

# ENTTEC

## METAL SMART PXL-M58 DMX DOT

74300

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### INSTALLATION GUIDE



Weatherproof DMX-controlled metal LED dot 24V input with 8-bit RGBW dimming.

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## Safety

Check and respect all directions and warnings given within this installation guide before specifying, installing and operating a Smart DMX 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 Metal Smart PXL-M58 DMX Dots, accessories power cables or connectors is in any way damaged, defective, shows signs of overheating or are wet (if not an IP67 component).
- 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 DMX 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 over stretch cabling sections of your Metal Smart PXL-M58 DMX Dots.
- Do not operate the Metal Smart PXL-M58 DMX Dots if the ambient temperature exceeds 40°C.
- The Metal Smart PXL-M58 DMX Dots are convection cooled, ensure sufficient airflow can reach each dot to allow heat to be dissipated.
- Do not cover or enclose Metal Smart PXL-M58 DMX 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 Metal Smart PXL-M58 DMX 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 Metal Smart PXL-M58 DMX Dots above ground level, ensure that the installation hardware and supporting structure can hold the weight of all the devices they support.
- In an overhead installation or where the Metal Smart PXL-M58 DMX 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 Metal Smart PXL-M58 DMX Dots system.
- Once installation is completed, check that all hardware and components are securely in place and fastened to supporting structures.

## System Planning and Specification



**Before planning or installing your system, ensure you are familiarised 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 Metal Smart PXL-M58 DMX 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 total quantity of Metal Smart PXL-M58 DMX Dots required. Use the product datasheet to determine the light output and DMX pitch your installation requires before beginning your system design.

## Key Safety & Functional Limits

The Metal Smart PXL-M58 DMX Dot system is highly flexible and supports a wide range of installation configurations. However, all system layouts must operate within the safety and functional limits defined in this guide.

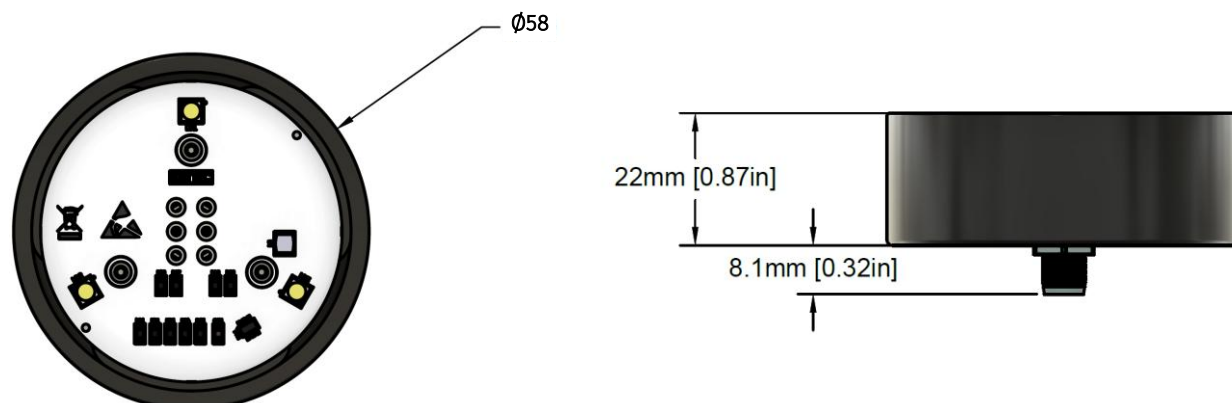
Due to the wide variation in installation methods, controller types, cable lengths, and environmental conditions, not all limitations can be exhaustively defined within this document. System designers and installers are responsible for considering all applicable constraints before finalising a design.



For project-specific guidance, verification of system limits, or assistance with complex layouts, contact your local ENTTEC team. Our technical specialists can review your project requirements and provide recommendations to ensure reliable operation, compliance, and long-term system performance.

