

# **ELAD FDM-S1**



## **USER MANUAL**

## Ver. 1.01

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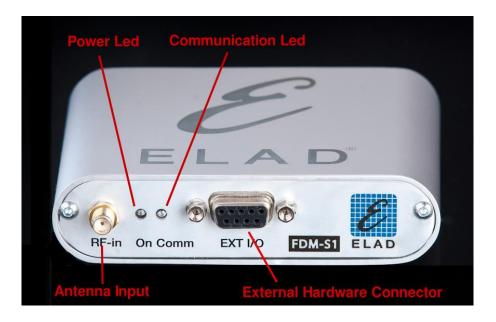


## 1 FDM-S1 Overview

### 1.1 Description of the ELAD FDM-S1 receiver

The radio-receiver ELAD FDM-S1 is conceived as a SDR (Software Defined Radio). This approach means that the receiver is composed of an Hardware RF front-end and a PC with an ELAD software (ELAD FDM-SW1).

## **1.2 Front Panel Description**



#### **Power Led**

Turns on when the receiver is connected to a USB port of the PC

#### **Communication Led**

Shows the communication between the receiver and the PC

Antenna Input SMA 50 $\Omega$  input connector.

#### **External Hardware Connector**

DB9 connector for external hardware (eg pre-selector filters board)





## **1.3 Rear Panel Description**



#### USB 2.0 Connector

Connection with the PC. Please use the supplied cable.

## 2 Software & Driver Installation

### 2.1 Software installation in Windows 7 and Windows XP

#### 2.1.1 First-time install in Windows 7

Double-click the file "setup.exe" in the CD .

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🕞 💬 🗢 🚺 🕨 FDM_SV	✓         ↓         FDM_SW1_V_1_27 ↓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓				
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☆ Favorites	Name	Date modified	Туре	Size	
🧮 Desktop	DotNetFX40	3/20/2012 2:30 PM	File folder		
🗼 Downloads	🍌 vcredist_x86	3/20/2012 2:30 PM	File folder		
Recent Places	WindowsInstaller3_1	3/20/2012 2:30 PM	File folder		
	🔀 ELAD_FDMDS1Setup	3/20/2012 11:50 AM	Windows Installer		
ز Libraries	🔂 setup	3/20/2012 11:50 AM	Application		
Documents  Music  Pictures  Videos  Computer					
📬 Network		III			
Setup D Application	ate modified: 3/20/2012 11:50 AM Size: 423 KB	Date created: 2/21/2012 9:10 AM			

The windows installer first installs the prerequisites:

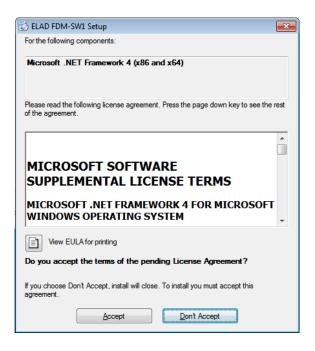
- Microsoft VC++ 2010 Runtime libraries
- Microsoft .NET Framework 4.0

and then the FDM-SW1 software.

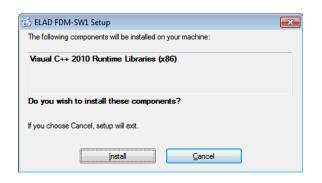




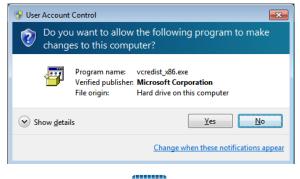
Click on "Accept"



Click on "Install"

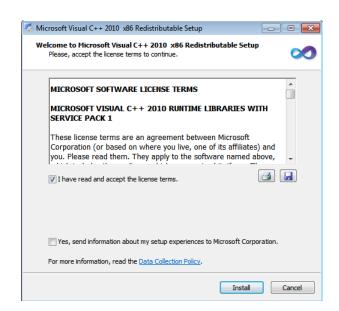


Click on "Yes"

