



## Circular Connectors

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## Introduction

The Neutrik® circular connector program is a range of metal, multi-pole connectors specifically designed for industrial applications. These series provide a variety of male and female cable connectors and receptacles that can be terminated by soldering and crimping or to printed circuit boards. An easy to use and reliable quick-lock system ensures a perfect connection and cannot be released accidentally. The circular connectors offer Neutrik® unique chuck type strain relief and reinforced housing for robust dependability.

The Neutrik® industrial connector range also features a unique power connector for single phase applications up to 32 Amps.

Further features are:

- Number of contacts is 1 to 12
- Self-locking system
- Robust all-metal housing
- Front or rear mounting
- Chuck and crimp type strain relief
- Gold plated contacts
- Solder or crimp termination
- Printed circuit board mounting
- Excellent shielding (crimp type strain relief)

The main areas of applications are in the measurement, test and control, automotive and machine tool industry as well as medical technique.



New quick lock



Neutrik hologram



3/16" flat tabs



Coupler for linking cables

**powerCON - Locking 3 Pole Power Connectors**



NAC3FCA



NAC3MPA-1



NAC3FCB



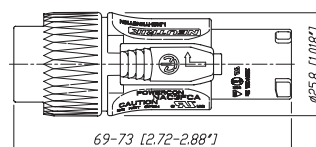
NAC3MPB-1



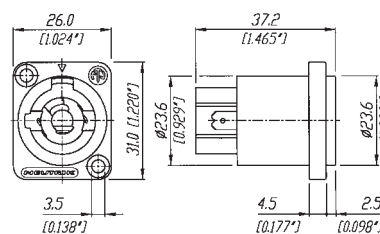
NAC3MM-1

- Lockable 3 pole equipment (AC) connector with contacts for line, neutral and pre-mating safety ground
- High current capacity, rated at 20A / 250V ac
- Colour coded for easy identification, powerCON offers power-in (blue) and power-out (grey) versions with different keying to avoid the possibility of intermating
- Fast and easy locking system
- Extremely robust and reliable
- Excellent cable retention
- UL, cUL recognized components (file no. E 135070)  
VDE certified (Reg. No. 6360),  
SEV approved (No. 96.1 10096)
- New latch design for easier handling and secure locking
- Branded with unique hologram - guarantees genuine and authentic Neutrik product
- Coupler for linking cables (couples NAC3FCA to NAC3FCB)

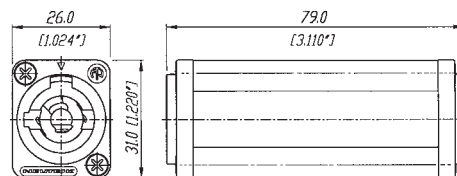
**NAC3FCA(B)**



**NAC3MPA(B)**



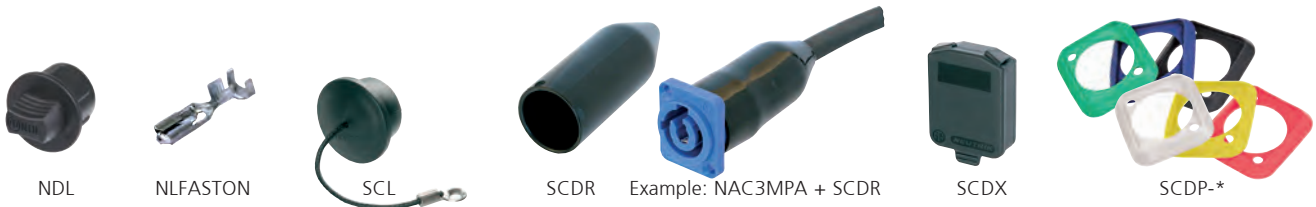
**NAC3MM**



## Ordering Information

|           |   |
|-----------|---|
| NAC3FCA   | Cable connector, quick lock with securing lever, A-type for power inlet, screw terminals  |
| NAC3MPA-1 | Air tight chassis connector, A-type for power inlet, flat tab terminals                   |
| NAC3FCB   | Cable connector, quick lock with securing lever, B-type for power outlet, screw terminals |
| NAC3MPB-1 | Air tight chassis connector, B-type for power outlet, flat tab terminals                  |
| NAC3MM-1  | Coupler for linking cables (couples NAC3FCA to NAC3FCB)                                   |

