

# Reverse Lights & Work Lights Full-LED







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### Innovative design & the highest quality

Modern light- and LED technology for better work light

### The compact and modern reverse & work light from ERMAX

The ERMAX work light programme fulfills the highest demands concerning quality, functionality and reliability. The innovative LED technology ensures a long life-time, energy efficiency and high capacity - and the maintenance and stand still times are all reduced to a minimum.

Unique design, latest light- and LED technology, unbeatable durability and high quality are united in the ERMAX work light programme – and due to the cost-effectiveness, a real highlight.

The ERMAX work lights are suitable for all applications, where efficient high quality light is necessary in order to work more productively and safely – day and night – also when the work lasts for many hours.

The material used fulfills all demands for high stability and impact resistance against shock, vibration, dirt and moisture.

The work lights are of high quality and suitable for demanding tasks.

### Why ERMAX

#### Clear lens - Unbeatable

Impact-resistant lens made of polycarbonate. Less loss between the nominal and effective lumen due to the clear lens.

### High Power LEDs

Long-life LED Technology - LEDs with extremely long life-time up to 50.000 hours.

#### Electromagnetic discharging

The arrangement of the LEDs and the build method of the reflector ensure that no interfering magnetic field will occur.





### **ERMAX Work Lights LED**

Work safer and more productively in a clear light

### The Highlights in overview

- > Innovative development, design and the highest product quality
- > The most modern light- and LED technology high light performance and homogenous distribution of the light
- ➤ Unbeatable polycarbonate impact-resistant lens
- Compact design universally applicable
- Application as reversing light when angled (ECE-R23)
- > First-class tested OEM quality



### Surface coating

Strong coating, also in holes and threads. Protects the aluminium parts from corrosion.

### Effective heat derivation

Surplus heat from the LEDs will be efficiently dispersed due to their position.

#### Overheating and reverse polarity protection

Protected against overheating and reverse polarity.

### Bracket of steel AISI 304 quality

Austenitic steel with acid-resistant properties. Due to its high formability, it is ideal as a bracket.

### The most modern light- and LED technology for better work light

### High light output, Homogeneous light distribution & long lifetime

The development of the new ERMAX work light starts with a light technical process. The light technique in the LED area is in a rapid development and thus there are no standard solutions. Each new work light has to be recalculated. The results flow into the design of the reflectors and in the optimal selection of the LEDs.

In the light technical process the light distribution is defined. The reflector design as well as the arrangement of the LEDs are important for the light distribution, in order to get a homogenous illumination.





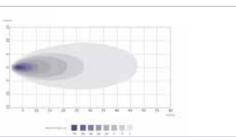


### Which variant of the ERMAX work lights to choose - and which lumen?

The ERMAX work lights are available in 3 design variants with 3 different light outputs / lumens. The more far reaching the desired illumination, the more light intensity / lumen is needed. The work light has a strong local illumination. The greater the need for long-range illumination, a work light with greater light intensity / lumen must be selected.

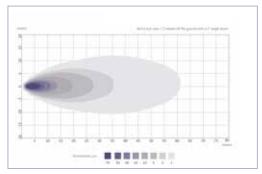


Lumen Theoretical 800 / Effective 600



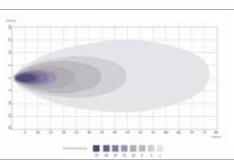


Lumen Theoretical 1600 / Effective 1200





Lumen Theoretical 2400 / Effective 1800





Lumen Theoretical 3.200 / Effective 2.400



Bird's eye view 1,2 meter above the ground with an incline angle of  $5^{\circ}$ 

In order to achieve optimal utilisation of the effective lumen, the homogeneous distribution of the light is very important. The ERMAX work lights are technically so developed that the difference between the theoretical and the effective lumen is being reduced. The following aspects are crucial for this:

#### Reflector Systems

The reflectors for a homogeneous light distribution are calculated in such a way, that the light concentration in the close range is reduced and will increase constantly with the distance.

#### The quality of the lens material

Thanks to the impact resistant lens made of of polycarbonate, the light output remains homogeneous even after a severe blow or under hard working conditions.

#### Quality of the LED light source

The newest technology is used to achieve an extreme long lifetime – up to 50,000 hours using LEDs.

