



## VariControl Load monitoring v1.0

### 1. Introduction

This application note describes how to use load monitoring with the VariControl software

### 2. General

The VariControl software version 2.96 introduces the option to set load monitoring thresholds for all drivers of each individual Vari unit i.e. Vari B, Vari BH and Vari-E depending on the Vari configuration used. Note that load monitoring for a Vari B and Vari BH is performed on each driver individually but for the Vari E the load monitoring is performed on two drivers in parallel.

### 3. Definitions, acronyms and abbreviations

AN	Application Note
HW	Hardware
SW	Software
LAN	Local Area Network
PC	Personal Computer
Vari B	Vari Base unit
Vari BH	Vari Base unit with extended HF response
Vari E	Vari Extender unit

# VARI-Directional Array

## APPLICATION NOTE



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### 4. Prerequisites

This AN describes how to set load monitoring parameters by using the VariControl software. This functionality is available from VariControl software version 2.96.

Requirements:

Install VariControl software version 2.96 on this PC. This software version does not require a license and is free to download from the Bosch Security Product Catalog website, see link: <https://www.boschsecurity.com/xc/en/product-catalog/>

Also download the two DDA libraries, one for Vari B and one for Vari BH. In total you will download three executables, see screenshot below. First run the VariControl setup and after that both Libraries setup executables.



### 5. Connections

There are two ways to connect a PC to a Vari B or Vari BH unit:

1. RS-485

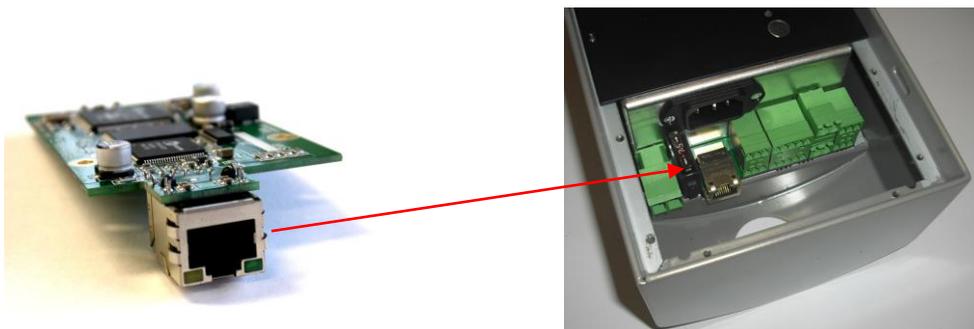
This requires the LA3-VARI-CS Vari-directional array configuration set (USB to RS-485 converter)



2. CobraNet® serial bridge

This requires the LA3-VARI-CM Vari-directional array CobraNet® module

In order to use the CobraNet® serial bridge you need to install the CobraNet® module in the Vari B or Vari BH, see picture below. Make sure that the proper firmware is loaded after a CobraNet® interface module is installed in the Vari. Download the firmware from the Bosch Security Product Catalog. There is specific CobraNet® firmware available depending on the type of Vari, Vari B or BH with or without Extenders.



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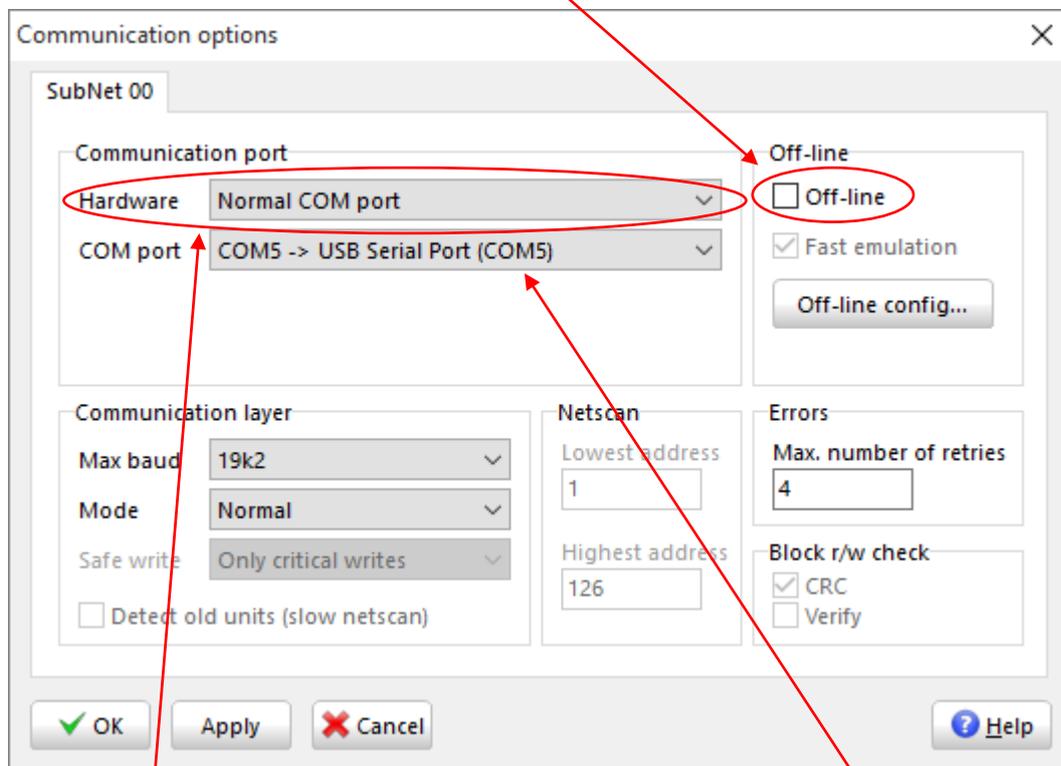


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Once the PC is connected to the Vari start the VariControl software. A window will open with Communication options. Select the proper communication port depending on the connection type used:

### RS-485

Make sure that the Off-line box is not checked

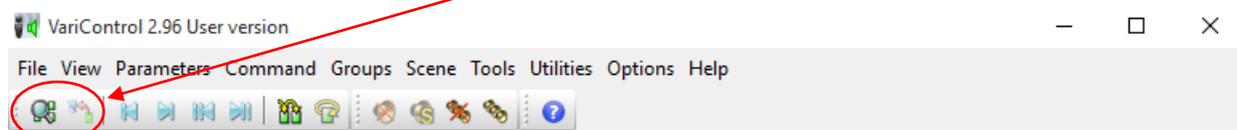


At the Hardware drop down  
select Normal COM port.

