Timberline®

PREMIUM HEAT & HOT WATER SYSTEM

User Manual | 2025

CONTENTS

Operation Summary

Timberline heat and hot water is generated by the Autoterm Compact, a powerful but quiet diesel or gasoline heating unit made for the most adverse conditions. A heated glycol solution is circulated through the interior of the living space through quiet air handlers that provide soft radiant heat.

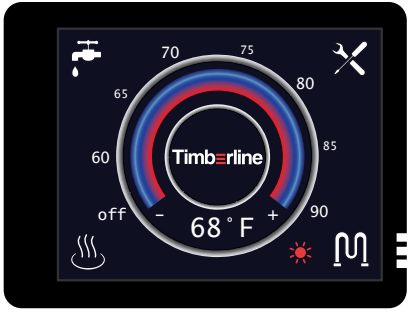
The glycol is also circulated through an instantaneous water heat exchanger which produces hot water for showers and kitchen use. By using the diesel or gasoline burner coupled with 110V electric element support, Timberline provides efficient comfort whether dry camping or plugged into shore power.

The Timberline touchscreen digital panel located inside the RV gives you full control of your interior temperature. The controls are intuitive and easily allow you to adjust how hard or soft you want the heat to distribute and whether you want to utilize your fuel source or electric only.

When the RV is cold the fans run on high until the interior temperature starts to reach it's target. The fans then automatically slow down and remain on low levels, maintaining the comfort levels inside.

Contact Elwell Corporation for support

Tel: 360-608-0916 • Email: info@elwellcorp.com
680-C South 28th St. Washougal, WA 98671



Watch a comprehensive video tutorial on how to use the touchscreen by scanning the QR code or visiting:

https:/timberlineheat.com/heatandhotwater

How to control the system with the touchscreen

The best way to use the Timberline system is to enable the burner, the electrical element, and the hot water icon. The Timberline system will self manage, prioritizing the element if the coach is plugged in and only using the diesel/gas burner as needed. When its cold outside, set the thermostat to your desired temperature and the system will manage energy while maintaining the selected set point.

If you are utilizing multiple 120V appliances at the same time (Coffee maker, AC, etc) you can turn off the electric element to conserve amperage and the Timberline system will maintain hot water and heat via the diesel burner. If you want to conserve diesel you can choose only the electric element.

Note: The electric element is limited in energy and will not provide as much hot water or keep the coach warm in colder temperatures.

Icon descriptions

Hot Water

When the Hot Water icon is selected the system will cycle and maintain the hot water heat exchanger so hot water is available on demand. *Note: In order for hot water to be maintained, either the burner or the electric element icons must be selected (or both).*

Electrical Element

When the 120V Electric Element icon is selected the 1500 watt 120V element will activate and provide supplemental heat to the coolant.

When both the Burner and Element icons are selected the system automatically prioritizes using heat from the electric element. If there is greater heating demand on the system the burner will automatically engage and heat the glycol.

Burner

When the burner icon is selected the diesel heater will run and keep the coolant hot and ready for hot water and heat. The heater will cycle on and off, maintaining the temperature of the coolant.

Icon descriptions

Day and Nighttime Set-point

To utilize the day/night setting on a heating thermostat, simply observe the displayed symbols: a sun denotes daytime operation, while a moon indicates nighttime operation.

During the day, ensure the thermostat is set to the sun symbol to activate daytime heating settings, optimizing comfort and energy efficiency when you're awake and active. Conversely, when night falls, switch the thermostat to the moon symbol to activate nighttime heating settings, keeping you cozy and comfortable as you rest.

This intuitive feature allows for effortless adjustment between day and night modes, ensuring optimal temperature control based on your daily routine.

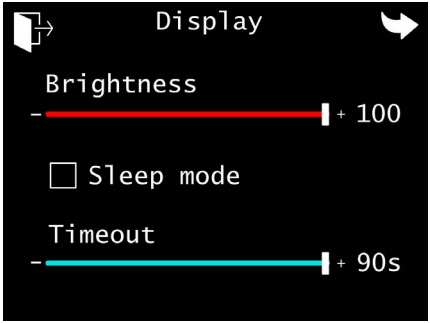
Interior Temperature

The interior temperature set point can be set by either sliding the temperature bar to the desired temperature or by pressing the **+** and **-** icons under the temperature bar.

