

Precision Interface Technology®
Interconnect Cables



Precision Interface Technology
OF
SWITZERLAND

You've never heard it so real

High accuracy interconnect cables designed by FM ACOUSTICS in collaboration with leading signal transmission experts

CONCEPT

Interconnect Cables by **Precision Interface Technology®** are unique in several aspects. Their accuracy is the result of the most comprehensive research and an in-depth understanding of signal transmission and shielding.

A detailed analysis of the **entire** signal transfer chain must take into account **all** possible variations in grounding, shielding as well as **all** aspects of interference rejection. Final system performance depends not just on the characteristics of the cable but as much on the proper match with the input and output circuits to which the cable is connected. It is in this area where **detailed** knowledge of circuit design allows bypassing the usual limitations of interconnect cables.

Because of the great variety of audio system configurations, there is no single interconnect cable that can satisfy each and every requirement. Each audio system requires a finely tailored interface solution.

Precision Interface Technology® offers a variety of specifically optimized interconnects. With a multitude of different cables to choose from, the correct solution for any system interfacing can be guaranteed, be this true-balanced, pseudo-balanced, earth-free unbalanced or any combination thereof.

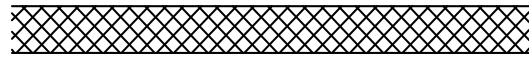
Technical Bulletin No. 31 provides more detailed information on how to choose the correct cable for different interconnect requirements.

FEATURES

Precision Interface Technology®, or short: "P.I.T." cables, make exclusive use of FORCE-SHIELD; a proprietary new triple shielding technology that:

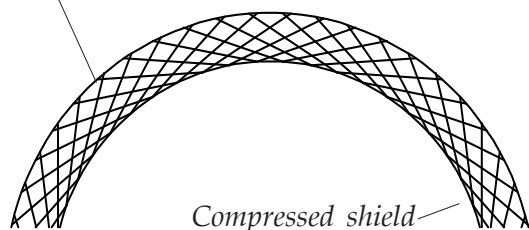
- achieves a signal-to-noise ratio and interference rejection of up to 132dB (which is 30 to 50 dB better (!) than the other "high quality" interconnect cables)
- guarantees optimal shielding up to 100 MHz

*Typical cable with braided shield, straight
(equal shielding on both sides)
Usual cables provide about 90% shielding*



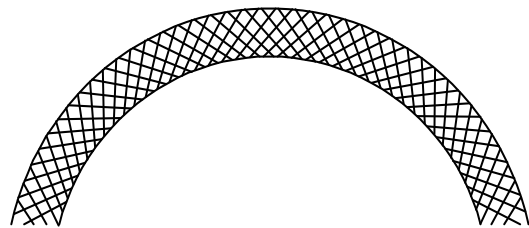
*Precision Interface Technology® provide
99.9% shielding (see below).*

Curved shield results in lower outside shielding



*Compressed shield
= higher inside shielding*

*Typical cable with braided shield, curved
Result: lower shielding when the cable is bent*



*Precision Interface Technology®:
even when bent, P.I.T. cables guarantee optimal
shielding efficiency on inside and outside due to
proprietary triple-bifilar shielding.*

Furthermore *Precision Interface Technology*[®] interconnects:

- eliminate interference signals by 100% proper conduction to ground
- guarantee true balanced interconnection, magnitudes better than other so-called "balanced" cables.
- provide highest rejection of magnetically and electrically induced interferences
- lowest crosstalk
- achieve extremely low residual noise floor of audio system. Result: better dynamic contrast and signal to noise ratio
- provide optimized intercable and shield-signal capacitance and inductance
- guarantee absolutely phase accurate signal transfer
- eliminate time smear
- eliminate skin effects throughout the entire audio bandwidth
- guarantee signal-transfer speed 1000 times faster than required for transfer of audio signals
- preserve time coherence even over long cable lengths
- have carefully optimized cable parameters that take into consideration **all** variables, including a wide variety of output and input stages of audio and AV equipment.
- are extremely flexible and avoid strain on chassis receptables. No more connection or contact problems due to mechanical stress
- carry a lifetime warranty

STAR GROUNDING CAPABILITY

CONNECTORS

Precision Interface Technology[®] interconnects use high quality connectors that incorporate a unique exponentially enhanced contact area, which takes into account the tolerances between the various RCA/Phono receptables, XLR - and DIN connectors.



