tekmar® - User Brochure
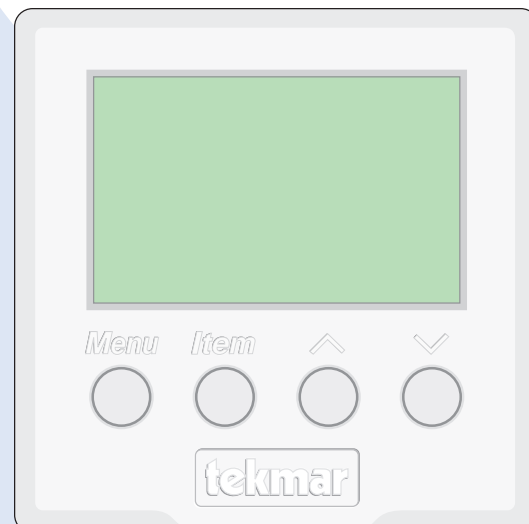## tekmarNet®4 Setpoint Control 162

tN4

U162
08/07

Congratulations
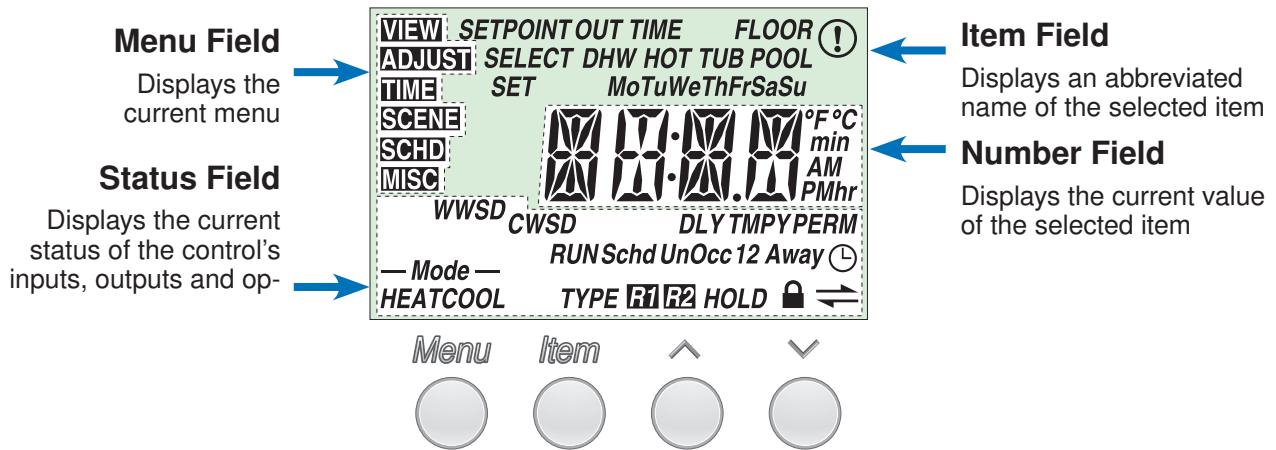**on the purchase of your tekmar programmable setpoint control with communication. The setpoint control combines easy-to-use programming with advanced features to increase both comfort and energy efficiency.**

Your tekmar setpoint control allows you to:

- **Set your hot tub, domestic hot water tank, radiant floor, or pool temperature**

- **Set a programmable schedule**

- **Adjust the time and day**

- **View the outdoor temperature**

- **Easily set up custom "Scenes" to match your home and lifestyle**

- **Easily override your tekmar thermostats if you are planning an extended absence**

Table of Contents

© 2007 tekmar® U 162 - 08/07

Display

Menu Field

Displays the current menu

Status Field

Displays the current status of the control's inputs, outputs and op-

Item Field

Displays an abbreviated name of the selected item

Number Field

Displays the current value of the selected item

VIEW *SETPOINT OUT TIME   FLOOR* (!)
ADJUST *SELECT DHW HOT TUB POOL*
TIME   *SET   MoTuWeThFrSaSu*
SCENE
SCHD
MISC

°F °C
min
AM
PMhr

WWSD CWSD   DLY TMPY PERM
RUN Schd UnOcc 12 Away (clock)

