

*Beckett*

PARTS & ACCESSORIES

# GeniSys™ Display or Contractor's Tool

for the GeniSys Advanced Burner Control



## Description / Applications

The Beckett GeniSys™ Display is an optional attachment for the GeniSys Primary Control that allows a technician to monitor and program the primary control variables. The Beckett GeniSys™ Contractor Tool is a rugged hand-held version of the display module for use by service engineers. The screen on both the Display and the Tool show current burner status, control timings, and burner cycle history. The display and tool programming mode allows a technician to customize both the pre-time and post-time settings. When the Display remains on the burner, a lockout service message can be programmed that displays a custom message.

### NOTICE

**This tool is NOT intended for use on any other Non-GeniSys Control or Equipment.**

Non-intended usage can cause damage to the Contractor Tool, or the control being tested and potentially alter control or system operation.

GeniSys™



# Features

- 32 character backlit alphanumeric display
- Sealed pushbutton keypad
- Low voltage operation
- Continuous real-time cycle monitoring
- Continuous cad cell resistance reading
- Continuous AC line voltage read-out
- Real-time error notification
- Customizable pre-time (valve-on delay) & post-time (motor off delay)
- 15 cycle history monitoring
- Five Year Warranty
- Customizable lockout service message

# Specifications

## Electrical Ratings

### Inputs:

- Voltage: 5 Vdc  $\pm$ 4%
- Current: 25 mA maximum display current

## Environmental Ratings:

- Storage Ambient Temperature: -22°F to +150°F (-30°C to +65°C)
- Operating Ambient Temperature: 0°F to +150°F (-18°C to +65°C)
- Moisture: 5 to 85% RH, non-condensing and non-crystallizing

# Installation

With a slotted screwdriver, carefully remove the COM2 port cover on the right side of the GeniSys control.

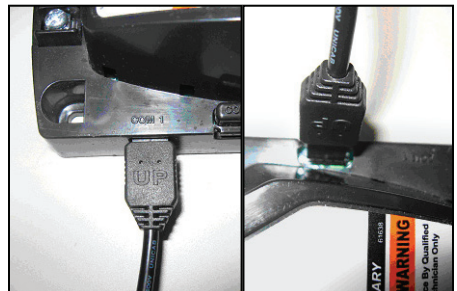
When installing the display, slide the display down into place by slightly tipping the display towards the rear to engage the rear mounting fingers, then carefully aligning the display receptacle with the four COM2 pins on the control, and pressing in place. No additional fastening or wiring is required. **See Figure 1.** When installing the contractor's tool, plug the connector from the interface cord into the COM1 or COM2 port.

**Figure 1**



**NOTICE** The installation of the cord plug is position-sensitive. It must be inserted with the embossed 'UP' in the up position, or the interface connection will be ineffective. See **Figure 2.**

**Figure 2**



Contractor Tool cord must be oriented as shown for proper operation.

# Operation

The display was designed to function as both a monitor and a programmer. The display consists of two rows of 16 alphanumeric characters. Below the display are 4 keys:



The Back key is used to step back through the display screens or to reply 'no' to a question.



The Select key is used to advance through the display screens or to respond yes to a question.



Use this key to scroll back to the previous screen, to decrease pre-time and post-time timing, and scroll through the character sets when customizing the Service Message screen.



Use this key to scroll forward to the next display screen, to increase pre-time and post-time timings and to scroll through the character sets when customizing the Service Message screen.

There are five main functional display groupings within the module; Burner Status (Paragraph A), Burner History (Paragraph B), Pre-time Change (Paragraph C), Post-time Change (Paragraph D) and the Service Message Program (Paragraph E).

## A. Burner Status Mode

1. The current burner status will automatically display whenever the burner is cycling and the module is connected to the primary control.



2. During normal burner operation, the display reflects the current state of the burner. For example, when the burner is idle, the control will display *STANDBY* followed by the number of minutes the burner remained idle (up to 1 hour). The second row of characters displays the cad cell resistance in ohms, followed by the line voltage. Note that if the cad cell resistance is greater than 50Kohms, the screen will display >50 kohm. Note also that the line voltage display may become inaccurate below 84 volts when connected to a 120 volt GeniSys Control and below 10 volts when connected to a 12 volt DC Control.
3. As the burner cycles through *PRE-TIME*, *TRIAL FOR IGN* (Trial for Ignition), *IGN CARRYOVER* (Ignition Carryover), *RUN* (Burner Run), *POST-TIME* and *PUMP PRIME* the module will display the operation, followed by the time that either is remaining or has elapsed in that specific step.

**Standby** - During this time, the burner is idle and waiting for a signal to turn on.

**Pre-time** - The Pre-time screen will display the number of seconds remaining in the Pre-time (valve-on delay). Below the time reading is the cad cell resistance and the line voltage reading.

PRE-TIME 12  
>50 KOHM 115V

**Trial for Ign** - This screen displays the amount of time left in Trial for Ignition, before the control locks out.

TRIAL FOR IGN 14  
12000 OHM 118V

**Ign Carryover** - This screen displays the amount of time that the igniter will remain on after the cad cell detects a flame.

