DMXPEN *live*

Design your show, record and bring with you

DMXPen Live R1-US-2012

Manual / US

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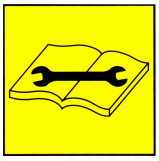


Thank you for your purchase of this DMXPen series product. The correct use of this product, will ensure functionality, long life and will avoid product failure.

Please read this manual carefully and be sure to understand the information provide to ensure safe and reliable operation. A through knowledge of the product is helpful before attempting to using it.

Warnings

1. This manual describes the DMXPen Live operating function The user must operate the product according to the performance specifications described in this operation manuals.

2. While every effort has been made to ensu e hat the information in this manual is accurate and complete, we would app ciate that you bring to our attention any errors or omissions.

3. Maintenance, inspection, and replacement of parts must be performed only by authorized personnel.

4. We reserve the right to change the specifications of the hardware and software described in th s manuals at any time and without prior notice.

5. After opening the p ckage, please make this check:

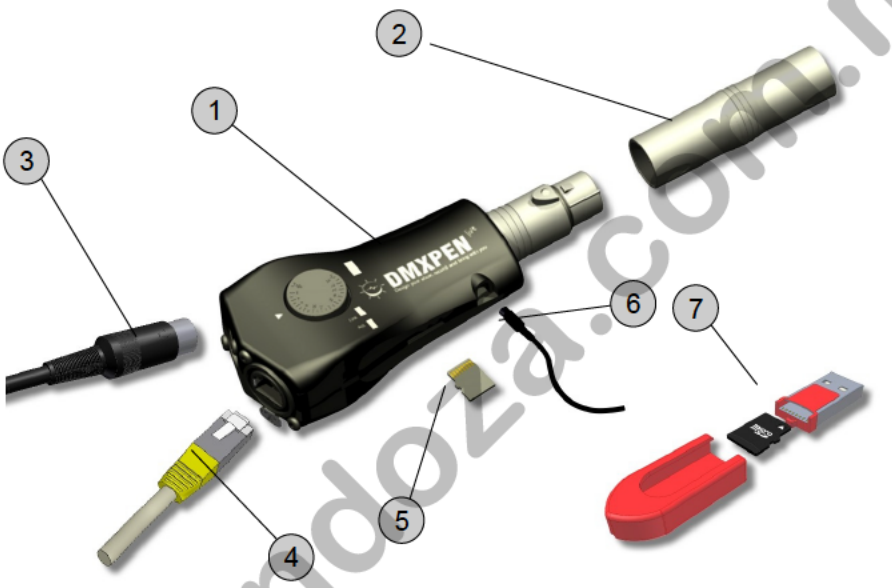
   - The received product corresponds with the ordered one.
   - No part are missing on the received product.
     The product is not damaged.
   - Contact immediately your DMXPen distributor in case of problem.

Technical Specifications

DMXPEN Live is a portable product and is supplied with an XLR Male-Male adapter, a USB-MicroSD reader, a 2 GB MicroSD card and a power adapter.

Technical Specification	
Dimension (L x W x H)	5.4 x 1.2 x 2 in (138 x 30 x 52,5 mm)
Weight	2.65 oz (75 g)
Housing Type	Satin-Finished black pla tic
10Base-T IEEE 802.3 Ethernet Interface	
USITT DMX512 Interface	
General MIDI Interface	
Manual Recording and Playback control through 25 position knob	
One complete DMX512 universe re ord ng / playback	
One complete ArtNet universe cording / playback	
ArtNet to DMX / DMX to ArtNet Conversion	
Remote Playback contro through General MIDI Port	
Automatic Loop Handling	
2GB microSD card	
XLR M/M adapter and microSD Card reader included	
Degree pro e tion	IP 30
Operating Rela ive Humidity : from 30% to 85% without condensation	
Ope ati g Temperature	-5°C + 50°C
Powe Adapter (included)	9 VDC – 500 mA
Power Supply Requirement	250 mA @ 9 VDC

Setup / Connections



1. DMXPen Live
2. XLR M/M Adapter
3. MIDI Connection
4. Ethernet Connection
5. MicroSD Card
6. Power Supply
7. MicroSD/USB Adapter

DMXPen ve an be connected to a PC or Lighting Console in two ways:

