



## As a leading company in aquaristics since 1960, TUNZE<sup>®</sup> Aquarientechnik is delighted about the cooperation with the pioneering market leader in aquarium illumination DiCon - Kessil<sup>®</sup>.

For more than a quarter of a century, DiCon has specialized in making products that direct highspeed laser beams into miniscule, hair size fiber optic cables for the telecom, defense / military, and biomedical sectors. In the early 2000's, DiCon realized the transition to LEDs was imminent and invested heavily in the technology. As a result, three new business units were created, DiCon LED pushes the forefront of this movement with its proprietary high density LED array, and DiCon Lighting applies the platform in lighting fixtures for the architectural and entertainment industries.

Specializing in the field of aquarium illumination, Kessil<sup>®'s</sup> story begins in the San Francisco Bay Area, the epicenter of the indoor growing industry. The innovative ideas and specific experiences of three UC Berkeley graduates and their cooperation with DiCon in various projects were the basis for the foundation of Kessil®. In early 2009, the graduates presented their business proposal to DiCon's management team who accepted the plan right away. The three founders put things into action and defined the initial business direction, designed the first generation prototypes, and performed a few basic experiments. DiCon also invested heavily and provided resources such as a large space for Kessil®'s plant research lab and creating Dense Matrix LEDs with a variety of spectrums. Kessil®'s staff includes DiCon's top optics experts and senior product designers. Today, each of DiCon's business divisions are recognized leaders in their respective fields, designing and manufacturing quality products with differentiating technology, advancing photonics knowledge through continuous research, and building customer relations with consistently first-rate service.

We are delighted to now supplement our own range of high-quality LED lights for aquariums with Kessil® LEDs. TUNZE® Aquarientechnik develops and produces highly specialized LED luminaires in PU resin for IP 68 security, that can be used both above and as the only supplier on the market under the water surface in the aquarium. Underwater use results in a significant increase in performance and minimization of electrical losses. Like the TUNZE® pump technology, TUNZE® LEDs are an impressive example of how modern technology and contemporary design in the aquarium can be turned into art. The symbiosis between the two strong companies Kessil® and TUNZE® offers you the best selection of innovative lighting technology for aquariums and natural biotopes.

### What does "Kessil®" mean?

is for Kelvin, the unit for color temperature.

is for emission of light from an LED.

 ${f S}$  figuratively derives from carbon capture and stands for energy efficiency and environmental friendliness. With a little trick, double s was made out of it. S

is for intensity from the Dense Matrix LED

stands for Lambda, the unit for wavelength / spectrum. Kessil® creates very efficient and unique spectrums.



# **Tuna Blue** For saltwater aquariums For freshwater aquariums



efficiency and longevity. coverage range.

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TUNA BLUE TUNA SUN

without the confusion.

together.

fixtures) is equipped with one K-Link port and one 0-10V

Controller Controller X  $\rightarrow$  Spectral Controller X (for A360X and Kessil® 0-10V LED output port. The K-Link port allows users to connect to the A360X, while the 0-10 V port is for Kessil®'s 0-10 V light fixtures. A USB power adapter (not included) is needed when using the Spectral Controller X for 0-10 V lights only.  $\rightarrow$  Both controllers feature two ways of setting a customized light schedule to match individual tank or refuge

 $\rightarrow$  Using the Quick Set Mode, it is possible to create unique dawn and dusk effects by altering light intensity and

 The Acclimation Mode simplifies the introduction of new lights to a tank or new corals or plants to an existing setup. The acclimation timeline can be customized to suit specific needs.

 $\rightarrow$  In the Manual Mode, spectrum and intensity can instantly be tuned for on demand light customization. Kessil® 0-10 V LED fixtures are also compatible with other 0-10 V external controllers. Daisy-chain multiple lights for



→ Kessil<sup>®</sup>'s patented Dense Matrix LED technology concentrates multiple LED chips into a single array, creating a powerful and penetrating light source with wide coverage. Penetration can be further enhanced by positioning multiple units in close proximity to each other.

