



# Loudspeaker Connectors

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## Introduction

The Neutrik® Speakon® Series, in the Pro Audio industry often called "The loudspeaker connector", became the state of the art for speaker and amplifier connections.

Invented by Neutrik® as a result of various customer requests, the first Speakon® had been introduced in 1987. The pro audio market realized very quickly the advantages of this completely new connection system. The design has been optimized for loudspeaker applications with an outstanding cost-performance ratio.

As market leader for speaker connections we are proud to offer an all-embracing product line for the specific needs of this market today. Latest designs as the STX series or the Speakon® Combo also meet the demands of niche applications or extremely rough conditions and complete the product range.



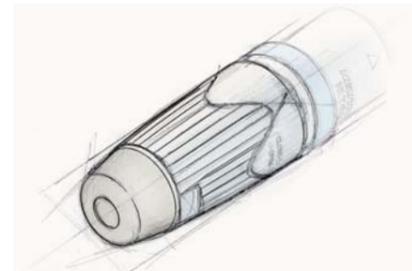
## Features & Benefits

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.

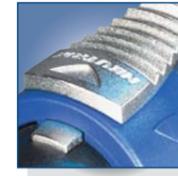
- A traditional Speakon® stands for:
- Reliable and robust, easy and fast to assemble
  - 2, 4 and 8-pole cable and chassis connectors in various versions
  - Optimal "Quick Lock" system for speaker applications
  - Neutrik® proven and unique chuck type cable strain relief
  - Outstanding cost-performance ratio
  - Defacto 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
  - Convertible right-angle version
  - Weatherproof and extremely robust all metal design
  - Complete system, 4 pole female chassis and male cable connector

## Integrated Design

Neutrik's aim to be distinctively recognizable is realized by the technological head start on the one hand as well as both patent and trademark protection on the other hand. To draw a clear line between Neutrik® and competition products we give our customer the possibility to easily identify the original.



Therefore all of our new products as the SPX and the STX series are designed according the protected integrated design. (EU-Pat.: DM/057 379, US-Pat. Pending, CHINA-Pat.: 0230519 2.2/193.0/194.9/195.7)



Quick lock



Chuck type strain relief



Right angle conversion



## Speakon® SPX Series 4 Pole Cable Connector



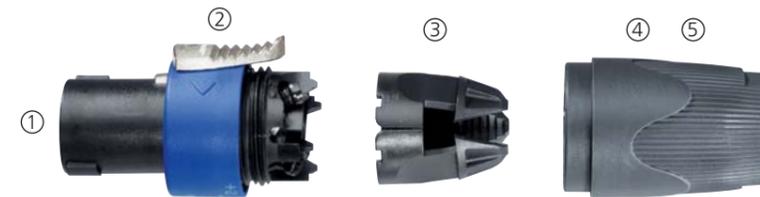
NL4FX



NL4FRX

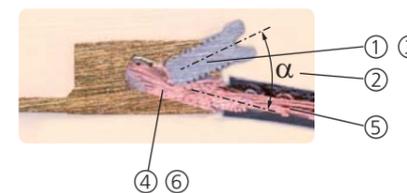
## Features

- Up to 50 A current rating
- Only 3 parts, easy to assemble
- High Impact Materials

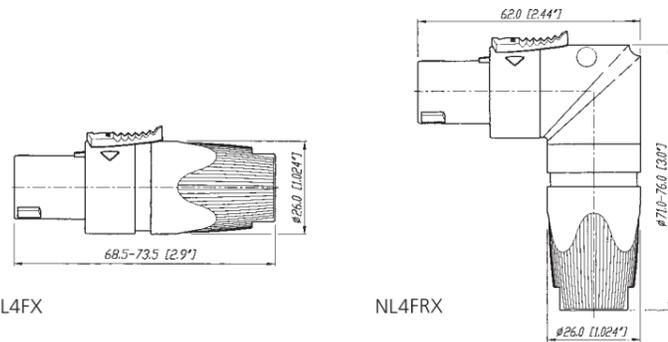


- ① Easy and extremely precise locking system "Quick Lock"
- ② Improved grip on latch
- ③ 1 piece strain relief, chuck for 6 to 14.5 mm cable O.D.
- ④ Color coding possible
- ⑤ Integrated design guaranties "Made by Neutrik®"

