

1. Introduction

The Digital Audio Mixer RM3200D is especially designed for applications in broadcasting. It can equally be used for:

- Broadcast and pre-production for self operation studios or control rooms with one or more studios
- Routing applications
- Audio workstations for editors
- Stations for sound editing and recording
- Video-postsynchronisation and cutting

Up to date workstations in the broadcasting business are often used by people who have small or no technical background. Therefore, the control desk of RM3200D has been especially designed for ease of use and accessibility.

For the use in On-Air studios, the mixer can be integrated with automation systems. Optional motor faders can also be used.

RM3200D is the ideal mixer for computer aided systems for sound editing and recording.

All necessary functions for these applications are integrated into the system without having to be specified by the user:

- N-1-summation (mix minus) with preparation mode
- Monitoring including monitor-mute at open microphone
- Independently adjustable monitor and headphone outputs
- In and Out of talkback signals
- Red-light signalling or fader start contacts and many other logic functions.

Further special functions for monitoring and logic that are typical for broadcasting can be configured.

Microphone processors can be replaced by the DSP functions of the RM3200D: equalizers, dynamic unit (compressor, expander, noise gate) and deesser are integrated. User specific configurations can be stored in Flash-EPROMS. The assignment of the faders to the input channels is stored as well.

RM3200D is the first digital audio mixer of this class where the internal signal processing is carried out with 32bit Floating Point DSPs (Analog Devices SHARCs). Internal overmodulations as sometimes occurring in devices with fixed point processors should not occur here, since the dynamics range is greater than 1000 dB(!).

Asynchronous sample rate converters are used in the digital inputs of the RM3200D. Thus, digital consumer devices and non-synchronisable professional devices can be digitally connected to the mixer.

Despite its wealth of features and its flexibility in adapting to different applications, the costs for the mixer are competitive compared to an all-analog setup.

2. RM3200D System Design

2.1 Principle of Operation

The RM3200D Mixing and Routing System is built with 2 main hardware parts, the:

1. **DSP Frame** with all Inputs, Outputs, the Control System and DSP¹⁾ Power
2. **Control Desk** with all Faders, Push Buttons and Displays

Both are coupled via an industry standard CAN-bus connection. Thus, the units can be placed separately from each other without big wiring efforts.

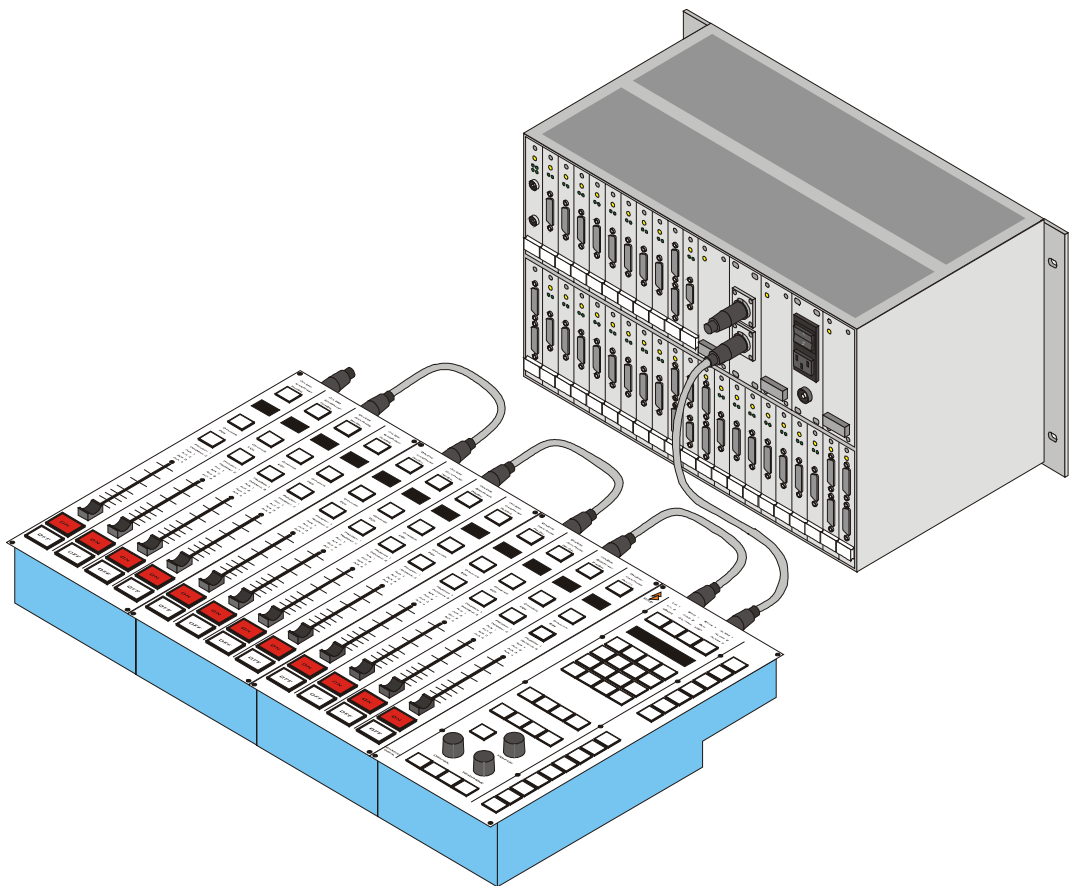


Figure 1: RM3200D DSP Frame and Control Desk coupled via CAN Bus

The DSP Frame can also be used as single device without the control desk, for example as a routing system. In this case, the device is controlled over a controlling protocol.

With our DHD Control Protocol you can access any available internal function via CAN Bus or commonly via RS232/RS422.

Also, we have some PC based windows software tools:

- **Configuration Software**, for the configuration of the system and for maintenance functions
- **Routing Software** (RM330-050) which also includes a small scheduler and macro functions

1.) Digital Signal Processing

- **DSP Function Control Software** (RM330-051) for easy controlling of the audio processes in a channel
- **Mixer Control Software** (RM330-0553)

You do not need the PC software tools for the “normal work” – the RM3200D has no PCs inside and works completely without any PC.

For both main hardware parts we have several different modules that will be described in the next sections.

The DSP Frame of RM3200D can provide a total of 264 input channels: up to 96 mono channels over A/D-converters or digital input modules, plus 3 multi channel inputs (MADI or proprietary formats with up to 56 channels for each module). It can output up to 96 mono channels over D/A-converters or digital outputs and 3 multi channel outputs (56 channels each).

Due to the compact size of the control desk, the RM3200D can be functionally integrated into a workplace. The desk consists of a main module and fader modules. The main module contains 2 monitor level controllers, 49 keys, an ASCII display and a rotary knob for adjusting settings. The fader module is equipped with 4 faders, 20 keys and 4 ASCII displays.



Figure 2: RM3200D Control Desk with new overbridge modules

A maximum number of 20 faders per mixer is possible (5 fader modules).

The fader modules and the main module are closed modules with their own microcontroller logic, thus offering the opportunity to be built in separately. They are interconnected only via one cable using 4-pin XLR-connectors (+24 V, CAN+, CAN-, GND).

The DSP Frame contains all signal processing, consisting of the following:

- DSPs
- A/D- and D/A-converters and microphone amplifiers
- Digital in- and outputs

Chapter 2: RM3200D System Design

- Multi channel in- and outputs
- Controlling in- and outputs
- Clock generation
- Power supplies

The standard size of the DSP Frame is 19"/6U, for smaller systems 3U height.

Both control desk and DSP Frame use identical controller systems based on the industry-standard 68k microcontroller.

The whole system is to a large degree built in a modular way. It is configured by the PC software supplied with the system. The software runs on a standard Windows system (Windows NT, Windows 95/98). This PC is not necessary for daily operation, since all setup information is stored in the system itself.

The power for the control desk is supplied from the DSP Frame or a separate power supply unit with a voltage of 24V.

The RM3200D is ready for operation within 1 second after switching on or restarting.

The mixer can be synchronized using an internal (48 kHz, 44.1 kHz) or an external clock. A TTL-wordclock, the clock of a digital input or the clock from the MAD1 input can be used as external clock. On failure of the external clock (Sync Source 1), the device automatically switches to the internal quartz or another external clock (Sync Source 2).

Important parameters like the function of the CAN-bus, all distribution voltages, sampling clocks or the temperature within the device are constantly monitored in the background. If they exceed the limits given by the manufacturer, an alarm is triggered (LEDs in control desk and DSP Frame, triggering of a relay, logging of alarms on a PC is possible). The light bulbs in the control desk are monitored as well. If one of them fails, an alarm is triggered.

The power consumption of the device is small compared to commonly used devices. Depending on the level of extension, the power consumption is approximately between 30W and 120W.

Except for the mechanical wear of the input devices (faders, keys), the front panels and the lamps (bulbs, LEDs), the mixer is maintenance free. No batteries or hard disks are used.

2.2 Functions

RM3200D can be equipped with a maximum of:

- 264 input channels (mono) and 264 output channels (mono)
- 42 summing busses (for program busses, aux busses, mix-minus-busses/conference matrix, PFL bus)
- 6 independent monitoring paths (stereo), each can be configured as output for monitor, headphones or level metering

All inputs and Aux sends can be used as 1 or 2 channels (stereo). In stereo, all functions of the two stereo channels (filter configurations, level values, etc.) are coupled with each other. If necessary, the input channel for a fader can be selected using an input crossbar. With the **Input Select** function, all existing inputs can be accessed even with few faders. The selected input channel is displayed in the fader display. **Logic Functions** like fader start are linked to the actual channels (not to the faders), also the parameters for the DSP functions (gain, EQs...) in the channel.

