

# PRODUCTION PARTNER

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POWER DISTRIBUTOR

## Contrik Power Turtle/Strip



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# Contrik Power Turtle/Strip

“TOP L” is the further reinforced version of the powerCON TRUE1 series. With the Contrik brand, the Neutrik Group offers IP65 power distributors based on it.

Text and photographs: Herbert Bernstädt



**O**utdoor is not the same as outdoor: There is a difference between occasionally getting a little rain and having the installation exposed to all weathers for weeks without supervision.

We've all seen events where the rubbish bag is pulled over the speaker and the power is supplied by IP44 H05RR earthed cabling, with the sub-distribution in the form of a triple plug additionally protected from rain by a plastic bag.

But if you want to distribute power reliably over a longer period of time, you should consider other options such as Contrik's CPVT series. After all, what can you expect during a long-term stay outdoors? First, you think of rain. With it, you don't just want to be "Protected against water spray from all sides" (IP X4), but "Protected against water jets (nozzles) from any angle" (IP X5). even better, if you're thinking about puddles forming on the event site, "Protected against temporary submersion" (IP X7). And what if the rain doesn't come and the dryness takes over, as it does in many summer weeks? Then you don't want to blow the dust out of your sub-supp. No, you want "complete protection against dust ingress (dust-tight)" inside the distribution board, and then you are at IP 6X. The test criteria can be found in DIN EN 60529, and the overview table can also be found on our wiki page <https://wiki.production-partner.de/vorschriften/ip.klasse-schutz-vor-eindringen/>

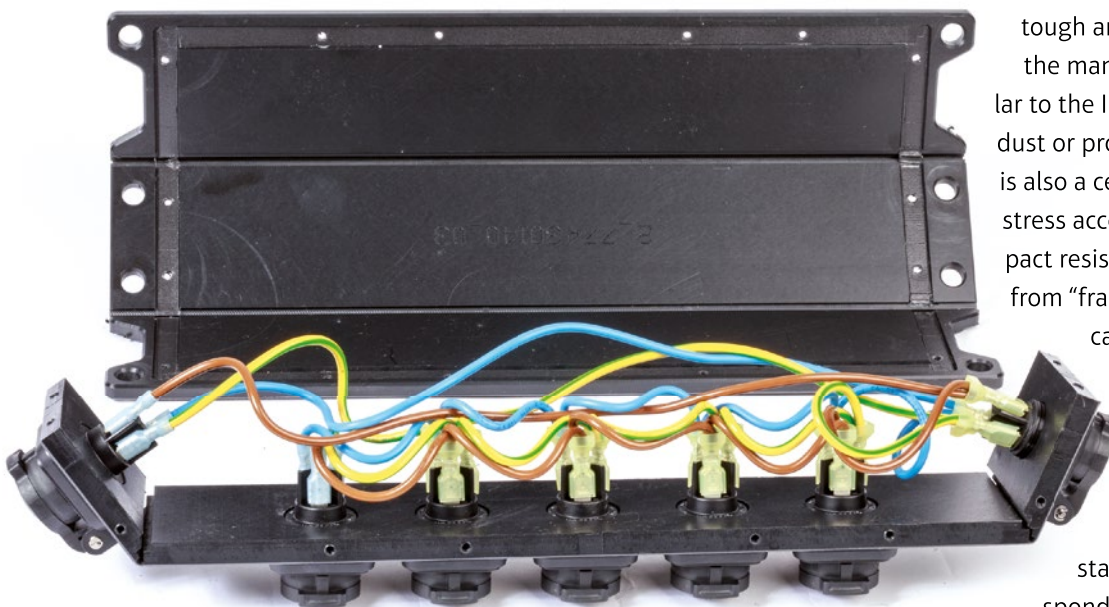
Code	Impact energy	Drop height of the mass
IK00	No Protection	-
IK01	0,14 Joule	7 cm – 200 g
IK02	0,20 Joule	8 cm – 250 g
IK03	0,35 Joule	14 cm – 250 g
IK04	0,50 Joule	20 cm – 250 g
IK05	0,70 Joule	28 cm – 250 g
IK06	1,0 Joule	40 cm – 250 g
IK07	2,0 Joule	40 cm – 500 g
IK08	5,0 Joule	25 cm – 2 kg
IK09	10,0 Joule	20 cm – 5 kg
IK10	20,0 Joule	40 cm – 5 kg
IK11	50,0 Joule	50 cm – 10 kg

