H&B

ONE PORT VIEWER

USERS MANUAL

Table of contents

1 Introduction

1.1 Purpose

The purpose of this document is to describe how to use the "One Port Viewer" application as a tool for calibrating the H&B load cell digital amplifier devices, reading and writing command parameters and monitor weight values measured from the connected devices.

The detailed functionality of the different device command parameters used in the "One Port Viewer" application will not be explained in this document. The commands are described in detail in other documents covering the functionalities of the different H&B devices.

By having an active internet connection to the PC running the "One Port Viewer" application, it is possible to access the web pages describing the functionality of different command parameters in details.
In different areas of the "One Port Viewer" application, help buttons are placed to gain easy access to the command documentation web pages.

If you want to do detailed recordings of streamed data from the load cells to a scope containing the graphical representation of the data recorded, please refer to the more advanced DOP 4 application where also the streamed load cell data can be stored for later analyze.

1.2 Overview

The "One Port Viewer" application is a tool for calibrating, analyzing and fine-tuning measurement parameters for several of the Hauch & Bach digital amplifier devices for weighing and force measurements, such as the DAD14x, LDM64.1, LDB15x and the LDU series LDU 68.x, LDU 69.1, LDU 78.1 and LDU179.1. All new devices will also be supported by the "One Port Viewer" application as they are released.
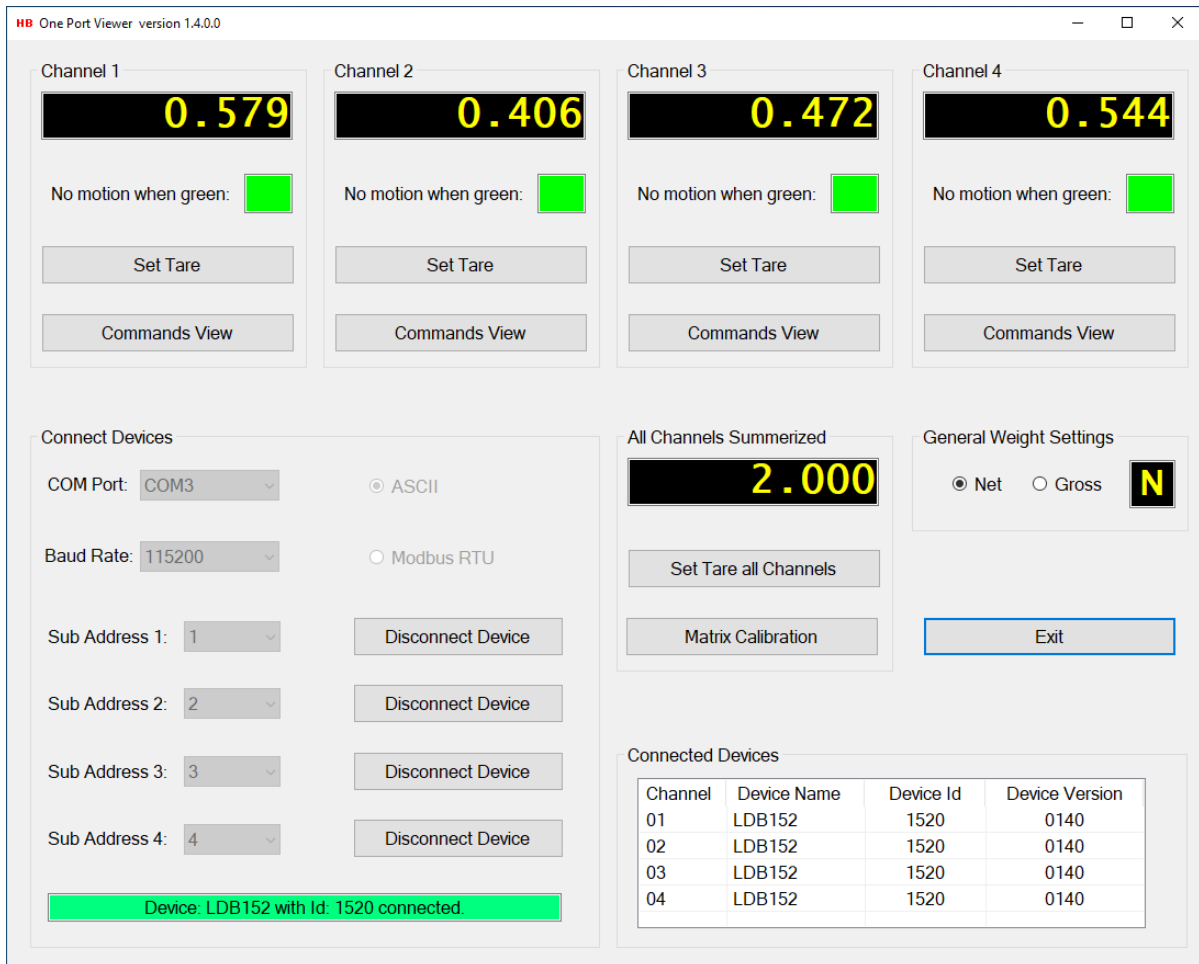
The main page consists of four channel groups from which load cell measurement and command settings can be performed. Calibration and tarring of H&B devices can be done from special "Calibration" and "Filter / Tare" dialogs found in the "Commands View" dialog, available for each of the up to four connected devices.

Special dialogs are available for guided 4 load cell matrix calibration to be found in the "Matrix Calibration" dialog.

H&B devices are connected to the "One Port Viewer" application from the "Connected Devices" group box.

For detailed information on calibration, filtering and command parameters handling, refer to the specific sections covering these issues.

2 Application Startup

The first window which appears after "One Port Viewer" application startup is the main window. The main window is quite empty until some H&B devices are assigned to one or more of the four channel groups. So, before calibration and measuring can start, the first thing to do after the "One Port Viewer" application startup is to assign one or more H&B devices to one or more of the H&B device channels.
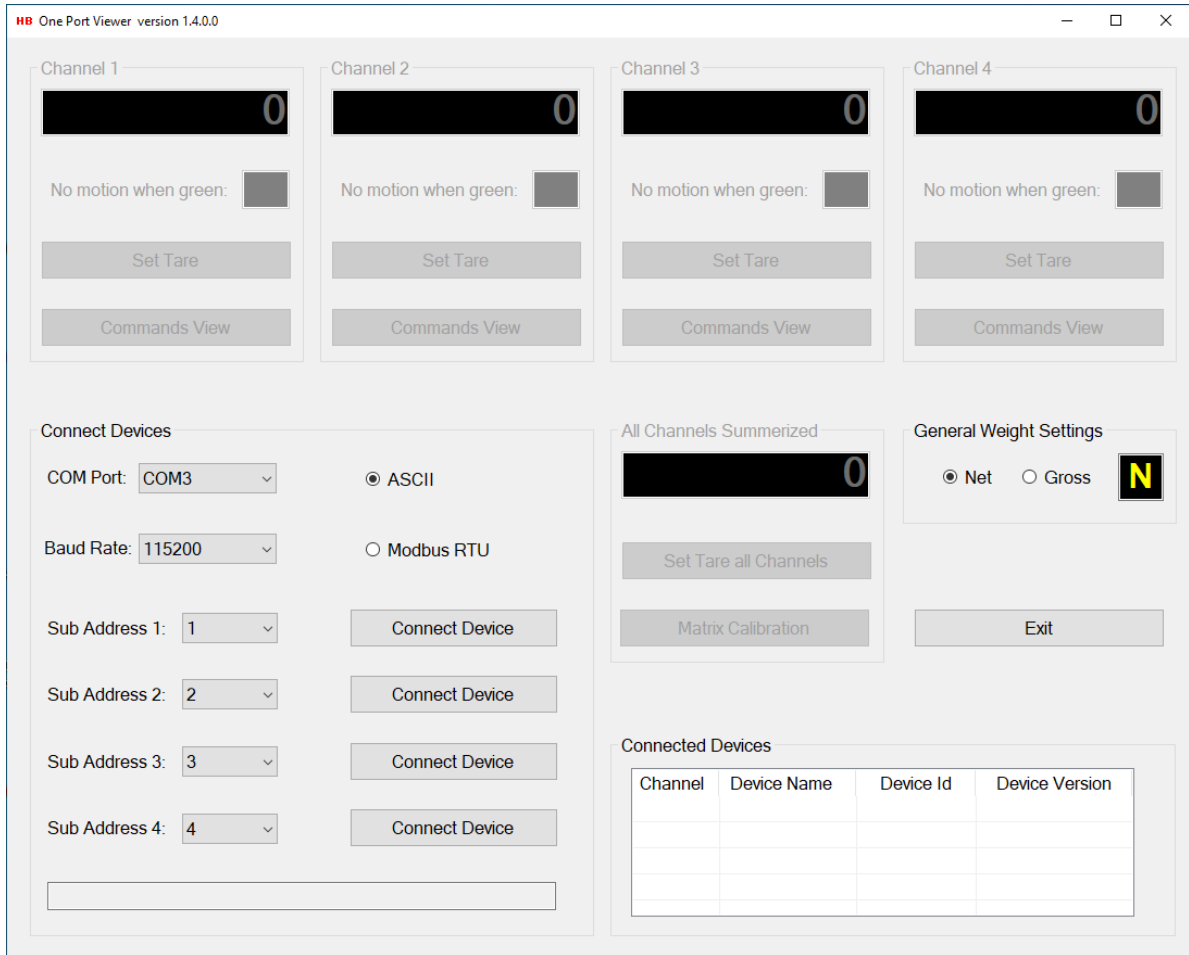
Start by defining the devices to be connected to the "One Port Viewer" application by configuring the settings in the "Connected Devices" group box.

2.1 Connect Devices

From the "Connect Device" group box, the different H&B devices to be used for communication are selected.

The current version of the "One Port Viewer" application supports the ASCII and Modbus RTU interface over serial COM ports communication.

The interface is selected by checking the "ASCII" or the "Modbus RTU" radio button.

2.1.1 Select device interface

ASCII:

To select an H&B device using ASCII as interface, select the radio button: "ASCII".

Select the serial COM port to which the device is connected.

Select the correct baud rate for the device.

If more than one device is connected to the same COM port, a specific device can be selected by selecting the correct "Sub Address", belonging to that device.

When a device is connected correctly, the name and ID of the device will be shown in the info field and the text of the "Connect Device" button will change to "Disconnect Device".

The "COM Port" and the "Baud Rate" fields will be disabled as only one serial COM port can be selected at the time.
(Use the "Four Port Viewer" application if you want to connect to different serial COM ports).

The "Connected Devices" list view will be updated with information about the connected device.

Modbus RTU:

To select an H&B device using Modbus RTU as interface, select the radio button: "Modbus RTU".

Select the COM port to which the device is connected.

Select the correct baud rate for the device.

If more than one H&B device is connected to the same COM port, a specific device can be selected by selecting the correct "Sub Address", belonging to that device.

When a device is connected correctly, the name and ID of the device will be shown in the info field and the text of the "Connect Device" button will change to "Disconnect Device".

The "COM Port" and the "Baud Rate" fields will be disabled as only one serial COM port can be selected at the time. (Use the "Four Port Viewer" application if you want to connect to different serial COM ports).

The "Connected Devices" list view will be updated with information about the connected device.

Channel	Device Name	Device Id	Device Version
01	LDB152	1520	0140
02	LDB152	1520	0140
03	LDB152	1520	0140
04	LDB152	1520	0140

3 Commands View

The "Commands View" dialog is selected from one of the up to four device channel group boxes by selecting the "Commands View" button individually.

In the "Commands View" dialog the command parameters valid for the currently selected H&B device can be examined.
If a command parameter is writeable, it's also possible to change the current value of the command parameter.

Not all the available command parameters in the different command groups are represented in the "Commands View" dialog, such as the commands performing data streaming when they are called, like SN and SG, but most of the relevant and editable commands are represented.

Use the Terminal View for access of special command parameters not supported by the "Commands View".

3.1 Command Overview

In the "Command Overview" list view, all the commands for the available command groups are listed.

The main characteristic and functionality description for each command can be found in this list.

Not all available commands are represented in the "Command Overview" list view, such as the streaming commands SN and SG as mentioned earlier.

By clicking on a command description in the "Command Overview" list view, the command group to which the command belongs will be highlighted in the "Command Group" list view.

All the commands belonging to the highlighted command group will be listed in the "Command Names" list view. The selected command will also be highlighted in the "Command Names" list view.

By double clicking on a command description in the "Command Overview" list view, an online help web page describing the characteristics for the selected command will appear.
Remark: The help option requires internet connection.

