ETN-24-HC22
PROG-C
(TRE-24-HC22-PROG)

Owner's Manual - Installation
and Operating Instructions

Rev. 6.4 12.06

⚠ **Please read this manual carefully before installation and use.**

Index

1. Options and Accessories

- Hand held remote control with weekly program.
- Individual cool and heat set points.
- External sensor option:
  RS01 for remote temperature sensing (1 required)
  RS01 for averaging temperature with thermostat (4 required)
  RS02 for averaging temperature with thermostat (2 required RS02 has two thermistors in one enclosure)
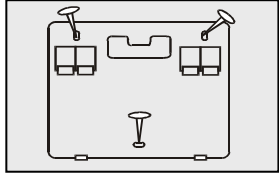
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2. Installation Instructions
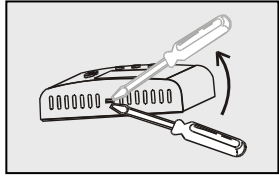
Separate the front panel from back panel by depressing the tongue located in the top of the unit.
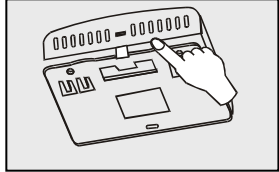
Pull the back panel out.

Line the back panel up against the wall or flat surface. Install three screws as required.

Make electrical connections as shown on enclosed electrical wiring diagram. (Next page)
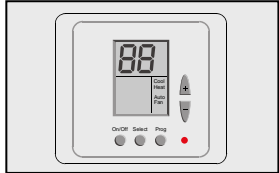
Install the cover to the back panel; first the two tabs on the bottom and then the top tongue.   Push until tight against the wall.

⚠ **If you have the Super Model, make sure that you have chosen the right DIP   switch selection – see table 4.1**

3. Wiring Connections

Table 3.1 - Connections for all applications

Switch	Function ETN
Rc	24 Vac RED
Rh	24 Vac RED (jumpered to Rc)
C	24 VAC Common from transformer
W1	Heater 1
W2	Heater 2
T	External Sensor
T	External Sensor
Y2	Compressor 2
G	Fan
Y1	Compressor 1

Note: #1 - "T","T" Terminals can be used in any systems configuration when a Meitav-tec external sensor is terminated and the switch is correctly configured (Table #3.1).

Note: #2 - If one transformer is used, they the factory installed jumper between Rc and Rh must be used.

⚠️ **IMPORTANT! Before making any changes in the dipswitch disconnect electricity in the main board.**

4. DIP switch Explanations (different configurations)

4.1 The DIP switch is located in the middle of the board as shown in the drawing.
    (Inside the thermostat)
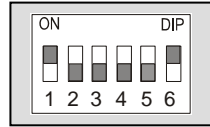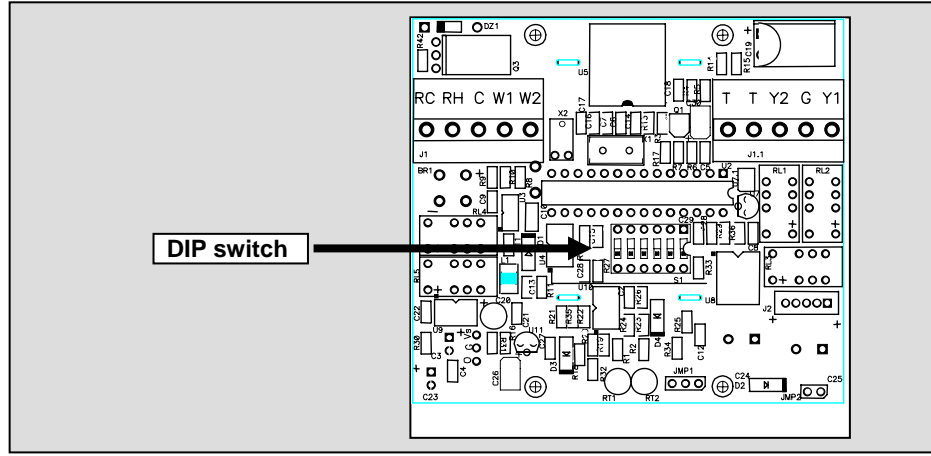
DEFAULT SWITCH FROM FACTORY

Table 4.1 – Dipswitch selection

Switch	Function	ON	OFF	Default
1	Internal Sensor Control	X		ON
	External sensor control		X	
2	Not in use		X	OFF
3	Heat Pump in COOL mode ("O")		X	OFF
	Heat Pump in HEAT mode ("B")	X		
4	3 minutes delay for compressor		X	OFF
	No delay	X		
5	Internal Sensor Control		X	OFF
	External sensor control	X		
6	Internal Sensor Control	X		ON
	External sensor control		X	

Use this table together with the illustration above showing the switch configuration.

