



# FOS RDM TOUCH TESTER



Copyright (c) 2022

# TABLE OF CONTENTS

FOS's Universal DMX Data Handheld Appliance <b>1.</b>	<b>1</b>
<b>Getting Started</b>	<b>3</b>
What's In The Box?	3
Getting It Out Of The Box	3
Caution!	3
Getting A Hold Of Us	3
<b>2. Meet FOS RDM™</b>	<b>4</b>
Main Features	4
Overview	4
<b>3. Operating Instructions</b>	<b>5</b>
Introduction	5
Power Supply	5
Power On/Off	5
Keyboard	5
Function Menu	6
Receive DMX	6
Send DMX	7
Cable Tester	7
Channel Tracer	8
Timing Analyzer	8
Flicker Finder	9
Scanning for Flickers	10
Interpreting the Results	10
Sequence	11
PWM Tester	11
MIDI Test	12
RDM Controller	13
Touch Screen Calibration	15
Send and Receive DMX using Art-Net and sACN	15
System Settings	15
<b>4. Appendix</b>	<b>16</b>
Keeping Your FOS RDM™ As Good As	16
New Returns (Gasp!)	16
Shipping Issues	16
Tech Specs	17
Updating the Firmware	17

# 1. GETTING STARTED

## What's In The Box?

- 1x FOS RDM™
- 1x Carry Case
- 1x Stylus Pen
- 1x 8GB MicroSD Card
- 1x Set of 3/5-Pin Male/Female XLR Adapters
- 1x USB to Micro-USB cable with AC Adapter

## Getting It Out Of The Box

Congratulations on your purchase of FOS RDM™, the multi-purpose tool for professional lighting technicians and installers. Do not dwell in the past, do not dream of the future, concentrate the mind on the present moment.

Your FOS RDM™ is fully equipped to measure, test, and troubleshoot any application with DMX controlled lighting. This unit can be used test 3 and 5-pin cables, test midi signals, monitor and analyze signals, program sequences, send and receive DMX, store data via MicroSD card, and more. It is the ultimate solution to help bring peace and balance to many of life's DMX-512 challenges!

**IMPORTANT:** FOS RDM™ will do a lot of things, but it won't teach you any noble truths. You need to do that yourself. *Well, what are you waiting for? GO!*

Now that you've got your FOS RDM™, you should carefully unpack the box and check the contents to ensure that all parts are present and in good condition. If anything looks as if it has been damaged in transit, notify the shipper immediately and keep the packing material for inspection. Again, please save the carton and all packing materials. If it must be returned to the factory, it is important that the unit be returned in the original factory box and packing.

## Caution!

**There are no user serviceable parts inside this unit. Do not open the housing or attempt any repairs yourself; doing so will void your manufactures warranty. In the unlikely event your unit may require service, please open a support ticket online at [www.fos-lighting.eu](http://www.fos-lighting.eu).**

## Getting A Hold Of Us

**If something is wrong, please open a support ticket online at [www.fos-lighting.eu](http://www.fos-lighting.eu). We'll be happy to help, honest.**

**Disclaimer:** The information and specifications contained in this document are subject to change without notice. FOS Lighting™ assumes no responsibility or liability for any errors or omissions that may appear in this user manual. FOS Lighting™ reserves the right to update the existing document or to create a new document to correct any errors or omissions at any time. You can download the latest version of this document from [www.fos-lighting.eu](http://www.fos-lighting.eu).

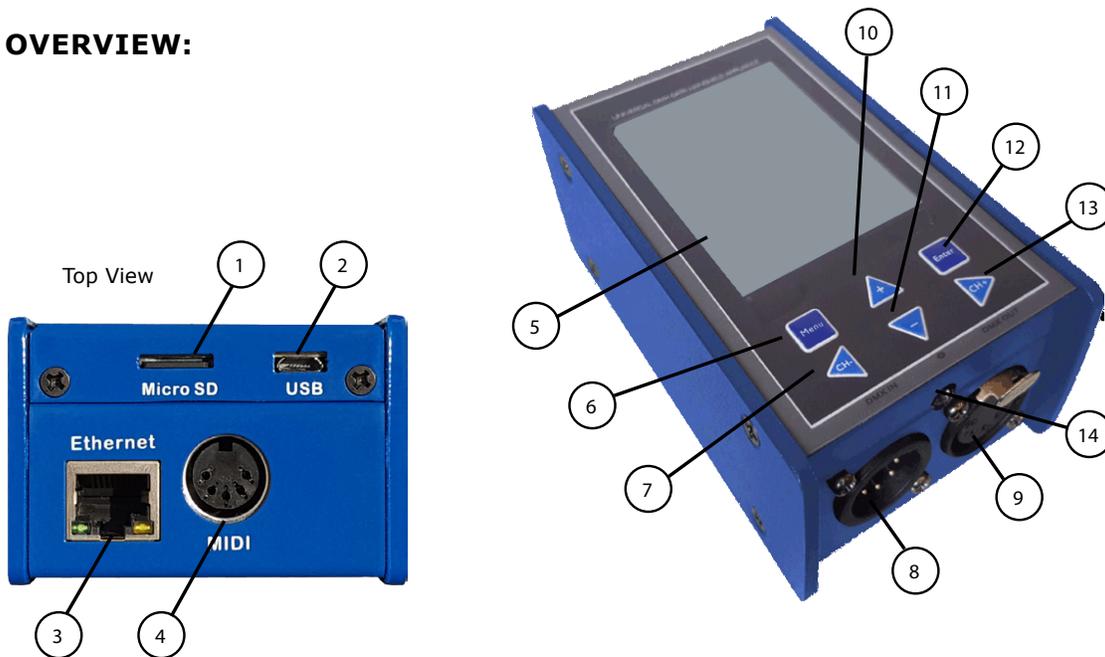
Author:	Date:	Last Edited:	Date:
Photis	10/31/2016	Mr.Photis	2/10/2017