Secure and lasting contact is obtained through spring loading. Connecting noises, thumps or impulses that could cause harm to equipment are avoided by using precision machined, self cleaning contacts. Ground is secured **before** the signal pins make contact.

Low tolerance XLR connectors are employed. *P.I.T.*[®] connectors use patented strain relief technology. Manufacturing and soldering techniques of the highest standard are employed.

Precision Interface Technology[®] interconnects are painstakingly hand-crafted in Switzerland and come with a lifetime warranty.

Spring loaded contacts assure optimal connection to all RCA/Phono connectors whatever make. Ground is secured before the signal Pins make contact.

Precision Interface Technology[®] interconnect cables bypass limitations common in other cables:

- a) P.I.T. interconnect cables allow proper star grounding of an entire audio system (provided that the system is entirely wired with P.I.T. interconnects and grounding rules are adhered to). Ground loops are avoided, resulting in greatly improved system stability, remarkably lower hum and noise as well as proper shielding from interferences.

Systems employing balanced electronics gain astonishingly in performance, when true balanced P.I.T. cables are installed.

- b) Contrary to the claims of other cable manufacturers audio signals are **not** directional (AC = Alternating Current!) and therefore do **not** travel in one direction only, as some "designers" claim. However, it is important which side of the cable is connected to the source. To guarantee 100% optimal results in any system, the "Source" side of P.I.T. interconnects (the cable side that is to be connected to the Source of the signal = the preceding unit) is coded.

- c) P.I.T. interconnects features a unique floating shield, that rejects unwanted signal components such as hum, noise, and interferences of any kind. By simply replacing existing cables with P.I.T. interconnects, quite often an amazing reduction of a system's hum and noise is possible.

Precision Interface Technology[®] interconnects are designed to guarantee optimal interface in

a large variety of systems. Unlike the usual optimization of just the cables's characteristics, P.I.T. interconnects are optimized in *all* parameters that influence signal transmission. Such optimization must include the output and input stages of the audio electronics, a fact that is not taken into proper consideration by other cable manufacturers. It is this *complete* design approach that results in the unique performance of P.I.T. interconnects.

The perfect symmetry of these cables allow a quality of interconnection standard that up until now has been impossible to attain.

Contact your distributors or FM ACOUSTICS directly with detailed information on your system components. Our application engineers will assist you in selecting the optimal cables for system interfacing of your electronics.

7 Days Home Trial

Try a pair of **Precision Interface Technology**[®] cables on your system for 7 days without obligation.

Precision Interface Technology[®] cables offers specifically optimized interconnects for any audio system. The capability of improving the performance of entire audio installation by simply exchanging the interconnect cables is enticing.

Massive improvements: are possible: more transparency, delineation of fine details, much more precise stereo imaging, increased dynamics contrasts *all in all* a more realistic reproduction..

Contact FM ACOUSTICS for details on this trial offer.

Precision Interface Technology[®]
"You've never heard it so real"



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Interconnect Cables



The leading experts in precision interfacing have combined their skills with FM ACOUSTICS engineers to create interconnect cables for ultimate signal transfer.

Precision Interface Technology® cables allow an accuracy of system interfacing that has never before been possible.

Using Precision interface Technology cables correct system interfacing is guaranteed. Dozens of different versions optimize performance in any system.

By simply replacing existing cables with P.I.T. interconnects, an often amazing reduction of a system's hum and noise is possible with a consequentially improved performance.

Precision Interface Technology® interconnects are designed to guarantee optimal interface in a large variety of systems. Unlike the usual optimization of just the cables's characteristics, P.I.T. interconnects are optimized in all parameters that influence signal transmission. Such optimization must include the output and input stages of the audio electronics, a fact that is not taken into proper consideration by other cable manufacturers. It is this complete design approach that results in the unique performance of Precision Interface Technology® interconnects.

The perfect symmetry of these cables allow a quality of balanced and unbalanced interconnection standard that up until now has been impossible.

Contact FM ACOUSTICS directly with detailed information on your system components. Our application engineers will assist you in selecting the cables that will provide optimal system interfacing in your specific application.

Concept

Interconnect Cables by Precision Interface Technology® are different from other cables. Their unmatched neutrality is not simply due to the optimization of individual cable parameters. It is the result of the most comprehensive research and an in-depth understanding of every aspect of precision signal transmission.