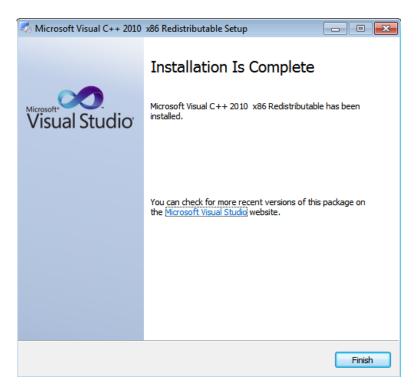




Click on Install

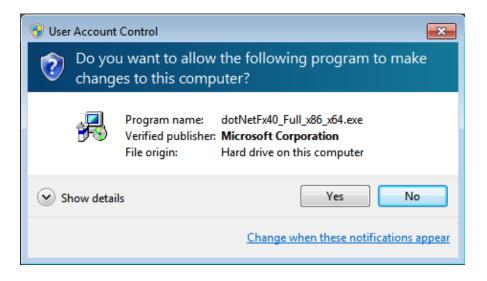


Microsoft Visual C++ 2010 x86 Redistributable installation is complete, click on "Finish"



Click on "Yes" to start the installation of the .Net Framework 4.0



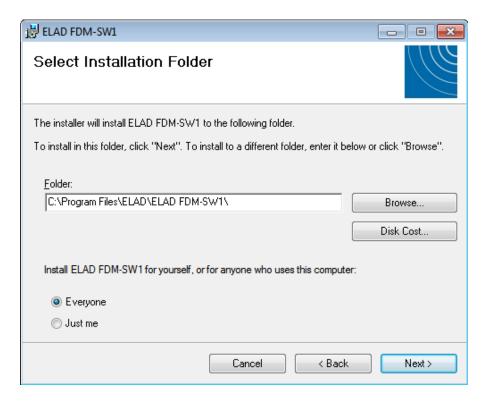


Click to "Next" to start the FDM-SW1 software installation

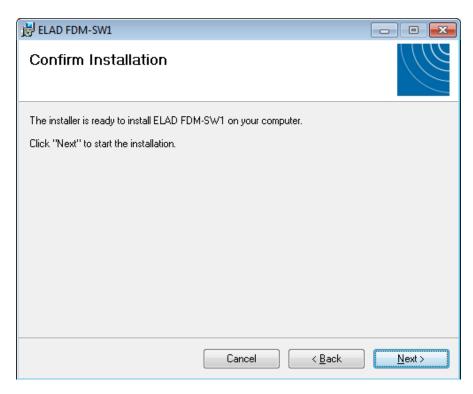


Chose the installation folder, then click on "Next"



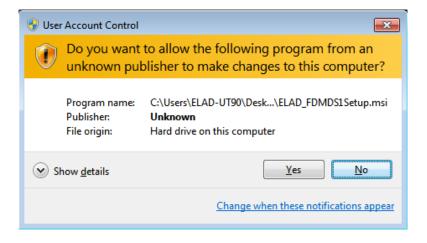


#### Click on "Next"

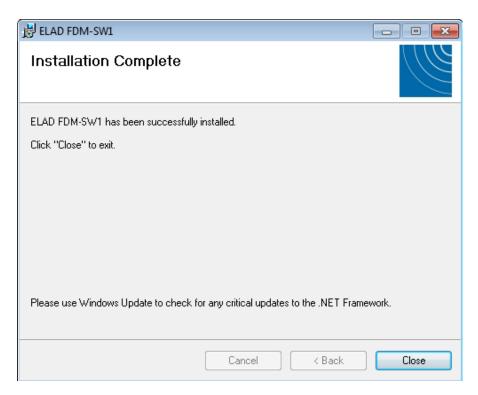


Click on "Yes"





The FDM-SW1 software installation is completed, click on "Close"



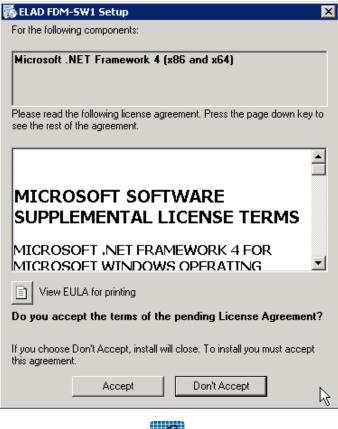


#### 2.1.2 First-time install in Windows XP

Double-click the file "setup.exe" in the installation folder.

