



Loudspeaker Connectors



| Content | Page |
|---|------|
| speakON SPX Series 2, 4 Pole Cable Connector | 70 |
| speakON FC Series, 2, 4 and 8 Pole Cable Connector | 72 |
| speakON Adapter | 73 |
| speakON Chassis Connector | 74 |
| speakON Combo | 75 |
| speakON STX Series Cable Connector | 76 |
| speakON STX Series Chassis Connector | 77 |
| Technical Data | 78 |
| Ordering Information Cable Connectors | 79 |
| Accessories Cable Connector | 79 |
| Ordering Information Chassis Connectors | 80 |
| Accessories Chassis Connectors | 81 |
| Wiring | 82 |

speakON

Introduction

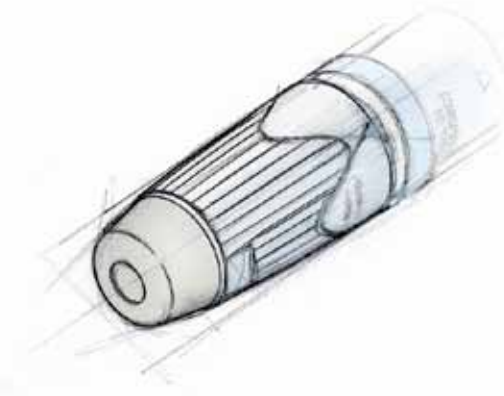
The Neutrik speakON® Series, known in the professional audio industry as "The loudspeaker connector" has become the state of the art in speaker and amplifier connectivity. Introduced in 1987 speakON was invented by Neutrik as a result of customer demand for a reliable speaker connection. The pro audio market quickly realized the advantages of this completely new connection system.

The design is optimized for loudspeaker applications with an outstanding cost-performance ratio. As market leader for speaker connections we are proud to offer an all-encompassing product line for the specific needs of today's market. Recent designs such as the STX series and the speakON Combo offer solutions for nearly every speaker application.

NEUTRIK®, opticalCON®, neutriCON®, miniCON®, nanoCON®, powerCON®, Profi®, speakON®, silentPLUG®, crystalCON®, etherCON®, rearTWIST®, XIRIUM®, DIWA® are registered trademarks of Neutrik AG.



Integrated Design



One of Neutrik's goals is to create products that are easily distinguished from other manufacturers. We have successfully achieved this in our engineering efforts as well as the patent and trademark protection granted for our unique products. To further establish a clear difference between Neutrik and our competitor's products we give our customer the means to easily identify original Neutrik products. Therefore all of our new products such as the SPX and the STX series are designed according to the protected integrated design. (EU-Pat.: DM/057 379, US-Pat. Pending, CHINA-Pat.: 02305192.2 / 193.0/194.9 / 195.7)

Features & Benefits

Today's speakON series is a result of a continuous product improvement process. The principal idea has been kept and optimized with material and design modifications over the years.

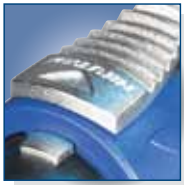
A traditional speakON stands for:

- Reliable and robust, easy and fast to assemble
- 2, 4 and 8 pole cable and chassis connectors in various versions
- Optimal "Quick Lock" system for speaker applications
- Neutrik® proven and unique chuck type cable strain relief
- Outstanding cost-performance ratio
- De facto standard
- Meets all worldwide safety requirements (IEC, UL, ...)

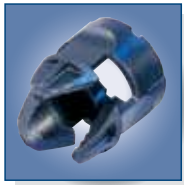
Beyond that, the latest designs as the SPX and STX series offer:

- Up to 50 Amps current rating
- Only 3 parts with 1 piece strain relief design for even easier assembly
- Convertable right-angle version
- Weatherproof and extremely robust





