

MODEL
IRP2+



IRP2+

INFRARED EXTENDER MAIN SYSTEM UNIT



INSTALLATION & OPERATION GUIDE

IRP2+

Infrared Extender
Main System Unit

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Introduction

An infrared (IR) extender system enables you to control your IR remote controlled A/V equipment from a remote location. This enables you to place your A/V components out of sight (behind cabinet doors, in the rear of a room, or in a different room) and still conveniently control your equipment.

The model **IRP2+** is an IR Main System Unit. It is one of three elements that make up an infrared extender system:

1. **IR Sensors** receive IR commands from hand-held remote controls and relay the commands to the Main System Unit via a 2-conductor shielded cable. Generally, sensors are placed so that you can easily and naturally point your remote control directly at them. Niles offers an array of easily concealable sensors: wall-mount, ceiling-mount, surface-mount and table-top. IR sensors are the “eyes” of the system.
2. The **IR Main System Unit** provides a connection hub for the IR sensors and the IR flashers and is generally located near the A/V components. The Main System Unit’s level controls and LED indicators enable you to calibrate and troubleshoot an IR extender system. The Main System Unit is the “heart” of an IR extender system.
3. **Infrared Flashers** transmit the infrared signals from the IR Main System Unit to your A/V components. Niles manufactures both flooding flashers (model IRC-1) and miniature “pin-point” flashers (model IRC-2). Flashers are the “voice” of an IR extender system.

INFRARED EXTENDER - MAIN SYSTEM UNIT

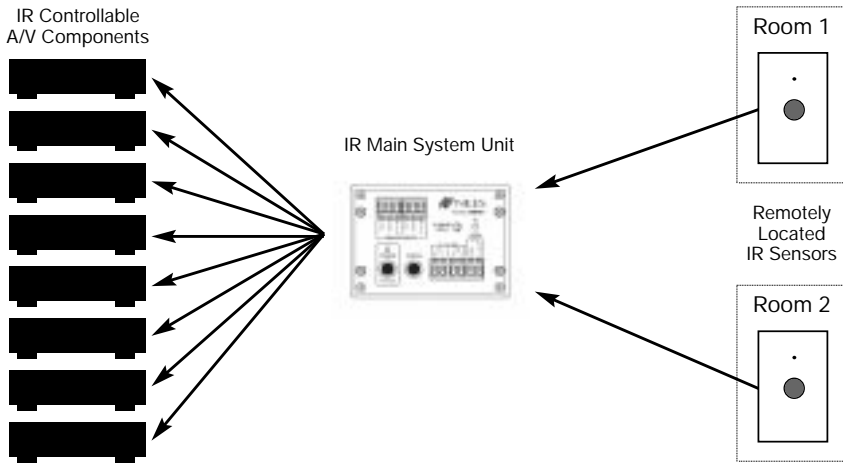


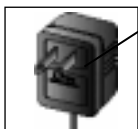
Figure 1 In a typical system, the IRP2+ provides for the connection of up to two remote room sensors (or keypads) and will control a maximum of eight audio/video components via its flasher connections (four IRC-1 flashers or eight IRC-2 flashers).

Features and Benefits

The IRP2+ offers a number of improvements over other IR Extender Main System Units:

- Universal system—compatible with virtually all brands of A/V equipment and remote controls (the only exceptions are those brands using carrier frequencies higher than 64kHz).
- Exclusive Niles short-circuit protection provides for easy installation.
- Accommodates two IR sensors or keypads.
- Provides two low-distortion, high-current Mosfet IR Flasher outputs: one at full power, one with variable power.
- Red "Power" L.E.D. enables you to test for proper power supply operation and shorts between + (positive) and GND (ground) on your sensor connections.
- Green "IR" Test L.E.D. enables you to test for proper operation, interference, and for shorts between + and DATA on your sensor connections.
- Built in "Status" generator broadcasts the amplifier "on/off" power status over existing IR wiring to provide power status display when used with other Niles products like the IntelliPad that feature status display LED's.
- Screw connectors simplify installation.
- Printed circuit board design assures high reliability.
- Two year parts and labor warranty.
- Proudly made in the USA.

IRP2+ Parts Guide

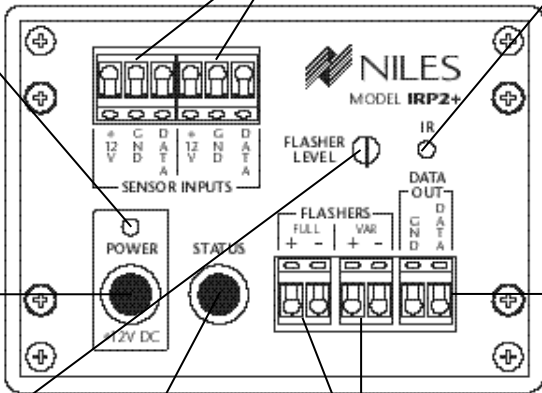


Power Supply is a UL listed and approved 12vDC wall adapter.

