ENTTEC

SMART PXL 40 Dot - Installation Guide

High-Resolution Smart 40mm RGB pixel dots.

SMART PXL 16-BIT

AUSTRALIAN DESIGNED + MADE

Robust and reliable, ENTTEC's high-resolution, individually addressable SMART PXL Dots are designed and made in Australia from marine grade aluminum to withstand the harshest of environments.

Easy to install and configure into any conceivable shape, SMART PXL Dots create spectacular, crisp lighting effects while adding a stylish design element to your venue or installation chose between default options and custom lengths.
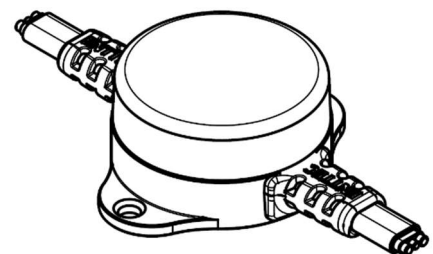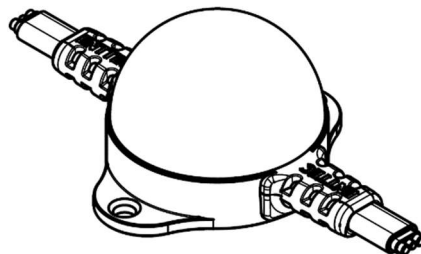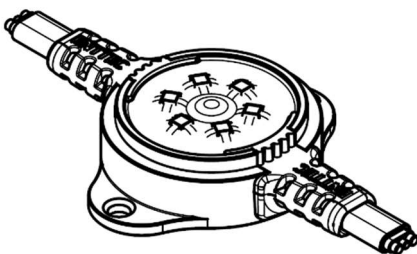
Engineered to take any architectural, commercial or entertainment project to the next level, the SMART PXL range has been created by lighting professionals for lighting professionals.

FEATURES

■ **Auto-addressing to ensure fast commissioning**

■ **16-bit control for ultra-smooth dimming or option for 8-bit control (only with ENTTEC pixel controllers).**

■ **125mm default pixel pitch (customizable; min/max length: 125mm/2000mm).**

■ **Default string - 20 dots with premium IP-rated connectors at each end.**

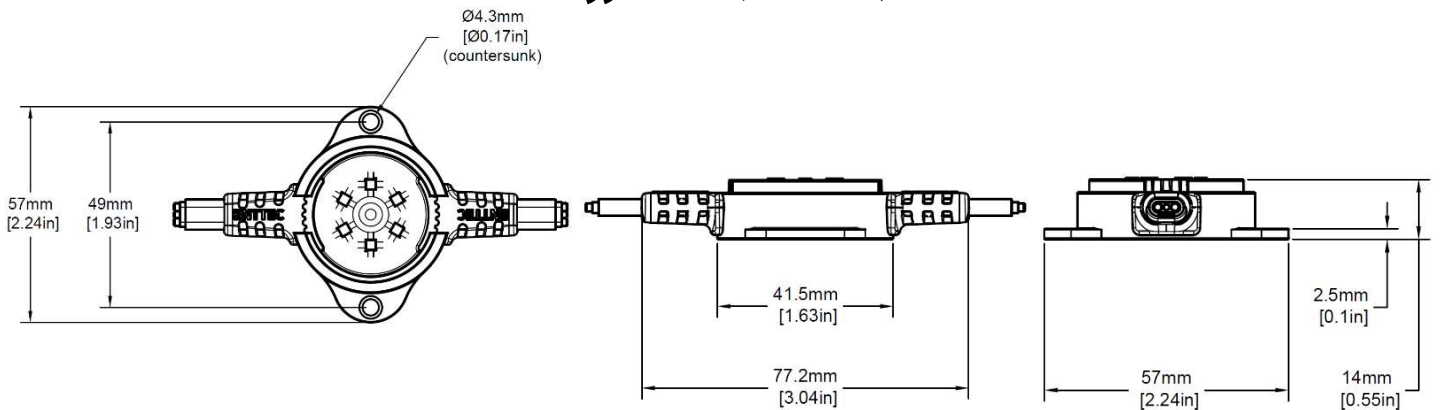■ **This product requires an external DC power supply and data source for operation.**

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Physical Dimensions

Note: Diffusers are non-removable

Smart PXL 40 Dot - No Diffuser (73010)

Ø4.3mm
[Ø0.17in]
(countersunk)

57mm
[2.24in]

49mm
[1.93in]

41.5mm
[1.63in]

77.2mm
[3.04in]

2.5mm
[0.1in]

57mm
[2.24in]

14mm
[0.55in]

Smart PXL 40 Dot - Dome Diffuser (73011)

Ø4.3mm
[Ø0.17in]
(countersunk)

57mm
[2.24in]

49mm
[1.93in]

41.5mm
[1.63in]

77.2mm
[3.04in]

2.5mm
[0.1in]

57mm
[2.24in]

31.2mm
[1.23in]
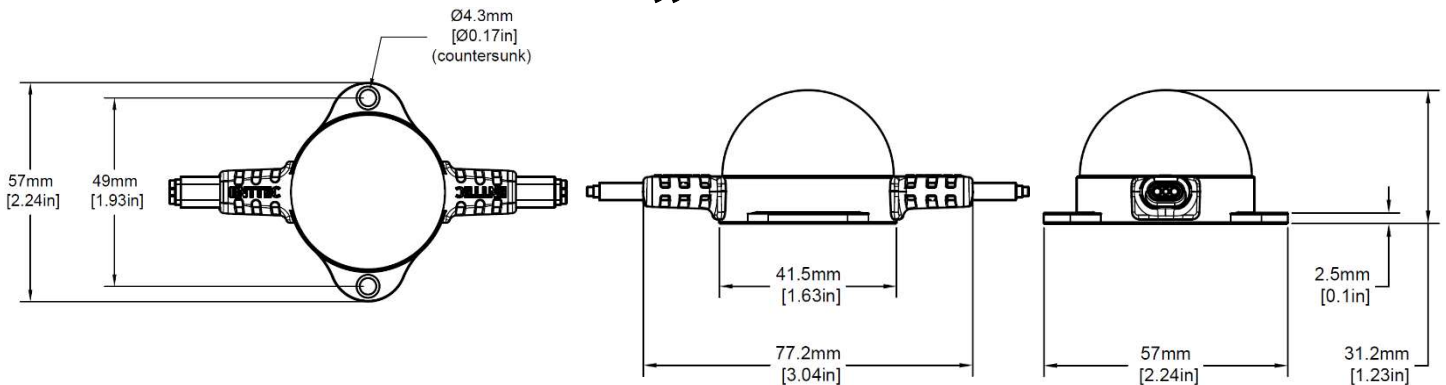
Smart PXL 40 Dot - Flat Clear Diffuser (73012)

Ø4.3mm
[Ø0.17in]
(countersunk)

57mm
[2.24in]

49mm
[1.93in]

41.5mm
[1.63in]

77.2mm
[3.04in]

2.5mm
[0.1in]

57mm
[2.24in]

22.09mm
[0.87in]

Connector

58.4
mm

19.

