2025

X - Link Ready Option Plus

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Option Plus

This option allows any devices with RS232C or USB CDC interface and an ASCII protocol to be operated with the advantages of the basic version X - Link Ready.

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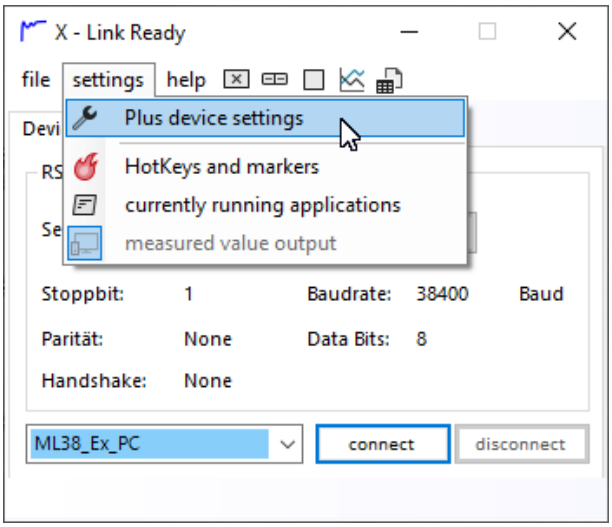
X - Link Ready Option Plus

The software add-on “Plus” allows the transfer of measured values from any device with a serial interface, which are output in ASCII, by filtering the character string sent by the device, replacing characters and splitting measured values. It includes a serial port monitor and tools to extract the measured values.

These rules are then saved and can be used with a device name in the basic programme in the list of devices to be connected. Different “Plus” devices can be operated with the defined rules. If a device only sends measured values via a command, this is entered, and one can also be declared for zeroing / taring / resetting the peak value and, if necessary, login / logout.

An internal timer queries measured values between a selectable approx. 5Hz - 100Hz after a defined login.



If the software add-on is activated, the window for setting the ‘Plus’ devices can be opened via the ‘Device settings’ menu. A maximum of 20 ‘Plus’ devices can be entered in one device file. Once ‘Plus’ devices have been entered, they are entered in the ComboBox in the main window and are available after starting X - Link Ready with the Plus option.

The restriction of 20 ‘Plus’ devices only applies to one device file, but any number of device lists can be loaded / saved. With the option of exporting / importing individual defined ‘Plus’ devices, an individually compiled device list can be used for measurements at the customer's premises.

Restrictions / features of X - Link direct Plus

- A maximum of 20 Plus devices can be defined in a device list
- A maximum of 128 measured values can be defined in a data set
- A maximum of 128 data records can be declared as a set
- Only measured values in ASCII are supported

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Explanation of what a serial interface is

A serial interface is a hardware interface from the early days of personal computers. As this interface also offers its advantages over USB, such as its widespread use (countless measuring devices on the market) and its 'simplicity', it has not completely disappeared from today's operating systems. Only the hardware implementation is hardly used in computers today. However, these can also be used with USB converters via virtual ComPorts.

As the name suggests, the data in a serial interface is transmitted serially. The speed is specified as baud (bit / second). As this form of transmission does not include a clock for synchronisation, the standardised baud rate must match at the transmitter and receiver. Otherwise, undefined values are received.

A start bit and 1-2 stop bits are appended to the number of data bits (5-8).

To check whether the data has been transmitted correctly, a parity bit (redundancy) is also sent if active. The parity bit can contain None, Odd, Even, Mark, Space.

What is meant by interfaces - handshake

The handshake describes how the data flow is handled in the event of high traffic. If the remote station receiving the data is unable to process further data, it can use the RTS/CTS hardware handshake to inform the sender that it should not send any more data. Only when sufficient resources are available again does the receiver inform the sender that it can continue sending. In addition to RXD / TXD, other control lines in the interface cable are used for the hardware handshake.

In addition to the hardware handshake RTS / CTS, a software handshake is also often used. The principle is the same, except that no control lines are used, but control characters from the remote station are sent. This is precisely the reason why the characters e.g. 0 are not transmitted with the decimal value 0, but 48. The characters smaller than 32 are reserved as control characters. A table of which decimal value has which meaning is called an ASCII table.

Please refer to the manual of the respective device to find out which handshake should be used. Some devices also require a bridge or the connection between DSR/DTR RS232C in the interface connection cable.

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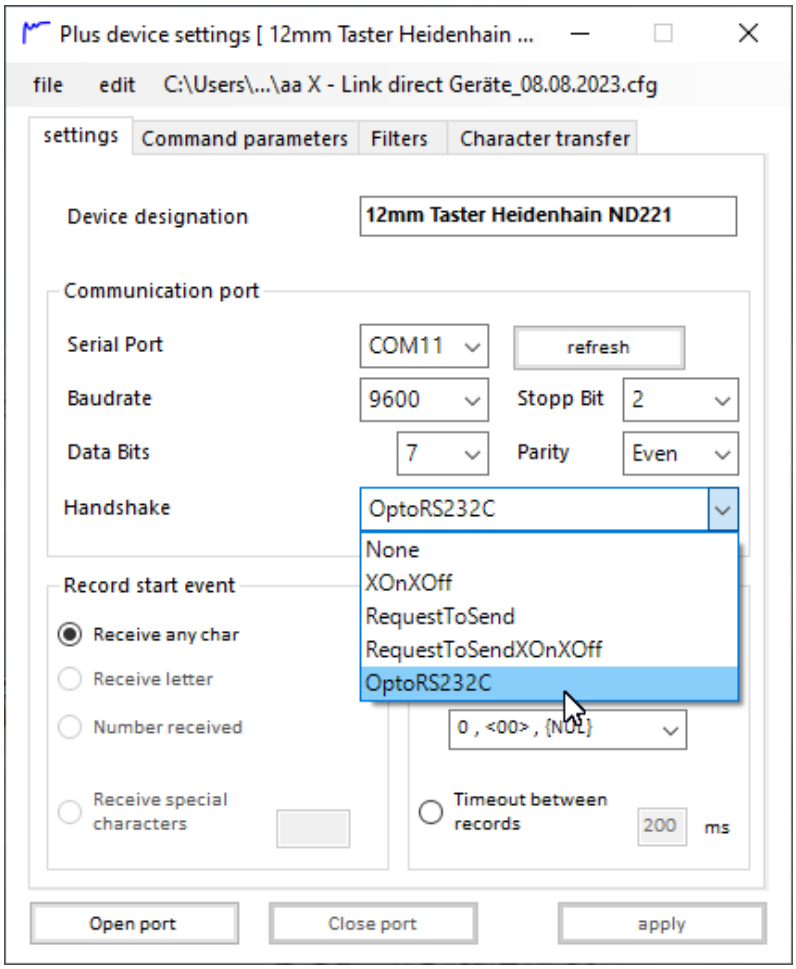
Opto RS232C

Some manufacturers use an Opto RS232C. In this case, the transmit and receive lines are galvanically (optically) isolated. This version requires a power supply for the optocoupler, which is usually integrated in the interface connector. In the following example, this is generated from the DTR and RTS lines that are not required for this application.



