XAD3

DATASHEET
SPECIFICATIONS

DOT SERIES | COMPACT PIXEL DOT

The XAD 3 is a compact, high-output architectural dot designed for dynamic façade and feature lighting applications. Engineered for both indoor and outdoor environments, it delivers precise, uniform illumination.

Equipped with high-density LEDs, the XAD 3 offers vibrant colour performance or clean white output, making it ideal for media features, structural accents, and creative lighting installations.

Built for reliability in demanding conditions, the XAD 3 features a durable die-cast aluminium housing and is IP66-rated for protection against dust and water ingress.





At a glance

Emitters

RGBW
(W = 2200K, 2700K 3000K, 3500K, 4000K 5000K, 6000K)

OR

RGB

OR

Dynamic White (DW)
(2000K to 6000K)

OR

White
(2200K, 2700K 3000K, 3500K, 4000K 5000K, 6000K)

Dimensions



Controls

Stream

Voltage

24V DC

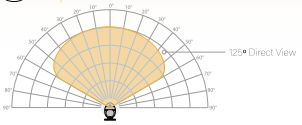
Protection

Ingress – IP66

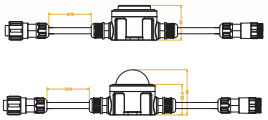
Temperature

-20°C to 50°C
-4°F to 122°F

Optics



Dimensions



FIXTURE PRODUCT CONFIGURATOR

Prefix	Model	LED Colour	White CCT	Control	Power	Voltage	Lens Options	Housing Colour	Mounting
XAD	3	RGBW RGB DW – Dynamic White (20K - 60K) W – White	22K – 2200K 27K – 2700K 30K – 3000K 35K – 3500K 40K – 4000K 50K – 5000K 60K – 6000K	S – SPI P – PWM X – X-Stream XB – X-Stream Booster	3 – 3W	24 – 24V DC	F – Flat D – Dome FD – Flat Diffused DD – Dome Diffused	A – Anodised Aluminium B – Black W – White C – Custom RAL	C – Clip Mount S – Surface Mount

EXAMPLE: XAD – 3 – RGBW – 22K – X – 3 – 24 – DD – A – C

Note*:
XB Booster lives in the inside of the product. Refer to PXT/R page for differences between X and XB.
Need an external controller to run on PWM

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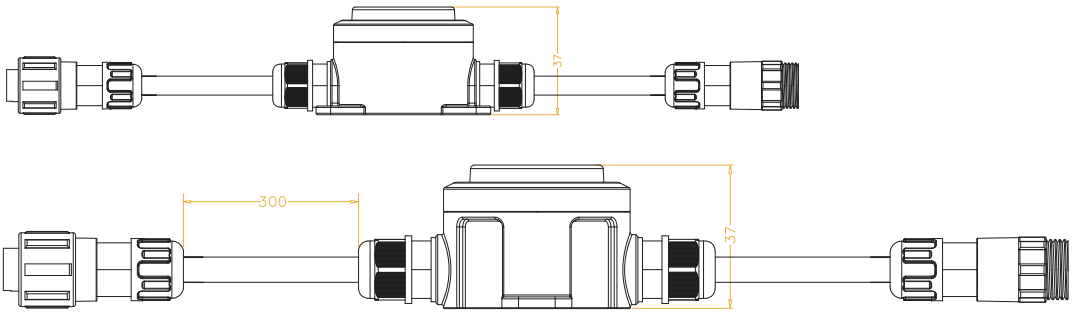
XAD 3 SPECIFICATIONS

ELECTRICAL	POWER CONSUMPTION	3W MAX
	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	STANDARD FIXTURE DIMENSIONS	Ø48MM X 37MM (FLAT) / 48MM (DOME) (H)
	FIXTURE HOUSING	DIE-CAST ALUMINIUM
	HOUSING COLOURS	ANODISED ALUMINIUM, WHITE, BLACK, CUSTOM RAL
	LENS OPTIONS	FLAT, DOME, FLAT DIFFUSED, DOME DIFFUSED
	CONNECTION	5-PIN DC/DMX BOTH SIDE ENTRY CABLE C/W IP CONNECTORS
	IP RATING	IP66
	MOUNTING OPTIONS	CLIP MOUNT, SURFACE MOUNT
	SOURCE LIFE	50,000 ≈ 70,000 HOURS / L70 AT 25°C
	CABLES	FLEXIBLE CABLE
OPTICAL	BEAM ANGLE	125°
	COLOUR RANGE	WHITE (2200K, 2700K, 3000K, 3500K, 4000K, 5000K, 6000K), RGB, DYNAMIC WHITE (2000K – 6000K)
	ACCURATE COLOUR CONTROL	RGBW CONFIGURATIONS WITH SELECTABLE CCT
	LED TYPES	HIGH INTENSITY LEDs
	LUMEN OUTPUT	86LM (RGBW) / 265LM (6000K, DIFFUSED DOME)
DIMMING & CONTROL	CONTROL PROTOCOLS	X-STREAM PROTOCOL WITH DATA REDUNDANCY AND SPI
	DIMMING RESOLUTION	8, 12, 14 OR 16-BIT (UP TO 65,536 STEPS) WITH BUILT-IN GAMMA 2.2
FIXTURE RATING & CERTIFICATIONS	CE / IP66	
LIMITED WARRANTY	5 YEARS *Extendable warranty available	

