



Assistant PC program V2

# **MIDX-20**

## **DUAL USB MIDI Host**

Class Compliant USB MIDI devices  
Roland/BOSS devices  
Fender Mustang™ V2 Amplifiers  
Boss Katana Amplifiers

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Rev. 2018-05-03

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# 1. Introduction

The MIDX-20 Assistant allow you to program the MIDX-20 and load/save the settings to the disk files. The program also allow you to upgrade the MIDX-20 with new firmware. If you need to install a newer version of the Assistant, you would have uninstall the old one first. New MIDX-20 firmware(s) is included in the Assistant PC program.

The program is intended for the MS-Windows operating system only.

## 1.1 Installation

Extract the MIDX-20 Setup.zip file into a working folder of your choice. The double click the MIDX-20 Setup.MSI file or the Setup.exe file.

The program will be located in the program menu “Primova/MIDX-20”.

## 1.2 Physical connection



Connect a USB-to-MIDI cable (i.e. Roland UM-ONE MKII or similar) from one of the USB ports to the MIDX-20.

Make sure that the 5-pin MIDI IN and OUT connectors are properly connected.

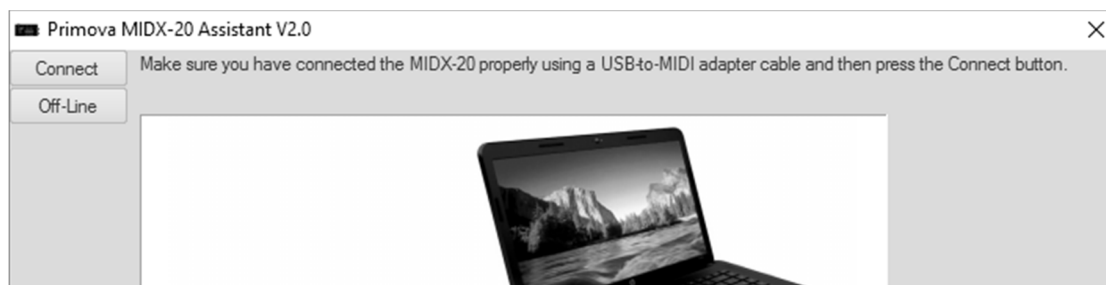
## 1.3 Compatibility and Upgrading

The MIDX-20 Assistant PC program is compatible with both firmware version 1.x and 2.x. However with 1.x firmware not all features in this manual is available.

If upgrading your firmware you may consider using the Assistant to save your actual settings to a file since the upgrade will revert all settings to default. If a backup file was made, you can easily load the settings back to the MIDX-20 when the upgrade is completed.

## 2. Using the program

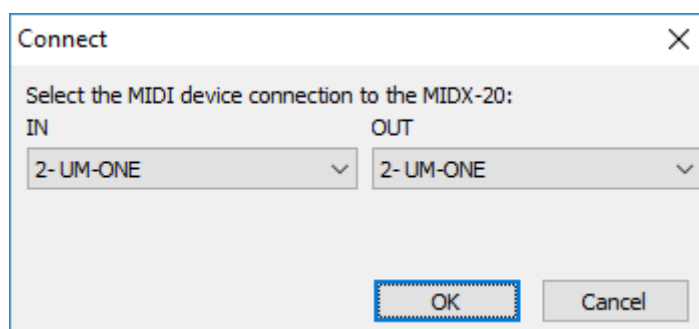
### 2.1 Connect or work Off-line



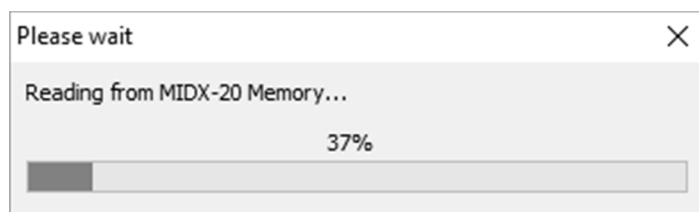
When the program is started you will find two buttons in the upper left corner.

#### Connect

The Connect button will bring up a dialog with available MIDI devices. Select the correct IN and OUT connections representing your USB-to-MIDI cable. Then press OK.



If the connection is successful, the program will immediately load the actual settings from the MIDX-20.



#### Off-Line

This button allow you to operate the program without a physical connection to a MIDX-20. This can be convenient when create settings files (.m20) for later use, or to explore the software.

