Termination for 568A and 568B pin configurations.

Pair 1
Pair 2
Pair 3
Pair 4

The four twisted pairs in Unshielded Twisted Pair (UTP) cabling terminate in eight-pin modular jacks. There are two different pin configurations permitted under TIA-568A. They are called 568A and 568B. Pairs one and four are the same in both configurations; pairs two and three differ. To reduce the number of parts required and simplify installation, P&S jack modules support both configurations and are clearly labeled to make correct termination easy.

Pair 3
Pair 2 Pair 1 Pair 4
1 2 3 4 5 6 7 8
T568B (AT&T)

Pair 2
Pair 3 Pair 1 Pair 4
1 2 3 4 5 6 7 8
T568A
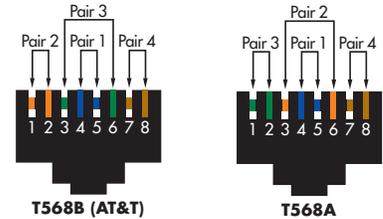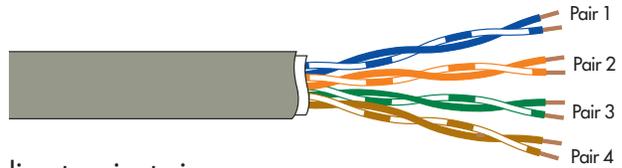
How to ensure high-performance connections.

Call it termination, punchdown, or just plain making connections… By any name, it's essential to do it right to ensure optimum network performance. That's why P&S jack modules are expressly designed for easiest, fastest, most-error-free punchdown. All it takes is three simple steps:

1. Strip two inches of cable jacket. The P&S cable stripper makes it easy.

2. Push color-coded conductor pairs into the 110 termination until they stop, leaving a maximum .5" of cable unjacketed. The correct wiring configuration for both 568A and 568B is clearly indicated on the jack module.

3. Place the P&S punchdown tool against a pair and press. The tool automatically seats and trims each conductor – while creating reliable, high-performance connections. Repeat for each pair, then place the included gray stuffer caps onto the 110 terminations.

Correct   Incorrect
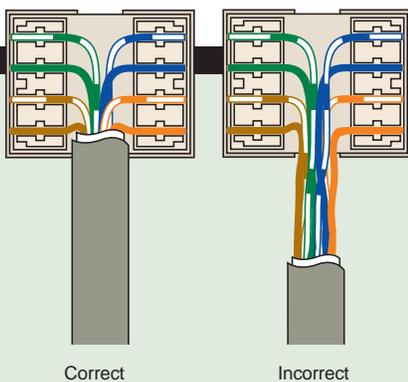
It's important when terminating not to strip the outer cable jacket more than necessary — and to minimize the untwisted length of paired conductors.

CABLING TIP

Why conductor pairs are twisted.

It's essential that data be transmitted with minimum interference. When copper conductors are in close proximity, it's easy for a signal in one conductor to interfere with a signal in another. This interference is called near-end crosstalk, or NEXT. The less of it in a network, the better.

Twisting fights interference. The exact twisting configuration in twisted pair cable has been determined scientifically for best results. In addition, when multiple twisted pairs run through a single cable, the relationship of the twisting in one pair to the twisting in other pairs is also important.

To ensure successful Category 5 or 5e compliance testing of installed cable, cable must be handled and installed carefully to avoid any distortion or separation of twisted pairs.

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CABLING TIP

### How to wire Cat 5 cable to an RJ-45 plug.

Step 1.
➢ Strip back 1-2" of jacket from the cable.
➢ Untwist pairs and lay flat between your thumb and forefinger.
➢ Rearrange cable pairs to correct color sequence.

Step 2.
➢ Trim conductors evenly to 1/2".

Step 3.
➢ With exposed plug contacts facing you, carefully push wires into the grooves in the plug until cable jacket is under the crimp tab.
➢ Make sure each conductor is under a contact (IDC).
➢ Crimp with an RJ-45 crimp tool.