4.2 DIP Switch Operation

The Dipswitch has 6 pins.
Each pin can be ON or OFF.
In the picture, pins 1,6 - ON and pins 2,3,4,5 - OFF

4.3 External sensor connection - option

⚠ **Important! The external sensor must be Meitav-tec type.**

Table 4.3 - N.TC. Sensor: Temperature ~ Resistance Characteristics

Temp °C	7.2	10.0	12.8	15.6	18.3	21.1	23.9	26.7	29.4	32.2
Temp °F	45	50	55	60	65	70	75	80	85	90
Res. k	115.8	100.9	88.1	77.1	67.7	59.6	52.5	46.4	41.2	36.6

📌 **The default from factory is INTERNAL SENSOR.**

4.5 External sensor switch configuration

1. Disconnect power to the thermostat 24Vac by removing the front half of the sensor.
2. Move the Dipswitch as in the picture. Switches #2,3 & 4 should be configured for the heating and cooling system as shown in Table 4.1.

Switch 1 - OFF
Switch 5 - ON
Switch 6 – OFF
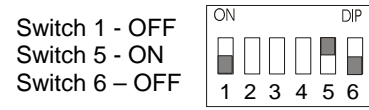
3. Connect the temperature sensor to T-T terminals.
4. Reconnect power 24Vac.
5. Make sure the reading in the display is by the external sensor only.

The wire length for the external sensor can be up to 100 feet (30 meters) with standard cable.

If the distance is greater than 100 feet then it MUST be shielded type.

There is a wide range of sensors for different applications, duct, rooms, etc. There are also options for averaging the temperature. For details please contact our technical line or visit our web site, see details at the end of this manual.

The external sensor can be connected in ALL the applications, heat pump, fan mode, etc.

5. Operating Manual

5.1 On/Off

Press **ON/OFF** button to activate or deactivate the thermostat.
The word "ON" or "OFF" will appear in the display.

5.2 Temperature adjustment

- Press the SET buttons **(+)** or **(-)**; the temperature will flash.
- Change temperature with the set buttons **(+)** or **(-)**.
- The display will show "COOL" or "HEAT" (Instead of the clock display).
- In auto-change mode, press the set buttons **(+)** or **(-)**, "COOL" and TEMPERATURE will flash.
- Set the cooling temperature with **(+)** or **(-)** buttons.
- After three seconds, "HEAT" will be displayed and the TEMPERATURE will flash.
- Set heating with **(+)** or **(-)** buttons.
- If the thermostat is in HEATING or COOLING only (not in AUTO CHANGEOVER) the selected mode will be the only temperature adjustable at that time.

The thermostat keeps a minimum differential of at least 1 degree between Heat set and Cool set (Heat is always less than Cool).

5.3 Select button

With the select button you can choose:
- System Mode: Heating only, cooling only, auto changeover, or fan only.
- Fan Mode: Fan On or Auto fan (while heating or cooling).
- Press the **SELECT** button.
- The Heating and Cooling MODE will appear.
- Make adjustments using the set buttons **(+)** or **(-)**.
- Press **SELECT** button again - fan will appear.
- Use the set buttons **(+)** or **(-)** to choose between Fan On and Auto Fan.
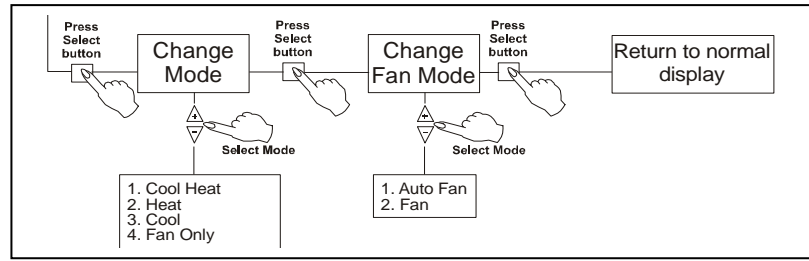
5.4 Program (Prog) Button

Use the Program button to adjust:
- Real-time clock.
- Programming.

See program chart.

