

ELAD TM-2



USER MANUAL

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1 Overview

1.1 Description

ELAD TMate2 is the most awaited accessory by many users of SDR radio that cannot or will not stay without usual knobs and display. With knobs and buttons, multi-functions color display, USB HID interface and the upgradable software, ELAD TMate2 allows the control of main functions of SDR software. Intended mainly to allow the use of SDR software without the need to watch the screen of the PC, or when the screen of the PC is crowded by various programs such as LOG or software for DIGITAL operations or CONTEST.

1.2 Specifications

- ✓ HID USB 2.0 device (no driver required);
- ✓ Works using Vcom and CAT protocol or directly supported in software;
- ✓ Works even your SDR is not active windows;
- ✓ Main tuning knob (with push button) for incremental step VFO tuning (user defined);
- ✓ Two detent encoder (with push button) for various functions (factory defined);
- ✓ 6 function keys (factory defined);
- ✓ RGB custom display (color user defined in RGB range);
- ✓ Heavy metal ergonomic enclosure;
- ✓ Heavy metal knobs;
- \checkmark No power supply required;
- ✓ Compatible with remote operation (using serial to TCP converter);
- ✓ Directly supported (no CAT) in ELAD SW2 Software for the FDM-S1 & FDM-S2.



Dimensions: 143mm x 78mm x 135mm (LxHxP)

Weight: 780g (without USB cable)

Front panel inclination: 45°

USB (PC) Powered

USB cable included

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2 Using TMate2 with ELAD FDM-SW2

ELAD FDM-SW2 is a SDR (Software Defined Radio) software that is intended to be used with the ELAD FDM SDR devices (for more information on ELAD SDR please visit our website <u>www.eladit.com</u>).



ELAD FDM-SW2 directly supports ELAD TMate2, no other software is required. Connect the USB cable to a free USB port of your PC and run ELAD FDM-SW2; the software automatically sense the TMate2 device and automatically enables TMate2 Tab in the setup window.

Tma	te2 Tab
Setup	
Tuning Step Tuning Audio Graphic	s Demod Settings Advanced TMate/TMate2 Station Memory Recording Server About
TMate	
Enable TMate Control	
Configuration Config 1 -	
Knob: Set L.O. Frequency	Display Backlight Color Settings
F1: Step Preset -	
F2: Step Preset +	Refresh Time Setting
F3: BW Preset -	
F4: BW Preset +	Increment Steps and Incremental
TMate2	Tuning Step Parameters Settings
Enable TMate2 Control	
Se KX COOP	Defeash Time 250 M Step Count Trape 1 25 M
Backlight R 106	Refresh time 200 v Step Could Hairs 1 30 v
Backlight B 79	Incr Step 1 1 Step Count Trans 2 50
	Incr Step 2 5 Step Count Eval Time 500
Contrast 39	Incr Step 3 10 🛋
Tune Encoder Function Togele	
TOPERC	Main Encodor Buch Button Eunction Satting
	Main Encoder Pash Batton Punction Setting
	OK Apply Cancel

In this panel, the user can set the display backlight color, the refresh time, the increment steps of the three knobs and incremental tuning step parameters.

Editable parameters, encoders functionality and LEDs meaning are described below.



Editable parameters :

- ✓ with the main encoder : frequency, "Lock To CF",
- ✓ with the E1 encoder : volume, squelch, noise reducer, noise blanker, auto notch,
- ✓ with the E2 encoder : filter bandwidth,
- \checkmark with the buttons :
 - F1 : changes the selected receiver (works only when more than one receiver active),
 - F2 : changes the AGC setting,
 - F3 and F4 : changes the mode,
 - F5 and F6 : changes the step.

Encoders functionality :

- ✓ main encoder : allows to tune the frequency,
- ✓ main encoder button : toggles the functionality "Lock To CF",
- ✓ E1 encoder : modifies the selected E1 parameter value,
- ✓ E1 encoder button : changes the E1 parameter selection,
- ✓ E2 encoder : modifies the selected E2 parameter value,
- ✓ E2 encoder button : changes the E2 parameter selection.