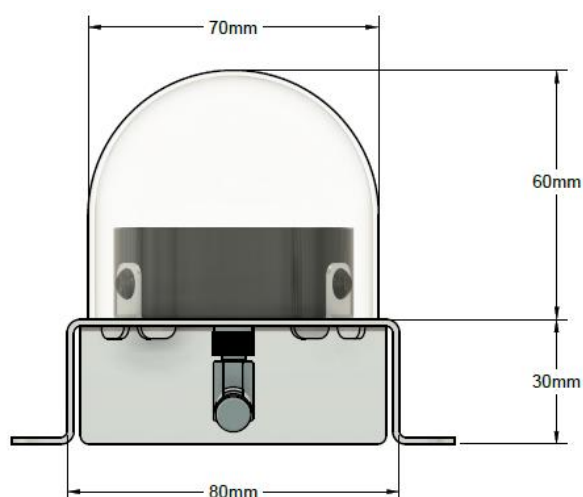
## Physical Dimensions

### PXL-M58 Dot



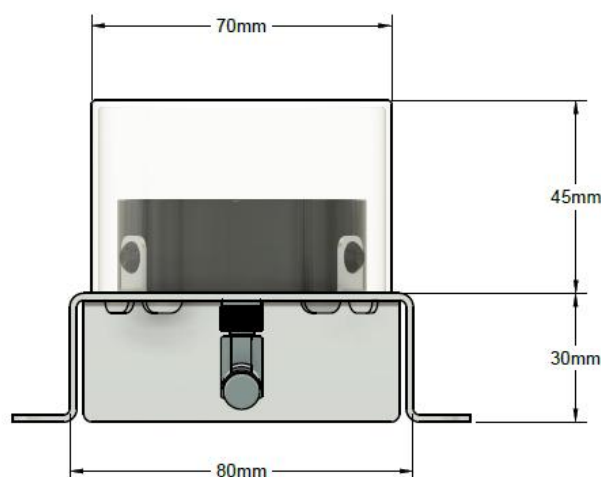
### PXL-M58 Dome Diffuser

Dome Clear - SKU: 74505-DC  
Dome Diffuse - SKU: 74505-DD



### PXL-M58 Flat Diffuser

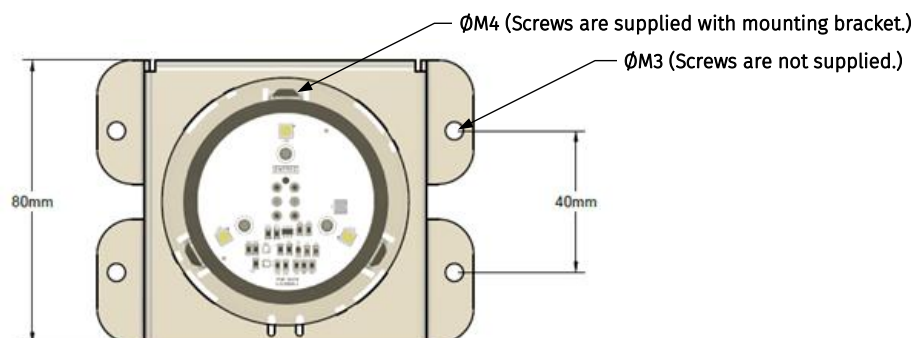
Flat Clear - SKU: 74505-FC  
Flat Diffuse - SKU: 74505-FD



**Note:** Connectors shown are for demonstration purposes only for the angled connector accessory and are sold separately.

