BROCHURE

2024

OrbitX

Content

Video content

TECHNOLOGY

OrbitX **Direct Drive LED** lights supersede currently available LED technology.

Technology

THE BASICS TO DRIVING LED LIGHTS EFFICIENTLY ARE:

A To supply the circuit with correct current

B To control the temperature of the LEDs

Out with PWM

Normally LED lights are driven using Pulse Width Modulation (PWM) circuits. These circuits have inherent flaws in that they interfere with wifi and radio frequencies, and have a poor power factor.
To mitigate these limitations, high frequency filters and power factor correcting circuits are occasionally added, but this makes the drivers costly, complex and more prone to failure.

Poor Power Factor

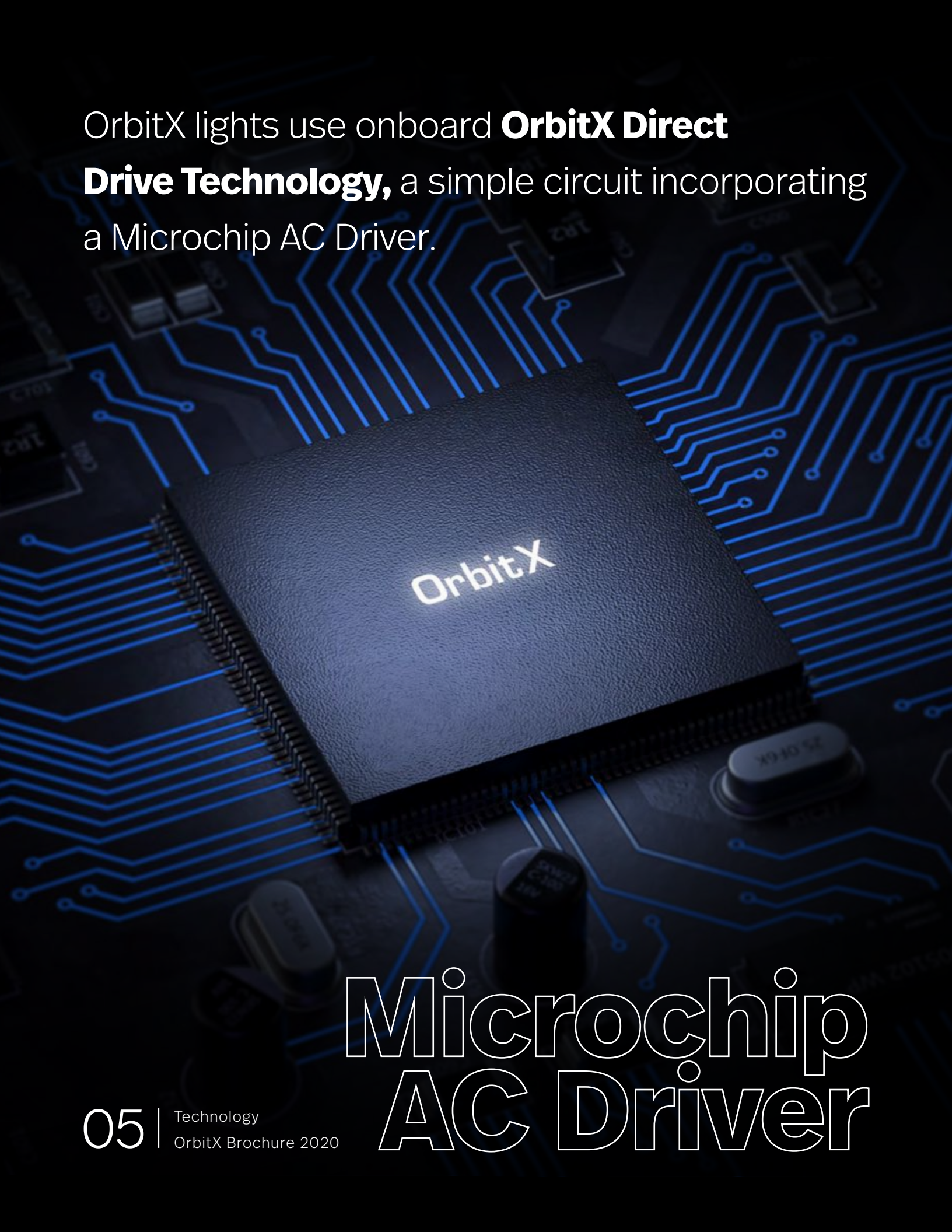
Radio Frequency Interference

Wifi Frequency Interference

In with a fresh approach...

