



Electrical equipment

Accessories

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ERMAX® – YOUR PARTNER FOR COMPLETE LIGHTING SYSTEMS

ERMAX A/S

- develops, manufactures and distributes a wide range of products within lighting, junction boxes and cable systems for commercial vehicles and industrial applications.

A unique set-up with a combination of our factory in Denmark and licensed production with our own tools at a number of selected and exclusively certified partners worldwide, offers an extensive, highly competitive and qualitative range of products.

The Brand - ERMAX®

Founded in 1948 the Ermax® lighting technology has been manufactured for the automotive industry for almost 7 decades.

Ermax is the partner, when it comes to understanding and fulfilling the needs of lighting; with tail lights, warning lights, beacons, side markers or work lights – nowadays bulb, LED as well as in hybrid technologies. These lighting components are being offered within a complete solution concept of ADR approved

cables and, where required, junction boxes as well as mounting hardware. All cable sets are configured with multiple connector types to ensure the best lifetime service ability.

Why Ermax® Lighting Systems ?

Partnership through quality, reliability and competence.

Our competence in partnering with you, is our extensive experience in being an OEM partner with quality and on time delivery as daily focus to ensure expectations and execution match entirely with your requirements.

All our products hold the necessary certifications for E-marking, IP-predetection, ADR-approval and design predetections to ensure exclusive design and durability as well as non-violation of patents.

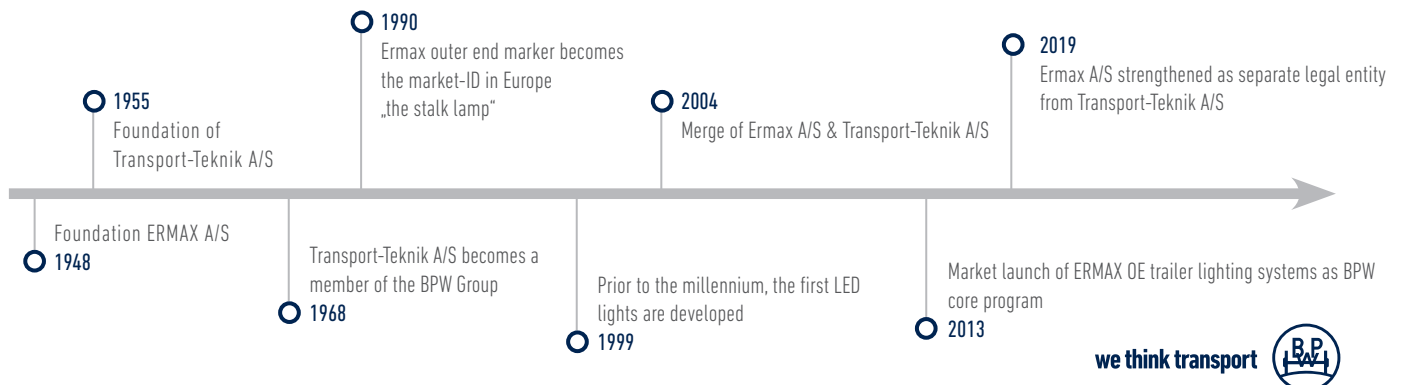
With reliable and planned processes you will reach your goal safely with us as partner.



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Always close to you

As a member of the BPW Group, which operates worldwide, we have an unique sales and distribution network with local offices and support for the benefit of all of our business partners.



SOLUTIONS - AS INDIVIDUAL AS YOUR TASKS AND REQUIREMENTS

As ERMAX customer you will achieve the following

- > High quality for every area
- > Vehicle-customised solutions
- > Focus at the newest technology and innovative products with recognisable design
- > Production companies with development competence under one roof
- > Europe-wide after-sales-servicenetwork

ERMAX lighting systems

- > Wide palette including cables, plugs and lights – all built according to customer requirements
- > LED and SIMAC control unit built-in tail light
- > ADR approved cable kits with 7 pole AMP 1.5 and Super Seal plugs
- > Unbeatable, impact resistant and long life solutions



PLUGS & SOCKETS - UNIVERSAL

SURFACE / PANEL MOUNTED



ISO 4165 - 2 poled



Pos 1



Pos 2

Functions									
ISO Norm	Mounting	Plug type	Poled	Material	Connection	Con- sumption	Hole distance	Pos	Article No.
4165	Surface	Socket	2	Plastic	Screw terminals	12 A	45 mm - Ø4,3 mm	1	090 122 205
4165	Surface	Socket	2	Plastic	Screw terminals	12 A		2	090 122 210

ISO 4165 - 2 poled



Pos 1



Pos 2



Pos 3



Pos 4

Panel mounted socket with black hinged cover.
Housing and nut made of brass

Functions									
ISO Norm	Mounting	Plug type	Poled	Connection	Operation voltage	Consumption	Pos	Article No.	
4165	Panel	Socket	2	Flat pin terminal	12V	8 A	1	090 122 237	

Spare parts

Black hinged cover	2	090 122 240
Nato olive hinged cover	3	090 122 242
Nut M18 x 1	4	090 122 249

ISO 4165 - 1 or 2 poled



Pos 1



Pos 2



Pos 3



Pos 4



Pos 5



Pos 6



Pos 7

Functions

ISO Norm	Mounting	Plug type	Poled	Connection	Operation voltage	Consumption	Pos	Article No.
4165	Panel	Socket	1	Flat pin terminal	12V	8 A	1	090 122 224
4165	Panel	Socket	2	Flat pin terminal	12V	8 A	2	090 122 226
4165	Panel	Socket	1	Flat pin terminal Mounting for beacons	12V	8 A	3	098 295 651
4165	Panel	Socket	2	Flat pin terminal Mounting for beacons	12V	8 A	4	098 295 650

Spare parts

Black hinged cover	5	090 122 240
Nato olive hinged cover	6	090 122 242
Hexagon Nut M18 x 1	7	090 122 249

ISO 4165 - 2 poled



Functions											
ISO Norm	Plug type	Poled	Material	Connection	Operation voltage	Consumption	Strain relief	Angle plug	Universal plug	Pos	Article No.
4165	Plug	2	Plastic	Screw terminals	12/24V	12 A	✓			1	090 126 614
4165	Plug	2	Plastic	Screw terminals	12V	8 A		✓		2	090 126 615
4165	Plug	2	Plastic	Adapter and Screw terminals	12/24V	8 A			✓	3	090 126 633

ISO 4165 - Coupling /Adapter



Functions										
ISO Norm	Type	Mounting	Material	Fit for	Inner Ø	Operation voltage	Consumption	Pos	Article No.	
4165	Coupling	Plug	Plastic	DIN ISO 4165	Ø 18,5 mm	12/24V	16 A	1	990 126 697	
4165	Adapter	Plug	Plastic	From ISO 4165 to cigarette lighter plugs	Ø 21 mm	12/24V	16 A	2	090 126 650	



PLUGS & SOCKETS

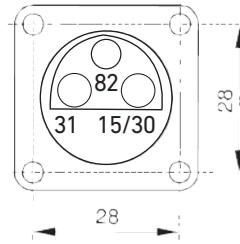
3 & 4 POLED



DIN 9680 - 3 poled



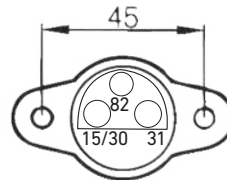
Pos 1



Pos 1



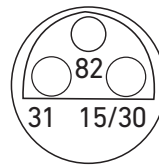
Pos 2



Pos 2



Pos 3



Pos 3

Functions

ISO Norm	Plugtype	Poled	Material	Connection	Operation voltage	Consumption	Pos	Article No.
9680	Socket	3	Plastic	Flat pin terminal	12/24V	2x25; 1x5 A	1	090 133 305
9680	Socket	3	Plastic	Flat pin terminal	12/24V	2x25; 1x5 A	2	090 133 307
9680	Plug	3	Plastic	Flat pin terminal	12/24V	2x25; 1x5 A	3	090 133 316



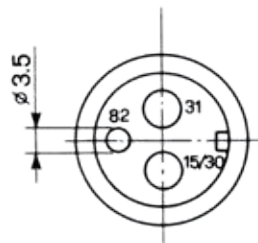
Pos 1



Pos 2



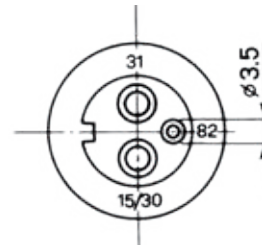
Pos 3



Pos 3



Pos 4



Pos 4

Plug type	Poled	Material	Connection	Operation voltage	Consumption	Pos	Article No.
Socket	3	Plastic	Screw terminals	12/24V	20 A	1	090 133 301
Plug	3	Plastic	Screw terminals	12/24V	16 A	2	090 133 312
Socket	3	Plastic	Flat pin terminals	12/24V	2x25A; 1x5A	3	090 133 303
Plug	3	Plastic	Screw terminals	12/24V	2x25A; 1x5A	4	090 133 314
							990 927 100

DIN 14690 - 3 poled



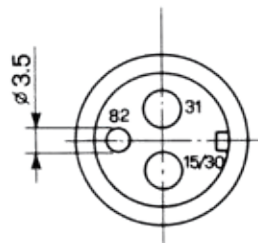
Pos 1



Pos 2



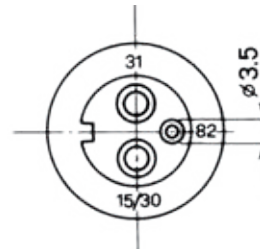
Pos 3



Pos 3



Pos 4



Pos 4

Functions

ISO Norm	Plug type	Poled	Material	Connection	Operation voltage	Consumption	Pos	Article No.
DIN 14690	Socket	3	Plastic	Screw terminals	12/24V	20 A	1	090 133 301
DIN 14690	Plug	3	Plastic	Screw terminals	12/24V	16 A	2	090 133 312
DIN 14690	Socket	3	Plastic	Flat pin terminals	12/24V	2x25A; 1x5A	3	090 133 303
DIN 14690	Plug	3	Plastic	Screw terminals	12/24V	2x25A; 1x5A	4	090 133 314

Spare parts

Flat flange gasket for socket

990 927 100

DIN 72 575 A4 - 4 poled



Pos 1



Pos 2

Functions								
ISO Norm	Plug type	Poles	Material	Connection	Operation voltage	Consumption	Pos	Article No.
DIN 72 575 A4	Socket	4	Plastic	Screw terminals	12V	20 A	1	090 144 404
DIN 72 575 A4	Plug	4	Plastic	Screw terminals	12V	20 A	2	090 144 418



PLUGS & SOCKETS

7 POLED



ISO 1724 - 7 poled



Pos 1



Pos 2



Pos 3



Pos 4

Functions

ISO Norm	Plug type	Poles	Material	Connection	Operation voltage	Consumption	Fog light switch	Pos	Article No.
1724	Socket	7	Metal	Screw terminals	12V	20 A		1	090 147 311
1724	Plug	7	Metal	Screw terminals	12V	20 A		2	090 147 712
1724	Socket	7	Plastic	Screw terminals	12V	20 A		3	090 147 317
1724	Socket	7	Plastic	Screw terminals	12V	20 A	✓	4	090 147 616

Spare parts

Flat flange gasket for socket 090 147 311/317	090 147 912
Flat flange gasket for socket 090 147 311	090 147 913
Flat flange gasket for socket 090 147 317	090 147 921
Flat flange gasket for socket 090 147 311/616	090 147 920
Mounting angle for socket	090 147 939

ISO 1724 - 7 poled



Pos 1



Pos 2



Pos 3



Pos 4



Pos 5



Pos 6

Functions

ISO Norm	Plug type	Poled	Material	Connection	Operation voltage	Consumption	Rubber cap	Pos	Article No.
1724	Socket	7	Plastic	Screw terminals	12V	20A		1	090 147 328
1724	Socket	7	Plastic	Flat pin terminal	12V	20A		2	090 147 329
1724	Socket	7	Plastic	Screw terminals	12V	20A		3	090 147 335
1724	Plug	7	Plastic	Screw terminals	12V	20A	✓	4	090 147 727
1724	Plug	7	Plastic	Screw terminals	12V	20A		5	090 147 716*
1724	Plug	7	Plastic	Screw terminals	12V	20A	✓	6	090 147 717

Spare parts

Flat flange gasket for socket 090 147 328/329	090 147 912
Mounting angle for socket	090 147 939
Holder for plug suitable for 090 147 727	090 147 935
* 090 147 716 – With cable gland + extra rubber sealing for use of 1 or 2 cables	

ISO 1724 - 7 poled

Socket with suspension device and extra gasket 8-10 mm

Functions							
ISO Norm	Plug type	Poled	Material	Connection	Operation voltage	Consumption	Article No.
1724	Socket	7	Plastic	Screw terminals	12V	20 A	090 147 808

ISO 1185 - 7 poled



Pos 1



Pos 2



Pos 3



Pos 4



Pos 5

Functions

ISO Norm	Plugtype	Poled	Material	Connection	Operation voltage	Consumption	Pos	Article No.
1185	Plug	7	Aluminium	Screw terminals	24V	20 A	1	090 257 715
1185	Plug	7	Aluminium	Flat pin terminal	24V	20 A	2	090 257 716
1185	Socket	7	Plastic	Flat pin terminals and rubber sleeve	24V	20 A	3	090 157 125
1185	Socket	7	Plastic	Double pin terminals and rubber sleeve	24V	20 A	4	090 157 127
1185	Socket	7	Plastic	Screw terminals	24V	20 A	5	090 157 120

Spare parts

Rubber Sleeve	090 157 913
Rubber Sleeve 90°	090 157 918
Mounting angle for socket	090 157 938

ISO 1185 - 7 poled



Pos 1



Pos 2



Pos 3

Functions								
ISO Norm	Plug type	Poled	Material	Connection	Operation voltage	Consumption	Pos	Article No.
1185	Socket	7	Aluminium	Screw terminals	24V	20 A	1	090 157 112
1185	Socket	7	Aluminium	Single flat pin terminal	24V	20 A	2	090 157 113
1185	Socket	7	Aluminium	5 double + 2 triple flat pin terminals	24V	20 A	3	090 257 134

Spare parts

Rubber sleeve	090 157 913
Grommet for sockets	090 157 916
Rubber sleeve 90°	090 157 918
Mounting angle for socket	090 157 938

ISO 1185 - 7 poled



Pos 1



Pos 2

Functions								
ISO Norm	Plug type	Poled	Material	Connection	Operation voltage	Consumption	Pos	Article No.
1185	Plug	7	Plastic	Screw terminals	24V	20 A	1	090 157 721
1185	Plug	7	Plastic	Flat terminals	24V	20 A	2	090 257 721

ISO 1185 - 7 poled



Socket with lamellar cap swivelling.
Reinforced mounting flange with metal bushing

Functions										
ISO Norm	Plugtype	Poled	IP Rating	Material	Connection	Operation voltage	Water-proof	Con-sumption	Article No.	
1185	Socket	7	IP69K	Highquality glass-fiber reinforced plastic	Double pin terminals	24V	✓	20 A	090 157 129	

Spare parts

Mounting angle for socket	090 157 938
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ISO 3731 - 7 poled



Pos 1



Pos 2

Functions									
ISO Norm	Plug type	Poled	Material	Connection	Operation voltage	Consumption	Pos	Article No.	
3731	Socket, contact 31 with contact sleeve	7	Alu	Screw terminals	24V	20 A	1	090 157 117	
3731	Socket, contact 31 with contact sleeve	7	Alu	Flat pin terminals	24V	20 A	1	090 257 118	
3731	Plug, contact 31 with contact pin	7	Alu	Screw terminals	24V	20 A	2	090 257 718	
3731	Plug, contact 31 with contact pin	7	Alu	Flat pin terminals	24V	20 A	2	090 257 719	

Spare parts

Rubber Sleeve	090 157 913
Grommet for socket	090 157 916
Rubber Sleeve 90°	090 157 918
Mounting angle for socket	090 157 938

ISO 3731 - 7 poled



Functions							
ISO Norm	Plugtype	Poled	Material	Connection	Operation voltage	Consumption	Article No.
3731	Socket, contact 31 with contact sleeve	7	Plastic	Screw terminals	24V	20 A	090 157 123

Spare parts		Article No.
Rubber Sleeve		090 157 913
Rubber Sleeve 90°		090 157 918
Mounting angle for socket		090 157 938

ISO 3731 - 7 poled



Socket with lamellar cap swivelling.
Reinforced mounting flange with metal bushing

Functions								
ISO Norm	Plugtype	Poled	Material	Connection	Operation voltage	Consumption	Pos	Article No.
3731	Socket	7	Highquality glass-fiber reinforced plastic	Double pin terminals	24V	20 A	1	090 157 128
3731 DIN 72 579	Plug, contact 31 with contact pin	7	Plastic	Screw terminals	24V	20 A	2	090 157 725
3731	Plug	7	Plastic	Flat terminals	24V	20 A	3	090 257 725

Spare parts		Article No.
Mounting angle for socket		090 157 938

ISO 3732 - 7 poled



Pos 1



Pos 2

Functions								
ISO Norm	Plug type	Poled	Material	Connection	Operation voltage	Consumption	Pos	Article No.
3732	Socket, contact 58 with contact sleeve	7	Black plastic with white cover	Screw terminals	12V	20 A	1	090 147 353
3732	Plug, contact 58 with contact pin	7	Black plastic with white snap insert	Screw terminals	12V	20 A	2	090 147 751

Spare parts

Flat flange gasket for socket	090 147 912
Mounting angle for socket	090 147 939



PLUGS & SOCKETS

13 & 15 POLED

VBG 14 & 17 POLED



ISO 11446 - 13 poled



Pos 1



Pos 2

Functions							
ISO Norm	Plug type	Poled	Material	Connection	Operation voltage	Consumption	Article No.
11446	Plug	13	Plastic	Screw terminals Bayonet joint	12V	20 A	090 163 602
11446	Plug	13	Plastic	Screw terminals	12V	20 A	090 163 604

ISO 11446 - 13 poled



Pos 1



Pos 2

Functions								
ISO Norm	Plug type	Poled	Material	Connection	Operation voltage	Consumption	Pos	Article No.
11446	Socket	13	Plastic	Screw terminals & Bajonet	12V	20 A	1	090 163 402
11446	Socket	13	Plastic	Screw terminals	12V	20 A	2	090 163 410 *)

Spare parts

Flat flange gasket for: 090 163 402/411 **090 163 922**

*) 090 163 410 - Switch off contact for rear fog lamp at motor vehicle

ISO4091 - 13 poled



Pos 1



Pos 2

ADR socket and plug with silverplated contact pins - suitable for tank vehicles

Functions										
ISO Norm	Plug type	Poled	Material	Connection	Contact pjns	Conductor cross section	Operation voltage	Con- sumption	Pos	Article No.
4091	Plug	13	Plastic	Crimp terminal	Silverplated	1x2,5 mm ² + 12x1,0 - 1,5 mm ²	24V	20A	1	090 264 513
4091	Socket	13	Plastic	Ccrimp terminal	Silverplated	1x2,5 mm ² + 12x1,0 - 1,5 mm ²	24V	20 A	2	090 264 311

Spare parts

Mounting angle, zinc-plated steel	090 198 918
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ABS / EBS Parking socket 12/24V



Parking socket

Functions				
ISO Norm	Plugtype	Material	ADR	Article No.
12098/7638-1/7638-2	Parking socket	Plastic	for ADR plug	090 190 008

ISO 12098 - 15 poled



Pos 1



Pos 2



Pos 3

ADR sockets with contact pins

Functions								
ISO Norm	Plugtype	Poled	Material	Connection	Conductor cross section	Operation voltage	Pos	Article No.
12098	Socket, with contact pins	15	Plastic	Crimp terminals	3x2,5 mm ² + 12x1,0 - 1,5 mm ²	24V	1	090 265 404
12098	Socket, with contact pins	15	Plastic	Angled cable outlet	3x2,5 mm ² + 12x1,0 - 1,5 mm ²	24V	2	090 265 405
12098	Socket, with contact pins	15	Plastic	Screw terminals		24V	3	090 265 407

ISO 12098 - 15 poled



Pos 1 and 2

ADR plug with contact bushings

Functions								
ISO Norm	Plugtype	Poled	Material	Connection	Conductor cross section	Operation voltage	Pos	Article No.
12098	Plug with contact bushings	15	Plastic	Crimp terminals	3x2,5mm ² + 12x1,0-1,5mm ²	24V	1	090 265 606
12098	Plug with contact bushings	15	Plastic	Screw terminals		24V	2	090 265 608

VBG connectors - 14 & 17 poled



Pos 1



Pos 2



Pos 3



Pos 4



Pos 5

MAX 25 A

Functions							
SAL	Plug Type	Poled	Material	Cable gland	Crimp contact pins	Pos	Article No.
	Plug	14	Plastic	for cable Ø10,5-17,0 mm	Pin 1 & 2- 9,5 mm 25A Single pin - 6,5 „, 15A Doppel pin - 6,5 mm 15A	1	090 166 360
	Socket	14	Plastic	for cable Ø10,5-17,0 mm	Pin 1 & 2- 9,5 mm 25A Single pin - 6,5 „, 15A Doppel pin - 6,5 mm 15A	2	090 166 290
✓	Plug	14	Plastic	for cable Ø10,5-17,0 mm	Pin 1 & 2- 9,5 mm 25A Single pin - 6,5 „, 15A Doppel pin - 6,5 mm 15A	3	090 166 361
	Plug	17	Plastic	for cable Ø10,5-17,0 mm	Pin 1 & 2- 9,5 mm 25A Single pin - 6,5 „, 15A Doppel pin - 6,5 mm 15A	4	090 166 362
	Socket	17	Plastic	for cable Ø10,5-17,0 mm	Pin 1 & 2- 9,5 mm 25A Single pin - 6,5 „, 15A Doppel pin - 6,5 mm 15A	5	090 166 292



PLUGS & SOCKETS

ABS / EBS



ISO 7638 - ABS/EBS 5/7 poled



Pos 1



Pos 2

EBS socket with contact pins
 OBS: can be used for 5- and 7 pins installations

Functions									
ISO Norm	Plug type	Poled	Material	Connection	Coding disc with colour designation	Conductor cross section	Operation voltage	Pos	Article No.
7638	ABS/EBS socket	5/7	Plastic	Crimp terminals	✓	5x1,5mm ² + 2x4,0 mm ² + 2x6,0 mm ²	24V	1	090 290 075
7638	ABS/EBS socket	5/7	Plastic	Screw terminals	✓		24V	2	090 290 077

Spare parts

Contact pin for socket, nickel-plated 1,0 - 1,5 mm ² - Male	090 190 181
Contact pin for socket, nickel-plated 2,5 mm ² - Male	090 190 182
Contact pin for socket, nickel-plated 4,0 mm ² - Male	090 190 184
Contact pin for socket, nickel-plated 6,0 mm ² - Male	090 190 186

ISO 7638 - ABS/EBS 5/7 poled



Pos 1



Pos 2

EBS plug with contact bushings

OBS: can be used for 5- and 7 pins installations

Functions

ISO Norm	Plug type	Poled	Material	Connection	Coding disc with colour designation	Conductor cross section	Operation voltage	Pos	Article No.
7638	ABS/EBS plug	5/7	Plastic	Crimp terminals	✓	5x1,5mm ² + 2x4,0 mm ² + 2x6,0 mm ²	24V	1	090 290 071
7638	ABS/EBS plug	5/7	Plastic	Screw terminals	✓		24V	2	090 290 073

Spare parts

Contact bushings for plugs, tin-plated 1,0 - 1,5 mm ²	090 190 191
Contact bushings for plugs, tin-plated 2,5 mm ²	090 190 192
Contact bushings for plugs, tin-plated 4,0 mm ²	090 190 194
Contact bushings for plugs, tin-plated 6,0 mm ²	090 190 196

Battery socket/plug, EURO



Pos 1



Pos 2

EURO battery socket/plug

Functions							
Plugtype	IP Rating	Poled	Max. load	For Electro vehicles, forklifts	Contacts copper silver plated	Pos	Article No.
Battery socket	IP23	2	150V DC/ 160A	✓	✓	1	090 198 020
Battery plug	IP23	2	150V DC/ 160A	✓	✓	2	090 198 021

Spare parts

2 x contact pins for: 090 198 020		090 198 026
2 x contact bushings for: 090 198 021		090 198 027
Handle for: 090 198 021		090 198 025

Battery plug



Pos 1



Pos 2



Pos 3



Pos 4

Silver plated copper contacts for soldering. *Only connectors of same type and colour will interconnect.*

Functions								Article No.
Colour	Plug type	Poled	Conductor cross section	Max V/A	B x L	Pos		
Grey	Plug	2	6-16mm ²	600V / 50A	35x47mm	1		090 198 050
Red	Plug	2	6-16mm ²	600V / 50A	35x47mm	2		090 198 051
Black	Plug	2	6-16mm ²	600V / 50A	35x47mm	3		090 198 052
Grey	Plug	2	25-50mm ²	600V / 175A	50x78mm	1		090 198 060
Red	Plug	2	25-50mm ²	600V / 175A	50x78mm	2		090 198 061
Grey	Plug	2	50-70mm ²	600V / 350A	70x107mm	1		090 198 070
Red	Plug	2	50-70mm ²	600V / 350A	70x107mm	2		090 198 071

Spare parts

Handle	4	090 198 079
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PLUGS & SOCKETS

NATO

VG 96 917
VDA 72 593 A - Nato Socket, Olive



Pos 1



Pos 2

Nato socket with screw cover, olive

Functions									
Plugtype	Material	Poled	Connection	Switching current	Switching current short term operation (10sec.)	Suitable for cable up to:	Operation voltage	Pos	Article No.
Socket with screw cover	Metal - Nato olive	2	Solder terminals	200A	500A	50mm ²	24V	1	090 197 202
Socket with screw cover	Metal - Nato olive	2	Solder terminals	200A	500A	35/50mm ²	24V	2	090 197 204

Spare parts

Contact bush for 35mm ²	090 197 253
Contact bush for 50mm ²	090 197 255
Contact bush for 35/50mm ²	090 197 257
Complete cover cap	090 197 291
Mounting angle	090 197 395

VG 96 917
VDA 72 593 A - Nato socket Yellow



Nato socket with yellow rubber cover

Functions								
Plug type	Material	Poled	Connection	Switching current	Switching current short term operation (10 sec.)	Suitable for cable up to:	Operation voltage	Article No.
Socket with rubber cover	Metal	2	Solder terminals	200A	500A	50mm ²	24V	090 197 224

Spare parts

Contact bush for 50 mm ²	090 197 255
Rubber cover	090 197 294

Nato plug - 2 poled



Nato plug, olive - strain relief for cable

Functions								
Plug type	Material	Poled	Connection	Switching current	Switching current short term operation (10sec.)	Suitable for cable up to:	Operation voltage	Article No.
Plug	Metal	2	Solder terminals	160A	400A	035 mm ²	24V	090 197 302

Spare parts

Contact pin	090 197 356
Distance plate	090 197 359

VG 96 917 - Nato plug



Nato plug with union nut, olive- strain relief for cable

Functions										
Plug type	Poles	Material	Connection	Switching current	Switching current short term operation (10sec.)	Suitable for cable up to:	Strain relief for cable	Voltage	Pos	Article No.
Plug	2	Metal	Solder terminals	135 A	245 A	35 mm ²		24V	1	090 197 305
Plug	2	Metal	Solder terminals	160 A	400 A	35 mm ²	✓	24V	2	090 197 306
Plug	2	Rubber-ized/Metal	Solder terminals	135 A	245 A	35 mm ²		24V	3	090 197 308

Spare parts

Union nut	090 197 398
-----------	--------------------

VG 96 917 C 001
VDA 72 594 C



Functions			
Plug type	Material	Suitable for plug:	Article No.
Coupling	Rubber	090 197 302	090 197 362

VG 96 917 - Nato socket



Nato socket, black with rubber cover
Contacts Silvered

Functions						
Plug type	Material	Poled	Connection	Suitable For cable up to:	Operation voltage	Article No.
Socket, black with rubber cover	Plastic	2	Crimping or soldering	35/50mm ²	24V	090 197 226

B VDA 72 594 - 2 poled



Nato socket 70mm², olive/black

Functions								
Plug type	Poled	Material	Connection	Switching current	Switching current short term operation (10sec.)	Suitable for cable up to:	Operation voltage	Article No.
Socket	2	Metal	Crimp / Solder terminals	250 A	2.500 A	70 mm ²	6-24V	090 197 222

C VDA 72 594 - 2 poled



Nato plug 70 mm², black - Strain relief for cable

Functions								
Plug type	Poled	Material	Connection	Switching current	Switching current short term operation (10sec.)	Suitable for cable up to:	Operation voltage	Article No.
Plug	2	Rubber	Solder terminals	250A	2.500 A	70 mm ²	24V	090 197 322

VG 96 923 - 12 poled



Nato socket, olive

Functions									
Plug type	IP Rating	Poled	Material	Connection	Contacts silvered	Operation voltage	Suitable for socket with article No.	Pos	Article No.
Socket		12	Metal	Solder terminals	✓	12/24V	--	1	090 197 012
Cover cap	IP68 A to DIN 40 050	--	Metal	--	--	12/24V	090 197 012	2	090 197 094

VG 96 923 - 12 poled



Nato plug, olive/black - flexible hinge cover
Mounted stop device and strain relief clamp

Functions									
Plug type	Poled	Material	Connection	Contact pins Ø	Switching current	Operation voltage	Suitable for socket with Article No	Article No.	
Plug	12	Rubber	Solder terminals	Ø 17,5 mm	15 A	12/24V	090 197 012	090 197 112	



