LYNXTechnik AG®

Broadcast Television Equipment

Reference Manual

R FR 5041

Series 5000 1RU 19” Rack Frame with Power Supply

(Suitable for up to four Series 5000 Modules)

Revision 1.3 – February 2012

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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 three (3) 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.

THIS WARRANTY IS GIVEN BY LYNX TECHNIK WITH RESPECT TO THIS PRODUCT IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. LYNX TECHNIK AND ITS VENDORS DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. LYNX TECHNIK`S RESPONISIBILITY TO REPAIR AND REPLACE DEFECTIVE PRODUCTS IS THE SOLE AND EXCLUSIVE REMEDY PROVIDED TO THE CUSTOMER FOR BREACH OF THIS WARRANTY. LYNX TECHNIK AND ITS VENDORS WILL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTIAL, OR CONSEQUENTIAL DAMAGES IRRESPECTIVE OF WHETHER LYNX TECHNIK OR THE VENDOR HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.

Regulatory information

Europe

Declaration of Conformity

We LYNX Technik AG
Brunnenweg 3
D-64331 Weiterstadt
Germany

Declare under our sole responsibility that the product

TYPE: **R FR 5041**

To which this declaration relates is in conformity with the following standards (environments E1-E3):

EN 55103-1 /1996
EN 55103-2 /1996
EN 60950-1 /2006

Following the provisions of 89/336/EEC and 73/23/EEC directives.

Winfried Deckelmann

Weiterstadt, February 2012

Place and date of issue *Legal Signature*

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.

WARNING

Electrical supplies in excess of 50 (fifty) volts peak value are potentially hazardous or lethal. AC supplies between 100 and 250 peak volts exist within the rack frame chassis when connected to AC power. **Only qualified personnel** should service the rack frame assembly.

Removal of technical earth may render the equipment dangerous and intentional removal is prohibited.

This unit has to be separated from mains by disconnecting the power supply cords.

This unit may have two power supplies and two power supply cords. Disconnect all power supply cords before servicing to avoid electric shock.

DOUBLE POLE / NEUTRAL FUSING
After operation of the fuse, parts of equipment that remain energized might represent a hazard during servicing.

For continued protection against risk of fire, replace only with same type and rating of fuse.
F1/F2: T2AH250V

Replacement AC fuses must be of the specified type and rating: F1/F2 = T2AH250V
The use of repaired fuses or shorting links has to be avoided.

WARNUNG! WARNING! CAUTION!

WARNUNG!

Wenn das Gerät an das Wechselstromnetz angeschlossen ist, treten innerhalb des Gerätes Wechselspannungen zwischen 100 und 250 V auf, die potentiell gefährlich oder tödlich sein können. Deshalb darf eine Reparatur und Instandhaltung **nur von qualifiziertem Personal** durchgeführt werden.

Das Entfernen des Schutzleiters kann das Gerät in einen gefährlichen Zustand bringen, vorsätzliches Entfernen des Schutzleiters ist verboten.

Das Gerät ist durch Abziehen beider Netzstecker vom Netz zu trennen.

Das Gerät kann 2 Netzgeräte mit 2 Netzkabeln haben. Vor Servicearbeiten müssen alle Netzkabel abgezogen werden, um elektrischen Schlag zu vermeiden.

Die Netzzuführung ist 2-polig abgesichert. Nach Ausfall einer Sicherung können Teile der Schaltung weiter unter Spannung bleiben und bei Servicearbeiten zu Gefahren führen.
Vor Servicearbeiten Stromversorgung unterbrechen und Teile vor Berührung prüfen.

Um Schutz gegen Feuer aufrechtzuerhalten, sind bei Sicherungswechsel nur Sicherungen des gleichen Typs mit gleichen Daten zulässig. F1/F2 = T2AH250V

ESD Warning

The internal electronics parts of this product are static sensitive. Please use caution and use preventative measures to prevent static discharge or damage could result to modules.

Electrostatic discharge (ESD) damage occurs when electronic assemblies or the components are improperly handled and can result in complete or intermittent failure.

Do not handle the module unless using an ESD-preventative wrist strap and ensure that it makes good skin contact. Connect the strap to any solid grounding source such as any exposed metal on the rack chassis or any other unpainted metal surface.

Caution

Periodically check the resistance value of the antistatic strap. The measurement should be between 1 and 10 Megohms.

Getting Started

Packaging

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

Product Description

The R FR 5041 is a high quality compact 1 RU high 19 inch rack frame enclosure for LYNX Series 5000 CardModules, designed primarily for broadcast and professional applications.

The rack frame can accept a maximum of 4 Series 5000 CardModules (any combination*). Primary power supply and a fully integrated LAN port are also included (LAN port is for remote control using the included LYNX Desktop Controller Software)

All CardModules and the Primary Power supply are installed and removed from the front. Module rear connection panels are supplied with each CardModule and are mounted on the rear of the rack as required. All CardModules and the power supply are hot swappable.

***Note.** *Some Card Modules require a larger double height backplane (for I/O reasons) which will occupy two pack slots. Please refer to individual module specifications for details. These are typically the modules which currently have a double width backplane when used with the RFR 5012 2RU rack frame.*

The R FR 5041 features an integrated termination panel with connections for AC power input, remote alarming, LAN control and a rack reference (sync). An external + 12VDC power input connection is provided for optional external redundant power backup using a brick power supply (Option R PS 5000)

The Rack frame has a hinged front cover providing easy access to all installed modules and power supply which are hot swappable.

All electrical contacts inside the RFR 5041, CardModules and power supplies are gold plated ensuring maximum reliability and protection from corrosion. Modules are mechanically secured in place and will not shake loose with vibration (ideal for mobile applications).

The R FR 5041 is one of the primary building blocks in the LYNX Series 5000 CardModule product line providing high quality, modularity and flexibility in a very small form factor.

Installation Instructions

The RFR 5041 is intended for operation in broadcast environments. The operation of the equipment in environments which could produce excessive dust, moisture or extreme temperatures requires special accommodation, such as:

- Dust filters
- Air conditioning
- Avoidance of condensation

CAUTION!
The power cords must meet the safety requirements of the country where the rack frame is used and has to be approved in this country, e.g.

- CE-Mark in Europe
- UL-listed in USA
- CSA certified in Canada

CAUTION!
The power supply cords are used to disconnect the R FR 5041 from the AC mains supply, ensure that the AC socket-outlets are located/installed near the equipment and are easily accessible.

CAUTION!
The rack frame chassis is CLASS I EQUIPMENT. Before initial operation ensure that protective earth is connected to the facility wiring and zero potential is established.

The functional earth connection at the rear termination panel is connected internally to protective earth. If necessary, it may be used for potential equalization to other units.

Installations-Anweisung

Das Gerät R FR 5041 ist für Anwendungen in Fernsehstudios vorgesehen. Der Einsatz in erhöhter staubiger und feuchter Umgebung oder außergewöhnlichen Temperaturen erfordert besondere Maßnahmen wie

- Klimatisierung
- Staubfilter
- Vermeiden von Kondenswasser.

ACHTUNG!
Die Netzkabel müssen den Sicherheits-Anforderungen in dem Land entsprechen in dem das Gerät verwendet werden soll und in dem Land zugelassen sein, z.B.

- CE-Zeichen in Europa
- UL-gelistet in USA
- CSA-Zulassung in Kanada

ACHTUNG!
Die Netzkabel dienen zur Trennung des Geräts vom Netz. Es ist sicherzustellen, dass die Steckdosen für den Netzanschluss in der Nähe des Gerätes angebracht und zum Trennen leicht zugänglich sind.

ACHTUNG!
Das Gerät ist nach der Schutzklasse I aufgebaut. Vor der ersten Inbetriebnahme muss sichergestellt werden, dass der Schutzleiter mit dem zentralen Schutzleiter des Gebäudes verbunden ist und spannungsfrei ist.

Der Erdanschlussbolzen an der Netzanschlussrückseite ist intern mit dem Schutzleiter verbunden. Falls erforderlich, kann er für den Potentialausgleich mit anderen Geräten verwendet werden.

The rack frame is designed to fit into industry standard 19” equipment housing. The chassis will occupy 1 RU of rack space. Opening the front cover will allow access to the 19” rack mounting holes.

Airflow is from side to side, therefore care needs to be taken not to restrict the airflow through the system. There are no ventilation holes in the top of bottom of the chassis, and no additional rack space is required to accommodate vertical airflow or ventilation.