21
mm

43.9
mm

23mm

20.7
mm

1 4
2 3

4 1
3 2

PIN 1	PIN 2	PIN 3	PIN 4
V-	DATA	NC	+24V

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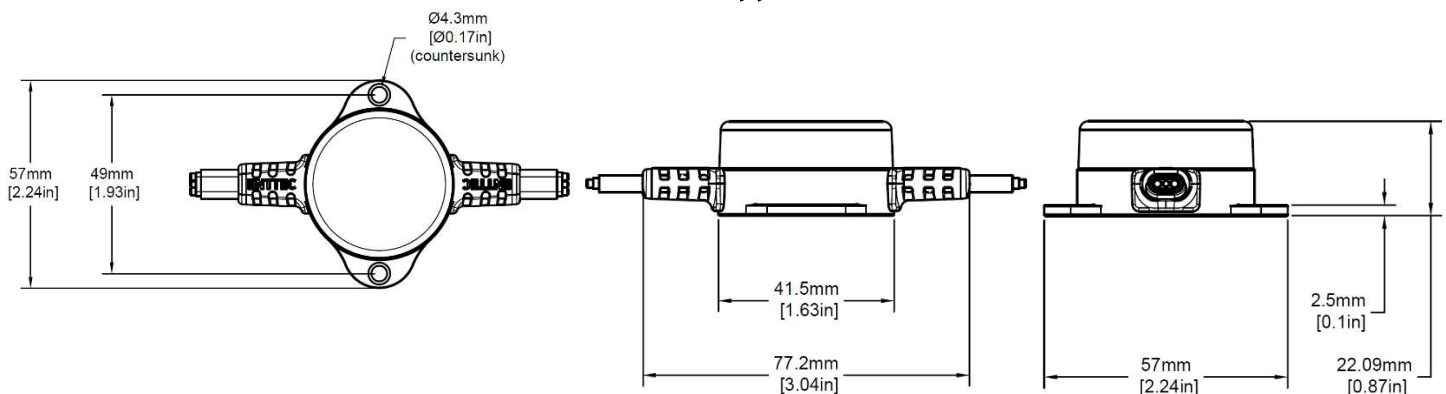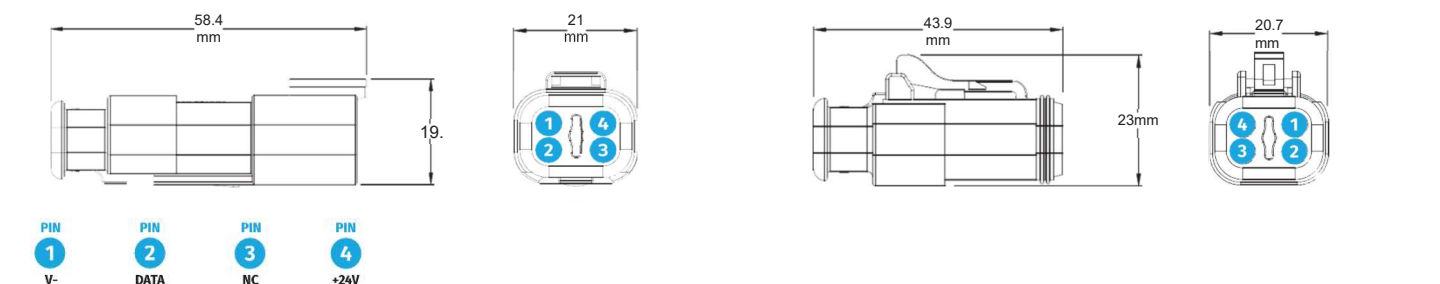
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All ENTTEC Smart PXL Dot accessories are built using the same cabling and connectors as the Smart PXL Dots themselves and feature industrial grade heat shrink to provide additional durability to each connector.

Smart PXL – 2m Male Cable - 24v (73017)

Used as a convenient method to connect your Smart PXL Dot's output to a connection block or other device without the need to terminate an Amphenol AT series connector on site.

PIN	PIN	PIN	PIN
1	2	3	4
V-	DATA	NC	+24V

Smart PXL – 2m Female Cable - 24v (73018)

Used as a convenient method to connect your Smart PXL Dot strings to a connection block or other device without the need to terminate an Amphenol AT series connector on site.

PIN	PIN	PIN	PIN
1	2	3	4
V-	DATA	NC	+24V
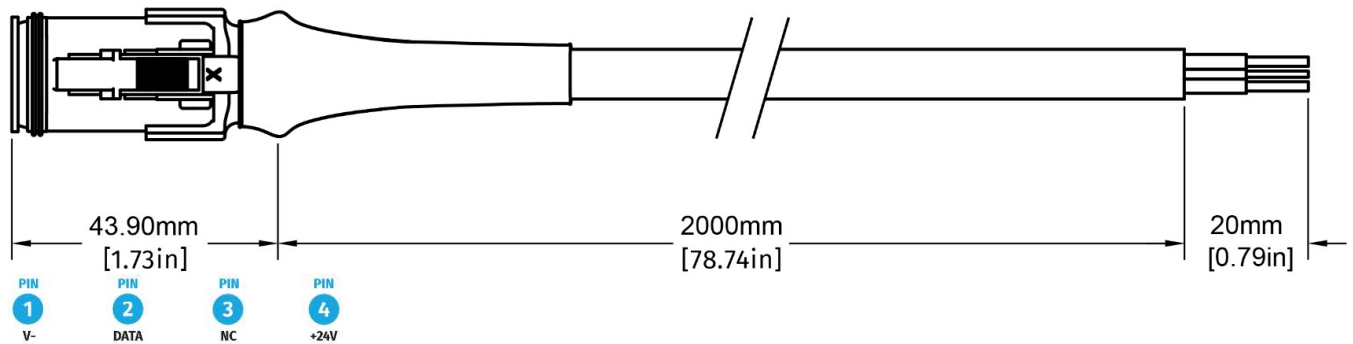
Smart PXL – Power Injector - 24v (73019)
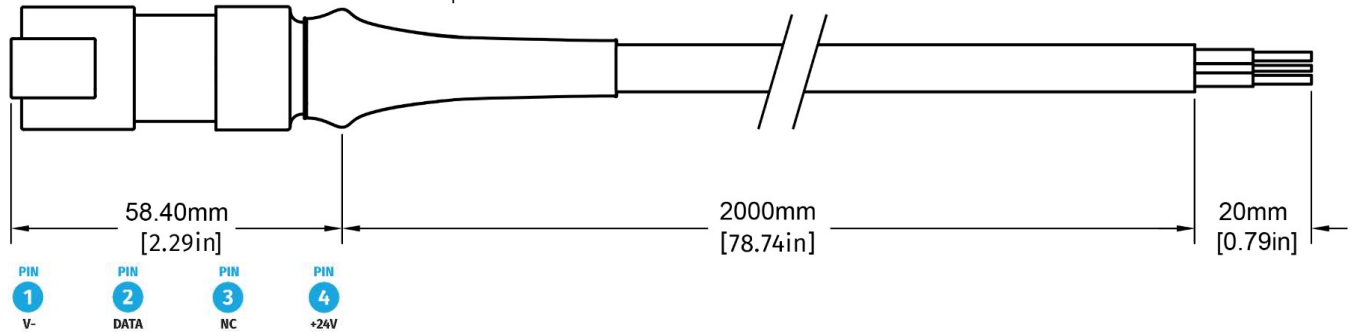
Used as a convenient method to increase the number of Smart PXL Dots per chain by up to 76 (at 125mm pitch) by combatting voltage drop and injecting up to 10A of power. The power injector accessory features reverse polarity and transient voltage protection.

