

Din Pixie – User Manual

SPI Pixel Strip/Dot controller: control 2 universe of LED pixels over two outputs



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Safety

 **Ensure you are familiarized with all key information within this guide and other relevant ENTTEC documentation before specifying, installing, or operating an ENTTEC device. If you are in any doubt about system safety, or you plan to install ENTTEC device in a configuration that is not covered within this guide, contact ENTTEC or your ENTTEC supplier for assistance.**

ENTTEC's return to base warranty for this product does not cover damage caused by inappropriate use, application, or modification to the product.

Electrical safety

-  ■ This device must be operated in accordance with applicable national and local electrical and construction codes.
- This device can be damaged by excess voltage outside the operating range defined within this products datasheet.
- To reduce the risk of fire or electrical faults do not exceed the ratings and limitations defined in the product datasheet or this guide.
- Ensure there are no opportunities for cables to short circuit and cabling cannot be snagged or pulled.
- Do not over stretch cabling to the device's connectors and ensure that cabling does not exert force on the PCB.
- Isolate your installation from power immediately if accessories power cables or connectors is in any way damaged, defective, shows signs of overheating or are wet.
- Remove power from this product during cleaning or when it is not in use.
- Do not connect this device to a dimmer pack or mains electricity.
- Do not connect any of this device's 0V, V- or GND connectors to earth.
- Ensure your installation is protected from short circuits and overcurrent.
- Ensure all connections are complete and secure before providing power to the device.

System Planning and Specification

-  ■ To contribute to an optimal operating temperature, where possible keep this device out of direct sunlight.
- This unit has an IP20 rating and is not designed to be exposed to moisture or condensing humidity.
- Ensure this device is only operated within the specified ranges within the product datasheet.

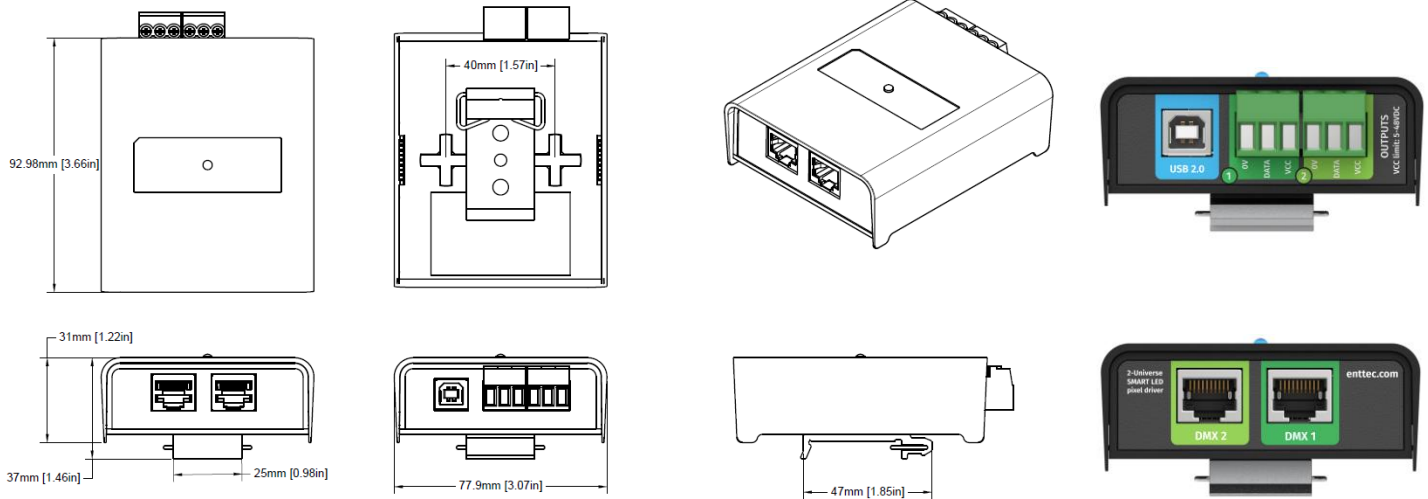
Protection from Injury During Installation

-  ■ Always use suitable personal protective equipment when installing ENTTEC products.
- Once installation is completed, check that all hardware and components are securely in place and fastened to supporting structures if applicable.