Quick lock



Chuck type strain relief



Right angle conversion



speakON® SPX Series 2 & 4 Pole Cable Connector

NEW



NL2FX



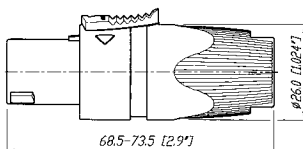
NL4FX



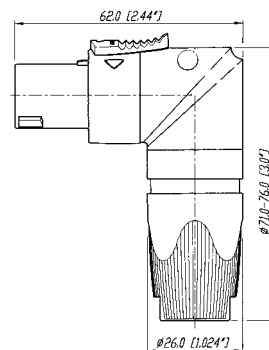
NL4FRX

- Current rating 40 A rms continuous
- Up to 50 A audio signal, duty cycle 50%
- Only 3 parts, easy to assemble
- High impact materials – long-lasting and reliable
- Easy and extremely precise locking system "Quick Lock"
- Improved grip on latch
- 1 piece strain relief, chuck for 7 to 14.5 mm cable O.D.
- Color coding possible
- Improved screw-type termination for highest pull-out force
- Integrated design guarantees "Made by NEUTRIK®"

NL4FX



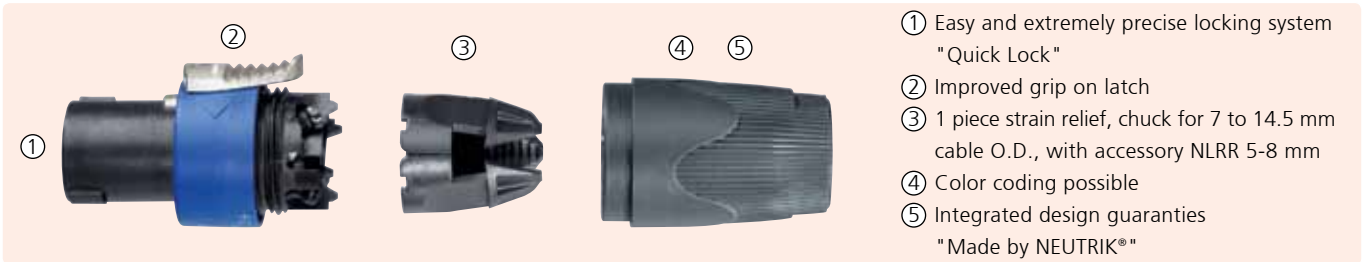
NL4FRX



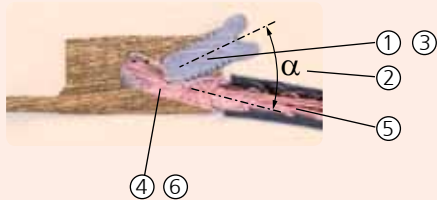
Design Criteria

This second generation of speakON connectors features higher current rating for the operation of high power speakers and amplifiers carrying more than 1'000 Watts. Only 3 parts make it fast and easy to assemble with a more reliable

performance. Our unique design makes it possible to change easily and quickly from a straight connector to the right-angle version, even without disconnecting the cable.

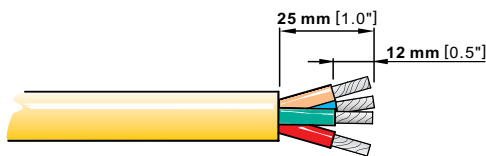


Improved SPX-Series screw contacts! (Wire position after assembly)



Assembly

Prepare cable as shown.



HINT:

For easy wiring especially of thick cables, first screw on the inner contacts 1+ and 2+ and afterwards the outer contacts 1- and 2- !

Use screwdriver Pozidriv #1 only.





Glass reinforced housing



Quick lock



speakON® FC Cable Connector Series



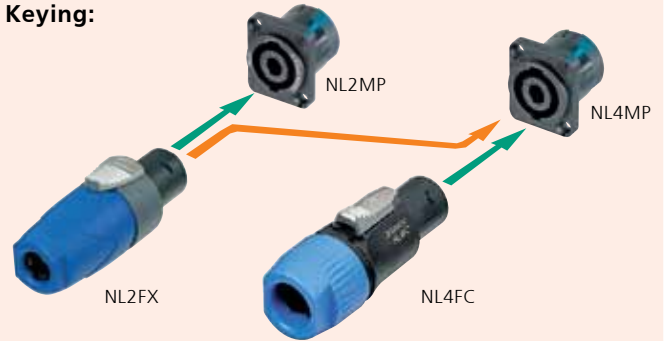
NL4FC



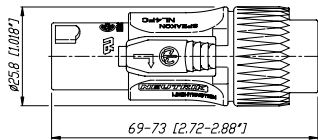
NL8FC

- 4 pole – Branded with unique hologram – guarantees genuine and authentic NEUTRIK® product
- Up to 30 A rms current rating
- Glass reinforced materials for housing and inserts
- Unique Neutrik® chuck type strain relief
- Precise keyway for secure mating
- Accurate twist lock latching system
- 4 pole in new design with more ergonomic latch