→ Kessil® Logic™ maintains persistent output across the entire adjustable spectrum (10,000 K to Actinic for Tuna Blue, 6.000 to 9.000 K for Tuna Sun) and thereby also consistent coral and plant growth.

 $\rightarrow$  Beautiful, unrivaled shimmer replicates the look of natural sunlight reflecting from the water.

 $\rightarrow$  The innovative heat management system enhances

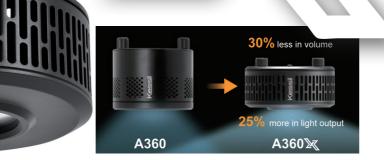
 $\rightarrow$  Different wavelengths are seamlessly blended within a single LED array, emitting uniform color across the

 $\rightarrow$  A proprietary blend of UV light enhances coral growth

Both intuitive Kessil<sup>®</sup> control units are equipped with flawless touch control and a vivid color display. The spectral controllers offer effortless light control at the touch of your fingertips. Their straightforward approach to light control programming allows for endless customization options

 $\rightarrow$  Spectral Controller (for all Kessil<sup>®</sup> A360, A160, A80, H80, H160) is equipped with two separate 0-10V-output ports. Each port can control its own independent set of lights; whether it's two groups of lights on one aquarium, a display and refugium, or multiple tanks, a single controller links it all







ATRIX

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The successor of the Kessil® A360 LED has a low profile design with higher light output (Higher Photon Volume Density), thanks to the redesigned, first-class sunflower heat sink with extended color control options, opening unlimited color combinations for aesthetics while maintaining the performance of the core spectrum. A360X features smoother color transitioning and dimming, including moonlight effects.

 $\rightarrow$  The smart K-Link communication method is an upgrade of the previous plug & play 0-10 V, allowing users to network multiple A360X together and set individual groups to run their own programs. A360X can be used with optical accessories to shape light, allowing users to modify the look of the aquarium to their liking.

 $\rightarrow$  The newly designed optics along with the latest generation Dense Matrix LED array provide a broader delivery of light and eliminate shading. Patented Dense Matrix LED technology concentrates multiple LED chips into a single array, creating a powerful and penetrating light source with wide coverage. The maximum penetration can reach 30" (75 cm) beyond the water's surface for most reefs.

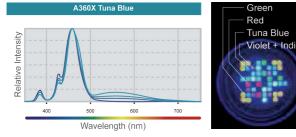
 $\rightarrow$  Using the Kessil<sup>®</sup> A360X Narrow Reflector (optional accessory), center light intensity can be further enhanced by up to three times for further penetration – perfect for deep aguariums. Contrast, depth and dynamics of an aquarium aet more impressive,

 $\rightarrow$  The well-known Tuna Blue / Sun spectrum has been proven by its users to promote coral or plant arowth and enhance coloration.

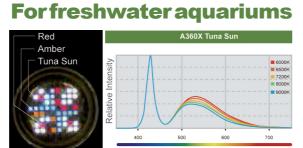
 $\rightarrow$  Different wavelengths are seamlessly blended within a single LED array, emitting uniform color across the coverage range.

 $\rightarrow$  In addition to the popular Tuna Blue / Sun spectrum, users can add in Red, Green, and Violet+Indigo (Purple) by using the Spectral Controller X or the Kessil® WiFi Dongle.

# una Blue **For saltwater aquariums**



LED A360X Tuna Blue Dimensions (D x H): 4.3" x 2.1" (110 x 53 mm) Unit Weight: 0.8 lb (370 g) Spectrum: Deep Ocean Blue to Sky Blue + RGB Power Supply: 100-240V AC (input), 19V DC (output) Power Consumption: 90 W max KSA360XTB



**Tuna Sun** 

Wavelength (nm)

LED A360X Tuna Sun Dimensions (D x H): 4.3" x 2.1" (110 x 53 mm) Unit Weight: 0.8 lb (370 g) Spectrum: 6,000 to 9,000 K + RY Power Supply: 100-240V AC (input), 19V DC (output) Power Consumption: 90 W max KSA360XTS

# 



The intuitive Kessil® Spectral Controller X for Kessil A360X LEDs and all the 0-10 V Kessil® lights is equipped with flawless touch control and a vivid color display. The Spectral Controller X offers effortless light control at the touch of your fingertips. Its straightforward approach to light control programming allows for endless customization options without the confusion.