PIN	PIN	PIN	PIN
1	2	3	4
V-	DATA	NC	+24V

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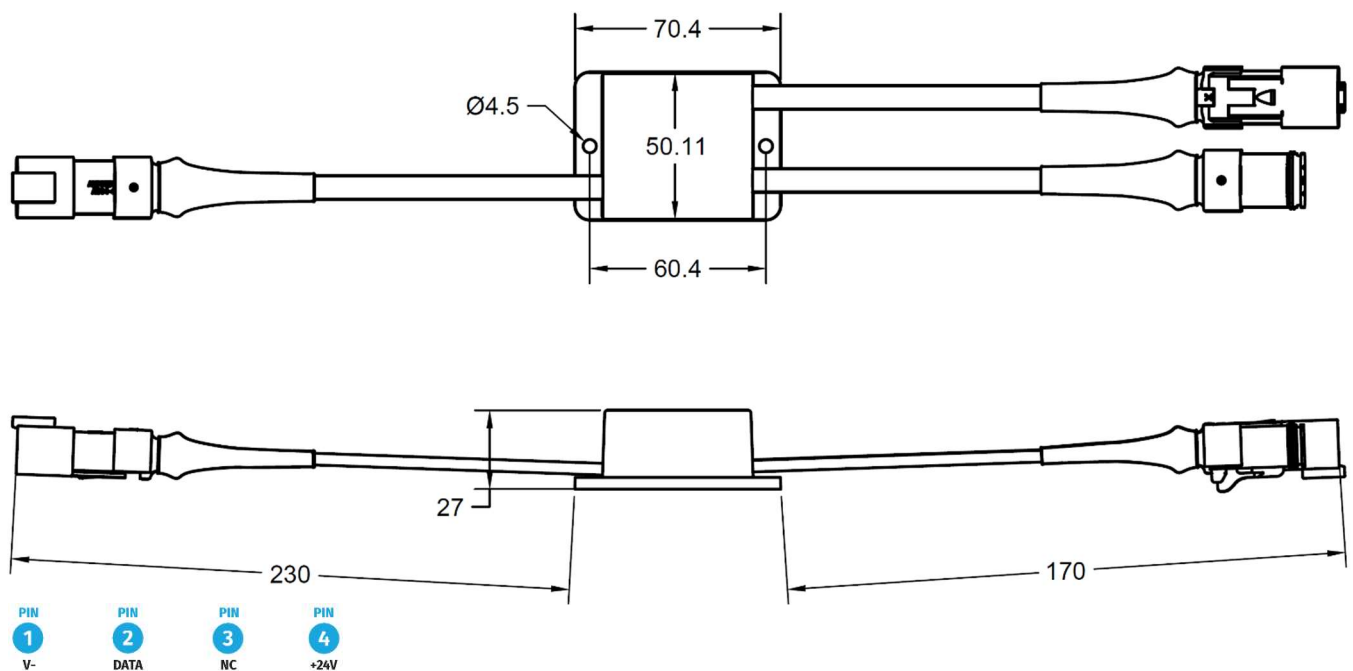
Smart PXL – 2m Extension - 24v (73020)

Used as a convenient method extend the distance between each Smart PXL Dot string. (Never exceed the cable lengths defined within this guide.

PIN	PIN	PIN	PIN
1	2	3	4
V-	DATA	NC	+24V

Smart PXL – Termination End Cap (73015)

The Smart PXL Termination End Cap should be attached at the end of a chain of Smart PXL DOTs to protect the final female Amphenol AT series connector from short circuiting and corrosion in wet conditions. This can be secured to a surface using an m5 screw or bolt.
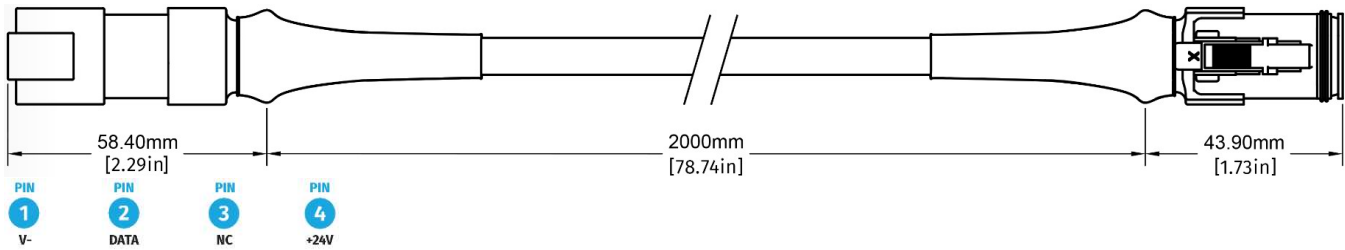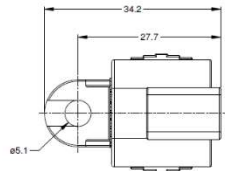
Cable Core Identification Chart – 24v

Each Smart PXL string or accessory is comprised of 3 cores, the pinout is as follows:

Identifier	Function	Pin on Amphenol Connector
Thick black core	V-	1
Thin black core	Data	2
Thick black core with white stripe	24V DC +	4

ENTTEC recommend the use of cable ferrules when connecting non-tinned cable.

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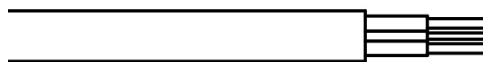
Check and respect all directions and warnings given within this installation guide before specifying, installing and operating a Smart PXL Dot system. If you are unsure or still have any questions about how to install or operate this product safely, please contact your ENTTEC supplier or speak with ENTTEC directly.

Key Electrical Safety

- This product must be installed in accordance with applicable national and local electrical and construction codes by a person familiar with the construction and operation of the product and the hazards involved. Failure to comply with the following installation instructions may result in death or serious injury.
- This device can be damaged by excess voltage. The installation of an overvoltage protection device on the electrical system may reduce the risk of damage.
- Provide a means of locking out AC mains power to the installation to be shut down and made impossible to reapply accidentally.
- The use of an adequate RCBO along the mains power inlet to your installation is recommended.
- Before applying power to the installation, check that all power distribution equipment and cables are in a perfect condition and rated for the current requirements of all connected devices and factor in overhead.
- Isolate the installation from power immediately if Smart PXL Dots, accessories power cables or connectors is in any way damaged, defective, shows signs of overheating or are wet (if not an IP65 component).
- Do not exceed the maximum numbers of Smart PXL Dots and accessories that can be connected and the maximum cable lengths specified in this guide and other product documentation.
- To reduce the risk of fire or electrical faults do not exceed the ratings and limitations defined in the product datasheet or this guide.
- Do not hot swap Smart Pixel strings or accessories.
- Shut down power to the installation during cleaning in addition to when the system is not in use.