Example with optical RS232C interface

All these parameters of a serial interface

- Baudrate
- Data Bits
- Stopp Bit
- Parität
- Handshake

refer to one ComPort. This means that several ComPorts can be operated with different settings on one computer.

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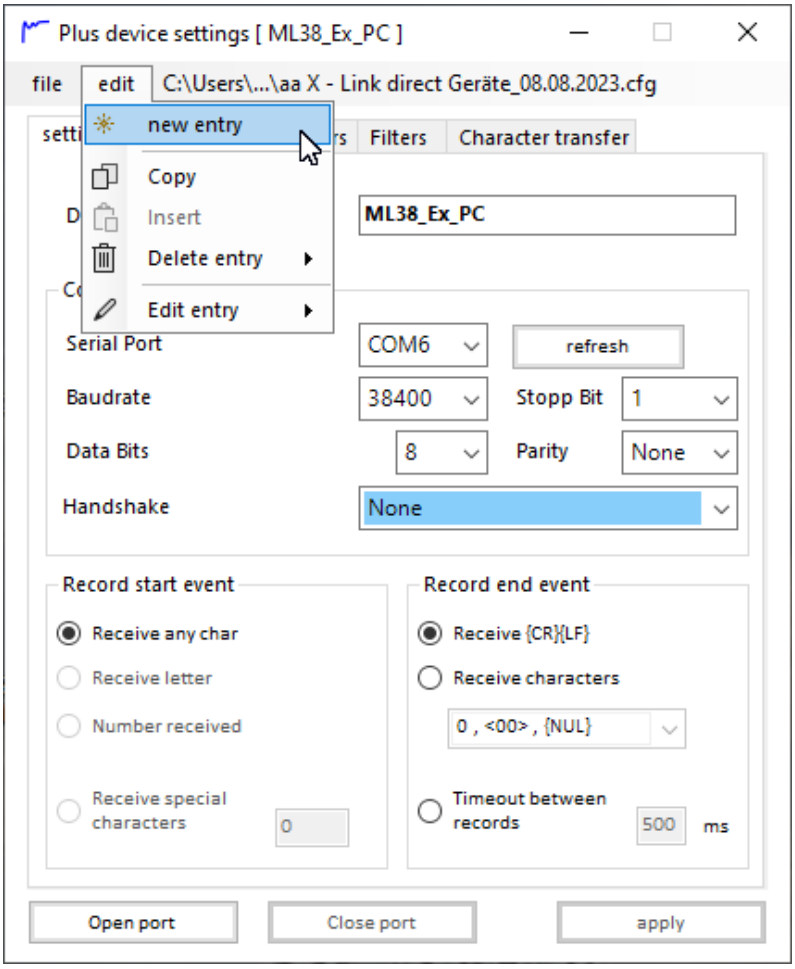
The Plus device settings

To enter a Plus device, either overwrite / fill in the device designation or create an empty mask via the «Edit» -> «New entry» menu.



Plus Edit, copy, paste, delete device

An entry that has already been created can be copied and pasted via the 'Edit' menu, or it can be edited or deleted.

Newly created 'Plus' devices are automatically entered in the main form in the ComboBox, or removed from it if they have been deleted.

If a 'Plus' device is selected in the main form in the ComboBox, it is automatically displayed in the settings if there is no active connection to a device.

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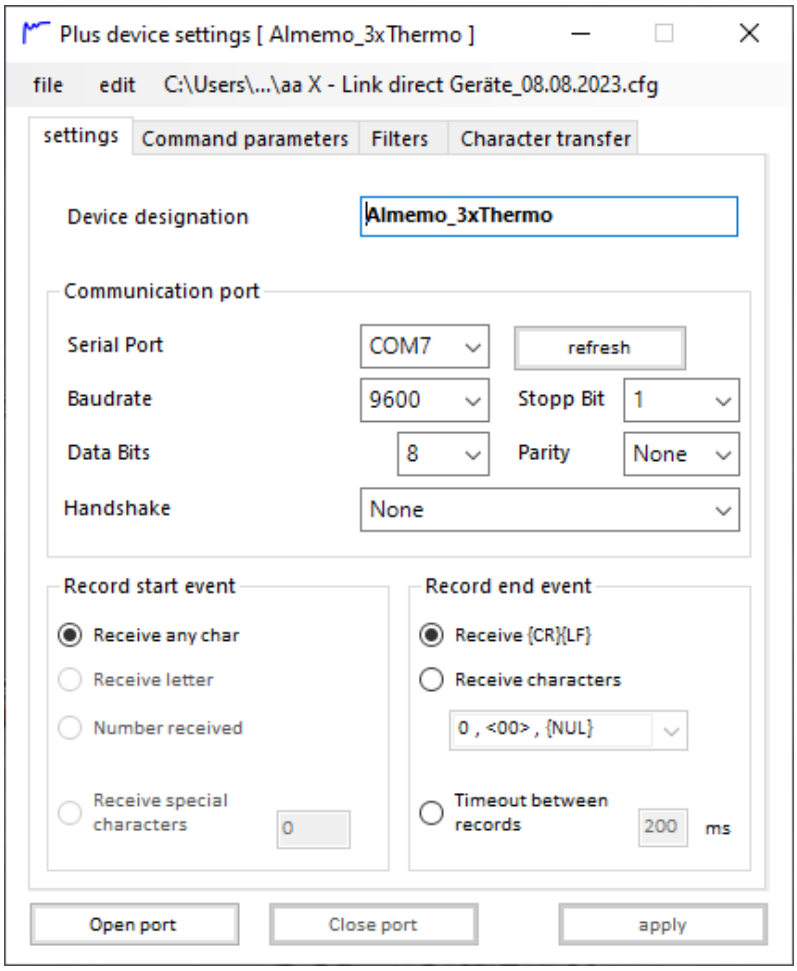
Create a new Plus device

Enter a device designation for the 'Plus' device, which is then entered in the ComboBox in the main form after saving. Use a suitable device name depending on the display type (terminating character) in the target application.