## 2.2 MIDX-20 Config tab

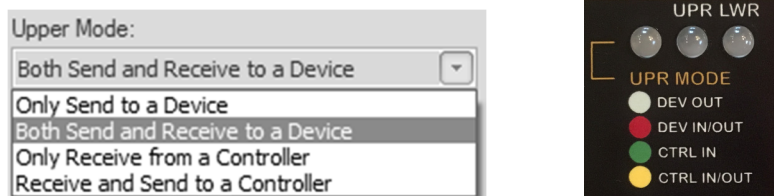
The main configuration tab allow you to **Read/Write** settings to the MIDX-20. Buttons **Open** and **Save As** will open or save the settings to a disk file (.m20) (Setup files are in XML format)

Button **MIDX-20 Write** will blink if the settings in the PC program is different from the settings in the MIDX device, indicating you need to press the button to write the new settings to the unit. **MIDX-20 Read** button transfers the actual settings of the unit to the PC program. The **Reset** button will put the PC Assistant and the MIDX-20 in factory default mode.



### Upper mode:

The MIDX-20 has two USB connectors. The lower (LWR) USB is slightly faster and should be used for connecting to your main device, especially if the device is doing Guitar-To-MIDI conversion. The upper (UPR) however is more flexible and may be configured in various modes. In many cases this is the connector used for USB MIDI controllers, but it might as well be a secondary synth device.



The four modes control how MIDI streams are routed, same as showed on the unit. See the MIDX-20 manual for more details. For Mustang or Katana Amps, please use the option “Both Send and Receive to a Device” (RED mode).

### Enable 5-pin MIDI THRU (Merge)

This checkbox will allow a pass through of incoming MIDI IN to MIDI OUT. The IN and OUT LED's will invert to GREEN in this mode and darkens when MIDI traffic occurs. If MERGE is OFF the LED will instead lit when MIDI traffic occurs.

### MIDI Bridge listening channel:

Sets the UPPER and LOWER USB slot MIDI channel, for the in-built MIDI bridges. This allow connecting two amps listening to separate MIDI channels.

### Disable all bridges:

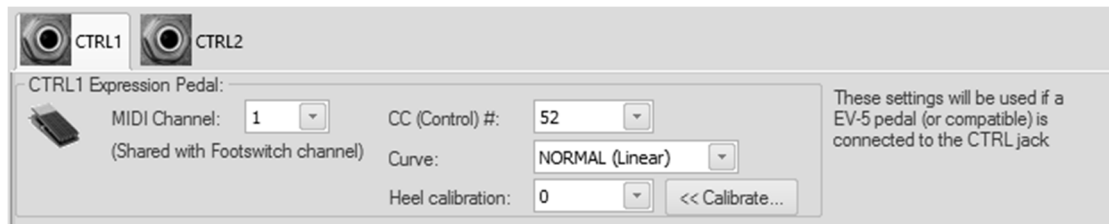
This will disable the MIDI Bridge capability of the unit. Allowing direct communication if possible.

## 2.2.1 CLTR1 and CTRL2 Tabs

These two identical tabs each contain the settings of one of the CTRL jacks. There are two sections in the tab. The upper section show expression pedal settings and the lower show dual foot switch settings.

NOTE: The MIDX will automatically detect if you have connected an expression pedal or a dual foot switch to the jack and apply other the Expression pedal settings or the Foot switch settings.

### Ctrl 1 & 2 Expression Pedal settings



#### MIDI Channel

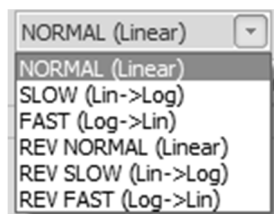
The will set the MIDI channel both for Continues Control (CC) data from a EV-5 expression pedal as well as set the channel for Dual footswitch connected to the CTRL jack.

#### CC (Control) #

Set the CC# number you want to assign for the expression pedal.

#### Curve

Sets the operation of the expression pedal.



NORMAL (Linear)	Data is unmodified
SLOW (Lin->Log)	Changes the pedal 'feel' using a linear to logarithmic conversion.
FAST (Log->Lin)	Changes the pedal 'feel' using a logarithmic to linear conversion.
REV NORMAL (Linear)	Pedal is Toe-Heel inverted
REV SLOW (Lin->Log)	Pedal is Toe-Heel inverted and changed in 'feel' using a linear to logarithmic conversion.
REV FAST (Log->Lin)	Pedal is Toe-Heel inverted and changed in 'feel' using a logarithmic to linear conversion.

