xantech®

INSTALLATION INSTRUCTIONS

D5IP
DIGI-5 Source Input Plate
Digital Distribution System

Introduction

Exceptional Performance

The D5IP Digital Distribution System Input Plate allows a Local Source (a source located within a remote room away from the main distribution system) to be connected to the main distribution system. It can easily connect with the D5KP Keypad Amplifier and the D5SH Digital Distribution System Hub. The D5IP provides connections for Analog Audio, Digital Optical Audio, Digital Coaxial Audio, and IR Control.

About DIGI-5 Technology

DIGI-5 is a revolutionary new technology standard that provides a complete end-to-end digital audio solution over CAT-5 wiring. DIGI-5 is based on advanced digital distribution and amplification circuits that allow multi-room audio systems to be installed quickly and cost effectively.

DIGI-5 is a collaboratively developed technology that is licensed by the Linear Home Technology Group and is being initially integrated on a Linear group-wide basis, targeted to expand market and consumer acceptance of such systems.

Features

- Local Source Input Plate for D5KP
- Remote Source Input Plate for Digital Audio Distribution Hubs (D5SH)
- Accepts Analog Audio, Digital Optical Audio, Digital Coaxial Audio
- Converts Analog Audio to Digital
- 3-Position Source Selection Input Switch
- Clipping Indicator
- Gain adjustment
- IR Output Jack for Source Control

D5IP Accessories

- D5PS Digital Audio Power Supply (required)
- D5KP Amplified Keypad (required)
- D5SH Distribution Hub (required)
- D5MR Slim-line IR Remote
- D5LR Learning Remote Control

Planning

Before installing the D5IP, it is essential to have a detailed and accurate system design. The first step to a good design is to map the system. It is advisable to mark up a copy of the house floor plan with speaker, keypad and equipment locations, etc. Make sure that all locations are decided upon before pre-wiring so that all necessary wiring and installation hardware is in place.

It is essential that ALL system components are accounted for prior to the pre-wire stage. After establishing design goals, make a detailed list of all components. Include source equipment, keypad, expansion hubs, local source wall plates, IR emitters, etc.

Pre-Construction

In a pre-construction installation, walls and ceilings are open with no drywall installed. This is desirable and allows the installer greater access than in retro-fit applications. Before actually running any wire or cable, take the time to look around each room or area of the house and plan your wire paths for maximum efficiency. Look for routes through uncluttered parts of the stud wall or ceiling that allow you to group all low-voltage (video, speaker wires, CAT-5, telephone, etc.) wires wherever possible. It is a good practice to label both ends of all cables and to protect wires by tying a plastic bag over the ends.

Note: Do not run low-voltage wires closer than 12" from high-voltage wires. If necessary, cross low-voltage wires at a 90⁰ angle to prevent interference.
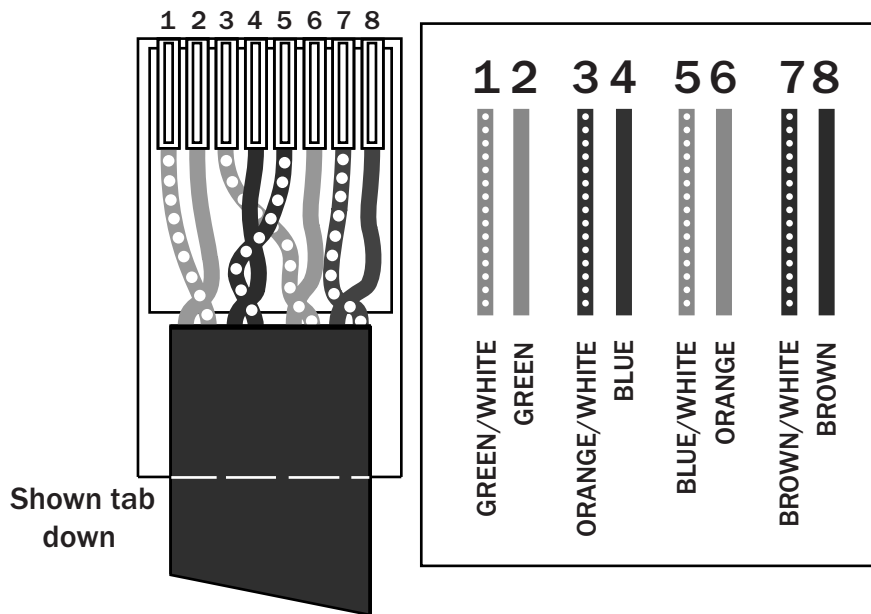
Retro-Fit Wiring/ Post Construction