Remote Sensor Connections enable you to connect up to two remotely located IR sensors or keypads to the IRP2+.

Green IR Test LED enables you to test for proper operation, interference, and for shorts between + and DATA on your sensor connections.

Red Power Test LED enables you to test for proper power supply operation and shorts between + and GND on your sensor connections.



Power Socket provides fast and convenient connection of the power supply.

Flasher Level Control enables you to reduce flasher level to match your A/V component's sensitivity.

Status Socket allows 12vDC wall adapter to provide amplifier on/off signal to "status" generator circuitry. See Power status page 22.

Flasher Connections provide for a maximum of eight flashers (four IRC-1 flashers or eight IRC-2 flashers). When more than one flasher is connected to a single output, it is connected in series.

IR Data Output allows the linking of multiple IRP units for systems requiring large numbers of flashers.

Installation Considerations

IMPORTANT

Do not place the IRP2+ on top of or directly behind a television set. Some television sets produce intense electromagnetic interference which may disable your IR extender system.

Placement of the IRP2+

Place the IRP2+ conveniently close to the equipment it will be controlling. Generally, the unit is placed in a concealed location because its controls and indicators are only used during installation. Placement possibilities include:

- 1) Table-top (on the floor or shelf behind the equipment) See **Figure 2**.
- 2) Wall-mount (affixed to the back of the equipment cabinet or a nearby wall) See **Figure 3**.

Figure 2: Table-Top Placement

- 1) Clean the bottom of the IRP2+ and the mounting surface with the enclosed alcohol pad.
- 2) Affix the enclosed self-adhesive rubber feet to the base of the IRP2+.

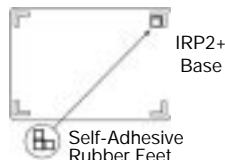
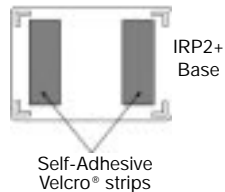


Figure 3: Wall-Mount Placement

- 1) Clean both mounting surfaces with the enclosed alcohol pad.
- 2) Affix the two enclosed strips of self adhesive Velcro® to the back of the IRP2+.
- 3) Mount the IRP2+ to the wall or cabinet back. Allow the adhesive to set as long as possible before connecting cables.



Wiring

From every IR Sensor location you must “home-run” a cable back to the IRP2+. Home run means that an individual cable is connected between each IR Sensor and the IRP2+. See **Figure 4**.

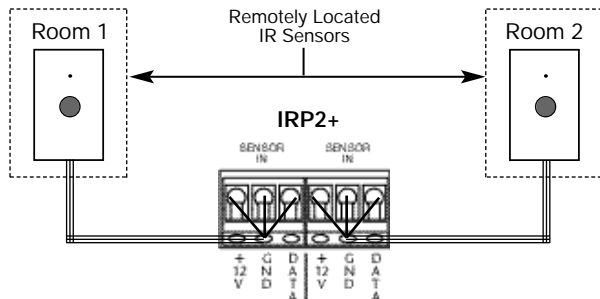


Figure 4: Home run the sensor cable from each sensor to the IRP2+.

TECH TIP



Wire size is expressed by it's AWG (American Wire Gauge) number. The lower the AWG number, the larger the wire, i.e., 20 AWG wire is physically larger than 22 AWG.

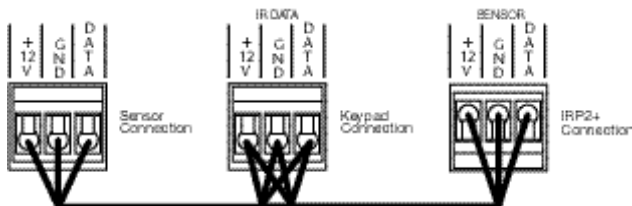
IMPORTANT – AVOIDING INTERFERENCE

Avoid locating any of the cables, Sensors, Keypads or the Main System Unit near any potential sources of Electro-Magnetic Interference (EMI), such as light dimmers, speed controls for ceiling fans, electrical ballasts, television sets, large motors, heaters or air conditioners.

Keypad Wiring

When you are placing both a keypad and a sensor (or two keypads) in one room you may “daisy-chain” using a single cable. A cable is run between the keypad and the sensor and a single cable is run from either the sensor or the keypad back to the IRP2+. See Figure 5.

Figure 5: An IR sensor cable is “daisy-chained” from a sensor to a keypad and then back to the IRP2+.



