

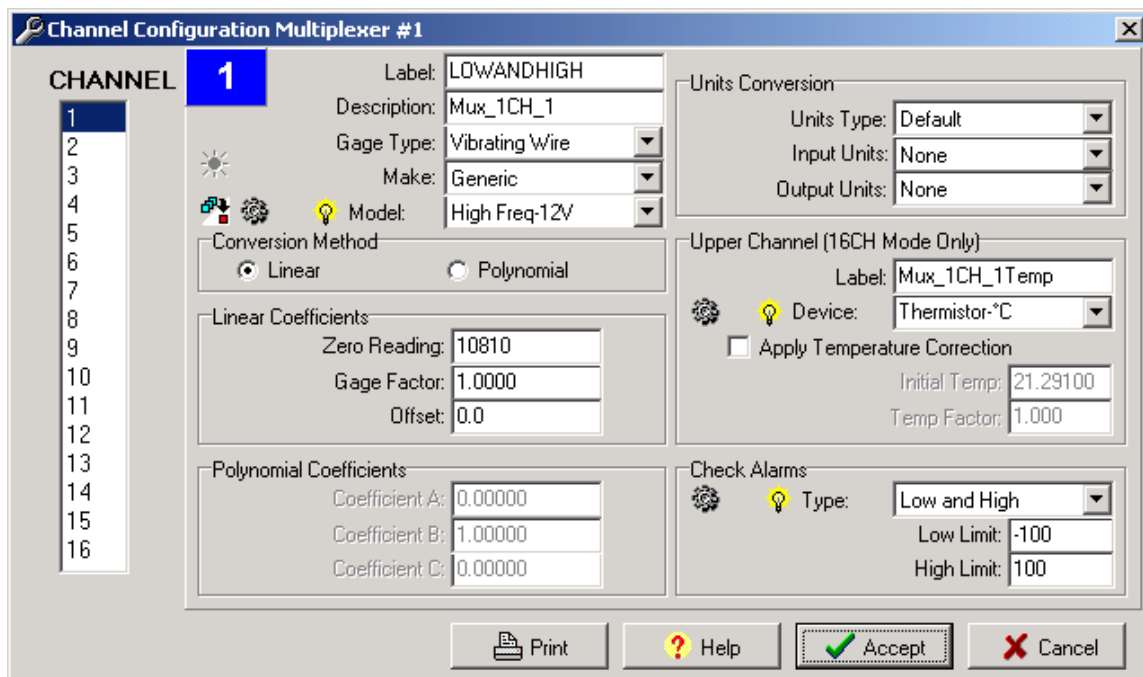
## How Are Alarms Supported in the Text Monitor of MultiLogger?

### Frequently Asked Question #15

#### Overview

Important changes were made to MultiLogger beginning with version 2.1.5, prior to this version the only alarm supported by the Text Monitor of MultiLogger was **Low and High**. Now 4 different alarm types are supported, these are configured in the **Check Alarms** drop-down of the Channel Configuration, an example is shown below.

Alarm status is updated during the Monitor Mode when new readings have been acquired. Some alarm types require initial sets of readings, see the explanations for more details.



#### The 4 Alarm Types

- **Low and High**
- **Rate of Change**
- **Rate of Change/High Level**
- **Two Level Alarm**

Each of these alarms will be explained in the following sections.

NOTE: Other alarm types are shown in the drop-down list, these alarms are not supported by the Text Monitor of MultiLogger, specific Application Notes available from Canary Systems provide more information. Also, some Types have been made obsolete, such as **Mux1 Rate of Change** and **Mux2 Rate of Change**, it is recommended to switch to using the **Rate of Change** selection in these cases.

## Low and High

This Alarm Type is designed to indicate alarm if the measurement falls outside the range specified by the **Low Limit** and **High Limit**, as shown on the channel configuration.

Consider the following example. The **Low Limit** is – 100, the **High Limit** is 100.

The first screenshot depicts an alarm being activated (the reading cell displays with a yellow background) because the measurement falls below the **Low Limit**.

The second screenshot depicts an alarm being activated (the reading cell displays with a red background) because the measurement is above the **High Limit**.

The screenshot shows the MultiLogger - Edit Configuration window. The 'Text Monitor' tab is active, displaying a table of data points. The 'ACTIVE' indicator is highlighted in red. The 'Datalogger Clock' is 10:38:20 AM and the 'Computer Clock' is 10:38:29 AM. The 'CAPTURE ON' indicator is also present. The 'Logger Flags' section shows Flag 6 as 'High' (red) and Flag 8 as 'High' (red). The 'Logger Ports' section shows all ports as 'Low' (green). The 'Locs' field is set to 8.