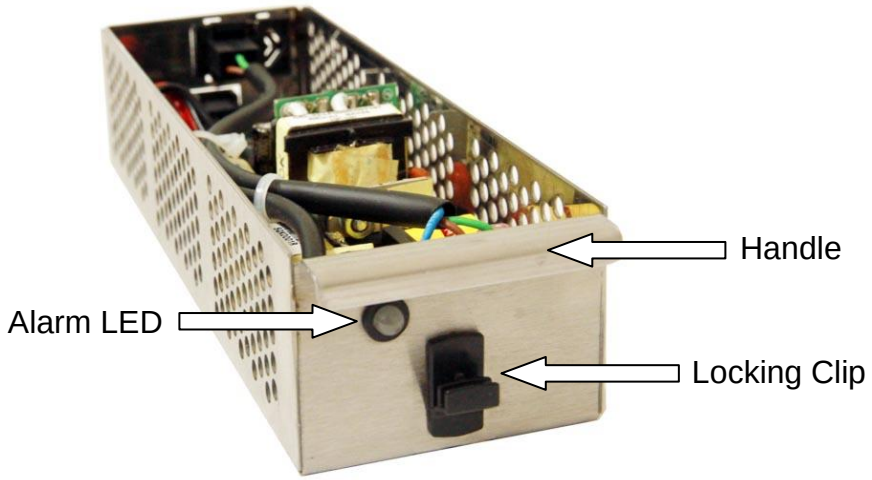
Power Supply

The R FR 5041 includes the primary power supply (an optional external power supply (RPS 5000) can be used for redundancy which will provide a +12VDC input). Should a power fault develop, the errors are alarmed in the following ways:

- Via the LED located on the front of the Power Supply (visible through front cover)
- Via a GPO alarm connection to the Termination Panel
- Via the LYNX Desktop Controller connected to the LAN port (if used)

If the external redundant power supply (Option RPS 5000) is used then the system will switch supplies automatically in the event of primary supply failure; with no interruption to system operation.

The primary power supply is installed and removed from the front of the rack. The supply locks itself firmly in place. The power supply can be released by pushing up the locking clip and pulling on the handle above (see below)



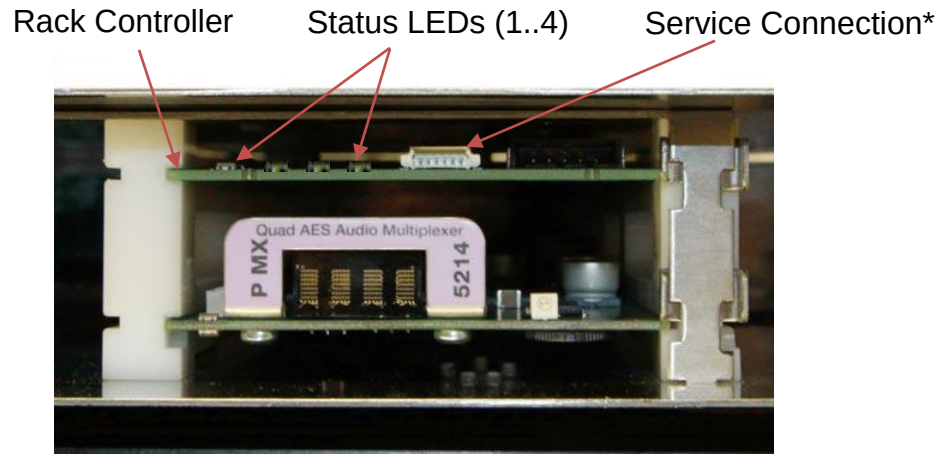
Power Supply Alarm LED

LED Status	Description
GREEN	Normal Operation
YELLOW	Warning – High Temperature (over 55**°**C)
RED FLASHING	Warning – Over Temperature (over 70**°**C)
RED (Continuous)	Voltage Out of Range
OFF	Supply Failure (or AC power disconnected / AC fuses blown)

Rack Controller

The RFR 5041 is supplied with a integrated LAN rack controller, which when used with the included LYNX Desktop Controller software application provides remote control, status monitoring and alarm logging functionality. The 1RU rack can also be fully integrated into larger systems which are using the LYNX Desktop Controller for centralized control of a number of LYNX systems.

The rack controller is a fixed position in the rack, located above one of the available card slots (the lower area of this slot can still be used for a LYNX module, no capacity is removed). The controller can be removed if required for maintenance, simply slide forward to unplug the module. Four LEDs are provided on the module edge which are used to indicate status.



Rack Controller Shown above Series 5000 Module in Chassis

***Note.** *This connector is for use by LYNX Service personnel and is used for firmware updates to the controller. Specialized programming equipment is required; do not attempt any connection to this port.*

Controller LED Indication

The controller status LEDs are used to indicate various conditions:

LED	Name	Color	Description
1	HotSync Write	green	HotSync switched ON
		yellow	HotSync currently writing to device
		off	HotSync switched OFF
2	HotSync Read	green	HotSync switched ON
		yellow	HotSync currently reading from device
		off	HotSync switched OFF
3	Network	green	network connected OK
		yellow	DHCP mode active but not satisfied
		off	network connection not active
4	Rack Fans	green	all rack fans OK
		3 yellow flashes	saving current settings to local memory
		red	rack fan failure
all LEDs flashing yellow:		LOCATE mode enabled by remote-interface (for physical board identification)	

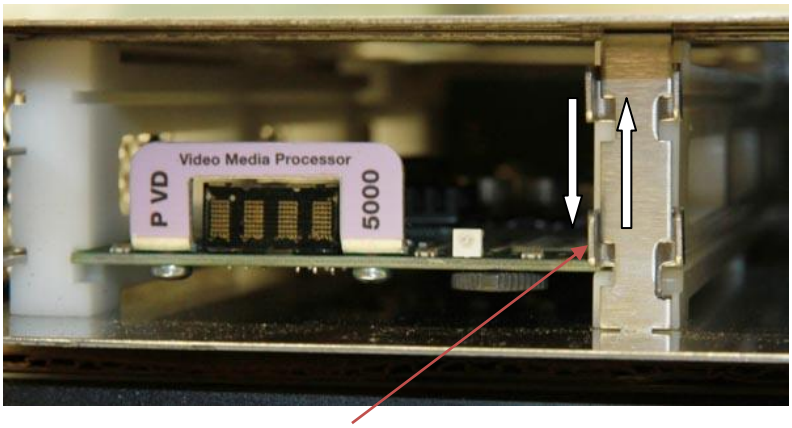
Module Installation

The R FR 5041 can accept 4 standard Series 5000 CardModules. There is no restriction of type of module or function; any combination can be mixed as required. Some of the more complex modules will require a double height backplane (for I/O reasons) and these will occupy two slots.

If you ordered the R FR 5041 complete with modules then the chassis will be supplied with the modules pre-installed and tested and the system is ready to be used. If you are adding modules to the chassis yourself, then please follow the instructions below.

1. Unpack the CardModule from its shipping carton. The module is supplied with the required backplane assembly. **Please take static precautions when handling the modules, as the modules are extremely sensitive to ESD.**
2. Locate an empty slot in the R FR 5041 and remove the cover plate from the rear of the rack in the corresponding position (2 screws).
3. Install the backplane onto the rack using the 2 screws provided.
4. Slide the CardModule into the corresponding rack slot from the front of the rack*, do this slowly and ease into the rear connector. If this is difficult or requires excessive force then please stop and check the rear panel installation. The module should be fairly easy to slide into the rear connector.

***Note.** *Each module slot is equipped with a mechanical retainer which is used to prevent the modules becoming unplugged in situations involving a lot of vibration (i.e. Mobile applications). Slide the retainer up with your finger to access the module guide slot. When the module is all the way in; slide the retainer back down to lock the module in position. See below:*

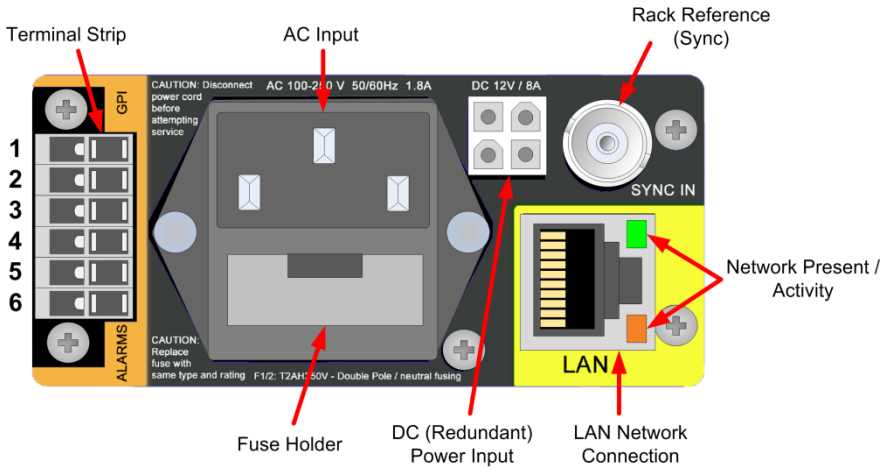


Slide retainer up to insert module, and down to lock into place

Rack Connections

Rear Termination Panel

The R FR 5041 has an integral termination panel on the rear of the rack for system connections.