1. Direc connection using an Ethernet cross cable
2. hrough HUB connection using an Ethernet patch cable

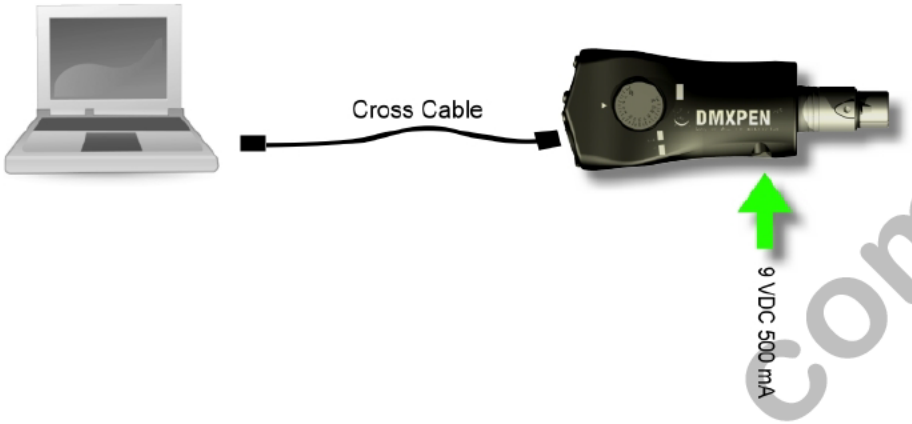


Figure 1: Direct connection to a PC using a cro s cable

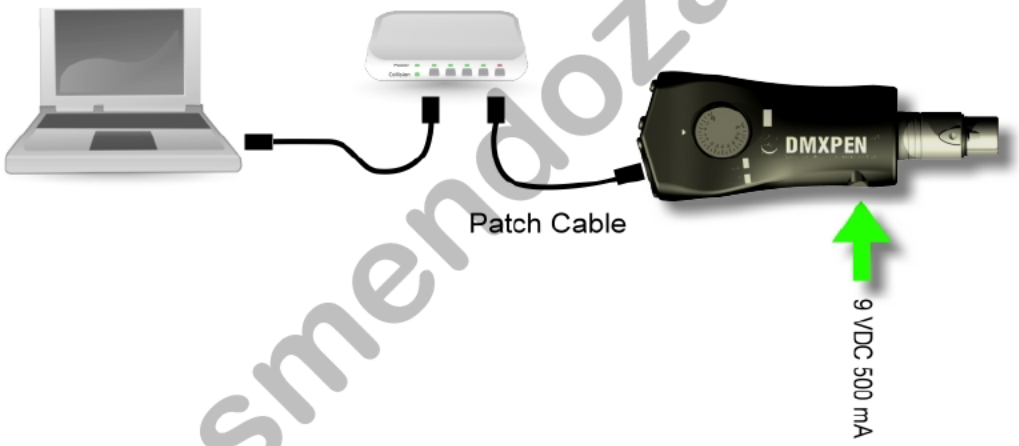


Fig re 2: Connection to PC through HUB using patch cable

With the device powered and connected, the Link LED will light red to confirm a co rect connection.

Description

DMXPen Live is a portable device with the following features:

- DMX512 Signal Recording and Playback
- ArtNet Signal Recording and Playback
- ArtNet → DMX Conversion
- DMX → ArtNet Conversion
- Recording and Playback remote control through Ethernet port
- Playback remote control through MIDI port
- Recording and Playback control through a 25 position knob

Briefly the DMXPen product line mission is record and carry DMX shows: *"Design your show, record and bring with you".*

Why recording? The first goal of a professional light programmer is to select a Lighting Console and learn to use it well, because this means freedom of expression and greater productivity.

The DMXPen products range improve this concept taking care of recording what the light programmer has realized while using his/her preferred equipment.

Why carry? Often the lighting programmer's presence is not necessary during the show playback, so s/he can program the show and record it so the end user has only the duty to activate the playback (i.e. trade show stands, retail spaces, clubs, etc.).

To do this with a Lighting Console, means carrying heavy and expensive equipment that is usually not so familiar to the end users (i.e. exhibitor, barman, custodian, etc.)

For all of these reasons the DMXPen products are the right choice because the DMXPen Live contains only the show engine with a simple user interface, that can provide show playback at a very low cost.