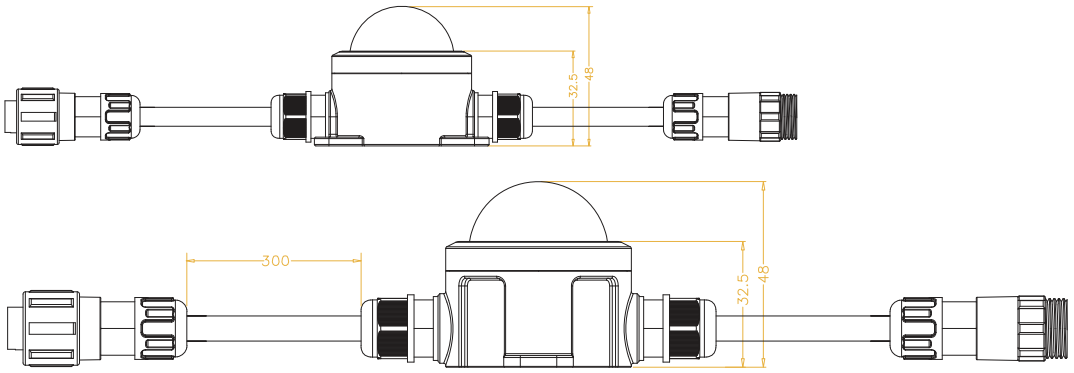
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DIMENSIONS

