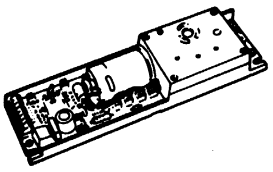
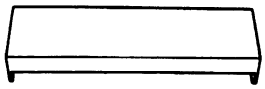
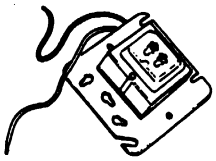
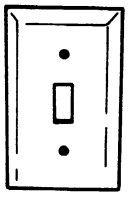
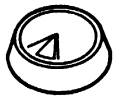
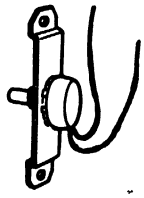
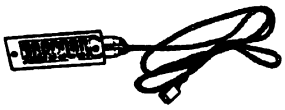
Sky Sentry®

Part I
Basic Installation

Motorized Skylight Operator

The Truth Sky Sentry Motorized Skylight System is state-of-the-art skylight hardware technology with four modes of skylight control:

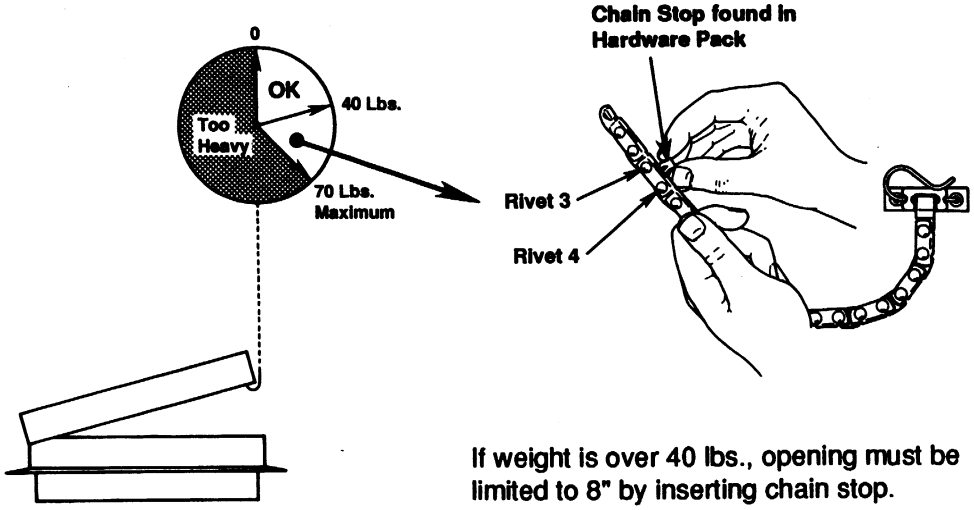
1. The **Wall Switch** lets you run the skylight at any time.
2. A **Rain Sensor** closes the skylight when moisture is detected.
3. A **Wireless Remote Control** is optional.
4. **Alternate Control Devices** (thermostat, computer, smoke detector, or humidity sensor) can also be used.

<table>
<tr>
<td> 
Motor Module
#10980</td>
<td> 
Motor Module Cover
#40680-XX</td>
<td></td>
<td></td>
</tr>
<tr>
<td> 
Transformer (50 VA)
#11280</td>
<td> 
Switch Cover Plate
#21010</td>
<td> 
Wall Switch Knob
#31406</td>
<td> 
Wall Switch
#10978</td>
</tr>
<tr>
<td> 
Rain Sensor
#21018</td>
<td>***Hardware Pack***
#10979
 
(2) #10 x 3/4 Flat Head Screws
(4) #12 x 5/8 Flat Head Screws
(1) Heat Shrink Tubing
(1) Chain Stop Insert</td>
<td colspan="2">**Tools Required**
(1) 4x4 Junction Box
(for transformer)
(1) Single Gang Elec. Box
(for wall switch)
(4) Wire Nuts
(2) - 22 gauge wire (switch)
(2) - 16 gauge wire (transf.)
#2 Phillips Screwdriver
1/4 Flat Blade Screwdriver
1/8 Flat Blade Screwdriver
Pliers</td>
</tr>
</table>

Before You Start

- **When you activate the motor system the first time** from the switch or any other control device, the skylight automatically closes and opens once before returning to the desired switch or other control device setting. This also happens the first time the motor system is operated after a power outage.
- If the line voltage range is not between 105 - 125 VAC, an electrician must evaluate the need for a **line conditioner**.
- Please take the time to acquaint yourself with the various **control options** by reading "Part II, Control Options."
- It is not possible to have more than one switch connected to a motor. In other words, you cannot have two switches in different locations controlling the same skylight.
- The Sky Sentry Motorized Skylight System is rated for indoor use only.