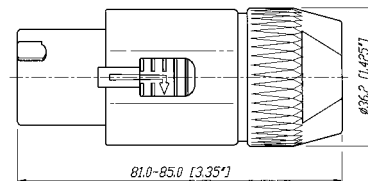
Keying:



NL4FC



NL8FC





1/4" Jack adapter



Extention coupler

s p e a k O N[®] Adapter



NA4LJX



NL4MMX



NL8MM

NL4MMX:

Features permanent secure connection on a speakON cable connector using 2nd lock.



Secure Lock!

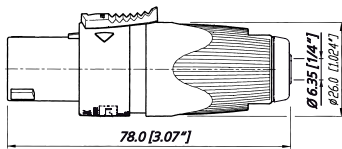
NL4MMX + NL4FX:

(locked on the cable)

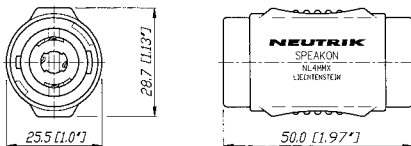
Changes gender to male when permanently locked on the cable.



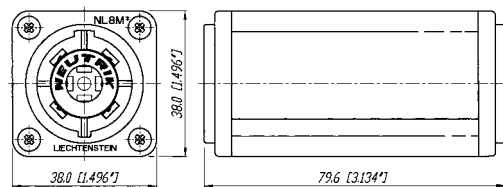
NA4LJX



NL4MM



NL8MM





Reinforced locking area



Nickel housing



3/16" flat tabs



Vertical PCB mount



speakON® Chassis Connector



NL2MP



NL4MD-H-1



NL4MD-H-3



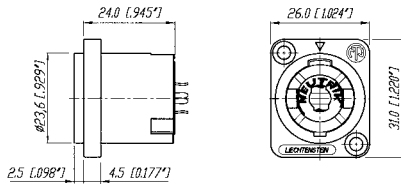
NL4MPR



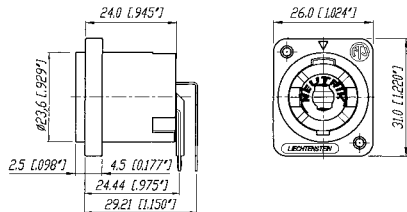
NL8MPR

- Standard version up to 30 A rms, ultra high current version up to 50 A audio current
- Glass reinforced materials
- Precise keyway for secure mating
- Accurate twist lock latching system
- Metal front plate (8 pole) or metal insert in locking area (2 & 4 pole)
- Various mounting and wiring possibilities
- "Air tight design", optimized for speaker applications
- D or G panel cutouts to be easily mounted on audio industry standard panels
- 4 pole branded with unique hologram

