

SMART PXL40 DOT – Datasheet

42mm diameter RGB & RGBW pixel dot in 24V with high resolution dimming.



Lightweight, robust, and high-resolution, ENTTEC's Smart PXL40 Dots are individually addressable and proudly designed and manufactured to withstand the most demanding environments.

Engineered for flexibility, Smart PXL40 Dots can be easily configured into virtually any shape, enabling stunning, precise lighting effects that double as a bold design feature.

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.

Contact ENTTEC to explore black or white options, with customisable pitch, connector types, and a variety of lens shapes to suit architectural or creative requirements.

FEATURES

- 42mm diameter dot in black and white.
- Available in 24V RGB and RGBW.
- Auto-addressing LED pixels for fast commissioning.
- Customisable cable configuration.
- Flat and dome lens made from Clear or Diffuse optical grade polycarbonate.
- Premium IP-rated automotive style connectors with integrated latching system.
- 16-bit control for ultra-smooth dimming.
- Control protocol SPXL 16-bit. Explore ENTTEC's full range of pixel controllers at enttec.com.
- Reverse polarity protection.
- Voltage transient protection.
- IK10 & vibration resistant (IEC60068-2-6).
- UV resistant & IP67.
- This product requires an external DC power supply and data source for operation. (not included).

SPECIFICATION

Electrical

Body Material	Injection moulded PVC			
Lens Material	Optical Grade Polycarbonate			
Weight	Approx. 48g/dot (excl. lead in & out)			
IK & IP rating	IK10 & IP67			
UV Resistance	Black - UV resistant White – reduced UV resistance			
Max Operating Ambient Temperature	50°C			
Input Voltage	24V			
Maximum Power per Dot	RGB: 1.6Watts			
	RGBW: 1.8Watts			
Maximum Current Draw per Dot	RGB: 60mA			
	RGBW: 73mA			
Rated Current Throughput Capacity	4.17A (Class 2 or LPS power unit only)			
Cable Resistance	0.0132 Ohm/m			
Cable Thickness	16AWG			
24V Connector Pinout	Pin 1	Pin 2	Pin 3	Pin 4
	0V	Data	N/C	+24V
Warranty	3 Year return to base manufacturer warranty.			

LED Control

LED source	RGB	6 pcs RGB SMD3535
	RGBW	6 pcs RGBW 3000K SMD5050
Control protocol	ENTTEC SPXL-16	
SPXL-16 channel footprint (16-bit - RGB)	6 DMX slots/dot	
	Coarse Fine Coarse Fine Coarse Fine	
SPXL-16 channel footprint (16-bit - RGBW)	8 DMX slots/dot	
	Coarse Fine Coarse Fine Coarse Fine Coarse Fine	
Colour resolution (16-bit RGB)	65536 ³ = 281.4 quadrillion	
Colour resolution (16-bit RGBW)	65536 ⁴ = 18.4 quintillion	
Dots controllable per DMX universe	SPXL-16 RGB:	85 dots
	SPXL-16 RGBW:	64 dots
LED lifetime	50,000 hours (L70)	
Compatible protocol	RGB	UCS8903B (16-bit only)
	RGBW	UCS8904B (16-bit only)

Lumen Output

RGB					
Lumen (lm)	Lens Type	Dome Diffuse	Dome Clear	Flat Diffuse	Flat Clear
	Red	6.2	7.5	6.6	7.8
	Green	14.3	17.3	15.4	18.4
	Blue	3.6	4.3	3.9	4.5
Efficacy (lm/watt)	White (RGB)	24.1	29.1	25.9	30.8
	White (RGB)	15.1	18.2	16.2	19.3

RGBW					
Lumen (lm)	Lens Type	Dome Diffuse	Dome Clear	Flat Diffuse	Flat Clear
	Red	4.2	5.3	4.3	5.4
	Green	12.1	15.5	11.7	14.9
	Blue	3.1	4	3.1	4.0
	White	13.4	17.2	18.8	24.0
	White (RGB)	19.1	24.4	13.7	17.6
Efficacy (lm/watt)	Max White (RGBW)	32.4	41.5	31.8	40.8
	Max White (RGBW)	18.0	23.1	18.1	23.2

Installation

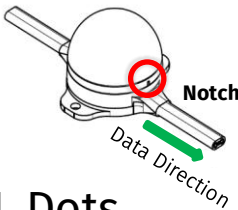
Before handling or specifying this product, always refer to its installation guide and familiarize yourself with the safety notes. If ever unsure consult ENTTEC.