COIL CABLES WITH PLUGS

2 & 5 POLED



VG 96 917, 2 poled



Pos 1



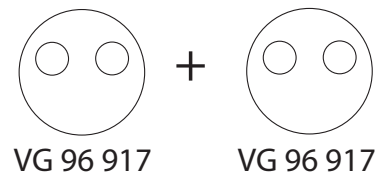
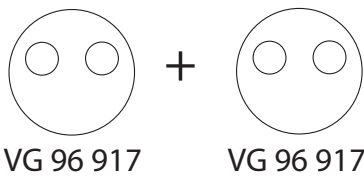
Pos 2



Pos 3



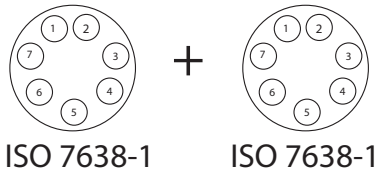
Pos 4



Coil cable with 2 pole rubberized plug with union nut
 Cold, warm and weather resistant
 Resistant to oil and chemicals

Functions										
Approval	Plug type	Po- led	Material cable	Working length	Coil Ø	Conductor cross section	Operation voltage	2 plugs with article No.	Pos	Article No.
VG 96 917 E001	Plug Black	2	Polyurethan	3500 mm	Ø65 mm	2 x 35 mm ²	24V	090 197 308	1	090 197 841
VG 96 917 E001	Plug Black	2	Polyurethan	4.000 mm	Ø65 mm	2 x 35 mm ²	24V	090 197 308	2	090 197 842
VG 96 917 E001	Nato plug Green	2	Polyurethan	4.000 mm	Ø65 mm	2 x 35 mm ²	24V	090 197 305	3	090 197 844
VG 96 917	Nato plug without cap nut	2	Polyurethan	4.000 mm	Ø65 mm	2 x 35 mm ²	24V	090 197 302	4	090 197 850

ISO 7638 -1, 5 poled



ABS coil cable with plugs

Functions									
ISO Norm	Plugtype	Poled	Material cable	Working length	Coil Ø	Conductor cross section	Operation voltage	2 plugs with article No.	Article No.
7638-1	Plug	5	Polyurethan	4.000 mm	Ø 22 mm	2x4,0 + 3x1,5 mm ²	24V	090 190 001	090 195 440



COIL CABLES WITH PLUGS

7 POLED



ISO 1185 N-type (24V)



Coil cable with connectors 24V N-Type

Functions									
ISO Norm	Plugtype	Poled	Material Cable	Working length	Coils	Conductor cross section	Operation voltage	Pos	Article No.
1185	Plug Alu	7	Polyurethan	3.500 mm	Ø19 mm	6x1 mm ² + 1x1,5 mm ²	24V	1	090 183 374
1185	Plug Alu	7	Polyurethan	4.500 mm	Ø19 mm	6x1 mm ² + 1x1,5 mm ²	24V	1	090 183 375
1185	Plug, moulded plastic	7	Polyurethan	3.500 mm	Ø19 mm	6x1 mm ² + 1x1,5 mm ²	24V	2	090 182 374
1185	Plug moulded plastic	7	Polyurethan	4.000 mm	Ø19 mm	6x1 mm ² + 1x1,5 mm ²	24V	2	090 182 376
1185	Plug moulded plastic	7	Polyurethan	4.500 mm	Ø19 mm	6x1 mm ² + 1x1,5 mm ²	24V	2	090 182 378

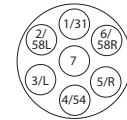
ISO 1185 (24V)



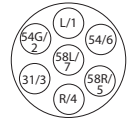
Coil cable with moulded plastic connectors

Functions									
ISO Norm	Plugtype	Poled	Material Cable	Working length	Coil Ø	Conductor cross section	Operation voltage	Pos	Article No.
1185	Plug	7	Polyurethan	4.000 mm	Ø 19 mm	6x1 mm ² + 1x1,5 mm ²	24V	1	090 182 372

ISO 1185 + ISO 1724



+



ISO 1185

ISO 1724

Coil cable with plastic connectors

Functions									
ISO Norm	Plugtype	Poled	Material Cable	Working length	Coil Ø	Conductor cross section	Operation voltage	Article No.	
1185+1724	Plug plastic	7	Polyurethan	4.000 mm	Ø 19 mm	6x1mm ² + 1x1,5mm ²	12/24V	090 182 370	

ISO 1724 (12V)



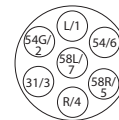
Pos 1



Pos 2

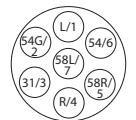


Pos 3



ISO 1724

+

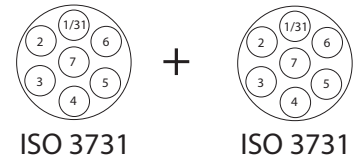


ISO 1724

Coil cable with moulded plastic connectors

Functions										
ISO Norm	Plugtype	Poled	Material Cable	Working length	Coil Ø	Conductor cross section	Operation voltage	Pos	Article No.	
1724	Plug	7	Polyurethan	1.500 mm	Ø 35 mm	6x1mm ² + 1x1,5mm ²	12V	1	090 180 165	
1724	Plug	7	Polyurethan	3500 mm	Ø 35 mm	6x1mm ² + 1x1,5mm ²	12V	2	090 182 365	
1724	Plug Alu	7	Polyurethan	4.000 mm	Ø 19 mm	6x1mm ² + 1x1,5mm ²	12V	3	090 183 312	

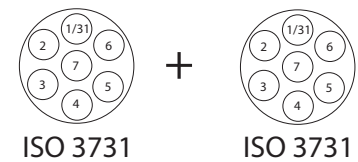
ISO 3731 - S-Type (24V)



Coil cable with aluminium connectors S-Type

Functions								
ISO Norm	Plugtype	Poled	Material Cable	Working length	Coil Ø	Conductor cross section	Operation voltage	Article No.
3731	Plug	7	Polyurethan	3.500 mm	Ø 40 mm	6x1,0 mm ² + 1x1,5mm ²	24V	090 183 377

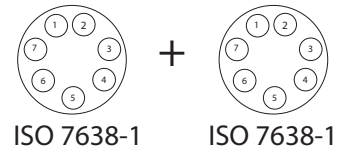
ISO 3731 - S-Type (24V)



Coil cable with yellow moulded plastic connectors S-Type
Cold, heat and weather protected. Resistant to oil and chemicals

Functions								
ISO Norm	Plugtype	Poled	Material Cable	Working length	Coil Ø	Conductor cross section	Operation voltage	Article No.
3731	Plug, moulded plastic	7	Polyurethan	3.500 mm	Ø 19 mm	6x1,0mm ² + 1x1,5mm ²	24V	090 183 379
3731	Plug, moulded plastic	7	Polyurethan	4.000 mm	Ø 19 mm	6x1,0mm ² + 1x1,5mm ²	24V	090 183 380

ISO 7638 -1 - EBS (24V)



EBS coil cable with socket

Functions									
ISO Norm	Plugtype	Poled	Material Cable	Working length	Coil Ø	Conductor cross section	Operation voltage	2 socket with article No.	Article No.
7638-1	Socket	7	Polyurethan	3500 mm	Ø 22 mm	2x1,5+2x4,0+3x1,5 mm ²	24V	090 190 071	090 195 835
7638-1	Socket	7	Polyurethan	4.000 mm	Ø 22 mm	2x1,5+2x4,0+3x1,5 mm ²	24V	090 190 071	090 195 840



COIL CABLES WITH PLUGS

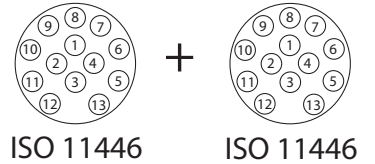
13 & 15 poled



ISO 11446 - 13 poled (12V)

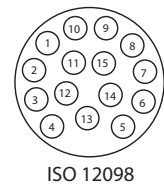


Coil cable with plastic connectors



Functions								
ISO Norm	Plug type	Poled	Material Cable	Working length	Coil Ø	Conductor cross section	Operation voltage	Article No.
11446	Plug	13	Polyurethan	3500 mm	Ø 60 mm	10x1,5mm ² + 3x2,5mm ²	12V	090 163 702

ISO 12098 / 4141 - 15 poled (24V)



Functions								
ISO	Plugtype	Poled	Material Cable	Working length	Coils Ø	Conductor cross section	Operation voltage	Article No.
12098	Socket	15	Polyurethan	4.000 mm	Ø 66 mm	12x1,5kv+3x2,5 mm ²	24V	090 165 813



COIL CABLES WITHOUT PLUGS



Coil cables without plugs



Functions								
Colour		Conductor cross section	Working length	Outer-Coil Ø	L1 (un-coiled length - the ends of the cable)	L2 (un-coiled length - the ends of the cable)	Material	Article No.
Black		2 x 0,75 mm ²	3.000 mm	Ø25	145 mm	145 mm	Polyurethan	090 179 207
Black		3 x 0,75 mm ²	3.000 mm	Ø25	220 mm	220 mm	Polyurethan	090 179 307
Black		4 x 0,75 mm ²	3.000 mm	Ø25	200 mm	2.000 mm	Polyurethan	090 179 407
Black		5 x 0,75 mm ²	3.500 mm	Ø25	2.000 mm	200 mm	Polyurethan	090 179 507
Black		2 x 1,0 mm ²	4.000 mm	Ø25	130 mm	130 mm	Polyurethan	090 179 212
Black		2 x 1,5 mm ²	3.000 mm	Ø25	130 mm	130 mm	Polyurethan	090 179 215
Amber		2 x 1,5 mm ²	3.000 mm	Ø35	130 mm	130 mm	Polyurethan	090 179 216
Black		5 x 1,5mm ²	3.500 mm	Ø40	2.000 mm	200 mm	Polyurethan	090 179 516
Black		7 x 1,5 mm ²	4.000 mm	Ø95	200 mm	200 mm	Polyurethan	090 180 400
Black/Red		2 x 6 mm ²	3.000 mm	Ø50	220 mm	220 mm	Polyurethan	090 179 260
Black		4 x 6,0 mm ²	4.000 mm	Ø60	300 mm	300 mm	Polyurethan	090 179 460
Black		6 x 0,75 + 1 x 1 mm ²	5.500 mm	Ø90	180 mm	180 mm	Polyurethan	090 180 775
Black		7 x 0,75 + 1 x 1,5 mm ²	5.500 mm	Ø40	500 mm	500 mm	Polyurethan	090 179 807
Black		6 x 1 + 1 x 2,5 mm ²	4.500 mm	Ø40	300 mm	300 mm	Polyurethan	090 182 452
Black		6 x 1,0 + 1 x 2,0 mm ²	3.500 mm	Ø40	180 mm	180 mm	Polyurethan	090 182 350
Black		6 x 1 + 1 x 2 mm ²	4.000 mm	Ø40	180 mm	180 mm	Polyurethan	090 182 400
Black		8 x 1+1 x 2 mm ²	3.500 mm	Ø48	1.500 mm	210 mm	Polyurethan	090 179 915
Black		10 x 1,5 + 3 x 2,5 mm ²	3.000 mm	Ø65	230 mm	230 mm	Polyurethan	090 179 963
Black		12 x 1,5+3 x 2,5 mm ²	4.000 mm	Ø65	150 mm	150 mm	Polyurethan	090 165 806
Black		1 x 35 mm ²	4.000 mm	Ø60	200 mm	200 mm	Polyurethan	099 898 835
Red		1 x 35 mm ²	4.000 mm	Ø60	200 mm	200 mm	Polyurethan	099 898 836
Black/Red		2 x 35 mm ²	4.000 mm	Ø60	200 mm	200 mm	Polyurethan	099 898 837
Black/Red		2 x 35 mm ²	3.500 mm	Ø60	200 mm	200 mm	Polyurethan	099 898 838



ADAPTER & CONNECTION CABLES



Adapter - 15 poled to 7 poled



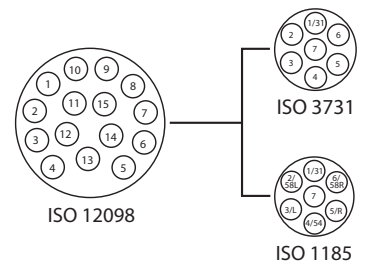
Pos 1



Pos 2



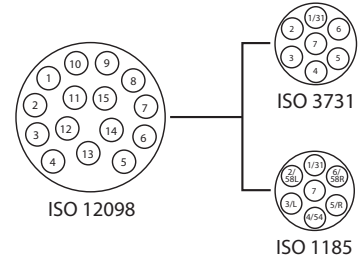
Pos 3



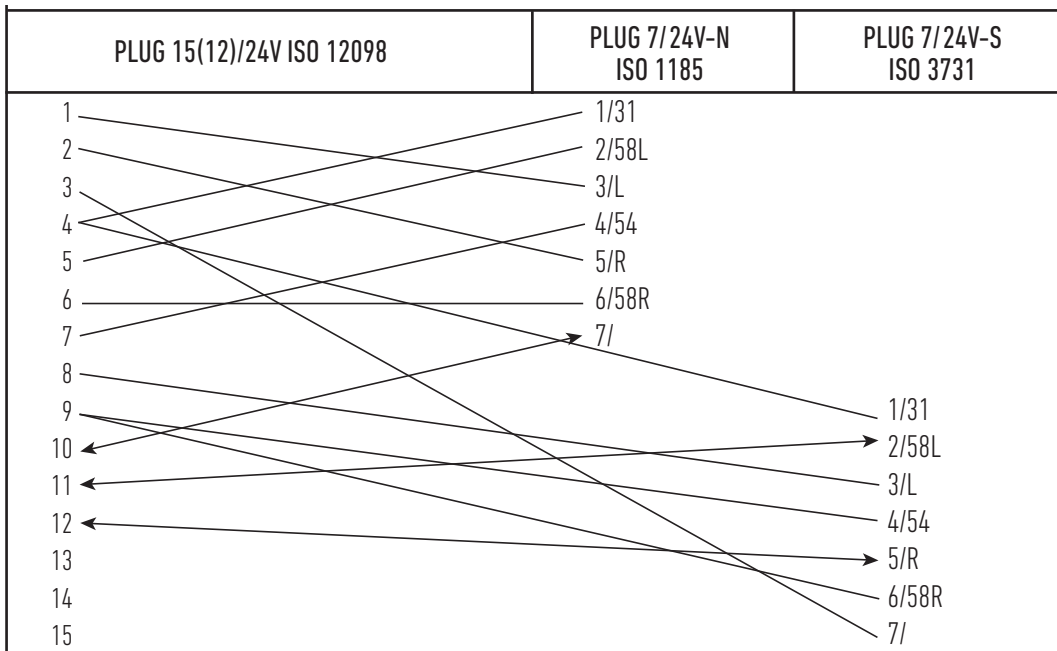
15 pole plug to 24N/ 24S 7 pole plug

Functions								
ISO Norm	Type	Poled	Material	Plug for socket	Working length	Operation voltage	Pos	Article No.
12098 - 1185/3731	Adapter	15 > 2x7 24N/24S	Plastic	7 poled 24N/24S	--	12/24V	1	090 165 840
12098 - 1185/3731	Adapter	15 > 2x7 24N/24S	Plastic	7 poled 24N/24S	--	12/24V	2	090 165 845
12098 - 1185/ 3731	Adapter	15 > 2x7 24N/24S	Polyamid	7 poled 24N/24S	2 x 50 cm	12/24V	3	090 165 850

12098 to 1185/3731 - 15 poled > 2x7 poled



Connection diagram

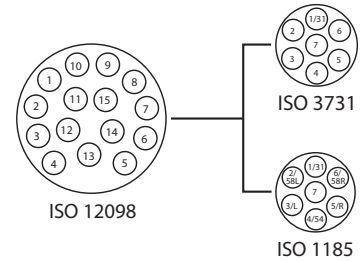


Coil cable from 15-pole socket to 24N/24S 7-pole plug
Cold, heat and weather protected. Resistant to oil and chemicals

Functions

ISO Norm	Application	Plug type	Poled	Material Cable	Working length	Coilt	Cross section conductor	Operation voltage	Article No.
12098 to 1185/3731	Mercedes	Socket overmoulded	15 > 2x7 24N/24S	Polyurethan	4.000 mm	Ø 14 mm	6x1,0 mm ² + 1x1,5 mm ²	24V	090 165 830
12098 to 1185/3731	Iveco Volvo	Socket overmoulded	15 > 2x7 24N/24S	Polyurethan	2 x 4.500 mm	Ø 19 mm	6x1,0 mm ² + 1x1,5 mm ²	24V	090 165 834

12098 to 1185/3731 Coil cable - 15 poled > 2x7 poled



Connection diagram

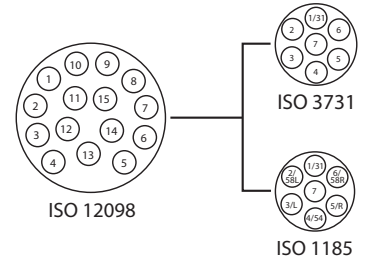
PLUG 15(12)/24V	PLUG 7/24V-N		PLUG 7/24V-S	
	Colour	Number	Colour	Number
1	White	1/31		
2	Black	2/58L		
3	Yellow	3/L		
4	Red	4/54		
5	Green	5/R		
6	Brown	6/58R		
7	Blue	7/		
8			White	1/31
9			Black	2/58L
10			Yellow	3/L
11			Red	4/54
12			Green	5/R
13			Brown	6/58R
14			Blue	7/
15				

Coil cable from 15-pole socket to 24N/ 24S 7-pole plug
Cold, heat and weather protected. Resistant to oil and chemicals

Functions

ISO Norm	Application	Plugtype	Poled	Working length	Coil	Cross section conductor	Operation voltage	Article No.
12098 to 1185/3731		Socket overmoulded	15 > 2x7 24N/24S	2 x 4.000 mm	∅ 19 mm	6x1,0 mm ² + 1x1,5 mm ²	24V	090 165 826
12098 to 1185/3731	MB Actros Scania	Socket overmoulded	15 > 2x7 24N/24S	2 x 4.500 mm	∅ 19 mm	6x1,0 mm ² + 1x1,5 mm ²	24V	090 165 836

12098 to 1185/3731 Coil cable - 15 poled > 2x7 poled



Connection diagram

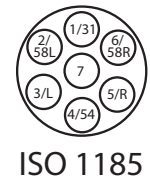
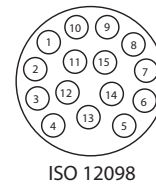
PLUG 15(12)/24V	PLUG 7/24V-N		PLUG 7/24V-S	
	Colour	Number	Colour	Number
1	White	1/31		
2	Black	2/58L		
3	Yellow	3/L		
4	Red	4/54		
5	Green	5/R		
6	Brown	6/58R		
7	Blue	7/I		
8			White	1/31
9			Black	2/58L
10			Yellow	3/L
11			Red	4/54
12			Green	5/R
13			Brown	6/58R
14			Blue	7/I
15				

Coil cable from 15-pole socket to 24N/ 24S 7-pole plug
Cold, heat and weather protected. Resistant to oil and chemicals

Functions

ISO Norm	Plugtype	Poled	Working length	Coil	Cross section conductor	Operation voltage	Article No.
12098 to 1185/3731	Alu. socket	15 > 2x7 24N/24S	4.000 mm	Ø 19 mm	6x1,0 mm ² + 1x1,5 mm ²	24V	090 165 822

12098 to 1185 Coil cable - 15 poled > 7 poled



Connection diagram

PLUG 15/24V		PLUG 7/24V-N	
1	—	1	—
2	—	2	—
3	—	3	—
4	—	4	—
5	—	5	—
6	—	6	—
7	—	7	—
8	—	8	—
9	—	9	—
10	—	10	—
11	—	11	—
12	—	12	—
13	—	13	—
14	—	14	—
15	—	15	—

Coil cable from 15-pole socket to 24N/ 24S 7-pole plug
 Cold, heat and weather protected. Resistant to oil and chemicals

Functions

ISO Norm	Plugtype	Poled	Working length	Coil	Cross section conductor	Operation voltage	Article No.
12098 to 1185	Socket overmoulded	15 > 7 24N	4.500 mm	Ø 19 mm	6x1,0 mm ² + 1x1,5 mm ²	24V	090 165 828

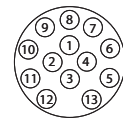
ISO 11446 > ISO 1724 - Adapter -13 >7 poled



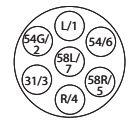
Pos 1



Pos 2



ISO 11446

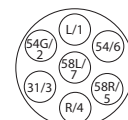


ISO 1724

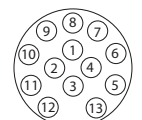
Adapter from 13-pin socket to 7-pin plug

Functions							
ISO Norm	Type	Poled	Material	Operation voltage	Consumption	Pos	Article No.
ISO 11446 > ISO 1724	Adapter	13-pin socket to 7-pin plug	Plastic	12V	20 A	1	090 163 815
ISO 11446 > ISO 1724	Adapter	13-pin socket to 7-pin plug	Plastic	12V	20 A	2	090 163 819

ISO 1724 > ISO 11446 - Adapter -7 >13 poled



ISO 1724

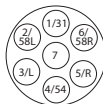


ISO 11446

Adapter from 7-pin socket to 13-pin plug

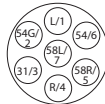
Functions							
ISO Norm	Type	Poled	Material	Operation voltage	Consumption	Pos	Article No.
ISO 1724 > ISO 11446	Adapter	7-pin socket to 13-pin plug	Plastic	12V	20 A	1	090 163 818

ISO 1185 > ISO 1724 - Adapter with converter - 24V > 12V



ISO 1185

+

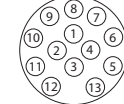


ISO 1724



ISO 1185

+



ISO 11446

Converter to supply 12V trailer from a 24V vehicle. Only for trailers with bulb light.

Working temperatur: -40 ° to +75 °

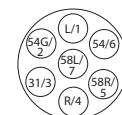
Dimension: 75 mm x 190 mm

Approval: E110R

Functions

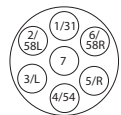
ISO Norm	Type	Poled	Material	Operation voltage	Consumption	Pos	Article No.
ISO 1185 > ISO 1724	Adapter 7 > 7 poled	Plug: 24V, 7 poled N plug ISO 1185 Socket: 12V, 7 poled ISO 1724	Plastic	12V	250W	1	090 163 842
ISO 1185 > ISO 11446	Adapter 7 > 13 poled	Plug: 24V, 7 poled N plug, ISO 1185 Socket: 12V, 7 poled ISO 11446	Plastic	12V	250W	2	090 163 843

ISO 1724 to 1185 - Coupling 7 poled



ISO 1724

+



ISO 1185

Functions

ISO Norm	Plug type	Poled	Material	Operation voltage	Consumption	Article No.
ISO 1724 to ISO 1185	For plug 12V -> socket 24V	7	Plastic	12/24V	20 A	090 147 980

ISO 1724 Connection cable - 7 poled (12V)



Plug connection for combined rear lamp units

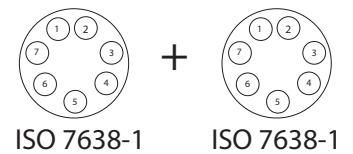


Functions						
ISO Norm	Plugtype	Poled	Cable length	Plug and clutch socket with Article No.	Operation voltage	Article No.
1724	Plug and clutch socket	7	8.500 mm	Plug 1 x 090 147 727 Clutch socket 1 x 090 147 807	12V	090 180 005

ISO 7638 - EBS connection cable - 7 poled



Double insulated. Max. 50V
Oil resistant
Operation temperature: -40° - +80°



Functions									
ISO Norm	Wire colours	Material	Conductor cross section	Cable length	Unit	Operation voltage	Pos	Article No.	
7638-1	5 x 1,5 mm ² : Yellow, brown, white, white/green, white/brown. 2 x 4 mm ² : Red, black	Polyurethan	5 x 1,5 + 2 x 4,0 mm ²	50 m	Roll	24V	1	099 897 274	
7638-1	5 x 1,5 mm ² : Yellow, brown, white, white/green, white/brown. 2 x 4 mm ² : Red, black	Polyurethan	5 x 1,5 + 2 x 4,0 mm ²	400 m	Roll	24V	2	099 897 276	

EBS connection cable - 7 poled



Pos 1



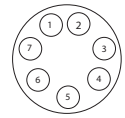
Pos 2



Pos 3



Pos 4



ISO 7638-1

EBS Connecting cables with sockets

Functions									
ISO Norm	Plugtype	Poled	Material Cable	Working length	Conductor cross section	Operation voltage	1 socket with article no.	Pos	Article No.
7638-1	Socket	7	Polyurethan	8 m	5x1,5 mm ² + 2x4,0 mm ²	24V	090 190 075	1	090 193 780
7638-1	Socket	7	Polyurethan	10 m	5x1,5 mm ² + 2x4,0 mm ²	24V	090 190 071	2	090 191 800
7638-1	Socket	7	Polyurethan	12 m	5x1,5 mm ² + 2x4,0 mm ²	24V	090 190 075	3	090 193 820
Spare parts									
Mounting angle , Zink- plated steel								4	090 198 918



AIR BRAKE TUBE & COILS



Air brake tube



Functions

ISO norm	Material	Colour	Cross section conductor	Meter	Article No.
DIN 74324/73378, ISO 7628	PA12	Black	4 x 1,00 mm ²	25 m roll	028 950 004
DIN 74324/73378, ISO 7628	PA12	Black	5 x 1,00 mm ²	25 m roll	028 950 005
DIN 74324/73378, ISO 7628	PA12	Black	6 x 1,00 mm ²	25 m roll	028 960 006
DIN 74324/73378, ISO 7628	PA12	Black	6 x 1,00 mm ²	100 m roll	028 960 066
DIN 74324/73378, ISO 7628	PA12	Black	8 x 1,00 mm ²	25 m roll	028 960 008
DIN 74324/73378, ISO 7628	PA12	Black	8 x 1,00 mm ²	100 m roll	028 960 068
DIN 74324/73378, ISO 7628	PA12	Black	10 x 1,00 mm ²	25 m roll	028 960 010
DIN 74324/73378, ISO 7628	PA12	Black	10 x 1,00 mm ²	200 m roll	028 950 020
DIN 74324/73378, ISO 7628	PA12	Black	10 x 1,25 mm ²	25 m roll	028 960 011
DIN 74324/73378, ISO 7628	PA12	Black	9 x 1,5 mm ²	25 m roll	028 950 029
DIN 74324/73378, ISO 7628	PA12	Black	10 x 1,5 mm ²	25 m roll	028 960 009
DIN 74324/73378, ISO 7628	PA12	Black	10 x 1,5 mm ²	100 m roll	028 950 060
DIN 74324/73378, ISO 7628	PA12	Black	11 x 1,5 mm ²	25 m roll	028 950 021
DIN 74324/73378, ISO 7628	PA12	Black	12 x 1,5 mm ²	25 m roll	028 960 012
DIN 74324/73378, ISO 7628	PA12	Black	12 x 1,5 mm ²	100 m roll	028 950 062
DIN 74324/73378, ISO 7628	PA12	Black	12 x 1,5 mm ²	200 m roll	028 950 072
DIN 74324/73378, ISO 7628	PA12	Black	15 x 1,5 mm ²	25 m roll	028 960 015
DIN 74324/73378, ISO 7628	PA12	Black	15 x 1,5 mm ²	100 m roll	028 960 065
DIN 74324/73378, ISO 7628	PA12	Black	15 x 2,00 mm ²	25 m roll	028 950 014
DIN 74324/73378, ISO 7628	PA12	Black	16 x 2,00 mm ²	25 m roll	028 960 016
DIN 74324/73378, ISO 7628	PA12	Black	18 x 2,00 mm ²	25 m roll	028 960 018

Air brake coil



ISO norm: DIN 74324/74323/73378 – ISO 7375

Functions

Material	Working length	Number of coils	Outer Coil Ø mm	Connection	Tube colour	Anti bend color	Article No.
PA12	4.000 mm	22	Ø 75 mm	M16x1,5 mm	Double Red/Yellow	Red/yellow	028 920 172
PA12	4.500 mm	24	Ø 75 mm	M16x1,5 mm	Yellow	Metal	028 920 173
PA12	4.500 mm	24	Ø 75 mm	M16x1,5 mm	Red	Metal	028 920 175
PA12	4.500 mm	24	Ø 75 mm	M22x1,5 mm	Red	Metal	028 920 176
PA12	4.500 mm	24	Ø 75 mm	M16x1,5 mm	Black/yellow	Yellow	028 920 177
PA12	4.500 mm	24	Ø 75 mm	M16x1,5 mm	Black/red	Red	028 920 178
PA12	4.000 mm	22	Ø 75 mm	M18 x 1,5 mm	Red	Red	028 920 082
PA12	4.000 mm	22	Ø 75 mm	M18 x 1,5 mm	Yellow	Yellow	028 920 087
PA12	4.000 mm	22	Ø 75 mm	M18 x 1,5/M16 x 1,5 mm	Black/red	Red	028 920 083
PA12	4.000 mm	22	Ø 75 mm	M18x1,5/M16x1,5 mm	Black/yellow	Yellow	028 920 088
PA12	4.000 mm	22	Ø 75 mm	M18x1,5/M16x1,5 mm	Red/Yellow	Metal	028 920 090
PA12	4.500 mm	22	Ø 75 mm	M18x1,5/M16x1,5 mm	Yellow	Yellow	028 920 089
PA12	4.500 mm	22	Ø 75 mm	M18 x 1,5/M16 x 1,5 mm	Red	Metal	028 920 081
PA12	6.500 mm	22	Ø 115 mm	M12x1,5 mm	Yellow	--	028 920 168
PA12	5.500 mm	22	Ø 115 mm	M16x1,5 mm	Yellow	Metal	028 920 161
PA12	5.500 mm	22	Ø 115 mm	M16x1,5 mm	Red	Metal	028 920 165
PA12	5.500 mm	22	Ø 115 mm	M18x1,5 mm	Black/yellow	Yellow	028 920 169
PA12	5.500 mm	22	Ø 115 mm	M18x1,5 mm	Black/yellow	Red	028 920 170
PA12	5.500 mm	22	Ø 115 mm	M22x1,5 mm	Yellow	Metal	028 920 162
PA12	5.500 mm	22	Ø 115 mm	M22x1,5 mm	Red	Metal	028 920 166
PA12	6.500 mm	27	Ø 115 mm	M22x1,5 mm	Yellow	Metal	028 920 163
PA12	6.500 mm	27	Ø 115 mm	M22x1,5 mm	Red	Metal	028 920 167
PA12	4.500 mm	24	Ø 75 mm	M22x1,5 mm	Yellow	Metal	028 920 174
PA12	1.0000 mm	22	Ø 160 mm	M22x1,5 mm	Black	Yellow	028 920 160
PA12	10.000 mm	21	Ø 115 mm	M22x1,5 mm	Red	Metal	028 920 164
PA12	6.000 mm	24	Ø 115 mm	M18x1,5 mm / M16x1,5 mm	Black	Black	028 920 171

Spare parts for air brake coil



Pos 1



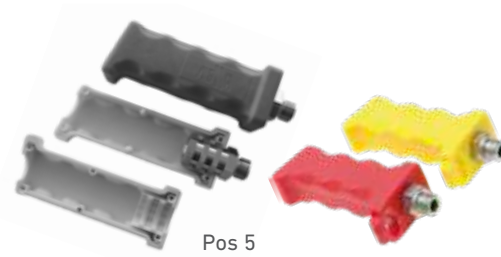
Pos 2



Pos 3



Pos 4



Pos 5

Functions				
Type	Size	Suitable for air brake coil with Article No.	Pos	Article No.
Thread connection for air brake coils	M18x1,5/M16x1,5	028920081/082/083/087/088/089/090	1	028 929 805
Thread connection for air brake coils	M18x1,5/M16x1,6	028920081/082/083/087/088/089/090	2	028 929 810
Thread connection for air brake coils	M18x1,5/M16x1,7	028920081/082/083/087/088/089/090	3	028 929 815
Thread connection for air brake coils	M18x1,5/M16x1,8	028920081/082/083/087/088/089/090	4	028 929 820
Handle for aircoils, shock-proof plastic housing - Set : 1 x Yellow, 1 x Red with M16 x 1,5 mm threading			5	028 929 801

Air gun with coiled hose



PU-coiled hose with "finger marks" for activation.
The harder pressure the more air

Functions								
Type	Dimension	Material	Working length	Fixed air gun	Adjustable pressure	1/4" threading	Pos	Article No.
Air gun with coiled hose	6 x 4 mm	PU	2 m	✓	✓	✓	1	928 999 928

Spare parts

Quick connector, 1/4" threading	2	928 999 931
Fitting, 1/4" threading	3	928 999 941
"T" connector, 1/4" threading, Ø 6mm	4	928 999 951
Fitting, 1/4" threading	5	928 999 961



JUNCTION BOXES

In the contribution boxes the brake-, position-, side marker- and out-end marker lights only are connected to a passive working electronic device. Error functions are thus not – with the present technic – shown in a trustworthy way on the dashboard. In order to ensure an outage control of the indicators being is according with the EU legislation, it is necessary to install a LED control box (please see page 89).

