

## User manual

### FOTEMP ASSISTANT 2

The screenshot displays the FOTEMP ASSISTANT 2 software interface. At the top, there is a menu bar with 'Devices', 'Diagrams', 'LogJobs', 'Extensions', and 'Help'. The 'WEIDMANN' logo is in the top right corner. The main area is divided into several sections:

- COM16:** Shows data for device 'FTT 0040063'. It displays eight channels with their respective temperatures: Channel 1 (25.9°C), Channel 2 (23.9°C), Channel 3 (25.3°C), Channel 4 (25.5°C), Channel 5 (24.8°C), Channel 6 (25.8°C), Channel 7 (24.6°C), and Channel 8 (25.9°C). Each channel name is in a dropdown menu.
- COM3:** Shows data for devices 'FTMS 1 0040096' and 'FTMS 4 0040098'. FTMS 1 has two channels: Channel 1 (26.6°C) and Channel 2 (26.4°C). FTMS 4 has one channel: Channel 1 (26.3°C).
- Diagram Diagram\_001:** A line graph showing temperature trends over time. The interval is set to 00:00:01. The channel list includes C3M1\_Ch1, C3M1\_Ch2, and C3M4\_Ch1.
- LogJob LogJob\_159:** A section for logging data. The interval is 00:00:00.250. The channel list includes C16M0\_Ch1 through C16M0\_Ch8. A green progress bar is shown, and the duration is 00:00:15.

At the bottom, a status bar shows 'COM3 A', 'COM16 A', 'COM1', 'COM17', 'COM4', 'COM5', 'COM6', 'COM14', and 'Profile: none ...'.

Temperature measurement software

# WEIDMANN



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## 1 Introduction

Thank you for using a FOTEMP temperature measurement system. In combination with the TS temperature sensors, FOTEMP and InsuLogix® T offers reliable and proven online temperature monitoring.

For safe and proper use, carefully read the user manual and all accompanying documentation and keep instructions for further reference.

Further information can be found on our website <https://weidmann-optocon.com/>

### 1.1 Accompanying documentations

The following accompanying documentation is also relevant to using the FOTEMP ASSISTANT 2 in addition to this user manual:

- Cleaning tool instruction manual (provided together with the cleaning tool if ordered)
- Handling instruction for fiber optic cables and sensors (provided together with the cable or sensor)
- Power supply instructions (provided together with power supply)

### 1.2 Warranty

Weidmann makes no warranty concerning the software, since the software and the communication protocol is available for free. The warranty is void in the event of abuse, e.g. failure to follow recommended operation procedures or failure by the customer to perform as specified in the instruction manual.

## 2 Product description

### 2.1 Requirements for hardware

To unpack and inspect your InsuLogix® T temperature measurement system, perform the following steps:

1. Carefully unpack all components.
2. Store the packing material until you have inspected all components.
3. Check if you received all items listed on the enclosed packing list.
4. Inspect the items for damage.
5. If you note any damage or suspect damage, immediately contact Weidmann.

### 2.2 Functionality

#### Main product features

Logging

Diagram

Setting

Display

## 3 Requirements of software

The download package contains an installer for Windows. Prerequisites are Windows® 7 and Dot.Net 4.6. Admin rights are needed for installation only.

## 4 Software

### 4.1 Main window



Figure 1: Sample screen with explanation of software elements

| Nr | Element      | Description  |
|----|--------------|--|
| 1  | Navigation   | Main menu of the program   |
| 2  | Progress bar | Displays the progress while searching for new devices                    |
| 3  | COM ports    | Holds all available COM ports and display their status and used protocol |
| 4  | Profile      | Shows the actual profile   |










Figure 2: Sample screen with explanation of software elements


The main window operates as a display for the measurement channels of connected the FOTEM devices. It also shows diagrams and logging information if logging is enabled. Also the connection status of active devices can be checked during runtime.

From the main window the configuration dialog of connected devices can be started. Scans for devices can be started, single channels can be activated or deactivated. Diagrams or logging can be paused, restarted or deleted.

The main window also allows to store or reload the user settings in profiles.

