




# **SUPRA**<sup>®</sup> Cables

MADE IN SWEDEN

2001-2002

Loudspeaker Cables /// Interconnect Cables /// Connectors /// Interconnects ///



English Edition



[www.jenving.se](http://www.jenving.se)

Prior to 1976 loudspeaker cables had no identity. They were simply cables.

2 x 0.5 mm<sup>2</sup> was the most usual size, while for high specifications the only alternative was 2 x 0.75 mm<sup>2</sup>.

And then there was **SUPRA**.

It began when we introduced SUPRA 2.5 and shook up the entire market with a whole new concept. All this happened in Sweden 1976. Since then the whole world has followed after us. But then the adjustable spanner, the propeller, the safety pin and Dynamite have also come from Sweden, so perhaps it is not so surprising.

Since SUPRA 2.5 was introduced, other original ideas have come from SUPRA. The nylon screen, the Swift connector, the stretch-proof multicore cable and the Ply conductor concept, and the Assurance of Cable Directionality are all examples of our forward thinking technology.



# Classic Loudspeaker Cables

**Mini 1.6**  
2x1.6 mm<sup>2</sup>

An economic version of Classic 1.6 of fewer wires.  
Application examples: Low power such as rear speakers of home theatres.



**Classic 1.6**  
2x1.6 mm<sup>2</sup>

Application examples: Tweeters in bi-wiring, low power systems or shorter lengths of medium power systems.



**Classic 2.5**  
2x2.5 mm<sup>2</sup>

Application examples: Medium power systems, or shorter lengths in high power systems.  
Available in both Ice Blue and Anthracite Grey.



**Classic 2.5/H Halogen Free**  
2x2.5 mm<sup>2</sup>

Similar to Classic 2.5 but using fire retardant PE insulation. This makes it slightly stiffer and with a lower surface friction, which is good for installation.



**Classic 4.0**  
2x4.0 mm<sup>2</sup>

Application examples: High power systems, or longer lengths in low/medium power systems.



**Classic 6.0**  
2x6.0 mm<sup>2</sup>

Application example: High power systems, even longer lengths.



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## The Classic Series

The SUPRA Classic series comprises highly flexible cables containing tin plated multi-stranded OFC copper of purity degree 5N, which means >99.999% pure, i.e. purer than five nines. The insulation is a special ion stable PVC which minimises corrosion of the sonically benign tin surface. The tin contributes to a better sound quality by minimising the skin-effect and making less current jumps between the wire surfaces.

This series covers all Hi-Fi applications from low power speakers, such as rear speakers of home theatre systems, to high power systems with long cable lengths.

### Tips and Tricks:

For bi-wiring, Nylon Braid and Heat Shrink are available in kit-form on page 26.

Tests and Reviews

Classic 2.5:  
HiFi & Musik, Sweden, May '98

Classic 4.0:  
UK What Video, England, Mar '00 "Best Buy"

| Item          | Mechanical Specifications |                    |  |                             |                    |              |                         | Elec. Spec. |          |
|---------------|---------------------------|--------------------|--|-----------------------------|--------------------|--------------|-------------------------|-------------|----------|
|               | Colour                    | Conductor          | Cross Sec. Area (mm <sup>2</sup> /AWG) | Insulation                  | External Size (mm) | Weight (g/m) | Length/ Bobbin (m / ft) | R (Ω/km)    | L (μH/m) |
| Cl. Mini 1.6  | White                     | 2x90x0.15 OFC, Sn  | 2x1.6 / 15 AWG                         | Chloride Ion-Stabilized PVC | 2.8x5.7            | 39           | 300m / 984ft            | 10.8        | 0.40     |
| Classic 1.6   | Ice Blue                  | 2x208x0.10 OFC, Sn | 2x1.6 / 15 AWG                         |                             | 3.1x6.4            | 41           | 300m / 984ft            | 10.5        | 0.40     |
| Classic 2.5   |                           | 2x322x0.10 OFC, Sn | 2x2.5 / 13 AWG                         |                             | 3.6x7.4            | 66           | 200m / 656ft            | 6.8         | 0.45     |
| Classic 2.5   | Anthracite                | 2x322x0.10 OFC, Sn | 2x2.5 / 13 AWG                         | Halogen Free PE             | 3.6x7.4            | 66           | 200m / 656ft            | 6.8         | 0.45     |
| Classic 2.5/H | Ice Blue                  | 2x322x0.10 OFC, Sn | 2x2.5 / 13 AWG                         |                             | 3.6x7.4            | 66           | 200m / 656ft            | 6.8         | 0.45     |
| Classic 4.0   |                           | 2x511x0.10 OFC, Sn | 2x4.0 / 11 AWG                         | Chloride Ion-Stabilized PVC | 4.7x9.6            | 104          | 100m / 328ft            | 4.3         | 0.55     |
| Classic 6.0   |                           | 2x756x0.10 OFC, Sn | 2x6.0 / 9 AWG                          |                             | 5.5x11.2           | 146          | 100m / 328ft            | 2.9         | 0.59     |

Connect the loudspeaker cables for signal direction = direction of the legend (text) printed on the cable. Explanation on page 23.





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Ply 2.0



Ply 3.4



| Item    | Mechanical Specifications |                    |  |                             |                  |                    |              |                         | Elec. Spec. |          |
|---------|---------------------------|--------------------|--|-----------------------------|------------------|--------------------|--------------|-------------------------|-------------|----------|
|         | Colour                    | Conductor          | Cross Sec. Area (mm <sup>2</sup> /AWG) | Insulation                  | Jacket           | External Size (mm) | Weight (g/m) | Length/ Bobbin (m / ft) | R (Ω/km)    | L (μH/m) |
| Ply 2.0 | Ice Blue                  | 2x120x0.15 OFC, Sn | 2x2.0 / 14 AWG                         | Chloride Ion-Stabilized PVC | PE, Halogen Free | 6.1x4.9            | 73           | 100m / 328ft            | 8.1         | 0.30     |
| Ply 3.4 |                           | 2x192x0.15 OFC, Sn | 2x3.4 / 12 AWG                         |                             |                  | 7.0x7.0            | 104          | 100m / 328ft            | 5.1         | 0.20     |

Connect the loudspeaker cables for signal direction = directi\$gend (text) printed on the cable. Explanation on page 23

## Supra Ply, a Logical and Design

Before considering more special 'esoteric' 2nd and 3rd-order effects, such as conductor metallurgy, the performance of audio cables is principally determined by their series loop resistance (R), their series loop inductance (L) and their shunt capacitance (C). Both the absolute and the relative values of R, L & C matter. For speaker cables connecting high performance amplifiers to every day electrodynamic (moving coil or ribbon) speaker drive-units that are desired to operate with fidelity across the audio band, the R & L (cable resistance & inductance) must both be low, while the value of C (capacitance) does not matter much [1,2]. This is so because current flow into conventional speaker drive-units is relatively so much larger than in line-level connections, and also absolutely large, ranging to over 100 Amperes in some instances. This is especially true of auto (12 volt) installations. But simply using a fat wire gauge makes R low at the expense of increasing L. This is musically unacceptable for high sonic quality.

'Squaring the circle' techniques to make this loop inductance, L, low, simultaneous with low resistance, include tapes, either stacked in parallel pairs, or several arranged side-by-side in ribbons, where the ends are X-connected. But of course, these types are (i) impractical to fit to nearly every known speaker connector (at least without introducing discontinuities), (ii) are stressed and may be unsightly when right angle surface bends are required in domestic installation, and (iii) are unsuited to for mobile

use by professionals. Litz techniques, i.e. multiple, parallel, insulated conductors are more practical in use and laying out, but when properly executed, they are expensive.

They are also awkward to terminate and must be soldered. Other types are grossly large, like industrial pneumatic pipes, making them unsuited to smaller domestic dwellings.

Conventionally, fat conductors' high loop inductance (which raises impedance at +6dB/octave) is further raised due to internal eddy currents causing 'Skin effect'. This acts like 'the square root of an inductor', i.e. progressively adds a +3dB/octave component to the cable's series inductance. With typical speaker cable runs of a few metres, the combined inductive effect is that performance in moderately heavy, plain conductors is measurably affected with steady signals at or a little above 1kHz. Whereas for music transients, even low bass qualities are affected.

Conventional stranded cables with copper, silver or related conductors suffer from complex oxidation. The surface becomes a semiconductor. The diodes so formed between the strands are not seen by steady-state signals, but look like the plates of a high value capacitor to transient signals. This causes low-level energy storage and release after transients, that is invisible to steady state testing yet nonetheless perfectly audible with many music recordings. This 'transversal distortion' may also be described in terms of the TEM (Transverse Electro-Magnetic) Wave,

which takes a direct route, whereas electron flow is 'trapped' inside individual, particular strands that are commonly twisted away from the most direct route, at each of the inevitable bends in a stranded cable, when laid-out.

Supra Ply is able to be a large-section, low resistance cable, while also overcoming skin effect and transversal distortion, by using a proprietary, pure tin plating. This has the double benefit that tin and copper meld without forming a diodic barrier (as with many silver-plated copper 'audiograde' conductors) and that tin strongly resists most common causes of metal corrosion, and hermetically protects the copper, making Supra Ply ideal for outdoor use.

By contrast, most audiograde cables claiming highly pure copper or silver conductors are either wholly unprotected from contamination, initially by the out-gassing of the plastic covering (even if PTFE/Teflon), and eventually from the impure atmosphere - and even from accidental immersion in liquids! Some very expensive cables are protected only by a very thin, initially good lacquer, that must eventually crack, invisibly, with handling and age.

Even if oxidation should form on the outside of Supra Ply, it will be sonically benign, as in audiograde 'metal oxide' resistors - which are really tin oxide.

## Other Advantages

For wiring-up, Supra Ply is easily formed. Unlike ribbons, tapes and Litzes, the rectangular conductor section is instantly made circular, for insertion into the circular-shaped receptacles of binding posts, 4mm ('Banana'), Speakon, XLR and most other speaker connectors.

Supra Ply's overall square X-section allows it to readily enter most connector housings, too.

Supra Ply is also readily coiled up, like ordinary, inferior-sounding 'mains power type' speaker cables. It is therefore easy for professionals to use.

Sound producers can easily take Supra Ply to the mixing venue along with their favourite mini-monitor speakers.

## Demonstrating the Difference

Unlike some audiograde products, the benefits of Supra Ply (and other cables employing similarly logically progressive philosophies) are readily shown by comparative and repeatable measurements. These differences may be portrayed in a number of realms.

Fig.1, in the swept frequency domain shows progressively increasing losses above 1kHz for all cables, caused by inductance + skin effect - ranging up to 10dB at 20kHz or so, where ultrasonic sound from vinyl discs in particular, can simulate pleasure centres in the brain [3]. Here, Supra Ply's healthy, low-loss behaviour at the higher audio frequencies (and, by implication, the transient parts of lower frequency music fundamentals) is made evident with a basic 'steady-state' sine-wave sweep.

Fig.2 & 3 are 'scope pictures, in the steady-state time domain. They show typical damping (dynamic) differences, using a classic square wave. After a transient event, Supra Ply both restrains the peaking and accelerates the return of the signal voltage to zero volts, at the speaker end of the line. The peaking of the wide-spaced cable demonstrates both bad damping, and hf loss. These effects occur because spaced cable has high inductance and low capacitance - the diametric opposite of what is required to drive ordinary loudspeakers.

## Research References

Ben Duncan, Loudspeaker Cables, Case Proven, Proc. The Institute of Acoustics, UK, Nov '95.  
Also published in Studio Sound & Broadcast Engineering (UK); and Stereophile (USA) - both Dec '95.  
Ben Duncan, Modelling Cable, Electronics World (UK), Feb '96.  
Ben Duncan, Measuring Speaker Cable Differences, Electronics World (UK), June/July '96.  
Ben Duncan, Black Box (column), Hi-Fi News & Record Review (UK), June & July '96.

## Other References

- [1] Malcolm Omar, Mawksford, The Essex Echo, Hi-Fi News, Aug '85; Aug & Oct '86 & Feb '87.
- [2] Fred E. Davis, Effects of Cable, Loudspeakers & Amplifier Interactions, J. AES, June, '91.
- [3] T. Ohasi, E. Nishina, N. Kawai, Y. Fuwamoto & H. Imai, High Frequency Sound Above the Audio Range Affects Brain Electric Activity & Sound Perception, '91.

