JB-Lighting P15 Profile

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POWERFUL WHITE ENGINE IN THREE COLOR TEMPERATURE VERSIONS
JB-Lighting P15 Profile
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Carefully selected components and sophisticated options, along with impressive brightness levels and an impressively homogeneous CMY color mixing unit – what kind of result does this produce on stage?

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The multifunctional spotlights from the company JB-Lighting, based in Blaustein, Baden-Württemberg, have been among the well-known devices in this industry for 35 years, even beyond Germany's borders. During this time, they have been able to help define one or two industry "standards." The current product range is particularly characterized by efficiency and sustainability, which are strongly emphasized during both the development and manufacturing of the devices—proudly "Made in Germany."

The new P15 Profile, available in three different versions—HP (High Power), HC (High CRI), and WW (Warm White)—fits cleverly into the manufacturer's product portfolio and again promises to set some new benchmarks. For testing, the editorial team received a demonstration unit of the P15 Profile HP from the very first production run. According to JB-Lighting, its internal components have already undergone a few modifications. Therefore, any signs of use that might be visible in close-up shots can be forgiven.

External Characteristics of the P15 Profile
The manufacturer has remained true to its design language for the housing of the spotlight. It is identical to the previously available profile spotlights P10, P12, P18, and M18. In terms of size-to-performance ratio, the P15 Profile fills the existing gap in the P series almost perfectly. With a width of 421 mm, a depth of 264 mm, a height of 682 mm with the head upright, and a lens diameter of 135 mm, the P15 Profile is housed in the exact same casing as the P12 Profile.

Although the P12 Profile has a similar effects configuration, it is equipped with a significantly less powerful 640 W LED engine and is one kilogram lighter at 23 kg compared to the new device.

In terms of output, however, the P15 Profile is much closer to the P18 Profile class, which features a powerful 1,100 W LED engine but also has significantly larger dimensions and weighs a hefty 32 kg. Like all spotlights in the series, the P15 Profile is equipped with four carrying handles and pan/tilt locks that make transport and handling easier. For mounting on rigging systems, two Omega brackets with Camloc quick fasteners are included. These can be attached both horizontally in four different positions and at a 90° offset on the base plate of the spotlight.

The P15 Profile’s connectors are located on the rear side of the base and include two five-pin DMX, EtherCon, and PowerCon True1 interfaces each. The two EtherCon ports, with a transmission speed of 10/100 Mbit/s, now also offer a bypass function that ensures data signal transmission even without power supply. Finally, a micro-USB port is available for software updates.

The display on the front of the base also shows a monochrome image with a single-line menu, which is navigated using four buttons. These have a tactile click, making them easy to operate even in the dark. An internal battery allows access to the fixture's settings even without a power cable. Although the P15 Profile has an IP20 rating and is not suitable for unrestricted outdoor use, it can still operate in extreme ambient temperatures ranging from -10°C to +40°C. An optional additional spill light shield is available, which is mounted on the spotlight head using four screws. This is designed to reduce lateral stray light without affecting the zoom range.

“Phosphor-in-Silicone” Technology

The P15 spotlights are equipped with 1,000 W white-light LED modules based on “phosphor-in-silicone” technology. This improves efficiency by about 35% compared to the P12 Profile, despite having the same housing dimensions. According to JB-Lighting, the advantage of this technology is that the phosphor coating can be precisely adjusted to the defined color point and TM30 value. As a result, the respective light color offers a more rounded spectrum compared to the competition.

For instance, the CRI values of the P15 Profile HC and P15 Profile WW versions, even without any correction filters, are stated by the manufacturer to be well over 90. The Gamut Area Index (GAI) is given as approximately 97 for the P15 Profile HC and about 100 for the P15 Profile WW. This LED technology, like “phosphor-in-ceramic,” enables high efficiency and impressive brightness, but is specifically designed for the lighting industry and, according to JB-Lighting, offers significantly better color fidelity than the technol...