The following functions are available on the input fader channel:

- Input routing with the DHD Pool Fader Function
- Summation and Aux selection
- Linking to monitor busses 1...6
- Several logic functions like fader start (static or impulse), monitor mute, timer start, telephone hybrid on/off, voice/music signalisation etc. (ref. section Logic Functions)
- Equalizer, various EQs can be cascaded
- Limiter, compressor, expander, noise gate
- Deesser
- The sequence of the DSP functions can be configured as required. The overall computing power of the system determines the maximum number of DSP functions available.

It is possible to use DSP functions like limiters, compressors or EQs after summing busses with the internal **fixed processing** functions.

To build special functions like split headphone or talkback, we have up to 54 powerful **output functions**.

Also the system has a full function **output routing** without any restriction.

Additionally, a lot of powerful logic functions and special functions like level detectors available. Logic functions (global functions) and fadervalues (global pots) are interchangeable via RS232/422 to other RM3200Ds.



Important Note: The RM3200D is not a system with dedicated functions. With the powerful configuration software DEFINITION.EXE and the several available hardware modules, the system can be entirely configured by the user.

2.3 Hardware Modules

2.3.1 DSP Frame

The DSP Frame contains the entire signal processing. It is connected to the control desk via the CAN Bus. Without the control desk, it can be used as an individual device.

5 different types of DSP Frames for the RM3200D are available with 10, 20 or 30 slots and with or without the capability of using MAD1 modules.

DSP Frame Type:	RM330-053	RM330-052	RM330-051	RM330-042	RM330-041	
Number of audioslots	24	16	8	16	8	each with 4 inputs and/or 4 outputs
Number of MAD1-slots	3	2	1	0	0	each with 56 inputs and/or 56 outputs
Max. number of inputs (1)	264	176	88	64	32	you can pair 2 consecutive channels to 1 stereo channel
Number of DSPs	12	8	4	8	4	
Max. number of outputs (1)	264	176	88	64	32	you can pair 2 consecutive channels to 1 stereo ch.

Table 1: Overview of DSP Frames

The DSP Frame contains all signal processing, consisting of the following:

- 10 (RM330-041/ 051), 20 (RM330-042/ 052) or 30 (RM330-053) free slots for input, output or additional controlling modules
- Multichannel-modules possible only for the RM330-051/ 052/ 053 basic devices
- EMC-case 19"/6 U (RM330-042/ 052/ 053) or 3U (RM330-041/ 051) with DSP-backplane(s) carrying card slots
- Simple clock generation 48kHz or 44.1kHz with low accuracy clock, high accuracy clock (+/- 10ppm) available on the Synchronization Module RM330-410 or the Multichannel Module RM330-421
- 68k-controller with software (1 controller for each 10 slots)
- RS232/422-interfaces for connecting a PC or controlling applications (1 RS232/422 for each 68k-controller)
- Power supply 230V or 115V (option) AC (3-pin IEC connector)
- 24 V output and CAN-bus over 24-pin XLR for control panel
- Power consumption DSP and control desk: approx. 30 ... 120 W (depends on level of extension)
- Optional redundant power supply and PFC-power supply unit

The device is by default provided with all components necessary for the basic functions. This also includes the configuration software for the PC.

The DSP Frame is built with active DSP backplanes, each DSP backplane consists of 10 slots and 4 DSPs. A maximum of 3 DSP backplanes can be connected via the CAN Bus of the system and via high speed links to build the internal TDM Bus.

On the DSP Frame are slots with different functions available, for details see the graphics below. The modules are replaced via the rear side of the DSP Frame.