## 4.2 Menu “Devices”

| Symbol   | Entry  | Description                                   |
|--|--|---|
| <br>   | Search <ul style="list-style-type: none"> <li>• Single Port Search</li> <li>• Search for Ascii Devices</li> <li>• Search for Modbus Devices</li> </ul> | Different options to search for new devices   |
|   | Settings   | Control center for FOTEMP devices             |
|   | Hidden   | List the hidden devices.                      |
| <br>    | Profiles <ul style="list-style-type: none"> <li>• Load</li> <li>• Save</li> </ul>  | Load or Save your preferred Profile settings. |

| Symbol  | Entry  | Description                                   |
|---|--|---|
|  | Advanced <ul style="list-style-type: none"> <li>• Modbus Broadcast               <ul style="list-style-type: none"> <li>○ Intercom On</li> <li>○ Intercom Off</li> </ul> </li> </ul> | Advanced functions for FOTEMP device control. |

The menu “Devices” allows to execute device searches.

A “Single Port Search” can search FOTEMP devices on a specific user-given COM port. A possible result are one to 255 devices listed in the main window.

“Search for Ascii Devices” iterates through all existing COM ports of the PC. On each COM port it is tested if a modular FOTEMP system (e.g. “FTMS”) or a non-modular device (“OEM”, “OEM-PLUS”, “FT-MINI”, “FOTEMP-T2”) is answering.



“Search for Modbus Devices” iterates through all PC’s COM ports asking via Modbus protocol for available devices.

Especially for the Modbus protocol, the menu item “Modbus Broadcast” was introduced. In the **special case of the FOTEMP T2 in its 9-16 channel version:**

This FOTEMP device contains two Modbus devices in one housing. Device one contains channels 1-8 and device two contains channels 9-16. Both internal devices talk to eachother to show all temperature values on one display. To use FOTEMP Assistant with this device, the internal communication must be switched off. So the command “Modbus Broadcast – Intercom Off” must be executed. After successful execution, the device’s display shows “REMOTE” on channels 9-16. For setting the device back to standalone mode (measuring on all channels without software interaction) execute the command “Modbus Broadcast – Intercom On”.

In general, if an answer was received in an appropriate time (see Options dialog), the measurement channels of the device will be listed in the main window.

### 4.3 Menu “Diagrams”

| Symbol  | Entry          | Description                           |
|---|----------------|---------------------------------------|
|  | New Diagram... | Opens a menu to setup a new diagram.  |
|  | Load Diagram   | Open a window to display stored data. |

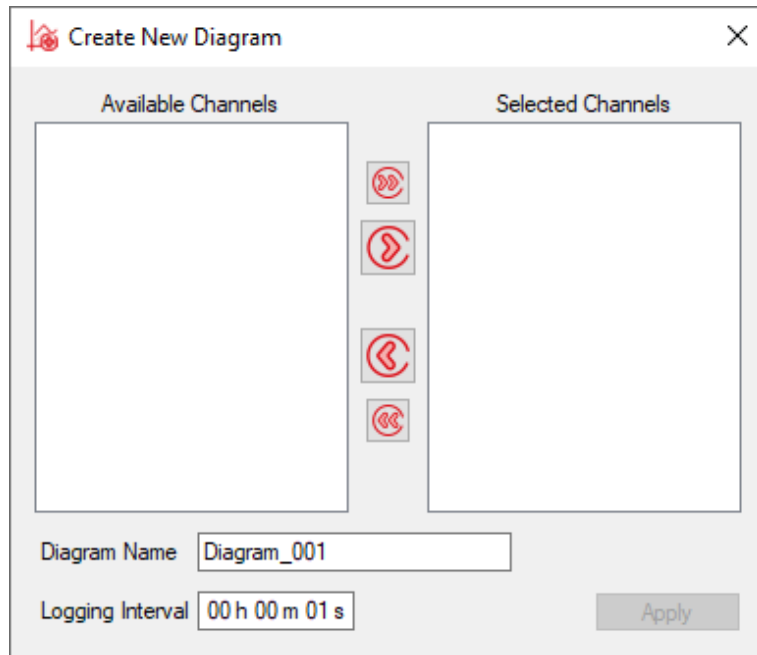


Figure 3: Sample screen with explanation of software elements


The menu entry “New Diagram” wants to measure and show measured values. Therefore it needs to know the desired channels. The user is asked via the dialog in Figure 8, which channels shall be shown in the diagram. Choose multiple channels holding shift key and use the One-Arrow icon to transfer the list entries from the left to the right box. Enter a name, an interval into the textboxes and press the “Apply” button. If channels are selected (single channel with the One-Arrow icon, all channels with the Two-Arrow icon), the diagram is added to the main window. Here the user has the chance kill the diagram or to double-click on the box to open a separate window.

