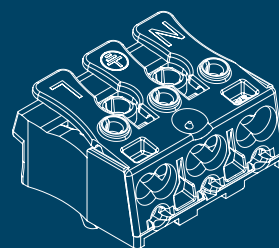
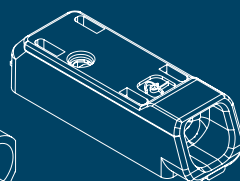
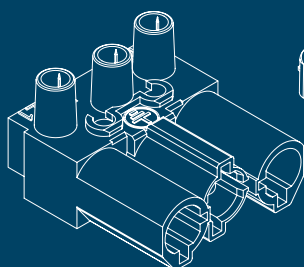


THE SAFE CONTACT WORLDWIDE

OEM

CATALOGUE 18/19



ADELS
contact



Ready for the Future

Since 1930, our guideline “The safe contact worldwide“ has been a synonym both for high-quality and innovative connection technology for luminaires and electrical appliances as well as for a reliable, quick and individual customer care worldwide.

Also in the digital age, we will continue to follow our philosophy. One of the results are many product innovations with which you are well equipped for the future. The new printed catalogue you now hold in your hands is the ideal supplement to all information that is now available in digital form. It provides an outline of our broad product range of connection solutions for our target industries, highlights the most important advantages for customers and navigates with pictures and headlines to more than 2,000 articles which you can find on our homepage.

Bergisch Gladbach, March 2018

J. Hans Hochköppler

Andre Rumpff

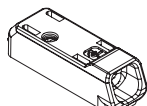
Index

The Company 6

PRODUCT GROUPS

SMD Connectors

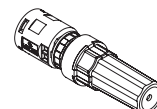
The product range for the safe connection of LED modules



8

Luminaire Connection IP65/66

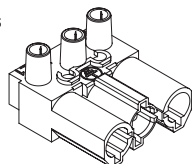
Simple, safe and cost effective



32

Plug and Socket System AC 166®

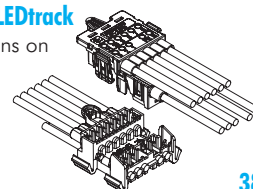
Flexibility, safety and cost effectiveness in installation



12

Continuous Row Lighting System LEDtrack

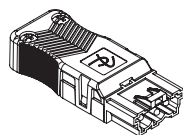
The complete system for all functions on lighting strip systems



38

Plug and Socket System AC 164

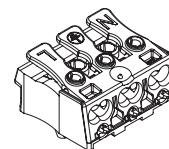
The compact plug and socket system for installations with little space



18

Screwless Connectors

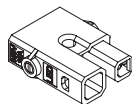
Push – press – play
The easy and quick connection



44

Connecting System AC 162

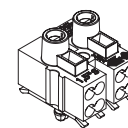
The system for LED and low-voltage applications



24

Screw-Screwless Connectors

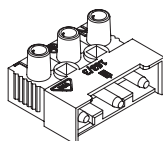
The “hybrid solution”
in the connectors world



48

Plug and Socket Connectors 160/163

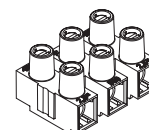
The alternative connection solution for appliances, drives and luminaires



28

Screw Connectors

Proven connection of electrical appliances and luminaires



52



Lighting



Installation



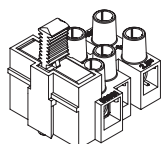
Electrical Appliances



Electronics

Fused Connectors

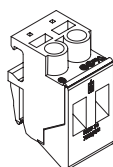
Protection of sensitive luminaires and appliances



56

Transformer Connectors

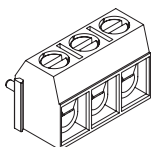
Safe connection of small and control transformers



60

(Pluggable) PCB Connectors

Pinpoint accuracy in spacing and special solutions – our strength



64

FURTHER INFORMATION

Codings AC 166®/AC 164

68

Characteristics of the Insulating Materials

70

IP Codes

71

Relevant Standards

72

Configuration and Dimensions of Connecting Cables

73



Transformers

COMPANY

The Safe Contact Worldwide



0.5 Mio

Finished Parts/
Day

130

Approvals

60

Countries

WHY PRODUCTS MADE BY ADELS CONTACT?

Because we are the way we are! Some people call it culture or philosophy. We just call it being close to the customer.

Our particular competence is the rapid development of customised solutions of superior connection technology. Experience and expert knowledge help to find alternatives for you and to put the smartest solution into practice. Here, we are true to our guiding principle of "fit-for-purpose", considering that the most expensive product is not always the better one.

Close contact to our customers is an essential part of our success. People in the business take immediate, personal and reliable care of your questions and concerns.

100 Employees

1930 Founded

100% Independent

SMD CONNECTORS

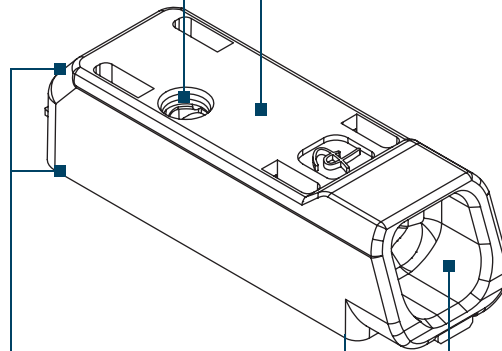
The Product Range for the Safe Connection of LED Modules

testing aperture and conductor release

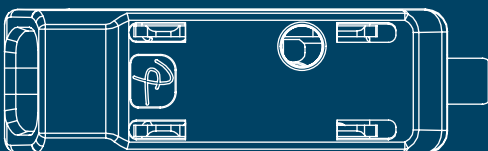
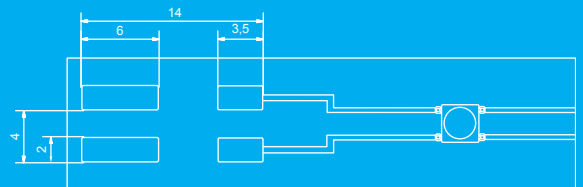
pick & place area $\varnothing 3 \text{ mm}^2$

extremely reduced
total height of 3.45 mm

connection of solid or flexible
conductors up to 0.75 mm^2



FOOTPRINT SMDflat 345



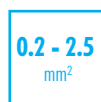
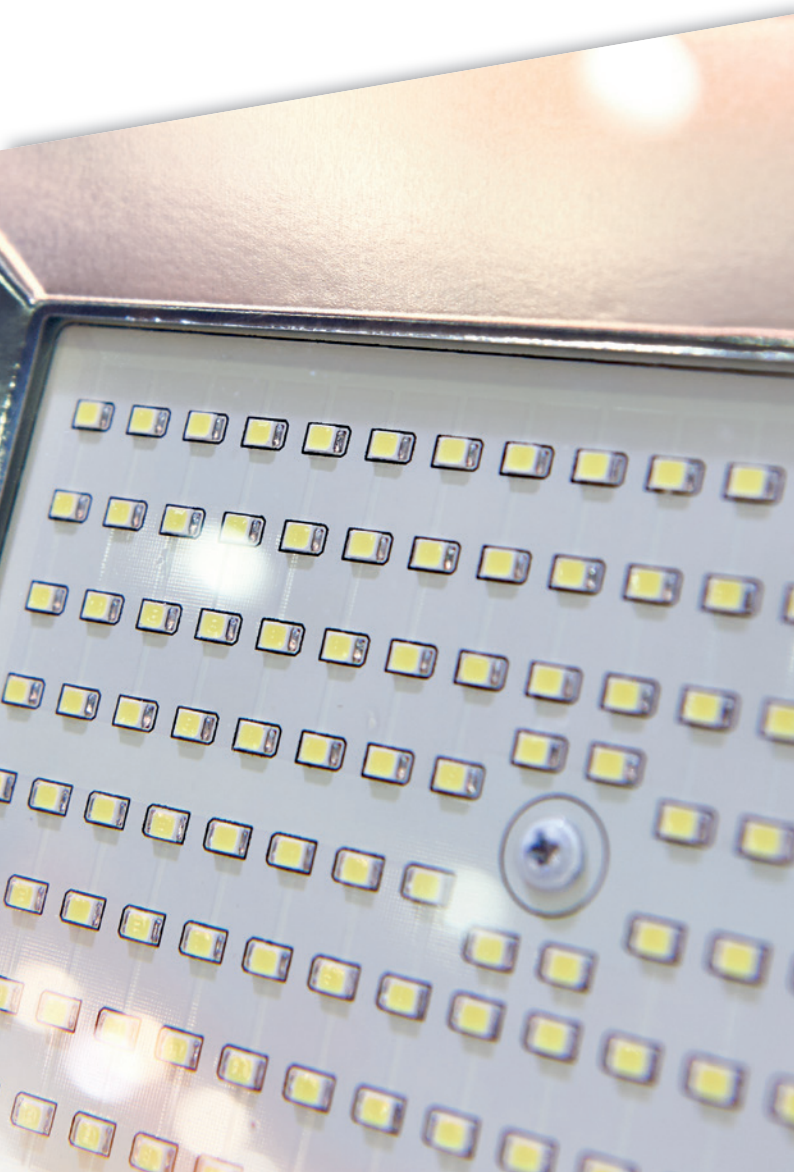


APPLICATIONS

- LED modules
- printed circuit boards
- power supply

ADVANTAGES

- minimal shadow effect due to reduced total height
- minimal discolouring due to the reflow soldering process
- safe processing on automatic luminaire assembly machines



PRODUCT RANGE

SMD Connectors

SMD CONNECTORS WITHOUT MOULDING

SMDblank/ 1

horizontally pluggable 0.2 - 0.5 mm²
solid and flexible

vertically pluggable 0.5 mm²
solid



SMD CONNECTORS PIN SPACING 6.0 mm

SMDflat 545/ ..

1 to 3 pole

0.5 - 2.5 mm²

solid and flexible



SMD CONNECTORS PIN SPACING 4.0 mm

SMDflat 345/ ..

1 and 2 pole

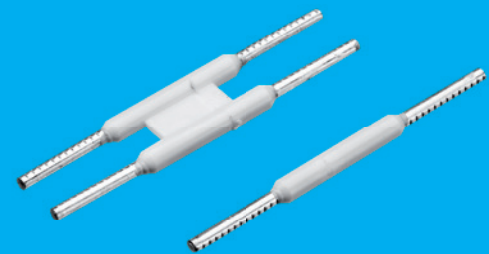
0.2 - 0.75 mm²

solid and flexible



VARIANT

2 pole, bridged



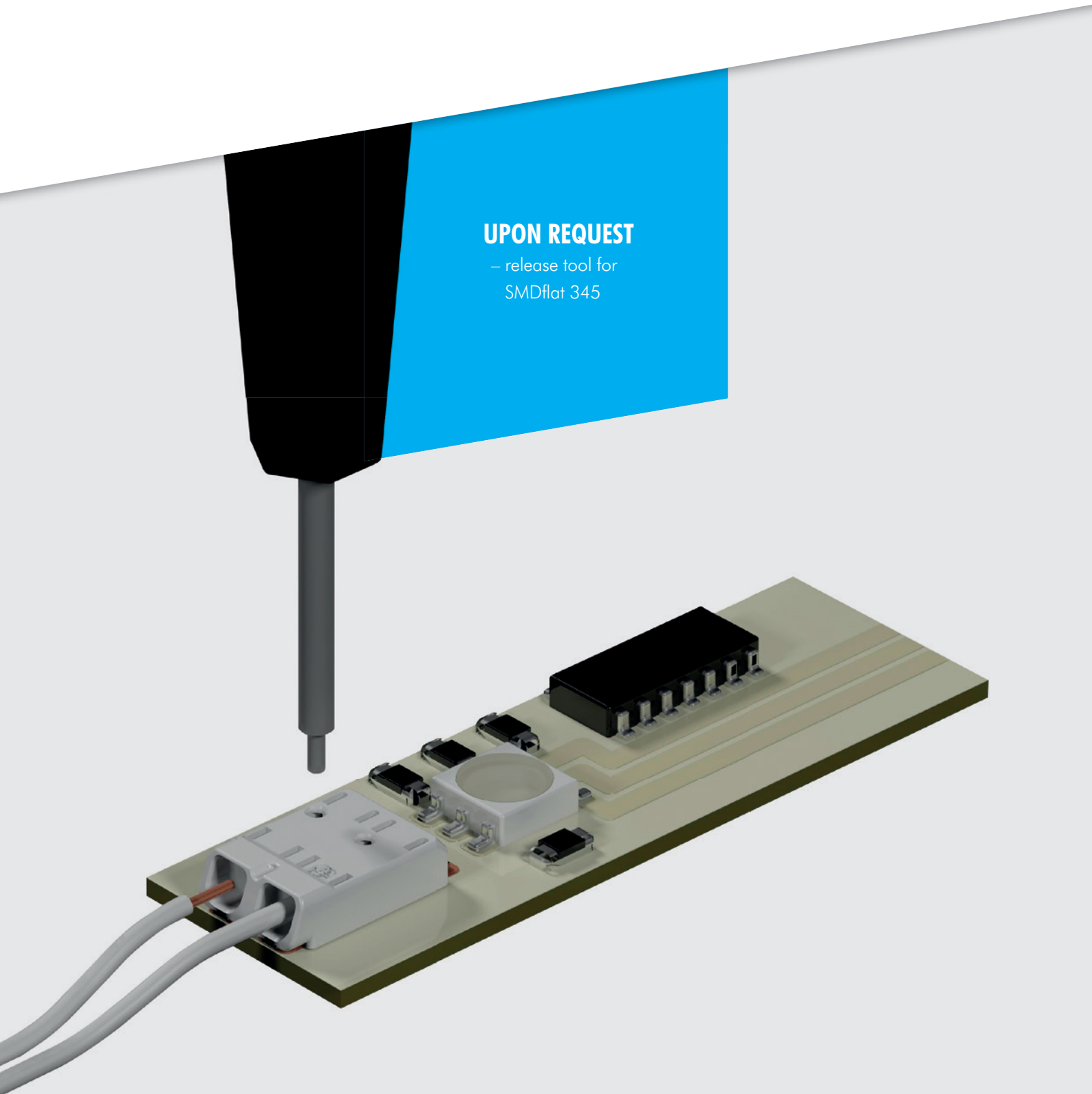
CONNECTING LINKS

SMDflat 345 KU/ ..

1 and 2 pole

UPON REQUEST

– release tool for
SMDflat 345

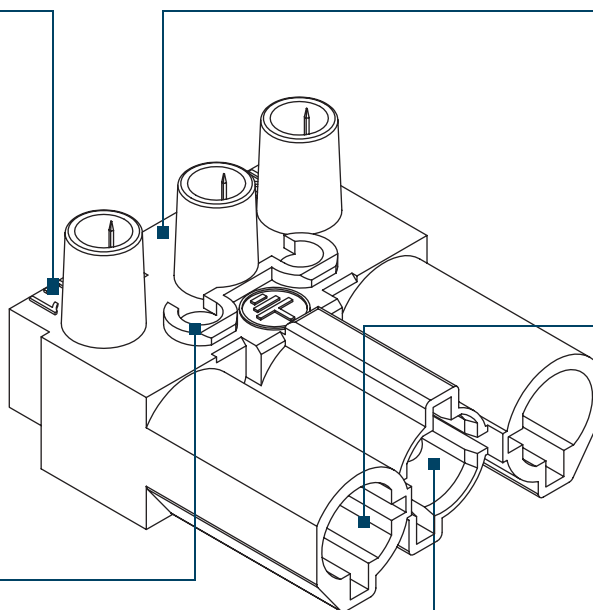


PLUG AND SOCKET SYSTEM AC 166®

Flexibility, Safety and Cost Effectiveness in Installation

**suitable strain relief with
different cable outlets**

screw, screwless or solder terminal

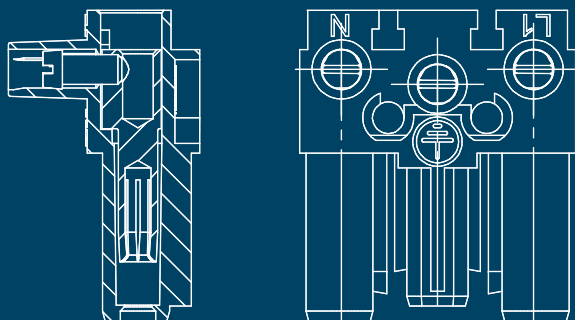


**mechanical coding for
different applications**

**fixing by
screw or rivet**

100 % PROTECTION AGAINST INCORRECT PLUGGING

- = no plugging when rotated by 180 °
- = no one pole plugging
- = no plugging of different numbers of poles
- = no plugging when shifted aside



PLUG AND SOCKET SYSTEM AC 166®

Lighting



Installation

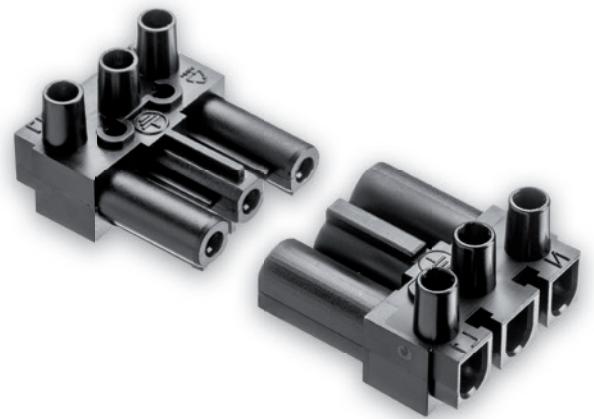


APPLICATIONS

- furniture
- displays
- luminaires
- booth construction
- retail lighting
- building installation

ADVANTAGES

- error-free installation according to EN 61535
- "plug & play" without dismantling, stripping, manual connecting or extensive re-working
- 30 % lower costs, 70 % less time
- modular system for luminaires, appliances and socket outlets, pre-assembled cables and distributors



				20 A 250 V
PA 6/6 UL 94: V-2	T 70 °C EN 61535	0.5 - 2.5 mm ²	IP20 IP40	

PRODUCT RANGE

Plug and Socket System AC 166®

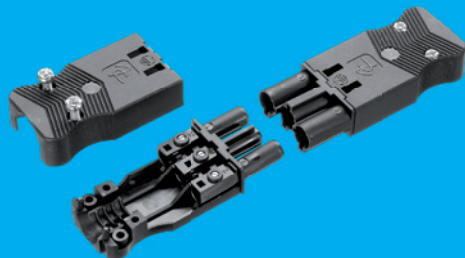
FLAT PLUGS AND SOCKETS WITH STRAIN RELIEF

AC 166 GSTF/ .. and

AC 166 GBUF/ ..