 $\rightarrow$  The K-Link communication method is an upgrade of the easily plug & play 0-10 V, allowing users to network multiple A360X together (up to 32 fixtures per chain) and set individual groups to run their own programs. K-Link is also a two-way communication, meaning the Spectral Controller X can detect the number of lights in the network, the status of the lights, etc.

 $\rightarrow$  The controller is equipped with one K-Link port and one 0-10 V output port. The K-Link port allows users to connect to the A360X, while the 0-10 V port is for Kessil®'s 0-10 V light fixture. A USB power adapter (not included) is needed when using the Spectral Controller X for 0-10 V lights only.  $\rightarrow$  The Program Mode features three ways of setting a customized light schedule to match

individual tank or refuge needs. A maximum of 12 programs can be created.

 $\rightarrow$  Using the Quick Set Mode, it is possible to create unique dawn and dusk effects by altering light intensity and color throughout eight different time points.

→ The Acclimation Mode simplifies the introduction of new lights to a tank or new corals or plants to an existing setup. The acclimation timeline can be customized to suit specific needs.  $\rightarrow$  In the Manual Mode, spectrum and intensity can instantly be tuned for on demand light customization.

The WiFi dongle efficiently controls a Kessil® A360X with

Android / iOS smartphone or up to 32 X-luminaires with the K-Link connection cable, minimizing wireless interference and ensuring a faster and more reliable connection. Features include full color control, acclimation, lunar cycle, weather effects and more!



WiFi Dongle Dimensions (L x W x H): 2.08" x 1.26" x 0.67" (53 x 32 x 17 mm) Weight: 0.41lb (20 g) Operating frequency: IEEE 802.11 b/g/n (2,4GHz) KSAWD01





Straightforward control and programming by Spectral Controller or Spectral Controller X.

## **Tuna Blue For saltwater aquariums**



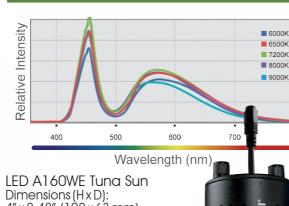


LED A160WE Tuna Blue Dimensions (H x D): 4" x 2.48" (102 x 63 mm) Weight: 0.69 lb (320 g) Spectrum: Deep Ocean Blue to Sky Blue Coverage: Up to 24" (60 cm) surface diameter Average penetration for most reefs: 24" to 30" (60-76 cm) Power Supply: 100-240V AC (input), 19-24V DC (output) Power Consumption: 40 W KSA160WETB



LED A360NE Tuna Blue Dimensions (H x D): 4.5" x 4" (114 x 101 mm) Weight: 1.15 lb (520 g) Spectrum: Deep Ocean Blue to Sky Blue Coverage: Up to 18" (45 cm) surface diameter Average penetration for most reefs: 30" to 36" (76-91 cm) Power Supply: 100-240V AC (input), 19V DC (output) Power Consumption: 90 W KSA360NETB

LED A360WE Tuna Blue Dimensions (H x D): 3.6" x 4" (91 x 101 mm) Weight: 0.95 lb (430 g) Spectrum: Deep Ocean Blue to Sky Blue Coverage: Up to 24" (60 cm) surface diameter Average penetration for most reefs: 24" to 30" (60-76 cm) Power Supply: 100-240V AC (input), 19V DC (output) Power Consumption: 90 W KSA360WE



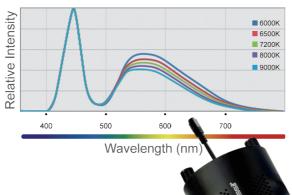
**Tuna Sun** 

**For freshwater aquariums** 

A160WE Tuna Sun

Dimensions (H x D): 4" x 2.48" (102 x 63 mm) Weight: 0.69 lb (320 g) Spectrum: 6,000 to 9,000 K Coverage: Up to 24" (60 cm) surface diameter Average penetration for most plants: 24" to 30" (60-76 cm) Power Supply: 100-240V AC (input), 19-24V DC (output) Power Consumption: 40 W KSA160WETS