## Aluminium Mounting Bracket

SKU: 74504

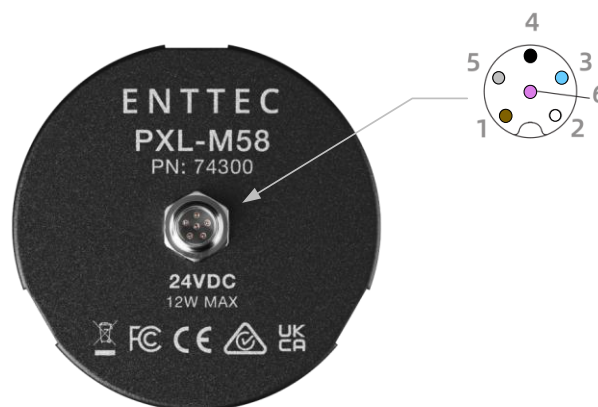


## Application Diagram



## Cable and Connector Configuration

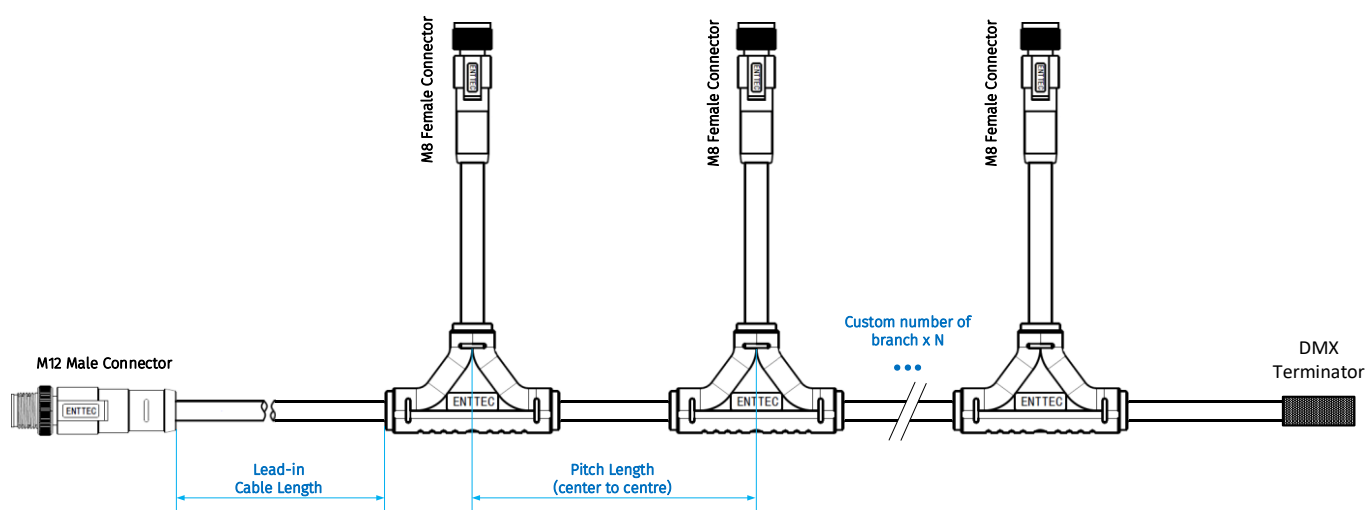
The Smart Metal DMX Dot is equipped with a M8 male connector (6-pin, Code A) for secure, weatherproof connections.



ENTTEC cable harnesses feature integrated **M8 female connector (6-pin, Code A)** for the dot connection, while the lead-in cable utilises an **M12 connector (5-pin, Code K)** for the DMX controller connection to ensure optimal addressing performance.

All ENTTEC cable harnesses are supplied with a pre-fitted DMX terminator to ensure the signal integrity.

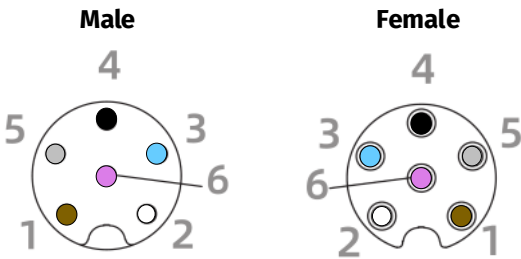
Contact your local ENTTEC office to define your project requirements and select the appropriate custom options for Smart PXL-M58 DMX Dot complete system solution. You may also choose to source your own harnesses using the specifications outlined above.



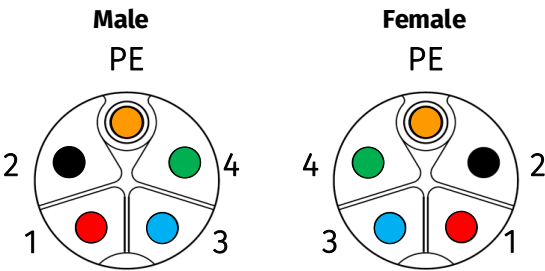
Cable Core Identification Chart

Each ENTTEC cable harness connector pinout as follows:

Dot Connector – M8  
(6-pin Code A)



Cable Harness Connector – M12  
(5-pin Code K)

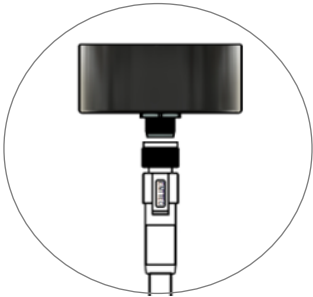
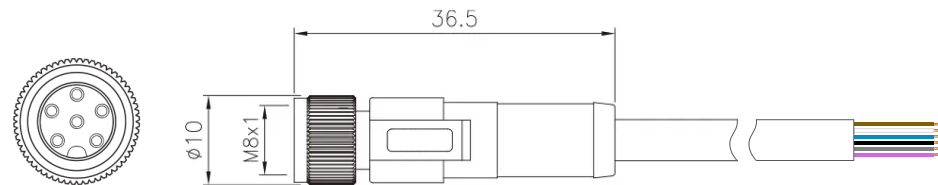