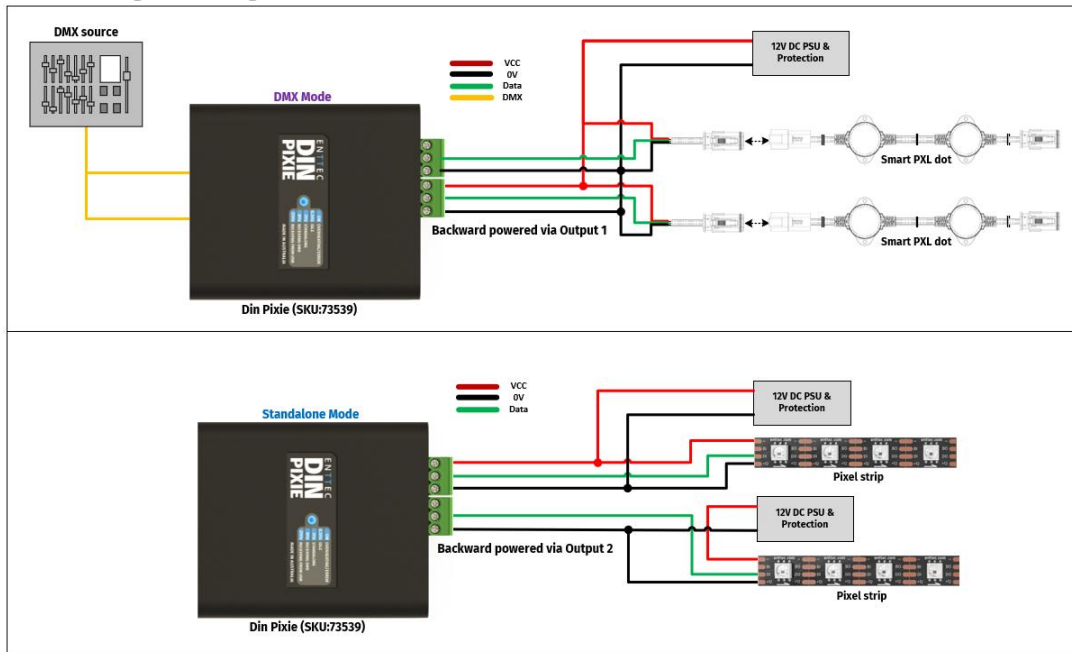
Installation Safety Guidelines

-  ■ This device is convection cooled, ensure it receives sufficient airflow so heat can be dissipated.
- Do not cover the device with insulating material of any kind.
- Do not operate the device if the ambient temperature exceeds that stated in the device specifications.
- Do not cover or enclose the device without a suitable and proven method of dissipating heat.
- Do not install the device in damp or wet environments.
- Do not modify the device hardware in any way.
- Do not use the device if you see any signs of damage.
- Do not handle the device in an energized state.
- Do not crush the device during installation.
- Do not sign off a system without ensuring all cabling to the device and accessories has been appropriately restrained, secured and is not under tension.

Physical Dimensions



Wiring Diagrams

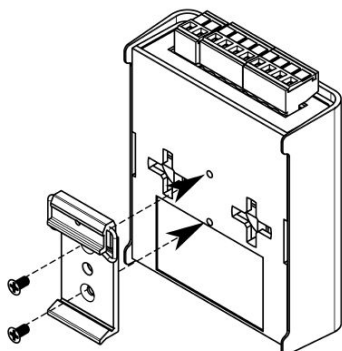


Connection via USB port will only power Din Pixie.

Mounting Methods

**MOUNTING METHOD 1:
DIN RAIL MOUNT**

ATTACH DIN RAIL CLIP WITH TWO M3X8 COUNTERSUNK PH2 PHILLIPS DRIVE SCREWS. ATTACH UNIT TO A SUITABLE TS35 DIN RAIL.



