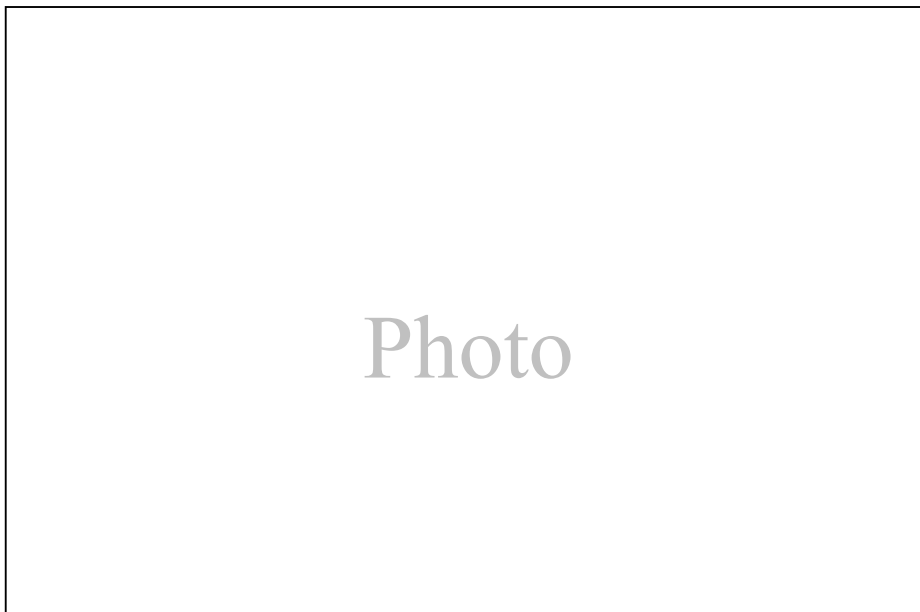


## Thermography Inspection Report for

#####

#####

16<sup>th</sup> September 2009



Inspection Site Information	
Contact person	#####
Phone number	021 280 #####
E-mail address	#####@woosh.co.nz
Thermographer	Bob Pike



All electrical and mechanical inspections are carried out with the client providing access to equipment whilst under normal operational loadings. If loadings are changed or increased for any reason, then further inspections should be conducted.

The intention of this report is to highlight temperature anomalies and exceptions that may indicate the possible deterioration or imminent failure of a component or system.

It should not be read as a guarantee against failure, nor should it be taken as a quantitative measure of deterioration or malfunction.

This report should be read as only an indication that an anomaly may exist, which may or may not lead to deterioration or failure.

It is the responsibility of the person(s) who commissioned the report to further investigate the diagnosis and determine any corrective measures to be taken.

Infrascan Limited is not responsible for determining fault diagnosis or corrective action required, and as such, it is recommended that all faults be fully investigated by qualified personnel

In no event shall Infrascan Limited be liable to anyone for collateral, incidental or consequential damages in conjunction with or arising from the use of this report.

#### **General comment and overview**

The thermal survey of the main and distribution boards in the top greenhouse did not pick up any significant concerns other than a contactor showing only a slight temperature anomaly as shown on page 4 of this report. It is suggested that this should be monitored to ensure that this does not deteriorate

The survey done on the boards in the bottom greenhouse identified a number of possible issues that should be investigated further and repaired if necessary. These issues are shown on pages 9 and 10, 11, 14 and 15

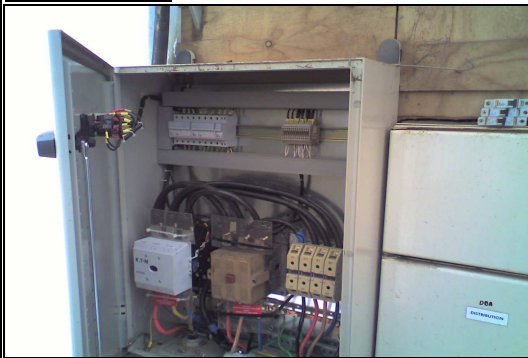
#### **Infrascan Limited**

16 Omana Esplanade, Maraetai, Manukau 2018  
Phone Bus 021 909 725 or A/hrs (09) 536 6438

[www.infrascan.co.nz](http://www.infrascan.co.nz)

<b>Thermographic inspection report</b>	<b>Location</b> Top Greenhouse <b>Equipment</b> Main DB / DBA	<b>Repair priority</b> <b>N/A</b>
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**Digital Image**



Date	16/09/09
Image Time	9:18:12 a.m.
Filename	IR_0437.jpg
Image Camera Type	FLIR T360_ Western
Image Camera Lens	FOL18
Fault	( )
Recommendation	Repair