#### Heel calibration

If your pedal does not mute at heel down, it may need to be calibrated. Put the pedal in heel down position and press the '<<Calibrate' button. You may also change the 'mute' position manually using the heel calibration combo box.

## Ctrl 1 & 2 Dual Footswitch settings

CTRL1 Dual Footswitch:

FS TIP CTRL1 FS RING CTRL1

Command: CC# Toggling




☐ Switch is latched instead of momentary  
☐ Invert switch polarity  
☐ Enable auto-repeat (PC# Inc/Dec, CC# Inc/Dec)

Command: CC (Control) Ch: 1 CC# (0=Off): 40 ON: 127 OFF: 0

These settings will be used if a FS-6 or FS-7 pedal (or compatible) is connected to the CTRL jack

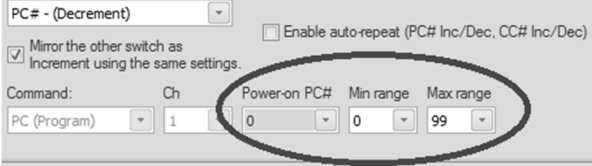
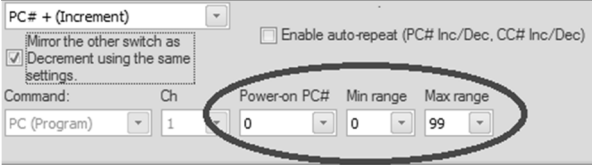
### Command (foot switch commands):

When a dual foot switch (FS-6 or FS-7) is connected to the CTRL jack you can set it up for various operations:

<b>CC# Toggling</b>	Each time the footswitch is pressed and released the value sent will toggle between 0 and 127. Select the CC# from the list.	
<b>CC# Momentary</b>	When the footswitch is pressed 127 will be sent. When released 0 will be sent to the CC#. Select CC# from the list	
<b>PC# Fixed</b>	When the Footswitch is pressed a fixed Program (PC) number will be sent. Select the fixed PC you want to use.	

### PATCH UP/DOWN

When connecting a Dual Footswitch to the CTRL jack you can combine the foot switches to cycle through patches up/down. In this case you should configure one switch to decrement mode and the other to increment mode using the same Min and Max range. To simplify this procedure, use the **"Mirror to"** checkbox. If you want an "auto-repeat" functionality, check the **"Enable auto-repeat"** option.

<b>PC# - (Decrement)</b>	When the Footswitch is pressed it will decrement the current PC number. Select the starting PC number, and the min and max range.	
<b>PC# + (Increment)</b>	When the Footswitch is pressed it will increment the current PC number. Select the starting PC number, and the min and max range.	

<b>START, CONTINUE, STOP</b>	The Footswitch will send one of the MIDI commands Start, Continue or Stop.
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## CUSTOM MIDI BYTES

Custom MIDI Bytes modes allow you to program your own sequences of MIDI commands. This may be SysEx messages or any other sequence of MIDI data, such as multiple CC# commands etc.

Note: Only up to 11 bytes can be programmed in each operation.

MIDI Data bytes for ON

MIDI Data bytes for OFF

When pressing one of the buttons a MIDI command editor will show.

Custom MIDI Data (max 24 bytes in hexadecimal format 00 to FF)
✕

C0 2A  
B0 40 27

8* - Note off	<d1> <d2>
9* - Note on	<d1> <d2>
A* - Polyf. aft.t.	<d1> <d2>
B* - Control change	<d1> <d2>
C* - Program change	<d1>
D* - Channel aft.t.	<d1>
E* - Pitch wheel	<d1> <d2>
(where '*' = Channel 0-F)	
F0 - SysEx start <...>	F7 - SysEx end
F1 - Quarter frame	<d1>
F2 - Song position	<d1> <d2>
F2 - Song select	<d1>
F6 - Tune request	
F8 - Clock	
FA - Start	
FB - Continue	
FC - Stop	
FE - Active	
FF - Reset	