Functionality

Conversion

Many lighting consoles today are PC based and it is their function to edit the shows and calculate the light values on a step-by-step, frame per frame rate in real time. Then it is necessary to transmit these values to the lighting fixtures or dimmers using the DMX512 protocol. PC's are not provided with DMX512 ports, but in almost most every case are provided with Ethernet ports, so the connection to the lighting system is achieved via protocol conversion.

This concept can be also be applied to many lighting consoles that are equipped with Ethernet ports.

One of the most used protocols for the transport of DMX512 data ov r the Ethernet is the ArtNet protocol (designed and copyrighted to Artistic Licence (UK) L d) The DMXPen Live is is a complete *ArtNet Node,* able to translate ArtNet protocol to DMX512 protocol and DMX512 protocol to ArtNet protocol.

The Ethernet port availability allow us to:

- see the light programming activities in r al time
- develop a device network very easily (we can find on the market a wide range of Ethernet Hubs, Switch and Access P ints that allow us to: make a wireless or wired ArtNet network).
- implement ArtNet on a lighting console without an ArtNet interface (on DMXPen we have a bidirectional conv rs on so we can select the DMX→ArtNet function, connect the DMXPen Live o the console DMX output and obtain an ArtNet output on the DMXpen's E hernet port)
- analyse a DMX line from a PC

Remember that the DMX→ArtNet conversion is synchronous: each time that DMXPen Live receive a DMX fram , an ArtNet conversion is immediately performed and transmitted on the ArtN t port.

ArtNet→DMX conv rsion can be configured as synchronous or asynchronous. In the first case each ti e a DMXPen Live receive an ArtNet frame, a conversion to DMX is immedi te y performed and transmitted on the DMX Port.

The DMXPen can alternatively be set to perform an ArtNet frame transmission only in conjunction with a changing state event; in this case, the ArtNet → DMX conversion is configured as synchronous.

This features has the advantage to optimize system resources and helps keep the devices synchronized on the network, but can be recognised by a fixture as a loss of DMX signal, that in some case can cause an automatic home positioning.

For this reason a asynchronous transmission function has been introduced that allows the DMX signal to be transmitted at the desired fixed frame rate continuously, regardless of ArtNet frame reception.

Figure 3: DMX transmission configuration from PenSuite

Recording

On the DMXPen device recording operation is made frame by frame. This means that each frame received is compressed and stored for both DMX or ArtNet source stream. Other than the frame content, the frame rate is also measured and stored, allowing an accurate playback session.

Playback

The playback session, can be started in three different ways:

1. Through the on board multifunction selector, moving the knob on the desired position and pressing it. A second press on the knob, stops the playback.

2. Through the MIDI port, starting the playback as in an instrument preset recall.

3. From a PC connected through the Ethernet port using PenSuite or other software able to generate the DMXPen remote control commands.

On started, the playback will perform an automatic loop of the recorded session. This means that when the DMXPen transmits the last frame, it will restart from the beginning.

The playback request is also stored on the non-volatile device memory, so if the power is lost the playback will restart from the last selected session when power returned.

PenSuite is available for downloading at www.dmxpen.com on the PenSuite page , or it can be found on the microSD card supplied with DMXPen. Using the supplied card reader, you can plug in the microSD card to PC and use it like an external flash disk. On the microSD card you can find the product manuals and the PenSuite software that you can copy on your PC and launch directly.

PenSuite is available in 3 different versions: one Microsoft Windows ® version and two Apple Macintosh versions, one for MAC OS 10.4 and one for MAC OS 10.5 ® .

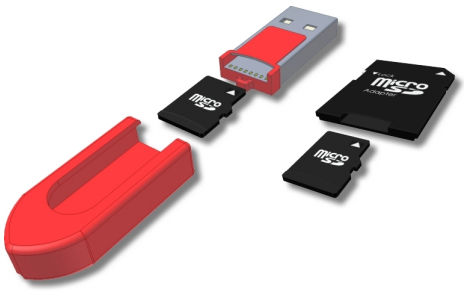


Figure 4: microSD plug in on card reader

Figur 5: a d reader plug in on PC

As you can see is very easy to get and run the P nSuite tool, moreover you can use it with different operating system and you don't n ed big installation files.