LED A360WE Tuna Sun Dimensions (H x D): 3.6" x 4" (91 x 101 mm) Weight: 0.95 lb (430 g) Spectrum: 6,000 to 9,000 K Coverage: Up to 24" (60 cm) surface diameter

Average penetration for most plants: 24" to 30" (60-76 cm) Power Supply: 100-240V AC (input), 19V DC (output) Power Consumption: 90 W KSA360WETS



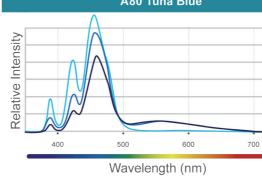
The elegant fanless design of the A80 LEDs is combined with a unique and compact Dense Matrix array and optics design which ensures efficient coverage and penetration as well as outputting the most photon energy per watt of any Kessil® fixture.

- $\rightarrow$  Different wavelengths are segmlessly blended within a single LED array, emitting uniform color across the coverage range.
- $\rightarrow$  A proprietary blend of UV light enhances growth and color of corals or plants.

→ Dense Matrix LED technology produces a concentrated single point source with enough power to deliver light to the entire unit. By combining a unique fanless design and the compact Dense Matrix array, the H80 outputs the most photon energy per watt of any Kessil® fixture.

- $\rightarrow$  Easy-to-use color dials allow the user to switch between the spectrums and intensity for a personalized look.
- $\rightarrow$  An innovative heat dissipation allows for fanless, low maintenance, elegant design.
- → Controlled by Spectral Controller or Spectral Controller X.

## **Tuna Blue Tuna Sun For saltwater aquariums** A80 Tuna Blue



LED A80 Tuna Blue Dimensions (D x H): 4.88" x 0.98" (124 x 25 mm) Weight: 0.88 lb (400 g) Spectrum: 10.000 K to Actinic Coverage: Up to 24" (60 cm) surface diameter Power Supply: 100-240V AC (input), 24V DC (output) Power Consumption: 15 W KSA80TB

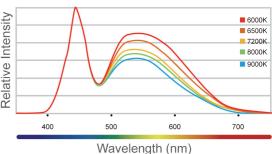












LED A80 Tuna Sun Dimensions (D x H): 4.88" x 0.98" (124 x 25 mm) Weight: 0.88 lb (400 g) Spectrum: 6,000 to 9,000 K Coverage: Up to 24" (60 cm) surface diameter Power Supply: 100-240V AC (input), 24V DC (output) Power Consumption: 15 W KSA80TS



Kessil® H80 and H160 Tuna Flora are groundbreaking full spectrum LED refugium lights which are intensity and spectrum controllable, perfect for most refugium algaes such as chaetomorpha and caulerpa and most plants. The light is perfectly blended, with wavelengths including near UVA and Infrared (ranging from 380-780 nm), enhancing photosynthetic efficiency.

 $\rightarrow$  The BLUE spectrum (420 – 490 nm) quickly develops the frame of a plant during every stage by promoting prolific stem extension.

 $\rightarrow$  The GROW spectrum is designed to produce all-around vegetative growth throughout the life cycles of many different plants.

 $\rightarrow$  The BLOOM spectrum boosts yield by encouraging plentiful flowering during the plants' crucial reproductive stage.

 $\rightarrow$  The RED spectrum (650 – 750 nm) is designed for tissue culture and cloning by producing maximum root growth during the plant's whole life. During the finishing stage, the RED spectrum also increases the plants' productivity and the quality of the harvest.

 $\rightarrow$  Dense Matrix LED technology produces a concentrated single point source in the H160 LED fixture with enough power to penetrate past the canopy and deliver light to the entire plant.

 $\rightarrow$  By combining a unique fanless design and the compact Dense Matrix array, the H80 outputs the most photon energy per watt of any Kessil® fixture.

Grow Red

Blue
Pure Blue

 $\rightarrow$  Controlled by Spectral Controller or Spectral Controller X.

