AXS18

DATASHEET
SPECIFICATIONS

AQUA UNDERWATER SPOTLIGHT | LARGE SCALE

The AXS 18 is a high-output multi-LED underwater drum light designed for large-scale pool, fountain, and marine lighting projects. Packed with 18 high-power LEDs in RGB, RGBW, or single-colour white options, it delivers significant luminous output with beam angles from 10° to 40°, plus 10°x35° and 10°x60°.

Built from die-cast 316L marine-grade stainless steel and rated IP68 to 6m depth, the AXS 18 is available in underwater and in-ground versions.

An external constant current driver supports daisy-chaining of up to four units per driver.



At a glance

Emitters

RGBW
(W = 2400K, 2700K 3000K, 3500K, 4000K 5000K, 6000K)

OR

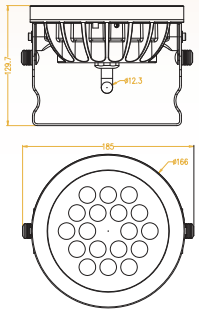
RGB

OR

White
(2700K, 3000K, 3500K, 4000K)

Certifications

Dimensions



Controls

Voltage

24v DC

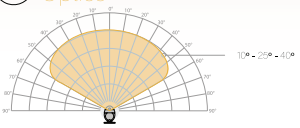
Protection

Ingress – IP68

Temperature

-20°C to 50°C
-4°F to 122°F

Optics



FIXTURE PRODUCT CONFIGURATOR

Prefix	Model	LED Colour	White CCT	Control	Beam Angle	Power	Voltage	Accessories
AXS	18	RGBW RGB W – White	24K – 2400K 27K – 2700K 30K – 3000K 35K – 3500K 40K – 4000K 50K – 5000K 60K – 6000K	D – DMX P – PWM S – SPI X – X-Stream XB – X-Stream Booster	10 – 10° 25 – 25° 40 – 40° 1.3 – 10°x35° 1.6 – 10°x60°	18 – 18W	24 – 24v DC	IG – In-grade Kit HL – Honeycomb Louver

EXAMPLE: AXS – 18 – RGBW – 30K – D – 40 – 18 – 24 – PN

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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AQUA UNDERWATER SPOTLIGHT | LARGE SCALE