PenSuite is a single executable file, compressed to speed the download operation through from the internet (.ZIP for W ndows version and .DMG for MAC).

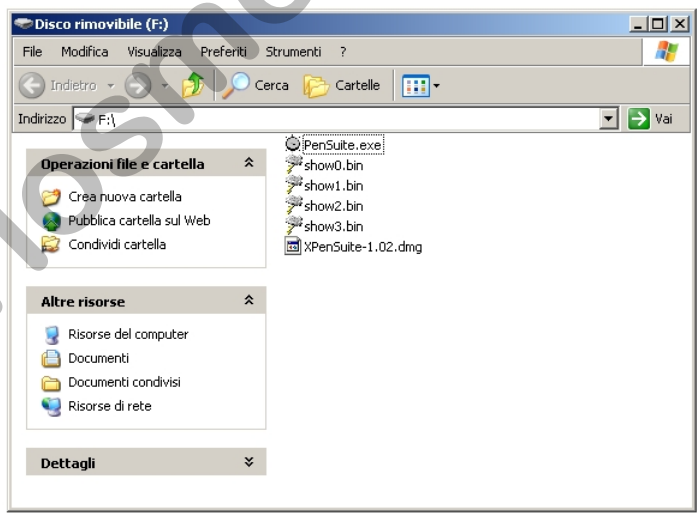


Figure 6: microSD browsing

At start up, PenSuite appear as you see in the picture abov W h this software tool the operator can Configure, Test or Analyse the device.

To allow device configuration, PenSuite has to le rn ow many device are connected to the network and who they are.

Clicking on the "Find Node" button, will tar the network scanning procedure asking PenSuite to learn and list the ArtNet devic s connected on the network. These devices will be identified by MAC and IP Address

Now by selecting the desired dev e from the node list it is possible to display that device's configuration in the window on the right side of the screen and connect it with PenSuite. This means that any configuration edit, action or diagnostic function will be applied to the selected evic .

Device configuration da a:

– ***Name**:* Name assigned from the user to the device

– ***IP Address**:* Device IP Address

– ***Subnet Mask**:* Device Subnet Mask that defines the device subnet network

– ***Broadcast Address**:* Destination IP Address for all the subnet network devices

– ***ArtNet Port**:* UDP port used from ArtNet protocol

– ***ArtNet Subnet**:* A group of 16 consecutive universes is referred to as a subnet and it's range value is 0 to 15.

– ***ArtNet Universe**:* ArtNet protocol handle a maximum number of 256 universe divided in 16 groups of 16 universe: the ArtNet Universe parameter is the universe relative to the current group and it's range value is 0 to 15.

– ***DMX TX**:* Allow to select the DMX signal transmission mode. There are 2 possible modes:

• *"DMX TX on ArtNet RX":* selecting this mode, the DMXPen transmits over the DMX line a frame only when a ArtNet frame is received. In this way the frame transmission over DMX Line is said to be synchronized with ArtNet transmission (this mode is suggested to control fast response devices like LED fixtures).

• *"DMX TX on Fixed Rate":* selecting this mode, the DMXPen transmits the last received frame continuously at selected fixed rate over DMX line (this mode is suggested when the host transmits over the ArtNet line only when a frame changes and we have fixtures that detect the DMX line absence as standby or an error condition, going i.e. to home position).

– ***Data Direction****:* As indicated from the icon on the middle of PenSuite SetUp window, the DMXPen can perform ArtNet→DMX conversion and DMX→ArtNet conversion. The green arrow displays the active mode. By clicking on the icon is possible to change the conversion data direction. The device multifunction LED displays the data direction, lighting BLUE for ArtNet→DMX data direction conversion and SKY BLUE for DMX→ArtNet data direction conversion.

Figure 7: ArtNet -> DMX data direction selection

Figure 8: DMX -> ArtNet data direction selection

Each time that a parameter is changed (except data direction changes), a star will appear to the right side of the parameter data entry and the "Store" button will became active. This is to remind you to store on the device the new value to activate the modification.

To help beginning users to easily configure all of the parameters an "Auto Set" button is provided. This procedure analyses the computer network configuration and calculates a standard device set up. All that is necessary to activate the new set up is to click on the "Store" button.