Verify

OK

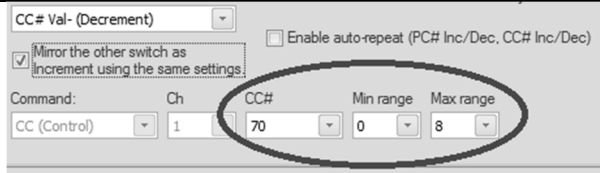
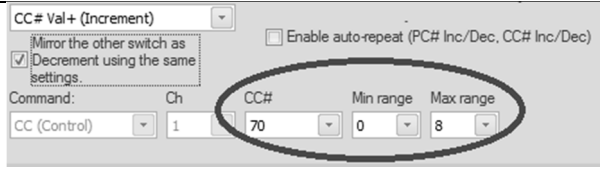
Cancel

Enter the MIDI bytes in hexadecimal form.

When completed, press the Verify button to verify the syntax. If everything is ok nothing will happen when you press the butt, if something is not according to the MIDI spec, the bytes will be re-arranged or padded. Press OK when done.

<b>Custom MIDI Momentary</b>	<p>In this mode you can freely enter sequence of up to 11 MIDI bytes.</p> <div style="display: flex; justify-content: space-around; margin: 10px 0;"> <div style="border: 1px solid #ccc; padding: 5px; background-color: #f0f0f0;">MIDI Data bytes for ON</div> <div style="border: 1px solid #ccc; padding: 5px; background-color: #f0f0f0;">MIDI Data bytes for OFF</div> </div> <p>MIDI Data bytes for ON – Bytes sent when you press the Footswitch. MIDI Data bytes for OFF – Bytes sent when you release the Footswitch.</p>
<b>Custom MIDI Toggling</b>	<p>Works exactly like the custom MIDI Momentary mode but now the settings will be toggled between the ON and OFF MIDI bytes when the footswitch is pressed.</p> <p>In this mode you can freely enter sequence of up to 11 MIDI bytes.</p> <div style="display: flex; justify-content: space-around; margin: 10px 0;"> <div style="border: 1px solid #ccc; padding: 5px; background-color: #f0f0f0;">MIDI Data bytes for ON</div> <div style="border: 1px solid #ccc; padding: 5px; background-color: #f0f0f0;">MIDI Data bytes for OFF</div> </div> <p>MIDI Data bytes for ON – Bytes sent when Footswitch is toggling the state to ON. MIDI Data bytes for OFF – Bytes sent when Footswitch is toggling the state to OFF.</p>



<b>CC VALUE UP/DOWN</b> When connecting a Dual Footswitch to the CTRL jack you can combine the foot switches to cycle a <u>CC Value up or down</u> . In this case you should configure one switch to decrement mode and the other to increment mode using the same Min and Max range. To simplify this procedure, use the <b>“Mirror to”</b> checkbox. If you want an “auto-repeat” functionality, check the <b>“Enable auto-repeat”</b> option. In this mode the MIDX-20 powered-on value is the Min value.		
<b>CC# Val- (Decrement)</b>	When the Footswitch is pressed it will decrement the current CC# value. Select the CC# you want to use and the min and max value.	
<b>CC# Val+ (Increment)</b>	When the Footswitch is pressed it will increment the current CC# value. Select the CC# you want to use and the min and max value.	

### Switch is latched instead of momentary

This checkbox will make MIDX-20 try to convert a latched footswitch to a momentary fashion.

### Invert switch polarity

Use this checkbox if for some reason the switch hardware is “opposite” normal switches in logic.

### Enable auto-repeat (PC# Inc/Dec, CC# Value Inc/Dec)

Use this checkbox to make the increment and decrement modes auto-repeat (continuously increment or decrement) while the footswitch is held down.

## 2.2.2 Translations Tab

CTRL1 CTRL2 **Translations**

Channel translations:

	USB UPR	USB LWR	MIDI
Outside Device Ch	1	1	1
Inside Virtual Ch	1	1	1

Apply mapping to: ☐ In ☐ Out ☐ In ☐ Out ☐ In ☐ Out

Keep original data: ☐ In ☐ Out ☐ In ☐ Out ☐ In ☐ Out

MIDI Filters: ...

These settings allow a Device at a fixed channel to be listening at another channel, or having the data it sends translated to another channel.

MIDI Filters makes it possible to filter out (remove) unwanted messages. A 'X' marks filter activated.

Note: The setting "Keep original data" should be used with care and will result in having the same data broadcasted at both channels, hence occupying doubled MIDI bandwidth and storage space.

