

TIR1+



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TABLETOP INFRARED SENSOR



INSTALLATION & OPERATION GUIDE

# TIR1+

## Tabletop Infrared Remote Sensor

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## Introduction

The TIR1+ is a tabletop, infrared sensor designed for use with the Niles infrared extender systems.

Installed in a remote room location, the TIR1+ receives the IR commands transmitted from your hand-held remote(s). The IR commands are carried via a small 2-conductor shielded cable to your A/V equipment in another room, and instantly "repeated".

The TIR1+ represents one of the 3 building blocks necessary to complete a Niles IR repeating system:

- IR Main System Unit—Models IRP2+, IRP6+, IRZ6+, IntelliControl® and RVL-6
- IR Sensors/Keypads—Models IRR4S+, IRR4D+, SCW-UIR, TIR1+, MS-1, MS-2, CMS-3 and the IntelliPad®.
- IR Flashers—Models IRC-1 and the IRC-2.

An IR sensor expansion unit, Model XRP6+, is available for IR repeater systems used in more than six rooms.

## Features and Benefits

### Power Status and Flashback Display

The bi-color LED display on an TIR1+ sensor eliminates the guesswork common with other IR control systems. The green LED indicates the on/off condition of the system's preamp/receiver. Whenever your preamp/receiver is on the LED glows green, when it is off, the LED is off. When the TIR1+ receives a signal from your hand-held remote control, the LED flashes red.

### Sunlight Filter

Included with the TIR1+ is a square piece of black plastic grille. This is a sunlight filter which allows the TIR1+ to be used in a location where sunlight falls directly on the sensor. With the filter installed, the TIR1+ will operate with reduced range (8 to 12 feet) in direct sunlight.

### Backwards Compatible with Niles IR Repeaters w/o Status

If connected to an IRP-2, IRP-6A, IRZ-6A or IntelliControl® IR Main System Unit, the TIR1+ will operate fine but without the "power status" feature. The LED will flash red when a signal is received. Niles' new line of IR Main System Units (IRP2+, IRP6+, IRZ6+, and the RVL-6) have built-in technology which broadcasts the power status of your preamplifier/receiver.

### Improved Rejection of Electro-Magnetic Interference (EMI)

The TIR1+ has been redesigned with a superior shield to reduce EMI interference.

### Universal system

Compatible with most brands of A/V equipment and remotes using carrier frequencies 26 to 60 kHz.

### Greater IR Receiving Range

18 to 30 feet of remote control range instead of the typical 15 to 25 (depending upon the strength of remote control, actual range may vary).

### Removable connector

Simplifies installation.

### Guaranteed Performance

The TIR1+ is backed by a two year parts and labor warranty.

### Made in the USA

The TIR1+ is proudly manufactured in Miami, Florida.

## Installation Considerations

### Type of Cable

The TIR1+ connects to the Niles Infrared Systems with an individual home run of 2-conductor shielded cable. Recommended cables are Niles data grade IR cable, West Penn D291, Belden 8761, Carol C2516 or equivalent, made of two 22 gauge (or larger) conductors surrounded by a foil shield and a bare drain (ground) wire.

*DO NOT USE UNSHIELDED CABLE WITH THE TIR1+.*

### Sensor Location

The TIR1+ is ideal for use in applications when wall, ceiling, or flush-mounting is undesirable. Its small size and unobtrusive appearance makes it ideal for installation on a tabletop, on a shelf, or in any other convenient location. Locating the TIR1+ close to the primary location of the user will ensure the best performance.

If you are installing the TIR1+ in the same room as a flasher, be careful that the IR output from the flasher is not received by the TIR1+. An optical feedback loop will occur when a flashers' IR output is picked up by an IR sensor. This effect is similar to acoustical feedback: the howling or whistling sound heard in a P.A. system when the microphone is too close to the speaker. To avoid optical feedback:

1. Lower the output power of the flasher(s) using the variable flasher level control(s).
2. Re-position the flasher(s) and/or the sensor.
3. Use Niles IRC-2 flashers and cover them with the supplied blockers.