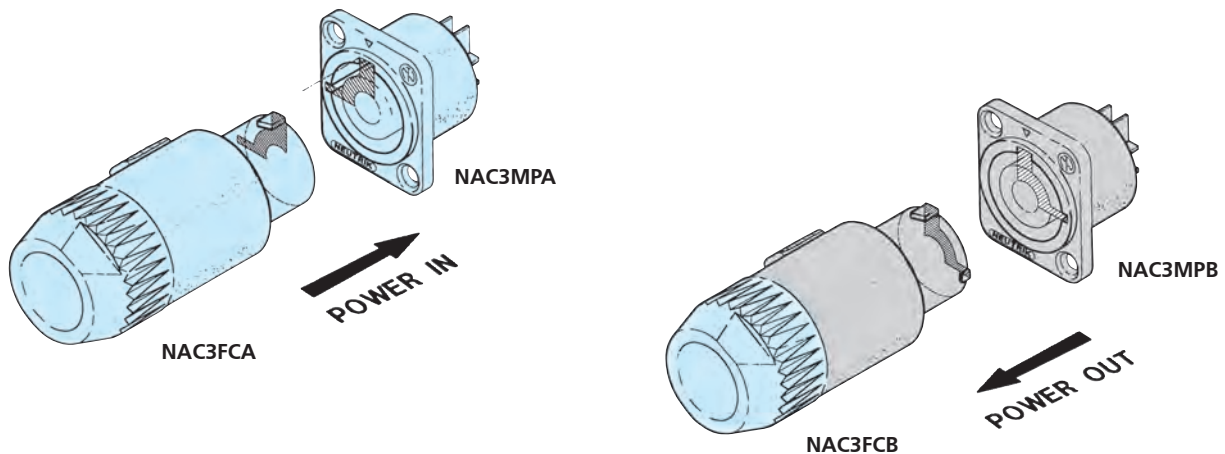
## Accessories



|          |   |
|----------|---|
| NDL      | dummyPLUG for powerCON 20 A chassis connector   |
| NLFASTON | FASTON® receptacle for tabs with "positive lock" for use with NL4MP, NL4MPR, NL8MPR, Pack of 100 pcs. |
| SCL      | Plastic sealing cover to protect the connectors against dust and moisture                             |
| SCDR     | Rear end protection cover for D-size chassis connectors   |
| SCDP-*   | D-Size sealing gaskets, colour coding (*: 0- black, 2- red, 4- yellow, 5- green, 6- blue, 9- white)   |
| SCDX     | Hinged cover seals D-size chassis connectors, IP42 rated  |

## KEYWAYS

With the two non-interchangeable types of connectors (A type and B type) it is impossible to produce a short circuit. Mating connectors (combination) are identified by mechanical keyways and by color.



## ATTENTION

The technical data of the powerCON connectors refer to connectors without breaking capacity, meaning connecting devices not to be engaged and disengaged in normal use when live or under load.



Robust metal housing



Screw-type terminals

powerCON 32 Amp Connectors



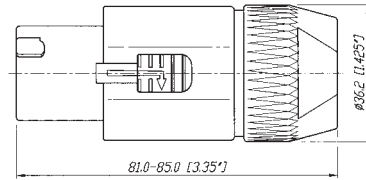
NAC3FC-HC



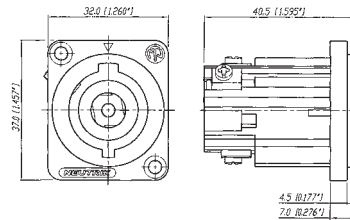
NAC3MP-HC

- Locking single phase AC appliance coupler
- High current capacity (32 A rated)
- Fast and easy locking system
- Excellent cable handling and protection
- Extremely robust and reliable
- 250 V ac, 32 Amp single-phase (for ambient temperatures up to 35°C)
- Premating contact for protective earth
- Locking system to prevent unintentional disengagement
- Cable O.D. Range: 8 - 20 mm
- Wiring with screw-type terminals for wires 2.5 to 6.0 mm<sup>2</sup> (AWG 14 - 10)

NAC3FC-HC



NAC3MP-HC



Ordering Information

|           |  |
|-----------|--|
| NAC3FC-HC | Cable connector, quick lock with securing lever, screw terminals |
| NAC3MP-HC | Fast and easy locking system, screw-type terminals               |