#### IK codes

### Documented robustness: IK10+ and Easylene

In order to enjoy your distribution boxes for a long time, it is also important to know how many knocks they can take. Especially during assembly and disassembly, some people are quite rustic with these handy boxes. After all, they lie really well in the hand - and are certainly "thrown into position" here and there (but of course no one on the construction site throws any equipment, it is at most put down ungently). The Contrik-CPVT distribution boxes are well equipped for

this, because they are made of a very tough and resistant material, which the manufacturer calls "easylene". Similar to the IP classification for water and dust or protection against contact, there is also a certificate for impact and shock stress according to EN 62262. The IK impact resistance level (the "k" is derived from "fragile" in French - cassable) is carried out by means of a swinging or free-falling hammer. This is defined in EN 60068-2-75. In the case of Contrik CPVT distributors, the enclosures withstand IK10+ or IK11, which corresponds to an impact energy of 50 joules (or a 10 kg hammer after a free fall from a height of 50 cm).

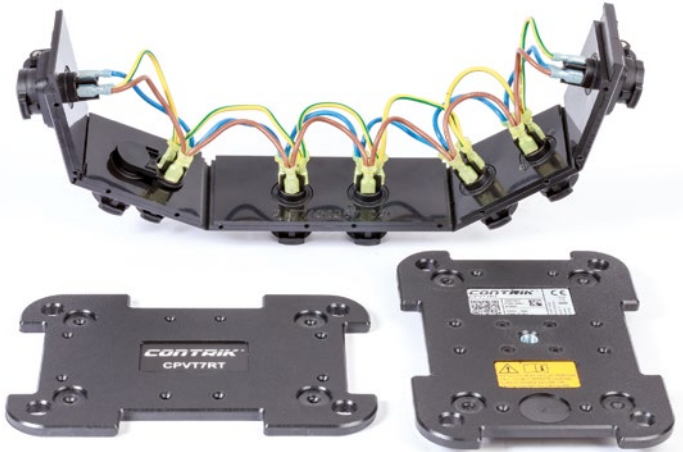


**Power Strip XO "opened":** Internal wiring with UL-listed multi standard wires meeting increased US American and Canadian requirements. Beneficial for worldwide use.



**Power Turtle XO** with capsuled M10 thread on the bottom to prevent metal parts from protruding into the housing. It also allows damaged threads to be replaced. Precisely milled grooves with inserted sealing strips in the opposite part of the enclosure ensure IP-compliant sealing and stability.

The flame resistance of the enclosures is certified to the American UL 94 V2: Extinguishing of a vertically clamped sample within 30 seconds, burning of dripping plastic melt permitted. The temperature range from -30°C to +80°C covers both skiing and summer shooting festivals under the hall ceiling or outdoors in the blazing sun. Particularly at cold temperatures, when the material is brittle and a blow can easily break something off, the easylyn material, which is designed for temperatures from



**QR code on the type plate** providing access to all relevant information. The circular slot beneath the yellow safety information is for badges of periodic testings. Unlike the remaining housing the milled slot has a plain surface which guarantees for reliable and abrasion-resistant fitting of the badge.