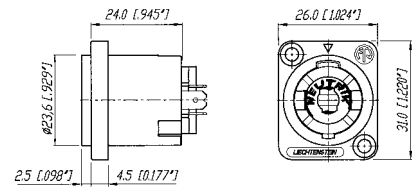
NL4MD-V



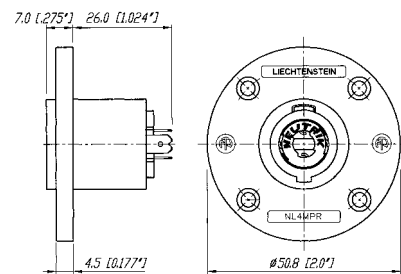
NL4MD-H



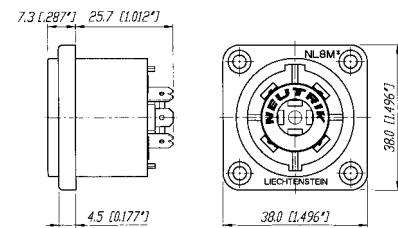
NL4MP



NL4MPR



NL8MPR





Locking key



PCB solder pins



s p e a k O N[®] C o m b o



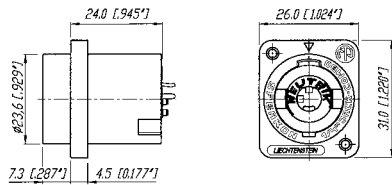
NLJ2MD-V

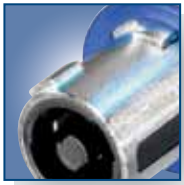
- D-size flange
- Compatible PCB layout and panel mount to NL4MD-V-1 (NL4MD-H)
- Cost saving – combines two connectors in one housing
- Mates with all 2, 4 pole speakON[®] and 1/4" Phone Plugs
- PA-wiring: 1+ is connected to TIP, 1- to the SLEEVE
- PCB layout of NLJ2MD-V is compatible with NL4MD-V and PCB layout of NLJ2MD-H is compatible with NL4MD-H

Combines a speakON[®] and 1/4" Phone Jack – one for two



NLJ2MD-V





Reinforced locking



Latch lock



XL-solder contacts



Protected latch

speakON® STX Series Cable Connectors



NLT4FX-BAG



NLT4MX



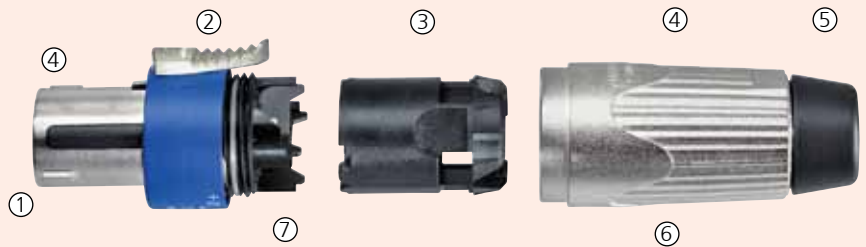
NLT8FX



NLT8MX-BAG

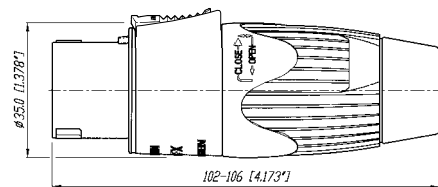
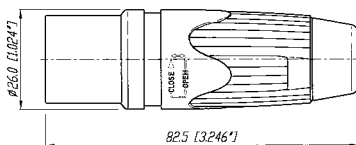
- Up to 50 A current rating
- Robust and durable all metal housing
- Sealing ring provides weatherproof IP 54 rating in mated condition on 4 pole version
- Reinforced metal quick lock system for ease and precise locking
- Extra large solder contacts for up to 6 mm² (AWG 10) wires
- Mate with all available speakON products

- ① Easy and extremely precise locking system "Quick Look", reinforced with metal
- ② Improved grip on latch
- ③ 1 piece strain relief, chuck for cables from 9 to 16 mm O.D.
- ④ Extreme rugged "Touring Approved"
- ⑤ Rubber sealing boot
- ⑥ Integrated Design guarantees "Made by NEUTRIK®"
- ⑦ X-large solder contacts for up to 6 mm² (AWG 10) wires



NLT4MX

NLT8FX





Robust metal housing



XL-solder contacts



1/4" flat tabs



speakON® STX Series Chassis Connectors



NLT4FP-BAG



NLT4MD-V



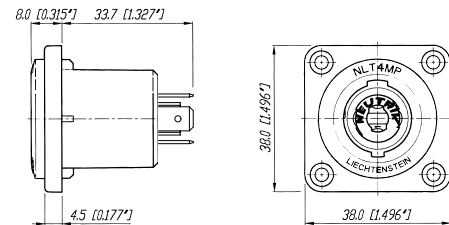
NLT4MP-BAG



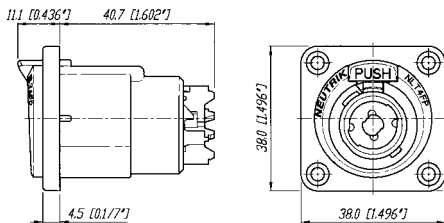
NLT8MP-BAG

- Extremely robust metal housing designed for harsh and demanding environment
- Weatherproof design features sealing gaskets
- 4 type range – also male cable connector and female receptacle on 4 pole version
- All-metal housing makes the STX Series rugged and durable
- Weatherproof built-in gasket meets IP 54 protection class (4 pole)
- Ideal product for touring applications and harsh environments
- Best electrical performance up to 50 A audio current
- Uses precise “Quick Lock” system
- Mates with all currently available speakON products
- 4 pole version has UL recognized components, CSA listed

