

Installing DCTools Software

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Product Service Bulletin



High Temperature Alarm Solutions

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Table of Contents

- 1 Purpose of this PSB..... 5
- 2 Product(s) this PSB Applies to..... 5
- 3 Temperature and Environmental Control Alarms 5
 - 3.1 Temperature Alarm Retrieval 5
 - 3.1.1 Retrieving and Viewing Event Logs..... 6
 - 3.2 High Temperature Alarm 7
 - 3.2.1 Applicability 7
 - 3.2.2 Cause..... 8
 - 3.2.3 Resolution..... 8
 - 3.3 Battery Temperature High..... 9
 - 3.3.1 Applicability 9
 - 3.3.2 Cause..... 9
 - 3.3.3 Resolution..... 9
 - 3.4 Cooling Fail Alarm 9
 - 3.4.1 Applicability 9
 - 3.4.2 Cause..... 9
 - 3.4.3 Resolution..... 10
 - 3.5 DAC Fan Fail..... 10
 - 3.5.1 Applicability 10
 - 3.5.2 Cause..... 10
 - 3.5.3 Resolution..... 10

High Temperature Alarm Solutions

nrgSmart :: Outdoor Enclosures

Table of Figures

Figure 1: Sample Event Log 6

Figure 2: Eaton Controller and USB Port 6

Figure 3: DCTools Summary Window 7

Figure 4: Event Log Window 7

Figure 5: Rectifier Shelf Temperature Sensor Location 8

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1 Purpose of this PSB

This PSB discusses the installation and use of DCTools, which is used to interact with the Eaton SC200 controller used on a number of outdoor enclosures. This Product Support Bulletin discusses the installation of DCTools and utilizing DCTools to download event logs.

2 Product(s) this PSB Applies to

The information contained in this PSB applies to the following products:

- IOE-24S-A203: 24RU, top mounted cooling, single bay
- IOE-32S-A201: 32RU, door mounted cooling, single bay
- IOE-32S-A202: 32RU, door mounted cooling, dual bay
- IOE-40S-A205: 40RU, door mounted cooling, single bay

3 Installing DCTools

3.1 Downloading and Installing the DCTools Software

Event logs generated by the SC200 controller (see Figure 2, below) are accessed and retrieved using DCTools application software. The DCTools software application is available on the nrgSmart™ CD included with each enclosure. If unavailable, DCTools is available for download from <http://dcpower.eaton.com>. Registration is required prior to downloading the software.

Once the software has been downloaded, launch the application and follow instructions!

3.2 Temperature Alarm Retrieval

The following temperature related alarms are generated by Telect® nrgSmart™ enclosures:

- Cooling Fail
- DAC Fan Fail
- High Temperature
- Battery Temperature

All of these alarms are saved in the controller event log. **It is important to note that events saved in the controller may be translated and displayed differently by alarm monitoring systems.** In many cases, multiple alarms are consolidated into a single alarm input within the enclosure, so retrieving and viewing the controller event log is required for troubleshooting temperature related alarms. A sample event log opened with Excel is shown below:

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	A	B	C	D
1	Event Log:			
2	Num	Date Time	Type	Description
3	214	6/24/11 20:51	Logs Cleared	
4	215	10/5/11 14:23	Start Up	
5	216	10/5/11 14:23	Alarm Activation	Missing Hardware (Minor)
6	217	10/5/11 14:23	DI Activation	Door Open (Warning)
7	218	10/5/11 14:25	Configuration Change	
8	219	10/5/11 14:26	Configuration Change	
9	220	10/5/11 14:26	Configuration Change	
10	221	10/5/11 14:26	Configuration Change	
11	222	10/5/11 14:26	Configuration Change	
12	223	10/5/11 15:50	Alarm Deactivation	Missing Hardware (Minor)
13	224	10/5/11 15:50	Alarm Activation	Missing Hardware (Minor)
14	225	10/5/11 15:50	Alarm Deactivation	Missing Hardware (Minor)
15	226	10/5/11 15:51	Alarm Activation	Missing Hardware (Minor)
16	227	10/5/11 16:22	DI Deactivation	Door Open (Warning)
17	228	10/12/11 10:53	DI Activation	Door Open (Warning)
18	229	10/12/11 18:22	DI Deactivation	Door Open (Warning)
19	230	10/14/11 9:38	DI Activation	Door Open (Warning)
20	231	10/14/11 10:05	DI Deactivation	Door Open (Warning)
21	232	10/14/11 10:36	DI Activation	Door Open (Warning)
22	233	10/16/11 8:43	DI Activation	Cooling Fail (Major)
23	234	10/16/11 8:45	DI Deactivation	Cooling Fail (Major)
24	235	10/17/11 18:08	DI Deactivation	Door Open (Warning)
25	236	10/19/11 4:57	DI Activation	Cooling Fail (Major)
26	237	10/19/11 5:15	DI Deactivation	Cooling Fail (Major)