Connector locking



PCB receptacle

**nanoCON - 3 Pole Subminiature Connectors**



NP3F-H



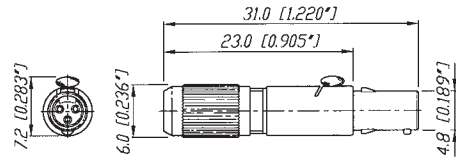
NSC3F



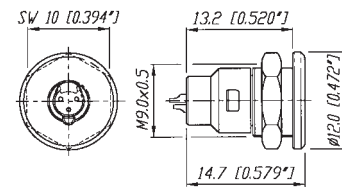
NR3M-S

- World's smallest circular lockable multipole connector
- Robust metal housing with gold plated contacts
- Male and female receptacles for vertical or horizontal PCB mount or solder termination
- Cable connector and receptacle with interchangeable male and female inserts
- Reliable and versatile in applications like medical equipment, control systems, sensors or audio applications such as miniature and wireless microphones and portable mixers
- Pre-mating contact 1

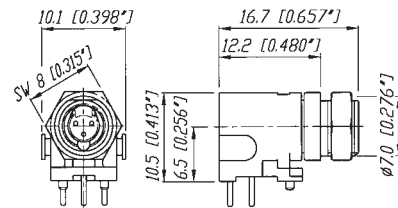
**NSC3F(M)**



**NR3F(M)-S**



**NP3F(M)-H**

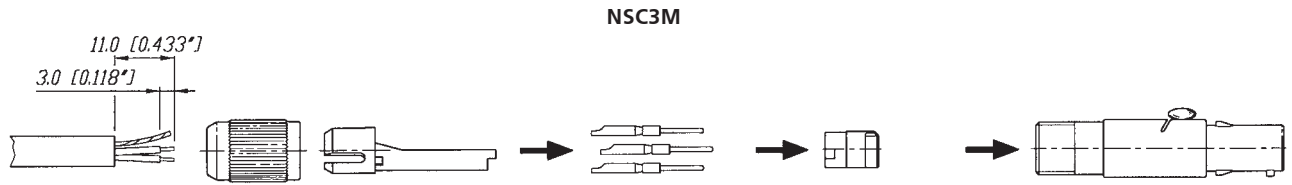
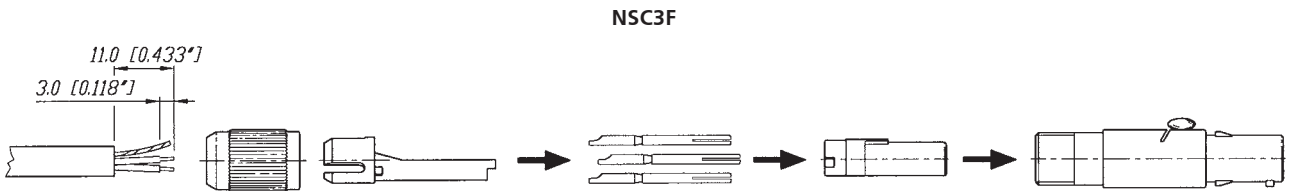


**M 1:1**

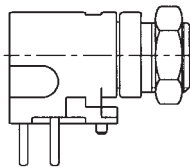


Ordering Information

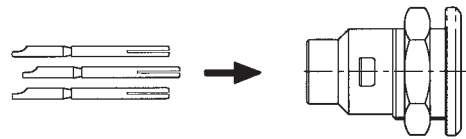
| Female |   | Male   |   |
|--------|---|--------|---|
| NSC3F  | Cable connector, chuck principle, solder contacts | NSC3M  | Cable connector, chuck principle, solder contacts |
| NR3F-S | Receptacle panel mount, solder contacts           | NR3M-S | Receptacle panel mount, solder contacts           |
| NP3F-H | Receptacle horizontal PCB mount                   | NP3M-H | Receptacle horizontal PCB mount                   |
| NP3F-V | Receptacle vertical PCB mount                     | NP3M-V | Receptacle vertical PCB mount                     |