## 2. MEET FOS RDM™

### MAIN FEATURES:

- 3/5-Pin DMX cable testing
- Midi testing
- RDM controller
- Channel tracer
- Timing analyzer
- DMX signal "flicker finder"
- LED PWM rate meter
- Programmable sequence recording/playback
- Send/receive DMX
- ArtNet testing and send/receive via ArtNet
- 8GB MicroSD card storage
- sACN support
- 2-year limited warranty

### OVERVIEW:



1.) MicroSD Card Slot	Holds the MicroSD storage card
2.) Micro USB Female Connector	For power-supply, PC connection
3.) RJ45 Connector	RJ45 in/out with connector
4.) MIDI Connector	MIDI connector
5.) Touch Screen LCD Display	Full-color TFT touch screen display
6.) Menu Button	Used to access the menu options
7.) Left / CH (-) Button	Navigate left/decrease a selected value
8.) DMX Input	Connector to receive DMX
9.) DMX Output	Connector to send DMX
10.) Up (+) Button	Navigate up
11.) Down (-) Button	Navigate down
12.) Enter Button	Confirm/store a current selection
13.) Right / CH (+) Button	Navigate right/increase a selected value
14.) Light Sensor	Light Sensor for PWM testing

# 3. OPERATING INSTRUCTIONS

## Introduction:

FOS RDM™ is a powerful testing tool. All of its functions can be accessed by using the full-color TFT touch screen display with stylus pen, or you can easily navigate through its functions by using only the menu buttons.

## Power Supply:

This unit can receive power from a 9V battery (not included), or directly by using the USB to Micro-USB cable, plugged into any computer or device with USB (5V, >200mA.) You can also plug it in to a standard power outlet with use of the USB to AC power adapter. If power is supplied to FOS TOUCH™ via the USB port, the battery is automatically disconnected.

## Power On:

If using battery power, long press **<MENU>** button to power the unit on. If using USB supplied power, simply connecting the cable will power it on.

## Power OFF:

If using battery power, long press **<MENU>** button to power the unit off. If using USB supplied power, simply disconnect the cable.

## Keyboard:

In certain areas of FOS RDM™ you will find a QWERTY keyboard, which makes it possible to input text.

The keyboard can be used with the touch screen or menu buttons:

Using touch screen, press any key with the stylus pen to input. Using the menu buttons, navigate to a character by using the **<UP>**, **<DOWN>**, **<LEFT>**, **<RIGHT>** buttons. When a key is selected, it will change color. Press the **<ENTER>** button to make the input. When the highlight is on the text input box (with text in it), you can use **<LEFT>**, **<RIGHT>** buttons to move the cursor left/right, and then press **<ENTER>** to delete the character before the cursor.



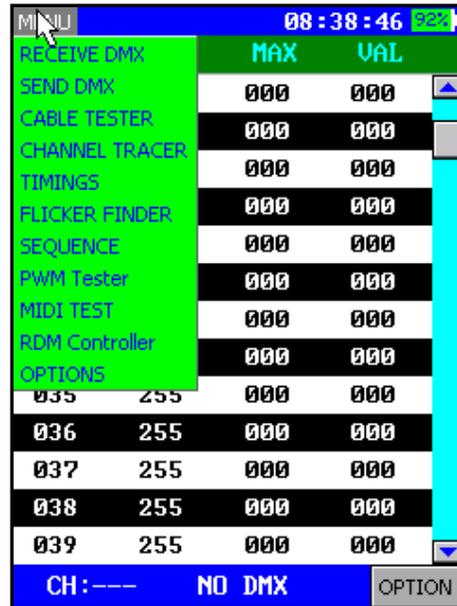
When input is complete, press **Enter**. To cancel an input, press **Exit**. If you need to input special characters, press **<@>** key (on the keyboard), to change the keys to symbols.

## Function Menu:

The **MENU** button located in the top left corner of the screen is the starting point to access all the functions and system settings available with FOS RDM™.