At the COM port drop down  
select the USB Serial Port.

Click OK and the connected Vari units will be visible in the next window.

When the Vari units are not visible click on the net update icon to check for them.



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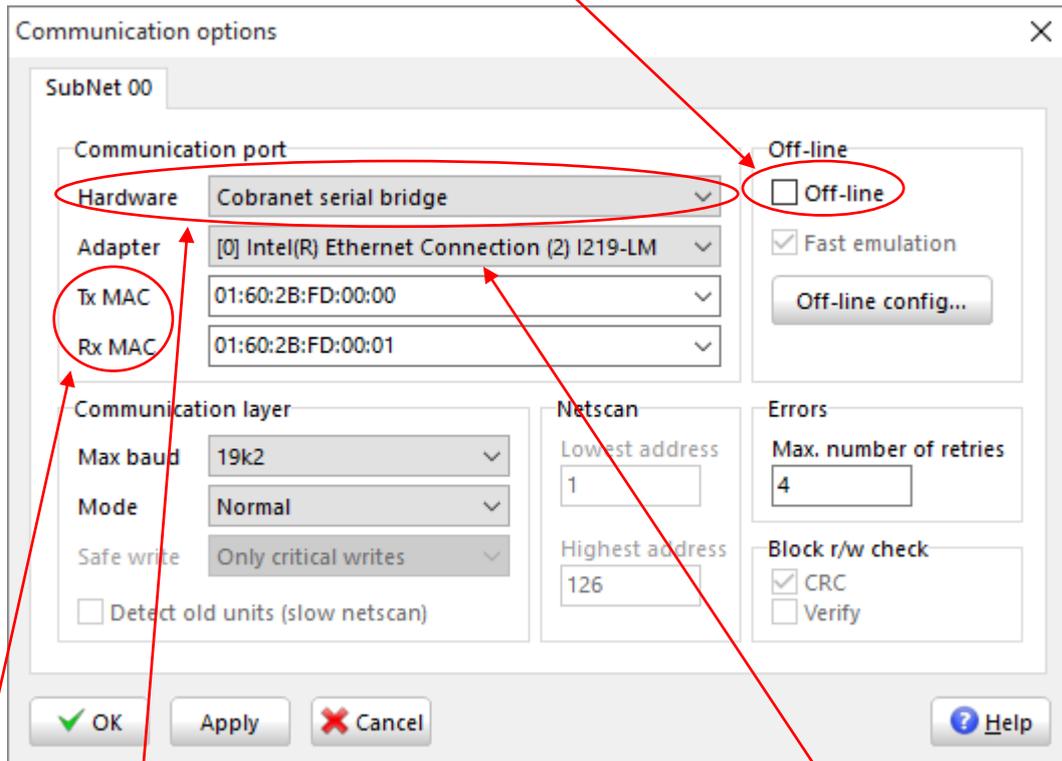
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### CobraNet® serial bridge

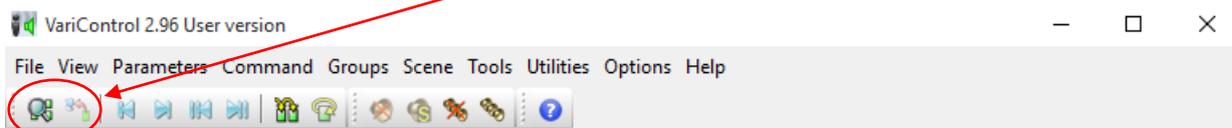
Make sure that the Off-line box is not checked



At the Hardware drop down select Cobranet® serial bridge.  
Now your network connection should be selectable from the Adapter dropdown.  
Make sure that the Tx MAC and Rx MAC defined here are exactly the opposite as defined in the Vari by the Cobranet® Discovery tool, see previous page. Also check that the baud rates are at least the same.

Click OK and the connected Vari units will be visible in the next window.

When the Vari units are not visible click on the net update icon to check for them.