Because there can be variations in brightness and color temperature during industrial LED chip production, diodes with similar characteristics are grouped into so-called “binnings.” JB-Lighting defines a maximum binning tolerance of 2.5 MacAdam steps, which is within the range of barely measurable to just visible color differences in white LEDs. But JB-Lighting goes further by categorizing selected LED chips into nine subcategories to exclude even the smallest deviations in brightness or color.

This ensures that all spotlights from the same production batch have exactly the same brightness and color temperature at the chipset level. It also enables the manufacturer to equip reorders or repairs with chips from the appropriate category.

1,000 W White LED Engine in Three Versions

The P15 Profile is available with three light source versions, each designed for different application scenarios. According to the manufacturer, the P15 Profile HP (High Power) is optimized for lighting over long distances and delivers a luminous flux of 75,000 lm (34,000 lm output) with a color temperature of 6,800K. Its CRI value is ±73 without a correction filter but can reach ±90 with the help of a High-CRI filter.

The P15 Profile HC (High CRI) is designed for scenarios where optimal color rendering is essential. It offers a CRI of ±92 with a luminous flux of 54,000 lm (22,000 lm output) and a color temperature of 5,800K.

The warm white version, the P15 Profile WW, aims for maximum compatibility with conventional halogen sources and delivers 44,000 lm (19,000 lm output) at 3,200K. Its CRI value is even higher, at ±93.

All three light engine variants can be operated with four different PWM frequencies, which provide refresh rates of 100 Hz, 120 Hz, 600 Hz (Flex), and a variable 3,000 Hz to 12 kHz (High Flex). The frequency range of the latter automatically increases at lower brightness levels to counteract audible flickering or buzzing sounds.

The highly efficient optical system is located behind an anti-reflection lens system. It enables uniform illumination across the entire field and crisp image projection from center to edge—especially when using effect components. The optical path is divided into five strands, enabling the “Sparkle” effect, a trademark of JB-Lighting. Additionally, the device offers an “LED Fadeout Mode” that determines whether all parts of the light source fade in/out together or sequentially.

Cooling, Fan Management, and Noise Levels

The P15 Profile uses a combination of modern heat-pipe cooling and an array of six specially designed silent fans. These fan blades are aerodynamically calibrated to move air as quietly as possible. Despite the compact design, this optimized system allows efficient and barely audible cooling of the powerful 1,000 W LED module, with a reported noise level of just 29 dB(A) in “Theatre Whisper” mode.

There are five selectable cooling profiles (Theatre Whisper, Theatre Silent, Standard, Boost, and Longlife), each of which affects both fan behavior and the maximum available LED engine power. For environments sensitive to noise, the speeds of the pan and tilt motors, as well as the effect components, can be individually adjusted using four available options. For Pan/Tilt: Whisper, Medium, Follow, and Fast. For effect components: Whisper, Silent, Medium, and Fast.

Immense Color Gamut via Coated Filter Flags

The P15 Profile employs a CMY color mixing system with a special dichroic coating. Each color is mixed using two opposing flags, driven by three-phase stepper motors and connected via timing belts. The coating enables an extensive color spectrum, from soft pastels to highly saturated hues, and ensures complete and consistent mixing across the entire projection field.

Additionally, all three versions of the P15 Profile are equipped with a continuously adjustable correction filter. The HP and HC models use CTO filters designed specifically for their respective LED engines, while the warm white version uses CTB filters.

Effect Components – Partially Replaceable

The P15 Profile offers a feature and effects palette comparable to the already established spotlights of the P-Series (with only a few minor differences). This makes it a versatile tool for modern lighting setups, not least due to its compatibility with its close relatives.

As typical with JB-Lighting, some of the related components are housed in modules, while others are permanently built into the head. The P15 Profile also includes two such modules, which can be removed and reinserted without unplugging a single cable—just by loosening two knurled screws. The modules slide into place along rails and use D-SUB connectors for signal transmission.

The first module, located closer to the LED engine, houses the CMY and correction filter flags, a fixed color wheel with six solid colors (red, yellow, magenta, green, orange, and dark blue), a High-CRI filter, and a CTB filter. The CTB filter, controlled by the fixture's software, is automatically activated when gobos are used to correct the associated color temperature drop. This function cannot be disabled via the software, but because the fixed color wheel has higher priority, it can simply be overridden via DMX value 001.

