

Product Specifications

1.1 Functional Description

USB2.0 socket for PVR ,Time shift, software upgrade and media playback

Supports 1080p full HD

Supports SD/HD MPEG2 and MPEG4 AVC H .264

Auto and manually scans all available TV/Radio channels

7-day EPG function for supporting DVB-T DVB_T2

Multi-language menu, subtitles and audio output

Aspect ratios 16:9,4:3Pan&Scan and letter box

Teletext vid OSD & VBI

Parental lock function

Easy to use and attractive menu

Supports OTA software upgrade

Supports various media file playback as below:

Music:MP3,WMA

Photo: JPEG,BMP,PNG

Video:MKV,AVI,DIVX,XVID,MOV,VOB,FLV,DAT,MPEG,MPG,MP4 and TS

Input and Output:

USB2.0,HDMI,SCART ,T2 RF IN,T2 RF OUT, Coaxial &Video &L&R(optional)

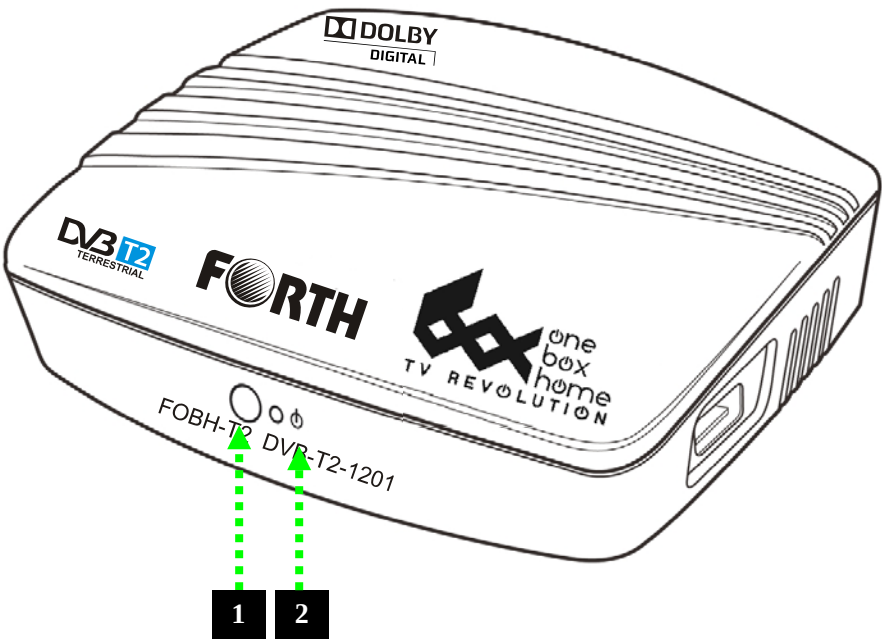
Strictly implement EuP regulations, standby power $\leq 0.5W$, consumption power when playing HD programs $\leq 6W$

Tactile 5 key pad on the remote control

Audio description: users can hear TV programs if they press the green key on remote control.