Electrical Information

- This device operates on DC power and excludes an earth connection.

Installation Safety

- Do not bend the Smart PXL 40 cable into a curve of less than 30 mm radius.
- Do not over stretch cabling sections of your Smart PXL 40 Dots.
- Do not operate the Smart PXL Dots if the ambient temperature exceeds 50° C (122° F).
- The Smart PXL Dots are convection cooled, ensure sufficient airflow can reach each dot to allow heat to be dissipated.
- Do not cover or enclose Smart PXL Dots without a suitable and proven method of dissipating heat.
- To contribute to an optimum operating temperature, where possible keep this device out of direct sunlight.
- Do not modify the Smart PXL Dots system in any way.
- Follow all steps in the installation guidelines section of this document.

Protection from Injury During Installation

- Always use suitable personal protective equipment when installing ENTTEC products.
- When installing the Smart PXL Dots above ground level, ensure that the installation hardware and supporting structure can hold at least 10 times the weight of all the devices they support.
- In an overhead installation or where the Smart PXL Dots system may cause injury if it falls. Block access below the work area and work from a stable platform whenever installing, servicing or moving the Smart PXL Dots system.
- Once installation is completed, check that all hardware and components are securely in place and fastened to supporting structures.

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System Planning and Specification

⚠️ **Before planning or installing your system, ensure you are familiarized with all key information within this guide and other relevant ENTTEC documentation. If you are in any doubt about system safety, or you plan to install ENTTEC's Smart PXL Dots 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 or application or modification to the product.

The first step of planning an installation is to determine the pixel pitch and total quantity of Smart PXL 40 dots required. Use the product datasheet to determine the light output and pixel pitch your installation requires before beginning your system design.

Key Safety & Functional Limits

⚠️ Given the versatility and flexibility of the Smart PXL 40 Dot system, it's imperative that the system layout that stays within the limits defined within this document. If two or more different limits apply to a configuration, you must always follow the lowest.

The system design and installation must respect the key safety and functional limits defined within this guide.

These limits are:

Power Draw	Current Throughput per string (10A max)
Voltage Drop	Control Channel Availability

Voltage Drop

The longer the cable distance from the power source to each dot the more voltage is dropped. Significant voltage drop can result in lower brightness and in more extreme cases colour shift.

This is an important consideration for Smart PXL installations with custom pixel pitch and can inform the quantity of dots per string between power injections.

If cable length can be reduced across your installation, this is recommended.

ENTTEC recommend a maximum voltage drop of 3v (12.5%) on a 24v Smart PXL 40 Dot string before power injection is required.

This has been factored into the values defined in the custom pitch table on page 8 of this guide.

If you are concerned about voltage drop and the impact on your installation contact the ENTTEC team or your reseller.

Maximum Smart PXL 40 Dot Chain Length

Maximum chain length is determined by voltage drop, power consumption and control channel availability.

Further within this guide calculation methods to determine Smart PXL quantity based upon PSU (Power Supply Unit) and data capacity can be found.

The maximum pixel pitch achievable between any two Smart PXL dots is 2000mm.

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By using ENTTEC's Smart PXL Power Injector 24v accessory (SKU: 73019) to inject power from additional PSU's, the impact of voltage drop and power consumption can be removed leaving control channel availability as the only limiting factor.

Black = Requires a data feed with 2 or more universes of control data per output.
Purple = Requires a controller with 4 universes of control data per output.
Red = 4 universe cut off.

Maximum Smart PXL 40 chain length based on a 10A 240W power supply re-injections and custom pixel pitch is as follows:

	Factoring in 3000mm of cable between the PSU and first dot and 2m connecting cable & connectors every 20 dots										
Pixel Pitch (mm)	125	200	400	600	800	1000	1200	1400	1600	1800	2000
Maximum dots per chain	76	64	48	40	36	33	31	28	26	24	23
Maximum dots per chain with 1* Smart PXL Power Injector (73019) used after 76 dots.	152	128	96	80	72	66	62	56	52	48	46
Maximum dots per chain with 2* Smart PXL Power Injector (73019) - one used after every 76 dots.	170 ---- 228	170 ---- 192	144	120	108	99	93	84	78	72	69
Maximum dots per chain with 3* Smart PXL Power Injector (73019) - one used after every 76 dots.	120	256	170 ---- 192	160	134	132	124	112	104	96	92
Maximum dots per chain with 4* Smart PXL Power Injector (73019) - one used after every 76 dots.	340	320	240	170 ---- 200	170 ---- 180	165	155	140	130	120	115
Maximum dots per chain with 5* Smart PXL Power Injector (73019) - one used after every 76 dots.		340	288	240	213	170 ---- 198	170 ---- 186	168	156	144	138
Maximum dots per chain with 6* Smart PXL Power Injector (73019) - one used after every 76 dots.			336	280	249	231	217	170 ---- 196	170 ---- 182	168	161
Maximum dots per chain with 7* Smart PXL Power Injector (73019) - one used after every 76 dots.			340	320	285	264	248	224	208	170 ---- 192	170 ---- 184
Maximum dots per chain with 8* Smart PXL Power Injector (73019) - one used after every 76 dots.				340	321	297	279	252	234	216	207
Maximum dots per chain with 9* Smart PXL Power Injector (73019) - one used after every 76 dots.					340	330	310	280	260	240	230
Maximum dots per chain with 10* Smart PXL Power Injector (73019) - one used after every 76 dots.						340	340	308	286	264	253
Maximum dots per chain with 11* Smart PXL Power Injector (73019) - one used after every 76 dots.								336	312	288	276
Maximum dots per chain with 12* Smart PXL Power Injector (73019) - one used after every 76 dots.								340	338	312	299
Maximum dots per chain with 13* Smart PXL Power Injector (73019) - one used after every 76 dots.									340	336	322
Maximum dots per chain with 14* Smart PXL Power Injector (73019) - one used after every 76 dots.										340	340

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Connection to a 24V DC PSU

In a Smart PXL 40 installation one or more 24V DC external PSUs (Power Supply Units) are required to provide power to each chain of Smart PXL Dots if your control method doesn't contain an integrated PSU.

Your power supply should be located as close as physically possible to the beginning of the chain of Smart PXL Dots to minimize the effect of voltage drop.

For optimum performance and to reduce the impact of voltage drop, ENTTEC recommend the use of multiple smaller 24v power supplies at the beginning of each run of Smart PXL Dots, instead of a low quantity of high-capacity power supplies with longer connection cables.

ENTTEC recommend IP65 rated or higher power supplies compatible with your installation environment.

The maximum number of Dots that you can safely connect to a PSU is dependent on the selected PSU's power rating.

The total power consumption of a single chain of Smart PXL Dots must not exceed the PSU's maximum power rating OR the 10A current throughput limit of each Smart PXL Dot. To determine the total power consumption of a chain of ENTTEC Smart PXL 40 Dots, add together the power consumption for all individual Dots using the figure given below:

Product	Power Consumption Per Dot (This figure compensates for cable resistivity etc)
Smart PXL 40	1.8W

The total figure must not be above 240W per chain to ensure the 10A power throughput limit of each Smart PXL 40 Dot isn't passed. – Refer to the chart on page 8 of this guide for the maximum chain length possible.