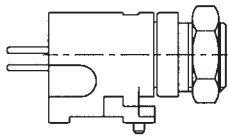
NP3F-H  
NP3M-H



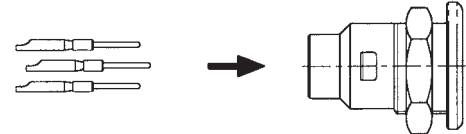
NR3F-S



NP3F-V  
NP3M-V



NR3M-S



Contact Arrangement

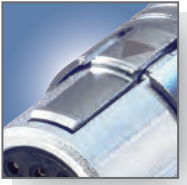
Stecker



Buchse







Push Pull locking



Gold solder contacts

## miniCON - 12 Pole Miniature Connectors



MSCM12



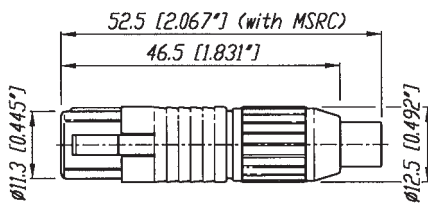
MRF12



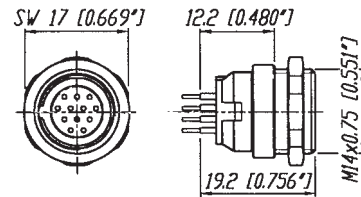
MMC\* (modular system)

- Up to 12 pole miniature connector
- Complete set or modular system
- Push-pull self-locking system
- Precisely machined, rugged all metal design
- Fully loaded male and female receptacles for horizontal or vertical PCB mount
- Gold plated contacts, crimp or solder, velour chromium housing
- Special crimp type strain relief establishes an ideal coaxial connection of the cable shield to the connector shell for best EMC shielding
- Easy assembly: contact soldering in disassembled condition avoids awkward wiring of wight density contacts
- Interchangeable insert (male-female)

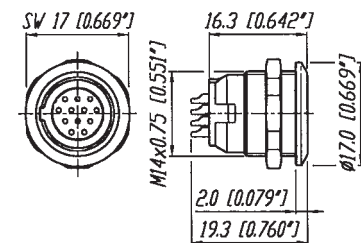
### MSCF(M)12 (+MSRC)



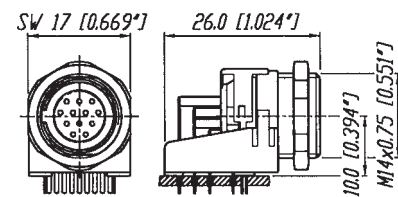
### MPF(M)12-V



### MRF(M)12



### MPF(M)12-H



## Ordering Information for complete miniCON set

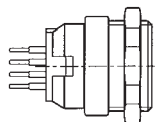
Complete set (consisting of housing, insert, 12 contacts and chuck for cable connector)

| Female  |   | Male    |   |
|---------|---|---------|---|
| MSCF12  | Cable connector, chuck principle, solder contacts | MSCM12  | Cable connector, chuck principle, solder contacts |
| MRF12   | Receptacle panel mount, solder contacts           | MRM12   | Receptacle panel mount, solder contacts           |
| MPF12-H | Receptacle horizontal PCB mount                   | MPM12-H | Receptacle horizontal PCB mount                   |
| MPF12-V | Receptacle vertical PCB mount                     | MPM12-V | Receptacle vertical PCB mount                     |