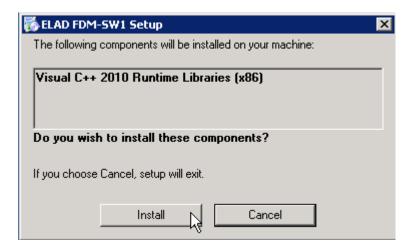
Back 🔻 🕥 👻 🤧	Sea	arch 🌔 Folders  🎹 🕶				
ess 🛅 C:\Documents and	d Settings	Donald\Desktop\FDM_SW1_V_1_26			•	Ð
,		Name A	Size	Туре	Date Modified	
ile and Folder Tasks	×	DotNetFX40		File Folder	3/20/2012 10:00 AM	
		Cvcredist_x86		File Folder	3/20/2012 9:59 AM	
ther Places	*	WindowsInstaller3_1		File Folder	3/20/2012 9:59 AM	
Desktop		ELAD_FDMDS1Setup.msi		Windows Installer P	3/19/2012 6:56 PM	
My Documents		🐻 setup.exe	423 KB	Application	3/19/2012 6:56 PM	
-			45			
Shared Documents						
My Computer						
My Network Places						
etails	*					
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ate Modified: Yesterday, I	March					
9, 2012, 6:56 PM	naren					
ize: 423 KB						

Click on "Accept"

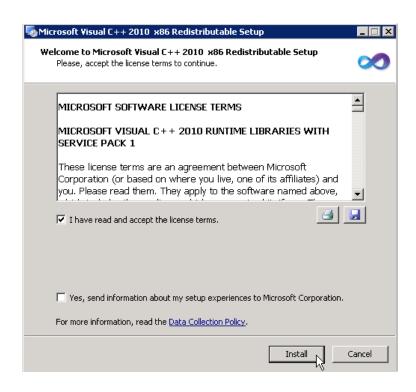




#### Click on "Install"

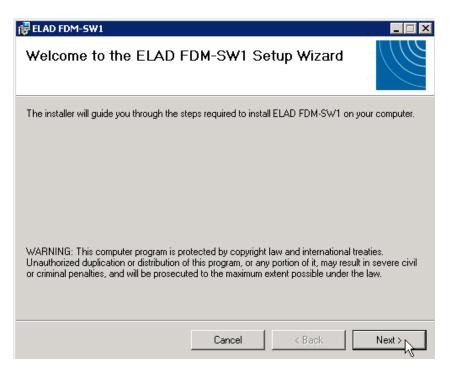


#### Click on "Install"





Click on Next to install the FDM-SW1 software

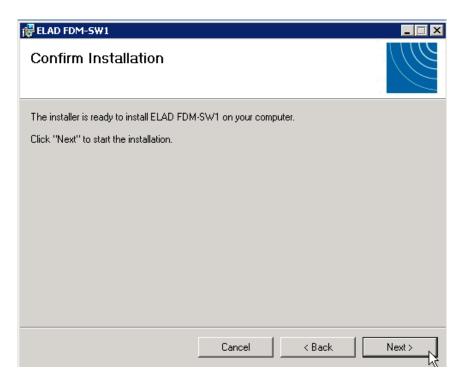


Select the installation folder, then click on "Next"

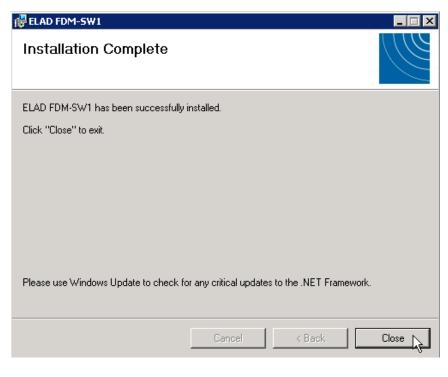
😸 ELAD FDM-SW1		
Select Installation Folde	er	
The installer will install ELAD FDM-SW1	to the following folder.	
To install in this folder, click "Next". To i	install to a different folder, enter it be	low or click "Browse".
<u>F</u> older:		
C:\Program Files\ELAD\ELAD FDM	SW1\	Browse
		Disk Cost
Install ELAD FDM-SW1 for yourself, o	or for anyone who uses this compute	er:
Everyone		
C Just me		
	Cancel < Back	Next >



#### Click on "Next"



#### The FDM-SW1 Software installation is completed





#### 2.1.3 Update an existing software version

If you need to update an existing software version, first uninstall the version already installed, then install the update.