Command Overview

Command Group	Command Name	Command	Min Value	Max Value	Type	Access	Protection	Description
Checkweigher	Start Delay	SD	0	65535	Int32	RW	Std	SD - Start Delay
Checkweigher	Measure Time	MT	0	3000	Int32	RW	Std	MT - Measuring Time
Checkweigher	Get Average	GA	0	65535	Single	R	Std	GA - Get Average - returns the current average wei...
Checkweigher	Trigger Edge	TE	0	1	Int32	RW	Std	TE - Trigger Edge ^ selects rising or falling edge trig...
Checkweigher	Trigger	TR	0	0	Boolean	W	Std	TR - Start the measuring cycle in the same way as t...
Checkweigher	Trigger Level	TL	0	999999	Int32	RW	Std	TL - Trigger level
Checkweigher	ReTrig Window	RW	0	65535	Int32	RW	Std	RW - Set the Retrig window
Checkweigher	ReTrigger Time	TT	0	65535	Int32	RW	Std	TT - Set the Re-Trigger time
Checkweigher	Hold Time	HT	0	65535	Int32	RW	Std	HT - Set the hold time
Checkweigher	Tare Window	TW	0	65535	Int32	RW	Std	TW - Set the tare window
Checkweigher	Tare Time	TI	0	65535	Int32	RW	Std	TI - Set the tare time
Checkweigher	Delta Time	DT	0	65535	Int32	RW	Std	DT - Delta time
Checkweigher	ReTrig Stop	TS	0	65535	Int32	RW	Std	TS- Set the retrig stop
Communication	Set Address	AD	0	255	Int32	RW	Std	AD - Read/modify the address (0-255)
Communication	Set Baudrate	BR	9600	460800	Int32	RW	Std	BR - Read/modify the baudrate
Communication	Duplex Mode	DX	0	1	Int32	RW	Std	DX - Select half(0) or full(1) duplex communication
Communication	Transmit Delay	TD	0	255	Int32	RW	Std	TD - Set the transmit time
DigitalIO	Read Input	IN	0	111	String	R	Std	IN - Read the status of the input channels
DigitalIO	Set Output	IO	0	1111	String	RW	Std	IO - Read/Modify the status of the output channels

3.2 Command Groups

By clicking on a command group description in the "Command Groups" list view, the selected command group will be highlighted and all the commands belonging to the highlighted command group will be listed in the "Command Names" list view.
The first command in the selected command group will also be highlighted in the "Command Overview" list view.

Command Groups

Command Group
Calibration
Checkweigher
Communication
Digital IO
EEPROM
Filter
Motion
Setpoints
Standard
Weight
Zeroing

3.3 Command Names

The "Command Names" list view contains all the commands belonging to the currently selected command group.

If a command parameter is readable, the current value of the command parameter will be displayed in the "Current Value" field of the "Command Names" list view.

By selecting the "Reload All" button, all the readable command parameter values will be reloaded from the selected device.

By selecting the command help button or double clicking on a command in the "Command Names" list view, an online help web page describing the characteristics for the selected command will appear. The help option requires internet connection.

If a command parameter is writeable, the "Write" or "Write Value" button is enabled.

If a command parameter is a Boolean writeable but requires no value to be sent with the command parameter, only the "Write" button with no value field will be enabled.

If a command parameter is writeable and requires a parameter value to be written together with the command, the "Value" text field is enabled and having the value of the current command parameter displayed. If the command parameter value in the "Value" text field is modified by user, the "Write Value" and the "Save Value" buttons will be enabled. The modified value can now be written or saved to the device by selecting the "Write Value" or the "Save Value" button as explained below.

Command Name	Command	Current Value
Delta Time	DT	50
Get Average	GA	0.00
Hold Time	HT	0
Measure Time	MT	200
ReTrig Stop	TS	65535
ReTrig Window	RW	65535
ReTrigger Time	TT	0
Start Delay	SD	100
Tare Time	TI	0
Tare Window	TW	0
Trigger	TR	Write Only
Trigger Edge	TE	1
Trigger Level	TL	100

Value: 150

Write Value

Save Value (WP)

Reload All

Help on MT

If it's possible to save a command value to the EEPROM after it's written to the device, the "Save Value" button will be visible with the name of the save command by which the value will be saved to the EEPROM.
Not all command parameters can be saved to the EEPROM. In these cases, the "Save Value" button will not be visible.

By selecting the "Write Value" button, the modified command value, will be written to the device.
A written value will not be saved to the EEPROM before the "Save Value" button is selected.

By selecting the "Save Value" button the written command will be stored in the EEPROM of the device.
All the values belonging to a specific save command will be stored to the EEPROM, when selecting the "Save Value" button.

If changed values are not saved to the EEPROM of the device, the original values stored in the EEPROM will be restored when the device is powered off /on. So, if modified command parameter values are only written but not saved, the modified values are lost when power is removed from the device. This way it's possible to escape from a messy situation where the command parameters status of the device is unclear.

For the writeable command parameters in the calibration group, a "Calibrate Enable" command must be sent to the device before the parameter value of a command can be changed.

By selecting the "Calibrate Enable" button, a calibrate enable command will be sent to the device.

Command Names

Command Name	Command	Current Value
Absolute Value	AV	-127
Calibrate Enable	CE	1
Decimal Position	DP	2
Display Step	DS	1
Factory Cal Value	FV	890420
Factory Default	FD	Write Only
Firmware Type	FT	0
Init Zero	ZI	0
Installation Zero	IZ	Write Only
Lin. Clear	LC	Write Only
Multi Range	MR	0
Nonvolatile Zero	ZN	0
Output Format	OF	0
Save Calibration	CS	Write Only
Set Maximum	CM	999999

Value: 2

Write Value
Save Value (CS)
Calibrate Enable
Reload All
Help on DP

After the "Calibration Enable" command is sent, a given value of a writeable command in the calibration group can be changed and written to the device.

Command Names

Command Name	Command	Current Value
Absolute Value	AV	-128
Calibrate Enable	CE	1
Decimal Position	DP	2
Display Step	DS	1
Factory Cal Value	FV	890420
Factory Default	FD	Write Only
Firmware Type	FT	0
Init Zero	ZI	0
Installation Zero	IZ	Write Only
Lin. Clear	LC	Write Only
Multi Range	MR	0
Nonvolatile Zero	ZN	0
Output Format	OF	0
Save Calibration	CS	Write Only
Set Maximum	CM	999999

Value: 3

Write Value
Save Value (CS)
Reload All
Help on DP

After a command parameter value is written, the "Calibrate Enable" button becomes visible again and must be selected before another command parameter value can be modified.

The changed calibration values can be saved to the EEPROM of the H&B device by selecting the "Save Value (CS)" button. All the changed calibration values will be stored to the EEPROM of the device.

After a calibration value is saved by selecting the "Save Value (CS)" button, the "Calibrate Enable" TAC value is increased by +1.

Select the "Reload All" button to see the changed TAC value. The new TAC value is the value of the CE command.

If the changed calibration values are not saved to the EEPROM, the original values stored in the EEPROM will be restored when the device is powered off /on. So, if the calibration values are only written but not saved, the value of the command is lost when power is removed from the device. This way it's possible to escape from a messy situation where the command parameters status of the device is unclear.

Command Names

Command Name	Command	Current Value
Absolute Value	AV	-128
Calibrate Enable	CE	1
Decimal Position	DP	3
Display Step	DS	1
Factory Cal Value	FV	890420
Factory Default	FD	Write Only
Firmware Type	FT	0
Init Zero	ZI	0
Installation Zero	IZ	Write Only
Lin. Clear	LC	Write Only
Multi Range	MR	0
Nonvolatile Zero	ZN	0
Output Format	OF	0
Save Calibration	CS	Write Only
Set Maximum	CM	999999

Value: 3

Write Value

Save Value (CS)

Calibrate Enable

Reload All

Help on DP

3.4 Dialogs

In the "Commands View" dialog there are several shortcut buttons by which other dialogs can be accessed.

If zero and span calibration is to be performed, or the value of the "Decimal Position", is to be changed, it's recommended that the special dialog "Calibration Dialog" is used.

For changing filter command values, and setting tare, it's recommended that the special dialog "Filter / Tare" is used.

For setting up communication parameters for serial communication devices, the "Communication" dialog can be used.

For reading and writing "raw" parameter values to and from a device, the "Terminal View" dialog can be used.

For viewing, saving, or printing all the command parameter values for the currently selected device, the "Values Log View" dialog can be used.

For detailed information on how to use the different dialogs, refer to the sections covering these issues.
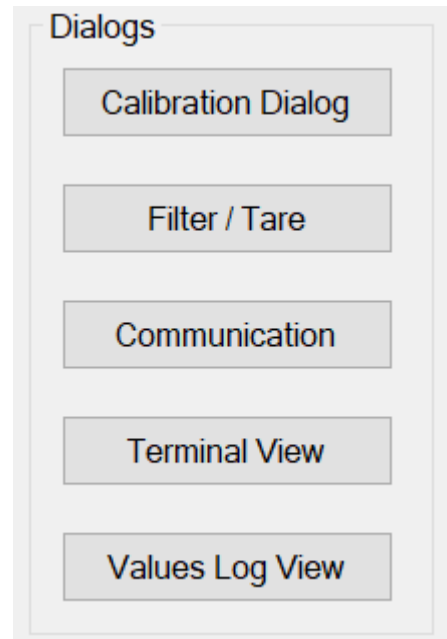
4 Calibration Dialog

The "Calibration Dialog" accessed from the "Commands View" dialog, is covering the most common calibration procedures.

Besides the calibration description in this manual, the "DOP 4 Quick Start Manual" has a "Device Calibration Walkthrough" section which may also be useful.
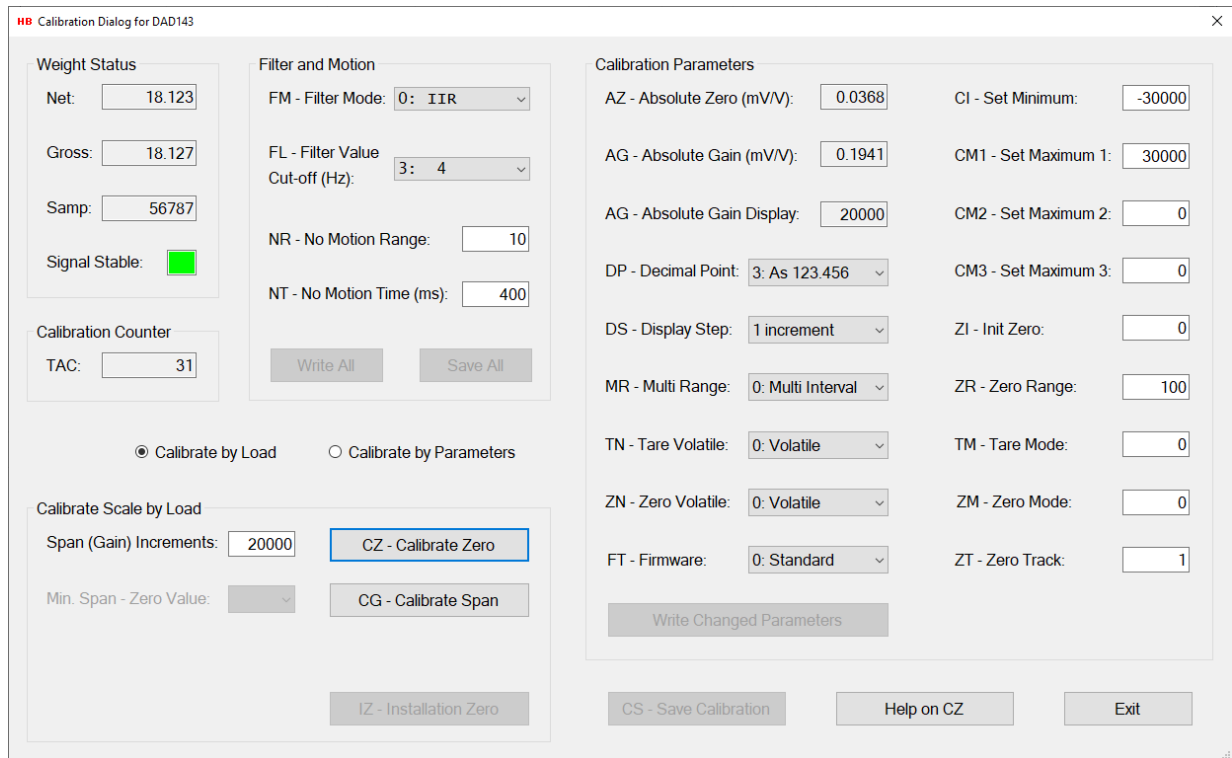

The "Calibration Dialog" consists of several sections covering different aspects of zero / span calibration.