1/2"

Step 1   Step 2   Step 3
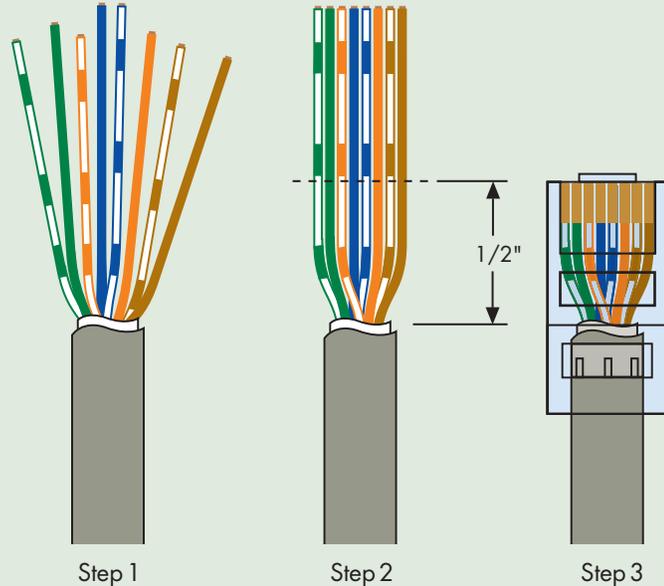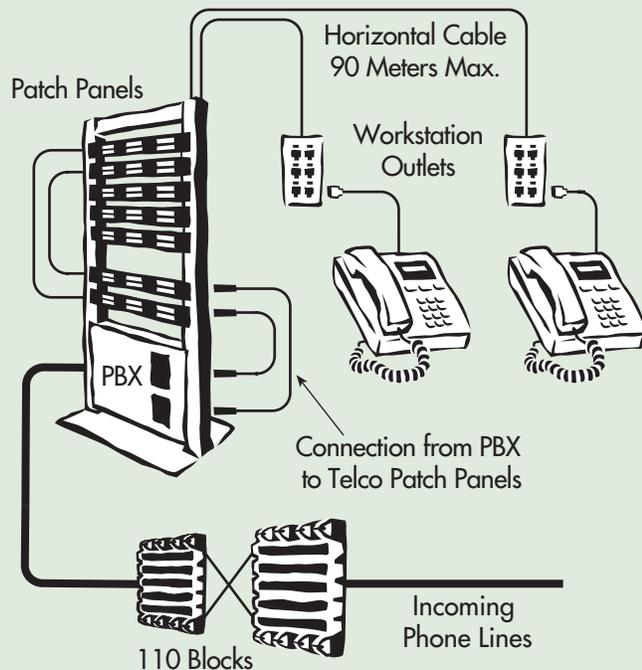
CABLING TIP

How telco patch panels simplify installation — and enable easy updates.

Telco patch panels provide an easy method of connecting customer wiring to telephone equipment via network wiring. A telco patch panel's modular jacks permit cross-connecting incoming service to horizontal cables terminated on standard network patch panels.

Incoming telephone lines terminate on 110 or 66 blocks. Signals route to the customer's telephone switch, or PBX (Private Branch Exchange), with 25-pair cable terminated on multipin telco connectors.

The customer side of the PBX connects to the back of the telco patch panel using 25-pair cable terminated on 50-pin telco connectors. Patch panel configuration determines which modular jack pins are active. Standard patch cords route signals from the telco patch panel to the horizontal cable runs and on to the wall outlets.