3 to 5 pole

cables 0.5 - 2.5 mm²



CONNECTING CABLES WITH PLUG

AC 166 ALCGS/ ..

3 to 5 pole

cables 1.5 mm² and 2.5 mm² in PVC (H05VV-F) and halogen-free (H05Z1Z1-F)

fire protection class Eca



CONNECTING CABLES WITH SOCKET

AC 166 ALCGB/ ..

3 to 5 pole

cables 1.5 mm² and 2.5 mm² in PVC (H05VV-F) and halogen-free (H05Z1Z1-F)

fire protection class Eca



DESIGNS AND VARIANTS

- apart from the colour-coded plug and socket connectors, all products are available in black and white.
- pre-assembled strain reliefs, latches
- locking pins, protection caps
- printing
- special design for 4.0 mm² cables
- panel mount plugs/sockets for plastic mouldings (3 pole)

- plug-in adapters LINECT®
- fastening clips for distributing blocks
- plug and socket connectors series AC 166® Classic
- cables with customised stripping/ dismantling lengths
- fire protection classes Dca, Cca and B2ca

EXTENSION CABLES

AC 166 VLCG/ ..

3 to 5 pole

cables 1.5 mm² and 2.5 mm² in PVC (H05VV-F) and halogen-free (H05Z1Z1-F)

fire protection class Eca



MAINS CABLES

AC 166 NLCGB/3

3 pole

cables 1.5 mm² in PVC (H05VV-F)



LATCHES

AC 166 VSF



DISTRIBUTORS

AC 166 GVT/ ..

3 to 5 pole

1 input, 2 output terminals



DISTRIBUTING BLOCKS

AC 166 GVT .. / ..

3 to 5 pole

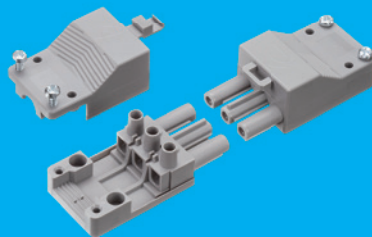
1 input, 3 to 5 output terminals

PRODUCT RANGE

Components AC 166®

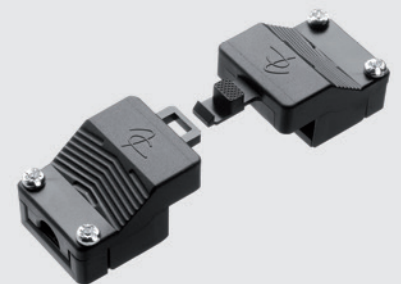
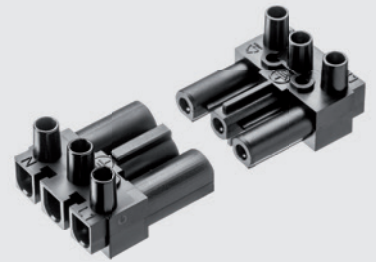
**PLUG AND SOCKET CONNECTORS
PROTECTION CLASS II**

AC 166 GST/ 3 SK II and
AC 166 GBU/ 3 SK II
with strain relief



**HIGH PLUG AND
SOCKET CONNECTORS**

AC 166 GST/ .. and
AC 166 GBU/ ..
3, 4 and 6 pole
cables 0.5 - 2.5 mm²



STRAIN RELIEFS

AC 166-1/ .. ZEL
3, 4 and 6 pole
different cable outlets

PANEL MOUNT CONNECTORS

AC 166 GEST/ .. and
AC 166 GEBU/ ..

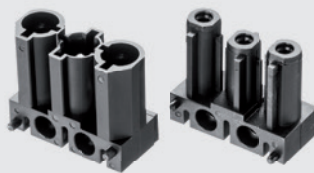
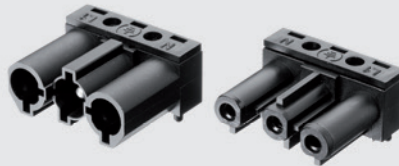
3 to 5 pole
cables 0.5 - 2.5 mm²
2 terminals per pole
for housings 0.5 - 1.2 mm



SOLDER CONNECTORS

AC 166 GSTLH/ .. and AC 166 GBULH/ ..
with horizontal solder terminals

AC 166 GSTLV/ .. and AC 166 GBULV/ ..
with vertical solder terminals



PANEL MOUNT CONNECTORS

RIAC ST/ 8 and BU/ 8

8 pole
cables 0.5 - 2.5 mm²
2 terminals per pole
for housings 0.5 - 1.0 mm



LATCHES

AC 166 VSE

for panel mount connectors

AC 166 VSL

for plug and socket connectors
with solder terminals

PANEL MOUNT CONNECTING LINKS

AC 166 GKU/ 3

3 pole



PLUG AND SOCKET SYSTEM AC 164

The Compact Plug and Socket System for Installations with Little Space

outlet for various cable types and diameters

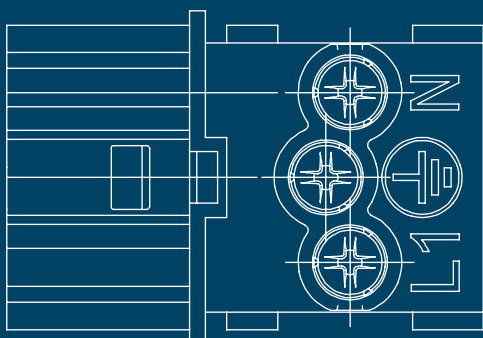
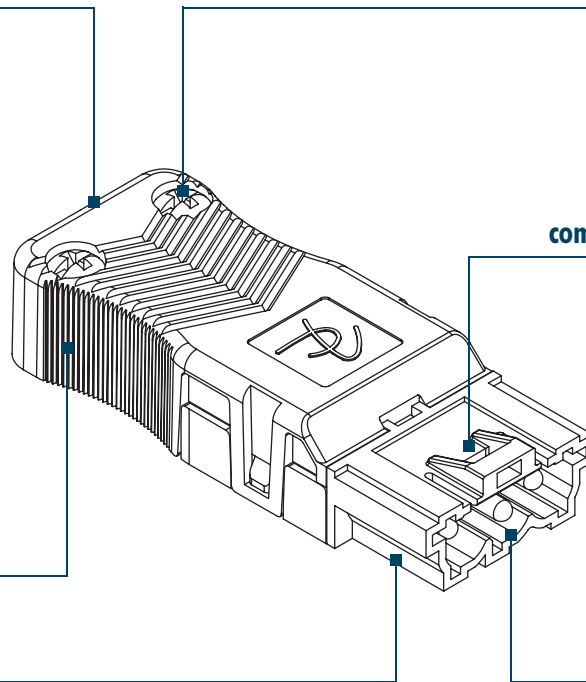
countersunk head machine screws

compact dimensions

compulsory locking with hook and eye

various mechanical codings

2 to 5 pole



PLUG AND SOCKET SYSTEM AC 164

Lighting



Installation

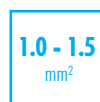


APPLICATIONS

- retail lighting
- object lighting
- interior lighting
- advertising lighting
- switch cabinet lighting
- displays
- booth construction

ADVANTAGES

- little brother of the successful AC 166® series – about half the size
- ideal for applications with limited space such as for small luminaires and appliances
- “plug & play” allows error-free and extremely fast connection according to EN 61535
- modular system for flexible use



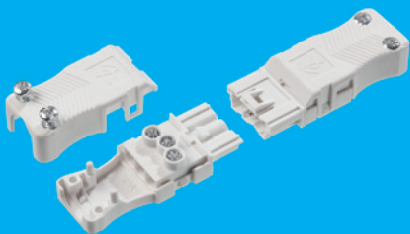
PRODUCT RANGE

Plug and Socket System AC 164

FLAT PLUGS AND SOCKETS WITH STRAIN RELIEF

AC 164 STF/ .. and AC 164 BUF/ ..

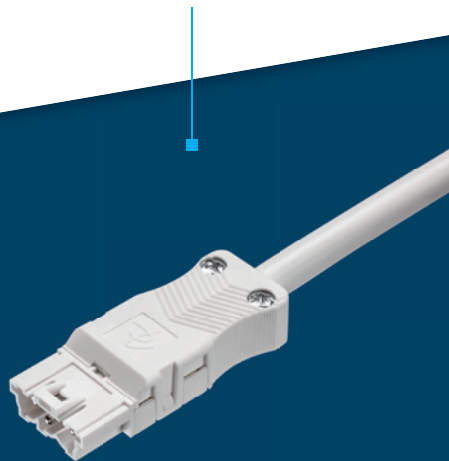
2 to 5 pole
cables 0.5 - 1.5 mm²
variable cable outlets



CONNECTING CABLES WITH PLUG

AC 164 ALSS/ ..

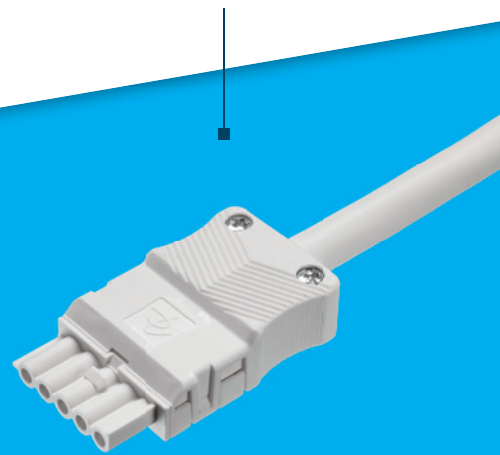
2 to 5 pole
cables 1.5 mm² in PVC (H05VV-F)
and halogen-free (H05Z1Z1-F)
fire protection class Eca



CONNECTING CABLES WITH SOCKET

AC 164 ALSB/ ..

2 to 5 pole
cables 1.5 mm² in PVC (H05VV-F)
and halogen-free (H05Z1Z1-F)
fire protection class Eca

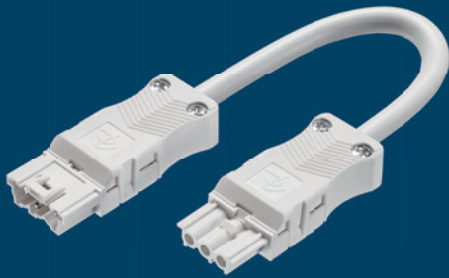


DESIGNS AND VARIANTS

- apart from the colour-coded plug and socket connectors, all products are available in black and white
- printings
- cables with customised stripping/ dismantling lengths
- fire protection classes Dca, Cca and B2ca

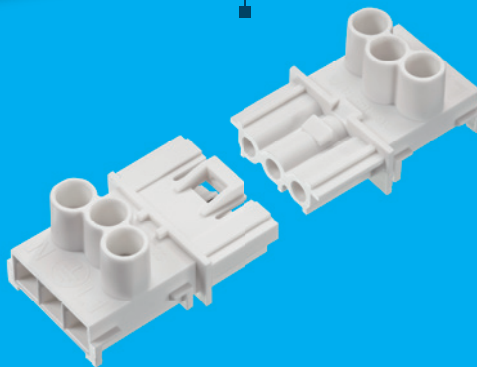
CONNECTING CABLES

AC 164 VLS/ ..
2 to 5 pole
cables 1.5 mm² in PVC (H05VV-F)
and halogen-free (H05Z1Z1-F)
fire protection class Eca



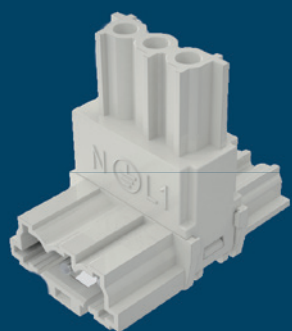
HIGH PLUG AND SOCKET CONNECTORS

AC 164 ST/ .. and AC 164 BU/ ..
2 to 5 pole
cables 0.5 - 1.5 mm²



PANEL MOUNT CONNECTORS

AC 164 EST/ .. and AC 164 EBU/ ..
2 to 5 pole
cables 0.5 - 1.5 mm²
wall thickness 0.5 - 1.2 mm



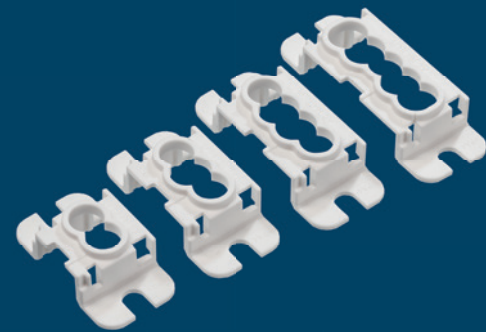
DISTRIBUTORS (UNDER DEVELOPMENT)

AC 164 VT/ ..
2 to 5 pole
1 input , 2 output terminals



DISTRIBUTORS (UNDER DEVELOPMENT)

AC 164 VT .. / ..
2 to 5 pole
1 input, 3 to 5 output terminals



FASTENING CLIPS

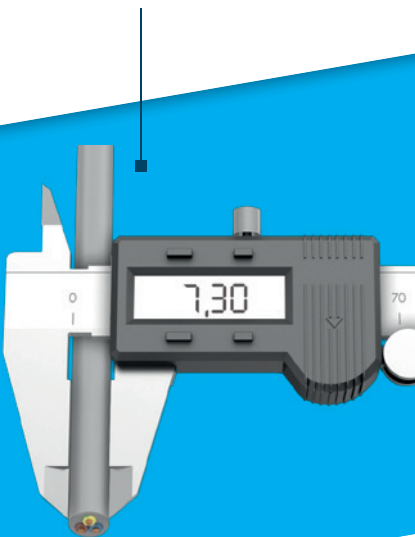
AC 164 BC / ..
for high plug and socket connectors

AC 164 ST/ .. and AC 164 BU/ ..
2 to 5 pole

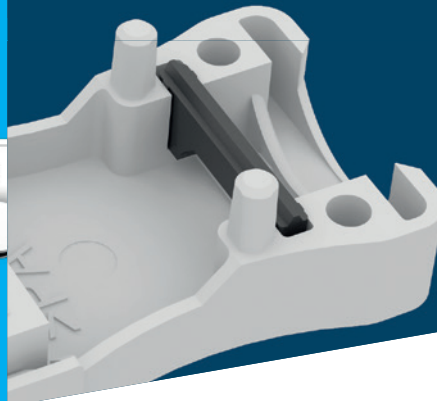
INSTALLATION

AC 164 — The Correct Positioning of the Strain Relief Bridges shown on a 3 Pole Plug and Socket Connector

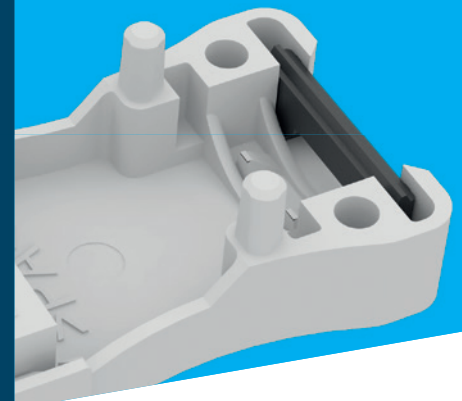
DETERMINING THE CABLE DIAMETER



Ø 5.5 - 5.7 mm
ZEL insert on pos. 2



Ø 5.8 - 6.5 mm
ZEL insert on pos. 1



NOTE

For positioning please follow the installation instructions included in the packaging.

