

USER MANUAL V1.0

Application

The TRM84CI2 is composed of a 3RACK with a DTVRR12, DTVCI2 and DTVDM4F module. The combination of these modules allows the conversion of satellite signals using DVBS or DVBS2 modulation in DVBT or DVBC signals and allows decrypting of scrambled channels using the appropriate CAM and CARD.

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 DTVCI2 and 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.

CONTENTS

1 - Safety considerations	page 3
2 - Description of the different elements	page 4
3 - Installing the software DTVIface	page 5
4. Programming	page 6
4.1 Programming the DTVRR12	page 6
4.2 Other parameters	page 7
4.3 Programming the DTVDM4F	page 8
4.3.1 - Setting the parameters of the modulator	page 8
4.3.2 Adding services (programs) to the modulator	page 8
4.3.3 Decrypting services;	page 9
5. Additional information	page 10
5.1 Conversion from DVBT to DVBC	page 10
5.2 Miscellanous	page 10
5.3 Sorting lists	page 11
5.4 Resetting the TRM84CI2	page 11
5.5 Creating a .html report of your configutration	page 11
5.6 Rebooting your headend	page 11
5.7 Saving and loading a configuration	page 11
5.8 Audio PID filter	page 12
6. LEDs on TRM84CI2	page 12

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.

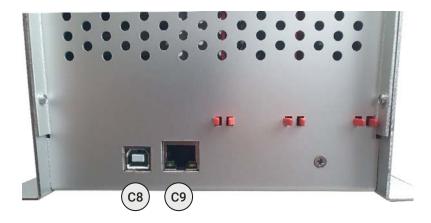
1.7 INSTALLATION OF THE MODULE

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)
- C10 slot A DTVCI2
- C11 slot B DTVCI2





CAM direction

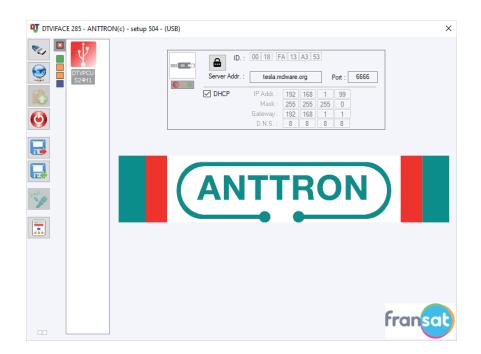
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3 - Installing the software DTVIface

For manipulating and programming the TRM84Cl2, 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 TRM84CI2 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. The two orange squares refer to the two CI slots of the DTVCI2 module.

When clicking on the green or blue square the menu for DTVRR12, DTVCI2 and DTVDM4F opens.

	RON(c) - setup 504 - (USB) → A B C D E F G H Demod. T° : 47 °C		The second	I.T. /ers. : ONID 5 844	2 84	42 EA	N: CEM ~
RR12 S29H2F DTVCI2A S17H1	On: Input: 22Kn:: Polarity: Switch: I V OFF HOR. Sat. A V Standard: BIS(Mhz): S.R.: Power: 0.00 dBm Gold code: SS ID : C/N : 0.00 dB		Freq. (kHz) T.S. Id. : Const. :	100 Bandwidth	2 482000 101 :F.E.C. :	3 490000 102 Guard Int.	4 498000 103
	Rate : 166 CAT Mix	Watchdog Remove CAT/EMM		0 kb		0/3	-5dB 1668 kb/s 1668 kb/s 1668 kb/s
DM4F S22H4F4E	S.I.D. Service name	UNCRYPT	MODULATIO			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 \vee ON \vee Standard : BIS(Mhz) : DVB-S \vee 1510 Gold code : None \vee 0	HOR. ~	Switch : Sat. A ∨ Power : -40.20 dBm C/N : 15.40 dB