Sensor/Keypad Cable

The IRP2+ connects to IR sensors and keypads with 2-conductor shielded cable. Recommended cables are “data grade” cables made of two 22 gauge (or larger) conductors surrounded by a foil shield and a bare drain (ground) wire. Data grade cable provides the capability for runs of up to 500 feet to each sensor. Examples are West Penn D291, Belden 8761 or Carol C 2516. Any 22 to 16 gauge 2-conductor shielded cable available at a hardware store will accommodate 150 foot runs to each sensor.

Flasher Cable

Niles infrared flashers come supplied with a 10 foot 2-conductor 22 gauge cable. Should you need to extend it, use a 16 gauge 2-conductor cable (“zip-cord”). Shielding is not necessary for a flasher. Flasher wires can be extended up to 200 feet.

CAUTION!

Do not use unshielded cable between any remote IR sensor or keypad and the IRP2+.

Installation

Before you begin, make sure that the sensor/keypad cables, the flasher cables and the 12vDC power supply cable will all reach the proposed location of the IRP2+. Mark the cables with labels describing where the cable originates (rather than which terminal on the IRP2+ it should connect).

For proper installation, follow the steps outlined below in the correct order. If you discover a fault in the course of installation, go on to the Troubleshooting Guide before continuing with the next installation step.

**TOOLS
REQUIRED**

- 1/8" Standard Slotted Screwdriver
- Wire Stripper

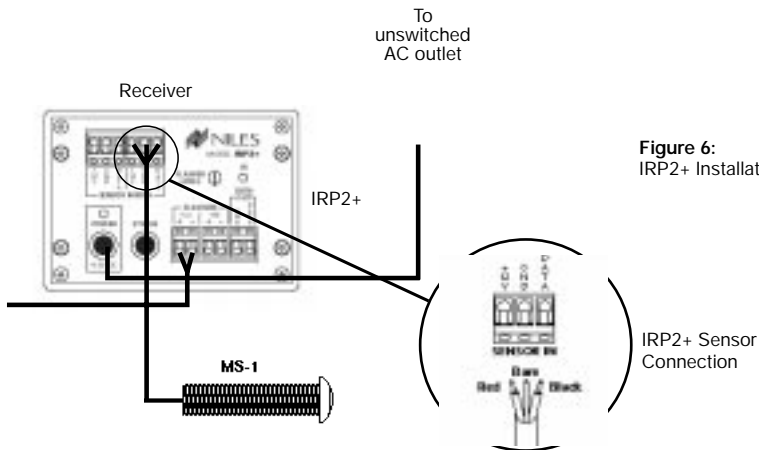


Figure 6:
IRP2+ Installation

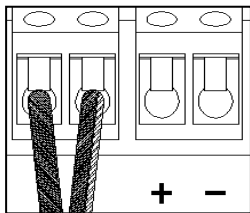
STEP	DESCRIPTION
<p>1. Connect and test the power supply. If it tests OK, unplug the connector from the power socket and proceed.</p>	<p>A) Plug the supplied 12vDC power supply into an unswitched 120V AC outlet .</p> <p>B) Plug the connector into the socket marked "Power" on the IRP2+.</p> <p>C) If the Power LED does not light, test the unswitched 120 VAC outlet with another appliance. If the outlet tests OK, you have a defective power supply which must be replaced for you to continue.</p>
<p>2. Connect the first Sensor/ Keypad cable to either one of the Sensor inputs.</p>	<p>A) Strip 1/4" of insulation from the wire ends of the cable.</p> <p>B) Attach the exposed wire ends to the appropriate connector. Be careful to prevent a filament of wire from shorting out two connectors. Red = +12v Bare = GND Black = DATA</p>
<p>3. Test for shorts and interference.</p>	<p>A) Reconnect the power supply. If the Power LED lights and the IR Test LED stays off, unplug the connector from the power socket and proceed to Step 4. The following LED conditions show a fault:</p> <ul style="list-style-type: none"> • If Power LED is Off there is a short between +12v and GND • If IR Test LED is On or Flickers there is a short between DATA and GND <u>Or</u> Interference is present. <p>Before you proceed to Step 4 consult the Troubleshooting Section beginning on page 12</p>

STEP

DESCRIPTION

4. Connect the flashers to the flasher outputs. If you need to extend the wire, use a 2-conductor 16 gauge or larger (See Tech Tip on page 6).

Route the connecting 2-conductor wire to the IR Main System Unit. Connect the ends of the wire to the corresponding positive and negative terminals labeled "Flasher" on the IRP2+.



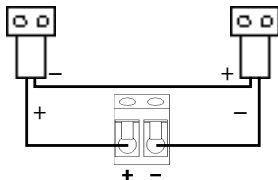
BE SURE TO OBSERVE PROPER POLARITY WHEN CONNECTING OR EXTENDING THE FLASHER WIRE.

