Oronco or satos & pulso L



Innovation - made in Switzerland

For more than 60 years, broncolor has been developing flash and continuous light solutions for the most demanding users in the image industry. The latest device generation Satos and Pulso L takes the way of working in the studio and on-location to a new level. Swiss innovation and precision in every detail.



Unmatched light control

While broncolor power packs have always been impressive regarding light control, Satos offers a completely new dimension. With the new system, you have absolute control over your lighting setup at all times. This makes even the most complex projects controllable and reproducible – thanks to the unparalleled adjustability.



Dual Power Management

When it comes to power supply, Satos breaks new ground. A sophisticated interplay of specially developed slide-in batteries and power supplies allows the configuration of the best energy composition for every application – whether in the studio or on-location. The dual power management provides the required flash energy at exactly the right moment and forms the foundation for the flexibility of the system.

One device for the studio and on-location.





OPERATION **FREEDOM**

Ultimate ease of use

Satos fully adapts to your way of working. This is made possible by a modern multi-touch display, physical buttons with excellent haptic feedback, a precise rotary/press controller, an app interface or a combination of these. You control Satos the way it feels most natural to you. The intuitive, deliberately minimalistic graphical user menu will be your new personal cockpit for your creative projects.



INVESTMENT **PROTECTION**

Investment protection

broncolor stands for much more than just high-end lighting technology for the most demanding users. For each new development, we consider compatibility with other broncolor devices, light shapers and accessories from the beginning. This way you can be sure that you can use your broncolor equipment productively over an extended period of time.

Our global network of authorized partners is at your service - before and after your purchase. The extremely long availability of spare parts and easy serviceability are legendary at broncolor.

broncolor - developed and manufactured in Switzerland.

Satos 1600/3200



Ultimate ease of use

The large, high-contrast and multi-touch LCD display is protected by a special cover glass: This is more resistant than conventional soda-lime glass and thus extremely scratch, crack and break resistant. The durability was tested in a strict test procedure with a standardized steel ball. Satos is a robust tool for professionals.

When operating the Satos power pack, you can enjoy an intuitive user experience. The home display shows all relevant information at a glance.

The combination of the multi-touch display with physical buttons is designed to make even complex settings easy for you. The haptic feedback of the buttons and the rotary/press encoder also makes it possible to work with gloves at low temperatures. The latter is ideal for precise numeric inputs.

User menu

The simple, well thought-out and multilingual user menu has been developed together with usability experts. This allows the system to be operated intuitively even by inexperienced users.

bronControl app

The integrated WiFi module is the interface to the free bronControl app on computers, smartphones and tablets. Supports iOS, macOS, Android and Windows (soon available for Satos).

Python API

The bronAPI enables software developers to integrate all WiFi products into their own applications via a Python interface (soon available for Satos).





Satos Power Slots



The requirements for the power supply of a generator are versatile – especially for dual operation in the studio and on-location. Thanks to its unique "Power Slot concept", Satos offers unlimited flexibility in power supply: Satos 3200 has four and Satos 1600 two power slots, which can be optionally equipped with power supplies, batteries – or a combination of both.

broncolor slide-in batteries

The broncolor slide-in battery performs far more than a conventional battery. Its industrial design is robust and the technology used with high-current cells is extremely resistant to faults. Satos is continuously informed about the operating states, monitors them and displays them in the menu. LEDs on the battery itself indicate the current charge status.

A self-diagnostic feature in each battery, together with integrated deep discharge protection, ensures the longevity of the batteries.

Since the power of a single battery is below the 100Wh threshold, Satos can also be transported by air freight.







Slide-in power supply units

At least one power supply unit is required for mains operation. Two power supplies can be used with Satos 3200. This speeds up recharging of the batteries and enables operation of the modeling lights directly from the mains. Thanks to the application-specific energy composition, Satos can be optimally equipped for any application with a flick of the wrist.

Charging station for up to four slide-in batteries

For larger studios or rental equipment suppliers, the optional charging station offers additional convenience: Up to four batteries can be easily charged and the optimal level of charge is maintained when the batteries are not in use. This ensures the longest possible cell life (available for Satos soon).

The advantages of batteries in mains operation

Even if mains power is available in the studio, at least one battery element used offers clear advantages: On the one hand, fluctuations in a network that may be fragile are compensated, and on the other hand, batteries shorten flash recharging times. Especially if the power grid in a region has a voltage of 100/110V, a battery as a buffer leads to significant improvements in the operating behavior of the generator. The battery keeps the energy ready for the decisive moment and serves as a booster for the flash recharge time.



