

# Device Statistics – Temperature

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T13 Technical Proposal – e06183r11

By  
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**Definition of Terms:**

**Signed: The value is represented as two’s compliment**

**A.5 Device Statistics (Log Address TBD)**

**A.5.1 Device Temperature Statistics (Page TBD)**

**A.5.1.1 Overview**

Device Statistics log page TBD contains general information about the device as described in table TBD. The value in the temperature field is a two’s complement integer in degrees Celsius.

The summary of this temperature statistics is as followed:

- a) Structure Version;
- b) Current Temperature;
- c) Average Short Term Temperature;
- d) Average Long Term Temperature;
- e) Highest Temperature;
- f) Lowest Temperature;
- g) Highest Average Short Term Temperature;
- h) Lowest Average Short Term Temperature;
- i) Highest Average Long Term Temperature; and
- j) Lowest Average Long Term Temperature.

**Table TBD – Temperature Statistics**

Offset	Type	Content								
0-7	QWord	Structure Version								
		<table border="0"> <tr> <td><b>Bit</b></td> <td><b>Meaning</b></td> </tr> <tr> <td>63:56</td> <td>Device Statistics Flags, (See Table TBD)</td> </tr> <tr> <td>55:24</td> <td>Reserved</td> </tr> <tr> <td>23:16</td> <td>TBD, Page Number</td> </tr> <tr> <td>15:0</td> <td>Device Statistics Version Number = 0001h</td> </tr> </table>	<b>Bit</b>	<b>Meaning</b>	63:56	Device Statistics Flags, (See Table TBD)	55:24	Reserved	23:16	TBD, Page Number
<b>Bit</b>	<b>Meaning</b>									
63:56	Device Statistics Flags, (See Table TBD)									
55:24	Reserved									
23:16	TBD, Page Number									
15:0	Device Statistics Version Number = 0001h									
8-15	QWord	Current Temperature								
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16-23	QWord	Average Short Term Temperature								
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63:56	Device Statistics Flags, (See Table TBD)									
<u>62</u>	Reserved									
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24-31	QWord	Average Long Term Temperature								
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**Comment [J1]:** Need a definition for the “Signed Byte” in the section 3.1 Signed: The value is represented as two’s compliment

32-39	QWord	Highest Temperature								
		<table> <thead> <tr> <th>Bit</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>63:56</td> <td>Device Statistics Flags, (See Table TBD)</td> </tr> <tr> <td>55:8</td> <td>Reserved</td> </tr> <tr> <td>7:0</td> <td>Highest Temperature (Signed Byte)</td> </tr> </tbody> </table>	Bit	Meaning	63:56	Device Statistics Flags, (See Table TBD)	55:8	Reserved	7:0	Highest Temperature (Signed Byte)
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40-47	QWord	Lowest Temperature								
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80-511	Byte	Reserved								

### A.5.1.2 Structure Version

#### A.5.1.2.1 Description

Structure Version defines the version of the data structure arrangement for this page.

Bit 23:16 is the page number of the Log Page. Bit 15:0 is the revision number of the statistics structure.

#### A.5.1.2.2 Update Interval

NA

**A.5.1.2.3 Measurement Unit**

NA

**A.5.1.2.4 Initialization**

Structure Version shall be set to 0001h.

**A.5.1.3 Current Temperature**

**A.5.1.3.1 Description**

Current Temperature is the temperature measured by the device at the time this Log Page is read.

**A.5.1.3.2 Update Interval**

None

**A.5.1.3.3 Measurement Unit**

Degrees Celsius

**A.5.1.3.4 Initialization**

None

**A.5.1.4 Average Short Term Temperature**

**A.5.1.4.1 Description**

The Average Short Term Temperature statistic is a value based on the most recent 144 temperature samples in 24 hours period. The device enters the current temperature sample into the Average Short Term Temperature FIFO once every nominal ten minutes period. The Average Short Term Temperature FIFO consists of at least 144 temperature entries (i.e., 24 recorded hours). This statistic is calculated by averaging the last 144 Average Short Term Temperature FIFO entries.

**A.5.1.4.2 Update Interval**

When the device is operational this statistic is updated and stored in a non-volatile location at a maximum interval of one hour.

**A.5.1.4.3 Measurement Unit**

Degrees Celsius

**A.5.1.4.4 Initialization**

This statistic is not initialized at the time of manufacture. The Valid bit (in the Device Statistics Flag) shall be cleared to zero and the data in bits (7:0) is not valid until the device collects 144 temperature samples. The Valid bit shall be set to one and the data in bits (7:0) is valid after the device collects 144 temperature samples.

### **A.5.1.5 Average Long Term Temperature**

#### **A.5.1.5.1 Description**

The Average Long Term Temperature statistic is a value based on the most recent 42 Average Short Term temperature values in 1008 hours period. The device enters the current value of the Average Short Term Temperature into the Average Long Term Temperature FIFO once every nominal 24 hours period. The Average Long Term Temperature FIFO consists of at least 42 temperature entries (i.e., 1008 recorded hours). This statistic is calculated by averaging the last 42 Average Long Term Temperature FIFO entries.

#### **A.5.1.5.2 Update Interval**

When the device is operational this statistic is updated and stored in a non-volatile location at a maximum interval of one hour.

#### **A.5.1.5.3 Measurement Unit**

Degrees Celsius

#### **A.5.1.5.4 Initialization**

This statistic is not initialized at the time of manufacture. The Valid bit (in the Device Statistics Flag) shall be cleared to zero and the data in bits (7:0) is not valid until the device collects 42 Average Short Term Temperature data samples. The Valid bit shall be set to one and the data in bits (7:0) is valid after the device collects 42 Average Short Term Temperature data samples.