Ensure each power supply is appropriately fused as detailed within page 6 of this guide.

ENTTEC's offers various control system options to drive Smart PXL Dots each designed for different use case scenarios.

Information for each control system type and appropriate wiring methods can be found within the Control Methods section of this guide. Ensure all cabling and control systems have been housed in accordance with the specifications defined within each products datasheet and in line with local electrical regulation.

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Data Cable Length & Direction

Smart PXL Dots are controlled using ENTTEC's proprietary S-PXL 8/16 protocol. This protocol sequentially addresses each Smart PXL Dot automatically. This reduces commissioning time by eliminating the need for individual addressing.

Each Smart PXL Dot contains its own data buffering and data, re-shaping circuit. The maximum permissible distances distance between devices is as follows:

Max. distance between S-PXL 8/16 data source	3000mm
Max. distance between Smart PXL string interconnects	3000mm
Max. customizable distance between Smart PXL Dots (pitch)	2000mm

S-PXL data can flow through each dot in one direction. This direction is indicated on each string through:

-   Direction arrow graphics laser etched into the first and last Dot of each string.

-   A direction arrow on each Smart PXL Dot's PCB (visible on non-frosted dome variants).

-   The male connector denotes the input end of the string, if your Smart PXL Dots come with pre-attached connectors in default configuration.
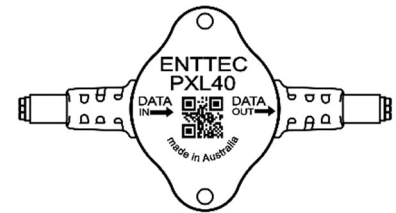
-   **S-PXL signal is un-balanced and susceptible to electrical noise. For best practice keep all cable run lengths to a minimum.**

-   **Avoid running data cabling close to mains power or devices that emit electromagnetic noise (i.e. air conditioning units).**

-   **If data direction instructions are not followed, Smart PXL Dots will not operate.**

Control Channels

Each Smart PXL Dot consumes the equivalent of 6 DMX channels of data.

The hard upper limit to the number of dots you can run from one data feed can be calculated by dividing the maximum number of data channels per output of the ENTTEC pixel controller by the DMX channel footprint of the Smart PXL Dot.

Each Smart PXL Dot takes up 6 output channels from your controller weather running in an 8-Bit, 16-Bit or grouped configuration all Smart PXL Dots in a chain will sequentially address one after another.

16-Bit Smart PXL 40 Dot DMX Channel Footprint						
Channel Order	1	2	3	4	5	6
Attribute	Red	Red Fine	Green	Green Fine	Blue	Blue Fine

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The quantity of Smart PXL Dots addressable per ENTTEC controller is as follows:

ENTTEC Controller	Dimming Resolution Control	Maximum Dot Quantity per Device	DMX Universes Per Output Port	Total DMX Channels Per Output	Maximum Dot Quantity per Output	Outputs per Device
OCTO	8-Bit / 16-Bit	680	4	2048	340	2
Pixelator	8-Bit / 16-Bit	4,080	2	1024	170	24
Pixelator Mini / DIN Pixelator Mini	8-Bit / 16-Bit	1,360	2	1024	170	8
Pixie Driver	8-Bit	170	2	1024	170	2 Identical Outputs

Always consider all limiting factors outlined on Page 8 of this guide before finalizing your system design.

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Smart PXL Dot Control Options

ENTTEC's offers various products to control Smart PXL Dots, each designed for different use case scenarios.

Key specification information and application diagrams for each system can be found within the following section.

Controlling Smart PXL Dots with ENTTEC OCTO's

The OCTO is a 4 DIN module wide device capable of converting a combined total of 8 universes of pixel data from ArtNet, sACN or KiNet (4 universes per output) with a wide operating voltage between 4-60V DC.

It contains an inbuilt network switch for simple device chaining, allowing up to 100m between each device.

The OCTO's inbuilt web interface allows configuration and real-time temperature monitoring of the device alongside basic standalone effects generation for times your installation doesn't require control from a centralised playback device.

ENTTEC Controller	SKU	Form Factor	Smart PXL Control Resolution	Maximum Smart PXL Dots Controllable per Device*	Outputs per Device	Maximum Smart PXL Dots Controllable per Output*	Total DMX Channels Per Output	DMX Universes Per Output Port
OCTO	71520	4 module DIN (IP-20)	8-Bit / 16-Bit	680 (8Universes)	2	340 (4Universes)	2048	4

The maximum quantity of Dots controllable from this device is based upon channel count, make sure to refer to the system limitations defined on page 7 to ensure all system limitations are considered for your system design.

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OCTO System Application Diagram

⚠️ **Key OCTO Installation Guidelines:**

- **Ensure all safety guidelines within this installation guide and other product documentation are factored into the design.**

- **Locate the OCTO and PSU as close as possible to the first Smart PXL Dot in the chain to reduce the impact of voltage drop.**

- **To reduce the likelihood of voltage being induced on the control signal lines, where possible, run control cabling away from mains electricity or devices that produce high EMF, (i.e. air conditioning units).**

- **ENTTEC recommends the use of cable ferrules for all stranded cables connected to the OCTO's screw terminals to ensure a reliable connection.**
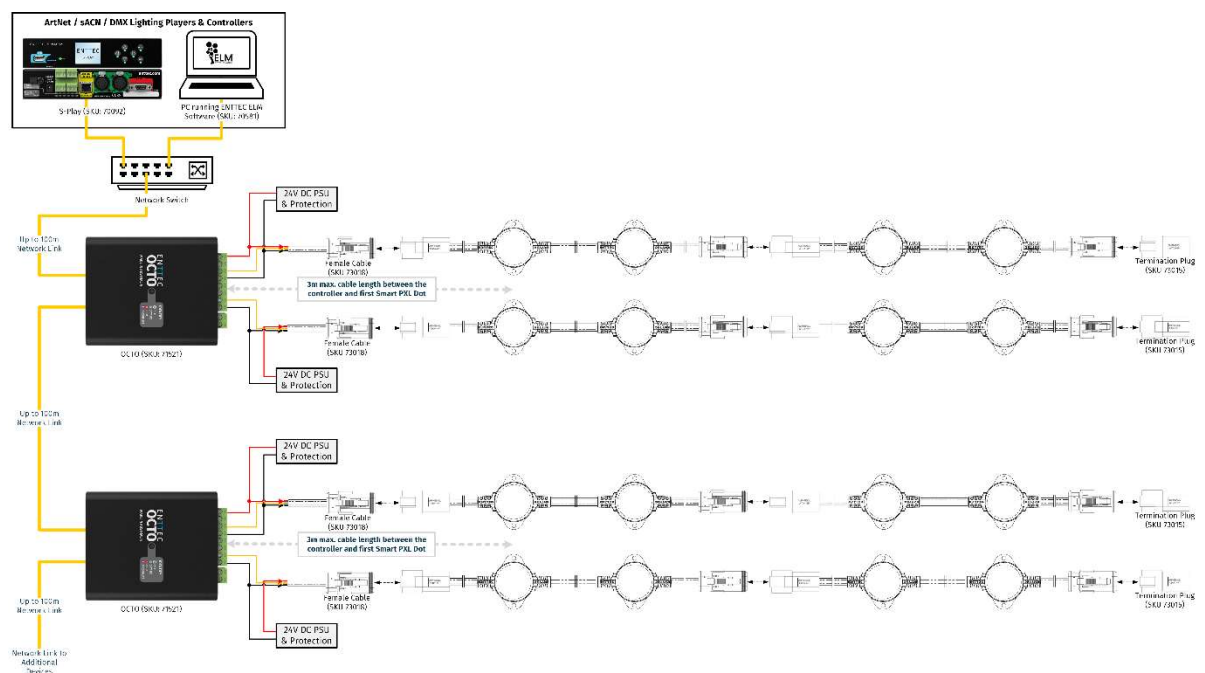
Note: If the power or data source to your controller drops out whilst the Smart PXL Dots remain powered, the last state will be held until either the data feed resumes or power to the Smart PXL Dots is disconnected and re-connected.