Data Direction

The pixel data in the Smart PXL40 Dot must travel in a specific direction for it to function. This direction can be identified through the direction of the arrow printed on the centre of PCB.



In the event the surface of PCB is direction always flows toward the Out).¹



Controlling Smart PXL Dots

Use any ENTTEC pixel controller compatible with the Smart PXL40 dot. For the latest range of the compatible controllers visit: [LED pixel control technology | ENTTEC](#)

Certification

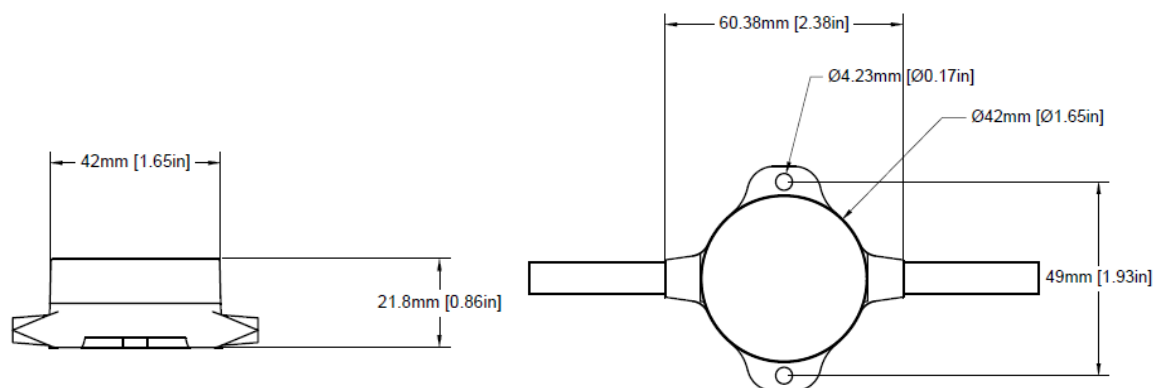


- Black material: UV resistant; White material: Reduced UV resistance.
- Salt corrosion test (e.g. ASTM B117) is not applicable due to non-metallic, inherently salt resistant body and lens material.

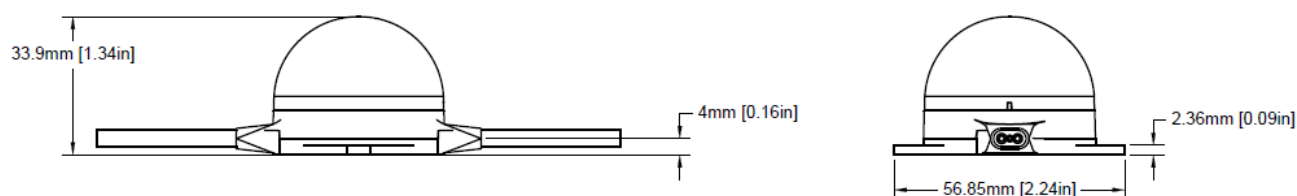
¹ Smart PXL40 Dot data direction updated from July 2024. Always refer to the notch being ‘Data Out’ side for all versions.