Because they enable easy reassignment of telephone lines, telco patch panels are gaining popularity over traditional 66 or 110 blocks for horizontal voice cabling.
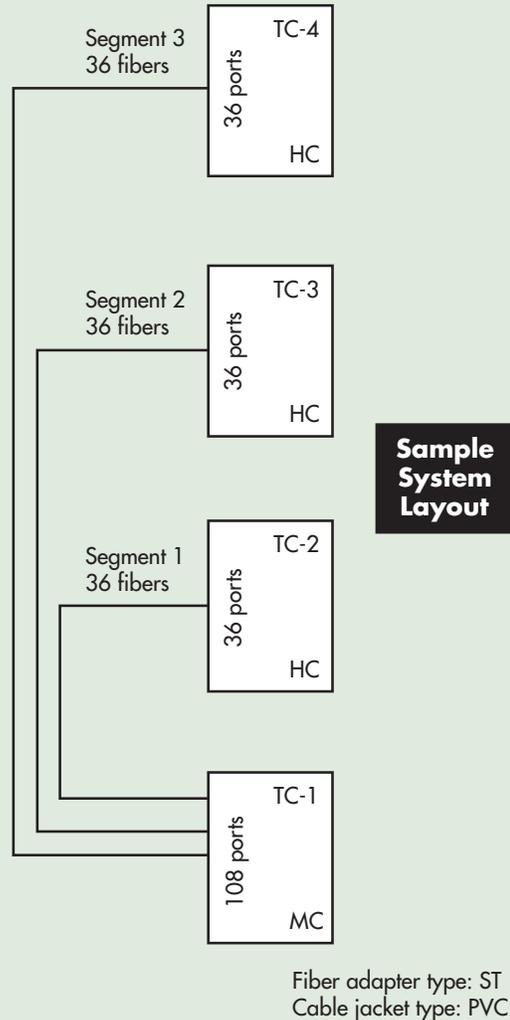
Patch Panels

Horizontal Cable
90 Meters Max.

Workstation
Outlets

PBX

Connection from PBX
to Telco Patch Panels

110 Blocks

Incoming
Phone Lines

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for you.®*

CABLING TIP

How to Specify and Order Modular Fiber System

P&S Modular Fiber System cables are cut to your specifications and preterminated at the factory, so it's essential that you provide complete and accurate information when ordering. Here's how:

➢ Provide a drawing of the fiber backbone system, showing all Telecommunications Closets that have fiber terminations. These would include main cross-connects (MC), intermediate cross-connects (IC), and horizontal cross-connects (HC).

➢ Each Telecommunications Closet should be identified with a TC number, if not already designated, and each link between Telecommunications Closets should be assigned a segment number.

➢ Identify fiber count and jacket type (plenum or PVC) required for each segment. Provide required finished length of each segment, adding a minimum of 6 feet (3 at each end) for cable slack. Pass & Seymour/Legrand strongly suggests adding additional cable slack to ensure adequate length for the supplied fiber pathway.

➢ For each Telecommunications Closet, identify the number of fiber ports required. Divide this number by 12 and round up to figure the number of cassettes required in each closet. Specify the adapter type for the cassettes (ST or SC). You should use only one type of adapter throughout an entire installation.

Sample System Layout

Segment 3
36 fibers

36 ports
TC-4
HC

Segment 2
36 fibers

36 ports
TC-3
HC

Segment 1
36 fibers

36 ports
TC-2
HC

108 ports
TC-1
MC

Fiber adapter type: ST
Cable jacket type: PVC

Modular Fiber System available Summer 2000.
Watch for our handy system layout worksheet at
**www.passandseymour.com.**

CABLING TIP

Is using Category 5 cabling for telephone systems overkill?

Not when you consider the increasing demands new applications and technologies place on phone wiring. Using Cat 5 cable delivers both optimum telecommunications performance today — and extra headroom to meet tomorrow's needs.

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CABLING TIP

TSB-75 ensures future-readiness for fast-changing office environments.