5.5 Programming:

The thermostat is a 5-1-1 programmable; weekdays Monday through Friday, Saturday and Sunday both have individual programs.

There is four program events per day: 1-Wake, 2-Day, 3-Return, 4-Sleep

Before programming your thermostat you should be familiar with the display of the unit:
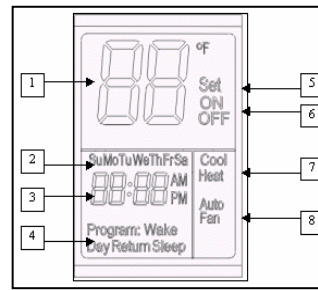
Thermostat Display

1. Temperature digits

In normal display will show the temperature in the room.

When +/- is pressed, it will flash and show the set point for the selected mode.

2. Days of the week

When setting the program. It will display the period that you are setting. Example: when display shows: MON-TUE-WED-THU-FRI, you are setting the weekdays program. (The program will repeat on each of these days).

In normal display the actual day of the week will be displayed.

3. Real time clock, AM/PM.

When setting the program, "COOL" or "HEAT" will be displayed in place of the time to indicate the setting.

4. **Program event** currently being adjusted will be indicated:
   - **Wake**   1st program of day
   - **Day**   2nd program of day
   - **Return**   3rd program of day
   - **Sleep**   4th program of day

5. **Set -** When changing the temperature set point, the temperature digits will flash, and the "SET" will appear in the display.

6. **ON/OFF** - thermostat active or deactivated.

7. **Heat/Cool modes.** When both in the display, auto change (heat & cool)

8. **Fan Mode**
   When the display shows "FAN" – the unit's mode is Fan ON.
   When the display shows "Auto Fan" - the unit's mode is Auto Fan.
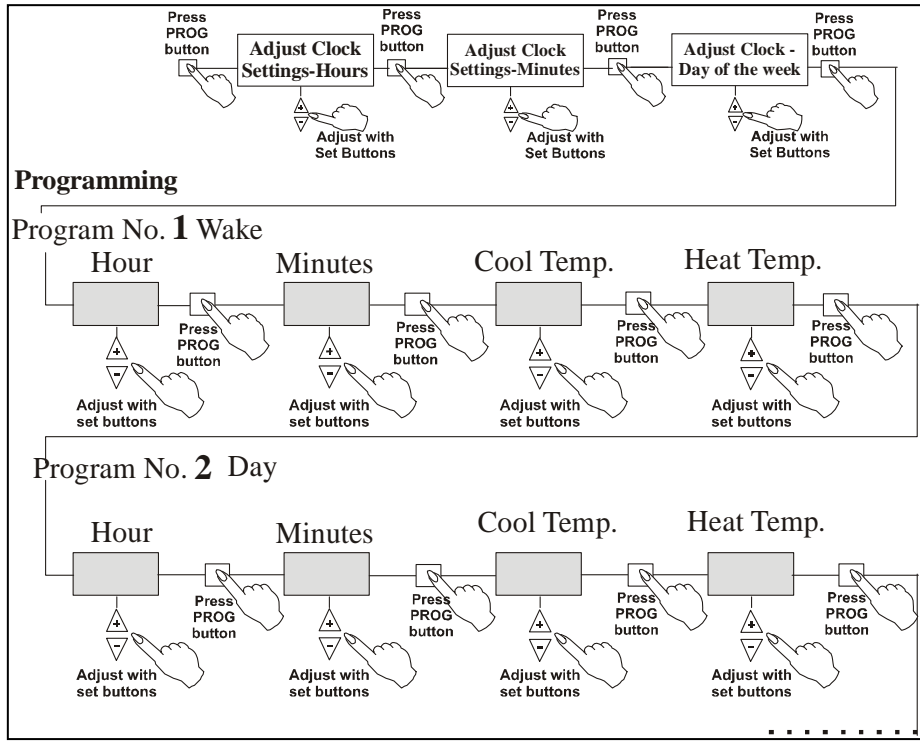
   Normal display

