

TROUBLESHOOTING

This manual contains instructions for the MS360 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.

IR Troubleshooting

There are four basic problems which can prevent proper operation of your MS360 sensor. In the order of probability, the problems are as follows:

Bad Connections or Wiring

If the connections or wiring are wrong, loose, shorted or open, the system will not operate properly. The symptoms may include intermittent operation or no operation.

1. Test power supply connections.
2. Test your sensor connections.
3. Test your flasher connections.
4. Test your cable for shorts or opens.

Flasher Level is Too High

Many audio/video components' 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.

1. Connect the flasher(s) to the variable output of the main system unit, and reduce the output level to one half.
2. Move the flasher further away

or off to the side of the sensor window. Replace the sticky tab on the flasher and only reapply when you are sure the new location is perfect.

Optical or Electromagnetic Interference

Sunlight, reflections, neon signs and other sources of electromagnetic fields can induce noise and interference into your IR extender system. Common sources of electromagnetic interference may be: Large direct-view televisions, wall-mounted dimmers/ceiling fan controls (these devices emit more interference when turned down halfway), fluorescent/neon/halogen lights, and large appliances. Symptoms can include poor IR receiving range, intermittent operation, or no operation. To test the system for freedom from interference, carefully observe the IR test LED on your IR Main System Unit. If the LED does not flicker, you do not have interference. If there is any flickering of the LED, return to the remote room location and use tape or paper to entirely cover all three of the sensing diodes (do not use your hand—it will disrupt the test with your body's magnetic field). Return to the IRP unit and observe the IR LED on the IR Main System Unit.

If the LED stops flickering you have optical interference. Install the sunlight filters over the sensing diodes or if the interference is weak, use the 1/2 strength filters.

If the LED continues to flicker when the sensing diodes are completely

covered, the interference is not optical, it is electromagnetic or RF. Your options are:

1. Ground the MS360's shield (the bare wire) to a true earth ground—preferably as close to the MS360 as possible.
2. Replace with a Niles MS-1 miniature sensor. This sensor has two fewer sensing diodes and is thus 60% less sensitive to EMI.
3. Locate the source of interference and move it or destroy it.
4. Find a location for the sensor that is free of interference and move the sensor, patch the ceiling and repaint to match the existing paint.

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 normal operation. Symptoms may include: poor IR receiving range, intermittent operation, or no operation.

1. Replace IRC-1 flooding flashers with IRC-2 stick-on flashers and cover with the supplied IR blocking covers.
2. If equipment is housed in cabinetry, keep the doors closed when using the IR repeater system.

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 20 and 110 kHz

IR Receiving Range

25' to 40' depending upon the strength of the remote control

IR Receiving Angle

Omni-directional

Mounting

Ceiling-mount, includes all mounting hardware

Wiring Requirements

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

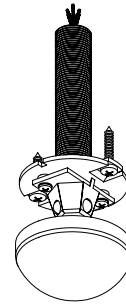
Unit Dimensions

1/2" Wide x 2-7/8" Deep
LENS 1-1/2" Diameter x 5/8" High



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INSTALLATION & OPERATION GUIDE



MS360

OMNI-DIRECTIONAL CEILING-MOUNT IR SENSOR

INTRODUCTION

The MS360 is an omni-directional, ceiling-mount infrared sensor designed for use with the Niles infrared extender systems.

Installed in a remote room location, the MS360 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 MS360 represents one of the 3 building blocks necessary to complete a Niles IR repeating system:

- IR Sensors/Keypads—Models IRR4S+, IRR4D+, MS360, MS-1, MS-2, TIR1+, RP-6, RP-7, RP-9 and the IntelliPad®.

FEATURES & BENEFITS

Long Range MicroSensor™ Infrared Extender Circuitry
The Niles MS360 offers revolutionary real world range because of its proven MicroSensor circuits. Based on the acclaimed Niles MS-1 and MS-2 MicroSensors, the MS360 incorporates cutting edge technology to optimize range and reliability. Niles engineers measured performance in real world conditions with interference. Backwards compatible with any Niles IR extender system, the MS360 offers a new level of convenience to anyone using an IR extender system.

Small Size for a Discrete Installation

The MS360 fits into a 1/2" opening in the drywall, and the diameter of the entire dome is only one and one half inches. Additionally, since all of the interior parts of the new MS360 are pre-painted white to blend in, the appearance of the dome is very discrete.