Ø 6.6 - 6.9 mm

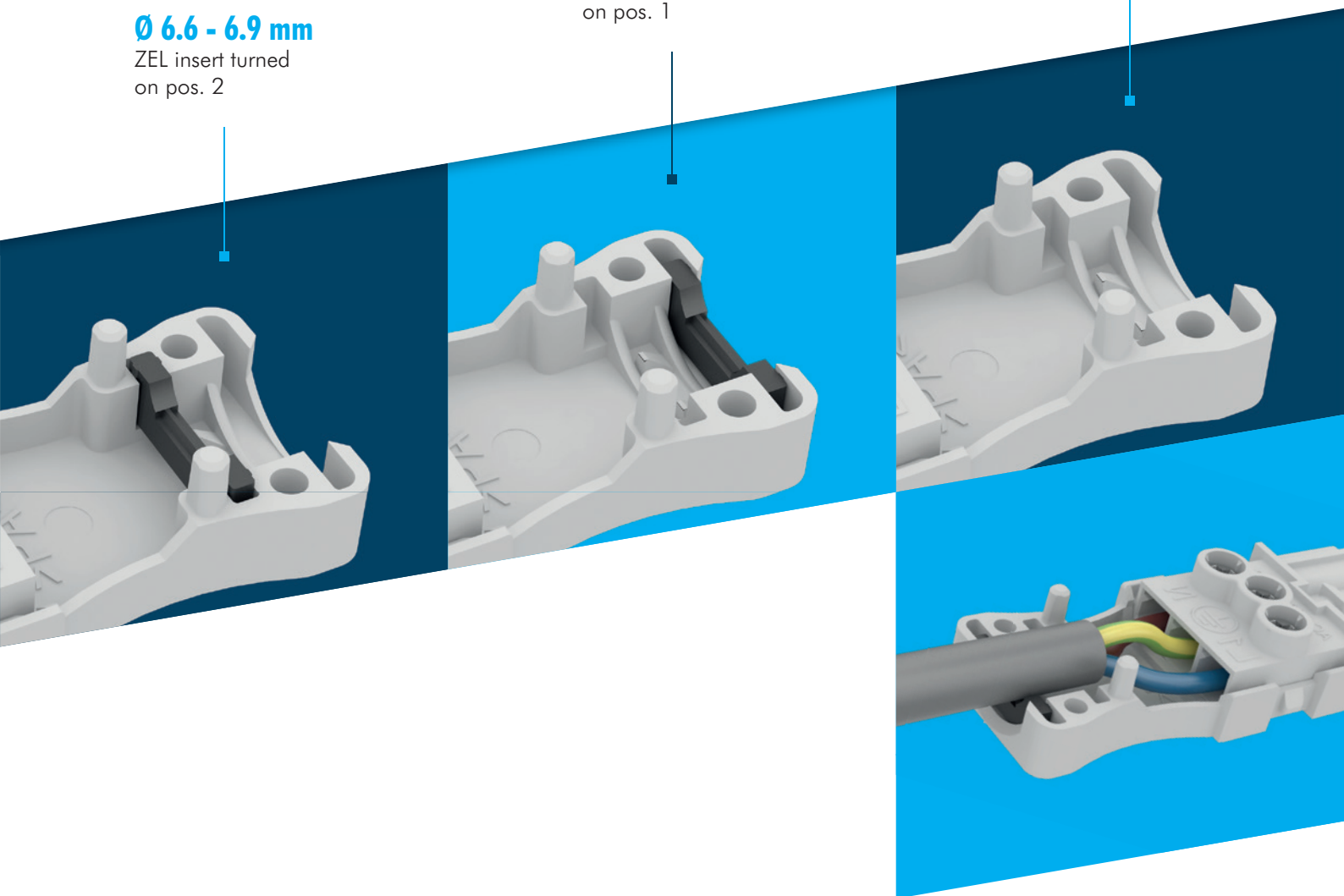
ZEL insert turned
on pos. 2

Ø 7.0 - 7.7 mm

ZEL insert turned
on pos. 1

Ø 7.8 - 9.0 mm

no ZEL insert



ADVANTAGES

- one solution for different cable diameters
- versatile applications
- easy ordering and optimised stockkeeping



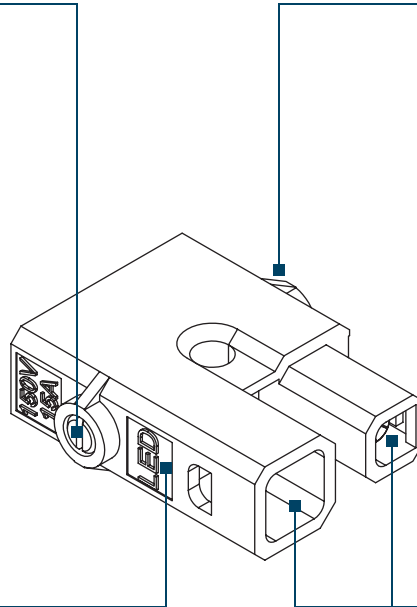
Step-by-step installation available under
www.adels-contact.de/link/PlaylistTutorials.

CONNECTING SYSTEM AC 162

The System for LED and Low-Voltage Applications

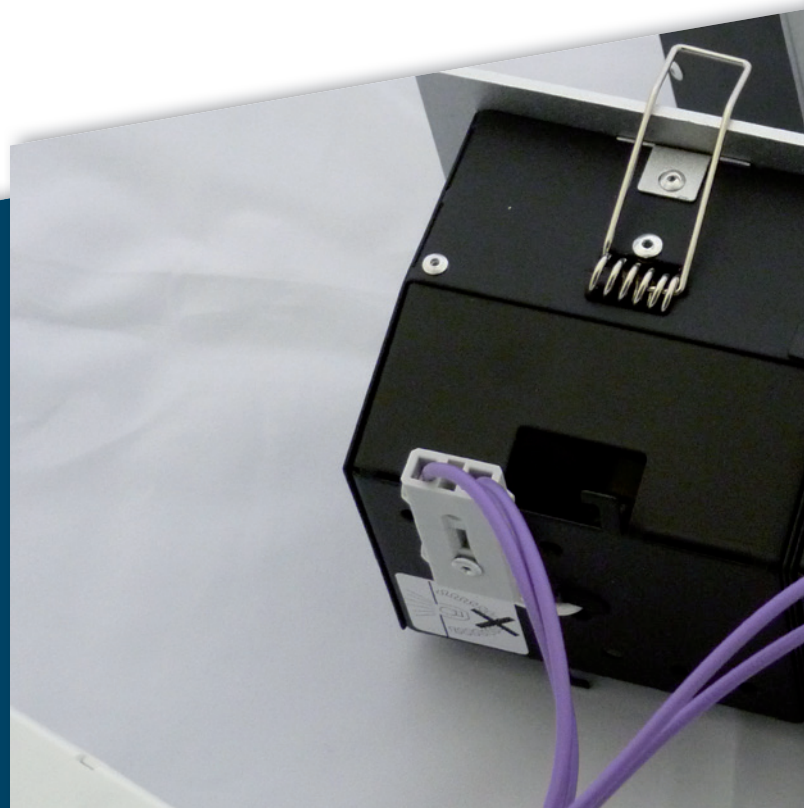
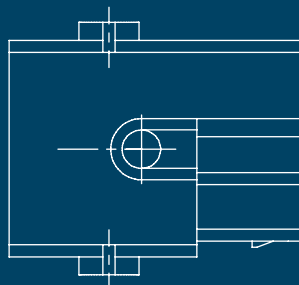
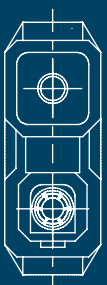
screw terminals for self assembly

compact dimensions



for LED and low-voltage applications

plugs and sockets in one item



Lighting



Installation



APPLICATIONS

- furniture
 - displays
 - advertising lighting
 - booth construction
 - retail lighting
-
- electrical installation up to 48 V
 - connection of LED spots

ADVANTAGES

- full product range with connecting/extension cables and distributors
- robust and safe plug-in connections for LED and low voltage



16 - 25 A
48 - 150 V

PA 6/6
UL 94: V-2

T 70 °C
EN 60598

0.5 - 2.5
mm²

IP20

PRODUCT RANGE

Connecting System AC 162

LED PLUG CONNECTORS

AC 162 STS/ 2 LED

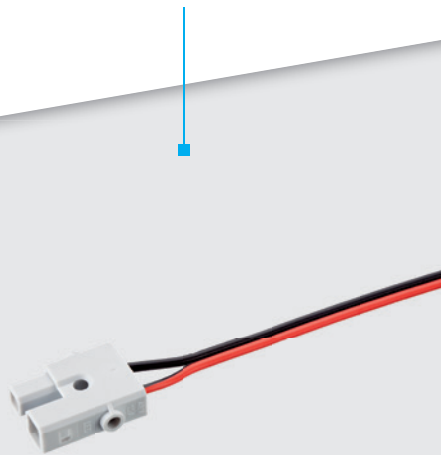
2 pole connectors
as plugs and sockets



LED CONNECTING CABLES

AC 162 ALS LED

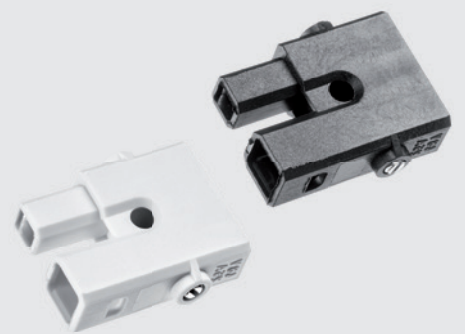
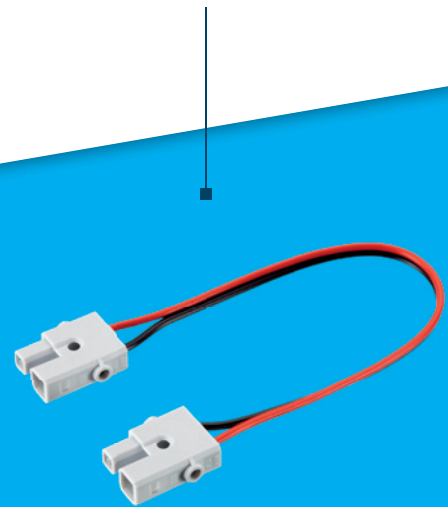
2 pole
types I and II (polarity)



LED EXTENSION CABLES

AC 162 VLS LED

2 pole



LOW VOLTAGE CONNECTORS

AC 162 STS/ 2

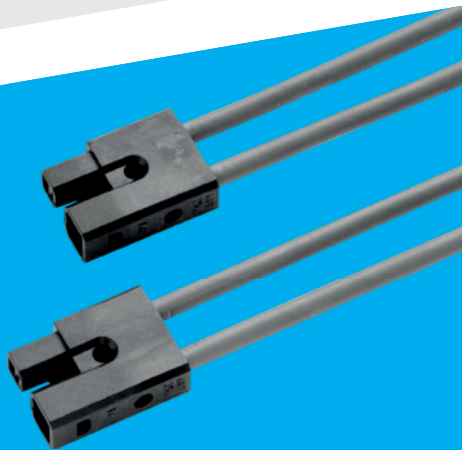
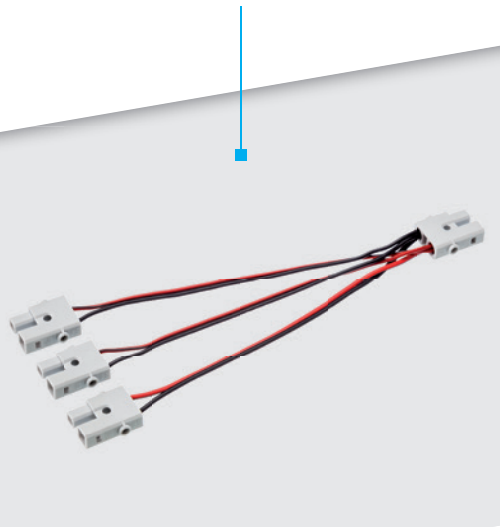
2 pole connectors
as plugs and sockets

LED DISTRIBUTORS

AC 162 VT/ 3-1 LED

2 pole

1 input, 3 output terminals



**LOW VOLTAGE
CONNECTING CABLES**

AC 162 ALC

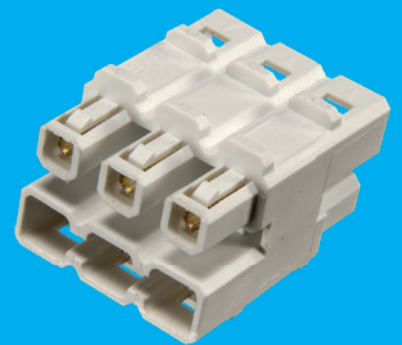
2 pole



**LOW VOLTAGE
EXTENSION CABLES**

AC 162 VLC

2 pole



**LOW VOLTAGE
COMPACT DISTRIBUTOR**

AC 162 KV 6

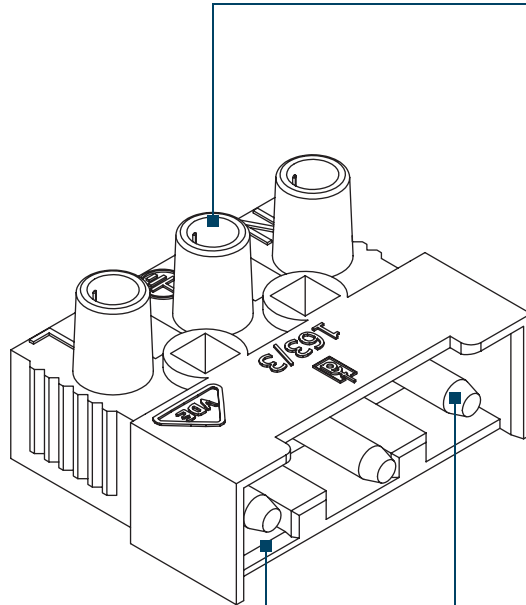
2 pole

1 input, 5 output terminals

PLUG AND SOCKET CONNECTORS 160/163

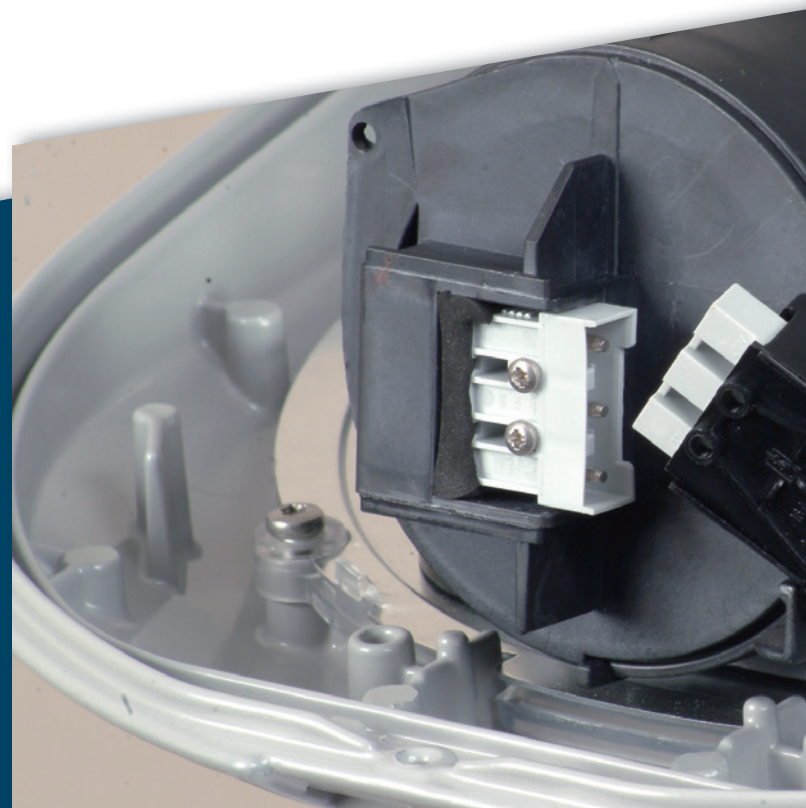
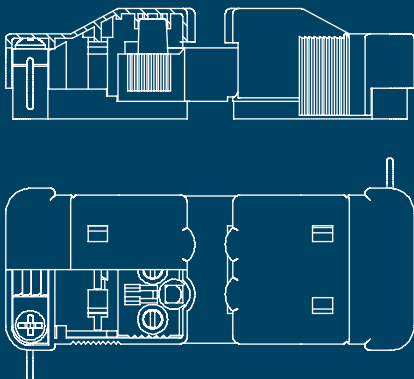
The Alternative Connection Solution for Appliances, Drives and Luminaires

screw terminals with and without wire protector



shrouded plug and socket connectors against mismatching

2, 3 and 5 pole



PLUG AND SOCKET CONNECTORS 160/163

APPLICATIONS

- roller shutters
- inside luminaire connection
- connecting base for wall lighting
- home appliances