LEDs :

- ✓ USB green led : indicates that the TMate 2 is operating,
- ✓ Tune Lock red led : indicates if the "Lock To CF" functionality is enable or not.

3 ELAD TMate2 SDK

A Windows Software Development Kit (SDK) is also available to interface ELAD TMate2 with your own applications. The SDK contains the software libraries and a sample project to shows how to open a connection with ELAD TMate2, how to read the encoders and the keys status and how to set the LCD segments.



The SDK is compatible with the 32bit and 64bit editions of Window Vista, 7, 8, 8.1 and 10. Please contact ELAD S.r.l. or ELAD USA Inc. to obtain ELAD TMate2 SDK.



4 Using TMate2 with Perseus V5 Software

The ELAD TMate2 can be used with the Perseus SDR and the Perseus V4 & V5 software that is supplied by Microtelecom s.r.l.

There are some additional steps needed for it to function compared to the ELAD FDM-SW2 software. You will need a Virtual Com Port application such as VSPE or com0com or any other, there are many available, for this document purpose, VSPE from Eterlogic will be used.

Then you will need our ELAD Tmate2ConsoleSetupv009.zip zip file from <u>http://sdr.eladit.com/ACCESSORIES/TMATE2/index.php?lang=EN</u> unzipped to a location on your PC.

The usage outline; configure the virtual serial port application, launch the Perseus software then run Tmate2CatConsole.exe and all should be up and running.

Step 1. Configuring the Virtual Com Port Software, we need a connector and splitter connection, The connector com10 and a splitter Com10 => Com11 :

📽 🖬 💽 🖣 🏁 🐄 🐨 📉	Nevice	Status
COM10	Connector	OK
COM10 => COM11	Splitter	Ready
(Tuesday, April 23, 2019) [COM10] I	nitializationOK	
{Tuesday, April 23, 2019} [COM10 =>	COM11) InitializationOK (1)
Ready		http://www.eterlogic.com

This shows the connector on Com10 and the Splitter from Com10 => Com11, once you have added each device, then hit the Play button, third icon from left. Then VSPE should be running.



Step2. Configure the Perseus software :

PERSEUS					-			
ATT Off 1048 2048 3048				121			a second	
FRONT-END Presel Preamp Dither AMPLITUDE	<u>0</u> 0:38:21					d		
Ref Lev (dBm) 15 Scale (dB/div)	1					1		
	Contraction of the	Software Settings				x	S. C. S.	
FREQUENCY	00:38:22	Audio Latency	9 [420]	AGC Rise Time	25	[5100]		
7.204083	1.18	Reverse Mouse Wheel	1 [01]	AM HighPass Filter	100	[20500]		
Span (kHz) / RBW (Hz)		Record Time (125 kHz)	5 [180]	AM Post AGC	0	[01]		
100.1 / 122.1 🔽 🔺		Record Time (250 kHz) 1	5 [140]	AGC Threshold	2	[01000]	A Standard	時間はない
CF Step	5.6	Record Time (500 kHz)	5 [120]	CW Note Pitch	800	[3003000]	2 2 C	
100.0 kHz 🔻 🔺	00:38:23	Record Time (1 MHz)	ō (110)	RTTY Note Pitch	1360	[3003000]		
Wheel Step		Record Time (2 MHz)	5 [18]	FM DeEmph Time	50	[50300]	The second	
	714	Virtual COM Port 1	0 [1255]	FM DeEmphasis	Off 🝷		7210 7220	7230 🟹
TUNING	Spects 1	VB Filter Taps (*) 12	8 [32512]	Levels bar position	R 💌	Left,Center,Right	er Fn Snap	
Center CA Contain		Mkr Log Interval 1.0	▼ sec	SMTR/ Mkr Units	dBm .▼	dBm, dBuV		
SAMPLING RATE (kS/s)		Audio Stream Delay 2	▼ sec	Waterfall AGC	Auto1 💌	Off, Auto1,2		
125 250 500 1000 2000	BW 2.75	Show Software Options Yes	~	Waterfall Mode	v2.1h ▼	Legacy, v2.1h	40 00 0 S-	MTR AF
INPUT SELECT	50 kHz 25 kHz	(*) Requires program restart.	Restore defau	ult values Apply	changes	Close	20+30+40+50+60+70	
	12 kHz			AGC	EM			Reik:
	6 kHz			SpkRej				
	3 KHz			Fast				= =
	1.6kHz			Med				
	0.8kHz jóco	-2000 -1000		Slow				
PLAYBACK / REC		PBT Notch ANotch CWPeak			FCC EBI	User1 User2	ALL B	ank
Date: Wed 24-Apr-2019 Time:		File:						
	-							

