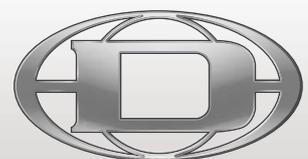




CMS³

CMS 600-3 COMPACT MIXING SYSTEM

Owner's Manual | Bedienungsanleitung



DYNACORD
GERMAN ENGINEERING EXCELLENCE

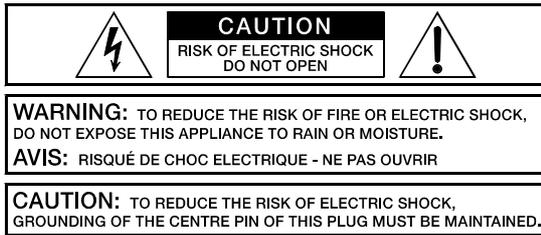
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IMPORTANT SAFETY INSTRUCTIONS



The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated „dangerous voltage“ within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not cover any ventilation openings. Install in accordance with the manufacture’s instructions.
8. Do not install near heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or the grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for a long period of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the equipment.
16. To completely disconnect this equipment from the AC Mains, disconnect the power supply cord plug from the AC receptacle.
17. The mains plug of the power supply cord shall remain readily operable.
18. No naked flame sources, such as lighted candles, should be placed on the apparatus.
19. The product should be connected to a mains socket outlet with a protective earthing connection.



IMPORTANT SERVICE INSTRUCTIONS

CAUTION: These servicing instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the Operating Instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

1. Security regulations as stated in the EN 60065 (VDE 0860 / IEC 65) and the CSA E65 - 94 have to be obeyed when servicing the appliance.
2. Use of a mains separator transformer is mandatory during maintenance while the appliance is opened, needs to be operated and is connected to the mains.
3. Switch off the power before retrofitting any extensions, changing the mains voltage or the output voltage.
4. The minimum distance between parts carrying mains voltage and any accessible metal piece (metal enclosure), respectively between the mains poles has to be 3 mm and needs to be minded at all times. The minimum distance between parts carrying mains voltage and any switches or breakers that are not connected to the mains (secondary parts) has to be 6 mm and needs to be minded at all times.
5. Replacing special components that are marked in the circuit diagram using the security symbol (Note) is only permissible when using original parts.
6. Altering the circuitry without prior consent or advice is not legitimate.
7. Any work security regulations that are applicable at the locations where the appliance is being serviced have to be strictly obeyed. This applies also to any regulations about the work place itself.
8. All instructions concerning the handling of MOS-circuits have to be observed.

NOTE:



SAFETY COMPONENT (MUST BE REPLACED BY ORIGINAL PART)

Due to line current harmonics, we recommend that you contact your supply authority before connection.

2 Controls, Indicators and Connections

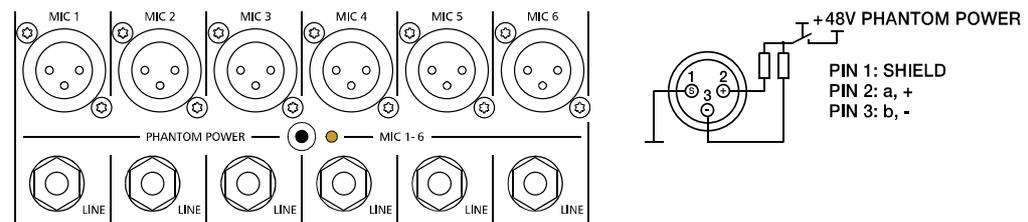
2.1 Input Mono

HINT: When connecting signal sources, please make sure to set the corresponding channel faders or at least the master faders to their minimum positions or engage the STANDBY switch. This will save you, your audience, and the equipment from extensive wear from unpleasant pops.

1 - MIC

Electronically balanced XLR-type inputs for the connection of low impedance microphones like the ones featured in major studio and live mixing consoles. This type of input stage provides extraordinary low noise signal conversion at an extremely low distortion rate (typical < 0.002%) even in the high frequency range. Generally, any type of microphone can be connected as long as its pin assignment is in accordance to the diagram shown below. When condenser microphones are connected, you have to press the PHANTOM POWER button, which is located in the input section. The microphone gets its operating voltage (+48 V DC) through the mixer. PHANTOM POWER is activated/deactivated for all 6 MIC inputs together.

Illustration 2-1: Microphone input



The MIC input accepts levels between -60 dBu and +11 dBu – depending on the setting of the corresponding gain control. Because of the low impedance and the switchable PHANTOM POWER the XLR input is preferred for MIC applications. Because of the higher level and impedance matching the LINE input should be preferred for connecting further mixers, effect units, keyboards etc.

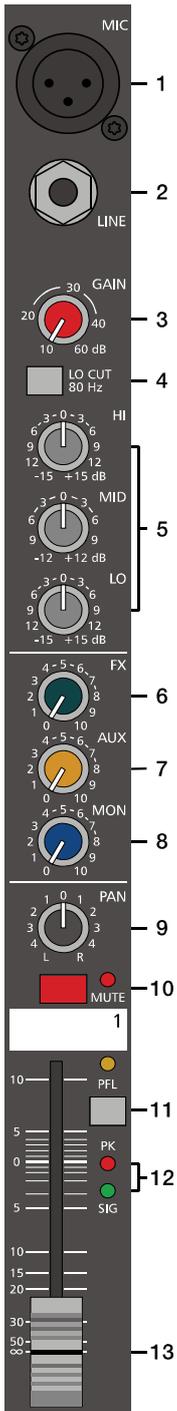
2 - LINE

Electronically balanced inputs for the connection of electronic instruments, such as keyboards, drum machines, E-guitars and E-basses with an active output, as well as all other high level signal sources, like additional mixers, FX units, CD players, etc. The LINE input accepts levels between -40 dBu and +31 dBu. The connection of balanced or unbalanced signal sources is established through monaural or stereo phone plugs, assigned according to the diagram below. If the device that you want to connect has a balanced output stage, the use of balanced cables with stereo phone plugs is preferable. This type of connection is greatly insensitive to the induction of external noise or HF interference.

Illustration 2-2: Unbalanced or balanced assignment of line input



Do not connect identical signal sources to LINE and MIC inputs at the same time, since the signals would interfere with each other, resulting in level reduction.



HINT: Please, do not connect E-guitars or E-basses with passive, high impedance outputs directly to a LINE input. The LINE inputs of the CMS – like the Line level inputs of mixers from other manufacturers – are designed for the connection of the relatively low source impedance of electronic instruments. The reproduction of the instrument’s original sound characteristics will be unsatisfactory. Connect those instruments using a special transformer or pre-amplifier with very high input impedance. Musical instruments with an active electronic output (battery-powered) can be connected without any problems.

3 - GAIN CONTROL

Rotary control for adjusting a MIC/LINE input’s sensitivity. These controls let you optimally adjust the incoming signals to the mixer’s internal operation level. Cautious adjusting offers the benefits of an improved S/N-ratio and provides you with the full bandwidth of the CMS’s outstanding sound capabilities. On the XLR-type connectors an amplification of 10 dB is achieved when the control is set all the way to the left and +60 dB when the control is set all the way to the right.

Especially when dealing with very low input levels – during vocal recordings and when the speaker is located in a distance – the high gain is extremely profitable. Using the LINE input, the signal is generally attenuated by -20 dB while maintaining the total adjustment range of 50 dB. The LINE input’s unity gain – no amplification (0 dB) – is achieved at the 20 dB mark. The following is meant as a short note for your assistance on how to determine the right input level:

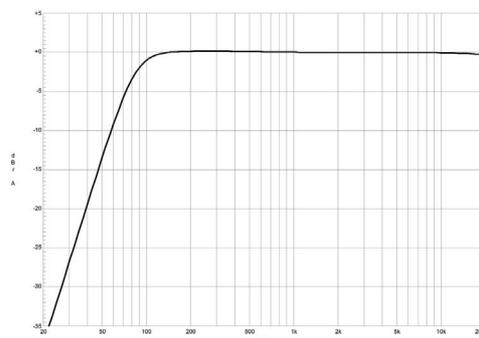
GAIN setting instructions:

1. Set the gain control and the corresponding channel fader to their minimum values.
2. Connect the desired sound source (microphone, musical instrument, etc.) to the desired MIC or LINE input.
3. Start the reproduction of the sound source at the highest volume level to be expected – respectively sing or speak as loud as possible directly (short distance) into the microphone.
4. While playing the sound source or singing into the microphone, adjust the input level using the gain control, so that during the loudest passages the PK LED is just not lit, but the SIG present LED lights constantly. This is the basic channel setting, leaving you with at least 6 dB of headroom, i.e. you have at least a range of 6 dB before signal clipping occurs. In case you intend to make further adjustments to the channel’s EQ setting, you should perform steps 3. and 4. again afterwards, since changes in the sound shaping section also have an influence on the channel’s overall level.

4 - LO CUT 80 Hz

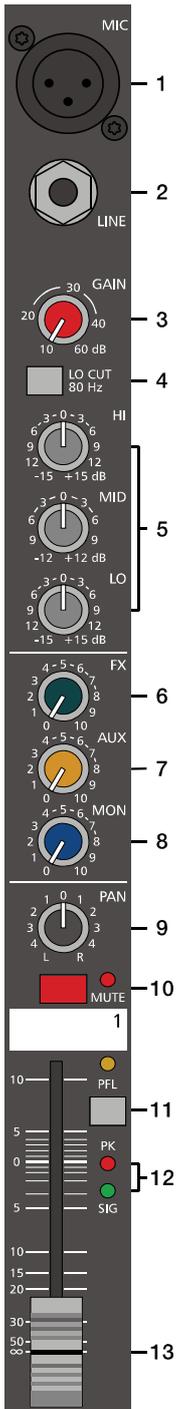
When the LO CUT switch (available in channel 1 to 4) is engaged, frequencies below 80 Hz are attenuated (18 dB octave slope). In most cases using the LO CUT filter with microphone channels is a good advice, since it efficiently suppresses popping sounds, rumbling noise and low-frequency feedback. The only exceptions are kick drum and acoustic bass. Activating the LO CUT and raising the bass level (LO EQ) provides you with a richer sound, without additional rumbling or popping noise. Another welcome side effect is, that the power amplifier and the connected loudspeakers do not get “polluted” with unnecessary low-pitched interference. Your audience will be thankful for the use of the LO CUT filter, too, since in this way they can enjoy a truly clear, natural, and powerful sound performance.

Illustration 2-3: LO CUT filter



5 - EQ SECTION

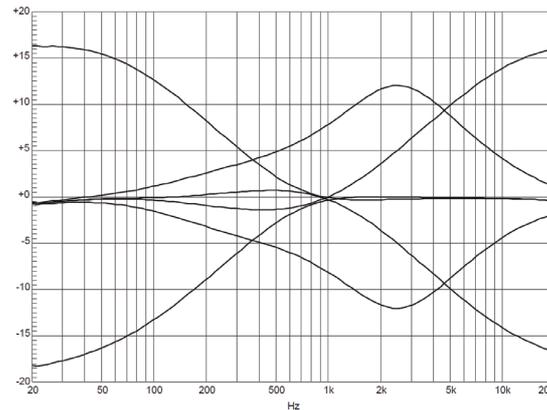
The mixer’s EQ section allows very differentiated shaping of the incoming audio signal within miscellaneous frequency bands. Turning one of the EQ level controls to the right boosts/amplifies the corresponding frequency range while turning it to the left lowers/attenuates the signal of that specific frequency band. Before you begin to alter the sound, all EQ controls should be set to their neutral position, i.e. their marker points straight up (locked in place). Try not to set the EQ controls to extreme positions. Usually, minor changes are totally sufficient and produce the best results in the overall



sound. You should use the natural reproduction as an orientation mark and rely on your musically trained ear. The moderate use of the MID control is the best remedy to avoid acoustical feedback. Especially in this frequency range you should try to avoid excessive enhancement. Lowering the level more or less in this band will provide you with high amplification rates without feedback. Use the LO control according to your pleasing, to add more “punch” to the sound of a kick drum or “body” to the vocals. Use the HI control in the same way to provide cymbals and the human voice with more treble and a more transparent sound.

The MID control is active in a comparably wide frequency band around 2.4 kHz. With most microphones this is the critical range, where a slight attenuation offers excellent results.

Illustration 2-4: LO/MID/HI filters



6 - FX

The FX control allows adjusting individual amounts of the input signals to be routed to the integrated FX 1 and the FX 2 effects units. The signal path is split post volume fader – post fader – so that the fader setting also influences the amount of the signal that is fed to the FX units. Using the FX controls lets you easily assign an effect for groups of musical instruments or vocals. To determine the desired intensity of each effect, you should start with the control set at the center and make individual adjustments from there on. Please monitor the PK LEDs in the FX 1/2 channels. The indicator should only light briefly at the occurrence of high program peaks. If the indicator is constantly lit, you should lower the send levels of those channels where the program peaks occur. For further information, please read the paragraphs about the FX 1/2 units.

7 - AUX

The AUX control is primarily meant for establishing an independent monitor mix. The AUX mix is available as output channel at the DIGITAL AUDIO INTERFACE. The AUX routing dialog in the menu allows determining whether the signals are split pre or post fader, or using the AUX as FX 2, see page 23 for details. The selected mode is indicated by LEDs, see page 15.

8 - MON

The MON control is primarily meant for establishing an independent monitor mix. The signal routing is always PRE FADER. Additionally the MON channel is available at the DIGITAL AUDIO INTERFACE (channel USB 4).

9 - PAN

This control determines the position of the connected sound source within the stereo image. When this control is set at its center position, the audio signal is fed with equal levels to the L and R master busses. The PAN control section is designed to maintain the essential sound pressure level, no matter at what position within the stereo image the PAN control is set to.

10 - MUTE

The MUTE button mutes the input signal post fader, including all AUX/MON sends. PFL and Signal/Peak stay functional.

HINT: Use the MUTE button for muting temporarily not used input channels without changing the settings of the FX/AUX/MON controls and the channel fader.

11 - PFL

Engaging the PFL button routes the audio signal to the headphones bus, so that it is present at the phones output connector. The meter instrument in the master section is simultaneously switched, so that the left LED-chain indicates the level of the actually chosen channel (in dBu), which allows optimally matching the level of the signal source. The phones output volume does not depend on the setting of the corresponding channel fader (Pre Fader Listen), which provides the possibility to listen to or shape the sound of the selected audio signal, without need to include it in the master mix.

12 - SIG / PK INDICATOR

The signal-peak indicator plays a key role when setting input levels. Unlike the mixers of many other manufacturers that either only provide a peak indicator or no channel indicator at all, the PK (peak) LED of the CMS provides optical indication of the risk of occurring overdrive before you would actually hear the distortion over the connected speaker systems. As outlined in the setting instructions, the Signal-LED should blink in the rhythm of the incoming signal. If this is not the case, you have to increase the gain. If the PK LED, on the other hand, blinks frequently or lights continuously, the corresponding channel is likely to enter clipping and you have to turn the gain control a bit to the left. The Signal-LED lights at levels 30 dB below clipping while the peak LED lights at a level of 6 dB below the occurrence of overdrive. Keeping an eye on the indicator during a performance is also a good idea, because some very dynamically performing members of a band or changing keyboard setups can easily lead to channel clipping, resulting in the degradation of the overall sound.