M8 Pin	M8 Cable Colour	Configuration	M12 Cable Colour	M12 Pin
1	Brown	DMX+	Green	4
2	White	DMX-	Blue	3
3	Blue	PI (Address)	Orange	PE
4	Black	PO (Pass Through)	-	-
5	Grey	0V	Black	1
6	Pink	V+	Red	2

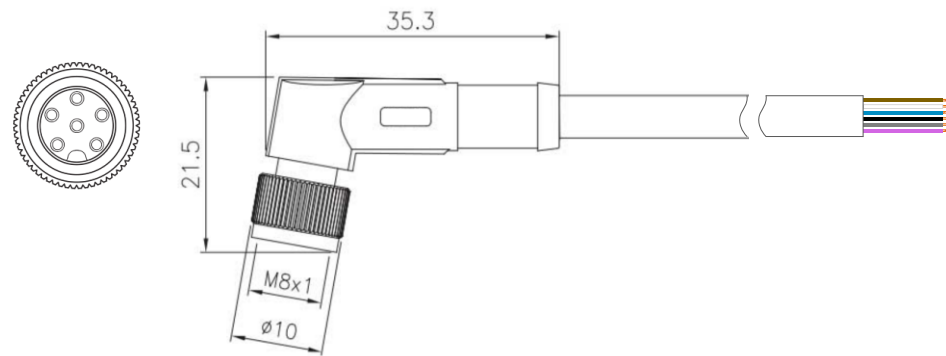
M8 Dot Connector

ENTTEC provides matching IP67-rated female connectors on the branch of the cable harnesses, available in straight and 95° angled configurations for flexible cable routing.

M8 Female Connector – Straight (ST)



M8 Female Connector – 95° Angled (AN)

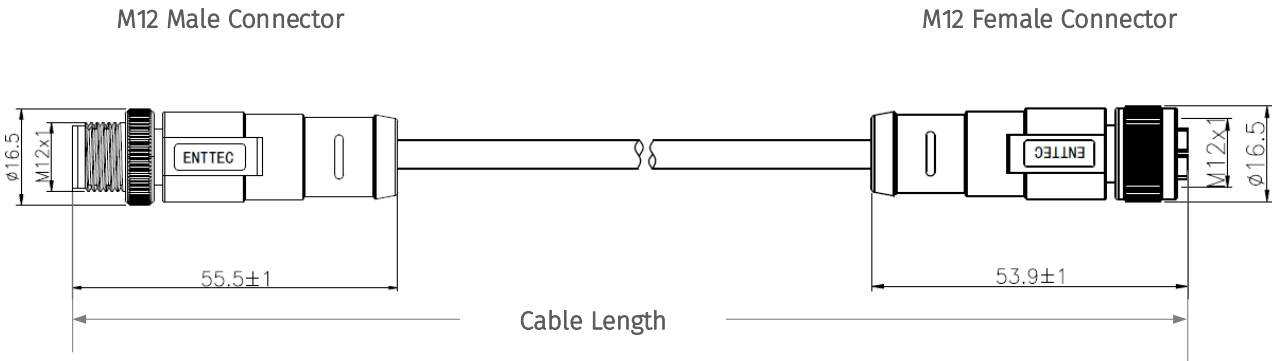


M12 Cable Harness Connector Accessories

ENTTEC offers IP67-rated M12 (5-pin, Code K) male connectors on the lead-in side of the cable harnesses, along with a range of cable accessories to meet your installation requirements.

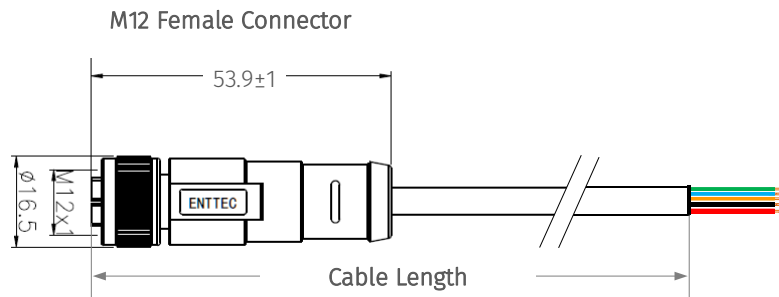
M12 – Extension Cable

SKU: 74501



M12 – Female Cable

SKU:74502



DMX Addressing

Chain all dots together using the cable harnesses and connect the string to the DMX controller, ensuring the entire run is fully linked before starting the addressing process.