Lighting



Installation

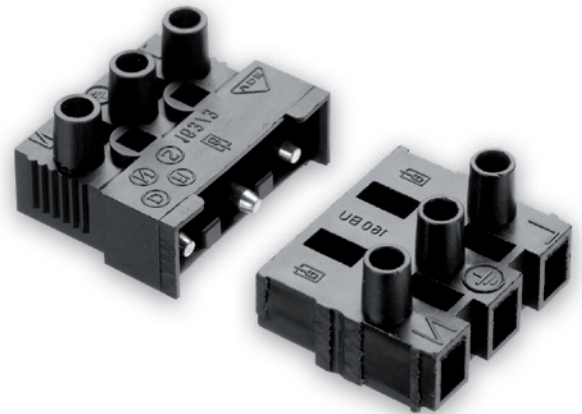
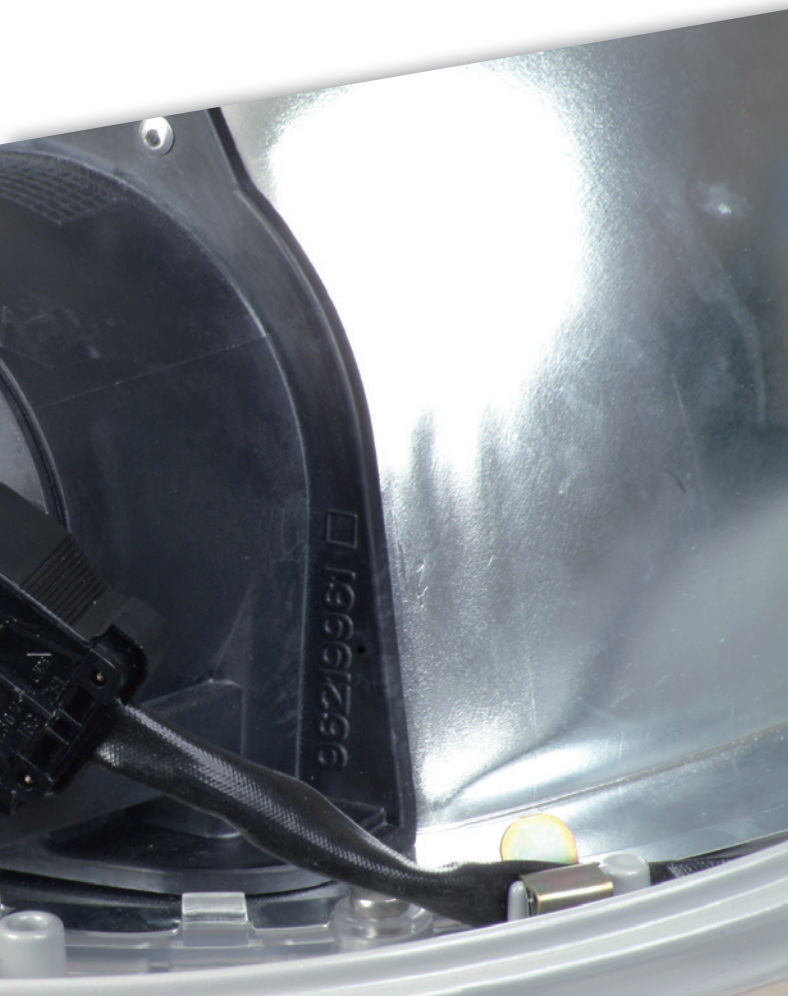


Electrical Appliances



ADVANTAGES

- economic solution for plug and socket connectors 16 A/400 V
- 2, 3 and 5 pole shrouded plug and socket connectors with strain relief
- 2 to 12 pole terminal blocks
- application-specific insulating materials



16 A
250/400 V

PA 6, PA 6/6
UL 94: V-2

T 70 °C
EN 61984

0.5 - 4.0
mm²

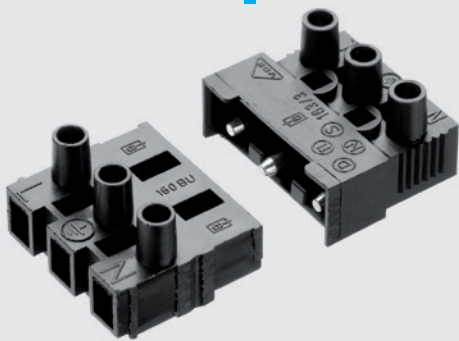
IP20
IP40

PRODUCT RANGE

Plug and Socket Connectors 160/163

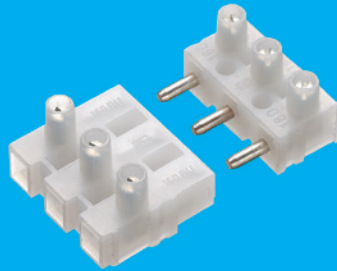
SHROUDED PLUG AND SOCKET CONNECTORS

163 ST/ .. and 160 BU/ ..s
2, 3 and 5 pole
cables 0.5 - 2.5 mm²



PLUGS AND SOCKETS

160 ST/ .. and 160 BU/ ..
2 to 12 pole
cables 0.5 - 2.5 mm²



STRAIN RELIEFS FOR SHROUDED PLUG AND SOCKET CONNECTORS

163/ .. ZEL and 163/ .. ABK
2 and 5 pole
cable outlet Ø 6.0 - 9.8 mm



DESIGNS

- screw terminals with and without wire protector (DS)
- application-specific insulating materials
- printing
- special screws

LUMINAIRE CONNECTION IP65/66

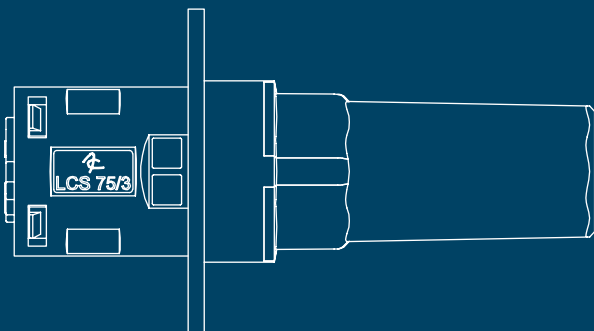
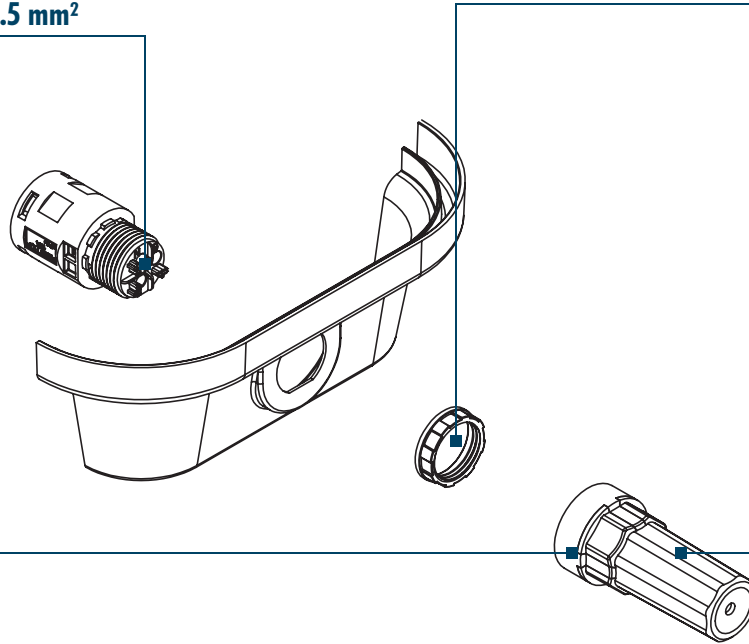
Easy, Safe and Cost-Effective

external connection of solid or
flexible conductors up to 2.5 mm²

fixing nut M20

2K cable bushing
with moulded gaskets

connecting cables
Ø 7.5 - 12.5 mm



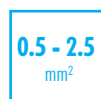
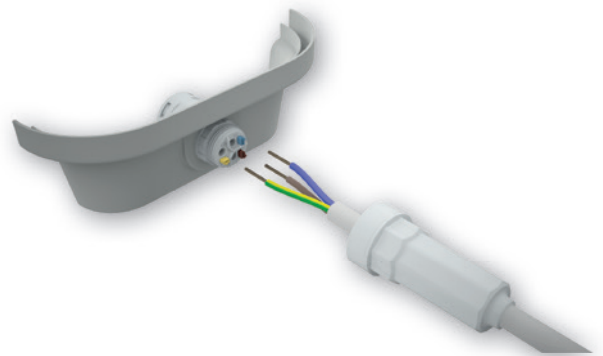


APPLICATIONS

- moisture-proof luminaires
- industrial lighting
- parking garages
- warehouses

ADVANTAGES

- extremely quick connection of moisture-proof and industrial luminaires
- no need to open the luminaire
- cost-effective by using fewer components



PRODUCT RANGE

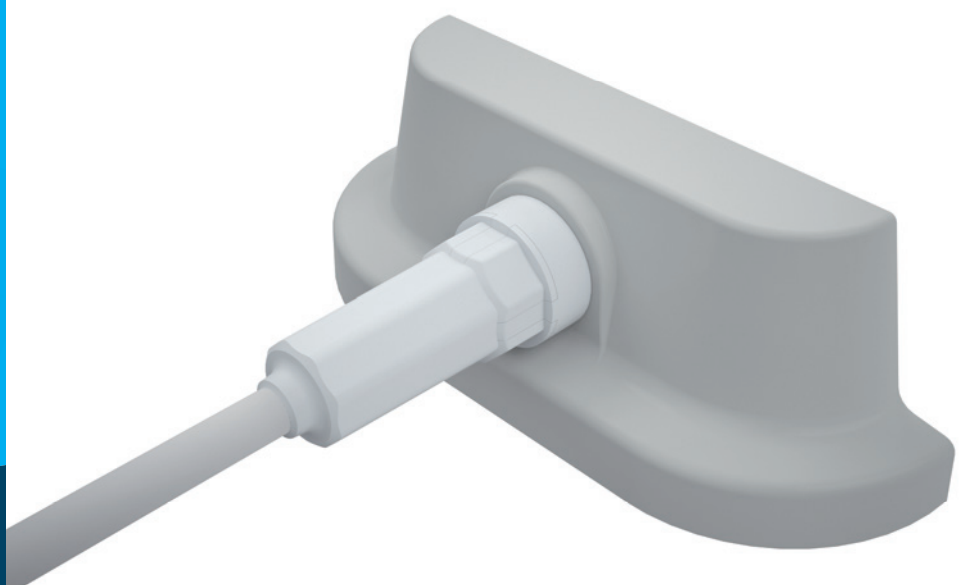
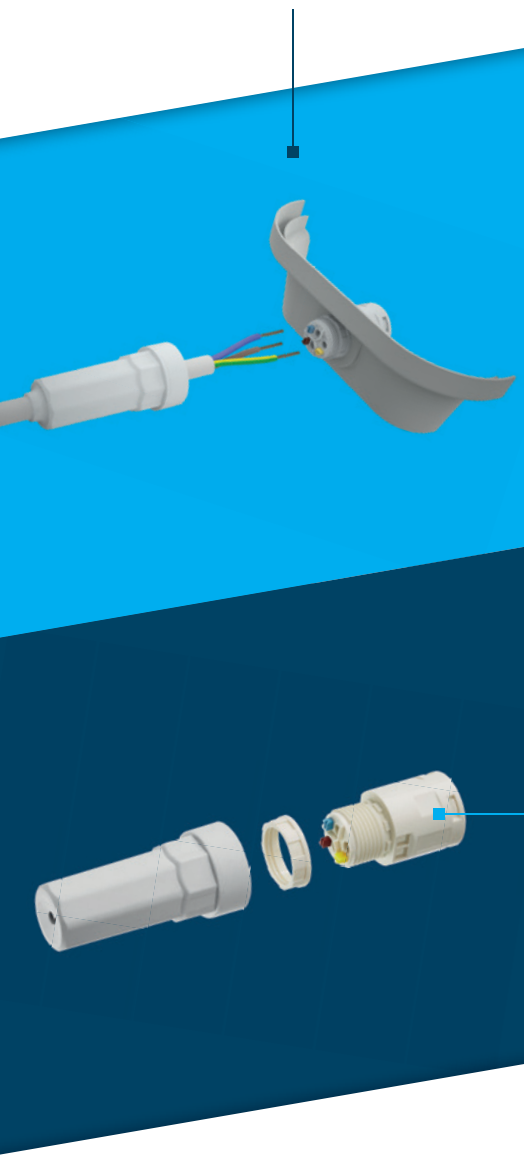
Luminaire Connection IP65/66