### First-class tested quality from ERMAX

### Quality standards and test methods

Ongoing in the manufacturing process, the defined quality criteria and test methods of the ERMAX work lights are checked in order to guarantee the high product quality. Numerous complex test procedures are carried out and the quality is ensured by observation, monitoring and testing.



### Temperature / humidity cycle test

The ERMAX work lights are going through a temperature cycle test in climatic chambers with temperature fluctuations from -40  $^{\circ}$ C to +65  $^{\circ}$ C. During this test, the materials used for the work light, the individual components of the electrical components and the LED light sources are tested.



#### Vibration test

During the vibration test the ERMAX work lights are being shaken for hours in order to simulate the toughest conditions in the daily use. The products are tested in all possible mounting positions (horizontal, vertical etc.).



#### Splash water test

In a splash water chamber, the ERMAX work lights are tested for simulated rain and water jets, and also tested for density/tightness with a water pressure of 1 bar and a water temperature of  $20\,^{\circ}\text{C}$  (IP54).



### Immersion and pressure tightness test

In the immersion test, the ERMAX work lights are under water lowered for 1 hour in a water tank in a depth of 1 meter (IP67).





#### Pressure washer test

The ERMAX work lights are subjected to a test with a water pressure of 80-100 bar and a water temperature of 80  $^{\circ}$ C (IP69K).



#### Dust test

The dust test according to IEC60529 uses dust to check how safety the ERMAX work lights are protected towards the ingress of dust and other solid particles.



### Salt Spray test

In the salt spray test, the ERMAX work lights are tested in a chamber in order to test the corrosion resistance. High salt spray resistance is required because of harsh environmental conditions - especially when the work lights are mounted at the bottom of the vehicle.



### Impact test

This test ensures the impact resistance of the ERMAX work lights in daily use. From a height of 0,4 meter, the work lights are tested with an 1 kg steel ball.

### ERMAX Work lights - suitable for every application

### Commercial, agriculture & forestry and Off-Road vehicles

ERMAX Work lights are suitable for all applications where a good and efficient lighting is necessary in order to work more productively and safely — day and night — also when the work lasts many hours.



### Truck- and special vehicles

The work is often done in darkness and it is important for the security that the working area is well lighted up.



#### Trailer

Work lights are often mounted at the front, at the back or at the side of the trailer in order to ensure the utmost security when loading and unloading.



### Agricultural and forestry

The work is done with many interruptions and during many hours — day and night — the working area must be illuminated in the best possible way.



### Off-Road

Tough working conditions demand good lighting — with a long life and utmost light performance.



### Standard product programme with large flexibility

### Compact design, universally applicable and various connection possibilities

ERMAX reversing lights and work lights are available in 3 design types with different light performances / lumen.



LED Reverse light

Lumen:

Theoretical 650 / Effective 300



LED Work light

Lumen:

Theoretical 800 / Effective 600





LED Work light

Lumen:

Theoretical 1600 / Effective 1200

Approved as reversing light (ECE -R23) with 30° angling by vertical mounting





LED Work light

Lumen:

Theoretical 2400 / Effective 1800

Approved as reversing light (ECE -R23) with 35° angling by vertical mounting.







This type is also available with handle and on/off switch.