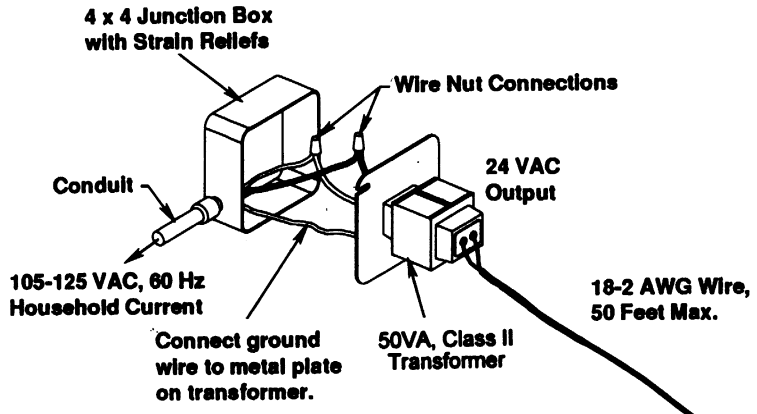
Step 1 Check Weight of Skylight's Lid



Skylight in horizonal position

If weight is over 40 lbs., opening must be limited to 8" by inserting chain stop.

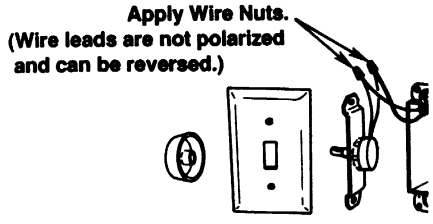
Step 2 Install Transformer



TRANSFORMER LOCATION: Install transformer in a cool, dry place where surrounding air temperature never gets above 150° F. Installation must meet local & national electrical codes.

Step 3 Install Wall Switch

ELECTRICAL NOISE: Control wires between switch and motor can pick up electrical "noise" if wires are parallel to other electrical wires that have high voltages and/or currents. Run control wires perpendicular to, or away from, high current and/or high voltage wires whenever possible.

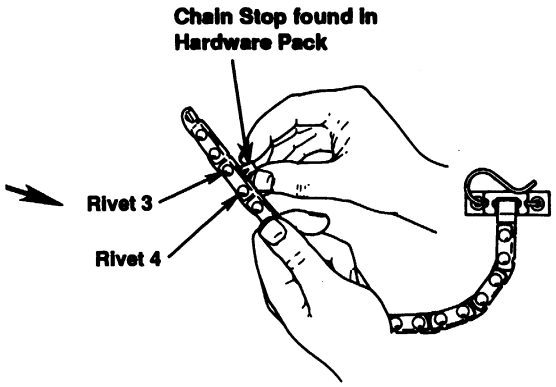


Safety Pr

DANGER: To help

- **Wiring must be install electrician according Electrical Codes (N.E.**
- **Disconnect main pow installation! Verify po with a voltage meter y correctly. Do NOT rec installation is comple**

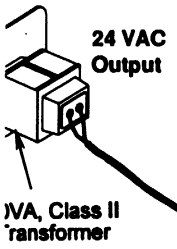
t of Skylight's Lid



If weight is over 40 lbs., opening must be limited to 8" by inserting chain stop.