Chronological Order)

- Audio Art Taiwan, Oct '94
- Hi-Fi Video Test Holland, Mar '95
- Audio Technique Hong Kong, May '95
- Hi-Fi Review Hong Kong, Jul '95
- Absolute Hi-Fi Hong Kong, #22 '95
- Audio Norway, #2 '96
- Hifi-lehto Finland, Jun/Jul '96
- HiFi & Musik Sweden, Oct '96
- Hi-Fi and News RR UK, Dec '96
- Audio Norway, '97 "Product of the year '96"
- High Fidelity Sweden, Jan '97
- Hi-Fi and News UK, Feb '97
- Lyd & Bilde Norway, #8 '97
- Hi-Fi Review Hong Kong, Sep '98
- Alta Fidelidad Spain, #87 '98
- Stereofonia Spain, Nov '98
- Hi-Fi Choice UK, Dec '98, "Recommended"
- Newspaper HiFi Column Singapore, #02 Jan '99
- Sound & Sight Journal Singapore, Mar/Apr '99
- Hi-Fi Review Hong Kong, May '99
- Stereofonia Spain, #195, Oct '99
- Hörerlebnis Germany, #32 '00

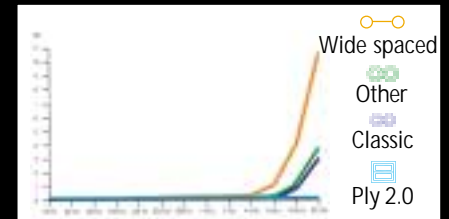


Fig.1 Steady-state cable losses



Fig.2 Oscilloscope graph of losses for Ply 2.0



Fig.3 Typical wide-spaced type of cable



Bi-wire Ply in Nylon Braid

See page 26 for bi-wiring accessories!

**Rondo 2x2.5**

2x2.5 mm<sup>2</sup>. Tin plated.

Application example: Hi-Fi or stage use.



**Rondo 4x2.5**

4x2.5 mm<sup>2</sup>. Tin plated.

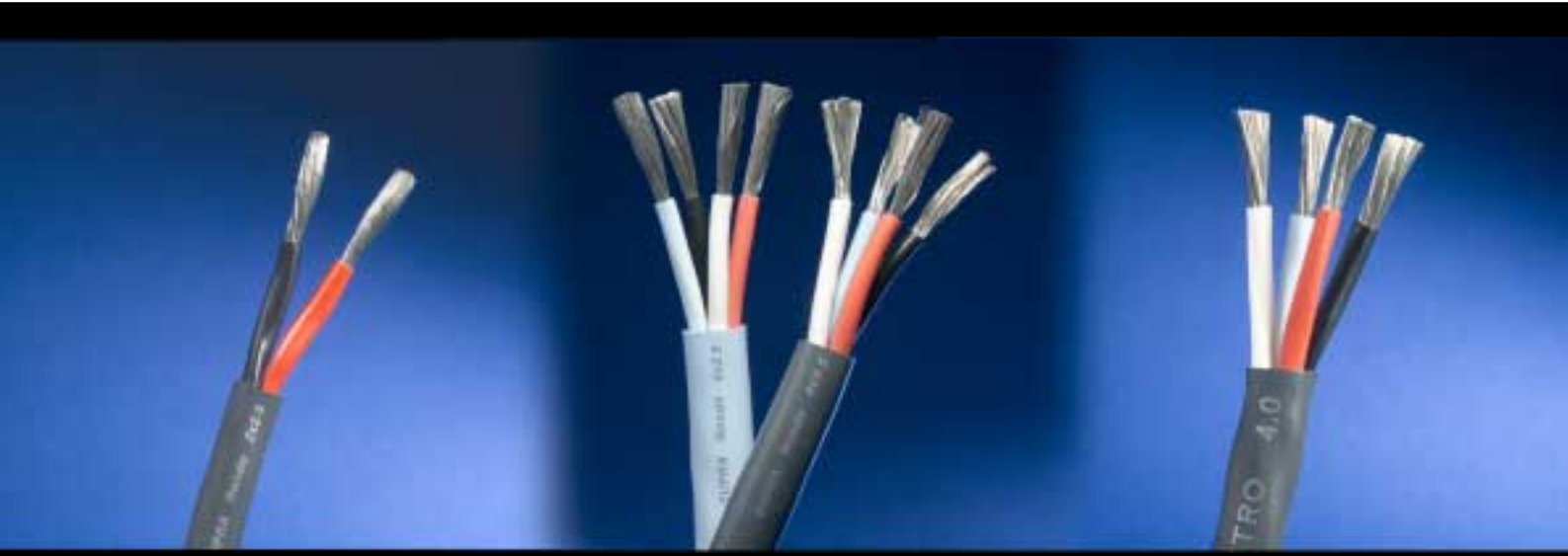
Application examples: Bi-wiring, pair channel cable for medium power systems or single channel connected for high power systems. For Hi-Fi or stage use.



**Quattro 4x4.0**

4x4.0 mm<sup>2</sup>. Tin plated.

Application examples: Bi-wiring, pair channel cable or single channel connected for high power systems. For Hi-Fi or stage use.



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**How to connect Supra Rondo and Supra Quattro for lowest inductance**

Connecting Rondo or Quattro as shown in the figure below will make a lower inductance of 0.25 and 0.35 μH/m, respectively, which in turn makes them top class high-end loudspeaker cables.



SUPRA Concentric Cables are highly flexible and of short pitch twisting for low inductance and low radiation as well as a high tolerance to frequent bendings and vibrations before bending fatigue.

This short pitch twisting takes special machines and is a slower and more expensive production which you do not often find in other than the Supra portfolio.

| Item        | Mechanical Specifications |                    |  |                             |        |                    |              | Elec. Spec.             |          |          |
|-------------|---------------------------|--------------------|--|-----------------------------|--------|--------------------|--------------|-------------------------|----------|----------|
|             | Colour                    | Conductor          | Cross Sec. Area (mm <sup>2</sup> /AWG) | Insulation                  | Jacket | External Size (mm) | Weight (g/m) | Length/ Bobbin (m / ft) | R (Ω/km) | L (μH/m) |
| Rondo 2x2.5 | Anthracite                | 2x322x0.10 OFC, Sn | 2x2.5 / 13 AWG                         | Chloride Ion-Stabilized PVC |        | Ø7.5               | 95           | 100m / 328ft            | 6.8      | 0.40     |
| Rondo 4x2.5 | Ice Blue                  | 4x322x0.10 OFC, Sn | 4x2.5 / 13 AWG                         |                             |        | Ø8.5               | 125          | 75m / 246ft             |          | 0.35     |
| Rondo 4x2.5 | Anthracite                | 4x511x0.10 OFC, Sn | 4x4.0 / 11 AWG                         |                             |        | Ø11.5              | 249          | 50m / 164ft             | 4.3      | 0.40     |
| Quattro 4x4 |                           |                    |  |                             |        |                    |              |                         |          |          |

Connect the loudspeaker cables for signal direction = direction of the legend (text) printed on the cable. Explanation on page 23.

## The screened Ply

The screened Supra Ply 3.4/S combines low inductance and tin plating with the shielding concept, making it our top high-end loudspeaker cable.

Read more about the Ply on pages 4-5.

## Ply 3.4/S

2x3.4 mm<sup>2</sup>. Tin plated, sandwich design.

Applications: High power systems, or longer lengths in low to medium power systems or where RF levels warrant it or where runs must be next to mains or lower level signal cables.



1:1

## Linc 2.5 Fix and Linc 4.0 Fix

Supra LINC is designed with a braided shield which reduces effects from stray electric fields, and a short pitch twisting which minimises the magnetic field as well as giving the cable low inductance.

LINC stands for Low Interaction Concept.

## Linc 2.5 Fix

2x2.5 mm<sup>2</sup>. Tin plated.

Application examples:

Medium power systems or shorter lengths in high power systems.



1:1

## Linc 4.0 Fix

2x4.0 mm<sup>2</sup>. Tin plated.

Application examples:

Fix installations. High power systems or longer lengths in low/medium power systems.



1:1



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The radiation from unshielded loudspeaker cables is often stronger than that from ordinary mains cables.

SUPRA screened loudspeaker cables radiate less interference to low level circuits, inputs and interconnects.

The shielding is also highly effective in rejecting high frequency interference, by minimising aerial pick-up.

The minimising of interference fields is recommended in all fixed installations, with computers playing an increasing part in everyday life. Sensitive networks of low level information control all kinds of operations.

Meanwhile, multi room installations often require audio, video, data and loudspeaker lines to run through ceilings and walls in very close proximity.

The biological effects of electric and magnetic fields should also be considered.

## Tips and Tricks:

For bi-wiring there are Nylon Braid and Heat Shrink in kit on page 26!

## Tests and Reviews

### Supra Ply 3.4/S

TNT Audio non-commercial internet magazine

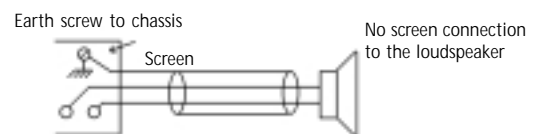
[www.tnt-audio.com/accessories/ply34s\\_e.html](http://www.tnt-audio.com/accessories/ply34s_e.html)

|                |  |                   |
|----------------|--|-------------------|
| Alta Fidelidad | Spain, #100  | '99               |
| Hifi & Musik   | Sweden, Sept.  | '99               |
| Stereofonia    | Spain, #195,   | '99               |
| Hi-Fi Choice   | England, #203  | '00 "Recommended" |
| AMP            | <a href="http://www.gmx.cz">www.gmx.cz</a>                   |                   |
| StereoTimes    | <a href="http://www.stereotimes.com">www.stereotimes.com</a> |                   |

### Supra Linc

|                |            |     |
|----------------|------------|-----|
| Alta Fidelidad | Spain, #95 | '98 |
|----------------|------------|-----|

Connection of screened loudspeaker cables:



Supra Screened Loudspeaker Cable

| Item          | Colour   | Conductor          | Mechanical Specifications              |                             |   |                 |                 | Jacket  | External Size (mm) | Weight (g/m) | Length/ Bobbin (m / ft) | Elec. Spec. |  |
|---------------|----------|--------------------|--|-----------------------------|---|-----------------|-----------------|---------|--------------------|--------------|-------------------------|-------------|--|
|               |          |                    | Cross Sec. Area (mm <sup>2</sup> /AWG) | Insulation                  | Shield                                      | Shield Coverage | R (Ω/km)        |         |                    |              |                         | L (μH/m)    |  |
| Ply 3.4/S     | Ice Blue | 2x192x0.15 OFC, Sn | 2x3.4 / 12 AWG                         | Chloride Ion-Stabilized PVC | Braid 156x0.15 Sn, drain-wire 7x0.54 OFC Sn | > 95%           | PE, Halog. Free | 7.5x7.5 | 129                | 100m / 328ft | 5.1                     | 0.20        |  |
| Linc 2.5 Flex |          | 2x322x0.10 OFC, Sn | 2x2.5 / 13 AWG                         |                             |   |                 |                 | Ø7.8    | 105                |              | 6.8                     | 0.42        |  |
| Linc 4.0 Flex |          | 2x511x0.10 OFC, Sn | 2x4.0 / 11 AWG                         |                             |   |                 |                 | Ø8.1    | 120                |              | 4.3                     | 0.44        |  |
| Linc 2.5 Fix  |          | 2x45x0.25 OFC, Sn  | 2x2.5 / 13 AWG                         |                             |   |                 |                 | Ø7.8    | 105                |              | 7.8                     | 0.42        |  |
| Linc 4.0 Fix  |          | 2x49x0.32 OFC, Sn  | 2x4.0 / 11 AWG                         |                             |   |                 |                 | Ø8.1    | 120                |              | 4.9                     | 0.44        |  |

Connect the loudspeaker cables for signal direction = direction of the legend (text) printed on the cable. Explanation on page 23.

**Sublink**

A two-core screened interconnect for semi-balanced connection. Low capacitance and efficient noise rejection maintain signal integrity in the long run interconnects, which are often required for subwoofer links.



1:1

**Biline**

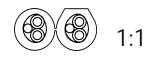
A concentric twin-pair interconnect cable. Each pair is screened and jacketed to make complete cables. Application examples: Y-Links from AV amps with 1 output to subwoofer with 2 inputs or corresponding with mini plug Supra MP-8 from computer to amp.