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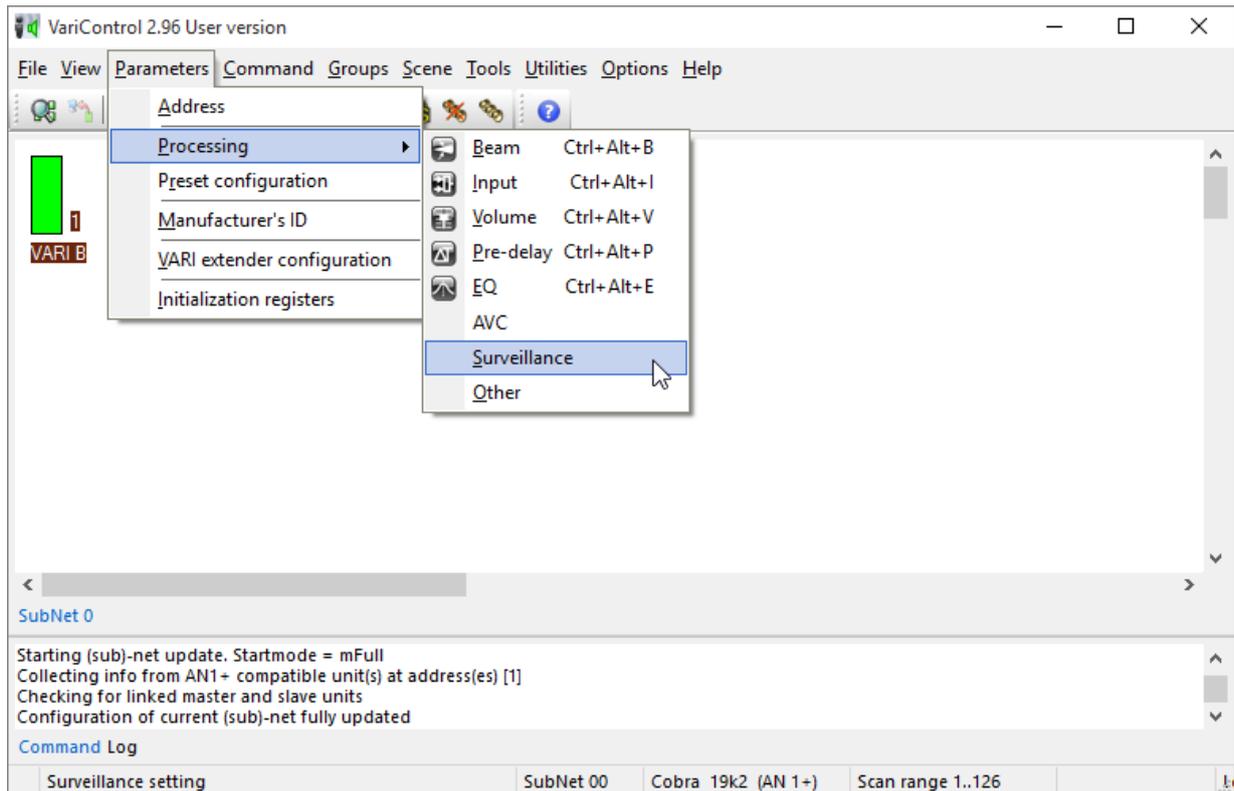
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### 6. Load monitor

Once connected click on the Vari unit you want to set the load monitoring parameters. In the main window of the VariControl software there is an option called Parameters in the menu bar. When you select it click on Processing > Surveillance, see example below.



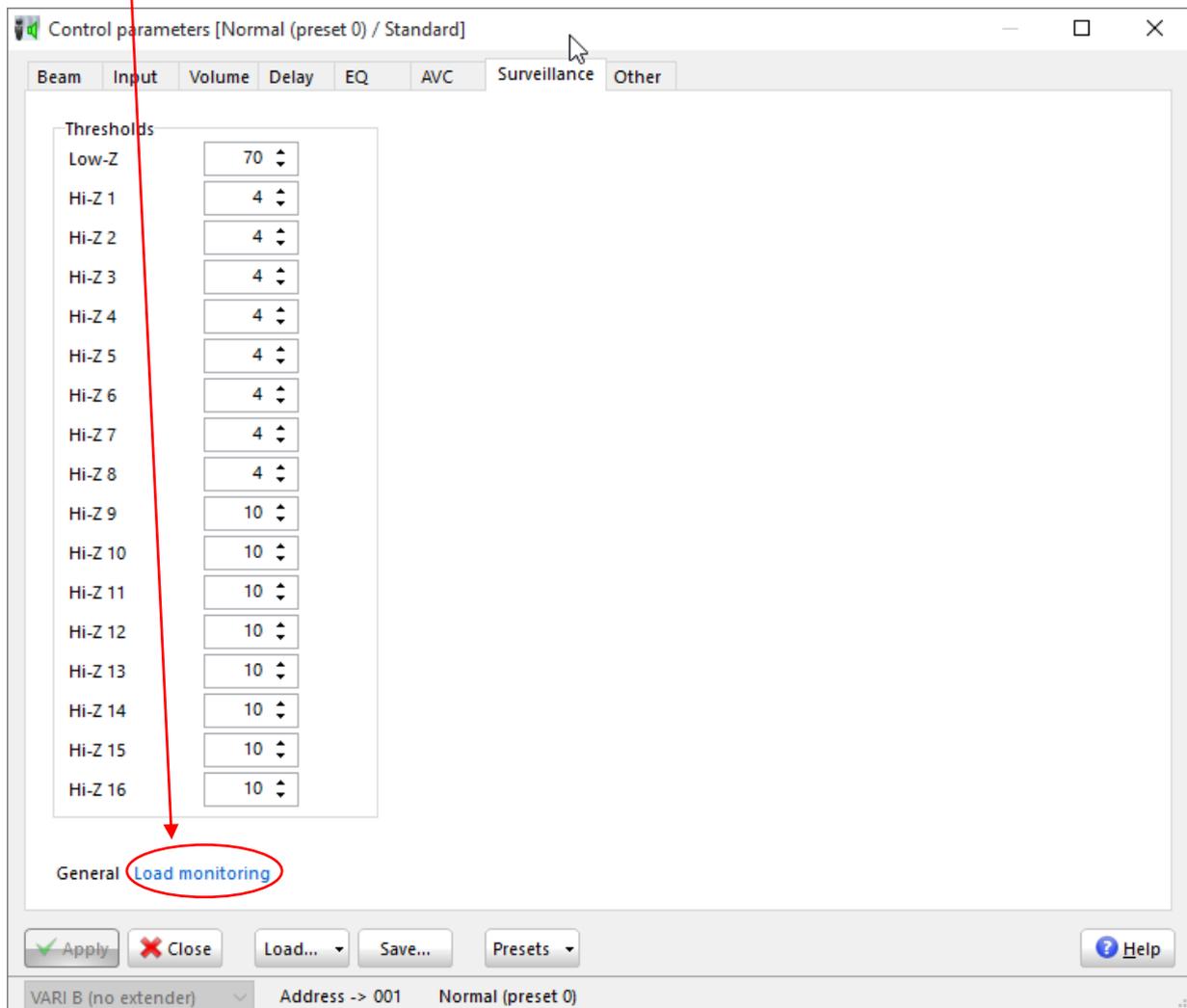
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The following window will open with default settings. When the General window opens click on the Load monitoring option at the bottom.