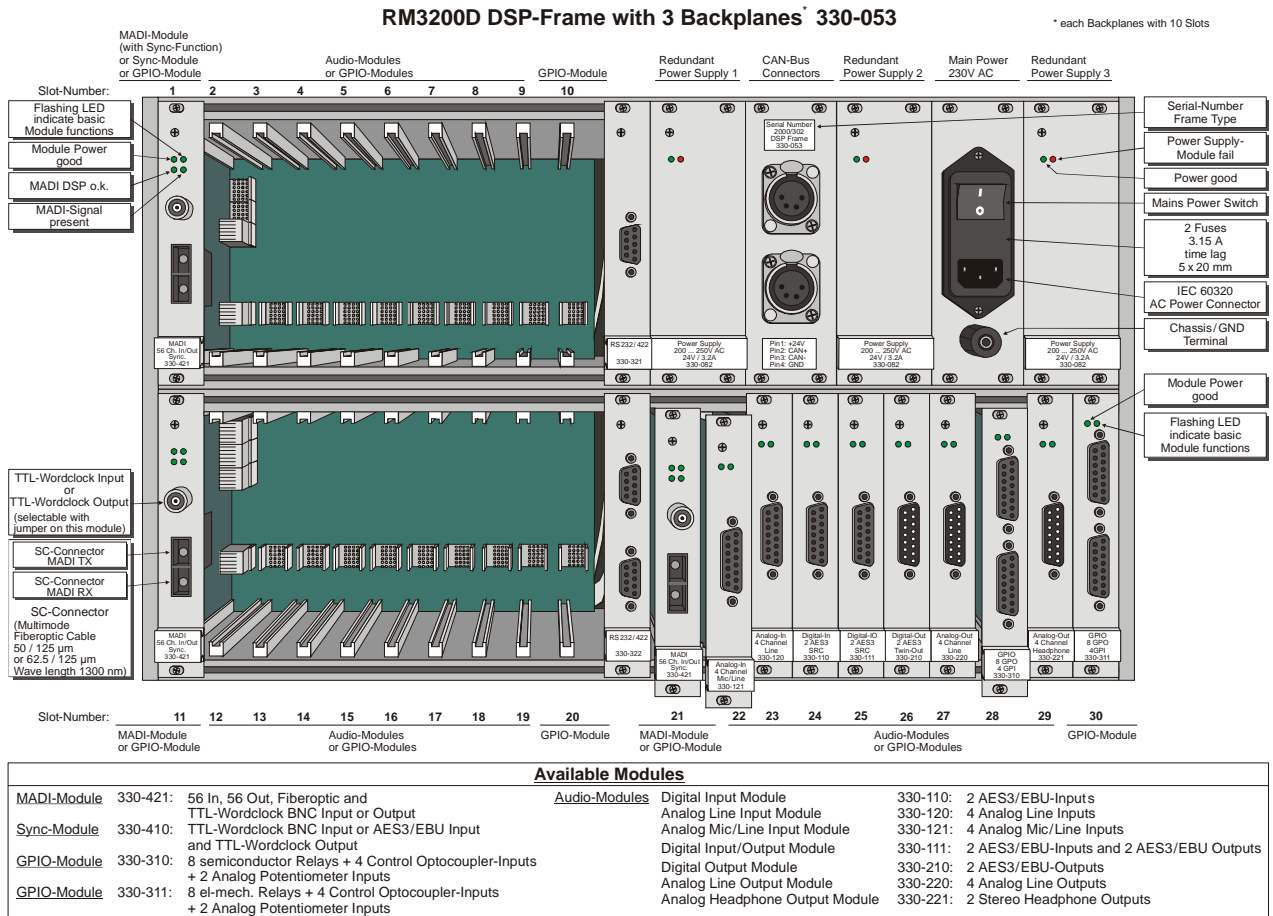


Figure 3: DSP Frame RM330-053: Rear view

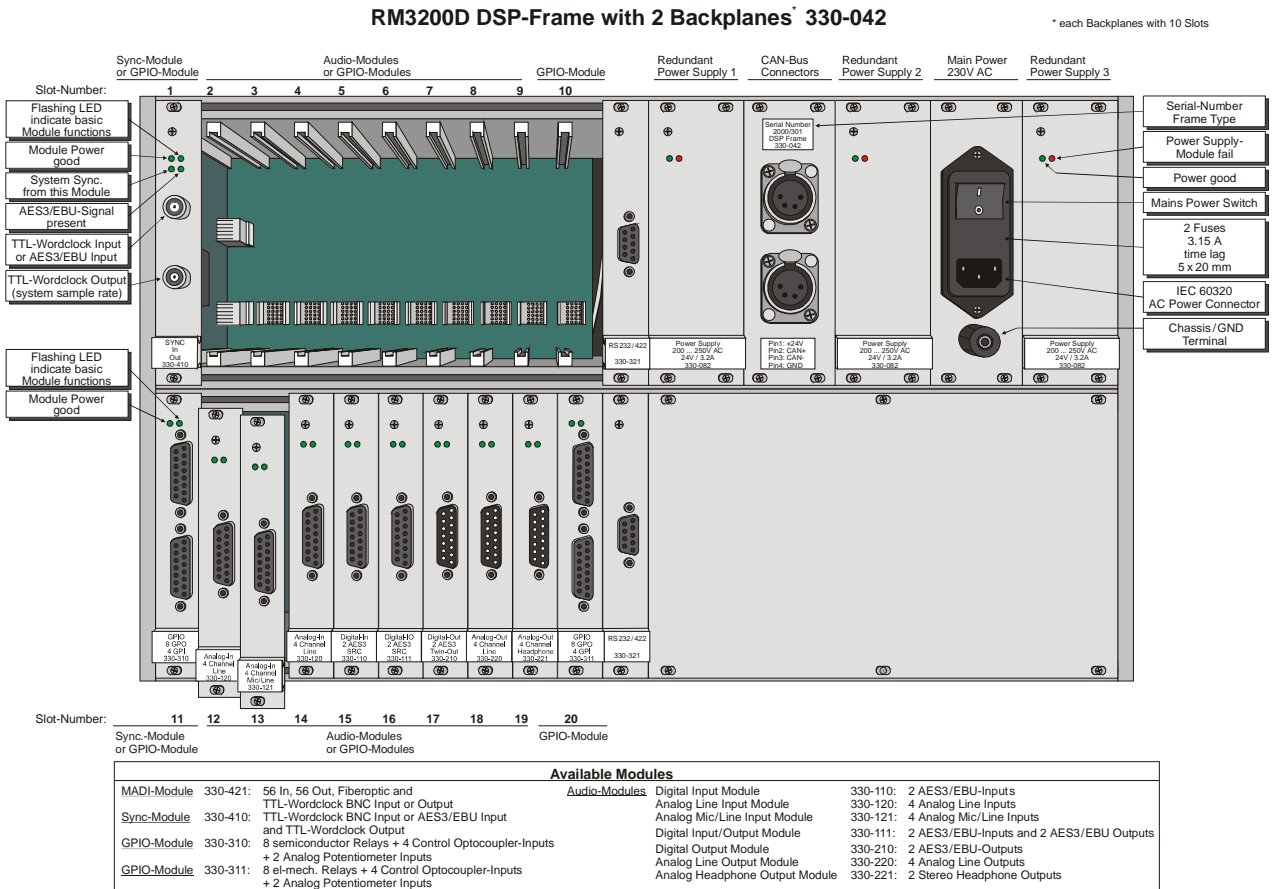


Figure 4: DSP Frame RM330-042: Rear view

2.3.2 DSP Frame Modules

Several modules for audio and controlling inputs and outputs are available for the RM3200D. All modules for the DSP Frame have the same dimensions, 3U high and 4 HP wide. All modules are hot pluggable.



Important Note: The built-in A/D- and D/A-converter modules as well as the digital in- and output modules are always intended for 4 channel use (or 2 stereo). This means that they have the same "density" and can be interchanged (without having to reconfigure the mixer)

2.3.2.1 Digital Input Module RM330-113

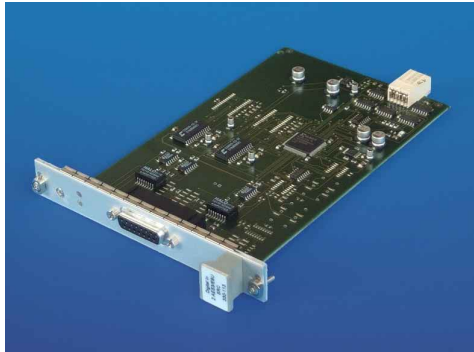


Figure 5: Digital Input Module RM330-113

- 2 AES/EBU inputs (two channels each), SPDIF also possible
- 15-pin Sub-D-socket (female)
- Asynchronous sample rate converter (26 - 54kHz input sampling frequency)
- Dynamic range better than 120dB (-60dBFS)

2.3.2.2 Digital Input/Output Module RM330-111

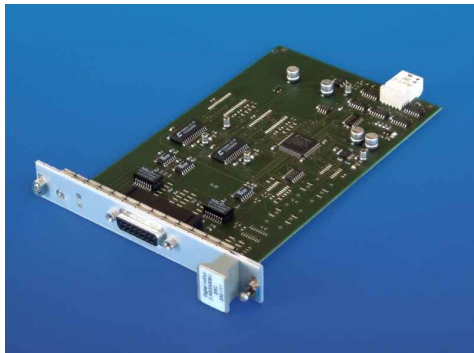


Figure 6: Digital Input/Output Module RM330-111

- 2 AES/EBU inputs (two channels each), SPDIF also possible
- 2 AES3/EBU outputs (two channels each), Dither 16/20/24Bit switchable, SPDIF also possible
- 2 asynchronous sample rate converters SRC (26 - 54kHz input sampling frequency)
- SRCs are configurable as input SRC (normally) or output SRC (the inputs are in this case used as source for synchronization)
- Dynamic range better than 120dB (-60dBFS)
- 15-pin Sub-D-socket (female)
- Setting of the most important channel status bits (Consumer/Prof., Sample Rate, Channel Mode)

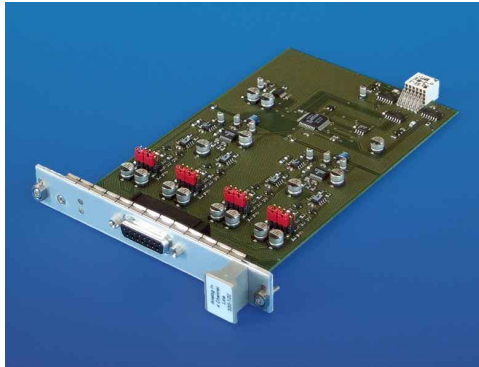
2.3.2.3 Digital Input/Output Synchronization Module RM330-112



Figure 7: Digital Input/Output Module RM330-112

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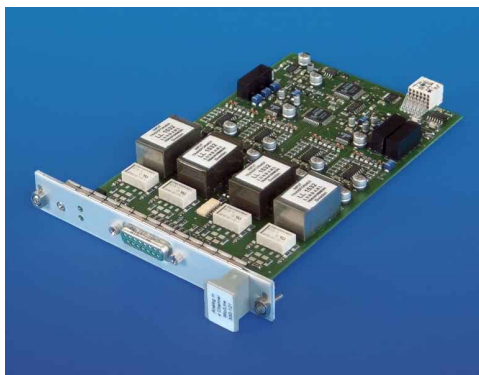
2.3.2.4 Analog Line Input Module RM330-120



- 4-channel module
- 15-pin Sub-D-socket (female)
- 24Bit A/D-converter
- Balanced input
- Input level adjustable, factory setting: +6dBu for -9dBFS (refer to section [Jumper Settings on page 169](#))
- Linearity better than 0,3dB (0...-100dB under clipping)
- Dynamic range 102dB (-60dBFS)

Figure 8: Analog Line Input Module RM330-120

2.3.2.5 Analog Mic/Line Input Module RM330-121



- 4 channel module decoupled by input transformer
- Pre-amplifier for each channel can be remotely controlled, 0dB to 50dB in steps of 5dB
- 15-pin Sub-D-socket (female)
- 24Bit A/D-converter
- Input level fine adjustable, factory setting: +6dBu for -9dBFS
- Linearity better than 0.3 dB (0...-100dB under clipping)
- Dynamic range 102dB (-60dBFS)
- Phantom powering 48V per channel, independently switchable

Figure 9: Analog Mic/Line Input Module RM330-121

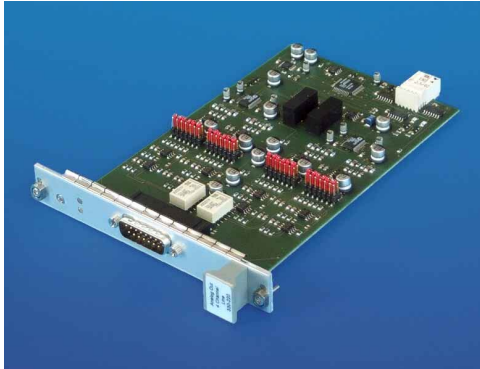
2.3.2.6 Digital Output Module RM330-210



- 2 AES3/EBU outputs (two channels each)
- 2 separately buffered outputs for the 2 AES3/EBU-channels
- 15-pin Sub-D-socket (male)

Figure 10: Digital Output Module RM330-210

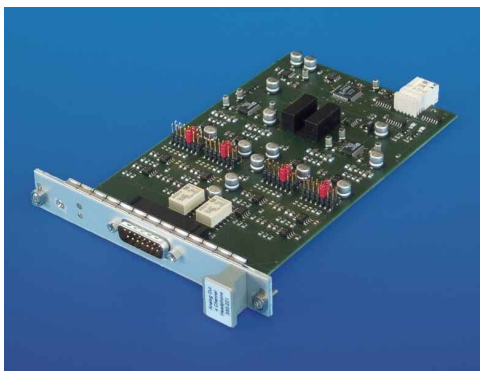
2.3.2.7 Analog Line Output Module RM330-220



- 4 channel module
- 15-pin Sub-D-socket (male)
- 24Bit D/A-converter
- Balanced output
- Output level adjustable, factory settings: +6dBu for -9dBFS (refer to section [Jumper Settings on page 170](#))
- Linearity better than 0,5dB (0...-100dB under clipping)
- Dynamic range 106dB (-60dBFS)
- Voltage unbalance >40dB
- Unbalance of the output impedance >60dB
- Output impedance <40 Ohm
- Mute relay for suppressing switch-on and switch-off noises

Figure 11: Analog Line Output Module RM330-220

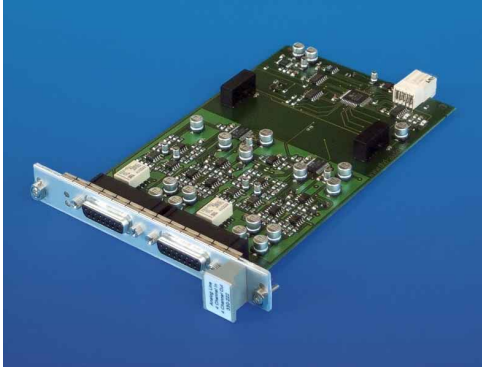
2.3.2.8 Analog Headphone Output Module RM330-221



- 4 channel module
- 15-pin Sub-D-socket (male)
- 24Bit D/A-converter
- Unbalanced output
- Output level adjustable, factory settings: +6dBu for -9dBFS (refer to section [Jumper Settings on page 168](#))
- Linearity better than 0,5dB (0...-100dB under clipping)
- Dynamic range 106dB (-60dBFS)
- Output impedance <40 Ohm
- Headphone output amplifier for 1 headphone with 60 to 600 Ohm impedance
- Mute relay for suppressing switch-on and switch-off noises