Three Sensing Diodes Insure 360 Degree Coverage—The World's Only Omni-directional IR Sensor
A conventional infrared sensor mounted in the ceiling would direct its cone of sensitivity straight down—giving you inadequate range from anywhere in the room except directly underneath the sensor. Niles engineers have cleverly combined three separate sensing diodes onto one mounting assembly to give you enhanced range in all directions. Advanced electronics sum the three separate inputs with incredible reliability and accuracy.

New Total Diode Shielding to Prevent EMI

Not only is the housing of the MS360 the same rigid EMI proof metal cylinder used in the proven MS-1, but the entire board incorporating the three sensing diodes is surrounded with a carefully fitted shield.

- IR Main System Unit—Models IRP2+, IRP6+, IRZ6+, RVL-6 and MRZ-6.

- IR Flashers—Models IRC-1, IRC-2, and IRC-2P.

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

Filters For Optical Interference

Each MS360 is supplied with installer-friendly optical filters enabling the installer to selectively filter out sunlight or other types of optical interference. Since the optical interference may be from only one direction or from everywhere, three filters of each type are supplied. Full sunlight filters give a range of twelve feet in direct sunlight. Half sunlight filters prove useful in bright rooms and typically give more than twenty feet of range.

Made in the USA
Each MS360 is made with pride in Miami, Florida USA.



BLENDING HIGH FIDELITY
AND ARCHITECTURE®

INSTALLATION CONSIDERATIONS

Sensor Location

The MS360 is designed to be ceiling mounted in a direct line of sight location within the operating range of the remote control.

Using the Optical Interference Filters

As with any type of IR sensor, avoid locating the MS360 where it will be exposed to direct sunlight or very bright artificial light. Although the MS360 can be filtered to work even in direct sunlight, the range of operation will be severely reduced.

There are two filter strengths. The white self-adhesive paper squares are sunlight filters which enables the MS360 to function reliably in direct sunlight with limited range (typically less than 12 feet). The beige self-adhesive paper squares can be used when the optical interference is not as bright as direct sunlight. The beige squares give more range (typically about 20 feet).

Sometimes you need only filter one or two sides of the sensor, allowing you full range in the other unfiltered direction.

Type of Cable

The MS360 connects to the Niles IR main system unit with an individual "home run" (wired directly) of 2-conductor shielded cable. Recommended cables are West Penn D291, Belden 8761, Carol C2516 or equivalent that is 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 MS360.

SYSTEM CONNECTIONS

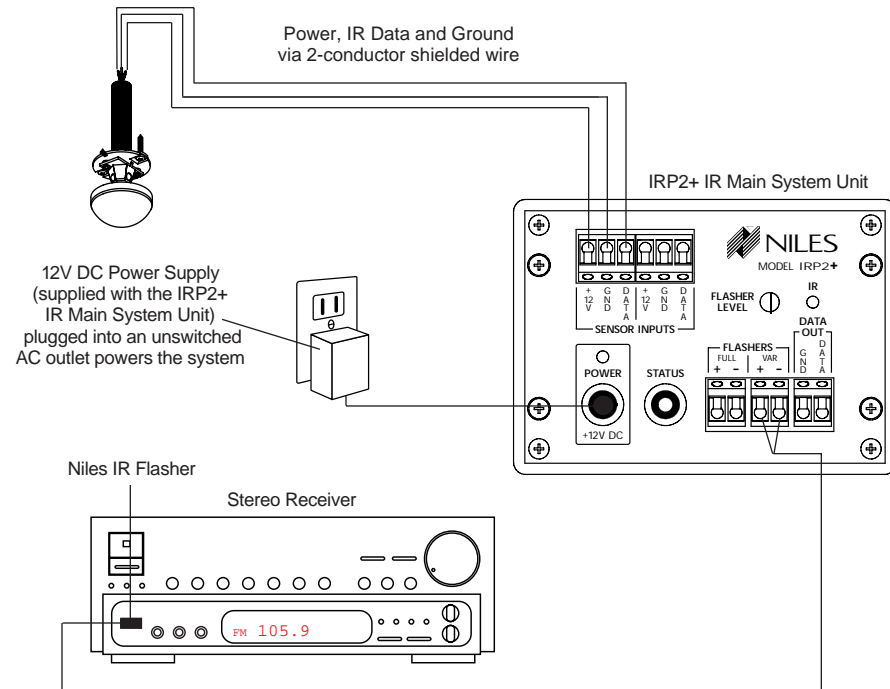


Figure 1: Connecting the MS360 to a Niles IRP2+ IR Main System Unit.