4.1 Weight Status

The "Weight Status" group box keeps an ongoing updated status of different weight command values from the "Weight" commands group, used for confirmation and weight status during the calibration procedure.
A stable signal from the load cell is indicated by a green square and an unstable signal is indicated by a red square. The sensitivity for having a stable signal can be adjusted by the "No Motion" command parameters and the Filter value.
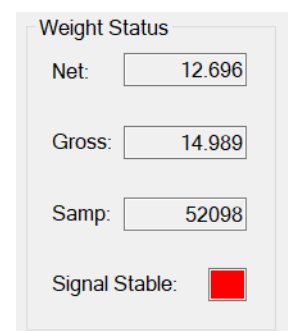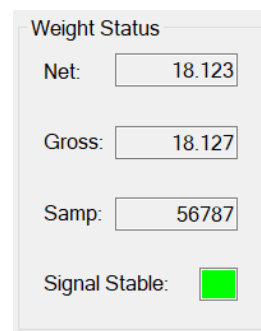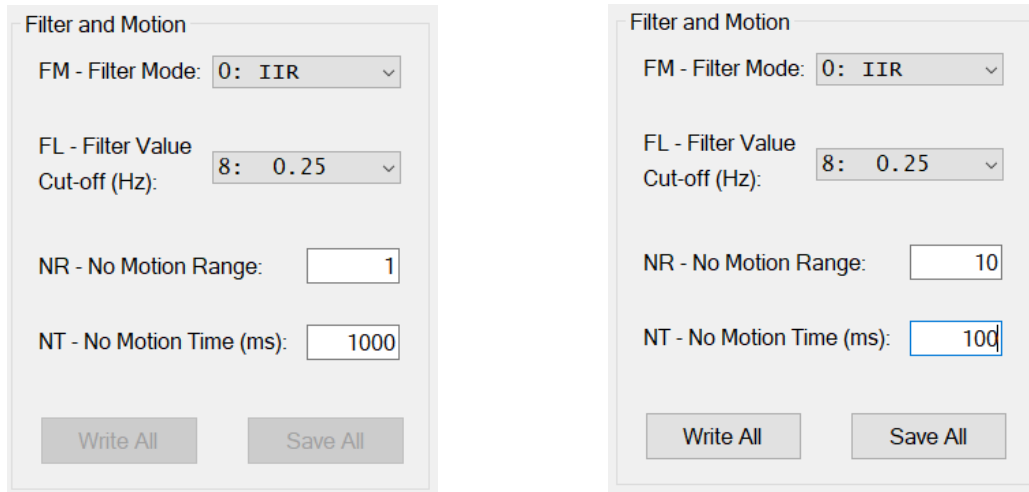

4.2 Calibration Counter

The "Calibration Counter" group box contains the current TAC value. The TAC value is increased by one when calibration command values are saved with the "Save Calibration" command.
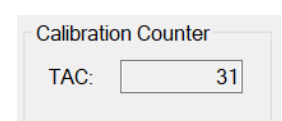
4.3 Filter and Motion

The "Filter and Motion" group box contains some of the command parameter values from the "Filter" commands group and the "Motion" commands group. The represented command parameters are to be used when adjustments to the values of these commands are needed due to calibration problems such as an unstable scale during calibration.

The value of the "No Motion Range" command can be increased to accept a wider range of scale instability (The range of accepted change of increments during the calibration measurement).

The value of the "No Motion Time" command can be decreased having a shorter balance period (The period in which the scale must be stable enough to fulfill the calibration).

The value of the filter level determines the 3 dB cut-off frequency and settling time. A high filter value (e.g., 8) results in a steadier scale weight value and a low one (e.g., 0) gives a more dynamic scale weight value, which can be more difficult to calibrate on.

4.3.1 Write Settings

To use the changed filter and motion settings for further calibration it necessary to write the changed values. By selecting the "Write All" button, the changed filter and motion values are written for further use, but not saved. If the values are only written, but not saved, the value of the settings is lost when power is removed from the device.

4.3.2 Save settings

If the changed filter and motion settings are to be used after device power down/up, it's necessary to save the settings into the EEPROM of the device. By selecting the "Save All" button, the changed filter and motion values are saved into the EEPROM of the device.

4.4 Calibration methods

A calibration can be performed by a weight load on a scale or by entering calibration data manually.

4.4.1 Calibrate by Load method

By default, when entering the Calibration Dialog, the calibration method is set to "Calibrate by Load".

The "Calibrate Scale by Load" group box is enabled and the "AZ – Absolute Zero" and the "AG – Absolute Gain" fields are set to "Read Only" as shown in the figure below.
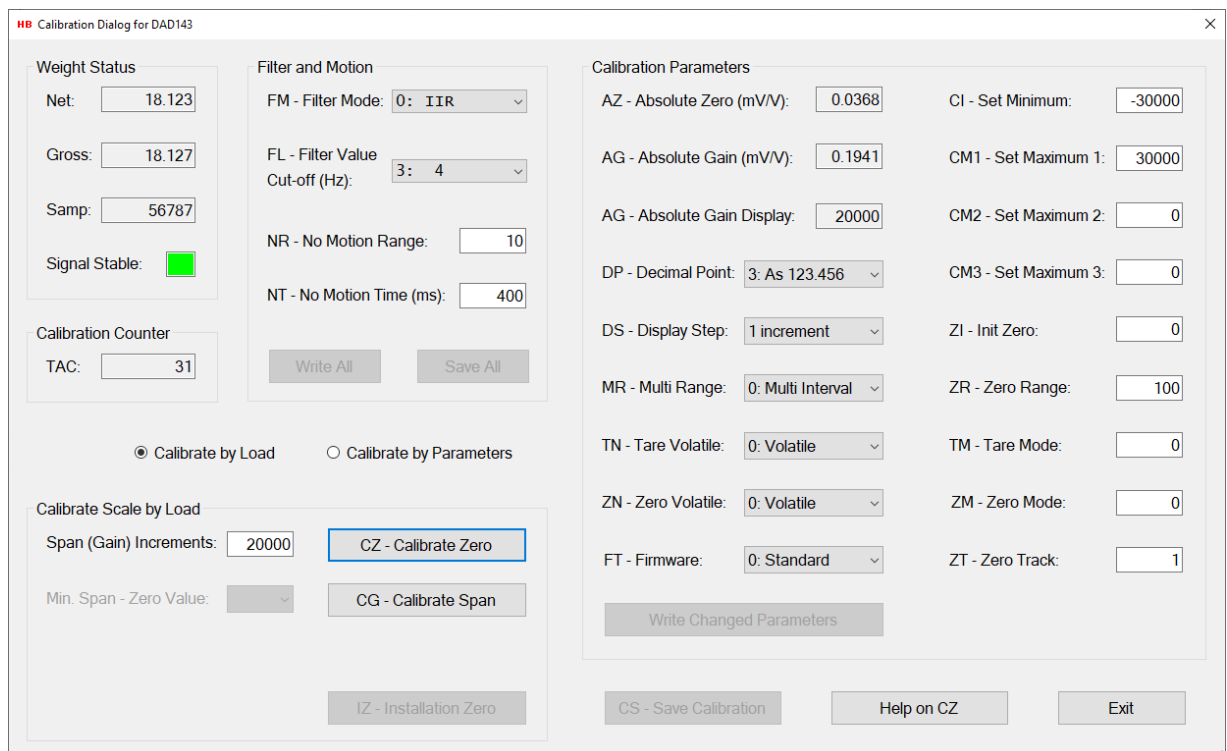
The calibration method "Calibrate by Load" is described in section covering the "Calibration by Weight Load".

4.4.2 Calibrate by Parameters method

When the "Calibrate by Parameters" radio button is selected, calibration values can be entered manually in the "Calibration Parameters" group box.

The "Calibrate Scale by Load" group box is disabled and the "AZ – Absolute Zero" and the "AG – Absolute Gain" fields are now enabled and set to read / Write mode, as shown in the figure below.
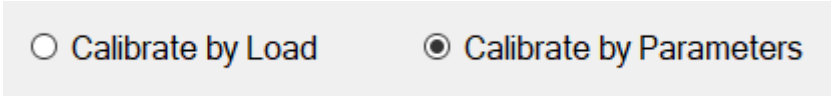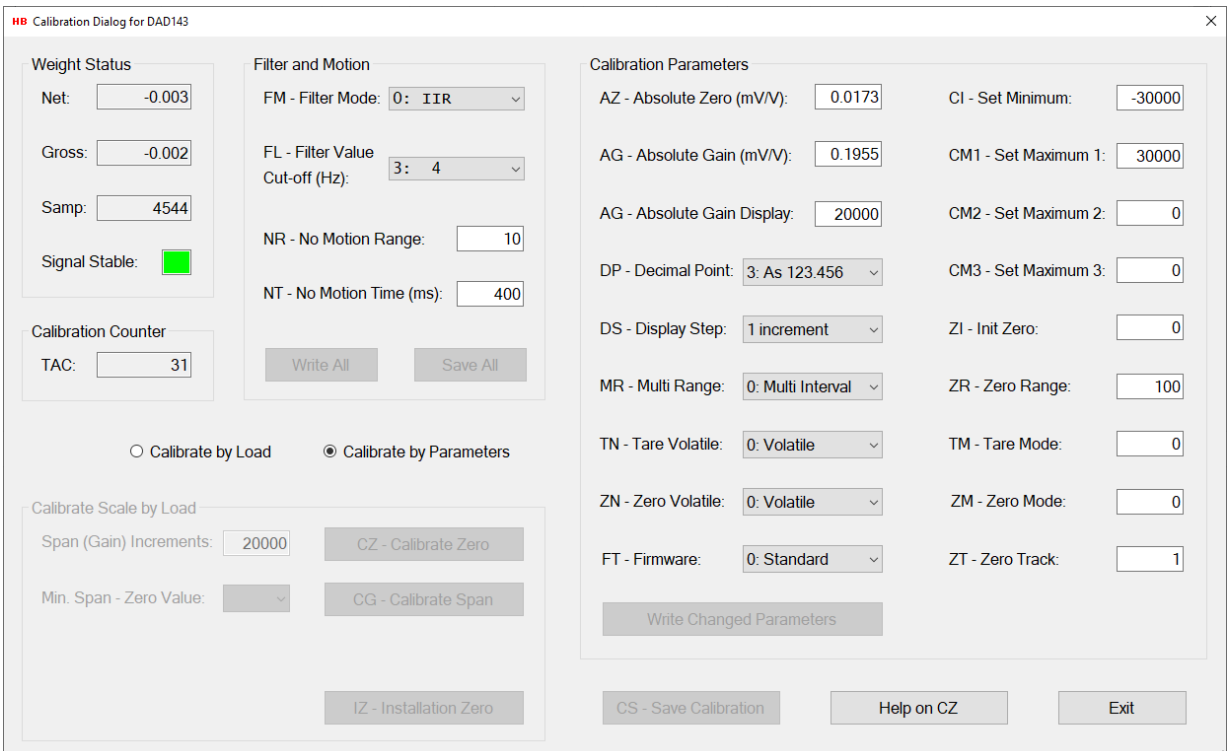
Setting the calibration parameters is described in the section covering the "Calibration Parameters".

4.5 Calibration by Weight Load

The "Calibrate Scale by Load" group box consists of several buttons and command fields to be used during a zero / span calibration session.

IMPORTANT! When doing a calibration on devices having a "seal switch" such as the DAD141 and the LDM64 device, remember to remove the seal switch if one is present.

4.5.1 Zero Calibration

A calibration session starts by a calibration of the zero point.

Before calibrating the zero point, be sure that the scale is unloaded.

When ready for zero calibration, select the "CZ - Calibrate Zero" button. A message reminder about unloading the scale will appear. Confirm the message and the zero-point calibration will start.

When the zero-point calibration is started, the ongoing calibration will be indicated by a yellow message box in the left bottom of the "Calibrate Scale by Load" group box.

If the zero-point calibration succeeded, the successful calibration will be indicated with a green message box in the left bottom of the "Calibrate Scale by Load" group box.

By examine the "Weight Status" group box the zero-point weight values can be studied.

If the zero-point calibration fails, it will be indicated by a red message box in the left bottom of the "Calibrate Scale by Load" group box. A failing zero-point calibration can be caused by a too unstable scale. Try to adjust the parameters of the "Filter and Motion" group box as explained earlier in this section and retry.

