



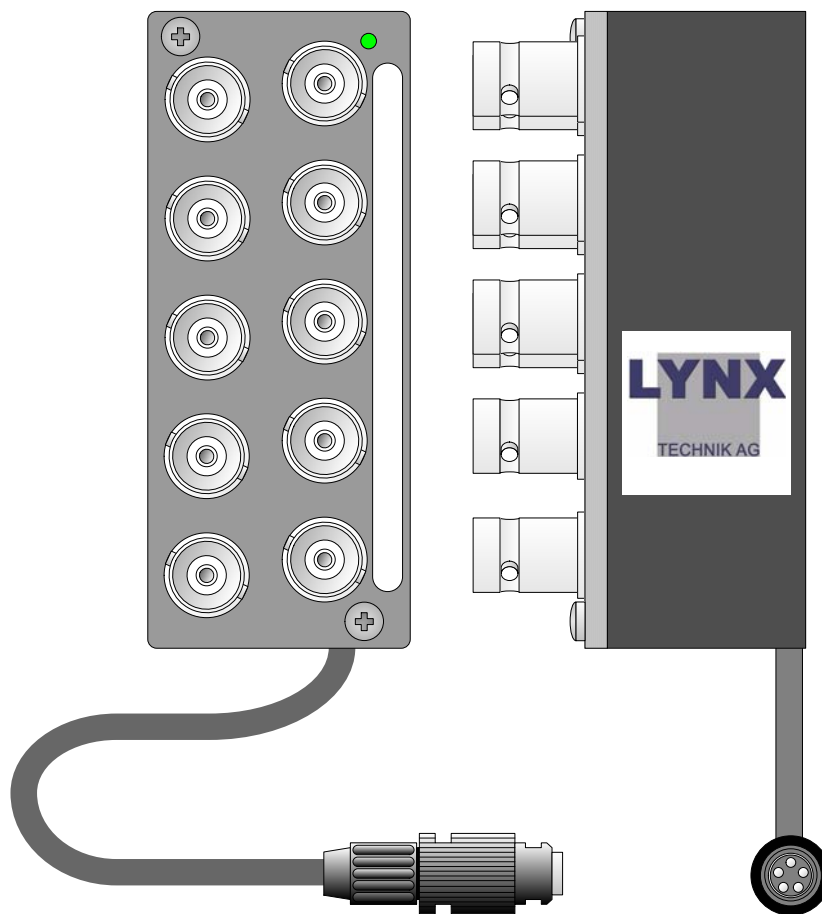
Version 1.1

Reference Manual

P DX 3212 B

Dual AES Audio Demultiplexer

Series 3000
MiniModules



© LYNX Technik AG
Brunnenweg 3
64331 Weiterstadt
Germany

www.lynx-technik.com

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Warranty

LYNX Technik AG warrants that the product will be free from defects in materials and workmanship for a period of two (2) years from the date of shipment. If this product proves defective during the warranty period, LYNX Technik AG at its option will either repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

In order to obtain service under this warranty, customer must notify LYNX Technik of the defect before expiration of the warranty period and make suitable arrangements for the performance of service. Customer shall be responsible for packaging and shipping the defective product to the service center designated by LYNX Technik, with shipping charges prepaid. LYNX Technik shall pay for the return of the product to the customer if the shipment is within the country which the LYNX Technik service center is located. Customer shall be responsible for payment of all shipping charges, duties, taxes and any other charges for products returned to any other locations.

This warranty shall not apply to any defect, failure, or damage caused by improper use or improper or inadequate maintenance and care. LYNX Technik shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than LYNX Technik representatives to install, repair or service the product; b) to repair damage resulting from improper use or connection to incompatible equipment; c) to repair any damage or malfunction caused by the use of non LYNX Technik supplies; or d) to service a product which has been modified or integrated with other products when the effect of such modification or integration increases the time or difficulty servicing the product.

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Regulatory information

Europe

Declaration of Conformity

We	LYNX Technik AG Brunnenweg 3 D-64331 Weiterstadt Germany
<i>Declare under our sole responsibility that the product</i>	
TYPE: P DX 3212 B	
<i>To which this declaration relates is in conformity with the following standards:</i>	
EN 55103-1 /1996	
EN 55103-2 /1996	
EN 60950 /1997	
<i>Following the provisions of 89/336/EEC and 73/23/EEC directives.</i>	
	Winfried Deckelmann
Bickenbach, January 2003	
<i>Place and date of issue</i>	<i>Legal Signature</i>

USA

FCC 47 Part 15

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to the part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense

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Getting Started

Packaging

The shipping carton and packaging materials provide protection for the module during transit. Please retain the shipping cartons in case subsequent shipping of the product becomes necessary.

