

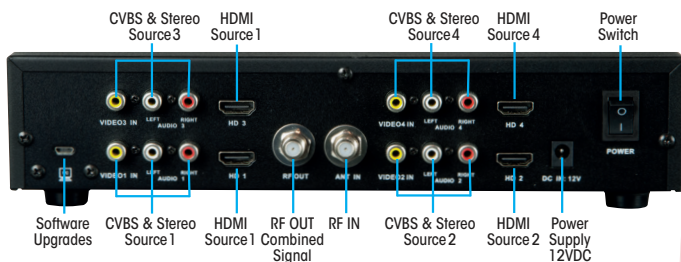
# Labgear EM7994 - 4 Channel HD/CVBS to DVB-T encoder modulator

The EM7994 takes four signals from HDMI or CVBS sources and encodes the data in to MPEG transport streams and outputs them using COFDM modulation as a DVB-T multiplex. The new signals can be combined with off-air signals using the loop-through RF connections and then fed into your TV system for distribution to every TV set.

## Features:

- Ideal for HDMI sources such as HD satellite receivers, Blu-Ray™ players and PC's
- Equally at home with CVBS signal sources including security cameras
- Supports HD input resolutions up to 1080p
- Easy to navigate menu screen makes set-up quick and simple
- Install multiple units onto your TV system

## Connections:



## Applications:

- Monitor security cameras on domestic or communal TV systems
- Distribute HD images for high impact video displays
- Add extra channels to multi dwelling TV systems
- Information channels in hotels or public spaces

## Safety:

To prevent fire or electrical shock, don't expose the unit to rain or moisture. Always use the 12VDC power supply provided. Using a higher voltage will damage the unit and invalidate the warranty. Do not connect the device to the power if the power cord is damaged. Do not connect the unit to the mains until all cables have been connected correctly. Do not cut the power cord. Do not cover the ventilation slots. If the unit has been stored in cold conditions allow it to warm to room temperature before connecting to the mains.

NOTE: Multi dwelling systems must be earth bonded using a minimum 4mm<sup>2</sup> copper cable in accordance with the CAI Standard.

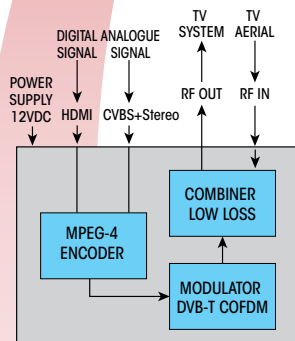
## Mounting and Installation:

Best mounted in on a vertical surface with the connectors at the bottom. Use the slots on side of the casing to screw the unit onto a stable surface and allow at least 10cm space around the unit for free ventilation. Before commencing set-up check what channels or frequencies are being used for local off-air transmissions and any other devices on the system and decide which unused channel you are going to use.

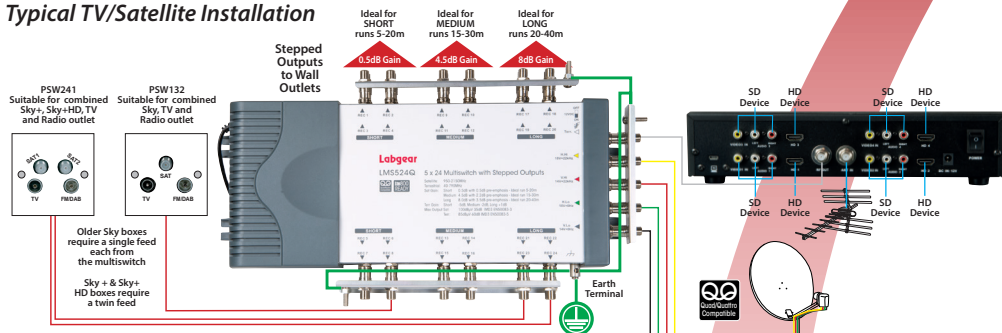
- Connect the HDMI or CVBS source to the correct input
- Connect the RF OUT to the input to the TV system directly or via a wideband combiner
- Connect the aerial to the RF IN (unless if you are using a wideband combiner)
- Plug the power supply into the mains socket and switch ON

The encoder will power up and display the factory pre-set output channel and frequency. The HDMI or CVBS indicator will light up dependant on which has been selected. Press OK to access the Main Menu and start the set-up.

## Function Flow Chart



### Typical TV/Satellite Installation



### Installing multiple units onto a TV system

The EM7994 has a low-loss combiner between the RF IN and RF-OUT and it is therefore possible to not only combine the off-air signals with your new channel but to "daisy chain" a number of units to add more signals. With more than 2 units on a system you may get a better signal balance if you combine all units and the aerial using a low loss combiner splitter like the 4-way FJU704.

### Screen Indicators and Controls



NO	DESCRIPTION	FUNCTION
①	LCD Screen	Video display
②	HD/CVBS LEDs	HD (Red) / CVBS (Green) 1 to 4 signal indicator lights
③	PWR LED	Power indicator light
④	RETURN Key	Return submenu and save settings
⑤	◀ Key	Switch settings in menu or cursor left
⑥	▶ Key	Switch settings in menu or cursor right
⑦	▲ Key	Change the frequency point or cursor up
⑧	▼ Key	Change the frequency point or cursor down
⑨	OK Key	Confirm the current operation

### Please Note

HD source not working? If you select the factory reset you may disable the HDCP compatibility needed for some HD sources. To reactivate press RETURN and hold for 3 seconds.

### USB Port

The USB port is solely for firmware/software updates (if available). Visit our website at [www.labgear.co.uk](http://www.labgear.co.uk) for news of any available updates.