Figure 1: Sample Event Log

3.2.1 Retrieving and Viewing Event Logs

Event logs generated by the SC200 controller (see Figure 2, below) are accessed and retrieved using DCTools application software. The DCTools software application is available on the nrgSmart™ CD included with each enclosure. If unavailable, DCTools is available for download from <http://dcpower.eaton.com>. Registration is required prior to downloading the software.

Once the DCTools software has been installed, follow the steps below to retrieve the event log:

1. Connect your computer to the SC200 controller via USB cable. Once connected the DCTools software application should recognize the connection and launch DCTools.



Figure 2: Eaton Controller and USB Port

2. View the Event log by clicking the *Event LogLink*.

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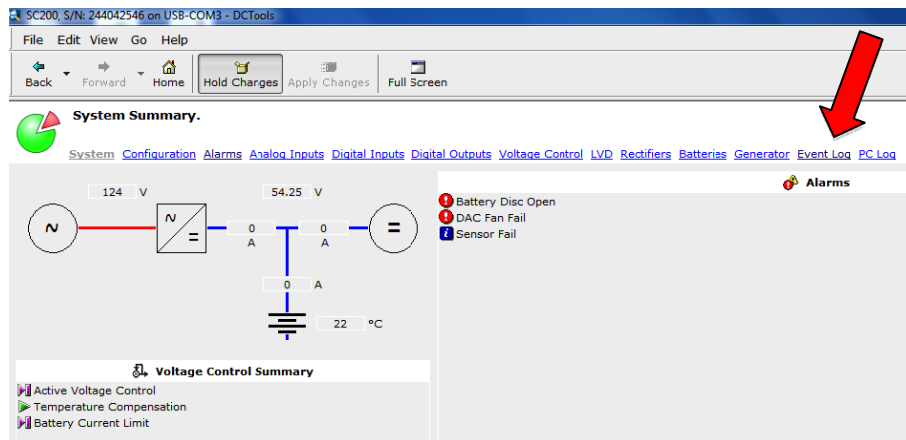


Figure 3: DCTools Summary Window

- The Event Log may be viewed or saved in the event log window (see Figure 4, below). To save the event log, click on the *Save the File...* button on the bottom of the event log screen.