1:1

**Dual**

A dual-in-line interconnect cable for semi-balanced connection and with screens of aluminum foil. Low capacitance. Application example: Analogue audio.



1:1



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**SUPRA Cable/Connector Combination Chart**

|         | BNC | DB25/MF | MP-8 | PPSL RCA | PPX RCA | RCA-3 | RCA-6 | RCA-6SC | Scart | SVHS-7 | Swift XLR | Telep. 7:35m | VGA |
|---------|-----|---------|------|----------|---------|-------|-------|---------|-------|--------|-----------|--------------|-----|
| AV-2    |     |         |      |          |         | x     |       |         | x     | x      |           |              |     |
| AV-3    |     |         |      |          |         | x     |       |         | x     |        |           |              | x   |
| AV-6    |     | x       |      |          |         | x     |       |         | x     | x      |           |              | x   |
| Biline  |     |         | x    |          | x       |       | x     | x       |       |        |           |              |     |
| Carlink |     |         |      |          |         |       | x     | x       |       |        |           |              |     |
| DAC     |     |         |      | x        | x       |       | x     | x       |       |        | x         | x            |     |
| Dual    |     |         |      | x        | x       |       | x     | x       |       |        | x         |              |     |
| EFF-I   |     |         |      | x        | x       |       |       |         |       |        | x         |              |     |
| MB01    |     |         |      |          |         |       | x     | x       |       |        | x         | x            |     |
| MBC     |     |         |      |          |         |       | x     | x       |       |        | x         | x            |     |
| MBS     |     |         |      |          |         |       | x     | x       |       |        | x         | x            |     |
| SubLink |     |         |      |          |         |       | x     | x       |       |        |           |              |     |
| Trico   | x   |         |      |          | x       |       |       |         | x     |        |           |              |     |

| Item    | Mechanical Specification |                |                |            |                  |                             |                    |              |                        |          | Elec. Spec. |                 |  |
|---------|--------------------------|----------------|----------------|------------|------------------|-----------------------------|--------------------|--------------|------------------------|----------|-------------|-----------------|--|
|         | Colour                   | Application    | Conductor      | Insulation | Shield           | Jacket                      | External Size (mm) | Weight (g/m) | Length/Bobbin (m / ft) | R (Ω/km) | C (pF/m)    | Velocity Factor |  |
| SubLink | Ice Blue                 | Analogue Audio | 2x19x0.127 OFC | PE         | Alu/Poly Foil    | Chloride Ion-Stabilized PVC | Ø6.0               | 43           | 100m / 328ft           | 72       | 52          | 0.66c           |  |
| Biline  | Anthracite               |                | 4x7x0.20 OFC   |            | Semi-Cond. Nylon |                             | Ø8.0               | 71           | 50m / 164ft            | 180      | 90          | 0.66c           |  |
| Dual    | Ice Blue                 |                | 4x19x0.127 OFC |            | Alu/Poly Foil    |                             | 2 x Ø5.5           | 90           | 100m / 328ft           | 72       | 52          | 0.66c           |  |



## DAC Digital/Analogue Interconnect

Application examples: Digital audio with XLR-interface 110 Ohm AES/EBU or as a common analogue interconnect with RCA or XLR plugs.

Available in both Ice Blue and Anthracite Grey.



1:1

## EFF-I Interconnect Cable

The multi test winner. Our best interconnect for analogue audio, for example: CD to amp. Although best indeed for analogue applications it can also be used for digital audio as a 75 Ohm RCA interface or video interconnect.



1:1

## Trico Digital/Video Composite Cable

Our best video/digital cable. Application examples: Composite video such as, DVD to TV/projector and digital surround sound from DVD to AV amp or all other digital applications where true 75 Ohm impedance is critical.



1:1



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### DAC Digital/Analogue Interconnect Cable, AES/EBU Harmonised

A 'fast' interconnect of extremely low capacitance. In accordance with our design concepts, the inductance is to be low for a loudspeaker cable whereas for an interconnect the capacitance is to be low. Supra DAC is insulated with PE foam skin which exhibits only 45 pF/m. It is screened with our very efficient and strong semi-conductive nylon ribbon. Supra DAC is also designed for digital audio and is harmonised with the AES/EBU standard. (Square wave of 60 MHz, impedance 110 Ohms, balanced.)

The very high frequency properties of Supra DAC are outstandingly good, owing to its high velocity factor.

The velocity factor of Supra DAC is as high as 78% of the speed of light, owing to the low dielectricity of the gas blown foam skin insulation. With PTFE/Teflon it would have been only 71%.

The velocity factor can be calculated with the simplified formula:

$$v = \frac{1}{K}$$

where K is the dielectricity factor of the insulation material. (See page 27.)

More clean transients and thus improved space dimension comes with the high velocity.

### EFF-I Interconnect Cable Analogue/Digital 75 Ohm

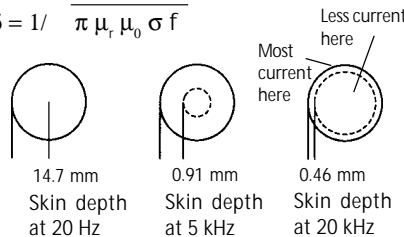
The dynamic influence of the skin effect is of great sonic influence as music and also video signals are nothing but variations. By means of the Equalized Frequency Flow technique (EFF) Supra takes skin effect into account. The EFF-I cable consists of two tube-shaped conductors with a wall thickness of 0.20 mm which is well below the smallest skin depth within the audio range. This makes a wide range in the music (or video) of frequencies pass through under the same conditions.

#### EFF-I Interconnect Cable Construction

Silver plated OFC copper 0.5 mm<sup>2</sup>/conductor. Tube-shaped flexible conductors with a center core of PE. Two conductors, individually screened, for balanced or semi-balanced connection.

#### Effective penetration depth (skin effect)

$$\delta = \frac{1}{\pi \mu_r \mu_0 \sigma f}$$



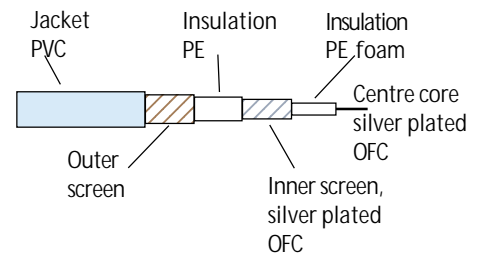
### Trico Digital/Video Composite Cable 75 Ohm, Co-axial

Supra Trico is an interconnect cable of very low capacitance, insulated with PE foam which produces only 58 pF/m and makes the cable's propagation velocity as high as 78% of the speed of light.

Trico is double-shielded with a braided inner screen of silver plated oxygen-free copper and an outer of bare OFC-braid. The screens provide efficient noise protection. The centre conductors are made of silver plated OFC copper. The silver plating of the conductor and screen enhances the cohesive properties of the cable, at high frequencies.

The high technology design of Trico produces an extremely low attenuation: -0.6dB/100m at 1MHz and -7.1dB/100m at 100MHz.

True 75 Ohm: The characteristic impedance is very stable: +/- 1.5 Ohms from 1MHz up to 100MHz.



| Item  | Colour     | Application                    | Conductor         | Insulation | Mechanical Specifications |              |                     |                             | Jacket | External Size (mm) | Weight (g/m) | Length/Bobbin (m / ft) | Electrical Spec. |                 |  |
|-------|------------|--------------------------------|-------------------|------------|---------------------------|--------------|---------------------|-----------------------------|--------|--------------------|--------------|------------------------|------------------|-----------------|--|
|       |            |                                |                   |            | 1st Shield, Coverage      | Inner Jacket | 2nd Shield Coverage | C (pF/m)                    |        |                    |              |                        | Imp. Z (Ω)       | Velocity Factor |  |
| DAC   | Ice Blue   | Analogue Audio/ Digit. AES/EBU | 2x19x0.19 OFC     | PE Foam    | Semi-Cond. Nylon, 100%    | -            | -                   | Chloride Ion Stabilized PVC | Ø6.5   | 43                 | 50m / 164ft  | 45                     | 110 (true)       | 0.78c           |  |
| DAC   | Anth. Grey | Analogue Audio/ Digit. AES/EBU | 2x19x0.19 OFC     | PE         | Al/Poly. Foil, 100%       | -            | -                   | PVC                         | Ø7.2   | 70                 |              | 75                     | 75               | 0.66c           |  |
| EFF-I | Ice Blue   | Analogue Audio                 | 2x12x0.22 OFC, Ag | PE         | Braid OFC Ag, >95%        | PE           | Braid OFC, >90%     | -                           | Ø8.2   | 95                 | 58           | 75 (true)              | 0.78c            |                 |  |

**AV-2 Audio/Video Cable 2-core Coax**

Application examples: S-video. Suitable connector is Supra SVHS-7 and/or Supra Scart plugs.

S-video = Y/C



1:1

**AV-3 Audio/Video Cable 3-core Coax**

Application examples: Component video, Audio/Video. Suitable connectors are Supra Scart, RCA-3 and VGA plugs.

Component video = Y/Pb/Pr



1:1

**AV-6 Audio/Video Cable 6-core Coax**

AV-6 comprises 6 coax cores, surrounded by a common foil screen which further minimises RF breakthrough.

Application examples: RGB/S-video/ Composite video/Component video. Suitable connectors are Scart, VGA, SVHS-7 and RCA-3.



1:1



Loudspeaker Cables

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**AV Series Audio/Video Multi Core Co-ax 75 Ohm**

The Supra AV cables are multi-core coaxes of individual 75 Ohm rated coax cores.

Each core has a braided screen of tin plated OFC.

The Supra AV series is of very low capacitance owing to the PE foam insulation.

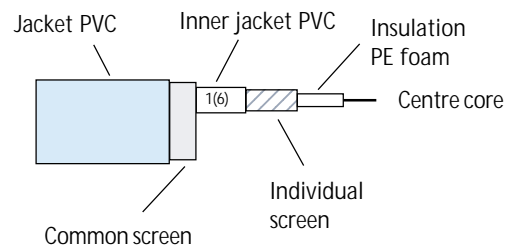
The construction is especially developed for Home Theatre use, and suits several applications with DB25, Scart, RCA, S-VHS and BNC connectors.

The timing error is less than 2.2 ns which enables accurate RGB transmission.

Applications:

- Home Theatre
- Video walls
- High resolution video projection
- CG workstations
- Studio tie lines

**Construction of the AV series**



| Item | Mechanical Specifications |               |                 |            |                         |                             |                     |                             |                    |              |                        | Electrical Specifications |          |            |                       |                 |
|------|---------------------------|---------------|-----------------|------------|-------------------------|-----------------------------|---------------------|-----------------------------|--------------------|--------------|------------------------|---------------------------|----------|------------|-----------------------|-----------------|
|      | Colour                    | Application   | Conductor       | Insulation | 1st Shield Coverage     | Inner Jacket                | 2nd Shield Coverage | Jacket                      | External Size (mm) | Weight (g/m) | Length/Bobbin (m / ft) | R (Ω/km)                  | C (pF/m) | Imp. Z (Ω) | Attenuation 1MHz (dB) | Velocity Factor |
| AV-2 |                           | Svideo or A/V | 2x1x0.5 OFC, Sn | PE Foam    | Braid 0.10 OFC Sn, >95% | Chloride Ion-Stabilized PVC | -                   | Chloride Ion-Stabilized PVC | Ø7.0               | 73           | 100m / 328ft           | 87.8                      | 45       | 75 (true)  | 1.4/100m              | 0.78c           |
| AV-3 | Ice Blue                  | Comp. or A/V  | 3x1x0.5 OFC, Sn |            |                         |                             | Ø8.0                |                             | 105                | 100m / 328ft |                        |                           |          |            |                       |                 |
| AV-6 |                           | RGB or A/V    | 6x1x0.5 OFC, Sn |            |                         |                             | Al/Poly, Foil, 100% |                             | Ø11.0              | 147          | 50m / 164ft            |                           |          |            |                       |                 |

# Microphone/Line Cables

**MBS Microphone Cable, Balanced**

A non-compromise design, both mechanically and electrically. Negligible microphony, high noise rejection, low capacitance, high flexibility, high bending strength. The best mic and instrument cable.  
Application examples: Microphone, guitar.



**MBC Microphone Cable, Balanced**

An economy variation of the MBS design.  
Application examples: Line, patch, rack.