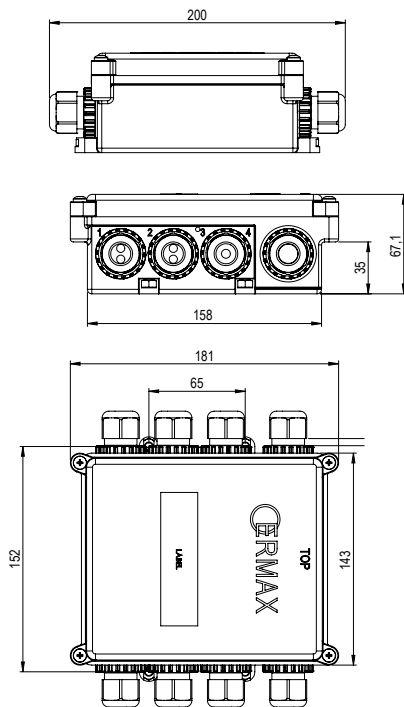


Junction box

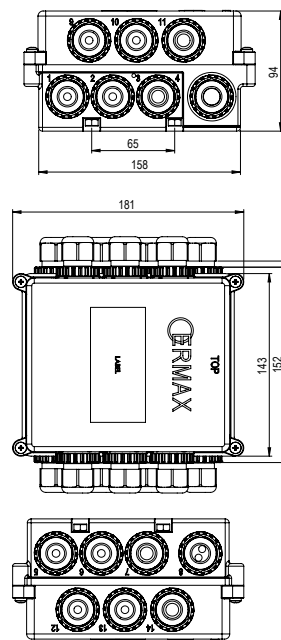
	Description	Article No.
 <p data-bbox="236 629 344 656">Low cover</p>	<p data-bbox="614 315 751 342">Junction box</p> <p data-bbox="614 371 858 398">Low cover - In/Outlets: 8 x M22x1,5 Cable glands</p> <p data-bbox="614 472 847 499">High cover In/Outlets: 14 x M22x1,5 cable glands</p> <p data-bbox="614 573 1246 633">Connections ISO 12098 pin no. / Number of blade connectors 6,3x0,8 mm:</p> <ul style="list-style-type: none"> <li data-bbox="614 663 890 689">1 Left flasher lamp / 4 pcs <li data-bbox="614 692 903 719">2 Right flasher lamp / 4 pcs <li data-bbox="614 721 858 748">3 Rear fog lamp / 6 pcs <li data-bbox="614 750 799 777">4 Ground / 16 pcs <li data-bbox="614 779 839 806">5 Left position / 6 pcs <li data-bbox="614 808 852 835">6 Right position / 6 pcs <li data-bbox="614 837 815 864">7 Stop lamp / 6 pcs <li data-bbox="614 866 874 893">8 Reversing lamp / 6 pcs <li data-bbox="614 896 1062 922">9 Power supply, permanent positive / 2 pcs <li data-bbox="614 925 987 952">10 Aux 1, brake wear sensor / 2 pcs <li data-bbox="614 954 1034 981">11 Aux 2, brake control for trailer / 2 pcs <li data-bbox="614 983 868 1010">12 Aux 2, lift axle / 2 pcs <li data-bbox="614 1012 1019 1039">13 Ground for electronics (CAN) / 2 pcs <li data-bbox="614 1041 1015 1068">14 CANH - Data communication / 2 pcs <li data-bbox="614 1070 1015 1097">15 CANL - Data communication / 2 pcs 	<p data-bbox="1334 371 1469 398">099 866 700</p> <p data-bbox="1334 517 1469 544">099 866 750</p>



High cover





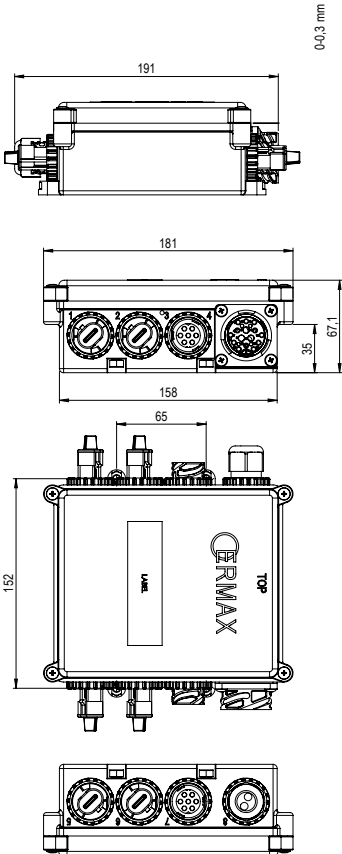
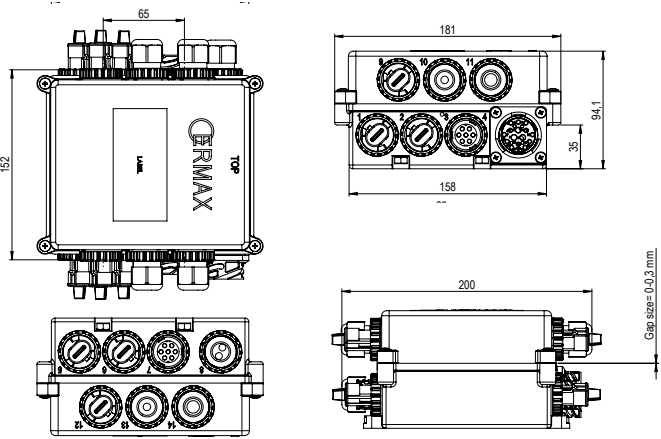
Low cover



High cover



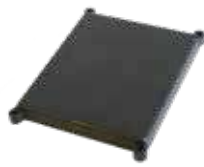
Junction box

	Description	Article No.
 <p data-bbox="300 591 405 613">Low cover</p>	<p data-bbox="616 313 751 336">Junction box</p> <p data-bbox="616 378 957 400">1x15 core Ermax Bayonet socket</p> <p data-bbox="616 439 831 461">Low cover - Outlets:</p> <p data-bbox="616 472 1109 613">1x M22x1,5 Cable glands. 2x7 core AMP 1.5 Socket for tail lamp LH+RH 2x2 core Super Seal Socket with RE+LI Position 1x2 core Super Seal Socket with reverse lights 1x2 core Super Seal Socket with Rear fog lights</p>	<p data-bbox="1334 456 1469 479">099 866 710</p>
 <p data-bbox="272 1014 384 1037">High cover</p>	<p data-bbox="616 649 831 672">High cover - Outlets:</p> <p data-bbox="616 685 1118 884">5x M22x1,5 Cable glands 2x7 core AMP 1.5 Socket for tail lamp LH+RH 2x2 core Super Seal Socket with LH+RH position 1x2 core Super Seal Socket with reverse lights 1x2 core Super Seal Socket with Rear fog lights 1x2 core Super Seal Socket with +24V 1x2 core Super Seal Socket with Aux 3</p> <p data-bbox="616 936 1206 987">Connections ISO 12098 pin no. / Number of blade connectors 6,3x0,8 mm:</p> <ol data-bbox="616 1021 1066 1458" style="list-style-type: none"> 1 Left flasher light / 4 pcs 2 Right flasher light / 4 pcs 3 Rear fog light / 6 pcs 4 Ground / 16 pcs 5 Left position / 6 pcs 6 Right position / 6 pcs 7 Stop light / 6 pcs 8 Reversing light / 6 pcs 9 Power supply, permanent positive / 2 pcs 10 Aux 1, brake wear sensor / 2 pcs 11 Aux 2, brake control for trailer / 2 pcs 12 Aux 2, lift axle / 2 pcs 13 Ground for electronics (CAN) / 2 pcs 14 CANH - Data communication / 2 pcs 15 CANL - Data communication / 2 pcs 	<p data-bbox="1334 689 1469 712">099 866 760</p>
 <p data-bbox="320 2040 432 2063">Low cover</p>	 <p data-bbox="995 2040 1107 2063">High cover</p>	

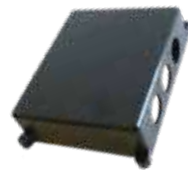
Spare parts Junction box



Pos. 1



Pos. 2



Pos. 3



Pos. 4



Pos. 5



Pos. 6



Pos. 7



Pos. 8



Pos. 9



Pos. 10



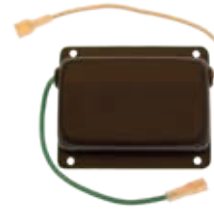
Pos.11



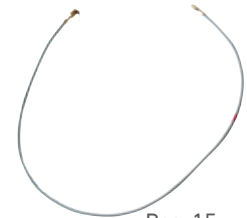
Pos. 12



Pos. 13



Pos. 14



Pos. 15

Spare parts / Accessories

Junctionbox w/o cover and connections. 8 x connections. 158 x 143 mm	1	099 110 200
Cover for junctionbox, low version, 158 x 143 x18 mm	2	099 110 201
Cover for junctionbox, high version, 158 x 143 x 45 mm	3	099 110 202
Gasket for connections in junctionbox	4	099 110 203
Lock ring for connections in junctionbox	5	099 110 204
Housing for cable gland M22/2,0 in junctionbox	6	099 110 205
Nut for cable gland housing in junctionbox	7	099 110 206
Rubber blind for cable gland in junctionbox, Ø16/Ø11-13 mm	8	099 110 207
Rubber blind for cable gland in junctionbox, Ø16/Ø7-11 mm	9	099 110 208
Rubber seal, for cable diameter Ø4-6mm	10	099 110 209
Rubberblind for cable gland housing in junctionbox Ø16/2 x ø5,5 mm	11	099 110 210
Super Seal socket for junctionbox. Black and white (-) wire	12	099 110 211
Plug AMP 1,5 7-poled	13	099 110 212
Resistor 24V for direction indicator LxWxH: 75 x 61 x 20 mm	14	098 292 358
Heating cable (resistor) 24V with cable shoe Length: 545 mm	15	093 865 125

Junction box, ADR

Plastic housing and cover

4 rubber seals PG9, 2 rubber seals PG 13,5, 1 rubber seal PG16, 1 rubber seal 2 x 6,0 mm

Functions

IP Rating	Connection	Out/Input	L x B x H	Fastening	Hole distance	Article No.
IP65	11 x 8 x 2 fold blade terminals 6,3 x 0,8 mm 8 x 4 fold blade terminals 6,3 x 0,8 mm	10 cable glands PG9, 5 cable glands PG13,5 1 cable gland PG16	205 x 135 x 80 mm	4 holes Ø5,5 mm	65/110 mm	099 865 028

Accessories – Spare parts

Cable connector	099 865 928
Replacement cover	099 865 930

Junction box



Pos 1



Pos 2

Functions							
IP Rating	Connection	L x B x H	Fastening	Hole distance	Plastic housing	Pos	Article No.
IP54	6 x 2 screw connection 4 rubber cable exits cable Ø max. 10,0 mm	125 x 73 x 35 mm			✓	1	099 865 075
IP54	12 x 2 screw terminals 6,3 x 0,8 mm	147 x 74 x 37 mm	2 holes Ø4,8 mm	30 mm	✓	2	099 862 012

Junction box



Pos 1



Pos 2



Pos 3

Plastic housing

Functions						
IP Rating	Connection	L x B x H	Fastening	Out/Input	Pos	Article No.
IP56	8 x 6 fold blade terminals 6,3 x 0,8 mm	155 x 100 x 50 mm	Hole Ø5,5 mm	4 exits (2 x M20 x 1,5 + 2 x M16 x 1,5)	1	099 868 249
IP56	8 x 6 fold blade terminals 6,3 x 0,8 mm	155 x 130 x 50 mm	Hole Ø5,5 mm	6 exits (2 x M20 x 1,5 + 4 x M16 x 1,5)	2	099 868 269
IP56	13 x 6 fold blade terminals 6,3 x 0,8 mm	245 x 170 x 70 mm	Hole Ø5,5 mm	7 exits (1 x M25 x 1,5 + 4 x M20 x 1,5 + 2 x M16 x 1,5)	3	099 868 314

Spare parts

Cable connector	099 868 291
Cable connector	099 868 392

Junction box



Pos 1



Pos 2



Pos 3

Functions

IP Rating	Connection	L x B x H	Fastening	Hole distance	Plastic housing	Aluminium cover	Pos	Article No.
IP54	6 x 1 screw terminals	120 x 69 x 30 mm	2 holes Ø4,6 mm	30 mm	✓	✓	1	099 864 006
IP54	8 x 4 fold blade terminal 6,3 x 0,8 mm	143 x 93 x 45 mm	2 holes Ø5,5 mm	90 mm	✓	✓	2	099 865 008

Spare parts

Cable connector / Terminals	3	099 865 908
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Junction box, ADR



Plastic housing and aluminium cover

Functions

IP Rating	Connection	L x B x H	Fastening	Hole distance	Out/Input	Article No.
IP65	14 x 4 x 2 fold blade terminal 6,3 x 0,8 mm	205 x 135 x 80 mm	2 holes Ø5,5 mm	100 mm	4 cable glands PG11, 4 cable glands PG16	099 865 014

Junction box



Pos 1



Pos 2



Pos 3



Pos 4



Pos 5

Plastic housing and aluminium cover

Functions

IP Rating	L x B x H	Fastening	Hole distance	Out/Input	Pos	Article No.
IP54	155 x 93 x 55 mm	2 holes Ø5,5 mm	100 mm	6 without accessories	1	099 865 010
IP54	200 x 135 x 80 mm	2 holes Ø5,5 mm	100 mm	8 without accessories	2	099 865 012

Spare parts

Cable connector 8-pole, 32 flat pin terminals 6,3 x 0,8 mm		099 865 908
Cable connector 16-pole, 48 flat pin terminals 6,3 x 0,8 mm	3	099 865 916
Cable connector 28-pole, 84 flat pin terminals 6,3 x 0,8 mm		099 865 926
Cable connector 28-pole, 112 flat pin terminals 6,3 x 0,8 mm		099 865 927
Cable guide Ø 7 mm	4	099 865 980
Cable guide Ø 9,5 mm	4	099 865 982
Cable guide Ø 13 mm	4	099 865 984
Blind cover	5	099 865 990

Cable gland



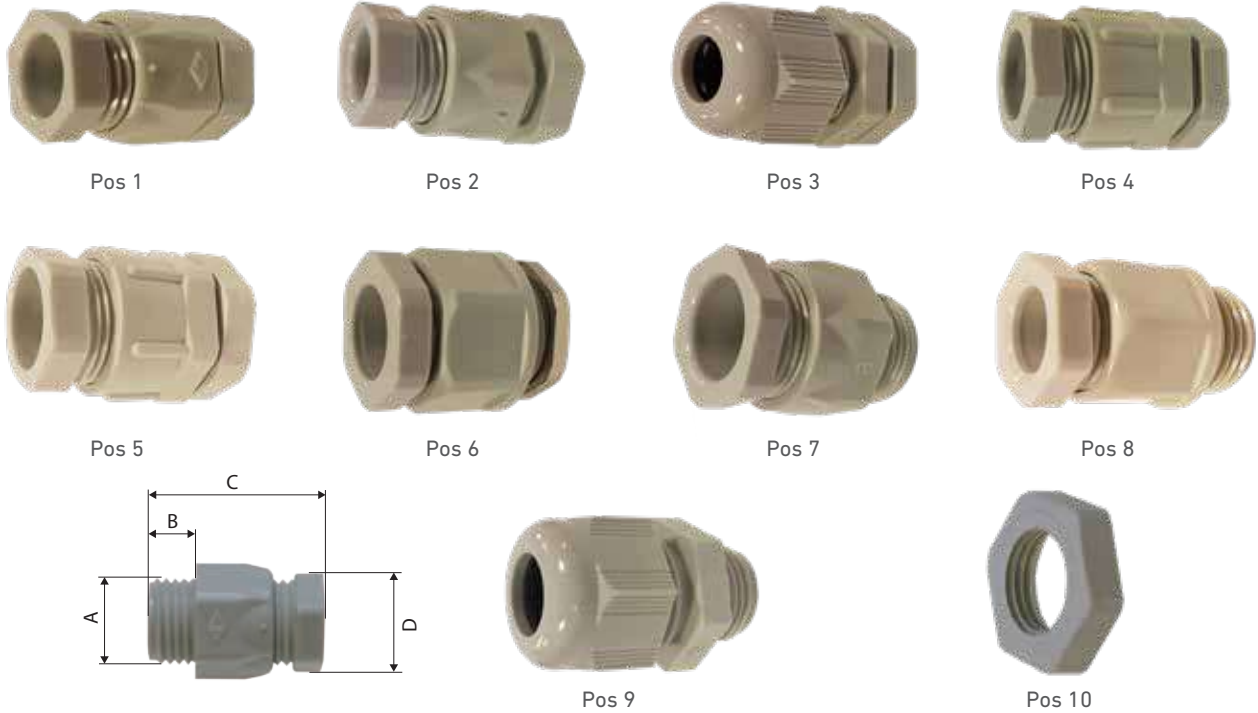
Cable gland without nut
UV-resistant

Functions										
IP Rating	A	B	C	D	Cable Ø	Working temperature	Black polyamide	Grey polyamide	Pos	Article No.
IP69K	M 12 X 1,5	8 mm	30 mm	15 mm	3,5-7 mm	-40°C - +100°C	✓		1	099 866 112
IP69K	M 16 X 1,5	8 mm	34 mm	19 mm	4,5-10 mm	-40°C - +100°C	✓		1	099 866 116
IP69K	M 20 X 1,5	9 mm	37 mm	25 mm	7-13 mm	-40°C - +100°C	✓		1	099 866 120
IP69K	M 25 X 1,5	10 mm	40 mm	30 mm	9-17 mm	-40°C - +100°C	✓		1	099 866 125
IP69K	M 32 X 1,5	10 mm	47 mm	36 mm	11-21 mm	-40°C - +100°C	✓		1	099 866 132
IP69K	M 12 X 1,5	8 mm	30 mm	15 mm	3,5-7 mm	-40°C - +100°C		✓	3	099 866 312
IP69K	M 16 X 1,5	8 mm	34 mm	19 mm	4,5-10 mm	-40°C - +100°C		✓	3	099 866 316
IP69K	M 20 X 1,5	9 mm	37 mm	25 mm	7-13 mm	-40°C - +100°C		✓	3	099 866 320
IP69K	M 25 X 1,5	10 mm	40 mm	30 mm	9-17 mm	-40°C - +100°C		✓	3	099 866 325
IP69K	M 32 X 1,5	10 mm	47 mm	36 mm	11-21 mm	-40°C - +100°C		✓	3	099 866 332

Spare parts

Nut for cable gland M 12 X 1,5	2	099 866 212
Nut for cable gland M 16 X 1,5	2	099 866 216
Nut for cable gland M 20 X 1,5	2	099 866 220
Nut for cable gland M 25 X 1,5	2	099 866 225
Nut for cable gland M 32 X 1,5	2	099 866 232
Nut for cable gland M 12 X 1,5	4	099 866 412
Nut for cable gland M 16 X 1,5	4	099 866 416
Nut for cable gland M 20 X 1,5	4	099 866 420
Nut for cable gland M 25 X 1,5	4	099 866 425
Nut for cable gland M 32 X 1,5	4	099 866 432

Cable gland



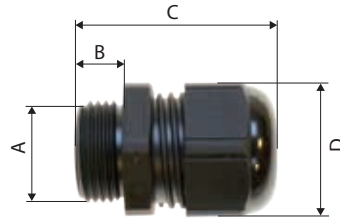
Cable gland
Break and impact-resistant. Acid resistant

Functions										
IP Rating	A	B	C	D	Cable Ø	Working temperature	With nut	Grey nylon PA6	Pos	Article No.
IP54	PG7 (12,5 mm)	6,5 mm	25 mm	13 mm	3,5-6 mm	-30°C - +120°C	✓	✓	1	099 868 407
IP54	PG9 (15,2 mm)	8 mm	28,4 mm	17 mm	6-10 mm	-30°C - +120°C	✓	✓	2	099 868 410
IP54	PG11 (18,6 mm)	9 mm	31 mm	20 mm	6,8-10,5 mm	-30°C - +120°C	✓	✓	3	099 868 411
IP54	PG13,5 (20,4 mm)	9 mm	30,5 mm	22 mm	6,8-13 mm	-30°C - +120°C	✓	✓	4	099 868 415
IP54	PG16 (22,5 mm)	6,3 mm	29,4 mm	24mm	6,8-14 mm	-30°C - +120°C	✓	✓	5	099 868 416
IP54	RG1/2" (20,5 mm)	9,5 mm	30,5 mm	24 mm	6,8-13 mm	-30°C - +120°C	✓	✓	6	099 868 492
IP54	PG13,5 (20,4 mm)	9 mm	30,5 mm	22 mm	6,8-13 mm	-30°C - +120°C		✓	7	099 868 413
IP54	M 16 X 1,5	8,4 mm	28 mm	17 mm	6-10 mm	-30°C - +120°C		✓	8	099 865 216
IP54	M 20 X 1,5	9 mm	30 mm	22 mm	6,8-13 mm	-30°C - +120°C		✓	9	099 865 220

Spare parts

Nut for cable gland PG13,5	10	099 868 483
Nut for cable gland M 16 X 1,5	10	099 865 316
Nut for cable gland M 20 X 1,5	10	099 865 320

Cable gland, ADR



Pos 1



Pos 2

Cable gland without nut
UV-resistant

Functions

IP Rating	A	B	C	D	Cable Ø	Working temperature	Black polyamide	Pos	Article No.
IP68-5bar	PG7 (12,5 mm)	8 mm	32 mm	15 mm	2,5-6,5 mm	-20°C - +80°C	✓	1	099 865 841
IP68-5bar	PG9 (15,2 mm)	8 mm	36 mm	19 mm	3,5-8 mm	-20°C - +80°C	✓	1	099 865 961
IP68-5bar	PG11 (18,6 mm)	8 mm	38 mm	22 mm	4-10 mm	-20°C - +80°C	✓	1	099 865 963
IP68-5bar	PG13,5 (20,4 mm)	9 mm	41 mm	24 mm	6-12 mm	-20°C - +80°C	✓	1	099 865 965
IP68-5bar	PG16 (22,5 mm)	10 mm	44 mm	27 mm	9-14 mm	-20°C - +80°C	✓	1	099 865 967
IP68-5bar	PG21 (28,3 mm)	11 mm	49 mm	33 mm	13-18 mm	-20°C - +80°C	✓	1	099 865 969

Spare parts

Nut for cable gland PG7	2	099 865 851
Nut for cable gland PG9	2	099 865 970
Nut for cable gland PG11	2	099 865 971
Nut for cable gland PG13,5	2	099 865 972
Nut for cable gland PG16	2	099 865 973
Nut for cable gland PG21	2	099 865 974

Rubber seals



Functions			
For cable Ø	Hole Ø	Thickness	Article No.
5-7 mm	16 mm	1-4 mm	999 876 309
7-10 mm	19 mm	1-4 mm	999 876 311
10-14 mm	23 mm	1-4 mm	999 876 316
14-20 mm	29 mm	1-4 mm	999 876 321

Cable gland with cable protection



Prevents sharp bending of cable, and greatly improves strain relief

Functions								
IP Rating	Thread	Thread length	Cable Ø	Working temperature	With nut	Grey nylon PA6	Pos	Article No.
IP68	PG9	8 mm	4-8 mm	-20°C - +100°C	✓	✓	1	099 868 409
IP68	PG11	8 mm	5-10 mm	-20°C - +100°C	✓	✓		099 868 412
IP68	PG13,5	9 mm	6-12 mm	-20°C - +100°C	✓	✓		099 868 414

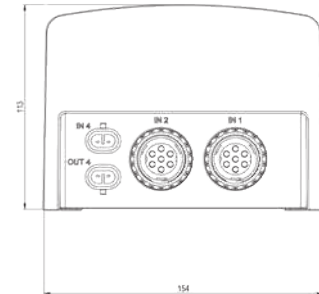
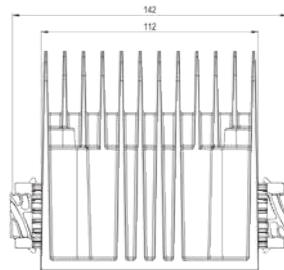
Spare parts

Blind cover PG11	2	099 868 461
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LED CONTROL BOXES

LED Control Box



The LED control box monitors the stop-, and flasher light and complies with the ECE-48 regulations. In case of a light failure, the lamp monitoring system is activated on the towing vehicle. Aluminium cover

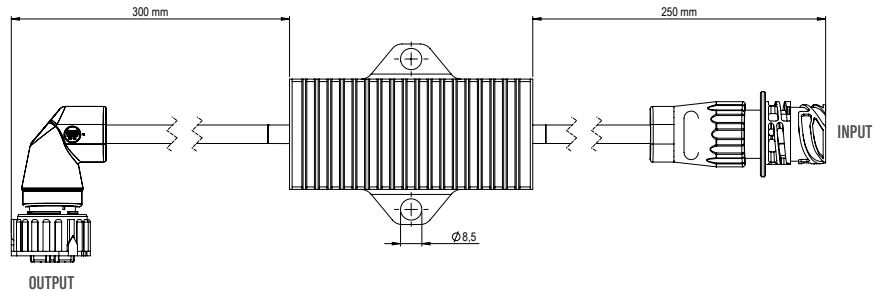
Functions

IP Rating	Connection	Out/Input	Article No.
IP67	1x15 poled Ermax Bayonet socket	2x7 poled AMP 1.5 socket for LH+RH tail lights 4x2 poled Super Seal socket for LH+RH marker lights	098 298 100
IP67	2x7 poled AMP 1.5 Socket	2x7 poled AMP 1.5 socket for LH+RH tail lights 4x2 poled Super Seal socket for LH+RH marker lights	098 298 120
IP67	1x15 poled Ermax Bayonet socket	1x15 poled Ermax Bayonet socket 2x2 poled Super Seal Socket ffor LH+RH marker lights	098 298 130

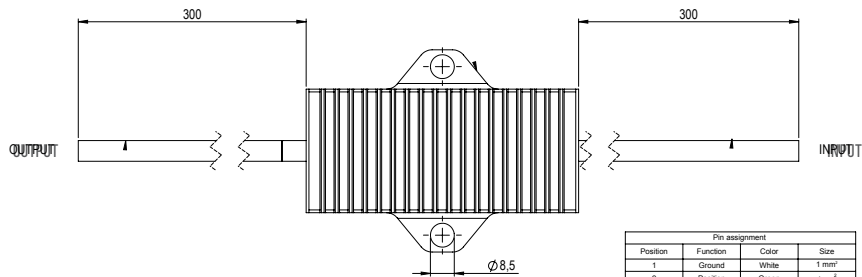
LED Control Box - Mini



098 298 140 / 24V
098 298 145 / 12V



098 298 142 / 24V



Pin assignment			
Position	Function	Color	Size
1	Ground	White	1 mm ²
2	Position	Green	1 mm ²
3	Reverse	Brown	1 mm ²
4	Flasher	Yellow	1 mm ²
5	Stop	Red	1 mm ²
6	Fog	Blue	1 mm ²
7	Aux	Black	1 mm ²

Managing the flasher light and solves the problems of warninglight when using LED-Tailamps.