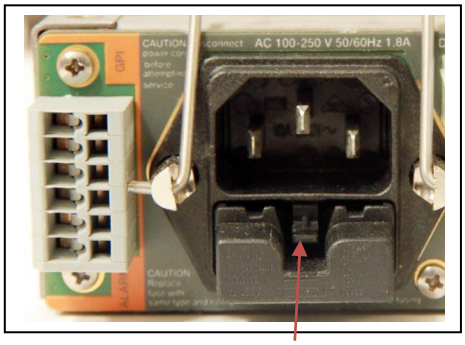


AC Input and Fuses

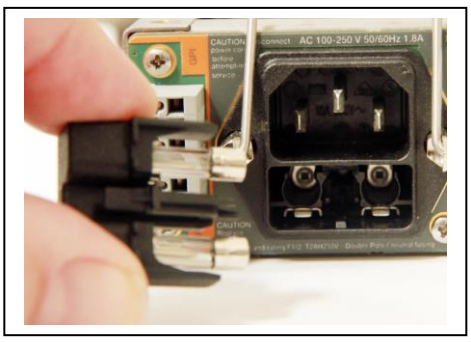
The AC input is auto sensing **100-250V 50/60Hz** (1.8A nominal) and is located on the rear of the chassis. Use a standard IEC power cord with a C13 connector for the power connection. The fuses are located below the AC power input (see below). The system is double pole / neutral fused so there are two fuses. The fuses are removed by pushing down on the plastic tab and sliding the fuse carriage out. Insert new fuses and slide the carriage back in all the way until the tab “clicks” and locks the fuse carriage in place.

Caution
Please remove power before attempting to exchange power fuses. Only replace the fuse with a correctly rated replacement. **(T2AH250V)** For safety **DO NOT** physically disconnect or isolate the rack from earth for any reason.

Fuse (x2) = **T2AH250V**



Push tab down to remove



Fuse carriage removed

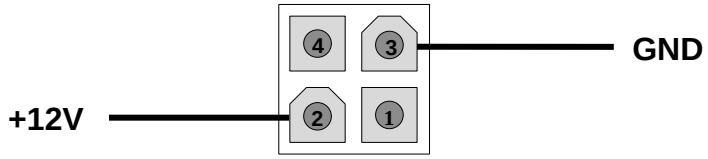
Rack Reference (Sync Connector)

The chassis has a single reference input. This is for the connection of a “common rack reference” which is distributed to each of the available rack slots for any installed modules which require an external reference input.

The connection supports all analog SDTV and HDTV video sync standards (Auto-detect), bi-level or tri-level.

Redundant Power Input

A connector is provided for the connection of an external 12VDC power input, which is used for redundant protection. LYNX provides an optional **RPS 5000** brick power supply for use as an external redundant supply. If providing your own DC power input; then please ensure a clean feed of **+12VDC @ 8A (+/- 5%)**. The mating power connector is Molex MiniFit Series 5557 (part # 0039012040), crimp contacts Molex Series 5556 (part # 0039000078). Connections are shown below.



External DC Input Connections
(View looking into connector)

Alarm Connection (Terminal Strip)

A terminal strip is provided for the connection to external alarm systems

The connections are designated as follows:

1	2	3	4	5	6
GPI B	GPI A	Alarm Minor B	Alarm Minor A	Alarm Major B	Alarm Major A

Function and connection information is described below.

Alarm Function

The user can assign the triggers for the alarm conditions using the LYNX Desktop Controller Software Application.

The terminal strip has a GPI input (for future use), and two alarm outputs. These are contact closures and allow for the connection of external monitoring equipment or alarm systems.

There are two alarms **Minor Alarm** and **Major Alarm,** these are configured using the LYNX Desktop Controller. Simply assign the alarms to the available selections.

When the alarm is triggered, a contact closure is made between the A and B connections, for example a minor alarm will provide a contact closure between terminal strip connector **3** and **4**

> **Note.** *The default selection is "None" as shown above. Once the required settings have been made they are stored in the rack controller and will survive power cycles.*

LAN Connection (Remote Control)

The R FR 5041 is equipped with a rack controller and when using the LAN connection remote control, status monitoring and alarm logging is possible when used with the supplied **LYNX Desktop Controller** Software application.

The LAN connection is a standard TCP/IP connection at speeds up to 100MBit / (10/100MBit) Full Duplex

Please refer to the *Network Connection* section of this manual for more details on the LAN port configuration and use.

Hot Swapping

Power Supplies

All Series 5000 CardModules and Power Supplies are fully hot swappable.

Power Supply Failure

A failure in the Primary power supply will automatically trigger the use of the redundant supply (if fitted) and will trigger the following alarm conditions / indications (requires controller option).

- Reported fault on the monitoring system
- Alarm GPO trigger on the alarm connector (see Alarm Connections section)

Once identified, the defective supply can be removed and replaced with power connected with no interruption to the operation of the CardModules [if the redundant supply is installed].

CardModules

If a CardModule fails the error will be reported in the monitoring system (LYNX desktop Controller Application) and via the front side alarm LED. Alarm function is module dependant so please refer to the CardModule manual for failure conditions and indications. The defective CardModule can be removed and replaced with an identical replacement without removing power from the frame.

System Cooling and Fans

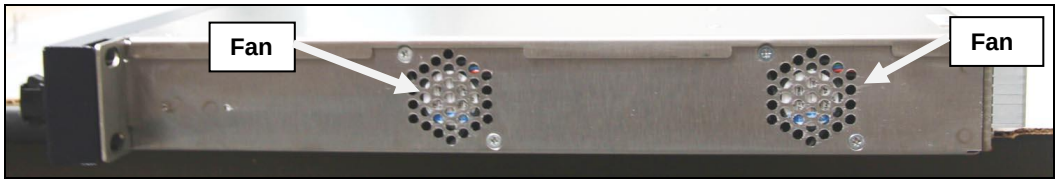
The chassis has integrated cooling fans and the airflow is from one side to the other through the ventilation holes provided.

There is no ventilating through the top and bottom covers, so no space needs to be allowed above and below the rack in a system installation.

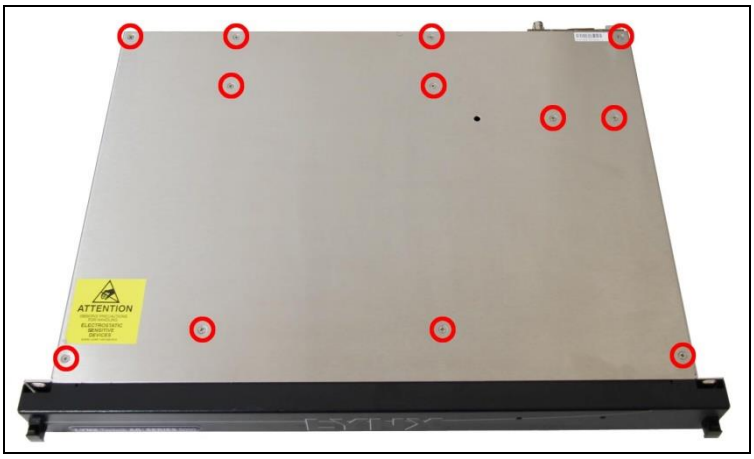
Fan Replacement

The fans are monitored and alarmed in the control system; if a fan fails please follow the instructions below to exchange fans.

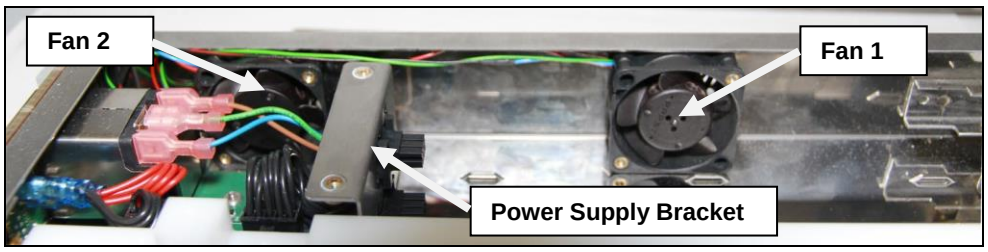
The two fans are located on the right hand side of the chassis, each secured in place using two screws.



1. Disconnect all cables and remove the chassis from the 19” rack frame.
2. Remove the top cover, screw locations to remove cover are shown below



3. Remove the power supply. To exchange the rear fan it will also be necessary to move the power supply mounting bracket to one side (see below). Two screws in the bottom of the chassis should be loosened to allow this bracket to be moved over.



4. Remove the 2 screws from the fans to take them from out of the chassis, unplug the fan cables from the rear PCB
5. Insert new fans (ensure correct orientation) and plug leads into PCB.
6. Secure the power supply bracket and re-assemble chassis.

Note. Please contact LYNX Technik for replacement fan assemblies

Network Configuration

The R FR 5041 includes a LAN controller which when used in conjunction with the supplied ***LYNX Desktop Controller*** software package will facilitate remote control, status monitoring and error logging for all LYNX Hardware.

Connect the R FR 5041 to your network using the LAN port provided. The LEDs below the LAN connector on the rack frame will show some network activity if connected properly.