INSTALLATION

Step by Step

1. The MS360 requires a 1/2" circular opening for installation. Use a hole saw suitable for the mounting surface being cut. The hole can be cut during construction or after. The overall depth of the MS360 is 2 7/8", so if it is installed in 1/2" drywall it will extend 1 3/4" behind the ceiling.
2. Run the cable to the MS360. Label the cable for future reference. See (Figure 2).

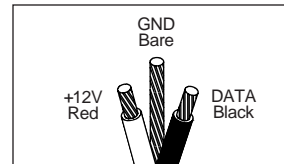


Figure 2

Wiring connections for the MS360.

3. Make the connections to the MS360. Strip 1/4" of insulation from the end of each wire. Tightly twist the end of each wire until there are no frayed ends. Match the Red to the Red, the Bare to the Bare and the Black to the Black. Solder or use wire nuts to connect the flying leads coming out of the MS360.

4. Insert the barrel housing of the MS360 into the hole in the ceiling. Use the two self-threading 1" screws to attach the sensor to the ceiling.

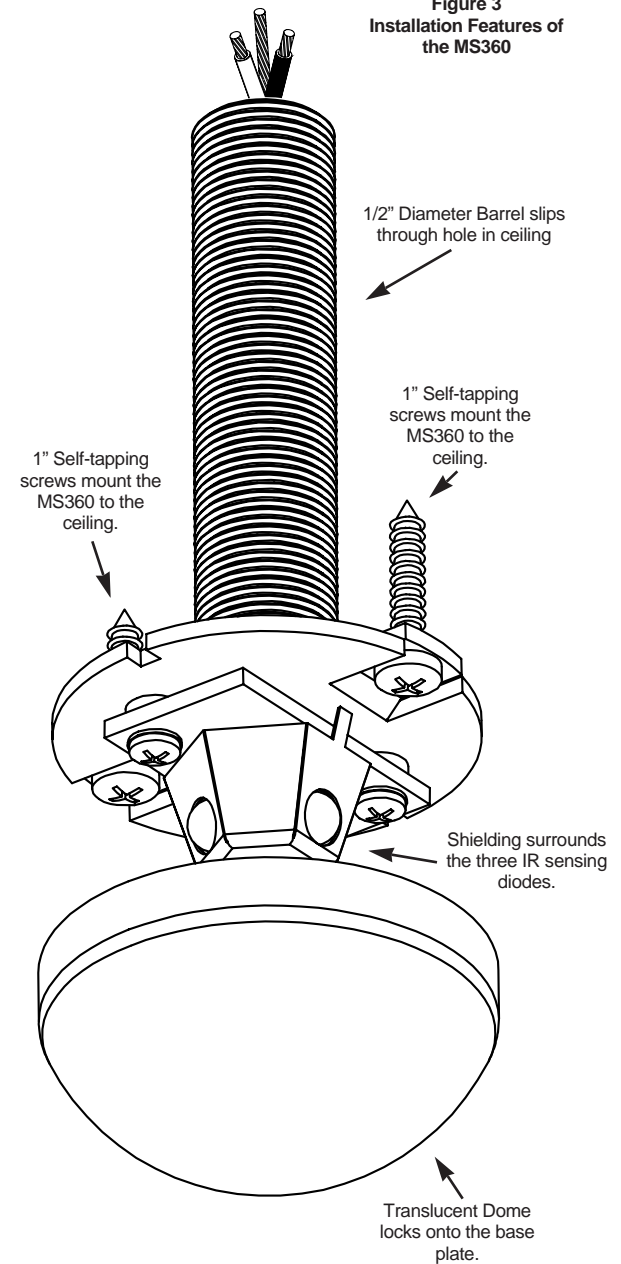
5. Connect the IR Data cable to the IR Main System Unit's sensor connections. Power up the Main System Unit.

6. Test the system for freedom from interference by observing the IR test LED on your Main System Unit.

If the LED does not flicker go to Step 7. If there is any flickering of the LED, go to TroubleShooting section under Optical or Electromagnetic Interference.

7. Install the dome onto the base of the MS360, observing the notch in the base and the corresponding ridge in the plastic dome. Lock the dome into place by rotating it in a clockwise direction until the dome is firmly attached.

Figure 3
Installation Features of
the MS360



OPERATION

Operation of the MS360 is simple. Stand within the operational range of your MS360. Aim your hand-held remote at the MS360

and initiate the desired command. Your IR command is instantly repeated to your A/V equipment.