

USER'S MANUAL

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1. GUIDE

1.1 IMPORTANT SAFETY INSTRUCTIONS

Thank you for choosing our product. Before installation, we would like to remind you some notes, which is very important for operating safely and properly, as follows:

- Be sure to read this user manual before starting your operation.
- When the unit is suddenly moved to a hot area from a cold area, it may cause some problems. In that case, turn off the power, and turn on again after 1-2 hours.
- Keep modulator placed in clean space with sufficient ventilation.
- Do not cover the modulator with or place it on a unit that emits heat.
- Clean the case by a soft cloth with a little washing liquid.
- Do not remove the cover.
- Do not let the unit exposed to extreme heat, cold or humid conditions.
- No liquids or any other materials to come inside of the unit.

1.2 GENERAL DESCRIPTION

WS-7990 is a composite video input standard definition DVB-T 4 route modulator which provides COFDM RF signal in range of 50-860MHz.

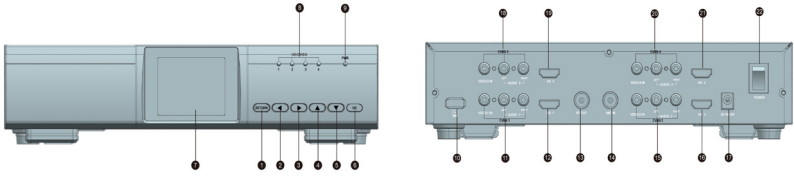
It consists of A/D, Coding, Modulation, Frequency conversion which provides bandwidth of 6/7/8MHz to select.

It is designed to achieve CVBS and HDMI input, and it can also supports standard H.264 encoding.

It is an excellent choice to transport video/audio signals from TV satellite receivers, surveillance camera or video/media players to a LCD TV or set-top-box.

It can be used in series with other modulator so the number of channels in the coaxial cable no the SMATV system can be increased as desired.

1.3 PRODUCT OVERVIEW & ILLUSTRATION



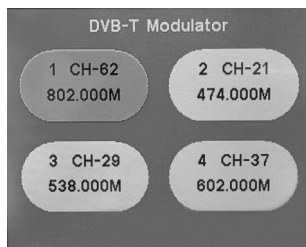
NO	Description	FUNCTION
1	RETURN	Return to superior menu and save settings
2	◀	Modify parameters or cursor left
3	▶	Modify parameters or cursor right
4	▲	Modify parameters or cursor up
5	▼	Modify parameters or cursor down
6	OK	Confirm the current operation
7	LCD Screen	Video display
8	HD/CVBS	HD/CVBS indicator light, red light means HDMI and green light means CVBS
9	PWR	Power indicator light
10	PC	Use for software upgrade
11	CVBS1	CVBS signal input port for modulator route-1
12	HD1	HDMI signal input port for modulator route-1
13	RF OUT	RF output port
14	ANT IN	Terrestrial Digital signal input port
15	CVBS2	CVBS signal input port for modulator route-2
16	HD2	HDMI signal input port for modulator route-2
17	DC IN 12V	Connect to adaptor input
18	CVBS3	CVBS signal input port for modulator route-3
19	HD3	HDMI signal input port for modulator route-3
20	CVBS4	CVBS signal input port for modulator route-4
21	HD4	HDMI signal input port for modulator route-4
22	POWER	Power switch

2. FEATURES

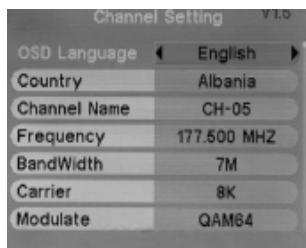
- High level of integration, high-performance, Full-featured, integrated design
- 4 route input modulator that converts analogue A/V source to a DVB-T channel
- Standard COFDM modulation and H.264 encoding
- Multiple video format compatibility including 576i(PAL) / 480i(NTSC) / 1080p
- Bandwidth: 6/7/8MHz
- Frequency range: 50~860MHz
- Continuously adjustable RF signal output level range 70dBuV from 100dBuV, step 1dBuV
- 2.4-inch color LCD display
- Small size and light weight
- Carriers 2K and 8K
- User friendly setup and control
- Compact and wall mountable

3. THE MENU OSD INSTRUCTION

Modulator will initialize to the boot interface after power on, and there are four modules displayed on screen, each module means one route modulator. Select any one to set related parameter.