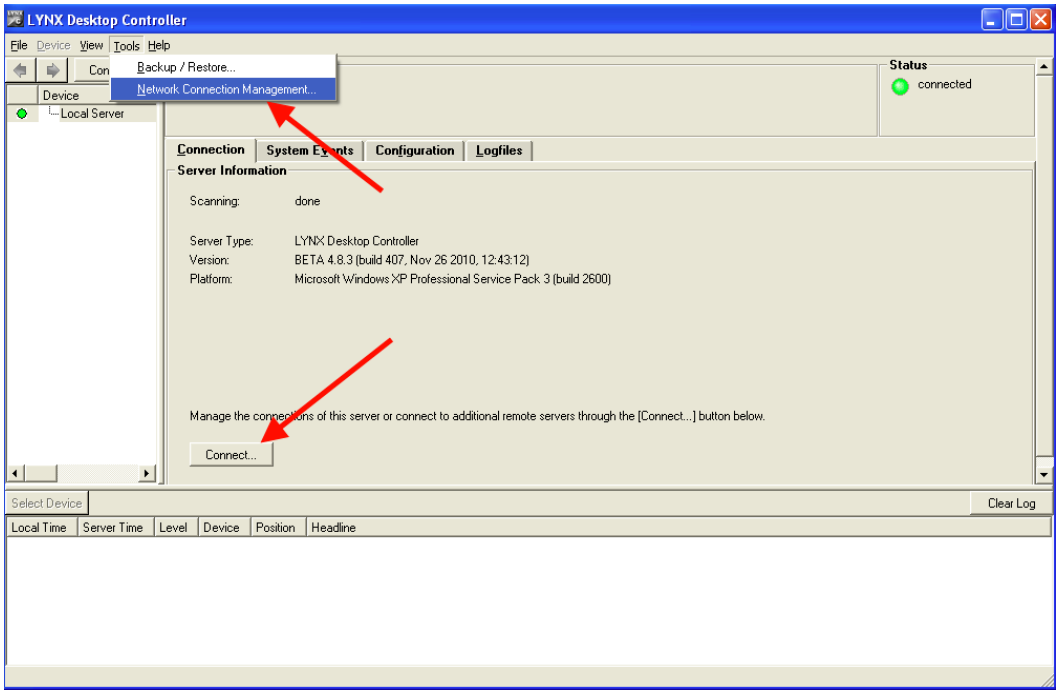
> **Note:** *The next steps require that you have already installed the LYNX Desktop Controller on a client P. If this should not be the case please install the software. Refer to the software installation instructions section of this manual.*

Most configuration below have to be done by the network administrator. The default login and default password for the administrator in the LYNX control system is:

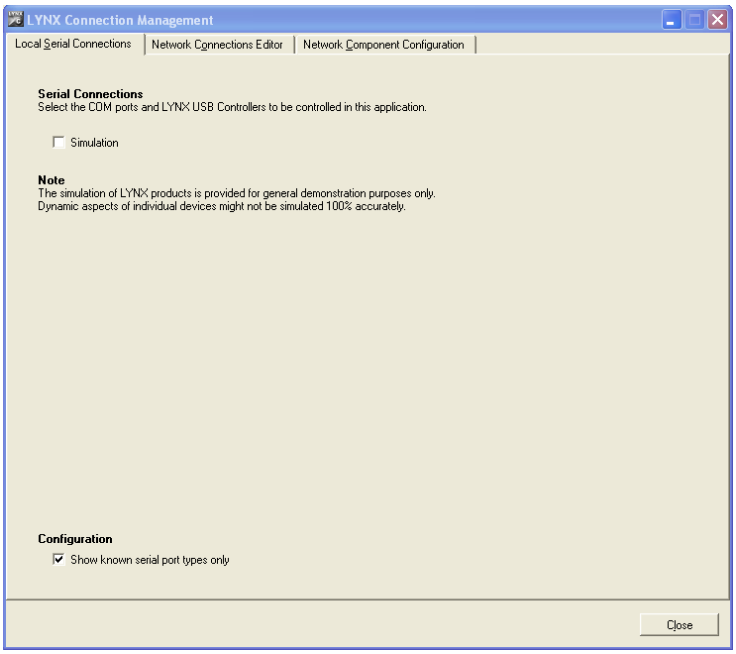
- **Login: admin**
- **Password: lynx$admin**

The Network Connection Manager

Open the LYNX Desktop Controller application and select ***Tools>Network Connection Management*** or click on the “Connect” button. (See below)



This will open the Network Connection Management Dialog shown below:



There are three tabs, one is for Serial connections (which are not applicable to the R FR 5041) and the other two are for network configuration. Please make sure the “simulation” check box is unchecked

> ***Note:*** *Simulation mode will simulate a large LYNX installation and populate the system with an array of simulated hardware for demonstration and training purposes. While this will not impact the operation of any actual hardware connected, it is recommended to have this turned off to avoid confusion.*

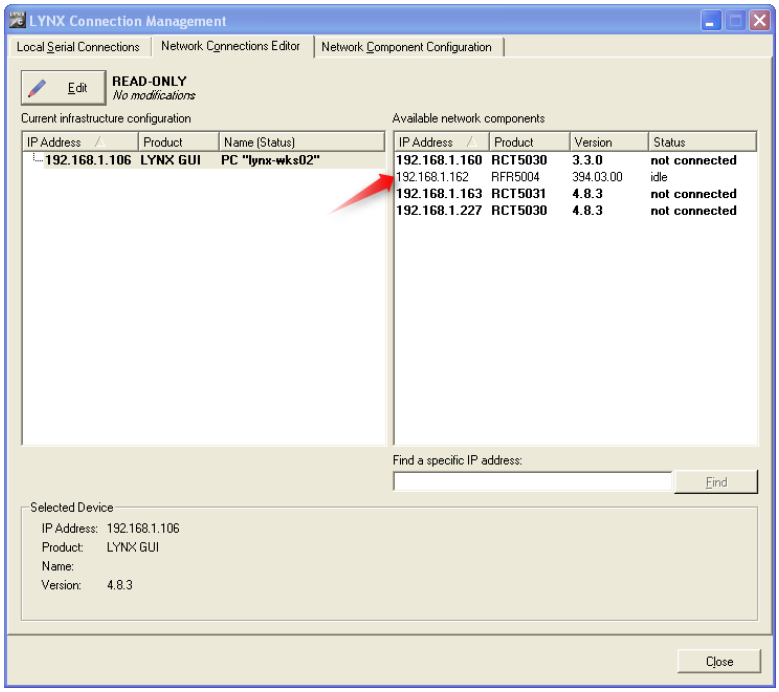
Select the **Network Connections Editor** Tab. This dialog is shown below and comprises of two main sections. The left hand side shows the current network configuration and the right hand side shows the LYNX hardware which has been detected.

The LYNX software will automatically scan the network for any connected LYNX hardware. All available devices will be displayed on the right hand side.

The R FR 5041 is shipped with a factory default IP address of **192.168.1.162.** While it’s certainly possible to use this IP address, it’s highly recommended to change this to something suitable for your network. This can be set to a fixed static IP address or automatically using DHCP if your network supports this.

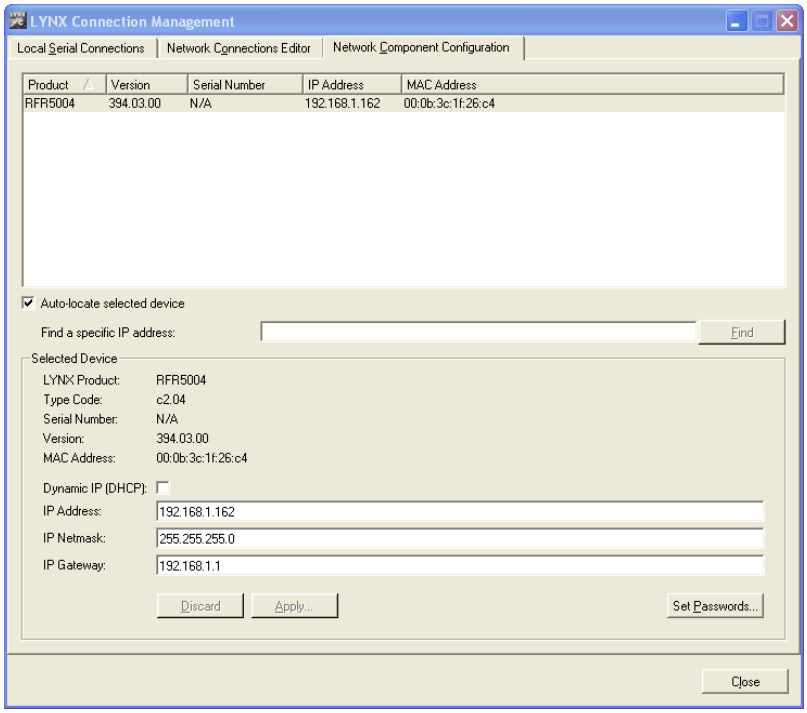
If the R FR 5041 is not detected, then please check the network connection and network activity using the LEDs on the connector. You can also manually enter the above IP address and search specifically for this device.