CC# Translations/Operations:

Point of operation	From Ch	From CC#	To Ch	To CC#	Operation:	Keep original data
1	OFF					
2	OFF					
3	OFF					
4	OFF					
5	OFF					
6	OFF					

These settings allow a CC# to be broadcasted as another CC#.

It also allow a CC# to be broadcasted as several different CC#s or channels.

For slow synths:  
MIDI Out Delay:  
No delay

The settings in this tab are extremely powerful and will help you solve various MIDI traffic problems.

### Channel translations

Some devices use fixed MIDI channels. In these cases there can be conflict with other devices using the same channel. The Channel Translate feature will do a “renumbering” of all the MIDI data that passes in or out through the USB or MIDI port and thereby solving the problem.

### Outside Device Ch

This is the channel that the connected device is using.

### Inside Virtual Ch

This is the channel that will be seen from the “inside” of the MIDX.

### Apply mapping to

You may apply translations to incoming data and/or outgoing data.

### Keep original data

If checked, this feature will make a copy of the MIDI data and duplicate it to the two channels. This feature should be used with care as all data doubles.

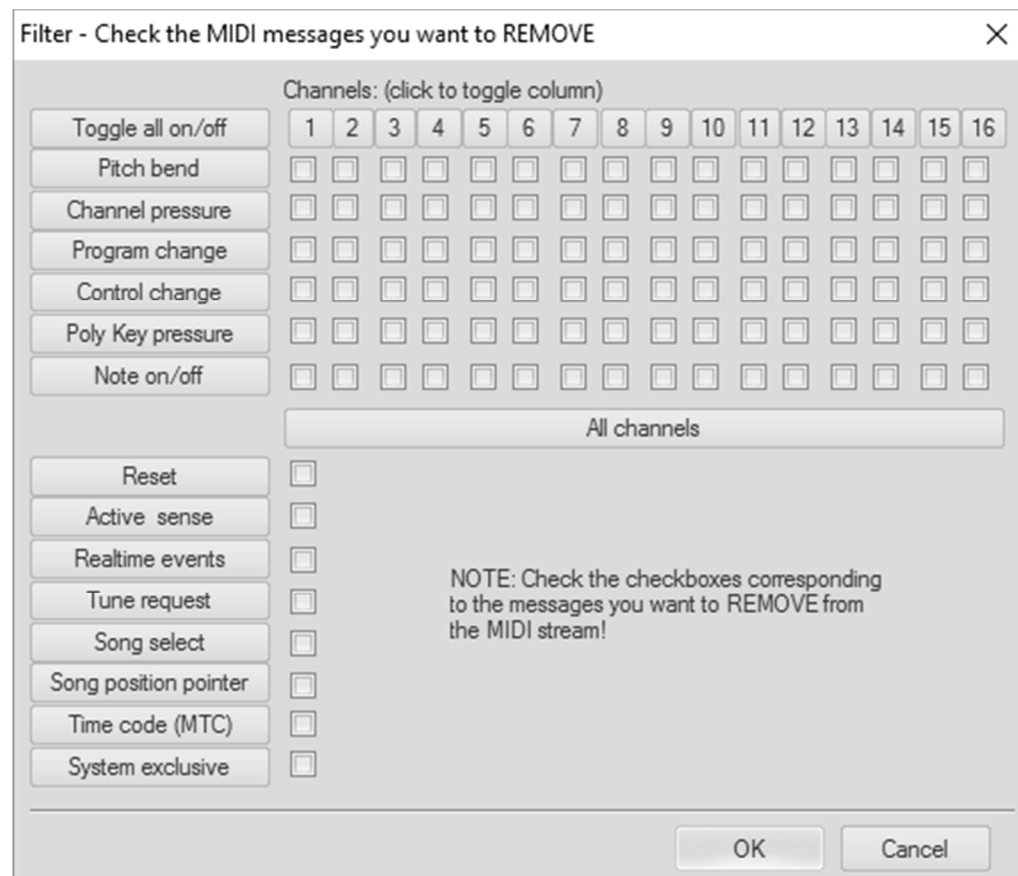
## MIDI Filters

Sometime it's desired to clean up or remove certain MIDI data from the stream. This is why the MIDI filters were implemented.

If any filter is active underneath a button, the button will show .X.