Figure 12: Analog Headphone Output Module RM330-221

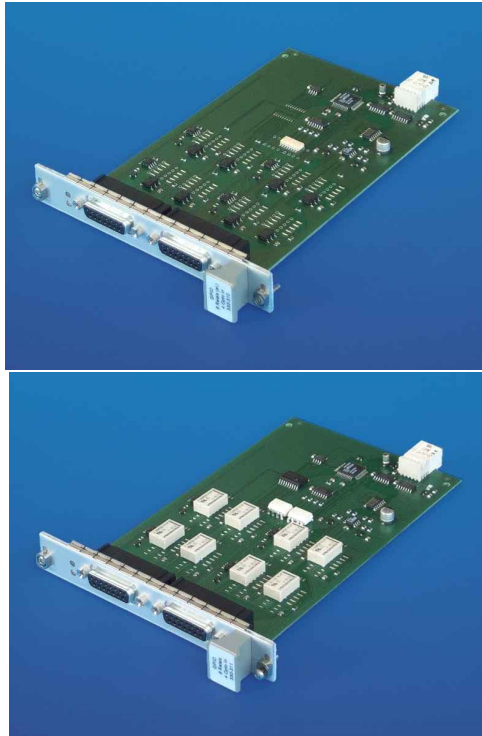
2.3.2.9 Analog Line Input/Output Module RM330-222



- 4-channel Input/ 4-channel Output module
- Two 15-pin DUB-D-sockets (female)
- 24Bit A/D-converter
- Balanced input
- Input level adjustable, factory setting: +6dBu for -9dBFS
- Linearity better than 0,3dB (0...-100dB under clipping)
- Dynamic range 102dB (-60dBFS)
- 24Bit D/A-Converter
- Balanced output
- Output level adjustable, factory settings: +6dBu for -9dBFS
- Linearity better than 0,5dB (0...-100dB under clipping)
- Dynamic range 106dB (-60dBFS)
- Voltage unbalance >40dB
- Unbalance of the output impedance >60dB
- Output impedance <40 Ohm
- Mute relay for suppressing switch-on and switch-off noises

Figure 13: Analog Line Input/Output Module RM330-222

2.3.2.10 GPIO Controlling Module RM330-310/ 311



- 8 relay contacts (noiseless semiconductor relays RM330-310, electro-mechanical relays RM330-311)
- Max. 300mA/ 48V per relay contact
- 4 optical switch inputs (input voltage 5V - 25V, current consumption approx. 5mA, scanning cycle 20ms)
- 15-pin Sub-D-socket (male) with current-limited auxiliary voltage for the 4 optical inputs
- 2 analog potentiometer inputs

Figure 14: GPIO Controlling Module RM330-310/ 311

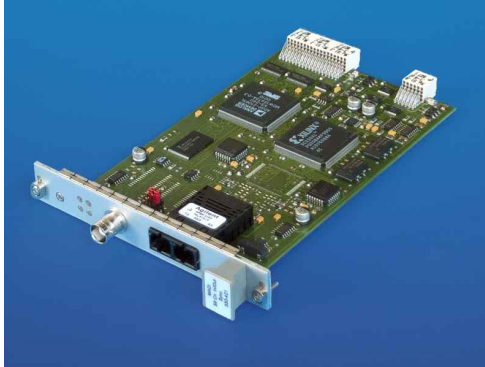
2.3.2.11 Synchronization Module RM330-410



- BNC input for TTL-wordclock or AES3/EBU-signal as synchronization source for the system (only on slot 1)
- BNC output for TTL-wordclock (operates with the current system sampling frequency)
- Per jumper switchable phase inversion for the in- and outputs of the TTL- wordclock (refer to section [Jumper Settings on page 172](#))
- High accuracy PLL circuits for 44.1kHz and 48kHz with ± 75 ppm locking range and low accuracy PLL circuit with 30...48.5kHz locking range
- internal quartzes 44.1kHz and 48kHz, accuracy ± 10 ppm for 44.1kHz and 48kHz

Figure 15: Synchronization Module RM330-410

2.3.2.12 Multichannel Module (MADI) RM330-421



- 56 Channels Input /Output, AES10-MADI
- Fiber Optic Connector for 1300nm-Multimode Fiber, SC-Connector
- MADI signal usable as synchronisation source for the system (only on slot 1)
- BNC input for TTL-wordclock as synchronization source for the system (only on slot 1) or BNC output for TTL-wordclock (operates with the current system sampling frequency)
- per jumper switchable phase inversion for the in- and outputs of the TTL- wordclock (refer to section [Jumper Settings on page 171](#))
- high accuracy PLL circuits for the 44.1kHz and 48kHz with ± 75 ppm locking range and low accuracy PLL circuit with 30...48.5kHz locking range
- internal quartzes 44.1kHz and 48kHz, accuracy ± 10 ppm for 44.1kHz and 48kHz

Figure 16: Multichannel Module RM330-421

2.3.3 Control Desk

The control desk uses exclusively sturdy and longlife Lumitas keys. These can be equipped with either bulbs (factory default) or Multichip-LEDs (option). Please note that the bulbs are much brighter than the Multichip-LEDs.

For displays, green LED-ASCII-displays are used. Thus, an excellent visibility is provided also in bad lighting conditions.

The control surface can entirely be configured by the user with several sets of predefined software functions. You will find a detailed description of the available functions in the chapter [“Configuration” on page 80](#).

On the control desk, there is no special master module, all control desk modules are working completely independent from each other on the CAN Bus, and all modules are hot pluggable.

2.3.3.1 Main Module RM330-010



Main module for operating the monitoring, input, signalling and configuration functions, green LED-ASCII-display with 16 digits, digits 5 mm high, sturdy optical rotating knob for parameter setting, 49 keys. The front colors are possible white (RAL 9016) or grey (RAL 7024).

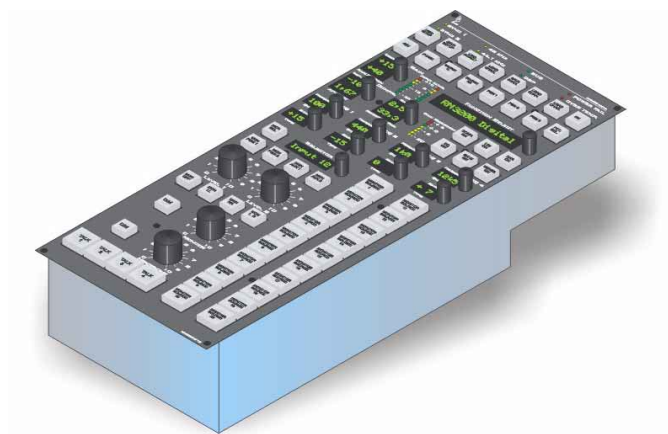
Figure 17: Main module RM330-010W



Important Note: Only *one* Main Module RM330-010 *or* Central Module RM330-012 is possible in a RM3200D.

There are no audio connectors on the Main Module, you must connect all your audio sources and destinations to the DSP Frame of the system.

2.3.3.2 Central Module RM330-012



Central Module for operating the monitoring, input, signalling and configuration functions, green LED-ASCII-displays, digits 5 mm high, DSP function Access Field, 57 keys. The front color is grey (RAL 7024).

Figure 18: Central Module RM330-012G



Important Note: Only *one* Main Module RM330-010 *or* Central Module RM330-012 is possible in a RM3200D.

There are no audio connectors on the Central Module, you must connect all your audio sources and destinations to the DSP Frame of the system.

2.3.3.3 Central Overbridge RM330-013



Central Overbridge with 24 free definable functional keys, 2 potentiometers, 8 character displays for timer or selector and 1 rotary control knob. The front color is grey (RAL 7024).

Figure 19: Central Overbridge RM330-023G

The Central Overbridge has its own microcontroller and is connected to the CAN Bus of the RM3200D.

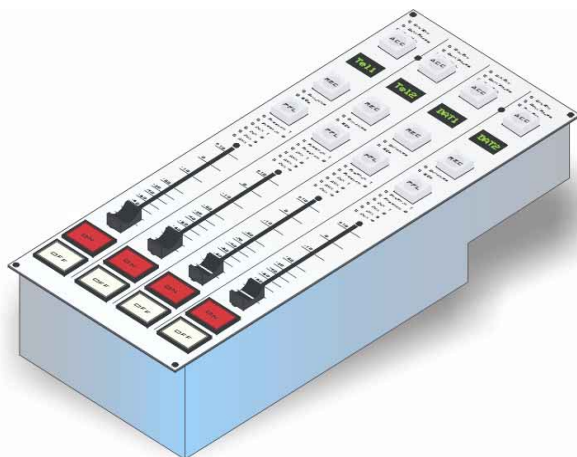


Important Note: A maximum of two Central Overbridges RM330-013 or 1 Studio Unit RM330-011 and 1 Central Overbridge RM330-013 is possible in a RM3200D.

The Module is used to select the function for the rotary control knobs in the Fader Overbridge modules RM330-023 or it is usable as additional Control Module for monitoring, talkback applications or something else.

It works as Overbridge with the Central Module RM330-012 or with the Main Module RM330-010.

2.3.3.4 4-Fader Module RM330-020, RM330-021



RM330-020: 4-Fader Module with 5 free definable functional keys (e.g. On, Off, PFL, Talk, Access, Input, On/Off) and with a 4-digit green ASCII-LED-display, digits 5mm high, P+G-faders 100mm.