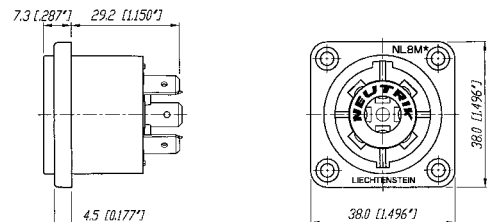
NLT4MP



NLT4FP



NLT8MP



| Specification | | SPX Series Cable Con. | STX Series Cable Con. | speakON FC Cable Con | speakON Chassis + Combo | Adapter | STX Series Chassis |
|---------------|--|-----------------------------|-----------------------------|----------------------------|-------------------------------|---------|--------------------------|
|---------------|--|-----------------------------|-----------------------------|----------------------------|-------------------------------|---------|--------------------------|

Electrical

| | | | | | | | |
|--------------------------------------|----------------------------------|-------|---------|-------|---------|---------|---------|
| Number of contacts | | 2 + 4 | 4 + 8 | 4 + 8 | 2, 4, 8 | 2, 4, 8 | 4 + 8 |
| Rated current per contact | 40 A rms continuous | ● | ● | 30 A | 30 A** | 15 A | ● |
| CSA approved rating | 25 A (4 pole) rms continuous | ● | ● | - | 10 A | - | - |
| | 50 A audiosignal, duty cycle 50% | ● | ● | 40 A | 40 A | 30 A | ● |
| Combo | 15 A rms continuous | - | - | - | ● | - | - |
| Rated insulation voltage | 250 V ac | ● | ● | ● | ● | ● | ● |
| Contact resistance after lifetime | < 2 mΩ | ● | ● | ≤ 3 | ≤ 3 | ≤ 3 | ● |
| Insulation resistance after dampheat | > 1 GΩ | ● | > 10 GΩ | ● | ● | ● | > 10 GΩ |
| Dielectric strength | 4 kV peak | ● | ● | ● | ● | ● | ● |
| | 1/4" Jack 1.5 kV peak | - | - | - | - | ● | - |

Mechanical

| | | | | | | | |
|------------------------------|--|----------------------------|----------------------------|----------------------------|--------|---|---|
| Locking System | Quick lock (latch) | ● | ● | ● | ● | ● | ● |
| Life time (mating cycles) | > 5'000 | ● | ● | ● | ● | ● | ● |
| Cable O.D. range (mm) | 2 Pole | 6 - 10 | - | - | - | - | - |
| | 4 Pole | 7 - 14.5 | - | 5 - 15 | - | - | - |
| | 8 Pole | - | 8 - 20 | 8 - 20 | - | - | - |
| Wiring | screw type terminals | 4 mm ² (AWG 12) | - | 4 mm ² (AWG 12) | ● (ST) | - | - |
| | soldering | 6 mm ² (AWG 10) | 6 mm ² (AWG 10) | 4 mm ² (AWG 12) | ● | - | ● |
| | flat tabs for 3/16" FASTON® (4.8x0.5 mm) | - | - | - | ● | - | - |
| | flat tabs for 1/4" FASTON® (6.3x0.8 mm) | - | - | - | ● (UC) | - | ● |
| | PCB-version | - | - | - | ● | - | ● |
| Insertion / withdrawal force | Combo Jack: ≤ 20 N / > 10 N | - | - | - | ● | - | - |
| Cable retention force | ≥ 220 N* | ● | ● | ● | - | - | - |

Material

| | | | | | | | |
|-----------------|-------------------------|---|---|---|--------|---|--------|
| Housing | Polyamide PA 6 30% GR | - | - | ● | ● | ● | - |
| | PBTP 20% GR | ● | - | - | - | - | - |
| | Zinc diecast (ZnAl4Cu1) | - | ● | - | - | - | ● |
| Insert | Polyamide PA 6 30% GR | - | ● | - | - | ● | ● |
| | PBTP 20% GR | ● | - | ● | - | - | - |
| Contacts | Brass (CuZn39Pb3) | ● | ● | ● | - | - | - |
| | Bronze (CuSn6) | - | - | - | ● | ● | - |
| | Spring copper | - | ● | - | ● (UC) | - | ● |
| Contact plating | 4 μm Ag | ● | ● | ● | ● | ● | ● |
| Locking Element | Zinc diecast (ZnAl4Cu1) | ● | ● | ● | - | - | ● (FP) |
| Chuck | Polyacetal (POM) | ● | ● | ● | - | - | - |
| Bushing | Polyamide (PA 6 15% GR) | ● | ● | ● | - | - | - |