Unmatched light control

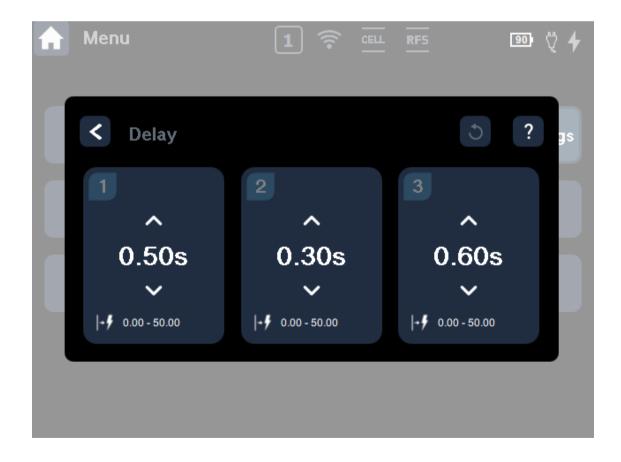


The main features of Satos are symmetrical and individually asymmetrical power distribution on three channels, flash color temperature adjustable per channel, bicolor adjustment light, LED continuous light with green/magenta correction and High Speed Sync (HSS). You are truly controlling the light.

The system enables flash, continuous light or both combined - and all this with just one system. Of course, Satos offers the shortest flash and recharging times.

Thanks to the special timing functions, you are up to any challenge: Freely adjustable on three channels, the functions "Alternate", "Delay" as well as "Sequence" are available.

Experience the unimagined precision and the numerous creative possibilities - with Satos.



Pulso L



When it comes to investment protection, broncolor makes no compromises. That's why durability and robustness are also top priorities for Pulso L. A high-quality metal housing, an industrial-grade cable, and powerful fans guarantee a long service life even under tough operating conditions.

The bidirectional communication between Satos and Pulso L offers unique operating convenience: All regularly required settings can be made directly on the lamp. Whether flash energy, color temperature, modeling light, cognition light or test triggering - everything can be set either on the lamp, on the power pack or in the bronControl app. Time-consuming switching between the power pack and the lamp is a thing of the past. All settings can be made intuitively with a encoder on the lamp.

The intelligent system architecture of Satos makes it possible to operate Pulso L at any mains voltage - no matter whether at 100, 110 or 230V. Depending on the generator and the required power, Pulso L can be equipped with a 1600J or 3200J flash tube.

We are particularly proud of the energy-saving modeling light with a color rendering index (CRI) of typically 97+, as well as flicker-free operation. A matrix of calibrated LEDs not only provides the best light quality, but is also maintenance-free. Of course, Pulso L can be used in both modes, in continuous light operation or as a modeling light for flash photography. In the "continuous light" mode, a color temperature of 2800 to 6800K can be selected.

The high-quality protective glass with metal guide ring can be easily removed. For the homogeneity of the light, the protective glass is provided with a matt surface coating.



For the fine adjustment of the light within a light shaper, the flash tube can be positioned with a handwheel with the highest accuracy of up to 15mm. The completely exposed flash tube offers enormous advantages: A wide beam angle in conjunction with focusing allows unlimited creativity in lighting design.



The proven broncolor bayonet with a quick-release function allows compatibility with all existing and new light shapers. Pulso L can thus be combined with the largest available portfolio of light shapers. A springmounted holder for umbrellas with 8mm support rod is embedded on the underside of the Pulso L. The integrated tilting head with clamping lever makes it possible to fix Pulso L on any commercially available tripod and to adjust the tilt flexibly.

The "Cognition light" function makes it easy to identify individual lamps by color coding. In the menu, each lamp can be assigned its own color, which is then displayed by recessed LEDs on the back of the lamp.





Satos - Speed meets precision

With Satos, broncolor breaks new ground in the flash cut-off curve: broncolor's new and unique cut-off electronics convert the suboptimal curve into a perfect rectangular shape - regardless of the selected flash duration or intensity.