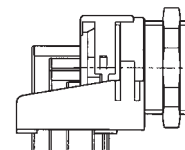
MSCF(M)12



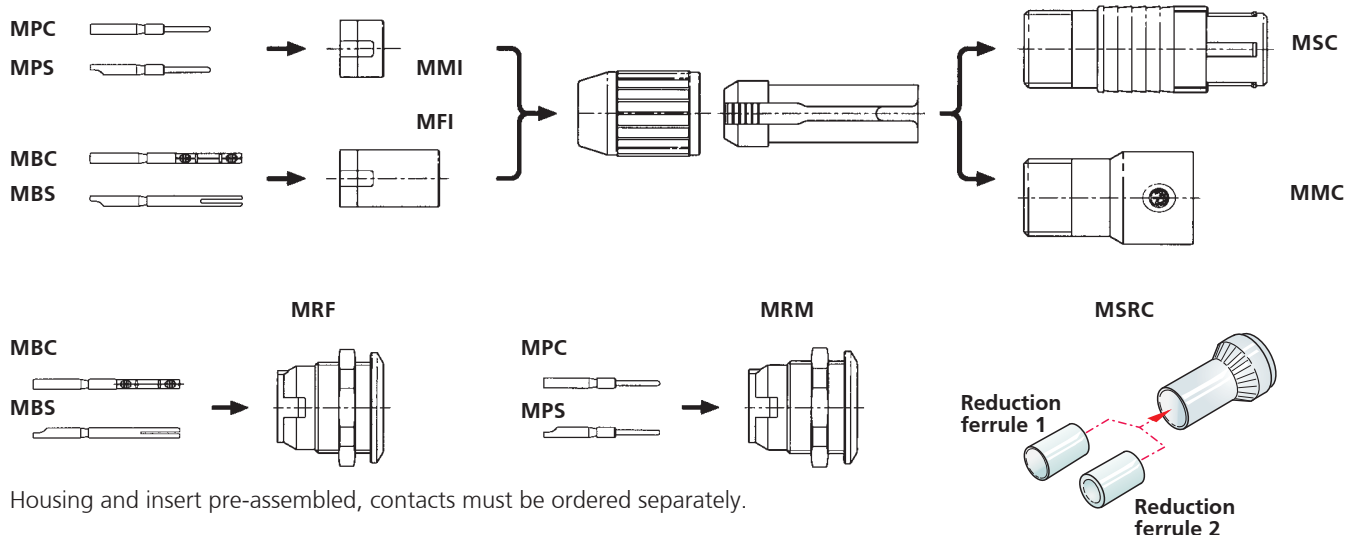
MPF(M)12-V



MPF(M)12-H



## Ordering Information for modular miniCON system



### Modular system

| Female |  | Male |  |
|--------|--|------|--|
| MFI    | Insert for cable connector   | MMI  | Insert for cable connector                         |
| MBC    | Crimp contacts for cable connector and receptacle  | MPC  | Crimp contacts for cable connector and receptacle  |
| MBS    | Solder contacts for cable connector and receptacle   | MPS  | Solder contacts for cable connector and receptacle |
| MRF    | Receptacle housing and insert pre-assembled  | MRM  | Receptacle housing and insert pre-assembled        |
| MMC    | Cable connector extension, incl. chuck (for male and female)   |      |  |
| MSC    | Cable connector housing, incl. chuck (for male and female)   |      |  |
| MSRC   | Set of strain relief crimp version (consisting of crimp ferrule & reduction ferrule 1 + 2, tools see page 122) |      |  |



Push Pull locking



All metal housing

neutriCON - Versatile Circular Connectors



ORP8F-Ni



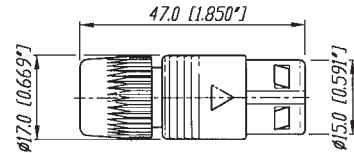
OSC8F



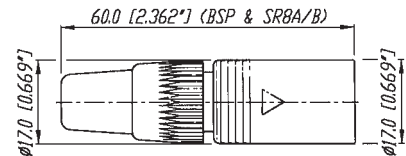
ORP8M

- Complete set or modular system for any desirable configuration
- Contact configuration can be selected from 1 to 8 contacts
- Special crimp type strain relief establishes an ideal circumferential connection of the cable shield to the connector shell as required by best EMC working practice
- Precise and robust all metal housing absorbs vibration forces and protects contact inserts
- Easy, fast and screwless assembly
- Push-pull self-locking system