ormer

Wire Nut Connections

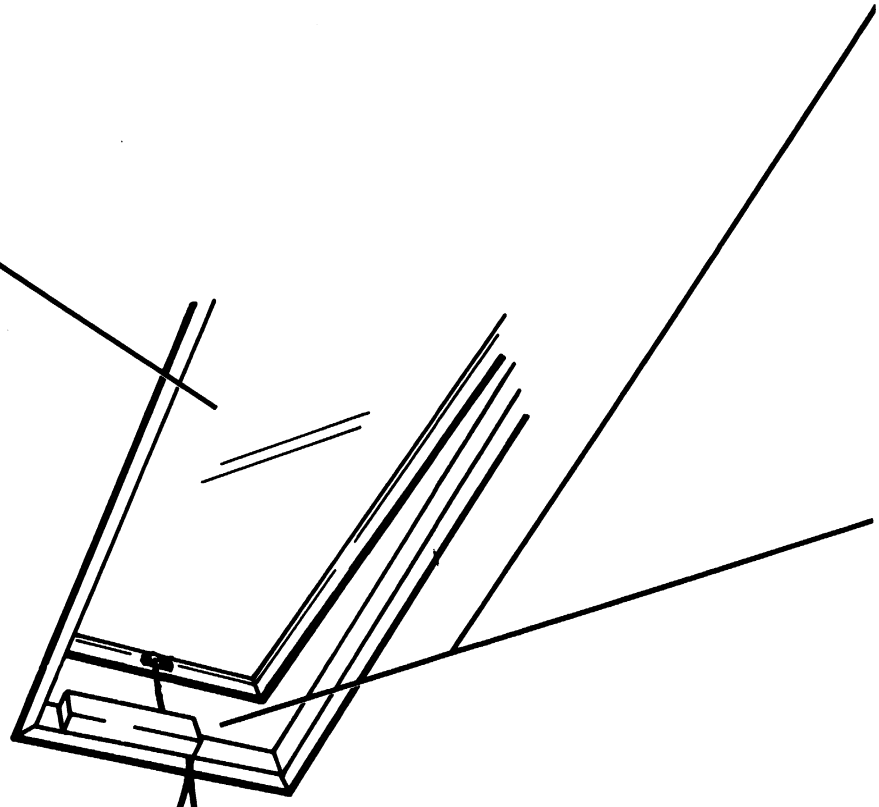


tall transformer in a air temperature never st meet local &

Safety Precautions

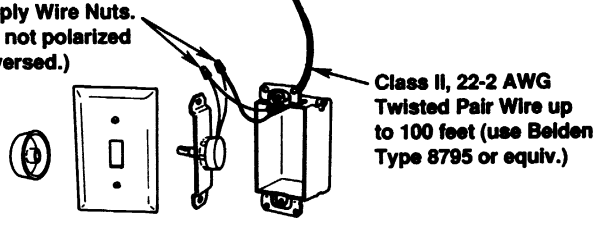
DANGER: To help prevent personal injury,

- **Wiring must be installed by a qualified electrician according to local and National Electrical Codes (N.E.C.). Use only Class II wire.**
- **Disconnect main power before beginning installation! Verify power is OFF by testing with a voltage meter you know is working correctly. Do NOT reconnect power until the installation is complete.**



Step 3 Install Wall Switch

ELECTRICAL NOISE: Control wires between switch and motor can pick up electrical "noise" if wires are parallel to other electrical wires that have high voltages and/or currents. Run control wires perpendicular to, or away from, high current and/or high voltage wires whenever possible.

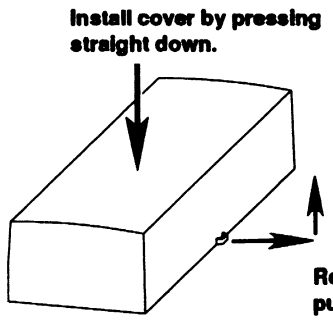


cautions

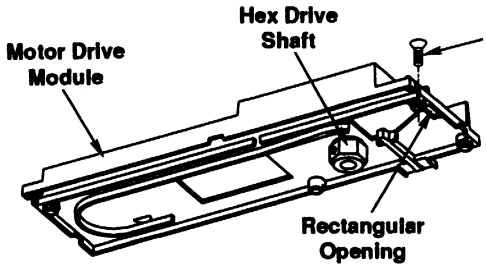
vent personal injury,
by a qualified
ocal and National
. Use only Class II wire.
before beginning
r is OFF by testing
know is working
nect power until the

