

CLEAR VIEW

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SD4650

DVB-T HD MODULATOR

User Manual



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DIGITAL MODULATOR

1 GENERAL

1.1 Description

The SD4650 module able to generate a signal in DVB-T format (Digital Terrestrial Television) from YPbPr (RCA) and CVBS(RCA) input.

SD4650 is MPEG-4 and MPEG-2 encoding, DVB-T modulation integrated device to convert YPbPr (RCA) and CVBS(RCA) signal to DVB-T RF out.

The SD4650 module adjusts the compression rate to the available bandwidth, using the modulation DVB-T parameters.

1.2 Specifications

INPUT	
Video Input	YPbPr (1080i,720P,576i/P,480i/P), CVBS
Video Input Level	1.0 V p-p
Video Mode	PAL / NTSC
Audio Input	Stereo
Audio Input Level	6 V p-p
Input Connectors	Video (RCA) - Audio (RCA)
OUT PUT	
Frequency Range	177 -858 MHz
Output Level	100 dBuV
Channel Bandwidth	6,7,8 ,7-8 MHz
RF Level Adjustment	0~-30 dB typ.
Attenuation step	2dB per step
MER	30 dB typically
MODULATION	
Video Resolution	1080i,576i,480i
Video Compression	HD H.264, MPEG-4 AVC / HP@L4.0 , SD MPEG-2/ MP@ML
Audio Compression	MPEG2, AAC
Video Bit Rate	6 Mbit/S Max
Audio Bit Rate	384Kbits
DVB Insertion Tables	SDT, NIT
Editable Field	Service Name, TS ID, Network ID, Original NET ID, LCN, Network name
Carrier (OFDM Mode)	2K/8K
Guard Intervals	1/4, 1/8, 1/16, 1/32
Code Rate (FEC)	1/2,2/3,3/4, 5/6, 7/8
Constellations	64 QAM /16 QAM / QPSK
MANAGEMENT / CONTROL	
Front panel LCD control	6 Local keys on front panel
Web Management	RJ-45 Ethernet port
GENERAL	
Power Supply	AC 100~240V 50/60Hz
Consumption	25 W
Languages	English
Dimensions	19" x 12.5" x 1.75"
Weight	2.8Kg

2 INSTALLATION

2.1 What's in the Box

One SD4650 Encoder / Modulator

One power cable

2.2 Connection

The SD4650 unit comes standard with, Component, and Composite video inputs.

Component Connection: Connect the Y (Green), Pb (Blue), and Pr (Red) video source cable to the unit's Component input ports. If using a Composite Video source, use a 75Ω coaxial cable with RCA connectors to connect the video source to the unit's CVBS port.

Use RCA cables to connect the audio source to the red / white AUDIO L and AUDIO R INPUT jacks.

Use a quality 75Ω coaxial cable with "F" connectors from the unit's RF OUT jack to the distribution system or directly to a television.

Connect the power cord to an appropriately rated AC power outlet.

Once connected to power, the device turns on and it takes about 20 seconds to be operational. Then the message "Initial Please wait" appears on the display. After 60 seconds the message " IP Address 192.*.*.*" on the display.

2.2.1 DEVICE Programming and Setup





Connect an Ethernet cable directly (no Cross Over cable required) to the Ethernet Port on the rear panel of the encoder or connect the Ethernet cable to an Ethernet switch. Connect an Ethernet Cable to your PC.

Please inform your engineer have accessed SD4650 over the internet via a switch / router.

All parameters could be statted by web UI, you could view the value through front panel, but could not change the parameters value via key pad of front panel.

