

RS1110

1 Heat / 1 Cool

### A. Installation, Mounting:

#### CAUTION:

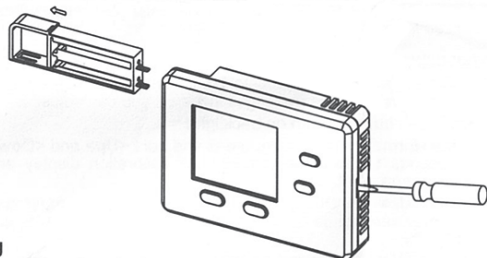
1. This device should be installed by a qualified technician with due regard for safety, as improper installation could be hazardous.
2. Turn off the thermostat, all electronic devices and any electrical devices (e.g. heater) which will be connected before installation and maintenance.
3. This product should be used in conjunction with a NTRL LISTED Class 2 power supply. Operation from other supplies may result in a potential fire risk.

#### 1. Installation location

The thermostat should be mounted on an inner wall 1.5m (~5 feet) above the floor in a position where it is readily affected by changes of the general room temperature with freely circulating air. Prevent direct exposure to sunlight. Do not place this thermostat at a location where air circulation is low, or where it is subject to frequent temperature changes (e.g. near a door). Do not place the thermostat near heat generating sources (e.g. radiators, hot air vents, TV or lights). Do not expose the thermostat to moisture. Do not expose the thermostat to dipping or splashing.

#### 2. Opening

Pull out the battery drawer and then lightly press on the spot shown below in order to detach the front shell from the base.

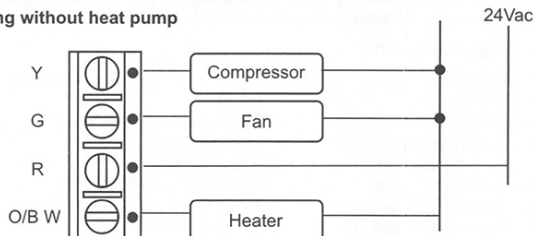


#### 3. Wiring

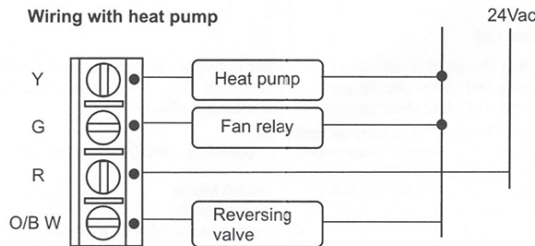
There are 4 wiring terminals at the back of the thermostat which are labeled as "Y", "G", "R" and "O/B W". The recommended wire range is (AWG) 14-22. Do not use metal conduits or cables provided with a metal sheath.

| Symbols | Terminals                                 |
|---------|-------------------------------------------|
| Y       | Compressor output (1A max.)               |
| G       | Fan output (1A max.)                      |
| R       | 24Vac Hot                                 |
| O/B W   | Reversing valve or Heater output (1A max) |

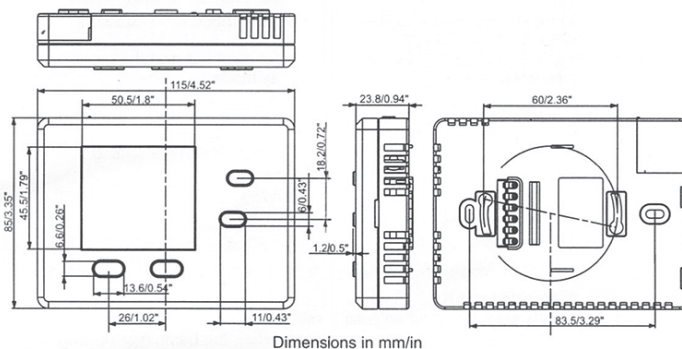
#### Wiring without heat pump



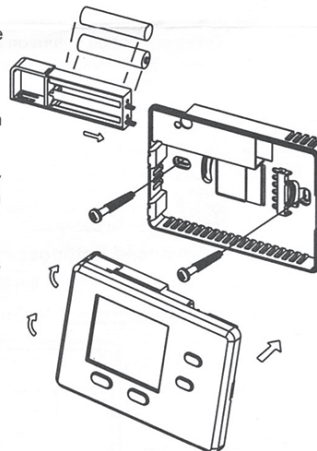
#### Wiring with heat pump



#### 4. Mounting

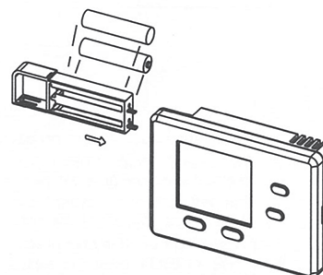


1. Position the wall plate on the wall and pull any existing wires through the large opening in the plate.
2. For proper appearance, level the plate on the wall.
3. If your existing holes do not line up with the new wall plate, mark holes for the plastic anchors provided.
4. Drill holes with a 3/16" bit and gently tap anchors into the holes until flush with wall.
5. Reposition the wall plate to the wall, pulling wires through the large opening.
6. Insert mounting screws provided into wall anchor and tighten.