Windows 7

- Go to: Control Panel->Programs->Programs and Features. Select the ELAD FDM-SW1 and click on "Uninstall".
- Double click on file ELAD\_FDM\_SW1\_V\_x.xx.msi in the CD.

#### Windows XP

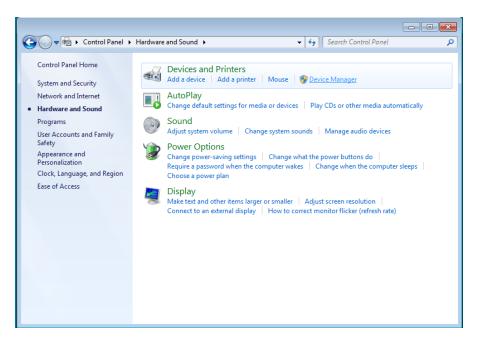
- Go to: Control Panel->Add or Remove Programs. Select the ELAD FDM-SW1 and click on "Remove".
- Double click on file ELAD\_FDM\_SW1\_V\_x.xx.msi in the CD.



#### 2.2 FDM-S1 USB driver

#### 2.2.1 FDM-S1 USB driver installation in Windows 7

Connect the FDM-S1 to a free USB 2.0 port of the pc. Open the Control panel then, click on "Device Manger".

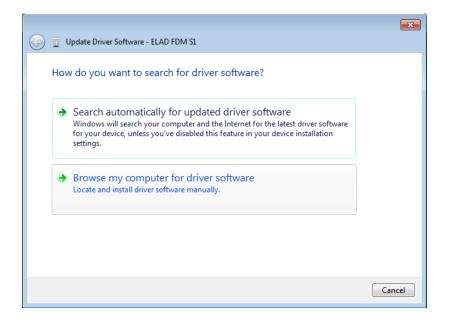


Expand the "Other devices" node and select "ELAD FDM S1" device, right click and select "Update Driver Software..."

🚔 Device Manager 🗖 🗖 🖾				
File Action View Help				
	R 🖟 🙀 🖪			
MIN-33M5PSRDCMG			*	
Batteries				
⊳ III Computer				
Disk drives				
<ul> <li>Display adapters</li> <li>DVD/CD-ROM drives</li> </ul>				
Floppy disk drives				
Floppy drive controlle	ers			
Human Interface Dev				
DE ATA/ATAPI contr				
Keyboards				
Mice and other point	ing devices		=	
Network adapters			-	
Other devices		1		
ELAD FDM S1	Update Driver Software			
Ports (COM & LP	Disable			
Processors     Sound, video and	Uninstall			
Sound, video and				
System devices	Scan for hardware changes			
a 🏺 Universal Serial Bu	Properties			
Intel(R) 82371AB/EB PCI to USB Universal Host Controller				
🚽 Standard Enhanced PCI to USB Host Controller				
USB Composite Device				
USB Root Hub				

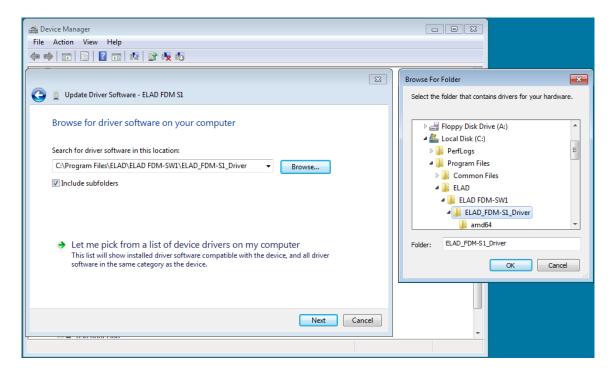


Select the second option



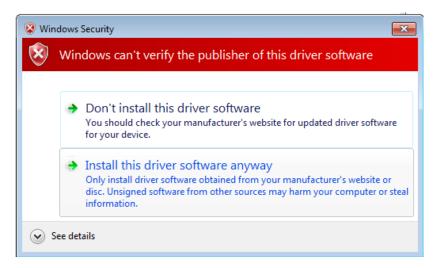
For 32 bit system select the folder:

C:\Program Files\ELAD\ELAD FDM-SW1\ELAD\_FDM-S1\_Driver For 64 bit system select the folder: C:\Program Files (x86)\ELAD\ELAD FDM-SW1\ELAD\_FDM-S1\_Driver Click on "Next"

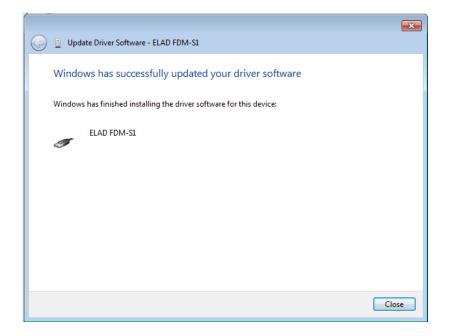




Ignore the warning and select the second option to install the driver.



The USB Driver installation is completed, click on "Close"



#### 2.2.2 FDM-S1 USB driver installation in Windows XP

Connect the FDM-S1 to a free USB 2.0 port of the pc , the Hardware Update wizard starts automatically



Select the third option "No, no this time", the click on "Next"



Select the option "Install from a list or specific location (Advanced)" and click on "Next"



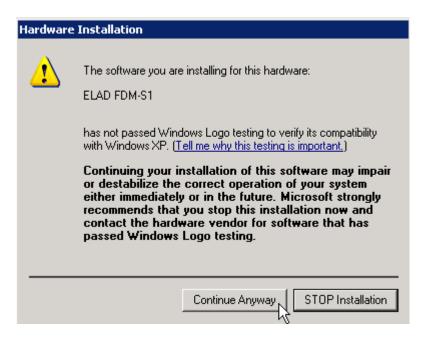


Select "Search for the best driver in these location" and "Include this location in the search", click on "Browse" and select the folder:

Local Drive (C:) \Programs\ELAD\ELAD FDM-SW1\ELAD\_FDM-S1\_Driver Then click on "Next".

Found New Hardware Wizard		
Please choose your search and installation options.		
	Browse For Folder	×
Search for the best driver in these locations.	Select the folder that contains drivers for your hardware.	
Use the check boxes below to limit or expand the default search, which include paths and removable media. The best driver found will be installed. Search removable media (floppy, CD-ROM) Include this location in the search: D:\ Browse O Don't search. I will choose the driver to install.	Common Files ComPlus Applications ComPlus Applications ELAD ELAD FDM-SW1 ELAD FDM-S1_Driver amd64 i i386	
Choose this option to select the device driver from a list. Windows does not gue the driver you choose will be the best match for your hardware.	To view any subfolders, click a plus sign above.	1
< Back Next >	OK Cancel	] //

Ignore the warning and click on "Continue Anyway"





TheFDM-S1 USB driver is completed, click on "Finish"

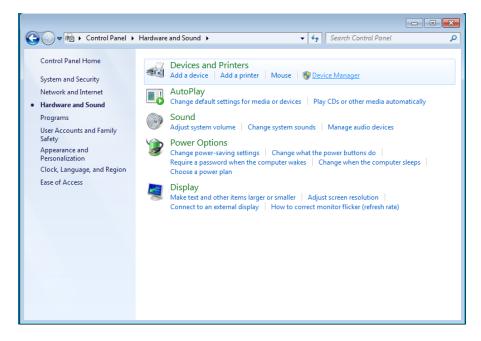




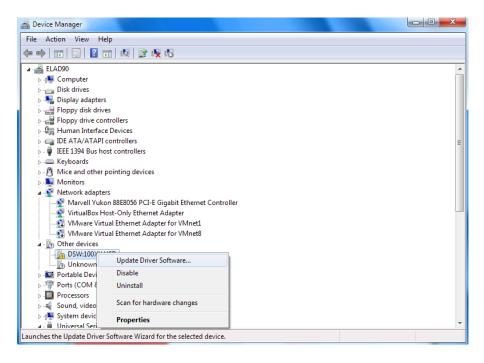
#### 2.3 WoodBoxRadio Tmate USB driver installation