RM330-021: 4-Fader Module with motor faders, similar to the RM330-020 but equipped with P+G 100mm motorfaders.

The front colors of Fader Modules are possible white (RAL 9016) or grey (RAL 7024).

Figure 20: Fader module RM330-020/021W



Important Note: For the operation of the system it is necessary to select the address of the fader modules. Addresses 1 to 5 are available (maximum of 20 faders).

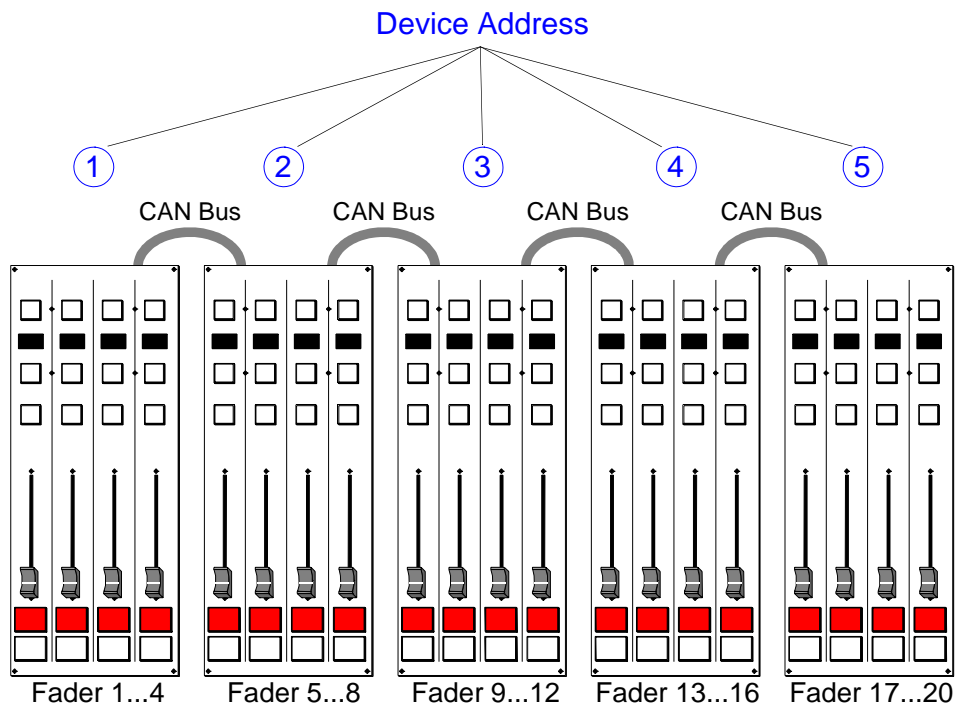


Figure 21: Device Address of the Fader Modules

Please refer to [Graphic 170 on page 164](#) how to select the device address of the fader module.

2.3.3.5 Fader Overbridge RM330-023



Fader Overbridge with 4 free definable functional keys and 2 rotary control knobs per fader channel.

Figure 22: Fader Overbridge RM330-023G



Important Note: The Fader Overbridge works *only* in connection with a Fader Module RM330-020/021.

It is connected to his Fader Module by a special control cable.

2.3.3.6 Mounting frame RM330-03n

To build the modules into the chassis, we have several sizes of mounting frames. .

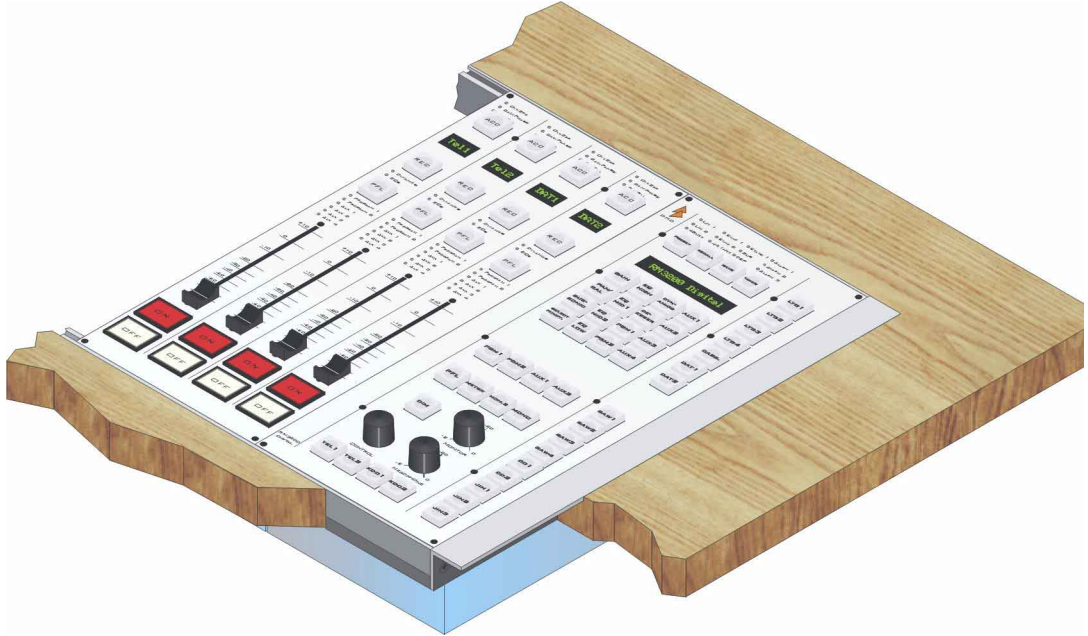


Figure 23: Mounting frame

The following sizes are available:

RM330-031	RM330-032	RM330-033	RM330-034	RM330-035	RM330-036
1	2	3	4	5	6

Table 2: Order codes for mounting frames with 1 to 5 modules

2.3.4 Studio Unit RM330-011

The studio unit in connection with the mixer RM3200D is used as an external operating unit. If configured adequately, the unit can have functions like Monitor Selectors, Talkback, Volume Control of Loudspeaker and Headphones, the controlling of telephone hybrid functions or other userdefined logical functions.

This can be useful in studios, newsrooms and similar applications.



- 23 free definable functional keys for operating the monitoring, input, signalling and configuration functions
- 16-digit green LED-ASCII- display
- Sturdy optical rotating knob for parameter setting
- Communication via CAN Bus

Figure 24: Studio Unit RM330-011



Important Note: A maximum of two Studio Units RM330-011 or 1 Studio Unit RM330-011 and 1 Central Overbridge RM330-013 are possible in a RM3200D.

There are no audio connectors on the Studio Unit, you must connect all your audio sources and destinations to the DSP Frame of the system.

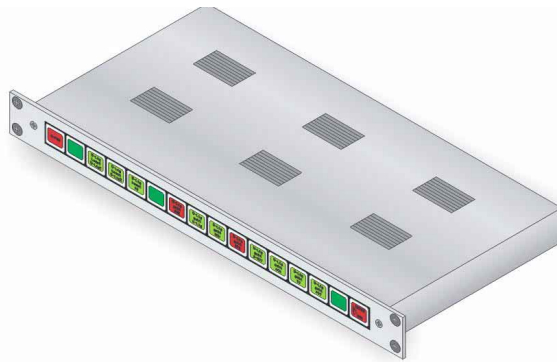
2.3.5 16 LCD Control Push Button Module RM330-019

The 16 LCD Control Push Button Module consists of 16 LCD keys. It is a 19" device with a height of 1U.



Important Note: The programming of this module is more complex than the modules described before. It is necessary to use a special DHD script language to program these push buttons. Because you will need project dependent engineering, it is not a standard product.

This can be useful for On Air switching of your studios, switching of signals in a central matrix, selection of monitoring sources or other applications.



- 16 free programmable keys for operating the monitoring, signalling, routing or other userdefined functions
- Red, green or yellow LEDs available in each push button
- Communication via CAN Bus

Figure 25: 16 LCD Push Button Module RM330-019



Important Note: A maximum of *four* 16 LCD Push Button Modules is possible in a RM3200D.

2.3.6 Router Control Panel RM420-018

The Router Control Panel controls 2 destinations (1 AES3/EBU-Signal) from DHD Routing Matrix (DSP-Frame RM3200D) via AES3/EBU Channel Status Bits. It is a 19" device with a height of 1U.

