

4 input - 8 tuner DVBS/S2 to DVBT/C transmodulator



USER MANUAL V1.0

Application

The TRM84 is composed of a 3RACK with a DTVRR12 and DTVDM4F module. The combination of these modules allows the conversation of satellite signals using DVBS or DVBS2 modulation in DVBT or DVBC signals.

The DTVRR12 module has 4 inputs and integrates a 4x8 multiswitch. The 8 tuners (A,B,C,D,E,F,G,H) can select the satellite signal from inputs 1,2,3 and 4. After demodulation the received programs are available as a transport stream and are then fed into the DTVDM4F modulator.

The DTVDM4F is a 4 channel flexible modulator. The modulation can be DVBT or DVBC. The output of the 4 channels can be freely selected in the VHF and UHF range. The level of each output channel can be adjusted indepedently.

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1. - Safety considerations

1.1 CONNECTING TO THE MAINS SUPPLY

This product has to be connected to the mains supply. If there is the slightest doubt concerning the type of connection available on the installation, please contact your supplier of electricity. Before carrying out maintenance operation or modification of the installation, the modulator has to be disconnected. Remark : only use the supplied power adaptor.

1.2 OVERVOLTAGE

An overvoltage on the mains supply, can cause shortcircuits or fire. Never overload the power lines.

1.3 LIQUIDS

This module should be protected from splashes. Please assure yourself that no containers containing liquids are placed on this module. Also be aware of other persons splashing liquids on the module.

1.4 CLEANING

Disconnect the module before cleaning. Use only a humid cloth without solvant.

1.5 VENTILATION

In order to assure an adequate air circulation and to prevent overheating, the ventilation holes should not be obstructed. The module may not be installed in a hermetically sealed environment. Other electronic products or heat producing items may not be placed upon or near the module.

1.6 ACCESSORIES

The use of accessories not manufactured by the manufacturer can cause damage to the module.

1.7 INSTALLATION OF THE MODULE

The module must be installed in a place well protected from direct sunlight. All measures have to be taken to avoid installation in humid or sunny place.Do not install near heating elements or other devices producing heat. Assure yourself that the module is placed at least 10 cm from other equipment with is susceptible to electromagnetic radiation. Do not install the module on instable items. A fall can cause physical or material damage.

2 - Description of the different elements



- C1 AC input
- C2 Satellite input 1
- C3 Satellite input 2
- C4 Satellite input 3
- C5 Satellite input 4
- C6 RF input
- **C7** RF output
- **C8** USB connection (for PC connection)
- **C9** RJ45 connection (for LAN or webconnection)



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3 - Installing the software DTVIface

For manipulating and programming the TRM84, you will need the software DTVIface. This you can download from our internetsite <u>anttron.com</u>. Please check regularly for new versions of the software.

After installation, you can startup DTVI face using the new icon available in the program list in the Start menu of your computer.

Once the TRM84 connected with the USB cable and after starting up the unit, please launch DTVIface. You should see the following screen.



The red square refers to the control unit, showing its MAC adress and the network settings.

The green square refers to the DTVRR12 and the blue square refers to the modulator DTVDM4F.

When clicking on the green or blue square the menu for DTVRR12 and DTVDM4F opens.

	Ort(c) - setup 304 - (05b) A B C D E F G H I Demod. T ^o : 34 °C On: Input: 22/hz: Polarity: Switch:		N.I.T. Vers. : ONID 5 8442 Network name	: NID : LCN : 2 8442 EACEM ~ e : NoName
Szenar	I OFF HOR. Sat. A Standard : BIS(Mh2) : S.R. : Power : DVB-S2 1472 27500 0.00 dBm Gold code : 55 ID : C/N : 0.00 dB		I Freq. (kHz) : 474000 T.S. Id. : 100 Const. : Bandwidth :	2 3 4 482000 490000 498000 101 102 103 F.E.C. : Guard Int. : 76 4 1/22 4
	Rate : 166 CAT Mix	Watchdog Remove CAT/EMM	Level Att. 0 kb/ B.W. 1 B.W. 2 B.W. 3 B.W. 4	-5dB 0/31668 kb/s 0/31668 kb/s 0/31668 kb/s 0/31668 kb/s
	S.I.D. Service name	UNCRYPT	MODULATION LCN	N.SID
LOGS				

4- Programming

4.1 - Programming the DTVRR12

First of all, define for each input (1..4) the tone, polarity and DiSEqc command.