Retro-fit installations are more difficult to complete than pre-construction because walls and ceilings are intact. Typically wires must be fished into position through walls, floors and ceilings. Holes must be cut; speakers mounted directly in the ceiling or walls with no rough-in brackets and keypads and local source wall plates must be mounted in existing drywall.

Pre-Wiring

D5IP Digital Audio Source Input Plate to D5KP Keypad and D5SH Hub

The D5IP and all associated components are wired using CAT-5 terminated to the T-568A Wiring Standard (Figure 2.1). When pre-wiring, run lengths of CAT-5 from the pre-determined equipment location (the "head-end") to each Amplifier Keypad location. The CAT-5 routes all audio, power, IR and status information needed for full system operation. Use a 110 Punchdown tool to connect the CAT-5 wiring to the Digital Audio Distribution Hub.

Note: For maximum performance over long runs (more than 150 ft) run an additional 16AWG 2-conductor wire for external power.
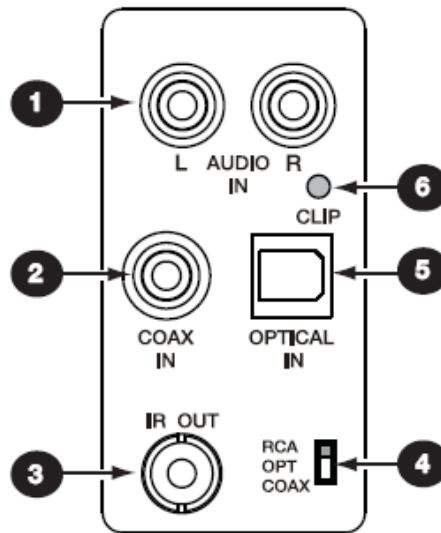
Figure 2.1: T-568A Wiring Standard
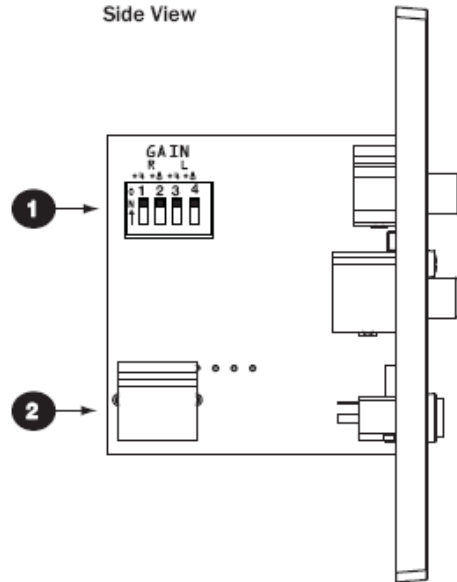
Amplifier Keypad to Speakers

Run 16AWG 2-conductor stranded copper speaker wire between Amplifier Keypad locations and speaker locations.

D5IP

	Connector	Function
1	Analog Audio Input (L/R)	Connect analog audio source using RCA cables.
2	Digital Coaxial Audio Input	Connect digital audio sources using Digital Coaxial cable.
3	IR Output	Source-specific IR port to control audio source.
4	Source Input Switch	Select between Digital Coaxial, Digital Optical or RCA connection.
5	Digital Optical Audio Input	Connect digital audio sources using Digital Optical cable.
6	Clipping Indicator LED	Indicates when connected source is 'clipping' the input. 'Clipping' results in distorted audio.

Side View

	Connector	Function
1	Gain Adjustment DIP Switches	Adjust Input GAIN from analog sources to avoid distortion.
2	Output RJ-45 Connector	Connects to D5KP Keypad\Amplifier, D5R44H (D5RE6H) or D5M44H (D5M14H) Digital Audio Distribution Hubs.

Installation

The D5IP is designed to mount in a standard single-gang rough-in box (J Box). Mount the unit in close proximity to the location of the source that will be connected to it.