13 - FADER

The channel faders set the volume of the corresponding channels, establishing an accurately proportioned mix. The channel faders should be positioned within the range of -5 dB to 0 dB, leaving you with a degree of control that allows the precise matching of relative big differences in the channels' level settings. The overall volume is set through the use of the master faders. Even though the channel faders offer an additional amplification of +10 dB, we would like to advise you to exceed the +5 dB mark only in very few exceptional cases. If the CMS's summing bus gets "overloaded" with too many "high level" input channels, despite its special gain structure, the summing amplifier could be driven into clipping. Once you register, that some channel faders are set above the 0 dB marking, lowering the setting of each channel fader by about -5 dB and increasing the overall output level by elevating the master faders is the wiser solution. The proportion of the mix and the overall volume stay the same while the risk of clipping is banished.



2.2 Input Stereo

Since most features – AUX/MON controls and channel faders – of the STEREO INPUTS are virtually identical to the ones of the MONO INPUTS we will not discuss their functioning in detail again. Thus, in the following we only point out the differences and like to ask you to refer to the analogous paragraphs within this owner’s manual describing the mono inputs.

HINT: The stereo inputs 5-6 and 7-8 are designed as so-called Super Channels. This means a MIC and LINE input is available at this stereo inputs, like in the mono inputs. So, depending on the application, the Super Channels can be used for a mono signal or a stereo signal of the DIGITAL AUDIO INTERFACE (USB).

14 - STEREO INPUT L/MONO R

Electronically balanced inputs for the connection of musical instruments with stereo output, like keyboards, drum machines, E-guitars and E-basses with an active output as well as all other equivalent sound sources with high level outputs, like additional mixing consoles, FX units, CD players, etc. The stereo LINE input is meant for balanced or unbalanced sound sources with levels between -20 dBu and +30 dBu.

Using phone plugs

For the connection of external devices to inputs 9-10 or 11-12 you can use monaural or stereo phone plugs, which are in accordance to the diagram below. If the external appliance is equipped with a balanced output stage, using balanced cables and plugs is preferable, since this type of connection provides improved shielding against HF induction and external noise.

In case you want to connect a monaural sound source to a stereo input channel, you just have to plug it into the L/MONO input. The signal gets internally routed to both channels.

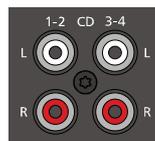
Illustration 2-5: Unbalanced or balanced assignment of phone plug



Using RCA plugs

The RCA inputs CD 1-2 and CD 3-4 are connected in parallel to the phone inputs LINE 9-10 or LINE 11-12. Do not connect signal sources to phone and RCA inputs at the same time.

Illustration 2-6: RCA inputs CD 1-2 and 3-4



Using the DIGITAL AUDIO INTERFACE (USB)

When using the DIGITAL AUDIO INTERFACE two stereo signals are available at USB 1-2 (input 5-6) or USB 3-4 (input 7-8). Do not connect signal sources to the MIC or LINE of this stereo inputs when using the DIGITAL AUDIO INTERFACE for playback. See page 15 for more details about the DIGITAL AUDIO INTERFACE.

Illustration 2-7: DIGITAL AUDIO INTERFACE



15 - TRIM LINE CD

These rotary controls are for matching the incoming line level signals (phone or RCA) to the operating level of the CMS. The total adjustment range is 30 dB. Unity gain – no amplification (0 dB) – is

achieved at the 0 dB mark. The control offers level reduction of -10 dB and an amplification of +20 dB. This range allows the connection of most professional, semi professional, and hi-fi sound sources. For further details on how to set the TRIM LINE CD control, please refer to the description of the GAIN control in monaural channels.

16 - EQ SECTION

The EQ section of the input stereo is identical to the EQ section of the input mono. For more details on the functioning of these controls, please refer to the Input Mono section of this owner's manual.

17 - FX

These control determines the amount of the summed L and R signal that is sent POST-FADER to the FX summing bus. For more details on the functioning of these controls, please refer to the Input Mono section of this owner's manual.

18 - AUX

These control determines the amount of the summed L and R signal that is sent to the AUX summing bus. Depending on the setting in the AUX Routing dialog in the menu the signal gets split pre or post fader. For more details on the functioning of these controls, please refer to the Input Mono section of this owner's manual.

19 - MON

These controls determine the amount of the summed L and R signal that is sent to the MON summing bus. The signal gets always split pre fader. For more details on the functioning of these controls, please refer to the Input Mono section of this owner's manual.

20 - BAL

The function of the BAL control of the stereo channels is equivalent to the PAN control's function of the monaural channels. If you turn the rotary control all the way to the right, the right signal is outputted to the right output while the signal of the left channel is muted. When the control is set to its center position, the L/R signals are present with their equal intensity on the corresponding outputs. Whenever stereo sound sources are connected to a stereo input, you should leave the BAL control at the center position or make only minor adjustments in either direction. In case a monaural sound source is connected, the BAL controls function absolutely identical to the PAN controls of the monaural input section.

21 - MUTE

The MUTE button mutes the input signal post fader, including all AUX/MON sends. PFL and Signal/Peak stay operational.

HINT: Use the MUTE button for muting temporarily not used input channels without changing the settings of the FX/AUX/MON controls and the channel fader.

22 - PFL

Engaging the PFL button routes the stereophonic signal to the headphones bus. You are able to listen to the audio signal via the PHONES output. The meter instrument in the master section is simultaneously switched, so that the left LED-chain indicates the level of the actually chosen channel (in dBu), which allows optimally matching the level of the signal source.

You can assign as many channels as you want to the phones summing bus at the same time. The volume levels of the individual signals are not affected by the setting of the corresponding channel faders (Pre Fader Listen). This gives you the opportunity to set the level and the EQ of a channel, without the need to include it in the master mix, i.e. you can leave the channel fader down or even engage the MUTE button.

23 - SIG/PK

The stereo SIG/PK indicator function provides independent analysis of left and right channel audio signals. The respective highest level reading is indicated, assuring that neither one is already driven into clipping. For further information on how to use this indicator most efficiently, please refer to the description of the monaural channel's identical feature.

24 - FADER

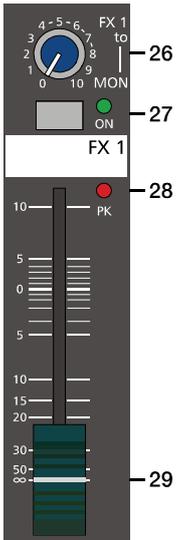
The channel fader is used to simultaneously adjust both levels (volumes) of the stereo signal. Functioning and specifications are totally similar to the monaural channel fader, as previously described in the Input Mono section.

2.3 FX 1/2



25

The CMS offers two independently controllable, identically configured 24-bit stereo effect units – FX 1 and FX 2. Each unit provides 100 program presets, which are selected by the use of the UP/DOWN buttons. Parameters of presets can be edited and stored as User Preset (101 - 120), see page 22 for details. The 100 presets are divided into groups according to their different effect structure, as shown on a printed listing. The programs within each preset group are sorted in ascending order, where higher numbers provide the same FX type with increased intensity. Presets 1 - 20 offer high quality reverb effect programs that are equally suitable for live performance, recording studio or home recording applications. Program numbers 21 - 40 provide mixed effect types of echo+reverb and chorus while the numbers 41 - 60 offer different delay effects. The last group from 61 - 100 provides different doubling effects presets as well as special delay and reverb programs. During the initialization of the FX units (when switching on the power of the CMS), preset 05 (BRIGHT HALL, Large Hall 3) is selected for the FX 1 while the FX 2 unit is set to preset 55 (MONO DELAY, 230 ms 40%). These two effects are similarly suitable for live performances and recording applications. This is the factory-preset configuration that can be changed any time.



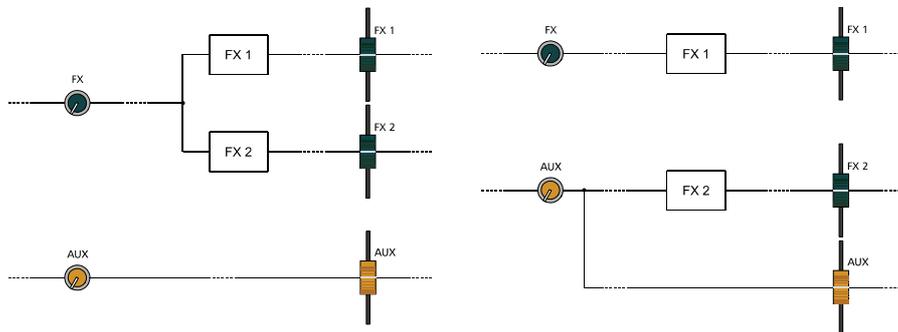
AUX PRE/POST

In the default AUX PRE/POST mode the FX control of the input channels are used for both effect units FX 1 and FX 2, see illustration 2-8.

AUX to FX 2

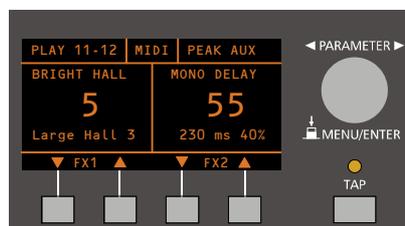
For the independent usage of the effect units FX 1 and FX 2 the AUX to FX 2 mode can be selected. In this mode the AUX signal is used as dedicated FX 2 signal. This means the function of the AUX controls, the FX controls and the signal flow to the effect units changes, see illustration 2-8. The AUX to FX 2 mode is selected via the menu, see page 23 for details.

Illustration 2-8: Signal flow in default AUX PRE/POST mode (left) or AUX to FX 2 mode (right)



SELECTING A PRESET

Illustration 2-9: Effect mode



To select a preset, please proceed as follows:

1. Below the display there are two buttons for each effect unit.
2. Use the DOWN button (left) of an effect unit to decrease the number of the active preset. Use the UP button (right) of an effect unit to increase the number of the active preset.
3. Keeping a button pressed continuously lets you step quickly through the program numbers.
4. Press the UP and DOWN button simultaneously to select the first preset of the next effect group.

The two effect programs are equally suitable for live performance or recording applications and can be used separately or together. For testing, evaluating and selecting effect programs, please also refer to the preset table on page 25, which provides detailed description of all effect presets. This listing contains all preset names together with the corresponding effect structure, field of application, and frequency characteristics. Take your time to test all presets and select the ones that are best suited for your specific application.

25 - FX 1/2 FOOTSW.

Phone jack for the connection of an optionally available DYNACORD FS 11 (DC-FS11) footswitch to switch the effect mode of the internal FX units on or off. To accomplish this function, the FX 1 and FX 2 ON switches have to be engaged.

HINT: The function of the footswitch can be edited via the Footswitch Ctrl. entry in the FX Control Setup dialog, see page 23 for details.

26 - FX 1/2 TO MON

These controls allow adding the output signal of FX 1 or FX 2 to the MON channel. Experience has revealed that the effect level in the monitor mix has to be lower than the level in the master mix, since the distance between monitor speakers and artists is much shorter.

27 - FX ON

This switch switches an internal FX unit on and the green LED lights. Please keep in mind that you can also use an external footswitch or a connected MIDI device for the switching of the FX unit. In this case, the LED also shows the actual operational status of the FX unit. If you want to use a footswitch (or MIDI device), the FX ON switch has to be engaged first. The corresponding FX unit is activated and you can use the footswitch (or MIDI device) to switch the selected effect program on or off.

28 - PK LED

These indicators signal if the internal FX units or the FX 1/2 SENDS signals are on the verge of clipping. To achieve an adequate S/N ratio, please adjust the FX units' input level as follows:

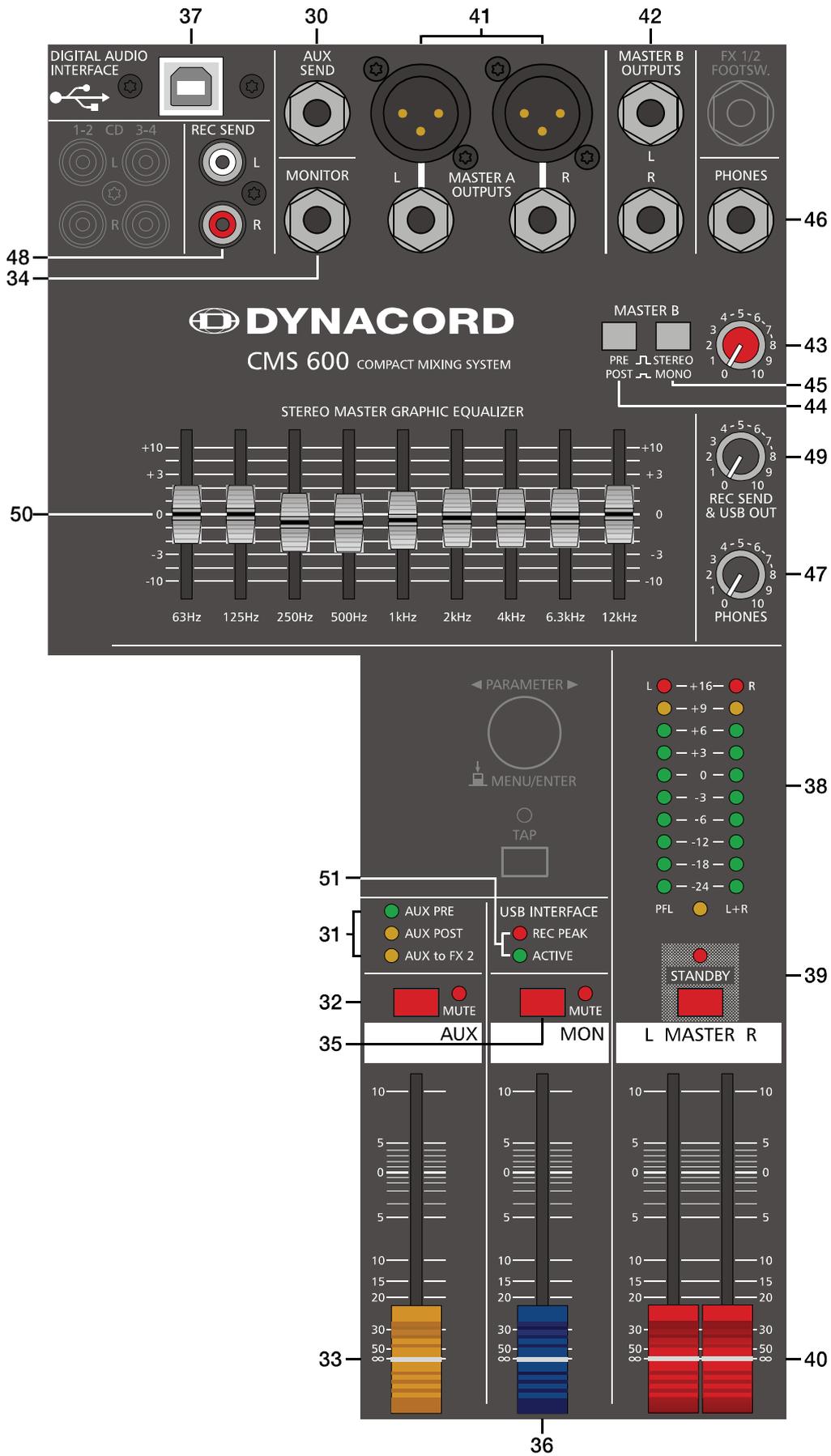
FX input level setting instructions:

1. Establish a "dry" mix – without effect settings – according to the previous descriptions.
2. Position the effect return fader of the corresponding effect channel at the -5 dB mark.
3. Use the UP/DOWN buttons to select the desired FX program preset.
4. Press the FX ON switch.
5. Play (start the reproduction of) the sound source connected to the desired input channel and adjust the desired amount of the FX signal, using the FX controls of this input channel. Repeat this step for all input channels that you want to include in your effect mix.
6. Monitor the Peak LED so that it only lights frequently at highly dynamic signal peaks. When clipping occurs, reduce the FX controls in the channels.
7. Use the FX to MON control to add the effect mix to the monitor mix. Use the Effekt Return faders to add the desired amount of the FX signal to the master mix.

