# PUX6

DATASHEET
SPECIFICATIONS

## PIXEL PUCK SERIES | STANDARD PIXEL PUCK

The PUX 6 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 6 offers smooth, vibrant light with seamless integration into media façades, public spaces, and creative installations.

Built to withstand tough environments, the PUX 6 is IP67-rated for water and dust protection.

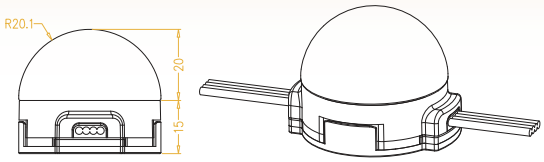


## At a glance

### Emitters

**RGBW** (W = 2700K, 3000K, 3500K, 4000K) OR **RGBA** OR **RGB** OR **Dynamic White (DW)** (2000K to 5000K) OR **White** (2700K, 3000K, 3500K, 4000K)

### Dome Dimensions




### Controls

Stream

### Voltage

24V DC

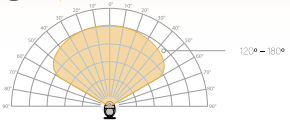
### Protection

Ingress – IP67

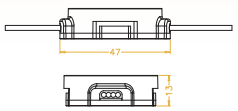
### Temperature

-20°C to 50°C
-4°F to 122°F

### Optics




### Dimensions




## FIXTURE PRODUCT CONFIGURATOR

| Prefix | Model | LED String Qty | LED Colour | White CCT | Control | Pitch | Voltage | Lens Options | Housing Colour | Deck Colour | Mount |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PUX | 6 | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>....<br>50 | RGBW<br>RGBA<br>RGB<br>DW – Dynamic White (20K - 50K)<br>W – White | 27K – 2700K<br>30K – 3000K<br>35K – 3500K<br>40K – 4000K | P – PWM<br>S – SPI<br>XB – X-Stream Booster<br>X – X-Stream<br><br>XB Booster lives in the inside of the product.<br><br>Refer to PXT/R page for differences between X and XB. | 70<br>80<br>90<br>100<br>110<br>120<br>130<br>140<br>150<br>160<br>....<br>350 | 24 – 24V DC | 03 – 3mm Flat<br>05 – 5mm Flat<br>10 – 10mm Flat<br>CR – Crystal<br>DM – Dome<br>TD – Tall Dome<br>N – None | W – White<br>B – Black<br>G – Grey<br>C – Custom RAL | B – Black<br>G – Grey<br>W – White<br>C – Custom RAL | B – 3M Mount<br>C – Clip<br>SU – Surface<br>P – Panel<br>U – U-channel |

EXAMPLE: PUX – 6 – 2 – RGBW – 30K – X – 110 – 24 – 05 – W – B – U

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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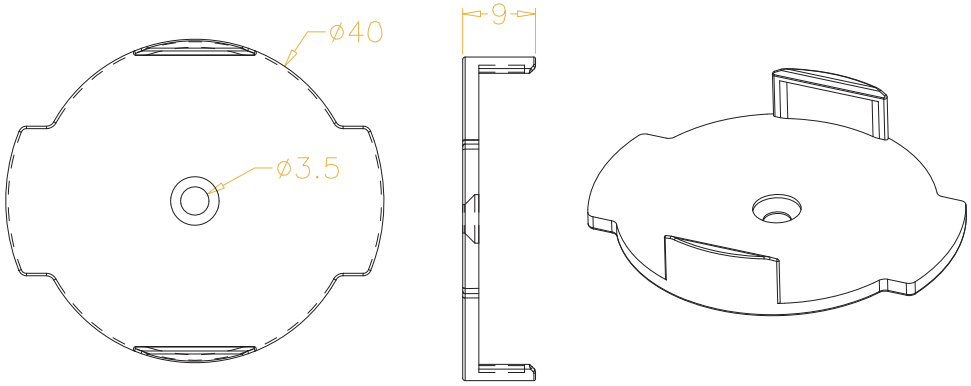
# FIXTURE SPECIFICATIONS

