

QUICK START GUIDE

MediaStar 770 Rack Installation Guide



The MediaStar 770 rack is a 19" 3U enclosure that is used to house any combination of MediaStar 'blade' based headend processor modules (supplied separately).

The rack can be supplied with either a single 'pluggable' mains power supply (770), or a dual redundant 'hot swap' power supply (770-DR). There are 9 'blade' positions available in the 770 rack and 8 'blade' positions in the 770-DR. The 770 rack requires a single 100 – 240V mains source, and the 770-DR requires two mains sources, preferably on independent circuits for redundancy.

In both racks, the PSU module(s) convert electrical mains input voltage to low voltage DC power that is distributed to each of the 'blade' processor modules fitted in the rack. It also provides forced air cooling for the whole 770 rack enclosure.

The single PSU module has front panel screw fixings so that in the event of a failure, it can be quickly swapped out for another 771 PSU unit. The dual redundant PSU has two independent PSU modules, each individually capable of powering the entire rack, so in the event of a PSU failure the other power supply will automatically take over without disruption of the 'blade' processor modules.

What's in the box:

- 770 rack including a single 771 PSU, or 770-DR rack including two 726 PSU modules
- AC mains power cable(s)
- Rack mounting screw set

In all power supplies, the output power rails and fans are monitored. If any problems are detected, the front panel visible indicators will highlight the problem, and where a 79x 'blade' is present in the rack, it will send a warning to the Media Manager administration system and optionally a corporate SNMP monitoring system.

It is possible to upgrade any existing single PSU 770 rack shipped since January 2011 with dual redundant power supplies. To do this you will need to purchase the 770-DR-UG kit, which will provide you with a new power supply card-frame and two 726 dual redundant PSUs. Spare power supply modules can be ordered separately from your reseller or Cabletime (771-RP or 726-RP).

When installing the 770 rack, please be aware that RF, HDMI, signal cables and mains are routed to the rear, and network and other communications cables are plugged into the front of the 'blades'.

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
9. This unit must be installed using mains (AC supply) plugs and sockets that contain a protective earth (ground) connection. The mains socket(s) must be located near the equipment, remain operable and be easily accessible to disconnect the unit in the case of an emergency.
10. Do not defeat the safety purpose of the polarised or grounding-type plug. A polarised plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
11. Protect the power cord(s) from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
12. Only use attachments/accessories specified by the manufacturer.
13. Use only with the cart, stand tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
14. Unplug this apparatus during lightning storms or when unused for long periods of time.
15. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Installation

Before installing the MediaStar 770 rack, ensure that the Regulatory Requirement Notices and Important Safety Instructions at the beginning of this guide have been read.

Ensure that the mains supply has an adequate capacity and a reliable protective earth connection, particularly when power distribution strips are used in equipment racks. If using a dual redundant PSU, ensure the mains supply on each input is independent so the rack will continue to operate if one mains supply fails. If connecting a rack overloads a mains fuse or over-current trip, all the equipment on that mains supply will be shut down. The mains power required for the rack can be found on the rear of the unit.

NOTE: Where a 770 rack is fitted with dual redundant power supplies, hazardous mains voltages will still be present inside the rack until BOTH mains cables have been removed.

If there is any doubt whatsoever about these installation requirements, a qualified electrician must be consulted.

Atmospheric electricity

Connection of the MediaStar 770 rack or processor modules directly or indirectly to a roof-top antenna without suitable protection devices can leave the unit vulnerable to lightning strike/ atmospheric electrical discharge that may result in damage and void the manufacturer's warranty.

To minimise the possibility of damage from atmospheric electricity always:

- Follow best practice as dictated by your local electrical code and/or trade association.
- Use coaxial over-voltage protection units.
- Bond all masts and antennas to the building protective earth, and where available, the lightning protection system.
- Ensure that the screens of all coaxial cables entering and leaving the headend and/or amplifiers are bonded to the protective earth.

NOTE: Reliance upon the MediaStar 770 rack safety earth provided by the AC power cord alone is insufficient to protect the unit from atmospheric voltage discharges.

Mounting the 770 unit in a 19" rack

All MediaStar equipment has a maximum operating temperature of 40°C. When mounting inside an enclosed 19" rack tower, ensure there is sufficient cool free ventilation airflow to keep MediaStar equipment below its maximum operating temperature. When mounting the 770 unit, ensure that the ventilation and fan grills in the sides remain un-obstructed.

Use the mounting screws provided to fix the 770 unit to the rack rails in all four positions.

Connect the 770 unit to the mains with the IEC mains cable(s) provided. On the power supply module(s), the front panel 'POWER' indicator should be illuminated (blue) and the 'FAN' indicator should be green. This indicates the power supplies are working within their voltage limits and the fans are operating. The 'FAULT' indicator should be off.

If there is a problem with either the FAN operation or the PSU DC output voltages the 'FAULT' indicator will be illuminated red. If the fans are stalled or turning too slowly, the 'FAN' indicator will be illuminated red too. In a 770-DR rack, a PSU's blue 'POWER' indicator will flash if there is no mains going into it or if the PSU has totally failed.

Replacement of a 770 rack power supply module

If the 'FAULT' indicator is red or all the indicator lights are off on a power supply module, then the unit should be swapped out. This must be carried out by suitably qualified service personnel. Follow the swap-out instructions provided with the new power supply module.