Refer to the relevant data sheet or the operating instructions of the device used for the interface parameters and select the appropriate settings.

Each character string (record) is usually terminated with one or two end characters. Select the relevant record end event accordingly. If the termination character is not known or none is used, a timeout between the records can be selected with a chosen value in [ms]

Select the available ComPort from the list, or if this was only added after the start of X - Link Ready by a virtual ComPort (USB adapter plugged in), the update button and select it from the list.

Open the port using the 'Open port' button. If this is inactive, a connection already exists. Disconnect this «Close port», or in the main form «disconnect».

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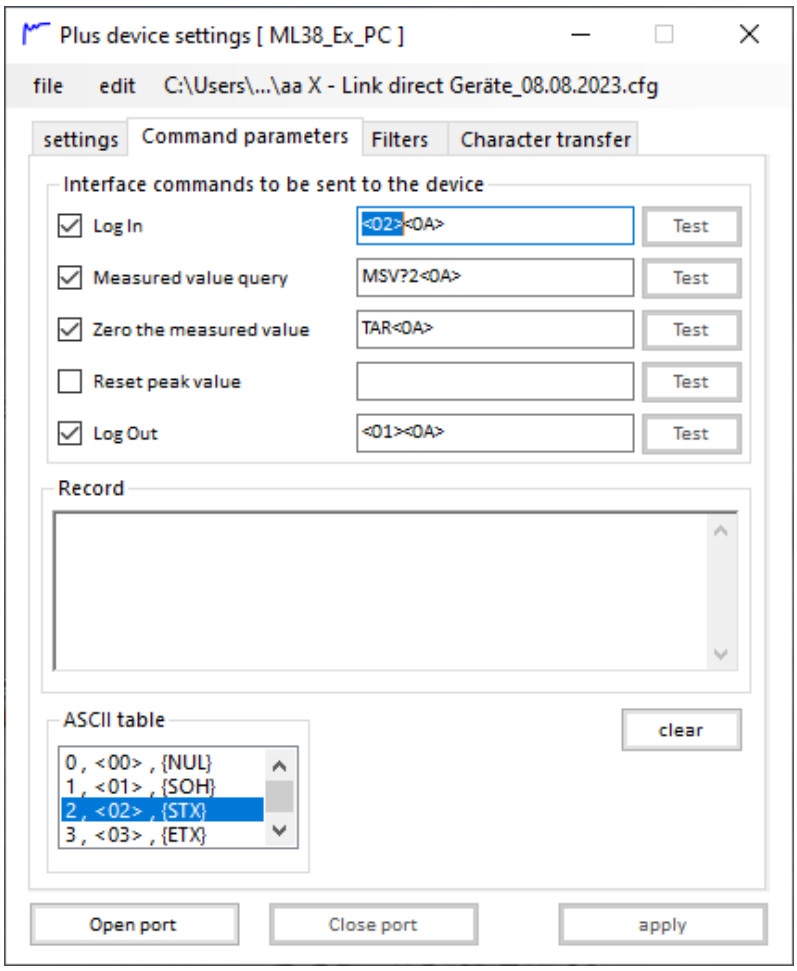
Select command parameters

Depending on whether the 'Plus' device is to send the measured values via the print button on the device (or its control input), or whether an interface command constantly requests the measured values, the commands taken from the manual are entered and activated, or left blank.



Some devices require a login command before the device accepts interface commands. Fill in the Login / Logout commands with the commands from the manual and activate the commands. X - Link Ready will automatically send these to the device each time it is "connected / disconnected".

The commands can be entered via the keyboard or, if special characters must be used, from the ASCII table via drag/drop into the command text fields.

Special characters are entered in the command text fields in hex, e.g. <02>. The relationships between the values in decimal, hexadecimal, or their meaning or representation can be seen in the ASCII table.

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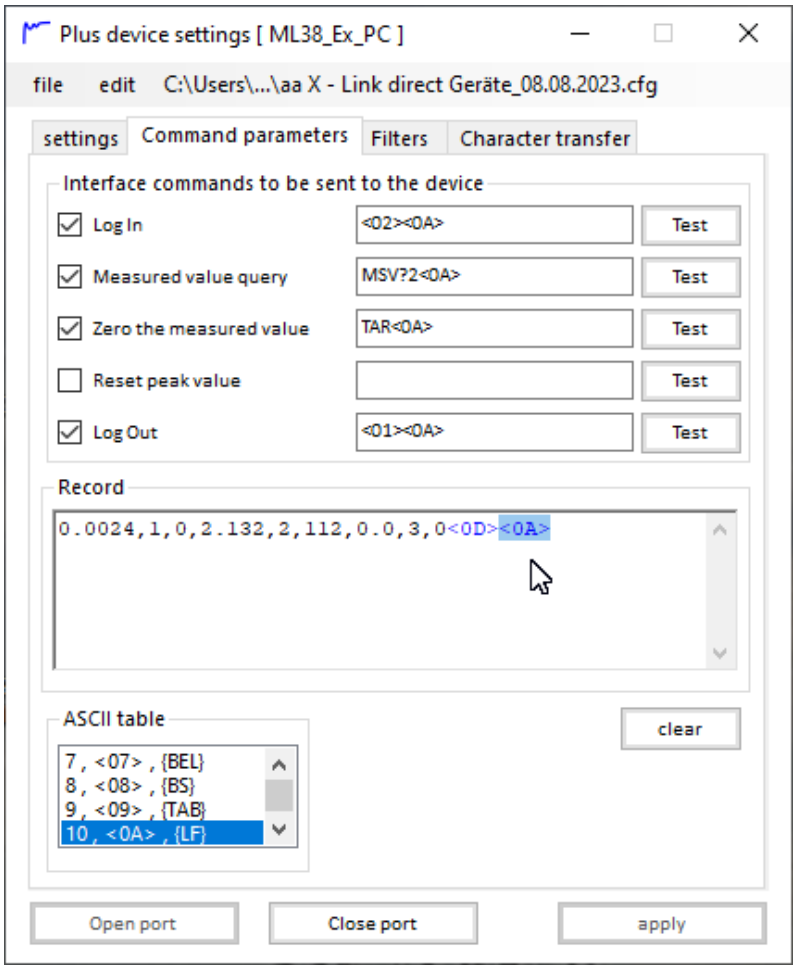
Send command parameters

If the port to the 'Plus' device has been opened, the test buttons for the respective command parameters are active. You can test the entered command and display the response in the Data record window.