**Infrared Thermal Image**

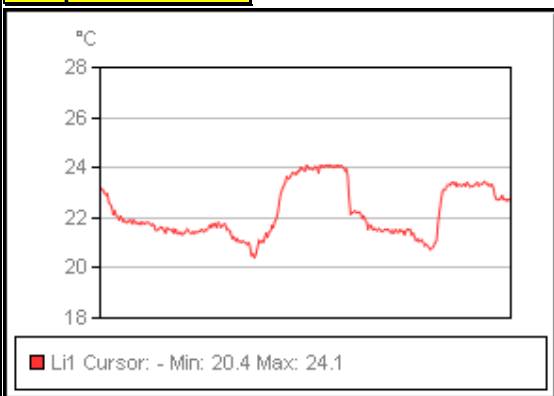


Date	16/09/09
Filename	IR_0437.jpg
Max Temperature	26.9 °C
Min Temperature	18.0 °C
Emissivity	0.95
Atmospheric Temperature	20.0 °C

**Comments**

No abnormal Temperatures found  
 High points on Graph are reflection off the back of the box

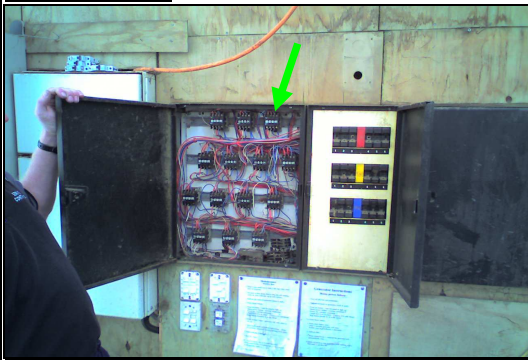
**Temperature Profile**



<b>Repair action taken on this fault</b>
<b>Signed</b>
<b>Date Completed</b>
_____/_____/_____

<b>Thermographic inspection report</b>	<b>Location</b> Top Greenhouse <b>Equipment</b> Fan Control	<b>Repair priority</b> <span style="font-size: 1.2em; font-weight: bold;">Low</span>
--	--	---

**Digital Image**



Date	16/09/09
Image Time	9:26:04 a.m.
Filename	IR_0439.jpg
Image Camera Type	FLIR T360_ Western
Image Camera Lens	FOL18
Fault	( )
Recommendation	Repair

**Infrared Thermal Image**

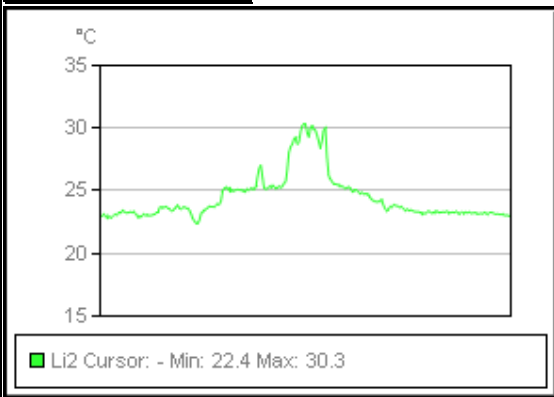


Date	16/09/09
Filename	IR_0439.jpg
Max Temperature	32.8 °C
Min Temperature	18.6 °C
Emissivity	0.95
Atmospheric Temperature	20.0 °C

**Comments**

Contactors running slightly warm, suggest this be monitored

**Temperature Profile**



**Repair action taken on this fault**

---

**Signed**

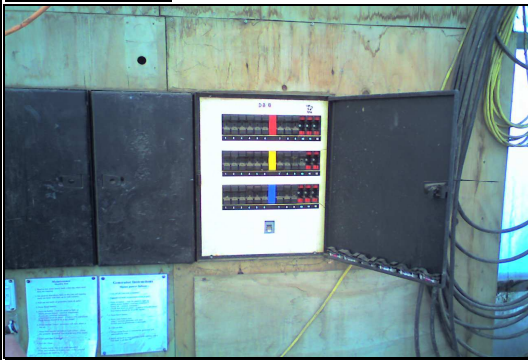
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**Date Completed**

-----/-----/-----

<b>Thermographic inspection report</b>	<b>Location</b> Top Greenhouse <b>Equipment</b> Main DB / DBB	<b>Repair priority</b> <div style="font-size: 1.5em; font-weight: bold; text-align: center;">NA</div>
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**Digital Image**



Date	16/09/09
Image Time	9:27:20 a.m.
Filename	IR_0441.jpg
Image Camera Type	FLIR T360_ Western
Image Camera Lens	FOL18
Fault	( )
Recommendation	Repair

