



DMXPEN *live*

Design your show, record and bring with you



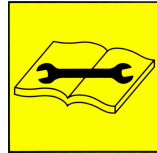
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Manual / UK

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INTRODUCTION



Thanks to buy this DMXPEN series products.

A correct use of this product, will ensure a correct functionality, a long life and at the same time will avoid product failure.

Please read this manual carefully and be sure to understand the information provide to ensure a safe and reliable application, to learn a suitable knowledge of the product and his necessary precaution before using it.

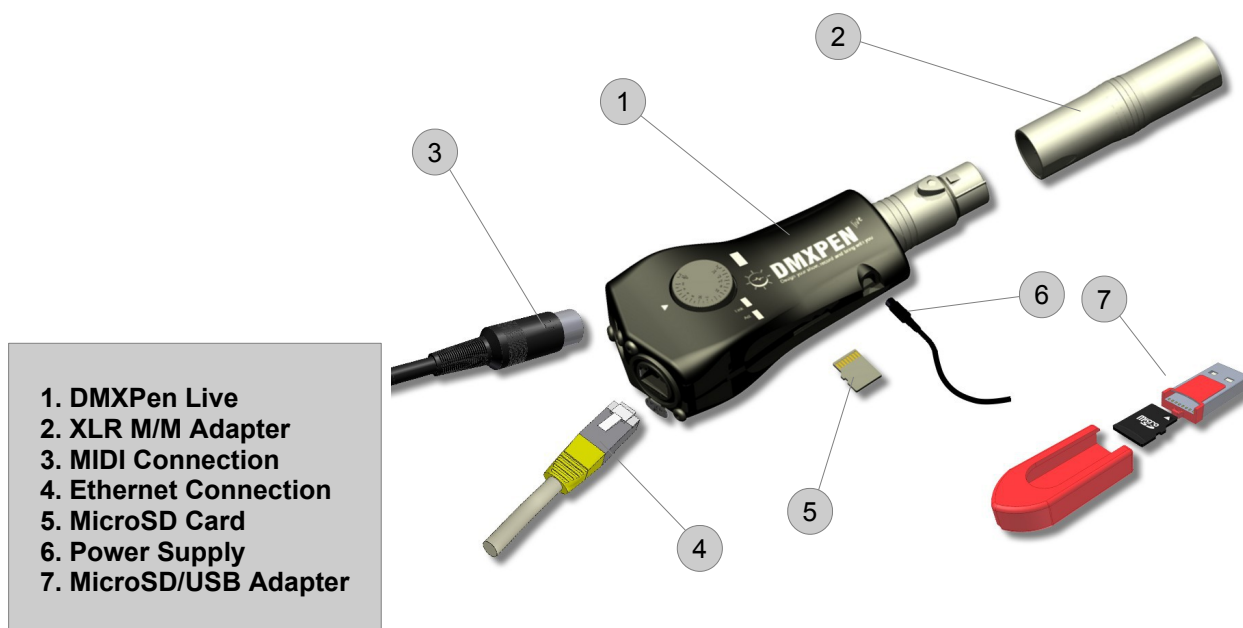
WARNINGS

1. This manual describes the DMXPEN Live operating functions. The user must operate the product according to the performance specifications described in the operation manuals.
2. While every effort has been made to ensure that the information on this manual is accurate and complete, we would appreciate any errors or omissions submitted to our attention.
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 this manuals at any time and without prior notice.
5. After the package opening, please make this check:
 - The received product correspond with the ordered one.
 - No part are missing on the received product.
 - The product is not damaged.
 - Contact immediately a DMXPen distributor in case of fault.