**MB-01 Installation Line Cable, Balanced**

The conductors are similar to the MBS/MBC microphone cables. But the jacketing is thinner, making a slimmer cable and the screen is of Aluminium foil to make it suitable to fixed installations.  
Application example: Installations.



**About screening**

SUPRA's unique screen concept makes 'pro-tech' products that are even feasible for heavy-duty military use, as well as for industry and the musical stage. The screen is made of semi-conductive Nylon, a very strong and flexible wrapping that so far has only been used for field equalizing around very high voltage power station cables.

The advantages of Supra nylon screened cables over ordinary braided cables are:

- **Mechanically stronger**
- The nylon screen, with its tensile strength of 500 N/50 mm, is many times stronger than ordinary screens, including with respect to bending fatigue.

(Exception note: MB-01 does not need this nylon screen, but has an Aluminum screen, as this cable is meant for fixed installations only.)

- **Environmental and climatic immunity**  
Humidity does not influence the nylon Screened cable's electrical properties.

• **Noise rejection**

Besides the extremely good shielding properties of the semi-conductive screen, the cores are symmetrically twisted to cancel out the magnetic pickup. Tests under very severe conditions have been carried out and whereas no ordinary cable has been free from noise pickups, Supra MBS has still been quiet.

**Carry out your own test:**

Tape a nylon-screened Supra cable along the mains flex of a thyristor controlled device, for example, a drilling machine. Connect the Supra cable to a pre-amplifier's mic or disc input, run the machine and listen to the level of induced noise. Now, do the same with other cables. Compare!

| Item  | Mechanical Specifications |                |                |            |                       |                  |                             |                  |                    |              |                      | Electrical Spec. |          |                 |
|-------|---------------------------|----------------|----------------|------------|-----------------------|------------------|-----------------------------|------------------|--------------------|--------------|----------------------|------------------|----------|-----------------|
|       | Colour                    | Application    | Conductor      | Insulation | Tensile Reinforcement | Shield           | Jacket                      | Temp. Range (°C) | External Size (mm) | Weight (g/m) | Length/Bobbin (m/ft) | R (Ω/km)         | C (pF/m) | Velocity Factor |
| MBS   | Anthracite                | Analogue Audio | 2x19x0.127 OFC | PE         | Poly/Silk wire        | Semi-Cond. Nylon | Chloride Ion-Stabilized PVC | -30 till +75     | Ø6.0               | 48           | 150m / 492ft         | 72               | 52       | 0.66c           |
| MBC   |                           |                |                |            | -                     | Alu/Poly         |                             |                  | Ø6.0               | 45           |                      |                  |          |                 |
| MB-01 |                           |                |                |            | -                     | Alu/Poly         |                             |                  | Ø4.5               | 40           |                      |                  |          |                 |

**MS02-JP**

2 jacketed and screened pairs x 0.22 mm<sup>2</sup>.

**MS04-JP**

4 jacketed and screened pairs x 0.22 mm<sup>2</sup>.

**MS08-JP**

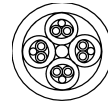
8 jacketed and screened pairs x 0.22 mm<sup>2</sup>.



1:1



1:1



1:1



Loudspeaker Cables

Interconnect Cables **///**

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## Multicore Cables for Stage Use, Pair Jacketed and Stretch-Proof

SUPRA has developed a flexible multi-core cable for use on stage and in heavy and rough handling situations. Every pair is individually jacketed and is a complete cable. Simply solder on a contact - you don't even need to use Heat Shrink. Perfect when you need to make up a line to a stage box. The screen is of semi-conductive nylon which is extremely strong with regard to bend-fatigue and which at the same time is highly resistant to electro-magnetic interference. A usual problem with multicore cables which are used on stage and in other non-permanent applications, is that the pairs in the middle of the multicable have less stretch tolerance than the outer layers, owing to the spiralized configuration of the cable. Consequently the inner cables are often stretched so much that the solder joints give way or the conductors break when forced to take the whole strain. Supra has solved this through increasing spiralization of the pairs towards the centre, plus the omission of a pair at the exact centre, this being replaced with a flexible plastic core.

The pairs are identified with jacket colours as well as with numbers. See identification chart below.

| MS-JP Series Colour and Number Codes |   |   |   |   |   |   |   |   |       |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |        |    |    |    |    |    |    |    |
|--------------------------------------|---|---|---|---|---|---|---|---|-------|----|----|----|----|----|----|----|-----|----|----|----|----|----|----|----|--------|----|----|----|----|----|----|----|
| Pair                                 | 1   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9     | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17  | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25     | 26 | 27 | 28 | 29 | 30 | 31 | 32 |
| Colour                               | Black   |   |   |   |   |   |   |   | Brown |    |    |    |    |    |    |    | Red |    |    |    |    |    |    |    | Orange |    |    |    |    |    |    |    |
| Conductors                           | Red/Black and with a drian wire for the Nylon screen connection |   |   |   |   |   |   |   |       |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |        |    |    |    |    |    |    |    |



**MS10-JP**

10 jacketed and screened pairs x 0.22 mm<sup>2</sup>.

**MS20-JP**

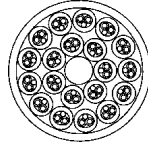
20 jacketed and screened pairs x 0.22 mm<sup>2</sup>.

**MS32-JP**

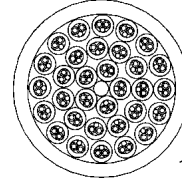
32 jacketed and screened pairs x 0.22 mm<sup>2</sup>.



1:1



1:1



1:1



Loudspeaker Cables

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SUPRA Multicore Cables are designed for professionals

| Item    | Mechanical Specifications |                |              |            |                  |                                   |                       |                    |                  |            |              | Electrical Spec.       |          |          |                 |
|---------|---------------------------|----------------|--------------|------------|------------------|-----------------------------------|-----------------------|--------------------|------------------|------------|--------------|------------------------|----------|----------|-----------------|
|         | No. of Channels           | Application    | Conductor    | Insulation | Shield           | Inner/Outer Jacket                | Tensile Reinforcement | External Size (mm) | Temp. Range (°C) | Colour     | Weight (g/m) | Length/Bobbin (m / ft) | R (Ω/km) | C (pF/m) | Velocity Factor |
| MS02-JP | 2                         | Analogue audio | 2x7x0.20 OFC | PE         | Semi-Cond. Nylon | Numbered & Colour-Coded PVC / PVC | Poly/silk Wire        | Ø8.0               | -30 till +75     | Anthracite | 61           | 100m / 328ft           | 180      | 90       | 0.66c           |
| MS04-JP | 4                         |                |              |            |                  |                                   | Ø9.7                  | 90                 |                  |            |              |                        |          |          |                 |
| MS08-JP | 8                         |                |              |            |                  |                                   | -                     | Ø13.1              |                  |            | 116          |                        |          |          |                 |
| MS10-JP | 10                        |                |              |            |                  |                                   | Ø14.0                 | 250                |                  |            |              |                        |          |          |                 |
| MS20-JP | 20                        |                |              |            |                  |                                   | Flexible Plastic Core | Ø18.7              |                  |            | 263          |                        |          |          |                 |
| MS32-JP | 32                        |                |              |            |                  |                                   | Ø23.5                 | 427                |                  |            |              |                        |          |          |                 |

# Loudspeaker Connectors

**Boxcon**

24K gold plated speaker cabinet connector.  
For cables up to 10 mm<sup>2</sup> or Banana/Fork. For cabinet wall thickness up to 29 mm.

1 pair/pack.  
Also available in bulk of 50 pairs.

**Fork**

24K gold plated spade.  
The size of the fork width is 5.5 mm. The cable can be connected either on axis or on a 90° angle. Fits up to 10 mm<sup>2</sup> cables. Adapter screw for 4 mm Banana plug is included. Fork is the most copied Supra connector worldwide.

2 pairs/pack.  
Also available in bulk of 200 pcs.

**Fork XL**

A larger variation of the Fork.  
The size of the fork width is 6.5 mm. The adapter screws for Banana plug are not included in this product.

2 pairs/pack.  
Also available in bulk of 200 pcs.

**Banana**

24K gold plated.  
4 mm Banana plug for up to 10 mm<sup>2</sup> cables. Can be connected either on axis or at a 90° angle. Red and black housings.

2 pairs/pack.  
Also available in bulk of 50 pairs.



Loudspeaker Cables    Interconnect Cables    Connectors **///** Interconnects



| Item           | Mechanical Specifications |                      |                            |                    |                   |  |                             |                          |
|----------------|---------------------------|----------------------|----------------------------|--------------------|-------------------|--|-----------------------------|--------------------------|
|                | Quantity/<br>Pack         | Connector            | Material                   | Contact<br>Locking | Cable<br>Clamping | Max Cable Area<br>(mm <sup>2</sup> /AWG) | External Size<br>WxHxL (mm) | Colour<br>Identification |
| <b>Boxcon</b>  | 1 pair                    | Banana/Spade Chassis | 24 Ct<br>Gold<br>Plated Cu | Screw              | Screw             | 10 mm <sup>2</sup> /<br>7 AWG            | Ø19x35-64                   | Red/Black                |
| <b>Fork</b>    | 4 pcs                     | Spade, 5.5mm         |                            | -                  |                   |  | 8x20x21                     | -                        |
| <b>Fork XL</b> |                           | Spade, 6.5mm         |                            | -                  |                   |  | 10x12.5x26                  | -                        |
| <b>Banana</b>  | 2 pair                    | Banana Cord          |                            | Expansion Pin      |                   |  | -                           | 10x18x42                 |

# Line Connectors

**BNC**  
BNC-plug in 24K gold plating with Teflon insulation. For cable diameters of 7-8.5 mm.

2 pcs/pack.  
Also available in bulk of 50 pcs.

**PPSL**  
24K gold plated RCA plug with squeeze locking of both contact part and cable clamping. Lathe turned in one piece. Front mounted shielding housing. Maximum cable diameter 7.7 mm.

1 pair/pack.  
Also available in bulk of 50 pairs.

**RCA-6SC**  
24K gold plated RCA plug with squeeze clamping, only for cable diameters of 5-6 mm.

**RCA-6**  
Similar to the above but with standard clamping, not squeeze clamping.

1 pair/pack.  
Also available in bulk of 50 pairs.

**PPX**  
RCA plug in 24K gold plating with shielding housing, front mounted. Teflon insulation. Lathe turned in one piece. Maximum cable diameter 8.5 mm.

1 pair/pack.  
Also available in bulk of 50 pairs.

**Swift XLR Au Set**  
Patented XLR connector with 24K gold plated pins. Fully shielded for noise rejection. Easy assembly. No loosable screws. Nothing to slip on the cable before soldering.

Set of male/female per pack.  
Bulk pack: 10 pcs male or female. (No set.)



Loudspeaker Cables    Interconnect Cables    Connectors /// Interconnects



Gold plated pins

| Item             | Mechanical Specifications |                 |                      |               |                         |                  |                |                     |                        |                       |
|------------------|---------------------------|-----------------|----------------------|---------------|-------------------------|------------------|----------------|---------------------|------------------------|-----------------------|
|                  | Quantity/Pack             | Connector       | Material             | Insulation    | Housing                 | Connector Fixing | Cable Clamping | Max Cable Dia. (mm) | External Size ØxL (mm) | Colour Identification |
| BNC              | 1 pair                    | BNC Male        | 24 Ct Gold Plated Cu | PTFE (Teflon) | Shielded                | Bayonet          | Crimp          | Ø8.0                | Ø13x52                 | Blue Print            |
| PPSL             |                           | RCA Male        |                      |               | Shield., Fr. Mounted    | Squeeze Lock     | Squeeze Lock   | Ø7.7                | Ø13x53                 | Red/White             |
| RCA-6 SC         |                           |                 |                      |               | Shielded                | Expansion        | Crimp          | Ø6.5                | Ø11x35                 | Red/White             |
| RCA-6            |                           |                 |                      |               | Shielded, Front Mounted |                  | Screw          | Ø6.5                | Ø11x35                 | Red/White             |
| PPX              |                           | Ø8.5            |                      |               | Ø13x43                  | Red/White/Yellow |                |                     |                        |                       |
| Swift XLR Au Set | 1 set F/M                 | XLR Female/Male | Noryl                |               | Quick Lock              | Screw            | Ø7.4           | Ø19x83 / Ø19x77     | Red/White              |                       |

## Video Connectors

### SCART

24K gold plated Scart connector with shielding housing of metal. The plate around the pins is formed to make a strong grip by means of friction locking. Squeeze clamping of the cable. Fits cable diameter 8-11 mm.