**Infrared Thermal Image**

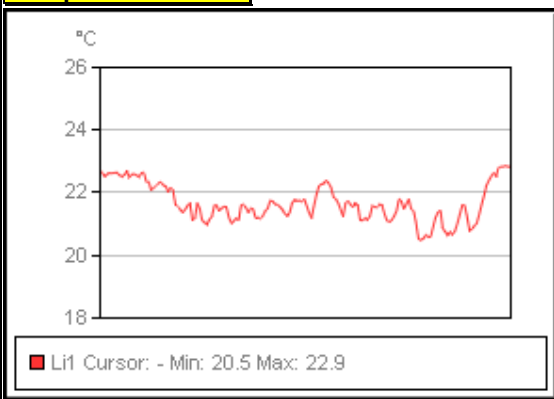


Date	16/09/09
Filename	IR_0441.jpg
Max Temperature	25.9 °C
Min Temperature	18.2 °C
Emissivity	0.95
Atmospheric Temperature	20.0 °C

**Comments**

No abnormal Temperatures found

**Temperature Profile**



**Repair action taken on this fault**

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**Signed**

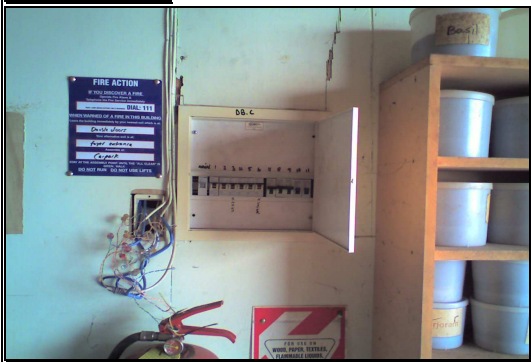
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**Date Completed**

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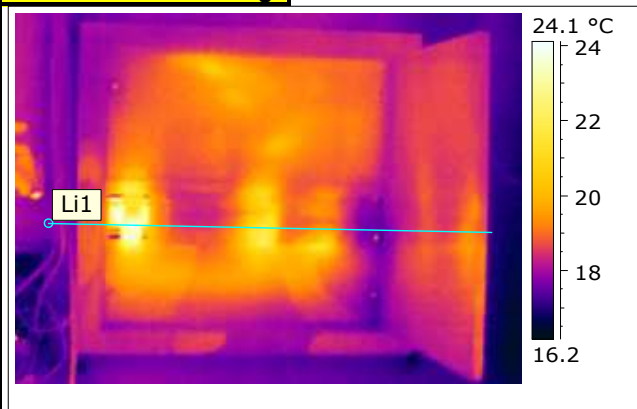
<b>Thermographic inspection report</b>	<b>Location</b> Top Greenhouse <b>Equipment</b> Main DB / DBC	<b>Repair priority</b> <b>N/A</b>
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**Digital Image**



Date	16/09/09
Image Time	9:29:20 a.m.
Filename	IR_0443.jpg
Image Camera Type	FLIR T360_ Western
Image Camera Lens	FOL18
Fault	( )
Recommendation	Repair

**Infrared Thermal Image**

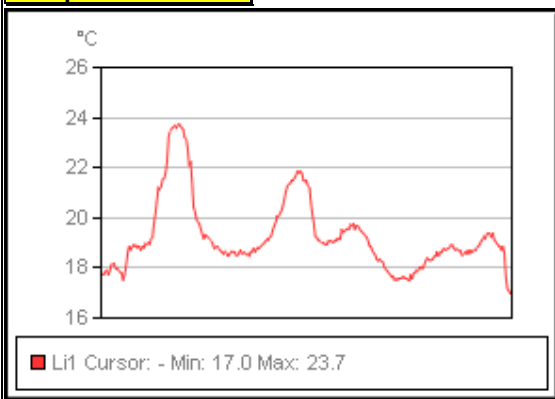


Date	16/09/09
Filename	IR_0443.jpg
Max Temperature	24.3 °C
Min Temperature	16.3 °C
Emissivity	0.95
Atmospheric Temperature	20.0 °C

**Comments**

No abnormal Temperatures found  
 High points on Graph are reflection from gaps between breakers

**Temperature Profile**



**Repair action taken on this fault**

---

**Signed**

---

**Date Completed**

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<b>Thermographic inspection report</b>	<b>Location</b> Top Greenhouse <b>Equipment</b> DB5	<b>Repair priority</b> <b>N/A</b>
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**Digital Image**



Date	16/09/09
Image Time	9:31:58 a.m.
Filename	IR_0445.jpg
Image Camera Type	FLIR T360_Western
Image Camera Lens	FOL18
Fault	( )
Recommendation	Repair