| | | |
|---|---|---|
| **ELECTRICAL** | POWER CONSUMPTION | 1.5W (RGB OR WHITE), 1.8W (RGBW) |
| | OPERATING VOLTAGE | 24V 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: 40MM – (H): 13MM |
| | HOUSING MATERIAL | DIE-CAST ALUMINIUM HOUSING – PC CLEAR OR DIFFUSED COVER |
| | HOUSING COLOUR | BLACK HOUSING, GREY HOUSING, WHITE HOUSING, CUSTOM RAL |
| | WEIGHT | 0.05KG/UNIT |
| | CONNECTORS | T-POWER JOIN, T-POWER BREAK |
| | IP RATING | IP67 |
| | MOUNTING OPTIONS | 3M MOUNT, CLIP MOUNT, SURFACE MOUNT, PANEL MOUNT, U-CHANNEL MOUNT |
| | LENS OPTIONS | 3MM CLEAR, 3MM DIFFUSED, 5MM CLEAR, 5MM DIFFUSED, 10MM CLEAR 10MM DIFFUSED, CRYSTAL, DOME CLEAR, DOME MILKY, TALL DOME CLEAR TALL DOME DIFFUSED LENS |
| | SOURCE LIFE | 50,000 HOURS / L70 AT 25°C |
| | CONNECTION | IP67 PLUG & PLAY 4-PIN PUSHLOCK CONNECTOR |
| | DATA MAXIMUM RUN LENGTH | 50 PUX 6 PER RUN, BEFORE POWER AND DATA INJECTION |
| **OPTICAL** | BEAM ANGLE | 120° – 180° DEPENDING ON DIFFUSER SHAPE |
| | COLOUR RANGE | WHITE (2700K, 3000K, 3500K, 4000K), RGB, RGBA, DYNAMIC WHITE (2000K – 5000K) |
| | ACCURATE COLOUR CONTROL | RGBW CONFIGURATIONS WITH SELECTABLE CCT |
| | LED TYPE | 5050 SMD LEDS |
| | PITCH PIXEL | 70mm – 350mm (STANDARD) / CUSTOMISED OPTIONS AVAILABLE |
| | LUMEN OUTPUT | 75LM (WHITE 6000K) |
| **DIMMING & CONTROL** | CONTROL PROTOCOLS | X-STREAM PROTOCOL WITH DATA REDUNDANCY AND SPI, DMX, 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<br>*Extendable warranty available | |