Today's office organizations are typically fast changing — and network cabling has to change with them. Fortunately, the TSB-75 standard (Additional Horizontal Cabling Practices for Open Offices) makes it easy and economical. The standard permits use of consolidation points between workstations and wiring closets. Consolidation points (using 110 cross-connect bases and blocks) mean that if workstations are rearranged, there's no need to run new cable all the way back to the wiring closet. Instead, new cabling can be run from the workstation to a convenient, nearby consolidation point. A few low-cost consolidation points can greatly reduce the cost of future reconfigurations.
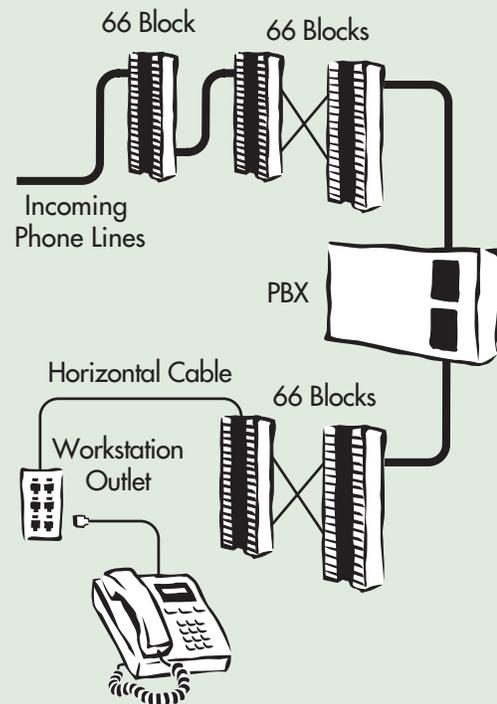
Consolidation Point

Work Area Cable

Horizontal Cable

Cross-Connect
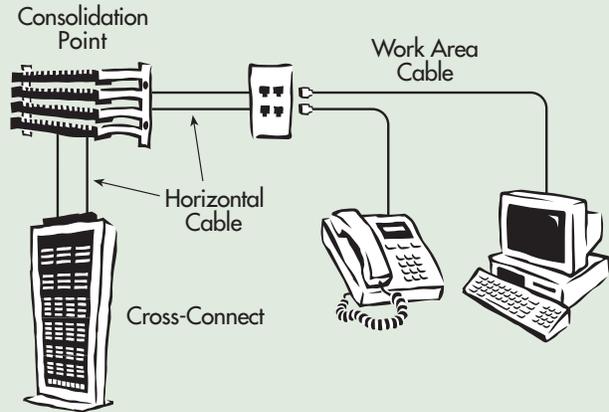
TSB-75 Consolidation Point Connector

CABLING TIP

How a 66 block is used in a telecommunications system.

Prewired 66 blocks make installation of a telecommunications system easy by using preterminated and connector assemblies. Unwired blocks can be used for termination of 4-pair UTP horizontal cable. Termination is easy:

➢ Route the horizontal or backbone cable through the bracket and snap the block onto the bracket.

➢ Route the Category 5 cables through the bracket and position 6 cables through the right side and 6 cables through the left side. Snap the block to the bracket.

➢ Strip each cable, removing only as much jacket as necessary to terminate the conductors.

➢ Feed each pair through every other fanning strip in order — Pair 1 first, then pairs 2, 3, and 4 (Blue, Orange, Green, Brown).

➢ Carefully separate the pairs and position the individual conductors into the contact. The tip (mostly white) conductor should be positioned above the ring (mostly colored) conductor.

➢ Repeat this conductor arrangement for each pair and verify position.

➢ Using an impact tool equipped with a 66 blade, terminate each individual conductor.

66 Block   66 Blocks

Incoming Phone Lines

PBX

Horizontal Cable   66 Blocks

Workstation Outlet

CABLING TIP

Stay loose.

Don't constrict network cable. Anything that binds cable too tightly can disrupt pair twisting and increase the risk of failed Category 5 and 5e compliance testing. P&S cable management straps are specifically designed to prevent overtightening. When used, nylon cable ties should be loosely cinched. Remember to limit pulling tension to 25 lbs. Too much tension can distort pairs and threaten performance. And watch bends — a cable bending radius should be no tighter than four times the cable diameter. For Category 5, the minimum bending radius is typically one inch.

Cable Diameter 1/4"

Cable Bend Radius 1"

25 lbs. max.
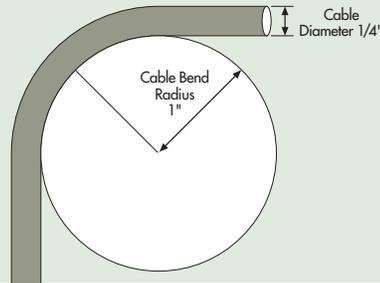
CABLING TIP

Watch those staples.