In case of a light failure, the lamp monitoring system is activated on the towing vehicle

Inlet: 7-pin AMP socket

Outlets: 7-pin AMP plug

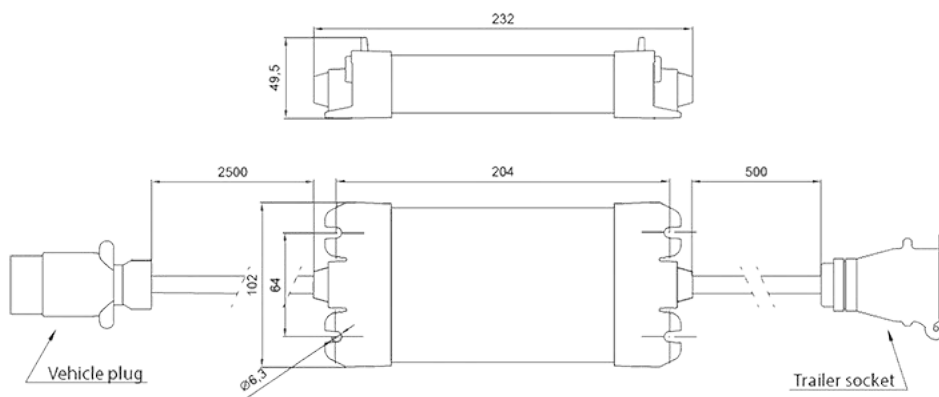
Dimensions : 120 x 52 x 30 mm

Distance between mountingholes : 66 mm ø8,5 mm

Functions

IP Rating	Inlet	Outlet	Voltage	Dimension Box	Article No.
IP67	250 mm cable with 7 poled AMP 1.5 socket	300 mm cable with 7 poled AMP 1.5 plug	24V	120 x 52 x 30 mm	098 298 140
IP67	300 mm cable with Open-end	300 mm cable with Open-end	24V	120 x 52 x 30 mm	098 298 142
IP67	250 mm cable with 7 poled AMP 1.5 socket	300 mm cable with 7 poled AMP 1.5 plug	12V	120 x 52 x 30 mm	098 298 145

LED Control Box 12V

**For installations with 7 poled plug ISO1724**

To be connected between vehicle (ISO1724 plug) and trailer (ISO1724 socket)

May not be used for installations with bulb lamps

For installations with 13-polet plug ISO11446

To be connected between vehicle (ISO11446 plug) and trailer (ISO11446 socket)

May not be used for installations with bulb lamps

Monitoring and controlling :

- Position light, - by consumption > 30mA a 2x4W load is added
- Direction indicator light, - by consumption > 80mA a 2x17W load is added
- Stop light, - by consumption > 150mA a 1x35W load is added
- Rear fog light, - by consumption > 100mA a 1x17W load is added
- Reverse light, - by consumption > 100mA a 1x17W load is added

Dimensions (LxWxH) : 232 x 102 x 50 mm

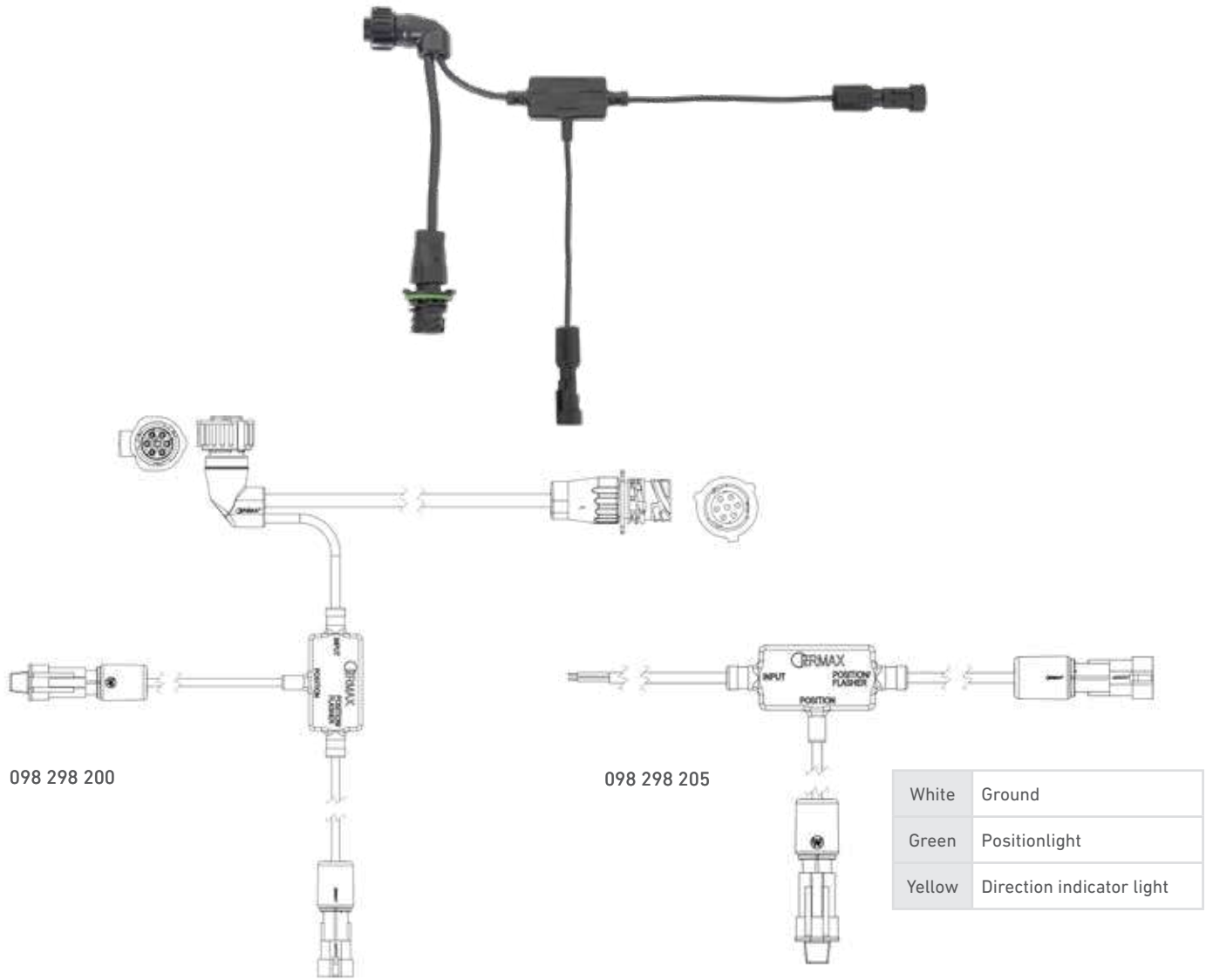
Position of mountingholes / diameter : 204 x 64 / ø6,3 mm

Working temperatur : -40°C to +50°C

Functions

ISO Norm	IP-Rating	Connection	Cable length plug to box	Cable length socket to box	Operation voltage	Dimension	Article No.
1724	IP67	7 poled	2360 mm	370 mm	12V	232 x 102 x 50 mm	098 298 150
11446	IP67	13 poled	2360 mm	370 mm	12V	232 x 102 x 50 mm	098 298 155

SIMAC - Sidemarker control unit



Controlling the sidemarkerlamps. By activating the direction indicator, the sidemarkerlamps will flash simultaneously.

To be connected between rear cable and taillamp. With connections for outermarker lamp (permanent positionlight) and for sidemarker loom. One unit for each side is required.

Dimensions SIMAC unit: 120 x 52 x 30 mm

Functions				
IP Rating	Inlet	Outlet	Voltage	Article No.
IP67	1 x 7 poled AMP socket 1 x 7 poled AMP plug	1 x 200 mm cable with Super Seal socket for permanent position light at the outer end marker lamps 1 x 200 mm cable with Super Seal socket for indicator function at the side marking lamps	24V	098 298 200
IP67	3 core Open-end cable	1 x 200 mm cable with Super Seal socket for permanent position light at the outer end marker lamps 1 x 200 mm cable with Super Seal socket for indicator function at the side marking lamps	24V	098 298 205



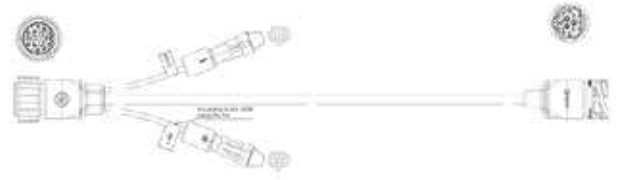
STANDARD CABLES FOR LIGHTING SYSTEMS

ERMAX[®]

Standard cables - Main cables



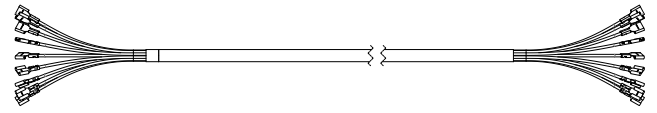
Pos 1



Pos 2



Pos 3

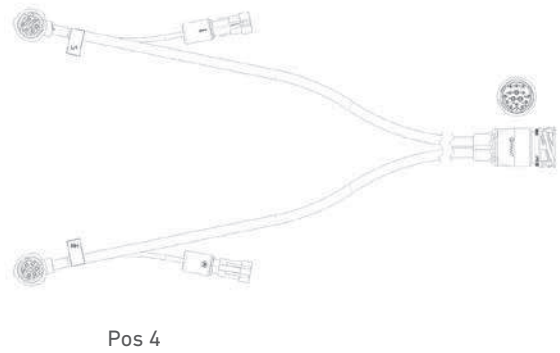
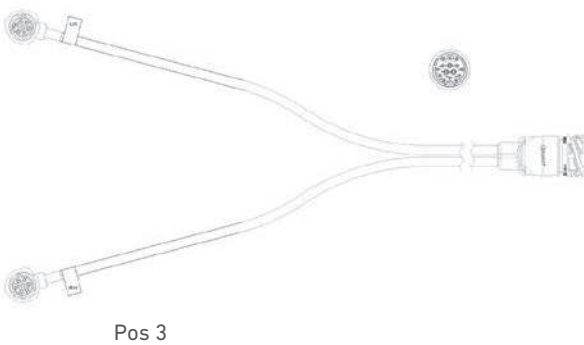
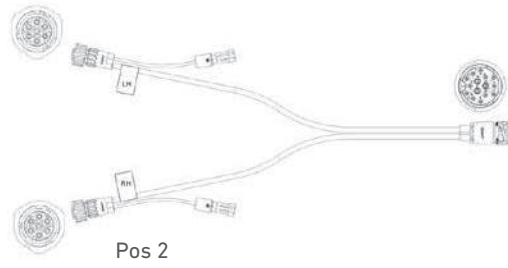
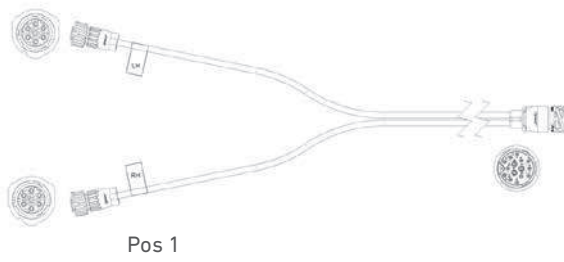


Pos 4

Functions

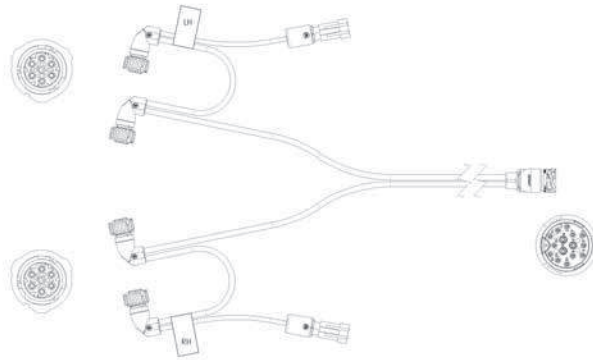
Connection	Pole	Outlets	Pos	Article No.			
				Cable length 6000 mm	Cable length 9000 mm	Cable length 13000 mm	Cable length 15000 mm
Ermax bayonet plug > socket	9	--	1	394 060 100	394 090 100	394 130 100	394 150 100
Ermax bayonet plug > socket	15	--	1	--	394 090 500	394 130 500	394 150 500
Ermax bayonet plug > socket	9	2x2 poled outlets with Super Seal socket (ISO 12098 pin 7 stop/pin 12 lift axle aus 3)	2	--	394 090 101	394 130 101	394 150 101
Ermax bayonet plug > socket	9	2x2 poled outlets with Super Seal socket (ISO 12098 pin 8 stop pin 12 lift axle aus 3)	2	394 060 102	394 090 102	394 130 102	394 150 102
Ermax bayonet plug > socket	9	2x2 poled outlets with Super Seal socket (ISO 12098 pin 8 reverse/ pin 9 permanent positive)	2	--	394 090 105	394 130 105	394 150 105
Ermax bayonet socket > Open end	15	Blade receptacles 6,3x0,8 mm	3	394 060 551	394 090 551	394 130 551	394 150 551
Open end > Ermax bayonet plug	15	Blade receptacles 6,3x0,8 mm	3	394 060 571	394 090 571	394 130 571	394 150 571
Open end > open end	15	Blade receptacles 6,3x0,8 mm	4	394 060 592	394 090 592	394 130 592	394 150 592

Standard cables - Rear cables

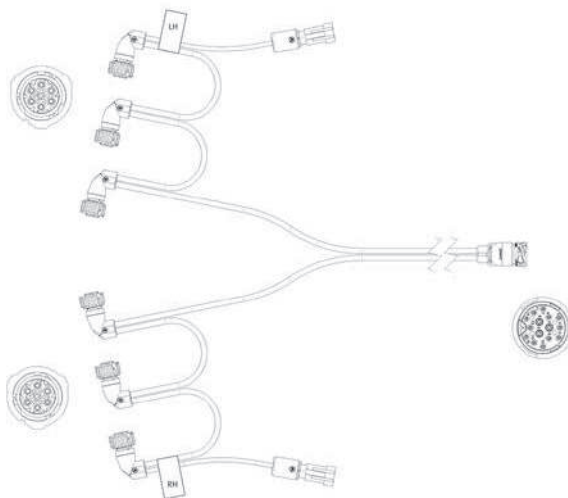


Functions						
Connection	Pole	Outlets	Cable length	Pos	Article No.	
Ermmax bayonet socket > 2 x 7 poled AMP 1,5 plug, straight	2 x 6	--	2500 mm	1	494 025 602	
Ermmax bayonet socket > 2 x 7 poled AMP 1,5 plug, straight	2 x 6	2x2 poled outlets with Super Seal sockets for marker lights	2500 mm	2	494 025 603	
Ermmax bayonet socket > 2 x 7 poled AMP 1,5 plug, angled	2 x 6	--	2500 mm	3	494 025 600	
Ermmax bayonet socket > 2 x 7 poled AMP 1,5 plug, angled	2 x 6	2x2 poled outlets with Super Seal sockets for marker lights	2500 mm	4	494 025 601	

Standard cables - rear cables



Pos 1



Pos 2

Functions						
Connection	Poles	Outlets	Cable length	Pos	Article No.	
Ermax bayonet socket > 2 x 2 7 poled AMP 1,5 plug, angled	2 x 6	2x2 poled outlets with Super Seal sockets for marker lights	2500 mm	1	494 025 604	
Ermax bayonet socket > 2 x 3 7 poled AMP 1,5 plug, angled	2 x 6	2x2 poled outlets with Super Seal sockets for marker lights	2500 mm	2	494 025 606	

Adapter cable



Adapter cable for Ermax tail lights
Cable type: FLRY

Functions					
Connection	Cable length	Conductor cross-section		Pos	Article No.
Aspöck ASS2 7 poled socket > 7 poled AMP 1.5 bayonet plug, angled	200 mm	5x1 mm ² + 1x2,5 mm ²	Left	1	994 002 062
Aspöck ASS2 7 poled socket > 7 poled AMP 1.5 bayonet plug, angled	200 mm	5x1 mm ² + 1x2,5 mm ²	Right	1	994 002 063
Hella 7 poled plug > 7 poled AMP 1.5 bayonet plug	300 mm	6x1 mm ²	Left / Right	2	994 003 064
Hella 15 poled plug > Ermax 15 poled bayonet plug	200 mm	12x1 mm ² + 3x2,5 mm ²	---	3	994 002 151
Aspöck ASS3 17 poled plug > Ermax 15 poled bayonet plug	200 mm	12x1 mm ² + 3x2,5 mm ²	---	4	994 002 150



CONNECTORS

Connectors - 7 poled AMP



Functions

Application	Plug type	Poled	Pin receptacle	Pin terminal	Blue grommet	White grommet	Transparent end grommet	Pos	Article No.
Renault, Volvo, DAF LF	NW10, 90°	7	0,5-1,0 mm ² 1,0-2,5 mm ²		Ø 1,2-2,1 mm	Ø 2,2-3,0 mm	✓	1	099 111 493
Renault, Volvo, DAF LF	NW10, 180°	7	0,5-1,0 mm ² 1,0-2,5 mm ²		Ø 1,2-2,1 mm	Ø 2,2-3,0 mm	✓	2	099 110 619
Mercedes-Benz Actros	NW8,5, 90°	7	0,5-1,0 mm ² 1,0-2,5 mm ²		Ø 1,2-2,1 mm	Ø 2,2-3,0 mm	✓	3	099 110 617
Mercedes-Benz Axor	NW8,5 180°	7	0,5-1,0 mm ² 1,0-2,5 mm ²		Ø 1,2-2,1 mm	Ø 2,2-3,0 mm	✓	4	099 110 620
Scania	Cable Ø 5,0-12 mm	7	0,5-1,0 mm ² 1,0-2,5 mm ²		Ø 1,2-2,1 mm	Ø 2,2-3,0 mm	✓	5	099 111 481
Mercedes-Benz Sprinter, VW Crafter	Cable Ø 5,0mm 90°	7	0,5-1,0 mm ² 1,0-2,5 mm ²		Ø 1,2-2,1 mm	Ø 2,2-3,0 mm	✓	6	099 111 485
Universal	NW10, 180°	7		0,5-1,0 mm ² 1,0-2,5 mm ²	Ø 1,2-2,1 mm	Ø 2,2-3,0 mm	✓	7	099 111 534
Universal	NW8,5, 180°	7		0,5-1,0 mm ² 1,0-2,5 mm ²	Ø 1,2-2,1 mm	Ø 2,2-3,0 mm	✓	8	099 111 490
Universal	Cable Ø 10,0mm 180°	7		0,5-1,0 mm ² 1,0-2,5 mm ²	Ø 1,2-2,1 mm	Ø 2,2-3,0 mm	✓	9	099 111 541

Spare parts

Nut	099 111 292
Pins 0,5-1mm ² and seals for 7 poled AMP plug – Female - (Bag with 20 x pins; 0,5-1mm ² , 20 x seals)	099 111 400
Pins 0,5-1mm ² and seals for 7 poled AMP plug – Male - (Bag with 20 x pins; 0,5-1mm ² , 20 x seals)	099 111 402
Pins 1-2,5mm ² and seals for 7 poled AMP plug – Female - (Bag with 20 x pins; 1-2,5mm ² , 20 x seals)	099 111 600
Pins 1-2,5mm ² and seals for 7 poled AMP plug – Male - (Bag with 20 x pins; 1-2,5mm ² , 20 x seals)	099 111 602

Connectors



Functions

Application	Plug type	Poled	Pin receptacle	Pin receptacle	Grommet	Grommet colour	End grommet colour	Pos	Article No.
Iveco Cargo, Stralis, Eurotech		3	0,5-1,0 mm ²		Ø 1,8-2,4 mm	Yellow/red	Transparent	1	099 110 049
Universal	Cable Ø 5,0 mm, 90°	4		0,5-1,0 mm ²	Ø 1,2-2,1 mm	Grey	Transparent	2	099 110 469
MAN		4	0,5-1,0 mm ²		Ø 1,2-2,1 mm	Red/brown	Green	3	099 110 622
Universal		4		1,0-2,5 mm ²		Yellow		4	099 110 468*
MAN TG-A	NW8,5, 180°	7	0,5-1,0 mm ² 1,0-2,5 mm ²		Ø 1,2-2,1 mm	Red/brown	Red/brown	5	099 111 648
Renault, Volvo, DAF XF 1995-2000	90°	8		0,5-1,0 mm ² 1,0-2,5 mm ²	Ø 1,2-2,1 mm Ø 2,2-3,0 mm	Blue White	Transparent	6	099 110 618
Mercedes-Benz Atego, MAN F2000, DAF	90°	8		0,75-1,5 mm ² 1,5-2,5 mm ²	Ø 1,9-3,0 mm	Red/brown	Red/brown	7	099 110 629
Iveco Cargo, Stralis, Eurotech		10	0,5-1,0 mm ²		Ø 1,8-2,4 mm	Yellow/red	Transparent	8	099 110 647

* one-hole rubbergrommet

Connectors - 2 poled



Functions

Application	Plug type	Poled	Plug contacts	Pin receptacle	Blade terminal	Blue grommet	Pos	Article No.
MAN	NW4,5-8,5	2	0,5-1,0 mm ²			Ø 1,2-2,1 mm	1	099 111 410
MAN	NW4,5-8,5	2			0,5-1,0 mm ²	Ø 1,2-2,1 mm	2	099 111 439
MAN F2000	--	2			0,5-1,0 mm ²	Ø 1,2-2,1 mm	3	099 111 444
Mercedes-Benz Actros, Atego	--	2		0,5-1,0 mm ²		Ø 1,2-2,1 mm	4	099 111 116
Scania	NW7,5	2		0,5-1,0 mm ²		Ø 1,2-2,1 mm	5	099 110 635
Volvo	NW8,5	2		0,5-1,0 mm ²		Ø 1,2-2,1 mm	6	099 110 636

Spare parts

Coupling							7	099 111 669
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Connectors - 2 poled Super Seal



Pos 1



Pos 2



Pos 3



Pos 4

Functions

Plug type	Poled	Pin receptacle	Pin terminal	Yellow grommet	Pos	Article No.
Super Seal	2	0,5-1,0 mm ²		Ø 1,8-2,4 mm	1	099 110 019
Super Seal NW4.5	2	0,5-1,0 mm ²		Ø 1,8-2,4 mm	2	099 110 129
Super Seal NW7.5-10	2	0,5-1,0 mm ²		Ø 1,8-2,4 mm	3	099 110 130
Super Seal	2		0,5-1,0 mm ²	Ø 1,8-2,4 mm	4	099 110 018

Connectors - 2 poled Super Seal



Pos 1



Pos 2

Functions

Plug type	Poled	Pin receptacle	Pin terminal	Yellow grommet	Pos	Article No.
Super Seal NW4,5	2		0,5-1,0 mm ²	Ø 1,8-2,4 mm	1	099 110 365
Super Seal NW7.5-10	2		0,5-1,0 mm ²	Ø 1,8-2,4 mm	2	099 110 366

Connectors



Pos 1



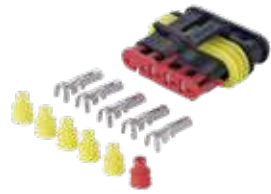
Pos 2



Pos 3



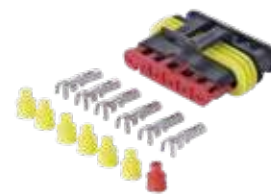
Pos 4



Pos 5



Pos 6



Pos 7



Pos 8

Functions

Plug type	Poled	Pin receptacle	Pin terminal	Yellow grommet	Red end grommet	Pos	Article No.
Super Seal	3	0,5-1,0 mm ²		Ø 1,8-2,4 mm	✓	1	099 111 102
Super Seal	3		0,5-1,0 mm ²	Ø 1,8-2,4 mm	✓	2	099 111 103
Super Seal	4	0,5-1,0 mm ²		Ø 1,8-2,4 mm	✓	3	099 111 032
Super Seal	4		0,5-1,0 mm ²	Ø 1,8-2,4 mm	✓	4	099 111 026
Super Seal	5	0,5-1,0 mm ²		Ø 1,8-2,4 mm	✓	5	099 111 104
Super Seal	5		0,5-1,0 mm ²	Ø 1,8-2,4 mm	✓	6	099 111 105
Super Seal	6	0,5-1,0 mm ²		Ø 1,8-2,4 mm	✓	7	099 111 106
Super Seal	6		0,5-1,0 mm ²	Ø 1,8-2,4 mm	✓	8	099 111 107

Spare parts

T-coupling, 2pol suitable for 099 111 102 / 103	099 111 415
Protection cap, NW8,5-10,4 pol suitable for 099 111 132 / 026	099 110 706
Protection cap, NW8,5-10,4 pol suitable for 099 111 106 / 107	099 110 730
Terminal/grommets	099 111 100
Terminal/grommets	099 111 101

Connectors



Pos 1



Pos 2



Pos 3



Pos 4



Pos 5



Pos 6

Functions

Application	Plug type	Poled	Pin receptacle	Red grommet	Blue grommet	Transparent end grommet	Pos	Article No.
Volvo		2	0,5-1,0 mm ²	Ø 1,8-2,4 mm			1	099 110 658
MAN		2	0,5-1,0 mm ²	Ø 1,8-2,4 mm			2	099 111 689
Universal	JPT 2PK1	3	0,5-1,0 mm ²		Ø 1,2-2,1 mm		3	099 110 006
Universal	JPT 2PK1 NW4,5 180°	2	0,5-1,0 mm ²		Ø 1,2-2,1 mm		4	099 110 386
Renault	JPT 2PK1 NW10	2	0,5-1,0 mm ²		Ø 1,2-2,1 mm		5	099 110 741
Universal	JPT 3PK2	3	0,5-1,0 mm ²		Ø 1,2-2,1 mm	✓	6	099 110 378

Spare parts

Connector 2-pol	099 111 686
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Connectors - "Deutsch"



Pos 1



Pos 2



Pos 3



Pos 4



Pos 5



Pos 6

Functions

Plug type	Poled	Plug	Female terminal	Male terminal	Pin receptacle	Pin terminal	Pos	Article No.
"Deutsch"	2	Plug	✓		0,75-2,0 mm ²		1	098 291 690
"Deutsch"	2	Socket		✓		0,75-2,0 mm ²	2	099 111 043
"Deutsch"	4	Plug	✓		0,75-2,0 mm ²		3	099 111 059
"Deutsch"	4	Socket		✓		0,75-2,0 mm ²	4	099 111 054
"Deutsch"	6	Plug	✓		0,75-2,0 mm ²		5	099 111 069
"Deutsch"	6	Socket		✓		0,75-2,0 mm ²	6	099 111 064

Connectors - Adapter



Pos 1



Pos 2



Pos 3

Functions

Adapter type	Must be mounted with 2 pcs.	Measurement	Connecting 2 cables	Pos	Article No.
Dual click-in	098 291 950 (not included)	68 x 22,1 x 15,4 mm	1,5 mm ² flat cable	1	099 110 030
Dual click-in	098 291 950 (2 pcs. included)	68 x 22,1 x 15,4 mm	1,5 mm ² flat cable	2	099 110 032
Dual click-in	098 291 950 (1 pcs. included) 098 291 970 (1 pcs. included)	Length 120 mm	1,50 <> 0,75mm ² flat cable		099 110 033

Connectors



Functions

Plug type	Poled	Cable length	Suitable for	Pos	Article No.
5 poled plug, left	5			1	098 295 076
5 poled plug, right	5			2	098 295 078
Connector 7 poled AMP 1.5 plug with cable	7	4.000 mm		3	098 291 233
Connector AMP-JPT plug with cable	2	2.000 mm		4	098 291 230













