IRC-1 the wire lead marked with a gray stripe is negative (-); the unmarked lead is positive (+).

IRC-2 the silver colored wire lead is negative (-); the copper colored wire lead is positive (+).

5. Connect multiple flashers to a single output by connecting in series.

Use crimp caps, wire nuts or solder to connect the negative of one flasher to the positive of the next flasher as shown to create a series circuit.



IRC-1 Flooding Flasher allows a maximum of TWO in series
IRC-2 MicroFlasher allows a maximum of FOUR in series

6. Test for proper operation with all sensors and remote controls.

Testing the IR Extender System

Test your IR Extender system by following the three principal guidelines:

- 1. All components can be operated.** Test all of your remote controls for all of your equipment.
- 2. Operation is consistent.** A good test is to repeatedly step from Pause to Play with your VCR, CD, Laser, or Tape player remote control. Operation should be identical to standing in front of the component with the remote control pointed directly at the sensor window.
- 3. Maximum Range** between the Remote Control and the Niles IR Sensor is similar to the maximum range between the Remote Control and the A/V component's IR sensor. Typically a remote control with two batteries will have a 15 to 20 foot range and a remote with four batteries will have a 20 to 30 foot range.

Troubleshooting Guidelines

There are four basic problems which prevent proper operation. In the order of probability the problems are:

Bad Connections or Wiring

If the connections or wiring are wrong, loose, shorted or open the system will not operate properly. The symptoms could include: Power LED flickers or is off, IR Test LED is continuously flickering or on without any remote control use, intermittent operation or no operation.

Steps ① and ② test your power supply connections.

Steps ③ thru ④, ⑤ thru ⑥ test your Sensor connections.

Steps ⑦ thru ⑧ test your Flasher connections.

Steps ⑨ and ⑩ tests your cable for shorts and opens.

Flasher Level is Too High

Many audio/video component's sensors are overloaded by receiving too strong of an IR command from the flasher. Symptoms can include: popping and clicking sounds from the speakers when a button is pressed on the remote control, poor IR receiving range, intermittent operation or no operation.

Step ⑪ provides detailed instructions on setting the proper flasher level.

Optical or Electromagnetic Interference

Sunlight, reflections, neon signs and other sources of infrared light or television sets, light dimming controls and other sources of electromagnetic fields can induce noise and interference into your IR extender system. Symptoms can include: flashback LED's continuously flickering or on without any remote control use, poor range, intermittent operation or no operation.

Steps ⑫ through ⑬ troubleshoot interference problems.

Optical Feedback Loop

If you have an IR sensor in the same room as a flasher, and you have some low-level noise or interference, an optical feedback loop can occur which will interfere with proper operation. Symptoms can include: poor range, intermittent operation or no operation.

Steps ① through ② provide instructions for eliminating optical feedback loops.

Start from Step One

In your installation you may be faced with a combination of the four problems or symptoms that are universal to all of the problems. Rather than trying to guess which problem you have, use a process of elimination. The Troubleshooting section is designed to eliminate the most common problems first. If you start from Step 1 and methodically check everything you will find the problem in much less time than the troubleshooter who makes assumptions.

Troubleshooting Guide

1

Test Remote Control

Verify that the remote control works by operating the equipment directly. If the remote does not operate your system directly, replace the batteries of the remote control. Replace the remote control if necessary.

2

Flasher Positioning

Flashers operate line-of-sight; be sure they are unobstructed and aimed at the front panel sensor windows of your components.

3

12v DC Power Supply

Test that the red IRP2+ power LED is on when the wall adapter is plugged into an unswitched AC outlet.

- **Power LED On:** Go to Step 13
- **Power LED Off:** Go to Step 4

4

Disconnect Sensors

If the power LED does not light, disconnect all sensors and retest the power supply.

- **Power LED On:** Go to Step 6
- **Power LED Off:** Go to Step 5

5

Replace Power Supply

Either your power supply or your IRP2+ is defective. If you have another 12v DC power supply, first check that it has the same polarity (+ on the tip, GND on the sleeve). Plug the new power supply in and observe the Power LED.

- **Power LED On:** Retest System per page 11
- **Power LED Off:** Return IRP2+ to your local Niles dealer for testing

6

Test Sensor Input 1

Reconnect one of the sensor cables. Re-test; plug the power supply back in and observe the Power LED.

- **Power LED On:** Go to Step 7
- **Power LED Off:** Go to Step 8

7

Test Sensor Input 2

A) If you DO NOT have a second sensor/keypad, Go to Step 12.

B) If you DO have another sensor/keypad, connect it to the second sensor input and re-test.

- **Power LED On:** Go to Step 12
- **Power LED Off:** Go to Step 8

8

Short between +12v (positive) and GND (ground).