LED-Arbeitsscheinwerfer

Lumen

theoretisch 3.200 / effektiv 2.400

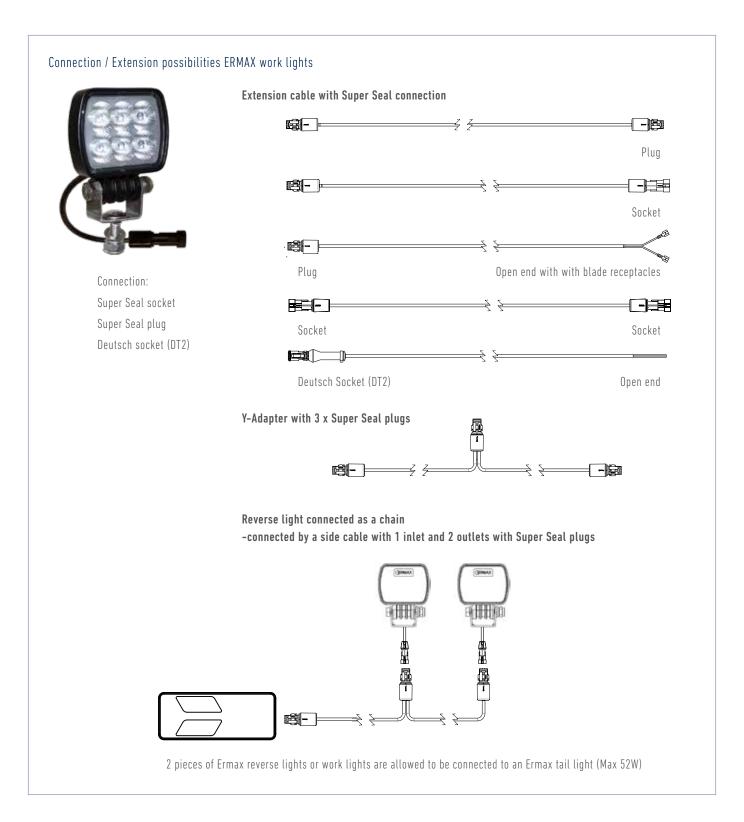
### Easy maintenance

#### Various connection varations

ERMAX work lights are available with various connection variations — connection cable with Open end, Super Seal socket or "Deutsch" socket.

For connector variants, Ermax always offers a standard cable length of 300 millimeters to the first plug connection. The cable length can be adjusted according to need by means of standard extension cable or adapter cable. This ensures optimum ease of maintenance.

The large variety of cable solutions ensures the best installation without having to adjust the cable length (see page 23-27).





### Technical features ERMAX reverse lights and work lights

### Technical specifications - Common to all variants

- Impact-resistant lens made of polycarbonate
- Housing made of aluminium, black lacquer (anti corrosion layers)
- ➤ Mounting bracket made of stainless steel, AISI 304 quality
- Mounting bolts M8 / 30 mm
- > Multivolt 12/24V
- ➤ Working temperature -40 °C bis +65 °C

- > Flood light pattern
- ➤ Colour temparature 6.500 <sup>o</sup>Kelvin
- Protection class IP69K
- > Overheating and reverse polarity protection
- > ADR and EMC/R10 approved
- ➤ ECE-R23 approved

### Advantages of the newest LED light technology

- which are optimally utilised in the Ermax reverse lights and work lights

The advantages of the newest LED technology, which are optimally utilised in the ERMAX reverse lights and work lights - result in a product with a very high quality and extremely long life - and thus cost-effectiveness, which is a real highlight.

- > High light output
- > Extremely long lifetime
- > 100% water & dustproof
- > Low power consumption
- Maintenance free
- High shock and vibration resistance
- > Effective heat conduction
- > Increased profitability







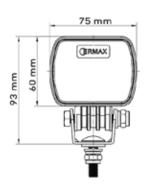




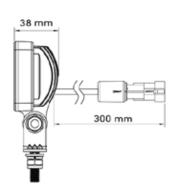
# **Reverse Light**

### Lumen 650

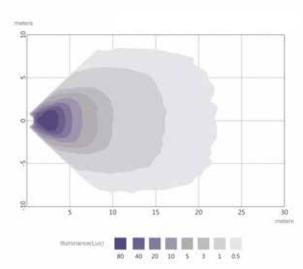








### Illumination



Bird's eye view 1,2 meter above the ground with an incline angle of  $5^{\circ}$ 





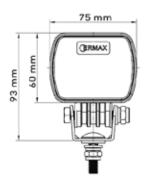
Operating voltage	Energy consumption	Connection	Cable length	Light source	Lumen Theoretical / effective	Light pattern	Article No.
12/ 24 V	6,5 W	Open end	500 mm	6 x high-powered LED	650 / 300	Flood	098 256 250
12/ 24 V	6,5 W	Super Seal plug	300 mm	6 x high-powered LED	650 / 300	Flood	098 256 254
12/ 24 V	6,5 W	Super Seal socket	300 mm	6 x high-powered LED	650 / 300	Flood	098 256 255