In the example below you can see the LYNX GUI Computer in the current network infrastructure with the detected R FR 5041 listed as an available network component with the factory default IP address.



Configure IP Address

At this stage it's recommended you configure the IP address of the R FR 5041 to something suitable for your particular network, or configure DHCP. To do this click the **Network Component Configuration** tab, see below:



When the device is selected you can manually change the IP address, or configure dynamic IP (DHCP). To activate the text fields just click on the device.
Please contact your network administrator if you are not sure what static IP address to use, or to get the required information to configure DHCP.

Setting IP Addresses

To set a dedicated IP address for the R FR 5041 just type in the required information into the respective text fields in the Network Connection Management window shown above.

Note: DHCP mode has to be deactivated in the checkbox “Dynamic IP (DHCP)”

Activation of DHCP Mode

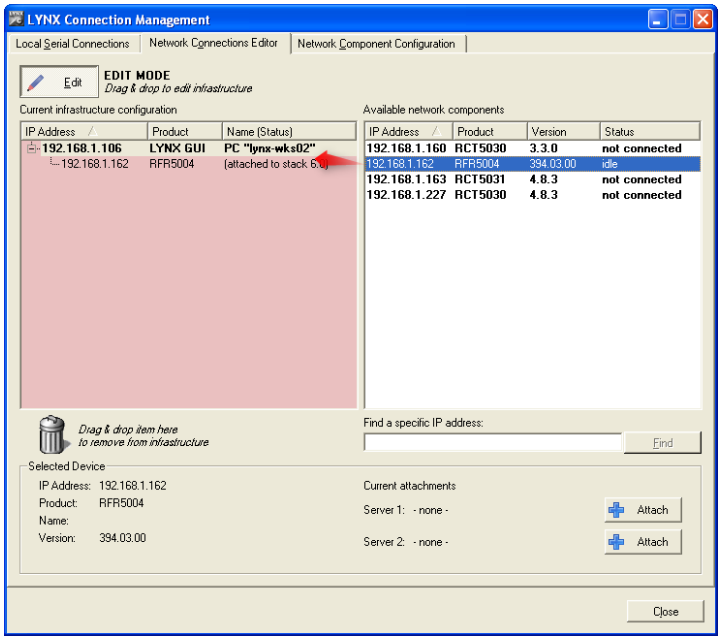
If the controller is installed in a network environment where the IP addresses are allocated automatically (DHCP) the RFR5003/4 can be set to DHCP mode. Simply activate the checkbox “Dynamic IP (DHCP)” in the Network Connection Management window shown above.

> ***Note:*** *If in DHCP mode, the RFR 5003/4 will wait approx 30sec for a DHCP capable server to allocate a IP address. If no address is allocated the default address will be used.*
>
> ***Note.*** *It is possible for devices to have the same IP address and appear in this list (with unique MAC addresses). This will cause a network error warning that duplicate IP addresses are being used. Please ensure no duplicate IP addresses are present.*

Network Attaching the R FR 5041

Once the IP address has been configured it is now necessary to move (connect) the R FR 5041 into the network infrastructure so we can control and communicate with the device. We do this by “attaching” the R FR 5041 to a control device (i.e. LYNX GUI or R CT 5031)

To attach the R FR 5041 switch back to the “Network Connections Editor Tab”. Select EDIT mode and drag&drop the R FR 5041 and place it under the LYNX GUI entry to attach the R FR 5041 to the control system PC. See Below.



Note. *In larger installations with additional LYNX hardware present on the network there may be RCT 5031 Rack Controllers detected. It’s possible to “attach” the R FR 5041 to an existing RCT 5031 Controller and still maintain full control and visibility of the R FR 5041 in the control system. To which control device to attach the R FR 5041 is determined by your installation and control preferences and network topology.*

This drag and drop function has “attached” the R FR 5041 to the LYNX GUI, so it will now be visible and accessible using the LYNX Desktop Controller.

If you add additional R FR 5041 devices, these can also be attached in the same way to control multiple devices.

LYNX Desktop Controller Software

The LYNX Desktop Controller software is supplied as part of the RFR 5003/4. This is supplied on CD Rom or can be freely downloaded from the LYNX website.

The LYNX Desktop Controller is a comprehensive centralized application which provides for the remote control / status monitoring and error reporting for all modules installed in a system.

System Requirements

The control software is designed to run on a Windows compatible PC. Minimum requirements specified below

Client PC
IBM compatible PC, Pentium 4 class, 256MB ram VGA Monitor, CD Rom drive with LAN port.

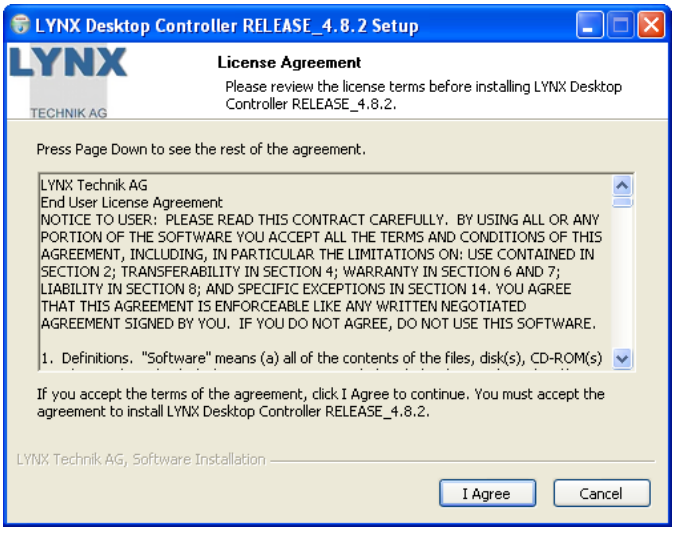
Operating System:
Microsoft Win7, Microsoft Windows XP Home/Professional / SP2.

Software Installation

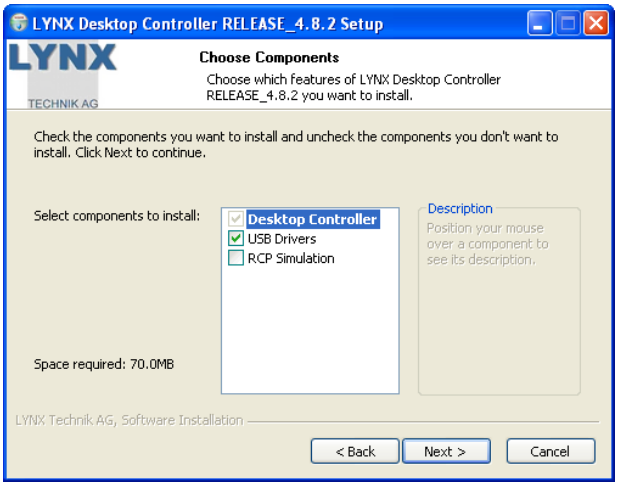
1. Close all other applications on the PC.

Insert the software CD into the CD-Rom drive. If the CD-Rom does not start automatically, start the application from the CD by clicking on:
SetupLynxController.xxxxxxx.RELEASE_x.x.x.exe

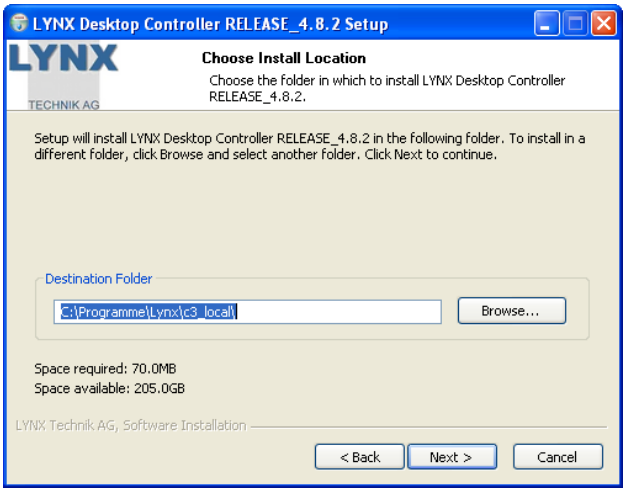
2. The following dialog will display, read the license agreement and click **I Agree** if acceptable.