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



- ① Progressive clamping as wire is pushed forward
- ② Acts as screw locking device due to side forces
- ③ Large combi drive - M4 screw
- ④ Wire size 1.5 - 4 mm<sup>2</sup> (AWG 12) for 6 mm<sup>2</sup> (AWG 10) remove screw & solder
- ⑤ Pull out force > 300 N @ 80 cNm
- ⑥ Gas tight connection



NL4FX

NL4FRX

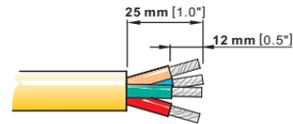
### Design Criteria

This second generation of Speakon® connectors features higher current rating for the operation of high power speakers and amplifiers carrying more than 1000 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.

### Assembly

Prepare cable as shown.



#### HINT:

For easy wiring especially on big cables, first screw on the inner contacts 1+ and 2+ and afterwards the outer contacts 1- and 2- ! Use screwdriver Pozidrive #1 only.



### Ordering Information

NL4FX	Cable Connector with chuck and bushing
NL4FX-2	Cable Connector with chuck and red bushing
NL4FX-4	Cable Connector with chuck and yellow bushing
NL4FX-5	Cable Connector with chuck and green bushing
NL4FX-9	Cable Connector with chuck and white bushing
NL4FRX	Right-angle Cable Connector with chuck and bushing

### Accessories



LCR-\*



LRX

LCR-\* Coloured 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.



Locking ring



Quick lock



### Speakon® FC Cable Connector Series



NL2FC

NEW



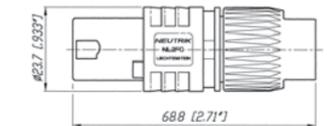
NL4FC



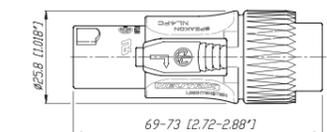
NL8FC

- 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

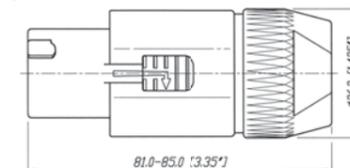
NL2FC



NL4FC



NL8FC



#### Keying:



### Ordering Information

NL2FC	2 pole Cable Connector with locking ring, integrated cable clamp, intermates with 4-pole chassis connector and makes contact with +1/-1
NL4FC	4 pole Cable Connector with latch lock
NL8FC	8 pole Cable Connector with latch lock



1/4" Jack adapter    Extension coupler

Speakon® Adapter



NA4LJ



NL4MMX



NL8MM

NL4MMX

Features permanent secure connection on a Speakon® cable connector using 2<sup>nd</sup> lock.



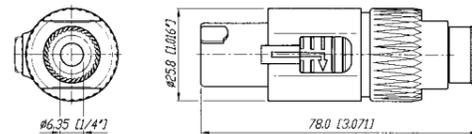
Secure Lock!

NL4MMX + NL4FX  
(locked on the cable)

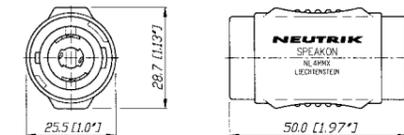
Changes gender to male when permanently locked on the cable.