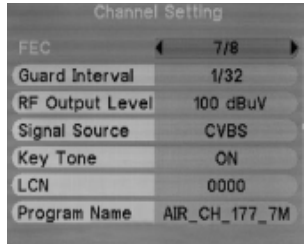


- **OSD Language:** press ◀▶ key to change language.
- **Country:** press ◀▶ key to enter country list, and use ▲▼ key to select a country, then press **OK** to confirm.
- **Channel Name:** press ◀▶ key to change the channel number.
- **Frequency:** frequency setting in range of 50~860MHz, press ◀▶ key to move cursor and press ▲▼ key to change numbers.
- **BandWidth:** press ◀▶ key to select bandwidth of 6/7/8MHz.
- **Carrier:** carrier setting, press ◀▶ key to select 2K or 8K.
- **Modulate:** modulation mode setting, press ◀▶ key to select QPSK, 16QAM or 64QAM.



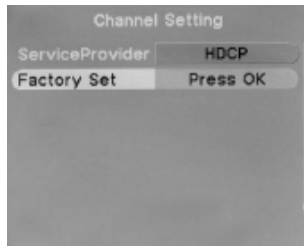
- **FEC:** FEC code rate setting, press ◀▶ key to select 1/2, 2/3, 3/4, 5/6 or 7/8.
- **Guard Interval:** guard interval setting, press ◀▶ key to select 1/4, 1/8, 1/16 or 1/32.
- **RF Output Level:** RF output level setting, press ◀▶ key to change value in range of 70~100dBuV.
- **Signal Source:** press ◀▶ key to choose HDMI or CVBS.

- **Key Tone:** press ◀▶ key to ON/OFF key tone.
- **LCN:** use ▲▼◀▶ key to edit logical channel number.
- **Program Name:** use ▲▼◀▶ key to edit program name of current frequency point.



- **Service Provider:** use ▲▼◀▶ key to edit operator name.
- **Factory Set:** press OK to confirm factory reset.

Note: The operation would be only valid under current one route modulator.



4. TECHNICAL SPECIFICATION

Modulator	Standard	DVB-T
	Constellation	QPSK / 16QAM / 64QAM
	Bandwidth	6 / 7 / 8 MHz
	Carriers	2K / 8K
	Guard Interval	1/4, 1/8, 1/16, 1/32
	Code Rate	1/2, 2/3, 3/4, 5/6, 7/8
	MER	35 dB
	Frequency Range	50 ~ 860 MHz
	Output Level	70 ~ 100 dBuV
	Output Impedance	75Ω
Video	Input Format	CVBS/HDMI
	Encoding Format	H.264
	Video Resolution	576i PAL / 480i NTSC/1080p
	Connector	RCA/HDMI 1.3
Audio	Input Format	Stereo L/R channel
	Encoding Format	MPEG-1 Audio Layer II
	Connector	RCA
General	Power Source	DC 12V / 1.5A
	Operating Temperature	0 ~ +50°C
	Dimensions	280 mm (L) × 203 mm (W) × 61mm(H)
	Weight	1.56Kg

Note:

- 1.Since the modulator uses H.264 encoding, users need using DVB-T service which supports standard H.264 encoding for normal display.
- 2.HD program which contains HDCP agreement protection will not play normally, such as Blue-ray Disc and so on. Press **RETURN** 3 seconds in the boot interface can resolve this problem.
- 3.If the image and sound are not synchronous, please insert HDMI port again, it will return to normal.

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