When the RV is cold the fans run on high until the interior temperature starts to reach its target. The fans then automatically slow down and remain on low levels, maintaining the comfort levels inside. *Note: In order for the system to heat the interior, either the burner or electric element icons must be selected (or both).*

Icon descriptions

Settings



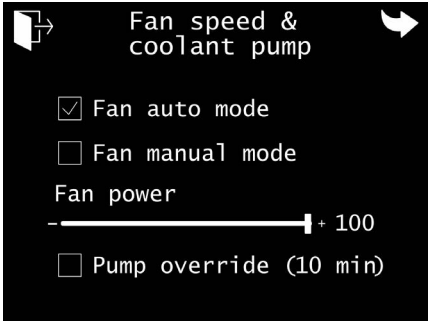
Display

To adjust the brightness you can check the `Sleep mode` and the display will “go to sleep” for the set time. You can “wake” the panel by touching the screen.

Adjusting `Timeout` sets how long the screen will stay on until it automatically enters sleep mode.

Icon descriptions

Settings Contd.



Fan speed & coolant pump

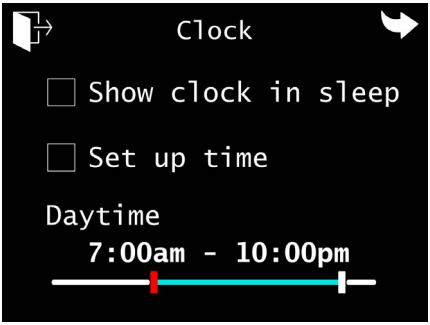
When `Fan auto mode` is selected the fans will regulate air flow based on the needs inside the living space. The fans will blow harder when more heat is needed and softer when maintaining the selected set point.

Selecting `Fan manual mode` will make the fans always run at the set percentage selected anytime there is a call for heat.

By selecting the `Pump override` the coolant pump will run for 10 minutes. This mode is used for purging air from the coolant system.

Icon descriptions

Settings Contd.

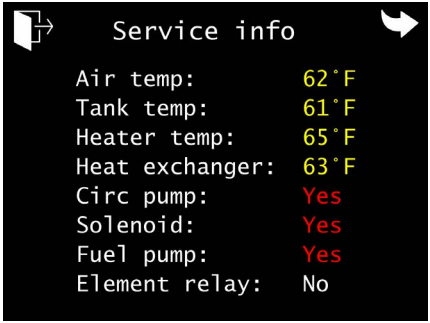


Clock

Selecting `Show clock in sleep` will display a clock when the screen goes into sleep mode. Select `Set up time` to set the clock. This will take you to a separate screen where you can set your current time by selecting the hour or minutes and rotating the dial clockwise or counterclockwise.

Daytime / Nighttime

The Daytime slider functionality enables users to define multiple setpoints on the thermostat. The Daytime segment, depicted in light blue on the slider, corresponds to the user-configured daytime settings. Adjusting the slider results in a corresponding change in time, indicating the current daytime setting. The remaining timeframe outside the marked daytime represents the night-time settings.



Service Info

Air Temp: The current temp in the living space.

Tank Temp: The temperature of the coolant inside the Timberline tank.

Heater Temp: The coolant temp inside the Timberline heater.

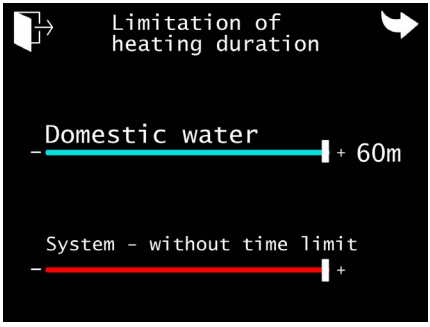
Heat Exchanger: The temp of the domestic water heat exchanger.

Circ Pump: Indicates if the circulation pump is activated or not.

Solenoid: Indicates if the heating loop solenoid is activated.

Fuel Pump: Indicates if the Fuel pump for the Timberline heater is activated.

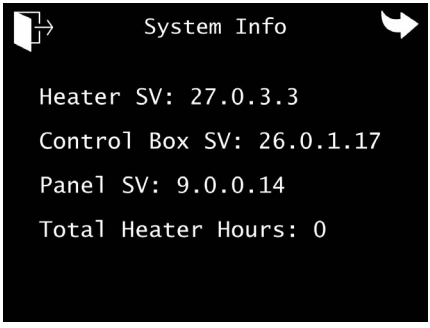
Element Relay: Indicates if the 110V element is activated in the Timberline Tank.



Limitation of heating duration

Domestic water allows you to choose a length of time the domestic hot water is activated; from 30 minutes to 60 minutes. These functions are used when you plan to leave the coach for some time and want to limit the heaters operation.

System allows you to choose a length of time the system will be activated; from 1 hour to infinity. These functions are used when you plan to leave the coach for some time an want to limit the heaters operation.