**MOUNTING METHOD 2:
WALL/PANEL MOUNT**

REMOVE DIN CLIP IF ATTACHED. SPACE 2X M3 SCREWS 40MM APART. HORIZONTALLY AND ATTACH TO TARGET SURFACE. MOUNT UNIT TO EXPOSED M3 SCREW HEADS. SLIDE DOWN TO LOCK.

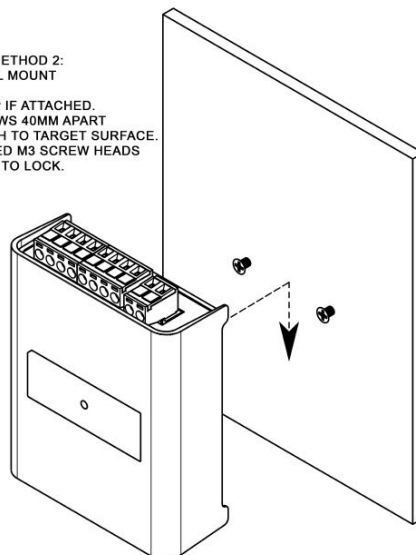


Diagram for illustration purpose only. Please refer to render or physical dimension within this document for Din Pixie overview.

Note: The surface mount tabs have been designed to hold the weight of the DIN Pixie only, excess force caused by cable strain can cause damage.

Functional features

USB Mode

Priority: High – Data from the USB will take priority over DMX and Playback data.

The Micro USB Type-B port can be used to connect the DIN PIXIE to a computer. The device can be configured and controlled via ENTTEC's PRO MANAGER software (more information under the 'Pro Manager' section of this guide).

We also provide an API for the Din PIXIE, allowing users with programming knowledge to integrate the DIN PIXIE controls into their software. This also provides users with the ability to control outputs D3 and D4 independently, providing up to 4 Universe of Pixel control. As a proof of concept, you can also use our PRO-Manager to output 4 Universes of ArtNet, though we do not recommend using this as a dedicated controller for your project.

DMX Mode

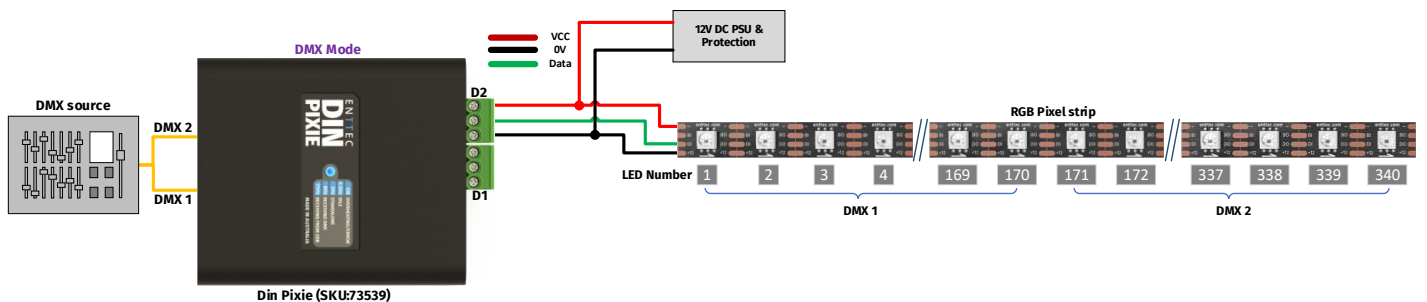
Priority: Medium – Incoming Data from the DMX ports will take priority over Playback data. DMX data will be overridden by USB data.

The DIN PIXIE output can be controlled using different 'Personalities' which can be set within PRO MANAGER. This provides flexible options to fulfil the needs of different scenarios:

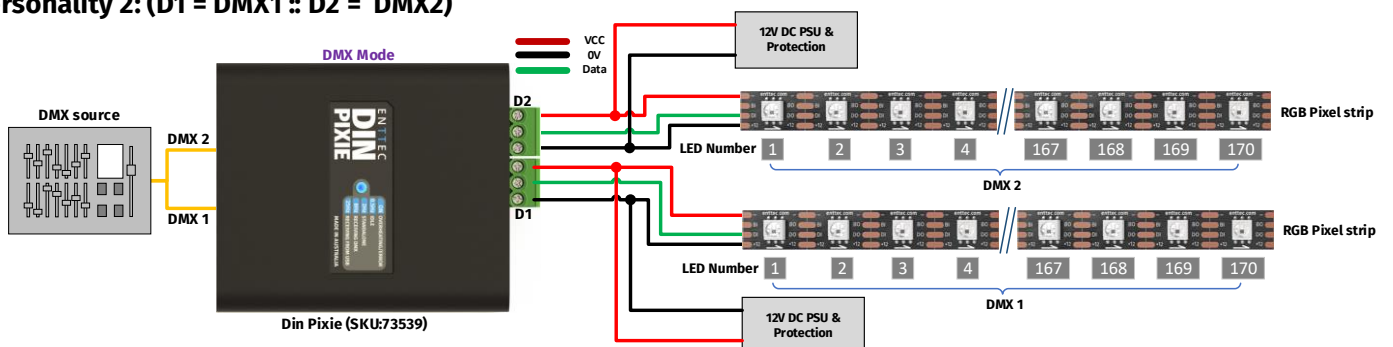
- **Personality 1 (Default):** Both outputs (D1 & D2) are identical. DMX Port 1 controls the first pixel section (170 RGB/128 RGBW pixels). DMX Port 2 directly follows at the end of DMX Port 1, controlling a second pixel section. This means that both outputs control 340 RGB/256 RGBW pixels.
- **Personality 2:** Outputs (D1&D2) are separate, meaning that each can control 170 RGB/128 RGBW pixels separately. DMX Port 1 is mapped to D1 output and DMX Port 2 is mapped to D2 output.
- **Personality 3:** DMX Port 1 controls both outputs (D1 & D2). This personality can only control 170 RGB/128 RGBW Pixels, but each output does not necessarily need to be the same, as user may select D1 & D2 DMX start address. Preview by selecting and saving DMX Pixel count.
- **Personality 4:** DMX Port 2 controls both outputs (D1 & D2). This personality can only control 170 RGB/128 RGBW Pixels, but each output does not necessarily need to be the same, as user may select D1 & D2 DMX start address. Preview by selecting and saving DMX Pixel count.

Application Example

Personality 1: (D1 = DMX1, DMX2 :: D2 = DMX1, DMX2)



Personality 2: (D1 = DMX1 :: D2 = DMX2)



Set higher grouping to control more LED via 1U DMX input.

1 DMX pixel (RGB) equals 1 Strip pixel(s) v

Standalone Mode

Priority: Low – Data from the Standalone Mode will be overridden by both USB and DMX Data.

Sequences can be recorded/loaded onto the DIN PIXIE to be played back without the need of a computer/external controller. This can be configured with our PRO MANAGER software. More details can be found within this document.

LED status indicator

The DIN PIXIE comes with a LED indicator.

Blue LED: indicates DIN PIXIE status and should be constantly flashing. Please reference the table below to identify the DIN PIXIES status:

Frequency	Status
Constant on	Overheating/Error
0.5 Hz	Unit is running normally / Idle
2 Hz	Standalone / Show is playing
8 Hz	Receiving data from DMX
25 Hz	Receiving data from USB

Out of the Box

By default, DIN PIXIE is set to DMX Personality 1, with the WS2812B protocol selected.

The screenshot shows the PRO-Manager configuration window. The 'DMX Personality' dropdown is set to 'Personality 1: (D1 = DMX1,DMX2 :: D2 = DMX1,DMX2)'. The 'DMX Start Address' is set to 1, and 'DMX2 Start' is also set to 1. The 'LED Strip Protocol' is set to 'WS2812B'. The 'Run Show on DMX loss' is set to 'YES', and 'Blackout Output' is set to 'NO'. The 'Pixel Ordering' is set to 'RGB'.

The DIN PIXIE has a scrolling rainbow sequence loaded as a Standalone show. This will start playing when the device is powered up, unless there is a signal being received by DMX or USB to test pixel strips. This Standalone show can be changed or removed from the DIN PIXIE using the ENTTEC PRO MANAGER software.

