PUX1

DATASHEET
SPECIFICATIONS

PIXEL PUCK SERIES | MICRO PIXEL PUCK

The PUX 1 is a compact, high-performance pixel puck designed for dynamic architectural lighting applications. Engineered for indoor and outdoor use, it delivers reliable, precise illumination in a durable, low-profile form.

Equipped with SMD LEDs, the PUX 1 offers smooth, vibrant light with seamless integration into media façades, public spaces, and creative installations.

Built to withstand tough environments, the PUX 1 is IP67-rated for water and dust protection.

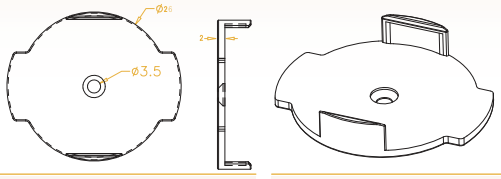


At a glance

Emitters

RGBW (W = 2700K, 3000K, 3500K, 4000K) OR **RGBA** OR **RGB** OR **White** (2700K, 3000K, 3500K, 4000K)

Dome Dimensions



Controls

Stream

Voltage

9V DC

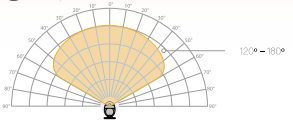
Protection

Ingress – IP67

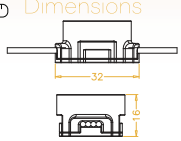
Temperature

-20ºC to 50ºC
-4ºF to 122ºF

Optics



Dimensions



FIXTURE PRODUCT CONFIGURATOR

Prefix	Model	LED String Qty	LED Colour	White CCT	Control	Pitch	Voltage	Lens Options	Housing Colour	Mount
PUX	1	1 2 3 4 5 6 7 8 9 10 50	RGBW RGBA W – White	27K – 2700K 30K – 3000K 35K – 3500K 40K – 4000K 50K – 5000K 60K – 6000K	P – PWM S – SPI XB – X-Stream Booster X – X-Stream XB Booster lives in the inside of the product. Refer to PXT/R page for differences between X and XB. PWM = Require external controller	70 80 90 100 110 120 130 140 150 160 350	9 – 9V DC	03 – 3mm Flat 05 – 5mm Flat 10 – 10mm Flat DM – Dome TD – Tall Dome N – None	W – White B – Black G – Grey C – Custom RAL	C – Clip N – None

EXAMPLE: PUX – 1 – 3 – RGBW – 30K – X – 70 – 9 – 05 – W – C

Note: 3mm, 5mm, and 10mm have a Vinyl option. Consists on covering the lens with with a thin material of the chosen colour. It's not in the part number configurator since this is part of a custom product.

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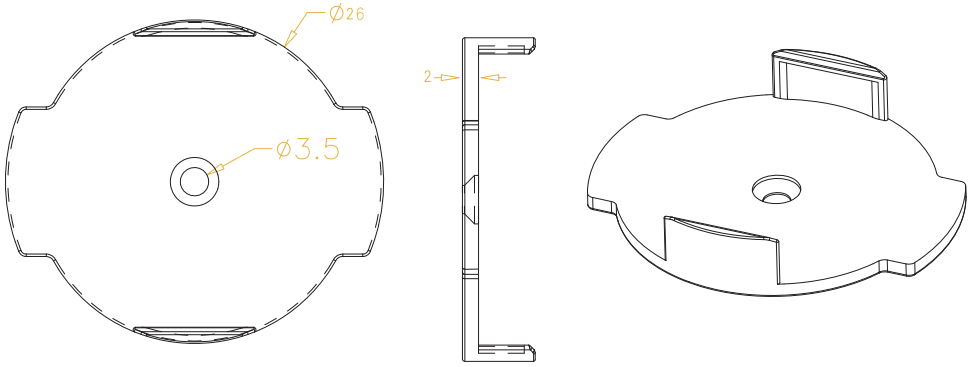
FIXTURE SPECIFICATIONS