**Before you start check what frequencies or channels are being used for local off-air transmissions and other devices on the system and decide which un-used channel you are going to use.**

EM7994		ENCODER MODULATOR - QUICK SET-UP	
<p>Check your local transmitter and decide on the channel you want to use.            Connect HDMI or CVBS input            Connect RF OUT to TV system or via a wideband combiner into TV system            Connect ANT IN if combining with off air signals from aerial            Plug Power Supply into mains and switch mains ON            Encoder Modulator will power up and display factory pre-set output channel and frequency            HD or CVBS light will come on to indicate selected source</p>			
Press	Notes	Display	
OK	To access Main Menu	Channel Setting	V4.1
<<< << < < < < < < < < < < < < <<<		OSD Language	English
		Country	UK
		Channel Name	CH-21
		Frequency	474.000MHz
		Bandwidth	8M
		Carrier	8K
		Modulate	QAM64
		FEC	7/8
		Guard Interval	1/32
		RF Output Level	74dBuV
		Signal Source	HDMI
		Key Tone	OFF
		LCN	0402
		Program Name	AIR_CH_474_8M
		TSID	01234
		Program ID	05678
	Fatory Set	Press OK	
<b>Signal Source - The factory pre-set is HDMI only if you want to select CVBS follow next steps</b>			
OK	Open Main Menu		
IT	Scroll down	Signal Source	HDMI
←→	Select source type	Signal Source	CVBS
RETURN	Saves selected source		
	Light will show source, red HDMI or green CVBS		
<b>Select free output Channel (check off-air broadcasts first)</b>			
OK	Open Main Menu		
IT	Scroll down	Channel Name	CH-21
←→	Right to select Channel Name		
IT ←→	Scroll down or right to select output Channel	Channel Name	CH-xx
OK	To confirm		
	Give your new Channel a name		
IT	Scroll down	Program Name	AIR_CH_470_8M
OK	Menu pops up with letters and numbers		
IT ←→ OK	Use cursor to select letters and OK to confirm		
RETURN	Go back to Main Menu and save	Program Name	NEW NAME
<b>ADDING AN LCN</b>			
<b>Select the Remote Control Logical Channel Number (check allocated numbers first)</b>			
OK	Open Main Menu		
IT	Scroll down	LCN	0400
OK	Select LCN		
IT ←→	Change each digit in the LCN	LCN	0xxx
OK	To confirm		
RETURN	Go back to Main Menu and save	LCN	0xxx
<b>INSTALLING MULTIPLE UNITS</b>			
<b>If you have more than one EM on the system give each one a unique TSID and Programm ID</b>			
OK	Open Main Menu		
IT	Scroll down	TSID	01234
OK	Select TSID		
IT ←→	Change each digit in the LCN	TSID	0xxxx
OK	To confirm		
IT	Scroll down	Program ID	05678
OK	Select Program ID		
IT ←→	Change each digit in the Program ID	Program ID	0xxx
OK	To confirm		
RETURN	Go back to Main Menu and save	Program ID	0xxx

**PLEASE NOTE:** HD source not working? If you select the factory reset you may disable the HDCP compatibility needed for some HD sources. To reactivate press RETURN and hold for 3 seconds.

Modulator Section			
DVB-T			
Standard	DVB-T COFDM		
Bandwidth MHz	6, 7, 8		
Constellation	QPSK, 16QAM, 64QAM		
Code rate	1/2, 2/3, 3/4, 5/6, 7/8		
Guard Interval	1/4, 1/8, 1/16, 1/32		
MER	35dB		
Frequency range	50-860MHz select by Channel No.		
Output Level	70-100dBuV step 1dBuV		
Output Impedance	75Ω		
Encoding Section			
HDMI Encoder      HDCP1.3 Compliant			
Video	Compression	H.264 - bitrate 5-15Mb/s	
	Version	HDMI 1.4 (1.3 compatible)	
	Interface	HDMI x 4	
		Input	Output
	Resolution	1920x1080@60p 1920x1080@50p 1920x1080@60i 1920x1080@50i 1280x720@60p 1280x720@50p	1920x1080_50p/1920x1080_60p 1920x1080_50i/1920x1080_60i 1280x720_50p/1280x720_60p
	Aspect Ratio	4:3, 16:9	
	Bit rate	5-15Mbps	
Audio	Compression	AAC-LC / MPEG1-L2- bitrate 128-320 Kb/s	
	Sample Rate	32kHz / 44.1 kHz / 48 kHz	
	Bit rate	64/128/192/256/320 kbs	
CVBS Encoder			
Video	Compression	H.264 - bitrate 5-15Mb/s	
	Interface	CVBS 3 phono x 4	
		Input	Output
Resolution	576iPAL 480iNTSC	720x576@50i /720x480@59i/60	
System			
Management	LCD + control keys		
Language	English		
LCN Insertion	Yes		
Upgrade	Micro USB		
General			
Power supply	12V⇒5A		
Dimensions	280mm (W) x 203mm (D) x 61mm (H)		
Weight	1.56kg		
Operating temp.	0-45° C		

Labgear Reserve the right to modify their designs or specifications, In the light of future developments, without prior notice. Performance figures quoted are typical and subject to normal manufacturing and service tolerances.

For further information or any queries please contact

**Customer Careline: 08457 573479**  
(Local rate – UK only)

**Technical Support: [www.labgear.co.uk/support](http://www.labgear.co.uk/support)**



Waste electrical products should not be disposed of with household waste. Please recycle where facilities exist. Check with your Local Authority for recycling advice.