LUMINAIRE CONNECTION IP66

LCS 75/3

3 pole

for diameter M20

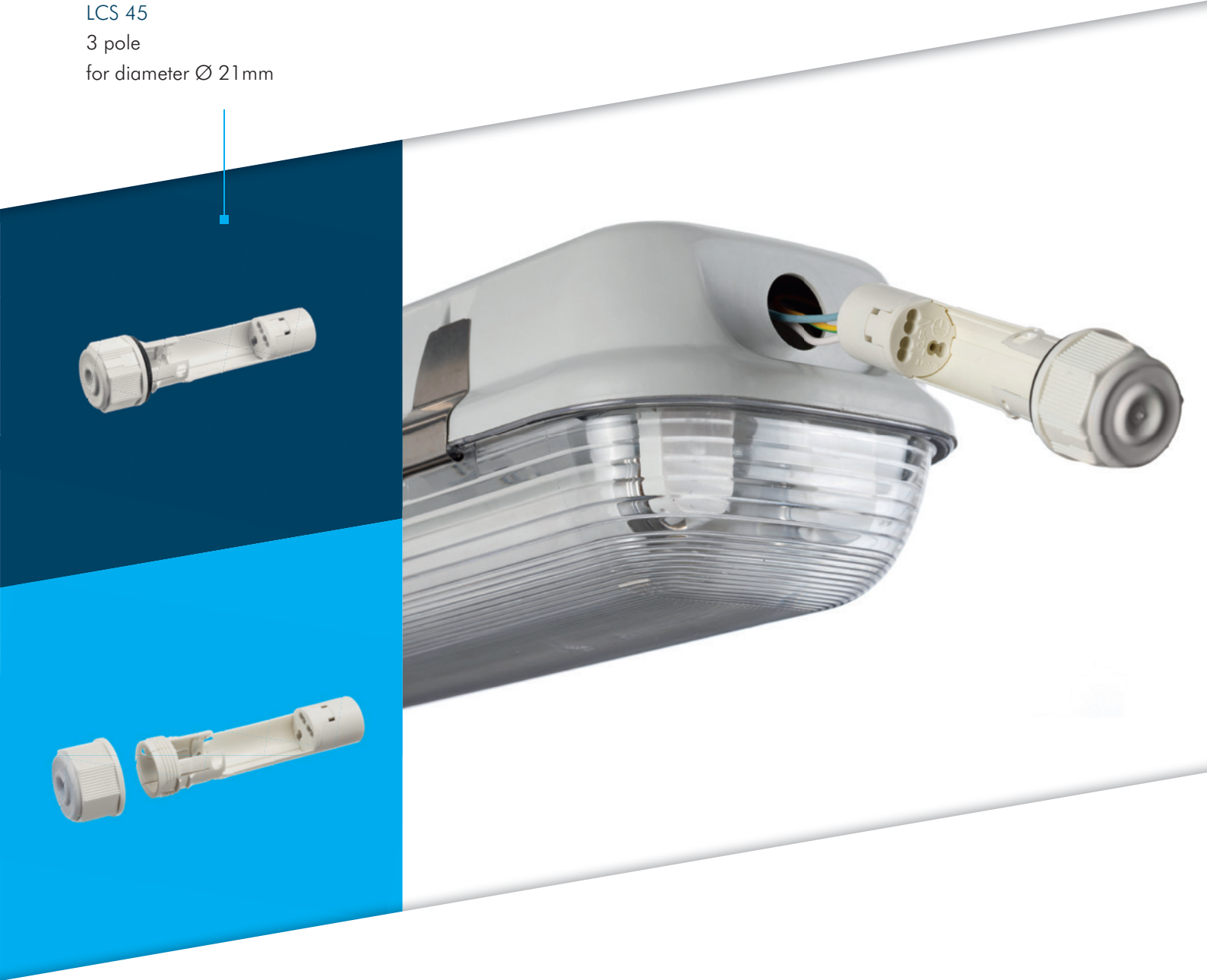


UPON REQUEST

– assembly tool for OEM

**LUMINAIRE CONNECTION
IP65**

LCS 45
3 pole
for diameter Ø 21mm



INSTALLATION

LCS 75 – Intelligent Connection Solution for IP66 Moisture-Proof Luminaires

**NO NEED TO OPEN
THE LUMINAIRE**

DISMANTLING AND CUTTING

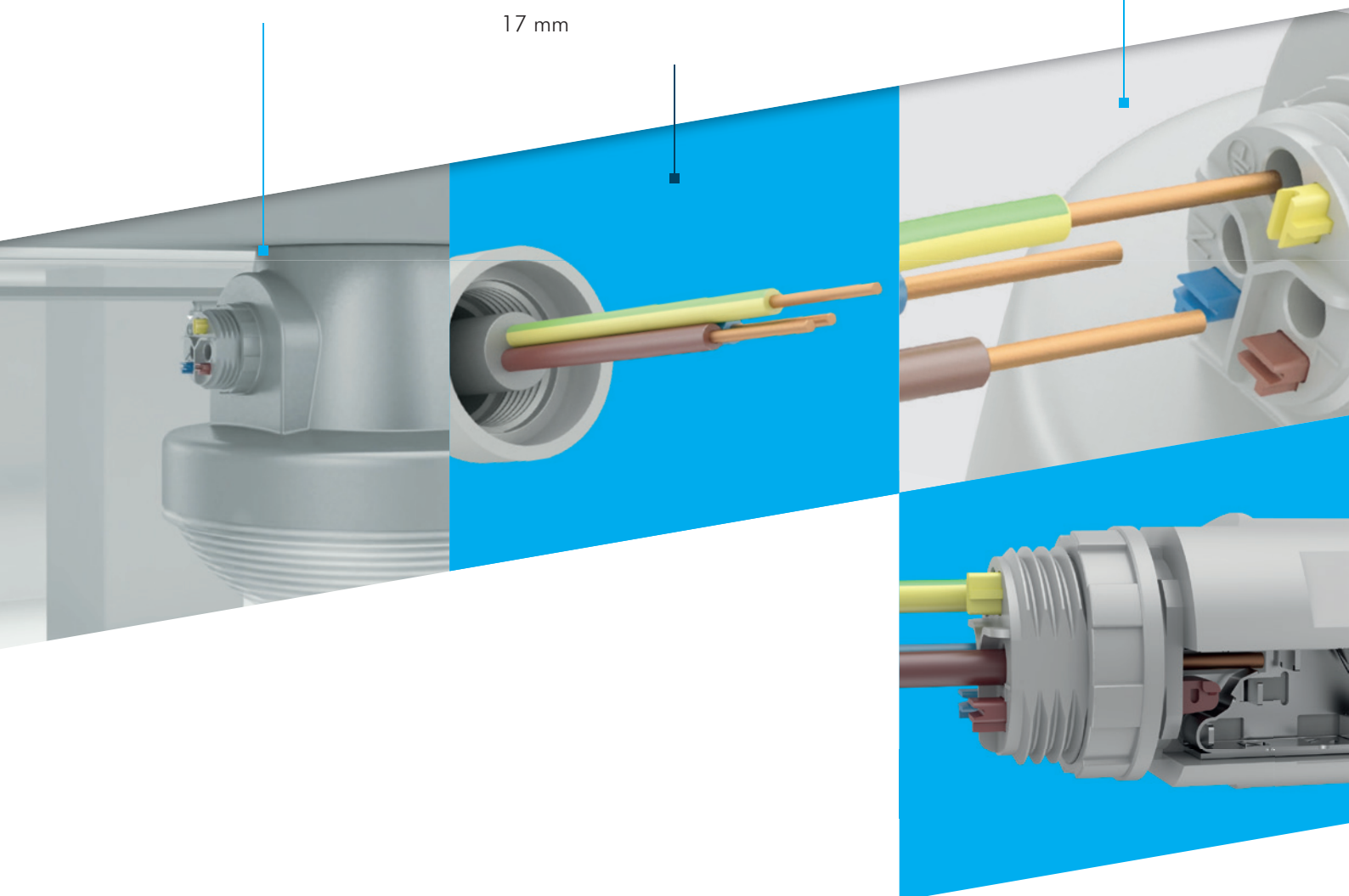
69 mm (PE)
60 mm (L+N)

STRIPPING

17 mm

SOLID CONDUCTORS

easy pushing in



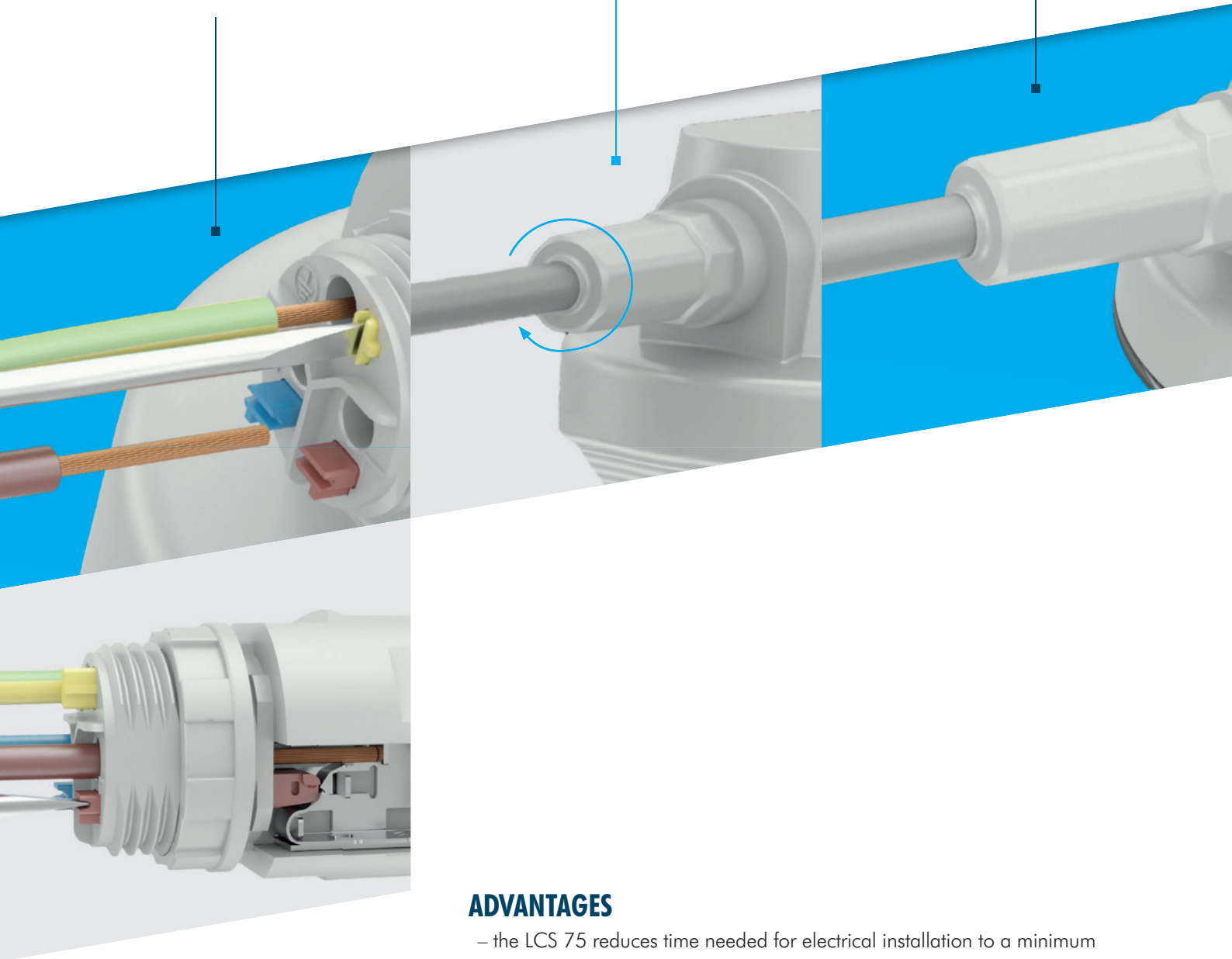
GROMMET
IP66

CLOSING THE BUSHING

maximum torque: 0.7 Nm

FLEXIBLE CONDUCTORS

release key for easy handling



ADVANTAGES

- the LCS 75 reduces time needed for electrical installation to a minimum
- IP66: high protection – ideally suited for moisture-proof and industrial luminaires
- the cost-effective alternative to plug and socket connectors



Step-by-step installation available under
www.adels-contact.de/link/PlaylistTutorials

CONTINUOUS ROW LIGHTING SYSTEM LEDtrack

The Complete System for All Functions on Line Lighting Systems

plug-in contact by pivoting

extremely reduced total height

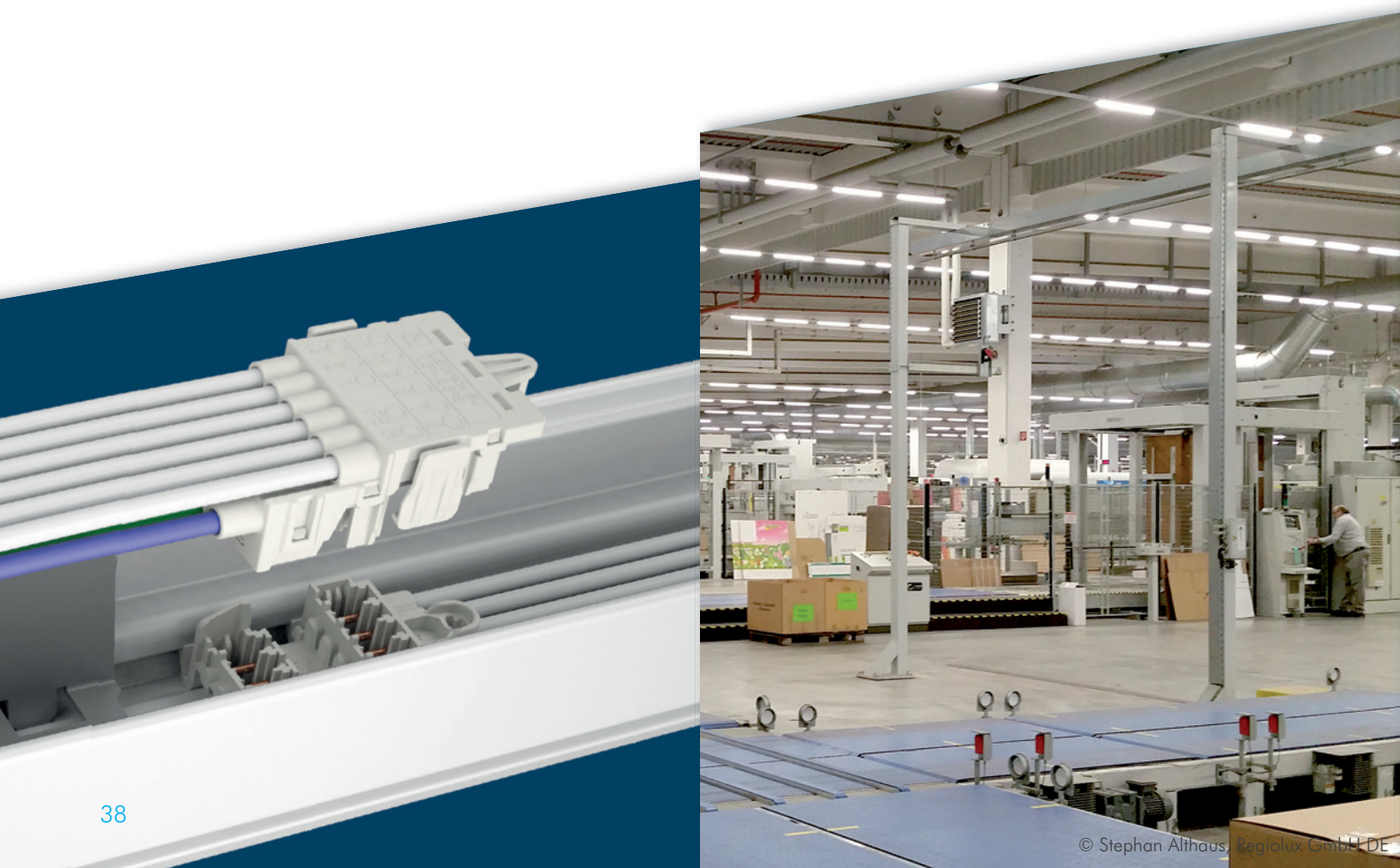
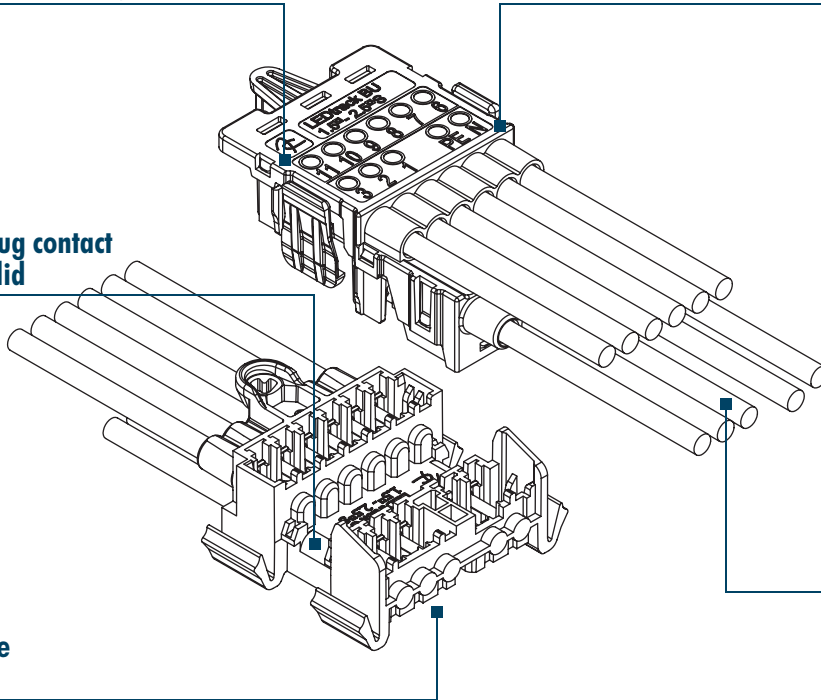
conductor = plug contact
1.5/2.5 mm² solid

tap to the luminaire
by catch pin or floating

connection of
solid conductors 0.5 mm²

PE contact made
automatically

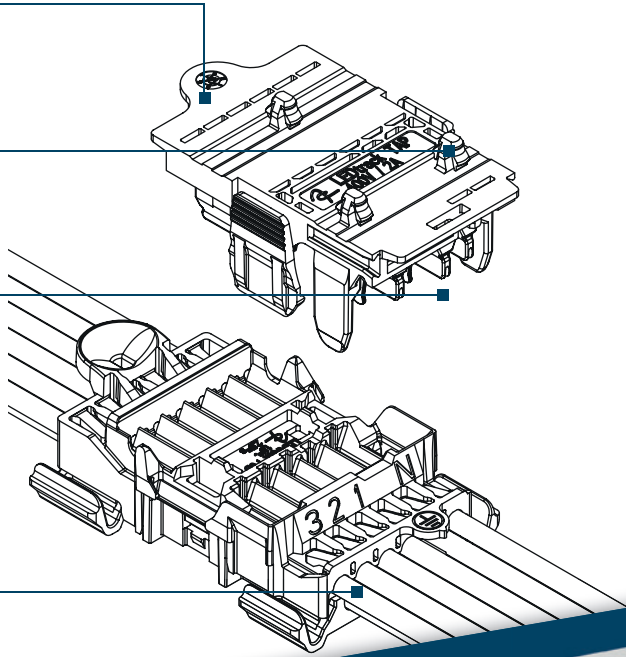
max. 11 poles



APPLICATIONS

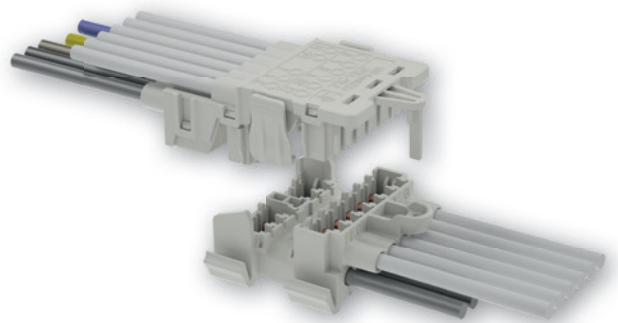
- production halls/warehouses
- industrial lighting
- super market illumination

Lighting



ADVANTAGES

- 11 poles on a minimum space (23.5 mm x 39.5 mm)
- further connection clips upon request
- useable with aluminium profiles



16 A/2 A
400V

PA 6/6
UL 94: V-2

T 85 °C
EN 61984

ST/BU
1.5 - 2.5
mm²

TAP
0.5
mm²

IP20
IP40

PRODUCT RANGE

LEDtrack

SOCKETS

LEDtrack BU/ ..
5 /7 /9 /11 pole



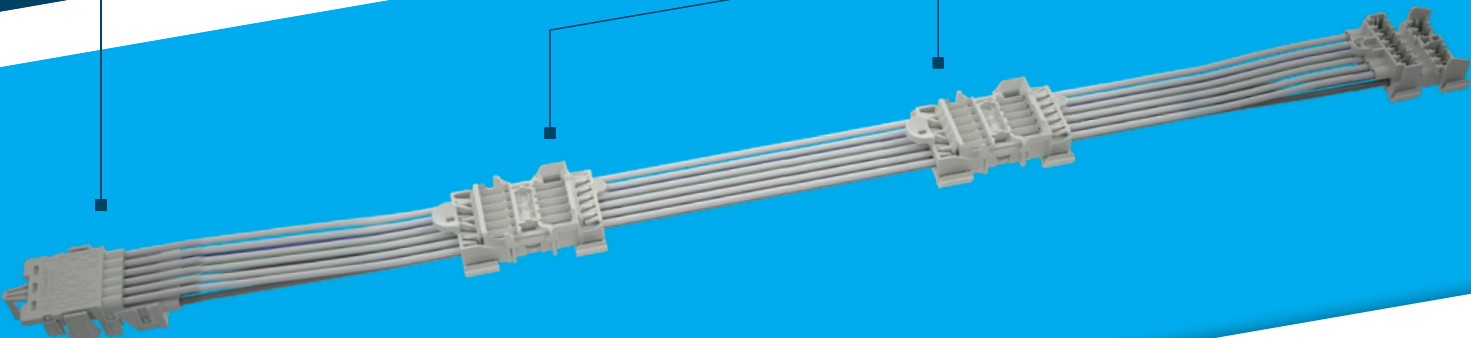
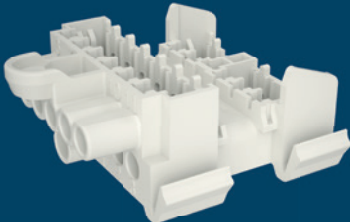
CABLE HOLDER

LEDtrack POD/11 ..
11 pole



PLUGS

LEDtrack ST/11
11 pole
with PE contact
1.5 - 2.5 mm² solid



END COVERS

LEDtrack ABK

STRAIN RELIEFS

LEDtrack ZEL

TAP TO THE LUMINAIRE

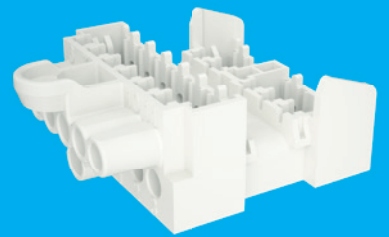
LEDtrack TAP/11 ..