ELECTRICAL	POWER CONSUMPTION	0.25W MAX
	OPERATING VOLTAGE	9V DC
	OPERATING TEMPERATURE	-20°C TO 50°C (-4°F TO 122°F)
	STORAGE TEMPERATURE	-20°C TO 70°C (-4°F TO 158°F)
PHYSICAL	DIMENSIONS	Ø: 26MM – (H): 16MM
	HOUSING MATERIAL	DIE-CAST ALUMINIUM HOUSING – PC CLEAR OR DIFFUSED COVER
	HOUSING COLOUR	BLACK HOUSING, GREY HOUSING, WHITE HOUSING, CUSTOM RAL
	WEIGHT	0.056KG/UNIT
	CONNECTORS	T-POWER JOIN, T-POWER BREAK
	IP RATING	IP67
	MOUNTING OPTIONS	CLIP MOUNT
	LENS OPTIONS	3MM CLEAR, 3MM DIFFUSED, 5MM CLEAR, 5MM DIFFUSED, 10MM CLEAR 10MM DIFFUSED, DOME CLEAR, DOME MILKY, TALL DOME CLEAR TALL DOME DIFFUSED LENS
	SOURCE LIFE	50,000 HOURS / L70 AT 25°C
	CONNECTION	FLEXIBLE CABLE
OPTICAL	BEAM ANGLE	120° – 180° DEPENDING ON DIFFUSER SHAPE
	COLOUR RANGE	WHITE (2700K, 3000K, 3500K, 4000K, 5000K, 6000K), RGBA
	ACCURATE COLOUR CONTROL	RGBW CONFIGURATIONS WITH SELECTABLE CCT
	LED TYPE	1PC SMD LEDS
	PITCH PIXEL	70mm – 350mm (STANDARD) / CUSTOMISED OPTIONS AVAILABLE
	LUMEN OUTPUT	25LM (WHITE 6000K)
DIMING & CONTROL	CONTROL PROTOCOLS	X-STREAM PROTOCOL WITH DATA REDUNDANCY AND SPI, PWM
	DIMMING RESOLUTION	8 BIT RESOLUTION DOING 65536 STEP WITH BUILT-IN GAMMA 2.2, 12-BIT, 14-BIT, 16-BIT.
FIXTURE RATING & CERTIFICATIONS	CE / IP67	
LIMITED WARRANTY	5 YEARS *Extendable warranty available	

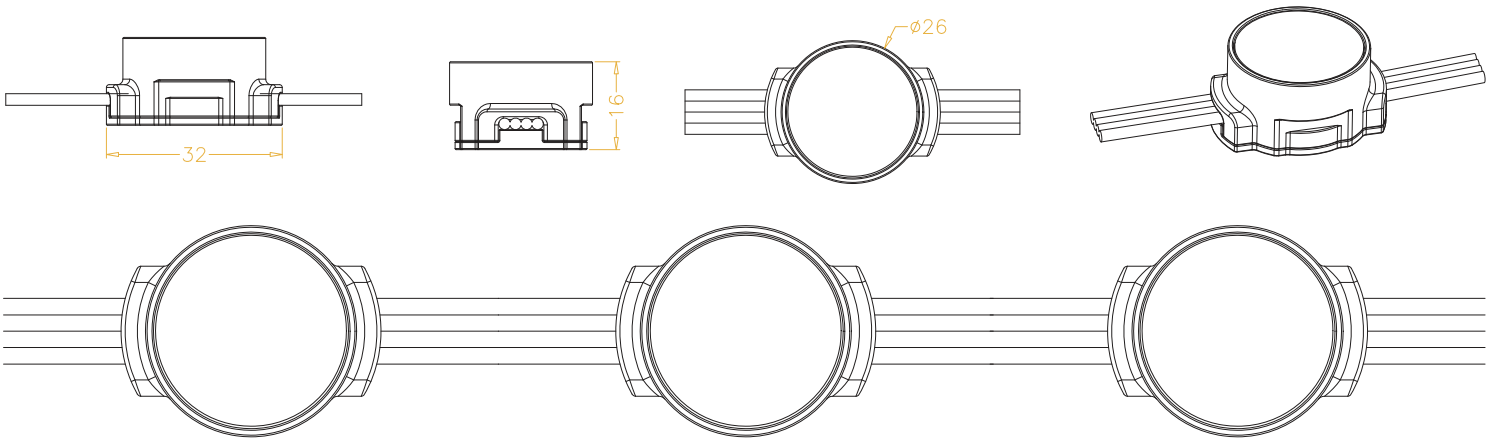
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FIXTURE DIMENSIONS