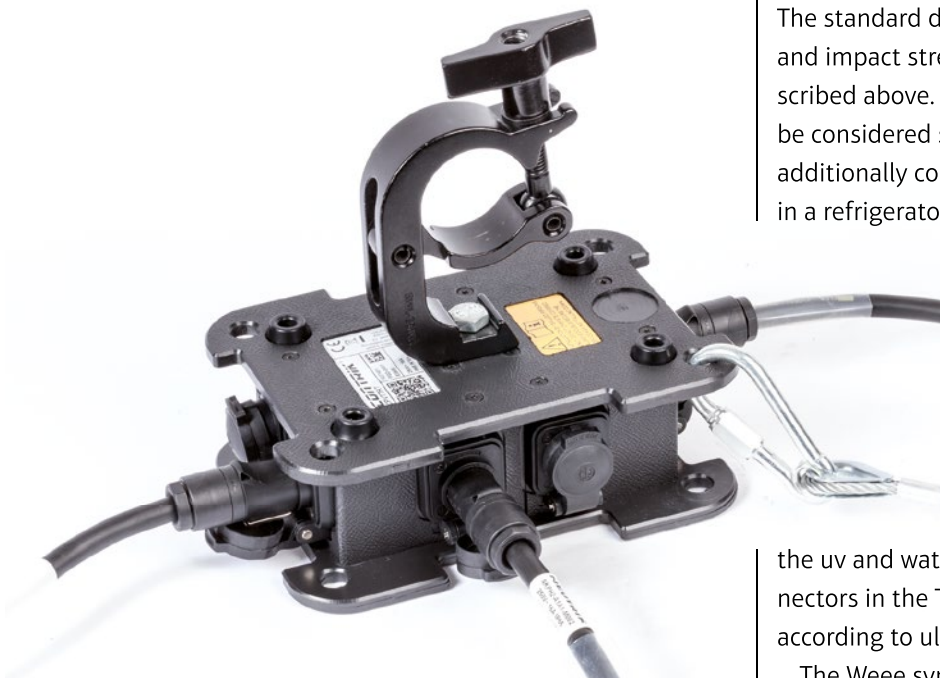
-40°C to +90°C, is very well positioned here. UV radiation goes hand in hand with the sun. Its duration also has an effect on the material. The enclosure made of easylene material is therefore uv-stabilised, which has been confirmed by many years of experience, says Oleg Eler, product manager at Neutrik AG.

There is also an American standard on UV exposure. UL 746C stands for "Standard for safety for polymeric materials - use in electrical equipment evaluations". The standard describes tests such as flame retardancy and impact strength, similar to the test procedure described above. However, in the impact test, in order to be considered suitable for outdoor use, the sample is additionally cooled down to  $-35 \pm 2^\circ\text{C}$  for three hours in a refrigerator. In addition, the samples must be able

to withstand ultraviolet light (uv) for 720 hours using a double-encapsulated carbon weather meter or 1,000 hours using a xenon arc weather meter. Furthermore, a water immersion test is carried out for 70 days at 7°C. The F1 suffix confirms that the material meets both

the uv and water immersion requirements. The connectors in the TOP L version have passed this uv test according to ul 746C F1.

The Weee symbol - the crossed-out dustbin - indicates that the distributors should not be disposed of



**Power Turtle XO** with bottom M10 thread for couplers

with household waste at the end of their service life. Not only can they be disposed of or recycled at Contrik, but the leftovers and cuttings from production are also recycled there.

## Contrik with Powercon True 1 Top L

However, the robustness, tightness and resistance of the housing is only half the battle if you continue to work with Schuko connectors from here: the system becomes really round when you also use the right connector with the right cable for the sub-distribution. Neutrik successfully introduced a connector to the event industry early on with the Powercon, with which reliable distribution is possible. It can be found in almost all professional equipment that is constantly being assembled and disassembled. It has replaced

the cold appliance connectors in this class of equipment. The main disadvantage of the Powercon was that it was not allowed to be pulled under load.

This was followed by the Powercon true 1, which with its coupling part also allows an extension without a coupling adapter and is also a mains plug-in device. This means that it can be plugged in under load and is also outdoor-compatible.

Now this connector is topped in the truest sense of the word, with the Powercon true 1 top. With it, you get a connector that carries on the advantages of the previously mentioned model, but is also specially designed for outdoor use and extremely rough handling. It is, so to speak, the heart of the Contrik-CPVT energy distribution system.