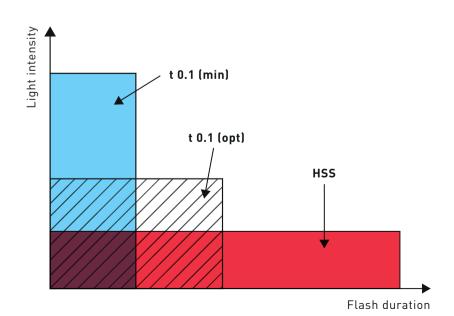
The height (intensity) multiplied by the width (flash duration) gives as an area the total amount of light emitted. Both parameters can be adjusted to achieve either the highest intensity or the longest flash duration. Thanks to the all-time rectangular flash curve, the end of the flash no longer shows any loss of power. Thus, the light intensity and color temperature are constant at all times.

When speed is of the essence

In t 0.1 (opt) mode, Satos optimizes the intensity and flash duration over the entire control range to the best possible color temperature. If the intensity is increased - marked in the diagram as mode t 0.1 (min) - it is possible to work with a significantly shorter pulse for the same amount of light, and even fast-moving objects can be "frozen" without any motion blur.

High Speed Sync (HSS)

HSS - working with the shortest shutter speeds on the camera side - requires long light pulses. For this purpose. Satos lowers the intensity and, thanks to the rectangular cut-off curve, the light intensity remains constant over the complete flash duration. Consequently, uniform illumination of the entire sensor is guaranteed even with HSS - images with very high color consistency are the result.





Satos - highest flexibility also in applications

Commercial photography

For decades, broncolor has been number one in commercial photography - Satos consolidates this position with new impulses.

The widest range of light shapers leaves no creative or lighting requirement unfulfilled, and thanks to the dual mains power/battery solution, you can now shoot with your favorite tools anytime and anywhere - in the studio or on-location.

Satos' optimized cut-off technology gives even greater freedom to the creativity of image creators. Absolute color consistency over the large control range of up to eleven f-stops and super-short flash durations enable even unusual lighting designs.

Cultural heritage

The true-to-original reproduction of objects requires a high level of color control. Thus, Satos is the decisive step ahead in reproduction photography: To eliminate the need for retouching and image manipulation, the color temperature can be individually controlled for each lamp channel. Even the smallest color differences (e.g. due to deviations between the light shapers used) can be compensated thanks to this new technology.

If an object is not to be exposed to intensive flash light, Satos also offers very precise continuous light in combination with the Pulso L lamps. The calibrated LEDs allow the color temperature to be freely selected over a wide range from 2800K to 6800K and the green/magenta balance can be adjusted. A wide range of accessories such as UV attachments or special light shapers complement the equipment in many museums or institutes.

Satos in the rental equipment pool

Satos makes it possible to decisively reduce the inventory of rental locations and studios and thus contributes to economical operation. No matter if a battery or studio unit is requested, Satos is both in one! Only broncolor offers a power output of up to 3200J, whether from the mains or on-location from batteries. The very robust design and intuitive operation together with the long lasting value convince rental equipment suppliers. Of course, Pulso L is compatible with all existing broncolor equipment.



Satos and Pulso L thought out in every detail

In addition to the ambitious technical performance data, factors such as intuitive usability and a contemporary design were essential during the development of Satos and Pulso L.

Nothing was left to chance in the design of the rotary dial. The selected structure combines soft haptics with good grip - the result of testing with over 60 prototypes. Precise operation is guaranteed even when wearing gloves.

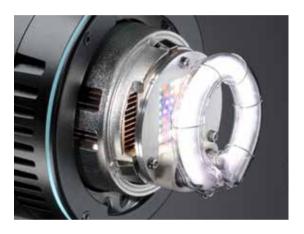
A familiar scenario for anyone working with high profile models or in the event industry: There is only one chance for the perfect photo. For maximum reliability in triggering, Satos therefore has two photocells (on top of the display and on the side panel). Flash triggering via light pulse is thus ensured even on a cluttered set.

The elegant LED ring indicates the completed flash reloading process.

For each function in the submenu, there is integrated context help, which simplifies operation even for inexperienced users. Further support is provided by the interactive knowledge base on broncolor.swiss, which is constantly updated with the latest topics

from the market. Every question is answered by broncolor's product management team.

The dust cover supplied not only protects the power pack during storage, but is also designed to gently clean the touch display.



Combining a highly reliable flash tube with a powerful LED module with a high color rendering index in a very small space while ensuring effective cooling for a long life cycle is a masterstroke. Our engineers created most likely the most advanced flashlight of all time.

Flash recharging time

Satos provides the energy for the next flash in an impressively short time - you are always ready for the important moment.