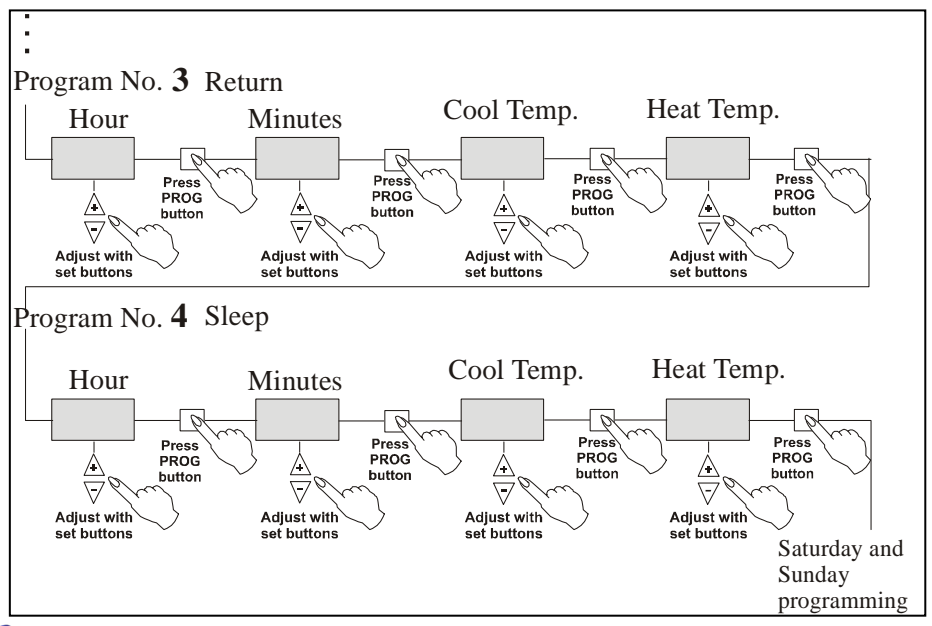   In normal display, the display will show:
   - Ambient temperature in the room.
   - ON or OFF.
   - Current day of the week.
   - Current time of day.
   - Current active program.
   - Mode.
   - Fan mode.

Program Example

Monday to Friday	1 (Wake)	2 (Day)	3 (Return)	4 (Sleep)
Start time	6:30 AM	8:00 AM	5:30 PM	10:00 PM
Cool Set Point	25°C	29°C	25°C	28°C
Heat Set Point	21°C	17°C	21°C	17°C

Saturday	1 (Wake)	2 (Day)	3 (Return)	4 (Sleep)
Start time	7:30 AM	12:30 PM	6:00 PM	11:30 PM
Cool Set Point	24°C	23°C	22°C	25°C
Heat Set Point	21°C	21°C	21°C	18°C

Sunday	1 (Wake)	2 (Day)	3 (Return)	4 (Sleep)
Start time	7:30 AM	12:30 PM	6:00 PM	11:30 PM
Cool Set Point	24°C	23°C	22°C	25°C
Heat Set Point	21°C	21°C	21°C	18°C

- The following chart will help simplify making normal adjustments
  (System Mode, Fan Operation) and the program.
- We recommend that you fill out the chart BEFORE setting the weekly program.
- On the chart, select a cooling and a heating temperature. Remember to keep a safe
  differential between Heat and Cool for auto changeover.
- The display will show the program (weekday, Saturday or Sunday)
- During programming, the display will NOT return to normal display unless the entire
  program is review.
- To exit the Program mode, press **ON** button until normal display is reach.

Press
PROG
button

**Adjust Clock
Settings-Hours**

Press
PROG
button

**Adjust Clock
Settings-Minutes**

Press
PROG
button

**Adjust Clock -
Day of the week**

Press
PROG
button

Adjust with
Set Buttons

Adjust with
Set Buttons

Adjust with
Set Buttons

Programming

Program No. **1** Wake

Hour　　　　Minutes　　　　Cool Temp.　　　Heat Temp.

Press
PROG
button

Press
PROG
button

Press
PROG
button

Press
PROG
button

Adjust with
set buttons

Adjust with
set buttons

Adjust with
set buttons

Adjust with
set buttons

Program No. **2** Day

Hour　　　　Minutes　　　　Cool Temp.　　　Heat Temp.

Press
PROG
button

Press
PROG
button

Press
PROG
button

Press
PROG
button

Adjust with
set buttons

Adjust with
set buttons

Adjust with
set buttons

Adjust with
set buttons

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:
:
:

Program No. 3 Return

Hour		Minutes		Cool Temp.		Heat Temp.	

Press PROG button — Press PROG button — Press PROG button — Press PROG button

Adjust with set buttons — Adjust with set buttons — Adjust with set buttons — Adjust with set buttons

Program No. 4 Sleep

Hour		Minutes		Cool Temp.		Heat Temp.	