4.5.2 Span Calibration

After the zero point has been calibrated successfully the span calibration procedure can be executed.

Before the span calibration is started, the span increments can be adjusted by changing the value of the "Span (Gain) Increments:" field, so the value matches the weight to be loaded when the span calibration is to be executed. The span increments are the weight value without the decimal point.

Also, the minimum percentage, by which the sample value must be increased when the scale is loaded with the span weight, can be adjusted by changing the value of the "Min. Span – Zero Value:" drop down box.
The minimum difference in the sample value between zero load and span load can be calculated by taking the maximum sample value for the device under calibration an calculate the percentage value indicated in the "Min. Span – Zero Value" drop box.

Using the LDU 78.1 as an example, the maximum samples value is 262143. So, when using a 5% calculation, the minimum allowed difference between zero and span is 13103 samples and 5242 when the value is set to 2%
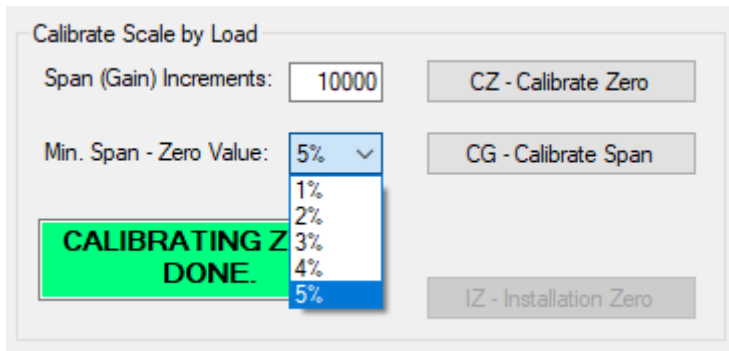
When the different values for the span calibration is set, the span calibration is ready to start.

Be sure to load the scale with the correct weight load.

When ready for span calibration, select the "CG - Calibrate Span" button.

When the span calibration is started, the ongoing calibration will be indicated by a yellow message box in the left bottom of the "Calibrate Scale by Load" group box.

If the span calibration succeeded, the successful calibration will be indicated with a green message box in the left bottom of the "Calibrate Scale by Load" group box.

By examine the "Weight Status" group box the span weight values can be studied.

If the span calibration fails, it will be indicated by a red message box in the left bottom of the "Calibrate Scale by Load" group box.
A failing span calibration can be caused by a too unstable scale. Try to adjust the parameters of the "Filter and Motion" group box as explained earlier in this section and retry.

4.6 Calibration Parameters

From the "Calibration Parameters" group box, the values of various calibration command parameters can be examined and changed.

The Calibration dialog is general for all types of H&B devices, so not all the calibration parameters are valid for all devices. Calibration parameters not valid for a given device will be disabled.

When changing one of the calibration parameters, the "Write Changed Parameters" button becomes enabled and by selecting the button the values of the changed parameters will be written to the device.
The values will not be saved to the EEPROM, so if the changed calibration parameters are to be used after device power off / on, it's necessary to save the settings into the EEPROM of the device by selecting the "CS - Save Calibration" button.

Calibration Parameters		
AZ - Absolute Zero (mV/V):	0.0173	CI - Set Minimum: -30000
AG - Absolute Gain (mV/V):	0.1955	CM1 - Set Maximum 1: 30000
AG - Absolute Gain Display:	20000	CM2 - Set Maximum 2: 0
DP - Decimal Point:	3: As 123.456	CM3 - Set Maximum 3: 0
DS - Display Step:	1 increment	ZI - Init Zero: 0
MR - Multi Range:	0: Multi Interval	ZR - Zero Range: 100
TN - Tare Volatile:	0: Volatile	TM - Tare Mode: 0
ZN - Zero Volatile:	0: Volatile	ZM - Zero Mode: 0
FT - Firmware:	0: Standard	ZT - Zero Track: 1
Write Changed Parameters		

4.6.1 Set Linearization Points for the LDU69 and the LDB15x device

If the connected device is a LDU69 or a LDB15x device, the button "Set Linearization Points" is visible in the "Calibration Parameters" group box.

By selecting the "Set Linearization Points" button the "Set Linearization Points" dialog will be opened.

From this dialog it's possible to inspect and correct more than the two normal calibration points set by the CZ and CG commands.

To add a new linearization point, select the next free fields with the dashes on it and enter the new values. Select the "Write All" button and a new set of points can be entered and so on.

By selecting the "Clear Lin. Points" button, the linearization points setting can be set back to the default setup.

Remember to save the settings in the main calibration dialog.

Write Changed Parameters	Set Linearization Points

HB Set Linearization Points — □ ×

	mV / V	Display
LN1 - Linearization point 1:	0.01912	0
LN2 - Linearization point 2:	4.65017	500000
LN3 - Linearization point 3:	---------	---------
LN4 - Linearization point 4:		
LN5 - Linearization point 5:		
LN6 - Linearization point 6:		
LN7 - Linearization point 7:		

Write All	Help
Clear Lin. Points	Exit

Save settings using 'CS - Save Calibration' button.

4.6.2 Set Firmware Types for DAD14x, LDB15x and LDM64

If the connected device is a DAD14x, LDB15x or a LDM64 device, the field "FT – Firmware Type" is visible in the "Calibration Parameters" group box.

By changing the value of this field, it's possible to change the current firmware type of the device.

For the DAD141 / DAD142 device, the available firmware types are: Standard (Checkweigher), Filling, Drop Filling and Mass flow firmware types.

For the LDM64 / LDB151 / LDB 152 / DAD143 device, the available firmware types are Standard (Checkweigher) and Filling firmware types.

When changing the firmware type value, the device must be removed from the channel list in the "Device Selector" dialog and reinserted after the value is stored in the Calibration dialog. The value should only be changed when the Calibration dialog is opened from "Commands View" via the "Device Selector" dialog.

Also, the device itself should be turned off and on after the change of firmware type.

4.6.3 Save Calibration

If the changed calibration parameters are to be used after device power off / on, it's necessary to save the settings into the EEPROM of the device. By selecting the "CS - Save Calibration" button, the changed calibration parameters are saved into the EEPROM of the device.
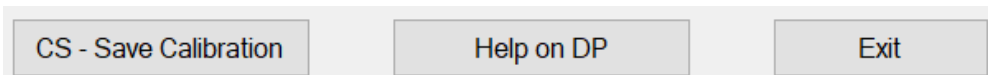
The internal TAC value of the device will be increased by one.
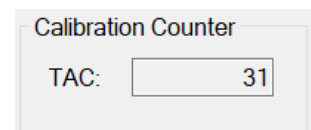
4.7 Help on Calibrate Command Parameters

If the user is connected to the internet, help on the different command parameters of the Calibration dialog can be obtained by selecting the "Help on (Command)" button.
On the "Calibrate Zero" or the "Calibrate Gain" help web page, the "Calibration Procedure" link can be selected for more information and hints for the calibration procedure.

On the "Filter Value" help web page, the "General filter description" link can be selected for more information on the different values of filter setting commands.

5 Filter / Tare

The "Filter / Tare" dialog is a combined dialog for setting command parameter values belonging to the Filter and motion groups and to set and reset the current tare and zero values.

The "Filter / Tare" dialog can be accessed from the "Commands View" dialog.
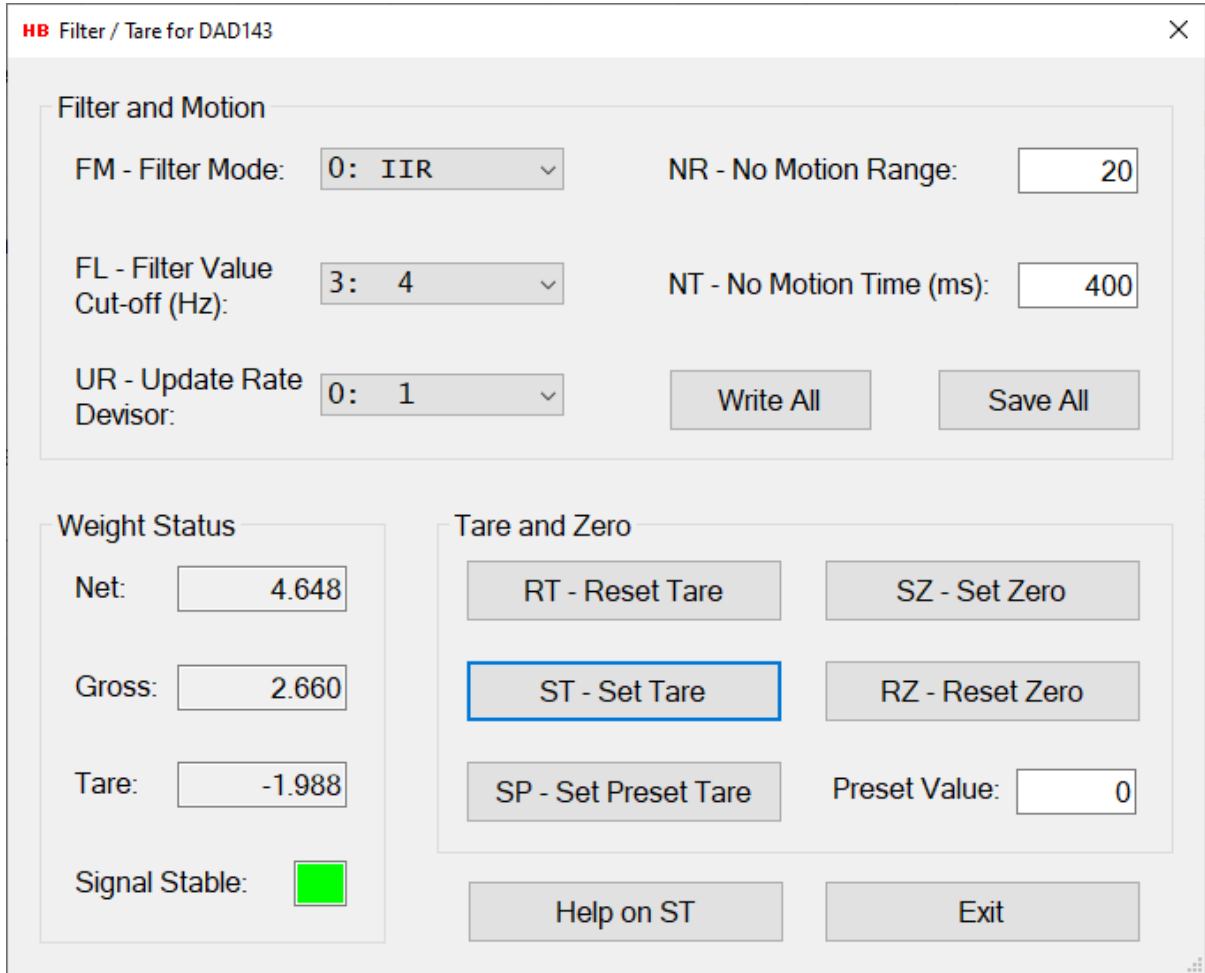
By examine the "Weight Status" group box the changes in the net and gross weight values reflected by the changes of tare settings can be studied.
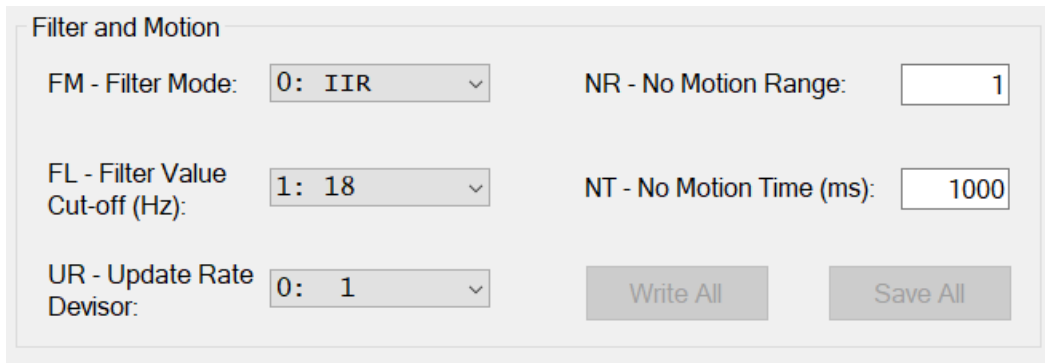
The Tare settings cannot be saved to the EEPROM. So, the tare settings will disappear after device power down/up.

The Set Preset Value will be stored directly to the EEPROM of the device.