Each Smart PXL-M58 DMX Dot supports fast, reliable addressing using compatible addressing tools. For project-specific recommendations and to ensure an efficient addressing workflow, contact your local ENTTEC office.

Control Channels

The maximum number of dots that can be run from a single data feed is determined by the number of data channels per output.

DMX Footprint

Each Smart PXL Dot will be sequentially addressed one after another in a chain, based on the configuration set by the controller.

RGBW 8-Bit Footprint:

Each RGBW Metal Smart PXL-M58 DMX Dot consumes the equivalent of 4 DMX channels of data.

Channel Order	1	2	3	4
Attribute	Red	Green	Blue	White



## Data Capacity Calculation

The formula for calculating the maximum number of RGBW Metal Smart PXL-M58 DMX Dots that can be run from one data feed is:

$$\text{Number of Dots} = \frac{\text{Maximum Number of Data Channels per Output}}{\text{DMX Channel Footprint of a Smart PXL Dot}}$$

With 512 channels available and each Metal Smart PXL-M58 DMX Dot consuming 4 channels:

$$\text{Number of Dots} = \frac{512}{4} = 128 \text{ Dots}$$

This means you can control up to 128 8-Bit RGBW Metal Smart PXL-M58 DMX Dots per universe of DMX data using this formula.

## Maximum Metal Smart PXL-M58 DMX Dot Chain Length

The maximum chain length is determined by several factors:

- Voltage drop
- Power consumption
- Control channel availability
- Maximum permissible distance
- Power Injection

For accurate system design and project-specific guidance, please contact your local ENTTEC office.

## DC PSU Connection

- For Metal Smart PXL-M58 DMX Dot installations, one or more external DC power supply units (PSUs) are required to power each chain of dots if your control method does not include an integrated PSU.
- Position your power supply as close to the beginning of the Metal Smart PXL-M58 DMX Dot chain as possible to minimize voltage drop.
- For optimal performance and to reduce voltage drop, ENTTEC recommends using multiple smaller DC power supplies at the start of each run, rather than relying on fewer, high-capacity PSUs with long connection cables.
- Where applicable, ENTTEC recommends using power supplies rated IP67 or higher to match your installation requirements.
- The number of dots you can safely connect to a PSU depends on the PSU's power rating.
- The total power consumption of a Metal Smart PXL-M58 DMX Dot chain must not exceed the PSU's maximum power rating or the connector's current throughput limit of each dot. To calculate the total power consumption, sum the power usage of all dots in the chain consult ENTTEC team for assistance.
- ENTTEC offers various control system options designed to drive Metal Smart PXL-M58 DMX Dots for different use cases.
- Ensure that all cabling and control systems comply with the specifications provided in the product datasheets and meet local electrical regulations.

## 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.



- **Do not cover Metal Smart PXL-M58 DMX 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 Metal Smart PXL-M58 DMX Dots if cabling is damaged.

- Before connecting Metal Smart PXL-M58 DMX 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 Metal Smart PXL-M58 DMX 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 Metal Smart PXL-M58 DMX Dot strings in an energised state.
- Do not bend the Metal Smart PXL-M58 DMX Dot cabling to a radius smaller than 30mm (1.18in).
- Do not 'hot swap' Metal Smart PXL-M58 DMX 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 Metal Smart PXL-M58 DMX Dots, accessories power cables or connectors are in any way damaged, defective, shows signs of overheating or are wet (if not an IP67 component).
- Do not sign off a system without ensuring all Metal Smart PXL-M58 DMX Dot and accessory cabling is appropriately restrained, secure and not under tension from the way it has been installed.