Don't secure cable using power-cable staples or staple guns — there's too much risk of damage. Choose plastic stand-off staples or other products especially designed for network cable (for example, "J" hooks or cable trays) instead.

CABLING TIP

Handle with care.

The jacketing on network cable is fragile, as is the insulation on individual conductors inside. Both can be easily cut or abraded. Therefore, use care when running cable near any sharp edge or around corners. Just as in power wiring, a cable with damaged jacketing or insulation must be replaced.

CABLING TIP

Power corrupts.

Power cables can cause interference in network cables. Don't let them share a conduit or run together through the same stud opening. When a network cable must cross a power cable, run it at a right angle.

CABLING TIP

For high-volume jack module identification, automated label printing for P&S label tabs (Catalog Number PSLT-OW) provides a clean, professional appearance for work-area outlets. The tabs are compatible with small label stock, such as Brady® LAT-3-747 laser printer labels or PTL-9-423 label stock for the Brady TLS2200 portable thermal printer. Many common software programs support label printing.

CABLING TIP

How to get proper cable bend-radius space with single gang wall plates.

For optimum network performance, it's essential to avoid sharp bends in network cabling. That's difficult within the width of a single gang box — so the TIA/EIA-569 standard recommends a 4" x 4" box. Use a mud ring to adapt a single gang wall plate to a 4" x 4" box, and you'll have plenty of space for proper cable bend radii.

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Where should you locate the Home Network Center?

To help ensure consistent, reliable network performance, the Home Network Center should be located in a dry, conditioned space (not a garage). The most common location choices are in a dry basement, utility room, or closet. And the Center's handsome, nearly flush design allows for installation in living space, too — for example, in a home office. Some other installation considerations:

➢ Installing the Center in a central location prevents excessively long cable runs. Maximum recommended cabling distances vary with application, but all are at least 150' from the Center. If cabling an extremely large home, see the instructions accompanying the Center for application-specific cable run limits.

➢ The Center should be installed between 16" on center studs, with its bottom 48" from the floor.

➢ Locate the Center on inside wall to prevent compromising insulation and cable access.

➢ The Center must NOT be located within a fire-rated wall.

➢ Note that wiring is required for the power receptacle near the bottom of the Center and plan accordingly. This outlet should NOT be supplied by a GFCI-protected or switched circuit.