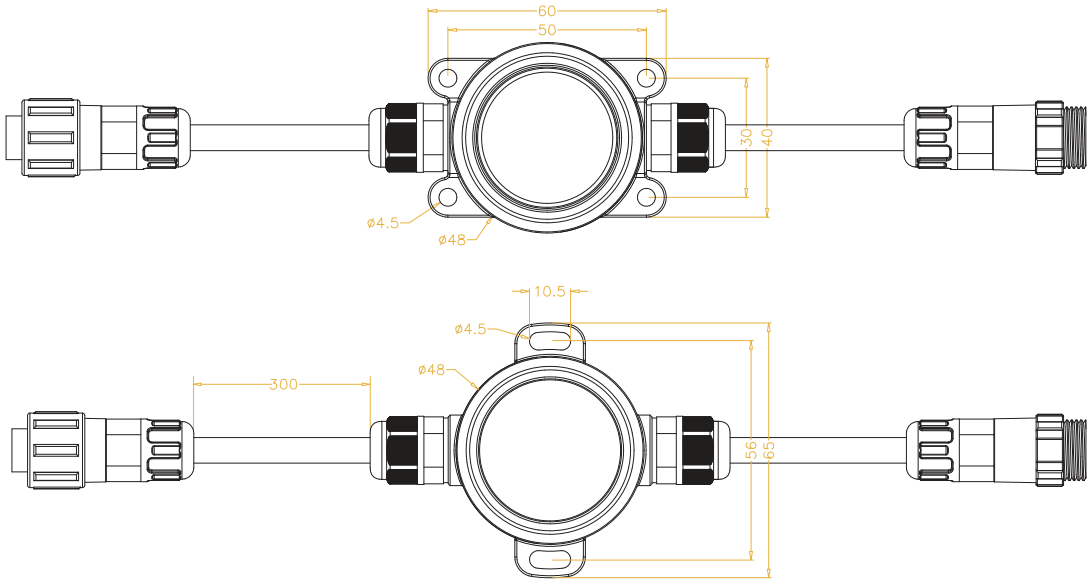
XAD 3 FLAT DIMENSIONS



XAD 3 DOME DIMENSIONS



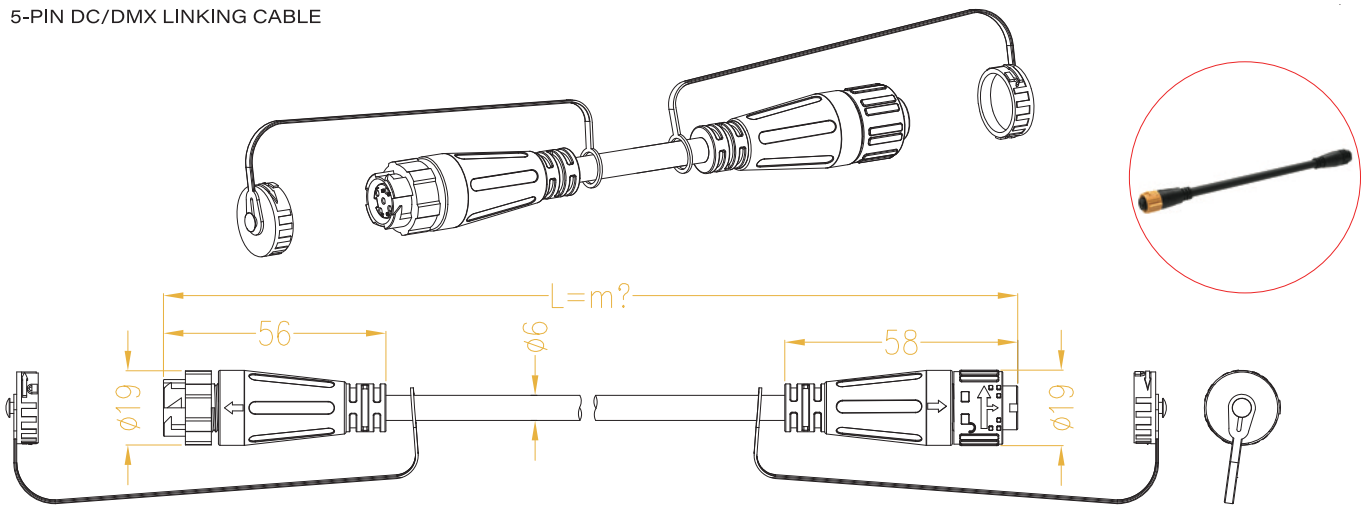
XAD 3 CLIP MOUNT DIMENSIONS



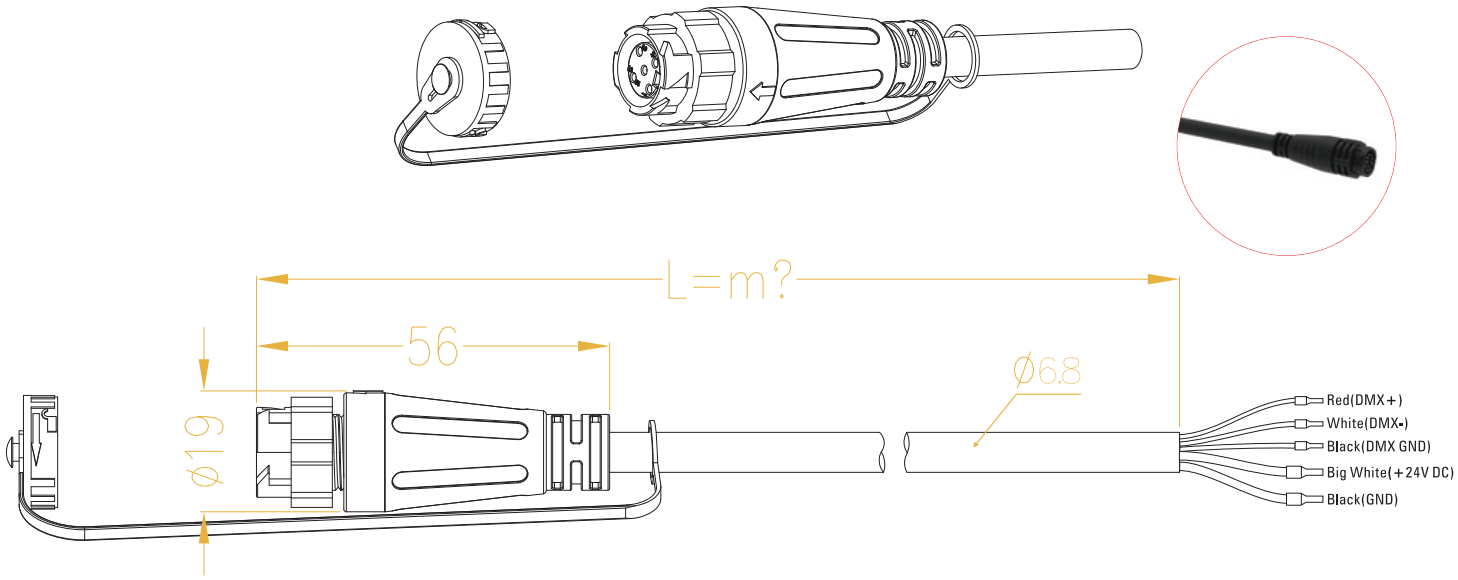
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CABLES AND CONNECTORS