In case you are using a different effect setting for the second FX unit, you have to repeat steps 2 - 7, respectively. Pay some attention to the peak indicators when operating your CMS to be able to quickly interact when the signal levels exceed the normal range and enter clipping.

29 - EFFEKT RETURN FADER

These stereo faders are used to determine the effect amount added to the master mix. In case you have to set these faders at a position above the +5 dB mark, please check if the FX unit's input signals are adjusted properly. Otherwise use the FX controls to increase the input levels.



2.4 AUX

Generally, the AUX channel is used for the connection of an additional, external FX unit. Depending on the setting of the AUX 1/2 POST button, it is also possible to configure the bus for monitoring purposes. Additionally the AUX channel is available at the DIGITAL AUDIO INTERFACE (channel USB 3).

30 - AUX SEND

This output provides connection for an external FX unit or, when used for monitoring, a power amplifier or active stage monitor speaker systems. Using the AUX fader allows setting the output level in a wide range up to +20 dBu. The AUX SEND is designed in Ground Sensing technology to prevent the induction of external noise, even with long cables. Use balanced cables for the connection of external components whenever it is possible.

31 - AUX PRE/POST/TO FX 2

The current mode of the AUX channel is indicated by this LEDs. Please refer to page page 23 for more details about the available modes.

32 - MUTE

The MUTE button mutes the AUX output signal.

33 - AUX FADER

This fader controls the summed audio signal at the AUX output. When used for monitoring, this fader lets you control the volume of the monitor system. When using the DIGITAL AUDIO INTERFACE for recording this fader also controls the volume of the sent channel USB 3. See page 26 for details about using the DIGITAL AUDIO INTERFACE.

2.5 MON

34 - MONITOR

This output provides connection for an power amplifier or active stage monitor speaker systems. The MONITOR output is designed in Ground Sensing technology to prevent the induction of external noise, even with long cables. Use balanced cables for the connection of external components whenever it is possible. Additionally the MON channel is available at the DIGITAL AUDIO INTERFACE (channel USB 4).

35 - MUTE

The MUTE button mutes the MON output signal.

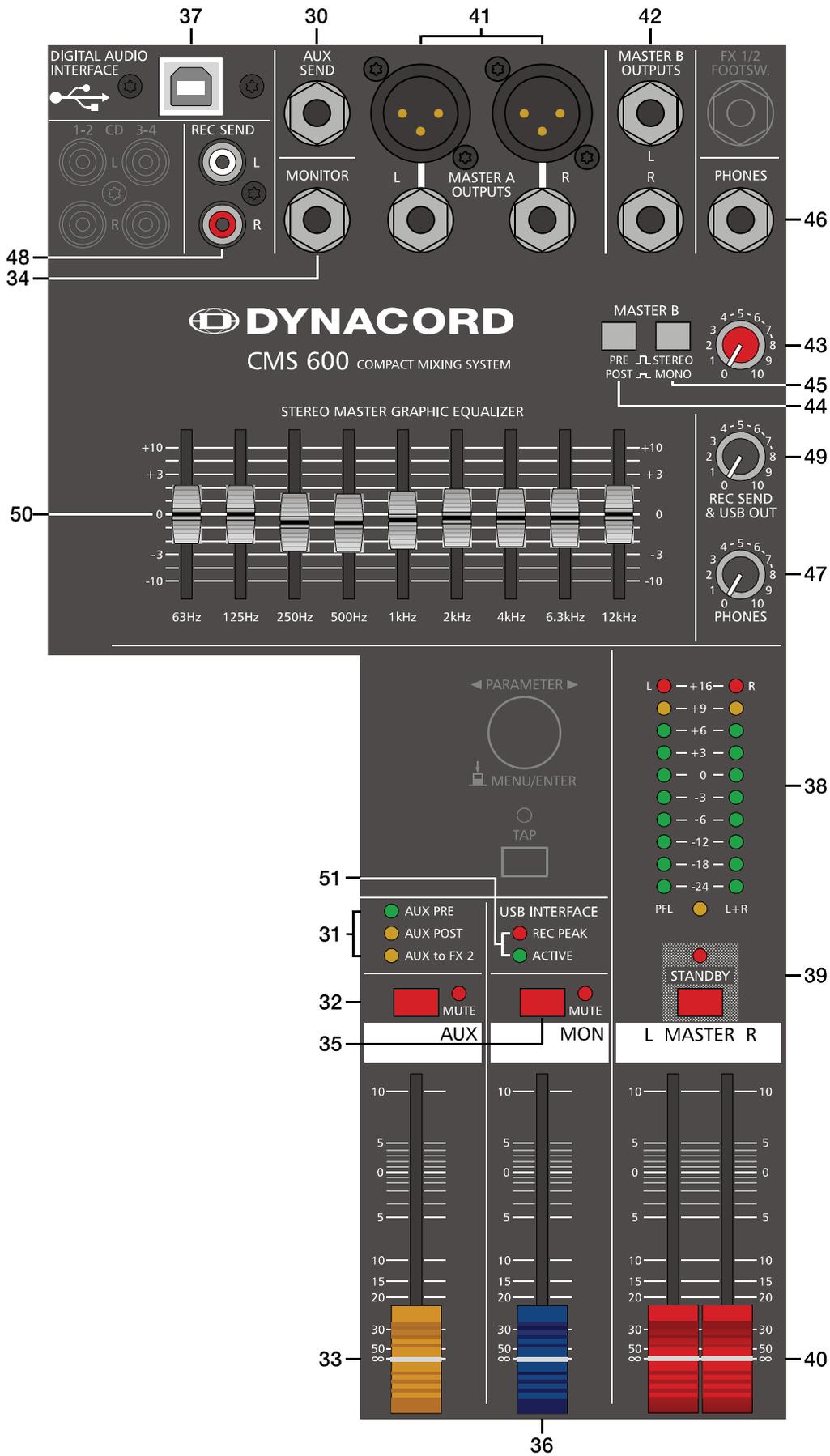
36 - MON FADER

This fader controls the summed audio signal at the MONITOR output. When using the DIGITAL AUDIO INTERFACE as output, this fader also controls the volume of sent channels USB 4.

2.6 MASTER with GEQ

37 - USB 2.0 DIGITAL AUDIO INTERFACE

The USB interface of the CMS is a USB B (female) connector. Please refer to chapter "DIGITAL AUDIO INTERFACE" on page 26 for more details.



38 - MASTER LED-DISPLAY

The CMS offers two 10-segment LED-chains for optical monitoring the output levels of the L/R master signals. The indication range of the LED-meter is 40 dB, indicating the levels that are present at the master outputs in dBu. The meter's 0 dB mark is referenced to a 0 dBu output signal at the mixer output. As soon as a PFL button is engaged, the PFL LED lights. The meter instrument in the master section is simultaneously switched, so that the left LED-chain indicates the level of the actually chosen channel (in dBu). The right LED-chain indicates the level of the summed post-fader master output.

39 - STANDBY

Pressing the STANDBY switch mutes the output signals at the MASTER A OUTPUTS L/R, MASTER B OUTPUTS L/R, AUX SEND and MONITOR outputs. The outputs REC SEND L/R and record channels of the DIGITAL AUDIO INTERFACE are still operational. The STANDBY LED lights indicating that stand-by mode is engaged and that input channel signals are not output via the speaker systems.

HINT: It is possible to playback the signal of stereo input 11-12 in standby mode. Therefore the entry Play 11-12 at STDBY in the Device Setup menu must be enabled, see page 24 for details.

40 - MASTER L/R FADER

Level controls to adjust the output signals of the left and right master outputs (MASTER A OUTPUTS L/R).

CAUTION: Please, make sure to set the input channel faders or at least the master faders to their minimum position, or to engage the STANDBY switch, before connecting an external sound source to an input of the CMS. This will save you, your audience, and the equipment from unnecessary stress.

41 - MASTER A OUTPUTS L/R

The mixer's electronically balanced XLR (or unbalanced phone jacks) main outputs carrying the post master fader L/R signals for connection of the main PA. The MASTER outputs are switched via output relay with a delay of approx. two seconds after the mixer has been powered on, which prevents power-on noise when switching the mixer on or off. Please also refer to the chapter "Setting up a standard PA system".

42 - MASTER B OUTPUTS L/R

At the MASTER B OUTPUTS the L/R master audio signal is present that can be used for additional monitoring, side fill and "next door" applications, or for the connection of a delay-line or subwoofer. The output is pre/post- and also stereo/mono-switchable.

43 - MASTER B

This control allows adjusting the level of the MASTER B output. The signal levels at MASTER A OUTPUTS L/R and MASTER B OUTPUTS L/R are identical if the MASTER B control is set to the position „5“ and the PRE/POST switch is set to POST.

44 - PRE/POST of MASTER B

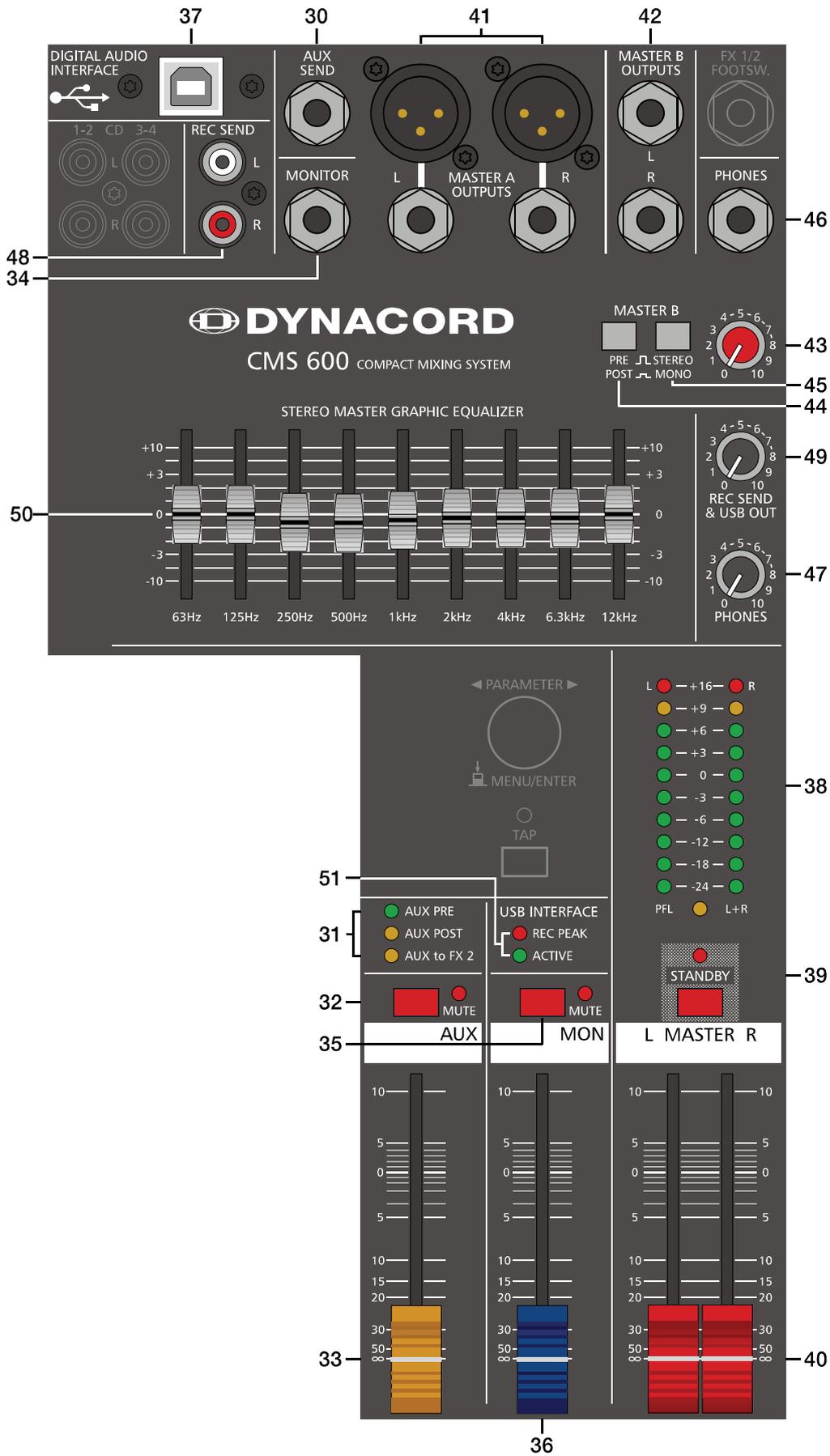
When PRE is selected the MASTER B is outputted pre master faders and pre GEQ, i.e. the level at the MASTER B OUTPUTS is independent from the master faders settings. When POST is selected the MASTER B is outputted post master faders, i.e. the level at the MASTER B OUTPUTS depends on the setting of the master faders. Controlling a connected Sub's level via master fader makes sense when using an active subwoofer, so in this case select POST. For monitoring applications, e.g. side fill on the stage, using the pre-fader setting seems more reasonable.

45 - STEREO/MONO of MASTER B

When STEREO is selected the MASTER L/R signal is not changed and outputted in stereo. When MONO is selected the MASTER L/R signal is summed and outputted in mono at MASTER B L and also MASTER B R. Using MONO is recommended when mono subwoofers are connected to MASTER B outputs.

46 - PHONES

Stereo phone jack (6.3 mm) for the connection of headphones with an impedance of 32 to 600 ohms. The audio signals of the channels with PFL buttons engaged is outputted via this connector. The phones output presents the master A L/R signal when there is no PFL button engaged. As the output is protected against short circuit, headphones or in ear monitor systems with an impedance below 32 ohms can be connected. In this case the maximum reachable volume is reduced.



47 - PHONES

This control sets the volume of the headphones connected.

CAUTION: Make sure to set the control to its minimum position before connecting headphones. Permanent hearing loss may occur if headphones are used at high volume.

48 - REC SEND L/R

These RCA-type connectors carry the pre fader master L/R signal. The signal is not affected by the setting of the master faders and therefore mostly used for the connection of MD or flash recorders for recording purposes. This connector can be used for permanent installation purposes also. Use the REC SEND & USB OUT control to adjust the output level, the maximum level is 20 dBu.

49 - REC SEND & USB OUT

This control allows adjusting the volume at the REC SEND outputs or, when used, the level of the DIGITAL AUDIO INTERFACE output channels.