H80 Tuna Flora

600

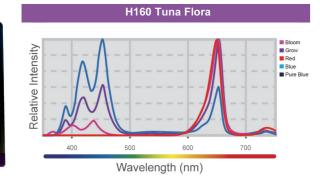
700



LED H80 Tuna Flora

Dimensions (D x H): 4.88" x 0.98" (124 x 25 mm) Weight: 0.88 lb (400 g)

Spectrum: Blue, Grow (Purple), Bloom (Magenta), Red Coverage: Up to 24" (60 cm) surface diameter Power Supply: 100-240V AC (input), 24V DC (output) Power Consumption: 15 W KSH80TF



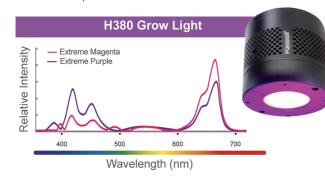
Wavelength (nm)

400

500

LED H160 Tuna Flora Dimensions (H x D): 4" x 2.48" (102 x 63 mm) Weight: 0.88 lb (400 g) Spectrum: Blue, Grow (Purple), Bloom (Magenta), Red Coverage: Up to 24" (60 cm) surface diameter Power Supply: 100-240V AC (input), 19V DC (output) Power Consumption: 40 W KSH160TF

Just as plants and algae have different nutrient requirements at different stages, they also develop unique light requirements throughout their growth. The Kessil® H380 Grow Light can toggle between two full-spectrum UV blends to maximize its effectiveness through both the grow and bloom phases of plant cultivation. It is specifically designed to cultivate macroalgae in a refugium tank. Patented Dense Matrix LED technology creates a powerful and penetrating light source that delivers light to the entire plant / algae. H380 Grow Light cannot be controlled by the Spectral Controller / Spectral Controller X.



LED H380 Grow Light Dimensions (H x D): 4.5" x 4" (114 x 101 mm) Weight: 1.15 lb (520 g) Spectrum: Extreme Purple for thick and lush growth, extreme Magenta to increase the quality and quantity of the plants' yields, UV Coverage: 24" surface diameter by 3" penetration (on average) Power Supply: 100-240V AC (input), 19V DC (output) Power Consumption: 90 W max. KSH380N

the plant's growth cycle. (only available with WiFi-Dongle).



The Kessil® AP700 panel-design saltwater aquarium light, features guiet operation, innovative heat management and efficient, long-lasting LED construction. Its high efficiency Hybrid Optics and Dense Matrix arrays deliver more power and greater coverage while increasing penetration through the water column and mimicking the effect of a Metal Halide 15 combo. This 185 Watt panel platform features flawless touch control to easily adjust intensity and color and to select the moonlight mode. Built-in WiFi provides even greater control and ease of customization.

→ Dense Matrix LEDs deliver a full color spectrum. Independently adjustable LED channels allow users to set a preferred color. With iOS / Android apps, users can choose a range of blue from Deep Ocean Blue to Sky Blue, and can even select other colors such as green, yellow, red and purple for a different aesthetic.

 $\rightarrow$  Different wavelengths within a single LED array are seamlessly blended, emitting a uniform color with widespread coverage.  $\rightarrow$  For excellent coral arowth and coloration, the specially designed lens and reflector combination provides a broader delivery of light and superior penetration (up to 48" of coverage) and virtually eliminates shading while minimizing hot spots.  $\rightarrow$  Together with a proprietary blend of precision UV light, independently adjustable color channels enable users to tune a preferred color within the spectral range while maintaining the best usable spectrum for coral growth and coloration.

 $\rightarrow$  WiFi Controllability: The iOS/Android tablet apps give users access to advanced manual control and program customization, as well as offering the ability to sync groups of lights. The app features include full color wheel control, acclimation, lunar cycle, weather effects, and more.