### Fire behaviour classifications / building material classifications (simplified overview)

Europe: DIN EN 13501-1		Germany: DIN 4102		USA: UL, flammability of plastics	
A1	non-combustible no contribution to fire	A1	non-combustible without organic components no smoke development no burning dripping	UL94-V0 (Vertical Burn)	extinguishing of flame within 10 seconds. No burning dripping of molten plastic permitted. Maximum 30 s afterglow
A2	non-combustible no contribution to fire no visual impairment by smoke development no burning dripping or falling off permitted.	A2	non-combustible with combustible organic components no smoke development no burning dripping	UL94-V1 (Vertical Burn)	extinguishing of a vertically clamped sample within 30 seconds. No burning dripping of molten plastic permitted Maximum 60 s afterglow
				UL94-V2 (Vertical Burn)	extinguishing of a vertically clamped sample within 30 sec. Burning drops are permissible.
B	flame retardant very limited contribution to fire	B1	flame retardant after extinguishing of fire does not continue to burn on its own after the fire has gone out		
C	flame retardant limited contribution to fire				
D	normal flammability acceptable contribution to fire	B2	normal flammability ignited by ignition sources and continues to burn by itself	UL94-HB (Horizontal Burn)	burning rate must not exceed 76 mm/min (38 mm/min for test specimens thicker than 3 mm)
E	normal flammability acceptable fire behaviour				
F	easily flammable no performance determined	B3	easily flammable		





**Cable designation** and still unheated, transparent heat shrink tubing.



**Self-closing flaps** slightly unstable above the latch, so that you always rub against them when plugging or unplugging with one hand.

It can be loaded with 16 A and - as before - can be plugged in and unplugged under load and voltage. The material is uv-resistant and extremely robust.

After the TOP comes the TOP L with certification according to IEC 60320, which applies to appliance couplers for household and similar general purposes. It is similar to the UL498, which forms the American part (plugs and sockets) and allows a load of 20 A at 250 V. IEC 60320 no longer specifies 1.5 mm. but also defines the 3x 2.5 mm heavy rubber hose lines that we often need in our event industry with the required cable lengths and in rough operation. The TOP L corresponds with 2.5 mm wire size for rubber cables. This wire size for rubber cables complies with DIN EN 60320-1:2021-08 / VDE 0625-1:2021-08. "By the way" we assume a life time of more than 5,000 mating cycles. The heavy duty flammability is certified with the American UL94 V-0 (no burning dripping of plastic melt permitted. Extinguishing of the flame within 10 s, maximum 30 s afterglow). The temperature range of -30 to + 80° corresponds to outdoor expectations with severe conditions such as at summer festivals or ski jumping.

## Sub-distributors

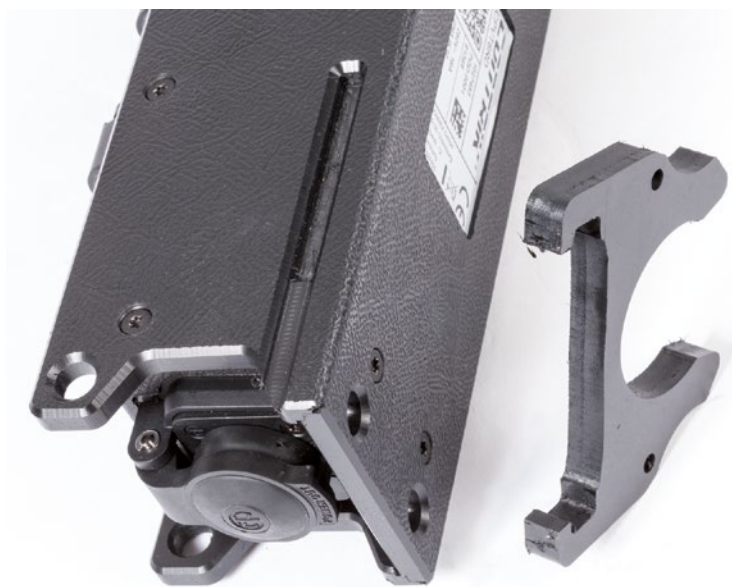
Currently, three types of IP 65 sub-distribution boards are available with the Powercon true 1 top l connector: The CPVT7RT is the Power turtle XO, with one input and seven outputs.