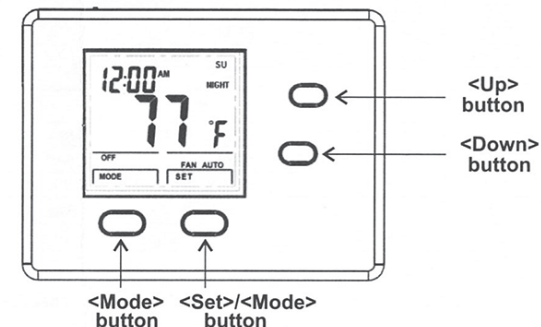
#### 5. Batteries insertion

Pull out the battery drawer and insert two fresh AAA alkaline batteries into the drawer according to the polarity marked inside; then slide the drawer back into place. Do not mix batteries of different types or brands. Do not use old and new batteries together.



### B. Operation:

1. When the thermostat is first powered on, all segments will show. After 2 seconds the thermostat will display normally as shown below.
2. Temperature detection starts and the LCD will display the room temperature within a few seconds.



3. When the backlight is off press any button to turn on the backlight.
4. Press <MODE> button to select off mode (default) / heat mode / cool mode.
5. By default, the thermostat runs in the Program mode and will control heating/cooling automatically according to the default program times and temperatures.
6. Press <SET> button to select the Setting Menu.
7. Press <Up> or <Down> button to adjust heat/ cool setting temperature.
8. In Heat mode, when temperature is below 5°C / 40°F, defrost function is activated with DEFROST displayed. Heater is on regardless of the setting temperature.
9. Below 0°C/ 32°F, RS1110 will display LO. Heating will be activated in Heat mode.
10. Above 40°C/ 99°F, RS1110 will display HI. Cooling will be activated in Cool mode.

### C. Time setting:

1. Press any button to turn on backlight.
2. Press <SET> button to enter the Setting Menu, "CLOC" will be displayed.
3. Press <ENT> button to change the time, the Day of Week (MO/TU/WE/TH/FR/SA/SU) will flash, press <Up> or <Down> buttons to select the current Day of Week, then press <NEXT> button.
4. The Hour will flash, press <Up> or <Down> buttons to set the hour, then press <NEXT> button.
5. The Minutes will flash, press <Up> or <Down> button to set the minutes.
6. Press <MODE> button to confirm the setting and return to the Setting Menu.
7. Press <NEXT> button two times to return to the Normal display mode or the thermostat will return to the normal display if no button is pressed for 10 seconds.

### D. Temperature control:

This thermostat can operate as either a simple setback thermostat or a programmable thermostat. By default, this product is configured as a programmable thermostat (Program On).

#### Program On

When the Program is turned on, the thermostat will control the output according to the programmed times and temperatures. The Default Program settings are displayed below:



Heat mode:

|              | MON-FRI |       | SAT  |       | SUN  |       |
|--------------|---------|-------|------|-------|------|-------|
|              | time    | °F/°C | time | °F/°C | time | °F/°C |
| <b>MORN</b>  | 6AM     | 70/21 | 8AM  | 70/21 | 8AM  | 70/21 |
| <b>DAY</b>   | 8AM     | 61/16 | 10AM | 61/16 | 10AM | 61/16 |
| <b>EVE</b>   | 6PM     | 70/21 | 6PM  | 70/21 | 6PM  | 70/21 |
| <b>NIGHT</b> | 10PM    | 61/16 | 11PM | 61/16 | 11PM | 61/16 |

Cool mode:

|              | MON-FRI |         | SAT  |         | SUN  |         |
|--------------|---------|---------|------|---------|------|---------|
|              | time    | °F/°C   | time | °F/°C   | time | °F/°C   |
| <b>MORN</b>  | 6AM     | 75/24   | 8AM  | 75/24   | 8AM  | 75/24   |
| <b>DAY</b>   | 8AM     | 85/29.5 | 10AM | 85/29.5 | 10AM | 85/29.5 |
| <b>EVE</b>   | 6PM     | 75/24   | 6PM  | 75/24   | 6PM  | 75/24   |
| <b>NIGHT</b> | 10PM    | 85/29.5 | 11PM | 85/29.5 | 11PM | 85/29.5 |