3/5/7/9 pole

fix: with catch pin

fly: for floating installation

0.5 mm² solid



THROUGH-WIRING

LEDtrack REEL/ .. consisting of

LEDtrack ST/11 plugs

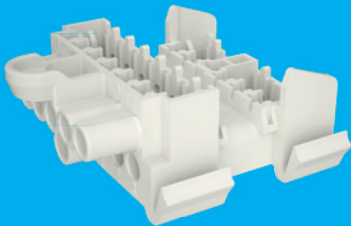
LEDtrack BU/ .. sockets

LEDtrack POD/11 cable holders

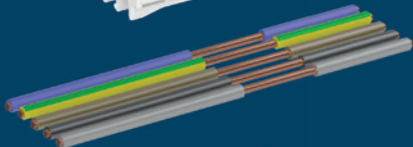
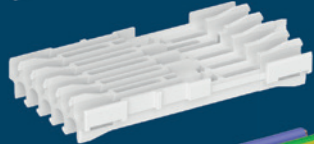
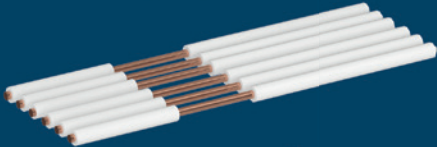
single conductors 1.5 or 2.5 mm²

5/7/9/11 pole

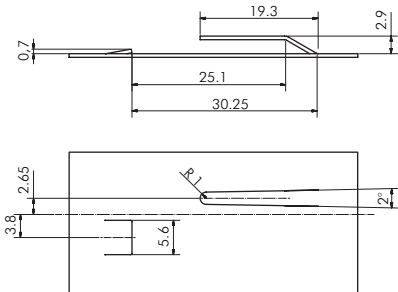
**EARTHING MOUNTING
RAIL PLUGS**



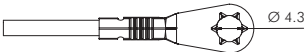
**ASSEMBLY
CABLE HOLDER**



SHEET METAL PROFILES

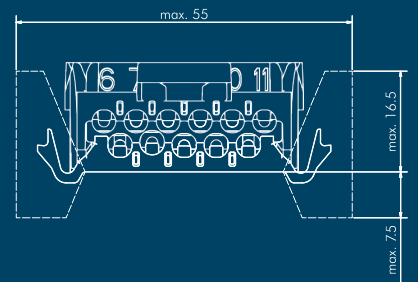


ALUMINIUM PROFILES

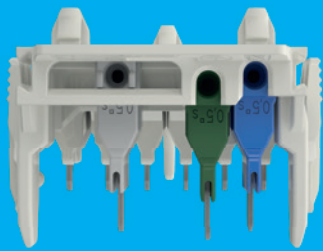


MAX. SPACE WING CONTOUR

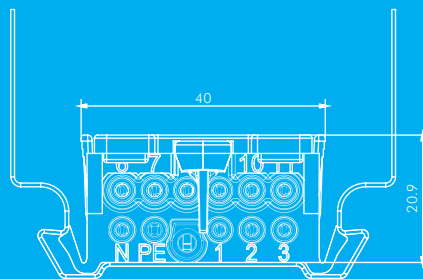
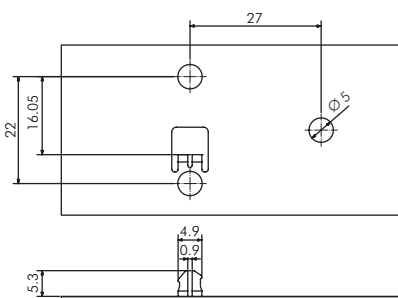
upon customer request



EARTHING LUMINAIRES INSERT

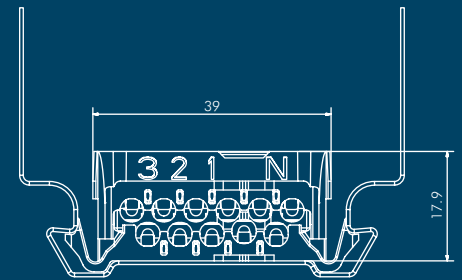


SHEET METAL PROFILES



PLUGS/SOCKETS

connection clips
standard profile



CABLE HOLDERS

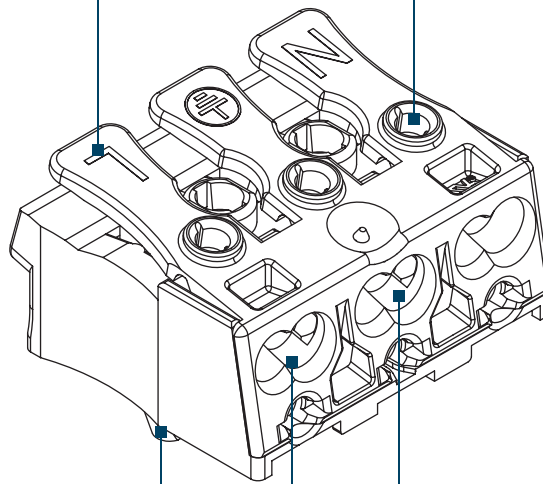
connection clips
standard profile

SCREWLESS CONNECTORS

Push — Press — Play The Easy and Quick Connection

external release by release key

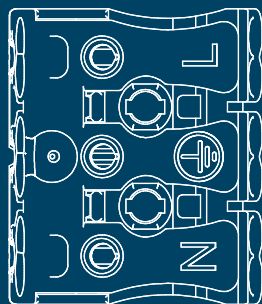
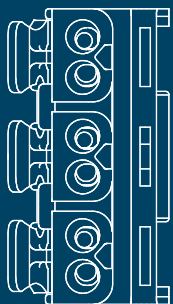
internal release by tool



**fixing by catch pin,
screw or rivet**

wide insertion openings

conductor terminals in upper position



SCREWLESS CONNECTORS

Lighting



Electrical Appliances



APPLICATIONS

- interior lighting
- advertising lighting
- switch cabinet heaters
- switch cabinet fans
- ballasts
- retail lighting
- industrial lighting
- object lighting

ADVANTAGES

- quick, easy and safe assembly
- suitable for assembly by luminaire robots
- approved for elevated ambient temperatures by the use of polyamide (PA 6/6)
- further application-specified insulating materials: PA 6/6 GW (glow-wire) and PA 6/6 V-0



24 A 450 V	PA 6/6 UL 94: V-2	T 110 °C EN 60598	0.5 - 2.5 mm ²	

PRODUCT RANGE

Screwless Connectors

LUMINAIRE CONNECTORS

LK 980-01 RZ/ ..

with catch pins

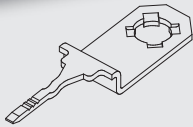
2 to 5 pole

LUMINAIRE CONNECTORS

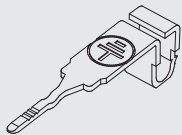
LK 980-01/ ..

for fixing by screw or rivet

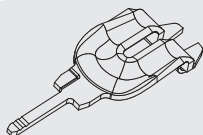
2 to 5 pole



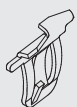
screw contact SK



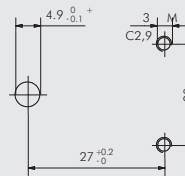
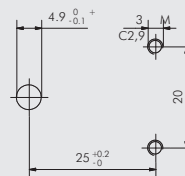
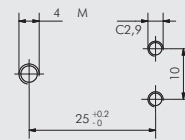
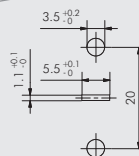
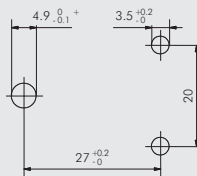
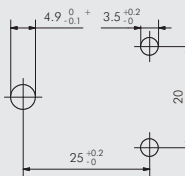
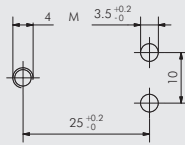
contact bow ST



contact bow STW



contact claw SU

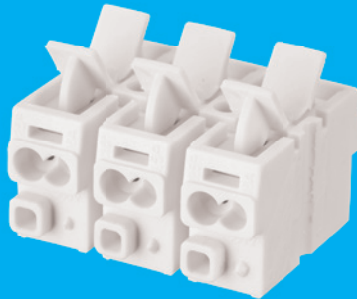


**HOLE PATTERN
CATCH PIN FIXING**

**HOLE PATTERN
FIXING BY SCREW**

BLOCK CONNECTORS

930-02/ ..
with 2 release keys
1 to 12 poles



BLOCK CONNECTORS

935 5 pole
937 7 pole



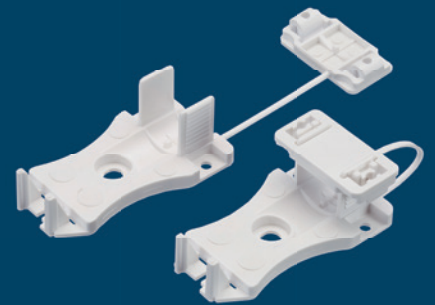
VARIANTS

- application-specific
- insulating materials PA
- special printing



BLOCK CONNECTORS

930-00/ ..
without release keys
1 to 12 pole



STRAIN RELIEFS

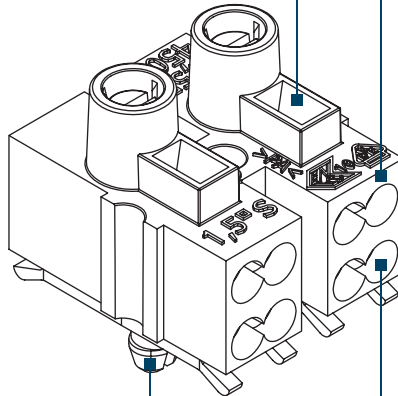
ZEL 900
for connectors LK 980

SCREW-SCREWLESS CONNECTORS

The "Hybrid Solution" in the Connectors World

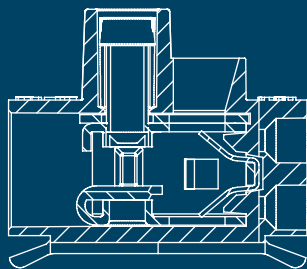
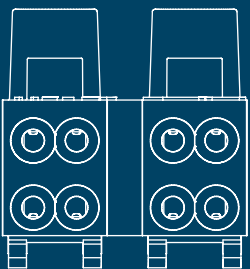
testing aperture

1 to 12 pole



fixing by catch pin, rivet or screw

two or four terminals per pole



SCREW-SCREWLESS CONNECTORS

Lighting



Electrical Appliances

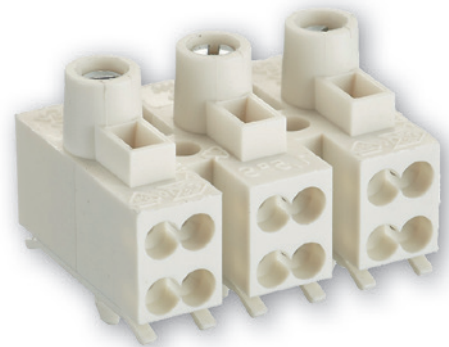


APPLICATIONS

- luminaires
- home appliances
- ballasts
- installation connection boxes
- mirror cabinets

ADVANTAGES

- easy, internal connection by plug-in contact
- external connection by screw
- interlockable system with fused connectors



17.5 A
450 V

PA 6/6
UL 94: V-2

T 85 °C
EN 60598

push-in
0.5 - 1.5
mm²

screw
0.5 - 4.0
mm²

PRODUCT RANGE

Screw-Screwless Connectors

CONNECTORS

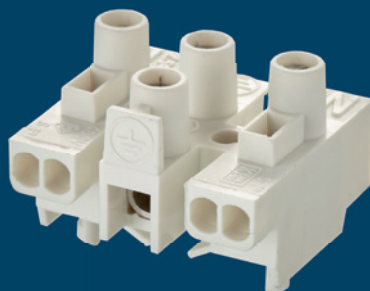
900-07/ ..

900-07 RZ/ .. with catch pins



CONNECTORS

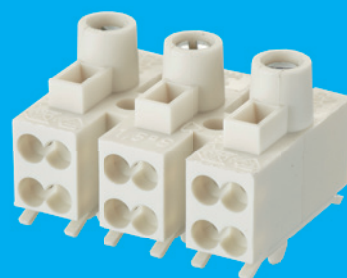
900 ED



CONNECTORS

900 Q/ ..

900 Q RZ/ .. with catch pins

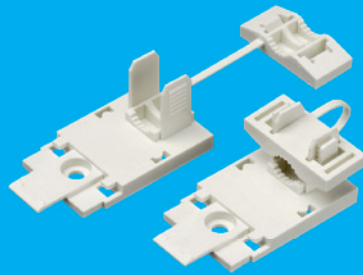
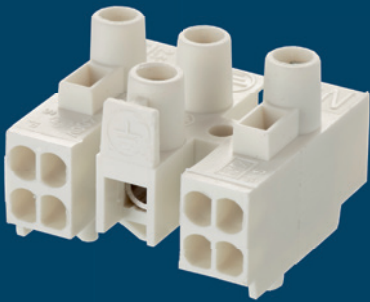


VARIANTS

- pre-assembled PE contact
- printing

CONNECTORS

900 EQ



STRAIN RELIEFS

900 EQ ZEL
for 900 ED and EQ



**INTERLOCKABLE
CONNECTORS**

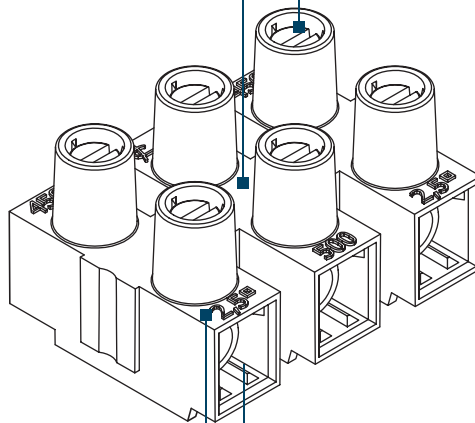
900 Q/ 1A
to interlock fused
connectors

SCREW CONNECTORS

Proven Connection of Electrical Appliances and Luminaires

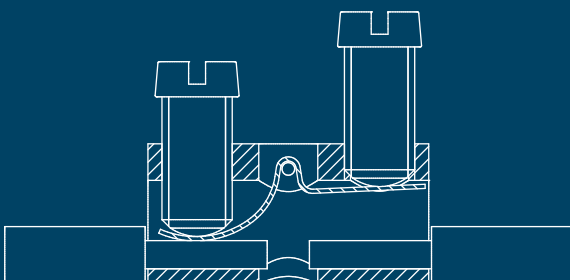
fixing by screw, rivet or catch pin

1 to 12 pole

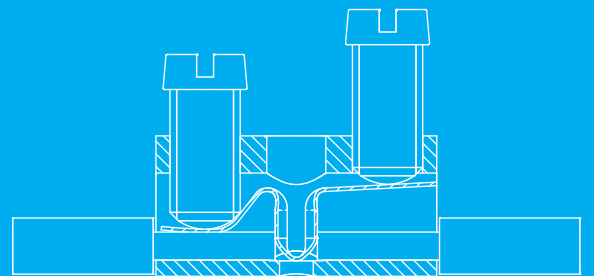


nominal cross section from 2.5 to 16 mm²

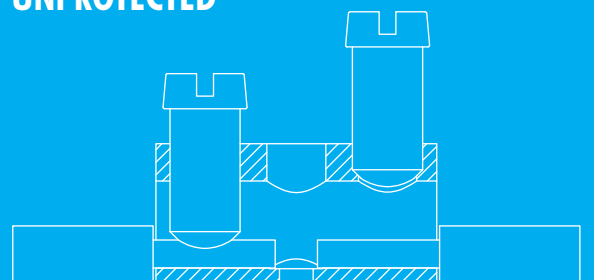
**WIRE PROTECTOR (DS)
FOR FLEXIBLE CONDUCTORS**



CENTER STOP (MDS)



UNPROTECTED



APPLICATIONS

- retail lighting
- street lighting protection class II
- industrial lighting
- object lighting with high ambient temperatures
- interior lighting
- advertising lighting
- switch cabinet lighting
- ballasts

- small home appliances
- large appliances, white goods
- fans
- heating and air conditioning devices
- pumps
- vending machines
- electric tools

Lighting



Electrical Appliances



ADVANTAGES

- robust connection and easy handling
- connection of conductors from 0.5 - 16 mm²
- application-specific insulating materials:
 - PA 6, PA 6/6, PA 6/6 HT (high temperature), PA 6/6 GW (glow-wire),
- porcelain C 111, steatite C 220
- special versions for protection class II (SK II) and with raised base (8 mm distance when connected to mains)



		16 - 40 A 150 - 750 V	2.5 - 16 mm ²	IP20
--	--	---------------------------------	------------------------------------	-------------

PA UL 94: V-2	T 85 °C EN 60998
-------------------------	----------------------------

Porcelain Steatite	T 350 °C EN 60998
---------------------------	-----------------------------

PRODUCT RANGE

Screw Connectors

CONNECTORS

230/ ..	2.5 mm ² small
500/ ..	2.5 mm ²
1000/ ..	6.0 mm ²
1500/ ..	10.0 mm ²
2000/ ..	16.0 mm ²



CONNECTORS RAISED BASE

230 K/ ..	2.5 mm ² small
500 K/ ..	2.5 mm ²
1000 K/ ..	6.0 mm ²
2000 K/ ..	16.0 mm ²



CONNECTORS CATCH PIN FIXING

500 RZ/ ..	2.5 mm ²
500 LRZ/ ..	2.5 mm ² elongated catch pins



VARIANTS

- application-specific insulating materials PA
- printing
- special screws
- partly fitted

SCREW CONNECTORS

PORCELAIN CONNECTORS

157/.. 2.5 mm²

153/2 2.5 mm²

PM/.. 6.0 mm²

STEATITE CONNECTORS

131/2 6.0 mm²

CONNECTORS PROTECTION CLASS II

500 SK II/.. 2.5 mm²

500 SKT II/.. 2.5 mm² with bushes



CONNECTING BOX

LCB 50/.. for connectors 500/..