Unlike previous generations and other systems on the market, the recharging time for Satos is independent of the mains voltage and the flash time. The decisive factor is the selected energy composition in the four or two power slots as well as the intensity of the modeling light.

It is important to note that batteries can supply more energy than a power supply for a short time, whereas a power supply can supply the energy permanently. Therefore, Satos combines the best of both technologies and allows for a custom energy composition of power supplies and batteries. The batteries provide a short-term boost during recharging the capacitors, while the power supplies are responsible for a steady supply of energy.

The following table provides an overview of the recycling times:

Each battery provides energy for about 120 flashes at 3200J or even 240 flashes at 1600J - this energy can be taken from the batteries abruptly. A power supply provides Satos with 3200J in about 8 seconds and with 1600J in about 4 seconds. This energy is charged back into the batteries.

As a rule of thumb, it can be determined that a power supply unit can recharge the batteries within one minute with as much energy as eight flashes with 3200J power require. Therefore, the use of a battery in parallel with the power supply unit is also recommended in studio operation.

	Flash recharging time max. energy ("recycling") Energy available in batteries	Flash recharging time max. energy ("recycling") Batteries empty	Flashes at full power
Satos 3200 4 batteries	1.92 s	no operation possible	approx. 480 (120 per battery)
Satos 3200 2 batteries 2 power supplies*	2.40 s	6.4 s	
Satos 3200 3 batteries 1 power supply*	2.13 s	12.8 s	
Satos 1600 2 batteries	1.92 s	no operation possible	
Satos 1600 1 battery 1 power supply*	2.40 s	6.4 s	approx. 480 (240 per battery)

^{*}Batteries 80% charged





	Normal Modus	Normal Modus	
Configuration for data sheet	1 battery / 1 power supply	2 batteries 2 power supplies	
Flash power	1600 J	3200 J	
Aperture at 2m distance, ISO 100, Pulso L lamp, P70 Normal reflector	64 ² / ₁₀	90 4/10	
Flash duration t 0.1 (min. max. energy)	1/5150 s 1/100 s	1/5150 s 1/100 s	
Flash recharging time (min. max. energy)	0.01s 2.4s	0.01s 2.4s	
	Speed Modus	Speed Modus	
Flash power	650 Joules (up to aperture 10.7)	1212 Joules (up to aperture 11.6)	
Aperture at 2m distance, ISO 100, Pulso L lamp, P70 Normal reflector	32 %10	64	
Flash duration t 0.1 (min. max. energy)	1/8500 s 1/1600 s	1/8500 s 1/1600 s	
Flash recharging time (min. max. energy)	0.01s 2.4s	0.01s 2.4s	
Standby indicator	Visual and audible (can be switched off), occ	Visual and audible (can be switched off), occurs when 100% of the selected energy is reached.	
Lamp connections	3	3	
Power distribution	Symmetrical and individually asymmetrical	Symmetrical and individually asymmetrical	
Control range of the flash energy	over 10 apertures (2 - 12 1.5 - 1600J) in 1/10 or whole aperture steps	over 11 apertures (2 - 13 1.5 - 3200J) in 1/10 or whole aperture steps	
Color temperature (flash)	per channel adjustable from - 300K to + 600K (restrictions depending on flash mode)		
	2800K or 5500K		
Modeling light	full, low, proportional		
Flash triggering	'	max. 90W per channel Manual trigger button, switchable photocell, switchable RFS 2 receiver, synchronous cable	
r tabil ti iggering		•	
	Special functions ("Timing")	Special functions ("Timing")	
Alternate	Alternate enables "ping-pong triggering" of	·	
Delay	, ,	Individually adjustable for each of the three Satos lamp channels (max. 50s)	
Sequence	Individual sequence (max. 100) and individual interval (max. 10.0s) adjustable for each of the three Satos lamp channels		
Additional functions	t 0.1, Strobo		