2.3 Navigation and edition of values.

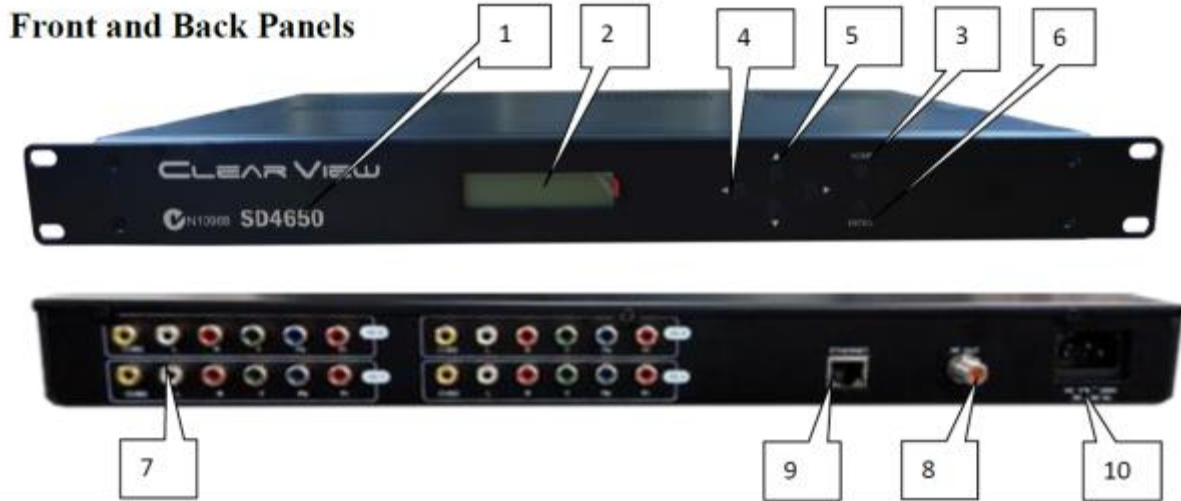
The instrument is configured through its 6 keys and front panel display. In general, it is not necessary to configure the instrument to generate a DVB-T signal compatible with any digital terrestrial television receiver.

-  Select parameter / menu.
-  Move Right / Left between menu / characters.
-  Increase / Decrease value of the figure / field.
-  Return to start menu

(All parameters set up from web manage only)

3 OPERATING INSTRUCTIONS

3.1 Description of controls and components



1	SD4650	Model name
2	LCD Display	Configuration and system status
3	Key PAD / Home	Return to start menu.
4	Key PAD / Left & Right	Move Right / Left between menu / characters.
5	Key PAD / Upper & Down	Increase / Decrease value of the figure / field.
6	Key PAD / Enter	Select parameter / menu.
7	Audio/Video Input * 4	Component YPrPb(RCA) / Composite CVBS(RCA)
8	RF output	"F"-Female 75Ω, +45dBmV Typical
9	Ethernet Port	RJ-45,GbE / IE9, Chrome
10	AC input	AC 100~240V / 50~60Hz

(All parameters set up from web manage only)

ATTENTION!
FOR THIS CONFIGURATION YOU SHOULD USE OUTPUT FREQUENCIES DIFFERENT FROM THE ONES THAT YOUR TV IS CURRENTLY USING

3.2 Starting

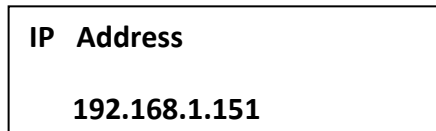
3.2.1 Beginning Setup

DEVICE Programming and Setup

1. Apply power.
2. Connect Audio / Video source

Connecting to the GUI Interface:

1. Connect an Ethernet cable directly to the Ethernet port on the rear panel of the encoder or connect the Ethernet cable to an Ethernet switch. Connect an Ethernet Cable to your PC.
2. Using a Windows-based PC Select Windows Icon
3. Check IP address from front panel display.



4. Key in the IP address in web browser.



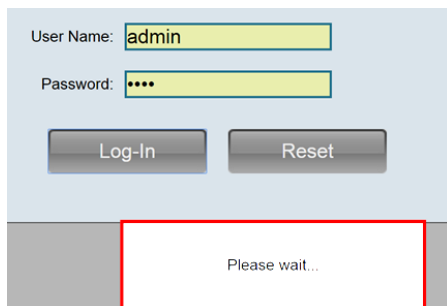
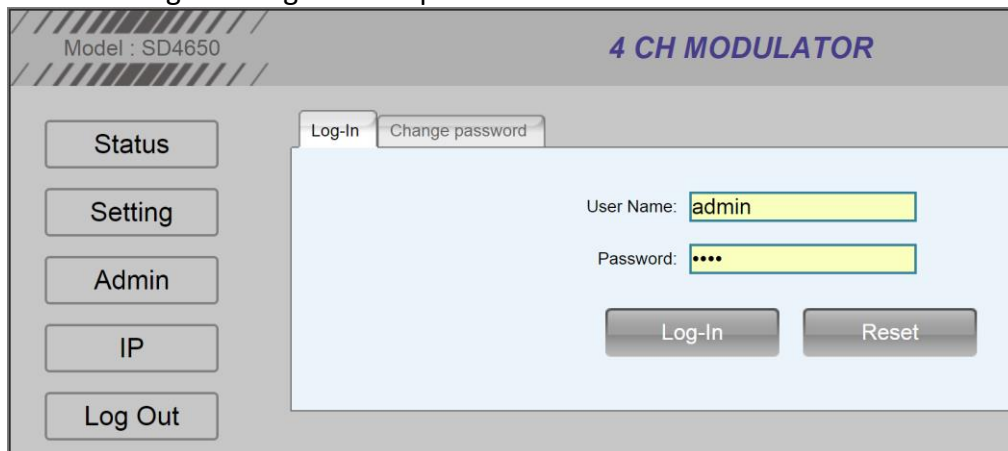
3.2.2 Step 1: Login

Login Password:

Default User Name: admin

Default Password: 0000

Encoder Programming and Setup via GUI Interface:



3.2.3 Step 2: Right Click and Select “Status”

Overview Page of Encoder of RF.