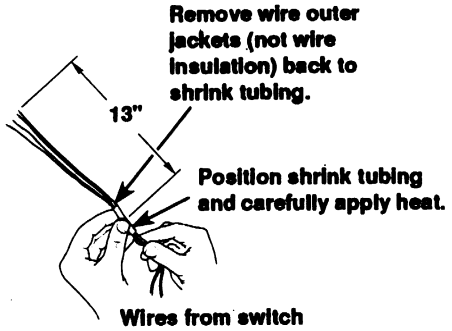
Step 5 Install Cover

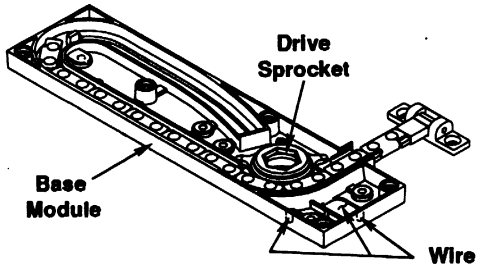
(See back page if installing a rain sensor)

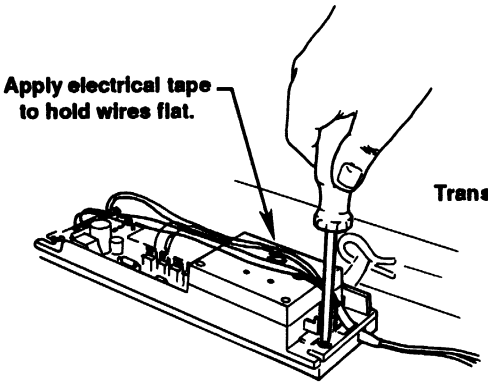


Step 4 Install & Wire Motor Drive Module







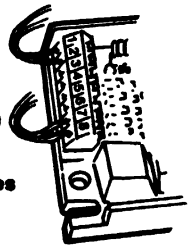


Switch Wires (Orange & Yellow) Connect to 1 & 2

(Note: Switch wires are not polarized and can be reversed.)

Transformer Wires (Blue & Red) Connect to 7 & 8

(Note: Transformer wires are not polarized and can be reversed.)



Class II, 22-2 AWG Twisted Pair Wire up to 100 feet (use Belden Type 8795 or equiv.)

Sky Sentry®

Part II Installation Options

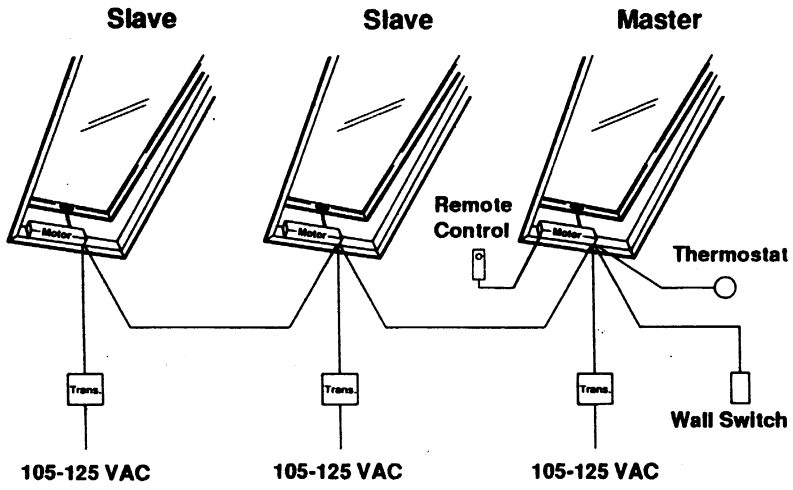
Controlling Multiple Skylights from One Control Device(s)

The method of controlling two or more skylights from a control device can be used with any or all other control methods of the Sky Sentry Motorized System. Follow the installation instructions for each control option. **Note: Up to 20 skylights can be controlled by one switch.**

CAUTION: Do not attempt to use this control method when two or more motors are applied to the same skylight.

