



HD Modulator



xMOD300

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1 Introduction

Most homes still use coaxial cable as a way to distribute TV signals from the aerial to the various TVs within the property. The MOD300 modulator allows you to make the best out of this set up and use it to distribute your home CCTV through this same coaxial cable network.

The MOD300 converts a HDMI output from a DVR (or other equipment such as a Satellite box) into a digital RF signal or “Digital TV channel”. It can then be viewed on a DVB-T equipped TV.

The MOD300 produces a high quality freeview picture far superior to an analogue modulated signal and as most new TVs contain a digital tuner it’s a great way to distribute CCTV in a home or a commercial building via coaxial cable.

The HDMI input to the MOD300 also carries sound alongside the video, so any connected TVs will also be able to playback sound from the DVR or other device too. The MOD300 is also extremely useful for distributing the output from DVRs to multiple “TVs” in commercial environments such as pubs or clubs as it can all be done over low cost coax using an off-the-shelf RF distributor.

Note: The MOD300 has to process and digitise the HDMI input and this creates a delay or “latency” in its output, this is typically in the region of 1 second.

2 User Information

Ensure the power to the modulator is switched off when connecting or removing any cables.

The modulator must be installed in a clean, dry environment where it will not be exposed to high temperatures, moisture or excessive dust.

Do not touch the modulator or any of its connections with wet hands.

Ensure the power is switched off if the modulator is not in use for a long period of time.

There are no user serviceable parts in the modulator and opening or attempting to repair the product will void the warranty.

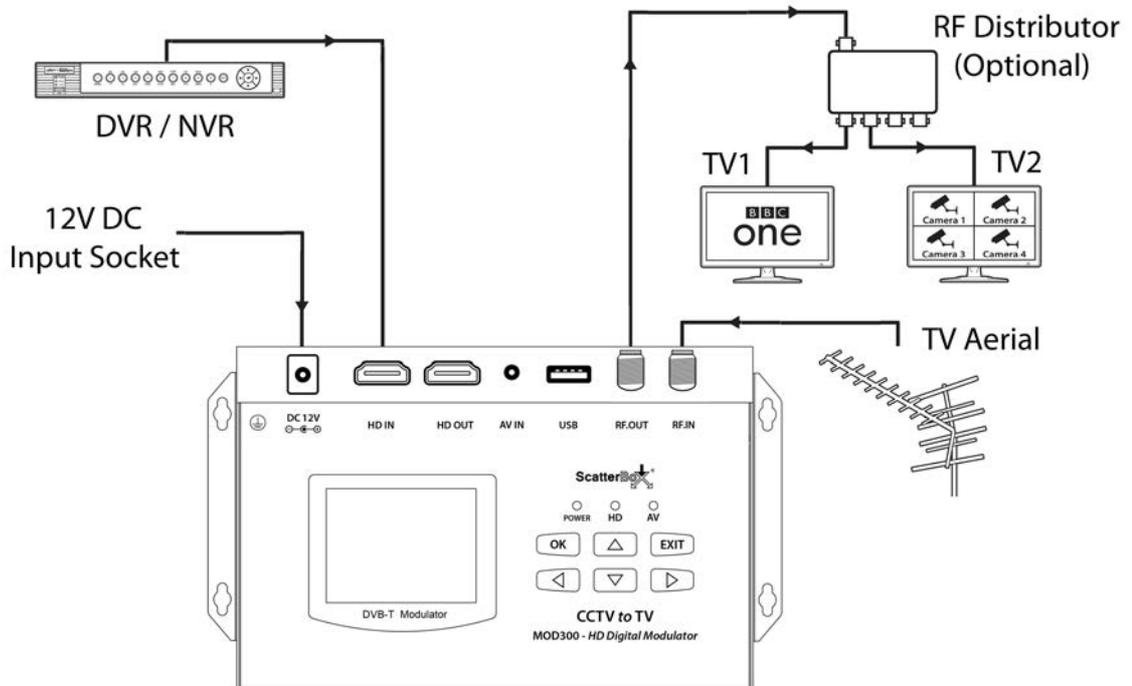
Do not replace the power supply with a voltage greater than 12V DC.

Do not install or use the device if the power cable is damaged.

Do not cover the device with elements that obstruct the ventilation slots.