**Infrared Thermal Image**

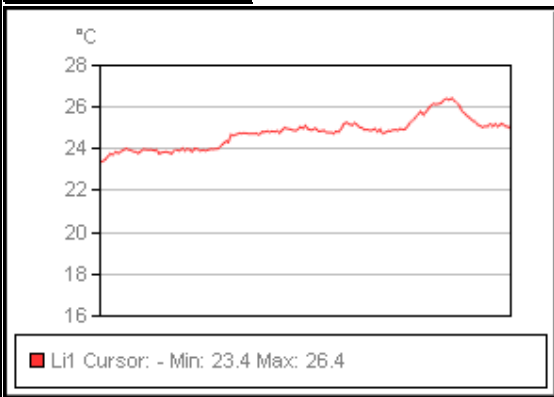


Date	16/09/09
Filename	IR_0445.jpg
Max Temperature	27.4 °C
Min Temperature	16.7 °C
Emissivity	0.95
Atmospheric Temperature	20.0 °C

**Comments**

No abnormal Temperatures found  
 High points on Graph are reflection from gaps between breakers

**Temperature Profile**



**Repair action taken on this fault**

**Signed**

**Date Completed**

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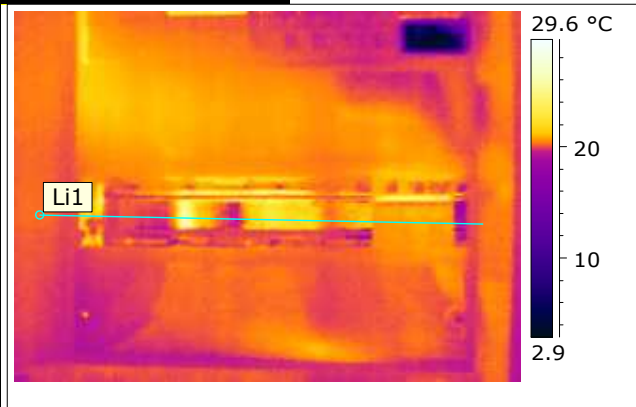
<b>Thermographic inspection report</b>	<b>Location</b> Top Greenhouse <b>Equipment</b> Boiler room DB	<b>Repair priority</b> <span style="font-size: 1.5em; font-weight: bold;">N/A</span>
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**Digital Image**



Date	16/09/09
Image Time	9:37:09 a.m.
Filename	IR_0447.jpg
Image Camera Type	FLIR T360_Western
Image Camera Lens	FOL18
Fault	( )
Recommendation	Repair

**Infrared Thermal Image**

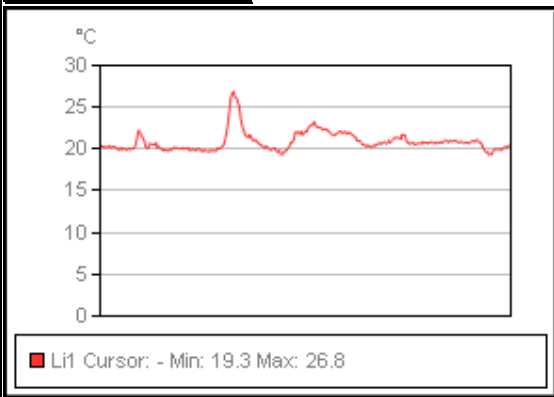


Date	16/09/09
Filename	IR_0447.jpg
Max Temperature	26.8 °C
Min Temperature	3.0 °C
Emissivity	0.95
Atmospheric Temperature	20.0 °C

**Comments**

No abnormal Temperatures found  
 High points on Graph are reflection from gaps between breakers

**Temperature Profile**



**Repair action taken on this fault**

---

**Signed**

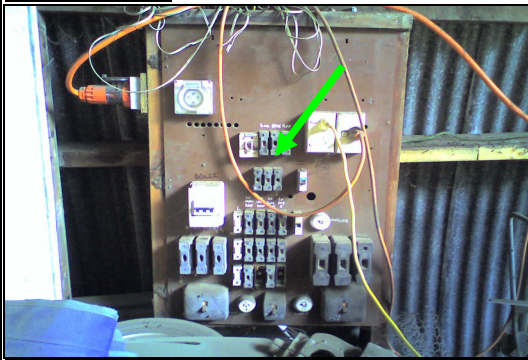
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**Date Completed**

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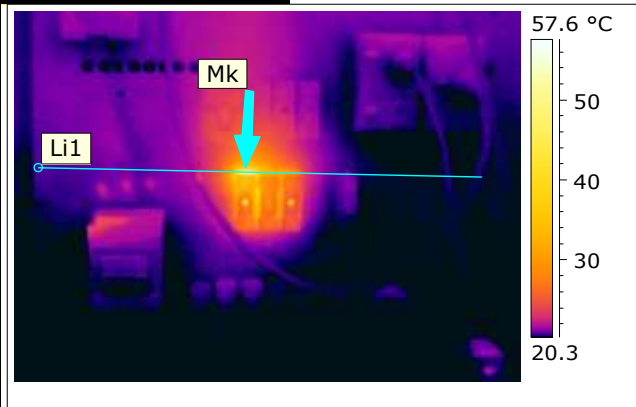
<b>Thermographic inspection report</b>	<b>Location</b> Bottom Greenhouse <b>Equipment</b> Main DB	<b>Repair priority</b> <span style="font-size: 1.2em; color: red;"><b>Medium</b></span>
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**Digital Image**