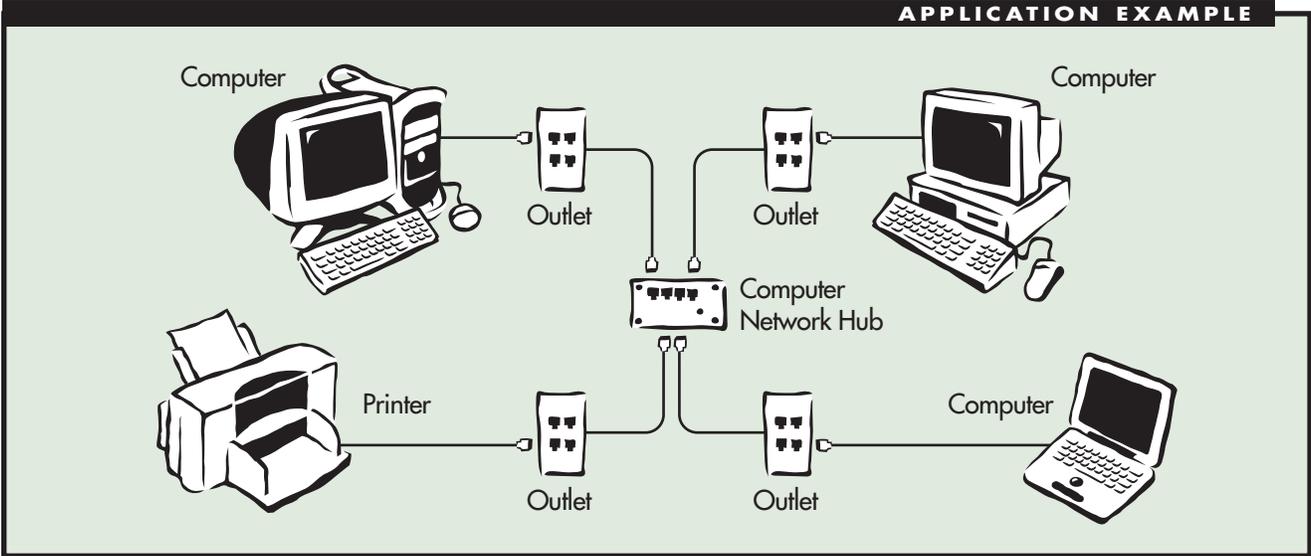See the Home Network Center instructions for additional information.
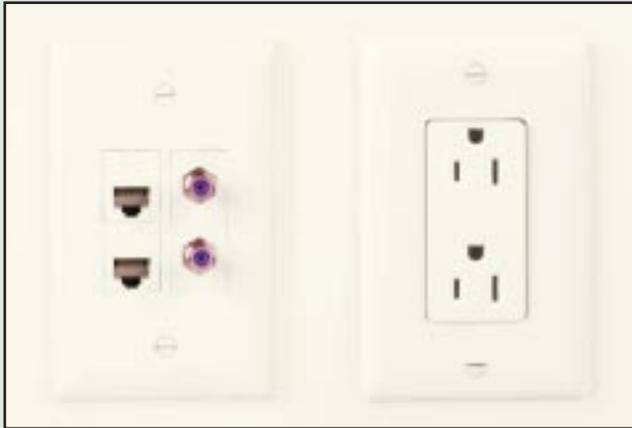
The perfect match for TradeMaster wiring device wall plates.

Looking to specify network wiring devices that are 100 percent aesthetically compatible with your other wiring devices? Now you can with the TradeMaster line. The same colors. The same finishes. The same sophisticated contours. The same dimensions. And because TradeMaster power wiring wall plates are available in a full range of colors and types, you don't have to compromise *anywhere* appearance is important. For complete information on the TradeMaster wall plate family, see Pass & Seymour/Legrand Catalog 200.
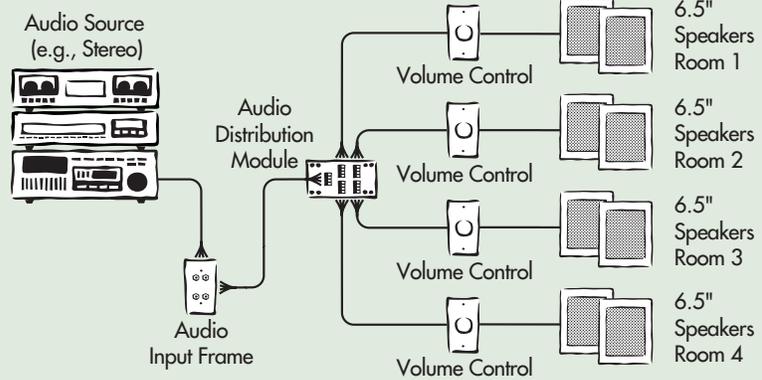
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APPLICATION EXAMPLE