— Mode —
HEATCOOL   TYPE R1 R2 *HOLD* 🔒 ⇌

Menu   Item   ∧   ∨

Symbols Description

— Mode — *HEATCOOL*	**MODE OF OPERATION** Displays whether the device is in heating, cooling or off mode.	⇌	**tN4 COMMUNICATION** A tN4 network is detected.
R1	**RELAY 1** Displays when relay contact 1 is closed.	🔒	**LOCK** The Access Levels are locked or a menu option is visible but not adjustable.
R2	**RELAY 2** Displays when relay contact 2 is closed.	*Occ 12*	**OCCUPIED** Displays when operating at the occupied temperature.
(!)	**WARNING** An error is present.	*UnOcc 12*	**UNOCCUPIED** Displays when operating at the unoccupied setback temperature.
(clock)	**SCHEDULE MASTER** Indicates that the control is a schedule master.	*TIME* *Occ*	**OCCUPIED TIME** Displays when operating temporarily at the occupied temperature due to a remote enable or manual enable.

User Interface

The control uses a Liquid Crystal Display (LCD) as the method of supplying information on the operation of the Setpoint Control.

Access Levels

This setpoint control has five access levels:

- ADV (Advanced)
- INST (Installer)
- USER (User)
- LTD (Limited)
- SEC (Secure)

This brochure only covers the features available in the SEC, LTD and USER levels. Only qualified service people should adjust the INST and ADV access levels.

Menu

All of the items displayed by the setpoint control are organized into six menus:

- View
- Adjust
- Time
- Scene
- Schedule
- Miscellaneous

These menus are listed in the Menu Field on the top left hand side of the display.

Use the Menu button to advance to the next menu.

Item

Each menu has several items. The abbreviated name of the selected item will be displayed in the item field of the display. To view the next available item, press and release the Item button.

Adjustment

To make an adjustment to a setting in the setpoint control:

1. Use the Menu button to select the appropriate menu.
2. Use the Item button to select the desired item.
3. Use the Up or Down button to adjust the setting.
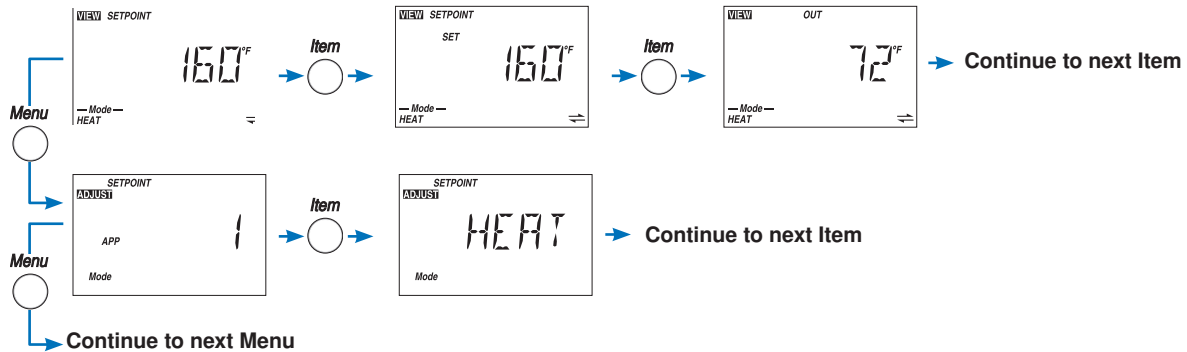
Default Item

When you display an item in the View menu for more than 5 seconds it becomes the default item. After you navigate other menus, the display reverts back to the default item after 60 seconds of button inactivity.
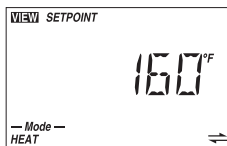
The Time is the only exception. It can be displayed indefinitely.

Setpoint Operation

View the Setpoint Temperature

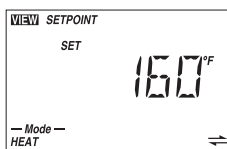The measured setpoint temperature is shown in the View menu.

1. Press the Item button until the setpoint temperature is located.

View the Set Setpoint Temperature

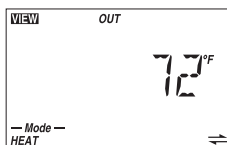The desired setpoint temperature is shown in the View menu.