INSTALLATION MATERIAL

WIRES - CABLES - CABLE TIES



Cable, single wire

FLY type. Cable on spool

Functions						
Colour		Material	Operation voltage	mm ²	Length	Article No.
Black		PVC outer insulation	Max. 50V	1 x 0,75 mm ²	100 m	099 990 001
Red		PVC outer insulation	Max. 50V	1 x 0,75 mm ²	100 m	099 990 002
Brown		PVC outer insulation	Max. 50V	1 x 0,75 mm ²	100 m	099 990 003
Blue		PVC outer insulation	Max. 50V	1 x 0,75 mm ²	100 m	099 990 004
Green		PVC outer insulation	Max. 50V	1 x 0,75 mm ²	100 m	099 990 005
Yellow		PVC outer insulation	Max. 50V	1 x 0,75 mm ²	100 m	099 990 006
White		PVC outer insulation	Max. 50V	1 x 0,75 mm ²	100 m	099 990 007
Grey		PVC outer insulation	Max. 50V	1 x 0,75 mm ²	100 m	099 990 008
Amber		PVC outer insulation	Max. 50V	1 x 0,75 mm ²	100 m	099 990 009
Violet		PVC outer insulation	Max. 50V	1 x 0,75 mm ²	100 m	099 990 010
Pink		PVC outer insulation	Max. 50V	1 x 0,75 mm ²	100 m	099 990 019
Black		PVC outer insulation	Max. 50V	1 x 0,50 mm ²	100 m	099 990 021
Red		PVC outer insulation	Max. 50V	1 x 0,50 mm ²	100 m	099 990 022
Brown		PVC outer insulation	Max. 50V	1 x 0,50 mm ²	100 m	099 990 023
Blue		PVC outer insulation	Max. 50V	1 x 0,50 mm ²	100 m	099 990 024
Green		PVC outer insulation	Max. 50V	1 x 0,50 mm ²	100 m	099 990 025
Yellow		PVC outer insulation	Max. 50V	1 x 0,50 mm ²	100 m	099 990 026
White		PVC outer insulation	Max. 50V	1 x 0,50 mm ²	100 m	099 990 027
Amber		PVC outer insulation	Max. 50V	1 x 0,50 mm ²	100 m	099 990 029
Violet		PVC outer insulation	Max. 50V	1 x 0,50 mm ²	100 m	099 990 030
Pink		PVC outer insulation	Max. 50V	1 x 0,50 mm ²	100 m	099 990 031
Black/White		PVC outer insulation	Max. 50V	1 x 0,50 mm ²	100 m	099 990 036
Black		PVC outer insulation	Max. 50V	1 x 1,0 mm ²	100 m	099 991 051
Red		PVC outer insulation	Max. 50V	1 x 1,0 mm ²	100 m	099 991 052
Black		PVC outer insulation	Max. 50V	1 x 1,5 mm ²	100 m	099 991 101
Red		PVC outer insulation	Max. 50V	1 x 1,5 mm ²	100 m	099 991 102
Brown		PVC outer insulation	Max. 50V	1 x 1,5 mm ²	100 m	099 991 103
Blue		PVC outer insulation	Max. 50V	1 x 1,5 mm ²	100 m	099 991 104
Green		PVC outer insulation	Max. 50V	1 x 1,5 mm ²	100 m	099 991 105
Yellow		PVC outer insulation	Max. 50V	1 x 1,5 mm ²	100 m	099 991 106
White		PVC outer insulation	Max. 50V	1 x 1,5 mm ²	100 m	099 991 107
Grey		PVC outer insulation	Max. 50V	1 x 1,5 mm ²	100 m	099 991 108
Amber		PVC outer insulation	Max. 50V	1 x 1,5 mm ²	100 m	099 991 109
Black		PVC outer insulation	Max. 50V	1 x 2,5 mm ²	50 m	099 992 201
Red		PVC outer insulation	Max. 50V	1 x 2,5 mm ²	50 m	099 992 202
Brown		PVC outer insulation	Max. 50V	1 x 2,5 mm ²	50 m	099 992 203
Blue		PVC outer insulation	Max. 50V	1 x 2,5 mm ²	50 m	099 992 204
Yellow		PVC outer insulation	Max. 50V	1 x 2,5 mm ²	50 m	099 992 206
White		PVC outer insulation	Max. 50V	1 x 2,5 mm ²	50 m	099 992 207
Grey		PVC outer insulation	Max. 50V	1 x 2,5 mm ²	50 m	099 992 209
Black		PVC outer insulation	Max. 50V	1 x 4,0 mm ²	50 m	099 994 401
Red		PVC outer insulation	Max. 50V	1 x 4,0 mm ²	50 m	099 994 402
Black		PVC outer insulation	Max. 50V	1 x 6,0 mm ²	50 m	099 996 601
Red		PVC outer insulation	Max. 50V	1 x 6,0 mm ²	50 m	099 996 602

Motor vehicle cables, round



Max. 60 Volt. PVC insulation
Operating temperature: -40°C - +85°C

Functions

ISO Norm	Colour	Wire colours	Type	mm ²	Length	Unit	Pos	Article No.	
DIN 6722	Black		Blue, Brown	FLRYY	2 x 0,75 mm ²	50 m	Spool	1	099 897 302
DIN 6722	Black		Blue, Brown	FLRYY	2 x 1,0 mm ²	50 m	Spool	1	099 897 304
DIN 6722	Black		Blue, Brown	FLRYY	2 x 1,5 mm ²	50 m	Spool	1	099 897 306
DIN 6722	Black		Blue, Brown, Black	FLRYY	3 x 1,0 mm ²	50 m	Spool	1	099 897 334
DIN 6722	Black		Blue, Brown, Black	FLRYY	3 x 1,5 mm ²	50 m	Spool	1	099 897 336
DIN 6722	Black		Black, Brown, Blue, Yellow	FLRYY	4 x 0,5 mm ²	100 m	Spool	1	099 897 340
DIN 6722	Black		White, Brown, Red, green.	FLRYY	4 x 0,75 mm ²	50 m	Spool	1	099 897 342
DIN 6722	Black		Blue, Brown, Black, Yellow-Green	FLRYY	4 x 1,0 mm ²	50 m	Spool	1	099 897 344
DIN 6722	Black		Blue, Brown, Black, Yellow	FLRYY	4 x 1,5 mm ²	50 m	Spool	1	099 897 346
DIN 6722	Black		Black, Brown, Blue, Yellow, Green	FLRYY	5 x 0,5 mm ²	100 m	Spool	1	099 897 352
DIN 6722	Black		Black, Brown, Blue, Yellow, Green	FLRYY	5 x 0,75 mm ²	100 m	Spool	1	099 897 353
DIN 6722	Black		Black, Brown, Blue, Yellow, Green	FLRYY	5 x 1,0 mm ²	50 m	Spool	1	099 897 354
DIN 6722	Black		Black, Brown, Blue, Yellow, Green	FLRYY	5 x 1,5 mm ²	50 m	Spool	1	099 897 356
DIN 6722	Black		White, Red, brown, Green, Yellow, Black.	FLRYY	6 x 1,0 mm ²	50 m	Spool	1	099 897 360
DIN 6722	Black		Brown, Yellow, White, Red, Blue, Green, Black	FLRYY	6 x 1,0 + 1 x 0,75 mm ²	50 m	Roll	2	099 897 380
DIN 6722	Black		Black, Brown, Blue, White, Red, Green, Yellow	FLRYY	7 x 0,75 mm ²	100 m	Roll	2	099 897 373
DIN 6722	Black		Black, Brown, Blue, White, Red, Green, Yellow	FLRYY	7 x 1,0 mm ²	100 m	Roll	2	099 897 375
DIN 6722	Black		Black, Brown, Blue, White, Red, Green, Yellow	FLRYY	7 x 1,5 mm ²	50 m	Roll	2	099 897 378
DIN 6722	Black		Black, Brown, Blue, White, Red, Green, Yellow, Grey, Pink, Amber, Violet, Light blue	NYM	12 x 1,50 mm ²	50 m	Roll	2	099 897 122
DIN 6722	Black		Brown, Clear, 2 x Blue, Red, Amber, Yellow, Grey, Violet, Beige, Black, White, Green	FLRYY	10 x 1,5 + 3 x 2,5 mm ²	25 m	Roll	2	099 897 382
DIN 6722	Black		Black, Brown, Red, Pink, Grey, Yellow, Green, Blue, White, Amber, Red/White, Black/White, Brown/White, Green/White, Blue/White	FLRYY	12 x 1,5 + 3 x 2,5 mm ²	50 m	Roll	2	099 897 386

ADR cable



Pos 1



Pos 2

Double insulated. Max. 50 Volt
Oil resistant
Operating temperature: -40°C - +80°C

Functions

ISO norm	Colour	Wire colours	Material	mm ²	Length	Unit	Pos	Article No.
DIN 72570 + ISO 6622	Black	Red, Black	PUR	2 x 1,0 mm ²	50 m	Roll	2	099 897 225
DIN 72570 + ISO 6622	Black	Red, Black	PUR	2 x 1,0 mm ²	500 m	Spool	1	999 897 225
DIN 72570 + ISO 6622	Black	Blue, Brown, Black, Yellow-Green	PUR	4 x 1,0 mm ²	50 m	Spool	1	099 897 045
DIN 72570 + ISO 6622	Black	Black, Brown, Blue, Yellow, Green	PUR	5 x 1,0 mm ²	50 m	Spool	1	099 897 055
DIN 72570 + ISO 6622	Black	Brown, Yellow, White, Red, Blue, Green, Black	PUR	6 x 1,0 + 1 x 2,5 mm ²	50 m	Spool	1	099 897 081
DIN 72570 + ISO 6622	Black	Black, Brown, Blue, White, Red, Yellow, Green	PUR	7 x 1,0 mm ²	100 m	Spool	1	099 897 076
DIN 72570 + ISO 6622	Black	Blue, Red, Green, Brown, Yellow, Black, White	PUR	6 x 1,0 + 1 x 2,0 mm ²	50 m	Roll	2	099 897 270
DIN 72570 + ISO 6622	Black	Red, Green, Brown, White-Yellow, Black, Amber, Violet, Blue-White, Yellow-White	PUR	9 x 1,0 + 1 x 2,0 mm ²	500 m	Spool	1	999 897 310
DIN 72570 + ISO 6622	Black	Amber, White, White-Red, Black, Yellow, Red, Green, Brown, Blue, Pink, Grey, White-Black, White-Blue, White-Green, White-Brown	PUR	12 x 1mm ² + 3 x 2,5mm ²	50 m	Spool	1	099 897 298
DIN 72570 + ISO 6622	Black	White, Brown	PUR	2 x 1,5 mm ²	100 m	Spool	1	099 897 610
DIN 72570 + ISO 6622	Black	Blue, Brown, Black	PUR	3 x 1,5 mm ²	50 m	Spool	1	099 897 032
DIN 72570 + ISO 6622	Black	Blue, Brown, Black, Yellow	PUR	4 x 1,5 mm ²	50 m	Spool	1	099 897 049
DIN 72570 + ISO 6622	Black	Black, Brown, Blue, White, Red, Green, Yellow	PUR	7 x 1,5 mm ²	50 m	Spool	1	099 897 079
DIN 72570 + ISO 6622	Black	Brown, Clear, 2 x Blue, Red, Amber, Yellow, Grey, Violet, Beige, Black, White, Green	PUR	10 x 1,5 + 3 x 2,5 mm ²	25 m	Spool	1	099 897 134
DIN 72570 + ISO 6622	Black	Black, Brown, Red, Pink, Grey, Yellow, Green, Blue, White, Amber, Red-White, Black-White, Brown-White, Green-White, Blue-White	PUR	12 x 1,5 + 3 x 2,5 mm ²	50 m	Roll	2	099 897 295

Installation cable



PN-E 50525-2-11

Fine wired copper conductor

Operating temperature: -40°C - +70°C

Functions

Colour	Wire colours	Material	Type	Operation voltage	mm ²	Length	Unit	Article No.
Black	Blue, Brown	PVC	H05VV-F	300/500V	2 x 0,75 mm ²	100 m	Spool	099 897 303
Black	Blue, Brown, Yellow-Green	PVC	H05VV-F	300/500V	3 x 0,75 mm ²	100 m	Spool	099 897 333
Black	Blue, Brown	PVC	H05VV-F	300/500V	2 x 1,0 mm ²	100 m	Spool	099 897 305
Black	Blue, Brown, Yellow-Green	PVC	H05VV-F	300/500V	3 x 1,0 mm ²	50 m	Spool	099 897 335
Black	Blue, Brown	PVC	H05VV-F	300/500V	2 x 1,5 mm ²	100 m	Spool	099 897 307
Black	Blue, Brown, Yellow-Green	PVC	H05VV-F	300/500V	3 x 1,5 mm ²	50 m	Spool	099 897 337
Black	Blue, Brown, Black, Yellow, Green	PVC	H05VV-F	300/500V	4 x 1,5 mm ²	50 m	Spool	099 897 348
White	Blue, Brown, Yellow-Green	PVC	H05VV-F	300/500V	3 x 2,5 mm ²	50 m	Spool	099 897 338
Black	Black, Brown, White, Yellow, Red, Green, Grey, Violet	PVC	H05VV-F	300/500V	8 x 1,5 + 1 x 2,5 mm ²	50 m	Carton	099 897 092

Twin cable, flat

FLZY type. Fine wired copper conductor on spool

Functions							
Colour		Material	Operation voltage	mm ²	Length	Pos	Article No.
Red / Black		PVC	Max. 50V	2 x 0,4 mm ²	100 m	1	099 896 804
Red / Black		PVC	Max. 50V	2 x 0,75 mm ²	100 m	2	099 896 807
Red / Black		PVC	Max. 50V	2 x 1,5 mm ²	100 m		099 896 815
Red / Black		PVC	Max. 50V	2 x 2,5 mm ²	100 m	3	099 896 825

Motor vehicle cable, oval

Pos 1



Pos 2



Pos 3



Pos 4

Fine wired copper conductor. Max. 50 Volt

Functions

Colour	Wire colours	Material	Type	mm ²	Length	Unit	Pos	Article No.
Black	Blue, Brown	PVC	YLYP-S	2 x 0,75 mm ²	50 m	Spool	1	099 897 322
Black	Blue, Brown	PVC	YLYP-S	2 x 1,5 mm ²	50 m	Spool	2	099 897 324
Black	Blue, Brown	PVC	YLYP-S	2 x 2,5 mm ²	50 m	Spool	3	099 897 326
Grey	White, Black	PVC	FLKK	2 x 4,0 mm ²	50 m	Spool	4	099 897 330

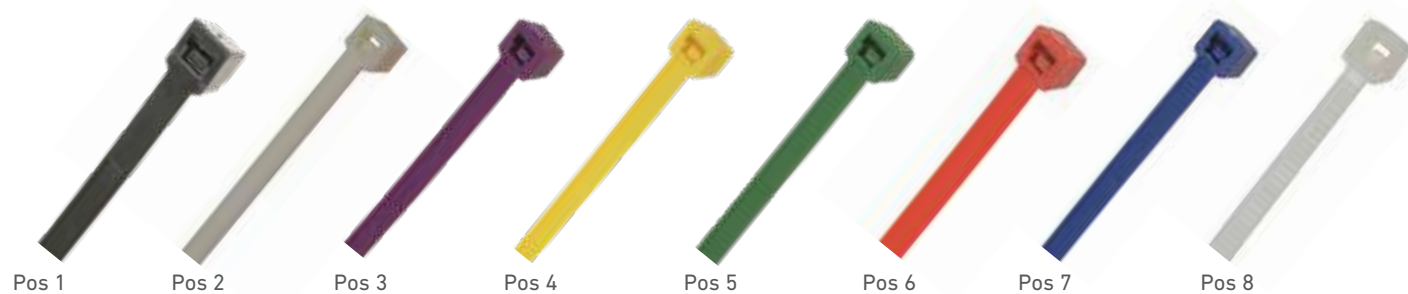
ABS cable

Fine wired copper conductor. Max. 50 Volt

Functions

Colour	Wire colours	Material	Type	mm ²	Length	Unit	Article No.
Black	Black, Yellow, White, Brown, Red	PVC		3 x 1,5 + 2 x 4,0 mm ²	50 m	Spool	099 897 250

Cable ties



Operating temperature: -40°C - +85°C

Funktion							
Colour		Measurements	Self locked	Material PA6.6	Packing unit	Pos	Artikel-Nr.
Black		100 x 2,5 mm	✓	✓	100	1	099 871 361
Black		200 x 2,5 mm	✓	✓	100	1	999 871 350
Transparent		150 x 3,5 mm	✓	✓	100	8	099 871 304
Black		150 x 3,6 mm	✓	✓	100	1	099 871 363
Black		190 x 3,6 mm	✓	✓	100	1	099 871 307
Transparent		200 x 4,8 mm	✓	✓	100	8	099 871 306
Black		200 x 4,8 mm	✓	✓	100	1	099 871 365
White		200 x 4,8 mm	✓	✓	100	2	099 871 399
Green		200 x 4,8 mm	✓	✓	100	5	099 871 301
Yellow		200 x 4,8 mm	✓	✓	100	4	099 871 379
Red		200 x 4,8mm	✓	✓	100	6	099 871 389
Purple		200 x 4,8 mm	✓	✓	100	3	099 871 349
Blue		200 x 4,8 mm	✓	✓	100	7	099 871 359
Black		290 x 4,8 mm	✓	✓	100	1	099 871 309
Black		300 x 4,8 mm	✓	✓	100	1	099 871 367
Transparent		390 x 4,8 mm	✓	✓	100	8	099 871 310
Black		390 x 4,8 mm	✓	✓	100	1	099 871 369
Black		390 x 7,6 mm	✓	✓	100	1	099 871 377
Black		710 x 7,6 mm	✓	✓	50	1	099 871 375
Black		580 x 12,5 mm	✓	✓	50	1	099 871 395
Black		1000 x 12,5 mm	✓	✓	25	1	099 871 396

Cable ties



Pos 1



Pos 2

Functions

Colour	Measurements	Max Ø for wiring harness	Working temperature -40° - +85°	Self locked	Material PA6.6	Mounting head Ø	Steel locking lance	Pos	Article No.
Black	215 x 4,7 mm	45 mm	✓	✓	✓	5,4 mm			099 871 168
Black	395 x 7,6 mm	102 mm	✓	✓	✓	6,5 mm		1	099 871 175
Black	91,9 x 2,3 mm	15,9 mm	✓	✓	✓		✓	2	099 871 110
Black	140 x 3,5 mm	28,6 mm	✓	✓	✓		✓		099 871 114
Black	186 x 4,6 mm	44,4 mm	✓	✓	✓		✓		099 871 120
Black	361 x 4,6 mm	102 mm	✓	✓	✓		✓		099 871 122
Black	378 x 7,0 mm	110 mm	✓	✓	✓		✓		099 871 130

Cable tie, with loose head



Pos 1



Pos 2



Pos 3



Pos 4

Functions

Colour	Measurements	Max Ø for wiring harness	Working temperature -40° - +85°	Material PA6.6	Self locked	Identification tie	Pos	Article No.
Black	370 x 7,6 mm	92 mm	✓	✓			1	099 871 170
Black	375 x 7,6 mm	102 mm	✓	✓			2	099 871 078
Black	770 x 8,8 mm	225 mm	✓	✓			3	099 871 091
Natural	100 x 2,3 mm	22 mm	✓	✓	✓	✓	4	099 871 165

Cable clip



Pos 1



Pos 2



Pos 3

Functions

Colour	Measure-ments	Cable tie max width	For cable straps up to	Working temperature -40° - +85°	Self adhesive	Material	Fastening	Pos	Article No.
Black	19 x 19 mm	3,6 mm			✓	PA6.6	Also with screw possible	1	099 871 905
White	28 x 28 mm	4,8 mm			✓	PA6.6	Also with screw possible		099 871 910
Black	28 x 28 mm	5,4 mm			✓	PA6.6	Also with screw possible		099 871 906
Black			7,6 mm width	✓		PA6.6	With screw M6	2	099 871 920
Black			8,5 mm width	✓		PA6.6	With welding-nut Ø5	3	099 871 925

Shrink tube with glue, sortiment



Pos 1



Pos 2



Pos 3

Functions

Colour	Size	Shrinking temp.	Refills	Pos	Article No.
Black	Assortment 6 sizes 3 - 1 mm / 5,0 m & 6 - 2 mm / 3,5 m 9 - 3 mm / 3,0 m & 12 - 4 mm / 2,5 m 18 - 6 mm / 2,0 m & 24 - 8 mm / 1,5 m	120 - 130°C		1	099 875 600
Black	3 - 1 mm / 5,0 m	120 - 130°C	✓	2	099 875 603
Black	6 - 2 mm / 3,5 m	120 - 130°C	✓	2	099 875 606
Black	9 - 3 mm / 3,0 m	120 - 130°C	✓	2	099 875 609
Black	12 - 4 mm / 2,5 m	120 - 130°C	✓	2	099 875 612
Black	18 - 6 mm / 2,0 m	120 - 130°C	✓	2	099 875 618
Black	24 - 8 mm / 1,5 m	120 - 130°C	✓	2	099 875 624
Black	3 - 1 mm / 1,2 m	120 - 130°C		3	099 875 103
Black	6 - 2 mm / 1,2 m	120 - 130°C		3	099 875 106
Black	9 - 3 mm / 1,2 m	120 - 130°C		3	099 875 109
Black	12 - 4 mm / 1,2 m	120 - 130°C		3	099 875 112
Black	19 - 6 mm / 1,2 m	120 - 130°C		3	099 875 119
Black	24 - 8 mm / 1,2 m	120 - 130°C		3	099 875 124
Black	32 - 8 mm / 1,2 m	120 - 130°C		3	099 875 132
Black	39 - 13 mm / 1,2 m	120 - 130°C		3	099 875 139
Black	52 - 13 mm / 1,2 m	120 - 130°C		3	099 875 145
Black	6 - 3 mm / 10,0 m	120 - 130°C		3	099 875 156
Black	10 - 4 mm / 10,0 m	120 - 130°C		3	099 875 160
Black	12 - 5 mm / 10,0 m	120 - 130°C		3	099 875 162
Black	20 - 8 mm / 10,0 m	120 - 130°C		3	099 875 170

Spare parts

Holder	099 875 699
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Insulating tubing



Functions					
Material	Working temp.	Ø	Roll	Article No.	
Black pvc	-40 - +90°C	4,0 mm	100 m	099 875 004	
Black pvc	-40 - +90°C	5,0 mm	100 m	099 875 005	
Black pvc	-40 - +90°C	6,0 mm	100 m	099 875 006	
Black pvc	-40 - +90°C	7,0 mm	100 m	099 875 007	
Black pvc	-40 - +90°C	8,0 mm	50 m	099 875 008	
Black pvc	-40 - +90°C	9,0 mm	50 m	099 875 009	
Black pvc	-40 - +90°C	10 mm	50 m	099 875 010	
Black pvc	-40 - +90°C	12,0 mm	50 m	099 875 012	
Black pvc	-40 - +90°C	14,0 mm	50 m	099 875 014	
Black pvc	-40 - +90°C	16,0 mm	50 m	099 875 016	
Black pvc	-40 - +90°C	18,0 mm	50 m	099 875 018	
Black pvc	-40 - +90°C	20,0 mm	50 m	099 875 020	

Spiralflex**Functions**

Material	Colour	Working temp.	Inner Ø	Outer Ø	Max Ø	Length 10 m	Flame retardant	Article No.
Polyetylen (PE)	Black	-40 - +85°C	5,0 mm	6,0 mm	50 mm	✓	✓	099 875 405
Polyetylen (PE)	Black	-40 - +85°C	7,0 mm	8,0 mm	55 mm	✓	✓	099 875 407
Polyetylen (PE)	Black	-40 - +85°C	8,5 mm	10,0 mm	60 mm	✓	✓	099 875 408
Polyetylen (PE)	Black	-40 - +85°C	10,2 mm	12,0 mm	65 mm	✓	✓	099 875 410
Polyetylen (PE)	Black	-40 - +85°C	13,0 mm	15,0 mm	70 mm	✓	✓	099 875 413
Polyetylen (PE)	Black	-40 - +85°C	16,4 mm	19,0 mm	100 mm	✓	✓	099 875 416
Polyetylen (PE)	Black	-40 - +85°C	21,0 mm	24,0 mm	130 mm	✓	✓	099 875 421

Corrugated pipe, slit**Functions**

Material	Colour	NW	Length	Article No.
Polyflex	Black	4,5	100 m	099 875 306
Polyflex	Black	8,5	50 m	099 875 309
Polyflex	Black	10,0	50 m	099 875 311
Polyflex	Black	13,0	50 m	099 875 313
Polyflex	Black	14,0	50 m	099 875 316
Polyflex	Black	17,0	50 m	099 875 318
Polyflex	Black	22,0	50 m	099 875 323

Corrugated pipe**Functions**

Material	Colour	NW	Length	Article No.
Polyflex	Black	7,5	50 m	099 875 207
Polyflex	Black	8,5	50 m	099 875 208
Polyflex	Black	10,0	50 m	099 875 210
Polyflex	Black	13,0	50 m	099 875 213
Polyflex	Black	16,0	50 m	099 875 216
Polyflex	Black	17,0	50 m	099 875 217
Polyflex	Black	22,0	50 m	099 875 222
Polyflex	Black	23,0	50 m	099 875 223
Polyflex	Black	26,0	25 m	099 875 226
Polyflex	Black	29,0	25 m	099 875 229
Polyflex	Black	37,0	25 m	099 875 237
Polyflex	Black	50,0	25 m	099 875 250



INSTALLATION MATERIAL

STARTER CABLES



Battery jump lead, PVC



Professional booster cables.
 Fine wired copper conductor core with thermoplastic sheath, PVC.
 Extremely flexible. Loading clamps in casted brass

Functions			
Working length	mm ²	Max. A	Article No.
3,5 m	35 mm ²	500A	099 887 335
5,0 m	35 mm ²	500A	099 887 350
3,5 m	50 mm ²	750A	099 887 535
5,0 m	50 mm ²	750A	099 887 550

Spare parts

Battery loading tong, red	099 885 841
Battery loading tong, black	099 885 851

Twin starter cable



Round on roll. Fine wired copper conductor.
 Operating temperature: -40°C - +100°C

Functions					
Colour	Material	Operation voltage	mm ²	Length	Article No.
Red/Black	PVC insulation	Max. 50V	2 x 6 mm ²	50 m	099 898 206
Red/Black	PVC insulation	Max. 50V	2 x 10 mm ²	50 m	099 898 210
Red/Black	PVC insulation	Max. 50V	2 x 16 mm ²	50 m	099 898 216
Red/Black	PVC insulation	Max. 50V	2 x 25 mm ²	50 m	099 898 225
Red/Black	PVC insulation	Max. 50V	2 x 35 mm ²	50 m	099 898 235
Red/Black	PVC insulation	Max. 50V	2 x 50 mm ²	50 m	099 898 250

Starter cable



Pos 1



Pos 2

Round on roll. Fine wired copper conductor.
Operating temperature: -40°C - +100°C

Functions

Colour	Material	Type	Operation voltage	mm ²	Length	Article No.
Black	Soft PVC insulation	FLY	Max. 50V	1 x 10 mm ²	50 m	099 898 312
Red	Soft PVC insulation	FLY	Max. 50V	1 x 10 mm ²	50 m	099 898 313
Black	Soft PVC insulation	FLY	Max. 50V	1 x 16 mm ²	50 m	099 898 318
Red	Soft PVC insulation	FLY	Max. 50V	1 x 16 mm ²	50 m	099 898 319
Black	Soft PVC insulation	FLY	Max. 50V	1 x 25 mm ²	50 m	099 898 327
Red	Soft PVC insulation	FLY	Max. 50V	1 x 25 mm ²	50 m	099 898 328
Black	Soft PVC insulation	FLY	Max. 50V	1 x 35 mm ²	50 m	099 898 337
Red	Soft PVC insulation	FLY	Max. 50V	1 x 35 mm ²	50 m	099 898 338
Black	Soft PVC insulation	FLY	Max. 50V	1 x 50 mm ²	50 m	099 898 352
Red	Soft PVC insulation	FLY	Max. 50V	1 x 50 mm ²	50 m	099 898 353

Battery loading tongs



Functions						
Material terminals	Material handle	W x H	mm ²	Max. A	Colour	Article No.
Casted brass	Plastic with rubber	200 x 120 mm	25-50 mm ²	500A	Black	099 885 050
Casted brass	Plastic with rubber	200 x 120 mm	25-50 mm ²	500A	Red	099 885 051

Battery loading tongs



Functions						
Material	W x H	mm ²	Max. A	Colour	Pos	Article No.
Casted brass – part insulated	140 x 90 mm	16-25 mm ²	200A	Black	2	099 885 225
Casted brass – part insulated	140 x 90 mm	16-25 mm ²	200A	Red	1	099 885 215
Casted brass – part insulated	135 x 145 mm	25-50 mm ²	750A	Red	1	099 885 841
Casted brass – part insulated	135 x 145 mm	25-50 mm ²	750A	Black	2	099 885 851

Test clip



Pos 2



Pos 3

Functions

Material	Cable Ø	Length	Consumption	Colour	Pos	Article No.
Full isolated	Ø 5 mm	80 mm	15A	Red	2	999 855 115
Full isolated	Ø 5 mm	80 mm	15A	Black	3	999 855 116

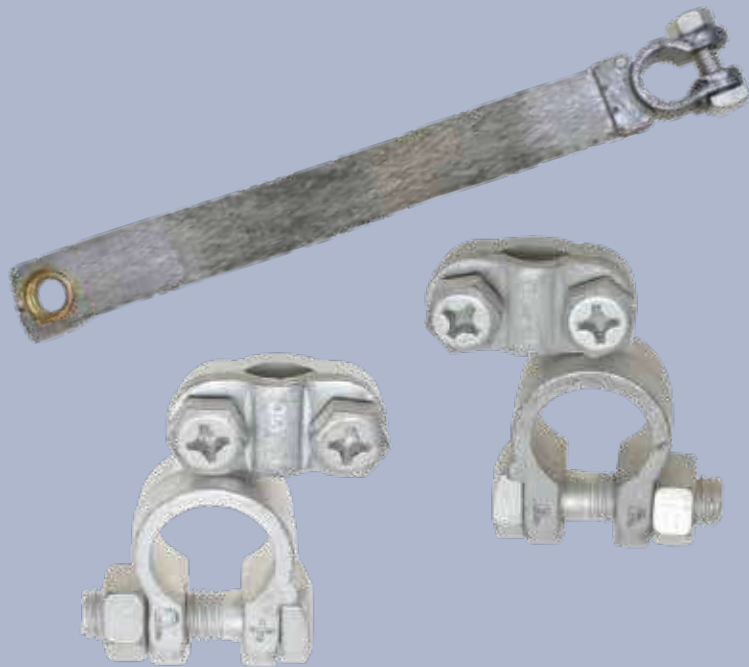
Motor vehicle cable



Pos 1

Functions

Type	Material	With Battery terminal	Cable type	Conductor cross-section	Length	Pos	Article No.
Connecting cable	black insulation	+/-		50 mm ²	200 mm	1	099 884 520
Connecting cable	black insulation	+/-		50 mm ²	300 mm	1	099 884 530
Connecting cable	black insulation	+/-		50 mm ²	400 mm	1	099 884 540