Location	Value	Location	Value	Location	Value	Location	Value
1:Year	2003.00000						
2:Julian Day	76.00000						
3:Time HHMM	1038.00000						
4:Seconds	15.00000						
63:LOWANDHIGH	-335.42000						
64:RATEOFCHANGE	9.25590						
65:TWOLEVEL	26.73100						
66:RATEHIGH	23.96700						

The screenshot shows the MultiLogger - Edit Configuration window. The 'Text Monitor' tab is active, displaying a table of data points. The 'ACTIVE' indicator is highlighted in red. The 'Datalogger Clock' is 10:39:06 AM and the 'Computer Clock' is 10:39:15 AM. The 'CAPTURE ON' indicator is also present. The 'Logger Flags' section shows Flag 6 as 'High' (red) and Flag 8 as 'High' (red). The 'Logger Ports' section shows all ports as 'Low' (green). The 'Locs' field is set to 8.

Location	Value	Location	Value	Location	Value	Location	Value
1:Year	2003.00000						
2:Julian Day	76.00000						
3:Time HHMM	1039.00000						
4:Seconds	0.00000						
63:LOWANDHIGH	643.20000						
64:RATEOFCHANGE	9.54790						
65:TWOLEVEL	26.67900						
66:RATEHIGH	24.12400						

## Rate of Change

This Alarm Type is designed to indicate alarm if the change in measurement falls outside the range specified by the **Low Limit** and **High Limit**, as shown on the channel configuration.

Consider the following example. The **Low Limit** is  $-10$ , the **High Limit** is  $+10$ .

The first screenshot depicts an alarm being activated (the reading cell displays with a yellow background) because the change in measurement falls below the **Low Limit**.

The second screenshot depicts an alarm being activated (the reading cell displays with a red background) because the change in measurement is above the **High Limit**.

The screenshot shows the MultiLogger - Edit Configuration window. The 'ACTIVE' indicator is highlighted in red. The 'Datalogger Clock' is 10:40:22 AM and the 'Computer Clock' is 10:40:32 AM. The 'CAPTURE ON' indicator is also active. The 'Logger Flags' section shows Flag 6 as 'High' (red) and Flag 8 as 'High' (red). The 'Logger Ports' section shows all ports as 'Low' (green). The 'Locs' field is set to 8. The main data table is as follows:

Location	Value	Location	Value	Location	Value	Location	Value
1:Year	2003.00000						
2:Julian Day	76.00000						
3:Time HHMM	1040.00000						
4:Seconds	15.00000						
63:LOWANDHIGH	87.08600						
64:RATEOFCHANGE	-480.10000						
65:TWOLEVEL	26.70700						
66:RATEHIGH	24.09300						

The screenshot shows the MultiLogger - Edit Configuration window. The 'ACTIVE' indicator is highlighted in red. The 'Datalogger Clock' is 10:40:36 AM and the 'Computer Clock' is 10:40:45 AM. The 'CAPTURE ON' indicator is also active. The 'Logger Flags' section shows Flag 6 as 'High' (red) and Flag 8 as 'High' (red). The 'Logger Ports' section shows all ports as 'Low' (green). The 'Locs' field is set to 8. The main data table is as follows:

Location	Value	Location	Value	Location	Value	Location	Value
1:Year	2003.00000						
2:Julian Day	76.00000						
3:Time HHMM	1040.00000						
4:Seconds	30.00000						
63:LOWANDHIGH	87.36400						
64:RATEOFCHANGE	0.28027						
65:TWOLEVEL	26.62600						
66:RATEHIGH	24.09300						

Note: It will take a minimum of 2 scans before the rate of change alarm status can update because it must have prior readings to make the comparisons.

## Rate of Change/High Level

This Alarm Type is designed to indicate alarm if the absolute change in measurement falls outside the value specified by the **Low Limit** and the value exceeds the **High Limit**, as shown on the channel configuration.

Consider the following example. The **Low Limit** is 2, the **High Limit** is 40.

The first screenshot depicts an alarm being activated (the reading cell displays with a yellow background) because the absolute change in measurement exceeded the value specified by the **Low Limit**.

The second screenshot depicts an alarm being activated (the reading cell displays with a red background) because the measurement exceeds the value specified by the **High Limit**.