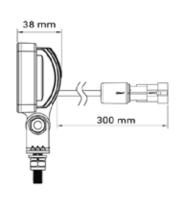
# **Work Lights LED**

Lumen 800

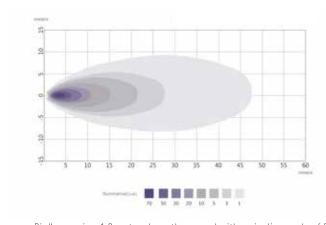








### Illumination



Bird's eye view 1,2 meter above the ground with an incline angle of  $5^{\rm o}$ 

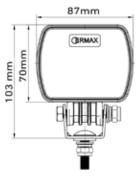


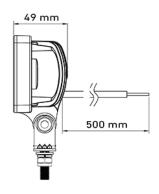
Operating voltage	Energy consumption	Connection	Cable length	Light source	Lumen Theoretical / effective	Light pattern	Article No.
12/ 24 V	8 W	Open end	500 mm	6 high-powered LED	800 / 600	Flood	098 174 250
12/ 24 V	8 W	Super Seal plug	1.000 mm	6 high-powered LED	800 / 600	Flood	098 174 254
12/ 24 V	8 W	Super Seal socket	300 mm	6 high-powered LED	800 / 600	Flood	098 174 255

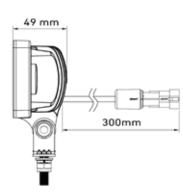
# **Work Lights LED**

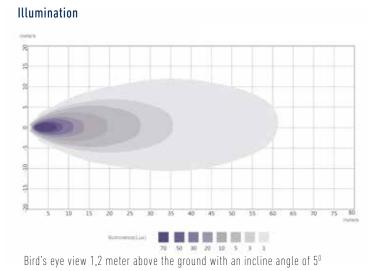
Lumen 1.600

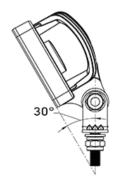












Approved as reverse light - with 30° tilt when vertical mounted





Operating voltage	Energy consumption	Connection	Cable length	Light source	Lumen Theoretical / effective	Light pattern	Article No.
12/ 24 V	16 W	Open end	500 mm	9 high-powered LED	1600 / 1200	Flood	098 174 260
12/ 24 V	16 W	Super Seal plug	6.000 mm	9 high-powered LED	1600 / 1200	Flood	098 174 263
12 / 24 V	16 W	Super Seal plug	1.000 mm	9 high-powered LED	1.600 / 1.200	Flood	098 174 264
12/ 24 V	16 W	Super Seal socket	300 mm	9 high-powered LED	1600 / 1200	Flood	098 174 265
12 / 24 V	16 W	Integrated Deutsch (Dt) socket		9 high-powered LED	1.600 / 1.200	Flood	098 174 267



# LED Work Lights - Housing made of plastic

Lumen: 1.600



- > Particularly suitable for use in highly corrosive environments
- Housing material: Thermally conductive plastic



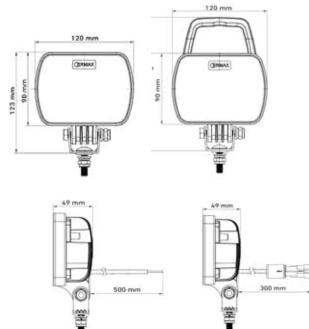
- with 30° tilt when vertically-mounted

Operating voltage	Energy consumption	Connection	Cable length	Light source	Lumen Theoretical / effective	Light pattern	Article No.
12 / 24 V	16 W	Open end	1.500 mm	9 high-powered-LEDs	1.600 / 1.200	Flood	098 174 290
12 / 24 V	16 W	Super Seal plug	6.000 mm	9 high-powered-LEDs	1.600 / 1.200	Flood	098 174 293
12 / 24 V	16 W	Super Seal socket	300 mm	9 high-powered-LEDs	1.600 / 1.200	Flood	098 174 295
12 / 24 V	16 W	Integrated Deutsch (DT2) socket		9 high-powered-LEDs	1.600 / 1.200	Flood	098 174 297

