DAFV² Addendum

For v1.10 firmware

The DAFV² firmware v1.10 and later adds support for MIDI Control Change messages. This documents details these messages.

The DAFV² is a protocol converter, which converts ESAM and Grass Valley GVG100 video router messages into MIDI message that many modern digital audio mixers can understand. The DAFV² can control groups of 1, 2 or 4 audio channels. The DAFV² can also control any of 16 individual audio channels.

In v1.10 firmware, support was added for a specific type of MIDI messages called Control Change messages. These are 3 byte messages that are in the form:

```
B0 <parameter> <value>
```

The DAFV² uses one message for each of the 16 faders that are controllable. Those messages are detailed in the table below.

Fader	1	=	B0	01	<value>
Fader	2	=	B0	02	<value>
Fader	3	=	B0	03	<value>
Fader	4	=	B0	04	<value>
Fader	5	=	B0	05	<value>
Fader	6	=	B0	06	<value>
Fader	7	=	B0	07	<value>
Fader	8	=	B0	08	<value>
Fader	9	=	B0	09	<value>
Fader	10	=	B0	10	<value>
Fader	11	=	B0	11	<value>
Fader	12	=	B0	12	<value>
Fader	13	=	B0	13	<value>
Fader	14	=	B0	14	<value>
Fader	15	=	B0	15	<value>
Fader	16	=	B0	16	<value>

Fader to MIDI Control Change Mapping

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Many modern digital audio mixers have MIDI ports. Most have the ability to map MIDI Control Change messages to user definable parameters. In the following example, we will show step by step how to configure the DAFV² to control a pair of stereo faders on a Yamaha M7CL Digital Mixing Console. You may not be using this specific console but the steps should be similar.

On the DAFV², configure the unit to transmit Control Change message by setting the rear panel DIP switches to:

> Switch 1 = Off Switch 2 = On Switch 3 = Off
>
> *Note: The complete selection of messages is documented in the DAFV² Users manual.*

In addition, set the rear panel switches for stereo mode.

> Switch 7 = On Switch 8 = Off
>
> *Note: The complete selection of modes is documented in the DAFV² Users manual.*

In stereo mode, when the DAFV² receives a router command for Video Source 1, it will send the appropriate messages for Audio Channels 1 and 2. The specific mapping of the Video Sources to Audio Channels for the various modes of DAFV² operation is detailed in the following tables.

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Video	1	=	Fader	1
Video	2	=	Fader	2
Video	3	=	Fader	3
Video	4	=	Fader	4

Mono Mode of Operation

Video	1	=	Fader	1
			Fader	2
Video	2	=	Fader	3
			Fader	4
Video	3	=	Fader	5
			Fader	6
Video	4	=	Fader	7
			Fader	8

Stereo Mode of Operation

Video	1	=	Fader	1
			Fader	2
			Fader	3
			Fader	4
Video	2	=	Fader	5
			Fader	6
			Fader	7
			Fader	8
Video	3	=	Fader	9
			Fader	10
			Fader	11
			Fader	12
Video	4	=	Fader	13
			Fader	14
			Fader	15
			Fader	16

Quad Mode of Operation

Video	1	=	Fader	1
Video	2	=	Fader	2
Video	3	=	Fader	3
Video	4	=	Fader	4
Video	5	=	Fader	5
Video	6	=	Fader	6
Video	7	=	Fader	7
Video	8	=	Fader	8
Video	9	=	Fader	9
Video	10	=	Fader	10
Video	11	=	Fader	11
Video	12	=	Fader	12
Video	13	=	Fader	13
Video	14	=	Fader	14
Video	15	=	Fader	15
Video	16	=	Fader	16

Kayak Mode of Operation

Now that the DAFV² is configured to transmit fader messages when it receives a Video Source change or transition command, it is time to configure the audio mixing console.

The first thing to do is to enable the console to receive MIDI. The DAFV² transmits its MIDI messages on MIDI Channel 1. You will need to configure the console to receive MIDI on MIDI channel 1.

Next, since the DAFV² is configured to send MIDI Control Change messages to the console, the console must be enabled to accept MIDI Control Change messages.

There are two types of MIDI Control Change messages, the shorter 'Control Changes' or 'Table' and the longer NRPN or Nonregistered Parameter Number. The DAFV² transmits the shorter 'Control Changes' or 'Table' messages. Your console must be enabled to respond to the shorter 'Control Changes' or 'Table' messages.

Finally, the Control Change messages must be mapped to actions on the console. Most consoles have a table, which allow the operator to enter this mapping. For the Yamaha M7CL, tap the Control Change tab from the MIDI setup page.

In the Control Change table, enter the desired mapping. For example, you may want the DAFV² Fader output messages to map directly to the physical console faders in the following fashion:

DAFV² Fader	1	=	Console Input Fader	1
DAFV² Fader	2	=	Console Input Fader	2
DAFV² Fader	3	=	Console Input Fader	3
DAFV² Fader	4	=	Console Input Fader	4
DAFV² Fader	5	=	Console Input Fader	5
DAFV² Fader	6	=	Console Input Fader	6
DAFV² Fader	7	=	Console Input Fader	7
DAFV² Fader	8	=	Console Input Fader	8
DAFV² Fader	9	=	Console Input Fader	9
DAFV² Fader	10	=	Console Input Fader	10
DAFV² Fader	11	=	Console Input Fader	11
DAFV² Fader	12	=	Console Input Fader	12
DAFV² Fader	13	=	Console Input Fader	13
DAFV² Fader	14	=	Console Input Fader	14
DAFV² Fader	15	=	Console Input Fader	15
DAFV² Fader	16	=	Console Input Fader	16

Example Control Change Event Mapping

Using the Control Change Event table, you are not limited to the Input Faders 1-16 on the console. DAFV² Fader output messages can be mapped to any available event. Depending on the mixer, these can be events such as subgroups, DCAs or mix matrices.

To aid in troubleshooting your setup, the DAFV² will bring all the faders associated with Video 1 to the topmost position and all other faders to the bottommost position. In this stereo example, faders 1 and 2 will go to the topmost position while faders 3 – 16 will go to the bottommost position.