SET UP/CONNECTION

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)	138 x 30 x 52,5 mm
Weight	75 gr.
Housing Type	Satin-Finished black plastic
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 recording / playback	
One complete ArtNet universe recording / playback	
ArtNet to DMX / DMX to ArtNet Conversion	
Remote Playback control through General MIDI Port	
Automatic Loop Handling	
2GB microSD card	
XLR M/M adapter and microSD Card reader included	
Degree protection	IP 30
Operating Relative Humidity : from 30% to 85% without condensation	
Operating Temperature	-5°C + 50°C
Power Adapter (included)	9 VDC – 500 mA
Power Supply Requirement	250 mA @ 9 VDC



DMXPEN Live can be connected to a PC or light desk in 2 ways:

1. Direct connection using an ethernet cross cable
2. Through HUB connection using an ethernet patch cable

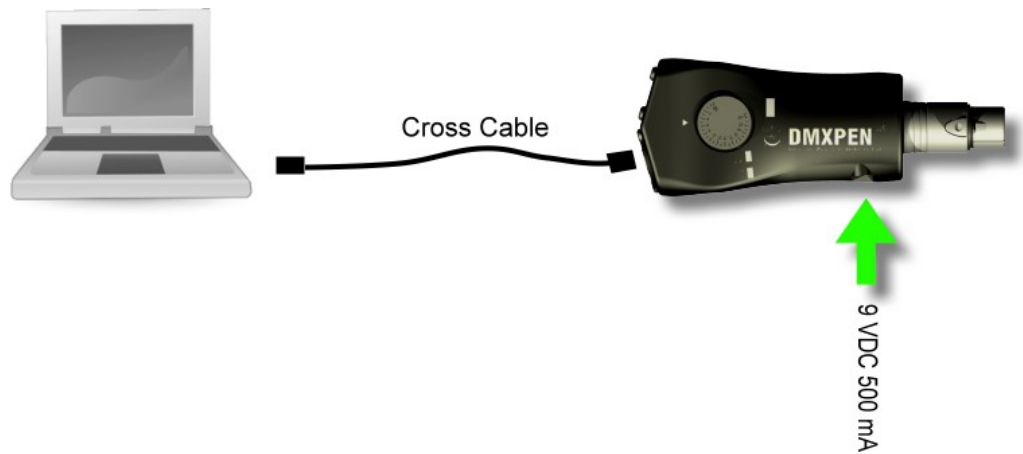


Figure 1: Direct connection to a PC using a cross cable

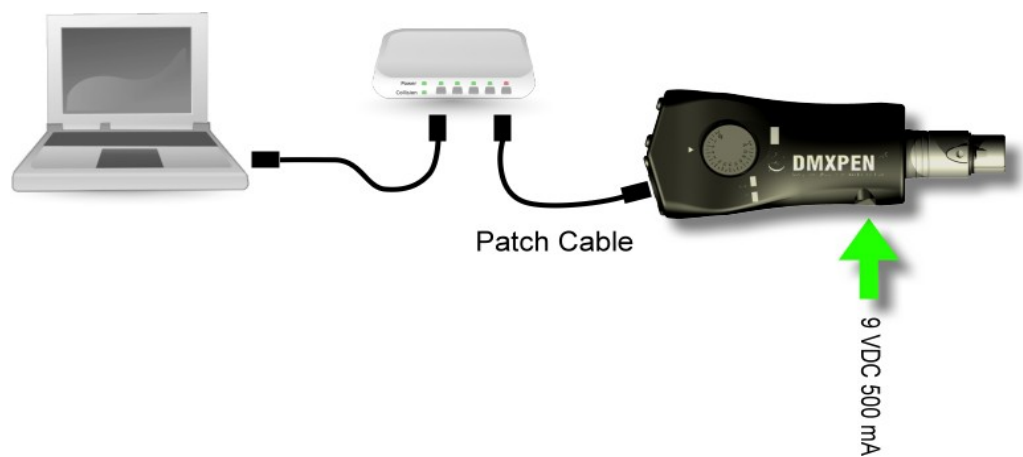


Figure 2: Connection to PC through HUB using patch cable

With the device powered and connected, the link led will light red to confirm a correct connection.

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 products mission is record and carry easily: "*Design your show, record and bring with you*".

Why recording? The first goal of a professional light programmer is to select a light desk and learn to use it in the best way, because this means freedom of expression and productivity.

The DMXPen products range improve this concept taking care of recording what the light programmer realize whit his preferred equipment.