INSTALLATION MATERIAL

BATTERI TERMINALS

ENGINE EARTH STRAPS



Battery terminal



Functions					
Material	Type	For cable		Pos	Article No.
Brass, tin-plated	Right +	25-35 mm ²		1	099 880 000
Brass, tin-plated	Left +	25-35 mm ²		2	099 880 002
Brass, tin-plated	Right -	25-35 mm ²		3	099 880 001
Brass, tin-plated	Left -	25-35 mm ²		4	099 880 003

Spare parts		
Protection cap +		5 099 880 200
Protection cap -		6 099 880 201

Battery terminal

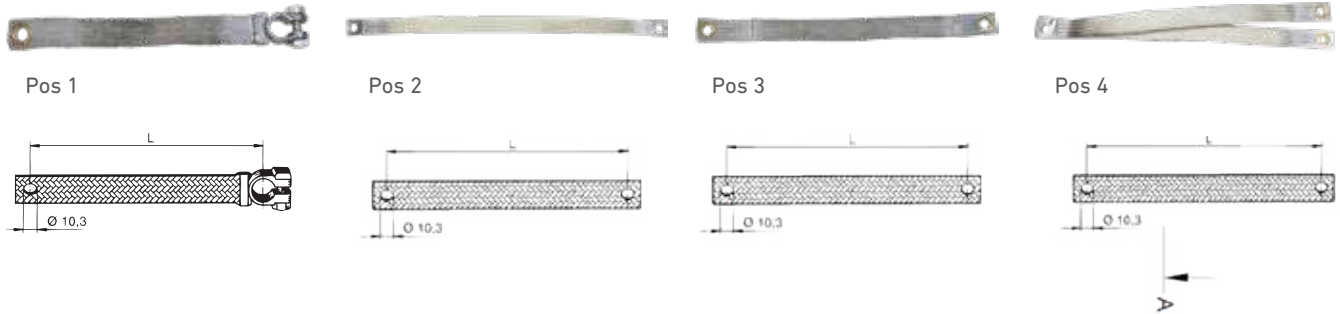


Functions					
Material	Type	For cable	Pos	Article No.	
Brass, tin-plated	Right +	35-70 mm ²	1	099 880 016	
Brass, tin-plated	Left +	35-70 mm ²	1	099 880 014	
Brass, tin-plated	Right -	35-70 mm ²	2	099 880 015	
Brass, tin-plated	Left -	35-70 mm ²	2	099 880 017	
Brass, tin-plated	+	35-70 mm ²	3	099 880 038	
Brass, tin-plated	-	35-70 mm ²	3	099 880 039	
Brass, tin-plated	-	35 mm ²	4	099 880 046	
Brass, tin-plated	+	50 mm ²	5	099 880 047	
Brass, tin-plated	-	50 mm ²	5	099 880 048	
Brass, tin-plated	+	25-70 mm ²	6	099 880 055	
Brass, tin-plated	-	25-70 mm ²	6	099 880 056	
Brass, tin-plated	+	35 mm ²	7	099 880 072	
Brass, tin-plated	-	35 mm ²	7	099 880 073	
Brass, tin-plated	+	25 mm ²	8	099 880 079	
Brass, tin-plated	-	25 mm ²	8	099 880 078	

Spare parts

Screw with nut	099 880 175
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Engine earth strap

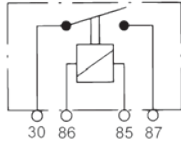


Functions							
Material	Material battery terminals	Double sided	Conductor cross-section	Length	Max. A	Pos	Article No.
copper workplaited, tin-plated	Brass, tin-plated		21 mm ²	200 mm	80A	1	099 881 220
copper workplaited, tin-plated	Brass, tin-plated		21 mm ²	250 mm	80A	1	099 881 225
copper workplaited, tin-plated	Brass, tin-plated		21 mm ²	300 mm	80A	1	099 881 230
copper workplaited, tin-plated	Brass, tin-plated		21 mm ²	350 mm	80A	1	099 881 235
copper workplaited, tin-plated	Brass, tin-plated		21 mm ²	400 mm	80A	1	099 881 240
copper workplaited, tin-plated	Brass, tin-plated		21 mm ²	500 mm	80A	1	099 881 250
copper workplaited, tin-plated	Brass, tin-plated		21 mm ²	550 mm	80A	1	099 881 255
copper workplaited, tin-plated	Brass, tin-plated		21 mm ²	600 mm	80A	1	099 881 260
copper workplaited, tin-plated			16 mm ²	200 mm	65A	2	099 882 120
copper workplaited, tin-plated			16 mm ²	300 mm	65A	2	099 882 130
copper workplaited, tin-plated			16 mm ²	350 mm	65A	2	099 882 135
copper workplaited, tin-plated			16 mm ²	400 mm	65A	2	099 882 140
copper workplaited, tin-plated			16 mm ²	450 mm	65A	2	099 882 145
copper workplaited, tin-plated			16 mm ²	500 mm	65A	2	099 882 150
copper workplaited, tin-plated			21 mm ²	250 mm	80A	3	099 882 225
copper workplaited, tin-plated			21 mm ²	300 mm	80A	3	099 882 230
copper workplaited, tin-plated			21 mm ²	350 mm	80A	3	099 882 235
copper workplaited, tin-plated			21 mm ²	500 mm	80A	3	099 882 250
copper workplaited, tin-plated		✓	50 mm ²	250 mm	160A	4	099 882 525
copper workplaited, tin-plated		✓	50 mm ²	300 mm	160A	4	099 882 530
copper workplaited, tin-plated		✓	50 mm ²	350 mm	160A	4	099 882 535
copper workplaited, tin-plated		✓	50 mm ²	400 mm	160A	4	099 882 540
copper workplaited, tin-plated		✓	50 mm ²	500 mm	Max 160A	4	099 882 550



POWER RELAYS

Single contact relays with fuse, mini



Socket

Functions

Type	Material: Plastic	Connection: Flat plug terminal 6,3 x 0,8 mm	Operation voltage	Consumption	Fuse Consumption	Brass tin-plated	Operating temperature: -40°C - +80°C	Mounting bracket incl.	Article No.
Single contact relays with fuse	✓	✓	12V	30 A	15 A	✓	✓	✓	090 225 012
Single contact relays with fuse	✓	✓	24V	20A	15 A	✓	✓	✓	090 225 024

Spare parts

Socket for relay	090 290 008
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Single contact relays, mini



Socket

Functions

Diagram	Socket	Material: Plastic	Connection: Flat plug terminal 6,3 x 0,8 mm	Operation voltage	Consumption	Brass tin-plated	Silver plated	Operating temperature: -40°C - +80°C	Mounting bracket incl.	2 x Consumptions "87"	Article No.
		✓	✓	12V	30 A	✓		✓	✓		090 220 012
		✓	✓	24V	20 A	✓		✓	✓		090 220 024
		✓	✓	12V	40 A	✓		✓	✓		090 230 012
		✓	✓	24V	20 A	✓		✓	✓		090 230 024
		✓	✓	12V	30 A	✓		✓	✓	✓	090 270 012
		✓	✓	24V	20 A	✓		✓	✓	✓	090 270 024
		✓	✓	12V	30 A	✓		✓	✓	✓ switch-off diode	090 270 105
		✓	✓	12V	2x20 A		✓	✓			090 275 006
		✓	✓	24V	2x10 A		✓	✓			090 275 008

Spare parts

Socket for relay	090 290 008
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Single contact relays, mini



Socket

Functions

Diagram	Socket	Material: Plastic	Connection: Flat plug terminal 6,3 x 0,8 mm	Operation voltage	Consumption	Brass tin-plated	Operating temperature: -40°C - +80°C	Mounting bracket incl.	With switch-off diode	With resistance	Article No.
		✓	✓	12V	20/30 A	✓	✓	✓			090 280 012
		✓	✓	24V	10/20 A	✓	✓	✓			090 280 024
		✓	✓	12V	20/30 A	✓	✓	✓	✓		090 280 158
		✓	✓	24V	10/20 A	✓	✓	✓	✓		090 280 204
		✓	✓	12V	30/40 A	✓	✓	✓	✓		090 280 254
		✓	✓	12V	20/30 A	✓	✓	✓		✓	090 280 110
		✓	✓	24V	10/20 A	✓	✓	✓		✓	090 280 207

Spare parts

Socket for relay	090 290 008
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Single contact relays, micro



Socket

Functions

Diagram	Socket	Material: Plastic	Connection: Terminal 1,2 = 4,8 x 0,8 Terminal 3,5 = 6,3 x 0,8	Operation voltage	Consumption	Operating temperature: -40°C - +80°C	With switch-off diode	With resistance	Article No.
		✓	✓	12V	25 A	✓			090 272 103
		✓	✓	12V	25 A	✓	✓		090 272 105
		✓	✓	24V	10 A	✓		✓	090 272 200

Spare parts

Socket for relay	090 295 045
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Change-over relays, micro



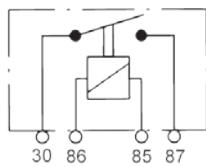
Socket

Functions									
Diagram	Socket	Material: Plastic	Connection: Terminal 1,2,4 = 4,8 x 0,8 Terminal 3,5 = 6,3 x 0,8	Operation voltage	Consumption	Operating temperature: -40°C - +80°C	With switch-off diode	With resistance	Article No.
		✓	✓	12V	15/25 A	✓			090 282 102
		✓	✓	24V	5/10 A	✓			090 282 200
		✓	✓	12V	15/25 A	✓		✓	090 282 100
		✓	✓	12V	15/25 A	✓	✓		090 282 104
		✓	✓	24V	5/10 A	✓	✓		090 282 202

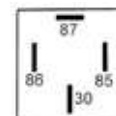
Spare parts

Socket for relay	090 295 045
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Power relay



Diagram



Socket

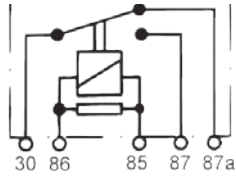
Functions

Type	Material: Plastic	Connection brass tin plated terminals (85+86)	Connection copper silver plated terminals (30+87)	Operation voltage	Consumption	Operating temperature: -40°C - +80°C	Mounting bracket incl.	Article No.
Power relay	✓	2 x 6,3 x 1,2	2 x 9,5 x 0,8	12V	70 A	✓	✓	090 285 012
Power relay	✓	2 x 6,3 x 1,2	2 x 9,5 x 0,8	24V	40 A	✓	✓	090 285 024
Power relay	✓	2 x 6,3 x 1,2	2 x 9,5 x 0,8	24V	70 A	✓	✓	090 285 026
Power relay	✓	2 x 6,3 x 1,2	2 x 9,5 x 0,8	12V	200 A	✓	✓	090 285 112
Power relay	✓	2 x 6,3 x 1,2	2 x 9,5 x 0,8	24V	100 A	✓	✓	090 285 124

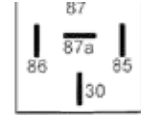
Spare parts

Socket for relay	090 295 005
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Change-over power relay



Diagram



Socket

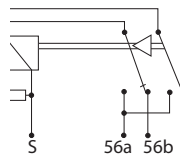
Functions

Type	Material: Plastic	Connection brass silver-plated terminals	Operation voltage	Consumption	Short term operation	Operating temperature: -40°C - +80°C	With resistance	Article No.
Change-over power relay	✓	4 x 6,3 x 0,8	24V	50 A	80 A	✓	✓	090 293 242

Spare parts

Socket for relay	090 290 008
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Latching relay



Diagram



Socket

Functions

Type	Material: Plastic	Connection: Flat plug terminal 5 x 6,3 mm	Operation voltage	Consumption	Article No.
Latching relay	✓	✓	12V	2x150W	090 899 120
Latching relay	✓	✓	24V	2x150W	090 899 240

Spare parts

Socket for relay	090 295 045
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Socket for relay



Pos 1



Pos 2



Pos 3

Functions

Type	Poled, for micro relay	Poled, for mini relay	Material: Plastic	Blade receptive	Mounting bracket	Can be linked together	Pos	Article No.
Socket for relay	5		✓	2 x 6,3 x 0,8 mm 3 x 4,8 x 0,8 mm	Ø 5,5 mm	✓	1	090 295 045
Socket for relay		9	✓	5 x 6,3 x 0,8mm 4 x 2,8 x 0,6 mm	Ø 5,5 mm	✓	2	090 290 008
Socket for relay		9	✓	2 x 9,5 x 1,2mm 3 x 6,3 x 0,8 mm 4 x 2,8 x 0,6 mm	Ø 5,5 mm	✓	3	090 295 005

Spare parts

Pin receptacle with locking lance 4,8 x 0,8mm/0,5-1,5mm ²	✓							099 852 204
Pin receptacle with locking lance 6,3 x 0,8 mm/1,5-2,5mm ²	✓							099 852 208
Pin receptacle with locking lance 9,5 x 1,1 mm/4,0-60,mm ²	✓							099 852 210

Multisocket



Pos 1



Pos 2

Functions

For relay	For Hazard flashers	For ignition switches	For turn switches	Poled	Material: Plastic	Suitable for	For blade receptacle	Pos	Article No.
Mini	✓			5	✓		5 x 6,3 x 0,8 mm	1	090 295 007
			✓	9	✓	083 862 001/002/ 004/011/052/054/073	6 x 6,3 x 0,8 mm	2	099 852 290

Spare parts

Pin receptacle with locking lance	6,3 x 0,8 mm/1,5 - 2,5 mm ²	099 852 208
Pin receptacle with locking lance	2,8 x 0,8 mm/0,25-0,75 mm ²	099 852 201

Multisocket for head lights



Pos 1



Pos 2

Functions

For head Consumptions	With blade receptacle	Without blade receptacle	Pos	Article No.
H4		✓	1	099 855 276
H4	8,0 x 0,8 mm			099 855 280
H7			2	099 855 282

Spare parts

Pin receptacle with locking lance	8,0 x 0,8 mm/1,5 - 2,5 mm ²	099 852 218
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FUSES

Car fuses



Functions						
ISO Norm	Colour		Ø - mm	Consumption	Pos	Article No.
DIN 72581	Yellow		6,0 x 25	5 A	1	099 832 005
DIN 72581	White		6,0 x 25	8 A	2	099 832 008
DIN 72581	Red		6,0 x 25	16 A	3	099 832 016
DIN 72581	Blue		6,0 x 25	25 A	4	099 832 025

Fuse box with fuses



Functions						
ISO norm	Type	L	A	D	Number & Consumption	Article No.
DIN 72581	Fuse box	30 mm	17 mm	5,0 mm	2 x 8 A	099 840 002
DIN 72581	Fuse box	60 mm	45 mm	6,0 mm	4 x 8 A	099 840 004
DIN 72581	Fuse box	90 mm	60 mm	6,0 mm	6 x 8 A	099 840 006
DIN 72581	Fuse box	120 mm	90 mm	6,0 mm	8 x 8 A	099 840 008
DIN 72581	Fuse box	180 mm	90 mm	6,0 mm	12 x 8 A	099 840 012

Glass fuses



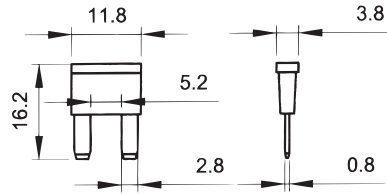
Functions					
Type	Brass caps, nickel plated	Ø 6,3 x 32 mm	Consumption	Pos	Article No.
Glass fuse, quick	✓	✓	2 A		099 834 002
Glass fuse, quick	✓	✓	5 A	1	099 836 005
Glass fuse, quick	✓	✓	10 A	2	099 834 010
Glass fuse, quick	✓	✓	15 A	3	099 834 015
Glass fuse, quick	✓	✓	20 A	4	099 834 020

Glass fuses



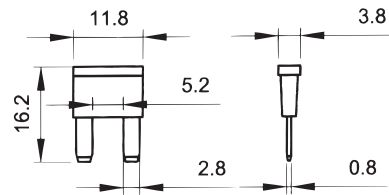
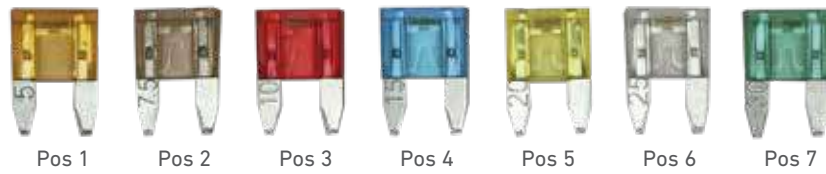
Functions					
ISO Norm	Type	Brass caps, nickel plated	Ø 5 x 20 mm	Consumption	Article No.
DIN 41661	Glass fuse, quick	✓	✓	2 A	1 099 835 002
DIN 41661	Glass fuse, quick	✓	✓	4 A	2 099 835 004
DIN 41661	Glass fuse, quick	✓	✓	5 A	3 099 835 005
DIN 41661	Glass fuse, quick	✓	✓	6 A	099 835 006
DIN 41661	Glass fuse, quick	✓	✓	6,3 A	099 835 007
DIN 41661	Glass fuse, quick	✓	✓	8 A	4 099 835 008
DIN 41661	Glass fuse, quick	✓	✓	10A	5 099 835 010
DIN 41661	Glass fuse, quick	✓	✓	15A	099 835 015

Mini blade fuses FK1



Functions						
ISO Norm	Colour		Consumption	Packing unit	Pos	Article No.
DIN 72581/3F	Grey		2 A	25 pcs	1	099 837 302
DIN 72581/3F	Violet		3 A	25 pcs	2	099 837 303
DIN 72581/3F	Pink		4 A	25 pcs	3	099 837 304
DIN 72581/3F	Beige		5 A	25 pcs	4	099 837 305
DIN 72581/3F	Brown		7,5 A	25 pcs	5	099 837 307
DIN 72581/3F	Red		10 A	25 pcs	6	099 837 310
DIN 72581/3F	Blue		15 A	25 pcs	7	099 837 315
DIN 72581/3F	Yellow		20 A	25 pcs	8	099 837 320
DIN 72581/3F	White		25 A	25 pcs	9	099 837 325
DIN 72581/3F	Green		30 A	25 pcs	10	099 837 330

Mini fuses with LED FK1



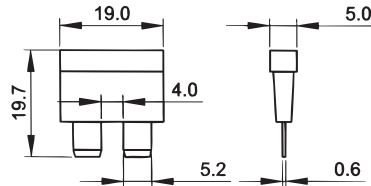
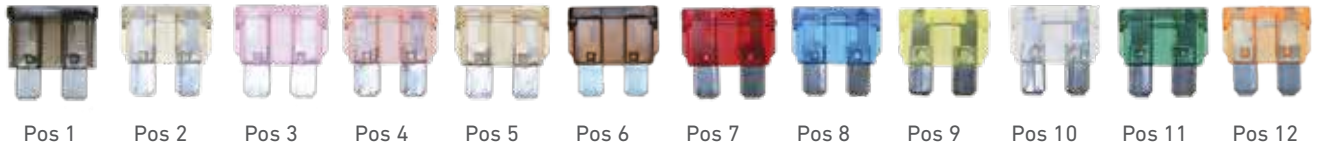
Functions							
Colour		Consumption	LED shines if the fuse is blown	Max voltage	Packing unit	Pos	Article No.
Beige		5 A	✓	32V	10 pcs	1	099 837 405
Brown		7,5 A	✓	32V	10 pcs	2	099 837 407
Red		10 A	✓	32V	10 pcs	3	099 837 410
Blue		15 A	✓	32V	10 pcs	4	099 837 415
Yellow		20 A	✓	32V	10 pcs	5	099 837 420
Transparent		25 A	✓	32V	10 pcs	6	099 837 425
Green		30 A	✓	32V	10 pcs	7	099 837 430

Fuse holder FK1



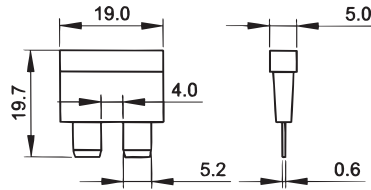
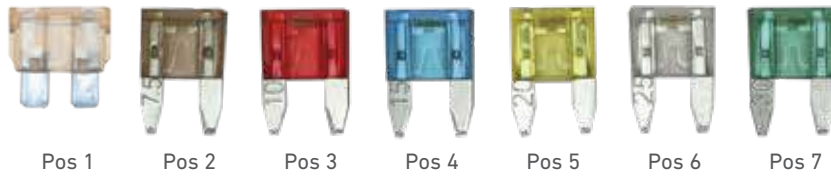
Functions			
Type	Max. Consumption	Connecting cable	Article No.
Fuse holder FK1 for mini fuses	30	2,5 mm ²	099 841 035

Flat blade fuse FK2



Functions						
ISO Norm	Colour		Consumption	Packing unit	Pos	Article No.
DIN 72581/3C	Black		1 A	50 pcs	1	099 837 001
DIN 72581/3C	Grey		2 A	50 pcs	2	099 837 002
DIN 72581/3C	Violet		3 A	50 pcs	3	099 837 003
DIN 72581/3C	Pink		4 A	50 pcs	4	099 837 004
DIN 72581/3C	Beige		5 A	50 pcs	5	099 837 005
DIN 72581/3C	Brown		7,5 A	50 pcs	6	099 837 007
DIN 72581/3C	Red		10 A	50 pcs	7	099 837 010
DIN 72581/3C	Blue		15 A	50 pcs	8	099 837 015
DIN 72581/3C	Yellow		20 A	50 pcs	9	099 837 020
DIN 72581/3C	Transparent		25 A	50 pcs	10	099 837 025
DIN 72581/3C	Green		30 A	50 pcs	11	099 837 030
DIN 72581/3C	Amber		40 A	50 pcs	12	099 837 040

Flat blade fuse with LED FK2



Functions							
Colour		Consumption	LED shines if the fuse is blown	Max voltage	Packing unit	Pos	Article No.
Beige		5 A	✓	32V	10 pcs	1	099 837 105
Brown		7,5 A	✓	32V	10 pcs	2	099 837 107
Red		10 A	✓	32V	10 pcs	3	099 837 110
Blue		15 A	✓	32V	10 pcs	4	099 837 115
Yellow		20 A	✓	32V	10 pcs	5	099 837 120
Transparent		25 A	✓	32V	10 pcs	6	099 837 125
Green		30 A	✓	32V	10 pcs	7	099 837 130

Fuse holder FK2



Pos 1



Pos 2

Functions

Connecting cable	Max. A	Pos	Article No.
Black 1,5 mm ²	20 A	1	099 841 180
Amber 2,5 mm ²	30 A	2	099 841 182

Fuse holder FK2



Pos 1



Pos 2



Pos 3



Pos 4

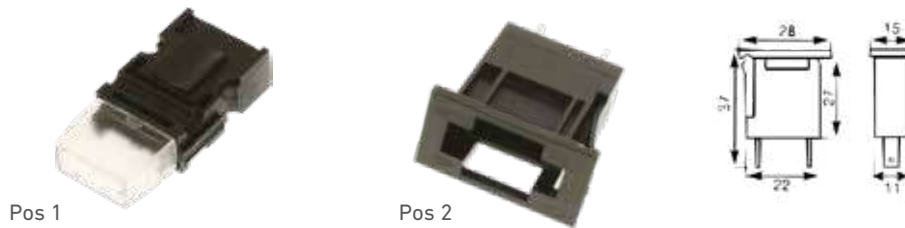
Functions

Type	With flat pin terminal	Plastic housing	Max voltage	Max A	Pos	Article No.
Fuse holder FK2	6,3 x 0,8 mm	✓	32V	40 A	1	099 841 111
Fuse holder FK2	6,3 x 0,8 mm	✓	32V	40 A	2	099 841 030

Spare parts

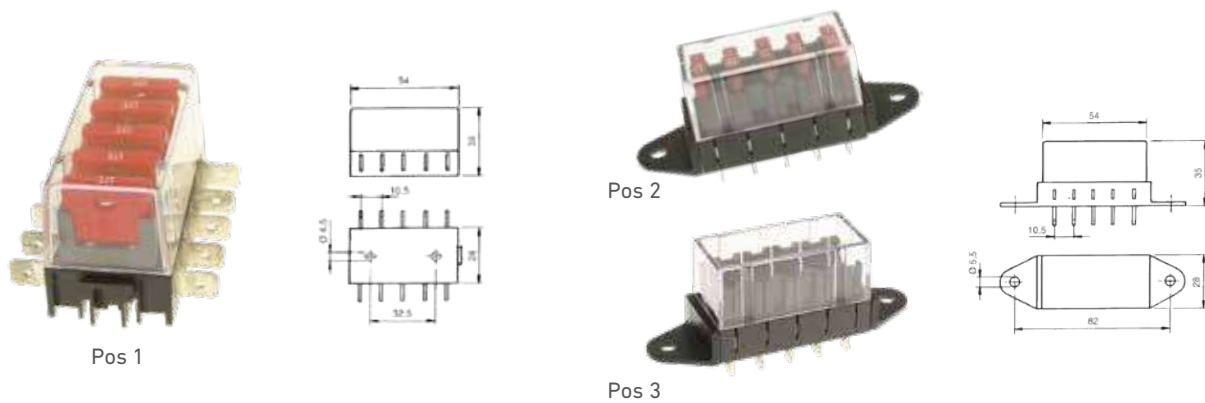
Cover	3	099 841 112
Fastening plate	4	099 841 113

Fuse holder FK2



Functions				
With flat pin terminal	Plastic housing	With cover and crimp contacts for cable	Pos	Article No.
	✓	1,5 mm ² - 2,5 mm ²	1	099 841 120
6,3 x 0,8 mm	✓		2	099 841 301

Fuse box FK2



Functions							
ISO Norm	With flat pin terminal	Incl. fuses	Plastic housing	Transparent cover	With	Pos	Article No.
DIN 72 581/3C	6,3 x 0,8 mm	✓	✓	✓	5 x 10 A	1	099 841 055
DIN 72 581/3C	6,3 x 0,8 mm	✓	✓	✓	5 x 10 A	2	099 841 065

Spare parts

Fastening, 2 pieces		099 849 956
Fuse box without fuses	3	099 841 965

Fuse box FK2



Water protected
2 out- and input with silver plated pins

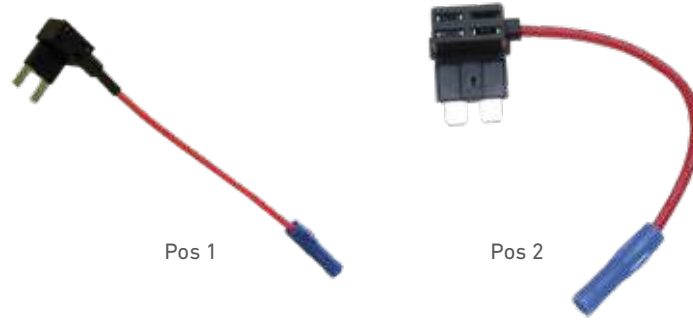
Functions

ISO Norm	Pole	L x B x H	With flat pin terminal	Plastic housing	Transparent cover	Article No.
DIN 40 050	2	52 x 28 x 43 mm	6,3 x 0,8 mm	✓	✓	099 841 072
DIN 40 050	4	85 x 28 x 43 mm	6,3 x 0,8 mm	✓	✓	099 841 074
DIN 40 050	6	118 x 28 x 43 mm	6,3 x 0,8 mm	✓	✓	099 841 086
DIN 40 050	8	148 x 28 x 43 mm	6,3 x 0,8 mm	✓	✓	099 841 088

Spare parts

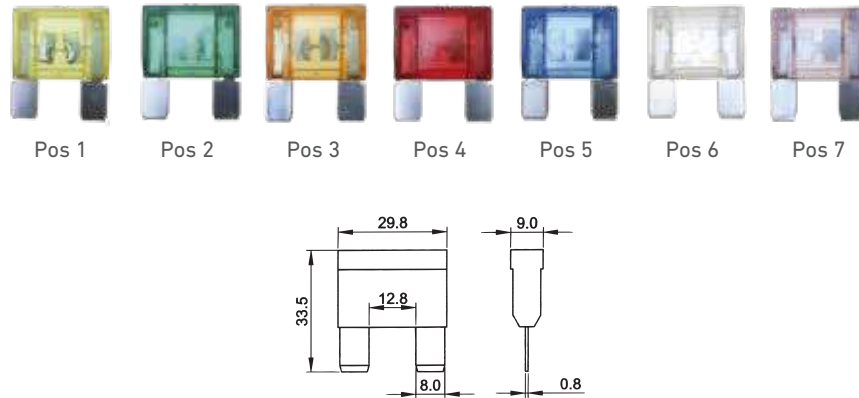
Double pole bridge	099 849 975
Socket for 099 841 072	099 849 961
Socket for 099 841 074	099 849 962
Socket for 099 841 086	099 849 963
Socket for 099 841 088	099 849 964