Power Factor **Technology**

OrbitX lights use onboard **OrbitX Direct Drive Technology,** a simple circuit incorporating a Microchip AC Driver.



Microchip AC Driver

TECHNOLOGY

1+

ACCURATE CONTROL

The OrbitX Direct Drive Microchip accurately controls the current and manages the temperature of the LEDs, leading to improved lifetime of the light.

2+

MINIMUM COMPONENTS

The OrbitX Direct Drive uses minimal componentry leading to improved reliability and lifespan of our lights.

3+

POWER FACTOR > 0.98

The OrbitX Direct Drive has a near-unity power factor.

4+

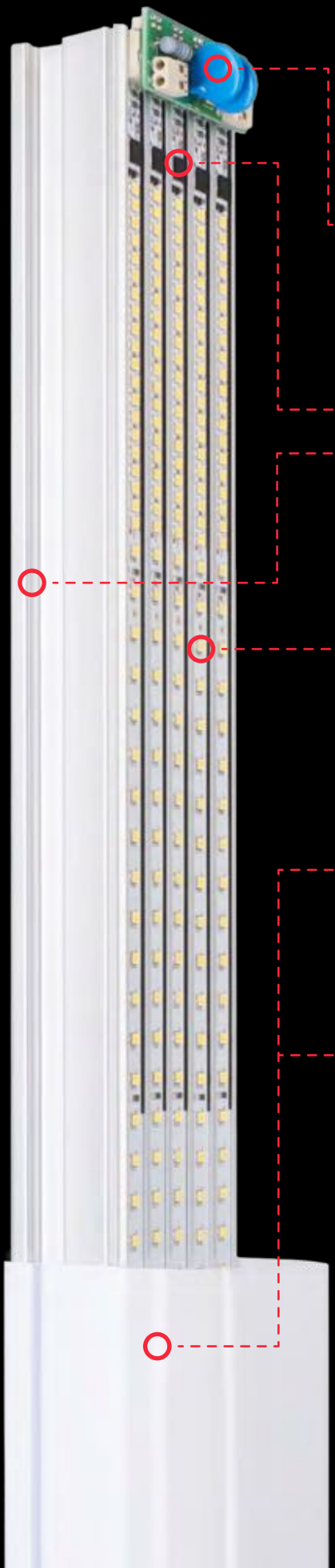
NO WIFI INTERFERENCE

The Orbitx Direct Drive inherently produces no wifi or radio interference making it IEC 61547 and SANS 215 (CISPR15) compliant.

IEC® International Electrotechnical Commission

DESIGN

The **OrbitX Design Objective** is to deliver efficient, high quality light from luminaires that last long and are cost effective.



Designed specifically to achieve the OrbitX Objective:

1.5kV SURGE PROTECTION

A MOV and current limiting resistor protect the Microchip Driver and LEDs against external voltage spikes and surges of up to 1500V.

DIRECT DRIVE MICROCHIP and SUBSTANTIAL ALUMINIUM HEAT SINK

The temperature in the LEDs is controlled to well below the rated temperature by dispersing heat through a substantial heat sink, and further by automatic thermal control managed by the Direct Drive Microchip.

80% FLICKER FREE

OrbitX lights are inherently 80% flicker free. Research confirms that at these levels, health and safety risks such as epilepsy and the stroboscopic effect in fast rotating machinery are mitigated.