The screenshot shows the MultiLogger - Edit Configuration window. The 'ACTIVE' indicator is highlighted in red. The 'Datalogger Clock' is 10:43:37 AM and the 'Computer Clock' is 10:43:46 AM. The 'CAPTURE ON' indicator is also highlighted in red. The 'Logger Flags' section shows Flag 6 and Flag 8 as 'High'. The 'Logger Ports' section shows all ports as 'Low'. The 'Locs' field is set to 8. The main data table shows the following values:

Location	Value	Location	Value	Location	Value	Location	Value
1:Year	2003.00000						
2:Julian Day	76.00000						
3:Time HHMM	1043.00000						
4:Seconds	30.00000						
63:L0WANDHIGH	88.91100						
64:RATEOFCHANGE	9.56930						
65:TWDLEVEL	27.88600						
66:RATEHIGH	32.19000						

The screenshot shows the MultiLogger - Edit Configuration window. The 'ACTIVE' indicator is highlighted in red. The 'Datalogger Clock' is 10:43:52 AM and the 'Computer Clock' is 10:44:01 AM. The 'CAPTURE ON' indicator is also highlighted in red. The 'Logger Flags' section shows Flag 6 and Flag 8 as 'High'. The 'Logger Ports' section shows all ports as 'Low'. The 'Locs' field is set to 8. The main data table shows the following values:

Location	Value	Location	Value	Location	Value	Location	Value
1:Year	2003.00000						
2:Julian Day	76.00000						
3:Time HHMM	1043.00000						
4:Seconds	45.00000						
63:L0WANDHIGH	88.84800						
64:RATEOFCHANGE	9.65920						
65:TWDLEVEL	27.48300						
66:RATEHIGH	71.90500						

Note: It will take a minimum of 2 scans before the rate of change alarm status can update because it must have prior readings to make the comparisons.

## Two Level Alarm

This Alarm Type is designed to indicate alarm if the measurement value exceeds either the **Low Limit** or **High Limit**, as shown on the channel configuration.

Consider the following example. The **Low Limit** is 30, the **High Limit** is 150.

The first screenshot depicts an alarm being activated (the reading cell displays with a yellow background) because the measurement exceeds the value specified by the **Low Limit**.

The second screenshot depicts an alarm being activated (the reading cell displays with a red background) because the measurement exceeds the value specified by the **High Limit**.

Note: Beginning in MultiLogger version 3.2.1 this alarm type was modified to work with ABSOLUTE values, this includes the Low Limit and High Limit values as well as the measurement values themselves. For example, using the example figures shown above, if the measurement value was  $-34.153$  it would trigger the low level alarm, if the measurement value is  $-168.08$  it would trigger the high level alarm.

The screenshot shows the MultiLogger - Edit Configuration window. The 'Text Monitor' tab is active, displaying a table of data points. The 'ACTIVE' indicator is highlighted in red. The 'Datalogger Clock' is 10:41:50 AM and the 'Computer Clock' is 10:41:59 AM. The 'CAPTURE ON' button is visible. The 'Logger Flags' section shows Flag 6 and Flag 8 as 'High' (red), while others are 'Low' (green). The 'Logger Ports' section shows all ports as 'Low' (green). The 'Locs' field is set to 8.

Location	Value	Location	Value	Location	Value	Location	Value
1:Year	2003.00000						
2:Julian Day	76.00000						
3:Time HHMM	1041.00000						
4:Seconds	45.00000						
63:LOWANDHIGH	87.63200						
64:RATEOFCHANGE	9.32030						
65:TWDLEVEL	34.15300						
66:RATEHIGH	24.15400						

The screenshot shows the MultiLogger - Edit Configuration window. The 'Text Monitor' tab is active, displaying a table of data points. The 'ACTIVE' indicator is highlighted in red. The 'Datalogger Clock' is 10:42:08 AM and the 'Computer Clock' is 10:42:17 AM. The 'CAPTURE ON' button is visible. The 'Logger Flags' section shows Flag 6 and Flag 8 as 'High' (red), while others are 'Low' (green). The 'Logger Ports' section shows all ports as 'Low' (green). The 'Locs' field is set to 8.

Location	Value	Location	Value	Location	Value	Location	Value
1:Year	2003.00000						
2:Julian Day	76.00000						
3:Time HHMM	1042.00000						
4:Seconds	0.00000						
63:LOWANDHIGH	86.50600						
64:RATEOFCHANGE	9.23050						
65:TWDLEVEL	168.08000						
66:RATEHIGH	24.18600						