PHYSICAL DIMENSIONS

Smart PXL40 Dot Flat Lens



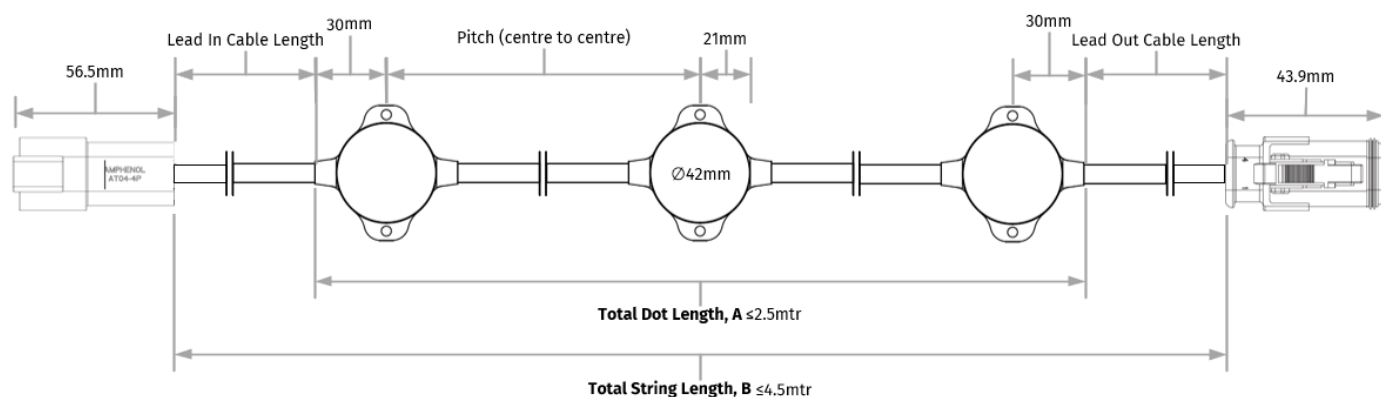
Smart PXL40 Dome Lens



Cable Customisation

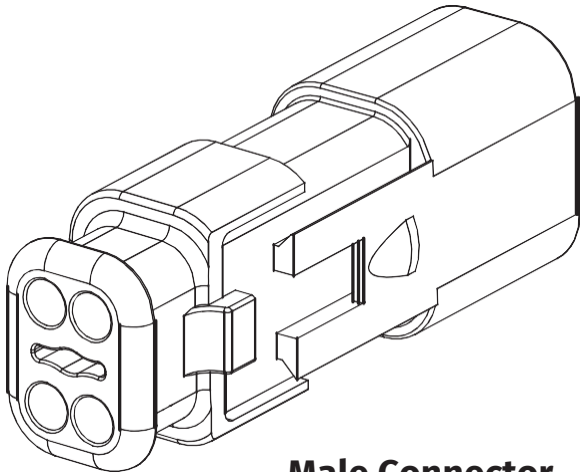
ENTTEC support cable length customisation. Please see below illustration for length limit.
Refer to order code section and reach out to ENTTEC or your ENTTEC dealer to discuss your project needs.

Cable length customisation limit



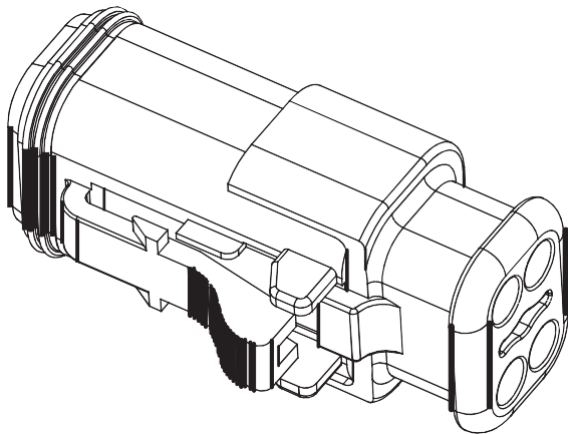
PREMIUM CONNECTORS

For ultimate reliability, ENTTEC offers IP-rated automotive style connectors with integrated latching system.



Male Connector

4-way receptacle, MALE connector with strain relief, reduced diameter seal.

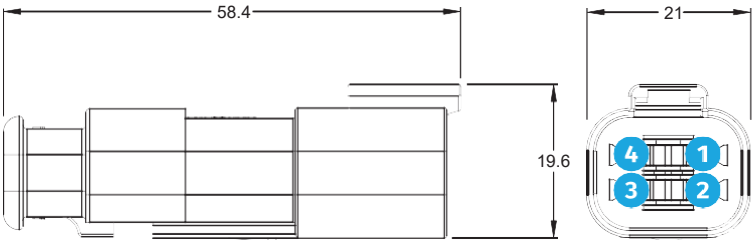


Female Connector

4-way plug, FEMALE connector with reduced diameter seal, endcap and strain relief.