OSC8F / OSC8M

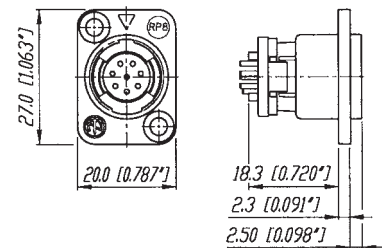


MODULAR SYSTEM



MC8 + SR8A/B + insert

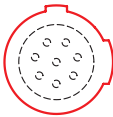
ORP8F / ORP8M



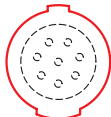
Polarization

**Housing:** Two variants of metal polarizing guides (90° and 180°).

Coding 90°



Coding 180°



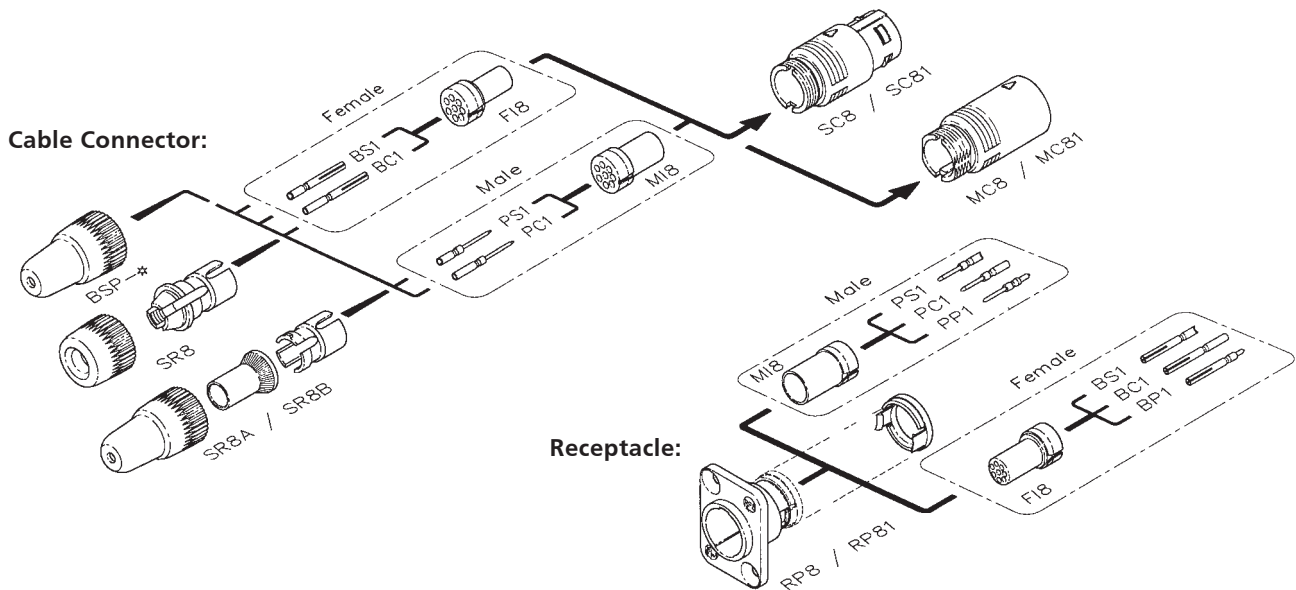
**Insert:** The male and female insert can be assembled in all three housings.

Ordering Information for complete neutriCON set

Complete set (consisting of housing, insert, 8 contacts and chuck for cable connector)

|          |  |
|----------|--|
| OSC8F    | Female cable connector, chuck principle, black housing, solder contacts  |
| OSC8F-Ni | Female cable connector, chuck principle, nickel housing, solder contacts |
| OSC8M    | Male cable connector, chuck principle, black housing, solder contacts    |
| OSC8M-Ni | Male cable connector, chuck principle, nickel housing, solder contacts   |
| ORP8F    | Female panel mount receptacle, black housing, solder contacts            |
| ORP8F-Ni | Female panel mount receptacle, nickel housing, solder contacts           |
| ORP8M    | Male panel mount receptacle, black housing, solder contacts              |
| ORP8M-Ni | Male panel mount receptacle, nickel housing, solder contacts             |

Ordering Information for modular neutriCON system



Modular system

| Female  |  | Male    |  |
|---------|--|---------|--|
| FI8     | Insert for cable connector and receptacle  | MI8     | Insert for cable connector and receptacle        |
| BS1     | Solder contact   | PS1     | Solder contact                                   |
| BC1     | Crimp contact  | PC1     | Crimp contact                                    |
| BP1     | PCB contact  | PP1     | PCB contact                                      |
| SC8     | Cable housing, black coated, 180° coding   | MC8     | Mating cable housing, black coated, 180° coding  |
| SC8-Ni  | Cable housing, nickel coated, 180° coding  | MC8-Ni  | Mating cable housing, nickel coated, 180° coding |
| SC81    | Cable housing, black coated, 90° coding  | MC81    | Mating cable housing, black coated, 90° coding   |
| SC81-Ni | Cable housing, nickel coated, 90° coding   | MC81-Ni | Mating cable housing, nickel coated, 90° coding  |
| SC8W    | Cable housing, black coated, 180° coding, waterproof multipin connector according IP54                 |         |  |
| RP8     | Receptacle, black coated, 180° coding  |         |  |
| RP8-Ni  | Receptacle, nickel coated, 180° coding   |         |  |
| RP81    | Receptacle, black coated, 90° coding   |         |  |
| RP81-Ni | Receptacle, nickel coated, 90° coding  |         |  |
| SR8     | Bushing and chuck type strain relief (standard)  |         |  |
| SR8A    | Crimp type strain relief for cable O.D. 3 - 3.8 mm (Hex crimp 5.41 mm acc. IEC 803, see also page 122) |         |  |
| SR8B    | Crimp type strain relief for cable O.D. 6 - 7 mm (Hex crimp 7.01 mm acc. IEC 803, see also page 122)   |         |  |
| SR8W    | Bushing and chuck type strain relief for waterproof solution IP54                                      |         |  |
| BSP-*   | Coloured boot, available in 10 resistor colours  |         |  |