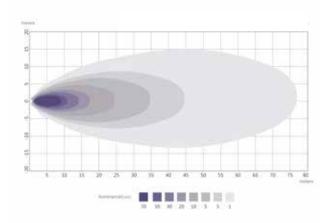
# **Work Lights LED**



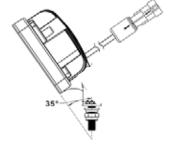




### Illumination



Bird's eye view 1,2 meter above the ground with an incline angle of  $5^{\circ}$ 



Approved as reverse light - with 35° tilt when vertical mounted

EMC 🇆



Operating voltage	Energy consumption	Connection	Cable length	Light source	Lumen Theoretical / effective	Light pattern	Pos.	Article No.
12/24V	25 W	Open end	500 mm	12 high-powered LED	2.400 / 1.800	Flood	1	098 174 270
12/24V	25 W	Super Seal plug	6.000 mm	12 high-powered LED	2.400 / 1.800	Flood	1	098 174 273
12/24V	25 W	Super Seal plug	1.000 mm	12 high-powered LED	2.400 / 1.800	Flood	1	098 174 274
12/24V	25 W	Super Seal socket	300 mm	12 high-powered LED	2.400 / 1.800	Flood	1	098 174 275
12/24V	25 W	Super Seal socket	1.500 mm	12 high-powered LED	2.400 / 1.800	Flood	1	098 174 276
12/24V	25 W	Integrated Deutsch (DT) socket		12 high-powered LED	2.400 / 1.800	Flood	1	098 174 277
12/24V	25 W	Super Seal socket - with handle & switch	300 mm	12 high-powered LED	2.400 / 1.800	Flood	2	098 174 279

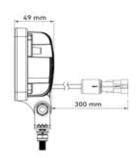


# Work Lights LED

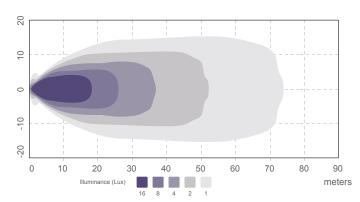
Lumen 3.200







### Illumination



Bird's eye view 1,2 meter above the ground with an incline angle of  $5^{\circ}$ 

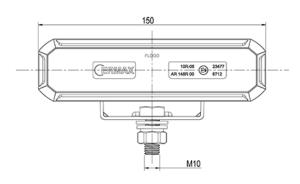


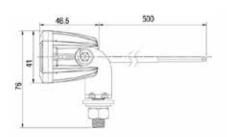
Operating voltage	Energy consumption	Connection	Cable length	Light source	Lumen Theoretical / effective	Light pattern	Pos.	Article No.
12 / 24 V	25 W	Super Seal socket	300 mm	12 high-powered LED	3.200 / 2.400	Flood	1	098 174 285
12 / 24 V	25 W	Integrated Deutsch (DT) socket		12 high-powered LED	3.200 / 2.400	Flood	1	098 174 287

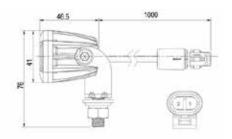
# LED work light 12/24V - 6 diodes

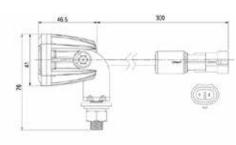
Lumen: 2.700

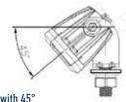






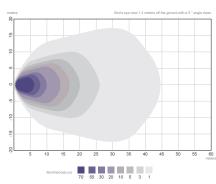






Approved as reverse light with 45° tilt angle mounted vertically

Light pattern



### **Description**

Lens: Impact-resistant polycarbonate

Aluminium Housing: Colour temperature: 6500K

150 x 41 x 46 mm Dimensions, W x H x D:

54 mm Light height, total: Bolt size: 22 mm/M10 Width bracket: 63 mm

Working temperature:  $-40^{\circ}$ C to +  $65^{\circ}$ C

IP6K9K

Mounting bracket in stainless steel with polycarbonate washer

Wire colours: Brown = minus Blue = +







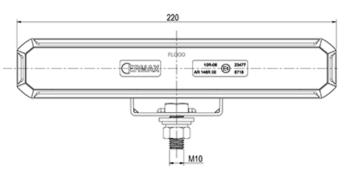
Voltage	Con- sumption	Connection	Cable length	Light source	Lumen, theoretical/effective	Light pattern	Item no.
12/24 V	30 W	Open end	500 mm	6 High Power LEDs	2.700 / 2.000	Flood	098 174 360
12/24 V	30 W	Super-Seal plug	1,000 mm	6 High Power LEDs	2.700 / 2.000	Flood	098 174 364
12/24 V	30 W	Super-Seal socket	300 mm	6 High Power LEDs	2.700 / 2.000	Flood	098 174 365
12/24 V	30 W	Integrated Deutsch (DT2) socket		6 High Power LEDs	2.700 / 2.000	Flood	098 174 367

