

## > Getting Started with the MediaStar Evolution 795 ATSC/QAM LAN-Caster

The MediaStar Evolution 795 LAN-Caster allows 'off-air' ATSC or cable QAM TV channels to be streamed onto an IP network. Connect an 'off-air' antenna or a co-axial cable feed into the LAN-Caster and use the simple browser based control interface to scan the TV channels available. Simply check the channels that you want to stream onto the network (from up to 5 RF multiplexes) and specify their multicast stream addresses. The selected TV channels will then be passed onto the IP network so they can be shown on displays and personal computers throughout your organization.

A networked MediaStar IPTV receiver unit can decode the IP streams and output the video and audio to an LCD or OLED display. MediaStar Media Portal players can show the live TV pictures and sound on Windows PCs or Macs.

### What's in the box

- 795 ATSC-QAM module
- CAT5 patch cable



## Technical Specifications

### Physical

5" x 1.6" x 8.6", occupies 1 (of 9) 770 3U rack slot, 1.3 Lbs

### Ambient operating temperature range

32° - 104°F (770 rack ambient)

### Power Supply

17 W (from 770 rack)

### LAN

RJ45 802.3 100/1000 Base-T Auto MDIX

Static or DHCP IP Address DSCP stream tagging for QoS

### Network Protocols:

UDP, TCP, ARP, DHCP, ICMP, IGMP V2/V3, HTTP, Telnet, SNMP, SMTP, DSCP

### RF Input:

F type female connector (75 Ohms)

### RF Frequency Range:

42 to 870 MHz (center frequency)

### RF Input level:

ATSC: -36 to +28 dBmV

QAM: -34 to +27 dBmV

### Demodulation:

ATSC A/53 compliant 8/16 VSB

ITU-T J.83 Annex B 64/256 QAM

### Output streams:

Unrestricted number of TV channel IP streams from up to 5 RF multiplexes

One unicast or multicast stream per TV channel

Maximum throughput: 250 Mbps

Select channels by multiplex or by channel name

All original PIDs included in each stream

DSCP tagged streams for QoS enabled networks

### Configuration:

Local status monitoring and IP setup from front panel buttons and LCD display

Local HDMI screen for local status monitoring (not included) and USB keyboard/Mouse (not included)

Front and rear location LED function with front panel and web page activation

On board web server and web page menus for use with remote computer browser

Fully integrated with Media Manager software

### 3rd Party Control Interface:

RS232, text based SIPI protocol

IP, text based SIPI protocol

### Temperature Monitoring:

Internal operating temperature available remotely via web interface

### Event Monitoring:

Key operational warnings reported via SNMP traps sent to third party SNMP manager (MIB available on request)

Automatic e-mail of Event log files via external SMTP server

### Software:

Fully upgradable with ONLY protected Cabletime software from an HTTP server or local USB memory key

### Approvals:

FCC, TUV Approved

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### Installation

This LAN-Caster unit should only be used in a MediaStar Evolution 770 rack that has been fully installed in accordance with its safety instructions. Refer to the '**Connecting Terrestrial RF or CATV feeds**' section for important recommendations relating to antenna lightning protection or CATV isolation protection required for this equipment.

There are no user serviceable parts within this module. Refer all servicing to qualified service personnel.

The 795 LAN-Caster module may be installed in the 770 rack with the power on or off. If the rack is powered, take care to ensure this module is engaged correctly in the plastic card guides and does not touch adjacent cards as it is slid into (or pulled out of) the rack. If the 770 rack is to be powered down to install a new module, please remember that all video/audio services being provided by the equipment in that rack will be lost while it is powered off. Electrical static discharge precautions should be taken when handling the module.

#### To install the 795 module, do the following:

1. Remove the existing front panel blanking plate(s) on the 770 rack. This is done by unscrewing the finger-screw fasteners. Retain this blanking plate in case the LAN-Caster module is removed from the rack in the future.
2. Carefully align the top and bottom edges of the module's printed circuit board (PCB) into the plastic rack slides, and gently push it in. 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 and dispose of it correctly. If the rack is powered up, the new module will automatically power up as it is pushed in and the status LED on the front of the LAN-Caster will show orange, then flashing orange as it boots. After a few seconds, the LCD panel will show the boot up progress of the unit, then its operational status.
3. Tighten the top and bottom finger screw fasteners to hold the module in the rack.
4. Connect the RF input cable to the rear of the LAN-Caster in accordance with the instructions below.
5. Set the unit's IP address, in accordance with the instructions shown below. Only use IP address details that have been supplied by your network administrator.
6. Plug the LAN-Caster into the LAN switch using the CAT5 patch cable supplied. It will Auto-negotiate up to a 1Gbps link with your network switch. This unit can be used with a 100Mbps network switch, but it is recommended that the total outbound data rate does not exceed 70Mbps (the outbound data rate can be found on the LAN-Caster's **Status** web page).
7. Connect to the LAN-Caster's configuration web pages using a PC and Web browser software (e.g. Internet Explorer, Chrome or Firefox), by entering the LAN-Caster's IP address into the browser's address bar. The LAN-Caster's specification page will then be shown.
8. Click on the **Installation** page link on the left hand side panel,

and check 'Antenna (ATSC)' or 'Cable (QAM)' depending upon the type of RF input. Check the **Automatic** scan control and select the territory (recommended), or enter the range of RF frequencies to scan. Tick the **Scan Now** check box, select the Disruptive scan type then hit **APPLY**. This will initiate an RF frequency scan using all the tuners with information showing the scan progress.

