



## **FEIG VEK M4D - Manual to upload Kistler WIM (Data Logger) configurations and tune the sensitivity / hysteresis**

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To: Kistler Service  
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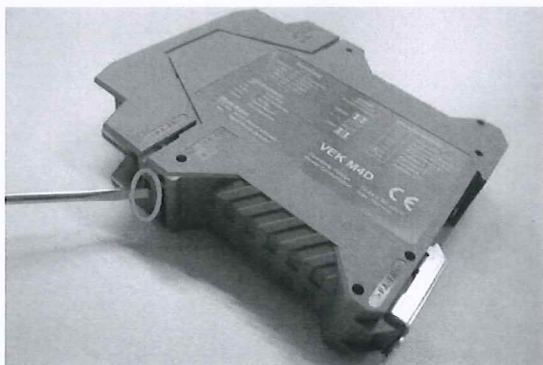
This manual describes how to upload WIM specific configurations to a FEIG VEK M4D inductive loop detector and how to tune the sensitivity and/or hysteresis and how to change the frequency of the loop.

### **1. Uploading Kistler default settings**

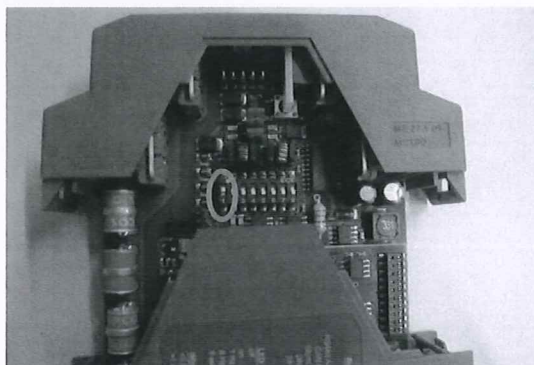
Normally the M4D loop cards when coming from Kiwag are set to Kistler default settings. However, in some cases uploading of the setting might be needed.

**To perform such default setting upload the following steps are required:**

1. An internal address set. How to set this address is shown below:



Open the cover of the FEIG VEK M4D



Set the DIP switch 1 to ON (address 20=1)

2. Power the loop detector FEIG VEK M4D by 24VDC
3. A RS485-USB to serial adapter connected to a windows PC connected to the clamps of the inductive loop detector as indicated below.
4. Good example of reliable USB/RS485 cable converter is FTDI USB-RS485-WE-1800-BT



5. Connect the cables as follows:

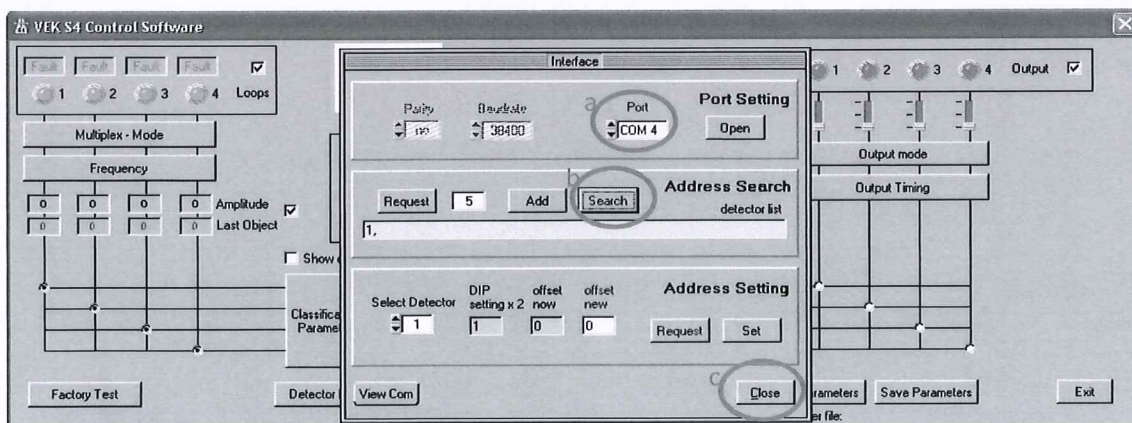
- a. RS485 data "B(-)" to Clamp "Interface LOW"
- b. RS485 data "A(+)" to Clamp "Interface HIGH"