1. Press the Item button until the set setpoint temperature is located.

View the Outdoor Temperature

The outdoor temperature can be shown when the setpoint control is connected to a tN4 system.

1. Press the Item button until the outdoor temperature is located.

### Adjust the Set Setpoint Temperature

The desired setpoint temperature can be changed while in the Adjust menu.

When using a schedule, occupied and unoccupied temperatures can be set.

In addition, when scenes are active, an away temperature can be set.

Important: The setpoint control does not heat the setpoint load when the temperature is set to OFF. The OFF setting is not recommended if the setpoint load has the potential to freeze.

1. Press the Menu button to enter the Adjust menu.
2. Press the Up or Down button to change the Set Setpoint (Occupied) temperature.
3. Press the Item button to locate the Set Setpoint Unoccupied temperature if necessary. Press the Up or Down button to change the Set Setpoint Unoccupied temperature.
4. Press the Item button to locate the Set Setpoint Away temperature if necessary. Press the Up or Down button to change the Set Setpoint Away temperature.
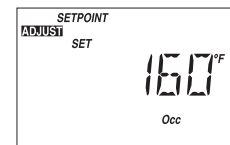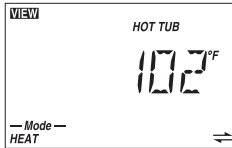
Hot Tub Operation

View the Hot Tub Temperature
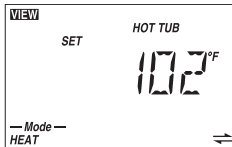
The measured hot tub temperature is shown in the View menu.

1. Press the Item button until the hot tub temperature is located.

```
VIEW          HOT TUB
                102°F
— Mode —
HEAT                ⇌
```

View the Set Hot Tub Temperature

The desired hot tub temperature is shown in the View menu.

1. Press the Item button until the set hot tub temperature is located.

```
VIEW          HOT TUB
       SET
                102°F
— Mode —
HEAT                ⇌
```

View the Outdoor Temperature

The outdoor temperature can be shown when the setpoint control is connected to a tN4 system.

1. Press the Item button until the outdoor temperature is located.

```
VIEW       OUT
                72°F
— Mode —
HEAT                ⇌
```
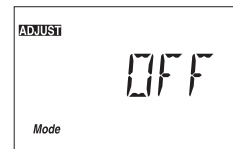
Adjust the Hot Tub to Heat or Off

The setpoint control includes a mode setting that allows the hot tub to be shut off and no longer heated. This allows the hot tub to be drained or serviced.

Power to the setpoint control should never be removed. Removing power will cause error messages when connected to a tN4 system.
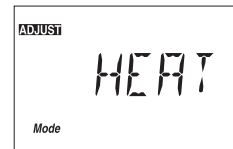
To shut off the hot tub:

1. Press the Menu button to enter the Adjust menu.
2. The first item is Mode.
3. Press the Down button to change Mode to OFF.

```
ADJUST
                OFF
Mode
```

To resume heating the hot tub:

1. Press the Menu button to enter the Adjust menu.
2. The first item is Mode.
3. Press the Up button to change Mode to HEAT.

```
ADJUST
                HEAT
Mode
```

Adjust the Set Hot Tub Temperature

The desired hot tub temperature can be changed while in the Adjust menu.

When using a schedule, occupied and unoccupied temperatures can be set.

In addition, when scenes are active, an away temperature can be set.

Important: The setpoint control does not heat the hot tub when the temperature is set to OFF. The OFF setting is not recommended if the hot tub has the potential to freeze.

1. Press the Menu button to enter the Adjust menu.
2. Press the Item button to locate the Set Hot Tub (Occupied) temperature. Press the Up or Down button to change the Set Hot Tub (Occupied) temperature.
3. Press the Item button to locate the Set Hot Tub Unoccupied temperature if necessary. Press the Up or Down button to change the Set Hot Tub Unoccupied temperature.
4. Press the Item button to locate the Set Hot Tub Away temperature if necessary. Press the Up or Down button to change the Set Hot Tub Away temperature.
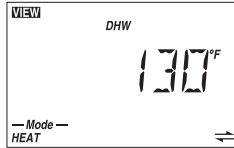
```
ADJUST       HOT TUB
       SET
                102°F
         Occ
```
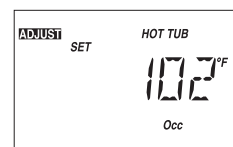
Domestic Hot Water Tank Operation

View the DHW Tank Temperature

The measured DHW tank temperature is shown in the View menu.