PRO-Manager

The DIN PIXIE communicates with a computer using FTDI D2XX drivers. These drivers enable the DIN PIXIE to be compatible with a range of operating system including Windows, Mac and Linux (including Raspberry Pi).

Visit FTDI website for the latest drivers and operating system installation support: ftdichip.com/Drivers/D2XX.htm

Alternatively, ENTTEC provides free Windows or Mac (up to OS 10.12) software to configure, troubleshoot, test, and update the DIN PIXIE. Pro-Manager is available to download from the [ENTTEC website](http://enttec.com).

Mac: In some cases, there might be a conflict with other drivers on the Mac, to resolve such conflicts, disable the Mac “Serial drivers” or run FTDI’s ‘D2xxHelper’.

PRO-Manager runs inside a browser window and it opens the page by default. This can also be found within a web browser by visiting: <http://localhost:5555/>.

From the PRO-Manager Home page, click the ‘Find Devices’ button to search for the DIN PIXIE connected to the computer. When a device is detected, select it from the dropdown list.

The screenshot shows the 'Find Devices' button and a dropdown list. The dropdown list is open, showing 'PIXIE DRIVER - EN88710' as the selected device.

After a device has been selected, the Devices Serial Number and Firmware version will be displayed in the top Right of the screen.

The screenshot shows the device information displayed in the top right corner: 'PIXIE Driver (00288710) / Firmware: 1.18'.

Devices

This page provides information about the DIN PIXIE's state and the ability to configure the device.

This will display:

- **Devices Serial Number**
- **Devices Firmware version**
- **Device Type**
- **Device Capability**
- **DMX Personality: Choose between Personality Modes (see Functional Features within the document)**
- **Start Address: Offset the DMX start address. The increments are based on Pixel Ordering (RGB increments of 3, RGBW increments of 4).**
- **LED Stop Protocol: Choose the relevant protocol to work with your Pixels (more information on this can be found on our website).**
- **Run Show on DMX Loss: If no DMX signal is received for 3 seconds, any standalone show saved on the DIN PIXIE will be played back.**
- **Blackout Output: As the last values received are held on the Pixels, if no DMX or USB signal is received for 30 seconds, the channels will be set to 0.**
- **Pixel Ordering: By default, the DIN PIXIE is set to RGB. It is recommended that you set this to your Pixel color order. These orders are any combination of RGB and RGBW. If the programming has been done with a different pixel order, you can use this to make the change within the DIN PIXIE, saving having to re-program.**
- **Firmware Update**

The screenshot shows two panels from the ENTTEC PRO-Manager software. The top panel, titled 'DEVICE INFORMATION', displays the following data: Device Serial No. 00288710, Device Firmware 1.18, and Device Type (with an image of the DIN PIXIE device). The Device Capability section shows 'DMX' and 'Standalone Show' both with green checkmarks. The bottom panel, titled 'PIXIE SETTINGS', shows the 'DMX Personality' section with 'Personality 1: (D1 = DMX1.DMX2 :: D2 = DMX1.DMX2)' selected. Other settings include 'DMX1 Start: 1', 'DMX2 Start: 1', 'LED Strip Protocol: WS2812B', 'Run Show on DMX loss: YES', 'Blackout Output: NO', and 'Pixel Ordering: RGBW'. There are buttons for 'Reset to Factory Defaults' and 'Save Settings'.

Firmware update

The Firmware update procedure can be used to:

- Update to the latest feature set.
- Reset DIN PIXIE if it ever gets stuck or stops responding. (error mode).

The following steps will explain the firmware update procedure:

1. Within PRO-Manager Device Tab, at the bottom of the screen is a drop down to select a default firmware option or download a version from the ENTTEC website and locate it manually with 'Choose File'.

The screenshot shows the 'FIRMWARE UPDATE' section of the software. It includes a 'Select Firmware File' dropdown menu, a 'Choose File' button, and a status indicator 'No file chosen'. There is an 'Update Firmware' button and a note 'on PIXIE Driver(s)'.

2. After selecting the firmware file, click on the "Update Firmware" button and let the update proceed. Do not remove the USB cable until the update is complete. The update progress is displayed on the webpage.