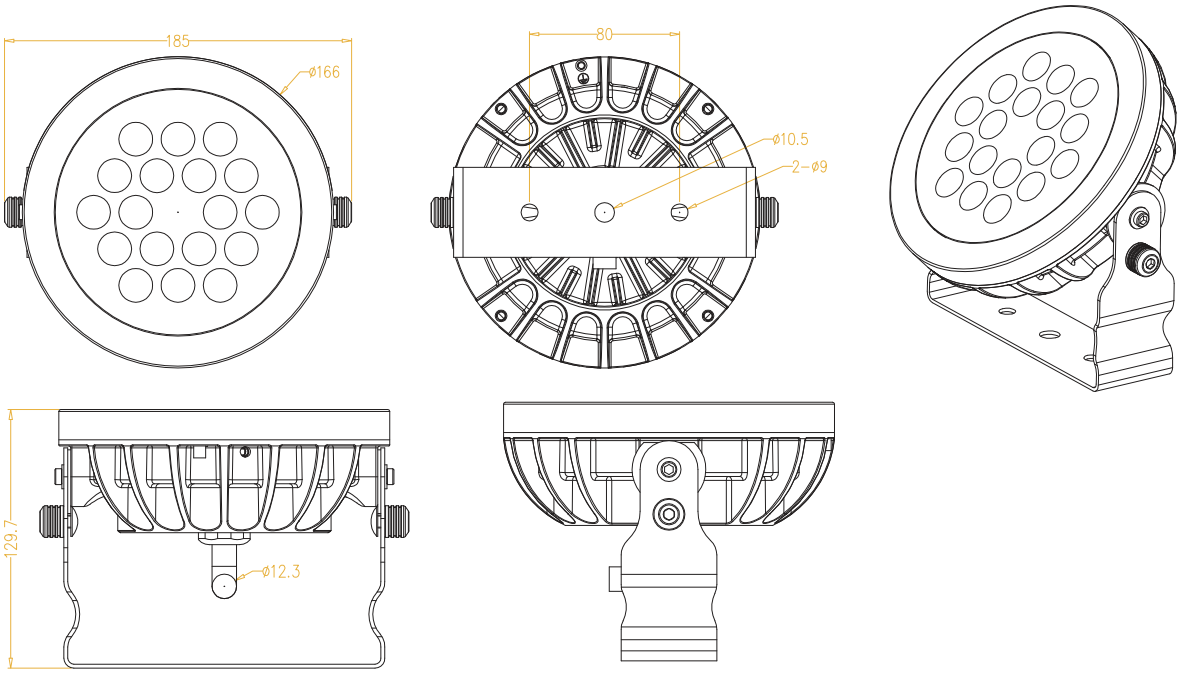
FIXTURE SPECIFICATIONS

ELECTRICAL	POWER CONSUMPTION	18W 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	FIXTURE DIMENSIONS	Ø: 166MM – H: 130MM
	IP RATING	IP68 WITH 6M DEPTH
	SOURCE LIFE	50,000 TO 70,000 HOURS/L70 AT 25°C
	HOUSING	DIE-CAST, 316L STAINLESS STEEL HOUSING FOR MARINE APPLICATION
	CONNECTION	20M INPUT CABLE WITH BARE TAIL, ENCAPSULATED
	ACCESSORIES	IN-GRADE KIT (NEED TO BE ORDERED SEPARATELY)
	CABLES & CONNECTORS	8-PIN GREEN TERMINAL BLOCK/CONNECTOR
OPTICAL	BEAM ANGLE	10° – (25° – 40° – 10°X35° – 10°X60° OPTIONAL) WITH ENCAPSULATED LENSES
	COLOUR RANGE	WHITE (2400K, 2700K, 3000K, 3500K, 4000K, 5000K, 6000K), RGB
	ACCURATE COLOUR CONTROL	RGBW CONFIGURATIONS WITH SELECTABLE CCT
	LED TYPE	HIGH POWER LEDS
	LIGHT SOURCE	18PCS LEDS
DIMMING & CONTROL	CONTROL PROTOCOLS	DMX/RDM PROTOCOL, ADDRESSED BY RDM TESTER, PWM, SPI, X-STREAM, X-STREAM BOOSTER
FIXTURE RATING & CERTIFICATIONS	CE / IP68	
LIMITED WARRANTY	5 YEARS *Extendable warranty available	

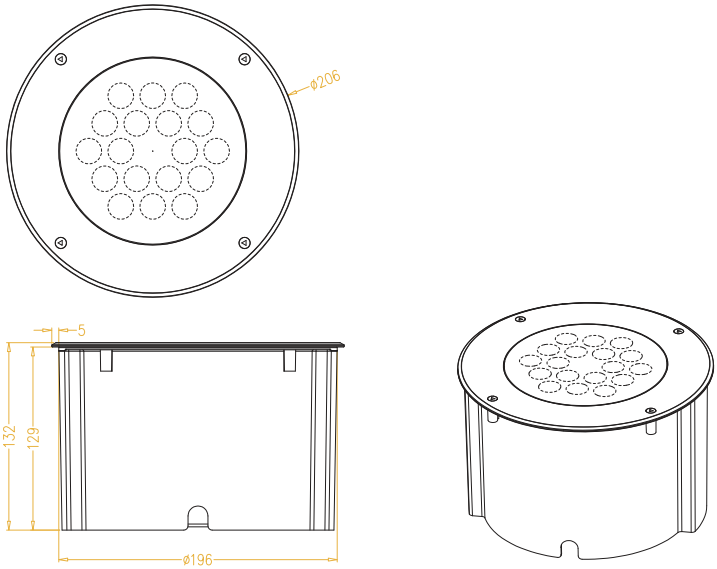
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FIXTURE DIMENSIONS