For thinner cables use the bending protection, see page 26.

1 pc/pack.

Bulk pack: 50 pcs.

### RCA-3

24K gold plated RCA (Phono) plug with Teflon insulation and metal housing. Fits 3mm cable diameter, e.g. the Supra AV-6 core. Provided with Colour rings of different Colours.

1 pair/pack.

Bulk pack: 50 pairs.

### SVHS-7

24K gold plated S-Video connectors with shielding metal housing and Teflon insulation. Fits cable diameter up to 7 mm.

2 pcs/pack.

Bulk pack: 50 pcs.

### DB25-F and DB25-M

24K gold plated DB25 plugs with metalised shielding housing. Male and female. Fits cable diameter 5-11 mm.

1 pc/pack.

Bulk pack: 50 pcs male or female.



Loudspeaker Cables

Interconnect Cables

Connectors **///**

Interconnects



| Item   | Mechanical Specifications |                |                            |                            |          |                     |                   |                        |                             |                          |
|--------|---------------------------|----------------|----------------------------|----------------------------|----------|---------------------|-------------------|------------------------|-----------------------------|--------------------------|
|        | Quantity/<br>Pack         | Connector      | Pin<br>Material            | Insulation                 | Housing  | Connector<br>Fixing | Cable<br>Clamping | Max Cable<br>Dia. (mm) | External Size<br>WxHxL (mm) | Colour<br>Identification |
| Scart  | 1 pc                      | Scart          | 24 Ct<br>Gold<br>Plated Cu | Noryl                      | Shielded | -                   | Squeeze Lock      | Ø11.0                  | 48x20x60                    | White Print              |
| RCA-3  | 1 pair                    | RCA            |                            | PTFE (Teflon)              |          | Expansion           | Crimp             | Ø3.2                   | Ø12x50                      | Rd/Blk/Gn/Y/Bl           |
| SVHS-7 | 2 pc                      | Svideo         |                            | -                          | -        | -                   | Ø7.0              | Ø13x42                 | Yellow Print                |                          |
| DB25-F | 1 pc                      | DB25/<br>D-sub | Noryl                      | Shielded, Front<br>Mounted | Screw    | Screw               | Ø11.0             | 55x17x51               | White Print                 |                          |
| DB25-M |                           |                |                            |                            |          |                     |                   |                        |                             |                          |



**XLR-C3F and XLR-C3M**  
3-pole Female and Male chassis connectors.

**Swift 3F XLR Light and Swift 3M XLR Light**  
3-pole Female and Male.  
Patented by Tommy Jenving.  
Also available with gold plated pins on page 15.

**MP-8 Mini Jack Plug Stereo**  
For large diameter cables up to 8 mm.  
24K gold plated mini plug 3.5 mm with shielded housing.

**Jack Plug Mono**  
6.35 mm 1/4". For cable diameter 5-6.5 mm



Loudspeaker Cables    Interconnect Cables    Connectors **///** Interconnects

**Swift XLR Connectors**

Supra Swift has several advantages over other XLR connectors.

- Totally shielded.
- No loose screws. Only one retained screw.
- Nothing to slip on to the cable before soldering.
- Strain relief: The screw serves also as a clamp screw and since it is placed at a considerable distance from the aperture there will be no bending forces on the cable at the clamping point.

**MP-8 Mini Plug**

A mini plug that takes unusually thick cables. The plug is countersunk in order to fit countersunk chassis connectors.

**Jack Plug Mono and Stereo**

Diameter 6.35 mm 1/4". Stereo or Mono version. Rigid design. Front mounted housing, i.e. you can put the housing on after soldering the cable. Strain relief with squeeze clamping. (Patented.) Provided with three differently coloured marking rings for identification. Supra Jack Plugs are fully shielded for noise rejection.

| Item                  | Quantity/<br>Pack | Connector              | Pin              | Insulation    | Mechanical Specifications |                  |                |                     |                          |                    |                       |        |   |   |
|-----------------------|-------------------|------------------------|------------------|---------------|---------------------------|------------------|----------------|---------------------|--------------------------|--------------------|-----------------------|--------|---|---|
|                       |                   |                        |                  |               | Housing                   | Connector Fixing | Cable Clamping | Max Cable Dia. (mm) | External Size WxHxL (mm) | Mounting Hole (mm) | Colour Identification |        |   |   |
| XLR-C3F               | 1 pc              | XLR Female Chassis     | Silver Plated Cu | Noryl         | Shielded                  | Quick Lock       | -              | -                   | 27x37x31                 | Ø23.5              | -                     |        |   |   |
| XLR-C3M               |                   | XLR Male Chassis       |                  |               |                           |                  |                |                     | 22x37x21                 | Ø19.0              |                       |        |   |   |
| Swift XLR 3M Light    |                   | XLR Male               | Gold plated Cu   |               | Shielded, Front Mounted   |                  |                |                     | Screw                    | Ø7.7               |                       | Ø19x70 | - | Red/Black<br>Other Colour<br>rings are<br>available |
| Swift XLR 3F Light    |                   | XLR Female             |                  |               |                           |                  |                |                     |                          |                    |                       | Ø19x75 |   |   |
| Swift XLR 3M Light Au |                   | XLR Male               |                  |               |                           |                  |                |                     |                          |                    |                       | Ø19x70 |   |   |
| Swift XLR 3F Light Au |                   | XLR Female             |                  |               |                           |                  |                |                     |                          |                    |                       | Ø19x75 |   |   |
| MP-8 Mini Plug        | 2 pc              | Jack Plug Stereo 3.5mm |                  |               | Shielded                  |                  | Crimp          | Ø8.5                | Ø13x52                   |                    |                       |        |   |   |
| Jack Plug Mono        | 1 pc              | Jack Plug 6.35mm, 1/4" | Tin Plated Brass | PTFE (Teflon) | Shield., Fr. Mount.       |                  | Squeeze Lock   | Ø6.5                | Ø13x79                   |                    | White Print.          |        |   |   |

All SUPRA connectors have shielding housings and the cables are provided with Supra's efficient screens which helps ensure noise rejective interlinking.

The cables are developed with the focus on low capacitance, high velocity factor and correct and stable characteristic impedance.

The results are improved definition and dynamics.

**Tommy Jenving recommends:**

- B. Supra EFF-ISL, our best analogue interconnect. Multi test winner and our most sold interconnect.
- C. For balanced with XLR, we recommend the same cable but with the *Swift* connectors: EFF-IXLR
- D. Supra DAC-X, our fastest cable, for precise transients. A high-end cable at a mid-end price.
- G. Supra Dual-RCA, if you want a high value for money.



Loudspeaker Cables /// Interconnect Cables /// Connectors /// Interconnects ///

• For product information, see the table below.

Tests and Articles

EFF-I  
 Lyd & Bilde Norway, #8 '97  
 Hi-Fi Review Hong Kong, #148 Sep '98  
 Alta Fidelidad Spain, Dec '98  
 Hifi & Musik Sweden, #1 '99  
 Hi-Fi Choice England, Mar '99 EFF-ISL "Best Buy"  
 Hi-Fi Review Hong Kong, #155 Apr '99  
 Hifi & Musik Sweden, #5 '99  
 Stereofonia Spain, #203 '00  
 Hifi & Musik Sweden, #5 '01  
 AMP [www.gmx.cz](http://www.gmx.cz)  
 Stereo Times [www.stereotimes.com](http://www.stereotimes.com)  
 TNT-Audio, non-commercial internet magazine  
[www.tnt-audio.com/clinica/eff1e.html](http://www.tnt-audio.com/clinica/eff1e.html)

**Articles about applying EFF-I**

Ben Duncan, Pure Transfer,  
 Hi-Fi News & Record Review (UK), Nov '97  
 Ben Duncan, Black Box (technical column),  
 Hi-Fi News & Record Review (UK), Dec '96 and Nov '97

**DAC**

High Fidelity Sweden, #1 '97  
 Hifi & Musik Sweden, #5 '99  
 Sound & Sight J. Singapore, Mar/Apr '99  
 Stereofonia Spain, #203 '00

Also, an interview with Tommy Jenving:  
<http://www.tnt-audio.com/intervis/suprae.html>

| Item     | Mechanical Specifications |                |                    |       |                   |  |                  |                |                      | Stand. Lengths |   |
|----------|---------------------------|----------------|--------------------|-------|-------------------|--|------------------|----------------|----------------------|----------------|---|
|          | Pict. Ref                 | Application    | Connector          | Cable | Screen Connection | Solder Tin   | Connector Fixing | Cable Clamping | Colour               | (1m = 3,28 ft) |   |
| DAC-SL   | E                         | Analogue Audio | PPSL RCA           | DAC   | Semi-Balanced     | Multicore TSC-96, Sn 95.5%, Ag 3.8%, Cu 0.7% Rosin Freel | Squeeze Lock     | Squeeze Lock   | Ice Blue/ Anthracite | x              |   |
| DAC-X    | D                         |                | PPX RCA            |       |                   |  | Expansion        | Screw          |                      | x              |   |
| DAC-XLR  | F                         |                | SWIFT XLR LIGHT AU |       |                   |  | Quick Lock       |                | x                    |                |   |
| Dual-RCA | G                         |                | RCA-6              | Dual  | Balanced          |  | Expansion        | Crimp          | Ice Blue             |                | x |
| EFF-ISL  | B                         |                | PPSL RCA           | EFF-I | Semi-Balanced     |  | Squeeze Lock     | Squeeze Lock   |                      | x              |   |
| EFF-IX   | A                         |                | PPX RCA            |       |                   |  | Expansion        | Screw          |                      | x              |   |
| EFF-IXLR | C                         |                | SWIFT XLR LIGHT AU |       |                   |  | Balanced         | Quick Lock     |                      | x              |   |

## Special Analogue Interconnects

### Sublink-RCA

Sublink-RCA is a semi-balanced interconnect from one RCA connector to one RCA connector. Application example: From the mono output of the AVR amp to an active mono subwoofer.

### Y-link

Y-Link is a Y-connected semi-balanced interconnect from one RCA connector to two RCA connectors. Application example: From the mono output of the AVR amp to an active stereo subwoofer.

### Biline-MP

Biline-MP is a semi-balanced interconnect from one mini jack plug to two RCA connectors. Application example: From computer audio output to amp.

### AV-6 Interconnect for AC-3

The DB25 interconnects come in different variations: DB25F-DB25M, DB25F-6RCA and 6RCA-DB25M. These are specially made for 5.1 channel sound. Application examples: DVD to AVR amp or AVR amp to 5.1 channel power amplifier.



Loudspeaker Cables /// Interconnect Cables /// Connectors /// Interconnects ///

### Sublink-RCA

For Supra Sublink-RCA, the Sublink cable and the RCA-6 connectors are used.

### Y-link

Supra Y-Link comprises the Biline cable with one PPX connector at one end and two RCA-6 connectors at the other. For good bending protection the Termination Trousers are applied.

### Biline-MP

Supra Biline-MP comprises the Biline cable with a MP-8 mini jack plug at one end and a pair of RCA-6 at the other. For good bending protection the Termination Trousers are applied.

### AV-6 Interlink for AC-3

AV-6 is a multi-coax construction of high performance, low capacitance 75 Ohm cores, especially developed for 5.1 channel systems. (Dolby digital/DTS). All connectors are fully shielded.