		st you <u>Satell</u>	or a tuner is G will find follov <u>ite tuner</u> : A, B <u>ce ID o</u> f the red	ving inforn ,C, D, E, F, (natior G, or H	ı :	of	prog	ram	is received	will be sho	own.
		Servic	<u>ce name of the</u>	e received	progr	am						-
		Symb	<u>ol indicating i</u>	f it concer	ns a te	elev	/isi	on o	r ra	dio progran	n. 📘 🏨	•
			ol indicating i								8	0
•	Α	12040	SUPER RTL	-	1 *	ж	я.	× 🖸	0			12040
	Α	12060	VOX	. 8	· •	ж.	н.	- 0	0			12060
	А	12061	NITRO	- 8	f •	ж.	ж.	. 0	0	\bigcirc		12061
	А	12080	RTLup		d •	ж	а.	- 0	0	00		12080
	Α	12090	ntv		- -	×	э.	- 0	0	0		12090
				- A	101			-	-			

4.2 - Other parameters

				Watchdog
	-	_		Remove
Rate :		166 🗌 CA	T Mix	CAT/EMM

Rate : the rate is the speed of the transport stream sent to the DTVCI2 and DTVDM4F. Please note that the complete transport stream passes through the CAM(s). The rate should not be higher than the rate that can be handled by the CAM(s) you are using. Please check the datasheet of your CAM(s) in order to find out .

CAT Mix : (should be checked)

When this box is checked, the satellite input module generates a new CAT using all the EMM pids that are referred to in each used multiplex and sends it to the CAMs.

When not checked, only the CAT and EMM pids from the first multiplex containing a used crypted channel are used and sent to the CAMs.

Watchdog: When this box is checked, the modulator continuously checks the audio/video/teletext... pids received from the CAM. If for some reason, a service that should be decrypted stops being decrypted, the CAM responsible for decryption is reset.

Remove CAT/EMM : (should/must be checked)

When this box is checked, the modulator will remove all encryption information from the modulated stream. The CAT, ECM and EMM tables are removed from the TS as well as the conditional access descriptors in the PMTs. Without this, some TVs continue to indicate that the services are still encrypted even when the video and audio pids are decrypted using the CAM.

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N.I.T.

30

Vers. : ONID :

4.3 - Programming the guad DVBT/C modulator DTVDM4F

NID:

4.3.1 - Setting the parameters of the modulator :

EACEM 8442 10000 Network name : TRM84 Network name 1 2 3 4 474000 482000 498000 514000 100 101 102 103 Bandwidth : F.E.C. : Guard Int. : 8 Mhz 7/8 1/32

LCN:

Indicators :

4 F

Freq. (kHz) :

T.S. Id. :

Const. :

OAM64

Level Att.

Shows the total occupied bandwidth for the modulator.

B.W. 1 🛽	
B.W. 2	
B.W. 3	
B.W. 4	

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

4.3.2 - 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.

0dB

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	ы	ы	н	н	0	٢	٢	0	11	12040
Α	12060	VOX	н		ſ	ы	н	н	н	Ο	۲	0	۲	12	12060
Α	12061	NITRO	н		ſ	ы	н	н	ы.	۲	Ο	0	۲	13	12061
Α	12080	RTLup	н		ſ	ы	н	н	ы.	۲		Ο	۲	14	12080
Α	12090	ntv	н		ſ	ы	н	н	а.	۲	۲	0	0	15	12090
Α	12091	TOGGO Radio	н	÷	ſ	ы	н	н	ы.	۲	۲	0	۲		
в	17500	SAT.1	н		ſ	ы	н	н	а.	۲	۲	Ο	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.

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

Output frequency : 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. T.S. Id. : here you can set the transport stream ID. Please note that all T.S. ID. should be unique in your installation (no duplicates)

Const. : QAM64, QAM16 or QPSK Bandwidth :8, 7 or 6 MHz F.E.C.: 1/2, 2/3, 3/4, 5/6 or 7/8 Guard Int.: 1/4, 1/8, 1/16 or 1/32 Level Att : 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).

4.4 - Decrypting services

Once the programs you have selected are modulated, you can now activate the decryption of the selected programs. The activation is performed by double clicking the dot besides the program name in the colon of the CAM you chose.

A bankcard symbol appears indicating that the program should be decrypted.

The number of programs that can be decrypted is only dependant of the CAM and CARD used. So please check on this to define how many programs you can decrypt on one CAM/CARD.

