

Troubleshooting Guide - C Series and MF eSeries

The following are just some of the common scenarios that dealers and manufacturer's might encounter when selling outdoor furnaces. These scenarios have come from our experiences as well as dealer experiences. The solutions are common things to look for to solve the problems and are not necessarily the solution to every problem. This is meant as a helpful guide for these common problems. If anyone has additional scenarios or information, please submit them.

If the furnace is running but fails to bring water up to temperature:

1. Check fire.
2. Check fan for operation.
3. Check that the solenoid damper and fanbox elbow is open to allow air injection.
4. Check to ensure the furnace is sized accurately according to heat demand.
5. Check fuel type. Poor quality fuel will not provide as many BTU's as high quality fuel.
6. Check water level of furnace.
7. Check for ash and creosote blockage at chimney and bypass trough.
8. Check for blockage in venting and at the rear of the ash container where the air enters the firebox.
9. Check temperature settings. Make sure high temperature setting is set to at least 165 F.
10. Check for power at furnace.
11. Check to ensure all pumps in the system are running.
12. Check to make sure there are no leaks, hot/wet spots on your ground or breaks in the pipe or fittings which may cause the pipe to be saturated and lose its insulation value.
13. Check Temperature of water exiting furnace, entering the building being heated and before and after each heat exchanger.

If the furnace water is hot but buildings do not have heat:

1. Check to ensure all pumps in the system are running.
2. Check filter cartridge for flow blockage (if installed).
3. Check for air in the system at the exchanger by bleeding off.
4. Check for closed valves to ensure water flow.

5. Check Temperature of water exiting furnace, entering the building being heated and before and after each heat exchanger.

If the furnace overheats:

1. Check that all doors are closing properly and that door gasket is completely sealing.
2. Check that the solenoid damper plate is opening and closing without hang-ups.
3. Check venting and fan box on rear of furnace for air leaks.
4. Check that the temperature settings are correct. The furnace should be set on Heating Mode (H1) and the high temperature setting should be set to no higher than 185 F.
5. Check chimney draft. If the chimney has been extended too far or has a strong wind blowing over it, it may cause a draft down the furnace.
6. Check water level.
7. Make sure the door and ash drawer are air tight.
8. Check to ensure all pumps in the system are running.

If the furnace has shut down:

1. Check to ensure that the unit has power (does the light work?).
2. Check to ensure the Furnace On/Off switch is in the On position.
3. Check the water temperature (furnace has a high temperature cut out of 190 degrees F. and turns on again at 140 degrees).
4. If all checks have not corrected the problem have a technician check the control panel.

If there is a chimney fire:

1. Make sure the firebox and ash pan doors are tightly closed.
2. Close all combustion air inlets on the furnace.

If there is a power failure:

1. Open all flow-check and zone valves in the system. Depending on the system design, this may allow convective circulation.
NOTE: This does not apply to gravity systems, as they have no flow-check valves and will continue to operate normally without electricity.
2. It is important to remember that the heating systems cannot dispose of a great deal of heat without the circulator(s) running.

Avoid over-firing!



DO NOT LOAD LARGE AMOUNTS OF SOLID FUEL INTO THE FURNACE!

Fire the furnace cautiously until you are able to determine how quickly the heat system is able to absorb the heat being produced by the furnace.

3. When the power has returned, reset all flow-check and zone valves and resume normal operation of the system.

If there is smoke leaking out of the door

Small amounts of smoke leakage is normal due to the fan pressure and restricted exhaust.

1. Check to ensure door is sealing properly.
2. If the seal is worn out it will have to be replaced.
3. The door may need to be adjusted. To do this loosen the Door Latch Bearings and Door Hinge bearings and set the door so it seals tightly against the door jamb.

If the furnace has an excessive amount of creosote either in the firebox or in the bypass

1. Check to ensure the furnace is sized accurately according to heat demand. If the furnace is oversized it will idle and cause this. If the weather is warm or mild burn a small hot fire keeping only enough fuel to last until your next burn time (generally 12 hour burn time is best). It will allow the furnace to burn more often with greater efficiency and have less fuel smouldering during idle, creating less creosote.
2. If the chimney and/or bypass become plugged with creosote it will be necessary to scrape the creosote out to obtain a proper burn in the firebox.

Having to fill the furnace with water more than once a week or more than a few gallons of water per week and there is no obvious explanation

1. Check the temperature settings and gasket on the door and ash drawer to ensure the furnace is not over temperature and steaming. If water temperature reaches levels over 200 degrees Fahrenheit the water will steam and water loss will occur.
2. Check the perimeter of the furnace for water puddles collecting or dripping from the furnace. If water is found open the rear door panel and search the floor to find the source of the water.
3. Check all plumbing in the system to ensure there are no leaks.

The Ranco Temperature control is giving the user an error message.

Instructions for dealing with Ranco ETC settings and error codes are included in the owner's manual on page 16.

Electronic Temperature Control Settings & Specifications

Description

The Ranco Electronic temperature control (ETC) is designed to provide on/off control for heating and cooling. It is equipped with a liquid crystal display (LCD) that provides a constant readout of the sensed temperature, and a touch keypad that allows the user to easily and accurately select the set of point temperature, differential and heating/cooling mode of operation.

Programing steps and display

The ETC can be programmed in four simple steps using the LCD display and three keys on the face of the control.