AXS 18 FIXTURE DIMENSIONS



AXS 18 FIXTURE DIMENSIONS – IN-GROUND VERSION



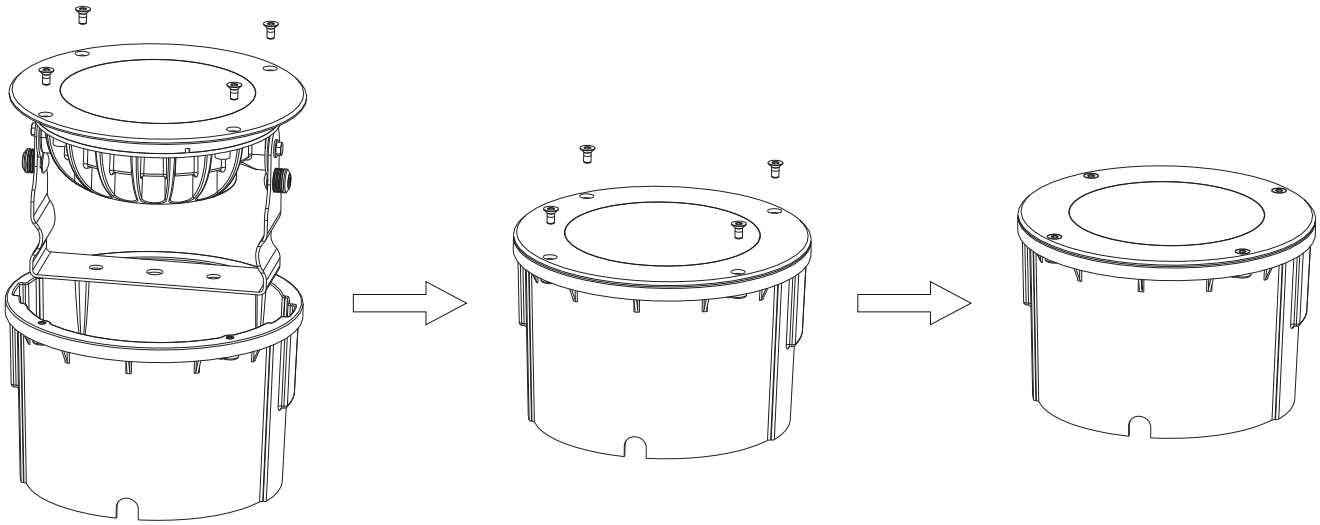


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FIXTURE DIMENSIONS

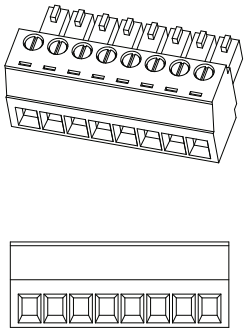
AXS 18 FIXTURE DIMENSIONS – TECHNICAL DRAWING INSTALLATION

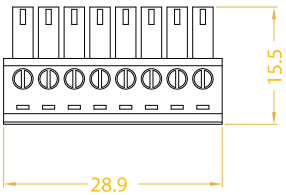
*Note: Please refer to the below instructions for inground installation

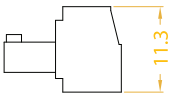


CABLES AND CONNECTORS

8-PIN GREEN TERMINAL BLOCK/CONNECTOR







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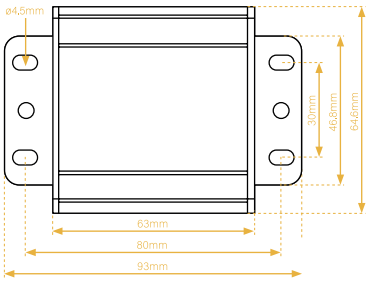
PXT/R BOOSTERS

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
.

- 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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