50 - 9-BAND STEREO GRAPHIC EQUALIZER

The master channel employs a 9-band stereo equalizer. The EQ's insert point is post master fader and pre MASTER A outputs. Nine frequency bands offering 10 dB amplification/attenuation allow shaping the overall sound to meet your personal preferences or to optimally match it to the acoustic conditions of different locations.

GEQ setting instructions:

The frequency ranges as well as the characteristics of the EQ faders are very praxis-oriented. In case you want to have a clear and highly intelligible sound, which, as a side effect, provides the cymbals with more crisp, you should raise the levels of the 12 kHz or 6.3 kHz band a bit. If the MIDs are nasal you should attenuate the mid range (500 Hz to 2 kHz) by some decibels. To provide the kick drum with more punch you have to boost the low frequency range, using the 63 Hz or the 125 Hz controls. In case the overall sound is undefined with too much bass, lowering the levels of these two frequency bands will solve the problem.

However, especially with equalization you should be aware of the fact that in most cases less adjustments provide better results. Thus, your first choice should be to establish the mix using only the input channel controls and see if you get a satisfactory result.

51 - USB INTERFACE

These indicators are to inform you about the actual operational state of the CMS's DIGITAL AUDIO INTERFACE.

REC PEAK LED

The REC PEAK indicator lights red when for at least one of the four recording channels the risk of clipping exists. Reduce the output level of the affected channel by lowering the setting of the AUX or MON fader or the REC SEND & USB OUT control (Master).

HINT: The REC PEAK warning appears also when the DIGITAL AUDIO INTERFACE connected to a PC/Mac is used for playback purposes only. In this case the warning can be ignored.

ACTIVE LED

The ACTIVE indicator signals that the USB connection between CMS and PC/Mac is active and the DIGITAL AUDIO INTERFACE is ready for operation.

2.7 DISPLAY with function keys

52 - DISPLAY WITH FOUR FUNCTION KEYS

Effect mode

In effect mode the display indicates the selected preset number of each effect unit. Use the four function keys below the display for selecting the preset number.

Menu mode

Press the MENU/ENTER rotary encoder in effect mode to enter the menu mode. In menu mode the display indicates the function being executed for each function key.



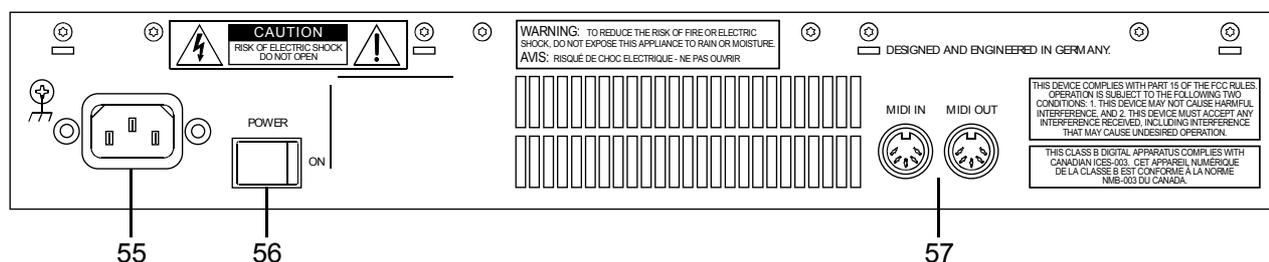
53 - MENU/ENTER

Use the MENU/ENTER rotary encoder in menu mode for menu navigation. In effect mode the MENU/ENTER rotary encoder has no function.

54 - TAP

If a delay effect is used the delay time can be adjusted to the beat by pressing the TAP button multiple times. The yellow LED indicates the delay time set. The function of this button can be configured using the TAP Button Ctrl. parameter, please refer to the section “FX Control Setup” on page 23 for details.

2.8 Rear panel



55 - MAINS CONNECTOR

The CMS receives its power supply via the lockable Mains input. Only the provided power cord may be used. Connect the CMS only to a mains network, which corresponds to the requirements indicated on the type plate.

HINT: Press the yellow button at the plug to disconnect the power cord.

56 - POWER

Mains switch to turn the CMS on or off. The CMS is operational when the display indicates the selected program numbers. Please make sure to set the master faders to their minimum position or engage the STANDBY switch before switching the power on. This will save you, your audience, and the equipment from unnecessary stress. In case additional external equipment is connected to the CMS – e.g. power amps, FX units, EQs, etc. – please, proceed in the following order when switching your equipment on:

1. switch on the FX units
2. switch on the CMS
3. switch on external power amps

When switching the power off, please proceed in the opposite order.

57 - MIDI IN/OUT

The MIDI IN/OUT ports allow connecting MIDI devices to the CMS. Next to the PC MIDI interface controlling the effect unit is possible via MIDI IN, please see page 23 for details.

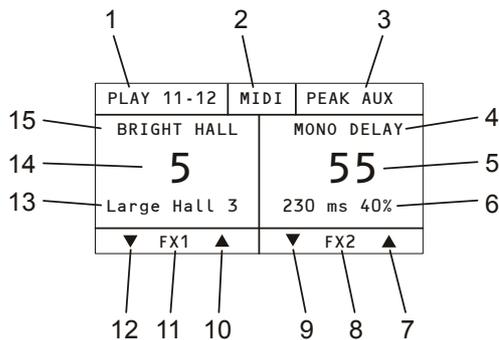
3 Display & functions

The CMS includes a premium OLED display. Compared to general LC displays the OLED display is brighter, has a greater contrast ratio and a wider viewing angle.

3.1 Effect mode

The start screen appears after switching the CMS on. After a few seconds the default effect for FX 1 & FX 2 and other system parameters are displayed.

Illustration 3-1: Effect mode



Number	Description
1	Play 11-12 indicator
2	MIDI indicator
3	PEAK indicator
4	Effect group of effect unit FX 2
5	Effect number of effect unit FX 2
6	Effect description of effect unit FX 2
7	Increases the effect number of effect unit FX 2 by one
8	Description of function key
9	Decreases the effect number of effect unit FX 2 by one
10	Increases the effect number of effect unit FX 1 by one
11	Description of function key
12	Decreases the effect number of effect unit FX 1 by one
13	Effect description of effect unit FX 1
14	Effect number of effect unit FX 1
15	Effect group of effect unit FX 1

Pressing the function keys below the display allows selecting an effect in a quick and easy way.

3.2 Menu mode

Press the MENU/ENTER rotary encoder in effect mode to access the menu mode. When entering the menu mode the main menu (see illustration 3-2) is indicated.

Illustration 3-2: Access the menu mode by pressing the MENU/ENTER rotary encoder

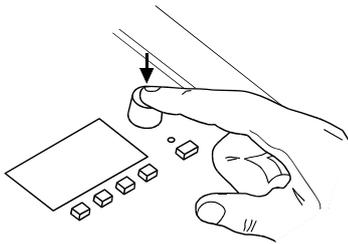
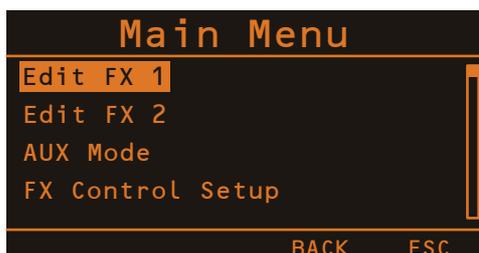


Illustration 3-3: Main menu in menu mode



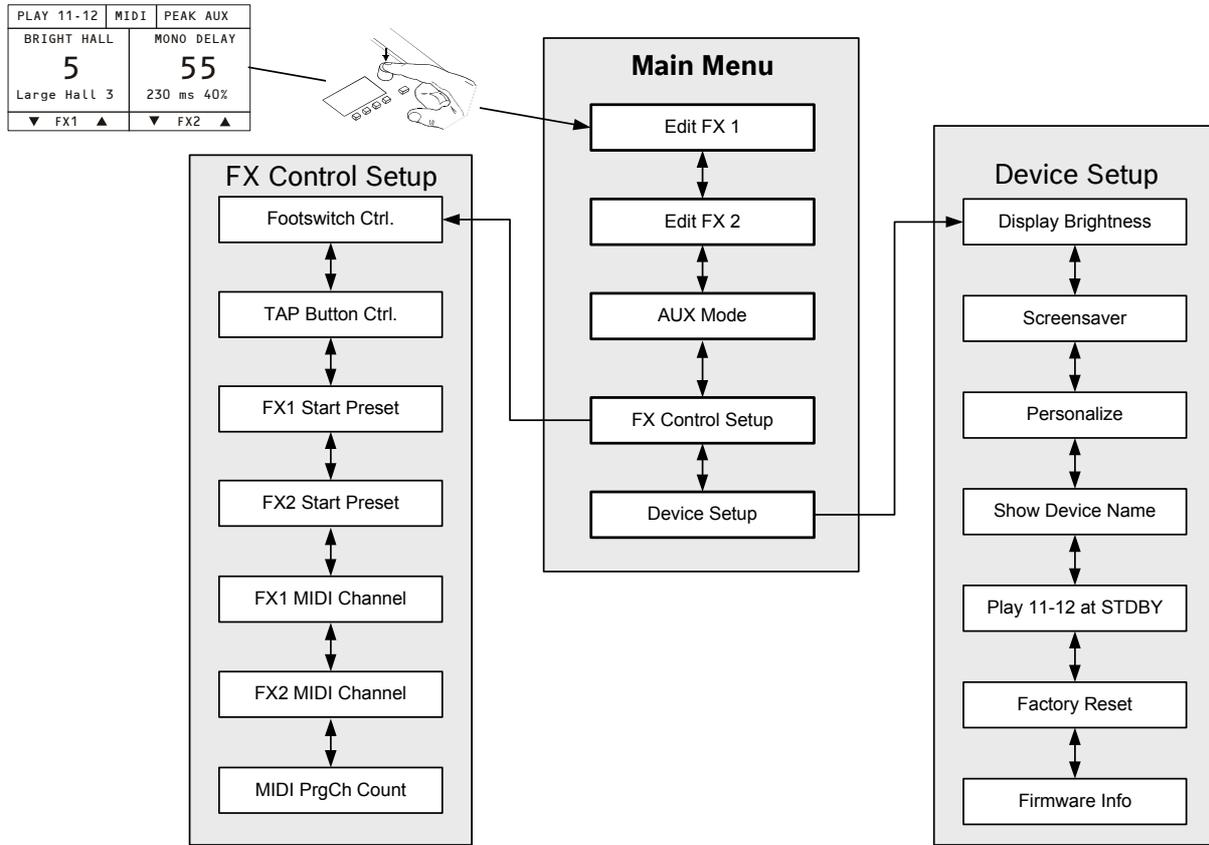
In menu mode the MENU/ENTER rotary encoder and the four function keys below the display are used for navigation and for selecting and editing parameters. Turn the MENU/ENTER rotary encoder to the left or to the right to move the cursor in the menu. Press the MENU/ENTER rotary encoder to select or execute the highlighted menu item. If a menu entry was highlighted, the corresponding dialog is opened. If a parameter was highlighted, the value is shown in inverse font and can be edited by turning the MENU/ENTER rotary encoder. Press the MENU/ENTER rotary encoder again to apply the edited parameter value. The bottom line of the display indicates the function for the four function keys. The following table describes some of the functions available in menu dialogs.

Table 3-4: Functions of the function keys

Function	Description
BACK	Returns to the next higher menu level.
ESC	Discards all edits in the dialog and returns to effect mode.
◀ or ▶	Move the cursor to the left or to the right.
SAVE	Opens the FX User Presets list to store the edited effect as a user preset.
OK	Confirms the entry, e. g. when editing the name of a user preset.

MENU STRUCTURE

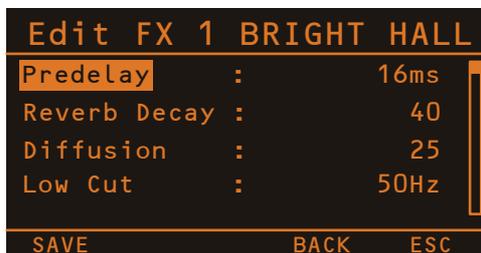
Illustration 3-5: Menu structure of CMS



Edit FX 1 / FX 2

This dialog allows editing effect parameters for effect unit FX 1 or FX 2. The available parameters will vary depending on the effect type, see page 25 for details. Additionally a custom name can be assigned to the edited effect and it can be stored as a user preset. Up to 20 user presets can be created.

Illustration 3-6: Edit FX 1 dialog



Turn the MENU/ENTER rotary encoder to highlight an entry in the left column of the Edit FX Menu. Press the MENU/ENTER rotary encoder to select the corresponding value in the right column. Now turn the MENU/ENTER rotary encoder to edit the value. Press the MENU/ENTER rotary encoder again to return to the left column. Press the SAVE function key to store the edited effect as a user preset. The FX User Presets dialog appears.

Illustration 3-7: FX User Presets dialog



Turn the MENU/ENTER rotary encoder to select the user preset where the edited effect should be stored. Press the MENU/ENTER rotary encoder to open the Set FX Name dialog.

Illustration 3-8: Set FX Name dialog



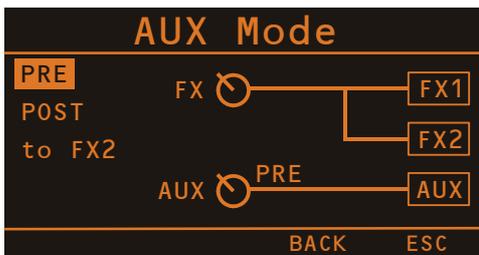
This dialog is used to change the user preset’s description. Turn the MENU/ENTER rotary encoder to the left or right to edit the highlighted character. Pressing the MENU/ENTER rotary encoder accepts the desired symbol and moves the cursor to the next character. Move the cursor to the left or to the right by pressing the ◀ or ▶ function keys. Select the ↵ symbol or press the OK function key to quit editing the name. Pressing the BACK function key returns to the menu.

AUX Mode

This dialog allows matching the routing of the AUX channel to your application. When opening the AUX Mode dialog the currently activated routing is highlighted. Turn the MENU/ENTER rotary encoder to select on of the routing setting described below. Press the MENU/ENTER rotary encoder to apply the selected setting. Pressing the BACK function key returns to the menu. Pressing the ESC function key discards all changes and returns to effect mode.

Pre fader (PRE)

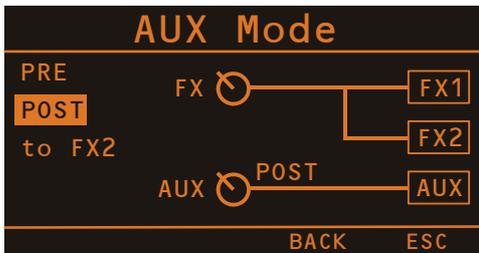
Illustration 3-9: AUX Mode dialog (pre mode)



The audio signal that is present at the AUX control is tapped pre volume fader and therefore not affected by the fader’s setting. This mode is mainly used for monitoring. Pre-Fader Monitoring is especially preferable when monitoring and master mix need to be completely different from each other, e.g. when the volume setting of particular musical instruments or vocals needs to be higher or lower than in the master mix. In most cases the mixing console is placed somewhere in the audience area (FOH) and is being operated by an sound technician.