6. The number of the COM port which represents the RS485 serial connection (check in the windows "device manager" under serial connections)
7. The FEIG Software "S4Com"(can also be found on the intranet site of Road&Traffic)  
[https://intranet.kistler.com/fileadmin/intranet.kistler.com/Divisions/ST/SBF\\_Road\\_Traffic/S4Com\\_V\\_2\\_12.zip](https://intranet.kistler.com/fileadmin/intranet.kistler.com/Divisions/ST/SBF_Road_Traffic/S4Com_V_2_12.zip)
8. The configuration file VEK\_M4D\_HighSpeed&TrailerIncluded.cfg from the intranet site  
[https://intranet.kistler.com/fileadmin/intranet.kistler.com/Divisions/ST/SBF\\_Road\\_Traffic/VEK\\_M4D\\_HighSpeed\\_TrailerIncluded.cfg](https://intranet.kistler.com/fileadmin/intranet.kistler.com/Divisions/ST/SBF_Road_Traffic/VEK_M4D_HighSpeed_TrailerIncluded.cfg)

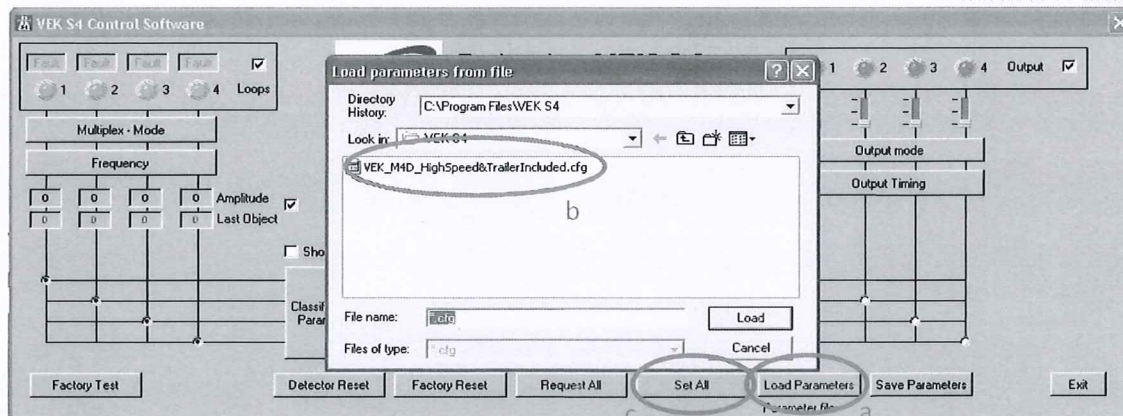
**You can upload the configuration on the device by following the next steps in the software S4Com:**

1. Connect to the loop detector by
  - a. choosing the correct COM port
  - b. search for the device address and break the search (if no address is found check for the RS485 connection settings again)
  - c. close the interface menu



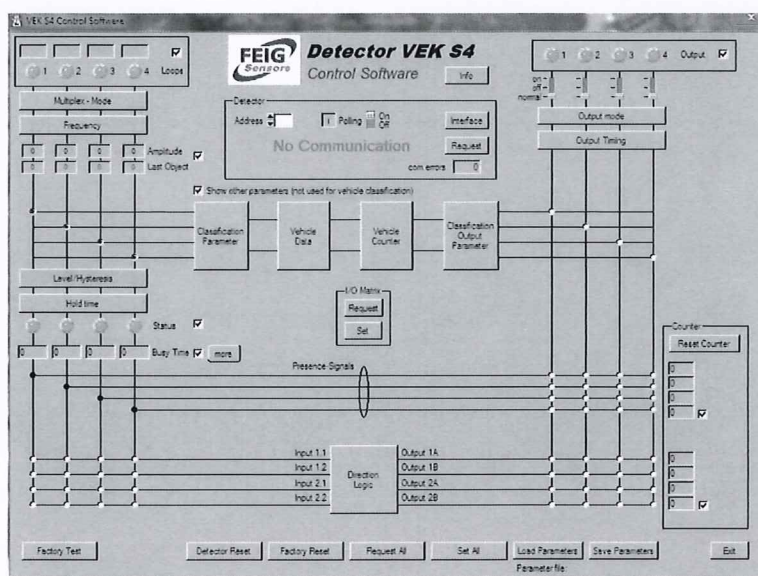
2. Load the configuration file by
  - a. Choosing "Load parameters"
  - b. and selection of the configuration file
- c. Write all loaded parameters on the loop detector by pressing "Set All"