The separate window shows current measurement values as time-series and has two menu icons. The most left icon let the user create an additional time-series for calculated values (adding, subtracting, ... channels). The right most icon let the user save the diagram as PNG picture or CSV.

**Attention:**

Initially the diagram is used to show measured values. It does not store the values somewhere but in internal memory. The save command in the separate diagram window stores existing already drawn values only.

## 4.4 Menu “LogJobs”

| Symbol  | Entry         | Description                         |
|---|---------------|-------------------------------------|
|  | New LogJob... | Opens a menu to setup a new LogJob. |



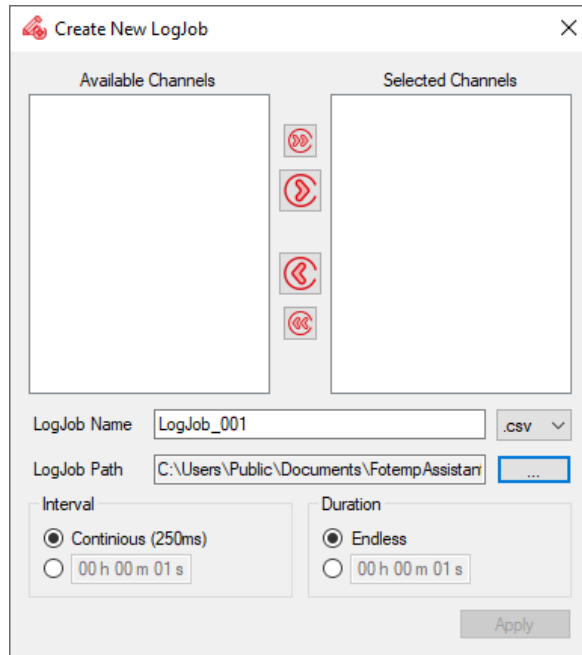


Figure 4: Sample screen with explanation of software elements

“LogJobs” are tasks which have another priority than diagrams. Use them if the measurement is fixed and there is a need to prove something to be working. Instead of drawing and maybe storing the measured data, the LogJob stores the values with higher priority in the given file. Additionally a diagram can be set up to also watch the values during logging.

LogJobs can measure as fast as the device and the PC allows when the option “Contious (250ms)” is chosen. Any parallel diagram will then slow down the sampling. Otherwise a period can be set up. When overnight or defined periods are to be logged, the Option “Duration” can be setup accordingly.

## 4.5 Menu “Help”

The Help menu contains the software options for loggin and hardware interfaces.

| Symbol | Entry   | Description                 |
|--------|---------|-----------------------------|
|        | Options | Parameters of the software. |
|        | About   |                             |

## 4.5.1 Options - System

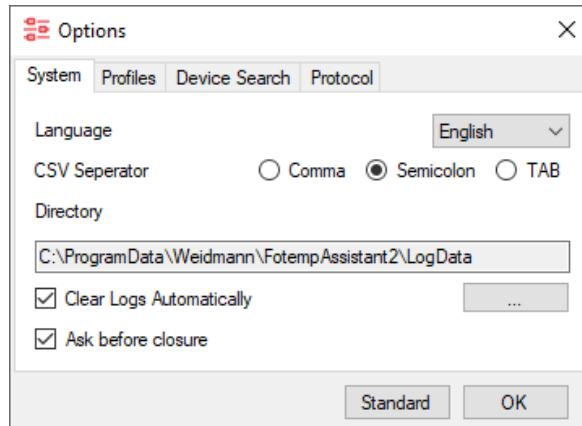


Figure 5: Sample screen with explanation of software elements

The Option menu command allows access to parameters for the software system. For files in CSV format, the separator and the default file location can be setup. “Ask before closure” defines, if running Diagrams or LogJobs are closed automatically if the user closes the software or if a warning will appear. When a new LogJob is started, option “Clear Logs Automatically” defines the status of previous data.