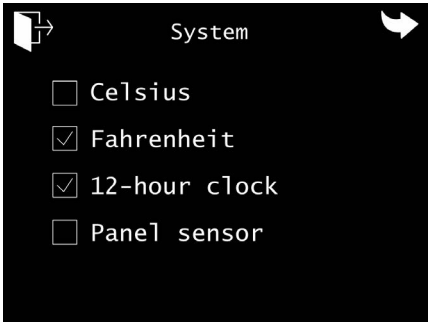
System Info

Heater SV: Software version of Timberline burner

Control Box SV: Software version of Timberline Control Box

Panel SV: Software version of Timberline Touch Panel

Total Heater Hours:
The total hours the heater has been running and using fuel.

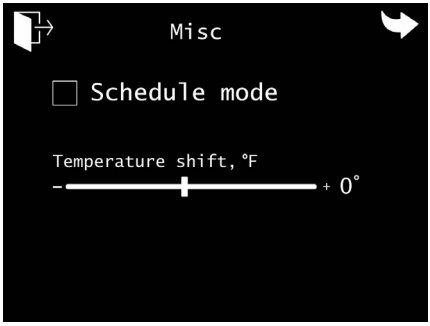


System Contd.

By selecting `Celsius` or `Fahrenheit` you are simply toggling between the two temperature scales.

Selecting `12-hour clock` changes the clock display on the sleep mode screen to display the 12-hour time convention. When unchecked, the screen will display a 24-hour time convention.

`Panel sensor` will allow the Timberline to operate using the air sensor mounted to the touch panel. Standard operations would leave this unchecked.



Misc.

`Schedule mode`
By selecting Schedule mode you are disabling the day and nighttime schedule. When this is unchecked, the Timberline will operate with both a day ☀ and night ☾ thermostat set-point. When checked, the Timberline will operate with a single thermostat setpoint.

`Temperature shift`
Adjusting **`Temperature shift`** allows the user to finely calibrate ±18 °F to the ambient air temperature reading.

Possible Fault Codes and Replacement of Parts in the Timberline Heating System Components

Codes	Malfunction Description	Malfunction Root Cause	Recommended Troubleshooting Methods
01	Overheating (upper temperature limit exceeded).	Heat exchanger temperature near the temperature sensor > 110°C.	1. Perform complete test of the fluid loop. 2. Check the pump; replace if necessary. 3. Check overheating sensor and temperature sensor; replace if necessary.
02	Potential overheating	Exceedingly high difference in temperatures measured by the overheating sensor and the temperature sensor.	
03	Temperature sensor 1 fault	Short or open circuit in the electric wiring.	Replace both sensors (section 5.6).
04	Temperature sensor 2 fault		
05	Flame detector fault	Short circuit to frame or open circuit in the detector wiring.	Check the flame detector (see 5.3) and replace, if necessary.

06	Control unit temperature sensor fault	The temperature sensor is faulty (located in the control unit, cannot be replaced)	Replace the control unit (section 5.5).
07	Flame blowoff in “LOW-DUTY” mode	Poor conditions for combustion. Lack of fuel/ air, the heat exchanger is fouled, the exhaust pipe is clogged.	Check the air intake, the gas exhaust pipeline, and fuel supply, resolve the faults and replace the fuel pump or the flame detector if necessary.
08	Flame blowoff in “FULL-DUTY” mode		
09	Glow plug fault	Short or open circuit, control unit fault	Test glow plug. Replace if necessary. Check the control unit; replace if necessary (see 5.1).
10	Air blower fault. Speed lower than rated	Foreign particles obstruct spinner movement, or the spinner hits the air blower cover.	Check the electric wiring. Check the AB for dirt. Correct the fault; replace the air blower if necessary (see section 5.4).

11	Overheating (heating rate is too high)	The temperature sensors heat too rapidly.	1. Check the entire liquid circuit for any possible air blocks upstream of the pump preventing the coolant to be pumped through the heating element. 2. Check coolant 3. Check the pump; replace if necessary.
12	Shutdown due to overvoltage.	Power supply voltage > 16 V	Test voltage at connector XS2 on the heater. Test the battery, the vehicle voltage regulator, and power supply wiring.

13	All attempts to start failed	Failure to ignite (after two attempts)	Check the fuel line, the fuel pump, and the air blower. Check the exhaust pipe. Check the combustion chamber, clean the Ø2.8 mm opening if necessary (see 5.7 and 5.2)
14	Pump fault	Short or open circuit of current-conducting parts, contaminated pumping elements.	Check short circuit and discontinuity of circulation pump wiring; check the pump; replace if necessary. Clean the pumping elements of the pump. (section 5.9).

27	Air blower fault.	The motor does not rotate (movement is possibly obstructed)	Check the AB for mechanical obstruction of its rotation. Test wiring, the air pump, and the control unit; replace if necessary.
28	Air blower fault.	The motor rotates uncontrollably (possible fault in the 5 V power supply to the control unit).	
29	All ignition attempts failed with the pre-heater in operation	Ignition has been tried more than 4 times.	Check the fuel system. Check the security of the fuel line clamps, the seal of the fuel line and the fuel pump nozzle, and the fuel pump capacity.
41	External Air Temperature Sensor Fault	Open circuit in the wiring	Check the wire harness for any cut or unplugged wiring.
42	External Air Temperature Sensor Fault	Short circuit in the wiring	Check the wire harness for any cut or miss pinned wiring.

