Hitomi xFrame 1RU

Operation Manual

Version 1.1.2 (Controller v0.108.21)

+44 (0) 1753 208803 enquiries@hitomi-broadcast.tv Rutland Barn, Choke Lane, Cookham Dean, SL6 6PT. UK

Contents

+44 (0) 1753 208803 enquiries@hitomi-broadcast.tv Rutland Barn, Choke Lane, Cookham Dean, SL6 6PT. UK

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1. DISCLAIMER

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2. Safety Information

AVOIDING PERSONAL INJURY

This instrument is designed for use by qualified personnel only. The chassis does not contain any user serviceable parts. Units should be returned to Hitomi Ltd or a registered agent for servicing. The Operator should NOT open the unit; the Hitomi warranty will be void if the unit has been opened. The unit is not sealed against fluid infiltration: do not spill any liquid onto the unit or its power supplies.

POWER SUPPLY

Make sure that the unit is connected to the correct power supply voltage. A power supply unit is provided with your MatchBox unit which may be connected to an AC power source ranging from 100 to 240VAC at 50-60Hz.

Only the Hitomi supplied power adaptor should be used with the unit. Do not use a damaged power cables with the unit as it may cause a shock or fire hazard.

ENVIRONMENT AND OPERATING TEMPERATURE

The MatchBox unit is specified to operate between 0 and 40 °C; operating outside this range may present a fire hazard or failure of the unit.

LASERS

Optical SFP modules may be fitted within the xFrame representing a laser hazard.
Class 1 Laser Product. If Optical SFPs are fitted avoid looking into unconnected SFP.

WHEN NOT IN USE

Disconnect the unit from the power supply and AC power source when not in use.

MAINTENANCE

Wipe the case gently with a lightly dampened cloth with a neutral cleaning agent. Do not let any fluid enter the unit when cleaning and ensure the unit is off with power supply removed.

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3. Quick Start

3.1. Box contents

1x xFrame chassis
2x 12V @10A Power supplies
Factory fitted modules as specified in purchase order.

3.2. Powering the unit

The xFrame chassis has dual redundant 12V power inputs located on the Power Inlet Module in the centre of the frame at the rear. Power is provided through 4 pin XLR connections.

The unit may be powered through one or both power inputs.

The unit must be powered by supplies capable of providing at least 10A at 12V dc.

After power is removed, a pause of roughly 10 seconds should be left before re-applying power. If power is re-applied without a pause the unit may require to be switched on manually using the front panel button or a further power cycle of more than 10 seconds.

3.3. Network connection

The xFrame has a single 1GigE Ethernet connection at the rear which is fanned out through a switch internally to all module slots.

xFrame units are shipped with default static IP addresses. These are pre-configured on modules shipped within the frame. There are four slots in the frame numbered 1-4 as show in Figure 4-1 and Figure 4-2. The default IP addresses are 192.168.1.101 / .102 / .103 / .104 respectively.

To set up the correct network set up for your network, follow the steps below:

1. Connect the PC you are using to set up xFrame to the RJ45 connector on the rear of the unit using a standard Ethernet cable.

2. Set the IP address of the setup PC to a free address in the 192.168.1.x range

e.g. IPv4 address: 192.168.1.1, Subnet mask: 255.255.255.0

3. If there is a processing module in slot 1 then open a web browser on the PC and enter the IP address 192.168.1.101 into the address bar. If there is no module in slot 1 then select the IP address of a module which is fitted.

You should see the home page of the unit in slot 1. Please refer to individual module handbooks for information on configuring their network settings.

Please note that some cards may not support Ethernet control (e.g. the audio processing module).

On systems with software V1.6.2 and above running on the MatchBox cards the network settings can be reset to default through the front panel. Please see section 5.3.1.

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4. Introduction

The xFrame is a 4 slot 1RU modular chassis. The frame is powered through dual redundant 12V supplies and has a maximum power rating of 120W.

Control of processing modules is achieved through a single 1Gb Ethernet port on the rear of the unit.

Processing cards are hot-pluggable through the front of the unit into interface modules pluggable from the rear. All active electronics can be swapped out without uninstalling the unit for ease of maintenance.