Environment

| | | | | | | | |
|-------------------|-----------------------------|---|--------|---|---|---|--------|
| Temperature range | -30 °C to +80 °C | ● | ● | ● | ● | ● | ● |
| Protection class | IP 54 (mated condition) | - | ● | - | - | - | ● |
| | IP 50 (8 pole, mated cond.) | - | ● | - | - | - | ● |
| Flammability | UL94HB | ● | ● | ● | ● | ● | ● |
| Finger- Safety | IP2X/IEC 61984 | ● | ● | ● | ● | ● | ● |
| Approvals | UL-Recognized, CSA listed | ● | 4 pole | ● | ● | ● | 4 pole |
| Solderability | complies with IEC 68-2-20 | ● | ● | ● | ● | ● | ● |

*: subject to cable O.D. and material

** : NL4MD-V-S - Rated current per contact: 20A



Ordering Information Cable Connectors

SPX Series

| | | |
|---------|--------|--|
| NL2FX | 2 pole | Cable connector with chuck and blue bushing, intermates with 4 pole chassis connector and makes contact with +1/-1 |
| NL4FX | 4 pole | Cable connector with chuck and black bushing |
| NL4FX-2 | 4 pole | Cable connector with chuck and red bushing |
| NL4FX-4 | 4 pole | Cable connector with chuck and yellow bushing |
| NL4FX-5 | 4 pole | Cable connector with chuck and green bushing |
| NL4FX-9 | 4 pole | Cable connector with chuck and white bushing |
| NL4FRX | 4 pole | Right-angle cable connector with chuck and black bushing |

FC Series

| | | |
|-------|--------|---------------------------------|
| NL4FC | 4 pole | Cable connector with latch lock |
| NL8FC | 8 pole | Cable connector with latch lock |

Adapters

| | | |
|-----------|----------|--|
| NA4LJX | 4/2 pole | Adapter from speakON cable connector to 2 pole 1/4" Jack, wiring: +1 to TIP and -1 to SLEEVE |
| NL4MMX | 4 pole | Lockable coupler to extend two 4 pole cables |
| NL8MM-BAG | 8 pole | Coupler to extend two 8-pole cables, black-chrome metal housing, chuck and bushing |

STX Series

| | | |
|------------|--------|---|
| NLT4FX | 4 pole | Female cable connector, nickel metal housing, chuck and bushing |
| NLT4FX-BAG | 4 pole | Female cable connector, black-chrome metal housing, chuck and bushing |
| NLT4MX | 4 pole | Male cable connector, nickel metal housing, chuck and bushing |
| NLT4MX-BAG | 4 pole | Male cable connector, black-chrome metal housing, chuck and bushing |
| NLT8FX | 8 pole | Female cable connector, nickel metal housing, chuck and bushing |
| NLT8FX-BAG | 8 pole | Female cable connector, black-chrome metal housing, chuck and bushing |
| NLT8MX-BAG | 8 pole | Male cable connector, black-chrome metal housing, chuck and bushing |

Accessories



SPX Series

| | |
|-------|---|
| LCR-* | Colored coding rings for the right-angle version of the SPX Series. Available in blue (Standard), white, red, green and yellow. |
| LRX | Right-angle speakON conversion kit for changing the straight connector into a right-angel version without removing the cable from the insert. |
| NLRR | Strain relief reduction ring for NL4FX for thin loudspeaker cables with an O.D. of 5 to 8 mm |

FC Series

| | |
|--------|----------------------------|
| BSL-* | Colored bushing for NL4FC |
| BSL-WR | Weather resistant dripboot |