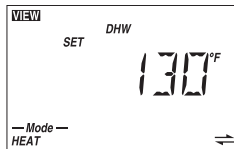1. Press the Item button until the DHW tank temperature is located.

```
VIEW        DHW
              130°F
—Mode—
HEAT              ⇌
```

View the Set DHW Tank Temperature

The desired DHW tank temperature is shown in the View menu.

1. Press the Item button until the set DHW tank temperature is located.

```
VIEW        DHW
     SET
              130°F
—Mode—
HEAT              ⇌
```

View the Outdoor Temperature

The outdoor temperature can be shown when the setpoint control is connected to a tN4 system.

1. Press the Item button until the outdoor temperature is located.

```
VIEW        OUT
              72°F
—Mode—
HEAT              ⇌
```
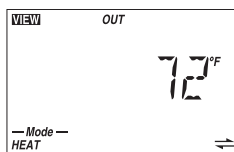
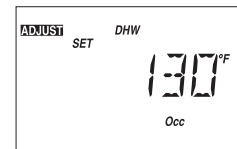### Adjust the Set DHW Tank Temperature

The desired DHW tank temperature can be changed while in the Adjust menu.

When using a schedule, occupied and unoccupied temperatures can be set.

In addition, when scenes are active, an away temperature can be set.

Important: The setpoint control does not heat the DHW tank when the temperature is set to OFF. The OFF setting is not recommended if the DHW tank has the potential to freeze.

1. Press the Menu button to enter the Adjust menu.
2. Press the Up or Down button to change the Set DHW tank (Occupied) temperature.
3. Press the Item button to locate the Set DHW tank Unoccupied temperature if necessary. Press the Up or Down button to change the Set DHW tank Unoccupied temperature.
4. Press the Item button to locate the Set DHW tank Away temperature if necessary. Press the Up or Down button to change the Set DHW tank Away temperature.
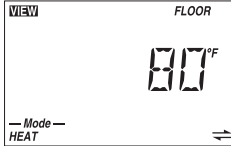
```
ADJUST      DHW
     SET
              130°F
              Occ
```

Floor Heating Operation

View the Floor Temperature

The measured floor temperature is shown in the View menu.

1. Press the Item button until the floor temperature is located.

```
VIEW              FLOOR

        80°F

—Mode—
HEAT              ⇌
```

View the Set Floor Temperature

The desired floor temperature is shown in the View menu.

1. Press the Item button until the set floor temperature is located.
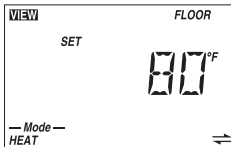
```
VIEW              FLOOR
      SET
        80°F

—Mode—
HEAT              ⇌
```

View the Outdoor Temperature

The outdoor temperature can be shown when the setpoint control is connected to a tN4 system.

1. Press the Item button until the outdoor temperature is located.

```
VIEW       OUT

        72°F

—Mode—
HEAT              ⇌
```
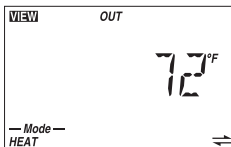
### Adjust the Set Floor Temperature

The desired floor temperature can be changed while in the Adjust menu.

When using a schedule, occupied and unoccupied temperatures can be set.

In addition, when scenes are active, an away temperature can be set.

Important: The setpoint control does not heat the floor when the temperature is set to OFF. The OFF setting is not recommended if the floor has the potential to freeze.

1. Press the Menu button to enter the Adjust menu.
2. Press the Up or Down button to change the Set Floor (Occupied) temperature.
3. Press the Item button to locate the Set Floor Unoccupied temperature if necessary. Press the Up or Down button to change the Set Floor Unoccupied temperature.
4. Press the Item button to locate the Set Floor Away temperature if necessary. Press the Up or Down button to change the Set Floor Away temperature.
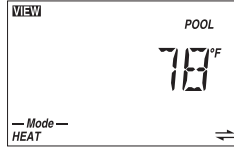
```
ADJUST           FLOOR
        SET
        80°F

          Occ
```
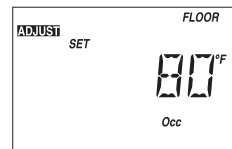
Pool Operation

View the Pool Temperature

The measured pool temperature is shown in the View menu.