Date	16/09/09
Image Time	9:43:32 a.m.
Filename	IR_0449.jpg
Image Camera Type	FLIR T360_Western
Image Camera Lens	FOL18
Fault	( )
Recommendation	Repair

**Infrared Thermal Image**

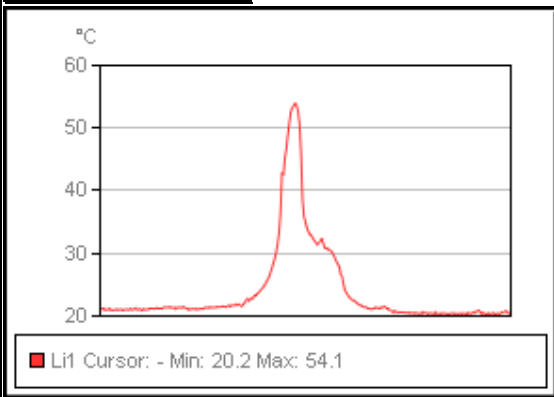


Date	16/09/09
Filename	IR_0449.jpg
Max Temperature	54.4 °C
Min Temperature	17.9 °C
Emissivity	0.95
Atmospheric Temperature	20.0 °C

**Comments**

Fuse holder appears damaged, investigate and replace if required

**Temperature Profile**



**Repair action taken on this fault**

---

**Signed**

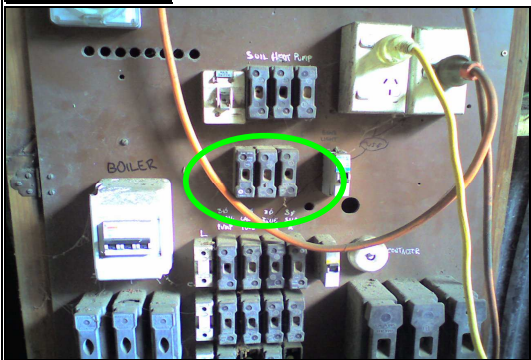
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**Date Completed**

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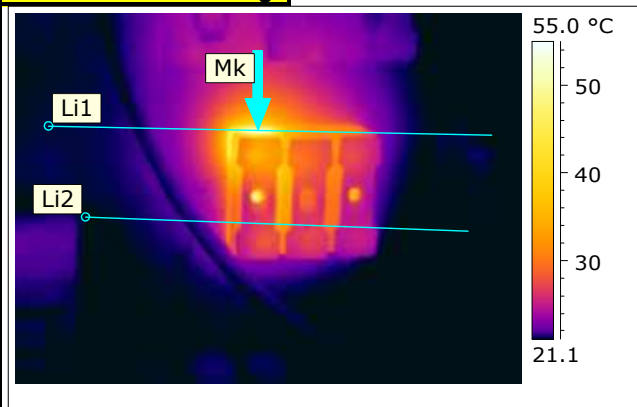
<b>Thermographic inspection report</b>	<b>Location</b> Bottom Greenhouse <b>Equipment</b> Main DB (same as above)	<b>Repair priority</b> <span style="font-size: 1.2em; color: red;"><b>Medium</b></span>
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**Digital Image**



Date	16/09/09
Image Time	9:44:39 a.m.
Filename	IR_0451.jpg
Image Camera Type	FLIR T360_Western
Image Camera Lens	FOL18
Fault	( )
Recommendation	Repair

**Infrared Thermal Image**

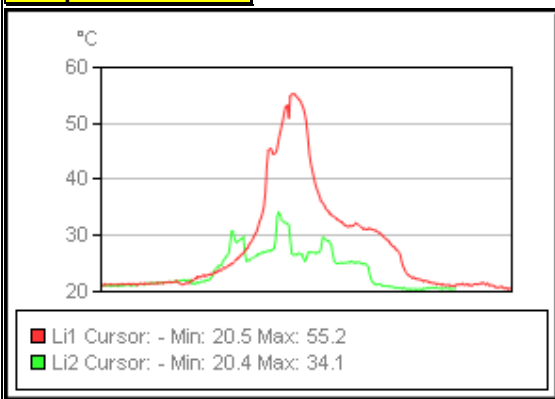


Date	16/09/09
Filename	IR_0451.jpg
Max Temperature	55.2 °C
Min Temperature	18.9 °C
Emissivity	0.95
Atmospheric Temperature	20.0 °C