If using the stylus pen, click the **MENU** button directly. Upon doing so, the function menu will appear, allowing you to then click on any available testing function, or access the system **OPTIONS**.

If using only the menu buttons, first press **<MENU>** button. When the function menu appears, use the **<UP/DOWN>** buttons to highlight a selection, then press the **<ENTER>** button to activate the selected function or **OPTIONS** menu.



## Receive DMX:

Under this function, the unit will receive DMX signals and display the current value for every channel. It also shows the maximum and minimum values for each channel.

Click any channel using the stylus to highlight it. After that, you can alternatively use the menu buttons **<UP>**, **<DOWN>**, **<LEFT>**, and **<RIGHT>** to navigate the channels.

The **OPTION** button on the lower right corner of the screen allows access to the following Receive DMX options:



**STORE SCENE:** Store the current DMX data to the MicroSD card as a scene.

**REPLACE SCENE:** Overwrites an existing, already saved scene.

**SHOW LEVEL AS:** Change the data display style (percent, decimal, or hexadecimal.)

**ADDRESSES:** Change the visible DMX range to ALL (1-512) or OPEN (currently input.)

**CLEAR:** Clears all of the current values, and restarts.

**SOURCE:** Select DMX IN or NETWORK as the incoming DMX signal source.

## Send DMX:

This unit can send DMX, and display values for every channel on each row. Scenes can also be saved, or loaded in from the MicroSD card storage.

Use the stylus pen to highlight the Master or other channel from CH001-CH512. Then hold down and drag the stylus left or right, changing the values from **000-255**.

The **OPTION** button allows access to:

**CLEAR:** Clears all value settings, restoring the default values.

**STORE/REPLACE SCENE:** Saves new, or overwrites an existing scene (excluding Master.)

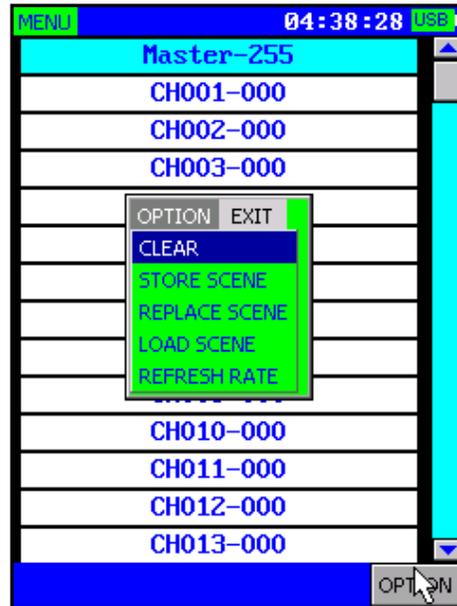
**LOAD SCENE:** Load previously saved scenes from the microSD card.

**REFRESH RATE:** Set the DMX refresh rate from 5Hz-40Hz.

### To send Art-Net/sACN to the DMX output jack:

1.) In the **OPTIONS** interface, set network port as ON or AUTO, set network protocol as Art-Net or sACN, and set corresponding network universe.

2.) Enter into **RECEIVE DMX** interface, click **OPTION**, set the signal source as network, then any received Art-Net/sACN data will be transferred out from the DMX output jack.

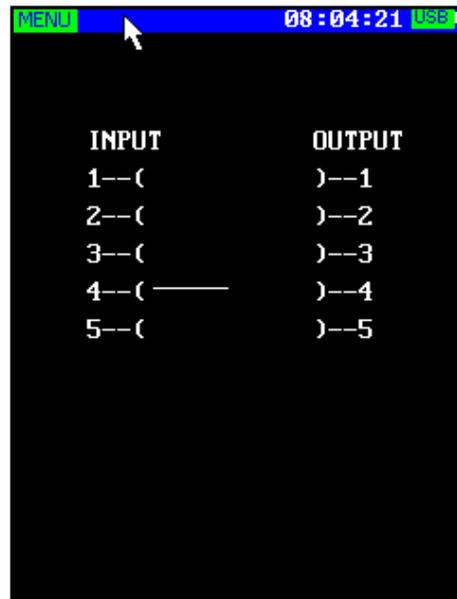


## Cable Tester:

Connect a cable to the DMX Input and Output jacks. For 3-pin cable testing, use the included 3 to 5-pin male/female XLR adapters.

Upon selecting **CABLE TESTER** from the **FUNCTION MENU**, FOS RDM™ will automatically start testing pins 1-5, scanning each for connectivity.

You will see a solid line extending from each Input to Output (pins 1-5) that make a good connection, while broken lines indicate no thru connection.