The outputs are arranged all around the box - this is good for distributing in a star shape.

the CPVT3RD, called Power Strip XO, has three outlets in an elongated box. One outlet is located opposite the inlet on the front side, while two further outlets continue to the side.

The longer version is the Strip CPvt6rd. It has five of the six outlets on the top side, and one outlet on the front side opposite the input.

The construction of the enclosures is cleverly designed: The plastic panels are injection-moulded and then milled in



**Grooves** of the Power Strip XO to accommodate truss clips, variable placement to match bracing



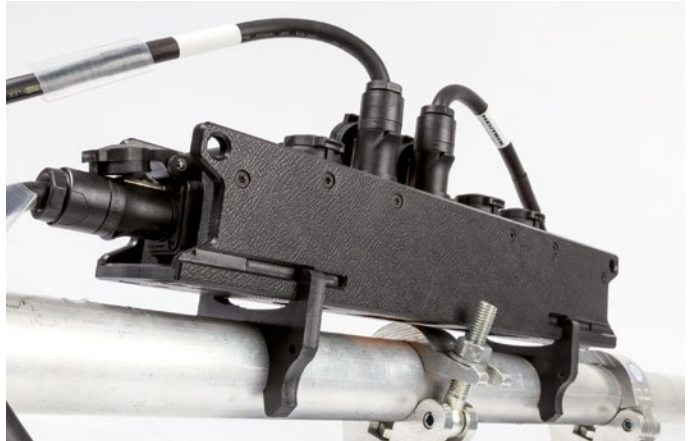
**Shaping of the fork ends** makes it easier to press the fork together so that the truss clips can be pulled into the groove provided on the manifold.

such a way that only two parts of the strip version fold over two edges. the “u” parts formed in this way can then be joined together to form an enclosure. These flat housing ‘shells’ make assembly of the distributor boards much easier.

A sufficient number of countersunk screws ensures sufficient pressure on the connecting edges, in whose groove a sealing tape ensures tightness. Only the Power turtle requires one more component to form an all-round tight housing. the screws, which are also used in the automotive sector, are made of corrosion-resistant stainless steel so that no brown sauce oozes out of the distributor after years of use.

Furthermore, the Power turtle differs from the Power strip in that it has an M10 thread embedded in the bottom of the housing. the Power strips have grooves on the side for inserting optionally available truss clips. the second truss clip is used as a second holding device, so that a safety cable is not required. in addition, the spring effect and the clamping on the truss ensure that the distributor does not slip down the truss tube when it is mounted vertically.

The hinged covers are a very good solution, as they close spring-loaded when no connector is plugged in. With the usual rubber lips, this is a nuisance when water penetrates through the open connector. By the way, you should always hang the turtle or strip so that the lids open upwards, so that no water collects in the lid, which would be flung in through the spring lid when a connector is unplugged.



**Fixed to a truss** the truss clamps leave sufficient space for standard clips.

The operating instructions were undergoing extensive revision during our test and will be published on the website. In order to know how many of the distributors can be connected in series, the electrician is required to take into account the conductor impedance and contact resistances so that upstream protective devices can be triggered (according to VDE0413, electrical safety in low voltage networks up to AC 1,000 V and DC 1,500 V - devices for testing, measuring or monitoring protective measures).

### Dimensions and weight

	Dimensions	Weight
Power Turtle XO – 7	220 × 150 × 85 mm	1,1 kg
Power Strip XO – 3	220 × 91,2 × 77 mm	0,65 kg
Power Strip XO – 6	380 × 91,2 × 77 mm	1,15 kg

### Conclusion

Since most outdoor spotlights are already equipped with Neutrik Powercon True 1, it is only logical to continue this system in the sub-distribution. The Contrik CPVT distribution series, made in Oldenburg, Germany, seems robust and pragmatic anyway. With the integration of the Connex company, more than 30 years of experience in the construction of distribution boards flowed into the Neutrik Group - this is how the brand “Contrik” was created. No wonder that here, too, great value is placed on sustainability and durability with the special requirements in the event industry serving as a benchmark that is even surpassed. ■