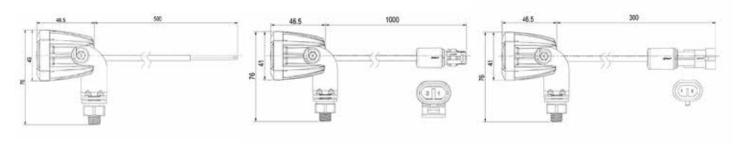


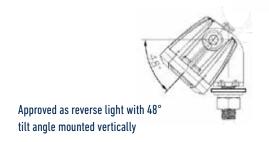
# LED work light 12/24V - 8 diodes

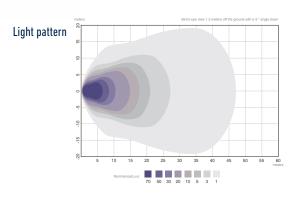
Lumen: 3.600











### **Description**

Lens: Impact-resistant polycarbonate

Housing: Aluminium Colour temperature: 6500K

Dimensions, W x H x D: 220 x 41 x 46 mm

Light height, total: 54 mm

Bolt size: 22 mm/M10

Width bracket: 63 mm

Working temperature: -40°C to + 65°C

Rating: IP6K9K

Mounting bracket in stainless steel with polycarbonate washer

Wire colours: Brown = minus Blue = +



Voltage	Con- sumption	Connection	Cable length	Light source	Lumen, theoretical/effective	Light pattern	Item no.
12/24 V	40 W	Open end	500 mm	8 High Power LEDs	3.600 / 2.700	Flood	098 174 380
12/24 V	40 W	Super-Seal plug	1,000 mm	8 High Power LEDs	3.600 / 2.700	Flood	098 174 384
12/24 V	40 W	Super-Seal socket	300 mm	8 High Power LEDs	3.600 / 2.700	Flood	098 174 385
12/24 V	40 W	Integrated Deutsch (DT2) socket		8 High Power LEDs	3.600 / 2.700	Flood	098 174 387

# Plug connections — spare parts and accessories

### ERMAX Reverse Lights & Work Lights

The ERMAX plug connector accessory programme offers solutions for almost any application. Matching mount brackets can also be found in our programme.



Spare parts and accessories		Article No.
Mounting bracket for 37 mm light fixation - Kit set with	1	098 296 174
Mounting bracket aluminium, 31,5 x 30,5 x 17 mm. Ø 61–65 mm	2	098 295 750
Mounting bracket aluminium, 32,5 x 31,5 x 18 mm. Ø 66-71 mm	2	098 295 752
Super Seal plug 2 poled, Diameter yellow seal Ø 1,8 - 2,4 mm, Blade receptacle 0,5 - 1,0 mm²	3	099 110 019
Super Seal socket 2 pole, Diameter yellow seal Ø 1,8 - 2,4 mm, Blade receptacle 0,5 - 1,0 mm²	4	099 110 018
Rubber grommet for 2 pole Super Seal plug	5	099 110 712
T-coupling for 2 pole Super Seal plug (3 socktes)	6	099 111 415
Blanking plug for 2 pole Super Seal socket - black plastic	7	099 110 028
Blanking plug for 2 pole Super Seal plug - black plastic	8	099 110 029
Deutsch (DT) plug, with blade receptacles 0,75-2,0 mm²	9	098 291 690
Deutsch (DT) socket, with blade terminals 0,75-2,0 mm <sup>2</sup>	10	099 111 043



### Super Seal plug > Super Seal plug

<b>&amp;</b>	Application / description	Article No.
	Extension cable, 2 core  Super Seal plug > Super Seal plug  Conductor cross section: 2x1 mm².  Cable type: FLRYY / PVC	
	200 mm	794 002 230
	500 mm	794 005 230
	1.000 mm	794 010 230
	1.500 mm	794 015 230
	2.000 mm	794 020 230
	2.500 mm	794 025 230
	3.000 mm	794 030 230
	5.000 mm	794 050 230
	6.000 mm	794 060 230
	7.500 mm	794 075 230
	10.000 mm	794 100 230
	11.500 mm	794 115 230
	15.000 mm	794 150 230



