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102/8 Level Control

102/12 Remote Fader Box

Description, Features

The Level Control allows to control the level of two channels. Three possibilities of controlling the module exist: From the frontpanel, by a small fader box (102/12) or by the Level Remote Control (102/D4).

Beside level control the following functions are implemented: channel swapping, phase reversal, fixed 0 dB gain, over LEDs

Operation

Operation from the frontpanel: The gain is set by the potentiometer on the frontpanel. The gains of the two channels can not be controlled independently.

The three black switches control the fixed 0 dB gain feature (LED lighted = 0dB gain), the channel assignment (LED lighted: normal channel assignment) and the phase reversal (LED lighted: no phase reversal).

Operation from the /12 Fader Box: Connect the Fader Box to the connector on the frontpanel. The internal potentiometer is now switched off. The faders control now the gain. A switch on the fader box allows to gang the faders (left fader controls both channels) or have them independently. Small gain trim potentiometers allow to trim left and right gains independently.

Operation from the /D4 Level Remote Control: See data sheet of the /D4 module. The internal potentiometer or the external Fader Box are switched off in the /D4 controlled mode. The three black switches still work.

Technical Data

Input Wordlength: 24 bits internal format

Output Wordlength: 24 bits internal format

Maximum gain: +10dB

Sampling Frequency Range: up to 48 kHz

Phase Response: linear (constant delay)

Interchannel Phase Deviation: 0 degrees

Frontpanel elements:

- three black switches with LEDs for phase, channel assignment, fixed 0dB gain
- one potentiometer for gain
- one Fader Box connector
- two over LEDs

Frontpanel width: 60mm (2 2/5 inch)

Data sheet

102/29A Split-up V1

102/29ADS Split-up V1, Double Sampling

102/29C Bus Interrupt

102/54 4 in 2 Mixer

102/54DS 4 in 2 Mixer, Double Sampling

102/D4 Level Remote Master

102/D5 Level Remote Slave

Description, Features

The modules /29A, /29C /54, /D4 and /D5 are the components of a 4 in 2 mixing system. A typical 4 in 2 mixing system configuration is built as follows:

- 1.) Any Input Interface
- 2.) Split-up V1
- 3.) AES/EBU Output
- 4.) Bus Interrupt
- 5.) AES/EBU Input (always on)
- 6.) 4 in 2 Mixer
- 7.) Any Output Interface

- First the /29A Split-up V1 module splits the stereo signal at its input into two output signals. One output carries always the original stereo signal entering the Split-up module. This output is feeded forward to the 4 in 2 Mixer module through a separate cable. The other output leaves the Split-up module through the backpanel. This output can be selected to be off, channel 1, channel 2, sum of channel 1 and channel 2 or the original stereo signal. These choices are useful for sends to an effect unit.

- The AES/EBU Output module (as an example) sends the signal as selected in the Split-up module to an external effects unit.

- The /29C Bus Interrupt module just interrupts the audio bus on the 102's backpanel, but still connects the remote bus. One switch is located on the frontpanel:

Position "mix": use this position when mixing any two sources.

Position "transfer": use this position when the mixing system should just transfer program from channels 1/2 or from channels 3/4.

- The AES Input module (as an example) accepts the return signal from the external effects unit and feeds it to the channel 3/4 input of the 4 in 2 Mixer module.

- The 4 in 2 Mixer module finally mixes the two stereo sources, the original signal on channels 1/2 and the effects return on channels 3/4.

For mixing two stereo sources without a send facility, the configuration would look as follows:

- 1.) Any Input Interface
- 2.) Split-up V1 (always off)
- 3.) AES/EBU Input (always on)

- 4.) 4 in 2 Mixer
- 5.) Any Output Interface

In this case, the Split-up V1 module must be in the position "off" as not to generate a bus conflict with the AES/EBU Input.

The /D4 and /D5 modules are the Remote Controls for the 4 in 2 Mixer module. The /D5 module adds two faders to the /D4 module. This allows to have four faders for four channels, eliminating the need to assign faders to channels.

The /D4 operates in one of seven different modes. They are individually selectable for channels 1/2 or channels 3/4. The "up" and "down" switches allow to scroll through different modes, i.e. Fade In, Fade Out, Fade In Time, Fade Out Time, M/S Control, Gain Control and Remote off. The modes are described below.

Operation

Split-up V1 module

With the black switch select the signal fed to the backpanel 102 bus. If an Input Interface is plugged in to the right of the Split-up V1 (for feeding channels 3/4 to the 4 in 2 Mixer), then the Split-up V1 has to be set to "off". If an Output Interface is plugged in to the right of the Split-up module then set the selection as needed (stereo, mono, CH1, CH2). In mono, CH1 and CH2 modes the signal is fed to both output channels.

The serial signal on the frontpanel connector is always the stereo signal entering the Split-up V1 module. Connect this connector to the same type of connector on the frontpanel of the 4 in 2 Mixer module.

Bus Interrupt module

Depending on the type of use of the mixing system set the switch on this module as follows:

For mixing purposes, includes inserts of external effects of course, set the switch to "mix".

For transfer purposes, i.e. only CH1/2 are used, then switch to "transfer". The purpose of this scheme is the following:

When switched to "transfer", the Input Interfaces to the right of the Bus Interrupt module are automatically switched off. In addition the emphasis information of the Input Interface on channels 1/2 is transferred to the 4 in 2 Mixer module. Note that the emphasis information for the 4 in 2 Mixer module is always taken from the backpanel bus and not from the external serial link between Split-up V1 and 4 in 2 Mixer. That is why the Bus Interrupt has to be switched to "transfer" in order to get the emphasis information from CH1/2 to the 4 in 2 Mixer.