Post fader (POST)

Illustration 3-10: AUX Mode dialog (post mode)

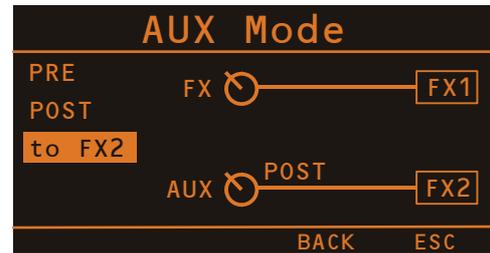


The audio signal that is present at the AUX control is tapped post volume fader and therefore affected by the fader’s setting. This mode is mainly used for establishing FX- or special monitoring mixes. Using the POST-Fader method is recommended when the mixer is also located on the stage and you have to operate it yourself. Setting

all AUX controls to their center position, the master mix is also present on the monitor bus, giving you the opportunity to control the volume settings of each channel individually from the stage. The overall volume of the monitor mix is set using the AUX fader in the master section. If you are using this option you should keep in mind that all volume changes made with the channel faders also apply to the monitor mix, leaving you with a higher risk of acoustic feedback. The Post-Fader Monitoring method provides the possibility of canceling channels of some instruments – like kick or snare drum, which are in fact already very loud on-stage – from the monitor mix by turning the corresponding controls all the way to the left.

AUX to FX 2

Illustration 3-11: AUX Mode dialog (AUX to FX 2 mode)



In this mode the AUX channel is used as FX 2 channel, so the AUX controls allow adjusting individual amounts of the input signals to be routed to the integrated FX 2 effects units. At the same time the FX controls allow adjusting individual amounts of the input signals to be routed to the integrated FX 1 effects units (see page 12 for details).

FX CONTROL SETUP

This dialog is used to configure the effect units FX 1 or FX 2. Some parameters of the effect units can be controlled via the MIDI interface, additionally this dialog is used to select the default effect which is activated when the CMS is switched on.

Illustration 3-12: FX Control Setup dialog



Table 3-13: FX Control Setup parameter

Parameter	Description
Footswitch Ctrl.	Select FX 1, FX 2 or FX 1+2 to control one or both effect units using a footswitch.
TAP Button Ctrl.	Select FX 1, FX 2 or FX 1+2 to control the delay time of one or both effect units using the TAP button.
FX1 Start Preset	Number of effect loaded after power on in effect unit FX 1
FX2 Start Preset	Number of effect loaded after power on in effect unit FX 2
FX1 MIDI Channel	Select the channel (1 to 16) to be used for controlling the FX 1 effect unit via MIDI. Select Omni if commands from all channels should be accepted. Select Off if the effect unit should not be controlled via MIDI. HINT: Select different MIDI channels for effect units FX 1 and FX 2 to control them independently with a programmable foot-switch.
FX2 MIDI Channel	Select the channel (1 to 16) to be used for controlling the FX 2 effect unit via MIDI. Select Omni if commands from all channels should be accepted. Select Off if the effect unit should not be controlled via MIDI. HINT: Select different MIDI channels for effect units FX 1 and FX 2 to control them independently with a programmable foot-switch.
MIDI PrgCh Count	Select the setting 0 - 127 if using MIDI devices that start counting program change commands from 0. Select the setting 1 - 128 if using MIDI devices that start counting program change commands from 1.

Turn the MENU/ENTER rotary encoder to highlight an entry in the left column of the FX Control Setup dialog. Press the MENU/ENTER rotary encoder to select the corresponding value in the right column. Now turn the MENU/ENTER rotary encoder to edit the value and press the MENU/ENTER rotary encoder again to apply the new value. Table 3-16 lists the entries of the FX Control Setup dialog. Pressing the BACK function key returns to the menu. Pressing the ESC function key returns to effect mode.

DEVICE SETUP

This dialog can be used for editing system parameters and checking system properties. Some menu entries (e.g. Display Brightness) can be edited in the Device Settings dialog after pressing the MENU/ENTER rotary encoder. Other entries (e.g. Firmware Info) will open another dialog when pressing the MENU/ENTER rotary encoder.

Illustration 3-14: Device Setup dialog



Display Brightness

The currently set display brightness (from 0% to 100%) is indicated in the right column. Press the MENU/ENTER rotary encoder to edit the value. Turn the MENU/ENTER rotary encoder to the left to decrease the display brightness. Turn the MENU/ENTER rotary encoder to the right to increase the display brightness. Press the MENU/

ENTER rotary encoder to apply the selected brightness. Pressing the BACK function key returns to the menu. Pressing the ESC function key returns to effect mode.

Screensaver

The currently set screensaver time interval is shown. After the time interval (from 10 seconds to 60 minutes) has expired the screensaver is activated. Press the MENU/ENTER rotary encoder to edit the value. Turn the MENU/ENTER rotary encoder to the left to shorten the time interval, or deactivate the screensaver by selecting Off. Turn the MENU/ENTER rotary encoder to the right to extend the time interval. Press the MENU/ENTER rotary encoder to apply the selected setting. Pressing the BACK function key returns to the menu. Pressing the ESC function key returns to effect mode.

Personalize

Press the MENU/ENTER rotary encoder to open the Set Device Name dialog. This dialog is used to change the CMS's name, which can be composed of a maximum of 18 symbols and consist of all letters A-Z, a-z, the numbers 0-9 and special characters. Turn the MENU/ENTER rotary encoder to the left or right to edit the highlighted character. Pressing the MENU/ENTER rotary encoder accepts the desired symbol and moves the cursor to the next character. Move the cursor to the left or to the right by pressing the ◀ or ▶ function keys. Select the ↵ symbol or press the OK function key to quit editing the name. Pressing the BACK function key returns to the menu. Pressing the ESC function returns to effect mode.

Show Device Name

Press the MENU/ENTER rotary encoder to edit the setting. Select „On“ if the device name should be indicated in the display. If „Off“ is selected the name is not indicated. Press the MENU/ENTER rotary encoder to apply the selected setting.

Play 11-12 at STDBY

Select „enable“ if input 11-12 (CD 3-4) should be used for playback of background music in STANDBY mode.

HINT: If Play 11-12 at STDBY is enabled a confirmation prompt appears in the display when activating STANDBY mode. Press the MENU/ENTER rotary encoder to confirm.

If „disable“ is selected the signal received via input 11-12 is muted in STANDBY mode. Pressing the BACK function key returns to the menu. Pressing the ESC function key returns to effect mode.

Factory Reset

The CMS can be reset to factory settings. Pressing the MENU/ENTER rotary encoder opens a clear user FX dialog box that lets the user choose between YES or NO by turning the MENU/ENTER rotary encoder. Select YES if all user effects should be cleared. Select NO if the user effects should not be cleared. Pressing the MENU/ENTER rotary encoder opens a safety dialog box „Are you sure?“ that lets the user choose between YES or NO by turning the MENU/ENTER rotary encoder. If YES has been select-

ed, pressing the MENU/ENTER rotary encoder resets the CMS to its factory settings. If NO has been selected, all parameters stay unchanged and the display returns to the menu. Pressing the BACK function key returns to the menu. Pressing the ESC function key returns to effect mode.

Table 3-15 lists all parameters that are affected by a reset.

Firmware Info

Press the MENU/ENTER rotary encoder to open the Firmware Info dialog. This dialog shows the versions of the firmwares that are actually installed in the CMS. Pressing the BACK function key returns to the menu. Pressing the ESC function key returns to effect mode.

Table 3-15: Factory settings

Parameter	Value
AUX Routing	PRE
Footswitch Ctrl.	FX 1+2
TAP Button Ctrl.	FX 1+2
FX 1 Start Preset	5
FX 2 Start Preset	55
FX 1 MIDI Channel	Off
FX 2 MIDI Channel	Off
MIDI PrgCh Count	1 - 128
Display Brightness	100%
Screensaver	Off
Device Name	CMS
Show Device Name	On (activated)
Play 11-12 at STDBY	Disable

3.3 Effects

Table 3-16: CMS effect presets

No.	Effect group	Description	Preferable used with
01 - 10	Bright Hall	bright reverb, concert hall, church, cathedral	vocals, horn, strings
11 - 20	Bright Plate	bright plate, no audible reflections	piano, guitar, drums, vocals
21 - 30	Echo+Reverb	bright echo/reverb mix	especially for „Live“ vocals, strings, horns
31 - 33	Chorus	„light“ chorus	piano, guitar, bass, Rhodes, strings
34 - 36		„deep“ chorus	organ, piano, guitar, bass, Rhodes, strings
37 - 39	Chorus+Echo	„deep“ chorus with fading echo	organ, guitar strings
40	Flanger	real „late sixties“ jet flanger	drums, prcussion, bass, strings, vocals
41 - 50	Stereo Delay	L/R echoes	combined with a reverb effect well suited for vocals, horns, strings
51 - 60	Mono Delay	centered echoes, slowly fading (40% feedback)	combined with a reverb effect wel suited for vocals, horns, strings
61 - 70	Soft Hall	extremely smooth reverb, concert hall, church, cathedral	vocals, horns, strings, home recording
71 - 80	Soft Plate	smooth plate, no audible reflections	piano, guitar, drums, vocals, home recording
81 - 90	Mono Delay	centered echoes, vastly fading (20% feedback)	fast fading slap back echoes for vocals, percussion. Combined with a reverb effect well suited for vocals, horns, strings
91 - 92	Doubling	doubling effect without coloration	vocals, horns, strings, organ
93 - 96		doubling effects	snare drum, kick drum
97 - 98	Reverse	reverse reverb	snare drum, kick drum
99	Slap-Back	fast slap back echo without repeats	vocals, kick drum, snare drum
100		slow slap back echo without repeats	vocals, kick drum, snare drum

4 DIGITAL AUDIO INTERFACE

The USB 2.0-Port of the CMS serves as digital audio interface for the connection of a PC or Apple Macintosh (Mac). The DIGITAL AUDIO INTERFACE can be used as input or output device at the same time. When using a PC/Mac with USB 2.0 interface up to four channels can be transmitted simultaneously in any direction. When using a PC/Mac with USB 1.1 interface up to two channels can be transmitted simultaneously in any direction.

4.1 Installing the USB driver

Before connecting the CMS and your PC/Mac for the first time via USB you have to install the needed USB driver (located at the provided DVD) on the computer.

HINT: If you are unsure about how to perform basic computer operations appearing in this manual, please refer to the owner's manual that came with your PC/Mac.

CAUTION: Never attempt to play the enclosed DVD in a conventional audio CD/DVD player, as the resulting noise may damage your speakers or your hearing.

1. You will be asked to connect the CMS to your PC during the installation process, do not connect the CMS before. Please cancel the Add Hardware Wizard in Windows if it has already started.
2. Place the supplied DVD in your PC/Mac's drive.
3. Open the subdirectory, matching to the operating system used, in the directory /Driver.
4. Execute the file „Setup.exe“ (PC) or

HINT: Using high grade USB 2.0 cables is recommended for optimal signal quality.

CAUTION: We can accept no responsibility for any loss of the data you record using this product onto other MIDI equipment in your system or onto storage devices such as hard disk.

„Dynacord_USB-Audio_Driver.dmg“ (Mac) found in the /CMS_600-3 directory. (Example: When using Windows 32 Bit execute the file Setup.exe in directory /Driver/Windows/32Bit/CMS_600-3)

5. Select the language of the application.
6. Start installation of the USB driver for your operating system by clicking the corresponding button.

HINT: If you are not sure which Windows Operating System is installed on your PC, click on Start > Control Panel > System. In the „General“ tab the Windows type is shown. For more information read the documentation found in the directory „Tips_Tricks“ at the supplied DVD.

7. Choose your language at the language selection dialog and click the OK button.
8. Click on the „Install driver“ button.
9. Follow the on-screen instructions.

HINT: Check www.dynacord.com for USB driver updates and additional information regularly.

4.2 Cubase LE

For using the CMS with your PC/Mac, the Cubase LE software is included at the supplied DVD.

INSTALLATION

Execute following steps to install Cubase LE on your PC/Mac.

1. Place the supplied DVD in your PC/Mac's drive.
2. Open the subdirectory, matching to the operating system used, in the directory /Cubase.
3. Execute the file Setup.exe (Windows) or Cubase_LE.mpkg (Mac) to start installation of the software.

CONFIGURATION

For using your CMS in the Cubase software execute following steps:

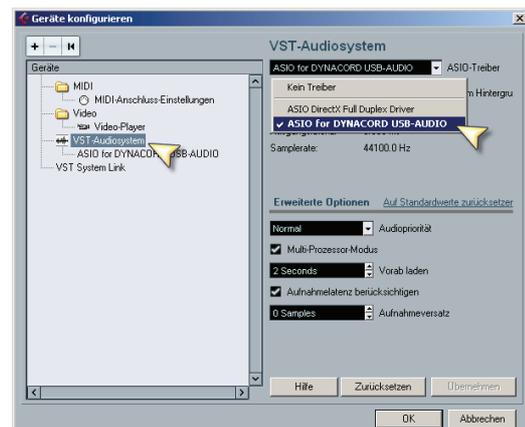
1. Start the Cubase LE software.
2. Select Devices > Configure Devices. The Configure Devices dialog appears.
3. Select VST-Audiosystem in the left section of the dialog.
4. Select the ASIO driver „ASIO for DYNACORD USB-

AUDIO“.

5. Press the OK button.

HINT: For more information about using the software read the documentation found in the directory „ApplicationNotes“ at the supplied DVD or open menu Help > Documentation in Cubase LE.

Illustration 4-1: Configuration of Cubase LE



4.3 Status display

In effect mode, the display of the CMS shows the status information of the DIGITAL AUDIO INTERFACE.

Illustration 4-2: DIGITAL AUDIO INTERFACE display

PLAY 11-12	MIDI	PEAK AUX
BRIGHT HALL 5 Large Hall 3		MONO DELAY 55 230 ms 40%
▼ FX1 ▲		▼ FX2 ▲

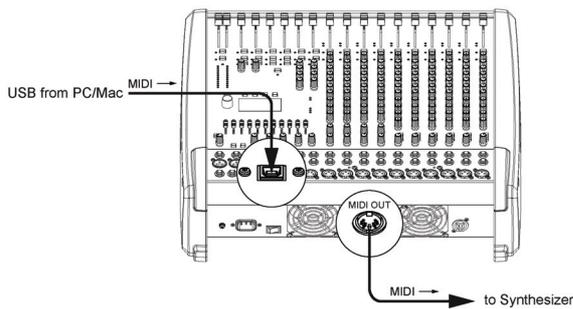
Table 4-3: USB status display

Display	Description
PEAK AUX, PEAK MON, PEAK MAS	For at least one of the four recording channels exists the risk of clipping. Reduce the output level of the affected channel by lowering the setting of the AUX or MON fader or the REC SEND & USB OUT control (Master). HINT: The PEAK warning appears also when the DIGITAL AUDIO INTERFACE connected to a PC/Mac is used for playback purposes only. In this case the warning can be ignored.

4.4 PC-MIDI-Interface

The CMS provides a full-featured PC-MIDI interface. So, when you use an appropriate software application to send MIDI data from the PC/Mac to the DIGITAL AUDIO INTERFACE, the MIDI data is present at the MIDI OUT jack on the rear of the CMS.