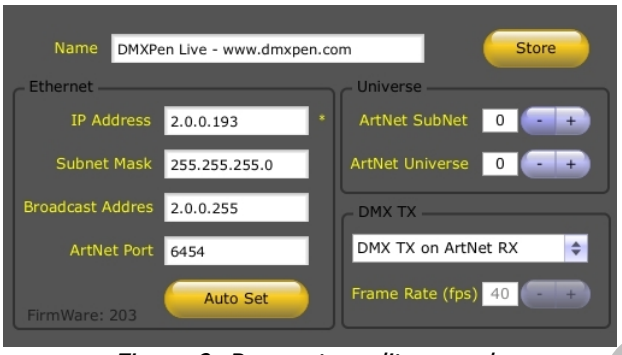


Figure 9: Parameter edit example

Regarding the device IP Address configuration, we can provide an example: imagine a network composed by three devices: The first device is viewed as the server made up by a PC running lighting software that generates ArtNet. The second and third devices are two DMXPens Live. Each DMXPen is to receive the ArtNet signal that is then converted to DMX512. The DMX output line of each DMXPen is connected to two groups of fixtures.

IP Address are composed of four sets of numbers separated by a decimal point. For the purpose of this discussion we will refer to each individual element of the address as A, B, C, and D from left to right

To realize a network as outlined by the ArtNet specification the A number of the IP Address has to be common on all devices. We can start by selecting the PC IP Address, i.e. 2.0.0.100 and a Subnet Mask as 255.0.0.0. After that we know that DMXPen Live IP Address need the same PC IP Address A number "2" and the same Subnet Mask address of 255.0.0.0 it then follows that the Broadcast Address is 2.255.255.255. We don't need any other particulars in the configuration, so we leave the ArtNet port unchanged.

The tables below outline the addressing requirements necessary to create a two universe network with the PC and two DMXPens.

PC	
IP Address	2.0.0.100
Subnet Mask	255.0.0.0

First DMXPen Live	
IP Address	2.0.0.101
Subnet Mask	255.0.0.0
ArtNet Port	6454
Broadcast Address	2.255.255.255
Subnet Switch	0
Universe Address Switch	0

Second DMXPen Live	
IP Address	2.0.0.102
Subnet Mask	255.0.0.0
ArtNet Port	6454
Broadcast Address	2.255.255.255
Subnet Switch	0
Universe Address Switch	1

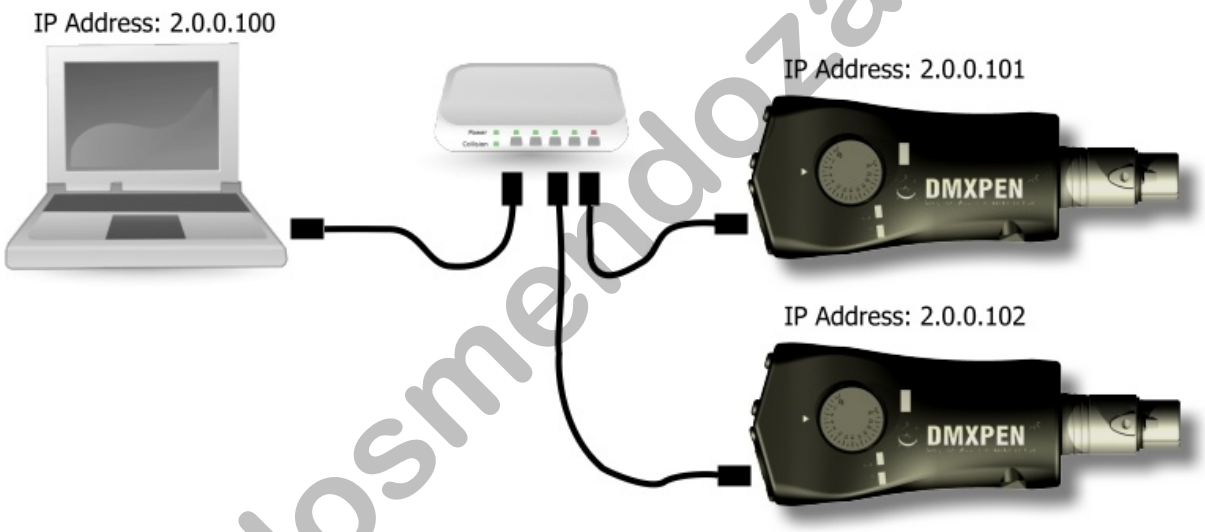


Figure 10: IP Address distribution example

Once this configuration is saved the devices are ready to use.