A detailed analysis of the entire signal transfer chain must take into account all possible

variations in grounding, shielding as well as all aspects of interference rejection. Final system performance depends not just on the characteristics of the cable but also on the proper match with the input and output circuits to which the cable is connected. It is in this area that existing interconnect designs show the most obvious limitations.

The large number of possible component combinations require different interface solutions for each system. There is no single cable that can satisfy such multiple requirements. Precision Interface Technology® offers specifically optimized interconnects for any application. With dozens of different cables to choose from, the correct solution for any system interface can be guaranteed, whether it is true-balanced, earth-free, pseudo-balanced, unbalanced or any combination thereof.

Technical Bulletin No. 31 provides more detailed information on how to choose the correct cable for the various interconnect requirements.

Features

Precision Interface Technology® cables make exclusive use of FORCESHIELD; a proprietary dual shielding technology that:

- allows a signal-to-noise ratio and interference rejection of 130dB (which is 20 to 50 dB higher(!) than the other high quality interconnect cables)
- guarantees optimal shielding to frequencies above 100 MHz
- eliminates interference signals by 100% proper conduction to ground
- provides unparalleled shield coverage of 99.9% even when cables are bent (a situation where most existing cable shielding loses efficiency).
- Furthermore Precision Interface Technology® interconnects guarantee:
- ultra accurate balancing (magnitudes better than other so-called "balanced" cables).
- extremely high rejection of magnetically and electrically induced coupling
- lowest crosstalk
- extremely low residual system noise floor resulting in better dynamic contrast and signal to noise ratio
- optimized intercable and shield/signal wire capacitance/inductance
- absolutely phase accurate signal transfer
- elimination of time smear
- perfect linearity with both static and dynamic signals
- elimination of skin effect throughout entire audio bandwidth
- signal-transfer speed 1000 times faster than what is required for perfect audio reproduction
- preservation of time coherence even over long distances
- all cable parameters are carefully optimized with consideration for all variables, including a wide variety of output and input stages
- extreme flexibility avoids strain on chassis receptacles. No non-optimal connection due to mechanical stress
- lifetime warranty

Connectors

In Precision Interface Technology® cables precision connectors are used. These connectors incorporate a unique exponentially enhanced contact area that takes into account the tolerances of RCA/Phono receptables. Self cleaning contacts assure 100% proper connection to any RCA-Phono receptable.

Connecting noises, thumps or impulses that could cause harm to equipment are avoided by using precision machined spring-loaded contacts which assure that the ground is secured before the signal pin makes contact.

Low tolerance XLR connectors are used. All Precision Interface Technology® connectors feature patented strain relief techniques. Manufacturing and soldering techniques of the highest integrity are employed.

Precision Interface Technology® interconnects are painstakingly handcrafted in Switzerland and come with a lifetime warranty.

Star Grounding Capability

Precision Interface Technology® interconnect cables are also unique in aspects not normally addressed in other cable designs:

- Precision Interface Technology® interconnect cables can guarantee proper star grounding of an entire audio system (provided that the system is entirely wired with P. I. T. interconnects and grounding rules are adhered to). Intercable ground loops are avoided, resulting in greatly improved system stability, remarkably lower hum and noise and proper shielding from interference and RF sources.
Balanced systems gain astonishingly when true balanced Precision Interface Technology® cables are installed.
- While audio signals are not directional (AC = alternating current) and therefore do not travel in one direction as some contend, it is important which side of the cable is connected to the source. To guarantee 100% optimal results in any system, the 'source' side of Precision Interface Technology® interconnects is coded (the cable side that must be connected to the source of the signal = the preceding unit).
- Precision Interface Technology® interconnects features a unique floating shield that rejects unwanted signal components such as hum, noise, interference of any kind.

Attention:

NEVER use a line level cable to connect an MC or MM cartridge to a phono preamp. For this purpose use the special [PHONO CABLES](#)

Non-optimal system installations have been reported due to a simple fact: as P.I.T. line level cables and P.I.T. phono cables look similar (some versions use identical connectors) it may appear they are the same and interchangeable.

This is NOT so !