STRAIN RELIEFS

ZEL 110 for all connector types

MARKING LABELS

230 BZ/.. for connectors 230/..

500 BZ/.. for connectors 500/..

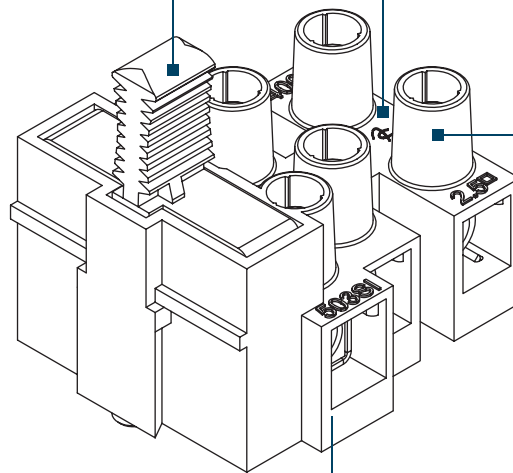
1000 BZ/.. for connectors 1000/..

FUSED CONNECTORS

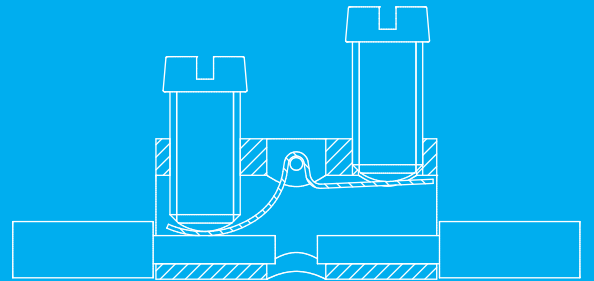
Protection of Sensitive Luminaires and Appliances

fuse holder

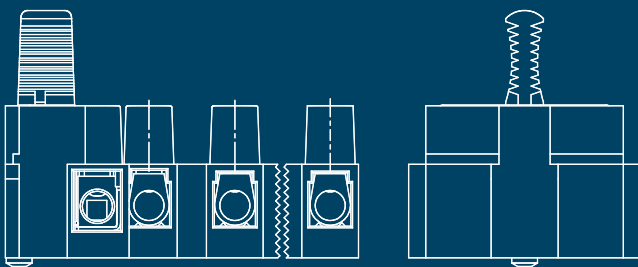
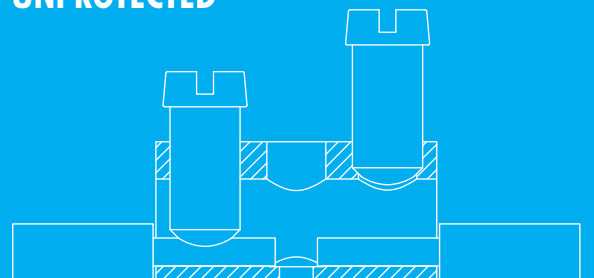
fixing by screw or rivet



WIRE PROTECTOR (DS)
FOR FLEXIBLE CONDUCTORS



UNPROTECTED



Lighting



Electrical Appliances



APPLICATIONS

- valuable luminaires
- fully-automatic coffee machines
- control systems for storage water heaters

ADVANTAGES

- protection via live conductors
- for 3 dimensions of standard glass fuses
- connection of conductors from 0.5 to 10.0 mm²
- special versions for PE contact to the base plate



16 - 41 A
400 - 500 V

PA 6/6, PA 6/6 GW
UL 94: V-2

T 85 °C
EN 60598

0.5 - 4.0
mm²

PRODUCT RANGE

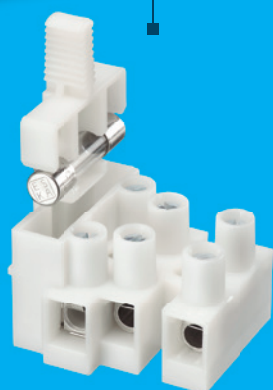
Fused Connectors

SCREW CONNECTORS

503 Si/ .. 2.5 mm²

1003 Si/ .. 4 mm²

1 to 5 pole

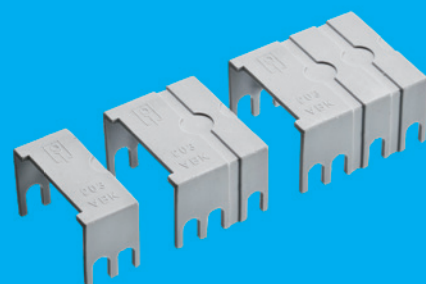
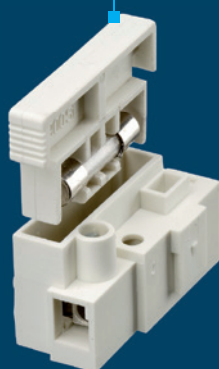


SCREW SCREWLESS CONNECTORS

900 Si/ 1

1 pole

interlockable



COVERS

ABK 503/ ..

for connectors 503 Si

VARIANTS

- further insulating materials PA
- pre-assembled fuses
- raised bases allowing longer creepage distances
- printing
- center stop (MDS)



TRANSFORMER CONNECTORS

Safe Connection of Small and Control Transformers

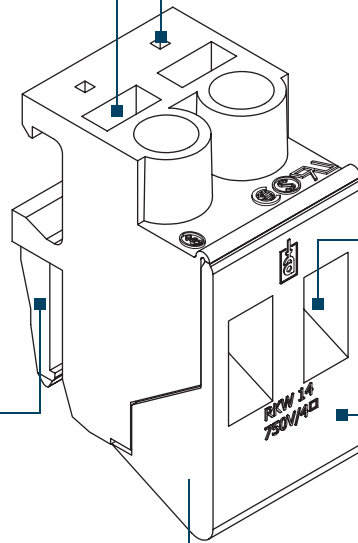
testing aperture

holes for marking labels

snap-on to the winding frame

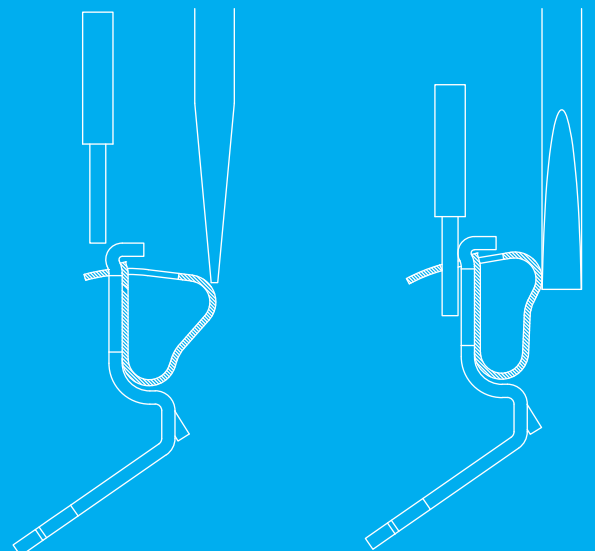
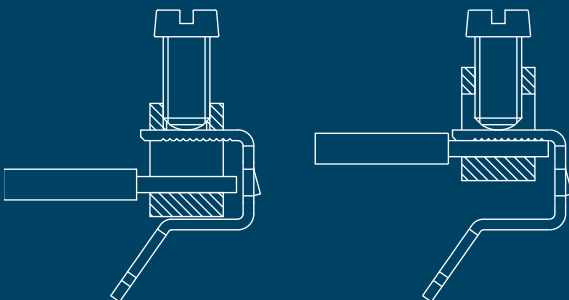
nominal cross section
4.0 mm² and 16 mm²

1 and 2 pole,
partly interlockable



SPRING CAGE (SCREWLESS)

LIFT TERMINALS



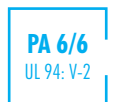
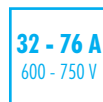
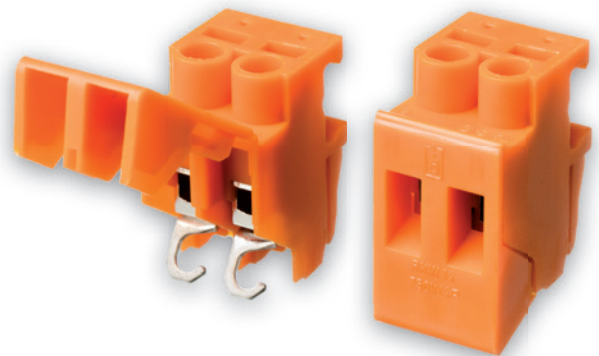
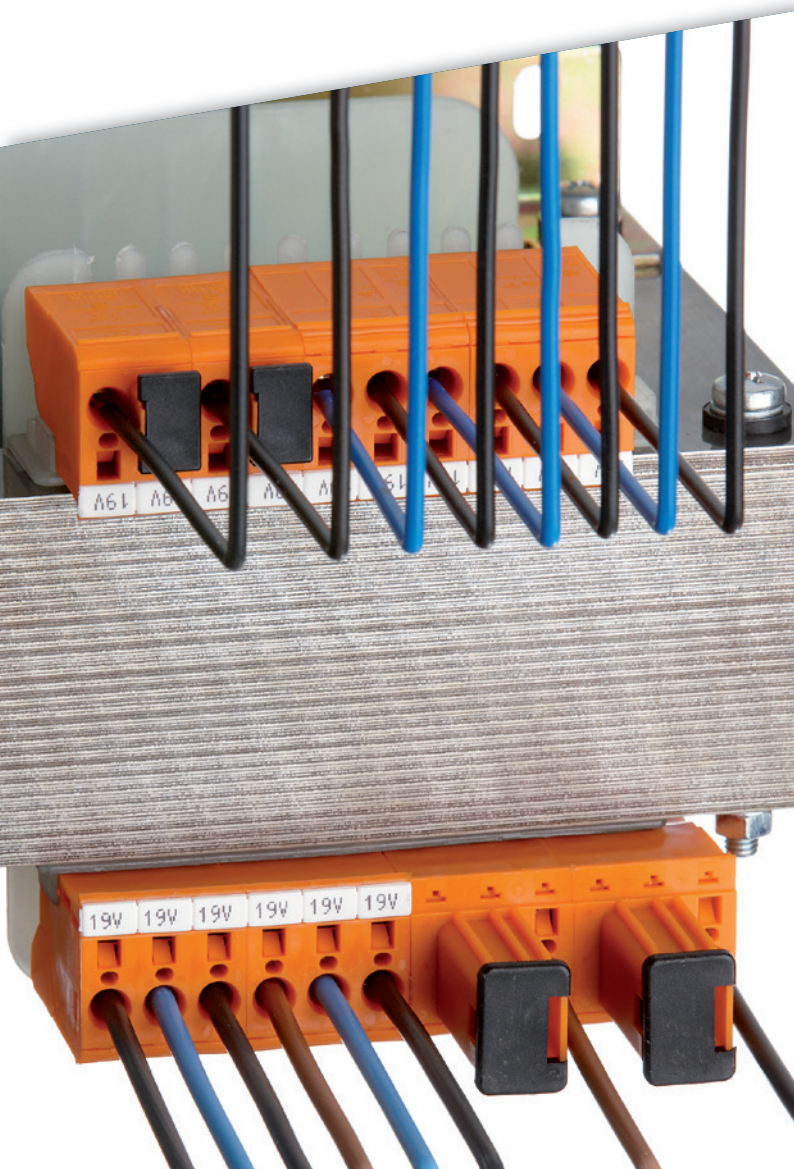


APPLICATIONS

- transformers
- mains filter
- testing equipment

ADVANTAGES

- external connection optionally with or without screws
- reliable fit on the winding frame
- connection of conductors from 0.5 to 16.0 mm²
- connection provided for blade terminals



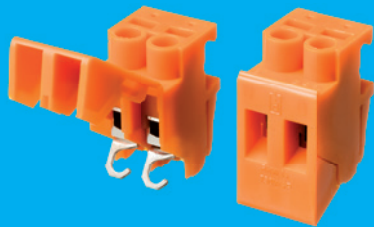
PRODUCT RANGE

Transformer Connectors

WITH LIFT TERMINALS

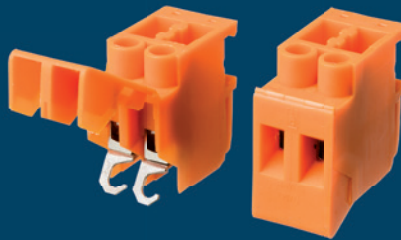
CONNECTORS 4.0 mm²

RKW 14 mini O/ ..
small design
1 and 2 pole



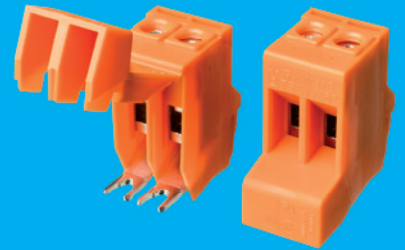
CONNECTORS 4.0 mm²

RKW 14 FO/ ..
with tabs
1 and 2 pole



CONNECTORS 16.0 mm²

RKW 110/ 2
2 pole



TRANSFORMER CONNECTORS WITH SPRING CAGE

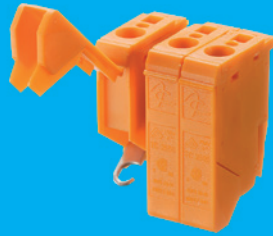
FUSED CONNECTORS

TC 2523 Si- ..
1 pole
interlockable



CONNECTORS 4.0 mm²

TC 2523/ ..
1 and 3 pole
interlockable



FUSED CONNECTORS

RKW 14 Si O- ..
1 pole



FEED-THROUGH CONNECTORS 4.0 mm²

DK 4 O
1 pole
interlockable

MARKING LABELS

BZ 14 ..