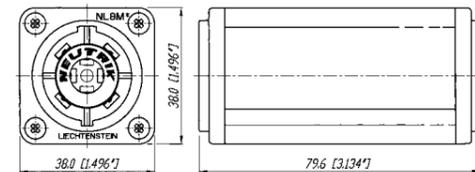
NA4LJ



NL4MMX

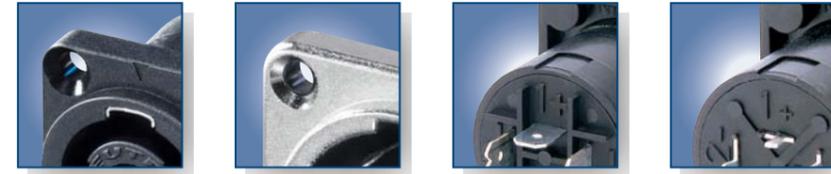


NL8MM



Ordering Information

NA4LJ	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	8 pole coupler to extend two 8-pole cables



Reinforced locking area    Nickel housing    3/16" flat tabs    Vertical PCB mount



Speakon® Chassis Connector



NL2MP



NL4MD-H-1



NL4MD-H-3



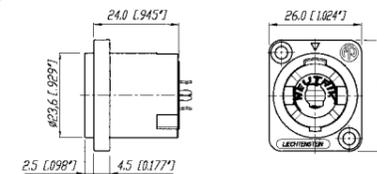
NL4MPR



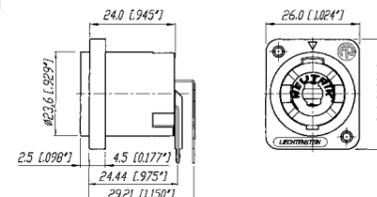
NL8MPR

- 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

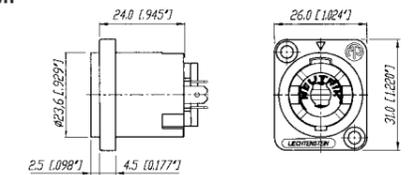
NL4MD-V



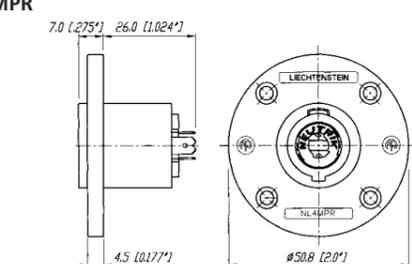
NL4MD-H



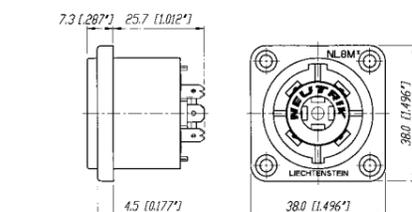
NL4MP



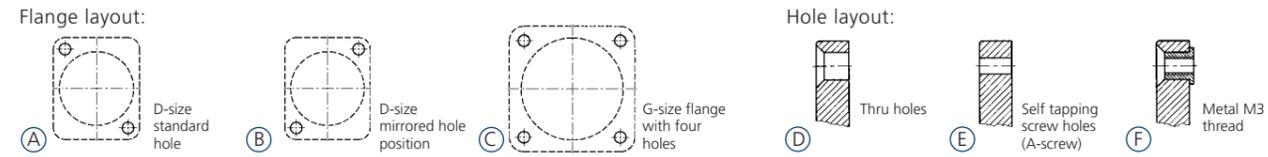
NL4MPR



NL8MPR



Ordering Information



	Pole	Flange size	Flange layout	Hole layout	Color	Wiring	Remarks
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	black	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	
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*	
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	
NLT4FP	4	square G-size flange	C	D	nickel	solder contacts	
NLT4FP-BAG	4	square G-size flange	C	D	black chrome	solder contacts	
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*	

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

Accessories



NLFASTON	FASTON® receptacle for tabs with "positiv lock" for use with NL4MP, NL4MPR, NL8MPR, Pack of 100 pcs.
A-Screw-1-8	Black self tapping PLASTITE® screw 2.9 x 8 for rear panel mount
SCL	Plastic sealing cover to protect the connectors against dust and moisture
SCDX	Hinged cover seals D-size chassis connectors, IP54 rated