TOUGH POLYCARBONATE HOUSING

Tough polycarbonate housings are used, making OrbitX lights robust and ideal for use in commercial, industrial, academic and mining applications.

UL-94 VO SPECIFICATION

OrbitX housings and end caps are extruded and moulded from VO polycarbonate material to a minimum thickness of 1 mm. This ensures our lights comply with the UL- 94 VO specification and do not cause flaming droplets during fire.

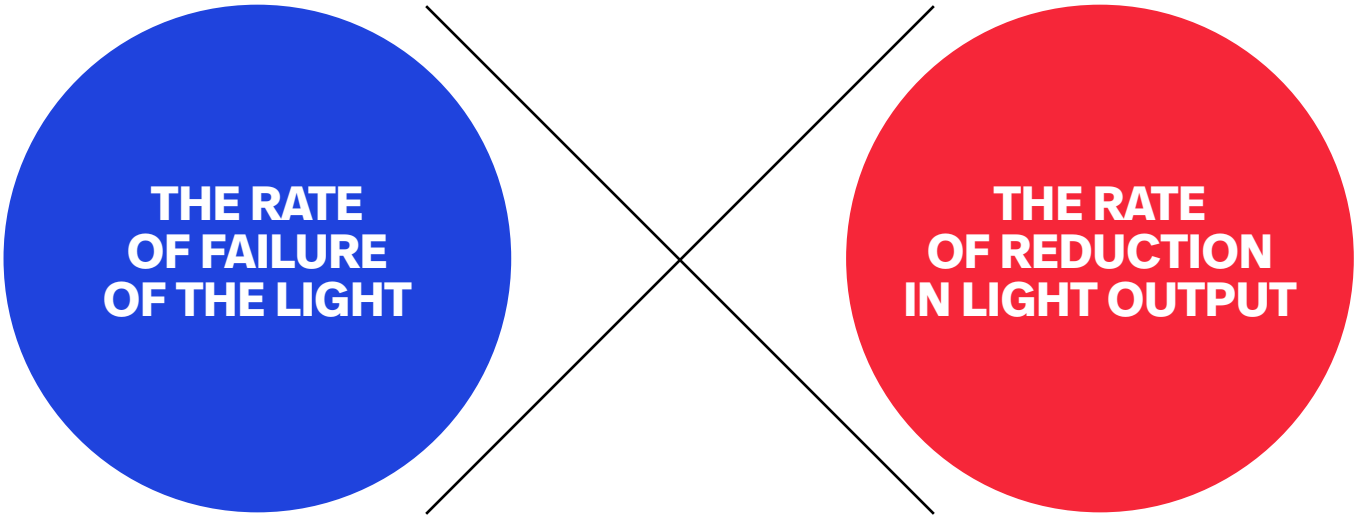
Design **Safety** **Installation**

LIFETIME AND GUARANTEE

OrbitX guarantees are real and unparalleled in the industry.

Lifetime and Guarantee

THE LIFETIME OF A LIGHT IS MEASURED BY THE PRODUCT OF TWO VARIABLES:



When purchasing a light, it is important to understand the stated lifetime of the product. Most manufacturers quote the rate of failure and the rate of reduction in light output separately. When calculating the net output of lights in a room, you only count the output from the working lights, and then apply to this the rate of reduction in light output i.e. the product of both variables.

OrbitX lights are designed to continue operating throughout **the guarantee period.** The expected failure rate during this period is therefore zero and Light Output is the determining factor of the Lifetime of OrbitX lights.

FAILURE RATE IS ZERO

The safety margins that guarantee reliability.