UTVIFAC	CE 285 - ANTTRO	0N(c) - s	etup 504	- (USB)									×
N		Democ	А В d. т°:	C D E F G	H	Ð			V.I.T. Vers. : 5	ONID : 8442	NII		N: CEM ~
1 💇 📕	RR 12 S29H2F		nput: 22		itch :				Network	k name	: NoNa	me	
					at.A 🗸 🗸		[• •		1	2	3	4
	É(A)	Standa DVB-9			ower : -22.89 dBm			Freq. (kHz)): 474	1000	490000	506000	522000
\bigcirc	DTVCI2A	Gold o			/N :			T.S. Id. :	1	00	101	102	103
\mathbf{O}	S17H1	None			15.80 dB			Const. :	Bandy	vidth : F	E.C. :	Guard Int.	:
	73							QAM64	~ 8 Mh	ız 🗸	7/8 ~	1/32	1
	E F							Level Att.					OdB
	DTVCI2B							Lever Att.	4	1482 kt			- UUD
	HHH	Rate :		100 CAT Mix		Watch Rem CAT/I	Diove	B.W. 1 B.W. 2 B.W. 3 B.W. 4	_			160 44	57/31668 42/31668 73/31668
			-					D.W. 4					09/31668
	DM4F		S.I.D.	Service name		UNCRY		MODULAT	ION L	CN		N.SID	09/31668
	DM4F S22H4F4E	• C	S.I.D. 28107	Service name BR Fernsehen Sd	• 🖪 💣					CN			09/31668
		• C	S.I.D. 28107 28108	Service name BR Fernsehen Sd hr-fernsehen	· • •					CN			
		• c	S.I.D. 28107 28108 28110	Service name BR Fernsehen Sd hr-fernsehen BR Fernsehen Nord						CN			
		• C • C • C	S.I.D. 28107 28108 28110 28111	Service name BR Fernsehen Sd hr-fernsehen BR Fernsehen Nord WDR Kln						CN			
		• C • C • C	S.I.D. 28107 28108 28110 28111 28113	Service name BR Fernsehen Sd hr-fernsehen BR Fernsehen Nord WDR Kln SWR Fernsehen BW						CN		N.SID	
X		 C C C C C D 	S.I.D. 28107 28108 28110 28111 28113 401	Service name BR Fernsehen Sd hr-fernsehen BR Fernsehen Nord WDR Kin SWR Fernsehen BW TF1						CN		N.SID	
		• C • C • C • C • C • D	S.I.D. 28107 28108 28110 28111 28113 401 403	Service name BR Fernsehen Sd hr-fernsehen BR Fernsehen Nord WDR Kin SWR Fernsehen BW TF-1 M6	-					CN		N.SID 401 403	
X		- C - C - C - C - C - D - D - D	S.I.D. 28107 28108 28110 28111 28113 401 403 404	Service name BR Fernsehen Sd hr-fernsehen BR Fernsehen Nord WDR Kln SWR Fernsehen BW TF1 M6 ARTE						CN		N.SID 401 403 404	
X			S.I.D. 28107 28108 28110 28111 28113 401 403 404 417	Service name BR Fernsehen Sd hr-fernsehen BR Fernsehen Nord WOR Kin SWR Fernsehen BW TF1 M6 ARTE NRJ12						CN		N.SID 401 403 404 417	
		C C C C C C C C D D D D D D D D	S.I.D. 28107 28108 28110 28111 28113 401 403 404 417 419	Service name BR Fernsehen Sd hr-fernsehen BR Fernsehen Nord WDR Kln SWR Fernsehen BW TF1 M6 ARTE NRJ12 FRANCE 5						CN		N.SID 401 403 404	
		 C C C C C D D D D D D D D D 	S.I.D. 28107 28108 28110 28111 28113 401 403 404 417 419 421	Service name BR Fernsehen Sd hr-fernsehen BR Fernsehen Nord WDR Kin SWR Fernsehen BW TF1 M6 ARTE NRJ12 FRANCE 5 W9		UNCRY	PT			CN		N.SID 401 403 404 417	
		C C C C C C C C D D D D D D D D	S.I.D. 28107 28108 28110 28111 28113 401 403 404 417 419 421	Service name BR Fernsehen Sd hr-fernsehen BR Fernsehen Nord WDR Kln SWR Fernsehen BW TF1 M6 ARTE NRJ12 FRANCE 5						CN		N.SID 401 403 404 417	

Accessing the CAM menu: in order to access the CAM and CARD information simply click one of the two DTVCI symbols in the left column. A new window will appear where you can read the information on the CAM and CARD. Please note that to access this menu, at least one program should be decrypted on that specific DTVCI module.