**Comments**

Same shot as previous page  
 Close up indicates that problem is at top of fuse

**Temperature Profile**



**Repair action taken on this fault**

---

**Signed**

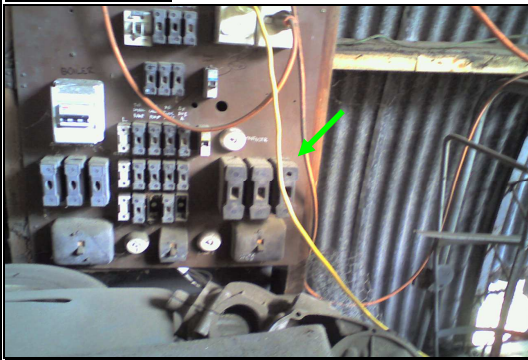
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**Date Completed**

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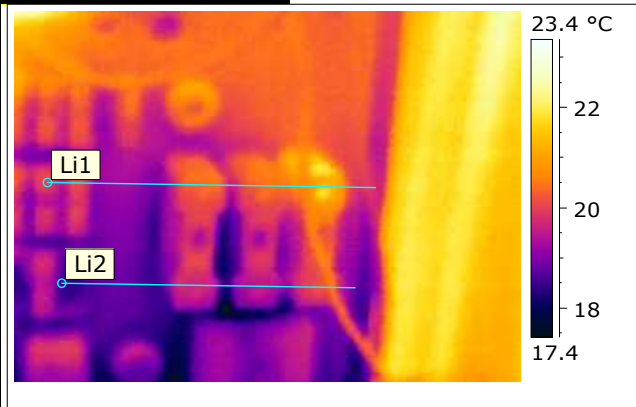
<b>Thermographic inspection report</b>	<b>Location</b> Bottom Greenhouse <b>Equipment</b> Main DB	<b>Repair priority</b> <span style="font-size: 1.2em; font-weight: bold;">Low</span>
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**Digital Image**



Date	16/09/09
Image Time	9:45:47 a.m.
Filename	IR_0453.jpg
Image Camera Type	FLIR T360_Western
Image Camera Lens	FOL18
Fault	( )
Recommendation	Repair

**Infrared Thermal Image**

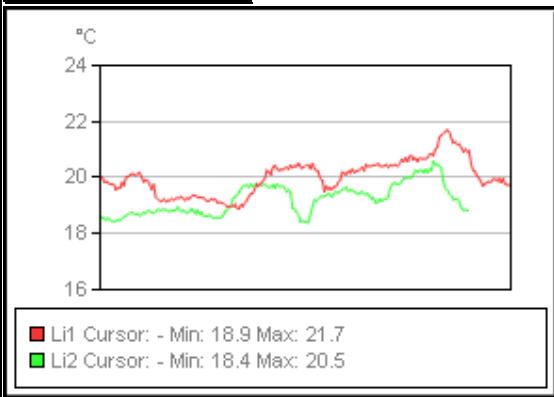


Date	16/09/09
Filename	IR_0453.jpg
Max Temperature	22.9 °C
Min Temperature	17.4 °C
Emissivity	0.95
Atmospheric Temperature	20.0 °C

**Comments**

Whilst only a slight temp increase, the fact that it is one end only, may indicate a poor connection

**Temperature Profile**



**Repair action taken on this fault**

---

**Signed**

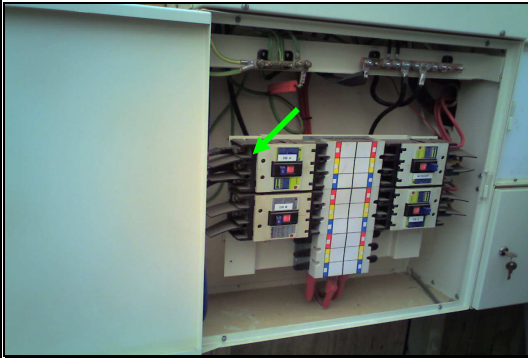
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**Date Completed**

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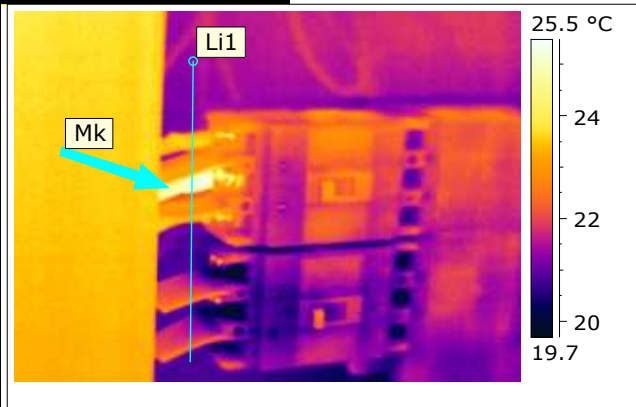
<b>Thermographic inspection report</b>	<b>Location</b> Bottom Greenhouse <b>Equipment</b> Genset DB	<b>Repair priority</b> <span style="font-size: 1.5em; font-weight: bold;">Low</span>
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**Digital Image**