A phono cable has different requirements than a line level cable and for optimal performance must NOT be used as such (and vice versa). Actually, it is quite easy to differentiate: the P.I.T. phono cables always have an earthing wire between the two cables, the P.I.T. line level cables do not need this earth wire.

The fake copies of P.I.T. cables that are being offered in certain countries do - who would have thought ? - not make the abovementioned differentiation. One can often spot a fake P.I.T. cable when they lack the identification number, a tag around the cable near one of the connectors.

Do not accept the cable if it does not come in the blue velvet pouch embossed/printed "Precision Interface Technology".

The copyists (and even several other cable manufactures...) fail to understand why 3 different "balanced" line level cables are required (because of the different types of balancing employed in electronics components). Only by correctly understanding the circuit's requirements is optimal system performance guaranteed.

Buying similar looking cheaper cables (the connectors we use are generally available; there still is a difference to ours but this is not obvious visually) one may well end up with non-optimal system interfacing.

Fake P.I.T.'s are not worth the initial "savings". You get what you pay for.

Selecting the correct interconnect cables

The Swiss-made *Precision Interface Technology*® (P.I.T. for short) interconnect cables provides singular performance.

As the various versions use identical connectors, different P.I.T. cables look identical from the outside. However, the interior connection and construction between the various types differs.

A multitude of cable versions are necessary to guarantee optimal interconnection of the various types of input and output circuits of audio electronics. To guarantee ultimate system performance it is of utmost importance that the **correct** interconnect cables are selected.

FM ACOUSTICS supplies optimized cables for any combination of audio components. P.I.T. cables guarantee ultimate performance and bring clearly noticeable improvements.

Only through careful analyzes of system characteristics and interfacing requirements can an audio system achieve ultimate performance. This fact is frequently neglected. Input and output circuits of electronics react differently, depending not only on the characteristics of the cable, but also on the type of shielding method used, how the cable is terminated, how the individual wires are connected internally, how the various conductors are connected to the various parts of the electronics, etc.

In a given system one connection will give optimal results - but this connection may not give optimal results in other systems. Therefore, different versions of P.I.T. cables for various applications are available. They provide ultimate performance in any system.

Precision Interface Technology® interconnect cables have been specifically designed for precision transmission of audio, certain digital and ultrasonic signals.

The following information is supplied as a guideline as not all manufacturers of electronics and producers of cables adhere to connection and earthing standards. While the following interconnect versions should cover most applications, other versions may be required in certain special situations. FM ACOUSTICS has a special cable applications laboratory. If you have a specific requirement or question, please ask your local agent who will in turn discuss the possibilities with FM ACOUSTICS.

Beside a few exceptions, each cable version is available in the standard lengths as indicated on page 2. Any other length is made on a special order basis.

FEATURES

P.I.T. cables make exclusive use of FORCESHIELD; a proprietary dual shielding technology that:

- achieves a signal-to-noise ratio and interference rejection of **132 dB** (which is 30 to 50 dB higher than the other "quality" interconnects)
- thanks to the dual bifilar shield guarantees zero inductance
- eliminates interference by **100%** proper conduction to ground
- provides unparalleled shield coverage of **99.9%** and this even when the cable is bent, (where other cables loose shielding efficiency)
- uses FM ACOUSTICS "floating shield" technology

One of the truly unique features of P.I.T. interconnect cables is that they can guarantee star grounding - provided that the equipment is connected to star grounding standards and all connections are made with *Precision Interface Technology*® interconnects.

All P.I.T. cables are coded with a "S" clip on one end. This "S" indicates the "**S**ource", the component from where the signal is sent (often this is the side of the equipment working at lower audio voltage, e.g., the preamplifier in a preamplifier-power amplifier connection). Make sure that the cable is installed with the "S" at the correct side (the **S**ource side)! There can be a noticeable performance difference.

This is **not** - as often claimed - due to any directionality of the cables. (Audio frequencies are obviously non-directional: AC = alternating current) but it is due to grounding arrangements and requirements.

Attention:

Fake copies of P.I.T. cables have been offered in certain countries. Hints: they often lack the identification number, a number tag around the cable near one of the connectors starting with "CA". Do not accept the cable if it does not come in the blue velvet pouch printed „Precision Interface Technology“ in dark gold lettering. Other details can only be analyzed by official agents. Since 2007 all cables have been specially coded - to help distinguish the originals from fakes. Contact the official representative who will assist you in verification.