#### 2.3.1 WoodBoxRadio Tmate USB driver installation in Windows 7

Connect the WoodboxRadio Tmate to a free USB 2.0 port of the pc. Open the Control panel then, click on "Device Manger"

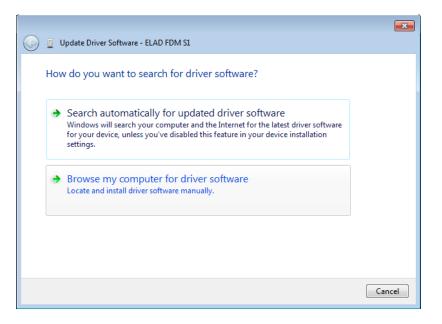


Expand the "Other devices" node and select "DSW:100XX USB" device, right click and select "Update Driver Software..."



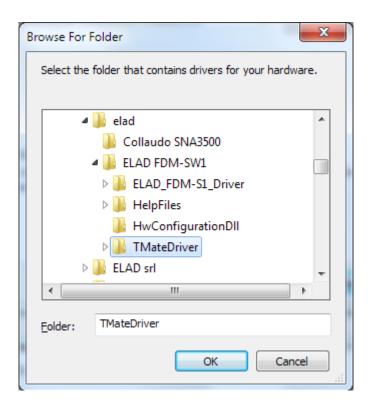


#### Select the second option



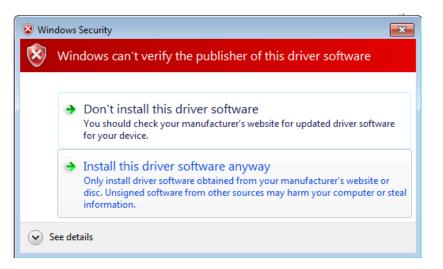
For 32 bit system select the folder: C:\Program Files\ELAD\ELAD FDM-SW1\TMateDriver For 64 bit system select the folder: C:\Program Files (x86)\ELAD\ELAD FDM-SW1\ TMateDriver

Click on "Next"

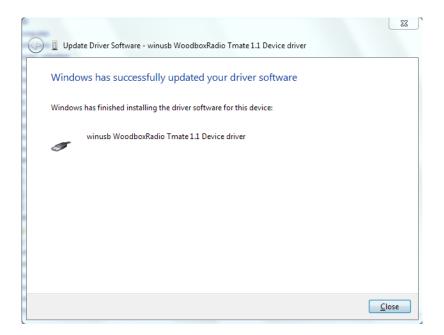




Ignore the warning and select the second option to install the driver.



The USB Driver installation is completed, click on "Close"







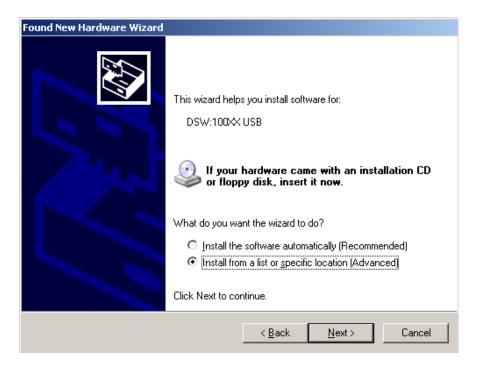
#### 2.3.2 WoodBoxRadio Tmate USB driver installation in Windows XP

Connect the WoodBoxRadio Tmate to a free USB 2.0 port of the pc , the Hardware Update wizard starts automatically.