Date	16/09/09
Image Time	9:49:16 a.m.
Filename	IR_0455.jpg
Image Camera Type	FLIR T360_Western
Image Camera Lens	FOL18
Fault	( )
Recommendation	Repair

**Infrared Thermal Image**

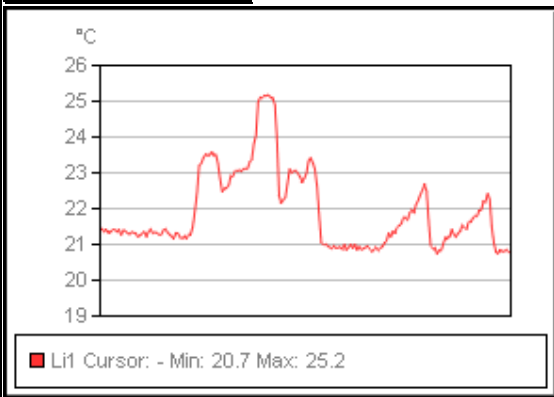


Date	16/09/09
Filename	IR_0455.jpg
Max Temperature	25.5 °C
Min Temperature	19.7 °C
Emissivity	0.95
Atmospheric Temperature	20.0 °C

**Comments**

Whilst only a small increase in temp, this should be monitored as this phase appears to be carrying a greater loading than the other phases

**Temperature Profile**



<b>Repair action taken on this fault</b>
<b>Signed</b>
<b>Date Completed</b>
_____/_____/_____

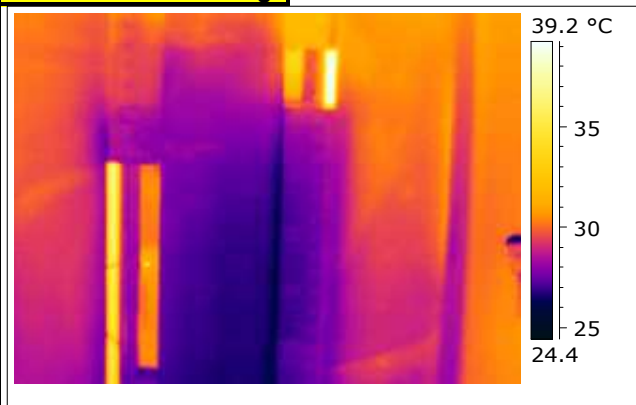
<b>Thermographic inspection report</b>	<b>Location</b> Bottom Greenhouse <b>Equipment</b> DBA	<b>Repair priority</b> <b>N/A</b>
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**Digital Image**



Date	16/09/09
Image Time	9:55:04 a.m.
Filename	IR_0457.jpg
Image Camera Type	FLIR T360_Western
Image Camera Lens	FOL18
Fault	( )
Recommendation	Repair

**Infrared Thermal Image**

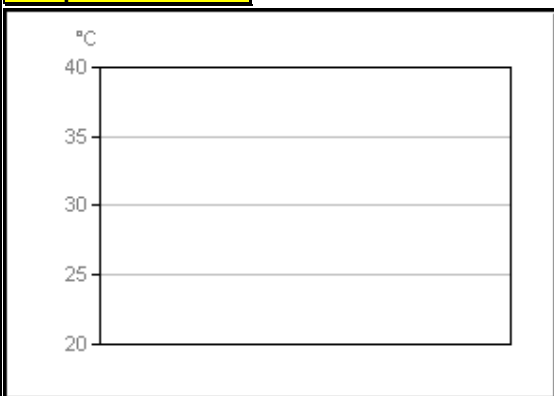


Date	16/09/09
Filename	IR_0457.jpg
Max Temperature	39.4 °C
Min Temperature	24.2 °C
Emissivity	0.95
Atmospheric Temperature	20.0 °C