4.1. xFrame Front View

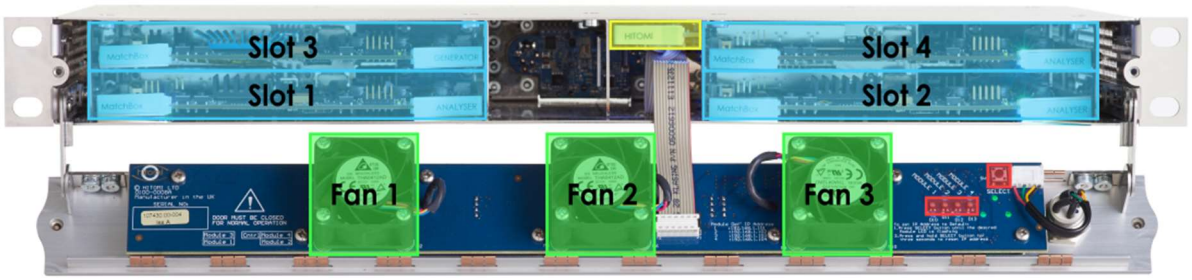

Figure 4-1 - Front view of the xFrame

	Processing Modules 1-4
	Control Module
	Cooling Fans
	IP address reset control + LEDs*

** This is implemented on systems running control module software V0.108.21 and above. MatchBox cads must be running V1.6.2 and above also.

4.2. xFrame Rear View

Figure 4-2 - Rear view of the xFrame

	Rear Interface Modules 1-4
	Power Inlet Module

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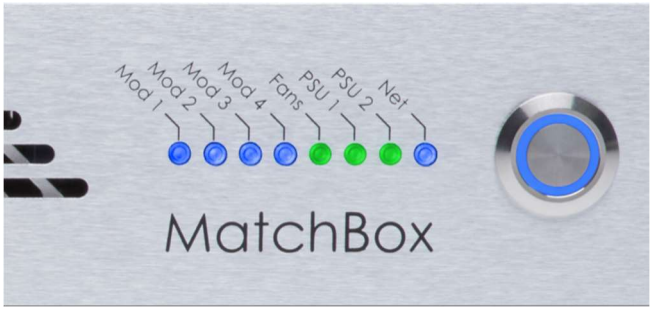
5. Front Panel

5.1. Front Panel Indications



Basic status of the xFrame chassis and fitted modules is indicated on a row of LEDs on the front panel as shown above.

LED	Function	Colour	Interpretation
Mod 1-4	Statuses of modules in the slots 1-4.	Off	No Module Fitted
		Blue	Module OK
		Yellow	Module Warning
		Red	Module Error
Fans	Status of fans	Green	Fans OK
		Red	Fan Fail
PSU 1 / 2	Status of Power Supplies	Green	Power OK
		Red	Power Fail
Net	Network status	Off	No network
		Blue / White	Network Good
Power Button	Push to power on unit. Hold for ~5s to power down unit.	Off	Unit is off
		Blue	Unit is on

5.2. Opening front panel

To open or remove the front panel undo the two thumb screws on either end of the panel. Pull the front panel forward by approximately 2cm (1”). The panel will then hinge downwards far enough to allow processing cards to be inserted / extracted.

If space is limited below the unit, then the front panel can be removed by lifting the panel upwards. The front panel ribbon cable should be disconnected before removing the panel. If the system is powered while taking off the panel then the Control Module should be ejected before disconnecting the ribbon.

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5.3. Frame IP addresses

From controller v0.108.21 IP addresses for individual slots are stored on the controller. If a new card is inserted into a slot it will adopt the IP address of the previously installed card.

If the controller is upgraded from a previous version that did not support this functionality it will gather the IP addresses from the existing modules transparently so all IP addresses will be preserved.

5.3.1. Setting IP addresses back to default.

As of controller v0.108.21 IP addresses may be reset through using the push button on the inside of the front panel. Tapping the button marked 'SW1' will cycle through the slots; a flashing blue LED will indicate the slot number to reset, on the fifth press all blue lights will flash to allow resetting of all cards in the frame. Once the desired slot has been selected, hold the button down for roughly 3 seconds after which the selected LED with blink green to indicate the address has been reset to its factory default.

For the IP address reset mechanism to work properly all intelligent cards in the frame must be at a suitable revision to support this functionality; in the case of the MatchBox this is supported from v1.6.0 onward.

5.3.2. Maintaining IP addresses when swapping controller cards.

The controller card hosts the IP addresses for the frame. If the controller card is swapped without follow the below procedure, the frame addresses will be set either to defaults or the IP addresses of the last frame that the controller was plugged into. However, following either of the below procedures will prevent this from occurring and all IP addresses will be preserved.