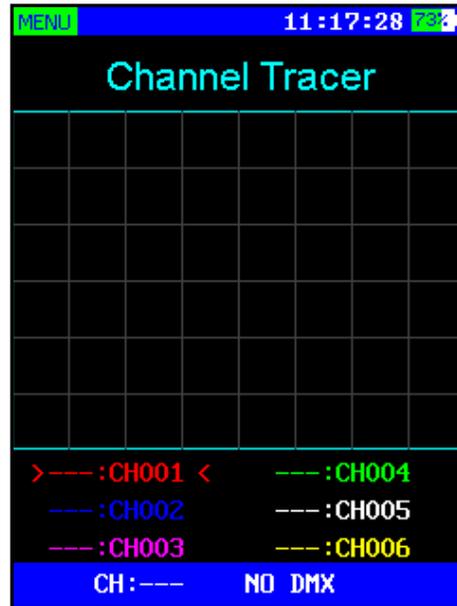


## Channel Tracer:

This function is used to test DMX signal real-time values, shown in curves.

6 channels of data can be shown at the same time in different colored curves. The DMX channel being analyzed for each of the 6 can also be changed to any DMX channel ranging from **CH001-CH512**.

To change the value of any channel to be analyzed, use the stylus pen to highlight it (bottom colored text), then either press the on-screen right/left arrows found on either side of the text, or use the **<RIGHT>** and **<LEFT>** menu buttons to change its value to another channel.



Either by double clicking the colored text with the stylus, or by pressing the **<ENTER>** button while any is highlighted will disable the display of that certain highlighted channel (NULL).

## Timing Analyzer:

This function of RDM™ will allow you to analyze DMX timings.

Select **TIMINGS** from the **MENU**, and connect a DMX source to the DMX input.

*Analysis of timing will show you:*

**DMX SIGNAL:** Shows if a connected DMX signal is OK or faulty.

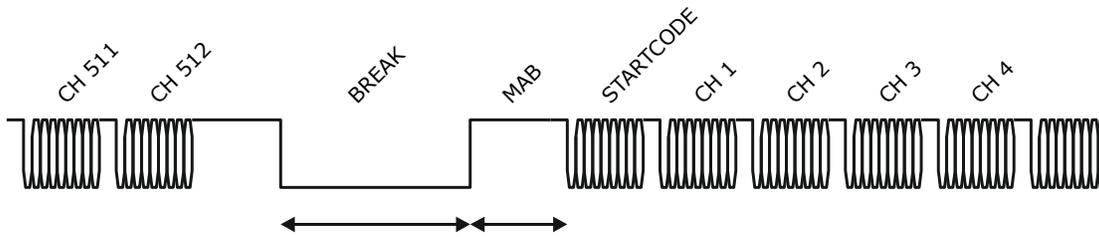
**REFRESH RATE:** Shows the numbers of frames received per second.

**BREAK LENGTH:** Shows the length of the break in microseconds.

**MARK AFTER BREAK:** the MAB (mark after break) in microseconds.

**CHANNELS RECEIVED:** Shows the number of channels received.





	BREAK LENGTH	MAB LENGTH
USITT DMX-512/1986	≥ 88us	≥ 4us
USITT DMX-512/1990	≥ 88us	≥ 8us
ANSI E1.11-2004	≥ 92us	≥ 12us

**Refresh Rates:**

<1 frame per second	Not compliant to standard.
1-10 frames per second	Very slow, compliant to standard, but may cause problems with some equipment.
10-25 frames per second	Slow
25-44 frames per second	Typical for most equipment
44 frames per second	Maximum speed when sending all 512 channels
>44 frames per second	Only possible when sending less than 512 channels. Compliant to standard, but may cause problems with some equipment.

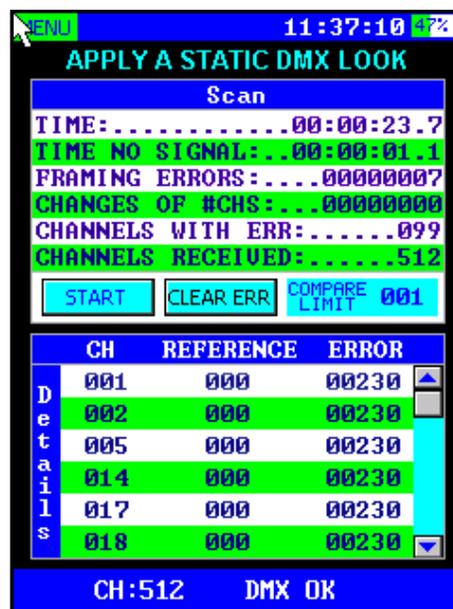
Please refer to ANSI E1.11 for more detailed information on DMX-512 timings. The accuracy of this unit's timing measurement is within approximately 1.5 microseconds.

**Flicker Finder:**

This function is used to test the stability of DMX signals. It can help you detect signal problems such as:

- Signal interruptions
- Channel quantity changes
- Channel value changes

It can be used to help troubleshoot a wide range of equipment including DMX boosters, splitters, stability of a network, stability of DMX controller, and if faders shake without pushing.