Also integrated into this module are two rotating gobo wheels, each with six interchangeable glass gobos. According to the manufacturer, this is the first time newly developed dichroic precision high-temperature gobos are being used. These offer improved contrast and finer laser contours across the zoom range of approximately 5° to 54°.

The second module contains a framing system rotatable by ±65° and an iris diaphragm with 18 blades. The individual framing shutters can be rotated by ±30° and are arranged on four different planes. Each shutter can be fully inserted into the light cone independently to create a wide variety of geometric shapes. Additionally, the shutters have a material thickness of just 1/10 mm and are placed very closely together, which ultimately results in a good "sharpness compromise."

Other components permanently built into the spotlight head include the zoom and focus lenses, two rotating prisms (5-facet linear and 3-facet circular), and two frost filters with different intensities that are also interchangeable. The two prisms are positioned on the same plane and, therefore, unfortunately cannot be combined. However, the two frost filters—standardly installed at 1° and 5°—are on different planes and can be seamlessly blended together.

Factory-installed frost filters can be replaced or supplemented with optional ones (2.5°, 3.5°, 10°, and 20°).

Control and Signal Distribution via Various Methods

Signal input for the P15 Profile can be established either via cable using the previously mentioned ports or wirelessly through the factory-integrated Wireless-DMX module (LumenRadio CRMX TiMo). Depending on the sender type and configuration, RDM is also supported via the wireless path. Wired connections support DMX-512, ArtNet, and sACN protocols with a data rate of 10/100 Mbit/s. The network ports feature a bypass function that passes signals even if the device fails.

With ArtNet4, bidirectional communication via RDM is possible, while with sACN, only outgoing RDM data is transmitted. Both network protocol data and wireless signals can be distributed via the five-pin DMX connectors. However, signal flow in the reverse direction is not supported.

IP address management allows the selection between two IP address ranges: 2.xxx.xxx.xxx and 10.xxx.xxx.xxx. Users can either use the factory-set addresses or assign custom addresses within those ranges.

There are two operating modes for controlling the P15 Profile's functions. The first mode, optimized for channel efficiency, uses 43 channels and controls all features with 8-bit resolution—except for Pan and Tilt. The second, more extensive mode uses 64 channels and enables 16-bit control for nearly all relevant components.

Practical Design from Experience

Despite all the enthusiasm for significantly improved efficiency and impressive brightness levels, it should not be forgotten that this is a Risk Group 2 product. Improper use can cause considerable damage to the human eye and therefore requires highly responsible handling.

JB-Lighting supports this by ensuring that after a reset, the P15 Profile first moves to its assigned position values before the light source is activated and integrated into the signal chain. This avoids the fixture sweeping across the entire scene at full power right after booting. Both the reset sequence and position alignment are deliberately executed at a reduced speed.

While this leads to a slightly longer startup process—about 1.5 minutes after a cold start and around 15 seconds shorter after a soft reset—it significantly reduces potential oscillation on flown truss systems, especially when using multiple fixtures. Unwanted mechanical noise from components not in use is also avoided. For instance, the rotation of the gobo wheels and prisms automatically stops when not in use.

Another positive feature: most components inside the spotlight head are matte black to minimize unwanted reflections.

The P15 Profile is also well-prepared for permanent installations or tight set builds. An optional mechanical motion limiter can be installed to restrict the pan and tilt movement radius. The fixture recognizes the newly defined start and end positions during the reset process and stores them as its new physical limits. This does not affect DMX control—e.g., a 45° angle remains 45°, but the fixture will automatically stop at the physical limit without colliding.

Automatic Safety Functions

If there is a loss of power, the prisms and frost filters are automatically pulled out of the light path using spring mechanisms. This is a built-in safety feature to prevent optical obstructions when power is unexpectedly interrupted.

The framing shutters are extremely thin—just 1/10 millimeter—and are placed closely together on four planes to allow very fine shaping of the light beam. The framing system, which can rotate ±65°, is supported by four bearings due to its weight.