Hold down the IP reset button (right hand side of the front panel PCB as shown in 5.1 in red) as the controller card is first powered (either by hot-plugged the controller or by applying power to the frame). This will instruct the controller card to scrape the IP addresses from the cards already in the slots. The 4 Module LEDs next to the button will flash yellow to indicate that this is happening.

All cards should now maintain their pre-existing IP addresses.

** Please note that V1.6.0 or above must be running on the MatchBox modules for this to work correctly.

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5.4. Cooling System

xFrame is cooled by three fans mounted on the inside of the front panel providing redundancy in the case of a failure. Fans are changeable in the field by either changing the fan itself or exchanging the whole front panel if expedience is a priority.

5.4.1. Fan replacement

If one of the fans fails, the fan indicator light on the front panel will turn red. This indicates that one or more of the three cooling fans has failed. The frame is designed to operate correctly with only two fans running so if this is the case there is no need to stop using the system.

If a fan has failed in the xFrame a new fan can be purchased from Hitomi or an authorised dealer. Ideally this should be done with the system powered down, but can be done without powering down the unit if the following steps are followed:

1. Open the front panel of the unit by undoing the thumb screws on the front of the unit and hinge the front panel down.

2. Eject the control module in the centre of the unit (with the ribbon cable to the front panel).

3. Locate the fan to be changed and disconnect the cable connecting it to the PCB.

4. Undo the 4 screws than hold the fan onto the front panel PCB.

5. Remove the fan, leaving in place the rubber gasket beneath.

6. Screw the new fan to the PCB ensuring that the cable is facing in the correct direction.

7. Connect the fan cable back to the connector on the PCB.

8. Reinsert the control card back into the frame.

The system should not be left on with the door open for longer than 5 minutes.

If a spare front panel is available, then it is also possible to swap the whole front panel which may be easier in a live environment. The fan itself can then be changed when convenient.

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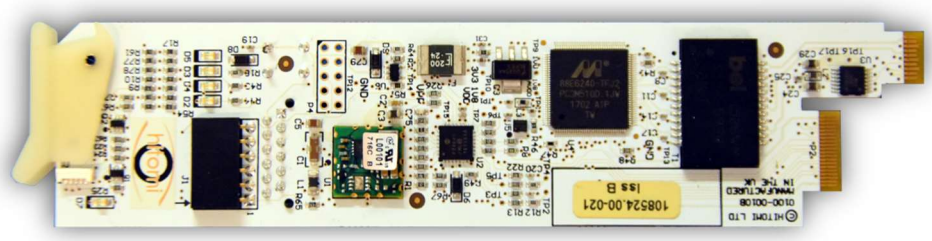
6. Control Module

The control module is responsible for distribution of Ethernet throughout the frame, controlling the frame cooling, front panel control, power monitoring and managing IP addresses within the frame.



The control module fits into a slot in the centre of the xFrame (see section 4.1) and connects to the front panel via a ribbon cable.

The module is hot-pluggable although plugging / unplugging the ribbon connecting the front panel should be avoided while the control module is powered.

Network Settings on the control module

As of controller version 0.108.21, the control module stores all the network settings for the frame. Any MatchBox or IdentBox module running software V1.6.0 and above will get its network configuration from the control module.

Please see section 5.3 for information on resetting IP addresses and swapping control modules.

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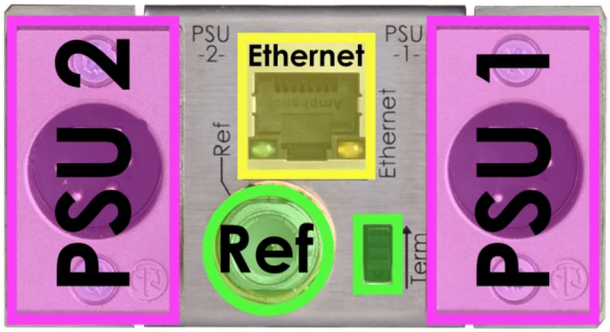
7. Power Inlet Module

The Power Inlet Module is pluggable module which fits in to the rear of the xFrame. This module provides 2x 12V power inlets through 4 pin XLR, 1 x GigE Ethernet port and 1x Analogue reference input through standard BNC.