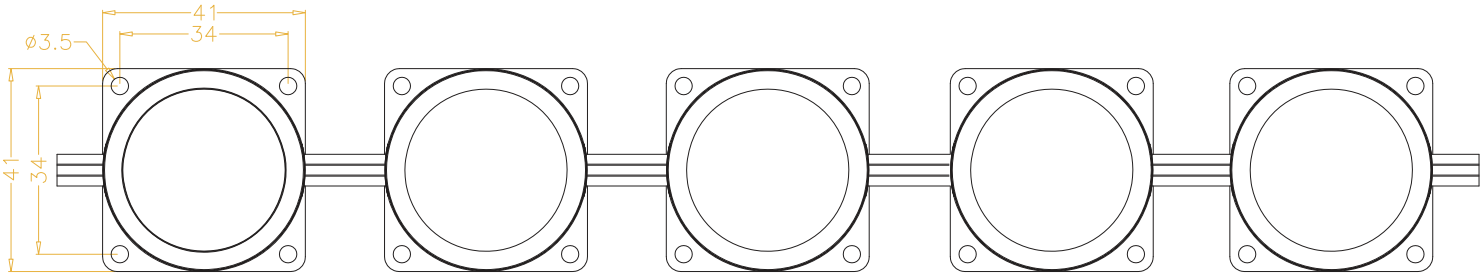

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## FIXTURE DIMENSIONS

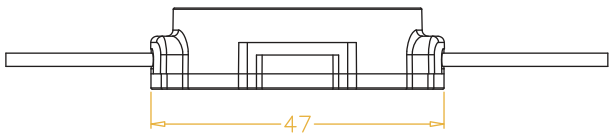
CLIP MOUNT DIMENSIONS

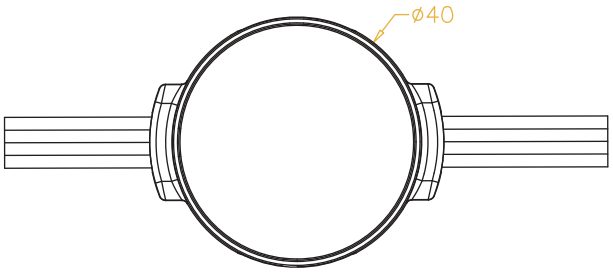


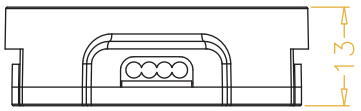

SURFACE MOUNT DIMENSIONS



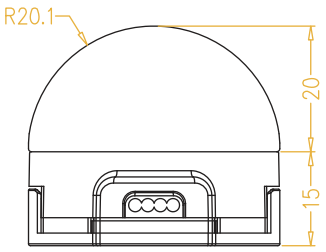

CLEAR FLAT DIMENSIONS