1. Press the Item button until the pool temperature is located.

```
VIEW               POOL
                78°F
—Mode—
HEAT              ⇄
```

View the Set Pool Temperature

The desired pool temperature is shown in the View menu.

1. Press the Item button until the set pool temperature is located.
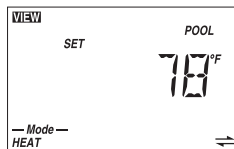
```
VIEW               POOL
        SET
                78°F
—Mode—
HEAT              ⇄
```

View the Outdoor Temperature

The outdoor temperature can be shown when the setpoint control is connected to a tN4 system.

1. Press the Item button until the outdoor temperature is located.

```
VIEW        OUT
                72°F
—Mode—
HEAT              ⇄
```
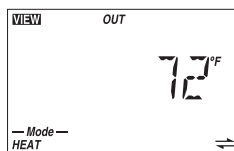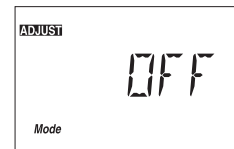
Adjust the Pool to Heat or Off

The setpoint control includes a mode setting that allows the pool to be shut off and no longer heated. This allows the pool to be drained or serviced.

Power to the setpoint control should never be removed. Removing power will cause error messages when connected to a tN4 system.
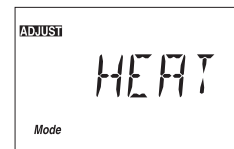
To shut off the pool:

1. Press the Menu button to enter the Adjust menu.
2. The first item is Mode.
3. Press the Down button to change Mode to OFF.

```
ADJUST
                OFF
Mode
```

To resume heating the pool:

1. Press the Menu button to enter the Adjust menu.
2. The first item is Mode.
3. Press the Up button to change Mode to HEAT.

```
ADJUST
                HEAT
Mode
```

Adjust the Set Pool Temperature

The desired pool temperature can be changed while in the Adjust menu.

When using a schedule, occupied and unoccupied temperatures can be set.

In addition, when scenes are active, an away temperature can be set.

Important: The setpoint control does not heat the pool when the temperature is set to OFF. The OFF setting is not recommended if the pool has the potential to freeze.

1. Press the Menu button to enter the Adjust menu.
2. Press the Item button to locate the Set Pool (Occupied) temperature. Press the Up or Down button to change the Set Pool (Occupied) temperature.

```
ADJUST             POOL
        SET
                78°F
                Occ
```
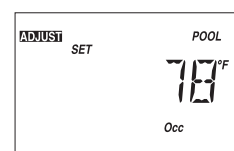
Timer Operation

The timer operation feature is only available when heating setpoints, hot tubs, or radiant floors. It is not available when heating a domestic hot water tank, or pool.

The setpoint control can be set up to normally remain at the unoccupied temperature setting. The setpoint control can be activated to temporarily operate at the occupied temperature for a preset amount of time. This is similar to a windup timer.

To activate the occupied time on the setpoint control, press the Up or Down buttons while in the View menu. The occupied time can also be activated through a remote enable by pressing the button on a User Switch or through a tN4 Gateway if these devices are installed.

When using the Up or Down buttons to activate the occupied time, the amount of time for the occupied time can be set.

To cancel the occupied time, press and hold the Down arrow button while in the View until the time displays "OFF".

The occupied time can also be canceled by pressing the button on a User Switch or it can be canceled through the tN4 Gateway if these devices are installed.

Button Enable
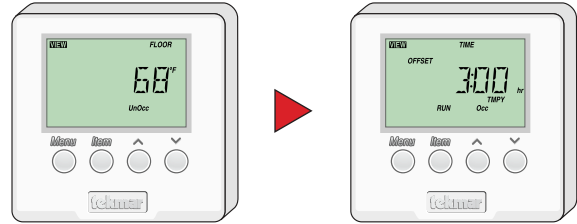
Pressing the UP button while in the VIEW menu starts operation of the Hot Tub for the time set. To Stop operation press the DOWN button until the time shows OFF.