## 4.5.2 Options - Profiles

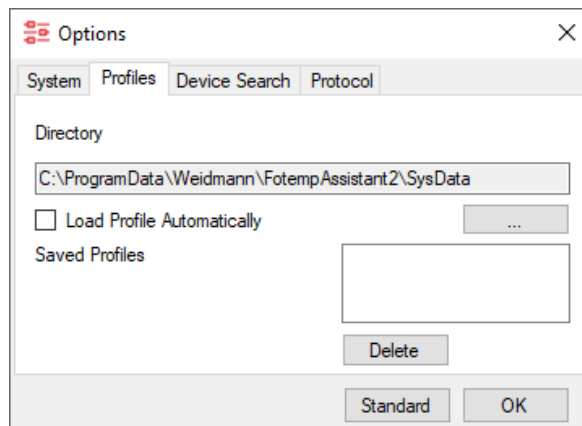


Figure 6: Sample screen with explanation of software elements

Profiles contains active COM ports (hardware setup) and hardware’s serial number. They can be stored as XML files for later use or reuse in repeated measurements in the desired directory. They can automatically loaded for saving the initial scan process.

### 4.5.3 Options - Device Search

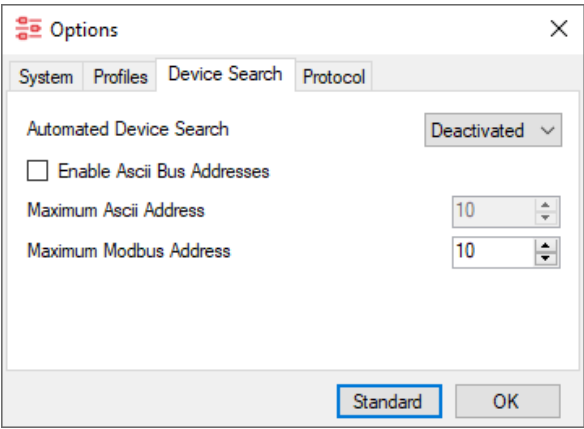


Figure 7: Sample screen with explanation of software elements

The “Device Search” options allow to enable or disable time consuming search for addressable FTMS devices. Also the maximum available address can be defined to restrict the searching address space from 1-255 down to the more appropriate range of 10 or less.

If “Automated Device Search is “Activated”, the COM ports of the PC are scanned each 5 seconds for new devices. During running measurements, this can be a bad option for timing accuracy.

### 4.5.4 Options - Protocol

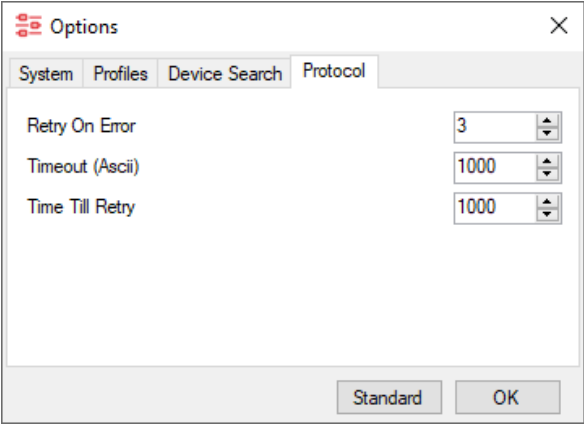


Figure 1: Sample screen with explanation of software elements

The options of “Protocol” allow to adjust the search process for retrying scans or changing the search timeouts.