THE RATE OF FAILURE OF THE LIGHT

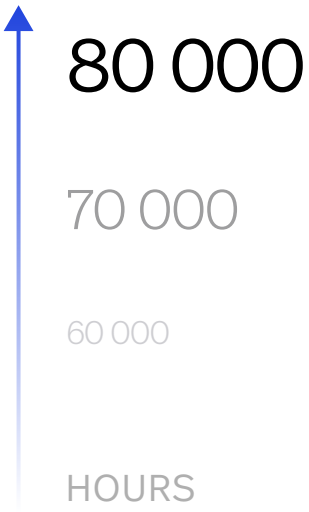
	Current	Temperature
LEDs	Driven at 30% less current than the rated current of the LEDs	Operated at 85° C when rated at 105° C
OrbitX Microchip AC Driver	Operated at 33% of the rated current	Operated at 85° C when tested to 150° C
Electrolytic Capacitor	Current controlled by the microchip to well below ripple current specification	Operated below 65° C when rated at 105° C

THE RATE OF REDUCTION IN LIGHT OUTPUT

The IEC LM-80 test and TM-21 calculations are the standard specifications to measure the lifetime of a light. This is the time taken for the light to reach 70% of its rated light output. For OrbitX lights this is 80 000h.

At OrbitX we have built in three safety margins:

1. We drive our LEDs well below the maximum rated current.
2. We operate our LEDs well below the maximum rated temperature.
3. We conservatively quote the 80 000h lifetime as 70 000h.



DOUBLE GUARANTEE

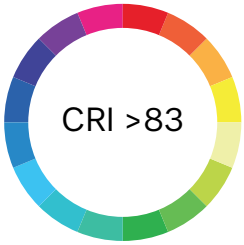
OrbitX light ranges are underwritten by our unique double guarantee. Depending on the range you select, the guarantees are valid for up to 8 years.

COLOUR

OrbitX lights reveal the vibrant and accurate colour of an object.

Colour

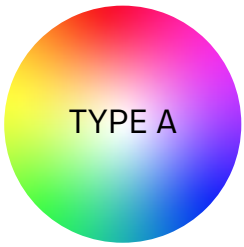
THE ABILITY TO RENDER THIS TRUE COLOUR IS MEASURED USING THE FOLLOWING STANDARDS:



A The **Colour Rendering Index (CRI)** measures the ability of a light source to illuminate 8 discreet colour swatches.

B The **Gamut Area Index (GAI)** is a next generation colour measurement that evaluates the full colour spectrum of the light source.

*It does this by evaluating the chromaticity in the overlapping areas of polygons of the eight CRI swatches.



The independent, internationally acclaimed Lighting Research Centre in New York, specifies **Type A lighting** as a light source with a CRI above 80 and a GAI between 80 and 100.

COLOR RENDERING INDEX

GAMUT AREA INDEX

OrbitX lights have a **CRI** of **83, GAI** of **96,** and qualify as **Type A** Lighting.

OrbitX lights have a **correlated colour temperature of 5000K** that mimics daylight in South Africa.

This, together with the colour rendering qualities, enhances the naturalness of the light and you will feel **comfortable, concentrate better,** and **notice more** as if under natural sunlight. The consequence is improved **productivity** in industrial and commercial applications, and shoppers stay longer and **purchase more** in a retail environment.

Correlated Colour Temperature

BUILT IN SOUTH AFRICA

By purchasing OrbitX Lights you create direct real South African jobs

OrbitX Lights are designed and built in South Africa. **It is South African engineers leading the way globally in developing LED driver technology.** OrbitX Direct Drive Technology is central and unique to the design of our lights.

Equal to this is the **OrbitX policy to train and employ young women** from previously disadvantaged communities into semi-skilled manufacturing jobs. We at OrbitX fully support the South African drive to create jobs. Jobs stimulate the economy, but more importantly, instill a sense of worth, pride and self-esteem.

SATS 1286:2001 (Local Content)

Shamiela joined OrbitX in 2020

GREEN

At OrbitX we follow the science. Protecting the environment is integral to our psyche and as such drives a desire for efficiency that goes to the root of our designs.

OrbitX LED lights on average last 4 times longer than other lights and reduce landfill waste by as much as 75%.

OrbitX LED lights are energy efficient with a near-unity power factor. This radically reduces your carbon footprint and energy usage by 50 to 67%.

OrbitX LED lights are recyclable and avoid costly disposal costs.