Note: Only available for Hot Tub and Floor operation.

Remote Enable

Setpoint Control → User Switch → Setpoint Control
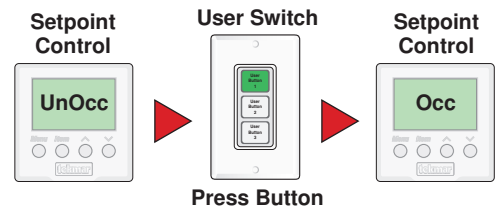
Press Button

Note: Only available for Setpoint, Hot Tub and Floor operation.

Changing the Timer Operation Run Time

When activating the timer operation, the run time starts at a preset amount of time.

To change this preset time:

1. Press the Menu button to select the Scene menu.
2. Press the Item button until the Run Time Occupied item is selected.
3. Press the Up or Down button to adjust the run time.

Viewing the Current Time

To view the current time:

1. Use the Menu button to select the Time menu.

Setting the Time

Step 1: Use the Menu button to select the Time menu. The current time and day is displayed. If the clock has not been set, the time will flash.

Menu ▶

Step 2: Use the Item button to advance to the next item. The minutes begins to flash. Use the Up or Down button to set the minutes.

Item ▶

Step 3: Use the Item button to advance to the next item. The hours begins to flash. Use the Up or Down button to set the hour.
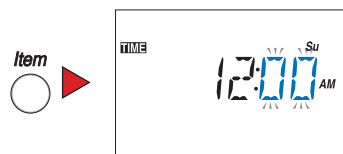
Item ▶

Step 4: Use the Item button to advance to the next item. The day begins to flash. Use the Up or Down button to set the day.

Item ▶

© 2007 **tekmar**® U 162 - 08/07
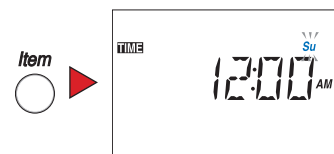
Selecting a Scene

Scenes are a feature that your installer selects when installing the setpoint control in the system.

Please refer to the Job Record J162 for a record of how your installer made these settings.

Scenes allow you to change the system override on all thermostats and setpoint controls that have scenes enabled. The scene overrides the programmable scheduled temperature. This allows you to change the temperature of all the thermostats and setpoint control from a single thermostat or setpoint control.

Several of the Scenes are preset from the factory. However, your installer can customize several of the scenes based on your needs.

Refer to the Scene table below for a description of each scene.

Scene	Description	Setpoint Operation
1	Permanent 1	Scheduled event, Unoccupied, Occupied, Away
2	Permanent Away 2	Away
3	Permanent Unoccupied 3	Unoccupied
4	Permanent 4	Scheduled event, Unoccupied, Occupied, Away
5	Permanent 5	Scheduled event, Unoccupied, Occupied, Away
6	Temporary Occupied 6	Occupied for 3 hours
7	Temporary 7	4 hour: Schedule, Unoccupied, Occupied, or Away
8	Temporary 8	8 hour: Schedule, Unoccupied, Occupied, or Away

**Note:** If no schedule is available, the Scene menu selections are limited to Occupied and Away

To select a scene:

1. Use the Menu button to select the Scene menu.
2. Use the Item button to select the Select item.
3. Use the Up or Down button to select the desired scene.
- Default Scene: The default scene is Permanent 1. In a typical installation, a setpoint control follows the schedule.
- Factory set scene: When you select a factory set scene (2, 3, and 6), all of the setpoint controls and thermostats using the scene feature use the temperature specified by the scene.
- Custom scenes: When you select a custom scene, your installer will have preset each setpoint control or thermostat using the scene feature to either follow its regular schedule, or go to the set occupied, unoccupied, or away temperature.
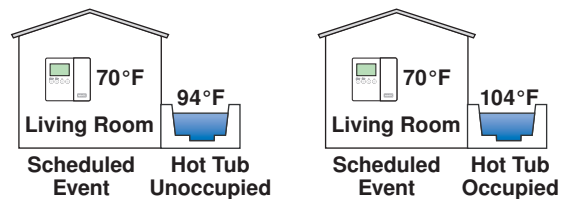
Example:

A house is normally in scene 1. There is a living room that operates on a schedule and there is a hot tub that is normally at the unoccupied temperature. When entertaining guests, the scene is changed to scene 4. Scene 4 has been pre-programmed to change the hot tub to operate at the occupied temperature.