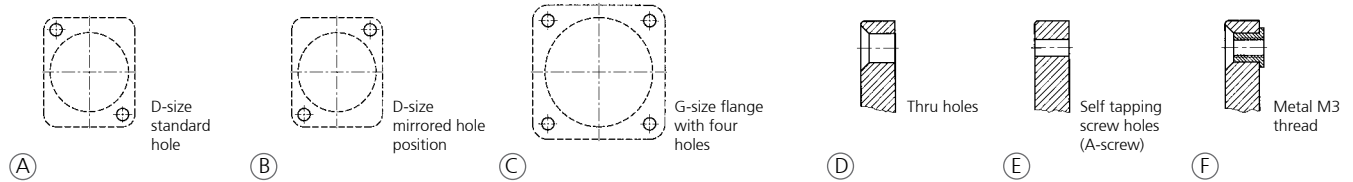
*: 0 - Black, 1- Brown, 2 - Red, 3 - Orange, 4 - Yellow, 5 - Green, 6 - Blue, 7 - Violet, 8 - Grey, 9 - White; Must be ordered in multiples of 100.



Ordering Information Chassis Connectors

Flange layout:

Hole layout:



| | Pole | Flange size | Flange layout | Hole layout | Color | Wiring | Remarks |
|--|------|-------------|---------------|-------------|-------|--------|---------|
|--|------|-------------|---------------|-------------|-------|--------|---------|

Traditionally

| | | | | | | | |
|-------------|---|----------------------|---|---|--------------|------------------|--|
| NL2MP | 2 | D-size | A | D | black | 3/16" flat tabs* | Does not intermate with 4-pole cable connector |
| NL2MD-H | 2 | D-size | A | D | grey | horizontal PCB | Does not intermate with 4-pole cable connector |
| NL2MD-V | 2 | D-size | A | D | black | vertical PCB | Does not intermate with 4-pole cable connector |
| NL4MP | 4 | D-size | A | D | black | 3/16" flat tabs* | |
| NL4MP-1 | 4 | D-size | A | E | grey | 3/16" flat tabs* | |
| NL4MP-2 | 4 | D-size | B | E | black | 3/16" flat tabs* | |
| NL4MP-3 | 4 | D-size | A | E | black | 3/16" flat tabs* | |
| NL4MP-M3 | 4 | D-size | A | F | black | 3/16" flat tabs* | |
| NL4MD-H | 4 | D-size | A | E | grey | horizontal PCB | |
| NL4MD-H-1 | 4 | D-size | A | D | black | horizontal PCB | |
| NL4MD-H-2 | 4 | D-size | B | E | black | horizontal PCB | |
| NL4MD-H-3 | 4 | D-size | A | E | black | horizontal PCB | |
| NL4MD-V | 4 | D-size | A | D | black | vertical PCB | |
| NL4MD-V-1 | 4 | D-size | A | E | grey | vertical PCB | |
| NL4MD-V-2 | 4 | D-size | B | E | black | vertical PCB | |
| NL4MD-V-S | 4 | D-size | A | E | black | vertical PCB | switched contacts |
| NL4MP-ST | 4 | D-size | A | D | black | screw terminal | |
| NL4MP-UC | 4 | D-size | A | D | black | 1/4" flat tabs* | Ultra high current, up to 40 A rms |
| NL4MPR | 4 | round G-size flange | C | D | black | 3/16" flat tabs* | |
| NL8MD-V | 8 | square G-size flange | C | D | Ni | vertical PCB | |
| NL8MD-V-BAG | 8 | square G-size flange | C | D | black chrome | vertical PCB | |
| NL8MD-V-1 | 8 | square G-size flange | C | E | Ni | vertical PCB | |
| NL8MPR | 8 | square G-size flange | C | D | Ni | 3/16" flat tabs* | |
| NL8MPR-BAG | 8 | square G-size flange | C | D | black chrome | 3/16" flat tabs* | |

STX Series

| | | | | | | | |
|--------------|---|----------------------|---|---|--------------|-----------------|--|
| NLT4MP | 4 | square G-size flange | C | D | nickel | 1/4" flat tabs* | |
| NLT4MP-BAG | 4 | square G-size flange | C | D | black chrome | 1/4" flat tabs* | |
| NLT4MD-V | 4 | square G-size flange | C | E | nickel | vertical PCB | |
| NLT4MD-V-1 | 4 | square G-size flange | C | D | nickel | vertical PCB | |
| NLT4FP | 4 | square G-size flange | C | D | nickel | solder contacts | |
| NLT4FP-BAG | 4 | square G-size flange | C | D | black chrome | solder contacts | |
| NLT4FP-V-BAG | 4 | square G-size flange | C | D | black chrome | vertical PCB | |
| NLT8MP | 8 | square G-size flange | C | D | nickel | 1/4" flat tabs* | |
| NLT8MP-BAG | 8 | square G-size flange | C | D | black chrome | 1/4" flat tabs* | |
| NLT8FP-BAG | 8 | square G-size flange | C | D | black chrome | solder contacts | |

*: flat tabs to be used with FASTON® connectors or to solder the wire (FASTON® is a trademark of AMP Inc.)