Measured load current values are evaluated against 2 thresholds, a minimum value (Hi-Z threshold) and a maximum value (Low-Z threshold). Detected values that fall outside this specified range result a failure warning on the specific channel. Low-Z evaluation indicates a possible short. Hi-Z evaluation indicates a possible loss of channel due to e.g. a broken wire.

In contrary to the LowZ threshold, there are individual HighZ thresholds for each channel. Hi-Z 1 up to and including Hi-Z 8 are the eight channels available in the Vari B and Vari BH units. Hi-Z 9 up to and including Hi-Z 12 are the four channels available in the first Vari Extender and Hi-Z 13 up to and including Hi-Z 16 are the four channels available in the second Vari Extender. Note that in the Vari Extender each channel is connected to two drivers in parallel.

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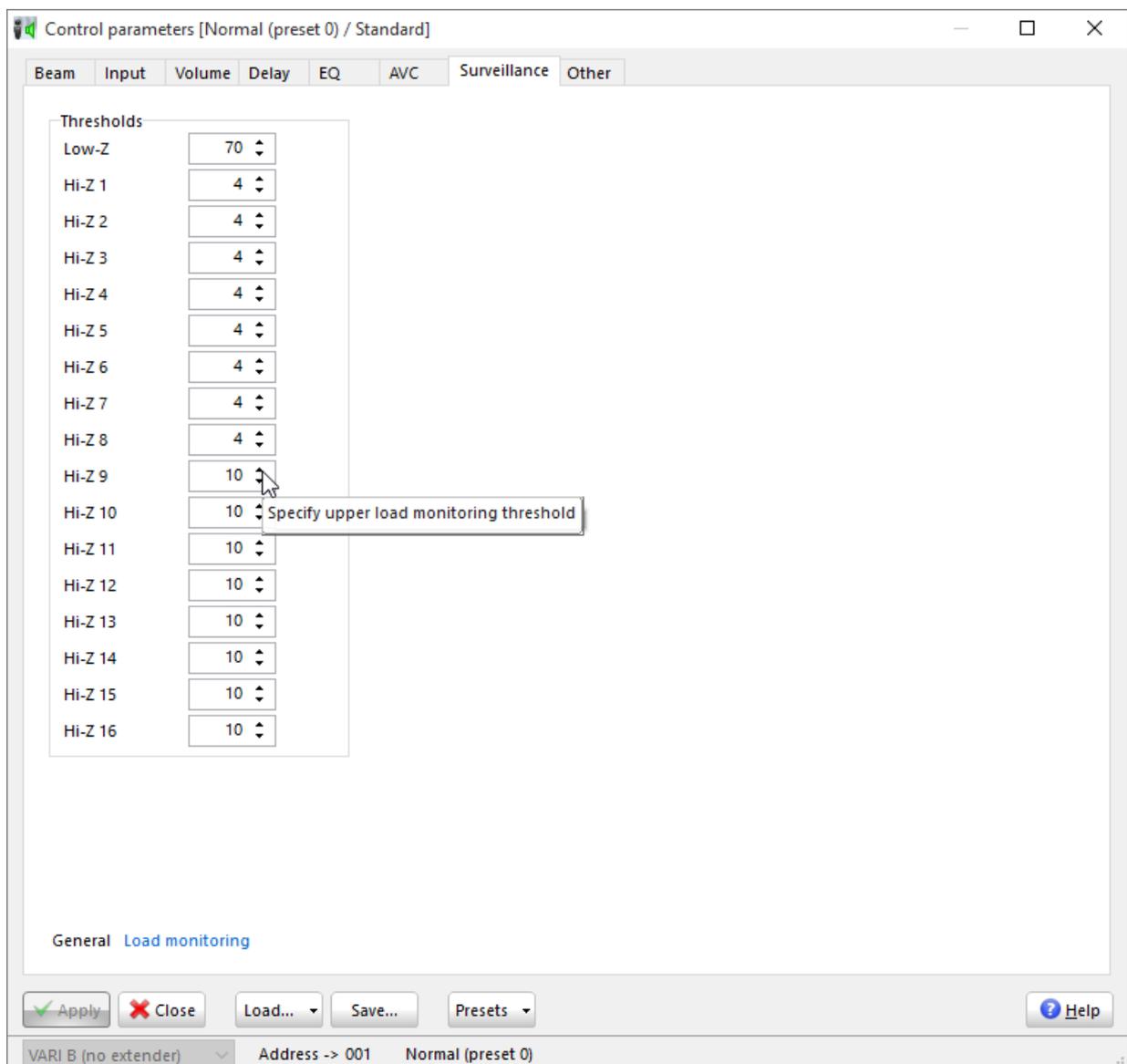


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The default Low-Z and the Hi-Z 1 up to and including Hi-Z 8 thresholds should not be changed.

The thresholds for the for the Vari Extenders however should be changed. The returned value for 1 driver is 14 and for 2 drivers it is 25. By default the threshold is set to 10. This means that only a load failure of both drivers will be detected. Therefore the threshold of Hi-Z 9 up to and including Hi-Z 16 should have a value between 14 and 25 in order to detect a load failure of one driver only. It is recommended to change these thresholds to 20.

Click ten times on the arrow-up sign next to the threshold value.