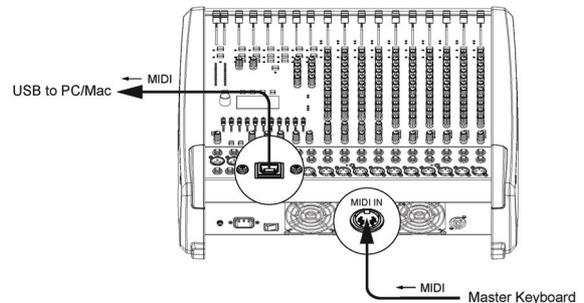
Illustration 4-4: Sending MIDI data from a PC/Mac to a Synthesizer (illustration shows CMS 1000-3)



Vice versa, all MIDI data input via the MIDI IN jack are passed through to the PC, for instance to be recorded using a sequencer software application. Keep in mind that the control data for the integrated effects units, that for example can be remotely controlled via MIDI footswitch, are transmitted to the PC as well. Data error interpretation can be avoided through careful

selection of suitable MIDI channels, see also “FX Control Setup” on page 23 and the documentation of your software application.

Illustration 4-5: Sending MIDI data from a Master Keyboard to a PC/Mac (illustration shows CMS 1000-3)



HINT: For sending MIDI data from your PC to the CMS, open the Sounds and Audio Devices Properties in the Windows Control Panel. Select DYNACORD USB-MIDI as Default Device for MIDI music playback.

4.5 Examples of usage (Playback)

When the DIGITAL AUDIO INTERFACE is used as CMS input, the channels USB 1 and USB 2 are assigned to stereo input 5-6. The channels USB 3 and USB 4 are assigned to a stereo input 7-8.

HINT: If necessary, adjust the level of the input signal in the playback software of your PC/Mac.

MUSIC PLAYBACK IN STEREO

The CMS functions as an external sound card of the PC/Mac. In the system settings of your PC/Mac, select the CMS (DYNACORD USB-AUDIO) as the playback device. Audio signals are output from the PC/Mac through input channels USB 1-2 of the CMS. You can use the fader to control the volume, like it is explained in detail in the Input Stereo section on page 10.

DUAL STEREO PLAYBACK (DJ APPLICATION)

The consistent 4-channel design of the DIGITAL AUDIO INTERFACE allows to pre-listen the signal of the USB channels 3-4 via headphones using the PFL button, while the current song is output e. g. via USB channels 1-2. This facilitates determining the fade-in point of the next song. A setup consisting of PC/Mac, CMS and loudspeaker systems is all you need as a DJ to entertain your audience. All common DJ applications can address the two stereo USB channels (USB 1-2 and USB 3-4) via ASIO driver. ASIO is a standard, which has been established in almost all applications of multi-channel sound interfaces. The ASIO driver was automatically installed together with installing the device driver, as described on page 26. For assigning the sends to the playback channels of the CMS, please mind the documentation of the software program that you are using.

4.6 Example of usage (Recording)

In the following application, your PC/Mac is used for recording while the CMS functions as premium A/D converter, without the need for an external sound card.

LIVE-RECORDING OF EVENTS

The mixer master signal is transmitted to the PC on USB channels 1-2 of the DIGITAL AUDIO INTERFACE. This is the basic setting for a live recording of your event. On USB channel 3 (or 4) the AUX (or MON) way is transmitted to the PC. If the AUX or MON ways are not yet reserved or occupied for monitoring, effect applications or other purposes, you can use them instead to record two additional signals, which then are available during post-production of your recording. This, for example, provides the possibility to enhance solo vocals or a solo instrument at specific passages so that they stand clearly in front of the mix. For that, you need to assign respective input channels to the AUX/MON bus using the AUX/MON controls.

A very recommendable option is to use the two ways in order to record the signals of a stereo microphone positioned in front of the stage. Recordings, which are fed only from the PA mixer, are often disappointing, because audience reactions are completely missing and the sound does not reflect the live performance. That is because of the fact that particularly in small venues the acoustic output or electrical signal of many musical instruments, which by nature already have sufficient clout (such as drums, electric guitar, etc.) gets reproduced only to a slight degree or not at all via the public address system. Conversely, sound recordings that only employ a room microphone, very often sound indirect and especially the vocals suffer from a lack of clearness and intelligibility. The CMS offers the possibility to simultaneously record both signal sources (mixer output and room microphone) separate from each other. During post-production of the recording you can comfortably match all tracks in proportion to each other.

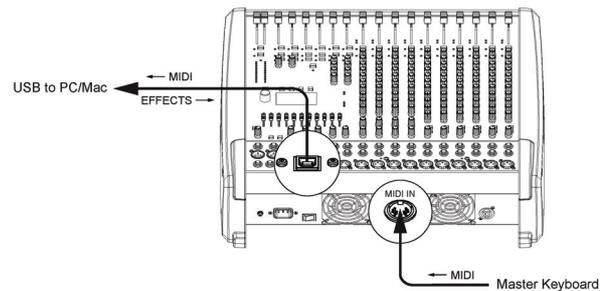
HINT: Make sure that during recording the signals of the room microphones are not included in the PA mix to prevent feedback. Therefore, the faders of the „room channels“ have to be pulled all the way down. The AUX way, nevertheless, has to be operated in pre-fader mode in order to feed the signal to the DIGITAL AUDIO INTERFACE.

4.7 MIDI tone generator and multi-effect unit

As already explained, the CMS can be used to transfer MIDI data for instance from a master keyboard to a PC/Mac. Using appropriate software, such as a multi-track recording application and suitable Plugins (e.g. the supplied Cubase LE software), the entire world of most up-to-date sounds is always at your disposal. Due to the efficiency of today's laptops, it is no longer a problem to expand your personal sound library even in Live-use with sounds that, a few years ago, were only to be found on sophisticated studio synthesizers. Connect your master

keyboard to the MIDI IN jack and select the MIDI INTER-FACE as input for the tone generator in the software application. The computer-generated sounds are transmitted over one of the two USB stereo channel strips back to the CMS. Using the faders, you can comfortably adjust the volume level, as if you had connected a keyboard with built-in tone generator to the stereo line inputs.

Illustration 4-6: Using the PC/Mac as MIDI tone generator (illustration shows CMS 1000-3)



The CMS offers similar options for the creation of sound effects. The PC serves as an external, extremely powerful multi-effects unit. Since the signal is fed from the AUX way, the operation during mixing becomes as simple as using the internal effects of the CMS. The AUX way should be switched to post-mode. The effect signal generated in the PC is again added to the overall mix via USB stereo channels 1-2 or 3-4. The stereo channel faders serve as FX-return controls.

Finally, it has to be mentioned that, depending on the software and drivers, some of the options described can also be used in parallel. For example, you can use the four recording channels of the CMS for live recording and at the same time play back music from the same PC, e. g. for stage performances.

5 Setting up a standard PA

5.1 Cabling

The mains supply cord comes with the CMS. The quality of all other cables lies in your responsibility. Carefully chosen high quality cables are the best precaution to prevent later problems during live operation. The following wiring alternatives are recommended to provide trouble free operation of your system.

LF-CABLES - BALANCED OR UNBALANCED?

For LF-cabling – all the low current wiring – your best choice are balanced cables (2 signal conductors + ground shielding) with XLR-type connectors or stereo phone plugs. The cables should be step-on proof, shielded, and never longer than really needed. Too many too long cables mostly lead to confusion and generate unnecessary problems. Of course, connecting unbalanced cables with monaural phone plugs to the CMS's in- and outputs is also possible and in most cases no interference will occur because of its superb grounding managing system. Generally spoken, if you have the choice, a balanced LF-cable

is always the better solution. Today's modern audio equipment – like amplifiers, equalizers, FX units, mixing consoles, and even some keyboards – offers balanced in- and outputs. In a balanced signal path the cable screen provides gapless connection of all metal parts, offering efficient shielding against the induction of external noise. The balanced cabling in conjunction with the common-mode rejection of the CMS's input stage effectively eliminates even existing artifacts of interference. All inputs of the CMS provide balanced audio connections and high common-mode rejection. The mixing stage outputs – AUX, MASTER, MONITOR, etc. – are laid out in GND-SENSING technology – a special pin assignment of the output jacks, offering all advantages of the balanced signal transmission, but lets you also connect monaural phone plugs without a problem. Nevertheless – as mentioned above – when longer cables are involved, using stereo phone plugs and balanced cables are the better alternative. The diagrams below show the pin assignments of plugs and cables that are used with the CMS.

CMS	Cable	Application
MIC INPUT		balanced connection of microphones
All phone jack in/outputs (except PHONES)	Cable connection phone to XLR-type, unbalanced 	unbalanced external equipment with XLR-type in/output jacks
	Cable connection phone to XLR-type, balanced 	balanced external equipment with XLR-type in/output jacks
All phone jack in/outputs (except PHONES)		unbalanced external equipment with phone jack in/output jacks
	Standard phone-type, balanced 	balanced external equipment with phone jack in/output jacks

5.2 Setting up

1. Place the CMS in a way that allows unobstructed operation and connect the mains cord.
2. Try to locate the best position where you want to place the loudspeaker systems. If possible, the woofers should be placed on the floor while the Hi cabinets' most favorable position is above the Lo cabinets, on the same vertical axis. It is important that the lower edge of the Hi cabinets is approximately at the same height level or slightly higher as the heads of the audience. Either you use the pole mounts to place the Hi cabinets on top of the woofer cabinets or, in case this kind of installation is not possible or you are not using woofer systems, use the separate speaker pole-stands instead.
3. Do not place the left and the right speakers further apart than necessary. The less distance there is

- between the two speaker “clusters” – the more compact the sound.
4. Try to avoid the positioning of the main loudspeakers behind the imaginary line of microphones. Otherwise, if you have to drive the system at higher sound levels, the risk of feedback is very likely.
 5. After you have installed all microphone stands and all artists found their place, the best spot to install the monitor speakers is up front facing the musicians and vocalists. Nevertheless, please check if a microphone is directly pointing in the direction of a monitor. In this case, change its position. You should also be aware of the individual characteristics of the employed microphones.
 6. Establish connections according to the setup examples. Make sure not to confuse the channels by accident.
 7. Connect all microphones preferably to the monoaural inputs of the CMS and keyboards and other comparable sound sources to the rest of the available inputs.
 8. Pull all faders down and engage the CMS's STANDBY switch to prevent unwanted feedback noise.
 9. First, switch on all external devices, then the CMS and at last power amplifiers and active speaker systems.
 10. In case you have condenser microphones connected to the CMS, you can now turn on the phantom power by pressing the PHANTOM POWER switch.
 11. Activate the CMS's operational mode through pressing the STANDBY switch again.

5.3 Soundcheck

First, adjust the input levels of the microphones that are connected to the mono inputs (MIC 1 to MIC 4) or stereo inputs (MIC 5 or MIC6) of the CMS. Please proceed as follows:

1. Set the corresponding GAIN controls and the channel faders to their lowest position.
2. Speak or sing as loud as possible into the microphone.
3. Use the GAIN control to adjust the level, so that even at loud passages the red PK LED does not light but the green SIG LED lights constantly.

Adjust the EQ of the input channels:

1. Slide the channel fader and the master faders up a bit, so that the sound coming from the main speakers is heard.
2. Adjust the HI, MID and LOW controls, starting from their centered position, until the sound matches your personal taste.
3. Repeat steps 1 - 2 for all input channels in use.

In case you are also using the stereo input channels LINE 9-10 or 11-12, you can adjust the levels in a similar way:

1. Set the TRIM LINE CD controls and the channel fader to their lowest setting.
2. Play the corresponding sound source at the highest volume that is to be expected during the performance.
3. Use the TRIM LINE CD control to adjust the level, so that even at loud passages the red PK LED is not lit but the green SIG present LED lights constantly.

Adjust the EQ of the stereophonic input channels:

1. Slide the channel fader and the master faders a bit up, so that you can hear the sound through the main speakers.
2. Play the corresponding sound source.
3. Starting from the center position, you can adjust the HI, MID and LOW controls until the sound is to your liking. Please, keep in mind that major alteration of the EQ-setting does not necessarily result in the improvement of the overall sound. Especially when sound shaping is concerned, less can be

- more.
4. Repeat steps 1-3 for all stereo input channels in use.

If musical instruments are connected directly to the monoaural inputs, follow the descriptions above describing the adjustment of the microphones.

Make sure, that all channel faders, GAIN and TRIM LINE CD controls of unused input channels are at their minimum setting. In this way you avoid unnecessary noise.

MASTER MIX

1. Position the master faders in the range between -30 dB and -20 dB.
2. Establish a basic mix, using the channel faders, so that the individual sound levels relate to each other according to your personal taste. The best range for the channel faders to be set to is in the area of -5 dB to 0 dB. In this way you are provided with enough tolerance for later adjustments.
3. Use the master faders to adjust the overall volume.

EFFECTS

In case you are using the FX units, please proceed as follows:

1. Set the EFFECT RETURN fader of the FX unit to the -5 dB mark.
2. Use the UP/DOWN buttons below the display to select the desired effect preset.
3. Press the FX ON button.
4. Play the sound source of the desired input channel and adjust the desired amount of the FX signal, using the FX controls of this input channel. Repeat this step for all input channels that you want to include in your effect mix.
5. Adjust the FX controls, so that the PK LED of the FX unit only lights frequently at highly dynamic signal peaks.

MONITOR MIX

1. Set the MON fader located in the master section to the -5 dB mark.
2. Set the MON controls of all input channels according to your personal taste.
3. Use the FX 1/2 to MON control to add the effect mix to the monitor mix, without influencing the master mix. Normally, the monitor mix needs less FX than the master mix.