- STEP 1** To start programming press the **SET** key once to access the Fahrenheit/Celsius mode. The Display will show the current status, either F for degrees Fahrenheit or C for degrees Celsius. Then press either the up or down arrow key to toggle between the F or C designation.
- STEP 2** Press the **SET** key again to access the set point. The LCD will display the current set-point and the **S1** indicator will be blinking on and off to indicate that the control is in the set point mode. Then press either the up key to increase or the down key to decrease the set-point to the desired temperature.
- STEP 3** Press the **SET** key again to access the differential. The LCD will display the current differential and the **DIF1** indicator will be blinking on and off to indicate that the control is in the differential mode. Then press the up key to increase or the down key to decrease the differential to the desired setting.
- STEP 4** Press the **SET** key again to access the cooling or heating mode. The LCD will display the current mode, either **C1** for cooling or **H1** for heating. Then press either the up or down key to toggle between the **C1** or **H1** designation. **(This setting must remain at H1 for proper furnace operation and temperature regulation.)** Press the **SET** key once more and programming is complete.

NOTE: The ETC will automatically end programming if no keys are pressed for thirty seconds. Any settings that have been changed on the control will be stored at that point.

Step	Indicator	Description
1	F or C	Fahrenheit or Celsius Scale
2	S1 blinking	Setpoint Temperature
3	DIF1 blinking	Differential Temperature
4	C1/H1	Cooling or Heating Mode

Troubleshooting Error Messages

Display Message

- E1** Appears when either the up or down key is pressed when not in the programming mode.
To correct: If the E1 message appears even when no keys are being pressed replace the control.
- E2** Appears if the control settings are not properly stored in memory.
To correct: Re-set all settings. If the display continues to show E2, replace the control.
- EP** Appears when the probe is open, shorted, or sensing a temperature that is out of range
To correct: Check to see if the sensed temperature is out of range. If not, check for probe damage by comparing it to a known ambient temperature between -30°F and 220°F. Replace the control if necessary.
- EE** Appears if the EEPROM data has been corrupted.
To correct: This condition can not be field repaired. Replace the control.
- CL** Appears if calibration mode has been entered.
To correct: Remove power to the control for at least five seconds. Reapply power. If the CL message still appears, replace the control

Specifications

Input Voltage:	120 or 208/240 VAC (24 VAC optional), 50/60 Hz
Temperature Range:	30°F to 220°F
Differential Range:	1°F to 30°
Sensor:	Thermistor, 1.94 in. Long x .025in. Dia. with 8 ft. cable
Power Consumption:	120/208/240 VAC: 100 Milliamps 24 VAC: 2-6 VA

Electronic Timer Control and Settings

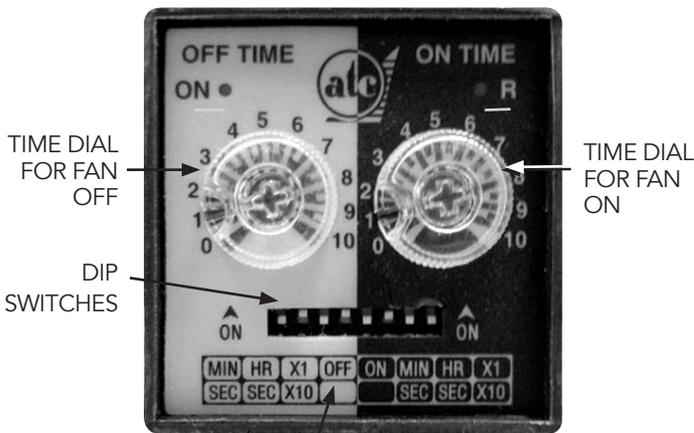
Description

The electronic timer uses the fan to inject air into the firebox in set intervals. This helps to keep the coal bed alive during periods of idle. **The Timer is factory set to off and can be programmed to turn on, if necessary.** Different grades of coal will burn differently so it may be necessary to try some different settings until an optimal setting is achieved.

Programming the timer

The timer can be set using the two timing dials and the dip switch settings.

- The Image below shows the timer using the factory settings of one hour off and one minute on.



DIP SWITCH FUNCTION GUIDE

- The OFF TIME or yellow side of the timer will control how long the fan will be off for.
- The ON TIME or black side of the timer will control how long the fan will be on for.
- Make sure that the 4th DIP switch is flipped up. This will ensure that the timer will start in an "off" position.
- Make sure that the 5th DIP switch is turned down. This will make the control function in an OFF/ON cycle.

The OFF Timer can be set to run in hours, minutes or seconds. The first two DIP switches will control what the time setting will be.

To set the OFF TIME to hours (recommended)

- The first DIP switch must be turned down
- The second DIP switch must be turned up

To set the OFF TIME to Minutes

- The first DIP switch must be turned up
- The second DIP switch must be turned down

To set the OFF TIME to seconds

- Both DIP switches must be turned down

- The 3rd DIP switch controls the timer settings. If it is set to the X1 or up setting it will count in 1/10 fractions instead of whole hours, minutes or seconds.
- The 3rd DIP switch must be set to the X10 or in the down position. This sets the timer in complete hours, minutes or seconds.

The ON Timer can be set to run in hours, minutes or seconds. The 6th and 7th DIP switches will control what the time setting will be.

To set the ON TIME to hours

- The 6th DIP switch must be turned down
- The 7th DIP switch must be turned up

To set the ON TIME to Minutes (recommended)

- The 6th DIP switch must be turned up
- The 7th DIP switch must be turned down

To set the ON TIME to seconds

- Both the 6th and 7th DIP switches must be turned down

- The 8th DIP switch must be set to the X10 or in the down position. This sets the timer in complete hours, minutes or seconds.

- The 8th DIP switch controls the timer settings. If it is set to the X1 or up setting it will count in 1/10 fractions instead of whole hours, minutes and seconds.