Once defined, program the necessary tuners (A,B,C,D,E,F,G and H) . For each tuner needed, please follow this procedure :

a/ Activate the tuner

b/ Select the satellite input that is needed for that tuner (1,2,3 or 4)

b/ Fill in the satellite frequency. You can use the real frequency (fi 12188 MHz) or the intermediate frequency (fi. 1528 MHz). In any case when you use the real frequency the software will immediately convert this frequency to the intermedate frequency.

c/ Set the symbol rate and select if the standard is DVBS or DVBS2

d/ Repeat this procedure for all tuners needed. If a tuner is not needed, it is better not to activate it in order to reduce the power consumption in the module.

On : Input :	22Khz :	Polarity :	Switch :
✓ 4 ∨	$on \sim$	hor. \sim	Sat. A 🛛 🗸
Standard :	BIS(Mhz) :	S.R. :	Power :
DVB-S 🗸 🗸	1510	27500	-40.00 dBm
Gold code :		SS ID :	C/N:
None \sim	0	0	15.50 dB

When the settings are valid and a signal is received, the letter of the tuner will turn GREEN.

When no signal is present or the settings are incorrect, the letter of the tuner will be RED. When the satellite tuner is locked (signal found), but the module is identifying the programs received, the letter of the tuner will be ORANGE, indicating that the module is analysing the information.

When the tuner is not activated the letter of the tuner will have a GREY color.

For each tuner the DTVRR12 will indicate the power and quality (C/N) of the mux received.

A B C D	EF	G H + •
Demod. T° : 48 °C		
On: Input: 22Khz: ☑ 4 ∨ ON ∨	Polarity : HOR. V	Switch : Sat. A V
Standard : BIS(Mhz)	S.R. :	Power :
DVB-S ~ 1510	27500	-40.20 dBm
Gold code :	SS ID :	C/N :
None 🗸 0	0	15.40 dB

If the status for a tuner is GREEN, then the list of programs received will be shown. In the list you will find following information :

th	e li	st you	will find follow	ving info	rmati	ion	1:			-		
		<u>Satell</u>	ite tuner : A, B	,C, D, E, F	; G, o	r⊦	ł					
		Servic	<u>e ID of the rec</u>	ceived pr	ogra	m						
		<u>Servic</u> Symb Symb	<u>ce name of</u> the <u>ol i</u> ndicating if <u>ol</u> indicating if	e receive it conce the serv	d pro erns a /ice i:	gra a te s e	am elev nc	visi ryp	on ted	or radio progran or clear.	n. 📕 🕴	÷
	A	12040	SUPER RTL		1	ж	ж		н (12040
	А	12060	VOX	-	-	я.	ж.	н.	* [12060
	А	12061	NITRO	- 1	1	ж.	ж.	а.				12061
	А	12080	RTLup	-	1	ж.	ж	э.	*			12080
۲	Α	12090	ntv		1	ж.	×	9	* (12090

4.2 - Programming the quad DVBT/C modulator DTVDM4F

4.2.1 - Setting the parameters of the modulator :

IH	N.I.1	г.								
E.	Vers	s.: ONID	:	NIC):	LCN	: 1			
	30	844	2	100	000	EACEM \sim				
	Net	work nam	e :	TRM8	4					
• •		1		2	3		4			
Freq. (kHz	:):	474000	48	2000	4980	00	514	000		
T.S. Id. :		100	:	101	10	2	10)3		
Const. :	В	andwidth	: F.E	.C. :	Guard	Int.	:			
QAM64	\sim	8 Mhz 🗸 🗸	7/8	3 ~	1/32	~	*			
Level Att.	4	4 -	1	I	I			DdB		

Set <u>NIT parameters</u>. Following items can be set : <u>Version</u> : version of the NIT <u>ONID</u> : Original Network ID <u>NID</u> : Network ID <u>LCN SYSTEM</u> : EACEM, ITC, NORDIG, AUSTRALIA Network name