FINE TUNING

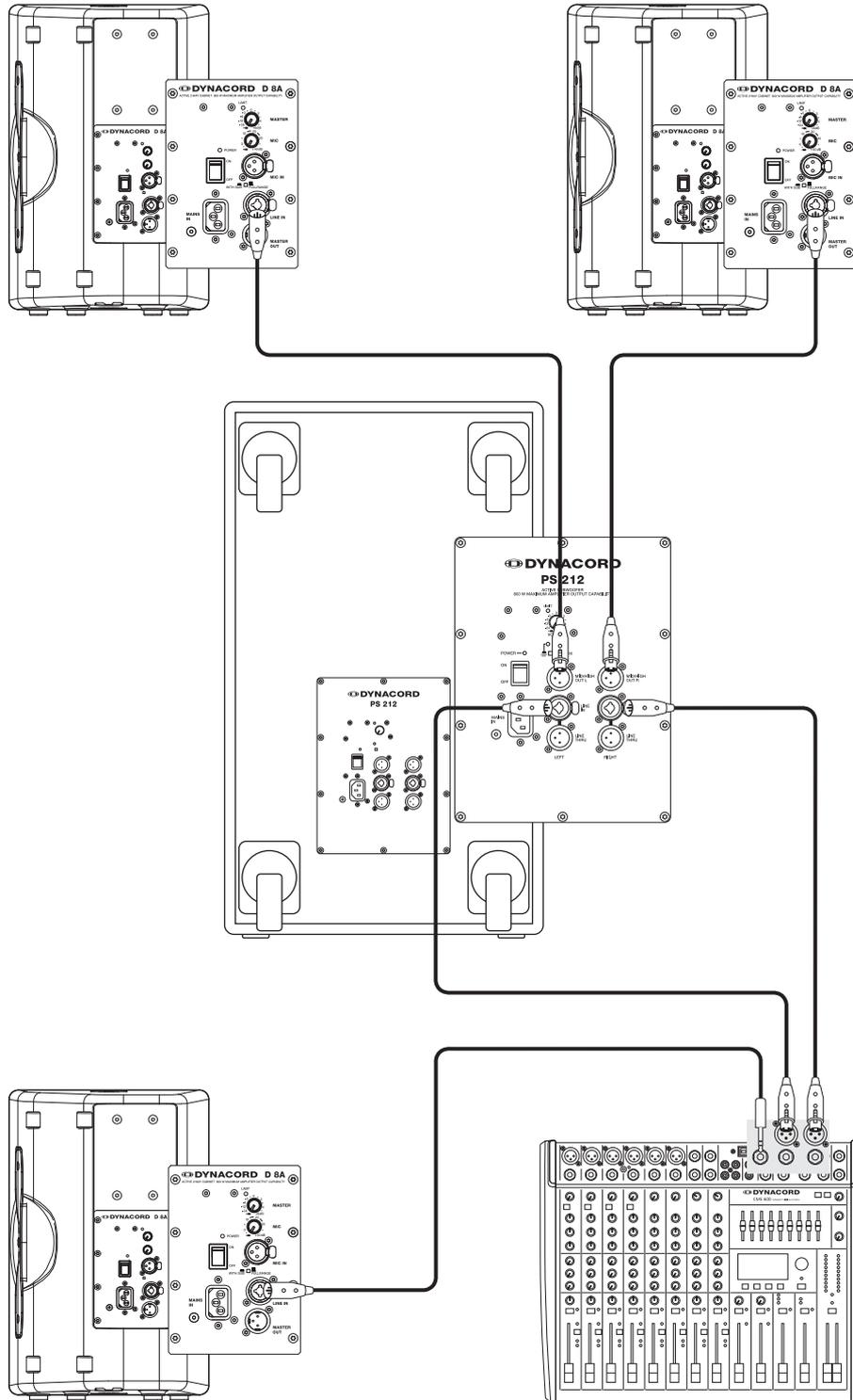
Let the artists perform and check the sound of the system from different angles and distances. If you come to the conclusion that some corrections in the overall sound image are necessary, use the 9-band equalizer and match the sound to your liking. By doing so, you should keep in mind, that during the performance the sound is going to be altered because the audience is present, which has a major effect on the acoustical condition of the location, the degree of first reflections, and the absorption of low frequencies. If possible, you should check the “sound in the house” during the performance and – if necessary – adjust it to the changed conditions.

And for the rest, we like to wish you lots of fun and success with your new CMS mixer.

6 Setup examples

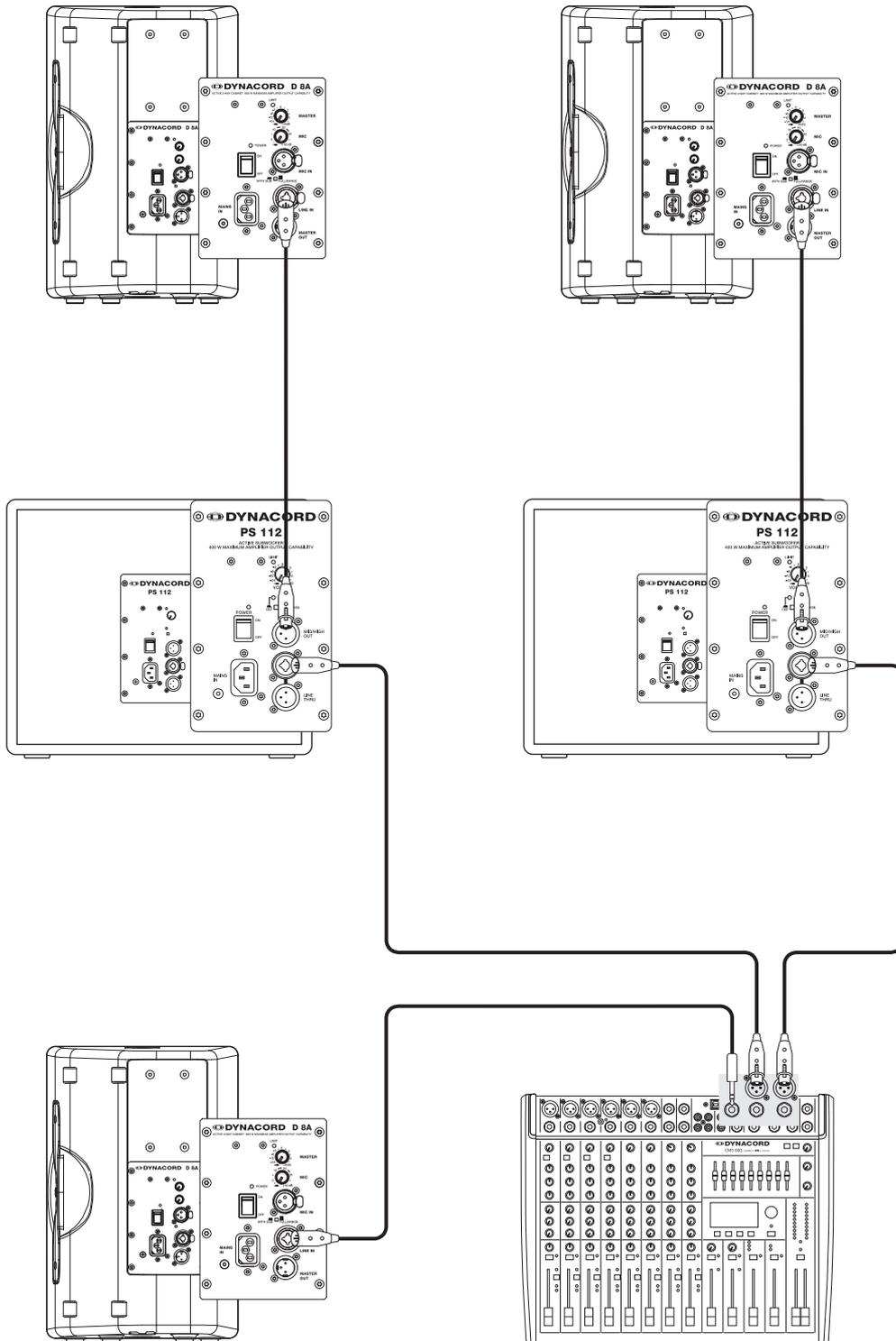
6.1 CMS with D-Lite activeone

Illustration 6-1: CMS with D-Lite activeone (2 x D 8A, 1 x PowerSub 212) as main PA, 1 x D 8A used as monitor



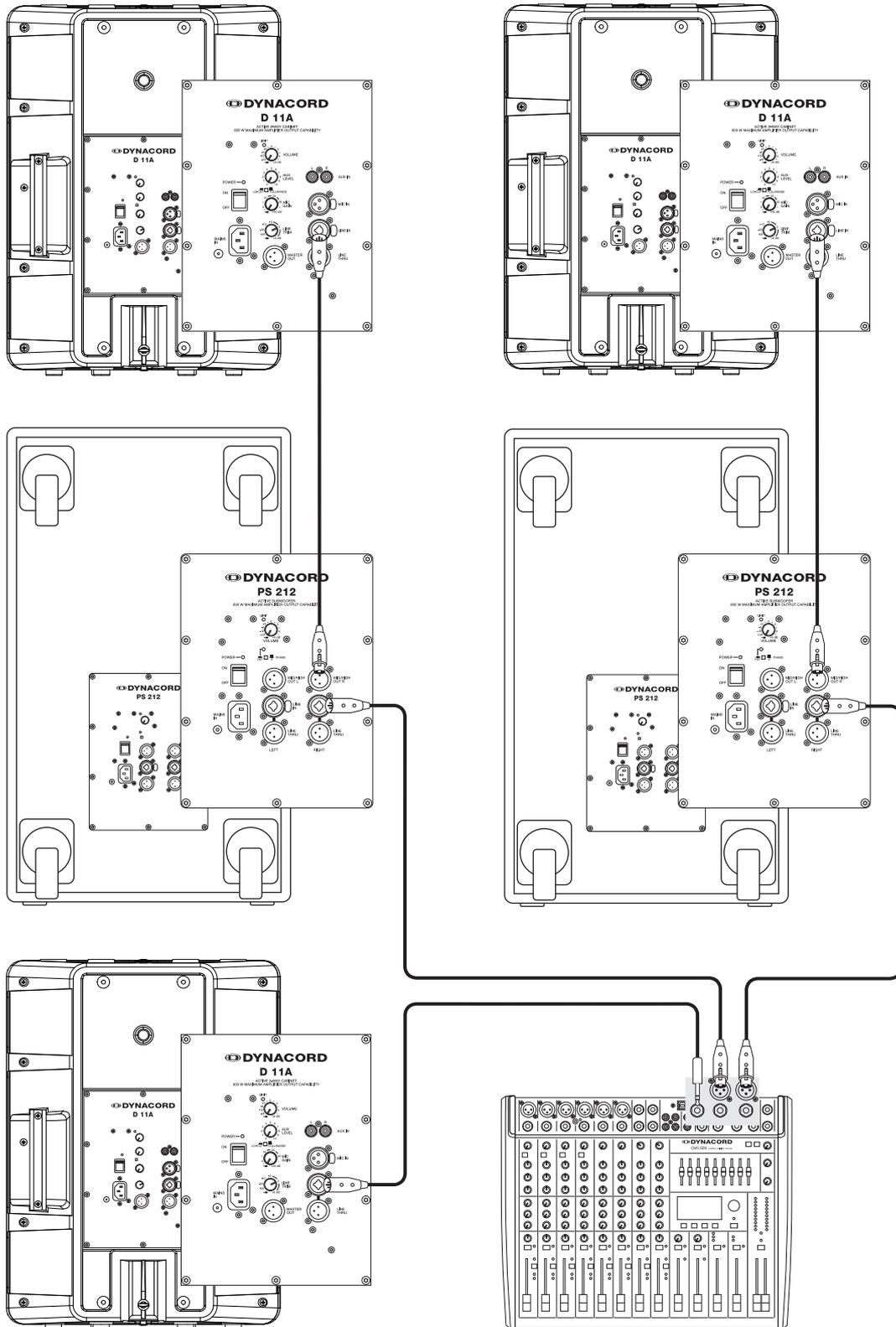
6.2 CMS with D-Lite activetwo

Illustration 6-2: CMS with D-Lite activetwo (2 x D 8A + 2 x PowerSub 112) as main PA, 1 x D 8A used as monitor



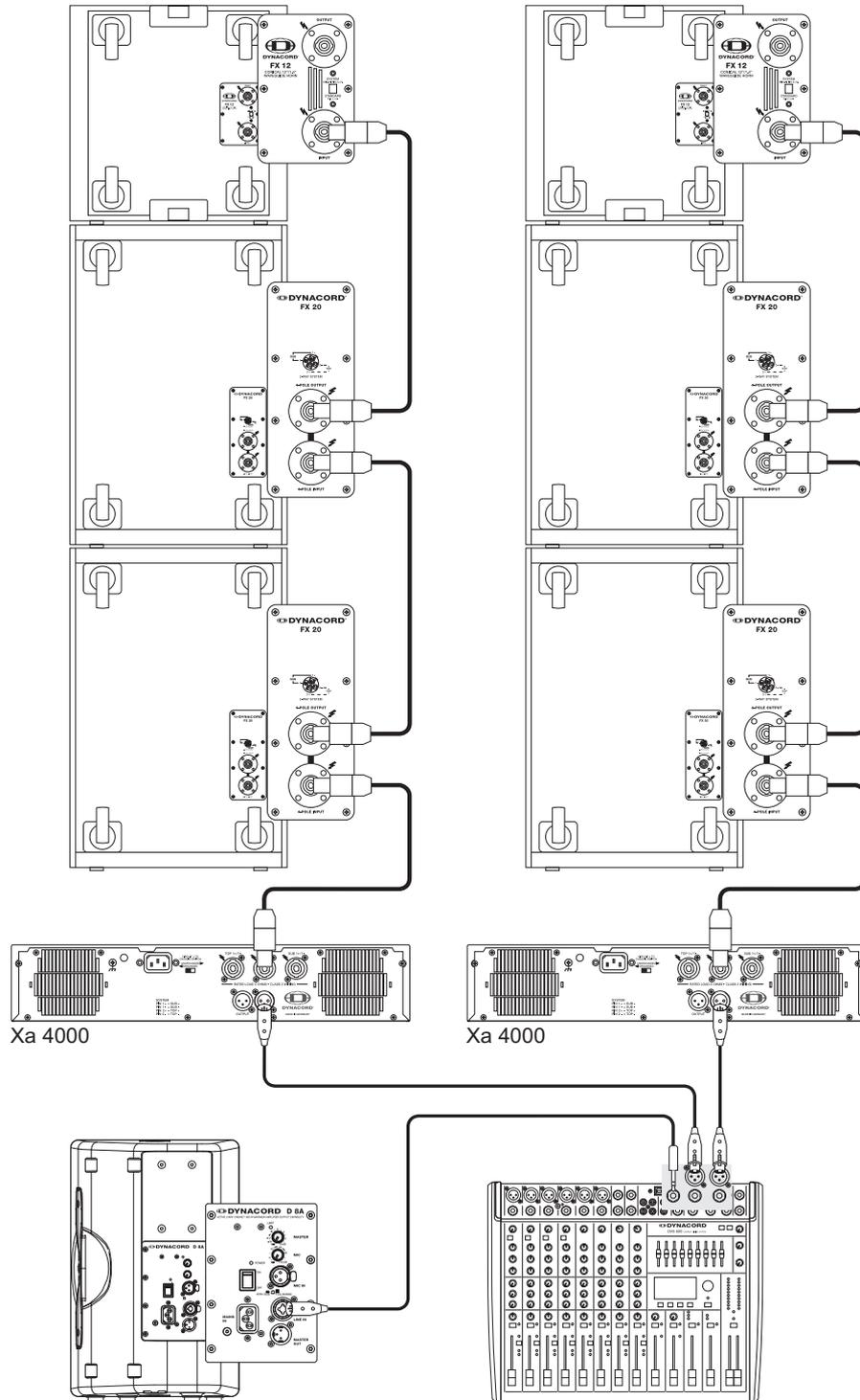
6.3 CMS with D-Lite activefour

Illustration 6-3: CMS with D-Lite activefour (2 x D 11A + 2 x PowerSub 212) as main PA, 1 x D 11A used as monitor