## 4.6 Device Configuration

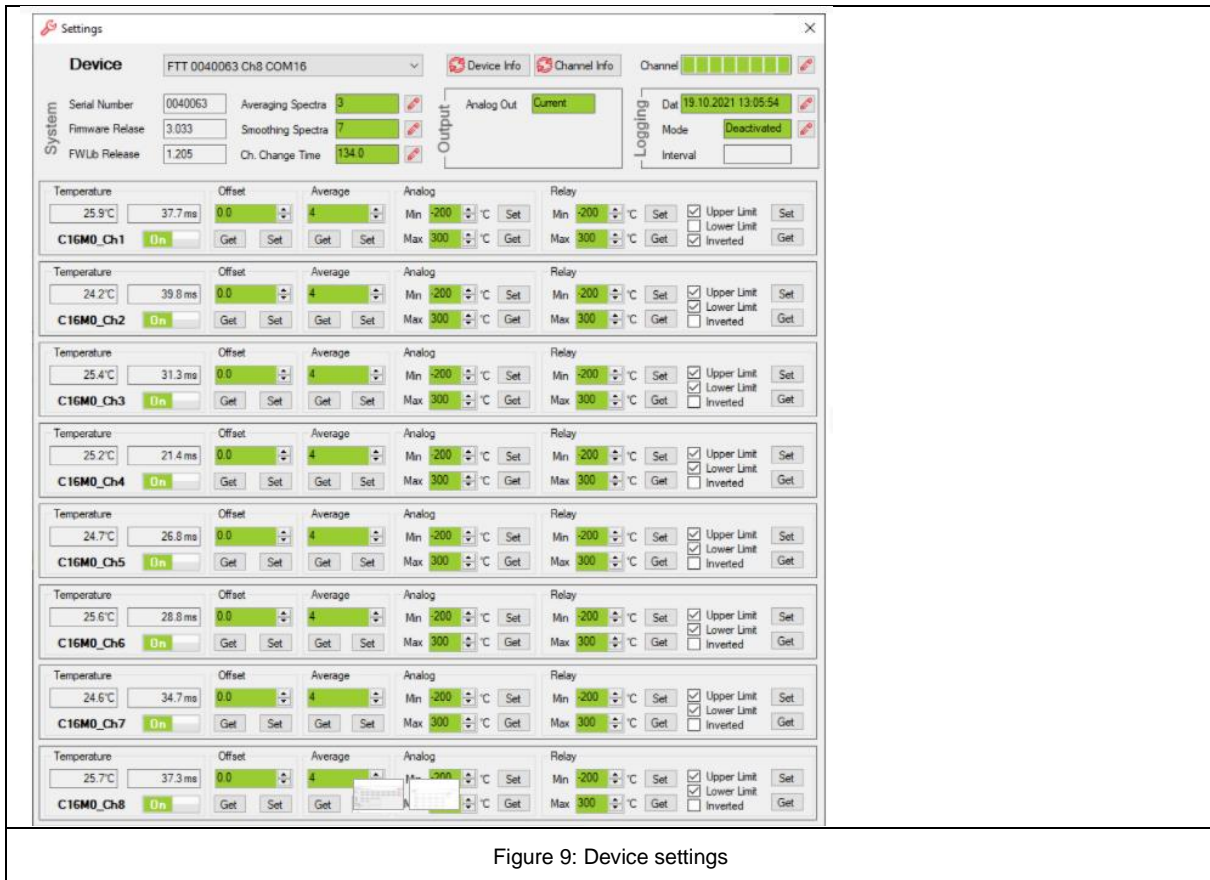


Figure 9: Device settings

Each connected device speaking ASCII protocol can be set up by the user as Figure 9 shows. After a connected device is chosen in the “Device” combobox, system values like Serial Number, Firmware version, analog output interface or logging information are read. The sections “Output” and “Logging” are only shown, if a device supports these features. Otherwise these spaces are blank.

For each channel of the chosen device the following values are read out and shown. If analog output and relay features are given by the device, their switching border levels are shown too. The channels can be enabled or disabled. The state that all channels of a device are switched off is invalid and the software will automatically re-enable channel 1.

A green backcolor of a textbox shows that the value is the same as in the device memory.

## 4.7 Add-Ons

In November 2021 version 2.3 of “FOTEMP Assistant 2” was released with two Add-Ins for manipulating the calibration table stored in a device and another one checking the spectrum of a sensor signal. Both releases are in Alpha stage of the development. Using them to manipulate the calibration data voids the warranty.

### 4.7.1 Add-In “Calibration”

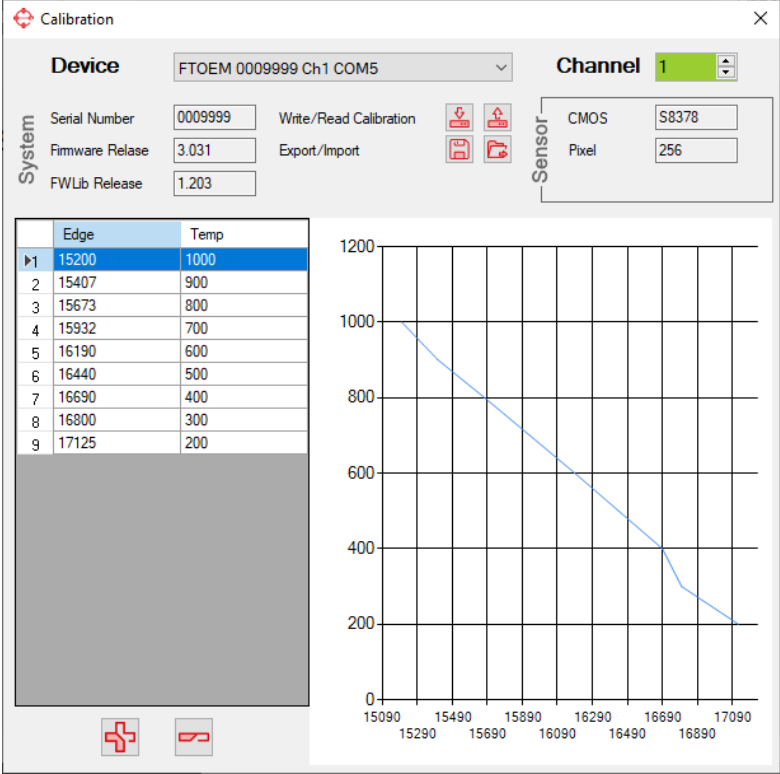


Figure 9: Add-In “Calibration”