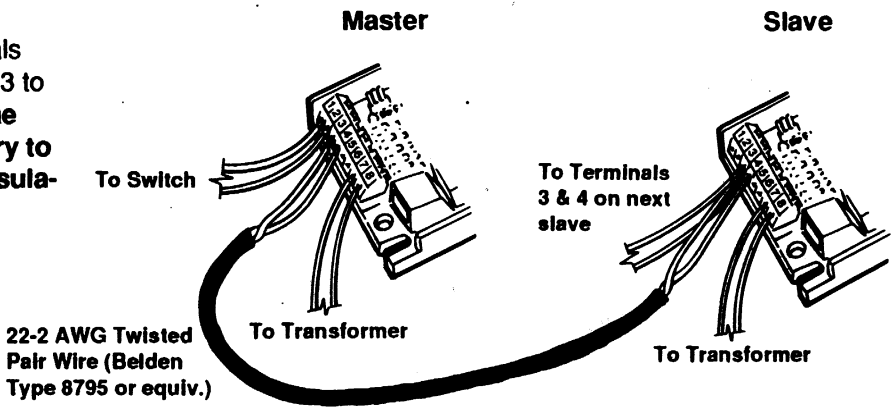
Establishing a Master Unit

To control multiple skylights from a single control device(s) (such as a switch, thermostat, remote control, etc.), the control device(s) must be connected to a single motor, which establishes the master unit. All other motors become slaves to the master unit.



Wiring

1. Each motor unit must have its own transformer. Install the transformer as outlined in Step 2 of "Part I, Basic Installation."
2. Wire the control device(s) to the master unit as indicated in Part I and/or Part II.
3. Connect the 22-2 AWG wire to terminals numbered three and four of each unit (3 to 3, and 4 to 4). **Note: Depending on the number of wires, it may be necessary to remove the wire jackets (not wire insulation) before applying shrink tubing.**



Using Rain Sensors

If you plan to install rain sensors, there are two options:

1. **Install one rain sensor on the master unit only.** (See "Part I, Basic Installation.") All skylights will close when the master unit detects rain.

OR

2. **Install one rain sensor on each unit.** (See "Part I, Basic Installation.") Each skylight will close when its own rain sensor detects rain. However, when the master unit detects rain, it will close any skylights still open.

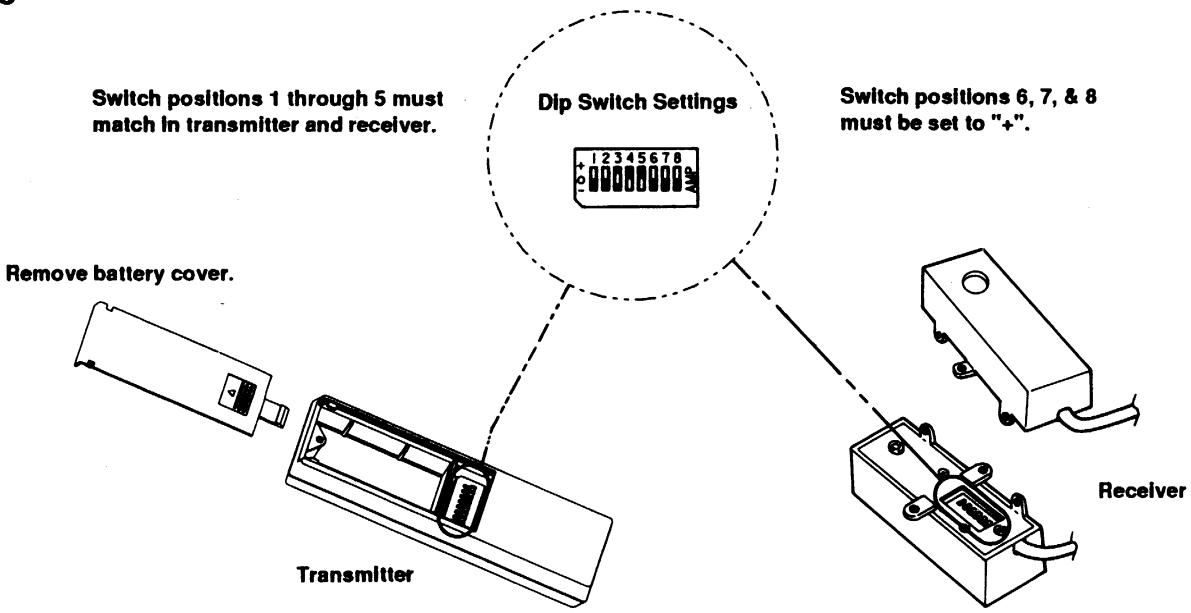
Things You Should Know about Using Rain Sensors

- When activated, the rain sensor will "hold" the skylight closed until the rain sensor dries off. If the rain sensor is detecting rain, and you try to open the skylight by activating either the wall switch or the remote control, the skylight will open and immediately close. The motor system is designed this way to alert the homeowner that the rain sensor is still detecting rain, or that the rain sensor is dirty and needs to be cleaned.