Note: Do not mount the D5IP in the same rough-in box as the high voltage devices such as electrical outlets or switches.

After running CAT-5 and terminating the ends, route the wire into the back of the rough-in box, connect it to the RJ-45 connector on the rear of the D5KP, and mount using the 2 provided screws.

Connections

Connections for the D5IP consists of:
1. Audio Source Connections – Front
2. IR Control - Front
3. D5KP Amplified Keypad - Rear
4. D5XH DDS Expansion Hub – Rear
5. D5SH, D4SH4 DDS Wall-Mount Hub – Front

Source Connections
Sources are connected to the D5IP in one of three ways:
1. Analog
2. Digital Coaxial
3. Digital Optical

For best sound quality, use one of the Digital connection methods if the Source has this type of output. For sources that do not have Digital outputs, use the Analog option.

Note 1: Make sure that the D5IP's Source Input Switch is correctly set for the type of connection used.
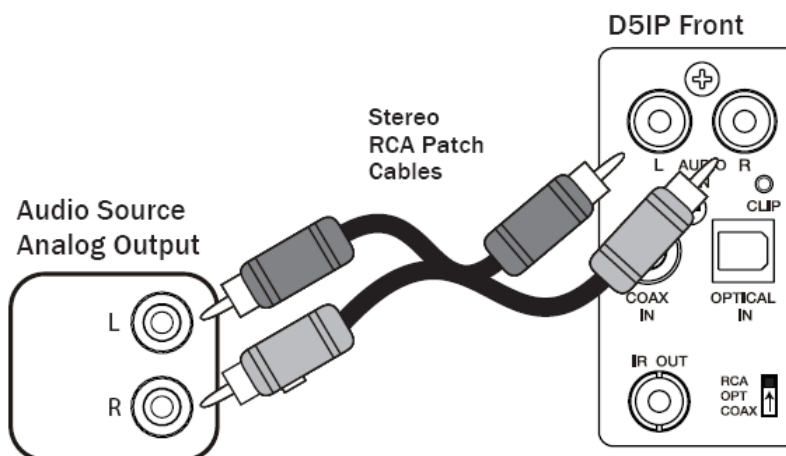
Note 2: Multi-channel digital audio formats (5.1, 7.1, etc.) are not supported by the D5IP. Most audio/video sources allow you to change the digital output to PCM Stereo. In most cases, this will allow multi-channel audio sources to output a "summed" stereo signal through the digital output. Consult the audio/video source manual for details.

Note 3: Some audio sources which utilize a digital output require that you enable the digital output before it will function. If there is no audio present, check the setup menu of the audio source to confirm that the digital output is enabled.

Analog (AUDIO IN L/R)
Use RCA audio patch cables to connect an audio source that does not have a Digital output.

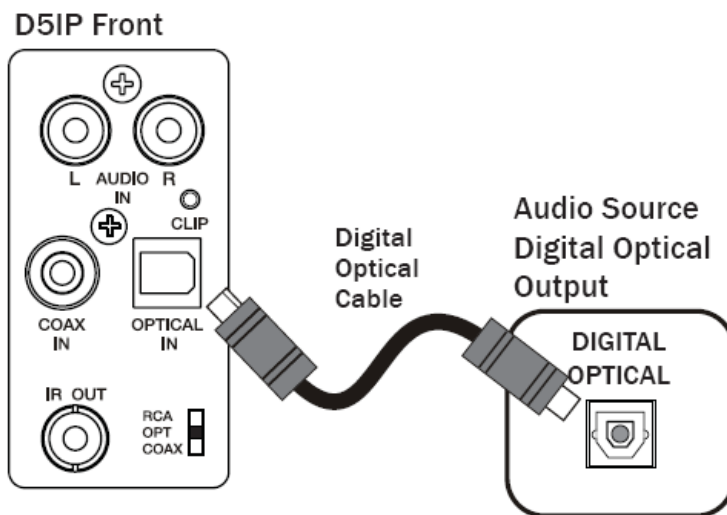**NOTE: Be sure the RCA/OPT/COAX switch is 'up' and set to 'RCA'.**

Digital Optical (OPTICAL IN)
Use a Digital Optical Cable to connect an audio source that has a Digital Optical output.