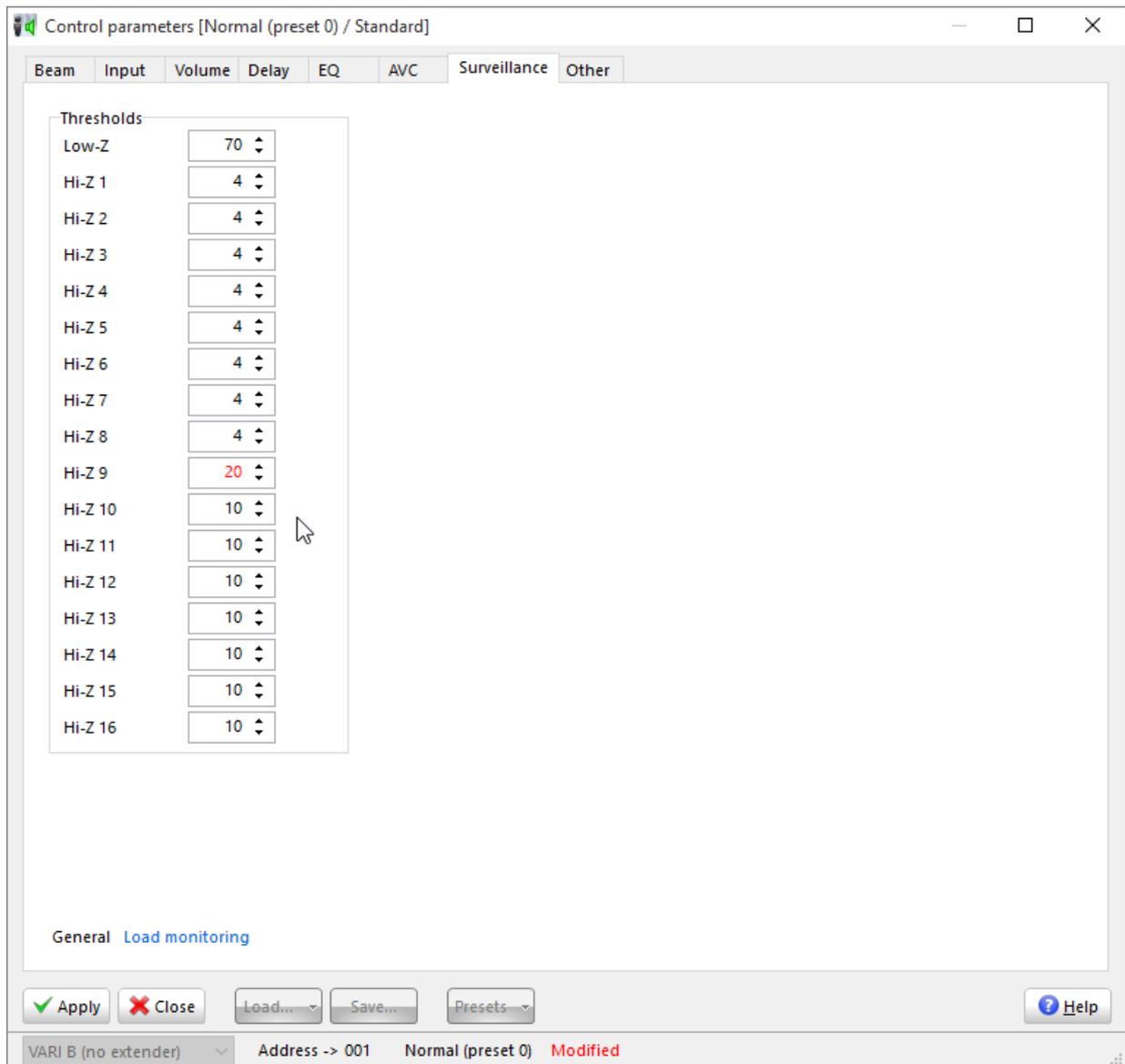
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Or type in the number 20.



On the bottom of the window the word "Modified" is shown once the value is changed.

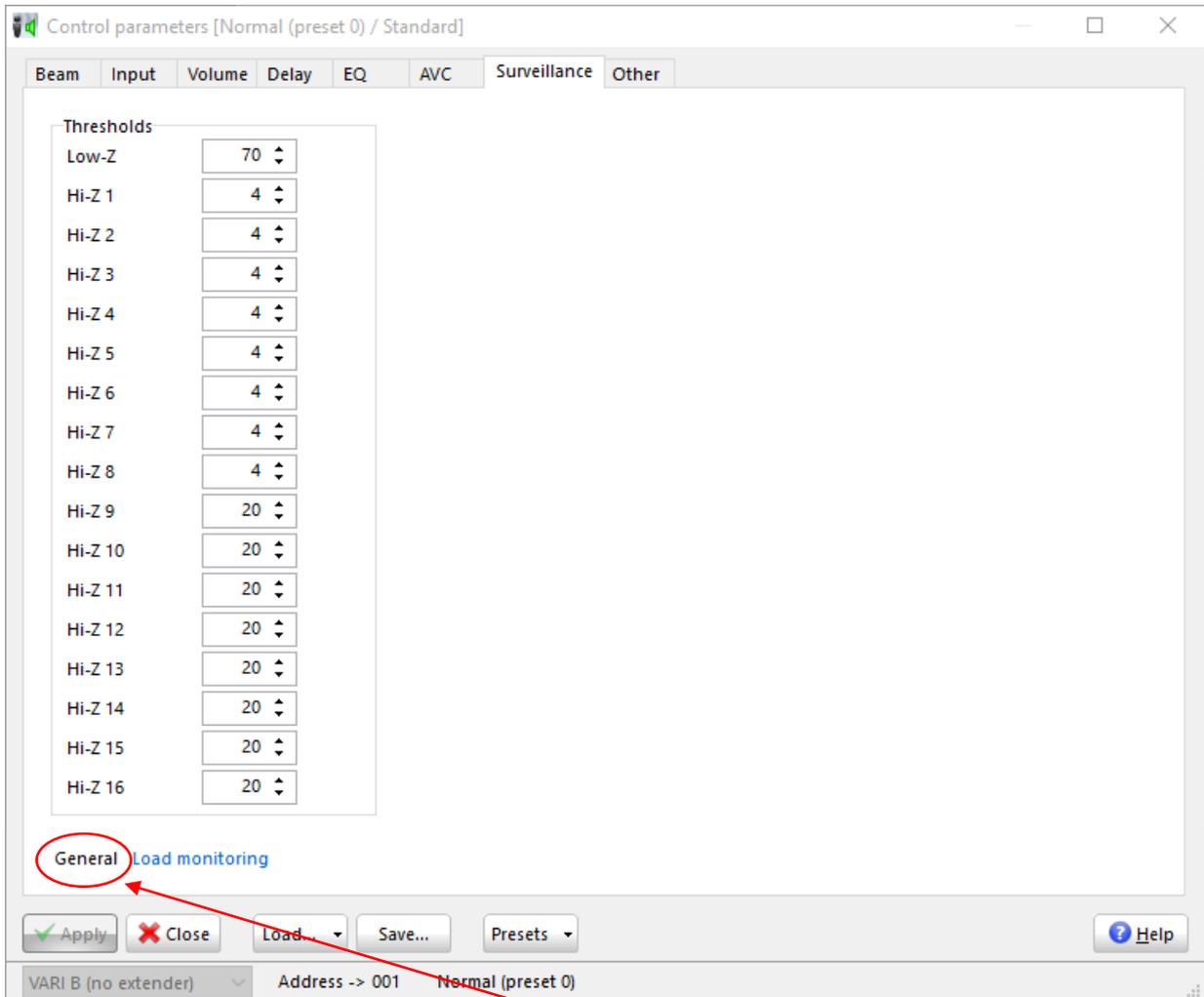
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Once all thresholds are changed the Load monitoring window looks like this:



Go to the General Surveillance window by clicking on "General" at the bottom of this window.

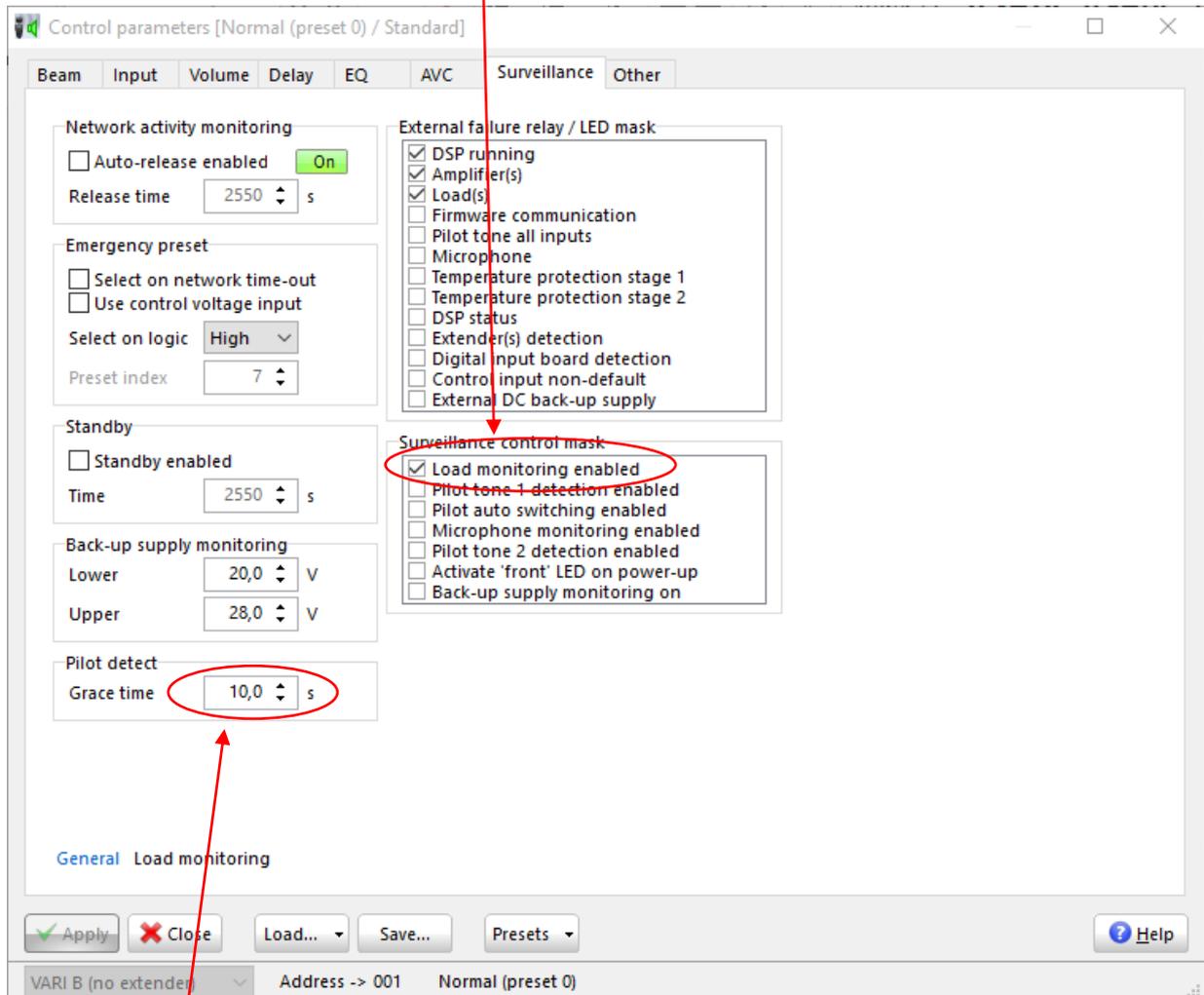
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Make sure that the check box “Load monitoring enabled” is selected.