## Scanning for Flickers:

- 1.) Configure your console to send a non-changing static scene, or a *Static DMX Look*. This look should not consist of only zeros. Then, replace the flickering fixture with R D M™.
- 2.) In the main menu of FOS RDM™, select **FLICKER FINDER**.
- 3.) Adjust the **Compare Limit** if needed (001-255.) Normally, it should be set to 001.
- 4.) Press the **START** button to start scanning.
- 5.) Let the Flicker Finder run for some time. The longer you let the Flicker Finder run, the more you can be sure that your transmission is OK.

During scanning, the Flicker Finder will immediately report any of the following:

- **TIME NO SIGNAL**: Accumulated time that no signal was received.
- **CHANNELS WITH ERR**: The number of channels where DMX values have been received and differ by more than the configured *Compare Limit*.
- **FRAMING ERRORS**: The number of framing errors detected
- **CHANGES OF #CHS**: Shows how many times the number of channels has changed.

To stop or pause scanning, press **STOP**. An interrupted scan may be resumed simply by pressing the **START** button again. To clear previous errors, press **CLEAR ERR**.

## Interpreting the Results

- **TIME**: The accumulated scan time.
- **TIME NO SIGNAL**: Accumulated time that no signal was received.
- **CHANNELS WITH ERR**: The number of channels where DMX values have been received and differ by more than the configured Compare Limit.
- **FRAMING ERRORS**: The number of framing errors detected.
- **CHANNELS RECEIVED**: Total channels received just before scanning stopped.
- **CHANGES OF #CHS**: Shows how many times the number of channels has changed.

If the **TIME NO SIGNAL** is greater than 0, it probably indicates an issue with your DMX setup. These count after no valid incoming signal has been received for more than 1 second. It is not typically the kind of issue that would lead to flickering.

**FRAMING ERRORS** are also signs of problems with the DMX transmission setup.

Non-zero **CHANNELS WITH ERR** are good indicators of flickers caused by the DMX transmission (if the DMX source is definitely sending a **non-changing** look.) The **Details Window** will give you more information about each channel where an error is found:

- **CH**: Lists the channels where value changes are detected
- **REFERENCE**: The channel value when initially tested
- **ERROR**: Error counter, +1 for every time

With flickers, there should normally be a small number of errors compared to total number of received values, giving you a good idea of the source of the problem.

## Sequence:

This function is used to create, edit, and play chases. Chases can consist of a group of scenes that you have created and saved during use of **SEND DMX** or **RECEIVE DMX** menu functions.

Use the **<UP/DOWN>** buttons to scroll through the options in the *Edit Chase* and *Play Chase* windows, or you can directly use the stylus and touch screen to click the buttons.

**New/Save:** When you start a new chase, you can keep the default name or rename it. To save the chase after adding steps, click Save.

**Load/Add:** These buttons are used to open a chase, or add a step. You can also insert a step after, or delete a currently active step by using the left/right arrow buttons to navigate through the steps, and press Add or DEL.

**Load/Open Chase:** These buttons allow you to select a saved chase to open in either the *Edit Chase* and *Play Chase* windows.

**Play/Stop:** Play or stop the currently opened chase sequence.

There are 3 sliders in the bottom *Play Chase* window which allow you to control the **Master** (0-255), **Speed** (slow-fast), and **Fade** (0-100%).

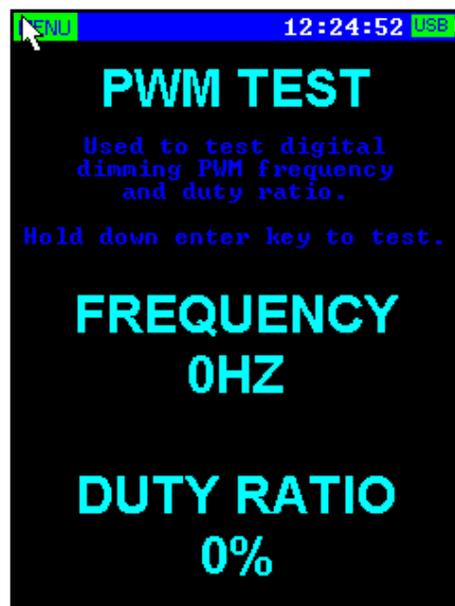


## PWM Tester:

This function is used to check the PWM frequency and duty ratio. *(Will made us put the following information in the manual because he likes to lecture people to sound smart):*

**PWM** = Pulse Width Modulation. LED dimming relies on human physiology, namely a phenomenon called "Persistence of Vision." It's the same phenomenon that allows us to see video or movies as moving pictures versus a series of still frames. In the case of LEDs, the PWM rate is a measurement of the number of times per second the LED is cycling between its ON and OFF state to generate a perceived brightness.

**Duty Cycle** = The percentage of time the LED is in its "ON" state. This should roughly equate to the "dimming" value. For instance, a Duty Cycle of 50% means the LED is on 50% of the time, off 50% of the time. If the LED and our vision behaves/responds to this in a linear fashion, we would perceive the LED as being at about 50% intensity compared to maximum.