The performance difference is large; for instance the copyists fail to understand why 3 different „balanced“ line level cables are required (and that only one type can be correct for a given interface - all three versions look the same from the outside).

Installing fake cables one may likely end up with non-optimal system interfacing and - at worst - even damaged components.

Fakes are not worth the initial „savings“.

CONNECTORS

The connectors used in P.I.T. cables have been optimized in several important respects. Professional "XLR" 3-pin connectors are used with true balanced and pseudo-balanced equipment. "Phono" connectors (also called "RCA" or "Cinch" connectors) are used in single-ended domestic equipment.

Considerable quality differences between the various makes of XLR and RCA/Phono connectors exist. P.I.T. precision connectors accommodate the tolerances of the various receptacles and avoid the pitfalls common to other Phono connectors. They guarantee optimal connection with all types of phono receptacles.

Precision Interface Technology® interconnect cables

Below a list of the standard cables in the *Precision Interface Technology*® range. Should you have difficulty finding the correct cable in the following list, contact your distributor or FM ACOUSTICS for assistance. Please describe in detail all of the components in your system and also explain which units are connected to mains earth as well as which have a connection between electrical ground and chassis. If schematics or other information describing the connection of the equipment used is available, please include this information. This often helps to determine the correct type of cable.

Note: The last digit in the cable No. of P.I.T. indicates the **length** of the cable as follows:

Cable Code	Meter	feet
CA-25..1	= 0.6 ~	2
CA-25..2	= 1.2 ~	4
CA-25..3	= 3 ~	10
CA-25..4	= 5 ~	16

Any other length is available on special order. These cables are made in matched pairs.

Code: "F" = Female connector
"M" = Male connector

CA 25011 - CA 25014



Phono M - Phono M

Phono - Phono cable for low and line levels. The P.I.T. Phono connectors will work perfectly with all Phono receptacles of decent quality. They automatically compensate for tolerances found in Phono/RCA receptacles.

CA 25021 - CA 25024



Phono M - XLR M

Phono - XLR cable for connection of unbalanced electronics using Phono connectors (such as e.g. preamplifiers) with equipment having balanced XLR inputs (e.g. electronic crossovers & power amplifiers). This cable type can also be used with units that have XLR inputs that are pseudo-balanced or unbalanced.

CA 25031 - CA 25034



XLR F - Phono M

Special interconnect cable for pseudo-balanced XLR outputs to unbalanced inputs using Phono connectors (e.g., from a pseudo-balanced line stage to a power amplifier having RCA/Phono input connectors).

Note: For equipment that has truly balanced outputs and can handle the "pro float test", type CA 2504X is recommended (see below).

CA 25041 - CA 25044



XLR F - Phono M

XLR F - Phono M cable for interconnecting equipment having true balanced outputs with unbalanced inputs. The equipment connected to the XLR F side must be able to withstand a

continuous short circuit (when Pin 2 is shorted to Pin 1 (=Ground) there must be absolutely no change in level, distortion or any other change of the signal on Pin 3).

The CA -2504X cable is the one to be used between e.g. an FM 222 Balanced Phono Linearizer/Preamplifier and an unbalanced preamplifier having Phono/RCA receptables.

Attention: with certain equipment short-circuiting either Pin 2 or Pin 3 to Pin 1(ground) can result in damage! Before connecting this cable verify that your balanced unit can indeed handle such a connection without being damaged and make sure that it will remain absolutely stable! Damages due to connecting the wrong cable type are not covered by any warranty.

CA 25071 - CA 25072



Phono M - Stereo Jack

These cables are to connect high quality headphones and preamplifiers.

CA 25081 - CA 25084



XLR F - XLR M

XLR F - XLR M **unbalanced** line level cable. For **unbalanced** connection of equipment having XLR connectors. Pin 2 is open on the female XLR.

This cable is also used for units with balanced output that cannot handle a short circuit.

CA 25091 - CA 25094



XLR F - XLR M

XLR F - XLR M balanced cable. This cable is for interconnection of all equipment with balanced inputs and outputs, provided that Pin 1 of the unit on the source side (S) is connected to mains earth (the 3rd Pin on the mains connector) either directly or through the unit's chassis.

Not for use with microphones, as the microphone would not be shielded.