Why carry? Often the light programmer presence is not necessary during the show playback, so he can realize the show and record it so the user has only the duty to activate his playback (i.e. fair booth, shop, club, etc.)

Moreover doing this with a normal light desk, mean carry heavy or expensive equipment that usually are not so familiar to the users (i.e. barman, custodian, etc.).

This is another issue improved from the DMXPen products because contains only the show engine with a simple user interface at a very low cost.

Conversion

Many light desk systems are PC based that are responsible to edit the show and calculate the light value step frame per frame in real time. Then is necessary to transmit this values to the fixtures using the DMX512 protocol. PC are not provided with DMX512 ports, but in most case are provided with ethernet port, so to connect PC to fixture is necessary a protocol conversion.

This concept can be applied also to many light desk that are equipped with ethernet port.

One of the most used protocol the transport DMX512 data over the ethernet line is the ArtNet protocol (Designed by and Copyright Artistic Licence (UK) Ltd) also implemented on the DMXPen Live that is from this side a complete *ArtNet Node* (device able to translate ArtNet protocol on DMX512 protocol and DMX512 protocol on ArtNet protocol).

The ethernet port availability allow us to:

- see the light programming activities in real time
- develop a device network very easily (we can find on the market a lot of ethernet HUB, Switch or Access Point allowing us to: make a WiFi ArtNet transmission, make a geographic node distribution, etc.)
- implement ArtNet on a light desk without an ArtNet interface (on DMXPen we have a bidirectional conversion so we can select DMX \rightarrow ArtNet direction, connect the DMXPen Live on a Light Desk DMX Port OutPut and obtain an ArtNet line on his ethernet port)
- analyse a DMX line from a PC

Remind that DMX \rightarrow ArtNet conversion is synchronous: each time that DMXPen Live receive a DMX frame, an ArtNet conversion is immediately performed and transmitted on the ArtNet port.

ArtNet \rightarrow DMX conversion can be configured as synchronous or asynchronous. In the first case each time a DMXPen Live receive an ArtNet frame, a conversion to DMX is immediately performed and transmitted on the DMX Port.

Can happen that a lighting software perform an ArtNet frame transmission in conjunction with a changing state event only; in this case, if the ArtNet \rightarrow DMX conversion is configured as synchronous, 1ms later, the same frame is being transmitted over the DMX line.

First of all, this features has the advantages to optimize the system resource and keep synchronized the device on the net but can be recognised from a fixture as a DMX signal absence that in some case can cause in example an automatic home positioning.

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



Figure 3: DMX transmission configuration from PenSuite

Recording

On DMXPen device the 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 3 different ways:

1. Through the on board multifunction selector, moving the knob on the desired position and pressing it. A new press on the knob, stops the playback.
2. Through the MIDI port, starting the playback like 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.

Once started, the playback perform an automatic loop of the recorded session. This means that when the DMXPen transmit the last frame, restart from the beginning.

The playback request is also stored on the non volatile device memory, so if the power is off, the playback can restart from the last selected session on power on.

PenSuite is available for downloading on www.dmxpen.com website on software section, or 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. Inside you can find the product manuals and the PenSuite tool 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 version, one for MAC OS 10.4 and one for MAC OS 10.5 ® .

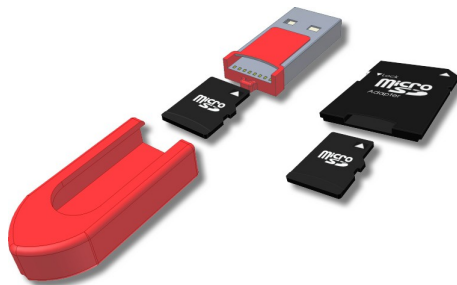


Figure 4: microSD plug in on card reader



Figure 5: card reader plug in on PC

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

PenSuite is a unique executable file, compressed to speed the download operation through the web (.ZIP for Windows version and .DMG for MAC).