Ordering Information Chassis Connectors

| | Pole | Flange size | Flange layout | Hole layout | Color | Wiring | Remarks |
|---------------------|------|-------------|---------------|-------------|-------|----------------|---------|
| Combo Series | | | | | | | |
| NLJ2MD-V | 2 | D-size | A | E | green | vertical PCB | |
| NLJ2MD-V-1 | 2 | D-size | A | E | grey | vertical PCB | |
| NLJ2MD-H | 2 | D-size | A | E | green | horizontal PCB | |

Accessories



A-Screw-1-8



NLFASTON



MFD



NDL



SCL



SCDR



SCDX

NEW



SCCD-W



SCDP-*



SCNLT Example: SCNLT + NL4MP



NZP1RU-12

| | |
|-------------|--|
| A-Screw-1-8 | Black self tapping PLASTITE® screw 2.9 x 8 for rear panel mount |
| NLFASTON | FASTON® receptacle for tabs with "positiv lock" for use with NL4MP, NL4MPR, NL8MPR, Pack of 100 pcs. |
| MFD | M3 mounting frame for D-size chassis |
| NDL | dummyPLUG for 2 & 4 Pole chassis connector |
| NZP1RU-8 | Panel 1RU housing with 8 D-shape cutouts |
| NZP1RU-12 | Panel 1RU housing with 12 D-shape cutouts |
| 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, color coding |
| SCDX | Hinged cover seals D-size chassis connectors, IP 42 rated |
| SCCD-W | Spring-loaded cover to seals for D-size chassis Connectors, IP 65 rated |
| SCNLT | Gasket for NLT4MP (To make a cabinet with an Amphenol EP cutout airtight, use the rubber sealing which covers the entire hole.) |

(*: 0- black, 2- red, 4- yellow, 5- green, 6- blue, 9- white)

Wiring Suggestion

Positive signal on speaker pin "+" produces positive waveform from driver (moves cone outwards)

"+" = In phase (high) "-" = Ground (out of phase, low)
Lower numbers for lower frequencies.

| | AMPLIFIER | CABLE | SPEAKER |
|------------------------------|---|---|---|
| Stereo ("HiFi") | one NL4MP socket left channel pins 1+/1- right channel pins 2+/2- | NL4FC on amplifier end, four conductor cable splits into two pairs with NL4FX on each end | one NL4MP per speaker left speaker pins 1+/1- right speaker pins 2+/2- |
| POWER ("PA") Standard | three NL4MP sockets "A" socket: left channel pins 1+/1- "B" socket: right channel pins 1+/1- | a two-conductor cable for each channel with NL4FX on both ends | NL4MP pins 1+ to speaker coil "+" NL4MP pins 1- and 2+ to speaker coil "-" |
| Bridged mono | "M" socket: left channel pins 1+/1- right channel pins 2+/2- | a special two-conductor cable, on both ends wired to pin 1+/2+ of NL4FX | NL4MP pin 1+ to speaker coil "+" NL4MP pins 1- and 2+ to speaker coil "-" |
| Bi-Amp | one NL4MP socket low frequency pins 1+/1- high frequency pins 2+/2- | a four-conductor cable on both ends wired to pins 1+/1-, 2+/2- of NL4FX | one NL4MP socket low frequency pins 1+/1- high frequency pins 2+/2- |
| 4 Way System | one NL8MPR socket low frequency pins 1+/1- low mid frequency pins 2+/2- high mid frequency pins 3+/3- high frequency pins 4+/4- | an eight-conductor cable wired on both ends to pins 1+/1-, 2+/2-, 3+/3-, 4+/4- of NL8FC | one NL8MPR socket low frequency pins 1+/1- low mid frequency pins 2+/2- high mid frequency pins 3+/3- high frequency pins 4+/4- |