CA 25101 - CA 25104



XLR F - XLR M

XLR F - XLR M balanced cable for use with microphones and in balanced systems and equipment where only one of the units has connection between earth and ground. These cables are e.g. for use when connecting e.g. an FM 266 to an FM ACOUSTICS power amplifier.

It is also for applications in which the balanced preamplifier and the balanced amplifier are not connected to mains earth (when both are groundlifted).

CA 25111 - CA 25114



XLR F - XLR M

XLR F- XLR M cable for interconnecting balanced outputs to equipment having **unbalanced** XLR type inputs, a relatively rare situation.

Other types of cables and connectors are available on special order. Contact the cable engineering department with your requirement.

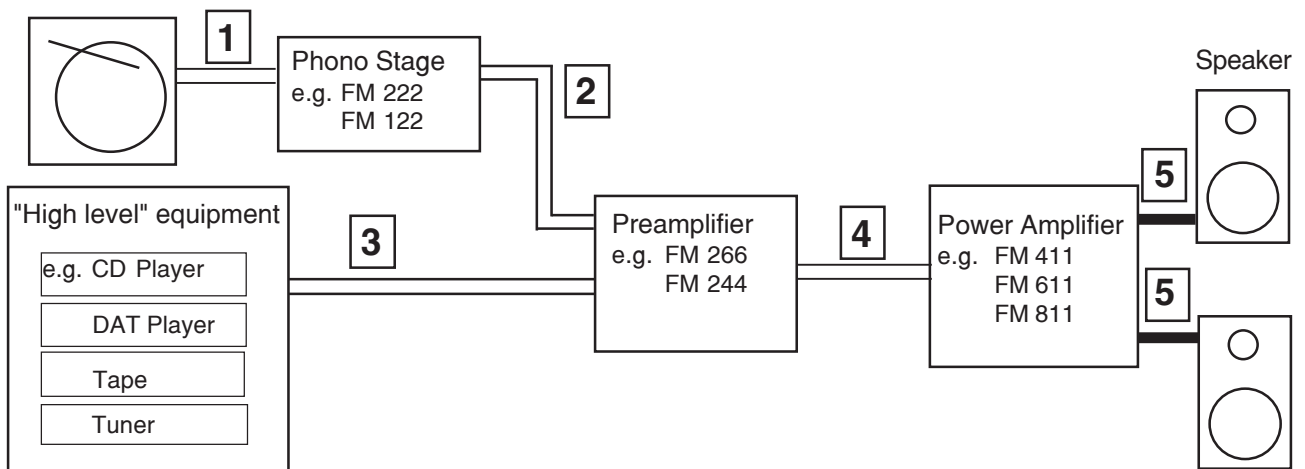


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Precision Interface Technology

Selecting the correct interconnect in your Audio System



The description of the selection of the interconnect cables has to be read from left to right (from: equipment on the left; to: equipment on the right)

Precision Interface Technology interconnect cables are specified here by "cables series" (example: CA-25210 Series). To specify the length of the cable, the following last digit should be changed accordingly (example: CA-25212 cable = Phono cable: Phono/RCA - Phono/RCA, length 1,2m):

Last Digit Code		Cable length
1	=	0.6 m
2	=	1.2 m
3	=	3.0 m
4	=	5.0 m

See Technical Bulletin No. 31 for detailed description of cables.

1		
From:	Cable Series	To:
5 Pin DIN	CA-25150 & CA-25160	XLR
5 Pin DIN	CA-25170 & CA-25180 & CA-25190 & CA-25200	Phono/RCA
Phono/RCA	CA-25140	XLR
Phono/RCA	CA-25210 & CA-25220	Phono/RCA

3		
From:	Cable Series	To:
XLR	CA-25100	XLR
XLR	CA-25040	Phono/RCA
XLR pseudo bal.	CA-25030	Phono/RCA
Phono/RCA	CA-25020	XLR
Phono/RCA	CA-25010	Phono/RCA

2		
From:	Cable Series	To:
XLR	CA-25100	XLR
XLR	CA-25040	Phono/RCA
Phono/RCA	CA-25020	XLR
Phono/RCA	CA-25010	Phono/RCA

4		
From:	Cable Series	To:
XLR	CA-25100	XLR
Phono/RCA	CA-25020	XLR
XLR	CA-25040	Phono
XLR	CA-25030	Phono

5		
Speaker Cables		