PCB solder pins      Locking key

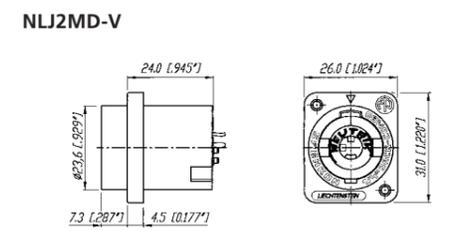
Speakon® Combo



NLJ2MD-V

Combines a Speakon® and 1/4" Phone Jack - one for two

- 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



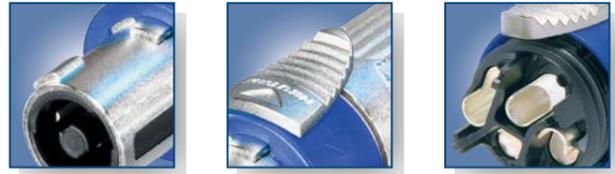
NLJ2MD-V

Ordering Information

NLJ2MD-V	2 pole Chassis Connector, vertical PCB mount
NLJ2MD-H	2 pole Chassis Connector, horizontal PCB mount

Assesories

A-Screw-1-8	Black self tapping Plastite® screw 2.9 x 8 for rear panel mount
SCL	Plastic sealing cover to protect the connectors against dust and moisture
SCDX	D-size hinged cover



Reinforced locking    Latch lock    XL-solder contacts

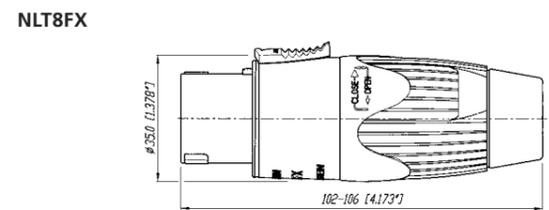
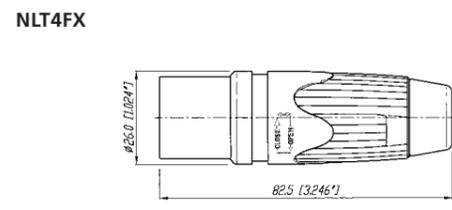
Speakon® STX Series Cable Connectors



NLT4FX-BAG    NLT4MX    NLT8FX

Features

- Up to 50 A current rating
- Only 3 parts, easy to assemble
- All metal housing
- IP 54 sealing gasket



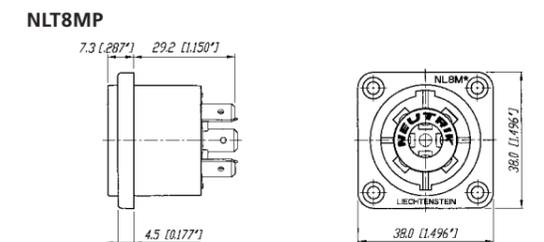
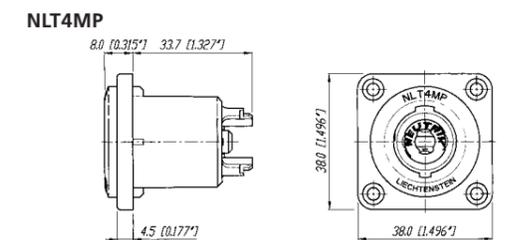
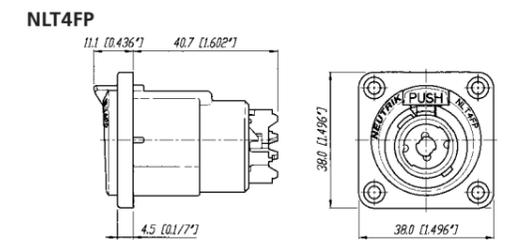
Robust metal housing    XL-solder contacts

Speakon® STX Series Chassis Connectors



NLT4FP-BAG    NLT4MP    NLT4MD-V    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 Amps audio current
- Uses precise "Quick Lock" system
- Mates with all currently available Speakon® products
- 4 pole version has UL Recognized components, CSA listed



**Design Criteria**

The new Speakon® STX Series is the next generation of 4 & 8 pole Speakon® connectors especially designed for loudspeaker - amplifier applications in harsh and demanding environment such as professional touring.