Remote Control

The remote control can be used in combination with any or all other control methods of the Sky Sentry Motorized System. Follow the installation instructions for each control option. **Note: The remote control transmitter requires a 9 volt battery.**

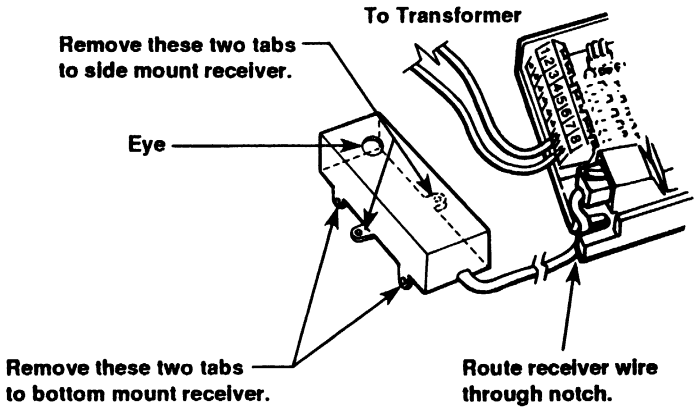
Coding the Transmitter to the Receiver



For a remote control transmitter to work with a receiver, both must be set to the same code. Each has a switch block containing eight switches, with each switch having three possible positions: "-", "0", and "+". There are 243 different code settings possible. **Note: Do not change the switch setting in positions six through eight in either the transmitter or receiver.**

Installation

1. Plug the receiver cord into the jack located next to the terminal block on the motor PC board.
2. Mount the receiver with two No. 4 x 3/8 pan head screws (included). **Note: Point the "eye" into the room.**



Operation

To open the skylight, press the "up" arrow on the transmitter until the skylight begins to move, then release. To stop, press the "down" arrow until the skylight stops, then release.
To close the skylight, reverse the procedure.

Controlling Two or More Skylights from One Receiver

This mode of operation allows simultaneous control of two or more skylights.

1. Wire the motor units together as outlined in "Controlling Multiple Skylights from One Control Device(s)."
2. Plug the receiver into the master unit only.

Controlling Two or More Skylights from One Transmitter

This mode of operation lets the operator control two or more skylights from one transmitter. Each skylight motor must have its own receiver.

1. Set each receiver to the same code as the transmitter.

Things You Should Know about Remote Control

- Sunlight shining directly into the receiver's eye will reduce range.
- For maximum range (approx. 50 feet), the transmitter must be pointed directly at the receiver's eye.

Thermostat Control

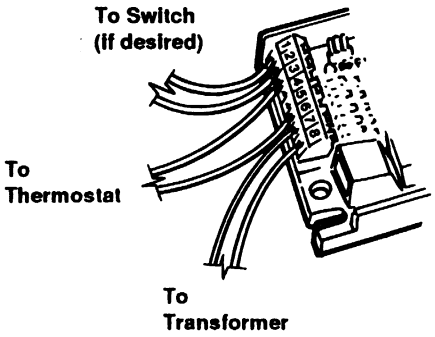
Thermostat control can be used in combination with any or all other control methods of the Sky Sentry Motorized System. Follow the installation instructions for each control option. **Note: Only one control device can be connected to terminal 6.**

Type of Thermostat

Use the type of thermostat that is used for heating purposes; it must have SPST (single pole, single throw) contacts. If any other kind of thermostat is used, see "Specialty Control Devices" section.

Wiring

1. Run two-conductor, 22-2, twisted pair wire (Belden type 8795 or equivalent) from skylight location to thermostat location.
2. Connect thermostat wires to skylight motor terminals numbered three and six. (It doesn't matter which wire is connected to which terminal at the motor or at the thermostat.)



Multiple Skylights Controlled by One Thermostat

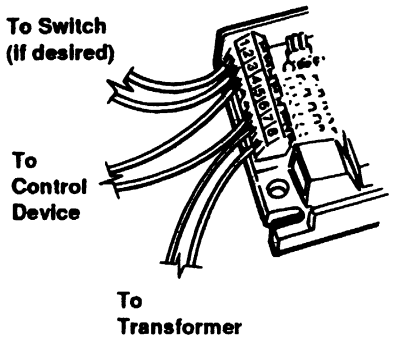
1. Wire thermostat to skylight motor terminals numbered three and six of the master unit only.
2. Connect master unit to slave units as indicated in "Controlling Multiple Skylights from One Control Device(s)."