**VO** 

#### Spectral Controller

23:30

15× 3 15× 45× 8 45×

Acclimation 14 / 14 Days)

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100 %

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The intuitive Kessil® Spectral Controller for all Kessil® LED fixtures A360, A160, A80, H160, H80 with 0-10 V is equipped with flawless touch control and a vivid color display. The Spectral Controller offers effortless light control at the touch of your fingertips. Its straightforward approach to light control programming allows for endless customization options. Weight: 0.24 lb (110 g) Dimensions (L x W x H): 5.6" x 2.5" x 0.6" (142 x 63 x 14 mm) KSASC01

#### A360X Narrow Reflector

The A360X Narrow Reflector strengthens the center light intensity of the A360X by up to three times - perfect for deep tanks. The Narrow Reflector features an easy to attach magnetic design. Beam Anale: 55°

Mounting Height: 8"-12" (20-25 cm) above water surface KSAOK03

#### Kessil® Gooseneck only for A80 LED

Kessil®'s Mini A Series Gooseneck is a versatile mounting option that allows you to customize the positioning of your light. The 10 inch arm attaches the Kessil® A80 aquarium light securely to the top of a tank without a canopy. Weight: 0.73 lb (330 g) Dimensions: Ø 0.57" x H 10" (Ø 15 mm x H 254 mm) KSAGN03

#### A-Series Gooseneck

Kessil®'s A Series Gooseneck is a versatile mounting option that allows you to customize the positioning of your A160, H160 or A360 LED. Designed to be used on most glass tanks, its 24 inch malleable but sturdy arm provides a strong, adaptable solution to install your Kessil® aquarium light. Weight: 1.92 lb (870 g) Dimensions: Ø 0.6" x H 23.6" (Ø 15 mm x H 599 mm)

KSAGN01

#### 90° Gooseneck Adapter

For A Series Gooseneck to gain additional reach for larger aauariums. Weight: 0.11 lb (50 g) Dimensions: Ø 0.7" x H 1.97" (Ø18 mm x H 50 mm)

KSAGA90

#### Full Angle Adapter

Compatible with Mounting Arm, 90° Gooseneck Adapter, DIY mounting solutions. It allows lights to be angled or tilted, Weight: 0.15 lb (70 g) Dimensions: ø1.12" x H 2.09" (ø28.5 mm x H 53 mm) KSAGA360

#### 90° Gooseneck Bracket

For A Series Gooseneck to maintain a low profile look. The Bracket can be installed in less than 1 minute to the A360X or A360 and A Series Gooseneck. Weight: 0.13 lb (60 g) Dimensions (L x W x H): 4.7" x 0.8" x 1.1" (119 x 20 x 28 mm)

KSAGB90

AP700 Canopy Kit The Kessil® AP700 Canopy Kit allows the Kessil® AP700 LED aquarium light to be mounted to the inside of most aquarium covers. Each extension leg is 11.2" (284 mm) long and is designed to be inserted into the AP700. The two extension legs allow you to firmly suspend the AP700 to the top of your aquarium cover. Our recommendation is to hang the AP700 15" - 18" (38 - 46 cm) above water surface to obtain a 48" x 24" (120 x 60 cm) coverage for mixed reef tanks, and 5'' - 7'' (13 - 18 cm) above water surface for a 36" x 24" (90 x 60 cm) coverage for SPS dominant tanks. Weight: 0.42 lb (190 g) Dimensions (L x W x H):

11.2" x 4.3" x 2" (284 x 109 x 51 mm) (Unit x2)

### AP700 Hanging Kit

KSACM01

The AP700 Hanging Kit allows the Kessil® AP700 LED to be hung from your ceiling or even within your canopy. Our recommendation is to hang the AP70015" - 18" (38 - 46 cm) above water surface to obtain a  $48'' \times 24''$  (120 x 60 cm) coverage for mixed reef tanks, and 5" - 7" (13 - 18 cm) above water surface for a 36" x 24" (90 x 60 cm) coverage for SPS dominant tanks. Weight 0.37 lb (170 g) Length: 118" (300 cm) (Unit x2) KSAHM01