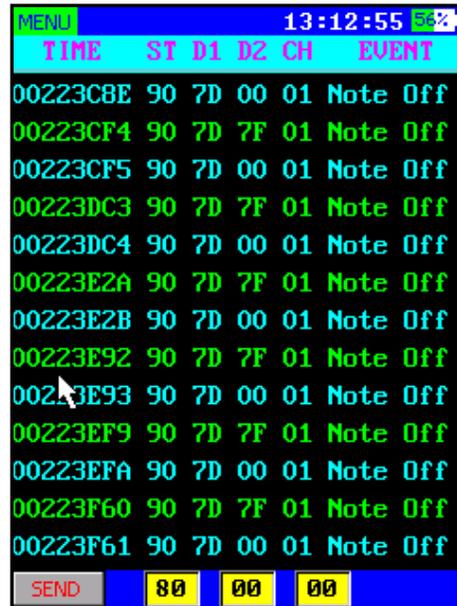


- 1.) Point the light sensor located on the bottom of the unit at a lighting fixture.
- 2.) Press and hold down the **<ENTER>** button.
- 3.) When the data is stabilized, release the **<ENTER>** button.
- 4.) The test result will be locked in and shown on the screen.

## MIDI Test:

Usually, MIDI is one-way. If you want to receive and send signal, then normally you would need two separate connectors. To make it easy to test and use, we designed FOS RDM™ with two-way MIDI, that is able to receive and send MIDI signal.

The MIDI test function in FOS RDM™ supports normal MIDI three-byte instructions. The first byte is the status byte, which includes instructions of Note Off, Note On, and MIDI channel information. The second and third bytes are attached parameters of instructions. Usually, the corresponding parameter meanings can be found in the MIDI list of your MIDI device.



TIME	ST	D1	D2	CH	EVENT
00223C8E	90	7D	00	01	Note Off
00223CF4	90	7D	7F	01	Note Off
00223CF5	90	7D	00	01	Note Off
00223DC3	90	7D	7F	01	Note Off
00223DC4	90	7D	00	01	Note Off
00223E2A	90	7D	7F	01	Note Off
00223E2B	90	7D	00	01	Note Off
00223E92	90	7D	7F	01	Note Off
00223E93	90	7D	00	01	Note Off
00223EF9	90	7D	7F	01	Note Off
00223EFA	90	7D	00	01	Note Off
00223F60	90	7D	7F	01	Note Off
00223F61	90	7D	00	01	Note Off

SEND 80 00 00

This MIDI test is used to test the MIDI signals sent from controllers or MIDI fixtures, and can send out MIDI signal to other devices.

Enter the **MIDI TEST** function, and if the unit is receiving MIDI signal, corresponding instructions can be seen on the display. If you want to send out a MIDI signal, press the **SEND** button on bottom left corner. Instruction data can be entered into the three boxes to the right of the **SEND** button.

Use the **<CH+>** and **<CH->** buttons to move the highlighted text from the **SEND** button to the instruction input boxes, and press **<ENTER>**, or directly click the boxes using the stylus pen to bring up the keyboard. You can enter input instruction parameters for each value.

Both decimal and hexadecimal options are possible to input. To input as a decimal, add "d" or "D" as the prefix (for example, to input 100 as decimal, input d100 or D100.) If you want to input as hexadecimal, add "h" or "H" as the prefix (for example, input h64 or H64.)

When finished, press the **SEND** button to send out the MIDI signals.

- **TIME:** The time to receive or send out instructions (hexadecimal)
- **ST, D1, D2:** MIDI instruction, original data (hexadecimal)
- **CH:** MIDI channel information (01-16)
- **EVENT:** Instruction types (Note Off, Note On...)
- **SEND BUTTON:** Used to send out MIDI instructions
- **INPUT BOXES:** Used to input MIDI send instruction parameters

## RDM Controller:

As of firmware update: F O S \_V18 (see: *Updating the Firmware, p.17*), **RDM Controller** has been added to the function menu, allowing you to discover, configure, and monitor any RDM (Remote Device Management) enabled fixtures.

First, ensure that your RDM enabled fixture(s) are powered on and connected in-line with FOS RDM's DMX output, then enter the **RDM Controller** function from the menu list. The initial screen in the RDM Controller is the **Device List**.

There are 3 buttons found on the bottom of the screen:

- **DISCOVER:** Incremental discovery
- **FULL DIS:** Full discovery
- **RETURN:** Used to navigate to the previous higher-level menu item.



**FULL DIS** is full discovery. Using this option, any previously discovered list will be cleared, mute marks deleted, and it will discover all currently connected RDM fixtures. For the initial discovery process, you should use **FULL DIS**.

**DISCOVER** is an incremental discovery, adding new fixtures to a current list, without any changes made to previously discovered units. Also note, if the DMX cable is disconnected, previously discovered fixtures will not be removed.