Fuse with extra outlet



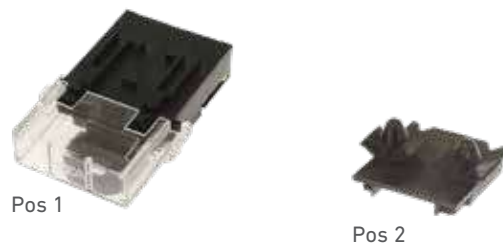
Functions				
Mounting	Suitable for	Pos	Article No.	
In fuse holder	FK1	1	099 841 205	
In fuse holder	FK2	2	099 841 210	

Maxi blade fuses



Functions						
ISO Norm	Colour		Consumption	Packing unit	Pos	Article No.
DIN 72581/3E	Yellow		20 A	10 pcs	1	099 837 220
DIN 72581/3E	Green		30 A	10 pcs	2	099 837 230
DIN 72581/3E	Amber		40 A	10 pcs	3	099 837 240
DIN 72581/3E	Red		50 A	10 pcs	4	099 837 250
DIN 72581/3E	Blue		60 A	10 pcs	5	099 837 260
DIN 72581/3E	White		80 A	10 pcs	6	099 837 280
DIN 72581/3E	Violet		100 A	10 pcs	7	099 837 300

Fuse holder Maxi

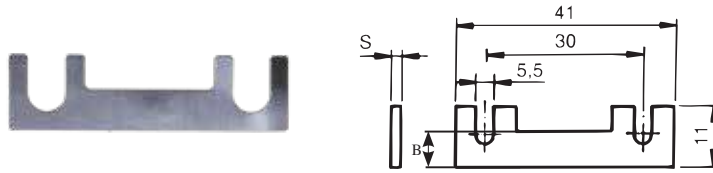


Functions				
ISO Norm	With female terminal with clip	Holder to be assembled	Pos	Article No.
DIN 72 581/3E	✓	✓	1	099 845 925

Spare parts

Fastening plate	2	099 845 926
Pin receptacle 6,0 -10,0 mm ²		099 852 567

Fuse links



Functions					
ISO Norm	S	B	Consumption	Packing unit	Article No.
DIN 72 581	0,25 mm	4,0 mm	30 A	10 pcs	099 838 030
DIN 72 581	0,20 mm	6,0 mm	40 A	10 pcs	099 838 040
DIN 72 581	0,40 mm	6,0 mm	50 A	10 pcs	099 838 050
DIN 72 581	0,50 mm	6,0 mm	80 A	10 pcs	099 838 080
DIN 72 581	0,70 mm	6,0 mm	100 A	10 pcs	099 838 100

Spare parts

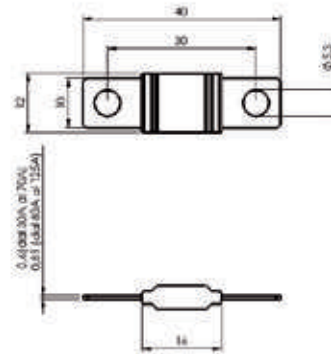
Fuse holder	099 838 002
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Fuse holder



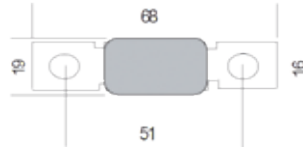
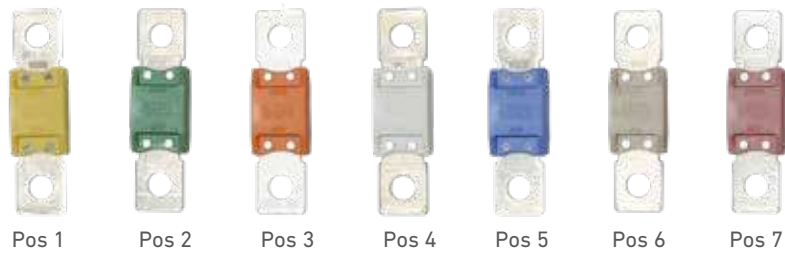
Functions		
For fuse-strips/Medival	Max. Consumption	Article No.
✓	125 A	099 838 001








Fuse links, Midifuse



Functions				
Colour		Consumption	Pos	Article No.
Amber		30 A	1	099 838 130
Green		40 A	2	099 838 240
Red		50 A	3	099 838 250
Yellow		60 A	4	099 838 260
Brown		70 A	5	099 838 270
White		80 A	6	099 838 280
Blue		100 A	7	099 838 291
Pink		125 A	8	099 838 292

Fuse links, Megafuse



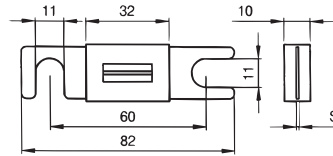
Functions				
Colour		Consumption	Pos	Article No.
Yellow		100 A	1	099 838 610
Green		125 A	2	099 838 612
Amber		150 A	3	099 838 615
White		175 A	4	099 838 617
Blue		200 A	5	099 838 620
Beige		225 A	6	099 838 622
Pink		250 A	7	099 838 625
Spare parts				
Fuse holder				099 841 630

Fuse holder for Megaval



Functions						
For Megaval fuses	Supplied without fuse	Dimension	Hole distance	Operation voltage	Max. Consumption	Article No.
099 838 610/612/615/617/620/622/625	✓	119 x 42 x 39 mm	101 mm	32 V	250 A	099 841 630

Fuse links



Functions					
ISO Norm	S	Consumption	With insulated ceramic body	Packing unit	Article No.
DIN 43 560/1	0,65 mm	50 A	✓	5 pcs	099 839 550
DIN 43 560/1	1,00 mm	80 A	✓	5 pcs	099 839 580
DIN 43 560/1	0,50 mm	100 A	✓	5 pcs	099 839 600
DIN 43 560/1	0,80 mm	125 A	✓	5 pcs	099 839 625
DIN 43 560/1	1,00 mm	160 A	✓	5 pcs	099 839 660
DIN 43 560/1	0,80 mm	200 A	✓	5 pcs	099 839 700
DIN 43 560/1	0,50 mm	250 A	✓	5 pcs	099 839 750
DIN 43 560/1	0,80 mm	300 A	✓	5 pcs	099 839 800
DIN 43 560/1	0,80 mm	355 A	✓	5 pcs	099 839 855
DIN 43 560/1	1,00 mm	425 A	✓	5 pcs	099 839 925
DIN 43 560/1	1,00 mm	500 A	✓	5 pcs	099 839 950

Fuse links



Functions

ISO Norm	S	B	Consumption	Packing unit	Article No.
DIN 43 560	0,60 mm	2,50 mm	50 A	10 pcs	099 839 050
DIN 43 560	1,00 mm	3,00 mm	80 A	10 pcs	099 839 080
DIN 43 560	0,50 mm	2,00 mm	100 A	10 pcs	099 839 100
DIN 43 560	0,50 mm	3,00 mm	125 A	10 pcs	099 839 125
DIN 43 560	0,40 mm	4,80 mm	160 A	10 pcs	099 839 160
DIN 43 560	0,50 mm	4,80 mm	200 A	10 pcs	099 839 200
DIN 43 560	0,60 mm	4,80 mm	250 A	10 pcs	099 839 250

Fuse holder



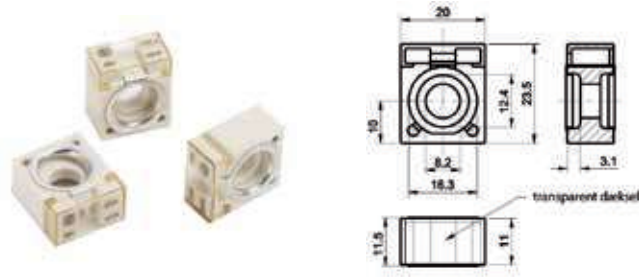
Functions

Connection	Operation voltage	Max. Consumption	Base isolation material according to	Article No.
Screw terminal	80 V	425 A	DIN 7708/1	099 841 040

Spare parts

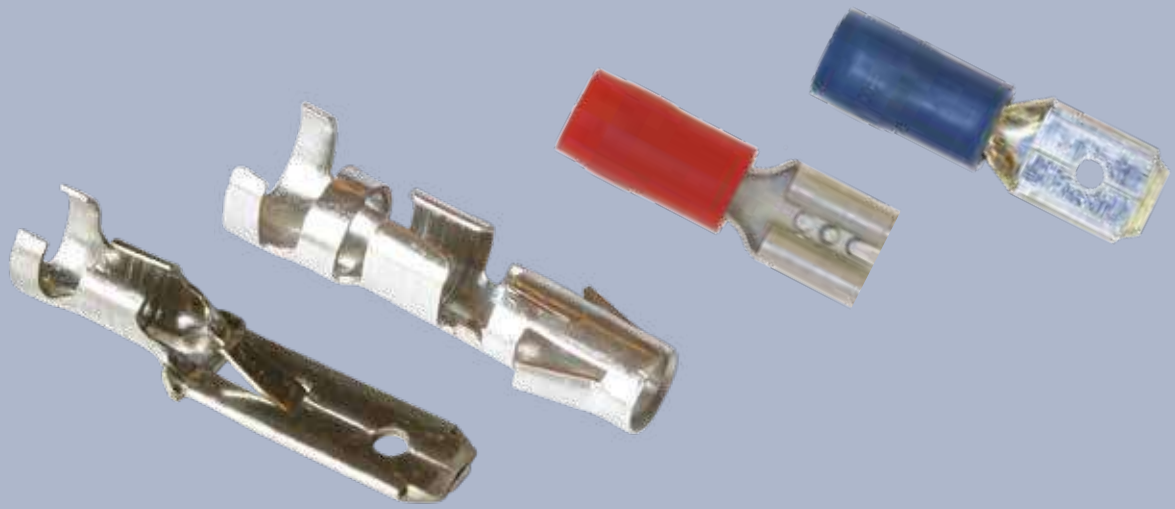
Suitable for: 099839550/580/600/625/660/700/750/800/855/925/950/050/080/100/125/160/200/250

Compact main fuse



With transparent cover for visual inspection of melting element

Functions			
Suitable for lifts and cranes	Operation voltage	Consumption	Article No.
IP56	58 V	150 A	099 831 150
IP56	58 V	175 A	099 831 175
IP56	58 V	200 A	099 831 200
IP56	58 V	250 A	099 831 250
IP56	58 V	300 A	099 831 300











BLAD RECEPTACLES & TERMINALS



Pin receptacle



Brass - tin-plated

Functions					
Colour		W x H	Conductor cross-section	Packing unit	Article No.
Red		2,8 x 0,8 mm	0,5-1,0 mm ²	50 pcs	099 851 001
Red		4,8 x 0,8 mm	0,5-1,0 mm ²	50 pcs	099 851 004
Blue		4,8 x 0,8 mm	1,5-2,5 mm ²	50 pcs	099 851 005
Red		6,3 x 0,8 mm	0,5-1,0 mm ²	50 pcs	099 851 007
Blue		6,3 x 0,8 mm	0,5-2,5 mm ²	50 pcs	099 851 008
Yellow		6,3 x 0,8 mm	4,0-6,0 mm ²	50 pcs	099 851 009
Blue		8,0 x 0,8 mm	1,5-2,5 mm ²	50 pcs	099 851 011
Yellow		10,0 x 1,1 mm	4,0-6,0 mm ²	50 pcs	099 851 015

Pin terminal





Brass - tin-plated

Functions					
Colour		W x H	Conductor cross-section	Packing unit	Article No.
Red		2,8 x 0,8 mm	0,5-1,0 mm ²	50 pcs	099 851 021
Red		6,3 x 0,8 mm	0,5-1,0 mm ²	50 pcs	099 851 027
Blue		6,3 x 0,8 mm	1,5-2,5 mm ²	50 pcs	099 851 028
Yellow		6,3 x 0,8 mm	4,0-6,0 mm ²	50 pcs	099 851 029

Pin receptacle branch






Brass - tin-plated

Functions					
Colour		W x H	Conductor cross-section	Packing unit	Article No.
Red		6,3 x 0,8 mm	0,5-1,0 mm ²	50 pcs	099 851 037
Blue		6,3 x 0,8 mm	1,5-2,5 mm ²	50 pcs	099 851 038

Pin receptacle, full insulated






Brass - tin-plated

Functions					
Colour		W x H	Conductor cross-section	Packing unit	Article No.
Red		6,3 x 0,8 mm	0,5-1,0 mm ²	50 pcs	099 851 040
Blue		6,3 x 0,8 mm	1,5-2,5 mm ²	50 pcs	099 851 041
Yellow		6,3 x 0,8 mm	4,0-6,0 mm ²	50 pcs	099 851 042

Pin terminal






Tin, bronze

Functions					
Colour		D	Conductor cross-section	Packing unit	Article No.
Red		Ø 4,0 mm	0,5-1,0 mm ²	50 pcs	099 851 053
Blue		Ø 4,0 mm	1,5-2,5 mm ²	50 pcs	099 851 054
Blue		Ø 5,0 mm	1,5-2,5 mm ²	50 pcs	099 851 055

Pin terminal






Brass - tin-plated

Functions					
Colour		D	Conductor cross-section	Packing unit	Article No.
Red		Ø 4,0 mm	0,5-1,0 mm ²	50 pcs	099 851 063
Blue		Ø 4,0 mm	1,5-2,5 mm ²	50 pcs	099 851 064
Blue		Ø 5,0 mm	1,5-2,5 mm ²	50 pcs	099 851 065

Wire pin sleeve






Copper - tin-plated. Full insulated

Functions					
Colour		D	Conductor cross-section	Packing unit	Article No.
Red		Ø 1,8 mm	0,5-1,0 mm ²	50 pcs	099 851 070
Blue		Ø 1,8 mm	1,5-2,5 mm ²	50 pcs	099 851 071
Yellow		Ø 1,8 mm	4,0-6,0 mm ²	50 pcs	099 851 072

Butt connector



Copper - tin-plated

Functions				
Colour		Conductor cross-section	Packing unit	Article No.
Red		0,5-1,0 mm ²	50 pcs	099 851 080
Blue		1,5-2,5 mm ²	50 pcs	099 851 081
Yellow		4,0-6,0 mm ²	50 pcs	099 851 082

Ring terminal



Copper - tin-plated




Functions					
Colour		D	Conductor cross-section	Packing unit	Article No.
Red		Ø 3,2 mm	0,5-1,0 mm ²	50 pcs	099 851 103
Red		Ø 4,3 mm	0,5-1,0 mm ²	50 pcs	099 851 104
Red		Ø 6,5 mm	0,5-1,0 mm ²	50 pcs	099 851 106
Blue		Ø 4,3 mm	1,5-2,5 mm ²	50 pcs	099 851 124
Blue		Ø 5,3 mm	1,5-2,5 mm ²	50 pcs	099 851 125
Blue		Ø 6,5 mm	1,5-2,5 mm ²	50 pcs	099 851 126
Blue		Ø 8,4 mm	1,5-2,5 mm ²	50 pcs	099 851 128
Blue		Ø 10,5 mm	1,5-2,5 mm ²	50 pcs	099 851 130
Yellow		Ø 5,3 mm	4,0-6,0 mm ²	50 pcs	099 851 145
Yellow		Ø 6,5 mm	4,0-6,0 mm ²	50 pcs	099 851 146
Yellow		Ø 8,4 mm	4,0-6,0 mm ²	50 pcs	099 851 148
Yellow		Ø 10,5 mm	4,0-6,0 mm ²	50 pcs	099 851 150
Yellow		Ø 13,1 mm	4,0-6,0 mm ²	50 pcs	099 851 152

Ring terminal, open

Copper - tin-plated

Functions					
Colour		D	Conductor cross-section	Packing unit	Article No.
Red		Ø 3,2 mm	0,5-1,0 mm ²	50 pcs	099 851 203
Red		Ø 4,3 mm	0,5-1,0 mm ²	50 pcs	099 851 204
Red		Ø 5,4 mm	0,5-1,0 mm ²	50 pcs	099 851 205
Blue		Ø 4,3 mm	1,5-2,5 mm ²	50 pcs	099 851 224
Blue		Ø 5,4 mm	1,5-2,5 mm ²	50 pcs	099 851 225
Yellow		Ø 4,3 mm	4,0-6,0 mm ²	50 pcs	099 851 244
Yellow		Ø 6,5 mm	4,0-6,0 mm ²	50 pcs	099 851 246



Crimp splice

Functions		
	Insert wire into crimp barrel	Crimp splice covered with adhesive shrinkable hose waterproof and weather resisting. Extra sealing and insulating not necessary.
	Crimp the crimp barrel	High strain relief by tight connection with wire insulation Temperature range: -55°C - +125°C Crimp splices meet requirements acc. DIN 46234 Material: shrinkable Polyamide
	Heat shrinkable hose until tubing re-covers and adhesive melts and flows	Application index: Automotive technic; electrical connections in humid rooms; outside illumination; alarm systems; tractors; earth moving vehicles boat electric

Crimp splice - blade receptacle





Copper - tin-plated

Functions				
Colour		W x H	Conductor cross-section	Article No.
Red		6,3 x 0,8 mm	0,5-1,0 mm ²	099 851 811
Blue		6,3 x 0,8 mm	1,5-2,5 mm ²	099 851 813

Crimp splice - blade terminal



Copper - tin-plated

Functions				
Colour		W x H	Conductor cross-section	Article No.
Red		6,3 x 0,8 mm	0,5-1,0 mm ²	099 851 822
Blue		6,3 x 0,8 mm	1,5-2,5 mm ²	099 851 824

Crimp splice - ring terminal



Copper - tin-plated

Functions				
Colour		D	Conductor cross-section	Article No.
Red		Ø 5,3 mm	0,5-1,0 mm ²	999 851 835
Blue		Ø 5,3 mm	1,5-2,5 mm ²	999 851 845
Blue		Ø 6,5 mm	1,5-2,5 mm ²	999 851 846
Blue		Ø 8,4 mm	1,5-2,5 mm ²	999 851 848
Yellow		Ø 6,5 mm	4,0-6,0 mm ²	999 851 856
Yellow		Ø 8,4 mm	4,0-6,0 mm ²	999 851 858
Yellow		Ø 10,5 mm	4,0-6,0 mm ²	999 851 860




Cable terminal







Functions			
Colour		Conductor cross-section	Article No.
White		0,5 mm ²	999 851 051
Lightblue		0,75 mm ²	999 851 075
Black		1,5 mm ²	999 851 150
Grey		2,5 mm ²	999 851 250
Amber		4,0 mm ²	999 851 400
Green		6,0 mm ²	999 851 600

Crimp splice - butt connector

Copper - tin-plated

Functions				
Colour		Conductor cross-section		Article No.
Red		0,5-1,0 mm ²		099 851 881
Blue		1,5-2,5 mm ²		099 851 882
Yellow		4,0-6,0 mm ²		099 851 883

Soldering connectorSoldering and insulating in one work process
for low temperature applications (up to + 125°C)

Functions					
Colour		Conductor cross-section	Solder ring with integrated flow medium	Thermoplastic joint	Article No.
Transparent		0,3-0,8 mm ²	✓	✓	099 851 884
Red		0,5-1,0 mm ²	✓	✓	099 851 885
Blue		1,5-2,5 mm ²	✓	✓	099 851 986
Yellow		4,0-6,0 mm ²	✓	✓	099 851 887

Pin receptacle with locking lance



Functions			
W x H	Conductor cross-section	Material	Article No.
2,8 x 0,8 mm	0,25-0,75 mm ²	Brass - tin-plated	099 852 101
4,8 x 0,8 mm	0,5-2,5 mm ²	Brass - tin-plated	099 852 204
9,5 x 1,1 mm	4,0-6,0 mm ²	Brass - tin-plated	099 852 210
6,3 x 0,8 mm	0,5-1,0 mm ²	Brass	099 852 207
6,3 x 0,8 mm	1,5-2,5 mm ²	Brass	099 852 208
6,3 x 0,8 mm	4,0-6,0 mm ²	Brass	099 852 209

Pin receptacle with locking lance



Pos 1

Pos 2

Functions						
W x H	Conductor cross-section	Material	Load- carrying capacity of current	Allowable total temperature	Pos	Article No.
6,3 x 0,8 mm	6,0-10,0 mm ²	Silver plated	100/80A	170°C	1	099 852 567
8,0 x 0,8 mm	1,5-2,5mm ²	Brass			2	099 852 218

Pin receptacle



Pos 1



Pos 2



Pos 3

Functions

W x H	Conductor cross-section	Material	Pos	Article No.
6,3 x 0,8 mm	1,0-2,5 mm ²	Brass	1	099 852 211
6,3 x 0,8 mm	0,5-1,0mm ²	Brass	3	099 852 216
6,3 x 0,8 mm	0,5-2,5mm ²	Brass	3	099 852 217

Pin terminal



Pos 1



Pos 2



Pos 3



Pos 4



Pos 5



Pos 6

Functions

Type	W x H	Conductor cross-section	Material	Fastening	Pos	Article No.
With locking lance	6,3 x 0,8 mm	1,0-1,5 mm ²	Brass		1	099 852 226
With locking lance	6,3 x 0,8 mm	1,5-2,5 mm ²	Brass		1	099 852 225
With locking lance	6,3 x 0,8 mm	4,0-6,0 mm ²	Brass		2	099 852 224
With locking lance	6,3 x 0,8 mm	1,5-2,5 mm ²	Silver-plated		3	099 852 525
	6,3 x 0,8 mm	0,5-1,0 mm ²	Brass - tin-plated		4	099 852 227
	6,3 x 0,8 mm	1,5-2,5 mm ²	Brass - tin-plated		5	099 852 230
Single	6,3 x 0,8 mm		Brass	M4	6	099 852 229

Double blade connector

Functions			
W x H	Material		Article No.
6,3 x 0,8 mm	Brass		099 852 233

Pin receptacle + branch

Functions			
W x H	Conductor cross-section	Material	Article No.
6,3 x 0,8 mm	0,5-1,5 mm ²	Brass	099 852 238

Receptacle



Functions					
Ø	Conductor cross-section	Material	Pos	Article No.	
3,5 mm	1,0-2,5 mm ²	Brass - tin-plated	1	099 852 255	
3,5 mm	4,0-6,0 mm ²	Silver plated	2	099 852 256	

Terminal



Functions					
Type	Ø	Conductor cross-section	Material	Pos	Article No.
Terminal	3,5 mm	1,0-2,5 mm ²	Brass - tin-plated	1	099 852 265
Terminal	3,5 mm	3,5-6,0 mm ²	Silver plated	2	099 852 266
Ring terminal	4,0 mm	1,0-2,5 mm ²	Brass	3	099 852 304
Ring terminal	5,0 mm	1,0-2,5 mm ²	Brass - tin-plated	4	099 852 305
Ring terminal	6,0 mm	1,0-2,5 mm ²	Brass - tin-plated	5	099 852 306
Ring terminal	8,0 mm	1,0-2,5 mm ²	Brass	6	099 852 308

Insulation sleeve



Functions				
For blade receptacle with locking lance (6,3 x 0,8 mm)	For blade terminal + blade receptacle	Material	Pos	Article No.
✓		Polyethylen	1	099 852 286
	✓	Polyethylen	2	099 852 287

Branch connector



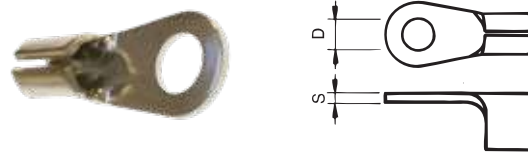
Functions					
Colour		Material	Dimension	Conductor cross-section	Article No.
Red		CuZn-Sn pp	19,5 x 13,0 x 9,5 mm	0,25-1,0 mm ²	099 855 558
Blue		CuZn-Sn pp	19,5 x 13,0 x 9,5 mm	1,0-2,5 mm ²	099 855 560
Yellow		CuZn-Sn pp	21,0 x 16,0 x 12,0 mm	2,5-6,0 mm ²	099 855 562

Terminal tong



Functions			
For insulated ring terminals	For non insulated ring terminals	Pos	Article No.
✓			099 859 973
	✓		099 859 974

Soldered ring terminal



Functions					
Conductor cross-section	S	D	Material	Surface: Lead-tin-alloy	Article No.
10 mm ²	1,5 mm	8,4 mm	Copper	✓	099 852 335
16 mm ²	1,8 mm	8,4 mm	Copper	✓	099 852 345
16 mm ²	1,8 mm	10,5 mm	Copper	✓	099 852 346
25 mm ²	2,0 mm	8,4 mm	Copper	✓	099 852 355
25 mm ²	2,0 mm	10,5 mm	Copper	✓	099 852 356
25 mm ²	2,0 mm	13,3 mm	Copper	✓	099 852 357
35 mm ²	2,5 mm	8,4mm	Copper	✓	099 852 365
35 mm ²	2,5 mm	10,5 mm	Copper	✓	099 852 366
50 mm ²	3,0 mm	10,5 mm	Copper	✓	099 852 376
50 mm ²	3,0 mm	13,3 mm	Copper	✓	099 852 377
70 mm ²	3,5 mm	10,5 mm	Copper	✓	099 852 386
70 mm ²	3,5 mm	13,3 mm	Copper	✓	099 852 387

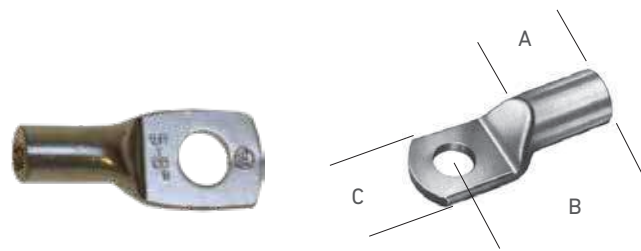
Press tong



Press tong 6-120 mm²

Functions					
For hexagonal pressing	Conductor cross-section	Fitting non insulated terminals	Length	Weight	Article No.
✓	6-120 mm ²	✓	600 mm	2,4 kg	999 859 076
✓	6-50 mm ²	✓	390 mm	1,1 kg	999 859 077

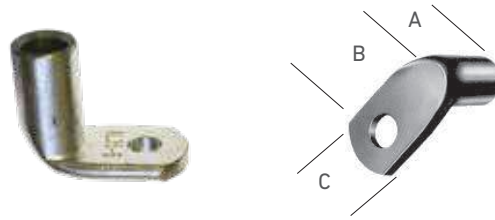
Terminal



Terminals for crimping

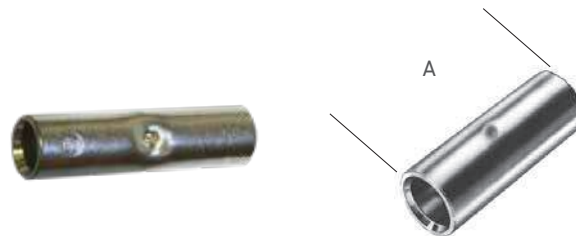
Functions								
ISO Norm	Conductor cross-section	Ø	Hole Ø	A	B	C	Copper galvanic tinned	Article No.
DIN EN 13600	6 mm ²	3,7 mm	5,3 mm	8 mm	19 mm	10 mm	✓	999 854 021
DIN EN 13600	6 mm ²	3,7 mm	6,4 mm	8 mm	21 mm	11 mm	✓	999 854 022
DIN EN 13600	6 mm ²	3,7 mm	8,4 mm	8 mm	23 mm	14 mm	✓	999 854 023
DIN EN 13600	6 mm ²	3,7 mm	10,5 mm	8 mm	25 mm	15 mm	✓	999 854 024
DIN EN 13600	10 mm ²	4,3 mm	5,3 mm	10 mm	20 mm	10 mm	✓	999 854 205
DIN EN 13600	10 mm ²	4,3 mm	6,4 mm	10 mm	22 mm	10 mm	✓	999 854 206
DIN EN 13600	10 mm ²	4,3 mm	8,4 mm	10 mm	25 mm	15 mm	✓	999 854 207
DIN EN 13600	10 mm ²	4,3 mm	10,5 mm	10 mm	28 mm	18 mm	✓	999 854 208
DIN EN 13600	16 mm ²	5,4 mm	6,4 mm	11 mm	22 mm	10 mm	✓	999 854 211
DIN EN 13600	16 mm ²	5,4 mm	8,4 mm	11 mm	27 mm	15 mm	✓	999 854 212
DIN EN 13600	16 mm ²	5,4 mm	10,5 mm	11 mm	29 mm	18 mm	✓	999 854 213
DIN EN 13600	25 mm ²	6,9 mm	6,4 mm	13 mm	27 mm	14 mm	✓	999 854 215
DIN EN 13600	25 mm ²	6,9 mm	8,4 mm	13 mm	29 mm	15 mm	✓	999 854 216
DIN EN 13600	25 mm ²	6,9 mm	10,5 mm	13 mm	32 mm	18 mm	✓	999 854 217
DIN EN 13600	25 mm ²	6,9 mm	13,0 mm	13 mm	34 mm	20 mm	✓	999 854 218
DIN EN 13600	35 mm ²	8,3 mm	6,4 mm	16 mm	32 mm	17 mm	✓	999 854 220
DIN EN 13600	35 mm ²	8,3 mm	8,4 mm	16 mm	33 mm	17 mm	✓	999 854 221
DIN EN 13600	35 mm ²	8,3 mm	10,5 mm	16 mm	36 mm	18 mm	✓	999 854 222
DIN EN 13600	35 mm ²	8,3 mm	12,0 mm	16 mm	37 mm	20 mm	✓	999 854 223
DIN EN 13600	50 mm ²	9,6 mm	8,4 mm	18 mm	37 mm	19 mm	✓	999 854 225
DIN EN 13600	50 mm ²	9,6 mm	10,5 mm	18 mm	39 mm	20 mm	✓	999 854 226
DIN EN 13600	50 mm ²	9,6 mm	13,0 mm	18 mm	41 mm	23 mm	✓	999 854 227
DIN EN 13600	70 mm ²	11,5 mm	10,5 mm	21 mm	43 mm	23 mm	✓	999 854 231
DIN EN 13600	70 mm ²	11,5 mm	13,0 mm	21 mm	44 mm	23 mm	✓	999 854 232
DIN EN 13600	95 mm ²	13,5 mm	10,5 mm	26 mm	47 mm	23 mm	✓	999 854 236
DIN EN 13600	95 mm ²	13,5 mm	13,0 mm	26 mm	47 mm	23 mm	✓	999 854 237