Examine the connectors for a hair-like filament of wire between any of the contacts at the IRP2+ and at the sensor or keypad. Then retest.

- **Power LED On:** Go to Step 12
- **Power LED Off:** Go to Step 9

9

Test the Cable for Shorts

Disconnect the cable at both ends (at the sensor and at the IRP2+) and test it for shorts. Use an ohm meter or electrical continuity checker. You should read an open (Infinite Ohms) between Red and Bare, Red and Black or Bare and Black.

- **Short in Cable:** Replace cable
- **Cable tests OK:** Go to Step 10

10

Replace the IRP2+

If you have another IRP2+, replace the one in the system and retest, if not go to Step 11.

11

Replace the Sensor or Keypad

If you have another Sensor or Keypad, exchange it and retest the system, otherwise return the IRP2+ and the sensor/keypad(s) to your local Niles dealer for testing.

12

System suddenly seems to be OK again.

The connections were poor and by touching and inspecting them you have changed their condition. Jiggle and tug on the wires and recheck the connections. If they all seem secure, retest the entire system per the guidelines on page 11.

13

IR LED without any IR input.

Observe the green IR Test LED on the IRP2+ with the power supply plugged in and all sensors and flashers connected.

- **IR Test LED is On or is Flickering:** Go to Step 32
- **IR Test LED is Off:** Go to Step 14

14

IR LED with IR input.

Have someone watch the green IR LED on the IRP2+ while you aim a remote control at a remote sensor and press a button.

- **IR Test LED Flashes:** Go to Step 15
- **IR Test LED Off:** Go to Step 23

15

Flasher Connections

Verify the polarity of the flasher connections. Flashers must be connected according to Steps 4 and 5 on page 10. Examine the con-

nectors for a hair-like filament of wire between any of the contacts. Retest the system according to the guidelines on page 11.

- **Good Operation:** Congratulations!
- **Poor Operation:** Go to Step 16



Flasher Output Too High

Some audio/video component's sensors are overloaded by too strong a command from the flasher. Connect the flasher(s) to the variable output of the IRP2+ and use a 1/8" slotted screwdriver to reduce the output level to minimum (counter-clockwise). Retest the system according to the guidelines on page 11.

- **Poor Operation:** Move the flasher so that it is farther away from the sensor window or off to the side of the sensor window. Retest the system.
- **Poor Operation:** Start raising the level (a quarter turn clockwise each time) and retesting until level is back to full.
- **Poor Operation Continues:** Go to Step 17



Test Flashers.

A) If you have only ONE FLASHER, reconnect it to the other flasher output. Retest the system according to the guidelines on page 11.

- **Good Operation:** Congratulations!

- **Poor Operation:** Go to Step 19

B) If you have MORE THAN ONE FLASHER, disconnect all of them and reconnect one flasher at a time. Test for improved operation. Continue testing until you have identified the defective flasher. Test all of your flashers.

- **All flashers appear defective:** Go to Step 18
- **One flasher doesn't work:** Return the defective flasher to your dealer
- **All flashers now work:** Congratulations!



Test Flasher Outputs

Reconnect one flasher to the second flasher output of the IRP2+. Test for improved operation. Repeat Step 16 (adjust flasher level and position). Test for improved operation.

- **Good Operation:** Congratulations!
- **Poor Operation:** Repeat this step with another flasher. Retest.
- **Poor Operation Continues:** Go to Step 19



Sensors in the Same Room as a Flasher?

- **If you have sensors in the same room as a flasher:** Go to Step 20
- **If all sensors are in remote locations without flashers :** Go to Step 21
- **If you have keypads only:** Go to Step 21



Optical Feedback Loop

If there is an IR sensor and an IR flasher located within the same room an "optical IR feedback loop" can occur. Replace the IRC-1 Flooding Flasher with an IRC-2 MicroFlasher on the front panel sensor window of each component. Place the enclosed IR blocking cover over each of the IRC-2 flashers. Retest the system.

- **Good Operation:** Congratulations!
- **Poor Operation:** Go to Step 16 (adjust Flasher Level and Position) Retest system.
- **Still Poor Operation:** Go to Step 21



Replace IRP2+ and Flasher(s)

Reconnect the system with a new IRP2+ and new flasher(s).

- **Poor Operation Continues:** Go to Step 22



Interference that Does Not Light the IR Test LED

Some very rare examples of interference (both optical and electro-magnetic) do not light up the IR test LED but do prevent proper operation. Go to steps 36 and 37. Examine your installation carefully for a source of low-level optical or electromagnetic interference.



Disconnect All Sensors and Keypads and Test One Sensor Input

Disconnect all Sensors and Keypads. Reconnect one of the sensor cables and retest the system (Have someone watch the green IR LED on the IRP2+ while you aim a remote control at a remote sensor and press a button).