Product Description

The P DX 3212 B is a high quality digital AES Audio de-multiplexer (Audio de-embedder) designed primarily for broadcast and professional applications.

The Module accepts 1 SDI input signal with up to four audio groups embedded. One audio group can be selected and de-multiplexed and output as 2 x AES3-id signals on 75 Ohm BNC connections. Four reclocked outputs of the input signal are provided to cascade several modules to de-embed further audio groups if required.

The P DX 3212 B has a variety of features, which include:

- User selectable audio groups. (1 through 4)
- Supports 525 / 625 line standards. (Auto detect)
- Supports 4:3 / 16:9 aspect ratios
- Supports 20 and 24 bit audio
- Supports 8 and 10 bit video
- Auto detect 270 / 360 Mbit operation
- Local DIP-switches and LED's for control and status monitoring
- Microprocessor controlled
- Remote control interface

- All settings stored in non-volatile flash ram.
- Four reclocked outputs of input video

The module has a built in micro-controller with local controls, status and alarm indicators and well as internal flash ram for storing setups. Any operational parameters configured and stored into the module are recalled when powered up. Remote control and remote status monitoring is possible when used with the rack frame option and host controller.

The P DX 3212 B is part of the 3000 series of MiniModules, which offer high quality, modularity and flexibility in a very small form factor ideal for applications where space is at a premium.

The modules can be used either stand alone using the optional power supply brick, or as part of a tightly integrated space saving system where up to 10 MiniModules can be mounted utilizing the optional LYNX R FR 3005 / 3010 rack housing. This includes integrated power supply and optional remote control interfaces.

Functional Diagram

Figure 1 below is the basic functional diagram for the P DX 3212 B MiniModule.

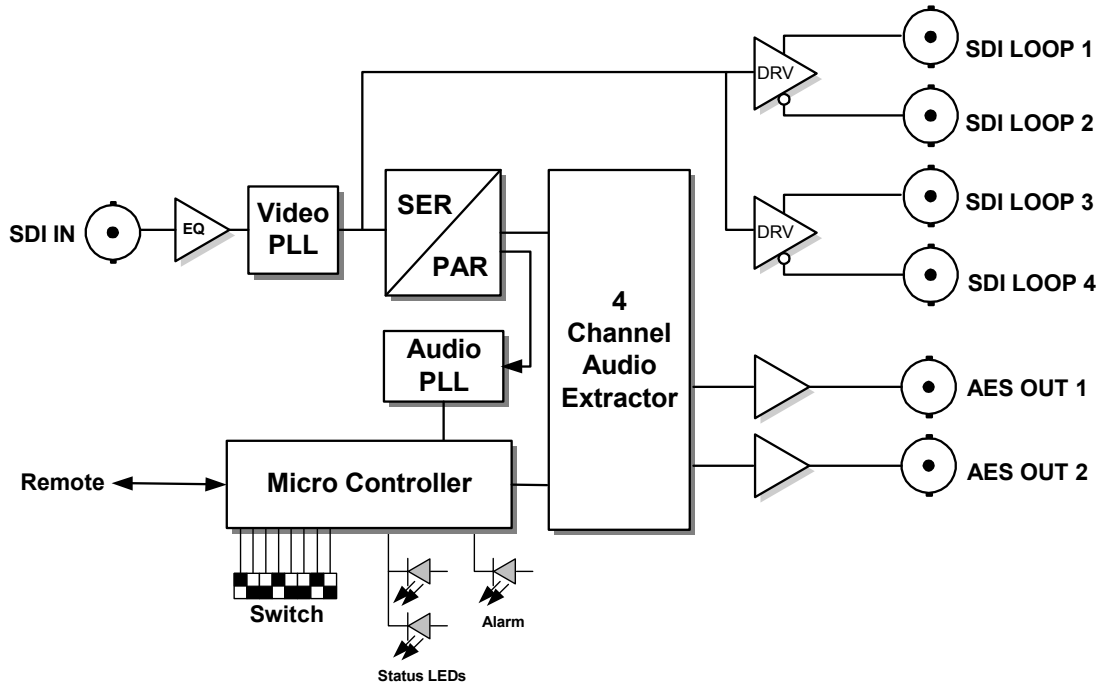


Figure 1- P DX 3212 B Functional Diagram

Module Layout

Figure 2 shows the physical layout of the P DX 3212 B MiniModule. Video and Audio I/O is made through standard 75 Ohm BNC video connections. Module configuration is set via a small dip-switch located behind an access hole in the bottom of the module.