9. When the scan is complete, go to the Tuner web pages and a list of detected RF multiplexes will be shown, with their TV channels below. Click on any of the RF multiplex 'radio' buttons to show a list of the TV and Radio channels that are available from that particular multiplex at the bottom of the web page. Select the channels to stream on the network by ticking the 'Enabled' tick-box and entering the stream details into the webpage. If the 'Tune to this multiplex' checkbox is shown, tick this to tune to this RF multiplex. Press the APPLY button at the bottom of the page to save these settings and start the stream transmission on the network.

The channel stream parameters include the multicast (or unicast) stream address, port number, TTL, and the Differentiated Services Code Point (DSCP for QoS packet tagging). Consult your network administrator to get suitable values for these settings.

Channel settings may be stored for more than one RF multiplex, but only the channels on the currently TUNED multiplex will be streamed on the network. The 'Tuned' icon next to the list of multiplexes shows which multiplex is currently 'Tuned'. When a non 'Tuned' multiplex is selected, a tick-box will appear at the bottom of the webpage to allow this RF multiplex to be 'Tuned'.

If you don't know which RF multiplex contains your desired TV channel, click on the **Channel List** link on the left hand side and click on the letter of the channel name or the channel number you wish to stream. A filtered list of the channels will be shown. Click on the name of the channel you wish to stream - this will then take you to the Channel Setup page of an unused Tuner (or Tuner 5) with the appropriate RF multiplex selected. Scroll to the bottom of the page to see all the channels available from that multiplex.

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10. In 'normal' operation when the RF feed is present and the LAN-Caster is streaming onto the network, the STATUS LED on the front panel will be constant GREEN. If the RF feed is missing or the streams have been turned off, the STATUS LED will flash GREEN. The LCD will show the 'normal' operating status or the highest priority error condition.

During boot, the STATUS LED will be orange for a few seconds then start flashing ORANGE. If the STATUS LED is flashing RED, a software upgrade is in progress, and if the STATUS LED shows constant ORANGE or RED, an internal error has occurred and the unit should be returned to Cabletime for repair.

### Connecting Terrestrial RF or CATV feeds

Connection of the MediaStar 795 LAN-Caster to a roof top antenna or a cable feed 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 the best practice as dictated by your local electrical code and/or trade association or cable TV supplier. This may include:

- Use coaxial over voltage protection with an antenna or electrical isolation units for CATV feeds
- Bond all masts and antennas to the building protective earth and where available, the lightning protection system
- Unplug this apparatus during lightning storms or when unused for long periods of time

**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.**

Connect your RF source into the RF IN (F-connector) on the rear of the unit, and ensure it is tightened up. If you have a single RF feed to serve multiple 795 LAN-Caster units, use an external RF splitter. For cable feeds this should have a full 42 – 860 MHz frequency range.



### Configuring the LAN-Caster's IP Address

A suitable IP address should be selected before connection to a network. Each LAN-Caster unit is preconfigured with a static IP address of 191.53.51.209. This will need to be reconfigured so it is not in conflict with other MediaStar equipment.

Use the front panel LCD and push buttons to set the correct IP address settings.

Press the front panel **UP** and **DOWN** buttons to move through the LCD menu options. Press the **OK** button to select a menu or confirm a change. Press the **UP** and **DOWN** buttons together to move back up a menu level. Press the **DOWN BUTTON** to show the IP Settings menu and press **OK** to enter the menu.

Press **DOWN** then **OK** to select the static IP address settings.

Press **OK** to edit the current static IP address. Use the **UP** or **DOWN** buttons to select the appropriate digit and press **OK** to set it. The next digit can then be edited in the same way. It is not possible to move back to a previous digit. Press **UP** and **DOWN** together to abort the input if necessary. Once the last digit is entered, the IP address is checked and then applied.

The IP netmask, gateway and DNS server can be set in the same way.

The MAC address of the unit can be found under the Unit Details/ MAC Address menu, or on the label on the bottom face of the unit.