- **IR Test LED Flashes:** Go to Step 24
- **IR Test LED Off:** Go to Step 25



Test Second Sensor Input

A) If you DO NOT have a second sensor/Keypad, Go to Step 25.

B) If you DO have another sensor/keypad, connect it to the second sensor input. Retest the system (Have someone watch the green IR LED on the IRP2+ while you aim a remote control at a remote sensor and press a button).

- **IR Test LED Flashes:** Go to Step 12
- **IR Test LED Off:** Go to Step 25



Bad Connections at the IRP2+ and/or at the Sensor/Keypad.

Verify that all connections are good both at the IRP2+ Sensor Inputs and at the remote sensor/keypad. Check that the jacket of each conductor has been properly stripped and

inserted into the connector. Examine the connectors for a hair-like filament of wire between any of the contacts. Repair as necessary. Retest the system (have someone watch the green IR LED on the IRP2+ while you aim a remote control at a remote sensor and press a button).

- **IR Test LED Flashes:** Congratulations!
- **IR Test LED Off:** Go to Step 26



Test Cable for Shorts

Disconnect the cable at both ends (at the sensor and at the IRP2+) and test it for shorts. Use an ohm meter or electrical continuity checker. You should read an open (Infinite Ohms) between Red and Bare, Red and Black or Bare and Black. If you find a short, replace or repair the cable as necessary. Retest the system (Have someone watch the green IR LED on the IRP2+ while you aim a remote control at a remote sensor and press a button).

- **IR Test LED Flashes:** Congratulations!
- **IR Test LED Off:** Go to Step 27



Test Cable for Opens

At one end of the cable, twist the exposed copper ends of the Red (+) and the bare (GND) conductors together. At the other end of the cable, use an Ohm meter or continuity checker to check for a break in the cable. You

should read a short (zero ohms) between the exposed copper ends of the Red (+) and the bare (GND) conductors. Repeat this test with the Red (+) and the Black (DATA) conductors. If you find an open, replace or repair the cable as necessary. Retest the system (have someone watch the green IR LED on the IRP2+ while you aim a remote control at a remote sensor and press a button).

- **IR Test LED Flashes:** Congratulations!
- **IR Test LED Off:** Go to Step 28



Connect Sensor to Other Input of the IRP2+

Disconnect the sensor and reconnect it to the other sensor port on the IRP2+. Retest the system (Have someone watch the green IR LED on the IRP2+ while you aim a remote control at a remote sensor and press a button).

- **IR Test LED Flashes:** Congratulations!
- **IR Test LED Off:** Go to Step 29



Replace the IRP2+ and/or the Sensor/Keypad

If you have another IRP2+, sensor or keypad, change it and retest the system, otherwise return the IRP2+ and the sensor/keypads to your local Niles dealer for testing.

30

Disconnect All Sensors and Keypads

Observe the IR Test LED.

- **IR Test LED is ON or Flickering:** Go to Step 33
- **IR Test LED is OFF:** Go to Step 35

31

Move the IRP2+ to avoid Electromagnetic Interference

It is possible that the IRP2+ is receiving electromagnetic interference from a nearby television or other appliance. Move the IRP2+ to another location and reconnect the power supply. Observe the IR Test LED.

- **IR Test LED is ON or Flickering:** Go to Step 34
- **IR Test LED is OFF:** You have EMI in your original location. Relocate the IRP2+ according to the guidelines on Page 5.

32

Replace the IRP2+

If you have another IRP2+, exchange it and retest the system, otherwise, return the IRP2+ to your local Niles dealer for testing.

33

Test First Sensor Input

Connect one sensor/keypad to the first Sensor Input. Observe the IR Test LED.

- **IR Test LED Off:** Go to Step 36

- **IR Test LED is On or Flickering:** Go to Step 37

34

Test Second Sensor Input

A) If you DO NOT have a second sensor/keypad, Go to Step 12.

B) If you DO have another sensor/keypad, connect it to the second sensor input. Observe the IR Test LED.

- **IR Test LED is On or Flickering:** Go to Step 37
- **IR Test LED Off:** Go to Step 12

35

Test for Shorts

A) Verify that all connections at the IRP2+ are correct. Look for a hair-like filament of wire between the two contacts.

B) Verify that the sensor/keypad connections are correct. Look for a hair-like filament of wire between the two contacts.

C) Disconnect the sensor/keypad cable at both ends and test the cable itself for shorts. Use an ohm meter or electrical continuity checker. You should read an open (Infinite Ohms) between Red and Bare, Red and Black or Bare and Black. After testing all connections and cable, observe the IR test LED.