3 Installation

3.1 Single Unit

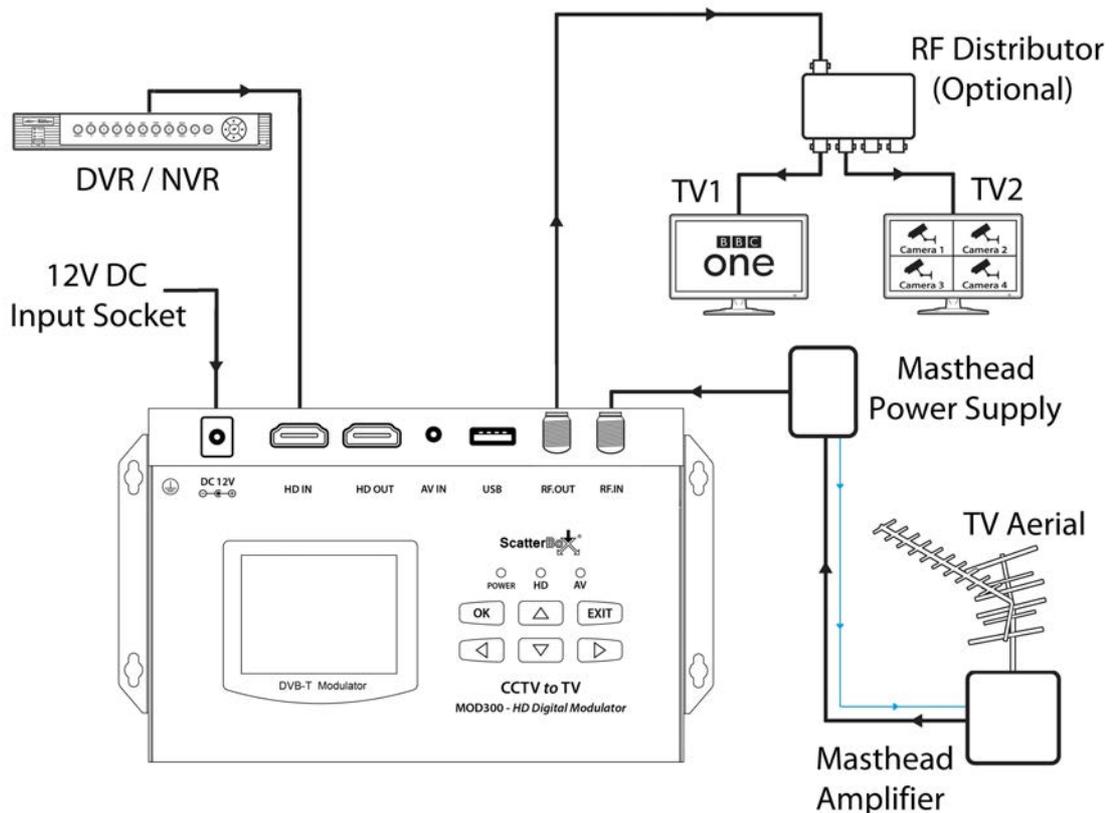


- 1) Remove all the power to the modulator when connecting or removing cables.
- 2) Connect a HDMI cable from the DVR / NVR (or other video equipment) to the HD IN of the MOD300.
- 3) When combining the RF signal of a TV aerial and the MOD300, connect the TV aerial coax (f-connector) to the RF.IN port.
- 4) Connect a coax (f-connector) to the RF.OUT port direct to a TVs aerial socket or to a distributor to multiple TVs.
- 5) Connect the 12V DC power supply to the MOD300, then re-tune the TVs.

3.2 Masthead Amp

Although the MOD300 has a built-in combiner (RF IN) you may encounter problems when using a "Masthead" amplifier which is powered remotely up the co-ax, as the MOD300's internal combiner will not pass this power.

The power for the "Masthead" power supply and amplifier will need to be in line before the RF.IN on the MOD300.



- 1) Remove all the power to the modulator when connecting or removing cables.
- 2) Connect a HDMI cable from the DVR / NVR (or other video equipment) to the HD IN of the MOD300.
- 3) Connect a coax (f-connector) to the RF.OUT port direct to the TV or distributor.
- 4) Connect a coax (f-connector) for the TV aerial signal to the RF.IN port.
- 4) Connect the 12V DC power supply to the MOD300, then re-tune the TVs.

4 Controls and Menu System

LED Indicators

- Power = On when the power supply is connected
- HD / AV = Indicates the source which it is set (HD is on as default)

Controls

- ▲ ▼ = Increase or decrease the selected parameter / menu
- ◀ ▶ = Move to the next or previous digit / character
- Ok = Enter the menu system / select parameter / confirm selection
- Exit = Return to the previous menu / cancel selection

The MOD300 has been designed for use in the UK, as standard the channel appears as "SBox" and channel 800 on the TV.

Settings will need to adjusted if using multiple MOD300s or if the default channel is already in use or to change the channel name.