The cores are used for:

- Right front
- Left front
- Centre
- Sub-woofer
- Right surround
- Left surround

All cores are differently coloured for easy installation.

| Item          | Mechanical Specifications |                        |         |                   |   |                  |                |            | Standard Lengths |    |    |    |  |
|---------------|---------------------------|------------------------|---------|-------------------|---|------------------|----------------|------------|------------------|----|----|----|--|
|               | Application Examples      | Connector              | Cable   | Screen Connection | Solder Tin  | Connector Fixing | Cable Clamping | Colour     | (1m = 3.28ft)    |    |    |    |  |
|               |                           |                        |         |                   |   |                  |                |            | 1m               | 2m | 4m | 8m |  |
| SubLink-RCA   | Active Mono Sub Woofer    | RCA-6                  | SubLink | Semi-Balanced     | Multicore TSC-96, Sn 95.5%, Ag 3.8%, Cu 0.7% Rosin Free | Expansion        | Crimp          | Ice Blue   | x                | x  | x  | x  |  |
| Y-Link        | Active Stereo Sub Woofer  | PPX RCA / RCA-6        | Biline  |                   |   | - / Expansion    | Screw/Crimp    | Anthracite | x                | x  | x  | x  |  |
| Biline-MP     | Sound Card/MD/CD          | Mini Jack Plug / RCA-6 |         |                   |   | Screw            | x              |            |                  |    |    |    |  |
| DB25F - DB25M | AC-3, 5.1 Channel         | DB-25F / DB-25M        | AV-6    |                   |   | Screw/Expansion  | Crimp          | Ice Blue   | x                |    |    |    |  |
| 6 RCA - DB25M |                           | RCA-3 / DB25M          |         |                   |   | x                |                |            |                  |    |    |    |  |
| DB25F - 6 RCA |                           | DB-25M / RCA-3         |         | x                 |   |                  |                |            |                  |    |    |    |  |



### X-ZAC Toslink

An exact mechanical fit is important in order to avoid divergence losses. Therefore X-ZAC is provided with a high precision metal connector. The fibre optic is principally the same but the X-ZAC is machine polished in further 3 stages. Available in 1m (3ft).

### ZAC Toslink

Our most popular Toslink. ZAC Toslink is available in 1m (3ft), 2m (6ft), 4m (13ft), 8m (26ft), 15m (49 ft).

### ZAC MinTos

The same concept but fitted with Mini-Toslink at one end and a Toslink at the other. Often used between Mini discs and CD players. Standard length: 1m (3ft).

### ZAC Mini

The same concept but fitted with Mini Toslink connectors. Available in 1m (3ft).

### 75 Ohm Interconnects:

#### Trico-RCA, Trico-BNC

The 75 Ohm digital interconnects are designed for RCA (Phono connectors) interfaced transmission between CD transport and digital to analogue converter. They have the capability to transfer the full digital spectrum and can be used with a number of 75 Ohm applications.

#### 110 Ohm AES/EBU Interconnect: DAC-XLR

DAC-XLR is a balanced interconnect for digital transfer, mostly in professional equipment.

DAC stands for Digital/Analogue Cable, not to be mixed up with DAC converters.



Loudspeaker Cables /// Interconnect Cables /// Connectors /// Interconnects ///

From left: X-ZAC, ZAC Toslink, ZAC MinTos and ZAC Mini

DAC-XLR Gold Trico-BNC Trico-RCA

### ZAC Fibre Optic Interconnect

ZAC stands for Zero Attenuation Concept.

The innovative curving of the fibre core tip to get a zero divergence loss enables plastic fibre optic to be used, and achieve the same transmission quality as that of a glass fibre core in combination with the strength and flexibility of the plastic core.

Properties and advantages of the fibre optic cable are:

- Low weight
- Wide band width
- Interference immune
- No radiation
- Independent of voltage

### Tests and Reviews

#### Tests of ZAC

Hifi & Musik Sweden, #1 '99  
Alta Fidelidad Spain, #100 '99

#### Tests of ZAC and Trico

Alta Fidelidad Spain, #115 '00  
Alta Fidelidad Spain, #123 '01

### Digital Interconnects

#### General:

Always, in digital applications, the use of a cable with the correct characteristic impedance is very important. There are two standard impedances:

- 75 Ohm S/PDIF interface which uses RCA connectors. This is most common in Hi-Fi applications from CD transport to DAC, as well as home recording.
- 110 Ohm AES/EBU interface which is balanced and has XLR connectors. This is mostly used in professional applications.

| Item          | Mechanical Specifications |                       |        |                   |                                    |                  |                |                 | Standard Lengths |    |    |    |     |
|---------------|---------------------------|-----------------------|--------|-------------------|------------------------------------|------------------|----------------|-----------------|------------------|----|----|----|-----|
|               | Application               | Connector             | Cable  | Screen Connection | Solder Tin                         | Connector Fixing | Cable Clamping | Colour          | (1m = 3.28ft)    |    |    |    |     |
|               |                           |                       |        |                   |                                    |                  |                |                 | 1m               | 2m | 4m | 8m | 15m |
| X-ZAC TosLink | Optical                   | TosLink, Metal        | ZAC    | -                 | -                                  | Quick Lock       | Crimp/ Moulded | Ice Blue        | x                |    |    |    |     |
| ZAC TosLink   |                           | TosLink               | Fibre- |                   |                                    |                  |                |                 | x                | x  | x  | x  | x   |
| ZAC MinTos    |                           | Mini Plug - TosLink   | Optic  |                   |                                    |                  |                |                 | x                |    |    |    |     |
| ZAC Mini      |                           | Mini Jack Plug, 3.5mm | Cable  |                   |                                    |                  |                |                 | x                |    |    |    |     |
| DAC-XLR Gold  | Digit. AES/EBU 110 Ω      | Swift XLR light Au    | DAC    | Balanced          | Multicore TSC-96, Sn               | Quick Lock       | Screw          | Ice Blue/Anthr. | x                |    |    |    |     |
| Trico-BNC     | Digital/Video 75 Ω        | BNC                   | Trico  | Semi-             | 95.5%, Ag 3.8%, Cu 0.7% Rosin Free | Bayonet          | Crimp          | Ice Blue        | x                | x  |    |    |     |
| Trico-RCA     |                           | PPX RCA               |        | Balanced          |                                    | Expansion        | Screw          |                 | x                | x  | x  | x  | x   |



### FS Full Scart

FS stands for Fully-connected Scart cable. FS is a high performance Scart cable designed for home theatre. Application example: DVD to TV.

### Composite Video Interconnects

The composite interlinks come in different variations with Scart/RCA/BNC connectors. Application examples: DVD/Satelite decoder to TV/Projector. Composite video = CVBS

### S-video Interconnects

The S-video interlinks come in different variations with Scart/S-video/RCA connectors. Application examples: DVD/SVHS to TV/Projector. S-video = Y/C

### Test and Review

www.minhembio.com Sweden, '01

### Test and Review

NXOS Home Cinema Greece, #335 '01 "Best inTest"



Loudspeaker Cables

Interconnect Cables

Connectors

Interconnects ///

### The advantages of the Supra FS design:

- All video cores are of 75 Ohm coax type, individually screened.
- Audio cores are separately screened to avoid cross-talk interference.
- All conductors are insulated with PE, which makes low capacitance.
- A common Aluminum shield protects from electromagnetic interference.
- Fully shielded connectors.
- The plate around the pins is formed to make a strong grip.

### Trico Video Interlinks 75 Ohm

These interlinks are made of Supra Trico which is our best video cable. The properties of Trico are the secret behind a sharp and clean picture: True 75 Ohm for low reflex losses, especially important for longer lengths, and the double shielding for less interference. All connectors are fully shielded.

### Tips and Tricks:

For absolute super quality you can use 3 pcs of Trico-RCA for component video.

### AV-2 S-Video Interlinks

S-video is a better transfer system, but takes 2 cores providing equal velocity and phase, owing to the synchronising of the two signals luminance and chrominance.

In order to achieve this, the True 75 Ohm impedance is a very important property of the cable.

All connectors are fully shielded.

| Item             | Mechanical Specification |                  |       |                                |   |                  |                     |          | Standard Lengths |    |    |    |     |  |
|------------------|--------------------------|------------------|-------|--------------------------------|---|------------------|---------------------|----------|------------------|----|----|----|-----|--|
|                  | Application              | Connector        | Cable | Screen Connection              | Solder Tin  | Connector Fixing | Connector Clamping  | Colour   | (1m = 3.28ft)    |    |    |    |     |  |
| Signal Direction |                          |                  |       |                                |   |                  |                     |          | 1m               | 2m | 4m | 8m | 15m |  |
| FS Full Scart    | Full Connected Scart     | Scart (Shielded) | FS    | Separate/Outer                 | Multicore TSC-96, Sn 95.5%, Ag 3.8%, Cu 0.7% Rosin Free | -                | Squeeze Lock        | Ice Blue | x                | x  |    |    |     |  |
| 1 RCA Scart      | Video                    | PPX RCA / Scart  | Trico | Semi-Balanced                  |   | Expansion        | Screw/ Squeeze      |          | x                | x  |    |    |     |  |
| Scart 1 RCA      |                          |                  |       |                                |   | BNC              | Crimp               |          | x                | x  |    |    |     |  |
| Trico-BNC        |                          |                  |       |                                |   | PPX RCA          | Screw               |          | x                | x  | x  | x  | x   |  |
| Trico-RCA        |                          |                  |       |                                |   | SVHS-7           | Crimp               |          | x                | x  | x  | x  | x   |  |
| Svideo-Svideo    | Svideo                   | SVHS-7/Scart     | AV-2  | Separately Screened Conductors |   | -                | Screw/ Squeeze Lock |          | x                | x  |    |    |     |  |
| Scart Svideo     |                          |                  |       |                                |   |                  | x                   | x        |                  |    |    |    |     |  |
| Svideo Scart     |                          |                  |       |                                |   |                  | x                   | x        |                  |    |    |    |     |  |

SUPRA has quite a comprehensive portfolio of audio/video interlinks for home theatre. All are equipped with fully shielded connector housings.

The interlinks are suitable for:

- Component Video (Y/Pb/Pr)
- S-video (Y/C)
- RGB
- Audio/Video
- Composite Video (CVBS)

The table below will guide you to the correct choice of interlink.



Loudspeaker Cables    Interconnect Cables    Connectors    Interconnects ///

### A Choice of the Available Home Theatre Interlinks

*Test and Review*  
Alta Fidelidad Spain, #123 '01

| Item<br>Signal Direction                       | Mechanical Specifications |                    |           |                                |   |   |                    | Standard Lengths<br>(1m = 3.28ft) |                    |    |    |    |     |  |  |
|--|---------------------------|--------------------|-----------|--------------------------------|---|---|--------------------|-----------------------------------|--------------------|----|----|----|-----|--|--|
|  | Standard-Configuration    | Connector          | Cable     | Screen Connection              | Solder Tin  | Connector Fixing                                | Cable Clamping     | Colour                            | 1m                 | 2m | 4m | 8m | 15m |  |  |
| 2 RCA - Scart<br>Scart - 2 RCA                 | Audio                     | RCA-3 / Scart      | AV-2      | Separately Screened Conductors | Multicore TSC-96, Sn 95.5%, Ag 3.8%, Cu 0.7% Rosin Free | Expansion                                       | Crimp/Squeeze Lock | Ice Blue                          | x                  | x  |    |    |     |  |  |
| 3RCA - 3 RCA<br>3 RCA - Scart<br>Scart - 3 RCA | Component or A/V          | RCA-3              | AV-3      |                                |   |   | Crimp              |                                   | x                  | x  | x  | x  | x   |  |  |
| VGA - 3 RCA<br>4 RCA - 4 RCA                   | Component Video           | VGA/ RCA-3         | AV-6      |                                |   | Separately Screened Conductors and Outer Screen | Screw/ Exp.        |                                   | Crimp              | x  | x  |    |     |  |  |
| Scart - 4 RCA<br>VGA - 4 RCA                   | Audio/Video               | RCA-3              |           |                                |   |   | Expansion          |                                   | Crimp/Squeeze Lock | x  | x  |    |     |  |  |
| 5 RCA - 5 RCA<br>VGA - 5 RCA                   | Audio/Video               | RCA-3              |           | Screw/ Exp.                    |   |   | Crimp              |                                   | x                  | x  |    |    |     |  |  |
| 6 RCA - 6 RCA<br>Scart - 6 RCA                 | RGB + Sync                | VGA/ RCA-3         |           | Expansion                      |   |   | Crimp/Squeeze Lock |                                   | x                  | x  |    |    |     |  |  |
| Scart - Scart<br>Scart - Scart RGB             | RGB + V/H Sync            | VGA/ RCA-3         |           | Screw/ Exp.                    |   |   | Crimp              |                                   | x                  | x  |    |    |     |  |  |
| Svideo/ 2 RCA - Scart<br>Scart - Svideo/ 2 RCA | Audio/Video               | RCA-3              |           | Expansion                      |   |   | Crimp/Squeeze Lock |                                   | x                  | x  |    |    |     |  |  |
| Svideo/ 2 RCA - Scart<br>Scart - Svideo/ 2 RCA | A/V In/Out                | Scart/RCA-3        |           | -                              |   |   | Squeeze Lock       |                                   | x                  | x  |    |    |     |  |  |
| Svideo/ 2 RCA - Scart<br>Scart - Svideo/ 2 RCA | Video/Svideo/Audio        | Scart (Shielded)   |           | Expansion                      |   |   | Crimp/Squeeze Lock |                                   | x                  | x  |    |    |     |  |  |
| Svideo/ 2 RCA - Scart<br>Scart - Svideo/ 2 RCA | Video/RGB                 | Scart (Shielded)   | -         | Squeeze Lock                   | x   | x   |                    |                                   |                    |    |    |    |     |  |  |
| Svideo/ 2 RCA - Scart<br>Scart - Svideo/ 2 RCA | Video/RGB                 | Scart (Shielded)   | Expansion | Crimp/Squeeze Lock             | x   | x   |                    |                                   |                    |    |    |    |     |  |  |
| Svideo/ 2 RCA - Scart<br>Scart - Svideo/ 2 RCA | Svideo/Audio              | SVHS-7/RCA-3/Scart | Expansion | Crimp/Squeeze Lock             | x   | x   |                    |                                   |                    |    |    |    |     |  |  |

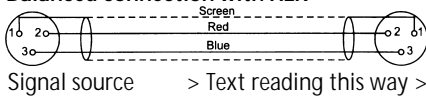
For those who prefer to make their own interlinks and for carrying out servicing, we have gathered the following configuration tables. Please be aware of the importance of the soldering quality. All Supra interlinks are soldered with lead-free silver-tin with copper and non-corrosive flux, available as *Multicore TSC-96*, which we recommend. The galvanic potential of silver is closer to copper than is lead and thus the galvanic voltage will be minimised.