Satos 1600 Satos 3200



Satos 1600 | 31.070.XX

Satos 3200 | 31.071.XX

	Continuous light (with Pulso L)	Continuous light (with Pulso L)	
Color temperature	2800 to 6800K in 50K intervals		
Color rendering index (CRI)	typical 97+		
Green / Magenta Correction (color cast)	-25G to +25G (limitations at certain color temperatures)		
Dimmability	Apertures 2 to 13, in 0.1 intervals		
	Other data	Other data	
Update option	via USB port		
Display	5.7 inch, LCD, multi-touch, extremely robust cover glass		
Cognition light	LED ring (Colors: blue, green, purple, yellow, turquoise)		
Cooling	active (fan)		
Compatibility	Fully compatible: Pulso L lamp Adjustment light only in mains operation: Pulso G, Unilite, Picolite		
Menu language	English, German, French		
Use	in a dry environment		
Temperature usage range	-10°C to 40°C		
Temperature storage	-10°C to 50°C		
Weight generator unassembled (without power supplies or batteries, without power cord, without dust cover)	11.4 kg	16.6 kg	
	L: 311mm (12.24in)	L: 311mm (12.24in)	
Generator dimensions	B: 224mm (8.82in)	B: 224mm (8.82in)	
	H: 321mm (12.62in) incl. handle	H: 433mm (17.03in) incl. handle	
Slide-in battery (type)	Li-lon, 37V / 92 Wh		
Slide-in battery (weight)	980g		
Slide-in battery (dimensions)	L: 233mm W: 80mm H: 35mm		
Slide-in battery (charging time when not in use)	approx. 60 minutes		
Slide-in power supply unit	48 / 400W		
Slide-in power supply unit (weight)	830g		
Slide-in power supply unit (dimensions)	L: 233mm W: 80mm H: 35mm		
Power consumption generator	1800W		
Connection values	230V 10A 120V 15A 100V 15A		
Warranty period	2 years from date of purchase (for the fir	st owner)	
Approvals	CE, FCC, UKCA, RoHS		



Pulso L (1600J + 3200J)

32.130.00 + 32.131.00

	In flash mode
Flash energy	max. 3200 J
Modeling light	LED 90 Watt typical 2800 or 5500 K
	In continuous light mode
Color temperature	2800 to 6800 K in 50 K intervals
Color rendering index (CRI)	97+
Dimmability	6 to 100%
Green / Magenta correction (color cast)	Control range -25G to +25G (Limit below 4000 K and above 5000 K)
	Other data
Focusing	Manual, infinitely
Length of lamp cable	5m (16ft)
Length (Handle to tip of protective glass, rearmost position)	262 mm (10.3 in)
Length (Handle to top of transport protection cap)	285 mm (11.2 in)
Height (Handle to top of housing)	166 mm (6.5 in)
Housing diameter	120 mm (4.7 in)
Weight (incl. lamp cable, without protective cap)	3.5 kg (7.7 lbs)
Stand mount	For bolts 12mm (0.47 in), $3/8$ " thread and bolts 16mm (0.63 in)
Update option	with lamp cable, connection to Satos generator
Display	OLED 1.69 inch
Use	 On tripod Floor installation Ceiling suspension (separately available safety cable 33.173.00 absolutely necessary)
Temperature range of use	-10 °C to 40 °C
Temperature storage	-10 °C to 50 °C
Cooling system	Active (temperature controlled fan)
Cognition light	2x top left/right 5 colors (blue, green, purple, yellow, turquoise)
Compatibility	Compatible with broncolor bayonet
Compatibility with broncolor power packs	Satos (without modeling light: Scoro, Grafit, Move, Senso)
Menu language	English
Warranty period	Factory warranty of 2 years from date of purchase (for the first owner)
Item number	32.130.00 (1600 J) 32.131.00 (3200 J)



Scoro 1600 S WiFi / RFS 2 Scoro 3200 S WiFi / RFS 2 31.047.XX



Scoro 1600 E WiFi / RFS 2 Scoro 3200 E WiFi / RFS 2 31.067.XX





Satos 3200 Satos 1600 31.070.XX

POWER PACK BATTERY



Move 1200 L RFS 2 31.016.XX

CONTINUOUS LIGHT

Kits a

LED F160 61.010.00

LAMPS

POWER PACKS



Pulso L 1600 J Pulso L 3200 J



Pulso G 1600 J Pulso G 3200 J



Unilite 1600 J Unilite 3200 J



Picolite smal lamp 32.021.XX



MobiLED

EFFECT LAMPS



Ringflash C



Boxlite 40



Litestick

REFLECTORS AND ATTACHMENTS



Pulso wall adapter 36.900.00



Standard reflector P65 Standard reflector P70



Standard reflector L40 33.115.00



P-Travel reflector 33.103.00



PAR reflector



attachment 33.626.00



Power-reflector for Ringflash C 33.125.00



Beautyreflector for Ringflash C 33.124.00



Softreflector for Ringflash C 33.123.00



Narrow angle reflector P45 Narrow angle reflector P50 for Pulso 8



Softlight reflector P 33.110.00



Beauty Dish with textile diffuser 33.111.00



Wide angle reflector P120 33.112.00



Background reflector 33.114.00





Spot attachment 33.640.00



Conical snoot 33.120.00

/ BEAUTYBOX / OCTABOXES SOFTBOXES /

Complete product overview at www.broncolor.swiss



Softbox 33.560.00 35 × 60 33.561.00 60 × 60 33.562.00 60 × 100 33.563.00 100 × 100

