101343-002 Electronic Oil Primary EnviraCOM™ Enabled

APPLICATION

The 101343-002 Electronic Oil Primary is a line voltage, safety rated, oil primary control for residential oil fired burners used in boilers, forced air furnaces and water heaters. The 101343-002 used with a cad cell flame sensor, operates an oil burner and optional oil valve. The primary controls fuel oil, senses flame, controls ignition spark (either interrupted or intermittent) and notifies a remote alarm circuit when in lockout.

The R7284 can be used with both hydronic and forced air systems. When used with hydronic systems, line voltage switching Aquastat® Controllers normally provide for the starting and stopping of the combustion sequences. With forced air systems, both mechanical and electronic low voltage thermostats control the starting and stopping of the combustion process.

The 101343-002 is intended for use only on oil burning appliances, which do not require pre-purge and post-purge as a safety related function as defined in UL296. The valve-on delay and burner motor-off delay in this control are intended only to help establish draft and reduce oil after-drip related problems.

The 101343-002 can be used with EnviraLink® monitoring systems and hand-held diagnostics, such as, the QuickLook 72 by OnWatch. http://www.onwatchinc.com/

FEATURES

Thermostat(s)

The oil primaries are compatible with both standard thermostats and EnviraCOM™ communicating thermostats.

Limited Recycle

This feature limits the number of recycle trials (for each call for heat) to a maximum of three trials. If the flame is lost three times and does not successfully satisfy a call for heat, the 101343-002 locks out.

Pump Priming Cycle

To facilitate purging air from the oil lines and filters, the 101343-002 can be placed in a purge routine. The purge routine is started by pressing and releasing the reset button within 15 seconds after the burner motor starts. The lockout timing will be extended to four minutes and the ignition set in the intermittent mode for this cycle only. The 101343-002 automatically reverts to its labeled interrupted and safety switch timing states (as applicable).

The pump priming cycle can only be entered if there have been no lockout occurrences since the last successful heat call. To reset the device so that the pump priming cycle can be entered, press and hold the reset button until the light emitting diode (LED) flashes (approximately 30 seconds).

Diagnostic LED

The diagnostic LED has four states:

- On-Flame present.
- Off-No flame.
- Two seconds on, two seconds off-Recycle.
- 1/2 second on, 1/2 second off-Lockout.

Cad Cell Resistance

Cad cell resistance can be checked without using an ohmmeter. During the run mode, press and release the reset button. The resulting flashes indicate the resistance.

Flashes	Cad Cell Resistance in Ohms
1	Less than 400
2	More than 400 and less than 800
3	More than 800 and less than 1600
4	More than 1600 and less than 5000

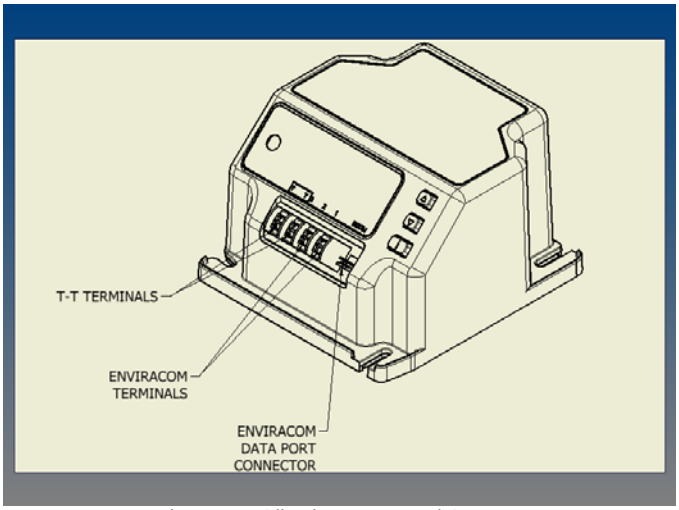

Figure 1 – Oil Primary Inputs / Outputs

Data Port

Controls are designed to allow networking and upgrade modules to be added in the field by simply plugging them into the data port/network

Disable Function

Pressing and holding the reset button will disable all functions until the button is released. The 101343-002 will restart at the beginning of the normal heat cycle on safety check.

Limited Reset (Restricted Mode)

In order to limit the accumulation of unburned oil in the combustion area, the control can only be reset three times. The reset count returns to zero each time a call for heat is successfully completed.

To reset from restricted mode: Press and hold the reset button for 30 seconds. When the LED flashes once for one second, the device has reset.

Lockout Mode

The 101343-002 will enter the lockout mode when:

- Flame is detected during valve-on delay.
- When flame is not established during Trial for Ignition.
- When flame is lost three times in one call for heat.
- When flame is detected during burner motor-off delay period.