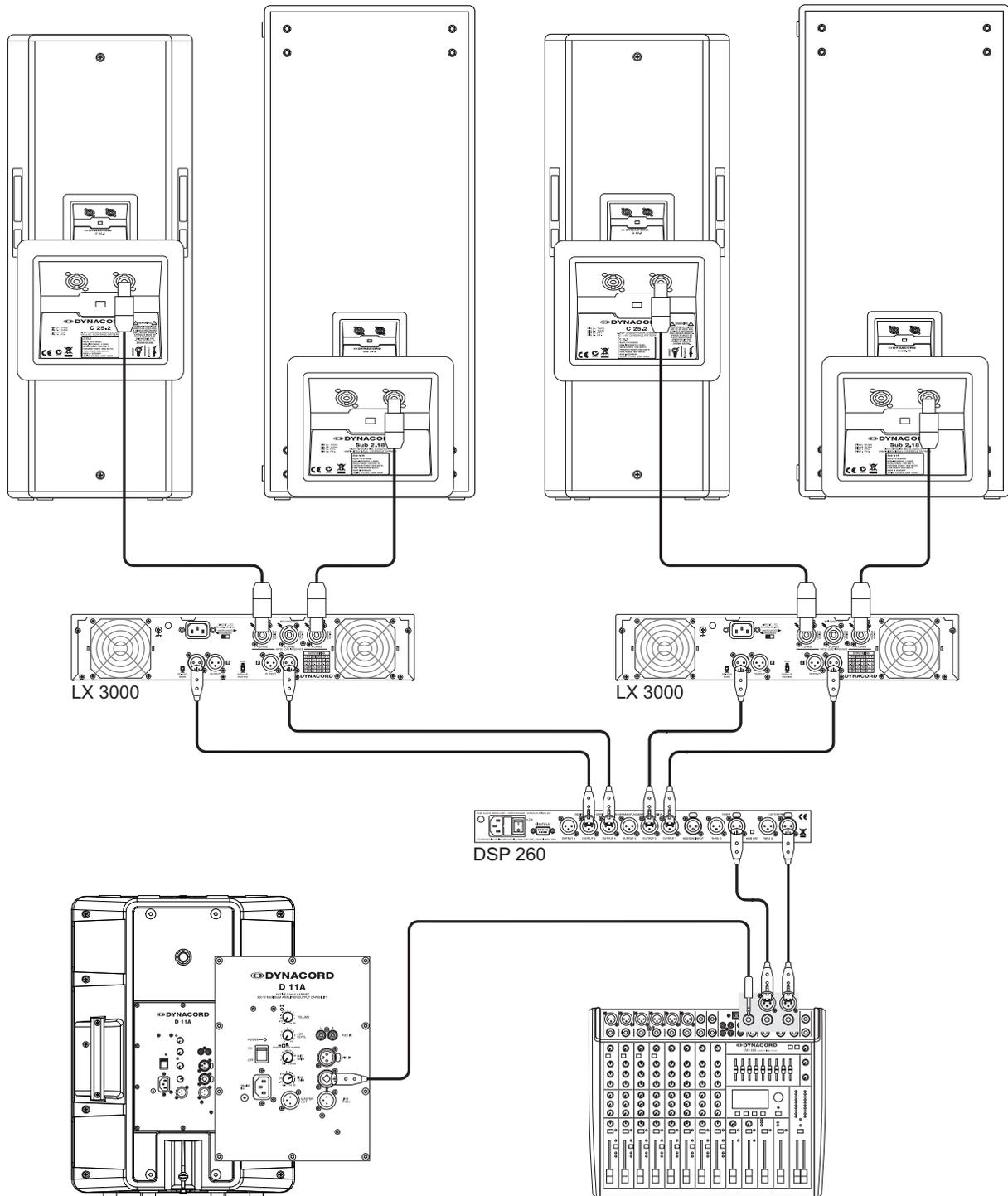
6.4 CMS with Xa-2 system

Illustration 6-4: CMS with Xa-2 system (2 x FX 12, 4 x FX20, 2 x Xa 4000) as main PA, 1 x D 8A used as monitor



6.5 CMS with CORUS-Evolution system

Illustration 6-5: CMS with CORUS-Evolution system (2 x C 25.2, 2 x Sub 2.18, 2 x LX 3000, 1 x DSP 260) as main PA, 1 x D 11A used as monitor



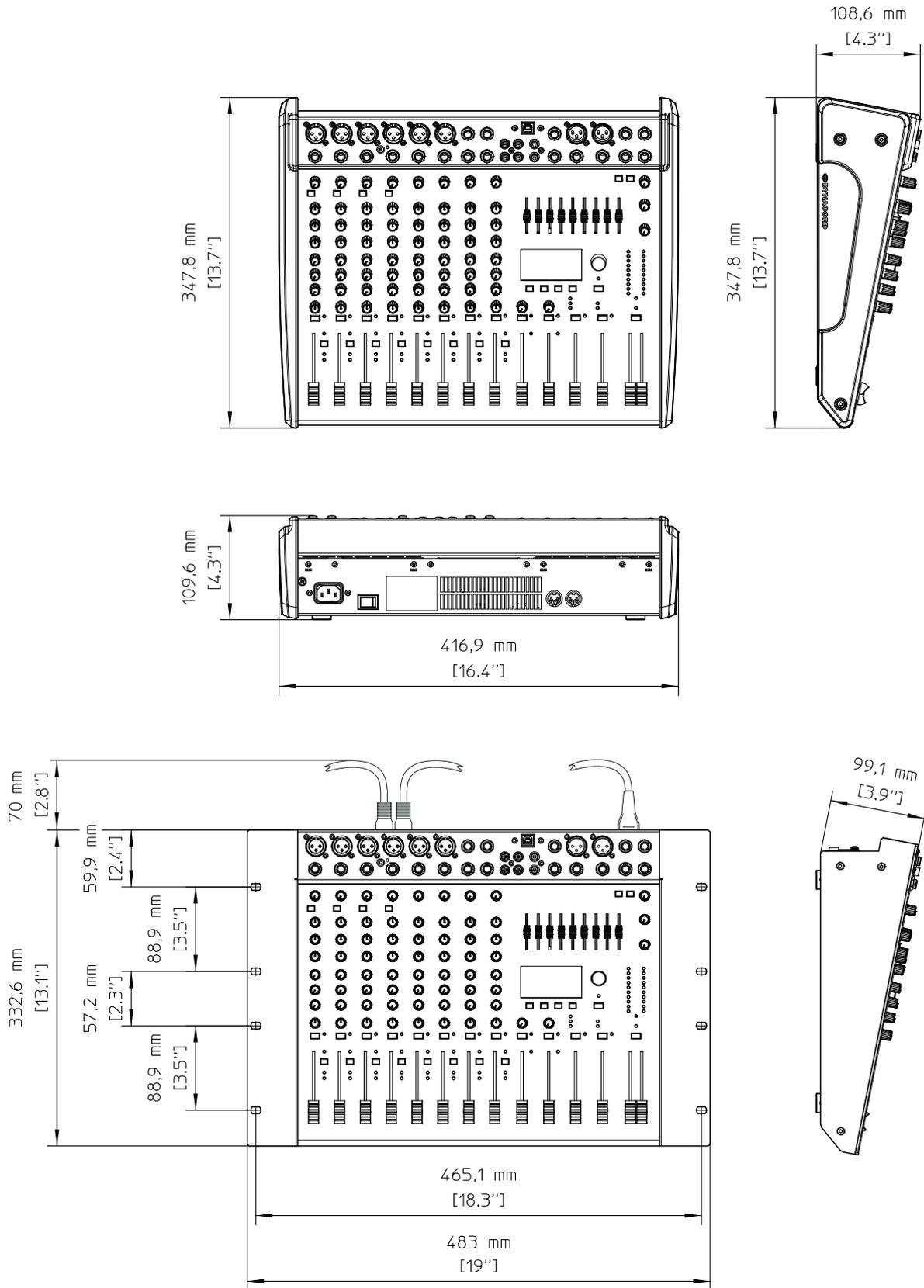
7 Specifications

Property	CMS 600-3
Order No.	F01U213891 DC-CMS600-3-UNIV
Channels	4 + 2 + 2
MIC/Line-Mono	4
MIC/Line-Mono / USB-Stereo (Super Channel)	2
Line L-R / CD-IN-Stereo	2
Auxiliaries (AUX, MON)	Pre/Post switchable, Pre
MIC GAIN (LINE -20 dB)	+10 to +60 dB
TRIM LINE/CD (Stereo)	-10 to +20 dB
THD , at 1 kHz, MBW = 80 kHz	
MIC input to Master A L/R outputs, +16 dBu, typical	< 0.005%
Frequency Response , -3 dB, ref. 1 kHz	
Any input to any Mixer output	15 Hz to 70 kHz
Crosstalk , 1 kHz	
Channel to Channel	< -80 dB
Mute and Standby switch attenuation	> 100 dB
Fader and FX/AUX/MON-Send attenuation	> 85 dB
CMRR , MIC input, 1 kHz	> 80 dB
Input Sensitivity , all level controls in max. position	
MIC	-74 dBu (155 μ V)
LINE (Mono)	-54 dBu (1.55 mV)
LINE (Stereo)	-34 dBu (15.5 mV)
CD (Stereo)	-34 dBu (15.5 mV)
Maximum Level , mixing desk	
MIC inputs	+12 dBu
Mono Line inputs	+31 dBu
Stereo Line inputs	+30 dBu
All other inputs	+22 dBu
All other outputs	+22 dBu
Input Impedances	
MIC	2 kOhms
CD In	10 kOhms
All other inputs	> 15 kOhms
Output Impedances	
Phones	47 Ohms
All other outputs	75 Ohms (unbalanced), 150 Ohms (balanced)
Equivalent Input Noise , MIC input, A-weighted, 150 ohms	-130 dBu
Noise , Channel inputs to Master A L/R outputs, A-weighted	
Master fader down	-100 dBu
Master fader 0 dB, Channel fader down	-92 dBu
Master fader 0 dB, Channel fader 0 dB, Channel gain unity	-82 dBu
Equalization	
LO Shelving	± 15 dB / 60 Hz
MID Peaking	± 12 dB / 2.4 kHz
HI Shelving	± 15 dB / 12 kHz
Master EQ 9-band (63, 125, 250, 500, 1k, 2k, 4k, 6.3k, 12k Hz)	± 10 dB / Q = 1.5 to 2.5
Filter	
LO-CUT, mono inputs	f = 80 Hz, 18 dB/oct.
Display	128 x 64 pixels, OLED
Effects	
Type	Dual stereo 24/48-bit multi effects processors
Effects presets	100 Factory + 20 User, Tap-Delay
Remote control	Footswitch, MIDI
Digital Audio Interface	
Channels	4 In / 4 Out

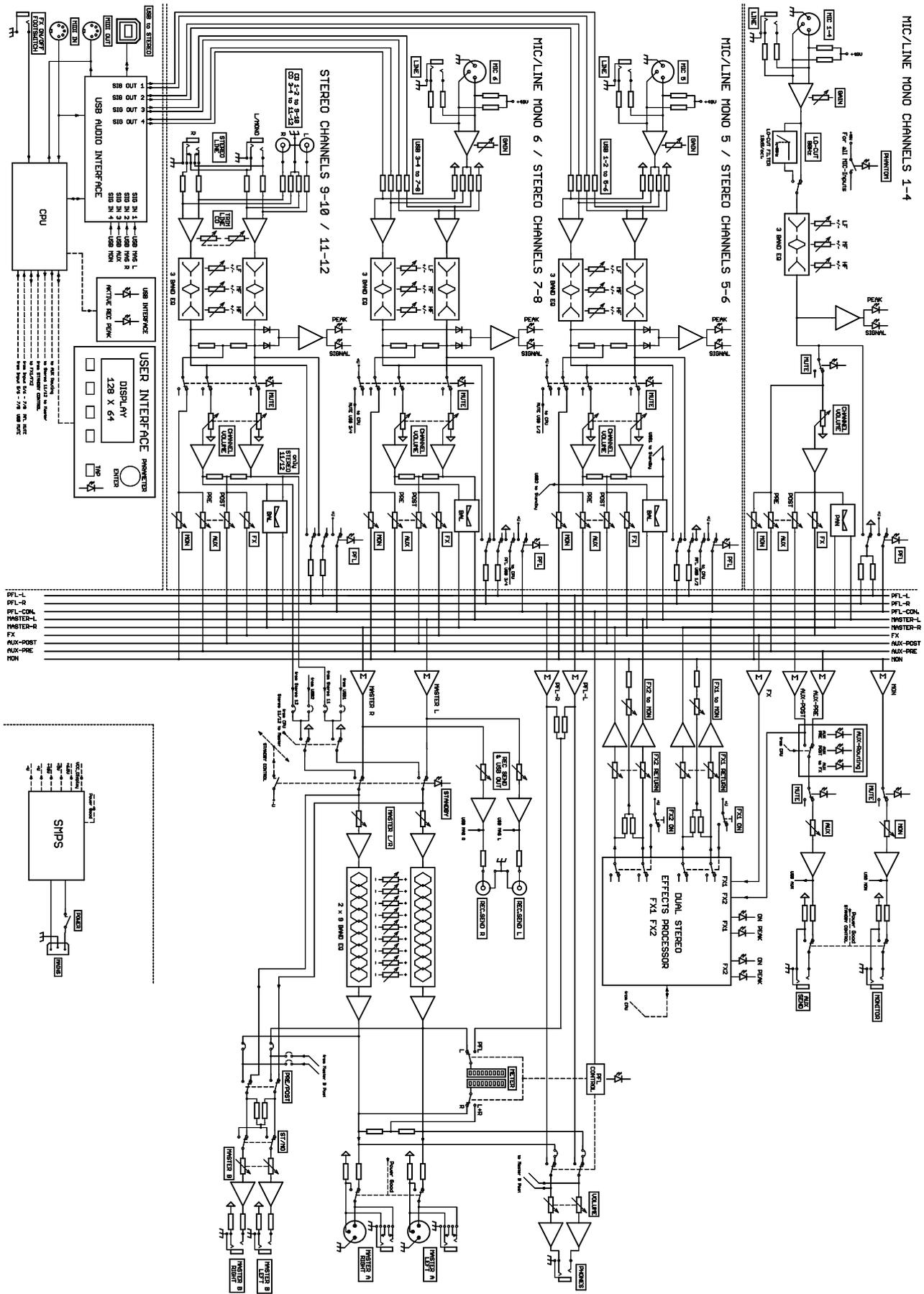
Property	CMS 600-3
AD/DA Conversion	24-bit
Sampling Rate	44.1 / 48 / 88.2 / 96 kHz
PC Interface	USB2.0, Female Type B
MIDI Interface	5-pin DIN connector, In / Out
Protection	
Mixer Outputs (Relay controlled)	AUX, MON, MASTER A L/R
Switching Mode Power Supply (μ C controlled)	Mains Over/Undervoltage
Phantom Power , switchable	48 V DC
Power Requirements (SMPS with auto range mains input)	100 V to 240 V AC, 50 Hz to 60 Hz
Power Consumption , at 1/8 maximum output power, 4 Ohms	35 W
Safety Class	I
Ambient Temperature Limits	+5 °C to +40 °C (40 °F to 105 °F)
Dimensions (W x H x D), mm	416.9 x 109.6 x 347.8 Rack-mount (7.5 HE): 483.0 x 99.1 x 332.6
Weight	
Net Weight	5.8 kg
Shipping Weight	7.8 kg
Warranty	36 months
Optional Accessories	
RMK-600-3 (Rack Mount Kit for CMS 600-3)	F01U214881 (DC-RMK-CMS-3)
FS 11 (Footswitch with LED)	F01U100598 (DC-FS11)
Carrying Bag for CMS 600-3	F01U259015 (DC-BAG-600CMS)

Device in rated condition, unity gain (MIC gain 20 dB), all faders position 0 dB, all pots in mid position, master fader +6 dB, unless otherwise noted.

7.1 Dimensions



7.2 Block Diagram



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Notes