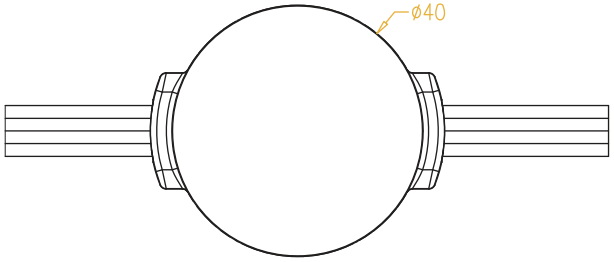


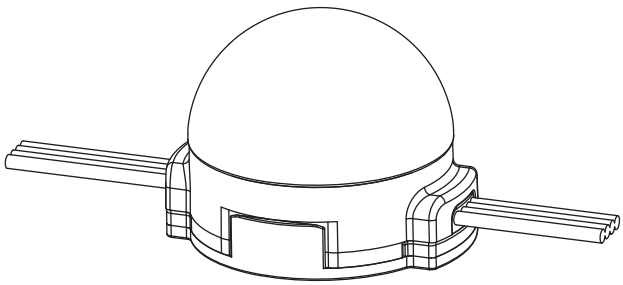




CLEAR DOME DIMENSIONS



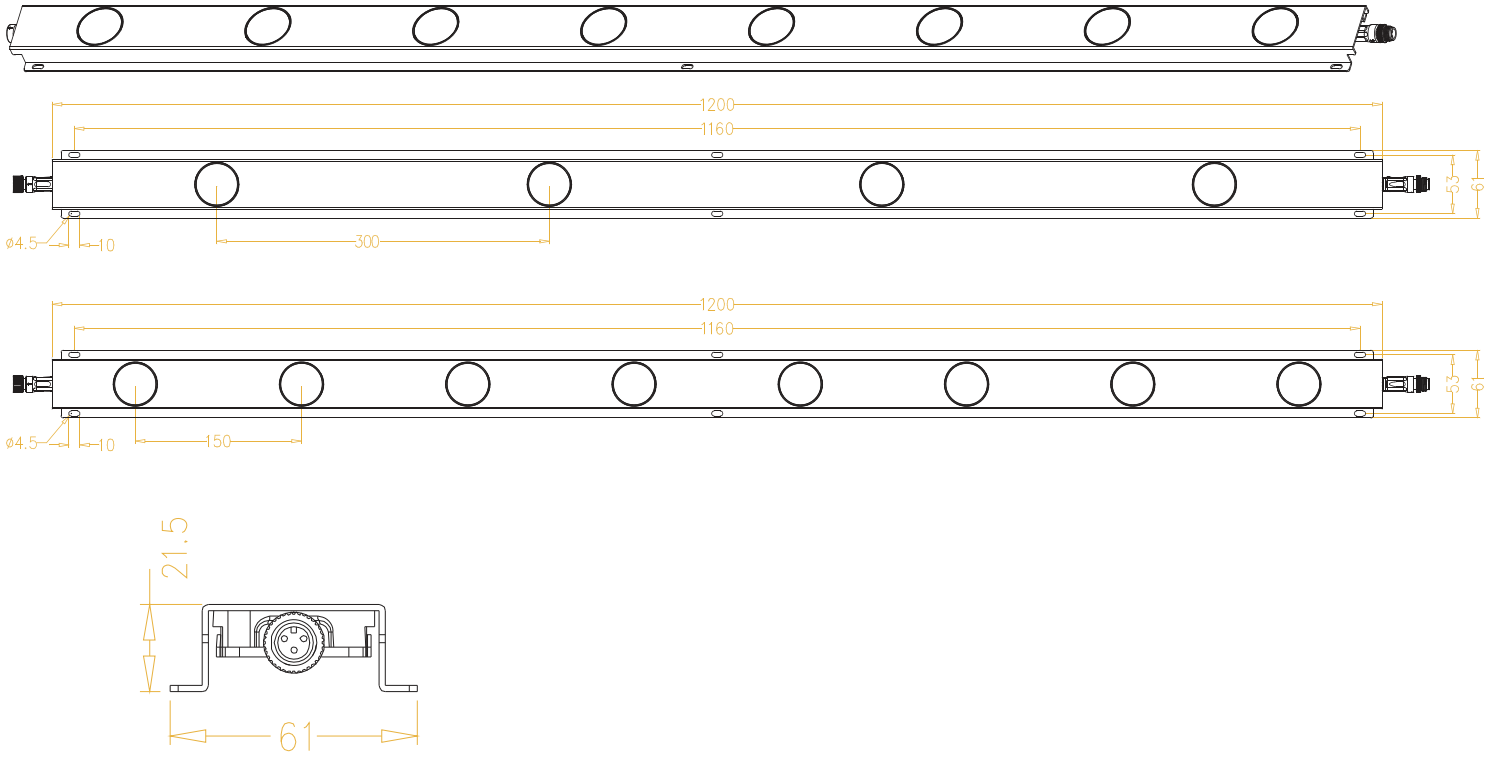




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## FIXTURE DIMENSIONS

U-CHANNEL MOUNT DIMENSIONS



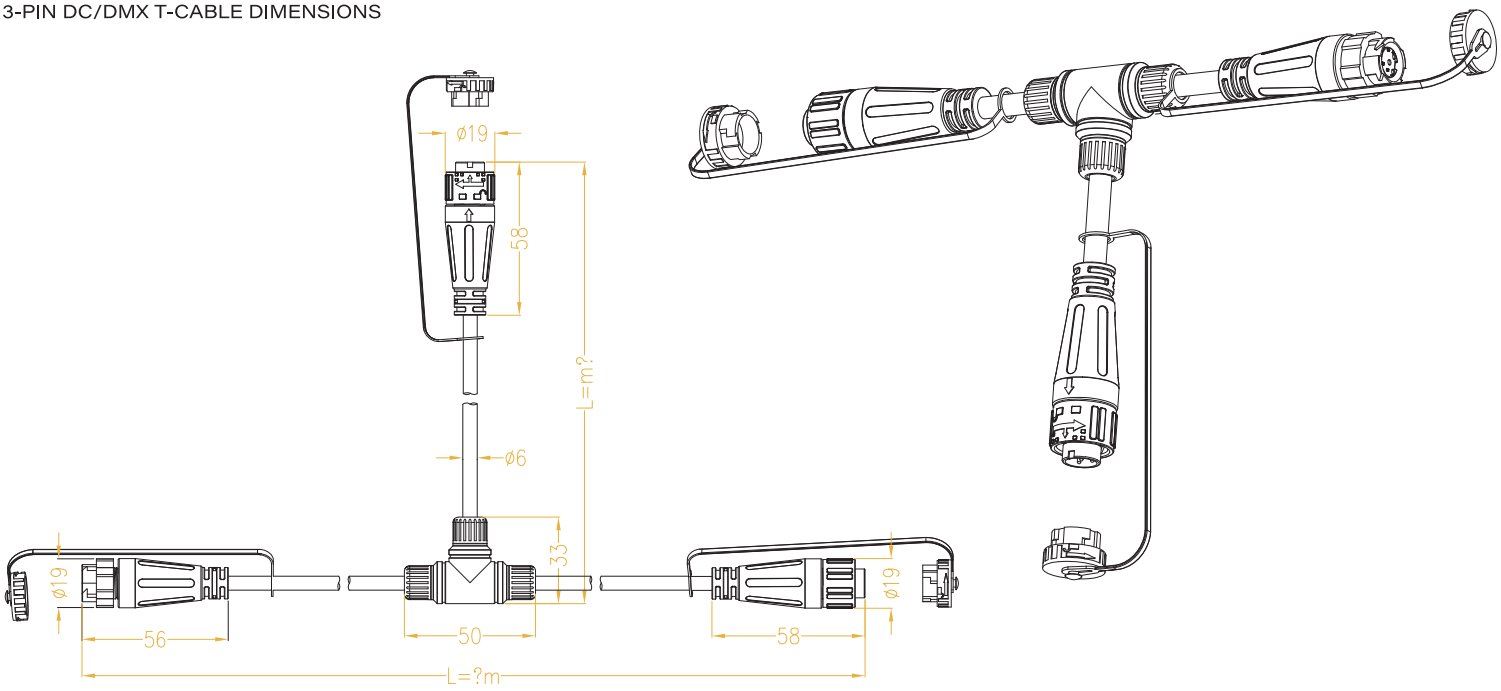




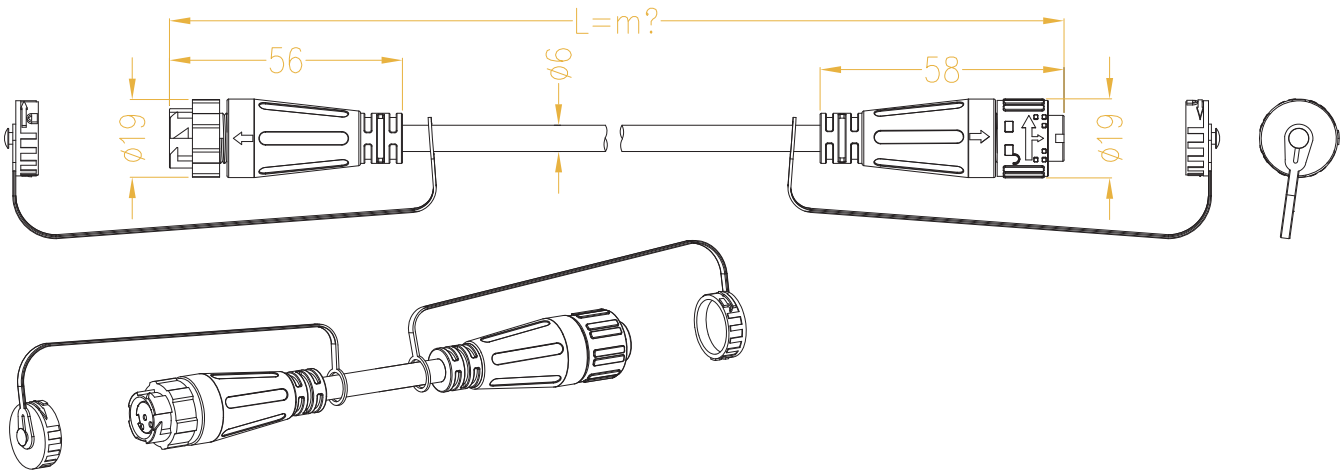

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## CABLES AND CONNECTORS

3-PIN DC/DMX T-CABLE DIMENSIONS




3-PIN DC/DMX LINKING CABLE DIMENSIONS





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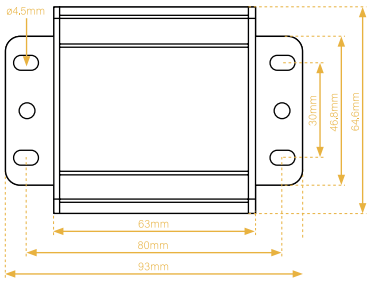
# PXT/R BOOSTER

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

.

- 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.