If the module is being used in a stand alone application then the optional power supply (R PS 3001 E, R PS 3001 U or R PS 3001-3) is required to power the module (not shown)

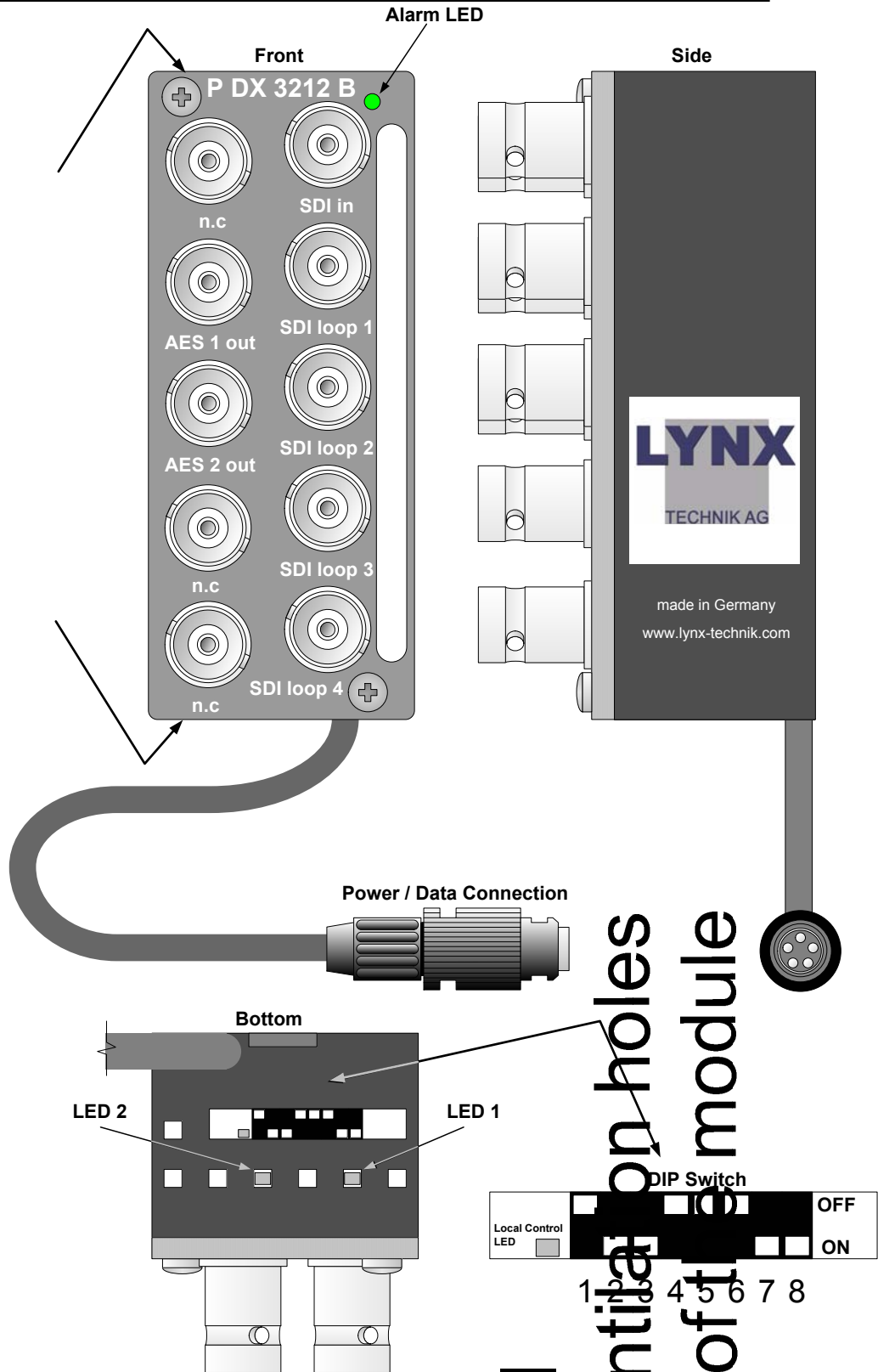


Figure 2 – Module Layout

CAUTION

Do not obstruct the ventilation holes on the front and bottom of the module.