Living room thermostat:

Scene 1 is set to Schedule.
Scene 4 is set to Schedule.

Hot tub setpoint control:

Scene Permanent 1 is set to Unoccupied.
Scene Permanent 4 is set to Occupied.

|			
70°F		70°F	
94°F		104°F	
Living Room	Hot Tub	Living Room	Hot Tub
Scheduled Event	Unoccupied	Scheduled Event	Occupied

Extended Absences

If you are going away for an extended period of time, the Away Hold feature allows you to override the regular schedule of the setpoint control for a set number of days.

During the Away Hold, the setpoint control operates at the Away temperature set by your installer.

After the Away Hold has elapsed, the setpoint control returns to its normal operation.

INF
SCENE
HOLD Away

SELECT
SCENE
2
PERM Away
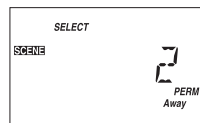
If you have multiple tekmar setpoint controls and or thermostats installed, you need only to do the following on one setpoint control or thermostat.

To set the number of days you will be away:

1. Use the Menu button to select the Scene menu.
2. Use the Item button to select Away Hold.
3. Use the Up or Down button to set the number of days that you will be away.

To start the Away Hold:

1. Use the Menu button to select the Scene menu.
2. Use the Item button to select the Select item.
3. Use the Up or Down button to select Scene 2 Permanent Away.

Setting the Schedule

The installer of this setpoint control may have already entered a schedule. Please refer to Job Record J 162.

To set the schedule:

1. Use the Menu button to select the Schedule menu.
2. Use the Up or Down button to set the start time of the event.
- If you wish to skip the event, select "– –:– –" as the time. "– –:– –" is found between 11:50 PM and 12:00 AM.
3. Use the Item button to advance to the next available event.
4. Repeat steps 2 and 3 for all of the available events.

Schedule Mode	Event	24hr	Sat	Sun	Mon	Tue	We	Thu	Fri
4 events per day	Occupied 1	◔	◔	◔	◔	◔	◔	◔	◔
	Unoccupied 1	◔	◔	◔	◔	◔	◔	◔	◔
	Occupied 2	◔	◔	◔	◔	◔	◔	◔	◔
	Unoccupied 2	◔	◔	◔	◔	◔	◔	◔	◔
or									
2 events per day	Occupied	◔	◔	◔	◔	◔	◔	◔	◔
	Unoccupied	◔	◔	◔	◔	◔	◔	◔	◔

Temperature Units

The temperature can be displayed in either Fahrenheit (°F) or in Celsius (°C).

To change the units of temperature:

1. Use the Menu button to select the Misc menu.
2. Use the Item button until the units flash.
3. Use the Up or Down button to select Fahrenheit (°F) or Celsius (°C).
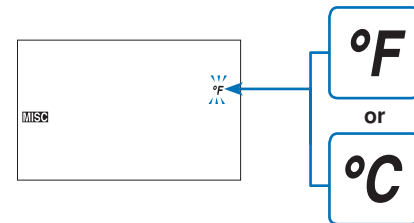
Cleaning the Setpoint Control

Clean the Setpoint Control's exterior using a damp cloth. Moisten the cloth with water and wring out prior to wiping the control. Do not use solvents or cleaning solutions.

Error Messages

When the Setpoint control encounters a problem, a Warning Symbol appears. To troubleshoot how to correct the error, please refer to the Data Brochure or contact a qualified installer.

An electronic version of the Data Brochure D 162 is available on the tekmar website: www.tekmarcontrols.com.