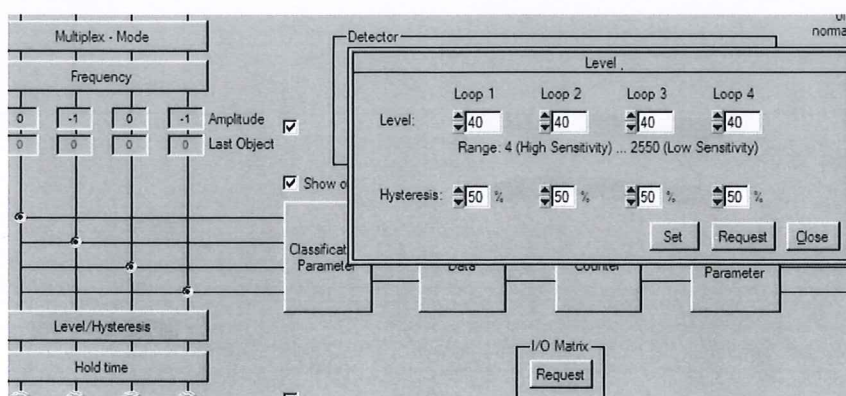
## To check the configuration:

1. Check the "Show other parameters" box and go to "Level/Hysteresis"



2. The required (default) Feig loop cards settings are:

- Level (sensitivity) on 40
- Hysteresis on 50%



## 2. How to tune the sensitivity and hysteresis

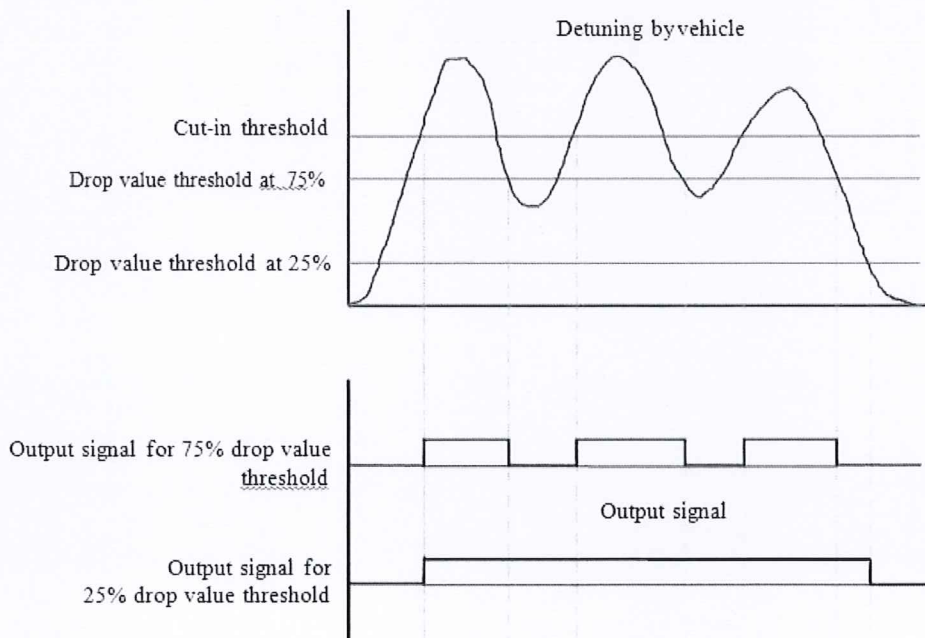
If you are not satisfied with loop detector sensitivity for example because of loop installation on a (steel) bridge you can tune the sensitivity (Level) and / or hysteresis.

### 1. Sensitivity

The sensitivity for every channel can be selected in 256 steps. In order to minimize interference, the sensitivity should be set as high as possible. Default Kistler sensitivity (Level) setting is 40. Decreasing the level you increase the sensitivity.

### 2. Hysteresis

In order to avoid an intermediate loss of the occupied signal for vehicles with a high undercarriage such as articulated buses, trams, trucks with trailers etc, it is possible to modify the switching hysteresis. An interruption-free detection of critical vehicles is then also possible. The drop value threshold factory setting is 75% however default Kistler setting is 50%. If needed you can go down to 25%.



### Example of sensitivity / hysteresis setting:

This example was taken on a steel bridge where especially problematic was the first loop. This loop was by coincidence located just above massive steel crossbeam and some power cables. Lowering Level to 4 (while Hysteresis on 50%) resulted in good detection but in the same time there were problems with some false signals.