#### Program Setting:

The program may be changed to your preferences. To adjust heat/cool program settings: (Not allow access program setting in off mode)

- Press any button to turn on backlight.
- Select Heat/Cool mode by pressing <MODE> button at the Normal display mode.
- Press <SET> button to enter the Setting Menu.
- Press <NEXT> button until "Prog" is displayed.
- Press <ENT> button to enter Program setting, "ON"/"OFF" will flash, press <Up> or <Down> button to select program ON/OFF.
- Make sure "On" is selected, press <NEXT> button, to modify the program setting. Settings are adjusted in the order of: (Hour → Minute → Setting Temperature)
- There are three schedules to be set. MO-FR, SA, SU.
- The first setting is MO-FR schedule and MORN program setting, the MORN hour will flash, press <Up> or <Down> button to program the MORN time.
- Press <NEXT> button, the MORN minute will flash, press <Up> or <Down> button to program the MORN time.
- Press <NEXT> button, the temperature will flash, press <Up> or <Down> button to program the setting temperature
- Press <NEXT> button, to enter the DAY zone program settings, the modification of other zones (DAY, EVE, NIGHT) are similar to above steps.
- Press <NEXT> button, to enter the next schedule (SA, SU), the modification of other schedules are similar to above steps.
- Press <NEXT> button again to confirm the settings, then press <NEXT> to return to the normal display or the thermostat will return to the Normal display mode if no buttons are pressed for 10 seconds.

#### Temporary Override:

When the program is ON, the thermostat controls the temperature according to the program. If you want to override the programmed temperature temporarily:

- Press any button to turn on backlight.
- Press <Up> or <Down> button and the current set temperature will flash.
- Press <Up> or <Down> button to adjust heat/cool setting temperature and **OVERRIDE** will be displayed.
- In the Heat mode, only the heat setting temperature can be adjusted.
- In the Cool mode, only the cool setting temperature can be adjusted.
- If none of the buttons are pressed for 10 seconds the thermostat will confirm the set temperature and return to the normal display.

The temporary Override Mode will last until the next programmed time begins. At that time, the heat/cool setting temperature will follow the programmed temperature and **OVERRIDE** will disappear. The **OVERRIDE** may also be stopped manually by pressing the <MODE> button.

#### Program Off

When the Program is Off, this thermostat controls the output according to a single setpoint like a simple setback thermostat. To configure the thermostat to program Off: (Not allow access program setting in off mode)

- Press any button to turn on backlight.
- Select the Heat or Cool mode by pressing <MODE> button at the Normal display mode.
- Press <SET> button to enter the Setting Menu.
- Press <NEXT> button until "Prog" is displayed.
- Press <ENT> button to enter Program setting, "ON"/"OFF" will flash, press <Up> or <Down> button to select program ON/OFF.
- Select "OFF" and then press <NEXT> button to return to the Setting Menu.
- Press <NEXT> button to return to the Normal display mode or the thermostat will return to the Normal display mode if no button is pressed for 10 seconds.
- In this stage, the Program mode will be disabled and the event icons will disappear in the Normal display mode.

#### To adjust the setpoint at Program Off

- Press any button to turn on backlight.
- Press <Up> or <Down> button the current heat/cool setting temperature will flash.
- Press <Up> or <Down> button to adjust heat/cool setting temperature. The symbol **OVERRIDE** will NOT display at Program Off.
- In the Heat mode, only the heat setting temperature can be adjusted.
- In the Cool mode, only the cool setting temperature can be adjusted.

#### E. Fan operation:

If FAN ON is selected, the Fan runs continuously.

If FAN AUTO is selected, the Fan runs only when the heating or cooling system is on. The fan will be turned off 2 minutes after heating/cooling system turns off.