Press PROG button — Press PROG button — Press PROG button — Press PROG button

Adjust with set buttons — Adjust with set buttons — Adjust with set buttons — Adjust with set buttons

Saturday and Sunday programming

Follow the steps above to set the programs for Saturday and Sunday.

At any time during the programming you can review the settings quickly by pressing the ON button.

5.6 Override set temperature:

At anytime you may change the temperature by pressing the set (+/-) buttons.
The new temperature will be retained until the next program starts.

> **The thermostat's memory (program and real time clock) will be kept for 12 hours during power failure without the use of batteries.**

5.7 Back Light

The backlight of the unit will activate when any button is pressed or the information is send from the remote control.

6. RT04 - Hand held remote control – Option – Purchase separately

6.1 General

This remote control is Infrared; the remote must be pointed at the thermostat to operate.
Every time you change a parameter in the Remote Control, you must send it to the thermostat by pressing the **ON/SEND** button.

Every time that the information is sent to the thermostat, the Back Light will turn ON for a few seconds.

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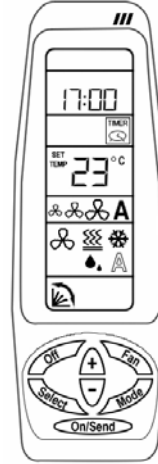
6.2 Operating Manual

On/Send,OFF

- Press **ON/SEND** to activate the air conditioner and/or updating information.
- Press **OFF** to turn the thermostat off and update information.

When sending information to the thermostat – the remote control must point towards the thermostat.

Fan:

- Press **FAN** button to change between:
  FAN ON (✿) or AUTO FAN (A).
- Press **ON/SEND** button to send information to thermostat.

Mode:

- Press **MODE** button to change between:
  COOL, HEAT, AUTO CHANGE and FAN ONLY.
- Press **ON/SEND** button to send information to thermostat.

Temperature Set Point:

Cool Mode:

- Press the set buttons **(+)** or **(-)**.
  "COOL" & digits will flash.
- Select the desired temperature.
- Press **ON/SEND** button to send information to thermostat.

Heat Mode:

- Press the set buttons **(+)** or **(-)**.
- "HEAT" & digits will flash.
- Select the desired temperature.
- Press **ON/SEND** button to send information to thermostat.

Auto Change Mode:

- Press the adjustment buttons **(+)** or **(-)**
- "COOL" and "SET TEMP" will flash.
- Set cooling with **(+)** or **(-)** buttons.
- Press **SELECT** button.
- "HEAT" and "SET TEMP" will flash.
- Set the heating set point with **(+)** or **(-)** buttons.
- Press the **SELECT** button again or Press **ON/SEND** button to send information to the thermostat.

The thermostat keeps a minimum differential of at least 1 degree between Heat set and Cool set (Heat is always less than Cool).

Real Time Clock and Day:

- Press **SELECT** button - CLOCK SET will flash.
- Press **(+)** or **(-)** buttons - the hours will flash.
- Adjust the hours with **(+)** or **(-)** buttons.
- Press **SELECT** again - minutes will flash.
- Adjust the minutes with **(+)** or **(-)** buttons.
- Press **SELECT** again - weekday will flash.
- Adjust the day with **(+)** or **(-)** buttons.
- Press **SELECT** again to exit from program or
  Press **ON/SEND** button to send information
 to the thermostat.
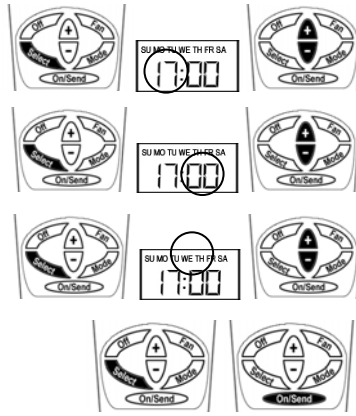
Programming:

Set the Program times and Temperature settings for the week:

- The remote is 5-1-1 programmable: weekdays (Monday to Friday),
  Saturday, and Sunday can be programmed differently.
- 4 program events per day: 1 (Morning), 2 (Day), 3 (Evening), 4 (Night)

The program can be set away from the thermostat and can be sent later on.
To send the program to the thermostat, follow the steps below without adjusting times and temperatures. Only press the ON/SEND button each time the word SEND blinks on display (point the remote control to the thermostat)

- To enter programming: Press and hold **SELECT** button for three seconds.
  "PROGRAM" (flashing) and the days Mon-Fri will appear on display.