The STX Series features a metal housing which is extremely

rugged and durable; built-in gaskets make it weatherproof. This new series offers beside the female cable connector and male receptacle now also a 4 pole male cable and female chassis connector.

**Ordering Information**

**Cable Connectors**

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

**Receptacles**

NLT4FP	4 pole female chassis connector, nickel metal housing, solder contacts
NLT4FP-BAG	4 pole female chassis connector, black-chrome metal housing, solder contacts
NLT4MP	4 pole male chassis connector, nickel metal housing, 1/4" flat tabs*
NLT4MP-BAG	4 pole male chassis connector, black-chrome metal housing, 1/4" flat tabs*
NLT4MD-V	4 pole male chassis connector, nickel metal housing, PCB contacts
NLT8MP	8 pole male chassis connector, nickel metal housing, 1/4" flat tabs*
NLT8MP-BAG	8 pole male chassis connector, black-chrome metal housing, 1/4" flat tabs*

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

**Accessories**



A-Screw-1-8	Black self tapping Plastite® screw 2.9 x 8 for rear panel mount
SCNLT	Gasket for NLT4MP (To make a cabinet with an Amphenol EP cutout airtight, the rubber scaling covers the entire hole.)
SCL	Plastic sealing cover to protect the connectors against dust and moisture
SCDR	Rear end protection cover for D-size chassis connectors

**Specification**

	SPX Series Cable Con.	STX Series Cable Con.	Speakon® FC Cable Con	Speakon® Chassis + Combo	Adapter 2, 4, 8	STX Series Chassis 4 + 8
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**Electrical**

Number of contacts:	4	4 + 8	2, 4, 8	2, 4, 8	2, 4, 8	4 + 8
Rated current per contact:	40 A rms continuous	•	•	30 A	30 A	20 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 mm² (AWG 12)	-	4 mm² (AWG 12)	• (ST)	-
	soldering	6 mm² (AWG 10)	6 mm² (AWG 10)	4 mm² (AWG 12)	•	•
	flat tabs for 3/16" FASTON® (4.8 x 0.5 mm)	-	-	-	•	-
	flat tabs for 1/4" FASTON® (6.3 x 0.8 mm)	-	-	-	• (UC)	•
	PCB-version	-	-	-	•	•
Insertion / withdrawal force:	Combo Jack: ≤ 20 N / > 10 N	-	-	-	-	•
Cable retention force:	≥ 220 N*	•	•	•	-	-
Solderability:	complies with IEC 68-2-20	•	•	•	•	•

\*: subject to cable O.D. and material

**Material**

Housing:	Polyamide PA 6 30% GR	-	-	•	•	•
	PBTP 20% GR	•	-	-	-	-
	Zinc diecast (ZnAlCu1)	-	•	-	-	•
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 52 (8-pole, mated cond.)	-	•	-	-	•
Flammability:	UL94HB	•	•	•	•	•
Safety Requirements:	EN/IEC 61984	•	•	•	•	•
Approvals:	UL-Recognized, CSA listed	•	4 pole	•	•	• 4 pole

## Wiring Suggestion

Positive signal on speaker pin "+" produces positive wave-form from driver (moves cone outwardly)

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

	AMPLIFIER	CABLE	SPEAKER
<b>Stereo ("HiFi")</b>	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-
<b>POWER ("PA") Standard</b>	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 "-"
<b>Bridged mono</b>	"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 "-"
<b>Bi-Amp</b>	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-
<b>4 Way System</b>	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-