Connections

Audio / Video Connections

The P DX 3212 B MiniModule is configured with standard 75 Ohm BNC connectors. Connection is self-explanatory. We recommend the use of high quality video cable suitable for digital video connections to reduce the risk of interference or errors due to excessive cable attenuation.

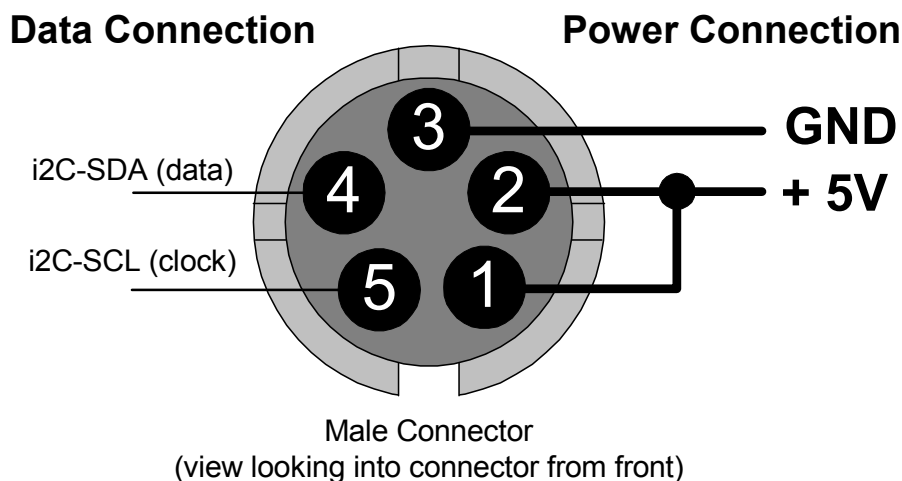
Note. Due to the compact design of the module it will be necessary to use a connection tool to secure the BNC video connectors to the module.

Power Connections

If using the module in a stand-alone application use the separate R PS 3001 E (for Europe), R PS 3001 U (USA) power brick option or the R PS 3001-3 desk power supply.

DC Power Connector

The MiniModule has a captive power lead fitted to the module, with a male 5 pin locking bayonet connector. This connection provides DC power and also data connectivity to the module. Connector wiring is shown below.



Caution

Only use the optional LYNX R PS power modules. Please make sure the brick is not connected to the main supply when making the DC power connection to the module. Ensure the 5-pin power connector is locked securely in place.

Installation

Mechanical

Stand Alone Operation

The P DX 3212 B MiniModule can be used in a stand alone application. There are two options for the use of the module in this way.

- a) Using the R FR 3005 Rack Frame 1 option. This allows up to any 10 of the MiniModules to be secured onto a rack frame assembly for 19 inch rack mounting. This keeps the modules secured, organized and out of the way. The R PS 3001 power brick option or the R FR 3010 option is required to power each module. Please refer to the R FR 3005 Reference Manual supplied with this option for more details.
- b)
- c) Single Use. The MiniModule can be powered independently with the R PS 3001 option and used in any location where this functionality is required.



Caution. Care needs to be taken when using the module in this way, as it is not physically secured. Keep the module away from the floor to avoid the risk of someone stepping or tripping on the unit, and locate the unit away from excessive sources of heat and any sources or moisture.

If using more than one MiniModule in any installation, the R FR 3005/3010 Rack frame combination is highly recommended.

Multiple Units

Most applications will require more than one MiniModule, which can include any of the available Series 3000 MiniModule product range. There are two options for mounting multiple units.

- a) Using the R FR 3005 Rack Frame option. This allows up to any 10 of the MiniModules to be secured onto a rack frame assembly for 19 inch rack mounting. The R PS 3001 power brick option or the R FR 3010 option is required to power each module. Please refer to the R FR 3005 Reference Manual for more details.
- b) Using the R FR 3010 Rack frame extension option. Can be combined with the R FR 3005 Rack frame option. Each module plugs into a connection bus, which provides common power for all modules. (no R PS external power supplies are needed). Remote control and status monitoring of all modules is possible with the addition of the R CT 5020 rack controller and R CT 5030 master controller options. Please refer to the respective reference manuals for these options for details of mechanical installation.