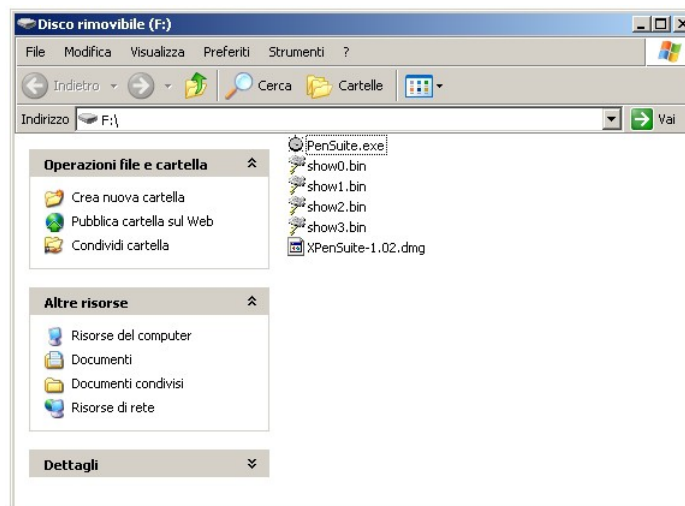


Figure 6: microSD browsing



At start up, PenSuite appear as you can see in the picture above. With this software tool the operator can Configure, Test or Analyse the device. Now we introduce the configuration section and for a exhaustive understanding refer to the PenSuite User Manual.

To allow device configuration, PenSuite has to learn how many device are connected to the network and who are it.

Pressing the "Find Node" button, we start the network scanning procedure asking PenSuite to learn and list the ArtNet device connected on the network that will be identified by MAC and IP Address.

Now selecting the desired device from the node list is possible to display the device configuration on the window right side and connecting it with PenSuite. This mean that any configuration edit, action or diagnostic function will be applied on the selected device.

Device configuration data:

- **Name:** Name assigned from the user to the device
- **IP Address:** Device IP Address
- **Subnet Mask:** Device Subnet Mask and define 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, DMXPen transmit over the DMX line a Frame only up on Frame ArtNet reception. In this way Frame transmission over DMX Line is synchronized with ArtNet transmission (this mode is suggested to control fast response device like i.e. LED devices).

- “DMX TX on Fixed Rate”: selecting this mode, DMXPEN transmit the last received frame continuously at selected fixed rate over DMX line (this mode is suggested when the host transmit over the ArtNet line only to notify frame changes and we have fixtures that detect the DMX Line absence as standby or error condition, going i.e. to home position). **Data Direction:** As indicated from the icon on the middle of PenSuite SetUp window, DMXPEN can perform ArtNet> DMX conversion and DMX > ArtNet conversion and the green arrow



Figure 7: DMX -> ArtNet data direction selection

display the active mode. By clicking on the icon is possible to change the conversion data direction. The device multifunction LED display the data direction lighting BLUE for ArtNet> DMX data direction conversion and SKY BLUE for DMX> ArtNet data direction conversion.



Figure 8: ArtNet -> DMX 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 became active to remember to store on the device the new value to activate the modification.

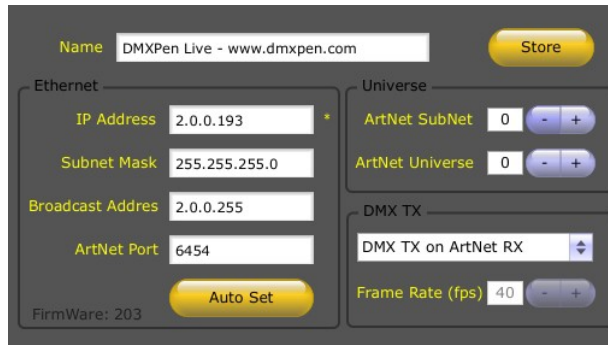


Figure 9: Parameter edit example

To help beginner user to configure easily all this parameter an "Auto Set" button is provided. This procedure analyse the computer network configuration and calculate a standard device set up. After that to activate the new set up a "Store" button click is necessary.