🜒 DTVIFACE 285 - ANTTRON(c) - setup 504 - (USB)	×
Image: Signal Signa	

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, DTVIface will ask you to confirm if you really want to change the modulation type. When confirmed the TRM84Cl2 will reboot itself and will start up again with a DVBC modulator.

5.2 - 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 DTVIface, you will find an indication of the relative bandwidth of a program in the global stream.

	•	12000	roooo pida	R				-					
	A I	12040	SUPER RTL	* 6			•	- 0			11	12040	
	Α	12060	VOX		<u> </u>	а а	ы	× 🖸	00		12	12060	
•	Α	12061	NITRO		i 💼	н	н	- 0	0		13	12061	
•	Α	12080	RTLup		i 🕄	н	н	- 0	0		14	12080	
	Α	12090	ntv	-	1	ы	н	- 0	00) 🖸	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		ы	ы	ы	ы	۲	0	۲	0		
в	28528	Boing		ы	ы	н	ж			0			
в	28600	MTV Live HD		ы	ы	ж	ы	0	0	0	0		
в	28601	MTV Live HD		ы	ы	н	ы		0	0			
?	11110		ſ	ы	ы	н	ы	0	0	0	Ο		
?	11150		ſ	ы	ы	н	ы	Ο	0	0		10	
?	11160		ſ	ы	ы	н	ы		0	Ο	0		
?	11170		ſ	ы	ы	н	ы			Ο			
?	11130		ſ	ы	ы	н	ы		0	0	Ο		

5.3 - Sorting lists

S.I.D.	Service name	UNCRYPT	MODULATION	LCN
--------	--------------	---------	------------	-----

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.

5.4 - Resetting the TRM84CI2

In order to go back to the factory settings of the TRM84CI2, please move your mouse over the following button : Then right click, and left click. All your settings will be erased and the TRM84CI2 will go back to its factory settings.

5.5 - Creating a .html report of your configuration

Pressing this button



creates a html report of the configuration of your TRM84Cl2.

5.6 - Rebooting your headend

Pressing this button



reboots your TRM84CI2.

5.7 - Saving and loading a configuration

DTVI face allows to save the settings you have made on the TRM84CI2 on your PC. Afterwards this configuration can be reloaded in the TRM84CI2 or in another TRM84CI2.

5.7.1 Saving your configuration.



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

5.7.2 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		
No configuration required	E	
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. : B		
B.I.S. Frequency : 1611MHz Symbol rate : 22000		
Band : Low		
Polarity : Horizontal		
Activation(Decryption) of service(s) : 11110(0) - 11130(0)		
Sat. : C		
Slot 2 : DTVRR4		ОК
SIDT 2 : DT VKK4	- L	UK
<	+	Annuler

5.8 - 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

A 12040 SUPER R	ΤL
-----------------	----



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

	QAM64 ~ 8 Mhz ~ 7/8
PID Filter	×
Audio Language ISO 639 Filters :	↓ db/s
	✓
	OK Cancel
A 12003 RTL TELEVISION	

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

	Α	12003	RTL Television	781.	🖸 🔾 📿 📿	12003
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6 - LEDs on TRM84CI2

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 DTVCI2

When no CAMs are inserted in the DTVCI2 slots, the LED on the DTVCI2 blinks RED. If two CAMs are detected by the DTVCI2 the LED will blink GREEN. If only one CAM is detected in the DTVCI2 module, the LED will blink GREEN/RED or RED/GREEN dependent of the position of the detected CAM.

6.3 - 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.

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