\* color coding: 0 - Black, 1 - Brown, 2 - Red, 3 - Orange, 4 - Yellow, 5 - Green, 6 - Blue, 7 - Violet, 8 - Grey, 9 - White

| Specification | powerCON Series | 32 A powerCON Series | nanoCON Series | miniCON Series | neutriCON Series |
|---------------|-----------------|----------------------|----------------|----------------|------------------|
|---------------|-----------------|----------------------|----------------|----------------|------------------|

## Electrical

|   |           |           |           |                          |                             |
|---|-----------|-----------|-----------|--------------------------|-----------------------------|
| Number of contacts:                                       | 2 + PE    | 2 + PE    | 3         | 12 (1-12 modular system) | 8 (1-8 modular system)      |
| Rated current per contact:                                | 20 A rms  | 32 A rms  | 2 A       | 3 A                      | 7.5 A (solder), 5 A (crimp) |
| Rated voltage:  | 250 V ac  | 250 V ac  | 50 V ac   | 50 V ac                  | 50 V ac                     |
| Dielectric strength:                                      | 4000 V dc | 4000 V dc | 1000 V dc | 1000 V dc                | 1500 Vdc                    |
| Contact resistance:                                       | ≤ 3 mΩ    | ≤ 3 mΩ    | ≤ 12 mΩ   | ≤ 8 mΩ                   | ≤ 5 mΩ                      |
| Insulation resistance after damp heat test (IEC 68-2-30): | > 100 MΩ  | > 100 MΩ  | > 1 GΩ    | > 500 MΩ                 | > 500 MΩ                    |

## Mechanical

|  |  |   |   |   |   |
|--|--|---|---|---|---|
| Retention method:                        | Quick lock                               | Quick lock  | latch                                       | Push-pull                               | Push-pull                               |
| Cable O.D. range:                        | 5 - 15 mm                                | 8 - 20 mm   | 3.4 mm max.                                 | 3 - 5 mm (grey chuck)                   | 3 - 7 mm                                |
|  |  |   |   | 5 - 7 mm (white chuck)                  | 3 - 3.8 mm (SR8A)                       |
|  |  |   |   | 2.5 - 6 mm<br>(crimp version MSRC)      | 6 - 7 mm (SR8B)                         |
| Wiring:                                  | Cable: screw type terminals or soldering | screw type terminals 2.5-6mm <sup>2</sup> /14-10AWG | 0.2 mm <sup>2</sup> / 24 AWG for solid wire | 0.5 mm <sup>2</sup> / 20 AWG for solder | 1.0 mm <sup>2</sup> / 18 AWG for solder |
|  | 2.5 mm <sup>2</sup> / 14 AWG             |   |   |   |   |
| Chassis: flat tabs for FASTON®           |  |   | 0.14 mm <sup>2</sup>                        | 0.22 mm <sup>2</sup>                    | 0.14 - 0.34 mm <sup>2</sup>             |
|  |  |   | 26 AWG                                      | 24 AWG                                  | 22 - 26 AWG                             |
| Solderability complies with IEC 68-2-20: | 4.8 x 0.5 mm or soldering                |   | for stranded wire                           | for crimp                               | for crimp                               |
|  |  |   | ●   | ●                                       | ●                                       |