2. Design

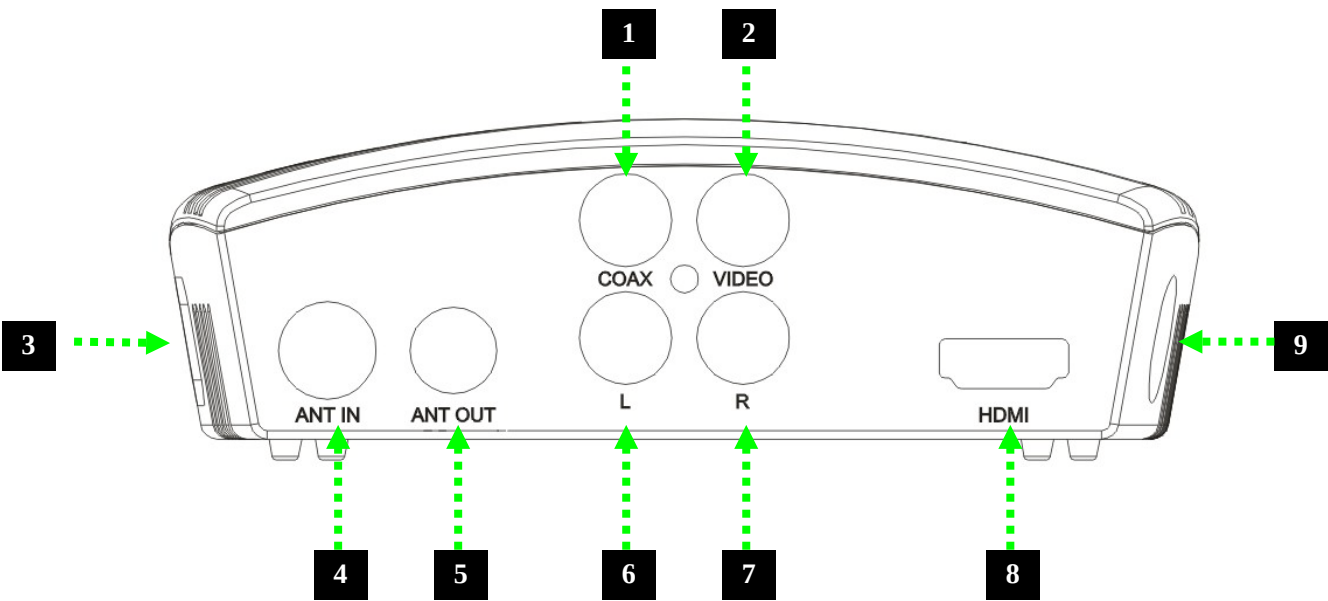
2.1 Front Design



Front Interface

Element	Number	Comments
REMOTE CONTROL SENSOR	1	Receive the signal from the remote control
LED	2	Red when standby

2 Rear Design (Configuration 1)



Element	Number	Comments
COAX	1	Connect to Amplifier Coaxial input terminal
VIDEO	2	Connect to TV set Video input terminal
USB:	3	Data input from USB storage devices
ANT IN	4	The aerial input connector
ANT OUT	5	The output for passing the aerial signal straight through
L	6	Connect to TV set L audio input terminal
R:	7	Connect to TV set R audio input terminal
HDMI	8	Connect to TV set HDMI input terminal
DC IN	9	Adapter in: Power input, AC 100-240V 50Hz/60Hz Adapter out: DC 5V 2000mA

1.2 Detail Specification

■ Main CPU & Memory

ITEM	DESCRIPTION	REMARK
NOVATEK CPU	32-bit RISC processors DVB-T demo built-in	78316M
Flash Memory	8Mbytes	
DDR2	64Mbytes	78316M built-in
PCB Model	YJ_DVB_78316M+MXL603_MINI(T)(T2)(ISDB)	

■ DVB-T2 Tuner

Elements	Parameter	Remark
Receiving System	DVB-T DVB-T2 (ETSI EN 302 755)	MXL603
Connector type	IEC169-2, M-F with Loop-out	
Receiving Channel	177.5MHZ~ 866MHz	
RF Input impedance	75 ohm	
RF output impedance	75 ohm	
Active antenna	5V 150mA	

■ DVB-T2 Tuner Receiver sensitivity

	GENERAL				PLP			
Frequency MHz	Band width	FFT mode	Guard Interval	Constellation	Code rate	Constellation	FECTYPE LDPC	Sensitivity dBm
177.5	7 MHZ	8K	1/16	64QAM	3/4	64QAM	64K	-78dBm
226.5	7 MHZ	8K	1/16	64QAM	3/4	64QAM	64K	-78dBm
474	8 MHZ	8K	1/16	64QAM	3/4	64QAM	64K	-78dBm
858	8MHZ	8K	1/16	64QAM	3/4	64QAM	64K	-78dBm

Demodulation

Element	Comment
Modulation type	QPSK,16QAM,64QAM,256QAM
Guard interval	1/4,19/256, 1/8,19/128,1/16, 1/32,1/128
Code rate	1/2,3/5,2/3,3/4,4/5,5/6
FFT Mode	1K,2K, 4K, 8K,8K ext.,16K,16K ext.,32K,32K ext.

Video system

Element	Comments
Video decoding	H.264 MP and HP VC-1 SP, MP, and AP DivX 4/5/6 RMVB 8/9/10 MPEG-2 MP@ML and MP@HL MPEG-4 P2 ASP H.263 P3
Video resolution	720x576i, 720x576p, 1280x720i, 1280x720p, 1920x1080i, 1920x1080p
Video aspect ratio	4:3 (scan/pan), 16:9 (letterbox/wide)
Analog video system	PAL/NTSC

Media Code Spec

File Extension	Container	Video Codec	Audio Codec	SPEC	Bit Rate	Profile
mpg, mpeg, dat, vob	MPG, MPEG-PS	MPEG1/2	MPEG layer1/2/3	1920x1080 @ 30P	20Mbit/sec	Main Profile
ts, trp ,	MPEG-TS	MPEG1/2 ,H.264	MPEG1/2/3, AC3,E-AC3,LPCM	1920x1080 @ 30P	20Mbit/sec	H264: Main Profile and High Profile @Level 4.0 MPEG2: Main Profile
mp4, m4a,m4v mov, qt 3gp,3g2,3gpp Mkv, mka	MP4,	MPEG-1/2 H.263 MPEG-4 H.264	MPEG-1/2/3 AAC LC AC3	1920x1080 @ 30P	20Mbit/sec	H264: Main Profile and High Profile @Level 4.0MPEG4: Simple Profile and Advanced Simple Profile @Level 5
mkv, mka	Matroska	ALL	ALL	1920x1080 @ 30P	MPEG 1/2/4: 20Mbit/sec.H264: 25Mbit/sec	H264: Main Profile and High Profile @ Level 4.1MPEG4: Simple Profile and Advanced Simple Profile @Level 5