NOTE: Be sure the RCA/OPT/COAX switch is 'middle' and set to 'OPT'.

Note: Multi-channel digital audio formats (5.1, 7.1, etc.) are not supported by the D5IP. Most audio/video sources allow you to change the digital output to PCM Stereo. In most cases, this will allow multi-channel audio sources to output a "summed" stereo signal through the digital output. Consult the audio/video source manual for details.

Digital Coaxial (COAX IN)
Use a Digital Coaxial Cable to connect an audio source that has a Digital Coaxial output.

NOTE: Be sure the RCA/OPT/COAX switch is 'down' and set to 'COAX'.

Note: Multi-channel digital audio formats (5.1, 7.1, etc.) are not supported by the D5IP. Most audio/video sources allow you to change the digital output to PCM Stereo. In most cases, this will allow multi-channel audio sources to output a "summed" stereo signal through the digital output. Consult the audio/video source manual for details.
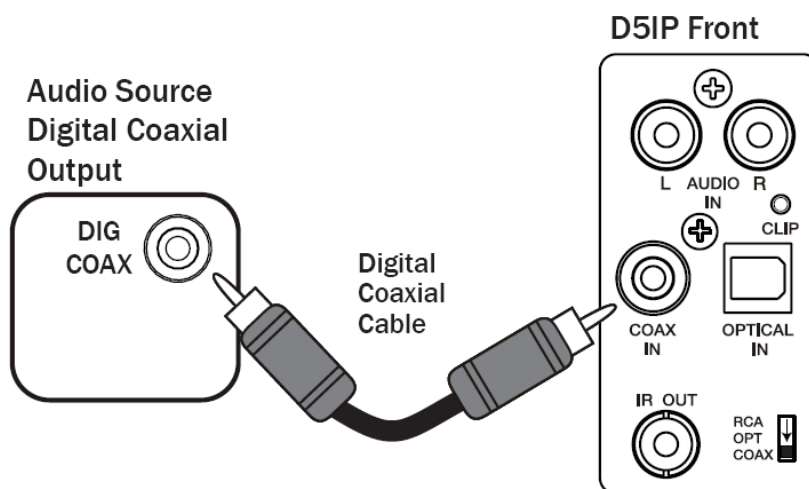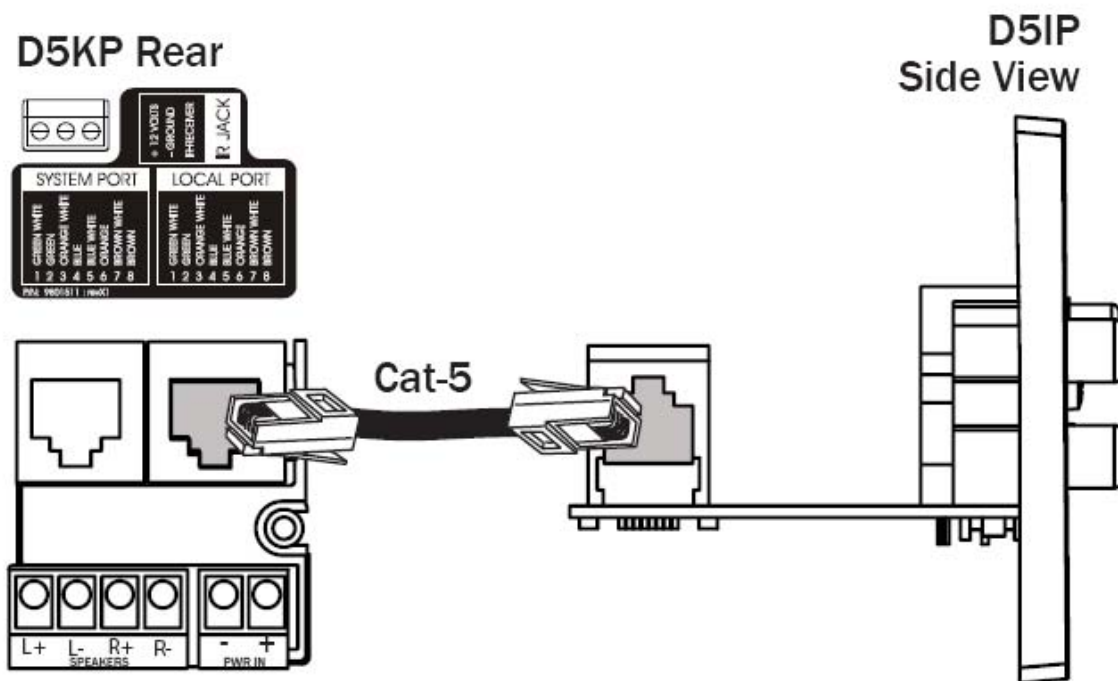
IR OUT