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Controlling Smart PXL Dots with ENTTEC's Pixelator System

ENTTEC's Pixelator system has been designed with reliability and flexibility at its heart. The system comprises of two key elements. The Pixelator device used to perform protocol conversion, and PLink injectors used locally to convert the data from the Pixelator close to the beginning of each chain of dots.

Pixelator Devices

Each Pixelator device is configurable via web interface over a local network and converts DMX over ethernet (Art-Net, sACN or ESP) to ENTTEC's proprietary PLink protocol designed to send control data over long distances. Each Plink output can send 2 universes of data up to 300m over CAT6 cable to ENTTEC's PLink injector modules.

ENTTEC Controller	SKU	Form Factor	Dimming Resolution Control	Maximum Theoretical Dot Quantity per Device	DMX Universes Per Output Port	Total DMX Channels Per Output	Maximum Dot Quantity per Output	Outputs per Device
Pixelator	70060	19" Rack 1RU (IP-20)	8-Bit / 16-Bit	4,080 (48U)	2	1024	170	24
Pixelator Mini	70066	9.5" Rack 1RU (IP-20)	8-Bit / 16-Bit	1,360 (16U)	2	1024	170	8
DIN Pixelator Mini PX1-8D	71066	8 Module DIN (IP-20)	8-Bit / 16-Bit	1,360 (16U)	2	1024	170	8

Do not mix controller types within a PLink System. Different Pixelator models use different processing power appropriate to the hardware design. If your installation requires multiple Pixelators, standardize on one variant to eliminate the risk of content tearing.

PLink Injection Modules

ENTTEC's compact PLink power injection modules are available in both indoor and outdoor variants. These surface mount modules convert PLink signal from the Pixelator to the S-PXL8 / S-PXL16 protocols without configuration. The two variants compatible with Smart PXL Dots are as follows:

| ENTTEC Injection Module	SKU	IP Rating	Data Outputs per Device
Plink Injector (12-24v)	73544	IP-20	1
IP66 Plink Injector (custom / made to order item – *contact the ENTTEC sales team*)	73923	IP-66	1

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Pixelator System Application Diagram

⚠️ **Key Pixelator System Installation Guidelines:**

- Ensure all safety guidelines within this guide and other product documentation are factored into the design.

- Locate the PLink and PSU as close as possible to the first Smart PXL Dot in the chain to reduce the impact of voltage drop.

- To reduce the likelihood of voltage being induced on the control signal lines, where possible, run control cabling away from mains electricity or devices that produce high EMF, (i.e. air conditioning units).

- ENTTEC recommends the use of cable ferrules for all stranded cables connected to the PLink's screw terminals to ensure a reliable connection.
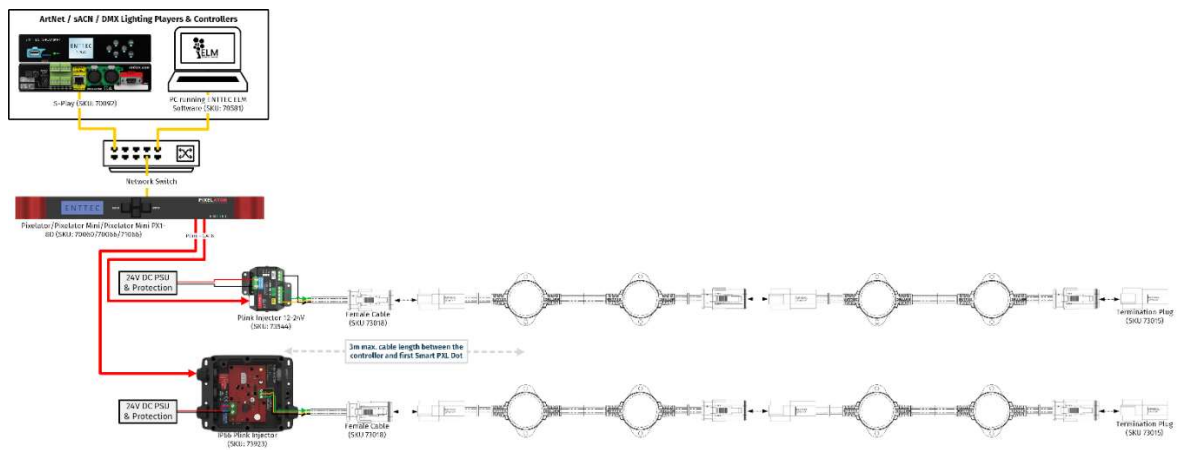
Note: If the power or data source to your controller drops out whilst the Smart PXL Dots remain powered, the last state will be held until either the data feed resumes or power to the Smart PXL Dots is disconnected and re-connected.

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Controlling Smart PXL Dots with ENTTEC Pixie Drivers

The Pixie driver is an addressable LED controller capable of converting up to 2 universes of DMX to SPXL-8 8-bit protocol or playing back stored sequences from power up. With its two integrated 65W PSU's the Pixie Driver is quick to install.

These features make the Pixie Driver ideal for integrating into custom set pieces, touring designs and any other application requiring standalone playback.

To ensure compatibility, Smart PXL Dots use the 24v 130w variant of the Pixie Driver (SKU: 73548).

ENTTEC Controller	SKU	Form Factor	Dimming Resolution Control	Total DMX Channels Per Output Port	DMX Universes Per Output Port	Maximum Theoretical Individual Dot Quantity per Device (based on data)	Outputs per Device
Pixie Driver 24V (130W)	73548	Folded metal Housing (IP-20)	8-Bit	1024 (identical)	2 per port (identical)	170	2

Based on the Pixie Drivers internal 130W capacity, spread over each of its two 2.7A outputs, the maximum number of Smart PXL Dots **per output** is shown below, factoring in all key safety and functional limits defined on page 7 of this guide.