<u>Output frequency :</u> set the output frequency in kHz. Please note that the DTVDM4F is a QUAD modulator with four independant channels, so all four channels can be set individually. Use the arrow buttons to move to another channel. <u>T.S. Id.</u> : here you can set the transport stream ID. Please note that all T.S. ID. should be unique in your installation (no duplicates)

<u>Const.</u>: QAM64, QAM16 or QPSK <u>Bandwidth</u> :8, 7 or 6 MHz <u>F.E.C.</u>: 1/2, 2/3, 3/4, 5/6 or 7/8 <u>Guard Int.</u>: 1/4, 1/8, 1/16 or 1/32 <u>Level Att</u> : the output level of the modulator can be set using the Level Att. setting. This can be done for each channel individually. (0 dB = maximum output level).

Indicators :

Shows the total occupied bandwidth for the modulator.

	38880 kb/s	
B.W. 1		14079/31668
B.W. 2		6083/31668
B.W. 3		14517/31668
B.W. 4		4200/31668

Shows the individual occupied bandwidth of each channel / maximum allowed (according to the selected modulation parameters.)

4.2.2 - Adding services (programs) to the modulator:

In this list of programs, you can now select the programs to be transferred to the modulator DTVDM4F. You do this by double clicking the activation symbol besides the requested program.

The column indicates on which output channel the program will be present. Double click again to remove the program from the modulator.

Α	12040	SUPER RTL	н		ſ	н	н	н	н	0	۲	۲	0	11	12040
Α	12060	VOX	н		ſ	ы	н	н	н	0		0	0	12	12060
Α	12061	NITRO	н		ſ	ы	ы	н	н		Ο	۲	۲	13	12061
Α	12080	RTLup	н		ſ	ы	н	н	н	0	۲	Ο	۲	14	12080
Α	12090	ntv	н		ſ	ы	ы	н	н	0	۲	۲	0	15	12090
Α	12091	TOGGO Radio	н	÷	R	ы	ы	н	н	0	۲	0	۲		
в	17500	SAT.1	н		ſ	ы	ы	н	н	0	۲	0	۲	16	17500
В	17501	ProSieben												17	17501

In the most right colums you can add a LCN number or you can change the service ID of the satellite program.

5 - Additional information

5.1 - Conversion from DVBT to DVBC and vice versa

The DTVDM4F can act as a DVBT or DVBC modulator. In order to change the modulation type, please click following button in the left column :



Once pressed, DTVI face will ask you to confirm if you really want to change the modulation type. When confirmed the TRM84 will reboot itself and will start up again with a DVBC modulator.

<u>5.2 - Other parameters</u>				
				Watchdog
	Data I			Remove
	Rate :	1		CAT/EMM

The Rate is the bit rate at which the DTVRR12 sends it transport stream to the modulator. For TRM84 please set this the maximum rate.

CAT Mix, Watchdog and Remove CAT/EMM options are not in use for TRM84, so you can leave them unchecked

5.3 - Miscellanous

Please note that when no services (programs) are added to an output channel, the channel will be not active. This also means that you can decide for the DTVDM4F to act as a single, twin , triple or quad modulator.

At the bottom of DTVI face, you will find an indication of the relative bandwidth of a program in the global stream.

l	•	12000	roooo pias		1	1				-		\checkmark	\checkmark		 	_
	А	12040	SUPER RTL	•			•	•						11	12040	
	Α	12060	VOX	н		ſ	н	8	н.	× 🖸		۲	۲	12	12060	
	Α	12061	NITRO	н		ſ	н	ы	н	- 0) 🖸	۲	Θ	13	12061	
	Α	12080	RTLup	н		ſ	н	ai -	н.	- 0		0	۲	14	12080	
	Α	12090	ntv	н		ſ	н	н	н.	- 0		۲	Ο	15	12090	\sim

If you change satellite parameters, the previously defined services for the modulator, will appear as question marks in the list. (see figure below).

Please remove these services by double clicking the activation button . <u>No services preceeded with a question mark</u> should be in list.