Refer to www.plasa.org website for more DMX512 information and www.artisticlicence.com website for ArtNet protocol information.

Selector Switch DMX Recording Mode

The DMXPen Live is designed to read a DMX signal stream coming from a DMX line but

the provided XLR connector is a female type that is considered as a DMX output line in the DMX standard. Because the DMXPen Live DMX port is a bidirectional port it can be configured as input or output. To record we need to configure it as input and convert the 5 pole XLR to a male input connector type so it can be connected to a device that transmits DMX signal. To do this a 5 pole XLR male-male adapter has been provided.

Figure 11: DMX recording set up

After the DMXPen Live is powered up, any running playback can be stopped by pressing the selector switch. Next it is necessary to ensure that DMX port is configured as an input. The multifunction LED will display this information by lighting SKY BLUE, if the light is BLUE, turn the selector switch to the change direction position, the two opposite arrows, and press the selector switch to confirm. The multifunction LED will light SKY BLUE indicating that the DMX port is configured as an input.

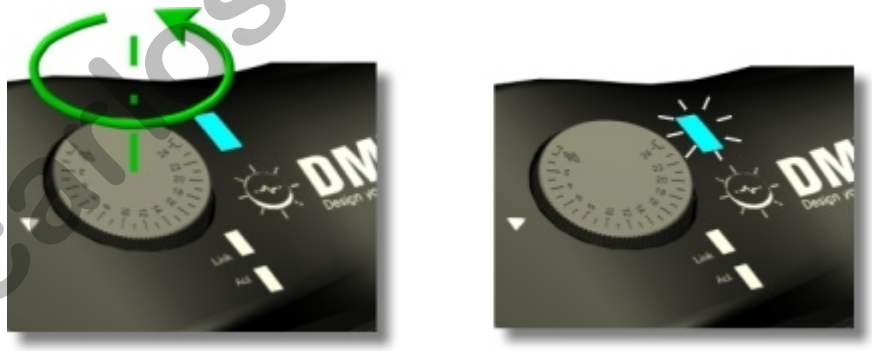


Figure 12: DMX port selection as input

Then rotate the selector to the show number that you want to assign to your recording session and press and hold the selector switch for 3 seconds. The multifunction led will light RED steady state and upon DMX signal presence will blink RED. This will start the recording session. Pressing the selector again will stop the recording session. If a recorded session is already present on the microSD card, it will be overwritten.

Selector Switch ArtNet Recording Mode

ArtNet recording procedure is similar to the DMX recording process where the difference is only in the data direction. In this case the data source is the ArtNet line and the multifunction LED display in this configuration will light BLUE. Stop any running playback by pressing once the selector switch. If the data direction configuration is incorrect, turn the selector knob to the change direction position and press the switch. The multifunction LED will light BLUE indicating ArtNet input source port selection and DMX port Output .

Connect the Ethernet cable to the RJ45 connector, and the multifunction LED w ll l ght RED and the Link LED will light RED. The GREEN Act LED will blink while receiving any Ethernet packets and the multifunction LED will blink RED when an ArtNet ame is directed to our device when the following conditions exist:

1. The destination IP Address corresponds to the DMXPen Live IP Ad ress or to the Broadcast Address configured on the device. In all cases the subnet mask address has to be the same.

2. The destination subnet switch and universe numbe is the same as configured on DMXPen Live.

If any of these conditions are not true, the multifu ction LED will not blink.

As soon as you have confirmed the corre t onfiguration, rotate the selector switch to the show number that you want to assign to your recording session and press and hold for 3 seconds. The multifunction LED w ll light RED in steady state and once an ArtNet signal is detected it will blink RED sta ting the recording session.

Pressing the selector again wil stop the recording session. If a recorded session is already present on the microSD card, will be overwritten.

PenSuite Recording Mode

The same recording operation that is performed with the on board selector switch, can be perfor ed remotely through the Ethernet port using a proprietary protocol provided by the enSuite software..