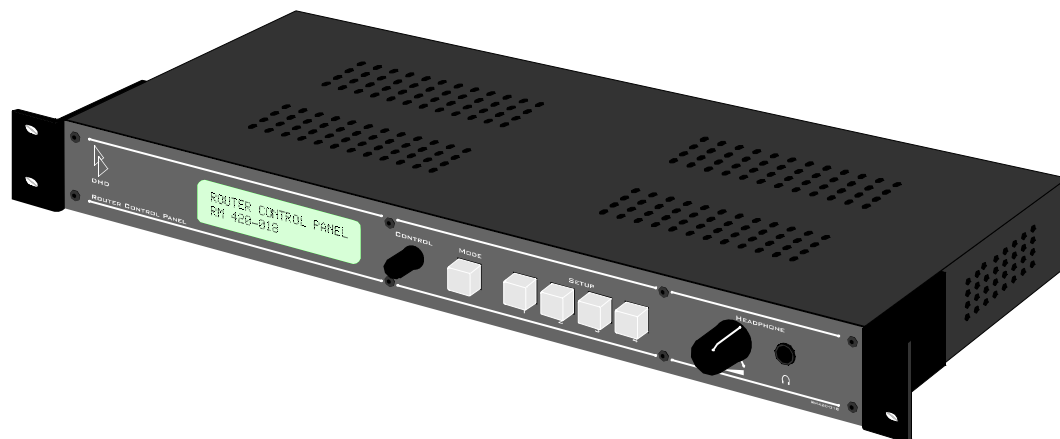


Figure 26: Router Control Panel RM420-018

Inputs/ Outputs

- Analog or digital input selectable
- Analog output
- Analog output
- Digital output
- Headphone output

Applications

- Using of central sources on studios, workstations or journalist desktops
- Using of central ISDN codecs or hybrids
- Monitoring

Benefits

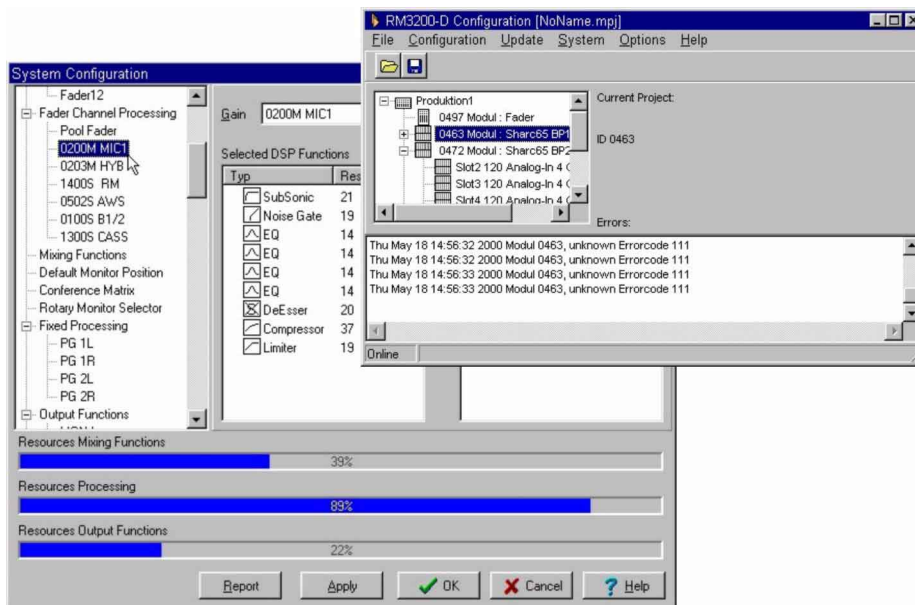
- Simple wiring from Routing Matrix to desktop with standard CAT5 LAN cable for the AES3/EBU-Signal
- No separate control connection necessary
- No administration - each Router Control Panel routes only his assigned 2 destinations on the Routing Matrix
- Up to 48 RouterControl Panels on a DHD DSP-Frame (RM330-053)

2.3.7 TCP/IP Remote Control Software products

- 5 software products are available for configuration and controlling of the RM3200D Mixing and Routing System
- Remote Control of 1 or more RM3200 Mixers or Routers via TCP/IP-Local Area Networks and TCP/IP-Wide Area Networks
- TCP/IP-RS232 Protocol Converter RM330-541 (hardware) converts the local DHD Protocol on RS232 between DHD Protocol running on TCP/IP Networks
- Applications like user support, service or unmanned operation

Definition.exe

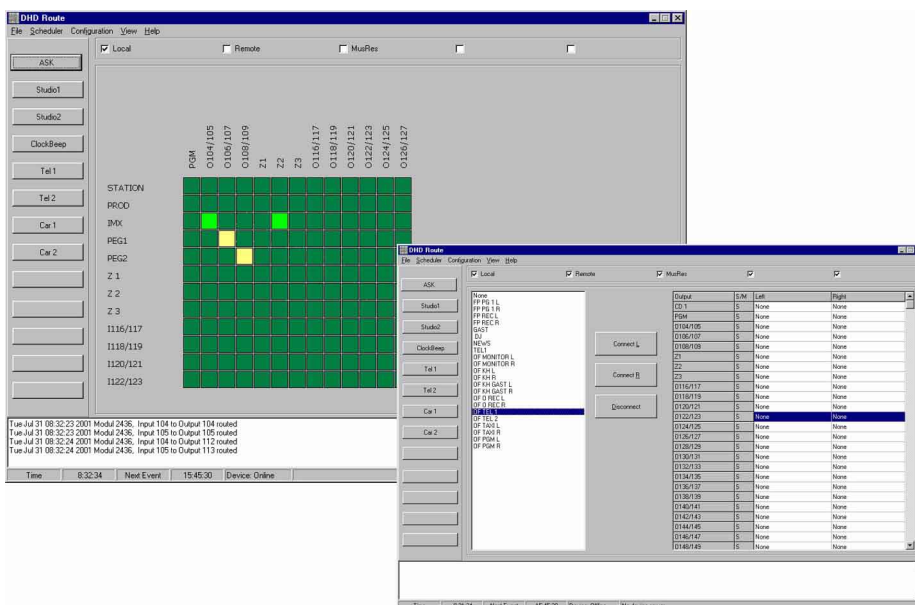
2.3.7.1 PC configuration and maintenance software DEFINITION.EXE



- the PC software is provided with the RM3200D
- runs on Microsoft Windows 95/98, NT4.0
- system requirements: Pentium-compatible processor >133MHz (or better), serial port (COM, 38400 baud), VGA with 800x600 pixels (or more)

route.exe

2.3.7.2 Routing Software ROUTE.EXE (RM330-550)



- runs on Microsoft Windows 95/98, NT4.0
- system requirements: Pentium-compatible processor >133MHz (or better), serial port (COM, 38400 baud), VGA with 800x600 pixels (or more)

acc.exe

2.3.7.3 DSP Function Control Software ACC.EXE (RM330-551)



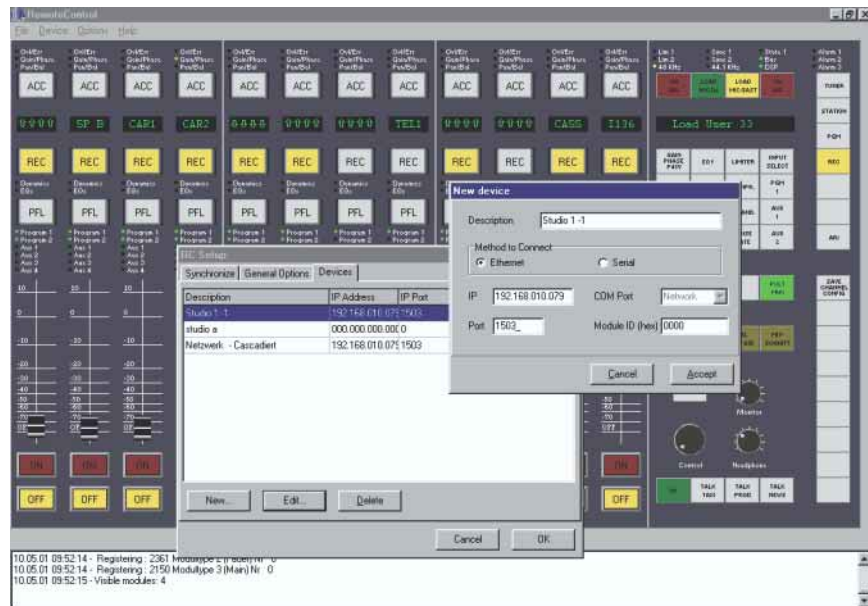
- runs on Microsoft Windows 95/98, NT
- system requirements: Pentium-compatible processor >133MHz (or better), serial port (COM, 38400 baud), VGA with 800x600 pixels (or more)

monitor.exe

2.3.7.4 Monitoring Software MONITOR.EXE

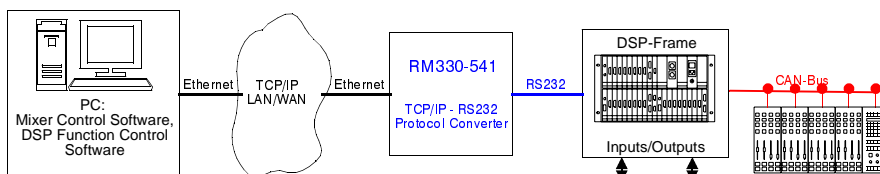
- for easy monitoring of all TDM Bus signals
- runs on Microsoft Windows 95/98, NT
- system requirements: Pentium-compatible processor >133MHz (or better), serial port (COM, 38400 baud), VGA with 800x600 pixels (or more)

2.3.7.5 Mixer Control Software (RM330-553)



2.3.7.6 Applications

Example Remote Control of 1 Mixer via TCP/IP



Example Remote Control of 2 Mixers and 1 Central Router via TCP/IP

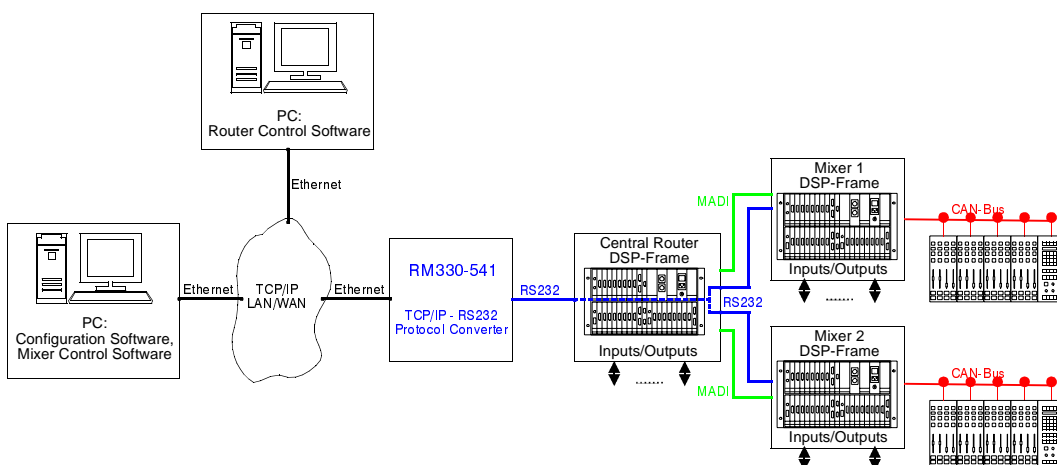


Figure 27: Applications of TCP/IP Remote Control Software products for RM3200D

2.4 Configuration Examples

In this section we show some examples of using the RM3200D. It is possible to use the RM3200D in a stand alone configuration, or you can interconnect several systems with audio and control interconnections.