### Super Seal plug > Super Seal socket

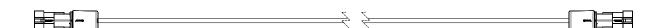
<b>&amp;</b>	Application / description	Article No.
	Extension cable, 2 core  Super Seal plug > Super Seal socket  Conductor cross section: 2x1 mm <sup>2</sup> Cable type: FLRYY / PVC	
	1.000 mm	794 010 200
	1.500 mm	794 015 200
	2.000 mm	794 020 200
	3.000 mm	794 030 200
	4.000 mm	794 040 200
	5.000 mm	794 050 200
	6.000 mm	794 060 200
	15.000 mm	794 150 200





Super Seal socket > Super Seal socket

<b>&amp;</b>	Application / description	Article No.
	Extension cable, 2 core  Super Seal socket > Super Seal socket  Conductor cross section: 2x1 mm²  Cable type: FLRYY / PVC	
	1.500 mm	794 015 240



### Super Seal plug > Open end with blade receptacles

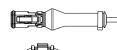
<b>&amp;</b>	Application / description	Article No.
	Extension cable, 2 core  Super Seal plug > Open end with blade receptacles 6,3 x 0,8 mm  Conductor cross section: 2x1 mm²  Cable type: FLRYY / PVC	
	500 mm	794 005 251
	1.000 mm	794 010 251
	1.500 mm	794 015 251
	2.000 mm	794 020 251
	4.000 mm	794 040 251
	6.000 mm	794 060 251
	8.000 mm	794 080 251
	10.500 mm	794105 251





### Deutsch plug (DT2) > Open End

<b>&amp;</b>	Anwendung / Beschreibung	Artikel-Nr.
	Extension cable, 2-core  Deutsch plug > Open End  Conductor cross section: 2x1 mm²  Cable type: FLRYY / PVC	
	1.500 mm	794 015 255
	2.500 mm	794 025 255

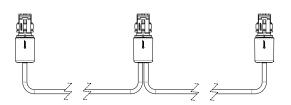


### Y-Adapter with 3 x Super Seal plugs

Application / description	Article No.
Y-Adapter cable, 2 core  1 inlet + 2 outlets with Super Seal plugs Conductor cross section: 2x1 mm² Cable type: FLRYY / PVC	
2 x 500 mm	894 005 230
2 x 2000 mm	894 020 230
2 x 3000 mm	894 030 230
2 x 4000 mm	894 040 230
2 x 6000 mm	894 060 230

### Side marker cables

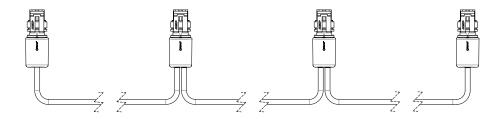
Application / description	Article No.
Side marker cable, Chain  1 x inlet + 2 x outlets with Super Seal plugs  Conductor cross section: 2x0,5 mm²  Cable type: FLRYY / PVC	
<b>3.000 mm</b> Distance between plugs: 1x1700 mm + 1x1300 mm	694 030 200
<b>4.200 mm</b> Distance between plugs: 1x1200 mm + 1x3000 mm.	694 042 200
5.300 mm Distance between plugs: 1x300 mm + 1x5000 mm.	694 053 200





### Side marker cables

Application / description	Article No.
Side marker cable, Chain  1 x inlet + 3 x outlets with Super Seal plugs  Conductor cross section: 2x0,5 mm <sup>2</sup> Cable type: FLRYY / PVC	
2.500 mm Distance between plugs: 500 mm + 1500 mm + 500 mm	694 025 300
3.200 mm Distance between plugs: 500 mm + 1700 mm + 1000 mm	694 032 300
<b>4.000 mm</b> Distance between plugs: 1000 mm + 2000 mm + 1000 mm	694 040 300
8.000 mm Distance between plugs: 2000 mm + 2000 mm + 4000 mm	694 080 300
<b>9.400 mm</b> Distance between plugs: 2000 mm + 3700 mm + 3700 mm	694 094 300
11.500 mm Distance between plugs: 3600 mm + 3500 mm + 3700 mm	694 116 300
13.500 mm Distance between plugs: 4100 mm + 3900 mm + 5500 mm	694 135 300













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