Af er launching PenSuite and performing the "*Find Node" operation* we must then select the data direction, telling the DMXPen Live the data source of the recording session. Remember that in the ArtNet→DMX data direction, the device DMX port is configured as output and each frame received from the Ethernet port will be transmitted to the DMX port.

With the DMX→ArtNet data direction configuration, the device DMX port is configured as input and each frame received from the DMX line transmitted to the Ethernet port to the Broadcast Address using the ArtNet protocol.

After the data direction selection, you can use the DMX Show control panel, to set the show number and to start and stop the recording operation .

Figure 13: Recording/Playback control panel

Selector Switch Playback Mode

The playback start operation is very easy: just rotate the selector switch to the desired the show number position and press it. Remember that during playback no need to worry about data direction as data is sent on both the DMX and ArtNet ports as outputs: Pressing the selector switch again ends playback.

Figure 14: Show selection

During playback, if the show file is present on the microSD card, the multifunction LED will light GREEN. Otherwise i t e show file associated to the selector position is empty the multifunction LED will light RED for few second before returning to s standby state.

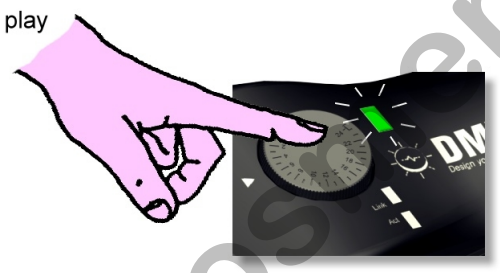


Figure 16: Show playback start

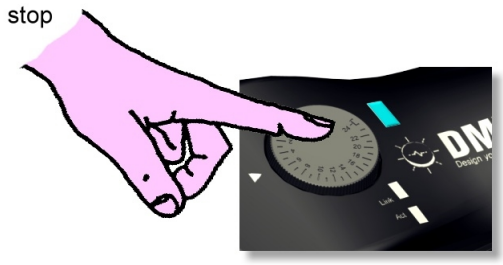


Figure 15: Show playback stop

MIDI Playback Mode

The MicroSD card recorded session can be playback also through the MIDI port using a normal MIDI device such as a guitar MIDI foot switch, MIDI keyboard, or other MIDI device.

The DMXPen products are arranged to receive *Program Change* MIDI command, used in most cases from MIDI device to recall a Preset.

The command Preset 1 recall will start show playback 1, Preset 2 recall will start show playback 2, and so on.

PenSuite Playback Mode

Playback can also be remote controlled through the Ethernet port using a proprietary protocol provided by the PenSuite software.

Remember that during playback there is no n ed to worry about data direction as data is sent on both the DMX and ArtNet ports as outputs: Pressing the *"Stop"* ends playback.

During playback, if the show file is resent on the microSD card, the multifunction LED will light GREEN. Otherwise if the show file associated to the selector position is empty, the multifunction LED will light RED for few second before returning to s standby state.

Figure 17: Recording/Playback control panel

Recording Session Handling

Recorded shows are stored in the DMXPen Live on board a microSD card as SHOWxx.BIN named files. Using the USB microSD card reader provided it is possible to copy, delete, backup, etc. all the recording session files as ordinary archive files.

Figure18: microSD Card removal

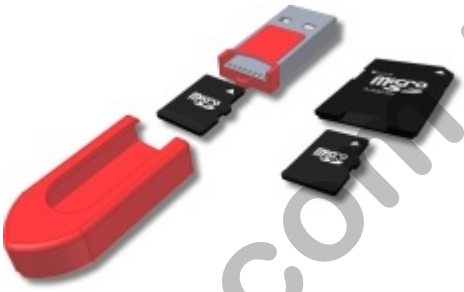


Figure 19: USB mic D Card reader provided

Quick Manual

On the www.dmxpen.com website, you can find additional documentation showing DMXPen Live operations. You can also find the complete user manual for the PenSuite software that is briefly introduced in his manual.

Warranty

12 months

Maintenance and Cleaning

No special maintenance operations are required for DMXPEN Live.

Always remember to unplug the device from the power supply during maintenance and cleaning operation.

It is strongly suggested that backup copies of the show files stored on the microSD card are made using a PC.

Use only damp cleaning cloth is used to clean the DMXPen Live. Do not use cleaning solvents or soaps.

www.DMXPen.com

www.plasa.org

www.ArtisticLicence.com