When switched to "mix" the emphasis information comes from the CH3/4 input. So take care that your external effects device does properly handle the emphasis flags.

4 in 2 Mixer module

The 4 in 2 Mixer module has no control elements. The connector on the frontpanel is connected to the Split-up V1 module. Regarding the handling of the emphasis flag refer to the operation of the Bus Interrupt module.

The synchronization for the 4 in 2 Mixer module is usually taken from the backpanel 102 bus, i.e. channels 3/4. If no synchronization is present, the synchronization is taken from the frontpanel connector.

Level Remote Master, Level Remote Slave modules

The /D4 operates in one of seven different modes. These modes are individually selectable for channels 1/2 or channels 3/4. The "up" and "down" switches allow to scroll through different modes, i.e. Fade In, Fade Out, Fade In Time, Fade Out Time, M/S Control, Gain Control and Remote off. To select the mode for CH1/2 press the blue "function" switch on the left side and then select the mode via the left side "up" and/or "down" switches. When the required mode is displayed in the LCD then press the "function" switch again to activate this mode.

For CH3/4 the right side switches are used.

The following switches work independently of the modes selected:

"gain zero" bridges the fader functions and switches to bypass. This function is only available to groups CH1/2 and CH3/4. LED on switch lit = 0 dB gain.

"assign norm" causes an exchange of the left channel with the right channel. This function is again individually switched for both channel groups CH1/2 and CH3/4. LED on switch lit = normal assignment, no swapping.

"pol. zero" a phase rotation between the respective channel pairs (CH1/2 and CH3/4). LED on switch lit = zero polarity, i.e. no phase inversion.

"ganged" assigns both channels 1 and 2 to the left fader and channels 3 and 4 to the right fader. If ganged is off, then the faders are assigned through the "chan. sel." switch to either CH1/2 or CH 3/4. If a /D5 Level Remote Slave module is installed the "chan. sel." switch becomes obsolete and thus is ignored by the software.

"up" and "down" switches are used (beside menu selection) for setting gain offsets between channels (balance). When pressing an "up" or "down" switch the LCD changes to display the channel offset values in dB.

The modes work as follows:

Gain Control

Normal gain control with the switches working as described above. Fader range is from -infinity to +12dB.

Fade Out

Automatic fade out with the time constant set in the Fade Out Time menu. Fade out is started when the blue switch is pressed to activate the menu. After the fade out the Fade In menu is selected automatically, allowing to start a fade in by just pressing the blue switch again.

Fade In

Automatic fade in with the time constant set in the Fade In Time menu. Fade in is started when the blue switch is pressed to activate the menu. After the fade in the Fade Out menu is selected automatically, allowing to start a fade out by just pressing the blue switch again.

Fade Out Time

After activating this menu, the "up" and "down" switches select the fade out time between 1 and 21 seconds in 1 second increments.

Fade In Time

After activating this menu, the "up" and "down" switches select the fade in time between 1 and 21 seconds in 1 second increments.

M/S mode (Mid/Side mode, channels 1/2 only)

activates the M/S mode to correct the stereo basis. During this function only channels 1/ 2 can be treated, i.e. CH3/4 are muted. The level control of CH1 takes over the complete stereo signal control. The level control of CH2 controls the proportion of the side part to the mid signal.

In the position -6dB of the left fader the original stereo image is preserved. This is displayed with "orig." instead of gain values. If the right fader is pulled down the stereo image is reduced until the signal is only monophone in the - dB position. If the fader is pushed up, the stereo image opens. At the top end of the fader path the phase proportion from channel 1 to channel 2 is 180 .

Remote off

Switches the remote control off. Only useful in conjunction with the 102/8 Level Control Module which also can be controlled from the /D4 module and which is described elsewhere.

Technical Data

Split-up V1 module

Parallel Input Wordlength (Backpanel Bus): 24 bits internal format
Parallel Output Wordlength (Backpanel Bus): 24 bits internal format
Serial Output Wordlength (Frontpanel): 24 bits internal serial format
Sampling Frequency Range: up to >48 kHz, DS version up to >96 kHz
Dynamic Range on inputs: min. 144dB
Phase Response: linear (constant delay)
Interchannel Phase Deviation: 0 degrees
Frontpanel elements:
- 5 LEDs labeled "stereo, sum, CH2, CH1, off"
- one switch to select one of the functions given above
- one output plug to connect the 4 in 2 Mixer module
Frontpanel width: 30mm (1 1/5 inch)

Bus Interrupt module

Frontpanel elements: - one switch to select "mix" or "transfer" mode
Frontpanel width: 30mm (1 1/5 inch)

4 in 2 Mixer module

Parallel Input Wordlength (Backpanel Bus): 24 bits internal format
Serial Input Wordlength (Frontpanel): 24 bits internal serial format
Parallel Output Wordlength (Backpanel Bus): 24 bits internal format
Sampling Frequency Range: up to >48 kHz, DS version up to >96 kHz
Dynamic Range on inputs: min. 144dB
Dynamic Range on summing bus: more than 1500dB

Phase Response: linear (constant delay)

Interchannel Phase Deviation: 0 degrees

Frontpanel elements: - one input plug to connect the Split-up V1 module

Frontpanel width: 60mm (2 2/5 inch)

Data sheet

102/41 REV5 Interface Set

Description, Features

< under construction >

The 102/41 REV5 Interface allows to interface a Yamaha REV5 reverb unit to the 102 Series 4 in 2 Mixer. It replaces the /29C Bus Interrupt module.