- **IR Test LED is On or Flickering:** Go to Step 38
- **IR Test LED is Off:** Congratulations



Test for Optical Interference

Reconnect the problematic sensor/keypad to the IRP2+. Cover up the Sensor with a piece of cardboard (your hand will actually create electromagnetic interference under some conditions). Observe the IR test LED.

- **IR Test LED On or Flickering:** Go to 37
- **IR Test LED Off:** Go to 36



Optical Interference

Identify the source of the interference. The most common sources of optical interference are listed in the order of their probability:

- A) Sunlight. Reflections from windows, mirrors, swimming pools, shiny floors or objects.
- B) Fluorescent light fixtures.
- C) Neon signs.
- D) A malfunctioning IR Remote Control.
- E) A malfunctioning Infrared Motion Detector on your Security system.

Either re-orient the sensor or move the source of interference. Nilis infrared sensors have built-in filters to attenuate the effect of visible light. If you add additional filtration you will reduce the effectiveness of the system with remote controls as well as the interference.

If you are using the MS-1 or the MS-2 miniature sensors consider exchanging them for IRR-4D, TIR-1 or the CMS-3 ceiling sensor. These three sensors have AGC circuits which serve as automatic filters.

If you choose to attempt to filter an MS-1 or MS-2, try a temporary material (e.g. a single thickness of facial tissue) and test whether filtration will solve the interference and still give acceptable range.



Electromagnetic Interference (EMI)

Identify the source of the interference. The most common sources of electromagnetic interference are listed in the order of their probability:

- A) Televisions (particularly large direct view sets).
- B) Wall-mounted light dimmers or variable speed controls for ceiling fans. These controls emit more interference when turned down halfway. They emit little or no interference when turned up all the way (brightest position).
- C) Fluorescent lights (the electronic ballast sometimes emits EMI)
- D) Large appliances (air-conditioners, pumps, motors, compressors etc.)
- E) AC line noise (noise brought into the system

via the wall outlet connected to the IRP2+) Identify the EMI source by turning potential sources on and off (or fully up and fully down) and watching for any change in the IR Test LED on your IRP2+. Once you have identified the source of interference:

- 1) Move the sensor or the sensor cable away from the EMI source or move the source of the EMI away from the sensor or the cable.
- 2) Shield the sensor with a metal J-Box.
- 3) Connect the Sensor's GND terminal to true earth ground (if this isn't feasible use the IRP2+ GND terminal).
- 4) Place a ferrite ring around the cable creating the interference. Ferrite rings can be purchased from an electronic supply store.

IMPORTANT

For the IntelliPad's status feedback feature to work, the pre-amp/receiver controlling your system should have a switched AC outlet, a switched outlet is a 120v AC outlet that switches off, when the preamp/rec-eiver is off and switches on when it is on via remote control.

Power Status — Introduction

By adding an IntelliPad™ to your IRP2+ Infrared Extender System you will add a remarkable level of convenience to your system. The IntelliPad is the world's first programmable, wall-mounted keypad system that provides a unique L.E.D. power status display and the convenience of true one-touch remote control of complex audio/video systems.

The IntelliPad's status feedback feature eliminates the guesswork common with standard IR control systems. The power L.E.D. on the IntelliPad indicates the On/Off condition of the system's preamp/receiver.

Built-in intelligence tracks the On/Off condition of the preamp/receiver so the IntelliPad knows when it's appropriate to issue the power command, even when the user doesn't. The system maintains perfect synchronization between the amplifier and the user.

By combining an optional Niles 12vDC power supply with your IRP2+ you can send a status signal to an IntelliPad without running any additional wiring. Built into the IRP2+ is a Niles Status Signal Generator. When the IRP2+ sees 12vDC at the status jack it broadcasts a Status signal over your existing IR sensor wires. Any IntelliPad connected to one of your sensor wires will display power status.

The IntelliPad®

Source Select Keys

A single press of one of these keys will:

1. Turn on the Preamp/Receiver if it was off.
2. Change the input of your pre-amp/receiver to the selected source.
3. Changes the function of the Source Control Keys so that they operate the selected source.
4. Display which source is selected by backlighting the corresponding Source Label.
5. Turn on the local speakers (un-mute the speaker relay)

Status LED

When the preamp/receiver is on, the status LED is lit. The color of the LED displays whether the local speakers are on or muted.

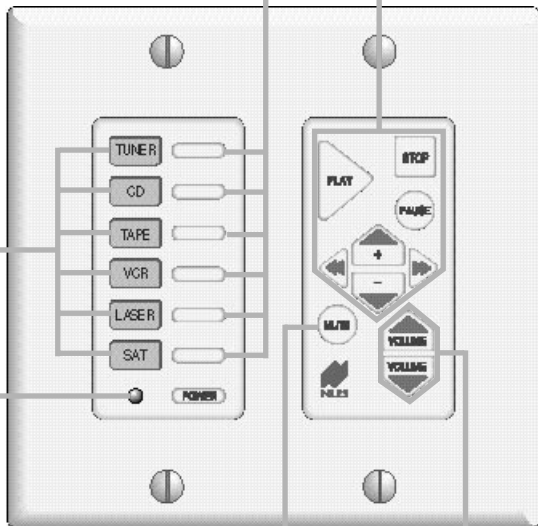
GREEN - Local Speakers and the Preamp/Receiver are on

RED - Local speakers are off, but the system is on.