The tare / reset to zero and delete peak value memory commands are activated in the main form after the entry has been saved and the connection has been established. When pressed, the defined commands are sent to the device.

You can declare an interface command and assign it to a button in order to trigger a function on the device even if it no longer matches the symbol on the button.

The text areas marked in blue are the declared end characters in the data record. If no blue-marked closing characters are visible, please select the corresponding closing character that is in the last position in the data record.

Click on a terminating character or select a character in the record and the respective special character meaning, the decimal value and the hexadecimal value are displayed in the table

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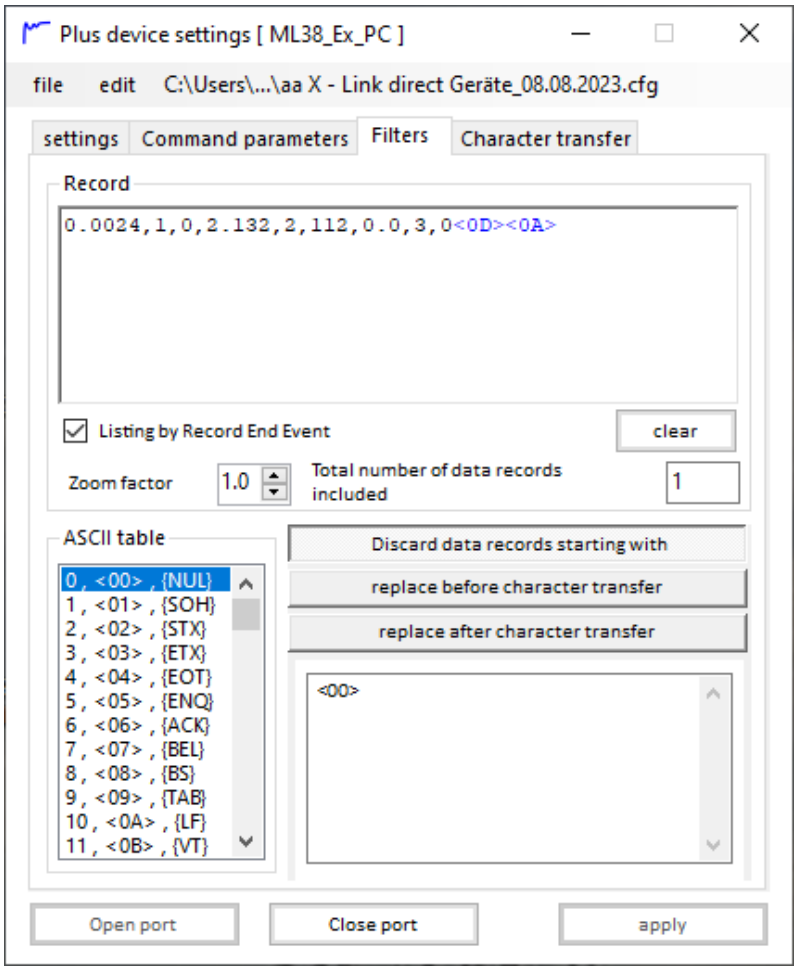
Character set filtering

Characters received in the data record can be filtered or completely discarded.

- - Discard data records starting with
- - Replace before character transfer
- - Replace after character transfer



Discard data records starting with

Sporadically sent data records with channel names, date and other information can be discarded if desired. These are then not analysed and sent to the target application.

Select a character in the data record window and drag it into the text window Discard data record starting with , or select a character from the ASCII table and drag it into the text field, or enter the character in the text field.

Click on a closing character or select a character in the record and the respective special character meaning, the decimal value and the hexadecimal value are displayed in the table.

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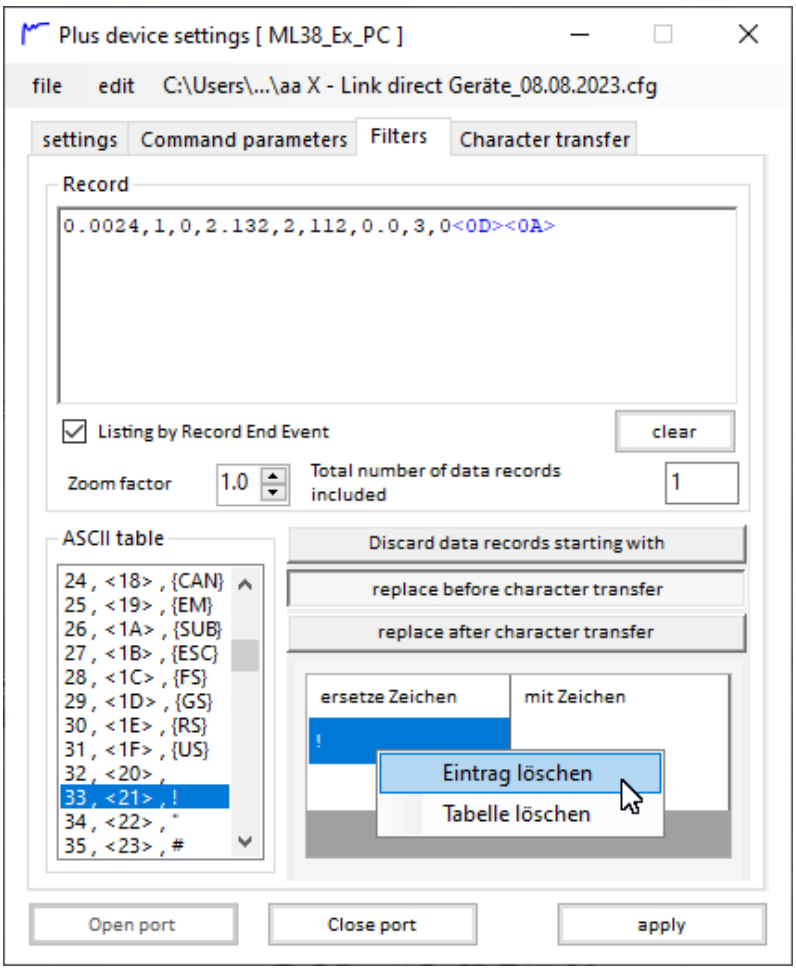
Replace / discard before character transfer