For using add-In “Calibration” one has to choose the connected device in the upper Combobox, therefore no diagram nor LogJob may run. If the desired device is chosen, the window presents serial number, firmware version and the used sensor data of the device. It reads the channels calibration table of the channel shown in the right upper textbox “Channel”. The background color must be green to show validity of data. 16 data pairs can be stores in the device. Changing the values in the table and pressing the write button will store the table values (all at once) in the device memory (upper left red icon). Reading the values from the device again will be done pressing the upper right red button. Storing and reading data from/to disk happens by using the lower red icons (left: store table to disk, right: read table from disk).

### 4.7.2 Add-In “Spectrum”

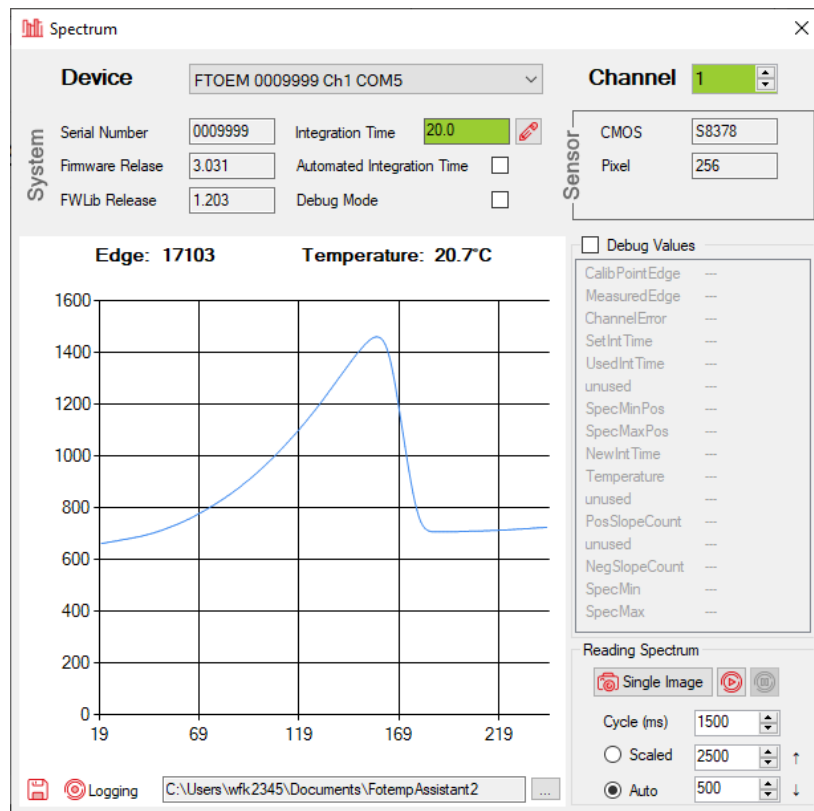


Figure 10: Add-In "Spectrum"

When chosen the intended device and after that the channel, this add-in allows to see the reflected input signal of the spectrometer switched to the chosen channel. Using a reference lamp, the appropriate wavelength could be found for the given CCD-sensor's pixel indices.

This add-in can be used to self-calibrate a device by reusing the here measured "Edge" value in the calibration add-in.

Make sure to use the checkbox "Automated Integration Time" and "Integration Time" accordingly.

Another use case of this Add-In is, to see the quality of the sensor. Therefore the "Automated Integration Time" shall be noted for a specific testing temperature. Comparing current timing value after a few months with the initially noted value pair gives a "figure-of-merit" for cleanup or recalibration. A recalibration shall be done if the value is 200% of the initial one for keeping accuracy as bought. Each connection change of a fiber optical connector may influence this value.

The add-in allows to log the spectra periodically with the icons on the lower left side. Input elements of the lower right side allow to change part of this process.

Readout speed shall not be below 500ms.

EoD