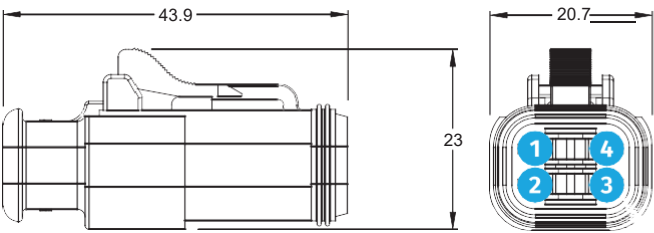
Pin Output Configurations

	PIN	PIN	PIN	PIN
	1	2	3	4
24V	0V	DATA	N/C	+24V DC



MALE
(ATM)

CONNECT

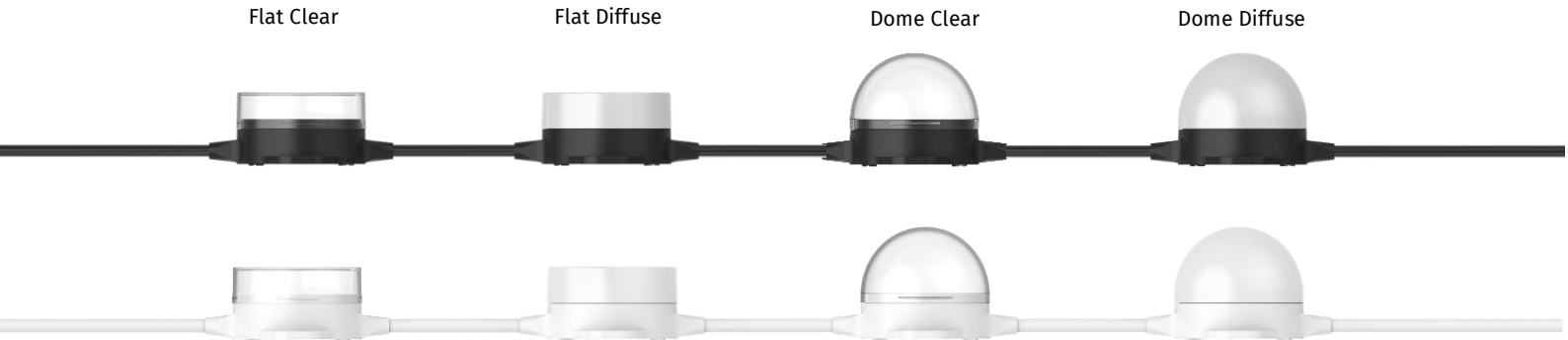


FEMALE
(ATF)

ORDERING INFORMATION

Smart PXL40 Dots

Visit ENTTEC’s [website](#) to shop for Smart PXL40 Dots.
To discuss customisation options, pricing and lead times contact our sales team at sales@enttec.com.
Refer to Order Codes section for customisation and limitation.



Order Codes

Order codes are created using the table below:

Product Code	Diffuser Type	Dots Per String	Pixel Pitch* (mm)	Lead In Length* (mm)	Lead Out Length* (mm)	Led Type	Lead In Connector Type	Lead Out Connector Type ²	Voltage	Dot string Colour
73040 (Smart PXL40 Dot)	DD (Dome Diffuse)	Min: 1	Min: 125	Min: 125	Min: 125	RGB	ATM (Automotive style Male connector - Wired per diagram)	ATF (Automotive style Female connector - wired per diagram)	24V	(Default: Black)
	DC (Dome Clear)		Max: 2000	Max: 2000	Max: 2000					
	FD (Flat Diffuse)	Max: 20	Increment: 25	Increment: 25	Increment: 25	RGBW	BET (Custom - Bare End Tinned)	BET (Custom - Bare End Tinned)		W (White)
	FC (Flat Clear)									

* Length tolerance: ±5%

Example Order Codes

The codes below reflect options shown within the table above.

Product Specification	Order Code
Smart PXL40 DOT / Dome Clear Lens / 10 dots per string/ 150mm pitch / 500mm lead in cable / 500mm lead out cable / RGB / Automotive style male input / Automotive style female output / 24 volts (default black dot string)	73040-DC-10-150-500-500-RGB-ATM-ATF-24
Smart PXL40 DOT / Dome Clear Lens / 10 dots per string/ 150mm pitch / 500mm lead in cable / 500mm lead out cable / RGB / Automotive style male input / Automotive style female output / 24 volts/ white dot string	73040-DC-10-150-500-500-RGB-ATM-ATF-24-W

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

² ENTTEC Termination End Cap [73015] only compatible with ENTTEC Female automotive style connector.