Check the Pilot detect Grace time. This time should be 2 seconds or more. If AVC is not used, any value >2 can be chosen without consequences. Default this time is set to 10 seconds.

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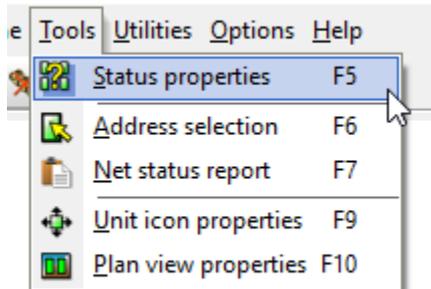
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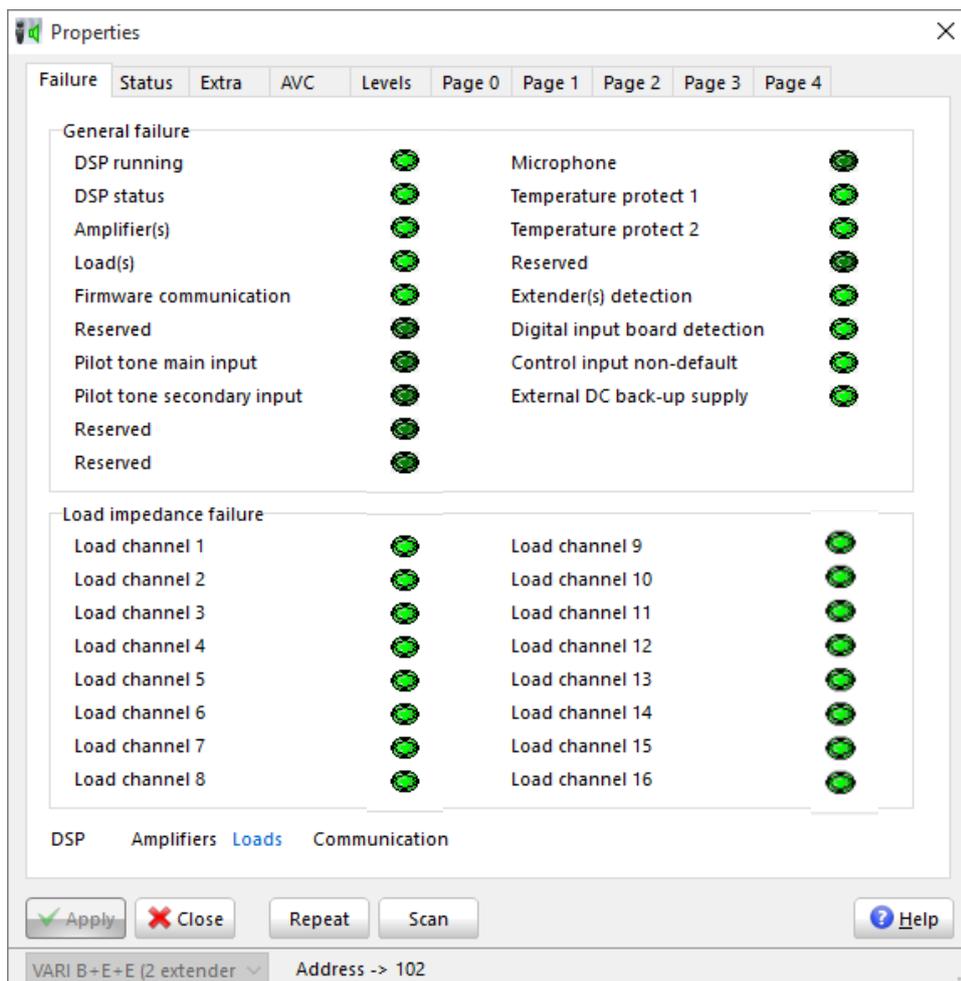
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### 7. Load failure

When load monitoring is enabled a load failure will be shown in the Properties window. In the main window of the VariControl software there is an option called Tools in the menu bar. Select this option and click on Status properties or press F5, see example below.



The Properties window will pop up. Click on Loads at the bottom of the window to check if there are any load failures. Once all indicators are green there are no failures.



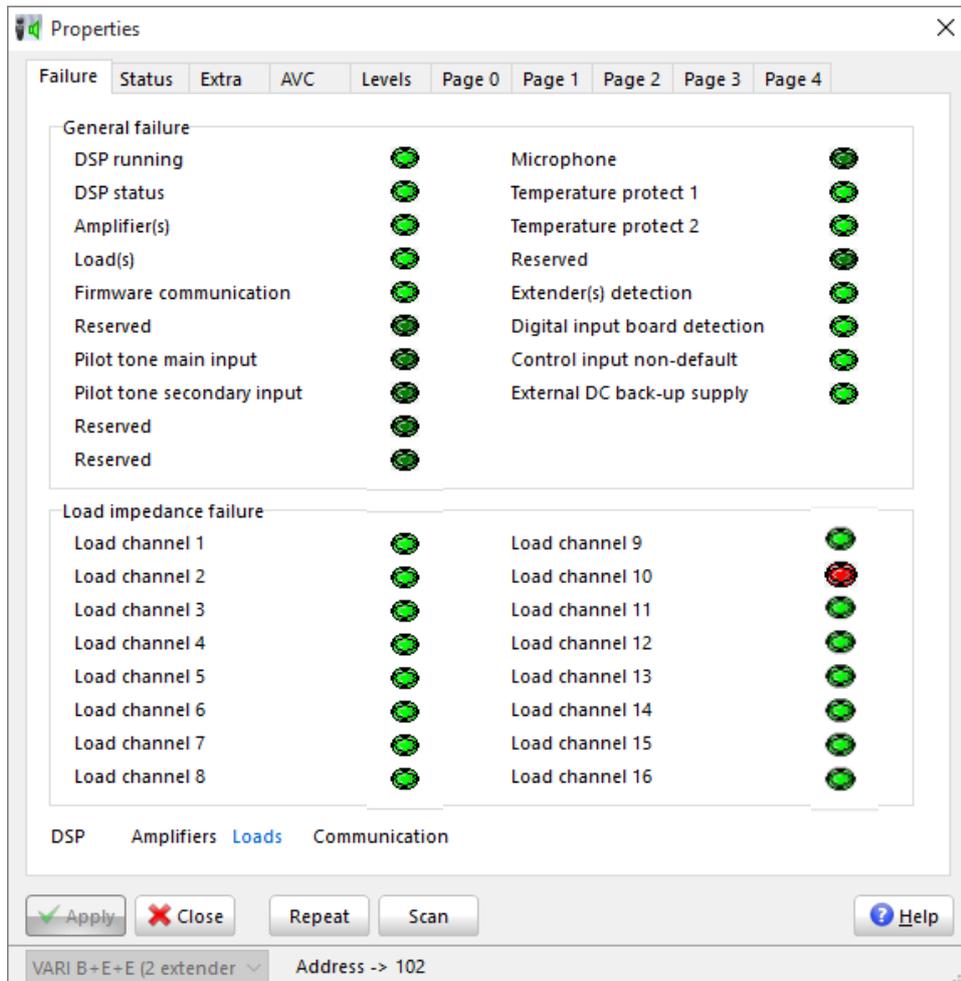
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If for example the first extender has a load failure on channel 10 that channel will have a red indicator, see picture below.