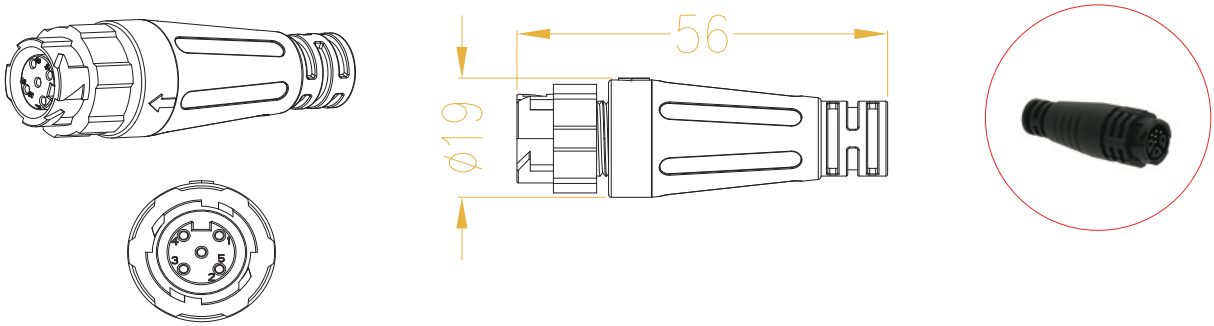
5-PIN DC/DMX LINKING CABLE



5-PIN DC/DMX LEADER STARTER CABLES



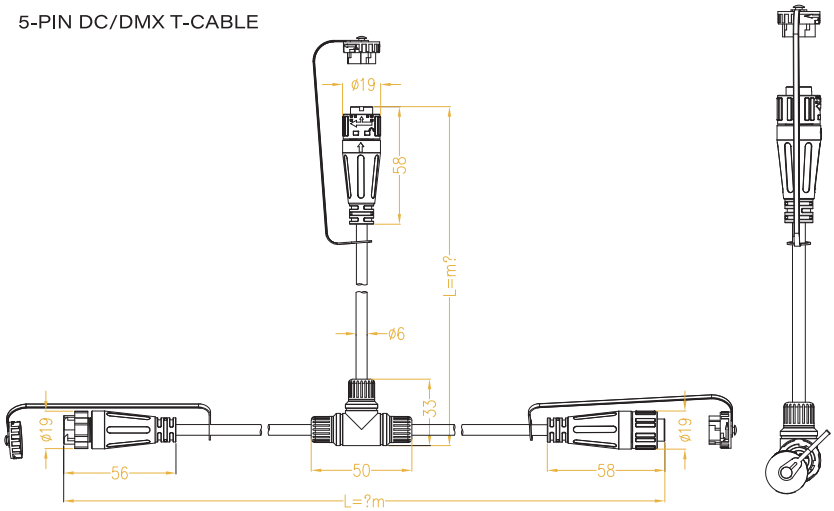
5-PIN DC/DMX IP DMX TERMINATOR

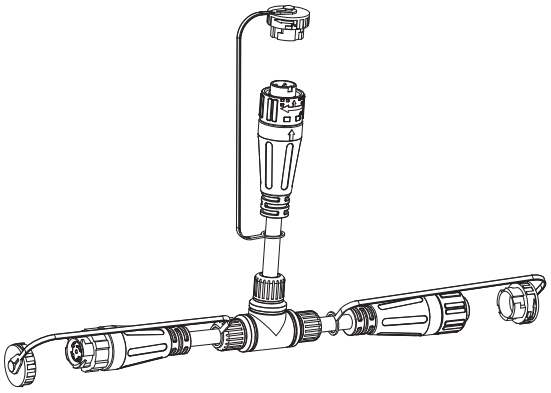


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CABLES AND CONNECTORS

5-PIN DC/DMX T-CABLE





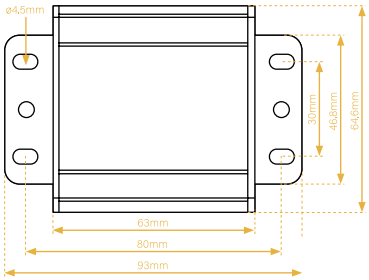
PXT/R BOOSTERS

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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