5.1 Filter and Motion

The "Filter and Motion" group box contains the command values from the "Filter" commands group and the "Motion" commands group for easy setup of these parameters.
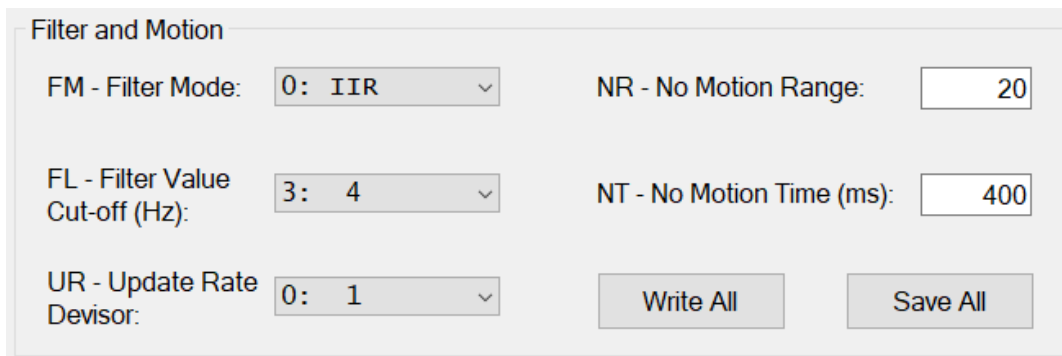
The "Filter and Motion" group box is also meant to be a help when setting tare in an unstable scale environment.

The value of the "No Motion Range" command can be increased to accept a wider range of motion increments when setting tare.

The value of the "No Motion Time" command can be decreased having a shorter balance period (The period in which the scale must be stable enough to fulfill the tarring scale max motion demands).

The value of the filter level determines the cut-off frequency and settling time. A high filter value (e.g., 8) results in a steadier scale weight value and a low one (e.g., 0) gives a more dynamic scale weight value, which can be more difficult to do tarring on.

5.1.1 Write Settings

By selecting the "Write All" button, the changed filter and motion values are written for further use, but not saved. If the values are only written, but not saved, the value of the settings is lost when power is removed from the device.

5.1.2 Save settings

If the changed filter and motion settings are to be used after device power down/up, it's necessary to save the settings into the EEPROM of the device. By selecting the "Save All" button, the changed filter and motion values are saved into the EEPROM of the device.

5.2 Weight Status

The "Weight Status" group box keeps an ongoing updated status of different weight command values from the "Weight" commands group, used for confirmation and weight status during the tarring procedure.

A stable signal from the load cell is indicated by a green square and an unstable signal is indicated by a red square. The sensitivity for having a stable signal can be adjusted by the "No Motion" parameters.
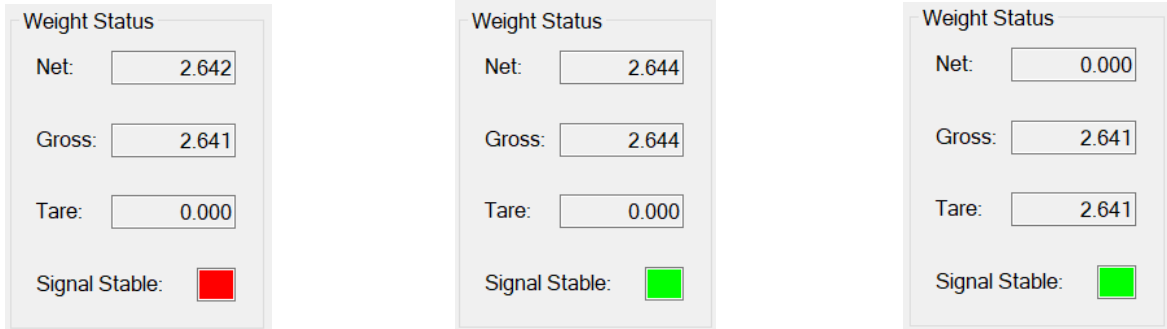
5.3 Tare Settings

By selecting the buttons "RT – Reset Tare" or "ST – Set Tare" the tare for the scale can be reset or set.
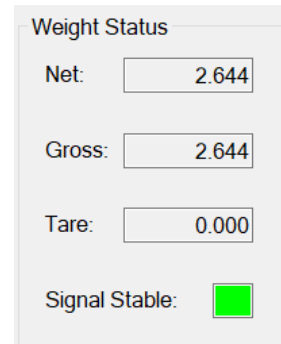
5.3.1 Reset Tare

When selecting the "RT- Reset Tare" button, the weighing signal returns to gross mode. So, after tare reset, both the net and gross weight will have the same values.

By examine the "Weight Status" group box the user will see that the net and gross values are equal, and the tare value is zero.

A stable signal from the load cell is indicated by a green square and an unstable signal is indicated by a red square. The sensitivity for having a stable signal can be adjusted by the "No Motion" parameters.

5.3.2 Set Tare

When ready for setting the tare, select the "ST - Set Tare" button.

If the tare setting succeeded, the tare setting will be reflected by the weight values in the "Weight Status" group box.

If the tare setting failed, a message box will appear saying that the tare setting went wrong. The unsuccessful setting can be caused by a too unstable scale. Try to adjust the parameters of the "Filter and Motion" check box as explained earlier in this section and retry.
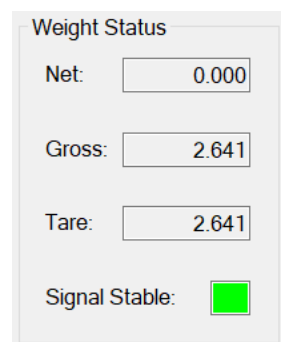
5.4 Zero Settings

By selecting the buttons "RZ – Reset Zero" or "SZ – Set Zero" the zero point for the scale can be reset or set.

5.4.1 Reset Zero

When selecting the "RZ- Reset Zero" button, the weighing signal returns to gross mode. So, after zero reset, both the net and gross weight will have the same values.

By examine the "Weight Status" group box the user will see that the net and gross values are equal and the zero value is zero.

A stable signal from the load cell is indicated by a green square and an unstable signal is indicated by a red square. The sensitivity for having a stable signal can be adjusted by the "No Motion" parameters.
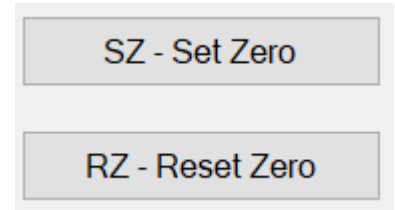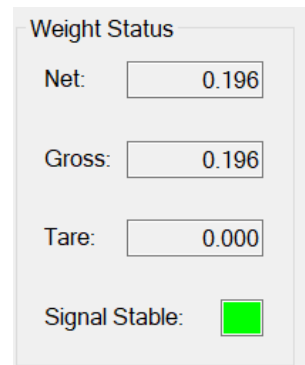
5.4.2 Set Zero

When ready for setting the zero point, select the "SZ - Set Zero" button.

If the zero-point setting succeeded, the zero-point setting will be reflected by the weight values in the "Weight Status" group box.

If the zero-point setting failed, a message box will appear saying that the zero-point setting went wrong. The unsuccessful setting can be caused by a too unstable scale. Try to adjust the parameters of the "Filter and Motion" check box as explained earlier in this section and retry.
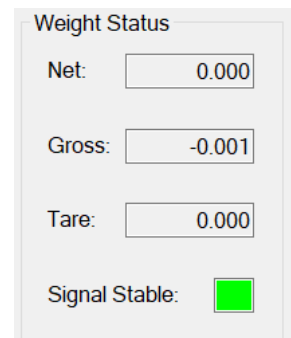
5.5 Help on (Command)

If the user is connected to the internet, selecting the help button "Help on (Command)" will give access to help on the currently highlighted command button or command text field. On the "Filter Value" help web page, the "General filter description" link can be selected for more information on the different values of filter setting commands.

6 Communication

The "Communication" button opens different communication setup dialogs for devices connected through a serial interface, depending on the currently selected device.

The "Communication Setup" dialog for setting up communication parameters for the device will be opened by selection of the button.

The "Communication" dialog can be accessed from the "Commands View" dialog.

6.1 Communication Setup Dialog

From the "Communication Setup" dialog, communication command parameters can be changed for the selected device which must be a device connected through a serial interface.

6.1.1 General Parameters

In the "General Parameters" group box, the "Communication" list view contains the communication command parameters valid for the currently selected device.
The number of command parameters can vary depending on the currently selected device.
By selecting on of parameters for editing, the parameter and its current value will be reflected in the "Edit Parameter Value" group box.
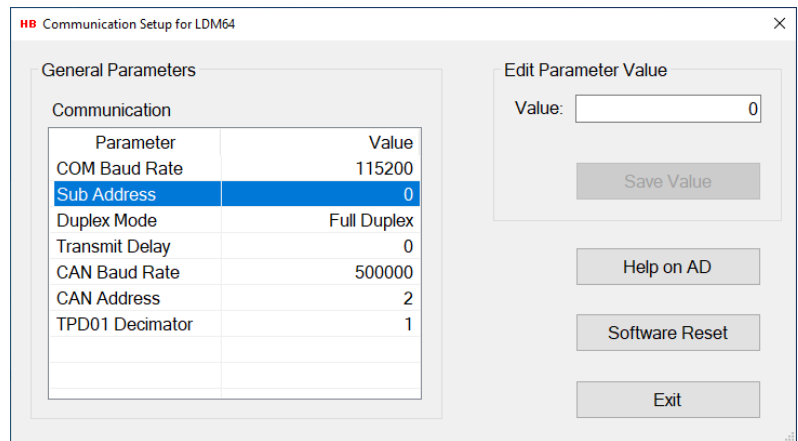
6.1.2 Edit Parameter Value

In the "Edit Parameter Value" group box the value of the selected communication parameter can be changed. Select the "Save Value" button to save the changed parameter value to EEPROM.

6.1.3 Software Reset

Selecting the "Software Reset" button resets the device and returns to the caller of the Commands View dialog. The device may have to be reconnected after the reset.

6.1.4 Help on (Command)

If the user is connected to the internet, selecting the help button "Help on (Command)" will give access to the help page for the currently highlighted communication parameter.

6.2 ASCII to Modbus RTU Interface change

From the "Communication Setup" dialog it is possible to change from ASCII interface to Modbus RTU interface if these interfaces are supported by the device.