Characters sent from the 'Plus' device can be replaced for the character transfer. e.g. a single "!" can be changed to a " " to better separate the characters " " in the character transfer, or if the character is disturbing, remove it by leaving 'with character' empty.



Select a character in the data record window and drag it into the "Replace character" or "With character" table, or select a character from the ASCII table and drag it into the table.

Click on a closing character or select a character in the data record and the respective special character meaning, the decimal value and the hexadecimal value are displayed in the ASCII table.

Once characters have been entered in the "replace before character transfer" or "replace after character transfer" table, they can be deleted by right-clicking in the table, or you can select Delete table to delete all existing entries.

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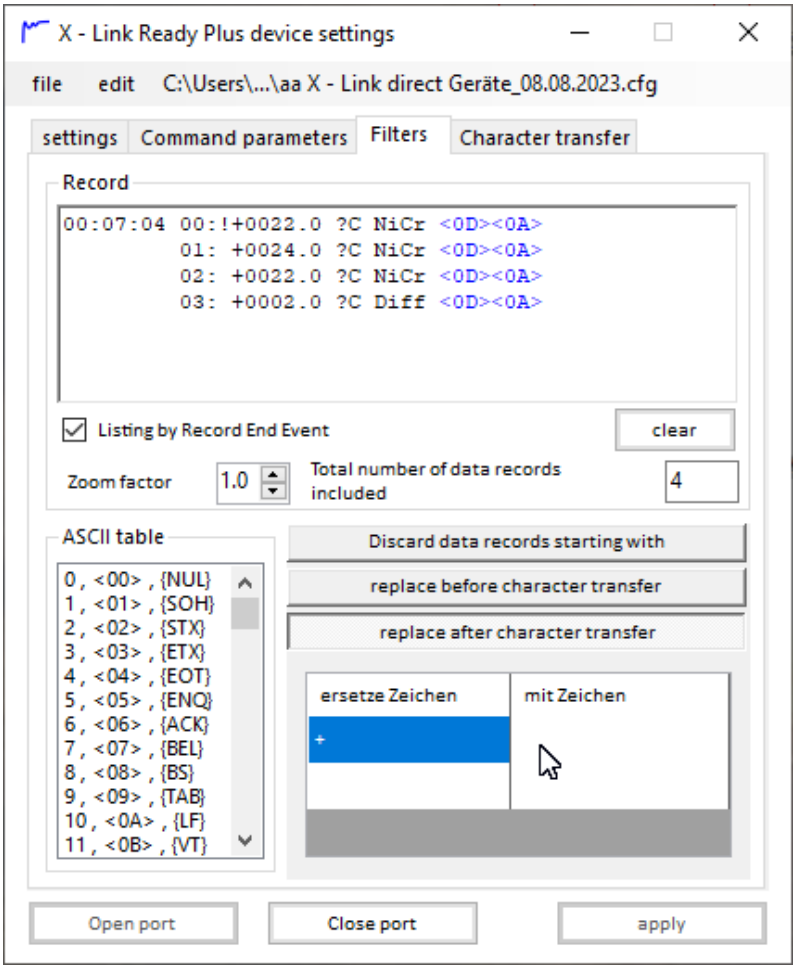
Replace / discard character after character transfer

Characters sent from the 'Plus' device can be replaced after the character transfer. For example, decimal separators may not match those set on the computer, depending on the country code and origin of the measuring device.

Replace a "," with a "." or vice versa if Excel has problems with the decimal separator.



Select a character in the data record window and drag it into the "Replace character" or "With character" table, or select a character from the ASCII table and drag it into the table.

Click on a terminating character or select a character in the data set and the respective special character meaning, the decimal value and the hexadecimal value are displayed in the table.

Positive signs can cause problems when they are transferred to EXCEL. As a precaution, discard the "+" after the character transfer.

Discarding a data record after the character transfer does not affect the data record length.

If a device sends several data records at once, you can see the total number of data records that can be used for the character transfer.

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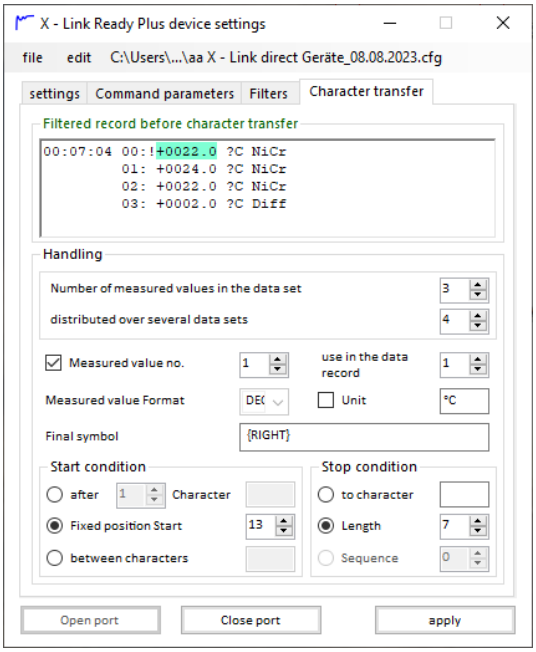
Character adoption

The character transfer defines in which data set (if several are sent as a unit), how many measured values are contained and how these can be picked out of the data set(s).



For a better overview, the closing character in the filtered records window has been removed before the character transfer for the view.