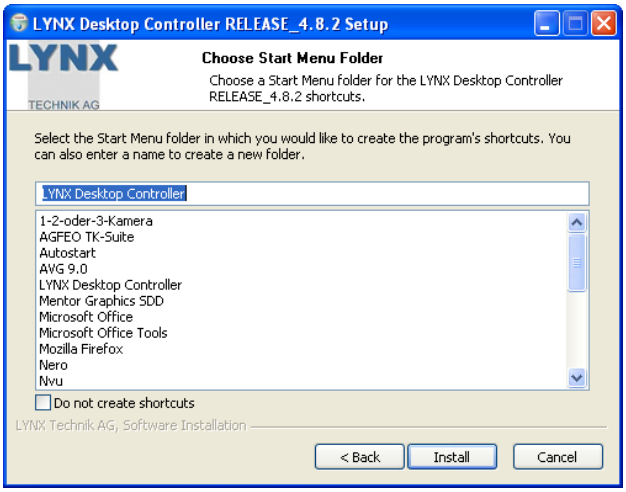
3. Select the additional components and click **Next**



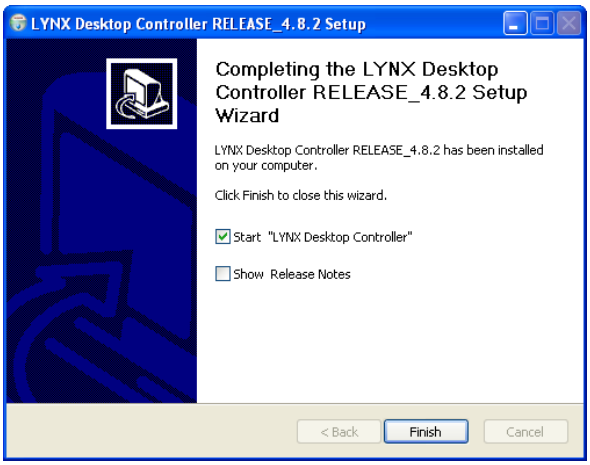
4. Define the destination folder and press **Next** to install the application. You can use the proposed standard folder, which will be created automatically.



5. You can select the start folder menu and if you can choose if you would like an icon placed on your desktop.



6. Installer will then start copying files to your hard drive. When finished **Close** the Installer.



Starting the Controller Application

If you chose to install the desktop icon during installation, simply click this to start the controller application.

LYNX Controller Icon.

OR navigate to the lynx folder in “program files” and select **c3_local.exe**

The GUI will start and the application will firstly look for attached LYNX controllers, when found the controllers it will report all the attached modules into the GUI and these will displayed in the folder tree. Module detection is automatic.

Software Updates

From time to time we update the software to add support for new modules or new features or correct bugs. Updates are supplied free of charge. You can contact us directly or check our web site (www.lynx-technik.com) for any available updates.

Software Version Number

To determine the release and version number of the software installed on your system. Pressing **F1** or selecting the **Help** drop down menu and then **About** will display the splash screen.

Reporting Problems

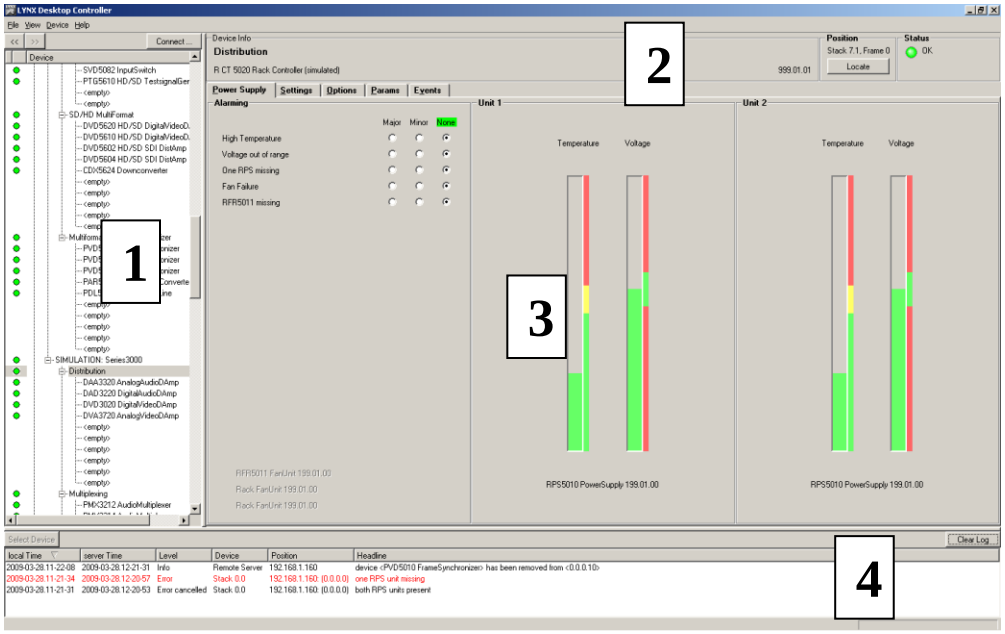
If you are experiencing problems with your installation please contact us for assistance. We will require a copy of a log file that is maintained by the system that can be found in the **C:\Program files\Lynx\C3_local directory**. The file is called **c3_local.logfile.txt**. We will ask you to E-Mail this file with a brief description of the problem and also any steps we can use to duplicate the fault. Send messages to:

Support @ lynx-technik.com

Software Operation

The LYNX Control Software is intuitive and simple to use, presented in a familiar Windows style layout. It is beyond the scope of this manual to provide detail on each individual control available for all supported modules, please refer to the manuals of the individual modules. This is intended as an introduction to the general layout and the use of the control GUI.

Control System Layout

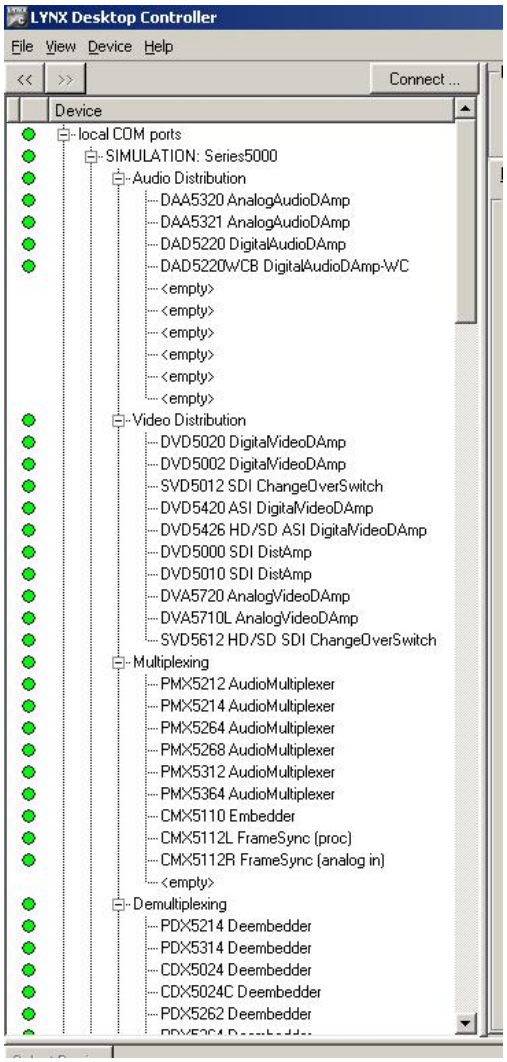


The above screenshot shows the normal layout of the control system GUI. The descriptions below provide more detail on each section of the GUI and its operation.

Device List

1

This area is organized like a standard windows folder tree and is where all controllers and modules detected by the system are displayed. The modules attached are arranged under each controller.

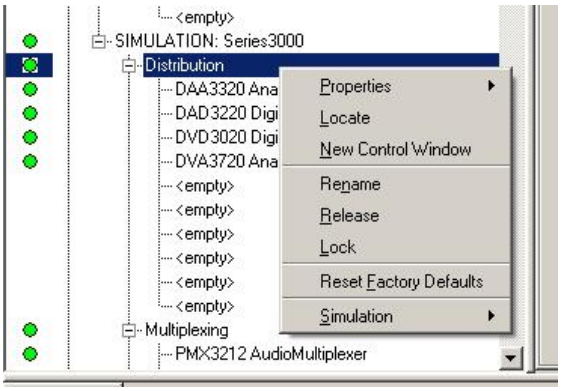


- Clicking on any device in the folder tree will display the associated GUI for control of this device. Next to each device there is a small colored dot. This is a graphic representation of the Alarm LED next to each module listed for easy identification of problems within the system.

- Levels can be collapsed and expanded so only the information required is displayed in the folder tree. This is useful for systems with a large number of racks and modules.

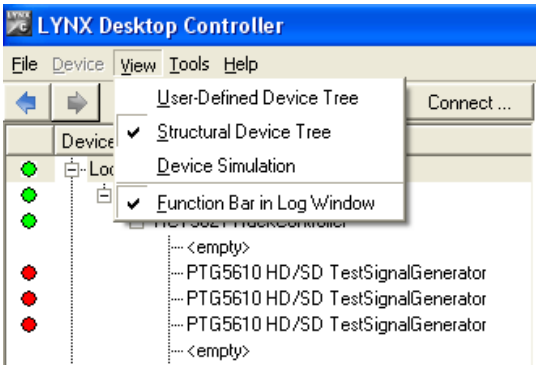
- If a module is removed or added to the system then this will be detected automatically and added / removed from the folder tree. This also triggers an event in the error log (5) to indicate when this change was made to the system.

- By clicking with the right mouse button on the selected module a pop up window with additional controls for the selected module will be shown.