The figures below show how to change an ASCII interface to Modbus RTU interface.
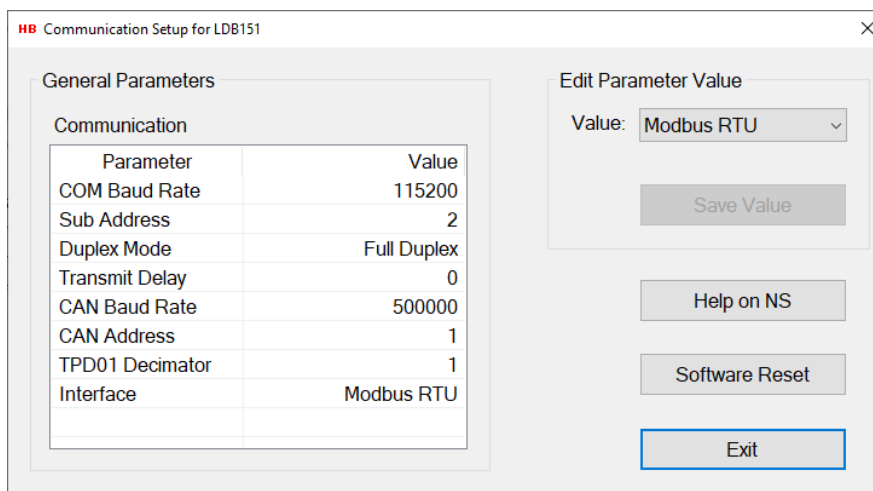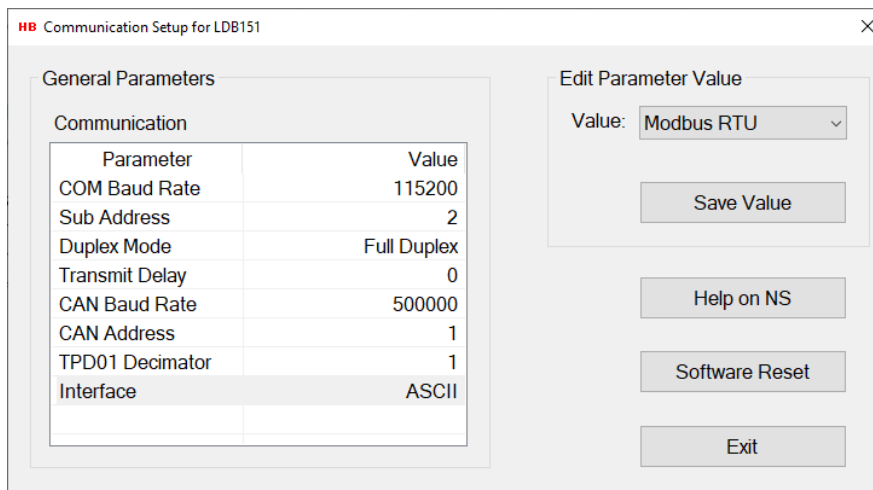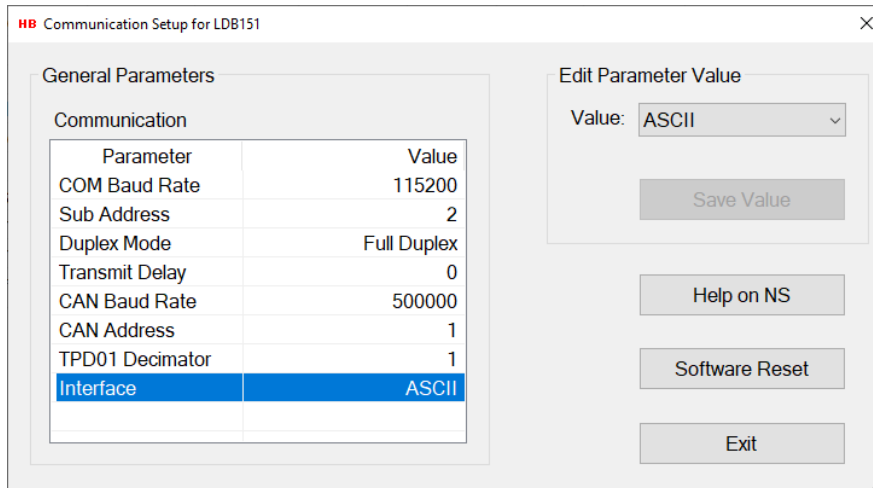
6.3 Modbus RTU to ASCII Interface change

If Modbus RTU interface is selected and the device has repowered, the text of the communication button will be changed from "Communication" to "ASCII Interface" as shown in the figure below.
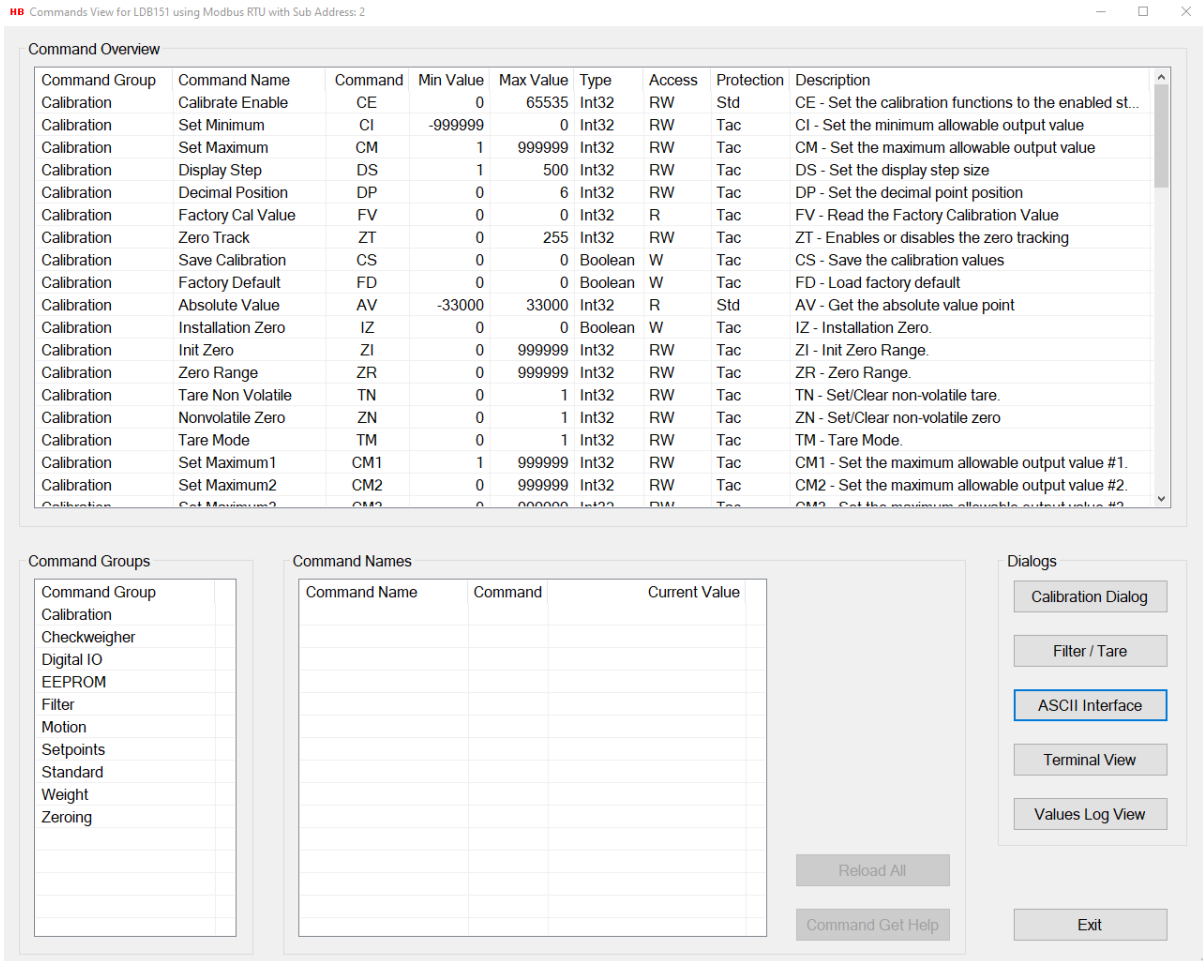
Selecting the "ASCII Interface" button will change the current Modbus RTU interface to ASCII interface.

The following message will be displayed:
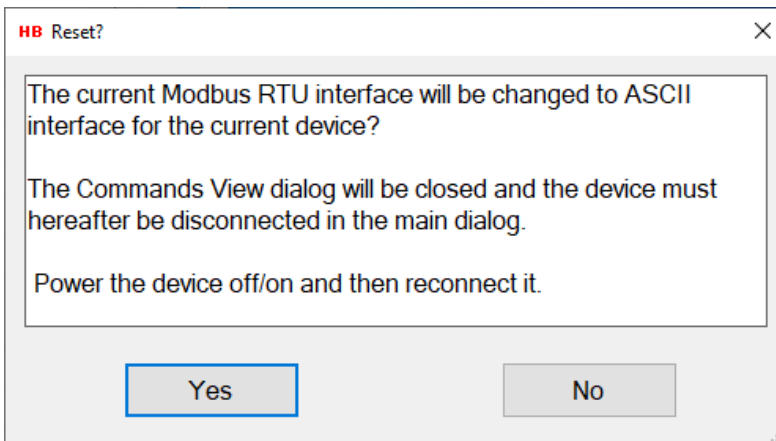
7 The Terminal View

The "Terminal View" dialog is a dialog tool for sending raw parameter commands to the device and to examine the received command responses.

The "Terminal View" dialog comes in 2 versions, one version for devices using Serial COM having an ASCII interface as communication interface and one version for devices using Serial COM having using Modbus RTU as communication interface.

The "Terminal View" dialog can be accessed from the "Commands View" dialog.

7.1 Terminal View dialog, the ASCII version

The "Terminal View" dialog for serial COM devices having an ASCII interface consists of a "Command Request" group box containing the tools for sending command parameter requests, and a "Command Response" group box containing the tools for displaying the command responses in the "Command Response" text box.
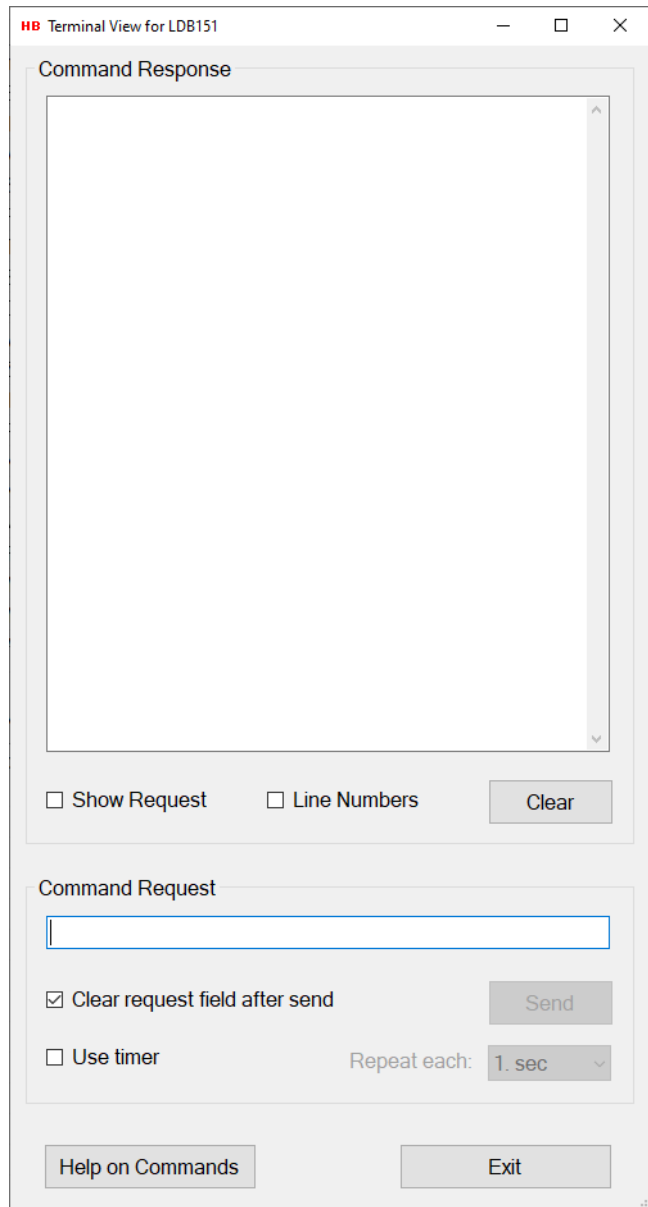
7.1.1 Command request

By typing a command name in the "Command Request" text field with or without a parameter value and selecting the "Send" button, the entered command string will be sent to the H&B device as an ASCII string.
The response if any will be displayed in the "Command Response" text box.

See the help section on how to get a list of valid serial COM command names, if connected to the internet.

There is no check for the validity of the entered command. The entered ASCII string will be sent to the device as is.

A command sent without a parameter value will normally, by the device, be interpreted as a value read request for that command.

A command sent with a parameter value will normally, by the device, be interpreted as a write value request for that command.

By checking the "Clear request field after send" check box, the content of the command line in the "Command Request" text field will be cleared after the command is sent.

By checking the "Use timer" check box, the current command in the "Command Request" text field will be sent repeatedly with a repeat time as specified by the timer value in the "Repeat each" drop down box. It's not possible to check the "Use timer" check box, if the "Clear request field after send" check box is checked.

By selecting the "Send" button, with the "Use timer" check box checked, the repeated send of the current command in the "Command Request" text box will be started.
The text of the "Send" button will be changed to "Stop" and selecting this button will stop the repeated send of the current command in the "Command Request" text box.

You can still while the timer is running change the repeat time by which the current command will be sent.
By selecting the "Stop" button or removing the check from the "Use Timer" check box, the timer will be stopped.

7.1.2 Command response

In the "Command Response" text box, all the input ASCII strings received from the current H&B device will be displayed as received without any filtering.

If the "Show Request" check box is checked, the ASCII string entered in the "Command Request" text field will be displayed in the "Command Response" text box when sent.

If the "Line Numbers" check box is checked, line numbers will be added in front of the displayed text strings.