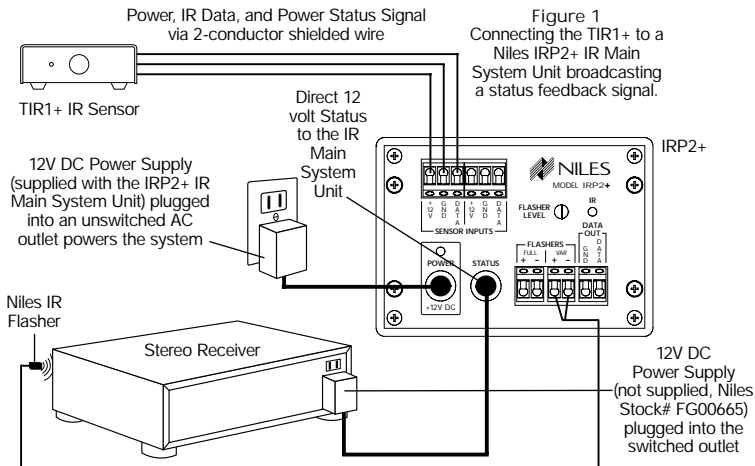
### Avoiding Interference

Avoid locating the TIR1+ near potential sources of electrical or optical noise, such as light dimmers, florescent lighting fixtures, low-voltage lights, and TVs (both tube-type and projection-type).

#### "TECH TIP"

Do not install the MS-1 next to a light dimmer, or where it will be exposed to direct sunlight.

## TABLETOP INFRARED REMOTE SENSOR



### Using the Power Status Display

The Green power status LED can only be activated by a “power status” broadcast from a Niles IR Main System Unit (IRP2+, IRP6+, IRZ6+ or the RVL-6). The IR Main System Unit will broadcast the power status signal if the preamp/receiver is on and a 12V DC wall adapter is plugged into the preamp/receiver’s switched AC outlet and the 3.5mm plug is connected to the IR Main System Unit’s Status input jack. See (Figure 1).

### Using the Sunlight Filter

The use of the sunlight filter will reduce the receiving range of the TIR1+ to between eight and twelve feet. The filter is installed behind the red lens, see (Figure 2). Use tape or glue to affix the filter to the rear of the red lens.

Note: The 12V DC wall adapter plugged into the switched outlet of the stereo receiver is not included with the IR Main System Unit. It should be 12V DC with a minimum of 100mA of output. It can be ordered from your Niles dealer (FG00665 Power Status Wall Adapter).

When running wires inside walls, most states and municipalities in the U.S. specify that you must use a special type of wire. Usually, the requirement is that the wire has a specific "CL" fire rating, such as "CL-2" or "CL-3".

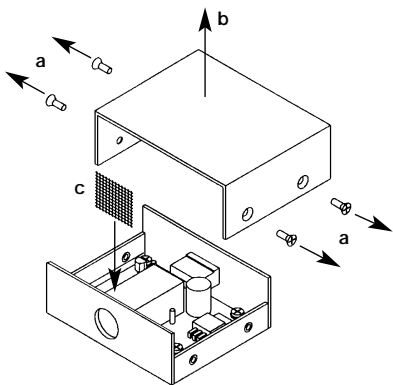


Figure 2 Inserting the Sunlight Filter into the TIR1+.

- a. Remove the side screws from the TIR1+ cover.
- b. Remove the cover by lifting straight up.
- c. Insert the Sunlight Filter behind the red lens.

## INSTALLATION

### Step by Step

1. The TIR1+ is a small free-standing box designed to sit on a shelf or other convenient surface. The unit can be mounted under a shelf using double-sided tape or Velcro® (not supplied).

2. Run the cable to the TIR1+. Label the cable for future reference. See (Figure 3).

### TIR1+ Wiring Configuration

PIN 1 = RED (+12V DC)

PIN 2 = BARE (GND)\*

PIN 3 = BLACK (DATA)

\*You must use the bare drain wire for the ground connection

Note: The color code shown above is for West Penn D291 IR cable. Actual color code of recommended cables may vary.

3. Make the connections to the TIR1+. Locate the connector on the TIR1+ and remove it. See (Figure 4).

4. Next, strip 1/4" of insulation from the end of each wire. Tightly twist the end of each wire until there are no frayed ends. Insert each wire into the appropriate hole on the removable connector block; secure the wiring to the connector by tightening the small connector screws.