33.564.00 30 × 120 33.565.00 90 × 120 33.566.00 120 × 180 33.567.00 30 × 180



Edge Mask for Softbox 33.612.00 35 × 60 33.613.00 60 × 100 33.614.00 90 × 120





Adapter rings and tripods not included. Various attachments available.



Scope D50 Scope D50 UV/IR 82.130.XX



Siros 400 S WiFi / RFS 2 31.623.XX



Siros 800 S WiFi / RFS 2 31.643.XX





Siros 400 L WiFi / RFS 2 31.710.XX



Siros 800 L WiFi / RFS 2 31.720.XX

SPECIAL REFLECTORS







Balloon



Picobox





RFS 2.1 transmitter 36.133.00



RFS 2.1 receiver 36.134.00



transmitter/ receiver kit 36.135.00



Hot Shoe Adapter 2 in 1 a6.137.00



bronControl



bronAPI



RFS 2.2 transmitter 36.160.00 Canon 36.161.00 Nikon 36.162.00 Sony 36.163.00 Fuji



Pulso adapter

for Picolite 33.501.00



Barn door for P-Travel 33.243.00



Strip Grid 5:1 for P70 reflector 33.195.00



Honeycomb grid for softlight reflector P and Beauty Dish 33.210.00

broncolor Flooter



Diffuser filter for softlight reflector P and Beauty Dish 33.310.00



Projection attachment for Picolite 33.641.00



Barn door with 4 wings 33.246.00 for P65, P45 and PAR 33.247.00 for P70 33.119.00 for L40



DMX-adapterbox for LED F160

Barn door with 4 winas for Picolite 33.244.00



Honeycomb grids, set of 3 pieces 33.219.00 for Ringflash C



Umbrella reflector Ø 120 mm (for LED F160 and Pulso L) 33.170.00



Attachment with 3 honeycomb grids and 2 aperture masks for Picolite 33.204.00



Fresnel spot attachment for Picolite



Barn doors with 2 wings for P70



Sunlite-Set 33.162.00



Honeycomb grids, set of 3 pieces 33.205.00 for P50 33.206.00 for P65, P45 and PAR 33.211.00 extremely narrow for P65, P45 and PAR [1 pcs] 33.207.00 for P70 33.194.00 zu L40





Para 222 Kit without adapter 33.552.03





Para 133 reflector Para 133 HR reflector Para 133 Kit without adapter Para 133 HR Kit without adapter 33.550.06



Para 88 reflector Para 88 HR reflector Para 88 Kit without adapter Para 88 HR Kit without adapter



attachments and diffusers available. Tripods and lamps not included.



33.576.00 Focus 110 silver/black Ø 110 cm 33.496.00 Umbrella reflector 33.570.00 Silver/black Ø 105 cm 33.571.00 White/black Ø 105 cm 33.572.00 Transparent Ø 105 cm

33.573.00 White/black Ø 85 cm 33.574.00 Silver/black Ø 85 cm 33.575.00 Transparent Ø 85 cm

For more than 65 years broncolor has been shaping the world of commercial photography with professional flash and continuous lighting solutions. The power packs and monolights as well as the most extensive range of light shapers can be found in the most renowned studios all over the world. The decades of reliability – equivalent to investment protection – as well as the convenience of operation and outstanding performance data secure broncolor a firm place in the cosmos of premium products.

broncolor is aware of its commitment to the highest quality and therefore maintains its own development and production facilities in Switzerland. There, Satos and Pulso L are largely manufactured by hand. Visitors can convince themselves of the craftsmanship and the high production depth during a factory tour (organization via the local broncolor partner).

The support of broncolor users is ensured by a network of long-standing and authorized partners in more than 60 countries. The broncolor partner network is always on hand to provide support, both for consulting and after-sales service.