The screenshot shows the 'FIRMWARE UPDATE' section during a firmware update. A message states: 'Firmware update in progress, please do not unplug device or interrupt.' Below this is a progress bar labeled 'Update:' and 'Firmware update status: 72 %'.

3. Once Finished, the page will automatically refresh, and device information will be updated to reflect the updated firmware.

SEND

PRO-Manager can be used to test the output of the DIN PIXIE. The test output can be sent in the following ways:

- "Test Patterns" and select one of the pre-programmed test patterns to test the DMX output
- "Live Art-Net" which will start listening for an Art-Net Broadcast though the loopback IP address (127.0.0.1).

- “From Faders” and drag the desired channels fader to test the DMX output.

You can then set which output the test signal is sent to (D1/D2) and you can also set the Section - First pixel section (170 RGB/128 RGBW pixels), followed by the Second section controlling the next pixels (170 RGB/128 RGBW pixels).

The output can then be verified using a length of Pixel Strip /Dots connected to the DIN PIXIE's output.

DMX Send is not designed as a Lighting Control software, it's designed as a troubleshooting tool. After testing, PRO-Manager will need to be closed, before opening the preferred lighting control software. The DIN PIXIE will only be recognised by one software at a time, as the software latches onto the USB port.



Standalone mode

The standalone mode built into the DIN PIXIE allows the recording and playback of a sequence/show.

The DIN PIXIE Standalone Mode can control up to 2 Universe and is configured using the PRO-Manager software.

Recordings can be made by using the DIN PIXIE's Art-Net input though the connected computers internal loopback IP address (127.0.0.1).

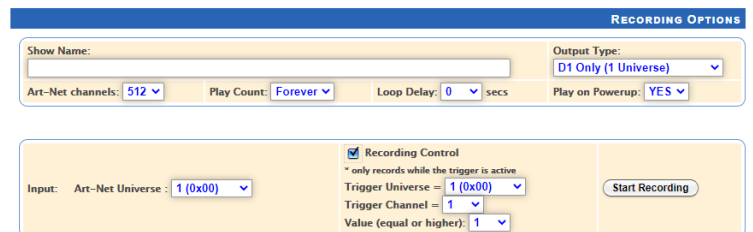
The DIN PIXIE only records the changing frames, to maximum the length of the recording.

The playback of the Standalone sequence/show can be triggered from within Pro Manager or on Power Up of the DIN PIXIE.

Recording Options:

Below is a guide to the recording process.

- Show Name: Name to identify the show being recorded.
- Output Type: Define what outputs the recording will be played back on.
- ArtNet Channels: The number of channels to record per DMX Frame (less channels = longer duration of recording)
- Play Count: Total number of times the show is played back (from 1 to Forever).
- Loop Delay: The number of seconds delay, between each Loop playback.
- Play on Powerup: If set to Yes, this will automatically start outputting the show when power is received.
- ArtNet Universe: Set the Input universe that is being recorded.
- Recording Control: If you want to use an Art-Net Trigger (using an ArtNet value to start and stop the recording). Set the Universe, Channel and Value, whilst the value being received is above the value set, the DIN PIXIE will record, if it below it will either not record or will stop recording.



Start Recording

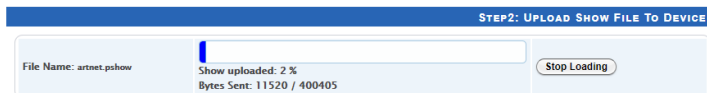
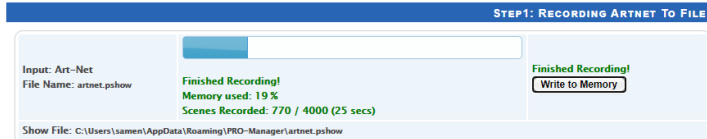
Initially the sequence/show is recorded to a binary file, that is saved onto the connected computer in a location shown under the progress window.



Recording begins, only when the first frame is captured. Recorded frames as counted, are shown and an estimate of the memory usage is also shown via the progress bar. The recording will stop automatically if all memory has been used.