#### Mounting Arm

Kessil®'s Mounting Arm is a premium mounting option that allows you to install Kessil® aquarium lights directly to your tank. The Mounting Arm is adjustable in heights and from backto front (for 18" - 24" / 46 - 61 cm wide tank), together with advanced cable management to house the cable inside the arm, providing a perfect and sleek mounting option for rimmed and rimless tanks. It is compatible with A160, A360WE/NE, A360, A360X and AP700 (2 required for AP700). Weight: 1.76 lb (800 g) Dimensions: Ø 1" x W 12.32" - 15.43" x H 20.78"

(Ø 25 mm x W 313 - 392 mm x H 528 mm) KSAGN02

#### Extended Slide Bar

The Kessil® Extended Slide Bar lengthens the reach of the Mounting Arms by up to 3.5" (89 mm). This accessory gives users with wider tanks (25"-32" / 64-80 cm) the ability to mount their Kessil<sup>®</sup> lights precisely where needed. Easy installation and sturdy construction make the Extended Slide Bar a great accessory for large tanks. Weight: 0.42 lb (190 g) Dimensions: Ø 0.86" x L 12.4" (Ø 21.8 mm x L 31.5 cm)

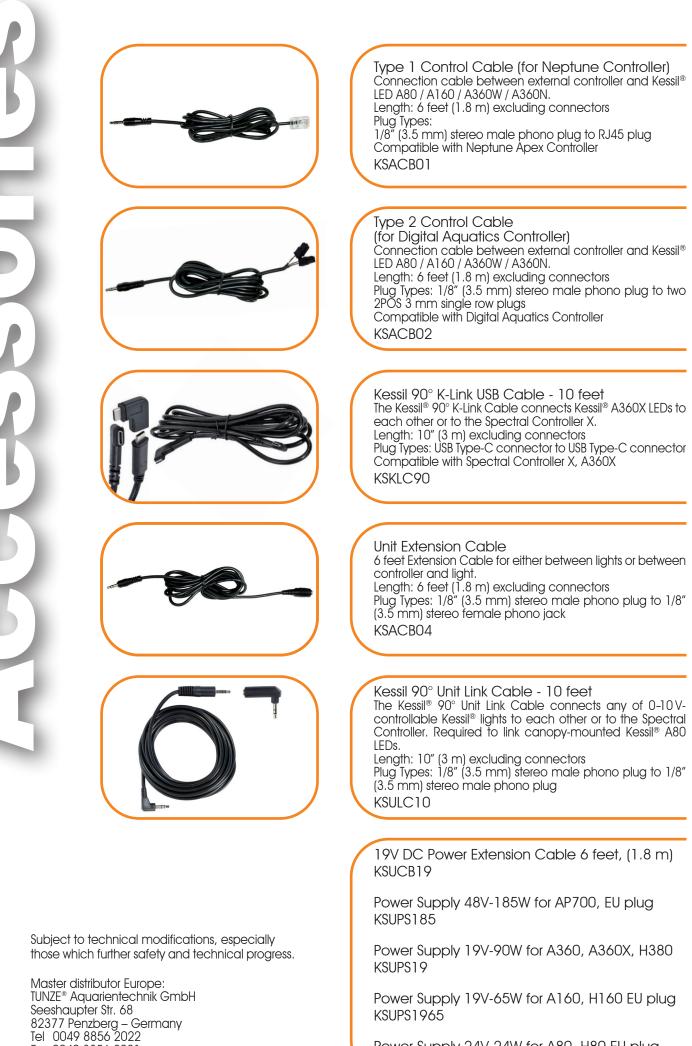
KSASB02

#### **Extension Mount**

The Kessil® Extension Mount is designed to be used with the Mounting Arm and provides customers with additional mounting option. It is designed specifically for acrylic or euro-braced tanks, by affixing the mounting arms to the tank stand. The Extension Mount comes with two extension tubes, allowing a total length of 57.5" (1.46 m). It is compatible with A160, A360, and AP700. Weight: 1.32 lb (600 g) Dimensions: Ø 1<sup>°</sup> x H 37.8<sup>°</sup> (Ø 25 mm x H 96 cm) KSAFM01







Fax 0049 8856 2021 www.tunze.com Power Supply 24V-24W for A80, H80 EU plug KSUPS2424