Select the third option "No, no this time", the click on "Next"



Select the option "Install from a list or specific location (Advanced)" and click on "Next"





Select "Search for the best driver in these location" and "Include this location in the search", click on "Browse" and select the folder:

**Local Drive (C:) \Programs\ELAD \ELAD FDM-SW1\TMateDriver** Then click on "Next".

Found New Hardware Wizard					
Please choose your search and installation options.	Browse For Folder	? X			
	Select the folder that contains drivers for your hardwa	re.			
<ul> <li>Search for the best driver in these locations.</li> <li>Use the check boxes below to limit or expand the default search, v paths and removable media. The best driver found will be installed.</li> <li>Search removable media (floppy, CD-ROM)</li> <li>Include this location in the search:</li> <li>C:\Program Files\ELAD\ELAD FDM-SW1\ELAD_FD</li> </ul>		•			
Choose this option to select the device driver from a list. Windows the driver you choose will be the best match for your hardware. 	To view any subfolders, click a plus sign above.	9 <b></b>			

Ignore the warning and click on "Continue Anyway"

Hardware	e Installation	
1	The software you are installing for this hardware: ELAD FDM-S1	
	has not passed Windows Logo testing to verify its compatibility with Windows XP. ( <u>Tell me why this testing is important.</u> )	
	Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.	
	Continue Anyway STOP Installation	
	ELAD' www.eladit.com	



The Tmate driver installation is completed, click on "Finish"





ELAD FDM-S1				
TECNICAL SPECIFICATIONS				
	Frequency coverage:	20 kHz ÷ 30 MHz (up to 170 MHz in down-sampling)		
	Mode:	CW, CW SH+, CW SH-, USB, LSB, DSB, AM, SYNC AM, FM, WB FM, DRM (Software Defined)		
	Memory:	XML Files (Software Defined)		
	Antenna connectors:	SMA (50 Ω)		
	Temperature range:	0 ÷ 40 °C		
CENEDAL	Frequency stability:	TBD		
GENERAL	Frequency resolution:	1 Hz		
	PC Interface	High-Speed USB 2.0 (480 Mbit/s)		
	Power supply:	USB powered		
	Power consumption:	Less than 2.2 W		
	External I/O connector:	Female DB9		
	Dimensions:	108 (W) x 27 (H) x 88 (D) mm		
	Weight:	180 g		
	Configuration:	Direct sampling		
	Digital USB Streaming Sampling Rate:	192 kHz, I/Q channels, 32 bit/sample (Software Defined)		
	Digital USB Streaming Bandwidth:	150 kHz (Software Defined)		
	Sensitivity:	Typical 0.39 μV (CW, Bandwidth 500 Hz, 10 dB (S+N)/N)		
	Selectivity:	> 100 dB (Software Defined)		
RECEIVER	3 <sup>rd</sup> Oder Intercept Point:	> +25 dBm @ 14 MHz, Spacing 2 kHz, Input level -97 dBm		
	IMD Dynamic Range:	> 105 dB @ 14 MHz, Spacing 2 kHz, Input level -97 dBm		
	Blocking gain compression:	> 100 dB @ 14 MHz, Spacing 2 kHz, CW, Bandwidth 500 Hz		
	Noise floor (MDS):	< -121 dBm @ 14 MHz, CW, Bandwidth 500 Hz		
	Attenuator:	0, 20 dB		
	RF Preselection filter:	OFF (wide band), low pass (0 ÷ 30 MHz)		

All stated specifications are derived using ELAD FDM-SW1 software (version 1.10) running on 2.2 GHz Intel Core i7 PC with Windows 7 operating system.

All stated specifications and other product information provided in this document are subject to change without notice or obligation.



# Declaration of Conformity

The product marked as

FDM-S1

manufactured by

Manufacturer: ELAD S.r.l.

Address:

Via Col De Rust, 11 - Sarone 33070 CANEVA (PN)

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

- ► R&TTE Directive 1999/5/CE
- ► EMC Directive 2004/108/CE
- ► Low Voltage Directive 2006/95/CE

The product conforms to the following Product Specifications:

#### **Emissions & Immunity:**

ETSI EN 300 330-1 ETSI EN 301 489-1 ETSI EN 301 498-15 ETSI EN 301 783-2 EN 55022: 2006 + A1: 2007 EN 55024: 1998 + A1: 2001 + A2: 2003

#### Safety:

EN 60950-1: 2006 + A11: 2009

And further amendments.

This declaration is under responsibility of the manufacturer:

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

Issued by:

Name: Franco Milan Function: President of ELAD

> Caneva Place

March, 20<sup>th</sup> 2012 Date

Signature