Poor solderings mostly due to either too high or too low a temperature. Flux is needed to get through the oxide and avoid a dry joint, without overheating. A dry joint might work very well for a period of time but as the oxide grows between the tin and the object there will eventually be a poor connection. In the worst case the conductors will get loose and create a short circuit.

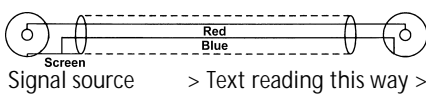
All Supra connectors are insulated with Teflon to withstand the right soldering temperatures (300°-400°).

Therefore, we always recommend leaving the soldering of interlinks with a professional workshop.

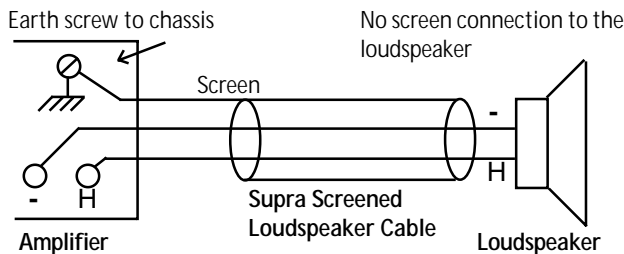
### Balanced connection with XLR



### Semibalanced connection with RCA



### Connection of screened loudspeaker cables:



The screen is to be connected to the amplifier chassis or any other ground point of the amplifier. No connection at the loudspeaker end.

| XLR |               |     |          |
|-----|---------------|-----|----------|
| Pin | Function      | Pin | Function |
| 1   | Ground/Screen | 3   | Cold     |
| 2   | Hot           |     |          |

| DB-25 (D-sub)                   |                  |     |                  |
|---------------------------------|------------------|-----|------------------|
| Pin                             | Function         | Pin | Function         |
| 1                               | Left Front +     | 14  | Left Front -     |
| 2                               | Center +         | 15  | Center -         |
| 3                               | Right Front +    | 16  | Right Front -    |
| 4                               | Sub Woofer +     | 17  | Sub Woofer -     |
| 5                               | Left Surround +  | 18  | Left Surround -  |
| 6                               | Right Surround + | 19  | Right Surround - |
| Ground chassis - Ground chassis |                  |     |                  |

| S-video (Y/C) |                        |     |                 |
|---------------|------------------------|-----|-----------------|
| Pin           | Funktion               | Pin | Funktion        |
| 1             | Luminance (Y) Ground   | 3   | Luminance (Y)   |
| 2             | Chrominance (C) Ground | 4   | Chrominance (C) |

| Scart |                 |     |                            |
|-------|-----------------|-----|----------------------------|
| Pin   | Function        | Pin | Function                   |
| 1     | Audio Out Right | 12  | Data 1                     |
| 2     | Audio In Right  | 13  | Red Ground                 |
| 3     | Audio Out Left  | 14  | Data Ground                |
| 4     | Audio Ground    | 15  | Red RGB, C at Y/C          |
| 5     | Blue Ground     | 16  | RGB Status                 |
| 6     | Audio In Left   | 17  | Video Ground (CVBS)        |
| 7     | Blue RGB        | 18  | RGB Status Ground          |
| 8     | CVBS Status     | 19  | Video (CVBS) Out, Y at Y/C |
| 9     | Green Ground    | 20  | Video (CVBS) In, Y at Y/C  |
| 10    | Data 2          | 21  | Ground (Shield)            |
| 11    | Green RGB       |     |                            |

### Directionality Assurance

All Supra cables are constructed with attention to consistent and equal 'direction' in all the conductors. Simplistic electronics theory says there is no 'directionality' in conductors, but assumes conductors are perfectly isomorphic. It also ignores the inherently directional nature of signal and energy flow. Yet electricity could not be sold without 'energy flow directionality'. [1]

In reality, practical conductors are drawn many times - not cast. This creates highly elongated crystal structures. This in turn creates a physical (mechanical) directional feature or 'axial polarity'. Annealing and also 'burning-in' processes can reduce the 'strength' of the 'drawing imprint', but only to a degree.

All conductors in Supra cables are consistently arranged to point "forwards, in the direction (left to right) implied by the legend (text) printed on the cable jacket. Directional consistency is ensured in two ways. First, direction of the conductors to be used in each cable is known from the spooled direction of the conductors received from the copper wire factory. That is a reliable method because an efficient manufacturing process is consistent and omits random re-spooling steps.

### Forward Thinking Technology

Second, the 'directionality' of conductors is now able to be measured, and Supra cables are the first in the world to benefit from a spectral technique developed by audio consultant Ben Duncan [2] in conjunction with Jenving Technology AB. This employs some special test conditions which better approximate audio equipment's real-world usage than standard, pure signal sources. Test results show typical increases in harmonic (noise) levels 0.5dB when cables are connected so the conductors' drawn direction opposes the signal flow direction. In real use the noise difference, which is some dB below the main signal, could be much greater. From this, a reduction in such noise ('more clarity') is what's expected, and it is also one of the things that is heard in practice - when optimum conductor orientation is discovered.

### Experiences of Directionality

In 'high-end' audio, 'Directionality' means: 'a cable used for audio signal transmission offering better sound quality (in various ways) when connected a particular way round'. To those sensitive to the sonic changes, this is repeatable, over spans of time, or in different systems. In other cases, if the less good direction were chosen, it too may approach the preferred direction after burn-in, i.e. a period of use, simple ageing, or even cryogenic treatment. Such 'burn-in' processes involve annealing of the metal.

Some pundits say that 'directionality' (in cables) can be heard even on the low quality 'curvy plastic' low/mid-fi audio equipment sold in high-street shops. On an higher vector, a US high-end enthusiast/ researcher, Doug Blackburn, suggests it is possible that when audiophiles say they hear sonic changes after changing polarity (by swapping conductors at one point - not by swapping ends as with conventional directionality") that they've actually heard directionality instead. That's because purely digital ('software') polarity reversals mysteriously don't have the sonic attributes associated with analogue signal polarity reversal.

\*Here, directionality effect being heard is in the connected parts (eg. long inductor wires), rather than in the preceding connective conductors.

### Information

[1] For background, refer to extensive insights in 'Black Box' column, by Ben Duncan, originally in Hi-Fi News & Record Review, reprinted 73 part compendium 1994-2000 available from: (<http://www.hifiaccessoriesclub.com> - or [www.proaudioaccessories.com](http://www.proaudioaccessories.com)).

[2] Ben Duncan Research: [www.BDR-UK.dial.pipex.com](http://www.BDR-UK.dial.pipex.com).

**Jack Plug - Jack Plug**  
5m unbalanced  
with MBS, MBC or DAC

Guitar cable: MBS  
Line cable: DAC or MBC

**Jack Plug - XLR**  
5m unbalanced  
with MBS, MBC or DAC

Microphone cable: MBS or MBC  
Line cable: DAC

**XLR-XLR**  
5m balanced  
with MBS, MBC or DAC

Microphone cable: MBS or MBC  
Line cable: DAC  
(DAC is AES/EBU harmonised.)



Loudspeaker Cables

Interconnect Cables

Connectors

Interconnects ///

Supra Pro-Interlinks comprehend the efficient screening and mechanically strong semi-conductive nylon screen of the cables in combination with the entirely shielded and user-friendly Supra connectors. We do not know of any other audio connectors as efficiently shielded as the Supra Swift XLR (patented) and the Supra Jack Plugs.

For more information about the connectors and the cables, see pages 11 and 17.

Standard length: 5m.

| Item          | Mechanical Specifications |                                    |       |                   |  |                  |                     |            | Stand. Length<br>(1m = 3.28ft)<br>5m |
|---------------|---------------------------|------------------------------------|-------|-------------------|--|------------------|---------------------|------------|--------------------------------------|
|               | Application               | Connector                          | Cable | Screen Connection | Solder Tin   | Connector Fixing | Cable Clamping      | Colour     |                                      |
| MBC Jack-Jack | Analogue Audio            | Jack Plug Mono<br>7.35mm           | MBC   | Semi-Balanced     | Multicore TSC-96<br>Sn 95.5%<br>Ag 3.8%<br>Cu 0.7%<br>Rosin Free | -                | Squeeze Lock        | Anthracite | x                                    |
| MBS Jack-Jack |                           |                                    | MBS   |                   |  |                  |                     |            | x                                    |
| DAC Jack-Jack |                           |                                    | DAC   |                   |  |                  |                     |            | x                                    |
| MBC Jack-XLR  |                           | Jack Plug Mono/<br>Swift XLR Light | MBC   | Balanced          |  | - / Quick Lock   | Squeeze Lock/ Screw |            | x                                    |
| MBS Jack-XLR  |                           |                                    | MBS   |                   |  |                  |                     |            | x                                    |
| DAC Jack-XLR  |                           |                                    | DAC   |                   |  |                  |                     |            | x                                    |
| MBC XLR-XLR   |                           | Swift XLR Light                    | MBC   | Balanced          |  | Quick Lock       | Screw               |            | x                                    |
| MBS XLR-XLR   |                           |                                    | MBS   |                   |  |                  |                     |            | x                                    |
| DAC XLR-XLR   |                           |                                    | DAC   |                   |  |                  |                     |            | x                                    |



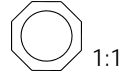
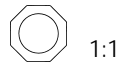
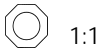
**Octopower 8**  
Tin plated, 8 mm<sup>2</sup>.

**Octopower 16**  
Tin plated, 16 mm<sup>2</sup>.

**Octopower 25**  
Tin plated, 25 mm<sup>2</sup>.

**CarLink Twin Pair Cable**  
Twin pair interconnect cable with remote control conductor. Each pair is screened and jacketed to make a complete cable which can be connected unbalanced, semi-balanced or balanced.

**CarLink-RCA**  
Semi-balanced interconnect with both RCA plugs and remote-on conductor.  
Available in lengths of 1m and 5m.

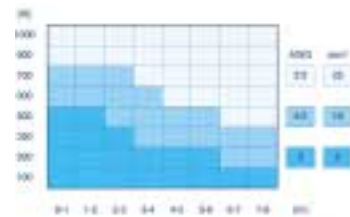


### Octopower

SUPRA's power supply cables for car audio and marine are tin plated to withstand outdoor use in cars and boats and to prevent poor connections and power loss caused by corrosion.

Octopower is immune to a salty coastal or marine climate.