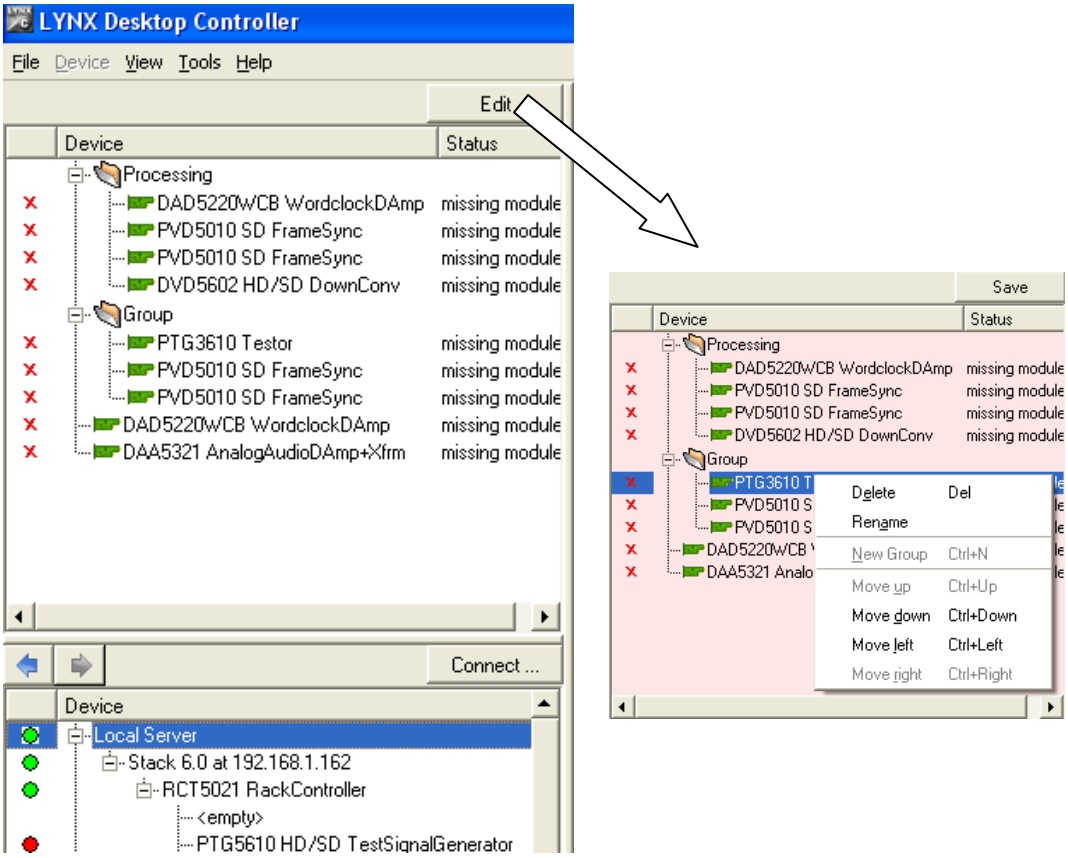
User Defined Device List

A user defined device can be created by each user.



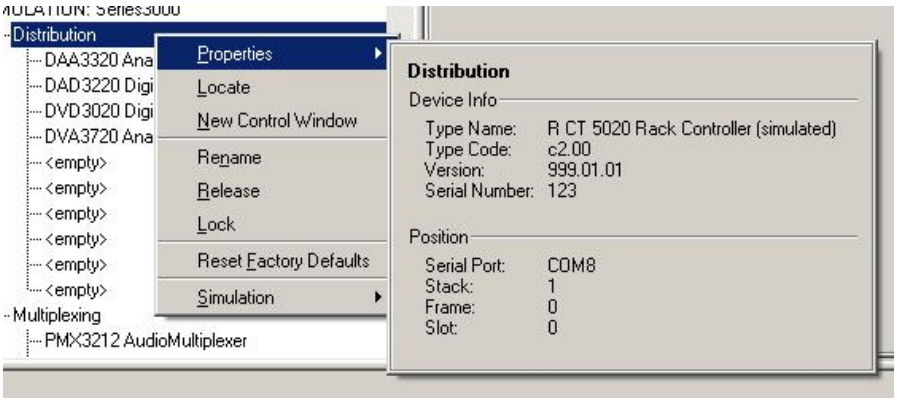
Select the User Defined Device list in the TAB “View”.

A second list, which can be edited, is now displayed. Select “Edit” mode (backgound turns red) then you can drag&drop devices from the standard device list to the user defined device list to create your own custom module groupings. Click save to exit the edit mode and save the group.



Module Properties

- Selecting **Properties** will give additional information about the module. This is information which is also important in case of service issues

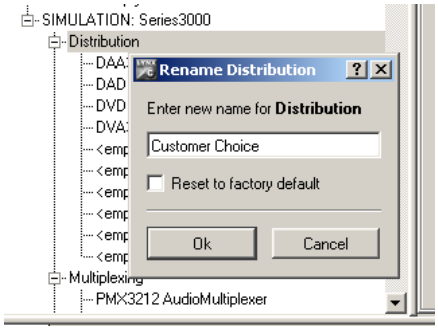


- The **Locate function** is described below

New Control Window

- **New Control Window** opens another window for control of the selected module. With this function several control windows can be opened simultaneously showing various control tabs.

Renaming Devices



- **Rename** allows to change any module name with a user defined description

- **Release** will force the module to store all current settings to be written into the on-board Flash memory

  Note: *After changing any parameter the module will write the changes to the Flash memory automatically after 10 seconds*

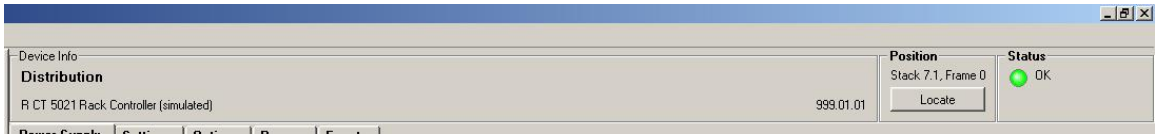
- To avoid any unwanted changes of settings all controls of the selected card can be **Lock**ed. All control elements of this module are then grayed out.

- If at any time it is necessary to return the module o the factory default settings this can be done using the "**Restore Factory Default**" function. You will be prompted if you are sure, as this will erase any stored information from the module flash ram and set it back to the factory settings.

- **Simulation** is only active when the simulation mode of the c3_local application is selected

2 Module Title Area

This is the main title area where the description of the module can be found as well as details on its physical location in the system (Rack number and Rack Slot)



This area also displays the status of the module and describes any reported error next to the colored dot (which is also a mirror of the module LED)

Locate Function

For larger systems which may have multiple cards of the same type in a single rack, or multiple racks in a larger system we have added a useful utility which will help to physically locate a suspect module in a rack quickly.
When Locate is selected the status indicator on the GUI and the alarm LED will flash yellow in the following continuous sequence.

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

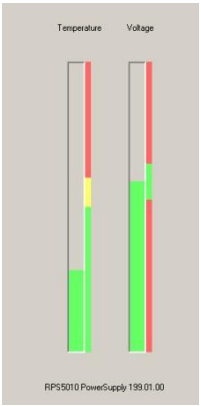
The LED continues to flash in this way until the function is turned off in the GUI.

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

3 Control Tabs

This is the main control area for the module and changes depending on which module is selected in the folder tree. This area has several tabs that will take you into different areas of control for the Module. The number of tabs will vary depending on the type of module , for the controller you find **Power Supply – Settings – Options – Params – Events**

Power Supply Tab



This tab is the default display and brings up the primary controls for the controller.

- It shows the status of the power supply voltage as well as the rack temperature

- Alarms (two levels) for different failure modes in the rack frame can be set for triggering of the GPO contacts.

Settings Tab

This tab allows for setting of the 10 “running LEDs” at the card front edge and the activation of the function **HotSync Backup**. *(Front panel LED settings not valid for RFR 5003/4)*

HotSync Backup

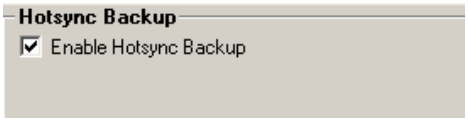
HotSync Backup is a feature built into the control system to store all module settings and configurations to the R FR 5041 Controller. Currently all module settings are stored in Flash Ram within the module which survive module removal / power cycles and even long term storage. The HotSync Backup function supplements this with another level of security.

Once enabled HotSync Backup will remember all the settings and configurations for all modules installed in a R FR 5041 rack frame. This way when a defective module is “hot swapped” the settings that were previously used are automatically written into the new module. No switches to set, nothing to calibrate, simple plug and play convenience.

The HotSync function is totally automatic and runs in the background. This function requires no user intervention once initially enabled in the GUI.

Switching on HotSync

The HotSync function is off by default and needs to be enabled in the control system GUI. Highlight the R FR 5041 in the device browser and select the “Settings” tab. Here you will see a checkbox to turn this function ON or OFF.