Network Status					
Country	Rack Position	ONID	NIT ID	NIT Name	TS ID
AUSTRALIA	OFF	8234	12801	Private Network	128

Channel & Encode Status									
No.	Name	Service ID	LCN	ON/OFF	Video Output	Audio Output	Video Input	Input Video Type	Status
CH 1	TV1	1	101	ON	MPEG-2	MPEG-2	CVBS	PAL 576i	
CH 2	TV2	2	102	ON	MPEG-2	MPEG-2	CVBS	PAL 576i	
CH 3	TV3	3	103	ON	MPEG-2	MPEG-2	CVBS	PAL 576i	
CH 4	TV4	4	104	ON	MPEG-2	MPEG-2	CVBS	PAL 576i	

No.	PMT	Video PID	Audio PID
CH 1	37	32	33
CH 2	53	48	49
CH 3	69	64	65
CH 4	85	80	81

RF Status								
Frequency	Constellation	Guard Interval	Code Rate	FFT Carrier	Bandwidth	Encode Rate(Kbps)	RF Power	RF ON/OFF
CH29 536.5 MHz	64QAM	1/32	7/8	8K	7 MHz	27686	46 dBmV	ON

3.2.4 Step 3: Setting Tab

Use the Setting Setup Page to set the Network setting , and channel & encode setting, and RF setting.

Network Setting

Country	Rack Position	ONID	NIT ID	NIT Name	TS ID
AUSTRALIA ▾	OFF ▾	8234	12801	Private Network	128

Channel & Encode Setting

No.	Name	Service ID	LCN	ON/OFF	Video Output	Audio Output	Video Input	Input Video Type
CH 1	TV1	1	101	ON ▾	MPEG-2 ▾	MPEG-2 ▾	CVBS ▾	PAL 576i ▾
CH 2	TV2	2	102	ON ▾	MPEG-2 ▾	MPEG-2 ▾	CVBS ▾	PAL 576i ▾
CH 3	TV3	3	103	ON ▾	MPEG-2 ▾	MPEG-2 ▾	CVBS ▾	PAL 576i ▾
CH 4	TV4	4	104	ON ▾	MPEG-2 ▾	MPEG-2 ▾	CVBS ▾	PAL 576i ▾

No.	PMT	Video PID	Audio PID
CH 1	37	32	33
CH 2	53	48	49
CH 3	69	64	65
CH 4	85	80	81

RF Setting

Frequency	Constellation	Guard Interval	Code Rate	FFT Carrier	Bandwidth	Encode Rate(Kbps)	RF Power	RF ON/OFF
CH29 536.5 MHz ▾	64QAM ▾	1/32 ▾	7/8 ▾	8K ▾	7 MHz ▾	27686	46 dBmV ▾	ON ▾

Apply
Reset
Load Default

3.2.5 Step 4: Local Save

Perform apply once all parameters are set.

Changes made to an individual setup tab may require the installer to perform a apply to the device if you are only making changes to one parameter of the encoder.

RF Setting

Frequency	Constellation	Guard Interval	Code Rate	FFT Carrier	Bandwidth	Encode Rate(Kbps)	RF Power	RF ON/OFF
CH7 177 MHz ▾	64QAM ▾	1/32 ▾	7/8 ▾	8K ▾	6 MHz ▾	23719	46 dBmV ▾	ON ▾

Apply
Reset
Load Default

3.2.6 Step 5: IP Configuration Tab

Use the IP Setup Tab to configure the device’s IP address, Mask, Gateway,

3.2.7 Step 6: Save IP Configuration

Perform apply once all parameters are set.

IP Setting			
Connection Mode	IP Address	Mask	Gateway
DHCP	192.168.1.123	255.255.255.0	192.168.1.1

Apply Reset

3.2.8 Step 7: Administration

Selecting “Reboot” will automatically reset all saved settings back to factory default settings. All saved settings will be lost.