Computer

Computer

Outlet

Outlet

Computer
Network Hub

Printer

Computer

Outlet

Outlet

APPLICATION EXAMPLE
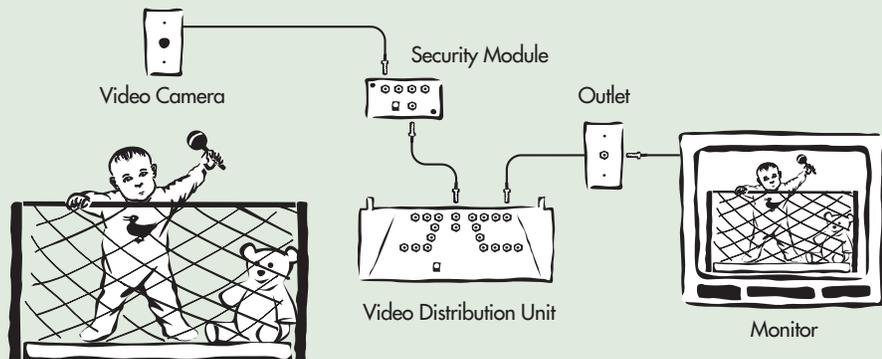
Applications Note:

When installing the 4-room audio option, the ADM-7537 must be installed in the Home Network Center. Each room is then connected using impedance matching volume controls. A pair of 6.5" speakers should be used in each room for optimum sound quality and system performance. If an outdoor patio or deck will be designated as one of the rooms, 4" outdoor speakers should be substituted.

Audio Source
(e.g., Stereo)

Audio
Distribution
Module

Volume Control

6.5"
Speakers
Room 1

Volume Control

6.5"
Speakers
Room 2

Volume Control

6.5"
Speakers
Room 3

Audio
Input Frame

Volume Control

6.5"
Speakers
Room 4

APPLICATION EXAMPLE
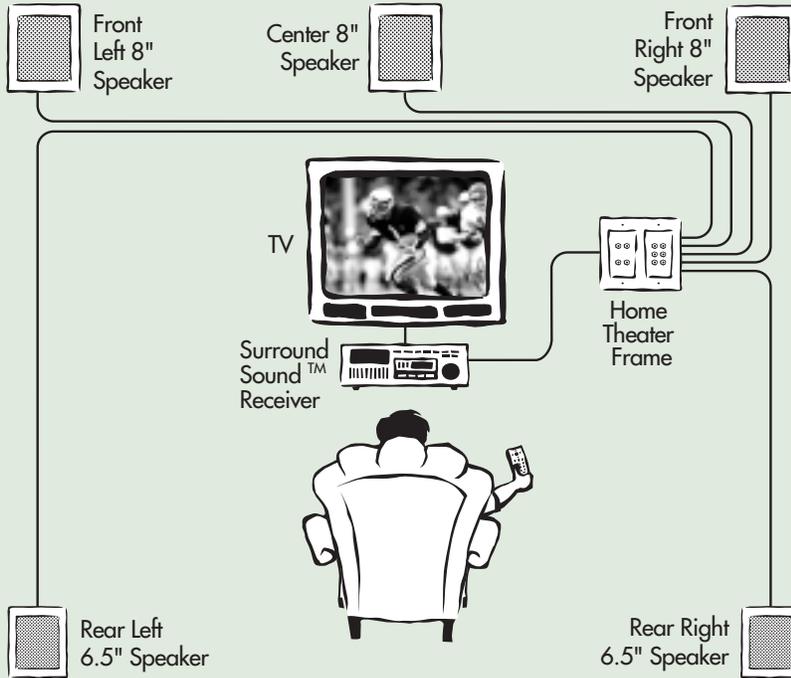
Applications Note:

When attaching more than two cameras to the camera module, a separate low voltage power supply (LVPS-15DC) should be placed in the Home Network Center and connected directly to the power input of the camera module.

Video Camera

Security Module

Outlet

Video Distribution Unit

Monitor

APPLICATION EXAMPLE

Applications Note:

When installing a Home Theater, Pass & Seymour recommends the use of 8" speakers for the right front, center, and left front speakers. The right rear and left rear speakers should be 6.5" speakers.

Front Left 8" Speaker

Center 8" Speaker

Front Right 8" Speaker

TV

Home Theater Frame

Surround Sound ™ Receiver

Rear Left 6.5" Speaker

Rear Right 6.5" Speaker

APPLICATION EXAMPLE

Outlet

◄ Internal

DVD

Family Room

External ►

Modulator

TV

Outlet

Video Distribution Unit

Upstairs Bedroom

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