OrbitX LED lights are ideal to use in conjunction with PV Plants (Solar Generation).

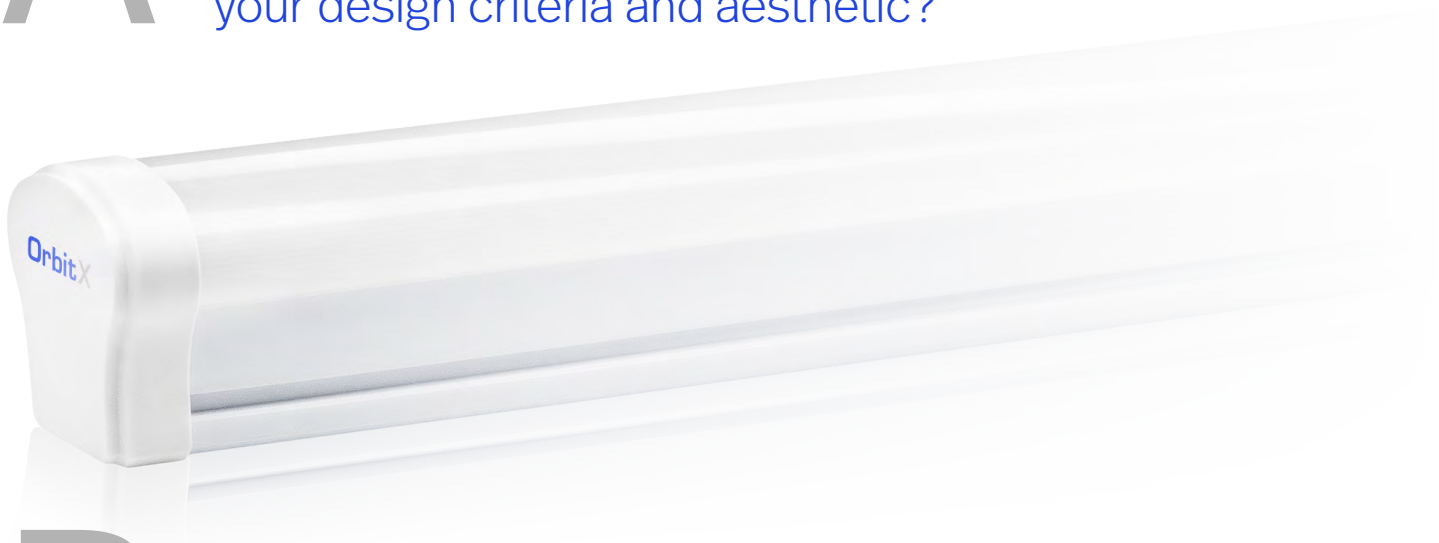
LIFE CYCLE COST

A combination of our technology and design decisions have created a range of lights that are efficient, robust and last long.

Life Cycle Cost

THERE ARE TWO DECISIONS TO BE MADE WHEN CHOOSING THE BEST LUMINAIRE FOR YOUR PROJECT:

A Is the light fit for purpose and does it meet your design criteria and aesthetic?



B Do the Life Cycle Costs make financial sense?

IN DETERMINING THE LIFE CYCLE COST OF THE PROJECT, YOU NEED TO CONSIDER THE FOLLOWING:

The Initial Start-up Costs

1 Initial cost of the product

2 Initial installation cost

The Maintenance Costs

3 The guaranteed lifetime of the product

4 Cost associated with replacing lights

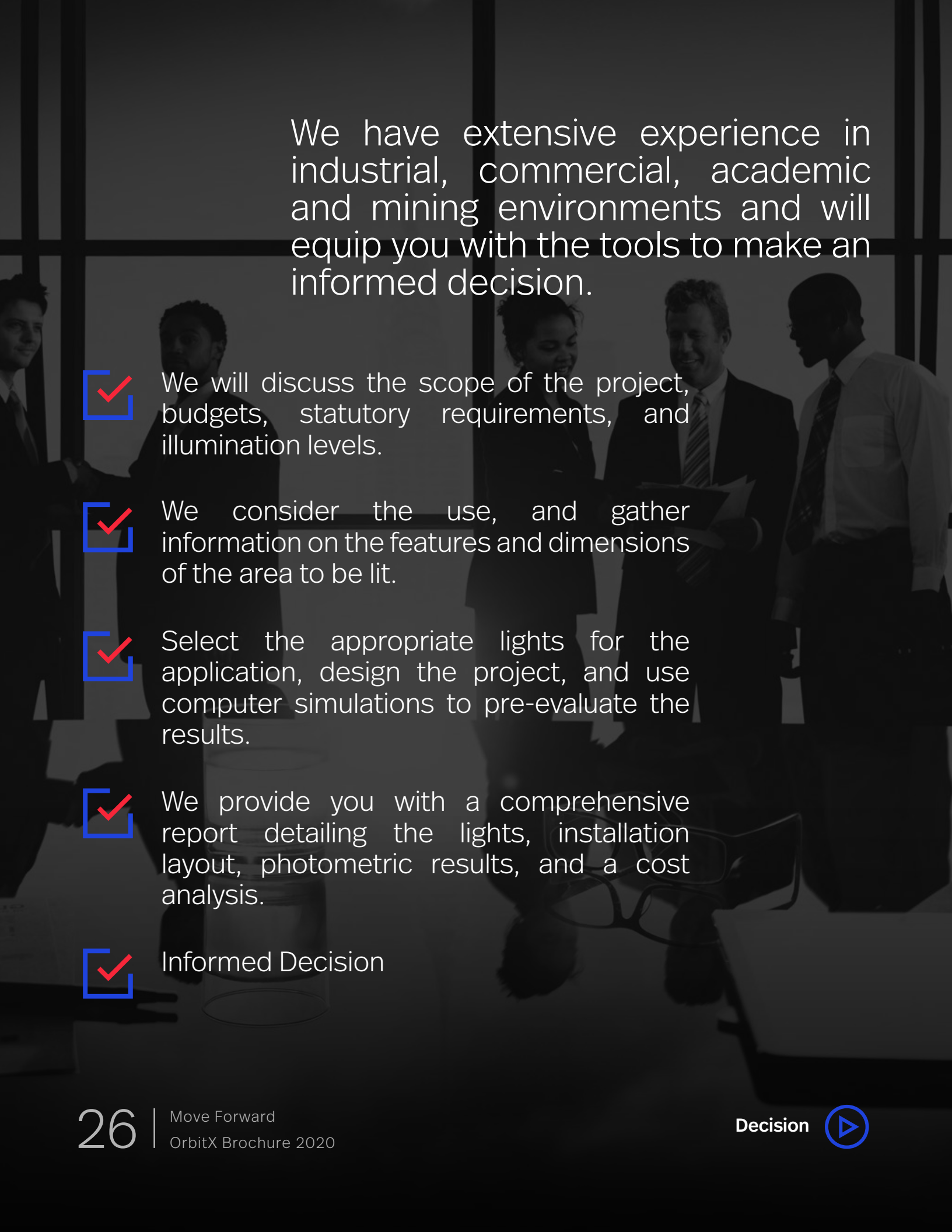
Operational Costs

5 Power Usage and Efficiency

All five factors have been optimised in the OrbitX design. Maintenance costs are eliminated during the extensive lifetime and operational costs are **50 to 67%** lower than conventional industrial and commercial lighting.

MOVE FORWARD

Base your decision on sound information.



We have extensive experience in industrial, commercial, academic and mining environments and will equip you with the tools to make an informed decision.

- We will discuss the scope of the project, budgets, statutory requirements, and illumination levels.
- We consider the use, and gather information on the features and dimensions of the area to be lit.
- Select the appropriate lights for the application, design the project, and use computer simulations to pre-evaluate the results.
- We provide you with a comprehensive report detailing the lights, installation layout, photometric results, and a cost analysis.
- Informed Decision

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