4.1 Menu System

Main Menu	Parameter	Default Value
Display Status	Source	AUTO / HD / AV
	Country	U.K / User-Defined
	Channel	CH21 ~ CH70 (Default CH60)
	Freq (Khz)	Non editable
	BW (MHz)	6 ~ 8 (Default 8)
	RF Out	-31 dBm ~ 6 dBm (Default -31 dBm)
	Resolution	Non editable
Setup Stream	TSID	1001
	ONID	001
	Network ID	30001
	Net. Name	Our Network
	Program ID	001
	Program Name	SBox
	Provider	Provider1
	LCN	0401
	PMT PID	5001
	Video PID	6001
	Audio PID	7001
Setup Modulator	Country	U.K
	Channel	CH60
	Freq (Khz)	786000
	BW (MHz)	8
	Constellation	64QAM
	FEC	7/8
	FFT	8K
	Guard in	1/32
RF out	-31 dBm	
Channel Information	01	U.K.
	02	Netherlands
	03	Serbia
	04	Germany
	05	Belgium
	06	Hungary
	07	Denmark
Define User Channel	Add Channel	User Edit
	Modify Channel	User Edit
	Delete Channel	User Edit
System Config	Lock Key	Select after Ok, then Exit to Set Password – 8 digits
	Change Password	User Edit
	Set Time-out	Time-out (Default Never)
	Reset to Factory	Select Ok and Ok to Reset
	Select Country	U.K.
	Select PWR Unit	dBm / dBuV
Set OSD Language	English	

5 Troubleshooting

5.1 Problem - Not appearing as a digital TV channel

Cause - RF level too high or too low - If the RF level is too high or low and the TV can not produce an image.

1. Adjust the RF out level in the MOD300, go to :-

Setup Modulator > RF out. See the [Menu System](#)^[5] - NOTE if the MOD300 is dBm level range is -31 dBm ~ 6 dBm

This can be adjusted on a trial and error process so you may have to try various RF levels checking the result each time.

It is recommended to adjust the dB level in segments of 3.

Re-tune the TVs after making the adjustment.

2. Check the RF output level of the MOD300 compared with the TV aerial signal using a digital TV (DVB-T) signal strength finder.

The TV may not be able to decode the MOD300 if there is a large difference in strength between the two signals.

Cause - Amplifier installed between the modulator and the TV - The MOD300 does not support AC/DC pass through so the voltage is blocked out.

When using a masthead amplifier it must be installed after the MOD300. See the [Masthead Amp](#)^[3] installation.

Cause - Incompatibility - The MOD300 outputs video as MPEG-4. Ensure the TV supports MPEG-4 as some TVs only support MPEG-2.

5.2 Problem - TV channel detected but no image displayed

Cause - Resolution from input device not supported by TV - The MOD300 outputs the same resolution as it receives.

For example, if the resolution from the original input device is 1080p the MOD300 will output a 1080p signal.

If the TV only supports a maximum of 720p the new channel will still be discovered but no image will be displayed.

In this case change the resolution of the input device to one which the TV supports.

Cause - RF level too high or too low - If the RF level is too high or low and the TV can not produce an image.

1. Adjust the RF out level in the MOD300, go to :-

Setup Modulator > RF out. See the [Menu System](#) ⁵ - NOTE if the MOD300 is dBm level range is -31 dBm ~ 6 dBm

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The TV may not be able to decode the MOD300 if there is a large difference in strength between the two signals.

6 Specification

Video	Encoding	MPEG-4 AVC/H.264
	Resolution	1920*1080p at 60Hz, 1920*1080p at 50Hz, 1920*1080i at 60Hz, 1920*1080i at 50Hz, 1280*720p at 60Hz, 1280*720p at 50Hz
	Aspect Ratio	16:9, 4:3
	Bitrate	1.000~18.000 Mbps
Audio	Encoding	MPEG Layer 1
	Sample rate	48KHz
	Bitrate	64, 96, 128, 192, 256, 320kbps
CVBS Encoding	Input	PAL, NTSC
DVB-T Modulator Section	Standard	DVB-T COFDM
	Bandwidth	6M, 7M, 8M
	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
	FFT Carrier Mode	2K, 8K
	MER	30dB
	RF Frequency	177 ~ 858 MHz
	RF Output	0~ +6 dBm
General	Insertion Loss	-3dB
	Language	English
	Firmware	Upgradable Via USB
	RF In / Out	F-Connector
	Power supply	12V DC 2A Plug-in (Supplied)
	Operating temperature	5°C ~ 45°C
	Dimensions	(H)45mm x (W)198mm x (D)111mm

7 Conditions

All specifications are approximate. System Q Ltd reserves the right to change product specifications or features without notice. Whilst every effort is made to ensure that these instructions are complete and accurate, System Q Ltd cannot be held responsible for any losses, no matter how they arise, from errors or omissions in these instructions, or the performance or non-performance of the equipment referred to.

This symbol indicates that equipment must not be mixed with general household waste. For treatment, recovery and recycling please return to your local designated WEE/CG0783SS collection point as defined by your local council.



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