## Material

|                          |                       |               |             |                      |                                     |
|--------------------------|-----------------------|---------------|-------------|----------------------|-------------------------------------|
| Housing cable connector: | PA 6 30% GR           | PA 6 30% GR   | CuSn4Pb4Zn4 | ZnAl4Cu1 / CuZn39Pb3 | ZnAl4Cu1<br>gal Ni or black chrome  |
| Housing receptacle:      | PA 6.6 30% GR         | PA 6.6 25% GR | CuZn39Pb2   | ZnAl4Cu1             | ZnAl4Cu1,<br>gal Ni or black chrome |
| Insert:                  | PA 6 30% GR           | PA 6.6 25% GR | PETP        | PA 6.6               | PBTP 15% GR                         |
| Contacts:                | CuZn39Pb3 /           | CuZn39Pb3 /   | CuZn35Pb2   | CuZn35Pb2 (solder)   | CuZn35Pb2 (solder)                  |
|                          | CuNi1Si0.2            | CuSn0.2       |             | CuZn39Pb3 (crimp)    | CuZn39Pb3 (crimp)                   |
| Contact surface:         |                       |               |             | CuSn6                |                                     |
|                          | 4 μm / 2 μm Ag plated | 4 μm Ag       | 0.5 μm Au   | 0.2 μm AuCo          | 0.3 μm Au hard alloy over 2 μm Ni   |
| Chuck POM:               | ●                     | ●             | ●           | ●                    | ●                                   |

## Environmental

|                                   |       |                                |           |           |       |
|-----------------------------------|-------|--------------------------------|-----------|-----------|-------|
| Flammability UL 94 HB:            | -     | ● plug housing                 | UL 94 V-0 | UL 94 V-0 | ●     |
| Flammability UL 94 V-0:           | ●     | ● socket housing + plug insert | -         | -         | -     |
| Temperature range: -30°C to +80°C | ●     | ●                              | ●         | ●         | ●     |
| Protection class (mated):         | IP 20 | IP 2X unmated                  | IP 40     | IP 5X     | IP 5X |
| Safety Requirements EN/IC61984:   | ●     | ●                              | -         | -         | -     |

FASTON® is a trademark of AMP Inc.

## Crimptool



**Crimptool HX-CONTACT** DMC crimping tool AFM8  
acc. M22520/2-01



**MPOS-\*** Modified DMC positioner (K155) Contact  
positioner holds contact in position when  
crimping.

## Contact and connector assembly



**Crimptool HX-R-BNC** Neutrik® HEX crimping tool



**DIE-R-BNC-\*** Neutrik® DIE's for various HEX sizes.

## neutriCON - Ordering Information Assembly Tools

|      |                      | Cable O.D. / Wire | Crimptool  | Die/Positioner | HEX-Size/Standard   |
|------|----------------------|-------------------|------------|----------------|---------------------|
| SR8A | Strain relief        | 3 - 3.8 mm        | HX-R-BNC   | DIE-R-BNC-PJ   | 5.41 mm / IEC 803   |
| SR8B | Strain relief        | 6 - 7 mm          | HX-R-BNC   | DIE-R-BNC-PS   | 7.01 mm / IEC 803   |
| BC1  | Female crimp contact | AWG 22 -26        | HX-CONTACT | MPOS-BC1       | No. 5 / M22520/2-01 |
| PC1  | Male crimp contact   | AWG 22 -26        | HX-CONTACT | MPOS-PC1       | No. 5 / M22520/2-01 |

## miniCON - Ordering Information Assembly Tools

|      |                                     | Cable O.D. / Wire           | Crimptool  | Die/Positioner | HEX-Size/Standard   |
|------|-------------------------------------|-----------------------------|------------|----------------|---------------------|
| MSRC | Crimp ferrule only                  | 4.5 - 6 mm                  | HX-R-BNC   | DIE-R-BNC-PDC* | 6.47 mm / IEC 803   |
| MSRC | Crimp ferrule & reduction ferrule 1 | 3.3 - 4.4 mm                | HX-R-BNC   | DIE-R-BNC-PDC* | 6.47 mm / IEC 803   |
| MSRC | Crimp ferrule & reduction ferrule 2 | 2.5 - 3.2 mm                | HX-R-BNC   | DIE-R-BNC-PDC* | 6.47 mm / IEC 803   |
| MBC  | Female crimp contact                | 24 AWG/0.22 mm <sup>2</sup> | HX-CONTACT | MPOS-MBC       | No. 5 / M22520/2-01 |
| MPC  | Male crimp contact                  | 24 AWG/0.22 mm <sup>2</sup> | HX-CONTACT | MPOS-MPC       | No. 5 / M22520/2-01 |

\* DIE-R-BNC-PJ or PS also possible



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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