Flv	FLV	Sorenson MPEG-4 H.264,	MP3 AAC LC ADPCM	1920x 1080 @ 30P	20Mbit /sec	Sorenson H.263H264: Main Profile and High Profile @ Level 4.0
ts, trp	MPEG TS	MPEG-1/2 H.264,	MPEG layer 1/2/3,AC3,E -AC3,LPCM	1920x 1080 @ 30P	20Mbit /sec	AVS Jizhun profile @ Level 6.0
Avi	AVI	MPEG-1/2 MPEG-4 H.264 MJPEG	MPEG layer 1/2/3,AC3, WMA,PCM	1920x 1080 @ 30P	20Mbit /sec	MPEG2: Main ProfileMPEG4: Simple Profile and Advanced Simple Profile @Level 5

Audio system

Element	Comments
Audio decoding	MPEG-4 HE-AAC v1/2 Dolby Digital (AC3) Dolby Digital Plus (E-AC3) E-AC3 to AC3 conversion HE-AAC to AC3 conversion WMA-9
Dynamic range	60 dB
Level	2.0 Vrms
Sampling frequency	22.1 kHz, 32 kHz, 44.1 kHz, 48 kHz
Video ES supported data rate	Max 384 kbps
Audio decoding mode	Stereo, joint stereo, mono

Audio Codec	Maximal Channels	Sample Frequency(Hz)	Bit Rate(bps)
MPEG1 Layer1	2	32KHz- 48KHz	32Kbps- 448Kbps
MPEG1 Layer2	2	32KHz -48KHz	32Kbps- 484Kbps
MPEG1 Layer3	2	8KHz- 48KHz	32Kbps -320Kbps
Vorbis (OGG)	2	8KHz -96KHz	32Kbps -320Kbps
AC3	6	32KHz/44.1KHz/48KHz	32Kbps -640Kbps
E-AC3	6	32KHz/44.1KHz/48KHz	32Kbps -6.144 Mbps
HE-AACV1/V2	6	8KHz -96KHz	16Kbps -720Kbps
AAC LC	6	8KHz -96KHz	16Kbps - 1,440Kbps
WMA7/8/9(STD)	2	8KHz -48KHz	5Kbps -320Kbps
LPCM	2	48KHz /96KHz	768Kbps -4,608Kbps
PCM	2	8KHz -48KHz	64Kbps -1,536Kbps
ADPCM	2	8KHz -48KHz	32Kbps -384Kbps

File Extension	Name	Specification	Max Resolution	Notes
Jpg, jpeg	jpeg	Baseline	8,192 x 8,192	1. Min. resolution 16x16 2. Sample type 420, 444, 422, Gray Scale 3. Don't support CMYK
		Progressive	3,000 x 3,000	
Gif	Graphics Interchange Format	87a	8,192 x 8,192	Support formats: version 87a/ version 89a (only decode 1st picture at animation format)
		89a (Only 1 picture at animation format)		
bmp	Microsoft BMP image	RGB 1/4/8/16/24/32-bit	8,192 x 8,192	Support OS/2 V1, V3, and Windows V3
		RLE 4/8-bit		
Tif	Tagged Image File Format	Uncompressed LZW PackBits	8,192 x 8,192	Support formats: uncompressed/ LZW/ PackBits
png	Portable Network Graphics	Grayscale, 24/32-bit per pixel	8,192 x 8,192	Don't support alpha attribute
		Interlace		
		Progressive		

External Subtitle

File Extensio	Name	Notes
ssa	Sub Station Alpha	Support Text File Format, but not support Picture File Format.
ass	Advanced Substation Alpha	
srt	Sub ripper	
smi	Sami	
sub	-	
psb	Power DivX	

Temperature features

Element	Comments
Operating Temperature	0 ~ 45℃
Storage Temperature	-20 ~ 70℃

Remote Control Unit

Element	Comments
Type	NEC
Frequency	38KHZ
Code	00FF
Remote distance	straight line $\geq$ 9M, 30°declination $\geq$ 7.5m
Key pad	Tactile 5 key pad

General Software Functionality

Element	Comments
System languages	English or Thai etc
Graphical interface	
Channel search	Auto, Manual
Electronic Program Guide (EPG)	ISO 8859-5 standard

Accessories

	DESCRIPTION	REMARK
Manual	A5	
Warranty	A5	
Remote	628/38A	
AV cable	1M(optional)	
HDMI cable	1.2M(optional)	

Physical Specification

Model	Dimension (W x D x H)mm	Weight	Appearance
120X SERIES	125*105*38mm(Included I/O Out)	200g	Plastic panel

Packing

Model	Gift-box size (mm)	Cartoon size (MM)	PCS Cartoon	Weight (KG)	20' '	40' 'GP	40' 'HQ
120X Series	170*55*175	360*300*210	10	N.W4.7 G.W4.3	13500	27000	31000

Power

ITEM	DESCRIPTION	REMARK
Power input	Adapter in: Power input, AC 100-240V 50/60Hz Adapter out: DC 5V 2000mA	
Frequency	50/60Hz	
Power rate	$\leq$ 6W	
Standby	$\leq$ 0.5W	

1.3 Picture