Click on the top title bar icon in front of PERSEUS and the about window will pop up, then click on software settings, and make sure the Virtual COM port is set to COM10 (this can be changed, as long as it matches the VSPE Connector). Then in the bottom right you should see VCom ON, if it says VCom Off, then you need to make sure the virtual com port software is running.

Step3. Run the Tmate2CatConsole.exe that you downloaded and unzipped. The following window will come up :

Serial Port COM	11		Connect to	PERSEUS		
Tmate2 Settings						
Incr Step Speed 1	1	-	Key 4/5 Func.	STEP-/+	~	
Incr Step Speed 2		-				
Incr Step Speed 3	10		Default Step	164-		
Step Count Trans 1->2	35	AM/FN	AM/FM/DRM	INTIZ	~	
Step Count Trans 2->3	50	-	Default Step LSB/USB			
Step Count Eval. Time (ms)	500			10Hz	~	
Refresh Time (ms)	250	* *	Default Step			
Encoder 1 Step	1	-	CW/RTTY	100Hz	~	
Encoder 2 Step	1	•				
RX Back R		255				
RX Back G		255				
RX Back B		255	Contrast		134	
Microtelecom PERSEUS: v5.	0b - V	5 alpha ve	ersion 3. 10 04186	E245-0A20-6E	ED	

In serial port select the other end of the splitter we set up, so Com11 and Connect to set to Perseus. If it is all setup correctly when you hit start, you should see the line of text above the start button that says "Microtelecom PERSEUS: ..."

Remember the steps, Virtual Com Software, Perseus Software, TMate Cat Console in that order, if you load in different order, it will not work.

5 Using TMate2 with SDR-Console

SDR-Console by Simon Brown is a popular SDR Radio control program that supports many different SDR Radios. SDR-Console supports the ELAD TMate2 without any additional software. Click on the following Tools > Options > Controllers > Tmate. Then check the enable box, you can change the background color but all the other options are hard coded as follows :

- E1 : Volume,
- E2 : Filter High / Low / Shift, press to select the desired option,
- Main Encoder : current receiver Frequency, press for fast tuning,
- F1 : Mute,
- F5/F6 : previous/next mode.

Declaration of Conformity (EC)

The product marked as

TM-2

manufactured by

Manufacturer : ELAD S.r.l. Address : Via Col De Rust, 11 I-33070 CANEVA (PN)

is produced in conformity to the requirements contained in the following EC directives :

- EMC Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU
- RoHS Directive 2011/65/EU

The product conforms to the following product specifications :

Emissions & Immunity :

EN 55032:2015/A11:2020 EN 55035:2017/A11:2020

Safety : EN 62368-1:2014

and further amendments.

This declaration is under responsibility of the manufacturer

ELAD S.r.l. Via Col De Rust, 11 I-33070 CANEVA (PN)

Issued by

Name : Franco Milan Function : President of ELAD S.r.l.

CANEVA

May, 17th 2021

Place

Date

Signature

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Declaration of Conformity (FCC)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



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