**Comments**

Hot spots indicated are only reflection and no problems found

**Temperature Profile**



**Repair action taken on this fault**

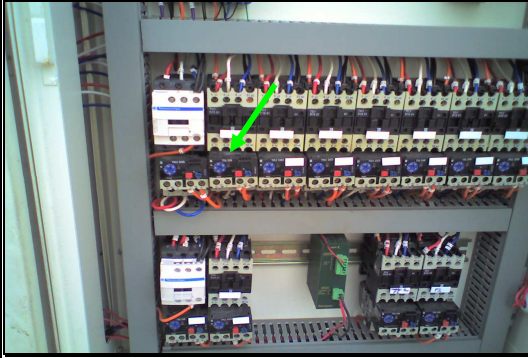
**Signed**

**Date Completed**

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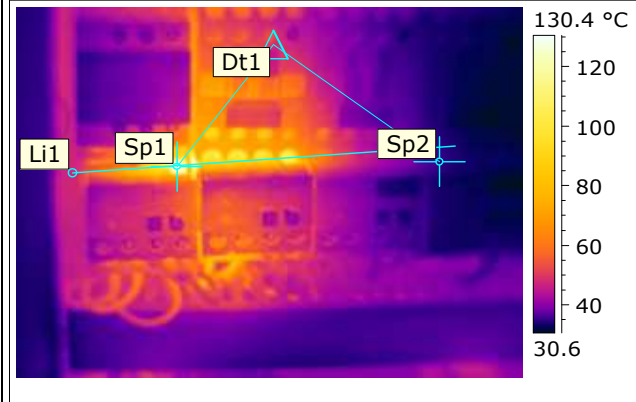
<b>Thermographic inspection report</b>	<b>Location</b> Bottom Greenhouse <b>Equipment</b> DBA Fan Control	<b>Repair priority</b> <span style="font-size: 1.2em; color: red;"><b>Urgent</b></span>
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**Digital Image**



Date	16/09/09
Image Time	9:57:07 a.m.
Filename	IR_0459.jpg
Image Camera Type	FLIR T360_ Western
Image Camera Lens	FOL18
Fault	( )
Recommendation	Repair

**Infrared Thermal Image**

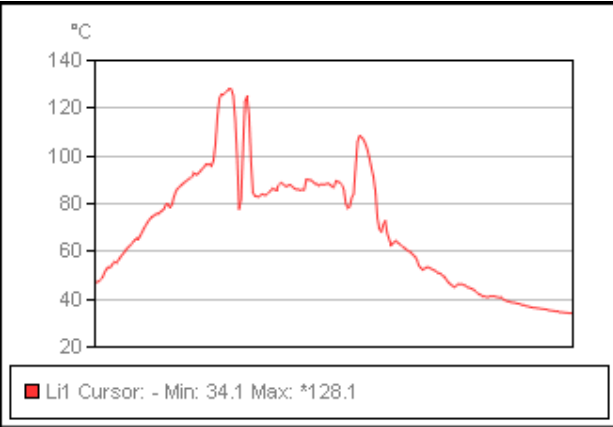


Date	16/09/09
Filename	IR_0459.jpg
Max Temperature	*130.1 °C
Min Temperature	30.9 °C
Emissivity	0.95
Atmospheric Temperature	20.0 °C
Sp1 Temperature	*127.6 °C
Sp2 Temperature	35.3 °C
Dt1 Value	92.3

**Comments**

Contactor showing excessive heat possibly caused by suspected bad connection. Needs urgent investigation and repair

**Temperature Profile**



**Repair action taken on this fault**

---

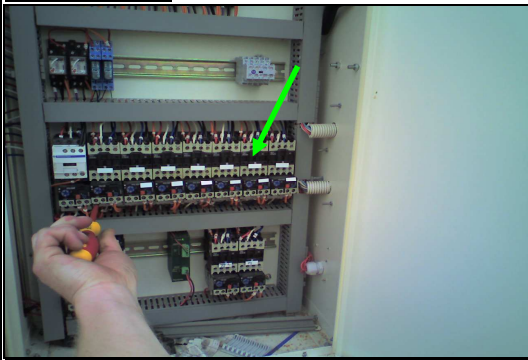
**Signed**

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**Date Completed**                      /                      /

<b>Thermographic inspection report</b>	<b>Location</b> Bottom Greenhouse	<b>Repair priority</b>
	<b>Equipment</b> DBA Fan Control	

**Digital Image**



Date	16/09/09
Image Time	10:00:28 a.m.
Filename	IR_0461.jpg
Image Camera Type	FLIR T360_Western
Image Camera Lens	FOL18
Fault	( )
Recommendation	Repair

**Infrared Thermal Image**

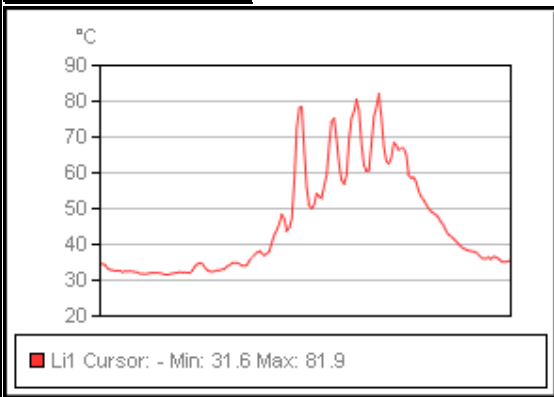


Date	16/09/09
Filename	IR_0461.jpg
Max Temperature	81.9 °C
Min Temperature	28.1 °C
Emissivity	0.95
Atmospheric Temperature	20.0 °C

**Comments**

Contactor showing excessive heat possibly caused by suspected bad connection. Needs urgent investigation and possible repair or replacement

**Temperature Profile**



**Repair action taken on this fault**

**Signed**

**Date Completed**

-----/-----/-----