Regarding the device IP Address configuration we provide an example: image a network composed by 3 devices: 1 device server composed by a PC running a lighting software generating ArtNet e 2 DMXPEN Live responsible to receive ArtNet signal to be converted on DMX512 line connected to 2 fixture lines. Moreover we indicate the 4 number composing IP Address as A.B.C.D.

To realize i.e. a Class A network as indicated on ArtNet specification (A number of the IP Address has to be common on all devices), we can start selecting the PC IP Address, i.e. 2.0.0.100 and a SubNet Mask as 255.0.0.0. After that we kown that DMXPEN Live IP Address need the same PC IP Address A number (2) SubNet Mask 255.0.0.0 and BroadCast Address 2.255.255.255. We don't need other particular configuration, so we leave unchanged the ArtNet port.

For the universe number configuration, suppose to use the first 2 DMX512 universes obtaining the following configuration

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

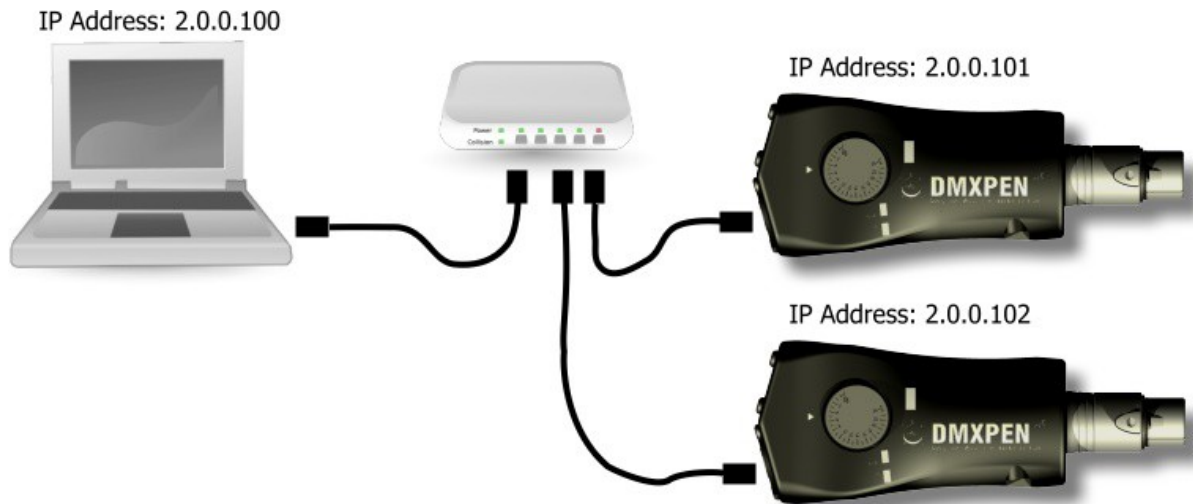


Figure 10: IP Address distribution example

At the end of this configuration, the devices are ready to use.

Refer to www.esta.org web site for more DMX512 information and www.artisticlicence.com web site for ArtNet protocol information.

Selector controlled DMX recording mode

DMXPEN Live registers a DMX signal stream coming from a DMX line but the provided XLR connector is a female type considered as DMX output line in the DMX standard. However DMXPEN Live DMX port is a bidirectional port and can be configured as input or output regardless. In this case we need to configure it as input and convert on 5 pole XLR male input connector type to be connected to a device that transmits DMX signal. To do this a 5 pole XLR male-male adapter is provided.