Final good compromise settings were:

- Level (sensitivity) on 10 for Loop 1 and on 20 for Loop 2
- Hysteresis on 20% for both loops

The screenshot shows a window titled "Level" with settings for four loops. The "Level" row has input fields for Loop 1 (10), Loop 2 (20), Loop 3 (20), and Loop 4 (20). Below this, a range is indicated: "Range: 4 (High Sensitivity) ... 2550 (Low Sensitivity)". The "Hysteresis" row has input fields for Loop 1 (20 %), Loop 2 (20 %), Loop 3 (50 %), and Loop 4 (50 %). At the bottom right are buttons for "Set", "Request", and "Close".

### 3. Adjusting the loop frequency

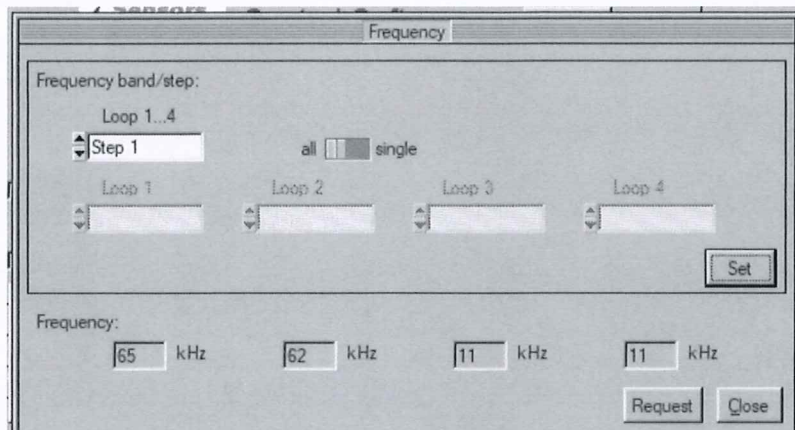
Normally the loop working frequency is assigned to each groups of loops automatically by the loop card and doesn't need to be changed. However, in some cases manual choice of loop working frequency might be needed. The reasons are:

- Loop frequency interferences
  - Loops from two independent loop systems are close in the road
  - Loop cards are not RS485 synchronized
- Industrial noise at the site

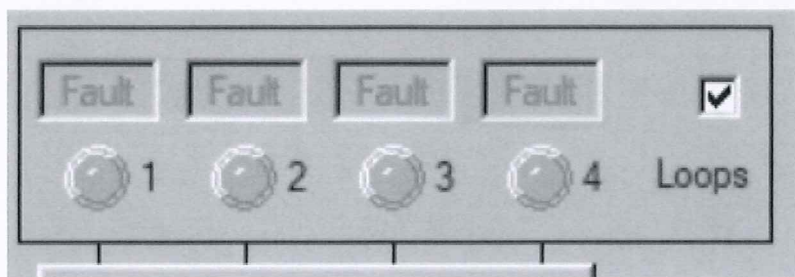
The screenshot shows a window titled "Frequency" with settings for four loops. The "Frequency band/step:" section has a dropdown for "Loop 1...4" set to "automatic" and radio buttons for "all" (selected) and "single". Below this are input fields for Loop 1, Loop 2, Loop 3, and Loop 4, all of which are empty. A "Set" button is at the bottom right of this section. The "Frequency:" section at the bottom has input fields for Loop 1 (10 kHz), Loop 2 (11 kHz), Loop 3 (10 kHz), and Loop 4 (11 kHz). "Request" and "Close" buttons are at the bottom right.



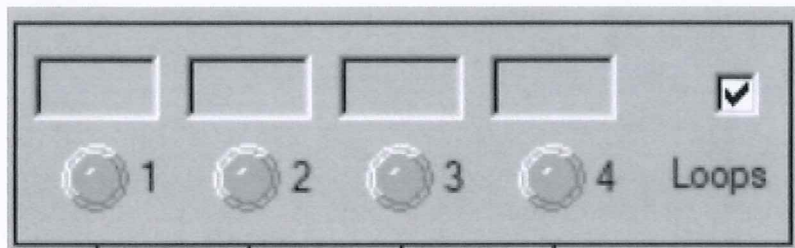
Go to Frequency band/step menu and try different options. These are in **Steps** or in **kHz**.



If the Step or Frequency is not compatible with electrical parameters of the loop(s) **Fault** would be displayed.



Try another Step or Frequency until there is no warning displayed



Desired situation is, that the activity (metal car or any other metal object) above the loop is transferred into the corresponding output signal.

Make sure there are no fake detections.

Example below: Loop signal (left) is correctly transferred to Output signal (right).