The very small size and density of the MiniModules combined with the available rack frame options allows the addition of a complex and custom signal distribution system without taking any additional front rack space. The rack frames are designed for installation in the back of 19-inch racks where there is normally plenty of available space. Ideal for mobile truck installations and facility expansions where space is at a premium.

Electrical Installation.

Stand Alone Operation

The MiniModule requires the R PS 3001 power brick option for stand-alone operation. Three versions are available: R PS 3001 E for European markets, R PS 3001 U for the US markets and the desk power supply R PS 3001-3. Please ensure you have the correct power option for your region. The connection to the module is made with a small 5-pin connector, which has a twist bayonet securing system. Please make sure the connection is solid and locked in place. A strain relief is included within the module to prevent excessive strain on the connection.

Signal connections should be made with care, please ensure connections are correct and compatible equipment is feeding / receiving the signals from the module or damage can result.



Caution. Only use the optional LYNX R PS 3001 power modules. Please make sure the brick is not connected to the main supply when making the DC power connection to the module. Ensure the 5-pin power connector is locked securely in place.



Caution. Care needs to be taken when using the module in this way, if it is not physically secured. Keep the module away from the floor to avoid the risk of someone stepping or tripping on the unit, and locate the unit away from excessive sources of heat and any sources or moisture.

Switch Function Detail

All settings are stored in Flash Ram inside the module (see Auto Store section in this manual). Settings will be recalled on power up.

Dip Switch 1

This switch enables local control using the dip-switches. **ON** enables local control and makes selections on the dipswitch active, and **OFF** disables local control (locking out any local changes)

Note.

*There is a small LED next to dip switch position 1. This LED must be **ON** [green] before any local configuration changes to the dip switch will be recognized by the module. If Switch 1 is already set to **ON** [enable local adjustment] but the LED is **OFF** then toggle switch 1 **ON-OFF-ON** to enable local control.*

Dip Switch 2 through 5

These switches are used to select the audio groups for de-embedding from the incoming SDI video stream. **ON** selects the Audio group, and **OFF** deselects.

If no audio group is selected then no audio will be de-multiplexed.

This module can only de-multiplex a single audio group. If more than one audio group is selected then by default group 1 will be de-multiplexed.

Dip Switch 6

This is used to select Audio mute ON / OFF. Selecting **ON** will mute any audio output from the module

Dip Switch 7 and 8

These switches are not used.

Additional Remote Functionality

This module is complex in nature and the dip-switch can only be used to set basic functionality. There is an extended set of features that are only accessible from remote using the LYNX control system or by using the R CT 3000 Service Adapter and LYNX Software. Additional functions include:

- Lock detect
- Display video standard
- EDH detection
- Extended audio detection (20 / 24 bit)
- Selectable audio delay
- Audio control packet delay
- Audio Status

Factory Preset Condition

The P DX 3212 B is delivered preset for the following mode of operation:

- Audio Group 1 selected
- Audio Mute **OFF**

If this is the mode of operation required, then no adjustments are necessary.

Alarm/LED Status Indicators

The P DX 3212 B module has built in LED indicators, which serve as alarm and status indication for the module. Function is described below. The Indicators are found on the bottom of the module and can be seen through the access holes provided. (Fig 2)

Module Edge Status LED`s

2 multicolor status LED`s are provided on the module edge, which can be seen through the access holes provided (figure 2) there is also a small LED next to the dip switch. Functionality is covered in the **Switch Settings Detail** section.

LED 1 = AES Channel 1

LED 2 = AES Channel 2

LED Color	Indication
Green	AES signal present, no errors
Yellow	AES signal present, muted
Red	AES signal not present

Front Panel Alarm Indicator

There is also a single alarm LED on the front side of the module, which is designed for quick and easy indication of a problem condition in installations where visible access to the bottom of the module is not convenient.

LED Color	Indication
Green	Input signal Audio/Video present (PLL lock / signal lock)
Yellow	No audio present or wrong dip-switch setting or Audio muted
Red	No input signal

LED **OFF** indicates power is lost, or there is a power supply fault.

Locate Function

For larger systems which may have multiple MiniModules of the same type in a single rack, or multiple rack systems on a large central control system we have added a useful utility which will help to visually locate a suspect module quickly (When used in conjunction with the optional control system and software)

Once the specific module has been selected on the control system there is a locate button on the top of the GUI:



Locate Function in Control System

When Locate is selected the status indicator on the GUI and the module LED`s will flash yellow in the following continuous sequence.

3 short flashes.... Pause.... 3 short flashes ...