### **A.5.1.6 Highest Temperature**

#### **A.5.1.6.1 Description**

The Highest Temperature statistic is the highest temperature measured after the device is manufactured. This data is calculated by comparing the current temperature value and the Highest Temperature value and storing the higher value. The comparison shall occur when a new temperature value is entered into the Average Short Term Temperature FIFO.

#### **A.5.1.6.2 Update Interval**

When the device is operational this statistic is updated and stored in a non-volatile location at a maximum interval of one hour.

#### **A.5.1.6.3 Measurement Unit**

Degrees Celsius

#### **A.5.1.6.4 Initialization**

This statistic is not initialized at the time of manufacture. The Valid bit (in the Device Statistics Flag) shall be cleared to zero and the data in bits (7:0) is not valid until the first temperature value is entered into the Average Short Term Temperature FIFO. The Valid bit shall be set to one and the data in bits (7:0) is valid after the first temperature value is entered into the Average Short Term Temperature FIFO.

**A.5.1.7 Lowest Temperature****A.5.1.7.1 Description**

The Lowest Temperature statistic is the lowest temperature measured after the device is manufactured. This data is calculated by comparing the current temperature value and the Lowest Temperature value and storing the lower value. The comparison shall occur when a new temperature value is entered into the Average Short Term Temperature FIFO.

**A.5.1.7.2 Update Interval**

When the device is operational this statistic is updated and stored in a non-volatile location at a maximum interval of one hour.

**A.5.1.7.3 Measurement Unit**

Degrees Celsius

**A.5.1.7.4 Initialization**

This statistic is not initialized at the time of manufacture. The Valid bit (in the Device Statistics Flag) shall be cleared to zero and the data in bits (7:0) is not valid until the first temperature value is entered into the Average Short Term Temperature FIFO. The Valid bit shall be set to one and the data in bits (7:0) is valid after the first temperature value is entered into the Average Short Term Temperature FIFO.

**A.5.1.8 Highest Average Short Term Temperature****A.5.1.8.1 Description**

The Highest Average Short Term Temperature statistic is a value that records the highest device Average Short Term Temperature after the device is manufactured. This data is calculated by comparing the current Average Short Term Temperature value and the Highest Average Short Term Temperature value and storing the higher value.

**A.5.1.8.2 Update Interval**

When the device is operational this statistic is updated and stored in a non-volatile location at a maximum interval of one hour.

**A.5.1.8.3 Measurement Unit**

Degrees Celsius

**A.5.1.8.4 Initialization**

This statistic is not initialized at the time of manufacture. The Valid bit (In the Device Statistics Flag) shall be cleared to zero and the data in bits (7:0) is not valid until the device collects 144 temperature samples. The Valid bit shall be set to one and the data in bits (7:0) is valid after the device collects 144 temperature samples.

**A.5.1.9 Lowest Average Short Term Temperature****A.5.1.9.1 Description**

The Lowest Average Short Term Temperature statistic is a value that records the lowest device Average Short Term Temperature after the device is manufactured. This data is calculated by comparing the current Average Short Term Temperature value and the Lowest Average Short Term Temperature value and storing the lower value.

#### **A.5.1.9.2 Update Interval**

When the device is operational this statistic is updated and stored in a non-volatile location at a maximum interval of one hour.

#### **A.5.1.9.3 Measurement Unit**

Degrees Celsius

#### **A.5.1.9.4 Initialization**

This statistic is not initialized at the time of manufacture. The Valid bit (in the In the Device Statistics Flag) shall be cleared to zero and the data in bits (7:0) is not valid until the device collects 144 temperature samples. The Valid bit shall be set to one and the data in bits (7:0) is valid after the device collects 144 temperature samples.

### **A.5.1.10 Highest Average Long Term Temperature**

#### **A.5.1.10.1 Description**

The Highest Average Long Term Temperature statistic is a value that records the highest device Average Long Term Temperature after the device is manufactured. This data is calculated by comparing the current Average Long Term Temperature value and the Highest Average Long Term Temperature value and storing the higher value.

#### **A.5.1.10.2 Update Interval**

When the device is operational this statistic is updated and stored in a non-volatile location at a maximum interval of one hour.

#### **A.5.1.10.3 Measurement Unit**

Degrees Celsius

#### **A.5.1.10.4 Initialization**

This statistic is not initialized at the time of manufacture. The Valid bit (in the Device Statistics Flag) shall be cleared to zero and the data in bits (7:0) is not valid until the device collects 42 Average Short Term Temperature data samples. The Valid bit shall be set to one and the data in bits (7:0) is valid after the device collects 42 Average Short Term Temperature data samples.

### **A.5.1.11 Lowest Average Long Term Temperature**

#### **A.5.1.11.1 Description**

The Lowest Average Long Term Temperature statistic is a value that records the lowest device Average Long Term Temperature after the device is manufactured. This data is calculated by comparing the current Average Long Term Temperature value and the Lowest Average Long Term Temperature value and storing the lower value.

**A.5.1.11.2 Update Interval**

When the device is operational this statistic is updated and stored in a non-volatile location at a maximum interval of one hour.

**A.5.1.11.3 Measurement Unit**

Degrees Celsius

**A.5.1.11.4 Initialization**

This statistic is not initialized at the time of manufacture. The Valid bit (In the Device Statistics Flag) shall be cleared to zero and the data in bits (7:0) is not valid until the device collects 42 Average Short Term Temperature data samples. The Valid bit shall be set to one and the data in bits (7:0) is valid after the device collects 42 Average Short Term Temperature data samples.