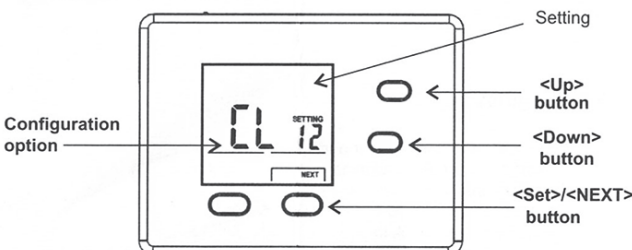
Fan mode setting:

- Press any button to turn on backlight.
- Press <SET> button to enter Setting Menu.
- "FAN" will be displayed.
- Press <ENT> button to enter Fan mode setting, FAN ON/ FAN AUTO will flash.
- Press <Up> or <Down> buttons to select Fan mode.
- Press <MODE> button to confirm the setting and return to the Setting Menu. Press <NEXT> button 3 times to return to the Normal display mode or the thermostat will return to the normal display if none of the buttons are pressed for 10 seconds.

#### F. Advanced Settings:

Advanced Settings contain the Configuration Menu and Temperature Calibration.

#### Configuration Menu Selection



- Press any button to turn on backlight.
- Press and Hold <SET> and <Down> buttons for 2 seconds to enter the Configuration Menu.
- The left letters represent the configuration type; the right letters or numbers represent the settings.
- Press <Up> or <Down> button to adjust the Setting.
- Press <NEXT> button to select the next configuration type or return to the Normal display mode at the end of the configuration menu options.

#### Configuration Menu Table

| Configuration Menu       |             | Setting |                                      |
|--------------------------|-------------|---------|--------------------------------------|
| Description              | LCD Display |         |                                      |
| 12hr/24hr selection      | CL          | 12      |                                      |
|                          |             | 24      | (default)                            |
| Temperature display unit | SC          | °C      |                                      |
|                          |             | °F      | (default)                            |
| Differential             | dF          | 05      | (+/- 0.5°C)                          |
|                          |             | 10      | (+/- 1.0°C)                          |
|                          |             | 10      | (+/- 1°F) (default)                  |
|                          |             | 20      | (+/- 2°F)                            |
| Fan Control              | FC          | E       | (electrical heat) (default)          |
|                          |             | O       | (Gas/Oil heat)                       |
| Heater Minimum-Off Delay | CY          | S       | (10 seconds) (default)               |
|                          |             | L       | (4 minutes off time)                 |
| Heat Pump                | HP          | 0       | Disable (default)                    |
|                          |             | C       | Reversing valve energized in cooling |
|                          |             | H       | Reversing valve energized in heating |

The differential controls how much the room temperature can deviate from the setpoint. A smaller differential will result in a more accurate control. A larger differential will result in less on/off cycling and usually saves more energy.

The **Fan Control** should be set according to the type of heating system used. Select "E" for Electric heat, the thermostat will turn on the fan when the heat is on. Select "O" for Gas heating or Oil heating, the thermostat will not turn on the fan when the heat is on.

The **Heater Minimum Off Delay** should be set according to the heater type. Select "L" if compressor is used for heating. Select "S" when a compressor is not used.

The **Heat Pump** option should be set according to air conditioning system. Select "0" if heat pump is not used. If heat pump is used, select "C" if the reversing valve is energized in cooling or select "H" if the reversing valve is energized in heat.

#### Temperature Calibration

This product is calibrated at factory and calibration is generally not required. However, if the reading is incorrect you can adjust it.

- Press any button to turn on backlight.
- In the Normal display mode, press and hold <Up> and <Down> buttons for 5 seconds to enter the temperature calibration display and the current temperature will flash.
- Press <Up> or <Down> buttons to calibrate the temperature. The maximum range to be adjusted is +/- 3.0°C or +/- 6°F, in increments of 0.5°C/1°F.
- Press <MODE> button to confirm the setting and return to the Normal display mode. If none of the buttons are pressed for 10 seconds the thermostat will return to the Normal display mode.

#### G. Instructions for replacing batteries:

When the **LOW BATT** appears on the display, replace the batteries promptly with two fresh AAA alkaline batteries. New batteries should be installed with proper polarity. Do not use old and new batteries together.

#### H. System re-set:

To return the unit to factory default settings, remove the battery compartment for 10 seconds, then hold down the MODE, SET and UP buttons simultaneously whilst re-inserting the battery compartment until the screen returns to normal mode.

#### I. Specification:

- Battery Voltage: 3 V DC (2 x AAA alkaline batteries)
- Battery Life: 1 year
- Relay Contact voltage: 24 Vac Nominal 50/60 Hz
- Relay Contact Current: 1A Max. (inductive)
- Sensing Element: NTC thermistor
- Heat/Cool setting: 5°C ~ 35°C / 40°F ~ 95°F
- Operating temperature: 0 - 50°C / 32 - 122°F
- Storage temperature: -5 - 50°C / 23 - 122°F