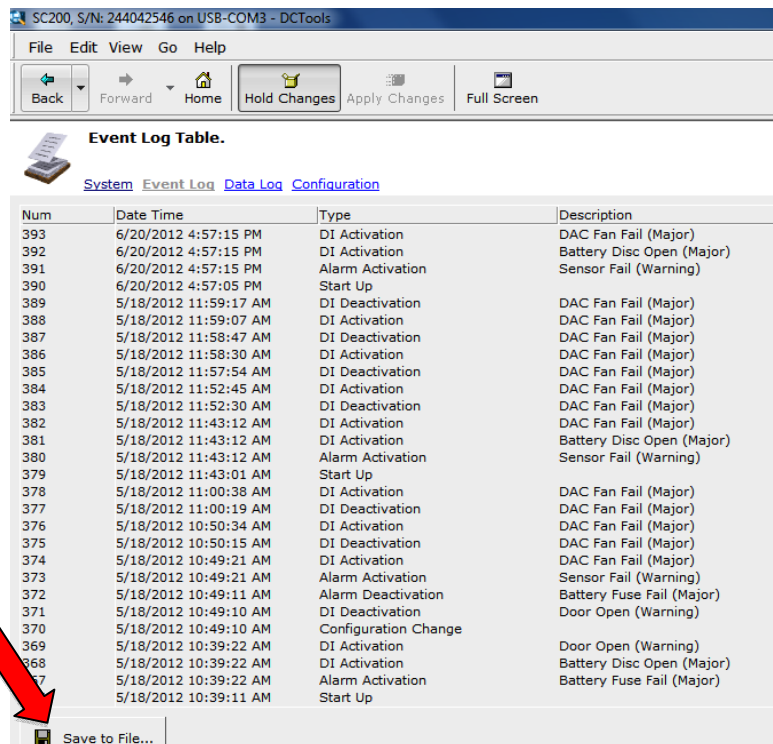


Figure 4: Event Log Window

3.3 High Temperature Alarm

3.3.1 Applicability

All enclosures listed in section 2.

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3.3.2 Cause

High temperatures in the rectifier shelf cause the *High Temperature* alarm. The high temperature may be due to the following causes:

- The rectifier temperature sensor is improperly positioned.
- A failure of the heat exchanger. In this instance, *Cooling Fail* alarms should also be present. Reviewing the event log will help determine if this is the cause.
- Additional equipment has been added to the rectifier shelf. Since the standard enclosure has been designed to support only the rectifiers and control modules, additional equipment will naturally increase the operating temperatures of the rectifier shelf.
- The rectifiers are delivering in excess of 75 Amps. This is generally caused by adding equipment beyond the design limitations of the enclosure. Review of the controller data log will help determine the historical amount of current (Amps) being delivered by the rectifiers.
- Improper sealing of the enclosure door, hatches, conduits, and/or mounting base holes.

3.3.3 Resolution

The rectifier shelf temperature sensor should be positioned at the front, lower, right-hand side of the rectifier shelf (see Figure 5, below). If necessary, secure the sensor to this location. If the sensor is located in the correct location, proceed to step 2.

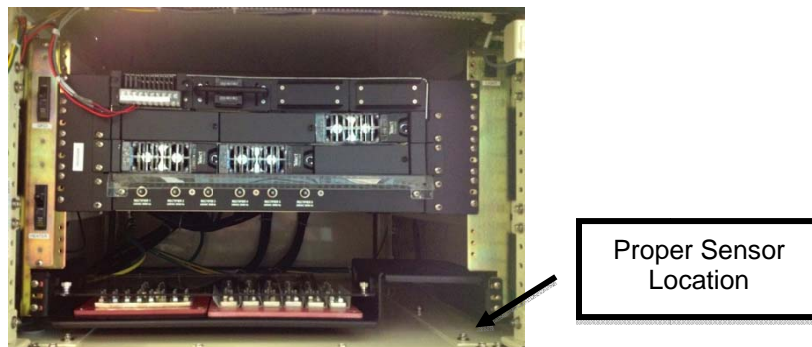


Figure 5: Rectifier Shelf Temperature Sensor Location

A failure of the heat exchanger may cause this alarm. Review the event log looking for a *Cooling Fail* alarm that indicates heat exchanger failure. If no cooling fail alarm is present, move on to step 3.

The rectifier shelf was designed to host the rectifier and controller only. If other equipment has been installed, one of the following options may help reduce temperatures:

- a. Remove or relocate the additional equipment.
- b. Reduce the heat generated by Replacing the standard rectifiers with more efficient “ES” rectifiers (Telect® part number: TRM48-ES).

If no additional equipment is present, proceed to step 4.

Rectifier current should not exceed a maximum of 75 Amps. Replacing the standard rectifiers with more efficient “ES” rectifiers (Telect® part number: TRM48-ES) will help reduce the amount of heat generated when current exceeds 75 Amps.

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3.4 Battery Temperature High

3.4.1 Applicability

All enclosures listed in section 2.