В	28527	Boomerang			8	ы	ы	0	0	0	0		
В	28528	Boing					ы	0	0	0	0		
В	28600	MTV Live HD	8				ы	0	0	0	0		
В	28601	MTV Live HD	8		я	а.	ы	0	0	0	0		
?	11110			î -			ы		0	Θ	Ο		
?	11150			î -			ы	Ο	0	0	0	10	
?	11160			î -			ы		0	Ο	Θ		
?	11170		4	î .			ы		0	Ο			
?	11130		4	<u>ا</u> ا			ы		0		Ο		

5.4 - Sorting lists



To get a better overview in the list of programs, the colums Service Name , modulation and LCN, can be sorted. Please click on the specific column, to have the service names sorted in alphabetical order or according to modulation or according to LCN.

5.5 - Resetting the TRM84

In order to go back to the factory settings of the TRM84, please move your mouse over the following button : Then right click, and left click. All your settings will be erased and the TRM84 will go back to its factory settings



5.6 - Creating a .html report of your configuration



creates a html report of the configuration of your TRM84.

5.7 - Rebooting your headend

Pressing this button



reboots your TRM84.

5.8 - Saving and loading a configuration

DTVI face allows to save the settings you have made on the TRM84 on your PC. Afterwards this configuration can be reloaded in the TRM84 or in another TRM84.

5.8.1 Saving your configuration.



Press the save button. This opens a window where you can save your configuration under a configuration format (.dtc file).

5.8.2 Opening a configuration.



Press the open file button. This opens a window where you can open a previously stored configuration. Once the .dtc file is selected, DTVIface checks if this configuration matches your installation and gives you a brief description of the configuration. If the configuration matches your installation press OK to load this configation in your product.

CONFIGURATION		×
Loaded configuration matches current installation.		
Short Description :		
Slot 0 : DTVPSU		
Slot 1 : DTVRR4	=	
Sat. : A B.I.S. Frequency : 1597MHz Symbol rate : 22000		
Band : Low Polarity : Vertical Activation(Decryption) of service(s) : 11150(0) - 11160(0) - 11170(0)		
sat.:s B.I.S. Frequency: 1611MHz Symbol rate: 22000 Band J.Low		
Polarity : Horizontal Activation(Decryption) of service(s) : 11110(0) - 11130(0)		
Slot 2 : DTVRR4	E E	ОК
<	+	Annuler

5.9 - Audio PID filter

In normal operation, the DTVRR12 transmits all audio pids that are available for the program. In order to filter out a specific audio PID from a service, please double click on the following dot

Α	12040	SUPER RTL	ľ	н		6	ы	н	н	ы	0	C	٦	0	11		12040

A pop menu appears, where you can select up to 3 audio PIDs.

	QAMOT V STILL V MC	, ,
PID Filter	×	
Audio Language ISO 639 Filters :	✓ d/s	
	OK Cancel	
A 12003 RTL Television		
A 12004 DTI Degional NDW		

After modification of this window, a filter symbol will appear in the list indicating that for this program an audio filter is in place.



6 - LEDs on TRM84

6.1 - LED on DTVRR12

When the unit starts up, the LED status on the DTVRR12 is caracterised by a quick toggle between red and green. When the startup fase of the DTVRR12 is completed the LED blinks as follows :

a/ For each tuner activated a blink is present (for instance if 6 tuners are activated), the LED on the DTVRR12 will blink 6 times showing a GREEN blink or RED blink. A green blink means that the specific tuner is OK. A red blink means this tuner is not OK (no signal received or tables not ready).

b/ The blinks for the tuners are then followed with a small pause. Followed by a final green (transport stream available) or red blink (transport stream not ready).

6.2 - LED on DTVDM4F

When the unit starts up, the LED status on the DTVDM4F is caracterised by a quick toggle between red and green. When the startup fase of the DTVDM4F is completed the LED blinks as follows :

The LED blinks green : the modulator DTVDM4F is ready and transmits its 4 channels/

The LED blinks red : the modulator DTVDM4F is ready but does not receive a valid transport stream from the DTVRR12 module.