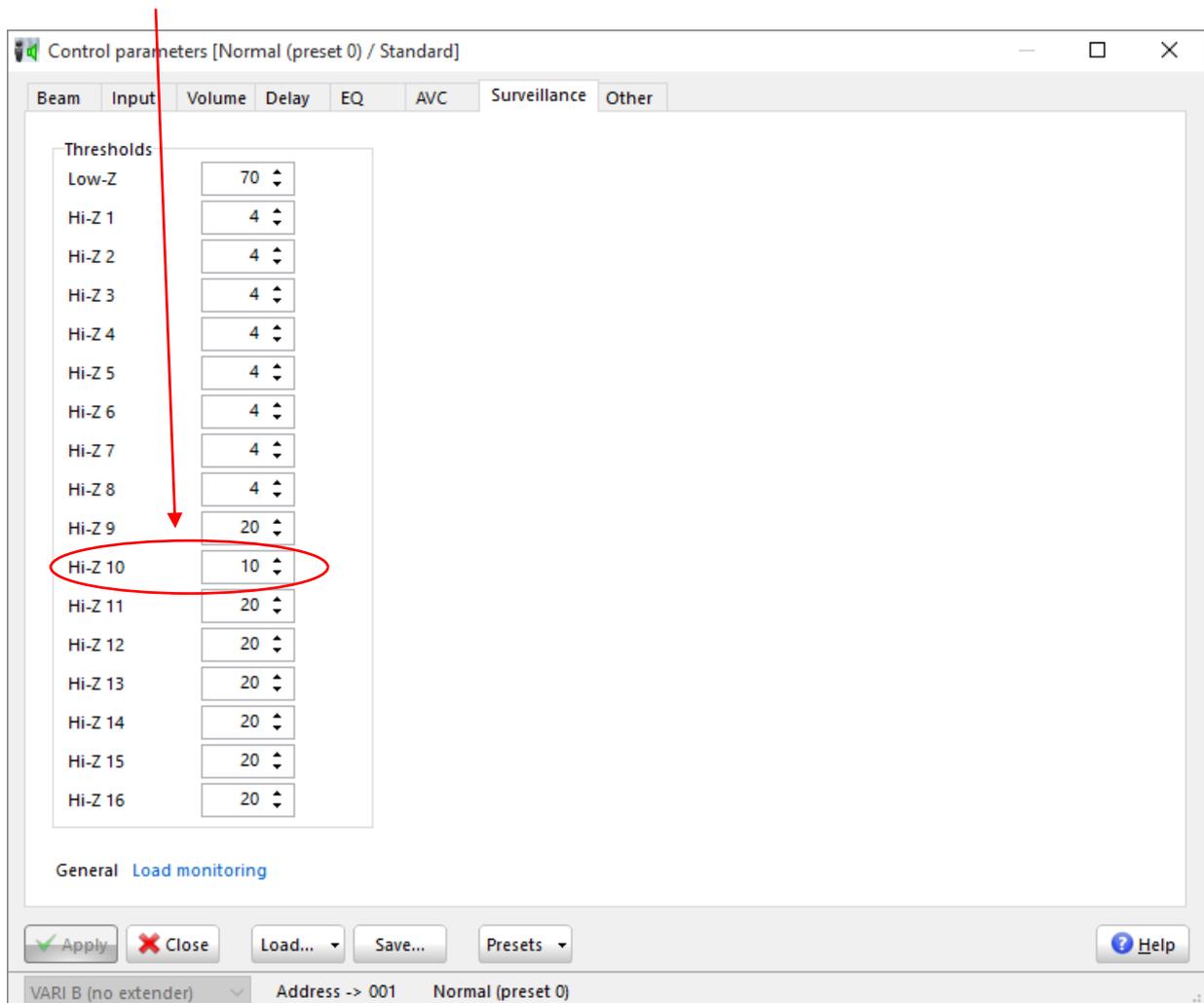
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Once a load failure is detected in any Vari Extender and the load monitor threshold is set to 20 it indicates that at least one driver has a failure. In order to check if both drivers have a failure the threshold value should be set to 10 again. In the picture below the threshold for channel 10 is changed to 10.



Once this value is set to 10 return to the Properties window and check the indicator of the channel which had a failure again, in this example check channel 10. If the indicator is still red it means that both drivers have a failure. If the indicator has turned green it means that only one driver has a failure.