SPECIFICATIONS

Timing:
Safe Start Check: 5 seconds (approximately)
Lockout: 15, 30 or 45 seconds (factory-programmed)
Recycle: 60 seconds (fixed)
Ignition Carryover: 10 seconds (fixed)

Electrical Ratings:
Inputs:
Voltage: 102 to 132 Vac, 120 Vac nominal
Current: 100 mA plus burner motor loads
Frequency: 60 Hz.

Outputs:
Relay Contacts:
Burner: 120 Vac, 10 full load amperes (FLA), 60 locked rotor amperes (LRA)
Thermostat Current Available: 100 mA
EnviraCOM™ Current Available: 150 mA

NOTE: Reduce burner FLA rating by ignitor load. For example, if the ignitor draws 3A (120 Vac, 360 VA), reduce the burner motor FLA to 7A.

Typical Component Wire Color Code:
White: Neutral
Black: Line
Orange: Blower/Pump

NOTE: 101343-002 is provided with 1/4 in. (6 mm) quick-connect terminals.

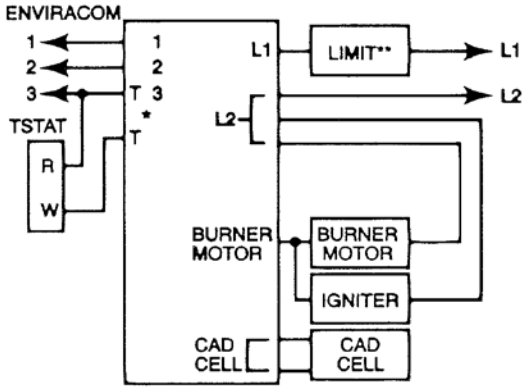

Figure 2 – Wiring

Environmental Ratings:
Operating Ambient Temperature: -40°F to +150°F (-40°C to +66°C)
Shipping Temperature: -20°F to +150°F (-29°C to +66°C)
Humidity: 90% relative humidity at 95°F (35°C), non-condensing

Approvals:
Underwriters Laboratories Inc.: Recognized (File MP268).
Canadian Underwriters Laboratories Inc.

SPECIAL CONNECTIONS

How to connect the 101343-001 to the cad cell:
Some older oil primaries used a different connection for the cad cell. These older primaries had set screws provided for connecting the cad cell wires to the control.

More recent designs have replaced these with two 1/4" spade terminals. To ensure a solid connection to the cad cell through these terminals, an extra set of wires is provided with this kit. The oil primary is to be connected to the cad cell as follows:

1. Take the cad cell leads and connect them to the jumper wires using wire nuts as shown in Figure 3. To ensure a good connection, make sure to tightly twist the stripped wire ends together.

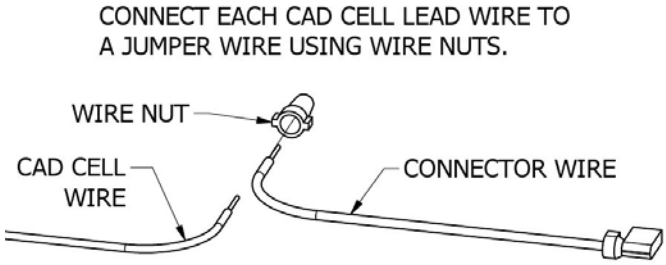

Figure 3 – Wire Nut Connection

2. Connect the new jumpers to the cad cell terminals on the underside of the oil primary.

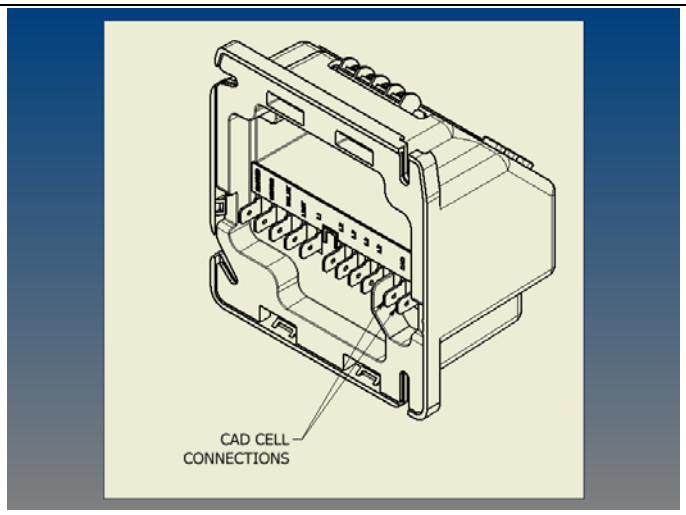

Figure 4 – Connect Jumper Wires to Oil Primary