Use the Admin Setup Tab to set the device’s reboot, configuration, software update, password change,

Reboot Configuration Software Update Password Change

Click the "Reboot" button to reboot the unit, it will take about 70 seconds to complete.

Reboot

Administration Page Functions	Actions
Reboot	Reboot device. All unsaved settings will be lost.
Reset	Reset all settings back to original factory settings
Configuration	User can upload the file with pre-saved configuration settings to device.
Software update	Upload a saved config file
Password Change	Create and save new password for GUI

To upload a configuration file- simply click “**Choose File**” then locate the file you want to upload. Click “**Upload**” to install the configuration files. This function is helpful to the installer when installing a large number of encoders in a single system.

4 Menu Tree

4.1 Menu Tree of Front panel

MAIN		Layer 1	Layer 2(Default)	UI
Network Setting	1	Country	Australia	
	2	Rack Position	OFF	
	3	ONID	8234	
	4	NIT ID	12801	
	5	NIT Name	Private Network	
	6	TS ID	128	
CH & Enc setting	1	CH1 Name	TV1	
	2	CH1 Service ID	1	
	3	CH1 LCN	101	
	4	CH1 ON/OFF	ON	
	5	CH1 Video Output	MPEG-2	
	6	CH1 Audio output	MPEG-2	
	7	CH1 Input Video	CVBS	
	8	CH1 Input Video	PAL 576i	
	9	CH1 Status	Running	
	10	CH1 PMT	37	
	11	CH1 Video PID	32	
	12	CH1 Audio PID	33	
IP setting	1	Connection Mode	DHCP	
	2	IP Address	192.168.1.116	
	3	Mask	255.255.255.0	
	4	Gateway	192.168.1.1	
RF setting	1	Frequency	CH29 536.5MHz	
	2	Constellation	64QAM	64/16/QPSK
	3	Guard Interval	1/32	1/32,1/16,1/8,1/4
	4	Code Rate	7/8	7/8,5/6,3/4,2/3,1/2
	5	FET Carrier	8K	8K/2K
	6	Bandwidth	7 MHz	6/7/8/7-8M
	7	Encode Rate(Kbps)	27686	
	8	RF Power	46 dBmV	10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46
	9	RF ON/OFF	ON	ON,OFF
Information	1	FW	0A.08	
	2	APP	B0.12	

4.2 Menu Tree of Web UI

MAIN		Layer 1	Layer 2(Default)	Layer 2
Network Status	1	Country	Australia	
	2	Rack Position	OFF	OFF,1,2,3,4,5,6,7,8,9,
	3	ONID	8234	
	4	NIT ID	12801	
	5	NIT Name	Private Network	
	6	TS ID	128	
CH & Enc setting	1	CH1 Name	TV1	
	2	CH1 Service ID	1	
	3	CH1 LCN	101	
	4	CH1 ON/OFF	ON	ON/OFF
	5	CH1 Video Output	MPEG-2	MPEG-2, H.264
	6	CH1 Audio output	MPEG-2	MPEG-2, AAC
	7	CH1 Input Video	CVBS	YPbPr/CVBS
	8	CH1 Input Video	PAL 576i	NTSC1080i / PAL 1080i, NTSC 720P/ PAL 720P, NTSC 480P/ PAL 576P,NTSC 480i/ PAL 576i,
	9	CH1 Status	Running	
	10	CH1 PMT	37	
	11	CH1 Video PID	32	
	12	CH1 Audio PID	33	
RF Status	1	Frequency	CH29 536.5MHz	177~858 MHz
	2	Constellation	64QAM	64/16/QPSK
	3	Guard Interval	1/32	1/32,1/16,1/8,1/4
	4	Code Rate	7/8	7/8,5/6,3/4,2/3,1/2
	5	FET Carrier	8K	8K/2K
	6	Bandwidth	7 MHz	6/7/8/7-8M
	7	Encode Rate(Kbps)	27686	
	8	RF Power	46 dBmV	10,12,14,16,18,20,22,24,26,28, 30,32,34,36,38,40,42,44,46
	9	RF ON/OFF	ON	ON,OFF
	10	Apply / Reset / Load Default		
Admin	1	Reboot		Please wait
	2	Configuration		Backup / Upload
	3	Software Update	Choose filr/No file chosen	Upload
	4	Change password	User name/ Password/ New Password/ Confirm Password	Change / Reset
IP setting	1	Connection Mode	DHCP	DHCP/Static
	2	IP Address	192.168.1.116	
	3	Mask	255.255.255.0	
	4	Gateway	192.168.1.1	
Log Out	1	Log-Out	User Name / Password	Log-In / Reset