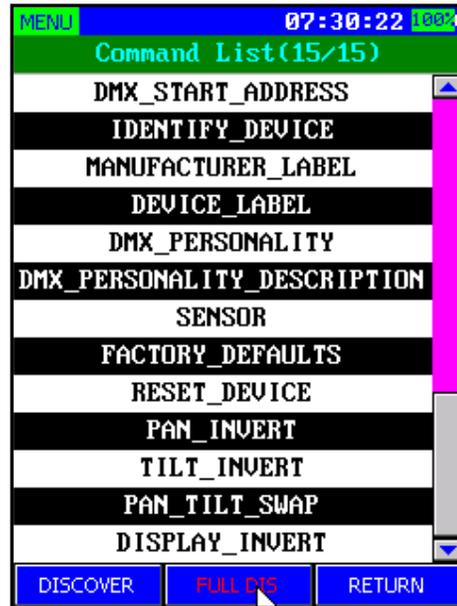
After discovery has been completed, you will see your fixture(s) listed in the **Device List** screen. Use the stylus pen to click on any fixture, or use the **<UP/DOWN>** and **<ENTER>** buttons to navigate and enter into the **Command List** of any fixture.



The available options within the **Command List** per fixture will vary, depending on the supported options of your RDM enabled fixtures.

The following parameters are currently supported by FOS RDM:

- DEVICE INFO
- MANUFACTURER LABEL
- DEVICE LABEL
- FACTORY DEFAULTS
- SOFTWARE VERSION LABEL
- DMX PERSONALITY
- DMX PERSONALITY DESCRIPTION
- DMX START ADDRESS
- SENSOR
- PAN INVERT
- TILT INVERT
- PAN TILT SWAP
- DISPLAY INVERT
- IDENTIFY DEVICE
- RDM RESET DEVICE



Some of the available RDM parameters are informational (read only), while others will be editable, allowing you to make changes remotely.

*\*Newer firmware versions may support additional undocumented parameters.*

### **About RDM (Remote Device Management):**

RDM was originally developed by the Entertainment Services and Technology Association - Technical Standards (ESTA) and is officially known as "ANSI E1.20, Remote Device Management Over DMX512 Networks.

It is a protocol that sits on top of the normal DMX512 data standard. DMX512 is a unidirectional protocol, which means that the data flows in one direction – from the control desk to the lights. With RDM, the DMX512 system becomes a bi-directional (half-duplex) system.

All DMX512 products do not inherently support RDM. Only RDM 'enabled' products will actually use the RDM standard, so please check the specifications of your equipment first.

RDM can provide users with:

- Identification and classification of connected devices
- Addressing of devices controllable by DMX512
- Status reporting of fixtures or other connected devices
- Configuration of fixtures and other DMX devices

## Touch Screen Calibration

When needed, use the touch screen calibration to ensure proper cursor position.

- 1.) Press **MENU**, select **OPTIONS**, then **Touch Screen Calibration**.
- 2.) To start calibration of the touch screen, use the stylus pen to click on the crosshair in the top corner of the screen.
- 3.) After clicking on the first crosshair, it will move to another location.
- 4.) Each time you click it, it will change positions on the screen. Continue to click the new positions until the calibration process has completed.
- 5.) Once complete, click on the screen to exit.

## How to send and receive DMX using Art-Net and sACN

FOS RDM™ is capable of receiving or broadcasting Art-Net or sACN (ANSI E1.31 streaming Architecture for Control Networks).

- 1.) In the **OPTIONS** interface, select the protocol (Art-Net or sACN), universe and sub-universe for transmission/reception.
- 2.) **To Receive:** In the **RECEIVE DMX** interface, click the option button in the bottom right corner. Then choose **Source** -> **Network**.
- 3.) **To Broadcast:** The network function is available in DMX output. If choosing to use network function in **SEND DMX** and **SEQUENCE** function options menu, the device will use the network to send DMX data at the same time (Art-Net/sACN).

## System Settings

1.) Device Name	Rename the device ( $\leq$ 16 characters)
2.) Backlight Brightness	LCD backlight brightness (10%-100%)
3.) Turn Off If Idle	Turn off automatically if idle (available with battery power)
4.) Date	Set the date
5.) Time	Set the time
6.) IP Address	Set the IP address
7.) NetMask	Set the NetMask
8.) Network Port	Set the network port working mode (on/off/auto)
9.) Network Universe	Set the network universe parameters
10.) Network Protocol	Select network protocol: Art-Net, sACN, Disable
11.) Delete Scene File	Delete saved scenes on the MicroSD card
12.) Delete Chase File	Delete saved chases on the MicroSD card
13.) Default Settings	Restore all default factory settings
14.) Firmware Version	Shows the current firmware version
15.) Touch Screen Calibration	Touch screen calibration

**Navigation:** You will see yellow highlighted **<RIGHT>** and **<LEFT>** on-screen buttons on either side of the **OPTIONS** menu screen. These two buttons work in the same way as the **<CH+>** and **<CH->** buttons on the unit, and can be used to scroll through the available options (or click your desired option on touch screen.)

**Manual Settings:** You can set the Date, Time, Ip Address, and NetMask using the keyboard. When making changes using keyboard, **the type formatting must remain the same as currently shown**. Invalid formatting or characters will result in an input error.