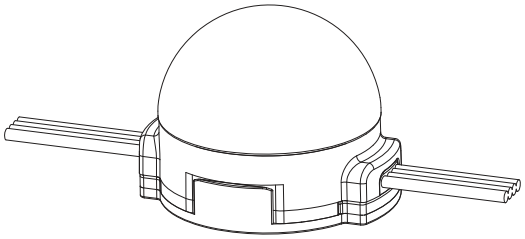
CLIP MOUNT DIMENSIONS



CLEAR FLAT DIMENSIONS



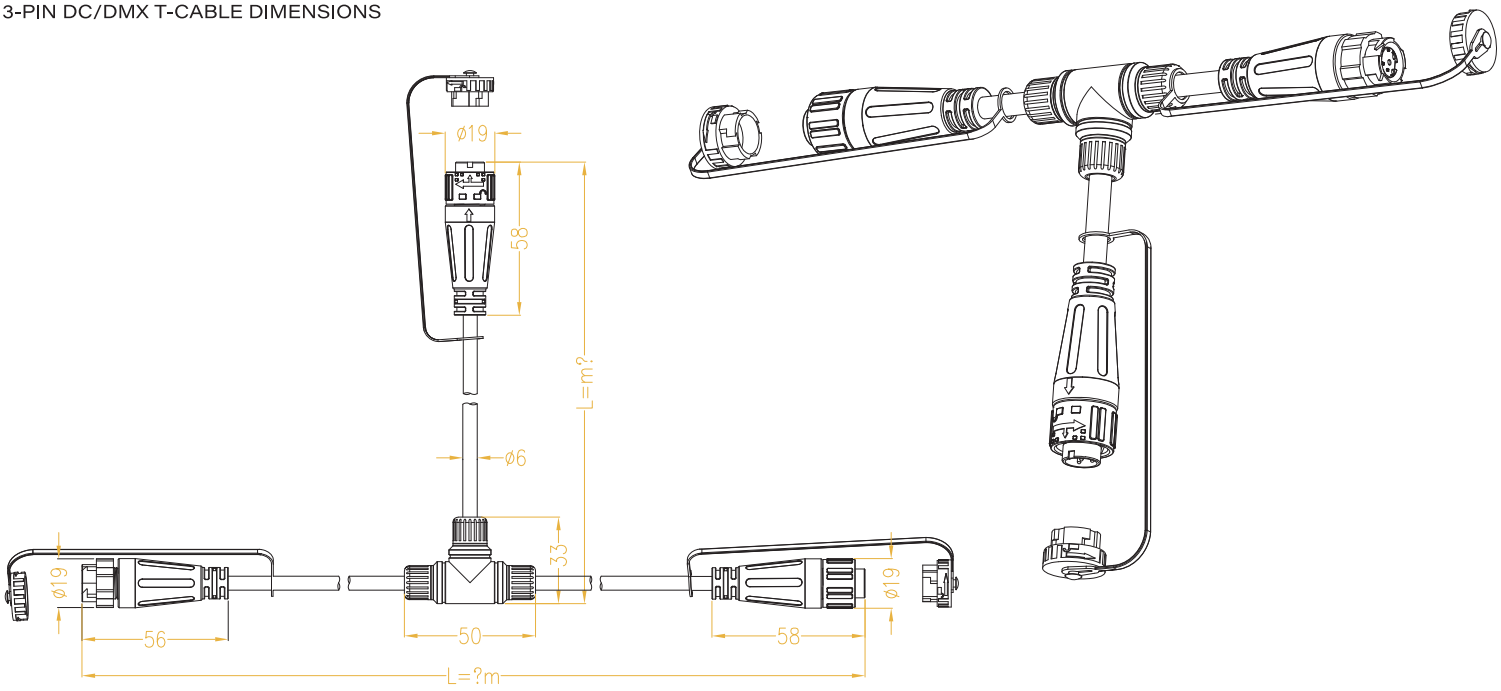
DOME DIEMNSIONS



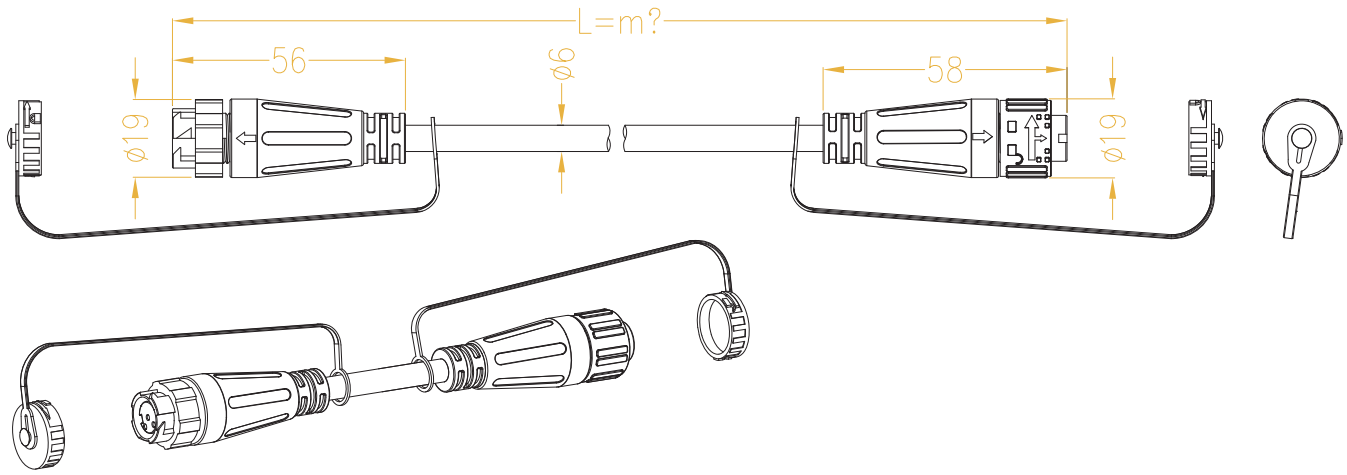
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CABLES AND CONNECTORS

3-PIN DC/DMX T-CABLE DIMENSIONS



3-PIN DC/DMX LINKING CABLE DIMENSIONS



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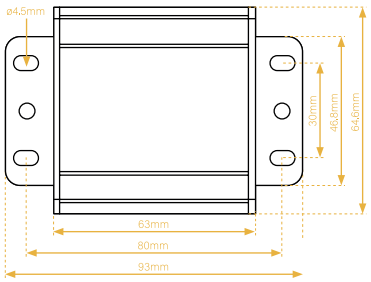
PXT/R BOOSTER

The PXT and PXR work together as a transmitter/receiver pair to allow you to extend SPI signals up to 100 metres. The units convert the standard SPI signal to/from a differential pair to allow the signal to travel this distance while minimising interference

Wide input voltage range allows support for many LED products, and the compact size makes it easy to accommodate in installations.

D1 and B1 inputs support standard data (D1) and backup data (B1) for pixel protocols supporting data redundancy.





PXT TRANSMITTER	INPUT VOLTAGE	12V – 48V DC
	AMP	6A MAX
	INPUT	SPI OR X-STREAM FROM CONTROLLER OR LEDS
	OUTPUT	X-STREAM DIFFERENTIAL SIGNAL
	IP RATING	IP20
PXT RECEIVER	INPUT VOLTAGE	12V – 48V DC
	AMP	6A MAX
	INPUT	X-STREAM DIFFERENTIAL SIGNAL
	OUTPUT	SPI OR X-STREAM TO LEDS
	IP RATING	IP20

X-STREAM® COMMUNICATION OPTIONS

X-Stream® technology is LED CTRL's premium communication platform, delivering high-speed data transmission, intelligent redundancy, and exceptional signal integrity across large-scale lighting installations. It is available in two configurations to suit different installation requirements.

X – X-Stream (EXTERNAL)
In the standard X-Stream configuration, all communication hardware sits outside the fixture. A PXT (Transmitter) and PXR (Receiver) pair is mounted externally, converting the standard SPI signal to a differential pair for long-distance, interference-resistant data transmission.
- Communication distance up to 100 metres between fixtures.
- D1 and B1 inputs support standard and backup data for full signal redundancy.
- Wide input voltage range for compatibility across the LED CTRL product ecosystem.
- For longer runs, additional PXT/PXR pairs can be added at intervals to maintain signal integrity.
- Best suited for installations where external access to communication hardware is preferred, or where fixtures do not support internal integration.

XB – X-Stream Boosted (INTEGRATED)
X-Stream Boosted moves the signal repeating capability inside the fixture run, eliminating external hardware and simplifying installation. An external PXT transmits the signal to a PXR housed inside the product, which receives, processes, and re-transmits via a built-in PXT to the next fixture – effectively turning each boosted point into a signal relay
- Eliminates external junction boxes and separately mounted communication hardware.
- Each boosted point fully regenerates the signal, preventing degradation over distance.
- Supports extended runs without compromising data quality
- Cleaner installation with fewer visible components.