The Filter buttons brings up the filter setup dialog. The checkbox grid in this dialog covers all the possible MIDI commands. To REMOVE a certain message type / channel, tick the checkbox.



Note: The labeled buttons works as quick toggling column and row checkboxes.

## CC# Translations/Operations

CC# Translations/Operations:

	Point of operation	From Ch	From CC#	To Ch	To CC#	Operation:	Keep original data
1	USB LWR IN	1	70	-> 1	72	UNMODIFIED	<input checked="" type="checkbox"/>
2	OFF						
3	OFF						
4	OFF						
5	OFF						
6	OFF						

These settings allow a CC# to be broadcasted as another CC#.

It also allow a CC# to be broadcasted as several different CC#s or channels.

For slow synths:  
MIDI Out Delay:  
No delay

The Continues Control (CC#) message helps you control your devices. But sometime you may want to take a particular CC# and adjust it, remove it or duplicate it to another channel or CC#.

### Point of operation

Point of operation

OFF

OFF

MIDI IN

MIDI OUT

USB LWR IN

USB LWR OUT

USB UPR IN

USB UPR OUT

This is the location where operation will take place.

OFF	This row is unused.
MIDI IN	Incoming data at MIDI IN (5-pin).
MIDI OUT	Outgoing data at MIDI OUT (5-pin).
USB LWR IN	Incoming data at LWR USB.
USB LWR OUT	Outgoing data at LWR USB.
USB UPR IN	Incoming data at UPR USB.
USB UPR OUT	Outgoing data at UPR USB.

### Operation

Operation:

UNMODIFIED

UNMODIFIED

EXP LIN-LOG

EXP LOG-LIN

EXP REVERSE

SW TOGGLE

REMOVE

REMOVE RANGE

EXP TOE TOGGLE (To CC#)

CC#<val> TO PC<val>

These are the operations that can be applied to the CC Value.

UNMODIFIED	The value is not altered
EXP LIN-LOG	The values will be changed from a linear curve to a logarithmic curve. It will change the feel of an expression pedal.
EXP LOG-LIN	The values will be changed from a logarithmic curve to a linear curve. It will change the feel of an expression pedal.
EXP REVERSE	The pedal will be Tip – Toe reversed.
SW TOGGLE	This will convert a momentary switch to a toggling switch.
REMOVE	The CC# will be removed from the MIDI stream.
REMOVE RANGE	A range of CC# will be removed
EXP TOE TOGGLE	When the CC value reaches >120 the CC# given in edit box 'To CC#' will be sent either 0 or 127 in a toggling fashion. Emulates an expression pedal with a in-built switch at toe down (ex: Wah pedals)
CC# <val> TO PC <val>	Converts the value of a CC command to a PC command (patch change)

Here's an example:

Incoming MIDI CC# 70 at channel 1 will be translated to CC# 80 (at the same channel). Data will not be modified.

Point of operation	From Ch	From CC#		To Ch	To CC#	Operation:	Keep original data
MIDI IN	1	70	->	1	80	UNMODIFIED	<input type="checkbox"/>

### Keep original data

If this checkbox is used the original data will be kept. You can only use this option if you also translate CC# and/or channel number.

If “keep original” was checked in the previous example, there would be same data at both at CC#70 and CC#80. You may for instance control two parameters using the same pedal or foot switch.

## 3. MIDX-20 Firmware tab

This tab allow you to flash new firmware into the MIDX-20. Before you try to upgrade your MIDX-20, make sure you can operate it normally using the Assistant.

**NOTE: When upgrading from 1.x to 2.x (or 2.x back to 1.x) all your settings will be lost. We recommend you to make a backup file using the Assistant before upgrade/downgrade in case you wish to write the settings back to the unit later.**

The latest firmware is provided with the latest PC Assistant version, however you may also use a separate hex file if such has been provided by Primova.

### Instructions.

1. Power-up the MIDX-20 simultaneously as you keep the SET-button (at the rear) pressed. If successfully entering programming mode, all LED's will start to flash.
2. Verify the MIDX-20 communication by pressing the "Verify" button in the PC software dialog.
3. Select the firmware you wish to program into the MIDX-20 from the list (or optionally, select 'other firmware file' and locate it using the 'Browse' button).
4. Press the 'Upgrade MIDX-20' button and wait for 2-5 minutes.
5. You will asked to restart the MIDX-20. Press 'OK'
6. If there's a problem restart the procedure.