- Press **(+)** or **(-)** buttons, "PROGRAM 1" & "START" (flashing) will appear.

- Press **(+)** or **(-)** button - the hours will flash.
- Adjust the hours with **(+)** or **(-)** buttons.

- Press **SELECT** button - the minutes will flash.
- Adjust the minutes with **(+)** or **(-)** buttons.

- Press **SELECT** button – "COOL" (flashing) & Temperature will appear.
- Adjust the temperature with **(+)** or **(-)** buttons.

- Press **SELECT** button – "HEAT" (flashing) & Temperature will appear.
- Adjust the temperature with **(+)** or **(-)** buttons.

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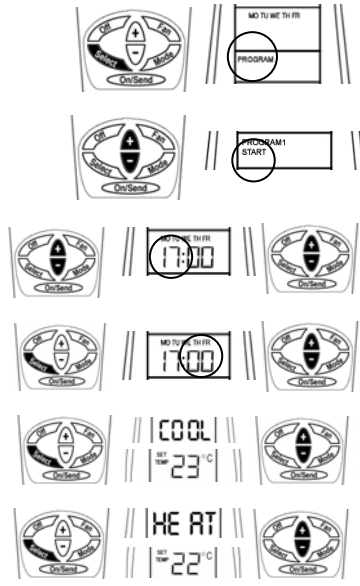
The controller keeps a safety differential of at least 1 degree between Heating set point and Cool set point (Heat is always less than Cool).

After selecting the heating set point, you cannot reduce the cooling set point less than the heating set point.

- Press **SELECT** button: "PROGRAM 2" & "START" (flashing) will appear.
- Press **(+)** or **(-)** buttons and adjust the hours, minutes and temperature, **the same way as in PROGRAM 1**
- Press **SELECT** button: "PROGRAM 3" & "START" (flashing) will appear.
- Press **(+)** or **(-)** buttons and adjust the hours, minutes and temperature, **the same way as in PROGRAM 1**
- Press **SELECT** button: "PROGRAM 4" & "START" (flashing) will appear.
- Press **(+)** or **(-)** buttons and adjust the hours, minutes and temperature, the **same way as in PROGRAM 1**
- "SEND" will flash, press **ON/SEND** button to send the information to thermostat.
- "PROGRAM" (flashing) and "SA" (Saturday) will appear in display.
- Set programming for Saturday the same way as programming MON to FRI.
- "SEND" will blink, press **ON/SEND** button to send the information to thermostat.

- "PROGRAM" (flashing) and "SU" (Sunday) will appear in display.
- Adjust the programming for Sunday the same way as programming MON to FRI.
- "SEND" will blink; press **ON/SEND** button to send the information to the thermostat.
- The TIMER will blink; using the **(+)** or **(-)** buttons, Select TIMER ON or OFF.
- If you changed between TIMER ON (programmable) or OFF (non-programmable), "SEND" will blink.
- Press **ON/SEND** button to send the information to the thermostat.
- If you did not change between them, press the **SELECT** button to end programming. (Programmable or non-programmable).

Review

If you want to review your program or to change part of it:
- Enter the programming - press and hold (3 seconds) **SELECT** button.
- Select between MON-FRI, SAT, SUN programming and TIMER on or off by pressing the **SELECT** button.
- Enter a specific program - press **(+)** or **(-)** button when appropriate indication appears and continue as previously explained.

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7. Troubleshooting for Technician

Problem	Solution
The display is blank	Check the thermostat for 24Vac. Remove the front cover at test at the Rc (Rh) to C.
	Check for good wiring connections at: Rh (24Vac for heat), Rc (24Vac for cool), C (common).
	If you are using one transformer for cool and heat, check that the jumper is installed between Rc, Rh and common is tight.
Cool stages do not switch on	Check the Rc connection
	Check the Y1 connection
Heat stages do not switch on	Check the Rh connection
	Check the W1 connection
In heat mode, unit blows cool air	Check the Auto Fan settings. The unit may be set to FAN (shown in the display).
The unit display low temperature (32°) all the time	The unit is not sensing the external sensor
	Check DIP switch selection – see table #4.1
The unit display high temperature (92°) all the time	The unit has a short circuit in the external sensor
	Check DIP switch selection – see table #4.1
The display shows the word "PROGRAM" without the name of the program (wake, sleep, etc)	The unit is in OVERRIDE mode; the name of the program will reappear when the next program starts working.

REV 6.4