In a rack with dual redundant power supplies, a single power supply module swap-out can be done without affecting the operation of the 'blades' in the rack. With a single 771 PSU equipped rack, a power supply swap-out will cause all the 'blades' to be powered down which will result in a loss of IP video feeds or other services from this rack. Replacing a (partially working) 771 PSU module may therefore need to be scheduled outside normal working hours or with a suitable notification of the temporary disruption of service.

Please contact Cabletime or your equipment supplier to obtain a replacement 771 or 726 power supply module.

Installing processor module 'blades' in the 770 Rack

Any combination of MediaStar processor module 'blades' can be installed in a 770 rack. Modules may be installed with the rack power on or off. If modules are inserted or removed with the power on, care must be taken to ensure they are correctly aligned in the rack guides before sliding them in.

If the 770 rack is to be powered down to install a new processor module, remember that all the services being provided by the 'blades' in that rack enclosure will be lost while it is powered down. Electrical static discharge precautions should be taken when handling all 'blades'.

To install a new 'blade', do the following:

1. Remove the blue blanking panel from the front of the rack. This is done by unscrewing the top and bottom thumbscrew fasteners.
2. Take the new 'blade' from its packaging observing anti-static precautions. Touch only the edges of the printed circuit board (PCB) or the metal case.
3. Carefully locate the top and bottom edge of the 'blade's' printed circuit board (PCB) into the plastic rack slides, and gently push the module in. Care must be taken to ensure both PCB edges are located in the slides correctly. As the module reaches the back of the rack, a plastic aperture cover on the rear of the rack will be pushed off by the module's connectors. Collect the discarded aperture cover.
4. If the rack is powered, the new 'blade' will automatically power up as it is pushed in. Indicators on the front of the module will be illuminated appropriately.
5. Tighten the top and bottom thumbscrew fasteners to hold the module in the rack.
6. Connect the appropriate video, HDMI or RF input/output cables to the 'blade' connectors protruding from the rear of the rack. Connect the appropriate network and control interface cables on the front.
7. Configure the 'blade' according to its own instructions.

Removing processor module 'blades' from the 770 rack

To remove a 'blade' processor card from the 770 rack:

1. Remove all the connection cables from the front and rear of the 'blade'. Setting the location LED flashing on the appropriate blade can help identify the correct unit from the rear of the rack.
2. Unscrew the top and bottom thumbscrew fasteners on the front panel of the processor module.
3. Withdraw the processor module from the rack taking care not to touch adjacent cards. Avoid touching the exposed electronic components to prevent damage from static electricity discharges. Store the processor module in an electrostatic proof bag.
4. Replace the original blue front panel cover that was supplied with the rack. Cover over the rear panel aperture with adhesive tape to maintain the cooling airflow within the rack. Spare front covers can be purchased from Cabletime or your reseller if necessary.

Technical Specifications

POWER INPUT	100 – 240 VAC, 2.2 – 1A, 50/60 Hz 200 Watts via a single IEC mains connector for single PSU 770 racks 200 Watts from either one of two IEC mains connectors for dual redundant 770-DR racks. Mains supplies should be independent for full redundant operation.
ENCLOSURE POWER DISSIPATION	200 watts maximum, dependent on the type of 'blades' fitted
EXTERNAL LNB POWER DRAIN FROM DVB-S2 'BLADES'	3A total 450mA per 774 or 784 DVB-S2 'blade'
DIMENSIONS	19" rack mounting, 3U high
WEIGHT	770: 3.6 Kg without processor modules 8.3 Kg with 9 processor modules 770-DR: 4.1 Kg without processor modules 8.3 Kg with 8 processor modules
ENVIRONMENTAL	0 – 40° C
APPROVALS	FCC Part 15, CE, CB

Declaration of Conformity



Cabletime Limited declares that the products listed below, when installed and operated as described here, conform to the requirements of the directives shown:

Product names: MediaStar Rack
Product part numbers: 770, 770-DR

Directives:

2014/30/EU Electromagnetic Compatibility (EMC) Directive
2014/35/EU Low Voltage Directive
2011/65/EU RoHS2

The standards applied are:

EN55032:2012/AC 2013 Electromagnetic compatibility of multimedia equipment – Emissions requirements.
EN55024:2010 (including corrigendum June 2011) Information Technology equipment – Immunity characteristics.
EN61000-3-2:2014 Electromagnetic compatibility – Limits for harmonic current emissions.
EN61000-3-3:2013 Electromagnetic compatibility – Limitation of voltage changes, voltage fluctuation and flicker.

IEC 60950-1:2005+A1:2009+A2:2013 Information Technology Equipment. Safety Requirements.
EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013
UL 60950-1:2007/R:2014-10
CAN/CSA C22.2 No. 60950-1:2007/A2:2014-10

IEC 62368-1:2014 Audio/video, information and communication technology equipment.
Safety Requirements.

EN 62368-1:2014
UL 62368-1:2014
CSA/CAN C22.2 No. 62368-1-14

CB Certification Applicable to all CB scheme subscribing territories.

I hereby declare that the products listed here conform to the directives shown above when installed and used according to their respective manuals.

Keith Watts
Technical Director

July 2017

United States of America

Cabletime Limited declares this equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules Subpart B (15.107, 15.109). 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.

This device complies with part 15 of the FCC Rules.

Operation is subject to the following conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

Correct Disposal of this Product

This marking on the product, accessories or literature, indicates that the product and its electronic accessories should not be disposed of with other household waste at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.



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