Important Note: A RM3200D used as Mixing Console (the commonly used application) includes 1 DSP Frame and 1 Control Surface. It is not possible to connect more than 1 Control Surface to 1 DSP Frame.

Also it is possible to build systems with two or more RM3200D mixing consoles connected to a RM3200D DSP Frame used as central routing system.

2.4.1 Example: Self Operating Control Room

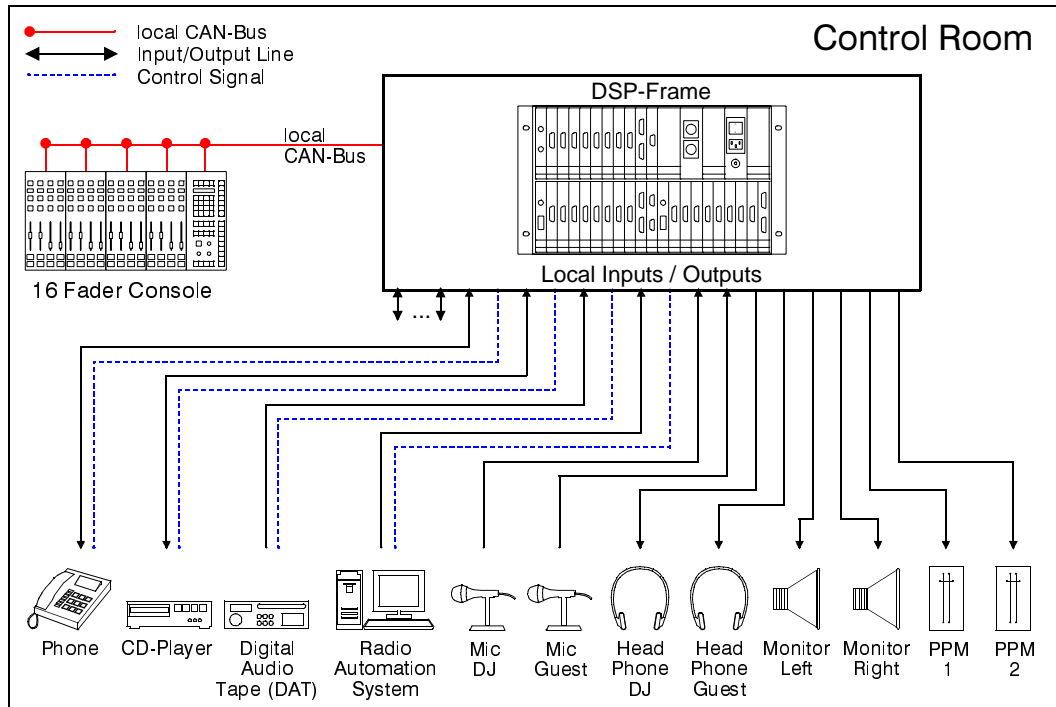


Figure 28: RM3200D System Design Example 1: Self Operating Control Room

2.4.2 Example: Self Operating Control Room and Studio

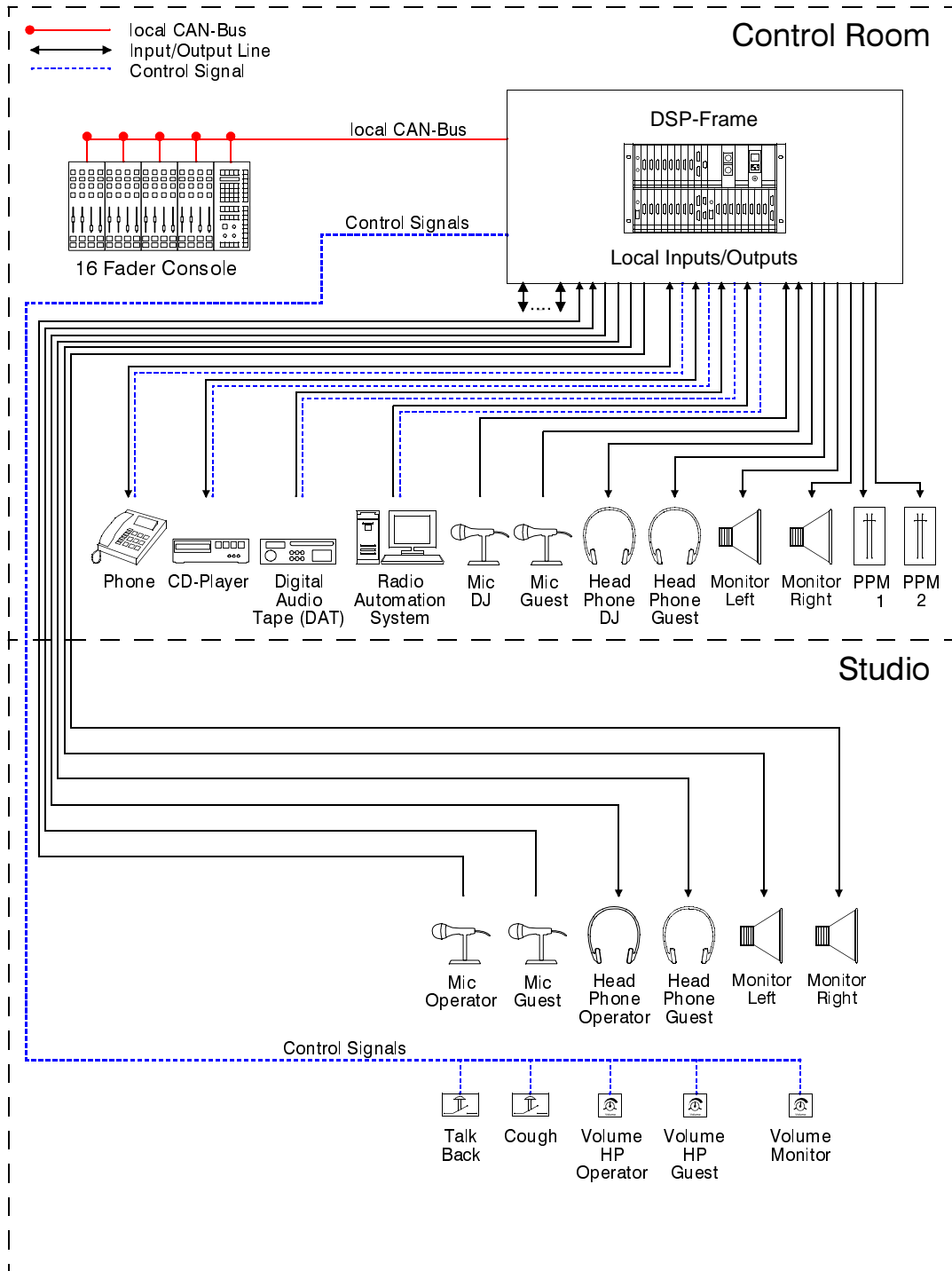


Figure 29: RM3200D System Design Example 2: Self Operating Control Room and Studio