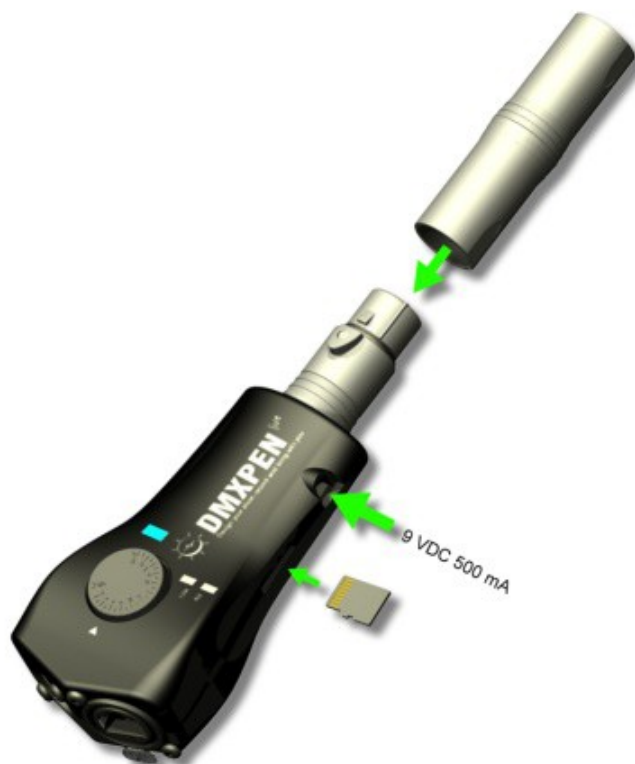


Figure 11: DMX recording set up

After DMXPEN Live power on, any running playback has to be stopped pressing the selector. Then ensure that DMX port is configured as input. The multifunction LED displays this information lighting SKY BLUE, otherwise in case of light BLUE, turn the selector on change direction position and press it. The multifunction LED will light SKY BLUE indicating DMX port input selection.



Figure 12: DMX port selection as input

Then rotate the selector on the show number that you want to assign to your recording session and press it for 3 seconds. The multifunction LED will light RED in steady state and upon DMX signal presence will blink RED starting the recording session. Pressing again the selector the

recording session is stopped. If the recording session file is already present on the microSD card, will be overwritten.

Selector controlled ArtNet recording mode

ArtNet recording procedure is similar to the DMX recording where the difference is only the data direction. In this case the data source is the ArtNet line and the multifunction led display this configuration lighting BLUE. Anyway running playback has to be stopped pressing one time the selector and if the data direction configuration is incorrect, turn the selector on change direction position and press it. The multifunction led as to light BLUE indicating ArtNet source port selection DMX port Output selection at the same time.

Connecting the ethernet cable on RJ45 connector, the multifunction led has to light RED and the RED link led has to switch on. The GREEN act led will blink receiving any ethernet packet and the multifunction led has to blink RED upon ArtNet frame directed to our device in the following condition:

1. The destination IP Address correspond to the DMXPen Live IP Address or to the Broadcast Address configured on the device. Anyway the netmask address has to be the same.
2. The destination subnet switch and universe number is the same configured on DMXPen Live.

If any of this condition are not respected, the multifunction led will not blink.

In case of correct configuration, rotate the selector on the show number that you want to assign to your recording session and press it for 3 seconds. The multifunction led will light RED in steady state and upon ArtNet signal presence will blink RED starting the recording session.

Pressing again the selector the recording session is stopped. If the recording session file is already present on the microSD card, will be overwritten.

PenSuite controlled recording mode

The same recording operation performed with the on board selector, can be performed remotely through the ethernet port using a proprietary protocol provided on PenSuite software, that can be yield upon request.

After launching PenSuite and performed *find node* first of all we can select the data direction, telling to DMXPen Live regarding the data source of the recording session. Remember that on 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.

On DMX> ArtNet data direction configuration, the device DMX port is configured as input and each frame received from the DMX line will transmitted on the ethernet port at the Broadcast Address using the ArtNet protocol.

After the data direction selection, using the DMX Show control panel, the show number can be also selected an then start and stop recording operation can be performed.



Figure 13: Recording/Playback control panel

Selector controlled playback mode

The playback start operation it's very easy: is enough to rotate the selector on the show number position and press it. Remember that playback do not take care about data direction and send data on both DMX and ArtNet port: DMX (that is switched as output) and ethernet (using ArtNet protocol). Pressing again the selector the playback will be stopped.

During playback, if the show file is present on the microSD card, the multifunction led will light GREEN. Otherwise if the show file associated to the selector position is not present, the multifunction led will light RED for few second before to back on standby state.