	Single Pixie Driver Output, factoring in 3000mm of cable between the PSU and first dot and a 2m connecting cable with connectors every 20 dots										
Pixel Pitch (mm)	125	200	400	600	800	1000	1200	1400	1600	1800	2000
Maximum dots per Pixie Driver Output	36	36	36	36	36	33	31	28	26	24	23

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# Pixie Driver System Application Diagram

Key Pixie Driver System Installation Guidelines:

- Ensure all safety guidelines within this guide and other product documentation are factored into the design.
- Ensure the mains power input is suitably protected inline with the safety instructions at the beginning of this guide.
- Locate the Pixie Driver as close as possible to the first Smart PXL Dot in the chain to reduce the impact of voltage drop.
- To reduce the likelihood of voltage being induced on the control signal lines, where possible, run control cabling away from mains electricity or devices that produce high EMF, (i.e. air conditioning units).
- ENTTEC recommends the use of cable ferrules for all stranded cables connected to the Pixie Driver's screw terminals to ensure a reliable connection.

Controlling Smart PXL Dots Pixie Diver with DMX
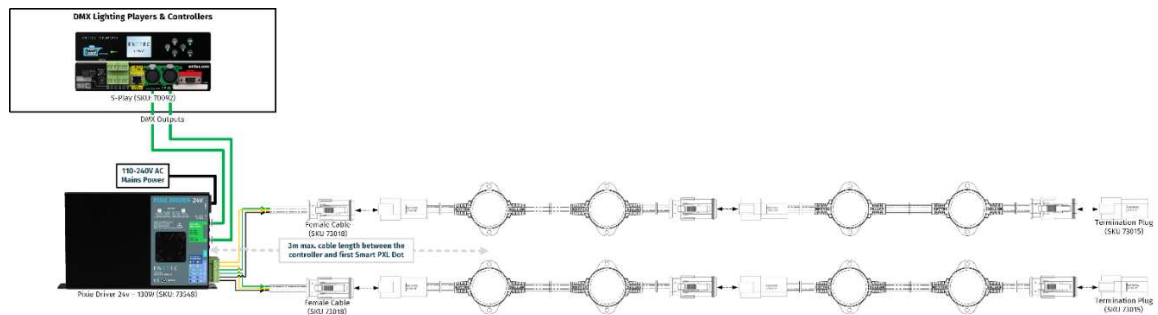
Controlling Smart PXL Dots over a Network Using a DMX Node and Pixie Driver
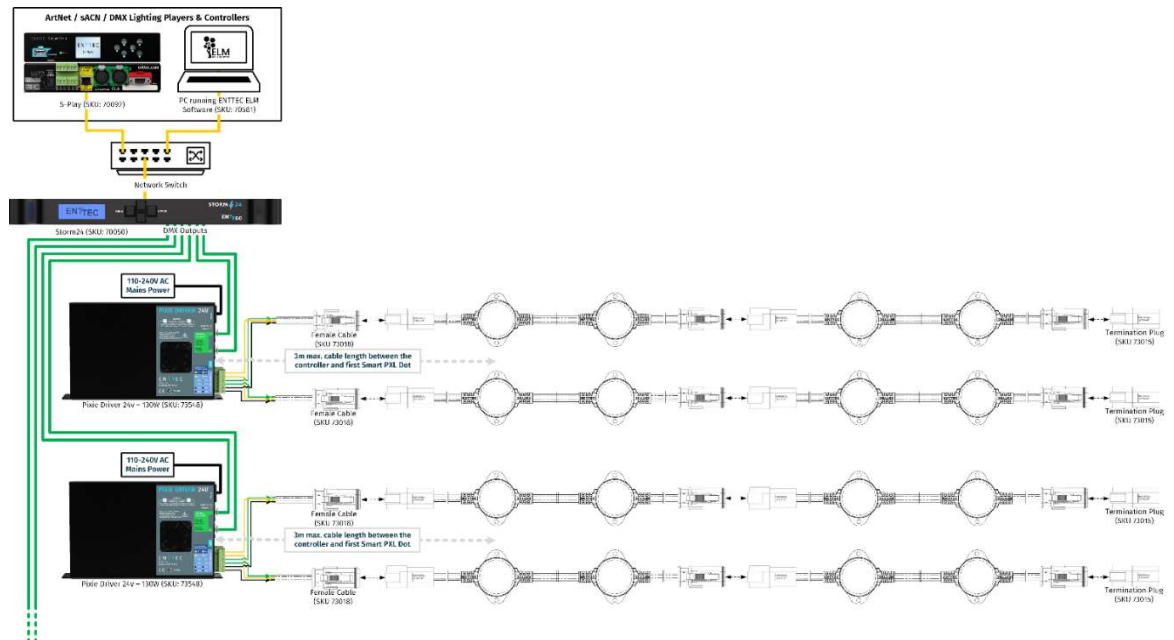
Note: If the power or data source to your controller drops out whilst the Smart PXL Dots remain powered, the last state will be held until either the data feed resumes or power to the Smart PXL Dots is disconnected and re-connected.

Smart PXL 40 Dot
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Installation Guidelines

Always work with a plan of the installation that respects all system limitations as defined within this guide and adheres to the safety information on the first page.

Keep Smart PXL Dots and their accessories in their protective packaging until final installation.

Note the serial number of each Smart PXL Dot string and add it to a layout plan of your installation for internal reference.

- **Ensure data is flowing from your controller through the string of dots following the data direction marked on the first and last Smart PXL Dot in the chain.**
- **Do not cover Smart Pixel Dots with insulating material of any kind.**
- **When installing dots or accessories DO NOT exert any tension on the cabling whilst tightening.**

- **Installation of this product must be performed by qualified personnel. If ever unsure always consult a professional.**
- **Ensure that no part of the installation is or can be connected to power until all work is complete.**
- **Do not install Smart PXL Dots if the diffuser, metalwork, or cabling is damaged.**
- **Before connecting Smart PXL Dots to a power supply, verify that the operating voltage and frequency are compatible and the power supply is appropriately fused in.**
- **Do not crush or clamp Smart PXL Dot or accessory cabling during installation.**
- **Do not leave connections unprotected or disconnected in damp or wet environments. All exposed connectors should be fitted with a Termination Plug (SKU 73015) to give a watertight seal to protect against corrosion.**
- **Do not handle Smart PXL Dot strings in an energized state.**
- **Do not bend the Smart PXL Dot or accessory cabling to a radius smaller than 30mm.**
- **Do not 'hot swap' Smart PXL Dot strings or their accessories.**
- **Do not leave connectors or accessory cabling in a position where they could cause a short circuit.**
- **Isolate the installation from power immediately if Smart PXL Dots, accessories power cables or connectors is in any way damaged, defective, shows signs of overheating or are wet (if not an IP65 component).**
- **Do not sign off a system without ensuring all Smart PXL Dot and accessory cabling is appropriately restrained, secure and not under tension from the way it has been installed.**

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Attaching Smart PXL Dots & Accessories to a Surface or Structure

The Smart PXL 40's body features 2 * M4 countersunk holes with 49mm spacing designed for use with countersunk bolts, machine screws or self-tapping screws rated to support the weight of the full Smart PXL Dot string.
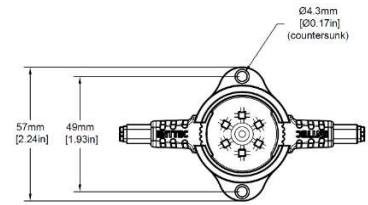
Cable termination end caps (sku:73015) feature a single M5 hole for use with pan head screws and bolts.