Warning Symbol

© 2007 **tekmar**® U 162 - 08/07
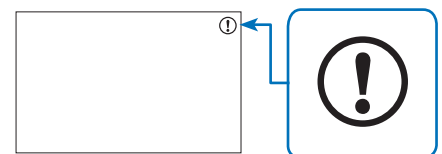
Limited Warranty and Product Return Procedure

Limited Warranty *The liability of tekmar under this warranty is limited. The Purchaser, by taking receipt of any tekmar product ("Product"), acknowledges the terms of the Limited Warranty in effect at the time of such Product sale and acknowledges that it has read and understands same.*

The tekmar Limited Warranty to the Purchaser on the Products sold hereunder is a manufacturer's pass-through warranty which the Purchaser is authorized to pass through to its customers. Under the Limited Warranty, each tekmar Product is warranted against defects in workmanship and materials if the Product is installed and used in compliance with tekmar's instructions, ordinary wear and tear excepted. The pass-through warranty period is for a period of twenty-four (24) months from the production date if the Product is not installed during that period, or twelve (12) months from the documented date of installation if installed within twenty-four (24) months from the production date.

The liability of tekmar under the Limited Warranty shall be limited to, at tekmar's sole discretion: the cost of parts and labor provided by tekmar to repair defects in materials and / or workmanship of the defective product; or to the exchange of the defective product for a warranty replacement product; or to the granting of credit limited to the original cost of the defective product, and such repair, exchange or credit shall be the sole remedy available from tekmar, and, without limiting the foregoing in any way, tekmar is not responsible, in contract, tort or strict product liability, for any other losses, costs, expenses, inconveniences, or damages, whether direct, indirect, special, secondary, incidental or consequential, arising from ownership or use of the product, or from defects in workmanship or materials, including any liability for fundamental breach of contract.

The pass-through Limited Warranty applies only to those defective Products returned to tekmar during the warranty period. This Limited Warranty does not cover the cost of the parts or labor to remove or transport the defective Product, or to reinstall the repaired or replacement Product, all such costs and expenses being subject to Purchaser's agreement and warranty with its customers.

Any representations or warranties about the Products made by Purchaser to its customers which are different from or in excess of the tekmar Limited Warranty are the Purchaser's sole responsibility and obligation. Purchaser shall indemnify and hold tekmar harmless from and against any and all claims, liabilities and damages of any kind or nature which arise out of or are related to any such representations or warranties by Purchaser to its customers.

The pass-through Limited Warranty does not apply if the returned Product has been damaged by negligence by persons other than tekmar, accident, fire, Act of God, abuse or misuse; or has been damaged by modifications, alterations or attachments made subsequent to purchase which have not been authorized by tekmar; or if the Product was not installed in compliance with tekmar's instructions and / or the local codes and ordinances; or if due to defective installation of the Product; or if the Product was not used in compliance with tekmar's instructions.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WHICH THE GOVERNING LAW ALLOWS PARTIES TO CONTRACTUALLY EXCLUDE, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, DURABILITY OR DESCRIPTION OF THE PRODUCT, ITS NON-INFRINGEMENT OF ANY RELEVANT PATENTS OR TRADEMARKS, AND ITS COMPLIANCE WITH OR NON-VIOLATION OF ANY APPLICABLE ENVIRONMENTAL, HEALTH OR SAFETY LEGISLATION; THE TERM OF ANY OTHER WARRANTY NOT HEREBY CONTRACTUALLY EXCLUDED IS LIMITED SUCH THAT IT SHALL NOT EXTEND BEYOND TWENTY-FOUR (24) MONTHS FROM THE PRODUCTION DATE, TO THE EXTENT THAT SUCH LIMITATION IS ALLOWED BY THE GOVERNING LAW.

Product Warranty Return Procedure All Products that are believed to have defects in workmanship or materials must be returned, together with a written description of the defect, to the tekmar Representative assigned to the territory in which such Product is located. If tekmar receives an inquiry from someone other than a tekmar Representative, including an inquiry from Purchaser (if not a tekmar Representative) or Purchaser's customers, regarding a potential warranty claim, tekmar's sole obligation shall be to provide the address and other contact information regarding the appropriate Representative.

tekmar®
Control Systems

tekmar Control Systems Ltd., Canada
tekmar Control Systems, Inc., U.S.A.
**Head Office: 5100 Silver Star Road
Vernon, B.C. Canada V1B 3K4
(250) 545-7749 Fax. (250) 545-0650
Web Site: www.tekmarcontrols.com**

Product design, software and literature are Copyright © 2007 by: tekmar Control Systems Ltd. and tekmar Control Systems, Inc.

12 of 12

All specifications are subject to change without notice.
Printed in Canada. U 162 - 08/07.