## Surface Installation of Smart PXL-M58 Metal DMX Dots & Accessories

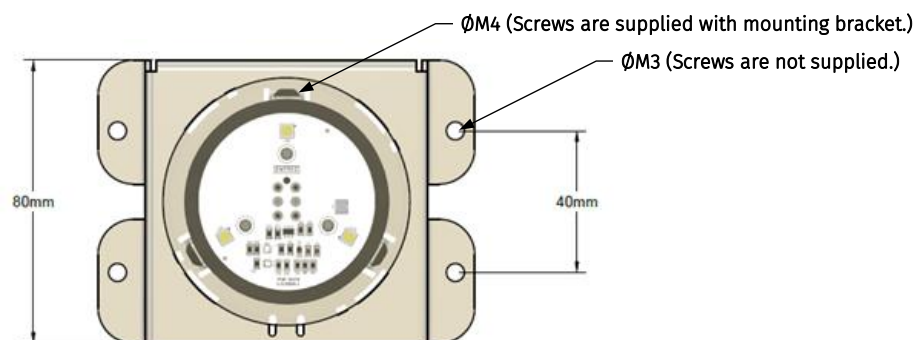
The Smart PXL-M58 Metal DMX Dot housing incorporates threaded mounting holes designed for secure surface installation using appropriately rated fasteners capable of supporting the full weight of the metal fixture.

### Mounting Hardware

The supplied mounting bracket is to be fixed to the dot body using M4 screws (included with the bracket).

M3 screws for fixing the bracket to the mounting surface are not supplied and must be selected based on the installation substrate and load requirements.

Ensure all fasteners are suitable for the mounting surface and environmental conditions.



### Cable & Accessory Installation

ENTTEC provides a range of Metal Smart PXL-M58 DMX Dot cable accessories to support efficient and reliable installation. All accessories utilise the screw-lock connector system to maintain a secure, weatherproof connection throughout the installation.

Cabling should be supported with appropriate cable clips suited to the mounting surface, spaced at intervals of approximately 0.5 m to maintain strain relief and prevent sagging.

Accessories must be selected and installed in accordance with the system design requirements of your chosen controller and must comply with the applicable cable length limitations.

## Servicing, Inspection & Maintenance



- Servicing, inspection & maintenance should only be carried out by qualified technicians familiar with all safety information within this document and the Metal Smart PXL-M58 DMX Dot system.
- Metal Smart PXL-M58 DMX 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 energised 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 Metal Smart PXL-M58 DMX Dots and accessories are secured to the surface and have been installed in accordance with the guidelines set out within the installation guide.
- Check for dust or dirt build up on the Smart DMX System and schedule cleaning if necessary. – Dirt or dust buildup can limit the ability for the Metal Smart PXL-M58 DMX Dot system to dissipate heat and can lead to damage.

If deemed necessary for a Metal Smart PXL-M58 DMX 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.

## Cleaning

Dust and dirt build up can limit the ability for the Metal Smart PXL-M58 DMX Dot system to dissipate heat resulting in damage. It's important that the Metal Smart PXL-M58 DMX 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 Metal Smart PXL-M58 DMX Dots. Generally, the more extreme the environment, the shorter the interval between cleanings.



- **Before cleaning, power down the system and ensure a method is in place to stop the system from becoming energised until cleaning is complete.**



- **Do not use abrasive, corrosive or solvent-based cleaning products on a Metal Smart PXL-M58 DMX Dot system.**
- **Do not spray Metal Smart PXL-M58 DMX Dots or accessories with a high-pressure water jet.**

To clean an ENTTEC Smart DMX system, use low-pressure compressed air to remove dust, dirt and loose particles. If deemed necessary, wipe the Metal Smart PXL-M58 DMX 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.

## Ordering Information

### Metal Smart PXL-M58 DMX Dots and Accessories

Visit ENTTEC's website to shop for the product.

To discuss customisation options, pricing and lead times contact our sales team at [sales@enttec.com](mailto:sales@enttec.com).

Product Specification	Order Code
<b>Metal Smart PXL-M58 DMX Dot / RGBW / 24 volts/ Anodised black</b>	74300-RGBW-24V
<b>Metal DMX Dot Accessory - Cable Harness (custom)</b>	(custom)
<b>Metal DMX Dot Accessory - M12 Extension Cable</b>	74501
<b>Metal DMX Dot Accessory - M12 Female Cable</b>	74502
<b>Metal DMX Dot Accessory – M12 Power Injector</b>	74503
<b>Aluminium Mounting Bracket with screws for PXL-M58, anodised black</b>	74504
<b>Diffuser for PXL-M58 - Dome Diffuse/Dome Clear/Flat Diffuse/Flat Clear</b>	74505-DD/DC/FD/FC

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