ENTTEC produces Smart PXL Dot cable accessories for increased convenience on site. All accessories use the same cabling and connectors as the Smart PXL Dot's. Cabling should be restrained with cable clips every suited to the surface you are mounting your Smart PXL installation to every 0.5m.

Accessories should be used in-line with the system design considerations of your selected controller and adhere to the system cable length limitations defined on Page 9 of this guide.

Ordering information can be found at the end of this document. For custom pixel pitch or accessory cable length contact the ENTTEC sales team.

- **Ensure the surface you are attaching Smart PXL Dots and accessories to is either fully electrically insulated or electrically earthed and can support the weight of all items you attach.**
- **Only drill holes or tighten screws into a surface that do not have cabling, pipework or other services directly behind.**
- **Never energize a Smart PXL Dot system until installation is complete and it is safe to do so.**

- **When mounting Smart PXL Dots and accessories, ensure the mounting method is suitably rated to support the weight of the full Smart PXL Dot string.**
- **Never use non-countersunk hexagonal headed bolts. The Smart PXL 40 Dot is not designed for this mounting method, using these could result in irreparable damage.**
- **Never drill a hole or tighten screws into a surface using a Smart PXL Dot or accessory as a guide. This can result in damage and compromise the strength of the product.**
- **If installing Smart PXL Dots outdoors, only use corrosion proof galvanized, or stainless-steel fixings rated for the installation conditions.**
- **Never allow a string of dots to hang from a structure during installation, this can result in strain to cabling and damage to the Smart PXL Dots.**

Hold a Smart PXL Dot or a Smart PXL Dot template (*downloadable from the ENTTEC website*), or your Cable termination end cap up to the surface and accurately mark the hole positioning with a pencil, ensuring that the spacing between each dot and accessory will not exert any strain on the Smart PXL Dot cable.

Remove the Smart PXL Dots from the surface and protect from debris or swarf whilst drilling pilot holes.

Note: When installing cable termination end caps, **DO NOT** connect the Smart PXL cabling until the screw has been fully tightened to protect it from any un-necessary strain.

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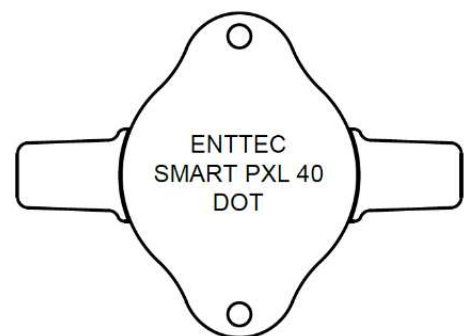
Countersunk Screws

If securing Smart PXL Dots or accessories using self-tapping countersunk screws, without the dot in place, line each screw up with each pencil mark and begin to tighten it whilst ensuring the entry point is perpendicular to the surface.

After creating an entry point for the screw to bite, remove it from the surface.

Position the each Smart PXL Dot in-line with the entry points, then insert and fully tighten the screws. **DO NOT** exert any tension on the cabling whilst tightening.
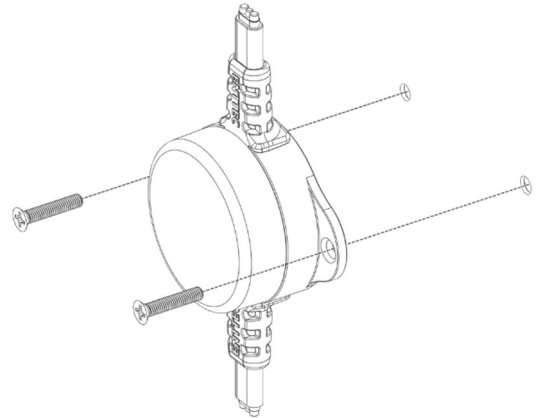
Countersunk Bolts

If securing Smart Pixel Dots using a bolt, ensure a locking nut is used that cannot come undone due to vibration and is tightly secured. **DO NOT** exert any tension on the cabling whilst tightening.

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Servicing, Inspection & Maintenance

- **Servicing, inspection & maintenance should only be carried out by qualified technicians familiar with all safety information within this document and the Smart PXL Dot system.**
- **Smart PXL Dots and accessories have no user serviceable parts. If your installation has become damaged parts should be replaced.**

- **Power down the entire system 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.**
- **Ensure all connectors show no sign of corrosion.**
- **Ensure all cabling has not obtained physical damage or been crushed.**
- **Ensure all Smart PXL Dots and accessories are secured to the surface and have been installed in accordance to the guidelines set out within the installation guide.**
- **Check for dust or dirt build up on the Smart PXL System and schedule cleaning if necessary. – Dirt or dust buildup can limit the ability for the Smart PXL Dot system to dissipate heat and can lead to damage.**

If deemed necessary for a Smart PXL Dot string or accessory to be replaced, it should be removed in a reverse order to installation as defined in this guide.

The replacement string or accessory should be an appropriate size and be installed in accordance with all steps within the installation guide.

To order replacement parts contact your reseller or ENTTEC directly, making sure to quote the serial number laser etched into either the first or last Smart PXL Dot in each string you intend to replace. This can be used to determine the precise specification or any customization options that are applicable.

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Cleaning

Dust and dirt build up can limit the ability for the Smart PXL Dot system to dissipate heat resulting in damage. It's important that the Smart PXL Dot system 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 of your Smart PXL Dots. Generally, the more extreme the environment, the shorter the interval between cleaning.

- **Before cleaning, power down the 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 Smart PXL Dot system.**
- **Do not spray Smart PXL Dots or accessories with a high-pressure water jet.**

To clean an ENTTEC Smart PXL 40 system, use low-pressure compressed air to remove dust, dirt and loose particles. If deemed necessary, wipe the Smart PXL Dots with a damp microfiber cloth.

A selection of environmental factors that may increase demand 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.

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Part Codes & Ordering Information

Smart PXL Dots

Product	SKU
Smart PXL 40 Dot – No Diffuser	73010
Smart PXL 40 Dot – Dome Diffuser	73011
Smart PXL 40 Dot – Clear Flat Diffuser	73012

Please contact the ENTTEC team to discuss the customization options available.

Smart PXL Dot Accessories

Product	SKU
Smart PXL – Termination End Cap (pack of 5)	73015
Smart PXL – 2m Male Cable - 24v	73017
Smart PXL – 2m Female Cable - 24v	73018
Smart PXL – Power Injector - 24v	73019
Smart PXL – 2m Extension Cable - 24v	73020

Please contact the ENTTEC team to discuss the customization options available.

Control System

Product	SKU
OCTO	71521
Pixelator	70060
Pixelator Mini	70066
Pixelator Mini PX-1D	71066
Plink injector (12-24v)	73544
IP66 Plink Injector PJ1-56 *(custom / made to order item – contact the ENTTEC sales team for information)*	73923

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