43	Heat Exchanger Sensor Fault	Open circuit in the wiring	Check the wire harness for any cut or unplugged wiring.
44	Heat Exchanger Sensor Fault	Short circuit in the wiring	Check the wire harness for any cut or miss pinned wiring.
45	Tank Temperature Sensor Fault	Open circuit in the wiring	Check the wire harness for any cut or unplugged wiring.
46	Tank Temperature Sensor Fault	Short circuit in the wiring	Check the wire harness for any cut or miss pinned wiring.
47	No communication between the control unit and the control panel.	Short or open circuit in the wiring	Check circuits and terminals
48	No communication between the control unit and the heater.	Short or open circuit in the wiring	Check circuits and terminals

System Maintenance

Hydronic System

- The glycol system does not require annual maintenance.
- It is recommended to test the alkalinity in the system coolant annually.

Domestic Water

- The domestic water loop does not require annual maintenance.
- Calcium build-up over time will act as an insulator. The exchanger unit can be back-flushed with a lime removal cleanser.

Fan Unit(s)

- The fan unit does not require annual maintenance.

Furnace

- The Timberline system is equipped with the efficient Autoterm Compact Diesel or Gasoline burner. This burner is designed for optimal use in all climates including high altitude. There is limited required maintenance for the Autoterm burner
- It is recommended to exercise the burner every month letting the burner run for 15-20 minutes. If the burner is utilized monthly there is no annual or hour based maintenance required.

Exhaust System

- The exhaust system should be inspected annually for damage.

Winterization

System Coolant

- The system coolant does not require winterization.
- The system coolant can be tested for its freeze protection value.

Domestic Water System

- The domestic water circuit needs to be drained or protected using RV winterizing fluid.
- Draining is accomplished by opening the low point drains and blowing air through the water system. Please refer to the RV's owners manual for the procedure.
- Propylene-glycol can be pumped through the system using the domestic water pump and opening both hot and cold valves at a plumbing fixture. Using this procedure does not require draining the Demand Hot Water exchanger.

Timberline Warranty Statement

Elwell Corp warrants to the original owner and subject to the below mentioned conditions, that the Timberline system will be free of defects in material or workmanship for a period of two years (unless otherwise specified) from the original date of purchase.

Elwell Corp liability hereunder is limited to the replacement of the product, repair of the product or replacement of the product with a reconditioned product at the discretion of the manufacturer.

This warranty is void if the product has been damaged by accident, unreasonable use, neglect, tampering or other causes not arising from defects in material workmanship.

This warranty extends to the original owner of the product only and is subject to the following conditions:

1. For two years (unless otherwise specified) from the date of purchase, Elwell Corp will repair or replace any part defective in material or workmanship. This warranty includes reasonable labor charges required to remove and replace the part. Service calls to customer's location are not considered part of these charges and are, therefore, the responsibility of the owner.

Timberline Warranty Statement

2. This warranty does not cover the following items classified as normal maintenance:
    a. Cleaning the burner and screens
    b. Replacing the screens.
    c. Replacement of the glycol

3. Warranty approvals and payments will be made by Elwell Corp. All warranty repairs require a pre-authorization.

4. The warranty period on replacement parts is the unused portion of the original warranty period or one hundred eighty (180) days, whichever is greater.

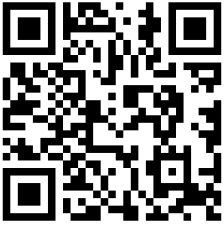
5. Damage or failure resulting from misuse (including failure to seek proper repair service), misapplication, alterations, water damage or freezing are the owner's responsibility.

6. Elwell Corp does not assume responsibility for any loss of use of the vehicle, loss of time, inconvenience, expense for gasoline, telephone, travel, lodging, loss or damage to personal property or revenues. Some states/provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

Timberline Warranty Registration

To get full coverage within your warranty period, fill out our warranty registration form on the timberlineheat.com website. With the warranty registration form filled out, you may also submit warranty claims on the Timberline site after working with an Elwell Corp technician.

Find the warranty registration and warranty claims forms at *https://timberlineheat.com/service-center* or scan the QR code below.



Timberline®
By: ELWELL

Visit:
TIMBERLINEHEAT.COM
for more information.

Contact us here for support.

Call: 360.608.0916

Email: info@timberlineheat.com Or info@elwellcorp.com

680-C South 28th St. Washougal, WA 98671