Selecting the "Clear" button will clear the "Command Response" text box.

```
Command Response

0001: Request: MT
0002: M+00000
0003: Request: MT 150
0004: OK
0005: Request: MT
0006: M+00150
0007: Request: ID
0008: D:1510

☑ Show Request     ☑ Line Numbers     [ Clear ]
```
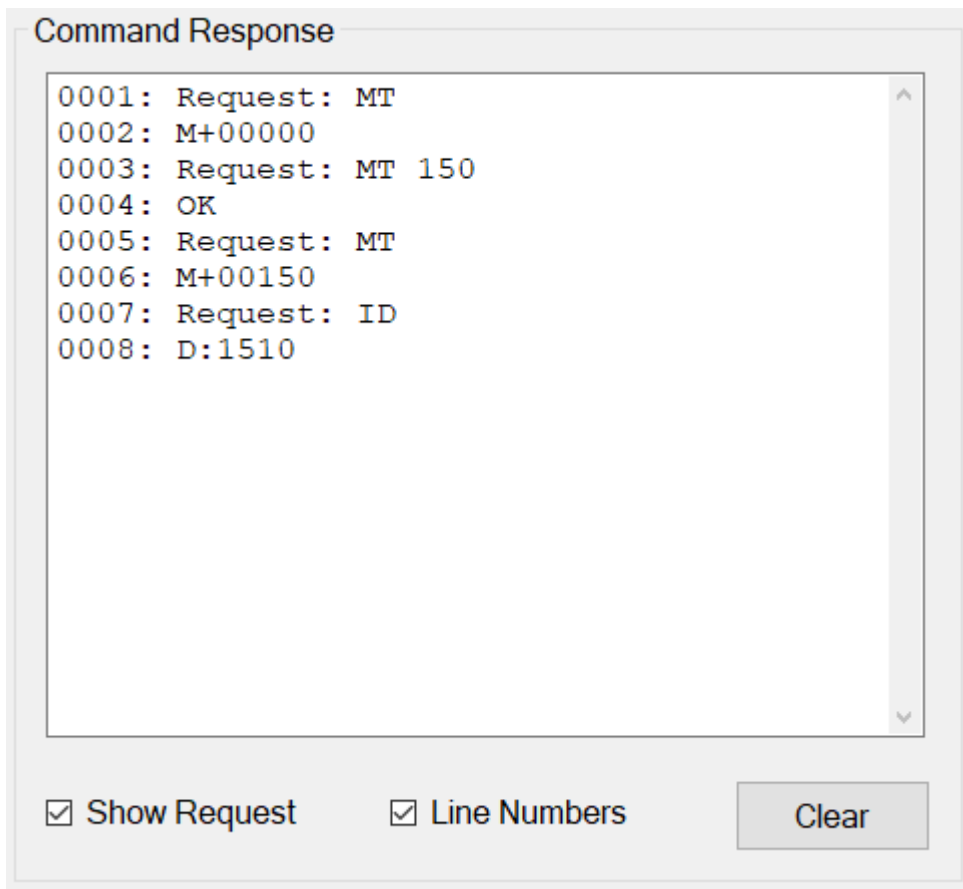
7.1.3 Help

If the user is connected to the internet, selecting the help button "Help" will give access to a list of common commands which can be used in the "Command Request" text field.

7.2 Terminal View dialog, the Modbus version

The "Terminal View" dialog for Modbus interface devices consists of a "Command Request" group box containing the tools for sending command parameter requests, and a "Command Response" group box containing the tools for displaying the command responses in the "Command Response" text box.
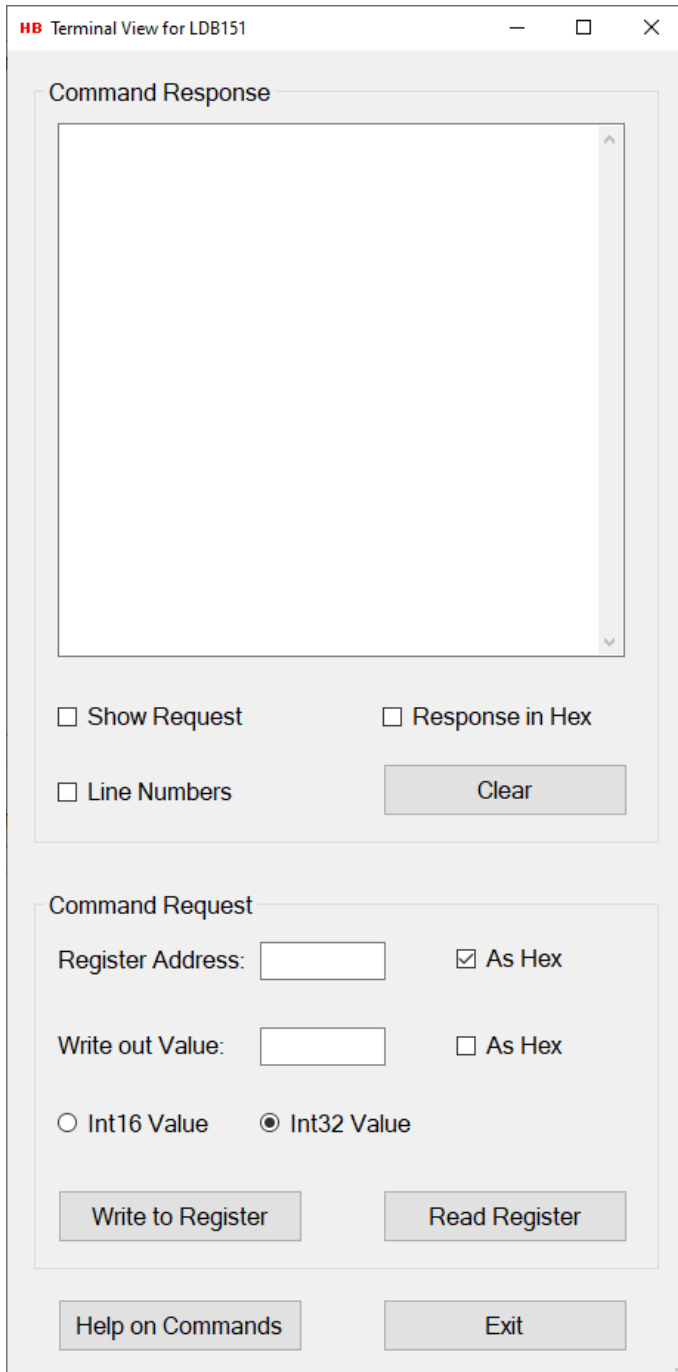
If the user is connected to the internet, selecting the help button "Help on Commands" will give access to a list of valid Modbus indexes.

7.2.1 Command request

In the "Register Address" field a register address for reading or writing is entered. If the "As Hex" checkbox to the right of the "Register Address" field is checked, the field value will be interpreted as a hexadecimal value.

In the "Write out Value" a value to be written to the specified register address is entered. If the "As Hex" checkbox to the right of the "Write out Value" field is checked, the field value will be interpreted as a hexadecimal value.

Command Request

| Register Address: | 2412 | ☑ As Hex |
| Write out Value: | 200 | ☐ As Hex |

○ Int16 Value   ● Int32 Value

[Write to Register]   [Read Register]

With the radio buttons "Int 16 Value" and "Int 32 Value" the value length of the specified register address is defined as either a 16 bit or 32 bit integer value.
Selecting the "Help on Commands" button, the shown Modbus indexes will show the length of the register values.

Selecting the "Write to Register" button will write the value of the "Write out Value" field to the defined register address.

Selecting the "Read Register" button will read the value from the defined register address and show the value in the "Command Response" text box.

The response if any will be displayed in the "Command Response" text box.

7.2.2 Command response

In the "Command Response" text box, all the input and output parameter values for a given command received from the current device will be displayed as read or write results.

If the "Show Request" check box is checked, the read or write request for the value of a register address is displayed in the "Command Response" text box.

If the "Line Numbers" check box is checked, line numbers will be added in front of the displayed text strings.

By checking the "Response in Hex" check box, the different parameter values will be displayed as hex values.

Selecting the "Clear" button will clear the "Command Response" text box.

Command Response

```
0001: Read request: 2412
0002: Read result: 100
0003: Write request: 2412, 200
0004: OK writing to: 2412
0005: Read request: 2412
0006: Read result: 200
```

☑ Show Request   ☐ Response in Hex

☑ Line Numbers   [Clear]

8 Values Log View

The "Values Log View" dialog is a dialog tool for saving and printing the values of all the valid command parameters for the currently selected device.

The "Values Log View" dialog can be accessed from the "Commands View" dialog.
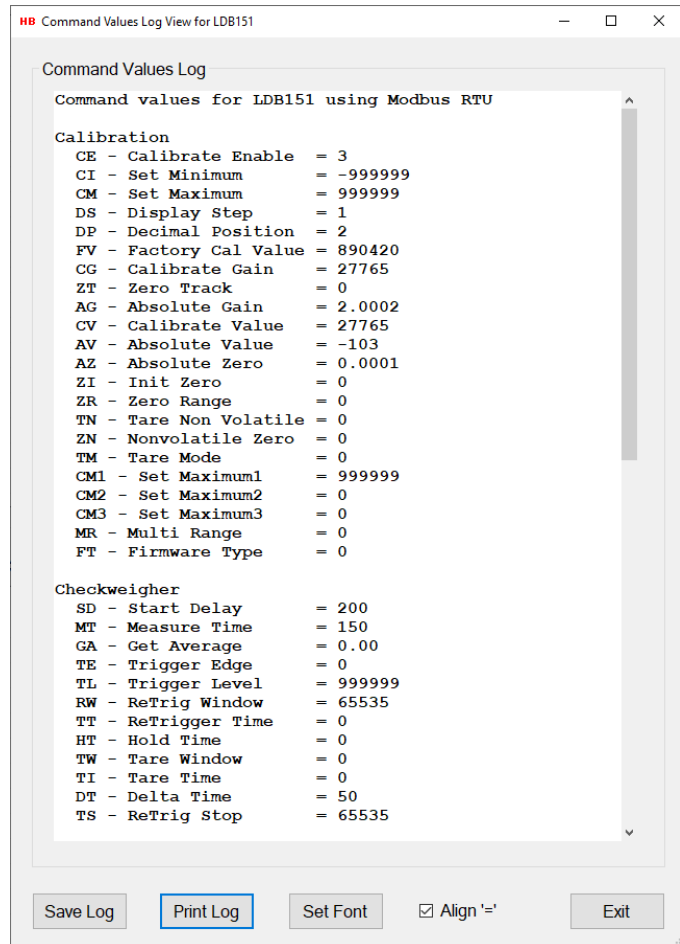
8.1.1 Save Log

By selecting the "Save Log" button, the content of the "Command Values Log" text field can be saved to a disk file either as a plain text file or as a formatted RTF text file to be viewed as a Word document.

8.1.2 Print Log

Selecting the "Print Log" button, the content of the "Command Values Log" text field can be send to a connected printer by selection.

8.1.3 Set Font

Selecting the "Set Font" button, the font and the size of the "Command Values Log" text field content can be adjusted.

8.1.4 Align '='

By checking the "Align '='" field the content of the "Command Values Log" text field can be adjusted so all of the '=' signs are aligned together.