OFF - System is off.

Source Control Keys

A touch to any of the source control keys will operate the selected source only.



Mute Key

A touch to this key controls the IntelliPad's built in speaker mute feature. You can mute the local speakers anytime, by pressing the Mute Key. To turn the local speakers back on (or unmute) you may press either the Mute key or one of the six Source Select keys.

Volume Key

This key raises and lowers the volume of your main system amplifier.

**CONVERTING
A LOW
VOLTAGE
CONTROL
OUTPUT TO
12vDC**

Many components, particularly surround processors and digital preamplifiers, provide a low voltage whenever the component is "on" rather than in "standby". For the IRP2+ to correctly broadcast power status you must install an optional Niles OTI-512 Opto-Isolated trigger interface. The OTI-512 will convert 3-30 volts AC or DC to 12vDC.

Power Status — Installation Considerations

Proper Power Supply

You must connect a Niles 12vDC wall adapter (Niles FG00665) into the switched AC power outlet of the preamp/receiver in your system. Any 12vDC power supply with a minimum of 100mA current capacity can be substituted.

Extending the Cable

If you must extend the cable from the wall adapter to the IRP2+'s status input jack be sure to maintain correct polarity. The tip of the plug should be positive (+) and the sleeve negative (-). Any 16 gauge 2-conductor cable can be used to extend the power status cable up to 200 feet.

Checking the Power Supply

It is possible to check the status power supply itself and any connections that were made to extend the cable by inserting the status plug into the Power jack on the IRP2+. If the Power LED lights the status power supply and connections are OK. If the Power LED does not light check all connections and replace the power supply if necessary. For more details on incorporating the IntelliPad please refer to the IntelliPad's users manual.

INFRARED EXTENDER - MAIN SYSTEM UNIT

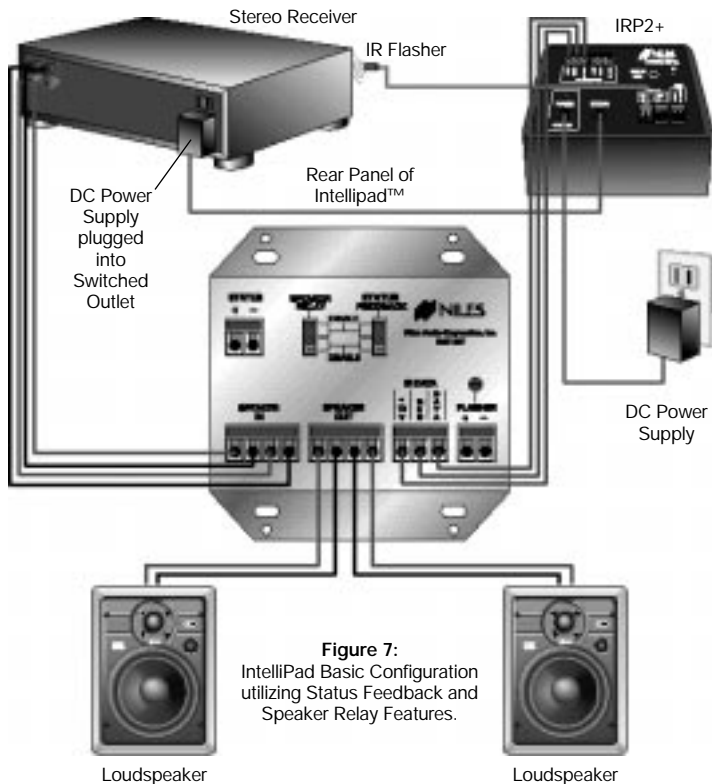


Figure 7:
IntelliPad Basic Configuration
utilizing Status Feedback and
Speaker Relay Features.

Specifications

IR System

Compatible with virtually all brands of remotes using carrier frequencies between 18 and 100kHz. As of this publication date, the only known components using carrier frequencies outside this range are Bang & Olufsen components and 1996 model year Pioneer receivers using the ISC remote control (e.g. VSX-D704S).

Wiring Requirements

Individual home-runs of 2 conductor shielded cable from each sensor/keypad, West Penn D291 or equivalent

Unit Dimensions

4" wide x 1 3/4" high x 2 7/8" deep

Power Requirements

12 vDC 500 mA power supply (included).



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