**Network Universe:** When entering in the Network Universe parameters, input the number directly (no prefix.)

**Default Settings:** To restore the factory default settings, highlight **Default Settings**, and press the **<ENTER>** button (NO changes to YES.) Press **<ENTER>** again to restore.

## 4. APPENDIX

### Keeping Your FOS RDM™ As Good As New

The unit you've received is a rugged, tough piece of professional equipment, and as long as you take care of it, it will take care of you. That said, like anything, you'll need to take care of it if you want it to operate as designed. You should absolutely keep the unit clean, especially if you are using it in an environment with a lot of dust, fog, haze, wild animals, wild teenagers or spilled drinks.

Whenever it is not in use, keep FOS RDM and its accessories in its case. You wouldn't throw a prized guitar, drumset, or other piece of expensive gear into a gear trailer without a case, and similarly, you shouldn't even think about doing it with your shiny new FOS RDM™.

Common sense and taking care of your FOS RDM™ will be the single biggest thing you can do to keep it running at peak performance and let you worry about designing a great light show, putting on a great concert, or maximizing your client's satisfaction and "wow factor." That's what it's all about, after all!

### Returns (Gasp!)

We've taken a lot of precautions to make sure you never even have to worry about sending a defective unit back, or sending a unit in for service. But, like any complex piece of equipment designed and built by humans, once in a while, something doesn't go as planned. If you find yourself with a unit that isn't behaving like a good little unit should, you'll need to obtain a Return Authorization (RA).

Don't worry, this is easy. Just go to our website and open a support ticket at [www.fos-lighting.eu](http://www.fos-lighting.eu), and we'll issue you an RA. Then, you'll need to send the unit to us using a trackable, pre-paid freight method. We suggest using USPS Priority or UPS. Make sure you carefully pack the unit for transit, and whenever possible, use the original box & packing for shipping.

When returning your unit for service, be sure to include the following:

- 1.) Your contact information (Name, Address, Phone Number, Email address).
- 2.) The RA# issued to you
- 3.) A brief description of the problem/symptoms.

We will, at our discretion, repair or replace the unit. Please remember that any shipping damage which occurs in transit to us is the customer's responsibility, so pack it well!

### Shipping Issues

**Damage incurred in shipping is the responsibility of the shipper, and must be reported to the carrier immediately upon receipt of the items. Claims must be made within seven (7) days of receipt.**

## Tech Specs!

### Hardware:

- Display type: Full-Color LCD
- Display resolution: 240x320 pixel
- Memory: microSD card
- DMX in port: 5-pin male connector (includes 3-pin adapter)
- DMX out port: 5-pin female connector (includes 3-pin adapter)
- DMX ports electrical standard: ANSI E1.11 / ANSI E1.20
- RJ45 port supports TCP/IP, ArtNet™; DHCP & Static IP assignment
- USB port: Micro USB B type
- Battery: 9V battery (battery not included)
- USB Power consumption: 300mA max
- Cable tester: 3/5-pin, open circuit, short circuit, wrong wiring
- Operating temperature: 0°C to +45°C / 32°F to 113°F
- Dimensions: 2.6 x 4.5 x 1.8 inches (66.5 x 115 x 44.5mm)
- Weight: 342.3g

### Firmware:

- Received DMX channels: 512
- Transmitted DMX channels: 512
- Refresh rates: 10, 15, 20, 25, 30, 35, 40 frames per second
- Transmitter break length: 160-180 microseconds (not configurable)
- Transmitter MAB length: 28-32 microseconds (not configurable)
- Timing measurement: Frames per second / Break / MAB
- Display formats: Percent, Decimal, Hexadecimal
- DMX scene storage: microSD card, 512 channels each
- Number of sequences: microSD card storage capacity dependent
- Steps in sequence: 99

### Updating the Firmware:

- 1.) Download the latest FOS RDM™ firmware update from our website. It can be found on the FOS RDM™ product webpage at [www.fos-lighting.eu](http://www.fos-lighting.eu).
- 2.) Using your computer, create a folder called **RECORDER** on the microSD card (if not already present), and copy the firmware file "xxx.upf" into it.
- 3.) Insert the microSD card into FOS RDM™.
- 4.) Have a battery in the unit so it can be powered up by using the battery.
- 5.) Turn your F O S R D M™ off.
- 6.) Now press and hold down the **<ENTER>** and **<CH+>** buttons at the same time, and then press and hold the **<MENU>** button (***while still holding down the others***), until you see that you are in firmware updated mode, then release all of the buttons.
- 7.) Using **<CH+>** and **<CH->** buttons, select the new firmware update file, then press the **<ENTER>** button to confirm. RDM™ will begin to update the firmware, and will restart automatically once the update has completed.

This page intentionally left blank.

This page intentionally left blank.



**Enjoy your product!**  
**Our sincerest thanks for your purchase!**  
**--The team @ FOS LIGHTING**