### Cable Choice Chart



| Item         | Mechanical Specifications |  |                   |                  |                         |           |              |                        | El. Spec.         |  |
|--------------|---------------------------|--|-------------------|------------------|-------------------------|-----------|--------------|------------------------|-------------------|--|
|              | Conductor                 | Cross Sec. Area (mm <sup>2</sup> /AWG) | Insulation        | Temp. Range (°C) | External Size dia. (mm) | Colour    | Weight (g/m) | Length/Bobbin (m / ft) | Resistance (Ω/km) |  |
| Octopower 8  | 252x0.19 OFC Sn           | 8mm <sup>2</sup> /8 AWG                | Oil Resistive PVC | -35 till +75     | Ø5.7                    | Red/Black | 92           | 100m / 328ft           | 2.4               |  |
| Octopower 16 | 476x0.19 OFC Sn           | 16mm <sup>2</sup> /5 AWG               |                   |                  | Ø7.5                    |           | 172          | 50m / 164ft            | 1.3               |  |
| Octopower 25 | 735x0.19 OFC Sn           | 25mm <sup>2</sup> /3 AWG               |                   |                  | Ø9.2                    |           | 244          | 50m / 164ft            | 0.8               |  |

| Item          | Mechanical Specifications |              |            |   |                       |                  |                             |                   |                    |            |              | El. Spec.       |          |          |
|---------------|---------------------------|--------------|------------|---|-----------------------|------------------|-----------------------------|-------------------|--------------------|------------|--------------|-----------------|----------|----------|
|               | Connector                 | Conductor    | Insulation | Remote Conductor                          | Rem. Cond. Insulation | Shield           | Jacket                      | Screen Connection | External Size (mm) | Colour     | Weight (g/m) | Length (m / ft) | R (Ω/km) | C (pF/m) |
| CarLink       | -                         |              |            |   |                       |                  |                             |                   |                    |            |              | 50m / 164ft     |          |          |
| CarLink-IR 1m | RCA-6                     | 4x7x0.20 OFC | PE         | 1x28x0.2 OFC Sn, 1mm <sup>2</sup> /17 AWG | PVC                   | Semi-Cond. Nylon | Chloride Ion-Stabilized PVC | -                 | Ø8.0               | Anthracite | 71           | 1m / 3.3ft      | 180      | 90       |
| CarLink-IR 5m |                           |              |            |   |                       |                  |                             | Semi-Balanced     |                    |            |              | 5m / 16.5ft     |          |          |

## Accessories for bi-wiring

Bi-wiring is a separation of the music signal current between power amplifier and loudspeaker drive-units into two cables; one for the higher and one for the lower frequency range, e.g. one for bass and one for the midrange/tweeter.

Bi-wiring makes an audible enhancement. The best combination is a pair of Ply 3.4 or 3.4/S.

In order to make it work, the loudspeakers should preferably be equipped with separate inputs to the crossover networks. If not, then you could move out the crossover network from the loudspeaker boxes and put it close to the amplifier. It should then be easy to make a bi-wired connection from the crossover to the loudspeaker components.

Nylon braid 'hose' is available for sleeving over the cables to gather them into a more convenient single bi-wire cable pair.

## You do it like this:

The braid sleeve widens when it is pushed together longitudinally, which makes it very easy to push the cable pair into it. The Nylon Braid sleeve is supposed to be somewhat shorter than the cable pair, to leave a margin to be stretched afterwards in order to tighten against the cable pair.

A Heat Shrink sleeve at each end fixes the stretched braid sleeve, and completes the work.

Please be aware: A very tense stretching creates a neat result, but also a less flexible cable.



## Nylon Braid Kits

The Nylon Braids are available in Kits with suitable Heat Shrink sleeving.

See the table below.

| Item                 | Mechanical Specifications |                |   |        |               |                 |                    |                  |
|----------------------|---------------------------|----------------|---|--------|---------------|-----------------|--------------------|------------------|
|                      | Pict. Ref.                | Quantity/ Pack | Application                                     | Colour | Fit Dim. (mm) | Inner Size (mm) | External Size (mm) | Temp. Range (°C) |
| Bending Protection 7 | K                         | 100 pcs        | Bend. Protec. AV-2/Scart                        | Black  | Ø5-Ø7         | Ø7.2            | Ø8.5               | -30 to +130      |
| Heat Shrink Hose 10  | F                         | 100 m          | Fixing of Nylon Braid                           | White  | Ø5-Ø10        | Ø10(Ø5)         | Ø13.5              | -55 to +135      |
| Heat Shrink Hose 12  | E                         |                |   | Black  | Ø6.4-Ø12.5    | Ø12.7(Ø6.4)     | Ø14                |                  |
| Heat Shrink Hose 19  | D                         |                |   | Black  | Ø9.5-Ø19.0    | Ø19.1(Ø9.5)     | Ø20.5              |                  |
| Nylon Braid 8        | C                         | 50 m           | Fits Interconnect Cables                        | White  | Ø5-Ø8         | Ø8              | Ø9                 | -70 to +125      |
| Nylon Braid 10       | B                         |                | Bunching of Bi-Wired Loudspeaker Cable          | Black  | Ø7-Ø15        | Ø10             | Ø11                |                  |
| Nylon Braid 15       | A                         |                | Bunching of Bi-Wired Loudspeaker Cable          | Black  | Ø10-Ø21       | Ø15             | Ø16                |                  |
| Nylon Braid 8 Kit    | C+F                       | 5 m            | Fits Interconnect Cables                        | White  | Ø5-Ø8         | Ø8              | Ø9                 |                  |
| Nylon Braid 10 Kit   | B+E                       | 10 m           | Bunching of Bi-Wired Loudspeaker Cable          | Black  | Ø7-Ø15        | Ø10             | Ø11                |                  |
| Nylon Braid 15 Kit   | A+D                       |                |   |        | Ø10-Ø21       | Ø15             | Ø16                |                  |
| Rubber Sleeve 5      | J                         | 100 pcs        | Bending Protection for AV-Series Multiple Joint | Black  | Ø5.0-Ø8.0     | Ø5.0            | Ø6.8               | -30 to +130      |
| Rubber Sleeve 7.5    | I                         |                |   |        | Ø7.5-Ø13      | Ø7.5            | Ø9.2x30            |                  |
| Rubber Sleeve 10     | H                         |                |   |        | Ø10-Ø16       | Ø10             | Ø12x35             |                  |
| Termination Trousers | G                         | 100 pcs        | Bending Protection for Line Cable Y-Joint       | Black  | Ø7.5-Ø9.0     | Ø8.5            | Ø9.5               | -30 to +70       |
| Term. Trousers Set   | G                         | 2 pcs          |   |        |               |                 |                    |                  |



## Useful to know about...

### Tin plating

A SUPRA concept for cleaner sound.

The tin is of higher resistance than copper and also protects copper from bad sounding corrosion. It also minimises the current jumps from wire to wire over corroded copper surfaces while more of the signal passes through the pure copper *inside* the wires. The tin layer also minimises the skin-effect, by acting as a semi-Litz.

### Silver plating

Only when the frequencies are very high, as in digital signals, does it seem wise to go the opposite way, i.e. to silver plate for a lower surface resistance. At such high frequencies it is hard to keep the signal inside the wire, so instead we design for an easier surface current flow.

### Digital interlinks

Important properties of digital cables are a high propagation velocity factor and a correct and stable characteristic impedance (Z).

### Analogue interconnects

Low capacitance (C) is important.

### Microphone and line cables

Low microphonic effect and low capacitance assist quality.

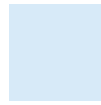
### Loudspeaker cables

Loudspeaker cables generally need to be of low inductance (L) and preferably also of low resistance (R). Impedance is of greater importance than simplistic theory suggests because music comprises continuous transients.

### Directionality Assurance

All Supra Cables are constructed with attention to directionality in the conductors. Supra is the first in the world to prove directionality in conductors by measurements. These measurements are carried out by Ben Duncan Research on behalf of Jenving Technology. Explanation on page 23.

### Supra Colours



Ice Blue



Anthracite Grey

### Conductor dimensions in AWG to Metric

| AWG (No.) | Dia. (mm) | Area (mm <sup>2</sup> ) | AWG (No.) | Dia. (mm) | Area (mm <sup>2</sup> ) | AWG (No.) | Dia. (mm) | Area (mm <sup>2</sup> ) |
|-----------|-----------|-------------------------|-----------|-----------|-------------------------|-----------|-----------|-------------------------|
| 6/0       | 14,73     | 170,3                   | 10        | 2,59      | 5,27                    | 25        | 0,455     | 0,163                   |
| 5/0       | 13,12     | 135,1                   | 11        | 2,3       | 4,15                    | 26        | 0,405     | 0,128                   |
| 4/0       | 11,68     | 107,2                   | 12        | 2,05      | 3,31                    | 27        | 0,361     | 0,102                   |
| 3/0       | 10,4      | 85                      | 13        | 1,83      | 2,63                    | 28        | 0,321     | 0,0804                  |
| 2/0       | 9,27      | 67,5                    | 14        | 1,63      | 2,08                    | 29        | 0,286     | 0,0646                  |
| 0         | 8,25      | 53,4                    | 15        | 1,45      | 1,65                    | 30        | 0,255     | 0,0503                  |
| 1         | 7,35      | 42,4                    | 16        | 1,29      | 1,31                    | 31        | 0,227     | 0,04                    |
| 2         | 6,54      | 33,6                    | 17        | 1,15      | 1,04                    | 32        | 0,202     | 0,032                   |
| 3         | 5,83      | 26,7                    | 18        | 1,024     | 0,823                   | 33        | 0,18      | 0,252                   |
| 4         | 5,19      | 21,2                    | 19        | 0,912     | 0,653                   | 34        | 0,16      | 0,02                    |
| 5         | 4,62      | 16,8                    | 20        | 0,812     | 0,519                   | 35        | 0,143     | 0,0161                  |
| 6         | 4,11      | 13,3                    | 21        | 0,723     | 0,412                   | 36        | 0,127     | 0,0123                  |
| 7         | 3,67      | 10,6                    | 22        | 0,644     | 0,325                   | 37        | 0,113     | 0,01                    |
| 8         | 3,26      | 8,35                    | 23        | 0,573     | 0,259                   | 38        | 0,101     | 0,00795                 |
| 9         | 2,91      | 6,62                    | 24        | 0,511     | 0,205                   | 39        | 0,0897    | 0,00632                 |

### Anglo/American vs. Metric

1 foot = 0.3048 m                      1m = 3.281 feet  
 1 yard = 0.9144 m                    1m = 1.094 yards  
 1 pound = 0.4536 kg                1kg = 2.205 pounds  
 $F^{\circ} = (C^{\circ} \times 9/5) + 32$              $C^{\circ} = (F^{\circ} - 32) \times 5/9$

### Formulas

#### Characteristic Impedance (Simplified formula)

$$Z = \sqrt{L/C} \quad \text{where } L = \text{inductance and } C = \text{capacitance}$$

#### Velocity Factor (Simplified formula)

$$v = \frac{1}{\sqrt{K}} \quad \text{where } K = \text{dielectricity of the insulation}$$

#### Effective Skin Depth

$$\delta = 1 / \sqrt{\pi \mu_r \mu_0 \sigma f} \quad \text{where } \sigma = \text{conductivity} = 1/\text{resistivity}$$

f = frequency  
 $\mu_r$  = permeability of the conductor  
 $\mu_0$  = permeability of air

#### Conductor Resistance

$$R = L \times \rho / A \quad \text{where } L = \text{length in m}$$

$\rho$  = resistivity  
 A = cross section area in mm<sup>2</sup>

### Material Constants

| Material      | Dielectricity (K) | Permeability ( $\mu_r$ )           | Resistivity ( $\Omega \times \text{mm}^2/\text{m}$ ) |
|---------------|-------------------|------------------------------------|--|
| PVC           | 4-5               | -                                  | -  |
| PE Flame Ret. | 2.3               | -                                  | -  |
| PE            | 2.3               | -                                  | -  |
| PTFE/Teflon   | 2.0               | -                                  | -  |
| PE Foam       | 1.64              | -                                  | -  |
| Tin (Sn)      | -                 | $\mu_r > 1$ but approx. equal to 1 | 0.115  |
| Gold (Au)     | -                 |                                    | 0.022  |
| Copper (Cu)   | -                 |                                    | 0.017  |
| Silver (Ag)   | -                 |                                    | 0.016  |
| Air/Vacuum    | -                 | $1.26 \times 10^{-6} (\mu_0)$      | -  |



# SUPRA<sup>®</sup> Cables

MADE IN SWEDEN



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