HotSync Function

The HotSync function has useful applications and below describes how the system works under various situations

Board failure “Hot Swap’
Typically when a failure occurs it is important to get the system back online as quickly as possible. Some LYNX modules are complex and have a lot of user settings and configurations that have been set for a specific application. Having to manually reset all the parameters in the new card can be time consuming and prone to errors. HotSync takes care of this automatically. When the system detects a hot swap of a particular card, HotSync will automatically restore all the previously used settings into the new module. This process is automatic and takes a couple of seconds.

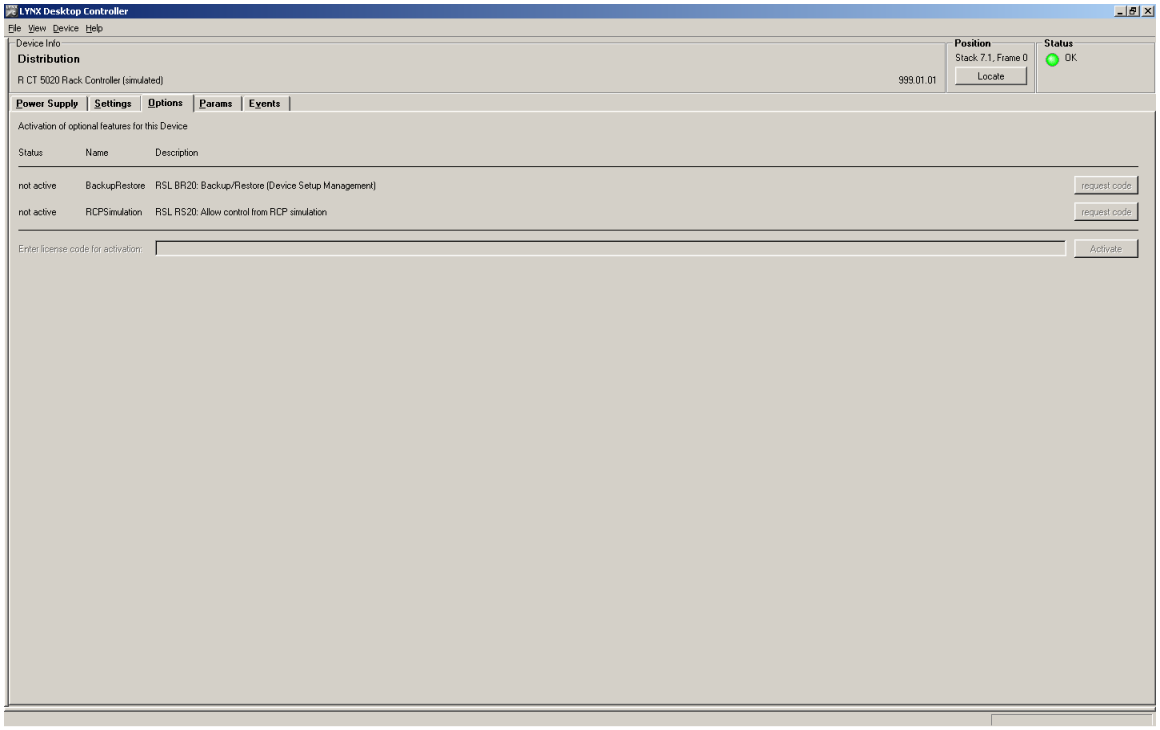
Note. A card of the same type must be exchanged for HotSync to function correctly.

System Changes
During normal operation the settings in the system can be changed or tweaked over time. HotSync detects these changes when made and will automatically sync the revised module data into its local memory. At all times the HotSync stored data is 100% up to date – no user intervention is required.

Note. After a power cycle HotSync will not be functional for approx. 15 seconds. Any modules hot swapped in this period will not be restored with the previous settings; the specific module settings will be used.

Options Tab

One tab on the GUI is reserved for “Options“. This is where the option license codes are entered to unlock the embedded firmware options.



If the module was purchased with options pre-installed then you will see the option status as green (Active).

If you would like to add any option after delivery, then you will need to purchase the specific license codes from LYNX Technik.

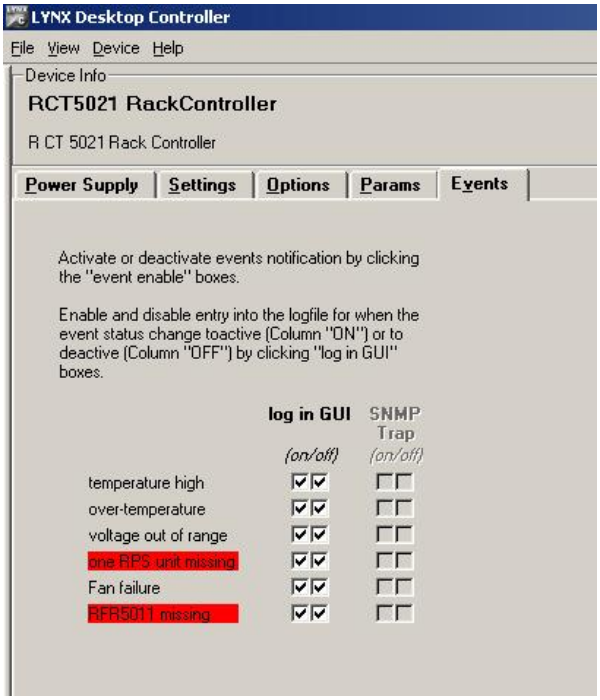
Click the “request code” button next to the channel you wish to activate. A number will be displayed, Please forward this number with your purchase order to your authorized LYNX dealer or representative. When you receive the license string simply type it (or paste it using the windows clipboard) into the area provided and press “activate”.

Activation is confirmed when the option status turns green.

Events Tab

The Events Tab is where error notifications are configured for the module.

The GUI has an integrated error log, which is a simple text log file stored in the controller PC. This will record an event and timestamp it. The log can be seen at the bottom of the GUI screen and can be scrolled through using the scrolling bar. Events are always logged into c3_local.logfile.txt. The checkboxes (see screenshot below) enable or disable the display of error messages to the GUI log window (see below: Error Logging Area), saving to the logfile cannot be disabled.



Log in GUI Function

Events are selectable, you can chose if you want to record a particular event in the log (or not) or configure it to only record one side of the event. (*For example you might want to log when a power supply is missing but do not want to log when it came back*). The ON/OFF trigger can be configured for each of the available events shown in the list and is setup using the checkboxes provided.

SNMP Support

If the RFR 5003/4 is “attached” to a RCT 5031 Master Controller (in network configuration) and the SNMP option is installed on the RCT 5031, then the “SNMP Trap” columns become available.

Here you can configure what events you would like to transmit a “SNMP trap” for over the network. (This has no impact or influence over the internally error log maintained by the LYNX control system)

(Internal LYNX error logging and external SNMP traps can be configured independently).

> **Note.** *The simulated event is part of the GUI simulator and allows us to force a particular error condition for testing and demonstration purposes.*

4 Error Logging Area

This is the error logging area of the GUI and is the central repository of all errors encountered by the system.

> ***Note.*** *The messages in the log window can be erased, but a log file is stored in the PC not the individual modules. Each time an error condition is encountered and entry is automatically made in the log. All entries are time stamped and can be sorted in any of the columns provided by clicking on the column headers.*

Specifications

Mechanical	
Size	1 RU high x 350 mm deep including connectors and front cover. Standard 19” rack mount.
Weight (empty)	4.5 kg with single power supply and controller
Connections	All connections made on rear of rack
Performance	
Available Card Slots	4 x Series 5000 CardModules (single width backplanes)
Power Supplies	1 x Power Supply (primary - included)
Power Indication (alarm)	One multifunction LED on Supply and GPO output
Controller alarm	Multifunction LED (internal)
Connections (rear connections)	
LAN Connector	RJ 45 (10/100 Base T) Full Duplex
Alarm Connector	Terminal strip Alarm Major and Minor: Relay contact closures
Ref In	BNC connection for rack reference Analog Bi-level or Tri-level Sync (auto detect)
Primary AC	Standard IEC 60320 C13 AC power connector, double pole fused (2A) # T2AH250V
External Redundant Power input	12VDC 8A (use R PS 5000 optional power brick)
Electrical Specifications	
Power Input	100 – 240VAC, 50Hz – 60Hz.
Power Consumption	100 W max.
Safety	IEC 60950/ EN 60950/VDE 0805
Ambient	
Temperature	5°C to 40°C Maintaining specifications 0°C to +50°C Operating
Humidity	Max 90% (non condensing)
Supplied Accessories	
Documentation	Reference Manual (CD)
Software	LYNX Desktop Controller Software (CD)

Service

Technical Support

If you are experiencing problems, or have questions please contact your local distributor for further assistance.

Technical support is also available from our website.

Please **DO NOT** return products to LYNX Technik without an RMA. Please contact your authorized dealer or reseller for more details.

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

www.lynx-technik.com

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
D-64331 Weiterstadt
Germany

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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Broadcast Television Equipment