3.4.2 Cause

High temperatures the battery shelf may be caused the *Battery Temperature High* alarm. Higher than normal temperatures may be due to:

- Improper location of the battery temperature sensor.
- Additional equipment or batteries have been added to the battery shelf. The battery shelf has been designed to host a maximum of 50W of additional equipment. All enclosures listed in section 2, except IOE—40S—A205, have been designed for a maximum of 2 battery strings. The IOE—40S—A205 has been designed for 3 battery strings. Additional equipment beyond these limits will create potential problems.
- Failure of the battery bay's thermo electric cooler (TEC) module or the TEC fan.
- Improper sealing of the enclosure door, hatches, and/or mounting base holes.

3.4.3 Resolution

1. Check for proper door and/or hatch sealing. Check for proper sealing of base mounting plate holes. If seals are present and functioning properly, proceed to step 2.
2. Check the location of the battery temperature sensor. If necessary, relocate the battery temperature sensor to the top of the battery in the center of the top battery shelf. Do not locate sensors between batteries. If the battery sensor is in the proper location, proceed to step 3.
3. Check the functioning of the thermo electric cooler (TEC) and fan. Check power to the TEC. If the TEC is functioning properly, proceed to step 4
4. The battery shelf has been designed to hold 50W of additional equipment. Check the rating of any additional equipment installed in this bay. If it exceeds 50W, consider adding an additional thermo electric cooler unit (see number 6, below) or remove/relocate additional equipment added to the battery shelf. If no additional equipment has been added to this shelf, proceed to step 5.
5. All enclosures have been designed for 2 battery strings, except IOE-40S-A205, which was designed for 3. If the number of battery strings exceeds the recommended amount, consider adding an additional thermo electric cooler (see number 6, below) or remove/relocate the additional battery strings added to the battery shelf.
6. Add an additional thermo electric cooler:
 - a. Kit XXXXXXXXX (IOE-40S-A205)
 - b. Kit YYYYYYYYY (IOE-32S-A201 & IOE-32S-A202)

3.5 Cooling Fail Alarm

3.5.1 Applicability

All enclosures listed in section 2.

3.5.2 Cause

The *Cooling Fail* alarm is caused by a failure within the heat exchanger unit. The failure may be the result of a fan or heat exchanger controller board failure.

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In one special instance, the heat exchanger still functions properly but erroneously triggers Cooling Fail alarms. This condition is validated by reviewing the event log, looking for instances of Cooling Fail Alarm activation and deactivation within seconds or minutes of each other. If this condition occurs, contact Telect product support for heat exchanger repair.

Note: If the Heat Exchanger is no longer functioning, the rectifier and control shelf may overheat and trigger the *High Temperature* alarm (see section 3.3).

3.5.3 Resolution

If the Cooling Fail alarm occurs with the activate/deactivate event log signature indicated above, the unit is still functioning. Contact Telect Product support to schedule a warranty repair.

For other heat exchanger failures, contact Telect Product Support to obtain a replacement or RMA (if still under warranty). Have exchanger should be serviced or replaced to as soon as possible to prevent overheating of the rectifier and control modules.

A heat exchanger replacement method of procedure is available from Telect Product Support.

3.6 DAC Fan Fail

3.6.1 Applicability

This alarm applies only to IOE-32S-A202 dual bay enclosure. The fans and fan control board are located on the back hatch cover of bay 2 (right hand bay).

3.6.2 Cause

The fan control board monitors and controls the rotational speed of each fan based on temperature within the enclosure. The *DAC Fan Fail* alarm is triggered when the fan control board is unable to monitor the temperature or sense the rotational speed of the fans.

When the controller loses fan speed input, from either a control board failure or a fan output failure, the alarm will be triggered and fans will run at full speed.

In some special circumstances, the *DAC Fan Fail* alarm is issued and the fans will be stuck rotating at a medium speed. If this condition occurs, contact Telect product support for a control board replacement/repair.

Note: The DAC Fan Fail alarm may cause additional temperature alarms depending upon the customer equipment placed in the enclosure.

3.6.3 Resolution

If the DAC Fan Fail alarm occurs Contact Telect Product support to schedule a warranty repair.