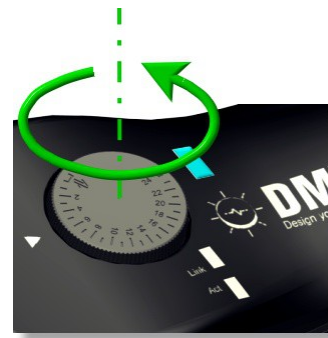


Figure 14: Show selection

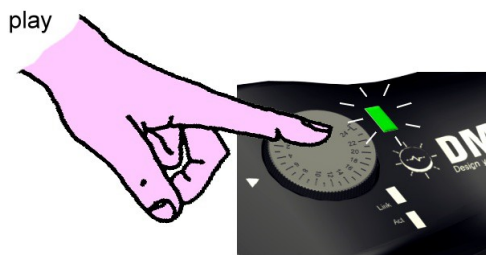


Figure 16: Show playback start

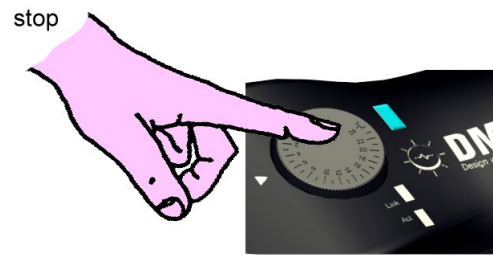


Figure 15: Show playback stop

MIDI controlled playback mode

The MicroSD card recorded session can be playback also through the MIDI port using a normal MIDI device 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 case from MIDI device to recall a preset.

A preset 1 recall will start show playback 1, preset 2 recall will start show playback 2, and so on.



PenSuite controlled playback mode

Playback can be remote controlled also through ethernet port using a proprietary protocol provided on PenSuite software, that can be yield upon request.

What we have to do to start playback is select the show number and press the "Play" button. Also in this case playback do not take care about data direction and send data on both DMX and ArtNet port: DMX (that is switched as output) and ethernet (using ArtNet protocol). Pressing again the selector the playback will be stopped.

Similarly to the selector playback control mode, during playback, if the show file is present on the microSD card, the multifunction led will light GREEN. Otherwise if the show file associated to the selector position is not present, the multifunction led will light RED for few second before to back on standby state.

Press "Stop" button to end playback.



Figure 17: Recording/Playback control panel

REMOTE RECORDING USING DMX CHANNELS 510, 511 and 512

To start show recording via channels 510, 511 and 512 received from a DMX line or ArtNet streaming, is necessary to:

1. Setup the show number (0-999) on channels 511 and 512. The show number is a 16bit parameter where channel 511 is the high byte and channel 512 the low byte.
2. Set channel 510 to 100% to start show recording and to 0% to stop the recording session. This allows for a perfect show recording synchronization.

REMOTE CHANNEL ASSIGNMENT	
Ch	Descrip
510	0%=Stop Recording, 100%=Start Recording
511	Show Number (High Byte)
512	Show Number (Low Byte)

RECORDING SESSION HANDLING

Recording session are stored on DMXPEN Live on board microSD card as SHOWxx.BIN named file. Using the USB microSD card reader provided it's possible copy, delete, backup, etc. all the recording session files as ordinary archive file.



Figure18: microSD Card removal



Figure 19: USB microSD Card reader provided

QUICK MANUAL

On the www.dmxpen.com web site, many brief documentation showing DMXPEN Live operation are provided that we suggest to use. Moreover in this user manual the PenSuite function are briefly introduced and to have more information about PenSuite refer to the PenSuite user manual.

WARRANTY

12 month

(according to D.L. n.24 2 february2002, directive 1999/44/CE of European Parliament)

MAINTENANCE / CLEANING

No special maintenance operation are required for DMXPEN Live.

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

Moreover we suggest to make a backup copy of the show file stored on the microSD card using a PC connected or other card reader device.

Use only humid cleaning cloth to clean DMXPen Live. Do not use cleaning solvent or washing powder.

www.dmxpen.com



DMXPEN

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