5. Double-check all connections. Plug the connector back into its socket on the TIR1+.

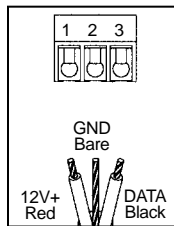


Figure 3  
Wiring connections to the TIR1+.

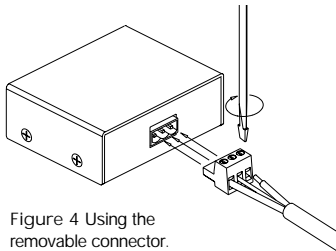


Figure 4 Using the removable connector.

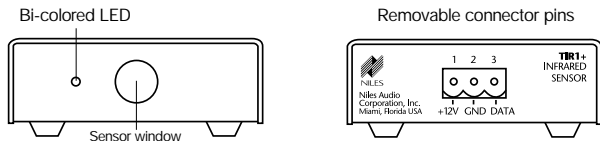


Figure 5 Parts Guide.

## OPERATION

Operation of the TIR1+ is simple. Stand within the operational range of your TIR1+. Aim your hand-held remote at the TIR1+ and press the button for the desired command. Your IR command is instantly repeated to your A/V equipment.

### Green "Power Status" LED

When the TIR1+ is correctly connected (as shown in Figure 1), the Green LED will stay lit as long as the preamp/receiver is on. When your preamp/receiver is off, the LED will stay off.

### Red "Flashback" LED

The Red "flash-back" LED on the TIR1+ visually confirms the reception of an IR command.

## TROUBLESHOOTING

This manual contains instructions for the TIR1+ only. For specific information on the adjustment and operation of your Niles infrared extender system, please refer to the instruction manual included with your Niles IR Main System Unit (IRP2+, IRP6+, IRZ6+, RVL-6, IntelliControl®).

The bi-color Red/Green LED on the front of the TIR1+ is a useful troubleshooting aid.

The Red LED should light only when a remote command is being received. If the LED on the TIR1+ "flickers" dimly, and the TIR1+ functions normally, there is no cause for concern.

The Green LED should light only when the preamp/receiver is on. If it flickers or pulses:

1. Check for shorts at the sensor, at the IR Main System Unit and along the wire.
2. Check that the power status wall adapter has an output of at least 12V DC 100mA. AC output will cause the Status LED to pulse. Inadequate voltage or current will prevent it lighting at all.

If the TIR1+ does not work, and the Red Flashback LED does not light at all:

1. Test the remote control(s) by operating the A/V equipment directly. Replace the batteries if needed.
2. Double check the cable connections on all TIR1+'s and on the IR Main System Unit. Look for open, shorted or reversed wires.

If the TIR1+ does not work, and the Red LED remains solidly lit:

1. Double check the cable connections on all TIR1+'s and on the IR Main System Unit. Look for shorted or reversed wires.
2. Test for type of interference:
  - Cover the sensor window with a piece of cardboard, plastic or other opaque material (do not use your finger—it can act as an antenna for Electro-Magnetic Interference EMI). If the LED stops flickering you have optical interference.

If the LED continues to flicker you have EMI.

3. Identify the source of the Interference:

- Turn off florescent, neon or halogen lights in the room.
- Turn off light dimmers, beginning with those closest to the TIR1+. *Dimmers create the most EMI in the halfway position.*

Observe the TIR1+ LED while performing all the tests. It is possible to have interference from more than one source.

4. Eliminating Optical Interference

- Re-orient the sensor
- Move the sensor
- Hood the sensor
- Install the sunlight filter

5. Eliminating Electro-Magnetic Interference (EMI)

- Use shielded wire
- Ground Pin 2 to local house ground.
- Move the sensor

Contact Niles Technical Support at 1-800-289-4434 if you require further assistance.

## Specifications

### IR System

Compatible with virtually all brands of remotes using carrier frequencies between 26 and 60 kHz

### IR Receiving Range

18' to 30' depending upon the strength of the remote control

### IR Receiving Angle

60° off-axis (horizontal and vertical) at 18'

### Mounting

Table-top

### Wiring Requirements

Individual "home-runs" of 2-conductor shielded cable, West Penn D291 or equivalent

### Unit Dimensions

3-1/8" wide x 1-5/16" high x 2-7/8" deep



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