This uses the alarm LED located on the front of the module and in some cases any channel or status LED`s that may be used in the module.

Use of the locate function will not interfere with the normal operation of the module.

For more details on this feature please check the documentation supplied with the controller software.

Auto Store

If no parameters are changed for 10 seconds then the current settings will be written into flash memory automatically, this can be seen by the module LEDS flashing yellow four times.

Specifications (P DX 3212 B)

Inputs

SDI Video	1 x Serial Digital Video. SMPTE 259A-D
Embedded Audio	SMPTE 272M-C
Input impedance	75 Ohm
Connectors	BNC

Outputs

Signal (Video)	4 x reclocked Serial Digital Video. SMPTE 259A-D
Signal (Audio)	2 x AES3 id (unbalanced)
Connectors	BNC
Output impedance	75 Ohm

Performance (Video)

Cable Equalization	250m (Belden 8281 / 270Mbit/s)
Input return loss	> 15dB (270 MHz)
Output level	0.8v p-p (nominal)
Output return loss	> 15 dB (500 MHz)
Jitter	< 0.2 ui

Performance (Audio)

Jitter	< 4ns
Output level	1v p-p (nominal)
Impedance	75 Ohm

Electrical Specifications

Operating Voltage	+ 5V DC
Power Consumption	3 W
Connection	DC input via 5 pin locking bayonet connector
Safety	IEC 950/ EN 60950/VDE 0805

Mechanical

Size	85.5mm x 35.3mm x 27mm + connectors
Weight	200g

Ambient

Temperature	5°C to 35°C Maintaining specifications -20°C to +70°C Storage
Humidity	Max 80% non condensing

Supplied Accessories

Documentation	P DX 3212 B Reference Manual and quick ref guide
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Available Options

Below is a list of available options for the P DX 3212 B MiniModule. Please refer to product brochures or our web site for more detailed information.

Model	Description
R PS 3001 E	External brick power supply module for Series 3000 MiniModules. European market version. 100-240 VAC input, +5V DC output.
R PS 3001 U	External brick power supply module for Series 3000 MiniModules. USA market version. 110-240 VAC input, +5V DC output.
R PS 3001-3	External desk power supply module for Series 3000 MiniModules. 110-240 VAC input, +5V DC output.
R FR 3004	4 Module mounting frame. This is a small mechanical mounting bracket for 4 MiniModules. Can be mounted with screws on any surface.
R FR 3005	Rack Frame 1. This is a basic 19 inch rack mountable frame which can accommodate 10 MiniModules with power bricks R PS 1 or can be extended with the R FR 3010.
R FR 3010	Rack Frame 2. This is a card cage with integrated central power supply, optional redundant power supply and optional controller, which can accommodate 10 MiniModules. Can be combined with R FR 3005
R PS C15	1.5m cable extension to connect one MiniModule to R FR 3010
R PS C25	2.5m cable extension to connect one MiniModule to R FR 3010
R PS 5010	Redundant power supply for the R FR 3010 card cage
R CT 5020	Rack controller for the R FR 3010 rack frame
R CT 5010	Rack Bus Extension for R FR 3010 rack frame. In combination with R CT 5020
R CT 3000	Service Adapter for remote configuration of one MiniModule via PC

Parts List

Due to the very dense design and high level of integration there are no user serviceable electronic assemblies within the P DX 3212 B module.

P DX 3212 B Mini Module (complete)

Description	Dual AES Demultiplexer
Model Number	P DX 3212 B
Part Number	6.155.001.232

Service

If you are experiencing problems, or have questions concerning your P DX 3212 B MiniModule please contact your local distributor for assistance.

We offer a fixed cost service exchange program for defective Series 3000 MiniModules out of Warranty. Please contact your distributor or check our web site for details on this program.

More detailed information and product updates may be available on our web site:

www.lynx-technik.com

You will also find links to contact us directly for assistance.

Contact Information

Please contact your local distributor; this is your local and fastest method for obtaining support and sales information.

LYNX Technik can be contacted directly using the information below.

Address	LYNX Technik AG Brunnenweg 3 64331 Weiterstadt Germany.
Phone	+ 49 (0) 6150 1817 0
Fax	+ 49 (0) 6150 1817 10
Website	www.lynx-technik.com
E-Mail	info@lynx-technik.com

LYNX Technik manufactures a complete range of high quality modular products for broadcast and Professional markets, please contact your local representative or visit our web site for more product information.



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