Terminal



Functions								
ISO Norm	Conductor cross-section	∅	Hole ∅	A	B	C	Copper galvanic tinned	Article No.
DIN EN 13600	16 mm ²	5,4 mm	6,5 mm	11 mm	14 mm	10 mm	✓	999 854 311
DIN EN 13600	35 mm ²	8,3 mm	6,5 mm	17 mm	16 mm	15 mm	✓	999 854 320
DIN EN 13600	35 mm ²	8,3 mm	8,4 mm	17 mm	18 mm	15 mm	✓	999 854 321
DIN EN 13600	50 mm ²	9,6 mm	10,5 mm	20 mm	21 mm	17 mm	✓	999 854 326
DIN EN 13600	70 mm ²	11,5 mm	10,5 mm	22 mm	22 mm	20 mm	✓	999 854 331
DIN EN 13600	95 mm ²	13,5 mm	10,5 mm	25 mm	23 mm	22 mm	✓	999 854 336

Terminal



Terminals for crimping

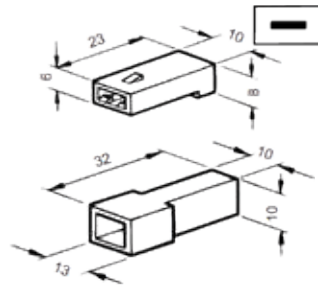
Functions					
ISO Norm	Conductor cross-section	∅	A	Copper galvanic tinned	Article No.
DIN EN 13600	6 mm ²	3,7 mm	19 mm	✓	999 854 458
DIN EN 13600	10 mm ²	4,3 mm	30 mm	✓	999 854 460
DIN EN 13600	16 mm ²	5,4 mm	35 mm	✓	999 854 462
DIN EN 13600	25 mm ²	6,9 mm	40 mm	✓	999 854 464
DIN EN 13600	35 mm ²	8,3 mm	45 mm	✓	999 854 466
DIN EN 13600	50 mm ²	9,6 mm	50 mm	✓	999 854 468
DIN EN 13600	70 mm ²	11,5 mm	55 mm	✓	999 854 470

Blade connector



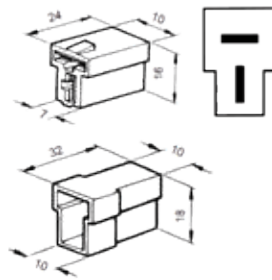
Functions								
Plug type	Poled	Connection	L x B x H	Cable	>2,5 mm ²	Trans- parent	Pos	Article No.
Blade connector		Flat pin terminal 6,3 x 0,8	48 x 12 x 6 mm			✓	1	099 855 403
Blade connector		Flat pin terminal 6,3 x 0,8	54 x 21 x 7 mm			✓	2	099 855 405
Flexible cable connector	12	Screw terminals		2,5 mm ²			3	099 855 416
Flexible cable connector	12	Screw terminals		6,0 mm ²				099 855 418
Flexible cable connector	12	Screw terminals		10,0mm ²				099 855 419
Flexible cable connector	12	Screw terminals		16,0 mm ²				099 855 420
End terminal, single					✓		4	999 855 417
End terminal, double					✓		5	999 855 427

Plug housing



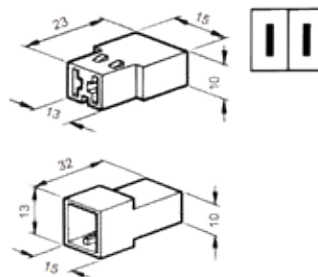
Functions				
For blade terminal	For blade receptacle	W x H	With locking lance	Article No.
	✓	6,3 x 0,80	✓	099 855 017
✓		6,3 x 0,80	✓	099 855 016

Plug housing



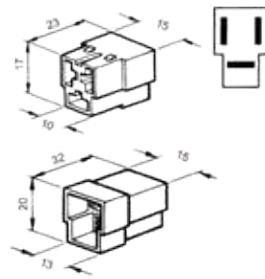
Functions				
For blade terminal	For blade receptacle	W x H	With locking lance	Article No.
	✓	6,3 x 0,80	✓	099 855 507
✓		6,3 x 0,80	✓	099 855 008

Plug housing



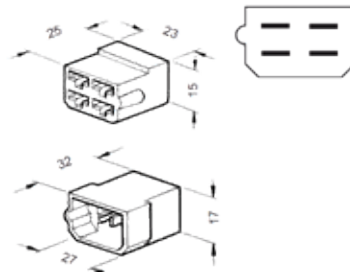
Functions				
For blade terminal	For blade receptacle	W x H	With locking lance	Article No.
	✓	6,3 x 0,80	✓	099 855 023
✓		6,3 x 0,80	✓	099 855 024

Plug housing



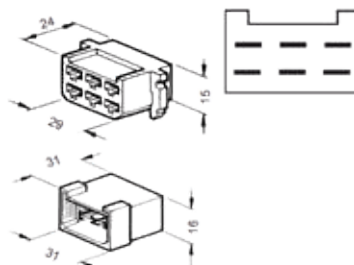
Functions				
For blade terminal	For blade receptacle	W x H	With locking lance	Article No.
	✓	6,3 x 0,80	✓	099 855 220
✓		6,3 x 0,80	✓	099 855 221

Plug housing



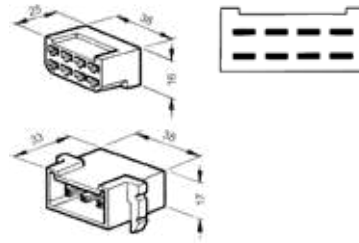
Functions				
For blade terminal	For blade receptacle	W x H	With locking lance	Article No.
	✓	6,3 x 0,80	✓	099 855 105
✓		6,3 x 0,80	✓	099 855 106

Plug housing



Functions				
For blade terminal	For blade receptacle	W x H	With locking lance	Article No.
	✓	6,3 x 0,80	✓	099 855 110
✓		6,3 x 0,80	✓	099 855 109

Plug housing



Functions				
Poled	For blade receptacle	W x H	With locking lance	Article No.
	✓	6,3 x 0,80	✓	099 855 175
✓		6,3 x 0,80	✓	099 855 176



OPERATION UNITS



Operation unit



Pos 1



Pos 2



Pos 3 & 4



Pos 5



Pos 6



Pos 7



Pos 8

Complete operation unit

Functions					
Mounting	Coil cable	Colour	Heating cable	Pos.	Article No.
For installation		Yellow	24V (pre-mounted)	1	093 960 100
Bracket fitted (incl.)		Yellow		2	093 960 200
Bracket fitted (incl.)	4-core	Yellow		3	093 962 400
Bracket fitted (incl.)	5-core	Yellow	24V (pre-mounted)	4	093 962 500

Spare parts

Mounting bracket for 093 960 100	5	093 865 000
Mounting bracket for 093 960 200 / 093 962 400 / 093 962 500	6	093 865 001
Mounting bracket for 093 960 200 / 093 962 400 / 093 962 500	7	093 865 002
Mounting bracket for 093 960 200 / 093 962 400 / 093 962 500	8	093 865 003

Magnet for operation unit



Functions

Mounting	For operation unit	Measures Ø	Tensile strength	Article No.
M5	093 960 200	40 x 8 mm	90n	093 865 030

Equivalent switch for operation unit



Functions

Type	For operation unit	Colour	Article No.
Equivalent switch NO	093 960 100 ... 500	Green	992 861 610
Equivalent switch NC	093 960 100 ... 500	Red	992 861 620
Equivalent switch double NO-NC	093 960 100 ... 500		992 861 630

Spare parts



Push button for yellow operation unit 093 96x xxx	1	992 861 600
Rubber cap for yellow operation unit 093 96x xxx	2	992 862 012
Heating cable 24V/5W for operation unit - Length 545 mm	3	093 865 124



INVERTERS



DC TO AC POWER INVERTER 300 W



Supplied with cable with plug for cigarette lighter and battery loading tongs.
 For optimal use and long life time, the inverter should be loaded with minimum 80% of the continuous power.
 Do NOT cover the inverter's ventilation holes

Functions			
	Power inverter 12V	Power inverter 24V	Article No.
Power inverter 12V			959 020 312
Power inverter 24V			959 040 324

Output waveform	MODIFY SINEWAVE	MODIFY SINEWAVE
Input voltage range	DC 10~15V (12V)	DC 20~30V (24V)
Input full load current	30A (12V)	15A (24V)
Standby input current	<0.6A (12V)	<0.5A (24V)
Output voltage (AC)	220V~240V	220V~240V
Output frequency	50Hz or 60Hz	50Hz or 60Hz
Continue output power	300W	300W
Peak output power	900W	900W
Efficiency	90%	90%
Battery low pre-alarm	10.5 ± 0.5V (12V)	21 ± 0.5V (24V)
Battery low shutdown	10 ± 0.5V (12V)	20 ± 0.5V (24V)
Thermal protect	60 ± 5 °C	60 ± 5 °C
Auto-operation fan (temperature or load)	YES	YES
Overload protect	YES	YES
Output short protect	YES	YES
Battery ex. 12V/24V protect	YES	YES
Battery polarity protect	YES (BY FUSE)	YES (BY FUSE)
Fuse	35A*1PC+15A*1PC (12V)	20A*1PC+10A*1PC (24V)
Dimension (L*W*H) mm	140*73*58 mm	140*73*58 mm
Weight	750g	750g
Approvals	CE, E4	CE, E4

DC TO AC POWER INVERTER 600 W



Supplied with cable with plug for cigarette lighter and battery loading tongs.
 For optimal use and long life time, the inverter should be loaded with minimum 80% of the continuous power.
 Do NOT cover the inverter's ventilation holes

Functions

	Power inverter 12V	Power inverter 24V	Pos	Article No.
Power inverter 12V			1	959 020 612
Power inverter 24V			2	959 040 624

Output waveform	MODIFY SINEWAVE	MODIFY SINEWAVE
Input voltage range	DC 10~15V (12V)	DC 20~30V (24V)
Input full load current	60A (12V)	30A (24V)
Standby input current	<0.6A (12V)	<0.4A (24V)
Output voltage (AC)	220V~240V	220V~240V
Output frequency	50Hz or 60Hz	50Hz or 60Hz
Continue output power	600W	600W
Peak output power	1500W	1500W
Efficiency	85~90%	85~90%
Battery low pre-alarm	10.5 ± 0.5V (12V)	21 ± 0.5V (24V)
Battery low shutdown	10 ± 0.5V (12V)	20 ± 0.5V (24V)
Thermal protect	60 ± 5 °C	60 ± 5 °C
Auto-operation fan (temperature or load)	YES	YES
Overload protect	YES	YES
Output short protect	YES	YES
Battery ex. 12V/24V protect	YES	YES
Battery polarity protect	YES (BY FUSE)	YES (BY FUSE)
Fuse	25A*3PCS (12V)	15A*3PCS (24V)
Dimension (L*W*H) mm	190*113*62	190*113*62
Weight	1500g	1500g
Approvals	CE, E4	CE, E4

DC TO AC POWER INVERTER 1000 W



Pos 1



Pos 2

For optimal use and long life time, the inverter should be loaded with minimum 80% of the continuous power. Do NOT cover the inverter's ventilation holes

Functions

	Power inverter 12V	Power inverter 24V	Pos	Article No.
Power inverter 12V			1	959 021 012
Power inverter 24V			1	959 041 024

Output waveform	MODIFY SINEWAVE	MODIFY SINEWAVE
Input voltage range	DC 10~15V (12V)	DC 20~30V (24V)
Input full load current	100A (12V)	50A (24V)
Standby input current	<0.6A (12V)	<0.5A (24V)
Output voltage (AC)	220V~240V	220V~240V
Output frequency	50Hz or 60Hz	50Hz or 60Hz
Continue output power	1000W	1000W
Peak output power	2400W	2400W
Efficiency	85~90%	85~90%
Battery low pre-alarm	10.5 ± 0.5V (12V)	21 ± 0.5V (24V)
Battery low shutdown	10 ± 0.5V (12V)	20 ± 0.5V (24V)
Thermal protect	60 ± 5°C	60 ± 5°C
Auto-operation fan (temperature or load)	YES	YES
Overload protect	YES	YES
Output short protect	YES	YES
Battery ex. 12V/24V protect	YES	YES
Battery polarity protect	YES (BY FUSE)	YES (BY FUSE)
Fuse	20A*6PCS (12V)	10A*6PCS (24V)
Dimension (L*W*H) mm	340*135*79	340*135*79
Weight	2500g	2500g
Approvals	CE, E4	CE, E4

Spare parts

Remote Control ON/OFF, 5000 mm cable	2	959 823 200
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DC TO AC POWER INVERTER 1500 W



Pos 1



Pos 2

For optimal use and long life time, the inverter should be loaded with minimum 80% of the continuous power. Do NOT cover the inverter's ventilation holes

Functions				
	Power inverter 12V	Power inverter 24V	Pos	Article No.
Power inverter 12V			1	959 021 512
Power inverter 24V			2	959 041 524

Output waveform	MODIFY SINEWAVE	MODIFY SINEWAVE
Input voltage range	DC 10~15V (12V)	DC 20~30V (24V)
Input full load current	150A (12V)	75A (24V)
Standby input current	<0.7A (12V)	<0.6A (24V)
Output voltage (AC)	220V~240V	220V~240V
Output frequency	50Hz or 60Hz	50Hz or 60Hz
Continue output power	1500W	1500W
Peak output power	3000W	3000W
Efficiency	85~90%	85~90%
Battery low pre-alarm	10.5 ± 0.5V (12V)	21 ± 0.5V (24V)
Battery low shutdown	10 ± 0.5V (12V)	20 ± 0.5V (24V)
Thermal protect	60 ± 5 °C	60 ± 5 °C
Auto-operation fan (temperature or load)	YES	YES
Overload protect	YES	YES
Output short protect	YES	YES
Battery ex. 12V/24V protect	YES	YES
Battery polarity protect	YES (BY FUSE)	YES (BY FUSE)
Fuse	25A*8PCS (12V)	15A*8PCS (24V)
Dimension (L*W*H) mm	400*135*79	400*135*79
Weight	3300g	3300g
Approvals	CE, E4	CE, E4

Spare parts

Remote Control ON/OFF, 5000 mm cable	2	959 823 200
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DC TO AC POWER INVERTER 3000 W



Pos 1



Pos 2

For optimal use and long life time, the inverter should be loaded with minimum 80% of the continuous power.
Do NOT cover the inverter's ventilation holes

Functions

	Power inverter 12V	Power inverter 24V	Pos	Article No.
Power inverter 12V			1	959 023 012
Power inverter 24V			1	959 043 024

Output waveform	MODIFY SINEWAVE	MODIFY SINEWAVE
Input voltage range	DC 10~15V (12V)	DC 20~30V (24V)
Input full load current	300A (12V)	150A (24V)
Standby input current	<1A (12V)	<0.9A (24V)
Output voltage (AC)	220V~240V	220V~240V
Output frequency	50Hz or 60Hz	50Hz or 60Hz
Continue output power	3000W	3000W
Peak output power	6000W	6000W
Efficiency	85~90%	85~90%
Battery low pre-alarm	10.5 ± 0.5V (12V)	21 ± 0.5V (24V)
Battery low shutdown	10 ± 0.5V (12V)	20 ± 0.5V (24V)
Thermal protect	60 ± 5 °C	60 ± 5 °C
Auto-operation fan (temperature or load)	YES	YES
Overload protect	YES	YES
Output short protect	YES	YES
Battery ex. 12V/24V protect	YES	YES
Battery polarity protect	YES (BY FUSE)	YES (BY FUSE)
Fuse	25A*16PCS (12V)	15A*16PCS (24V)
Dimension (L*W*H) mm	400*135*79	400*135*79
Weight	5900g	5900g
Approvals	CE, E4	CE, E4

Spare parts

Remote Control ON/OFF, 5000 mm cable	2	959 823 200
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REVERSING ALARM



Reverse gear alarm



Black polycarbonate housing with galvanized mounting bracket
 Cycle 60/min
 Distance between mountingholes : 22 mm (hole Ø 5,2 mm)

Functions							
IP Rating	Volume	Frequency range	Consumption	Operation voltage	Measure	Connection	Article No.
IP54	108 dB	2,6 kHz	10W	12/24V	58,8 x 37 mm	250 mm cable with Super Seal plug	090 450 350



CAMERA SYSTEMS



Digital wireless camera system

E



Delivered with 1 camera

Functions				
		Connection Up to 2 cameras	Connection Up to 4 cameras	Article No.
Monitor 7" Dual-view		✓		959 780 160
Monitor 7" Quad-view monitor			✓	959 780 164

Technical Specifications

IP Rating (Camera)	IP69K
TV System	PAL / NTSC
TV lines	500
Sensors	Night/day
Night vision distance	(12 infrared light): approx. 10 m
Recording function	(128G TF card)
Transmitting distance	120 m (barrier free)
Activating screen	Reverse gear
Operating Frequency	2,4 GHz
W x H x D monitor	182 x 122 x 26 mm
Resolution	800 x 3 (RGB) x 480
Consumption	Max. 6 watt
Encryption	MPEG4
Working temperature	-20°C - +70°C

Accessories

Extra camera	959 780 166
Mounting bracket with suction cup for 5"/7" monitor	959 780 170

Extra camera for Digital Wireless Camera Systems

E



Pos 1



Pos 2



Pos 3

Water resistant housing.

For Digital Wireless Camera Systems with Article No. 959780160/959780164

Functions		
	Pos	Article No.
Extra camera for Digital Wireless Camera System	1	959 780 166

Technical Specifications

IP Rating	IP69K
TV System	PAL / NTSC
TV lines	500
Operating voltage	Camera 10-32V with 12 infrared LED lights.
Dimension	12,5x10,9 mm
Resistance to Vibration	10G
Power consumption	Max. 250 watt
Transmitting distance	120 m (barrier free)
Working temperature	-20°C - +70°C

Spare parts

Antenna for 959 780 160 / 959 780 164 / 959 780 166	2	959 780 168
Mounting bracket with suction cup for 5"/7" monitor	3	959 780 170

Complete camerasystem with 7 "TFT LCD color monitor

E



Audio in both camera and monitor. Control box built into the monitor.
Electronic distance marks. Backlit buttons and "On Screen" menu.
Supplied with 1 pc. camera. 1 pc. remote control and 20 mtr. cable

Functions

Article No.

Complete camerasystem 7"**959 780 003****Technical Specifications**

IP Rating	IP30
7 "TFT LCD color monitor	✓
Control box	Built into monitor.
Backlit buttons	✓
"On Screen" menu	✓
Electronic distance marks	✓
Input	12/24 Vdc
Trigger input	3
TV System	PAL / NTSC
Connector	3 VBV Video Inputs
W x H x D	195 x 117 x 25 mm
Resolution	800 x RGB x 480
Consumption	18W / 1,5A
Vibration rating	4G
Shock Rating	100G
Working temperature	-30 - +85°C
Approved standards	CE (EN 61000-6-2: 2007 / EN 61000-6-3: 2007)

Monitor 7" for 3 cameras**Functions**

Article No.

Monitor 7"**959 780 203****Technical Specifications**

IP Rating	IP30
"On Screen" display	✓
Input	12/24 Vdc
Trigger input	3
TV System	PAL / NTSC
Connector	3 VBV Video Inputs
W x H x D	195 x 117 x 25 mm
Resolution	800 x RGB x 480
Consumption	18W / 1,5A
Vibration rating	4G
Shock Rating	100G
Working temperature	-30 - +85°C
Approved standards	CE (EN 61000-6-2: 2007 / EN 61000-6-3: 2007)

Camera without audio

Ⓔ



Functions								
IP Rating	Viewing angle	View	TV Lines	TV System	Lense	Mechanical vibration	Operating temperature	Article No.
IP69K	150°	Normal and Mirror	420	PAL	1/3" Sharp CCD	10G	-20 - +70°C	959 780 150

Camera without audio

Ⓔ



Pos 1



Pos 2

Functions								
IP Rating	Viewing angle	View	TV Lines	TV System	Lense	Operating temperature	Pos	Article No.
IP69K	120°	Normal and Mirror	420	PAL	1/3" Sharp CCD	-20 - +70°C	1	959 780 115
IP69K	120°	Normal and Mirror	420	PAL	1/3" Sharp CCD	-20 - +70°C	2	959 780 110

Camera without audio

E



Functions

IP Rating	Viewing angle	View	TV Lines	TV System	Lense	Mechanical vibration	Operating temperature	Article No.
IP69K	150°	Normal and Mirror	420	PAL	1/3" Sharp CCD	10G	-20 - +70°C	959 780 140



TACHO DISCS & THERMAL PAPER



Tacho discs



Pos 1

Pos 2

Pos 3

Complete assortment of tacho discs.
Suitable for Kienzie, VDO, MotorMeter. Production according to ISO

Functions

EC Tacho discs	With all E-approval signs	Weather resistant	Evaluable	Packing pr. box	Pos	Article No.
Kombi standard, automatic for MB Actros 100-24 MD K	✓	✓	✓	100 pcs.	1	093 199 120
Kombi standard, automatic 125-24/EC 4K MD	✓	✓	✓	100 pcs.	1	093 199 125
Automatic, electrical evaluable 125-24/EC 4MB MD	✓	✓	✓	100 pcs.	1	093 199 126
Kombi with rqm registration 125-24/3300 EC 4K MD	✓	✓	✓	100 pcs.	1	093 199 127
Automatic, electrical evaluable with rqm registration 125-24/3300 4B 4MD	✓	✓	✓	100 pcs.	1	093 199 128
Kombi standard, automatic 140-24/EC 4K MD	✓	✓	✓	100 pcs.	1	093 199 140
Automatic 180-24/EC 4B MD	✓	✓	✓	100 pcs.	1	093 199 180
Tacho discs for Veeder Root E11-14-17 120-24MGV 108 MD	✓	✓	✓	100 pcs.	1	093 199 170
Tacho discs for Veeder Root E11-13 120-24MGV 114 MD	✓	✓	✓	100 pcs.	1	093 199 173

Spare parts

Tacho disc storage box, plastic	2	093 199 110
Blind disc for protection of tacho pins in case of removed disc	3	093 199 199

Thermal paper roll for tachograph



3 Thermal paper rolls for digital tachographs

Premium quality thermal paper according to EC Regulations 432/2004

Resistant against heat and humidity, oil, diesel, fuel, fat, water, ethanol, plasticizer, cockpit spray

Functions

	Suitable for	Approval		Article No.
Thermal paper rolls for digital tachographs (3 rolls)	Siemens VDO DTCO 1381	e1	84	093 199 196
	Actia Smar Tach STD	e2	25	093 199 196
	Actia Smar Tach ADR	e2	29	093 199 196
	Stoneeridge SE 5000	e5	0002	093 199 196

CONTACT ALLOCATION



Contact allocation Super Seal plug 1 x 2 pol.

		Colour	Description
	1	Brown	Ground
	2	Blue	Permanent power supply

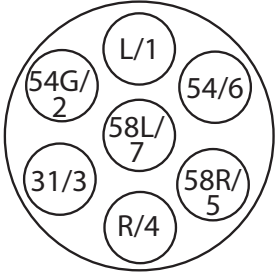
Contact allocation type 12V, 5 pol. plug

		Colour	Description
	1	Yellow	Indicator
	2	Brown	Stop light
	3	Blue	Rear fog light
	4	Green	Position light
	5	Black	Ground

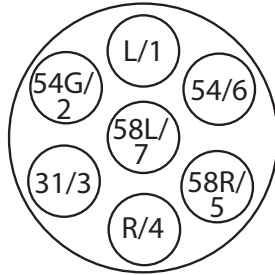
Contact allocation ABS-EBS 24V, 5/7-pol ISO 7638

		Colour	Description
	1	Red	Plus electrovalves
	2	Black	Plus electronics
	3	Yellow	Minus electronics
	4	Brown	Minus electro valves
	5	White	Warning device
	6	White-green	Data communication
	7	White-brown	Data communication

Contact allocation N-type 12V, 7-pol. ISO 1724

		Colour	Description
	L / 1	Yellow	Left hand direction indicator light
	54G / 2	Blue	Rear fog light
	31 / 3	White	Equipment ground
	R / 4	Green	Right hand direction indicator light
	58R / 5	Brown	Right hand rear position and marker lights, and license plate light 1)
	54 / 6	Red	Stop light
	58L / 7	Black	Left hand rear position and marker lights, and license plate light 1)
	1) The license plate lamp must be connected in such a manner that no lamps of this illumination have common connection with contact 5 and 7.		

Contact allocation S-type 12V, 7-pol. ISO 3732

		Colour	Description
	L / 1	Yellow	Reversing light (yellow) 1)
	54G / 2		Reserved for future allocation
	31 / 3	White	Earth (white)
	R / 4	Green	Power supply (green)
	58R / 5		No allocation
	54 / 6	Red	Power supply, controlled by ignition switch
	58L / 7		Return for circuit to contact no. 6
	58L/7 contact / socket receptacle. 58L/7 contact / connector - pin 1) Contact no. 3 of 7-pin/12V N-connector accord. to ISO 1724 is usually allocated as the return for this contact		

Contact allocation N-type 24V, - 7 pol. ISO 1185

		Colour	Description
	1 / 31	White	Ground
	2 / 58L	Black	Position and marker lights, left ¹⁾
	3 / L	Yellow	Indicator light, left
	4 / 54	Red	Stop light
	5 / R	Green	Indicator light, right
	6 / 58R	Brown	Position and marker lights, right ¹⁾
	7	Blue	Aux2 / Braking control for trailers
	¹⁾ The license plate must be connected so that no lights of this illumination have common connection with contact 2 and 6		


Contact allocation S-type 24V, 7 pol. ISO 3731

		Colour	Description
	1 / 31	White	Ground for electronics (Ground for CAN)
	2	Black	No allocation (CANH, Data Communication)
	3	Yellow	Reversing light
	4	Red	Permanent power supply
	5	Green	No allocation (CANL, Data communication)
	6	Brown	Aux3 / Axle lift device
	7	Blue	Rear fog light

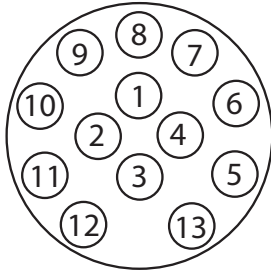
Contact allocation AMP plug, 7pol.

		Colour	Description
	1	White	Ground
	2	Green	Position lights
	3	Brown	Reversing light
	4	Yellow	Direction indicator light
	5	Red	Stop light
	6	Blue	Rear fog light
	7	-	-

Contact allocation Ermax bayonet plug, 15 pol.

		Colour	Description
	1	Black	Position and marker lights, left
	2	Yellow	Indicator light, left
	3	Red	Stop light
	4	White/Green	CANH, Data communication
	5	White	Ground
	6	Rosa	Reversing light
	7	White/ Black	Aux2 / Braking control for trailers
	8	White/Red	Ground for electronics (Ground for CAN)
	9	Amber	Permanent power supply
	10	Blue	Rear fog light
	11	Grey	Aux1 / Brake wear sencor
	12	White/Brown	CANL / Data communication
	13	Brown	Position and marker lights, right
	14	White/Blue	Aux3 / Axel lifting device
	15	Green	Indicatorer Right

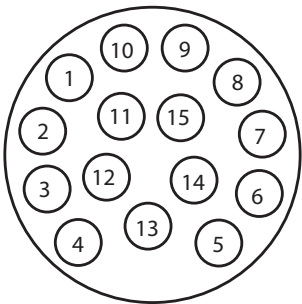
Contact allocation 12V, 13 pol. ISO 11446

	Colour	Description	
	1	Yellow Left hand direction indicator light (yellow)	
	2	Blue Rear fog light (blue)	
	3	White Earth for contacts no. 1-8. 1)	
	4	Green Right hand direction indicator light	
	5	Brown Right hand rear position and marker lights, and license plate light 2)	
	6	Red Stop light	
	7	Black Left hand rear position and marker lights, and license plate light 2)	
	8	Pink Reversing light	
	9	Amber Power supply, permanent positive	
	10	Grey Power supply, controlled by ignition switch	
	11	White-black Earth for contact no. 10. 1)	
	12		Trailer connection identification. In the plug the contact no.12 is connected to contact no. 3 to signal the truck whether a trailer is connected pulling.
	13	White-red Earth for contact no. 9. 1)	

1) All three earth cables must not be connected electrically conducting

2) The license-plate lamp must be connected in such a manner that no lamps of this illumination have a common connection with contact no. 5 and no. 7

Contact allocation 24V, 15 pol. ISO 12098

	Colour	Description
	1	Yellow Indicator, left
	2	Green Indicator, right
	3	Blue Rear fog light
	4	White Ground
	5	Black Position and marker lights, left ¹⁾
	6	Brown Position and marker lights, right ¹⁾
	7	Red Stop lights
	8	Pink Reversing light
	9	Amber Permanent power supply
	10	Grey Aux1 / Brake wear sensor
	11	White/Black Aux2 / Braking control for trailers
	12	White/Blue Aux3 / Axle lifting device
	13	White/Red Ground for electronics (Ground for CAN)
	14	White/Green CANH / Data communication
	15	White/Brown CANL / Data communication

¹⁾ The license plate illumination must be connected so that no lights of this illumination have a common connection with contract nr. 5 and nr. 7

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