2.4.3 Example: Self Operating C.R. and Studio with Studio Unit

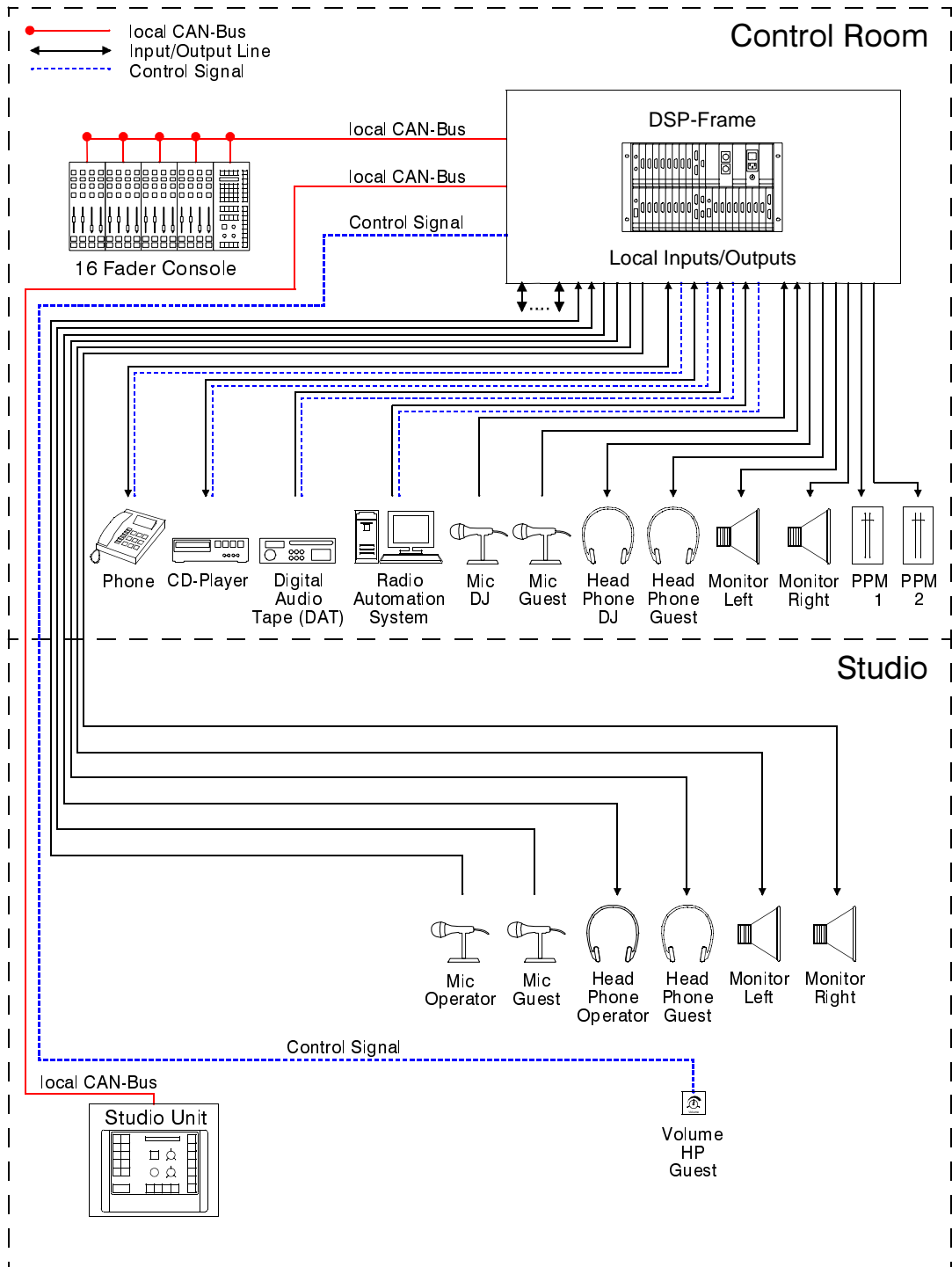


Figure 30: RM3200D System Design Example 3: Self Operating Control Room and Studio with Studio Unit

2.4.4 Example: 3 Control Rooms connected to a Central Matrix

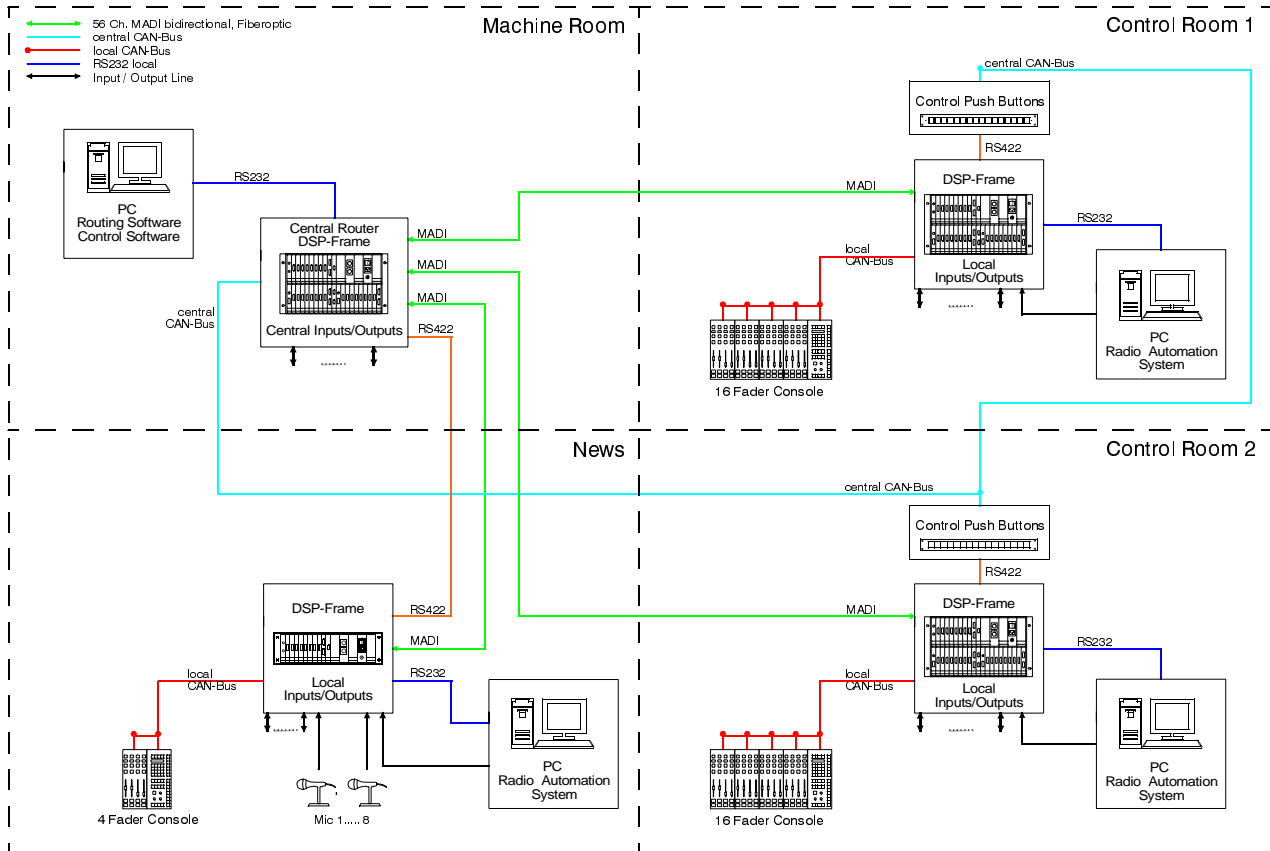


Figure 31: RM3200D System Design Example 4: 3 Control Rooms connected to a Central Matrix

2.4.5 Example: 2 Control Rooms connected to a Central Matrix

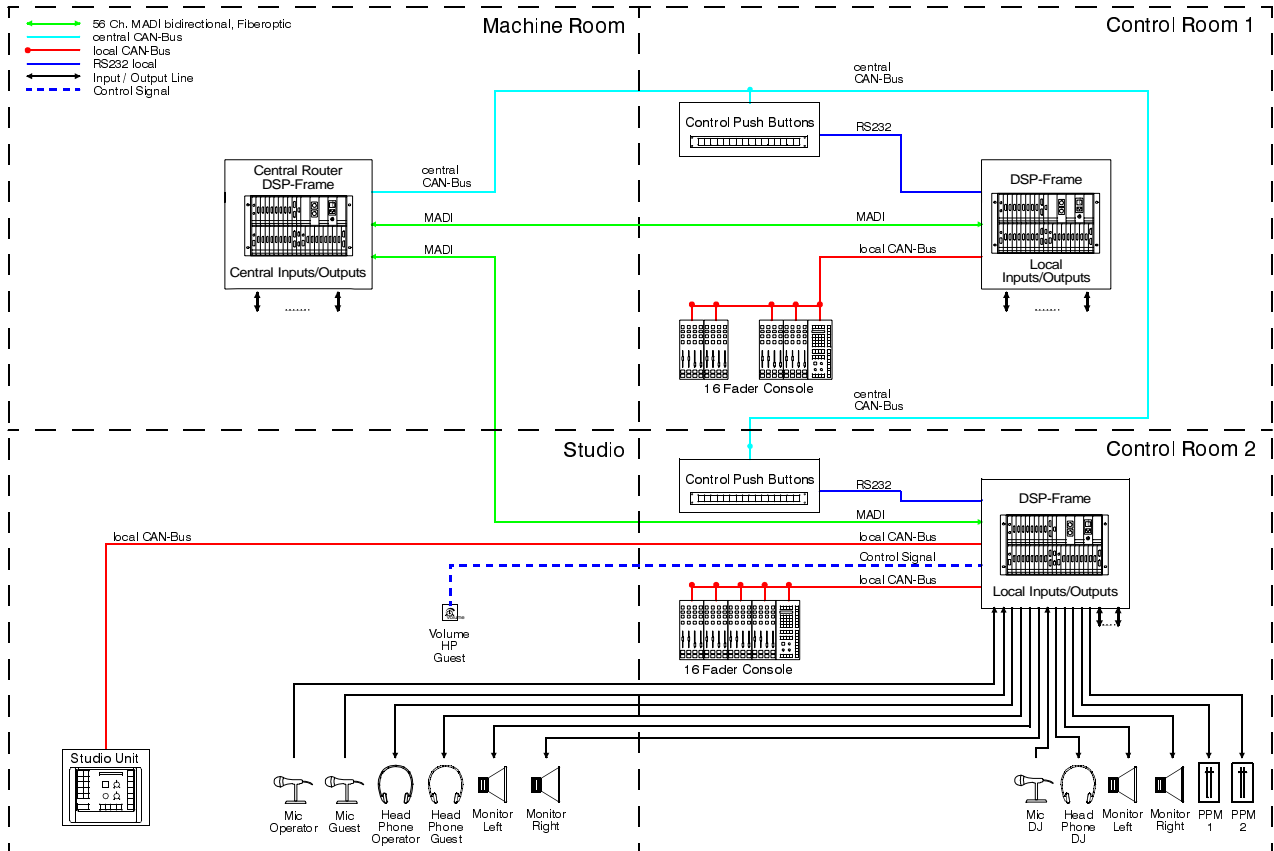


Figure 32: RM3200D System Design Example 5: 2 Control Rooms connected to a Central Matrix



Chapter 2: RM3200D System Design