Integration depends on the product:
- Factory-integrated (e.g. LXB): The PXT/PXR hardware is built directly into the fixture, no additional components required.
- Dedicated boost housing (e.g. PUX): A purpose-built fixture shell, identical in form but without LEDs, houses the PXT/PXR pair. Placed at the beginning of each run and at intervals along longer runs, it integrates seamlessly without disrupting the visual continuity of the installation.

Both configurations share the same underlying X-Stream platform, ensuring identical signal quality, redundancy, and compatibility with LED CTRL controllers and fixtures.

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X-STREAM® TECHNOLOGY

X-Stream Technology is LEDCTRL's premium communication and power delivery platform, built on the advanced UCS7604 driver IC. It is designed to deliver high speed data transmission, exceptional reliability, and superior visual performance across large-scale and demanding lighting installations.

At its core, the system integrates intelligent signal processing, high-precision constant current control, and advanced error-detection mechanisms to ensure stable operation and consistent output, even in complex or long-distance configurations.

KEY FEATURES

Built-in Redundancy

X-Stream incorporates dual-channel signal transmission with intelligent fault detection. In the event of a pixel or signal failure, the system automatically bypasses the faulty node and continues data transmission without interruption.

- Dual signal channels with real-time monitoring
- Automatic switching between channels in case of failure
- Fault identification accuracy greater than 99%
- No visible disruption during signal switching

This ensures continuous operation and eliminates single-point failures across the installation.

Auto-Addressing

Fixtures require no manual addressing or pre-configuration. Each unit automatically interprets incoming data, allowing for flexible installation and simplified maintenance.

- Plug-and-play installation
- No addressing sequence required
- Fixtures can be installed in any order

This significantly reduces installation time and minimises the risk of configuration errors.

High-Speed Communication

X-Stream supports high-speed PWM data transmission, enabling smooth and dynamic lighting effects across long runs.

- Transmission speeds: 800 Kbps and 1.6 Mbps
- Supports high frame rates and fast data refresh
- Capable of filming environments up to 533 FPS without flicker
- Stable performance regardless of frame frequency

This ensures high-quality visual output suitable for media façades, dynamic content, and camera-facing applications.

Advanced Dimming Performance

The system supports multiple dimming resolutions, delivering precise brightness control and smooth transitions across the full output range.

- 8 / 12 / 14 / 16-bit dimming options
- Up to 65,536 levels of greyscale
- Built-in gamma correction (8-bit to 16-bit equivalent)
- Seamless dimming from 0% to 100%

High refresh rates (up to 16 kHz) further ensure stable, flicker-free performance and accurate colour rendering.

Signal Integrity & Reliability

X-Stream integrates advanced anti-interference and signal enhancement technologies to maintain reliable communication in challenging environments

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- S-AI anti-interference technology reduces radiation and conduction interference
- Enhanced signal receiving and transmission stability
- Consistent performance across varying environmental conditions
- Extended standard spacing between fixtures (>15 m)

These features ensure robust operation in large-scale and electrically complex installations.

Data Booster Technology

To support extended installation distances, X-Stream incorporates data boosting capabilities both within fixtures and via external booster units.

- Extends communication distance up to 100 m between fixtures
- Maintains signal integrity over long data runs
- Supports large-scale linear and distributed installations

This allows for greater design flexibility without compromising system performance.

Long-Distance Power Distribution

X-Stream systems are designed to support extended power runs through intelligent power management and integrated hardware.

- AC fixtures with built-in, replaceable power supplies
- High power factor for efficient energy distribution
- Managed startup and inrush current control
- Smart load regulation for stable operation
- Supports continuous runs of up to 96 m of linear product

This ensures reliable power delivery across extended fixture runs while maintaining system safety and efficiency.

System Overview

By combining high-speed communication, intelligent redundancy, and advanced signal processing, X-Stream Technology enables the creation of large-scale, high-performance lighting systems with minimal installation complexity and maximum operational reliability.

Its integration of the UCS7604 chipset ensures that each fixture operates with precision, consistency, and resilience, making it suitable for demanding architectural, façade, and media lighting applications.

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