7.1. Power Inlets

There are 2x 12V power inlets on the module each rated at 10A max. The Power Inlet Module shares the power load between the two power inlets to reduce loading on each individual supply when both are present. The module will automatically switch full load over to one supply if the other fails or is removed. The pin-out is shown below.

Pin No.	
1	Ground
2	N/C
3	N/C
4	+12V

7.2. Removal / Insertion of Power Inlet module.

In the unlikely event that the Power Inlet Module fails it is user changeable with a new module from Hitomi or an authorised dealer. To change the Power Inlet Module please follow the steps detailed below:

1. Remove power from the unit.

2. Open the front panel of the unit by undoing the thumb screws on the front of the unit and hinge the front panel down.

3. Eject the control card in the centre of the unit (The one with the ribbon cable to the front panel).

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4. Undo the 4 screws located in the shrouds of the 2 XLR connectors.

5. Pull the Power Inlet module directly backwards from the chassis.

To replace the module, follow the above steps in reverse.

7.3. Network

The xFrame has a single 1GigE interface through the RJ45 connector on the Power Inlet Module situated above the analogue reference BNC. This Ethernet connection is then distributed throughout the frame through the Control Module. Modules which support a control interface each have their own IP address.

IP addresses default to 192.168.1.101 -> 104 for slots 1 -> 4 respectively.

If the network is connected to the xFrame then the Network light on the front panel will illuminate blue with a white flash to indicate traffic.

7.4. Frame Reference

A bi-level or tri-level sync signal may be connected to the BNC connector on the power inlet module. his reference is distributed to all 4 slots in the frame. The switch adjacent to the BNC connector can be used to enable or disable the internal 75R termination.

Some processing modules will support the use of the frame reference. Please refer to the documentation for the specific module fitted into a slot to for information on how to select the frame reference.

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8. Rear Interface Modules

Connectivity of processing modules is achieved through interface modules pluggable from the rear of the chassis. Interface modules may be 1 or two slots high and are held in place by 4x M2.5x6 screws.

Unused slots may be blanked by either single or double height blanking plates.

8.1. Installing Rear Interface Modules

Rear interface modules should be inserted BEFORE the processing module which will plug into it. The module should be slid into the card guides which should be visible from the rear. There may be some resistance as the EMC gaskets.

Once the Rear interface module is pushed into the frame it should be secured with 4x M2.5x6 screws (supplied with the rear). Due to the EMC gaskets pushing up on the rear it may be necessary to put a small amount of downward force on the rear to get the screw to correctly align with the holes in the chassis.

Some Rear interface modules are shipped as a conjoined pair of single modules (for instance a video rear with audio companion rear). These should be inserted into the frame as a pair and affixed with 8 screws.

8.2. Removing Rear Interface Modules

Before removing a Rear Interface Module first remove the respective processing modules from the front of the chassis.

Once the processing module has been removed undo the four screws holding the rear into the chassis. With the 4 screws removed the rear should easily slide backwards out of the frame.

8.3. ** Care point when removing rear interface module **

Some rears come as a conjoined pair (for instance a video rear with audio companion rear). These are physically joined together, which is not obvious from the rear. In this case all 8 screws must be removed from the pair of rears before removing from the chassis.

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9. Installing / Removing Processing Modules

Processing modules are installed into one of the 4 slots through the front of the unit.

9.1. Installing a processing module

Before inserting a processing please ensure that an appropriate rear interface card has been installed into the xFrame.

First open the front panel of the chassis by undoing the two thumb screws on the front of the unit as described in section 5.2.

To insert the module carefully slide the card into the card guides for the desires slot and push it into the frame with the two card ejectors opened. When the card stops push the two card ejectors back into the closed position which will engage the card with the rear and lock it in place. Finally close the front door of the chassis and lock with the thumb screws.

9.2. Removing a processing module

To remove a processing module first open the front panel of the chassis by undoing the two thumb screws on the front of the unit as described in section 5.2.

Open the two card ejectors at either side of the card to be removed. The card should now be disengaged from the connectors on the rear module and can be slid easily out of the frame.

9.3. ** Care points when installing cards **

When installing/removing cards in the lower slots (1&2) please take care not to catch components on the front edge of the frame.

Please make sure that ESD precautions are taken when handling cards. Both the installer and frame should be appropriately earthed to avoid accidental electrostatic discharge which could potentially damage the card.

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