In our example, we would like to use 3 pcs. measured values (3 channels) of a measuring device (diff not). To do this, we select the “Number of measured values in data set” 3 and ‘Distributed over several data sets’ 4.

As the measuring device always sends the measured values to the same location and always uses the same length, we select ‘Fixed position start’ and “Length”. As the temperature can also be ‘-‘, we include the ‘+’ in the evaluation. We delete this ‘+’ in the filter under “replace after character transfer”.

We activate the measured value 1 and give it the closing character {RIGHT}. To do this, press the right arrow key on the keyboard in the end character text field.

The {ENTER}, {TAB}, {UP}, {DOWN}, LEFT}, {RIGHT}, {PGUP} and {PGDN} keys are permitted.

In our example, the fixed position Start is 13 with a length of 7. Enter a unit, e.g. ‘°C’, for the selected measured value. It is mentioned in the graph for creating a layer and in the labelling, e.g. in the data export. Set the ‘Unit’ checkmark if this is to be appended next to the measured value.

In this example, we want to insert the measurement data into an Excel template at a specific location and only use the measurement value. The ‘Unit’ checkbox is therefore not activated here.

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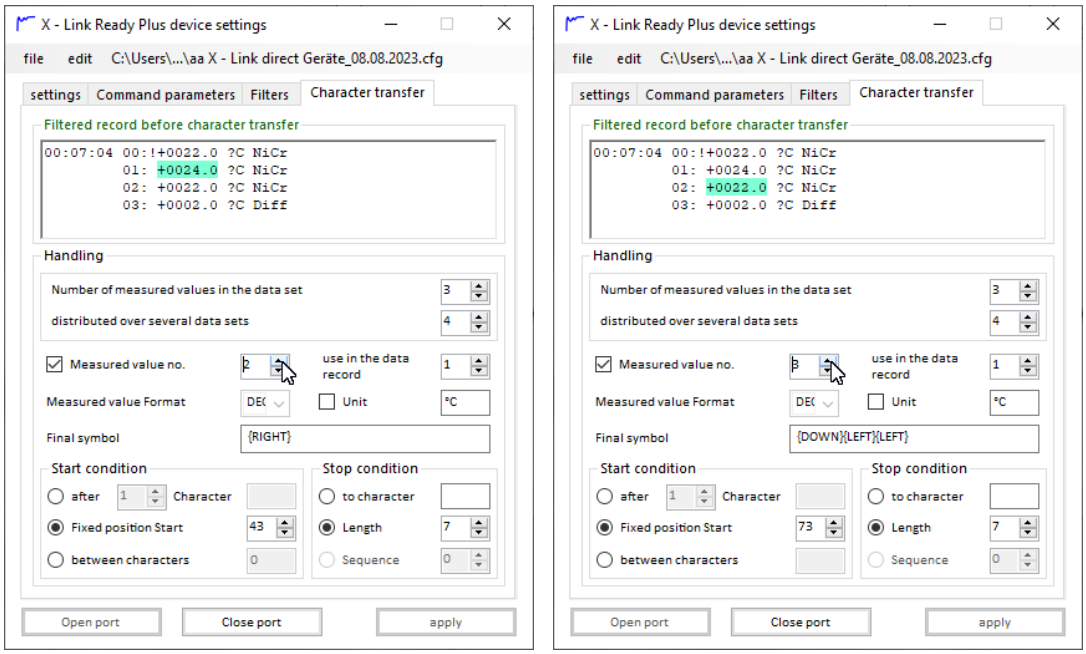
To apply the settings you have made, you can press the 'Apply' button or increase the measured value number to 2, in which case the settings are applied automatically.



The same settings are used for the 2nd measured value, except for the start position.

To do this, double-click on the range to be selected, in this example +0033.00 and adjust the range with the UP/Down elements for the start and length if necessary.

If the range that is also visually displayed fits, increase the measured value number to 3.

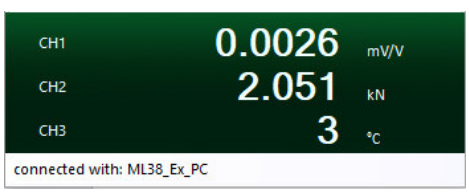
For the 3rd measured value in the data set, the end character {DOWN}{LEFT}{LEFT} is assigned and the start position is set by double-clicking on the measured value to be adopted here +0029.6.

The start position is now adjusted with the up/down element so that the selected range begins at +0029.6 and select the length 7.

Use unit (visibility in the measured value window, layer in the graph, Excel table)

Enter units e.g. '°C' for the selected measured value. It is mentioned in the graph for creating a layer and in the labelling, e.g. in the data export. Set the "Unit" checkmark if you want this to be appended next to the measured value. However, this is usually not desired.

The unit of the respective measured value is displayed in the measured value window regardless of whether the unit is to be transferred or not. To do this, fill in the Unit text field and deactivate/leave the 'Unit' checkmark



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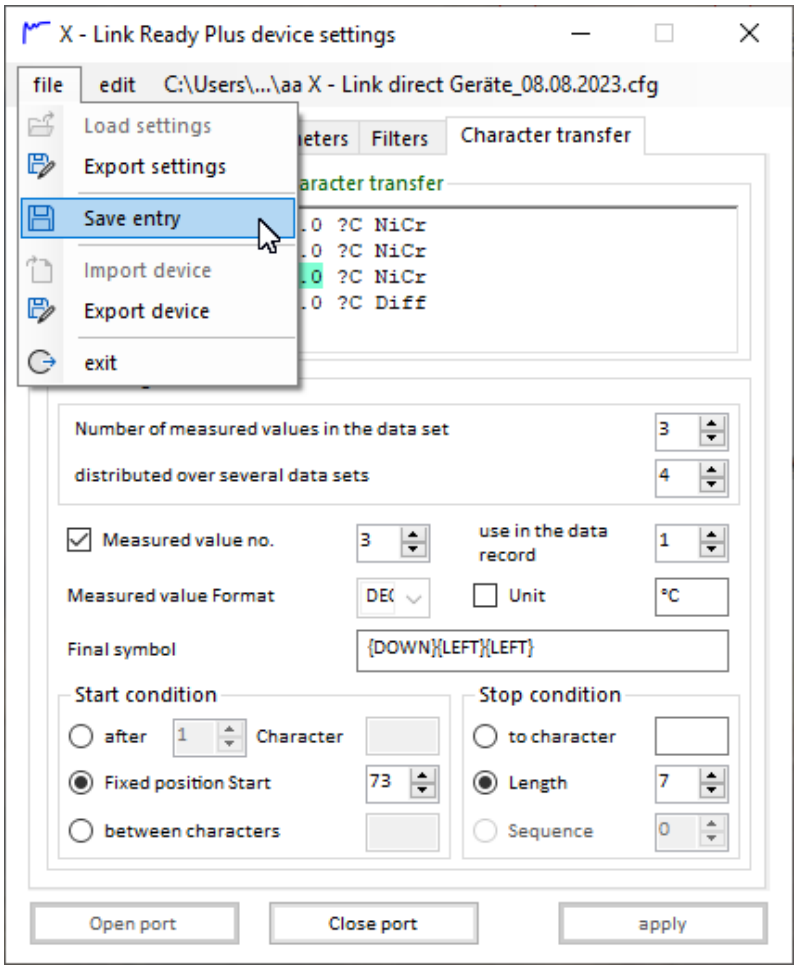
Save entry (individual device or one in a device list)