9 Matrix Calibration

The "Matrix Calibration" dialog is a dialog tool for the calibration the 4 currently selected devices acting as if only one device was connected. The matrix calibration is using a special algorithm which can calibrate 4 load cells as one by moving a calibration weight 4 times around on the surface of a 4 cells scale as illustrated below:
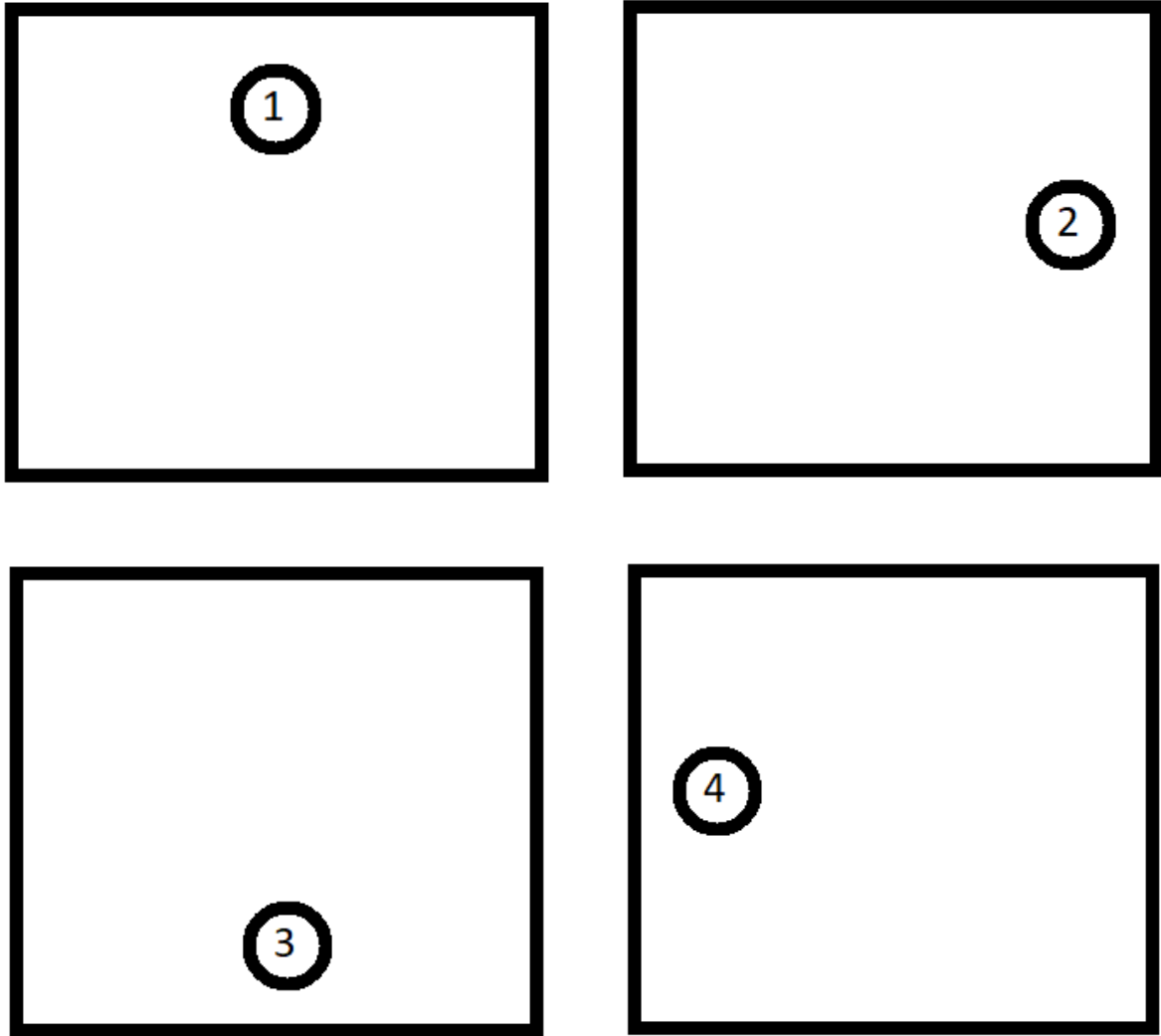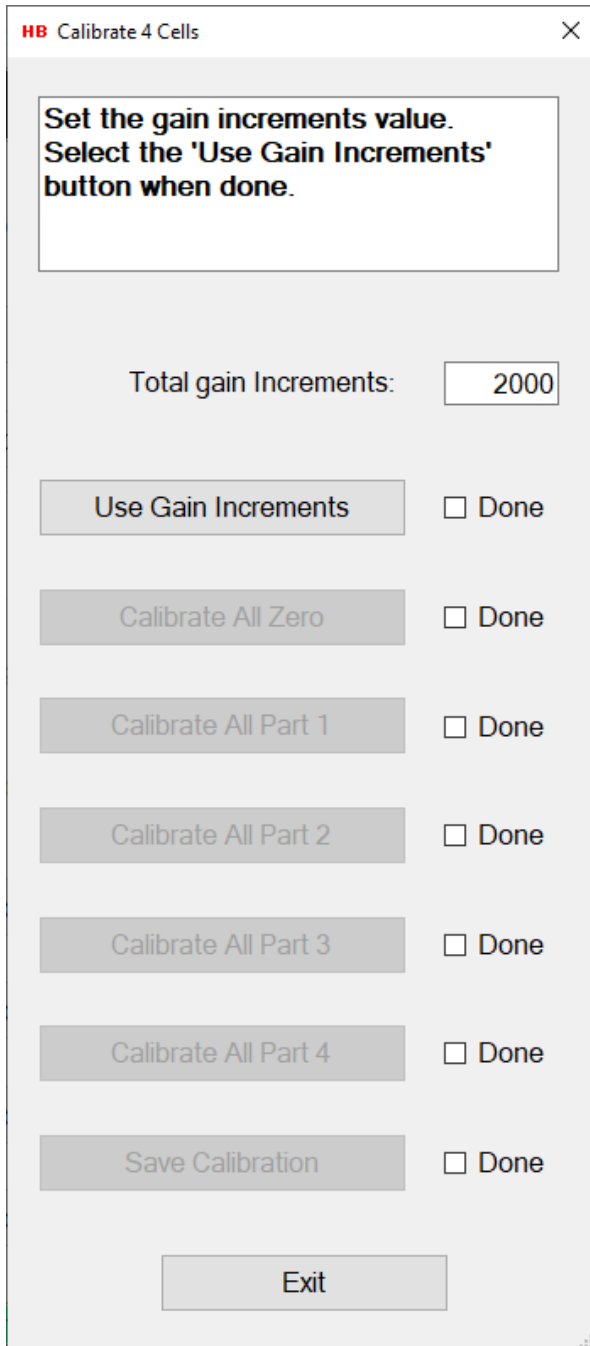
The "Matrix Calibration" dialog can only be accessed if 4 load cells are connected in the "One Port Viewer" application and is opened by selecting the "Matrix Calibration" button.
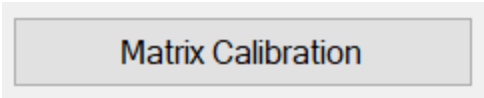
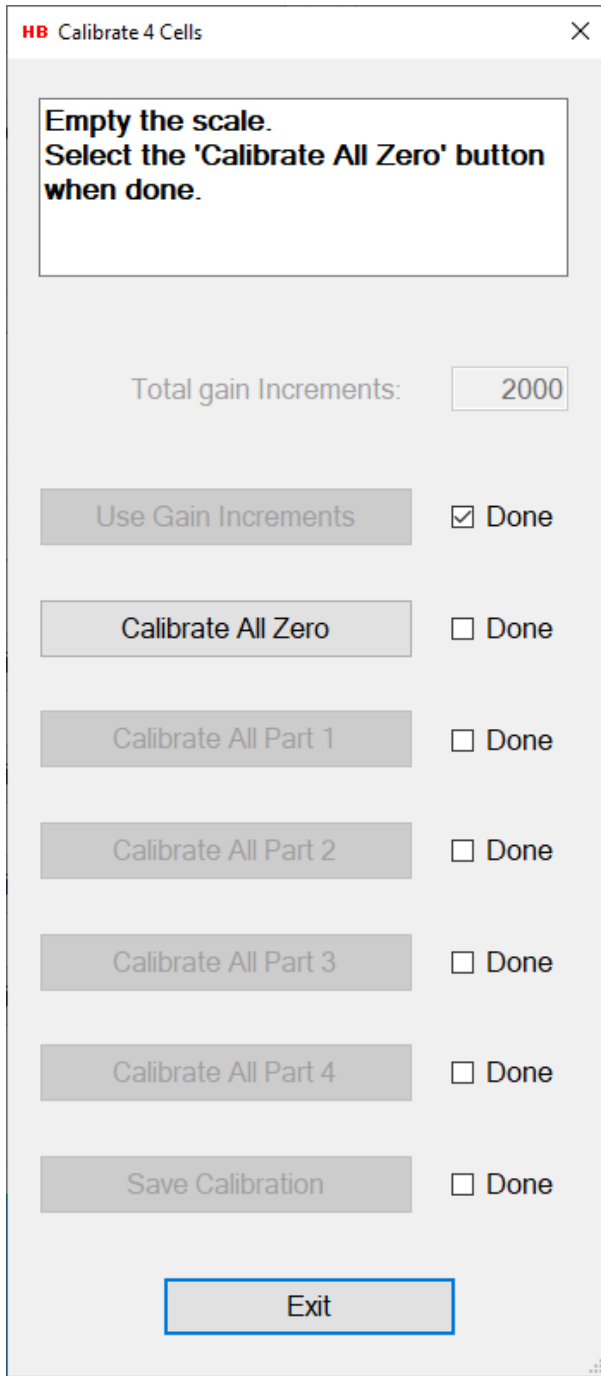When the "Matrix Dialog" is opened, the calibration is done by follow the menu directions step by step.

First thing to define is the value of the total gain increments for the 4 load cells together. The value is defined without a decimal point.

When the increments are entered in the "Total gain increments" field, select the "Use Gain Increments" button to confirm.

HB Calibrate 4 Cells   ✕

Set the gain increments value.
Select the 'Use Gain Increments'
button when done.

Total gain Increments: 2000

Use Gain Increments	☐ Done
Calibrate All Zero	☐ Done
Calibrate All Part 1	☐ Done
Calibrate All Part 2	☐ Done
Calibrate All Part 3	☐ Done
Calibrate All Part 4	☐ Done
Save Calibration	☐ Done

Exit

The "Done" field will be checked and the "Calibrate All Zero" button will be enabled.

Clear the scale for all weight loads and select the "Calibrate All Zero" button.

HB Calibrate 4 Cells

Empty the scale.
Select the 'Calibrate All Zero' button when done.

Total gain Increments: 2000

Use Gain Increments ☑ Done

Calibrate All Zero ☐ Done

Calibrate All Part 1 ☐ Done

Calibrate All Part 2 ☐ Done

Calibrate All Part 3 ☐ Done

Calibrate All Part 4 ☐ Done

Save Calibration ☐ Done

Exit

All of the 4 load cells will now be zero calibrated.

The "Done" field will be checked and the "Calibrate All Part 1" button will be enabled.

For the next 4 step follow the instructions as described in the instruction field.

Use a weight load which corresponds to the defined total gain increments.
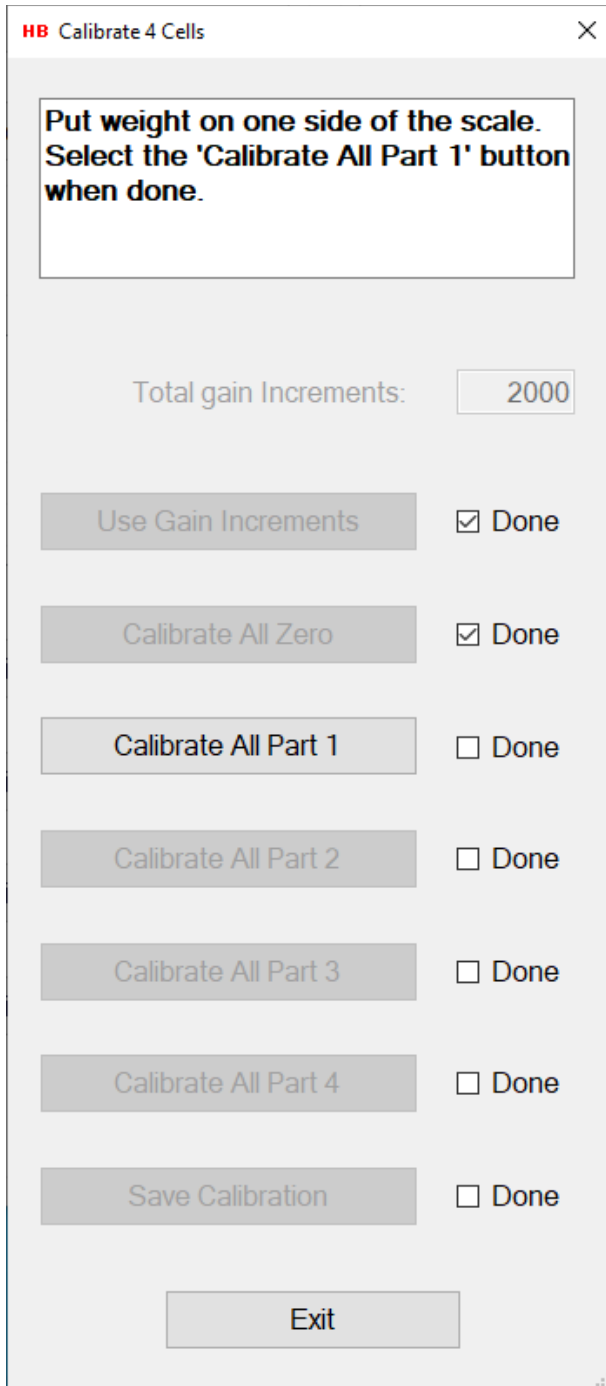
When all of the 4 calibration steps are completed, select the "Save Calibration" button and then the "Exit" button to leave the dialog.

You can also just select the "Exit" button if you for some reason don't want to save the calibration.