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### RF Multiplex Organization

An 'RF Multiplex' typically contains a number of digital TV and radio stations that are 'grouped' together and transmitted 'over the air' via an antenna or through a cable TV system, at one particular RF frequency. Using an ATSC antenna a user may be able to access around 10 – 20 RF multiplexes. A cable company will typically provide a cable feed with up to 130 RF multiplexes

The LAN-Caster is able to scan all the signals coming from the RF input, and automatically detect all the ATSC or QAM RF multiplexes that it can 'see'. When it detects a multiplex, it determines the TV and radio stations that are available and shows them on the channel setup menu.

Some TV services are encrypted to prevent un-authorized viewing. These are shown in the Tuner setup menu with a closed 'padlock' symbol (🔒).

This stream can be passed onto the network with its original

encryption, but IPTV decoders or PC software will have to be able to decrypt the stream before it can be viewed.

A single 795 LAN-Caster module can simultaneously access up to five RF multiplexes, extract only the TV and radio services that the user chooses from a particular multiplex and then stream those channels onto the IP network. If a user wants to simultaneously access TV channels from more than five different RF multiplexes, then they will require additional LAN-Caster modules.

For a list of 'off-air' channels that are available in your area (in the USA), you can check this website:

<http://transition.fcc.gov/mb/engineering/dtvmaps>

The TV channels available via a CATV feed will depend upon the CATV service that has been organized for your installation. Please consult Cabletime via our website if you require help with this.

### Front Panel Operation

The front panel LCD can be used with the three adjacent push buttons to view status information and configure the operation of the unit. The **UP** and **DOWN** buttons scroll up and down the menus, and change parameter values. The **OK** button selects the currently displayed menu item or confirms a parameter change. Pressing the **UP** and **DOWN** buttons and releasing them together returns up a menu level, usually aborting a parameter change.

The upper line of the LCD display shows the setting name, and the lower line shows the parameter itself and any instructions on how to change the current setting.

Pressing the **UP**, **DOWN** and **OK** buttons for 5 seconds and releasing them together will present a unit **RESET** option. Pressing the **OK** button to confirm will then reboot the encoder.

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### Browser based Configuration Menus

The LAN-Caster's web page configuration menus allow the full range of operational parameters to be set. When using the web pages, full contextual help is provided on the right side of the screen.

**When changes have been made, press the APPLY button at the bottom of the page to ensure these take effect.**

#### Specification

The specification page includes details of the capabilities of the product. Please note that this unit may not have all the options mentioned. The Status page shows all the optional features currently enabled.

#### Status

shows the current status of the LAN-Caster, including the Part number, Device name (used as a DHCP identifier), Serial Number, RF source status, RF signal level, Received Data Rate, Transmit Data Rate, Streaming services, Last Scan status, Channels Found, IP Address, Mac Address, Link Speed, Temperature, Software version, Command Set Version, and RS232 status.

#### Tuner 1 – Tuner 5

These menus show the list of detected RF multiplexes and the channels in each multiplex. Setup the streamed channels here.

#### Channel List

Provides a search facility to find a channel by its name or channel number, and then takes you to the appropriate RF multiplex on a Tuner setup page.

#### Installation

Set-up how the RF scan is to be performed (including the RF feed type and the frequency ranges to scan) and initiate a scan.

#### RS232 Port

Configure the port settings for the IP to RS232 link or for the SIPI command interface.

#### Network Setup

Allows specification of the Network Connection; Static or DHCP

addressing, device Hostname, IP Address, Subnet Mask, and Default Gateway settings. Confirm these with the network administrator before configuring.

#### Update Locations

Specify the URL of the MediaStar http server and folder that the Encoder will look at for software updates and a central configuration file. The LAN-Caster will only accept new software that has been digitally signed by Cabletime.

#### Enablement Code

Enter enablement codes here to reconfigure or expand the capabilities of your unit. Details can be obtained from your reseller or Cabletime.

#### Set Password

A password may be set to prevent the unauthorised modification of the LAN-Caster configuration. A password consists of six digits from 0-9. If the password gets lost, contact Cabletime for assistance, quoting the serial number of the unit affected.

#### SNMP

Configure to send SNMP 'event' warning messages, and set-up the servers to send the messages to.

#### Email Logs

Event logs can be periodically emailed to a recipient. Specify the email server and recipient email address here.

#### Event Log

This shows a full list of the 'events' that the LAN-Caster has experienced. These include notifications such as loss of RF signal lock. Significant messages will also produce an SNMP trap when enabled.

#### Locator LEDs

Allows the front and rear panel status LEDs to be flashed RED/GREEN to help identify the physical encoder unit in a rack.

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### Regulatory Requirements Notices

#### 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 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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#### Head Office

Cabletime Ltd, 64 Greenham Road, Newbury, Berkshire, United Kingdom RG14 7HX  
T: +44 1635 35111 E: sales@cabletime.com www.cabletime.com

#### USA Office

Cabletime USA, 100 Valley Road, Mt Arlington, New Jersey, NJ 07856  
T: +973 770 8070 E: usa@cabletime.com

#### Asia Office

Cabletime ASIA T: +852 3101 2650 E: asia@cabletime.com

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