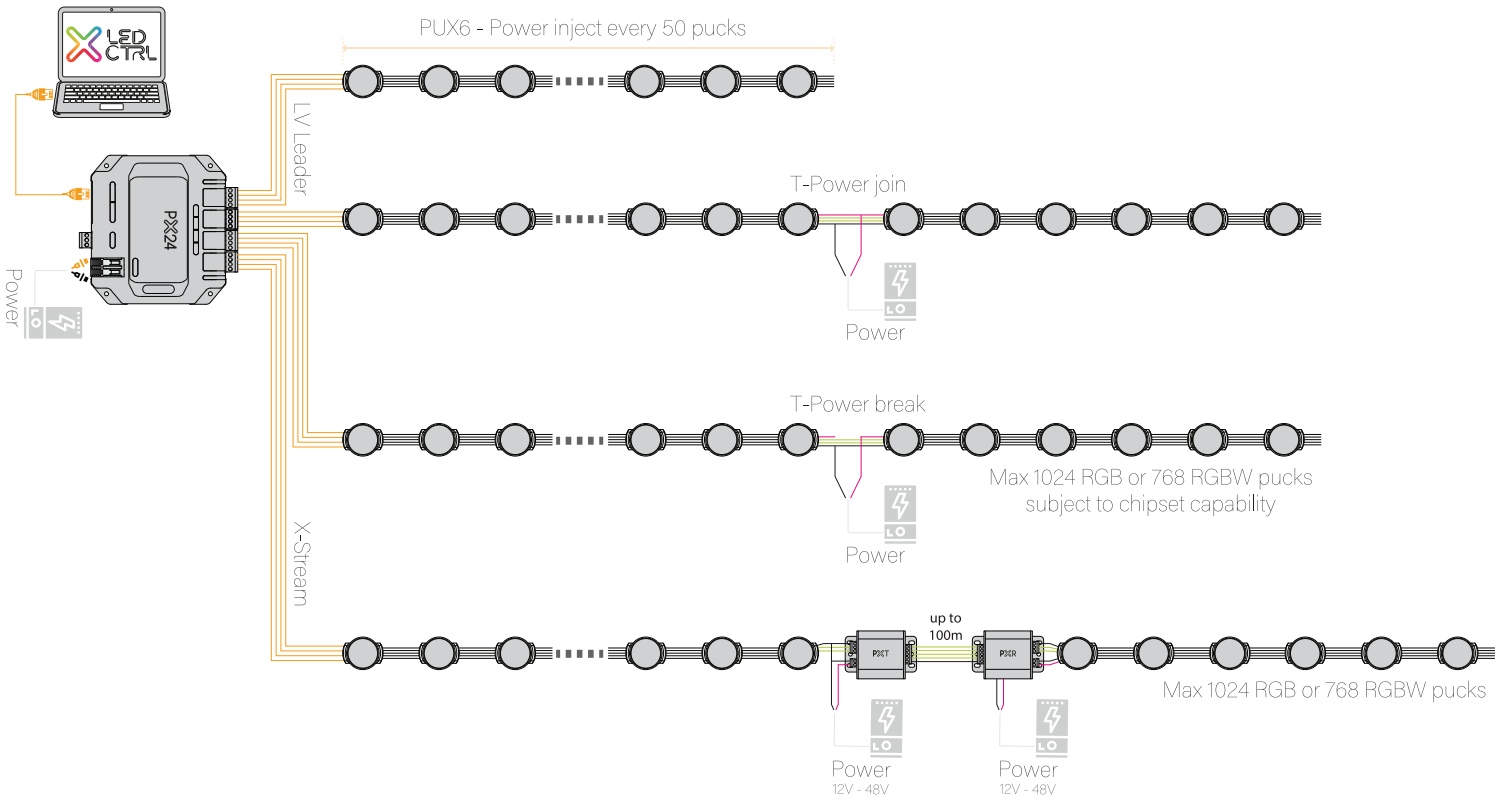
### System Overview

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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## WIRING DIAGRAM





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## FIXTURE RENDERS

### PUX6 FIXTURE RENDERS – LENS TYPES

3mm Flat Lens



5mm Flat Lens



10mm Flat Lens



Small Dome Lens



High Tall Lens



Crystal Lens



### PUX4 FIXTURE RENDERS – MOUNTING TYPES

3M Mount



Clip Mount



Surface Mount



U-Channel Mount




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