-A	12.6°C



Recommendations

Check & clean contacts ensuring no rust or foreign substances, re-terminate connection to manufactures torque settings; Further investigation required

Comments

We recommend scheduling annual thermal scanning inspections as a proactive measure to monitor equipment health, detect early signs of wear, and prevent potential failures. Regular maintenance ensures optimal system performance and safety.

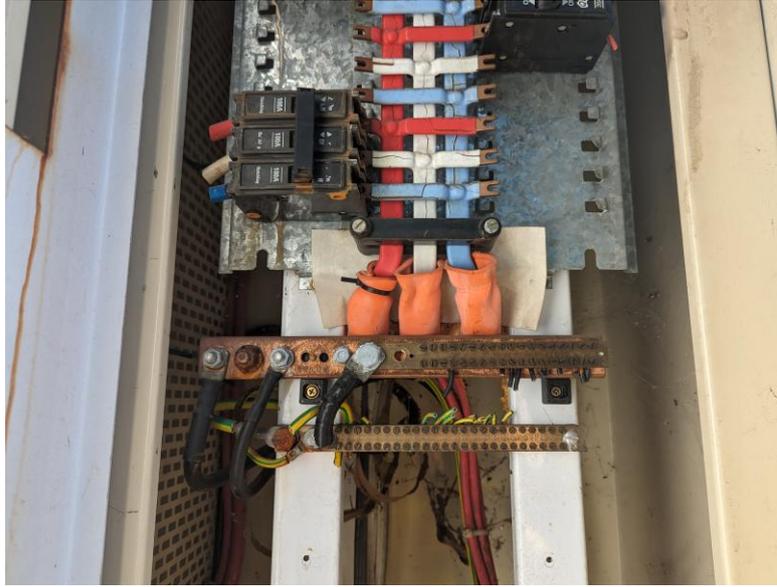
Repairer's Comments:

Signed:

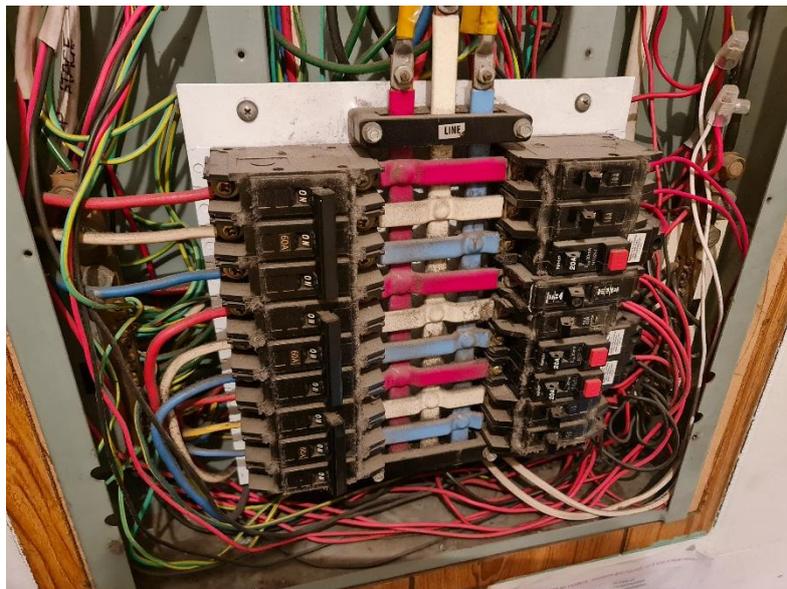
Date:

## Visual Exceptions

<b>Location:</b>	<i>Warehouse - Rear Section of Warehouse</i>
<b>Switchboard:</b>	<i>MSB - Tier 3 - DB Section + Cable Zone</i>
<b>Visual Exception:</b>	<i>Visible corrosion identified at the time of inspection, further investigation is required to determine rectification methods.</i>



<b>Location &amp; Switchboard:</b>	<ul style="list-style-type: none"> <li><i>Warehouse - Production Area - Distribution Board D-5</i></li> </ul>
<b>Visual Exception:</b>	<i>Large amounts of dirt and dust were identified at the time of inspection. The presence of this increases the risk of an arc flash occurrence. It is recommended to clean the switchboard and investigate further remedial action to prevent dust ingress in the future</i>



## Asset Register

<b>Client:</b>	<b>Example Report</b>	<p style="text-align: center;"><b>LEGEND</b></p> <p>✓ No Exceptions detected</p> <p><b>TE</b> Thermal Exception detected</p> <p><b>V</b> Visual Exception detected</p> <p>* Switchboard was scanned with Escutcheon panel present</p>
<b>Address:</b>	Address Street Suburb	

Level/Area	Location	Switchboard	Result
Warehouse	Rear Section of Warehouse	MSB - Tier 1 - Submains	✓
Warehouse	Rear Section of Warehouse	MSB - Tier 2 - Main Switch	✓
Warehouse	Rear Section of Warehouse	MSB - Tier 3 - DB Section + Cable Zone	<b>V</b>
Warehouse	Rear Section of Warehouse	Distribution Board D-1	✓
Warehouse	Production Area	Distribution Board D-2	<b>TE</b>
Warehouse	Production Area	Main Control Board	✓
Warehouse	Production Area	Distribution Board D-5	<b>V</b>
Warehouse	Plant Room	MSSB-1	<b>TE</b>
Warehouse	Plant Room	Power Factor Correction Unit	✓
Level 1	Office	Distribution Board D-3	✓
Level 1	Office	Sub Board	✓
Level 1	Hallway	Distribution Board D-4	✓
Level 1	Kitchen	Sub Board-1	✓

**DISCLAIMER**

This report has been prepared by **Thermal Scanners Pty Ltd** in accordance with the terms and conditions as detailed in the quotation, and agreed to by both parties upon offer and acceptance of an order for services as per that quotation.

The test results shown herein are accurate at the time of scanning however, results may be affected by atmospheric weather conditions and the electrical load. No responsibility can be accepted for variations in readings or liability for loss or damage whether consequential or otherwise and whether tort or in contract due to thermal exceptions that were either not indicated by the test taken or occurred at a subsequent time.

To the extent that it can be shown the test results were not accurate at the time of testing, this company's liability shall be strictly restricted to re-performance of the test and supply of new test results. Should you have any queries regarding this report or require additional copies please contact **Tayla Wells** at **Thermal Scanners** via email: [tayla@thermalscanners.com.au](mailto:tayla@thermalscanners.com.au).

Finally, Thermal Scanners would like to thank you for the opportunity to carry out a thermal inspection of your facilities.

We look forward to building a successful working relationship now and into the future.



**Tayla Wells**  
General Manager | Thermal Scanners  
Level 1 Thermographer – AINDT No.7219



**Thermal Scanners**  
Thermal Imaging Specialists