If all the details are correct, the entry must be saved under «File» «Save entry» so that it is available again the next time the programme is started.

The active device file can be seen in the menu bar

If no device file has yet been defined, a warning is issued during the first save process that no global device file and its storage location have yet been specified.

Select a global device file or the default suggestion “X - Link direct device file”. The entry is then stored in this global device file. This global device file is then loaded each time the programme is started.

A global device file has the extension ‘*.cfg’

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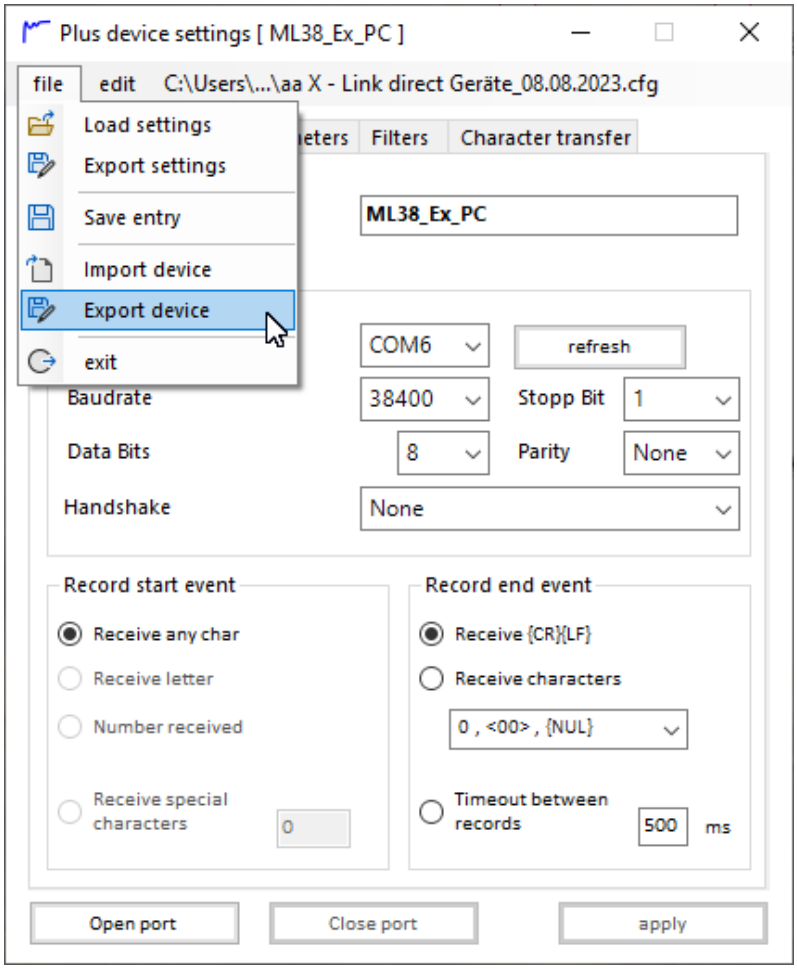
Export Plus device

A recorded device can be exported, whereby only the active device entry is saved in a file. This can be passed on without the entire device file being exported.



The device designation used is suggested as the file name.

A single device file has the extension '*.cfd'

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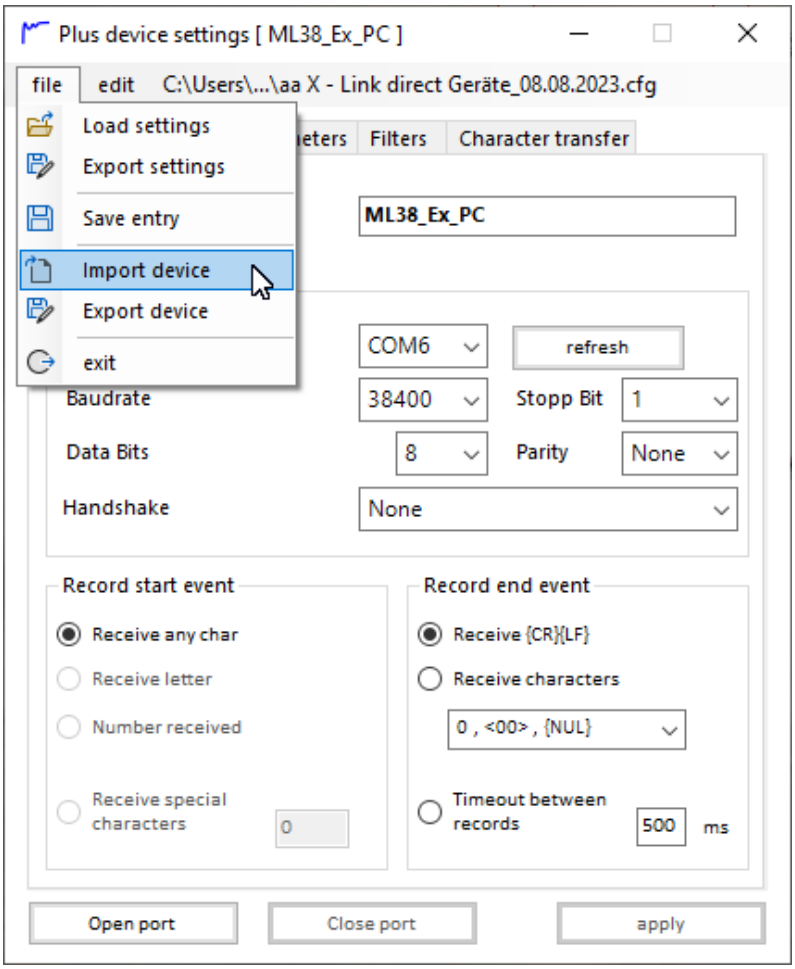
Import Plus device

An exported device entry can be imported into a global device file to achieve a customised configuration for use.