(PLUGGABLE) PCB CONNECTORS

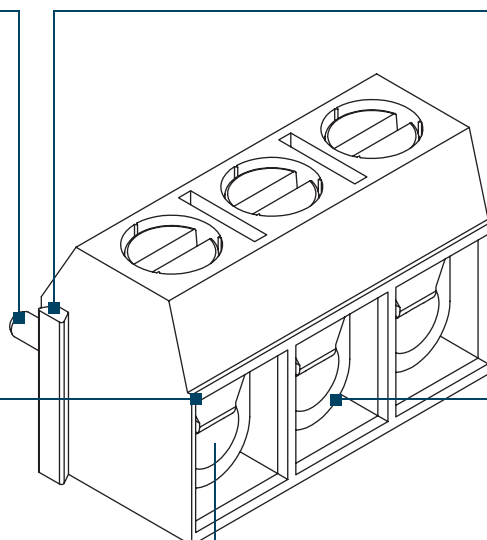
Pinpoint Accuracy in Spacing and Special Solutions – our Strength

horizontal or vertical solder pins

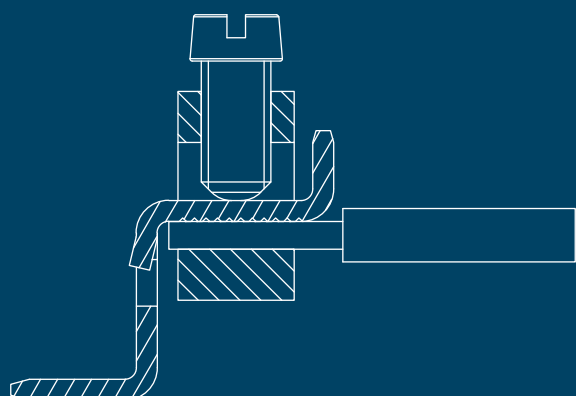
dovetail for interlocking

nominal cross section 1.0 to 2.5 mm²

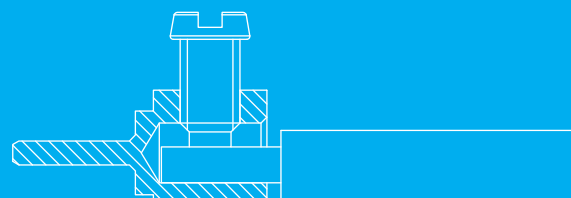
2 to 24 pole



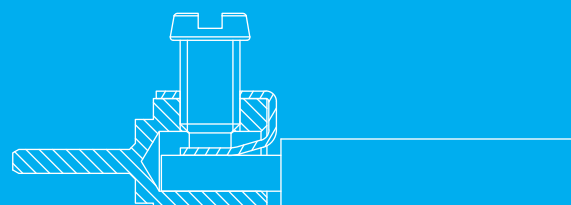
LIFT TERMINALS



UNPROTECTED



WIRE PROTECTOR (DS)



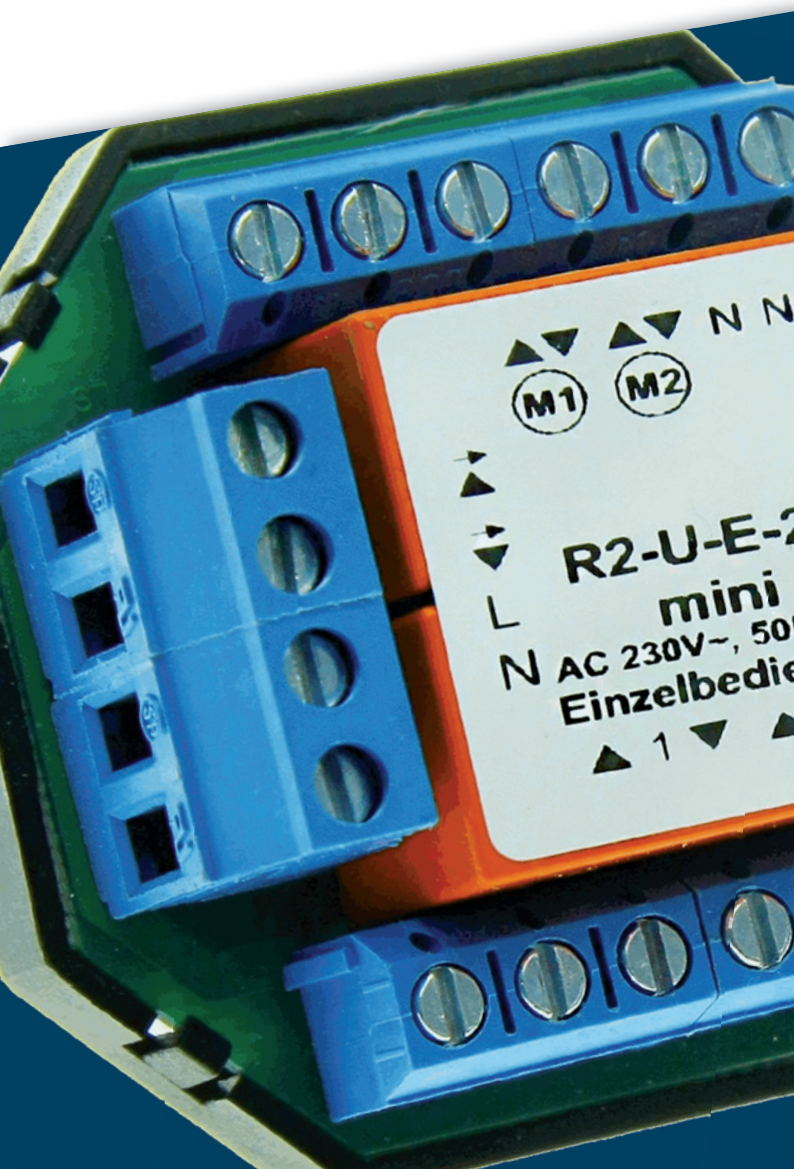


APPLICATIONS

- printed circuit boards
- LED drivers
- automation technology
- measurement and control technology

ADVANTAGES

- pinpoint accuracy in spacing and long life by PBT material
- numerous variants
- connection of conductors from 1.0 to 4.0 mm²
- safe and PCB-friendly connection by lift terminals



13.5 - 24 A
130 - 250 V

PBT
UL 94: V-0

T 60 °C
EN 61984

0.5 - 2.5
mm²

PRODUCT RANGE

(Pluggable) PCB Connectors

PBT CONNECTORS

horizontal connection

GSK 720 H/ ..

pin spacing 3,5/7.0

GSK 820 H/ ..

GSK 830 H/ ..

GSK 840 H/ ..

pin spacing 5.0/10.0



PBT CONNECTORS

GSK 845/ ..

pin spacing 5.0/10.0

conductors connected at 45°



PBT CONNECTORS

GSK 852/ ..

pin spacing 5.0/10.0

2 terminals per pole



PBT CONNECTORS

vertical connection

GSK 720 V/ ..

pin spacing 3.5/7.0

GSK 820 V/ ..

GSK 830 V/ ..

GSK 840 V/ ..

pin spacing 5.0/10.0

VARIANTS

- further colours
- bridged poles
- irregular spacings
- different solder pin lengths

(PLUGGABLE) PCB CONNECTORS

PLUGGABLE PBT CONNECTORS PLUG-IN CONNECTORS

GSK 760/.. pin spacing 3.5/7.0

GSK 860/.. pin spacing 5.0/10.0

GSK 864/.. pin spacing 5.08/10.16

GSK 865/.. pin spacing 5.08/10.16

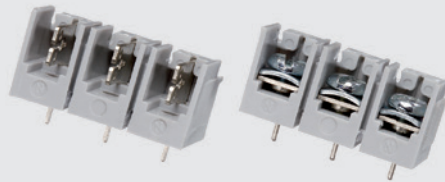


PA CONNECTORS

GSK 805/..

pin spacing 10.0

connection by clamping piece
or tab



PA CONNECTORS

GSK 801/..

pin spacing 10.0



VERTICAL HEADERS

GST 760 V/..

GST 860 V/..

GST 864 V/..

GST 865 V/..



HORIZONTAL HEADERS

GST 760 H/..

GST 860 H/..

GST 864 H/..

GST 865 H/..



TECHNICAL INFORMATION

Codings AC 166®

	Coding No.	3 POLE		4 POLE		5 POLE	
		Colour	Application	Colour	Application	Colour	Application
HIGH PLUG AND SOCKET CONNECTORS	1	black/white	mains	black/white	mains		
	2	pebble grey	mains				
	4	brown	control				
	5	pastel blue	DALI				
	7	dark grey	SK II				
PANEL MOUNT PLUG AND SOCKET CONNECTORS	1	black/white	mains	black/white	mains	black/white	mains
	2	pebble grey	mains			pastel blue	DALI
	3	light red	ignition cable				
	4	brown	control				
	5	pastel blue	DALI				
	6	green	mains				
	7	dark grey	SK II				
	9	yellow	motion detector				
	SOLDER CONNECTORS	1	black/white	mains	black/white	mains	
2		pebble grey	mains				
5		pastel blue	DALI				
CABLES/FLAT PLUG AND SOCKET CONNECTORS	1	black/white	mains	black/white	mains	black/white	mains
	2	pebble grey	mains			pastel blue	DALI
	3	light red	ignition cable				
	4	brown	control				
	5	pastel blue	DALI				
	6	green	mains				
	7	dark grey	SK II				
	9	yellow	motion detector				
	DISTRIBUTORS	1	black/white	mains	black/white	mains	black/white
2						pastel blue	DALI

TECHNICAL INFORMATION

Codings AC 164

	Coding No.	2 POLE		3 AND 4 POLE		5 POLE	
		Colour	Application	Colour	Application	Colour	Application
HIGH PLUG AND SOCKET CONNECTORS	1	black/white	mains	black/white	mains	black/white	mains
	2	pastel blue	DALI			pastel blue	DALI
PANEL MOUNT PLUG AND SOCKET CONNECTORS	1	black/white	mains	black/white	mains	black/white	mains
	2	pastel blue	DALI			pastel blue	DALI
CABLES/FLAT PLUG AND SOCKET CONNECTORS	1	black/white	mains	black/white	mains	black/white	mains
	2	pastel blue	DALI			pastel blue	DALI
DISTRIBUTORS	1	black/white	mains	black/white	mains	black/white	
	2	pastel blue	DALI			pastel blue	DALI

TECHNICAL INFORMATION

Characteristics of the Insulating Materials

	Application	Particular Properties	Temperature Resistance			Lowest Operational Temperature	Melting Point	Flammability Class to UL 94
			continuous	to DIN 60998	short-time			
PA 6	connectors and connecting systems of the standard line	high insulation, shatter-proof, asbestos and halogen-free, corrosion-proof, resistant against weather, ozone, UV radiation, solvents, oil, fat	100 °C	130 °C	160 °C	-35 °C	215 °C	V-2
PA 6/6			100 °C	130 °C	160 °C	-35 °C	255 °C	V-2
PA 6/6 HT			connectors and connecting systems for use in periodically high ambient temperatures	160 °C	-	200 °C	-50 °C	255 °C
ACGW-8.7 (PA 6/6)	terminal blocks and connectors for use in household appliances and similar purposes to EN 60 335-1	high fire resistance GWIT 775°C/0,8-1,3 fibre-glass-free, halogen-free	100 °C	130 °C	160 °C	-35 °C	260 °C	V-2
PPA-GF	SMD connectors	resistant against high soldering temperatures (reflow soldering)	150 °C	130 °C	180 °C	-60 °C	295 °C	V-0
PBT	(pluggable) printed circuit board connectors	dimensionally stable, true to spacing	120 °C	-	200 °C	-30 °C	225 °C	V-0
PC	ZEL 110 and ZEL 900	high dimensional accuracy, high weathering resistance, resistant against high-energy rays (UV)	125 °C	-	165 °C	-60 °C	260 °C	V-0
PORCELAIN	connectors for use in periodically extremely high ambient temperatures	high temperature resistant, even when touched	1000 °C	-	-	-200 °C	1680 °C	-
STEATITE	connectors for use in periodically extremely high ambient temperature	high temperature resistant, even when touched	800 °C	-	-	-160 °C	1450 °C	-
TPE	(plug and socket) connectors with gaskets against the ingress of dust and moisture	high protection against dust and moisture	100 °C	-	150 °C	30 °C	280 °C	-

TECHNICAL INFORMATION

IP Codes

PROTECTION CODE	Against the Intrusion of Dust First Digit IP_x	Against the Intrusion of Water Second Digit IPx_
0	unprotected	unprotected
1	protected against solid objects dia 50.0 mm and more	protected against dripping water
2	protected against solid objects dia 12.5 mm and more	protected against dripping water when the enclosure is tilted up to 15°
3	protected against solid objects dia 2.5 mm and more	protected against spraying water
4	protected against solid objects dia 1.0 mm and more	protected against splashing water
5	protected against dust	protected against water jets
6	dust tight	protected against powerful water jets
7	-	protected against harmful effect when being temporarily immersed in water
8	-	protected against harmful effect when being permanently immersed in water
9K	-	protected against close-range high pressure, high temperature spray downs

TECHNICAL INFORMATION

Regulations Applicable for the Use of Our Products

POWER INSTALLATIONS IN GENERAL		VDE 0100/..	erection of power installations with nominal voltages up to 1000 V
		VDE 0110/..	insulation co-ordination for equipment within low-voltage systems
	EN 50274	VDE 0660/..	protection against electric shock
	EN 60529	VDE 0470/..	degrees of protection provided by enclosures (IP Code)
	EN 60695/..	VDE 0471/..	fire hazard testing
CONNECTORS IN GENERAL	EN 60998/..	VDE 0613/..	connecting devices for low voltage circuits
	EN 60999/..	VDE 0609/..	requirements for clamping units for electrical copper conductors
	EN 60947-7-4	VDE 0611-7-4	Low-voltage switchgear and controlgear – Part 7-4: Ancillary equipment – PCB terminal blocks for copper conductors
PLUG AND SOCKET CONNECTORS IN GENERAL	EN 60320/..	VDE 0625/..	appliance couples for household and similar purpose
	EN 61535	VDE 0606-200	Installation couplers intended for permanent connection in fixed installations
	EN 61984	VDE 0627	connectors - safety regulations and testing
UTILITY DEVICES	EN 60335/..	VDE 0700/..	safety of household and similar electrical appliances
	EN 60598/..	VDE 0711	luminaires – requirements and testing
	EN 60921/..	VDE 0712/..	specification for accessories to hot- and cold cathode fluorescent lamps - ballasts
	EN 61558/..	VDE 0570/..	safety of transformers, power supply units and the like
TOLERANCES	DIN 7168		general tolerances for linear and angular dimensions and geometrical tolerances (not to be used for new designs)
	DIN ISO 2768 part 1		general tolerances; tolerances for linear and angular dimensions without individual tolerance indications
	DIN ISO 2768 part 2		general tolerances; geometrical tolerances for features without individual tolerances indications
	DIN 16742		Plastics moulded parts - Tolerances and acceptance conditions
	DIN 40680 part 1		ceramic components for electrical purposes; admissible tolerances
	DIN 40680 part 2		ceramic components for electrical purposes; form tolerances

RELEVANT GLOW WIRE TESTS

to EN 60335-1:

Standard for household and similar electrical appliances

- further glow wire tests for mouldings that are positioned 3 mm next to current carrying parts
- test carried out on a component
 - › to EN 60695-2-11 “GWT 750 °C”
 - › temperature of glow wire 750 °C
 - › contact time of glow wire 30 seconds
 - › flame extinguishes within 2 seconds max.
- (alternatively) test carried out on a test board
 - › EN 60695-2-13 “GWIT 775 °C”
 - › temperature of glow wire 775 °C
 - › contact time of glow wire 30 seconds
 - › flame extinguishes within 5 seconds max.

to EN 60998-1:

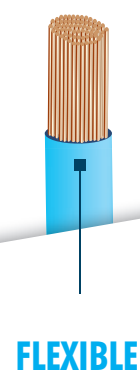
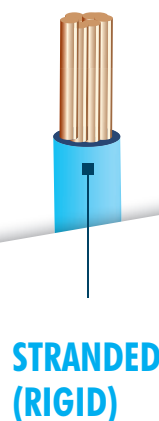
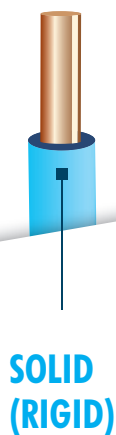
Connecting devices for low voltage circuit

- test on mouldings that keep current-carrying parts in their position
- obligatory tests in order to obtain a VDE certificate for connecting devices
- test carried out on a component
 - › temperature of glow wire 850 °C
 - › contact time of glow wire: 5 seconds
 - › flame extinguishes 30 seconds after removal of the glow wire

TECHNICAL INFORMATION

Configuration and Dimensions of Connecting Cables: Extract from DIN VDE 0295

Nominal Cross Section mm ²	SOLID		STRANDED		FLEXIBLE		American Wire Gauge (AWG) to EN 60204 Part 1						
	Ø max.	No. of Wires	Ø max.	No. of Wires	Ø max.	No. of Wires	AWG	solid			flexible		
								Ø mm	circ mils	mm ²	Ø mm	circ mils	mm ²
	0.5	0.9	1	1.1	7	1.1	16	20	0.81	1.022	0.52	0.97	1.111
0.75	1.0	1	1.2	7	1.3	24	18	1.02	1.520	0.82	1.15	1.600	0.82
1.0	1.2	1	1.4	7	1.5	32	(17)	1.15	2.050	1.04			
-	-	-	-	-	-	-	16	1.29	2.580	1.31	1.50	2.580	1.32
1.5	1.5	1	1.7	7	1.8	30	(15)	1.45	3.260	1.65			
-	-	-	-	-	-	-	14	1.63	4.110	2.03	1.85	4.100	2.09
2.5	1.9	1	2.2	7	2.6	50	(13)	1.83	5.180	2.63			
-	-	-	-	-	-	-	12	2.05	6.530	3.31	2.41	6.500	3.32
4.0	2.4	1	2.7	7	3.2	56	(11)	2.30	8.230	4.17			
-	-	-	-	-	-	-	10	2.59	10.380	5.25	2.95	10.530	5.37
6.0	2.9	1	3.3	7	3.9	84	(9)	2.91	13.100	6.63			
-	-	-	-	-	-	-	8	3.26	16.510	8.37	3.73	16.625	8.48
10.0	3.7	1	4.2	7	5.1	80	(7)	3.67	20.800	10.58	4.15	20.820	10.55
-	-	-	-	-	-	-	6	4.12	26.240	13.30	4.67	26.250	13.39
16.0	4.6	1	5.3	7	6.3	126	(5)	4.62	33.100	16.77	5.24	33.100	16.77
-	-	-	-	-	-	-	4	5.19	41.740	21.15	5.95	41.650	21.24
25.0	-	-	6.6	7	7.8	196	(3)	5.83	52.600	26.67	6.61	52.630	26.67
35.0	-	-	7.9	7	9.2	276	2	6.54	66.360	33.62	7.42	66.150	33.74



HEAD OFFICE GERMANY



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