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4 Appendix

4.1 Alarm Troubleshooting Flowchart

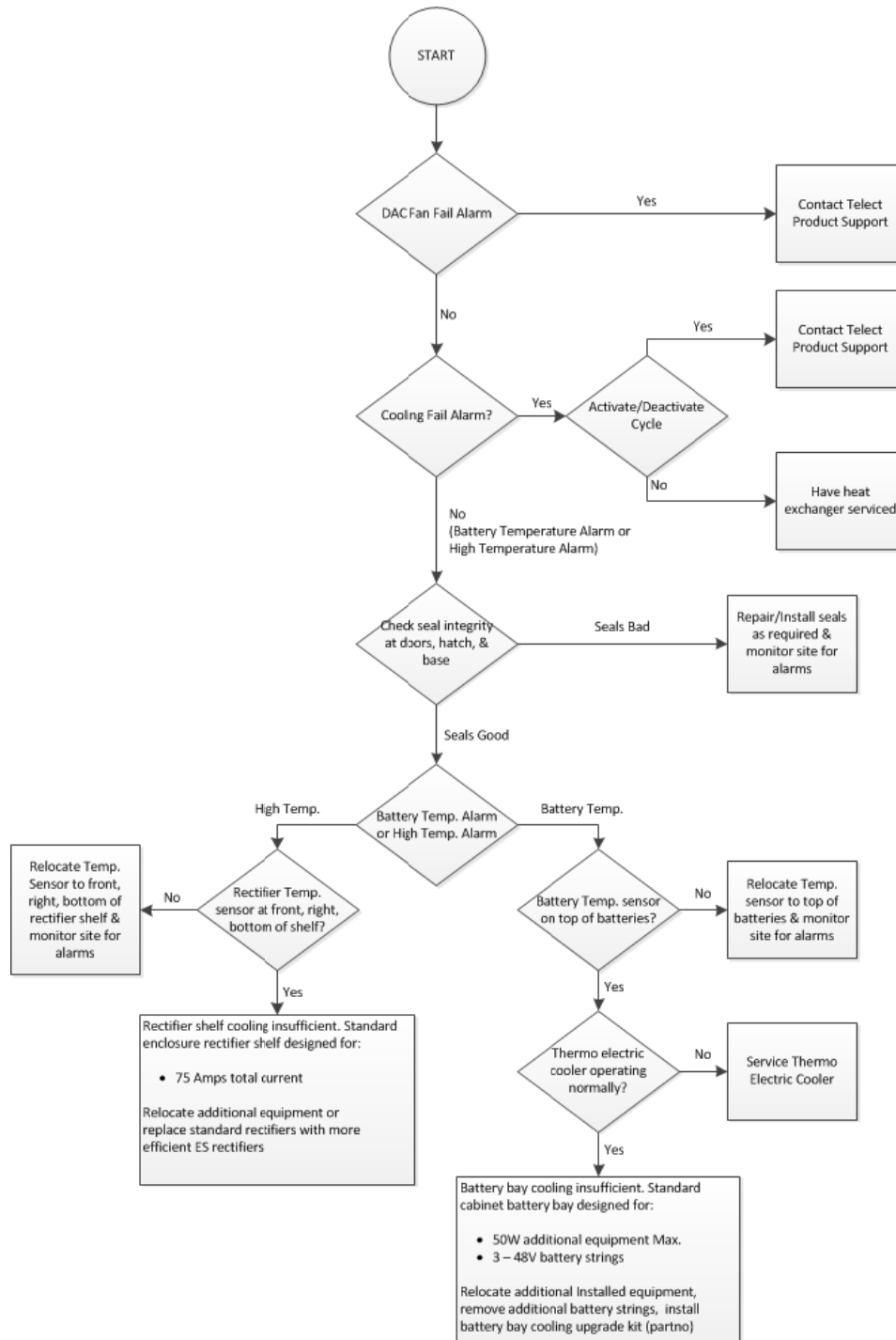


Figure 6: Alarm Troubleshooting Flowchart