A device entry is only imported if the limit of 20 entries in the global device file is not exceeded.

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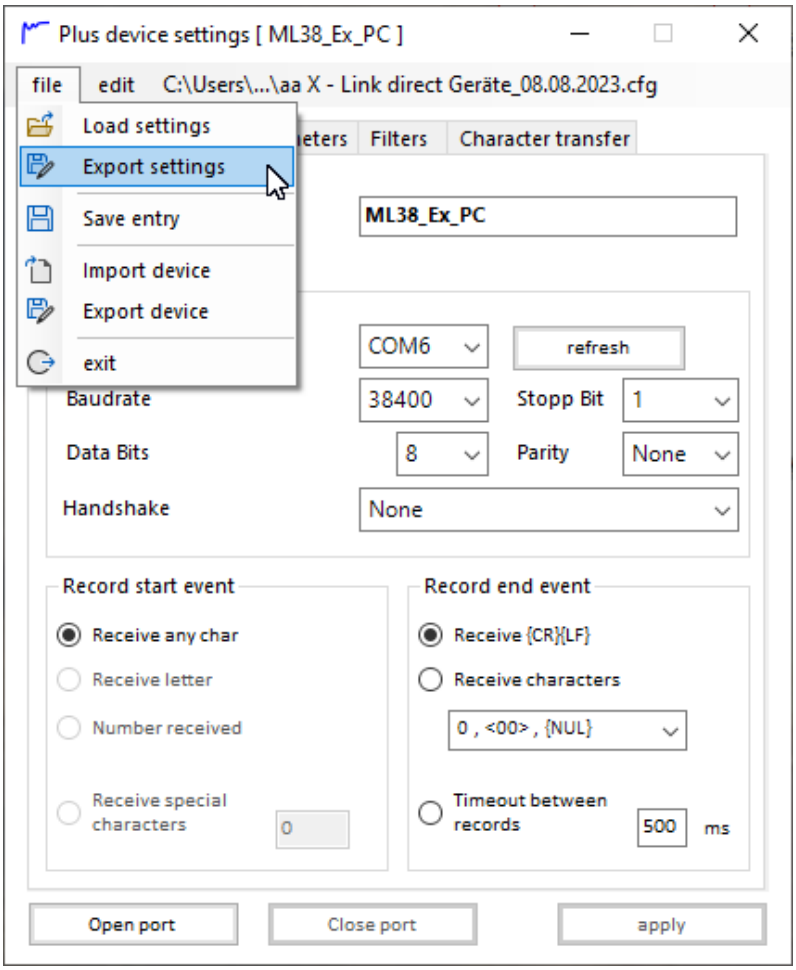
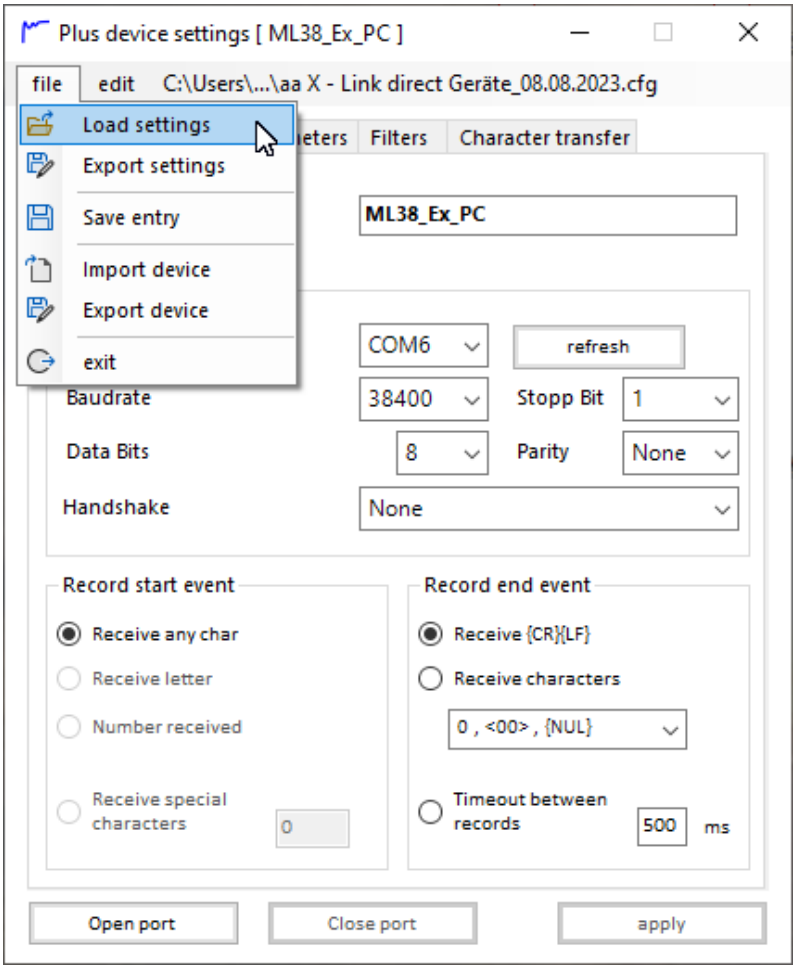
Export settings (device list)



A global device file can be exported, e.g. to be distributed to different computers.

Load settings (device list)



Global device files can be loaded, so the restriction of a maximum of 20 device entries in one device file can be extended by making several global device files available for use.

Depending on the application, you can create various global device files that you can load as required and use their defined devices.