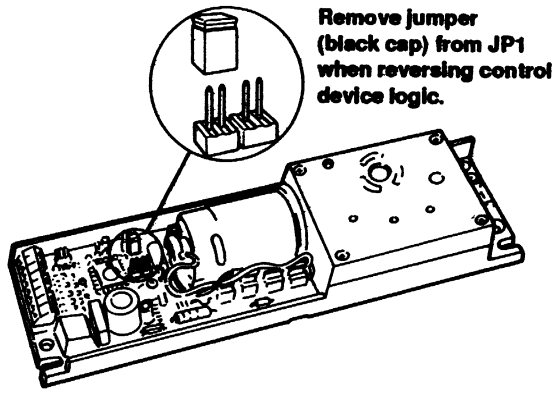
Things You Should Know about Thermostat Control

- The skylight will close when the thermostat calls for heat; it will open when the thermostat stops calling for heat.
- If a thermostat is used with a rain sensor, the skylight will close whenever it's raining, even though the thermostat is telling the skylight to open because it's too hot. If you have a situation where the thermostat must open the skylight even when it's raining, the rain sensor cannot be used.
- If the skylight is opened by a thermostat and closed by a rain sensor, the skylight will not open again when the rain sensor dries off. The skylight motor needs a second "open" command from the thermostat, the wall switch, or the remote control.

Specialty Control Devices

A specialty control device can be used with any or all other control methods of the Sky Sentry Motorized System. A specialty control device is considered to be any other type of control device that has not been previously covered, such as a smoke detector, humidity sensor, or computer control, etc. Follow the installation instructions for each control option. **Note: Only one control device can be connected to terminal No. 6.**





1. Connect specialty control devices (for computers, see below also) to motor terminals numbered 3 and 6.
2. With the jumper "JP1" (supplied) in place, the skylight(s) will close when the control device contacts are closed, and open when the control device contacts open. If the desired function is to have the skylight open when the control device contacts close, and close when the control device contacts open, remove the jumper labeled "JP1" on the PC board. **Note: If the desired result is for the skylight to open to vent smoke when a smoke detector is activated, the rain sensor cannot be used. If the rain sensor is used and is detecting rain, the smoke detector would not open the skylight when activated by smoke.**

Control from a Computer or a Programmable Controller

Hardware Requirements: The thermostat input of the skylight operator is to be used. It is a TTL level input (5 volt) and should be pulled to less than 0.8V with respect to circuit ground to activate the operator. Therefore, the controlling device should have a discrete open collector transistor or relay contact (Form A) output. The relay contact should be rated for a dry circuit (1mA) load. A "solid state relay" output, as commonly found on programmable controllers for driving AC loads, is not suitable for this application. These are typically Triac devices which have a drop of one volt or more when turned on. They also often have high leakage currents when off. A solid state relay designed for DC loads may work, provided it shows a voltage drop of 0.5V or less across its contacts when on.

Trouble-Shooting Guide

Symptom	Possible Solution
Master works, slave(s) does not	*1. Check wire connections on terminals 3 & 4 (3 to 3, 4 to 4).* *2. Check for 24 VAC at terminals 7 & 8 (transformer output).* *3. Check for loose connections.*
Motor(s) does not operate	*1. Check for 24 VAC at terminals 7 & 8.* *2. Check for loose connections.* *3. Double check for correct wiring.*
Remote control does not work or has shortened range	*1. Check receiver connections.* *2. Verify that transmitter and receiver code settings match.* *3. Replace transmitter battery.*
Motor(s) operates intermittently	*1. Check for loose connections.* *2. Turn power off. Wait 10 seconds. Turn power back on.*
Thermostat does not function	*1. Check for loose connections.* *2. Check for correct thermostat operation.* *3. Double check for correct wiring.*

© Truth Hardware 1991
Covered by U.S. Patent No. 4,521,993, Other Patents Pending, UL/CSA Approval Pending

TRUTH HARDWARE
Truth Hardware
700 West Bridge Street, Owatonna, MN 55060
Telephone 507-451-5620