Connect a standard IR Emitter (283D, for example) from the IR OUT port on the front of the D5IP to the IR receiver on the front of the audio source. For sources that have an IR Input port on the back of the unit, use a 3.5mm to 3.5mm mono interconnect cable instead.

Rear Connections

D5KP Amplified Touch Pad

When utilizing the D5IP as a means to connect a Local Source to a specific zone of a D5RH-based system, rear connections consists of plugging in a CAT-5 wire terminated to an RJ-45 connector wired to T-568A standard to the RJ-45 jack on the rear of the D5IP. The other end simply plugs into the LOCAL PORT RJ-45 jack on the rear of the zone's D5KP Amplified Touch Pad.

D5XH DDS Expansion Hub

When utilizing the D5IP as a means to connect an audio source to a D5XH DDS Expansion Hub in stand-alone mode, rear connections consists of plugging in a CAT-5 wire terminated to an RJ-45 connector wired to T-568A standard to the RJ-45 jack on the rear of the D5IP. The other end simply plugs into the SOURCE LOOP IN RJ-45 jack on the rear of the D5XH.

Settings/Adjustment

There is one LED on the front of the D5IP that monitors the input level of the connected source. There are two sets of DIP switches on the rear of the unit (marked "GAIN") designed to adjust the input level of the connected source.

Note: The GAIN DIP switches are only for Analog Inputs. The Digital Coaxial and Digital Optical Inputs do not utilize these switches.

Adjusting Analog Audio Source
Input Level
Once all connections are made, the Analog Audio Source should be adjusted to prevent clipping (distortion) before the D5IP is mounted in place. To adjust the Analog Audio Source Input Level:
1. Ensure that the Analog Audio Source is connected properly.
2. Power up the source and turn on an audible signal (Press PLAY, tune to a station, etc.).
3. Select the Source from the zone's D5KP Touchpad. If it is a Local Source connected to a D5KP, select LOCAL. If it is a System Source connected to a D5XH, select the appropriate Source Input on the Zone's D5KP.
4. Adjust the zone's volume to a normal, comfortable listening level.
5. Observe the CLIP LED on the front of the D5IP. If it lights up constantly or consistently, the source's output level is too high and needs to be adjusted.
6. Adjust the GAIN DIP switches according to the following table:

Setting	Function
All Down	No GAIN
DIP Switch 1 & 3 UP	+4dB GAIN
DIP Switch 2 & 4 UP	+8dB GAIN
DIP Switch 1, 2, 3 & 4 UP	+10dB GAIN

Note 1: Try each setting and monitor the CLIP LED until it does not illuminate.
Note 2: GAIN adjustment must be set for both Right and Left Inputs.
Both settings should be the same.

7. Mount the D5IP and install Trim Ring.

Specifications

Sampling Frequency	48kHz
Digital Audio Resolution	24 Bit, Stereo
THD+Noise Full Scale	0.004%
Dynamic Range	96dB
L/R Crosstalk @ 1kHz	-90dB
Frequency Response	20Hz-20kHz +/- 0.1dB
Max Output Distance	800 ft
GAIN DIP Switches All DOWN DIP Switch 1&3 Up DIP Switch 2&4 Up DIP Switch 1,2,3&4 Up	 No GAIN +4dB GAIN +8dB GAIN +10dB GAIN

Dimensions	
H x W x D	4 1/4" x 1 3/8" x 2 3/4" (10.8 cm x 3.5 cm x 7.0 cm)
Weight	0.28lbs (0.13kg)

Safety Information

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not in-stalled and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Changes or modifications not expressly approved by Xantech could void the user's authority to operate the equipment

Caring For the D5IP
Clean only with a dry soft cloth.
It is important to properly care for your D5IP Digital Audio Source Input Plate. Follow these guidelines to ensure your device is preserved and protected.