Once the recording process has finished, click on “Stop recording”. Once the recording has been stopped, click on “Write to Memory” button. This will then load the show file on to the memory of DIN PIXIE and the progress is shown on the page. It is important, not to interrupt the memory load process, as it might corrupt the show. Please wait till the upload progress finalises.



Once complete, the page will reload and will display the Standalone Show Control window.

Standalone show control:

This page will display information based on the current sequence/show which has been recorded based on the settings set during the record process. Below is a guide to the Playback control.

- **Play Icon:** This will start the Standalone Mode playback
- **Stop Icon:** This will stop the Standalone Mode playback
- **Record Icon:** This will wipe current Standalone sequence/show and allow a new sequence/show to be recorded



- **Export Show to File:** This will download the sequence/show on the DIN PIXIE to a binary file to a computer connected to the DIN PIXIE. This file can then be transferred to another computer if required.
- **Import Show to DIN PIXIE:** This will import the sequence/show on the DIN PIXIE from a binary file on the computer connected to the DIN PIXIE. This export/import process allows the duplication of a showfile onto multiple DIN PIXIE devices.
- **Delete Show:** This will delete the current sequence/show from the DIN PIXIE, ready for a new sequence/show to be recorded. If you do not want the DIN PIXIE to generate any output when powered up, it can be done by erasing the pre-loaded standalone show.

DMX ports

The DIN PIXIE features two RJ45 ports for DMX Input.

Pin 1: Data+ Pin 2: Data- Pin 7 & 8: 0V

Label any RJ45 DMX connector and DO NOT connect it to non-DMX ports (i.e. Ethernet Switches). Connecting incompatible systems could result in permanent damage to DIN PIXIE and similar equipment.

Servicing, Inspection & Maintenance

-  ■ **The device has no user serviceable parts. If your installation has become damaged, parts should be replaced.**
-  ■ **Power down the device and ensure a method is in place to stop the system from becoming energized during servicing, inspection & maintenance.**

Key areas to examine during inspection:

- Ensure all connectors are mated securely and show no sign of damage or corrosion.
- Ensure all cabling has not obtained physical damage or been crushed.
- Check for dust or dirt build up on the device and schedule cleaning if necessary.
- Dirt or dust buildup can limit the ability for a device to dissipate heat and can lead to damage.

The replacement device should be installed in accordance with all steps within the installation guide. To order replacement devices or accessories contact your reseller or message ENTTEC directly.

Cleaning

Dust and dirt build up can limit the ability for the device to dissipate heat resulting in damage. It's important that the device is cleaned in a schedule fit for the environment it is installed within to ensure maximum product longevity.

Cleaning schedules will vary greatly depending on the operating environment. Generally, the more extreme the environment, the shorter the interval between cleanings.

-  ■ **Before cleaning, power down your system and ensure a method is in place to stop the system from becoming energized until cleaning is complete.**
-  ■ **Do not use abrasive, corrosive, or solvent-based cleaning products on a device.**
- **Do not spray the device or accessories. The device is an IP20 product.**

To clean an ENTTEC device, use low-pressure compressed air to remove dust, dirt, and loose particles. If deemed necessary, wipe the device with a damp microfiber cloth.

A selection of environmental factors that may increase the need for frequent cleaning include:

- Use of stage fog, smoke or atmospheric devices.
- High airflow rates (i.e., in close proximity to air conditioning vents).
- High pollution levels or cigarette smoke.
- Airborne dust (from building work, the natural environment or pyrotechnic effects).

If any of these factors are present, inspect all elements of the system soon after installation to see whether cleaning is necessary, then check again at frequent intervals. This procedure will allow you to determine a reliable cleaning schedule for your installation.

Package Contents

- DIN PIXIE
- DIN mounting clip + screws
- USB Type A -> USB 2.0 Type B cable

Ordering Information

For further support and to browse ENTTEC's range of products visit the [ENTTEC website](https://www.enttec.com).

Item	Part No.
DIN PIXIE	73539

enttec.com

MELBOURNE AUS / LONDON UK / RALEIGH-DURHAM USA

Due to constant innovation, information within this document is subject to change.