Sustainability and Environmental Consideration

Approximately 90% of components are manufactured in-house at JB-Lighting. About 80% of consumables and packaging materials are recycled, and stored rainwater and solar energy are used during production. The company guarantees spare part availability for a minimum of ten years after a product is discontinued.

In addition to a two-year warranty on the device, there is also a four-year warranty on the LED engine. The rigorous categorization of LED chips ensures long-term quality and consistency.

JB-Lighting takes a digital-first approach to documentation. To conserve resources, the company avoids printing manuals, brochures, or other materials. All relevant information is made available online and can be accessed via a QR code located on the base of each unit. This includes the manual, detailed photometric data sheets, fixture libraries for Grandma2 and GDTF format, as well as 2D and 3D drawings in .dwg and .dxf formats.

Flexible Color Temperature Control

The three LED engine versions of the P15 Profile can cover a color temperature range from 2,000K to 13,000K in 50K increments using a virtual CTC channel. This function is calibrated in the software across all three LED modules so that, for example, a DMX value of 128 produces the same color temperature across all fixture versions.

This correction—like the virtual green-magenta shift—is achieved using the flag mixing system. In addition to three selectable dimmer curves (Linear, Square, and Square Inverse), the fixture software also provides three curve options for color mixing (Square Inv. Legacy, Linear, and Square Inv.) and two for frost filter control (Linear and Square Inv.).

Furthermore, for framing shutter control, users can choose between “RAW” mode (one channel per shutter edge) or “Move/Angle” mode, which assigns one channel for movement and another for the angle per shutter. This allows the fixture to be internally configured for a wide range of applications.

Combined with the impressively homogeneous color mixing, appealing standard gobo configuration, and a white spectrum that, according to the manufacturer, remains precisely aligned with the “Black Body Line” without red/green shifting, the P15 Profile proves to be an adaptable powerhouse.

The device is available in the standard matte black finish and—upon request—in any RAL color or special paint finish.

Sustainability and CO_2 Footprint

JB-Lighting is committed to sustainable manufacturing and aims for nearly CO_2-neutral production. More than 80% of operational materials and packaging are recycled. Production processes use captured rainwater and solar energy, and about 90% of all components are manufactured in-house.

The company guarantees spare part availability for at least ten years after a product is discontinued. In addition to a two-year warranty on the fixture itself, the LED engine comes with an extended four-year warranty. The strict standards used in the categorization of LED chips ensure long-term quality assurance.

JB-Lighting relies on digital documentation. As this medium already consumes resources, the company largely refrains from printing manuals, brochures, or similar materials. Instead, all documentation is made available online and can be accessed through a QR code located on the base of the fixture. This includes the user manual, detailed photometric data sheets, fixture libraries (for Grandma2 and GDTF format), and 2D/3D drawings in .dwg and .dxf formats.

Conclusion

The JB-Lighting P15 Profile impresses with its well-thought-out construction, powerful light output, and sustainable production. The three different LED versions—HP, HC, and WW—offer great flexibility for a wide range of application scenarios.

Its combination of practical features, high-quality workmanship, and future-proof spare parts availability makes this spotlight a reliable tool for modern lighting design.

A properly sized safety eyelet is of course included.

The three LED engine versions of the P15 Profile can cover a color temperature range from 2,000K to 13,000K in 50K steps using a virtual CTC channel. This function is software-calibrated so that all three fixture versions produce the same color temperature at a given DMX value (e.g., 128).

This type of correction is implemented through the flag mixing system, just like the virtual green-magenta shift. In addition to three selectable dimmer curves (Linear, Square, Square Inverse), the fixture software also provides three options for color mixing curves (Square Inv. Legacy, Linear, Square Inv.) and two options for handling the frost filters (Linear and Square Inv.).

For shutter control, users can choose between the "RAW" option (one channel per shutter side) and the "Move/Angle" option (one channel each for movement and angle). This allows the fixture to be configured entirely through internal settings for various professional requirements.

The extremely homogeneous color mixing, appealing standard gobo set, and a white tone that remains, according to the manufacturer, precisely on the "Black Body Line" for all light colors—without any red or green shift—round out the fixture's capabilities.

The unit is available in standard matte black and, on request, in any RAL color or custom finish.