- Do not expose the D5IP to rain, liquids or moisture for an extended period of time.
- Do not expose the D5IP to temperature extremes.
- Do not place any objects on top of the D5IP to prevent chassis damage.

Operating Temperatures & Environments
- Operating Temperature: 32-104°F (0-40° C)
- Humidity: 0-90%

Precautions
- Always exercise care when operating the D5IP Digital Distribution System Input Plate.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- In the unlikely event that smoke, abnormal noise, or strange odor is present, immediately power the D5IP off. Please report the problem to your dealer immediately.
- Never attempt to disassemble the D5IP. You will lose any product warranty on the unit.

Xantech Limited Warranty

(Effective for products sold after July 1, 2006)

Xantech Corporation ("Xantech") warrants to the holder of a valid proof of purchase as the first end-user purchaser ("You"), its products to be free from defects in materials and workmanship for the periods specified below from the date of purchase. This limited warranty extends only to You for product purchased and used in the United States of America. For product purchased outside of the United States of America, the terms of this warranty apply EXCEPT that You must contact the Xantech authorized distributor in your region for warranty services. Product is not intended for end user installation. If within the applicable warranty period above You discover such item was not as warranted above and You promptly notify Xantech in writing, Xantech shall repair or replace the items at its option. Xantech may elect which remedy or combination of remedies to provide in its sole discretion. Xantech may use functionally equivalent reconditioned/refurbished/pre-owned or new products or parts under this limited warranty. This warranty shall not apply (a) to product which shall have been installed by other than an authorized Xantech installer, (b) to installed product which is not installed to Xantech's specifications, (c) to product which shall have been repaired or altered by others than Xantech, (d) to charges for installation or set up or adjustment of customer controls, (e) to product that has suffered normal cosmetic deterioration (f) to product which shall have been subjected to negligence, misuse, abuse, accident, or damage by circumstances beyond Xantech's control, including, but not limited to, lightning, flood, electrical surge, tornado, earthquake, or any other catastrophic events beyond Xantech's control, or (g) to product which shall have been subjected to improper operation, connected equipment failure or malfunction, inadequate packing or shipping damage, maintenance or storage, or to other than normal use of service. The foregoing warranties do not cover reimbursement for labor, transportation, shipping, removal, installation, or other expenses which may be incurred in connection with repair or replacement. All claims for product shipping damage must be processes within 3 days of receipt by You.

A Xantech Return Authorization (RA) must be obtained from Xantech by You, your installer or your distributor for Product covered under this warranty. Covered product must be sent to Xantech together with proof of purchase, RA number, prepaid and insured to Xantech. Freight collect shipments will be refused. Risk of loss or damage in transit is borne by the sender. Xantech's warranty does not cover Products which have been received improperly packaged, altered, or physically damaged. Products will be inspected upon receipt.

Except as may be expressly provided and authorized in writing by Xantech, Xantech shall not be subject to any other obligations or liabilities whatsoever with respect to equipment manufactured or sold by Xantech or services rendered by Xantech.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESSED AND IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

ATTENTION: TO OUR VALUED CONSUMERS
To insure that consumers obtain quality pre-sale and after-sale support and service, Xantech products are sold exclusively through authorized dealers and authorized distributors. The warranties on Xantech products are NOT VALID if the products have been purchased from an unauthorized dealer or distributor. In order to determine if your Xantech re-seller is authorized, please call Xantech (800) 843 - 5465.

XANTECH PRODUCT (go to Xantech.com/warranty for model numbers)	WARRANTY DURATION
IR Receivers and IR Emitters	Limited Lifetime
A/V distribution and Control	Limited Lifetime
Remote Control Switchers	Limited Lifetime
Modules and Connecting Blocks	Limited Lifetime
Accessories	Limited Lifetime
Speakers	Limited Lifetime
Volume Controls and Speaker Selectors	5 year Limited
DIGI-5, MRC, BX, ZPR and Commercial Products	2 year Limited
Amplifiers	2 year Limited
Control Interfaces	2 year Limited
Hand Held Remote Controls	1 year Limited
SPLCD Product	1 year Limited
Source Components	1 year Limited