IGN CARRYOVER 03  
640 OHM 118V

**Run** - The burner Run screen will display the number of minutes and seconds the burner has been firing.

RUN 2:46  
570 OHM 118V

**Post-time** - The Post-time screen will display the number of seconds remaining in Post-time (motor-off delay).

POST-TIME 0:22  
>50 KOHM 115V

**Pump Prime** - When priming the pump this screen will display the time remaining in pump prime.

PUMP PRIME 0:13  
>50 KOHM 115V

4. If the flame is lost during run, the burner will recycle. The display will list the recycle time that remains, the cad cell resistance and the line voltage.
5. When the control enters hard lockout, a message will be displayed on the screen that indicates the reason for the lockout. After three seconds, the display will switch to a screen that can be easily customized with the service agency's phone number or any other message. Refer to the information in Paragraph E to customize the display.

LOCKOUT 0:47  
DID NOT LIGHT

CALL FOR SERVICE  
###-###-####

## B. Burner Cycle History

1. From the burner status display, pressing the **NEXT** key will display the View History screen.

VIEW  
HISTORY

2. From the *VIEW HISTORY* screen, pressing the **PREV** key will return the display to the burner status. Pressing the **SEL** key will display the *LAST 15 CYCLES, HISTORY* screen.

LAST 15 CYCLES  
HISTORY

3. Pressing the **BACK (NO)** key at this stage will return the display to the *VIEW HISTORY* screen. Pressing the **PREV** key will display the hours since the screen was last cleared. Pressing the **NEXT** key will display the Lifetime Cycle Count screen. **Note that the data associated with the Cycles and Hours Since Cleared parameters (First 2 screens) is stored on the display module. To log this information the display must remain connected to the control.**



*SINCE CLEARED  
11,345 HOURS*

4. From this screen, pressing the **BACK (NO)** key returns you to the *VIEW HISTORY* screen, and pressing the **PREV** key displays the cycles since last cleared screen. To reset/clear the hours, press and hold the **SEL (YES)** key for 3 seconds and respond *YES* to the *CLEAR COUNTS?* prompt.



*SINCE CLEARED  
13,532 CYCLES*

5. From this screen, pressing the **BACK (NO)** key returns you to the *VIEW HISTORY* screen, and pressing the **PREV** key displays the Lifetime Cycles screen. To reset/clear the cycles, press and hold the **SEL (YES)** key for 3 seconds and respond *YES* to the *CLEAR COUNTS?* prompt.



*LIFETIME:  
109,565 CYCLES*

6. Pressing the **BACK (NO)** key at this stage will return the display to the *VIEW HISTORY* screen.



*LAST 15 CYCLES  
HISTORY*

7. From this screen either press the **BACK (NO)** key to return to the View History screen or press the **SEL (YES)** key to display a single parameter's readings through the 15 burner cycles. For example, to display the Run Time for all 15 cycles, press **SEL (YES)** and use the **SEL (YES)** and **BACK (NO)** keys to scroll through the Run Time for all 15 burner cycles.

*1 CYCLE AGO  
7:23 RUN TIME*



*2 CYCLES AGO  
7:23 RUN TIME*



3 CYCLES AGO  
7:23 RUN TIME

SEL  
(YES)

15 CYCLES AGO  
7:23 RUN TIME

1 CYCLE AGO  
AVG 112V

▶  
NEXT

1 CYCLE AGO  
**Cycle End Reason\***

8. To display the various readings associated with a single burner cycle, press the **NEXT** or **PREV** keys. For example, to display the time required to light the burner, the cad cell maximum and average resistance, the average line voltage, the cycle end reason, and the time the burner remained off.

▶  
NEXT

1 CYCLE AGO  
7:23 TO LIGHT

▶  
NEXT

1 CYCLE AGO  
100 OHMS MAX

▶  
NEXT

1 CYCLE AGO  
502 OHMS AVG

▶  
NEXT

- \* The possible cycle end reasons are as follows,

**Recycled** - The burner was shut down because the flame was lost.

**Pump Prime** - The burner cycle was terminated due to a manual pump prime override.

**Manual Shutdown** - The Reset button was held to shut down the burner.

**Low Voltage** - The burner shut down because the line voltage to the burner dropped too low.

**CFH Ended** - The burner cycle ended because there was no longer a call for heat.

**Replace Control** - This indicates that the control detected an internal failure.

**Did Not Light** - The cad cell did not sense flame at the end of the trial for ignition (lockout) time.

**Lost Flame** - The burner was shut down because of excessive recycling.

**Pre-time Flame** - A flame was detected at the end of the Pre-time (valve-on-delay).

▶  
NEXT

1 CYCLE AGO  
8:20 OFF TIME

- To return to the *CYCLE HISTORY* screen, press **BACK (NO)** once. To return to the *BURNER HISTORY* screen, press **BACK (NO)** a second time.

### C. Pre-time Set Program

- From either the *VIEW HISTORY* or the *BURNER STATUS* screens, press and hold the **NEXT** key for 3 seconds. The Pre-time screen will be displayed showing the current Pre-time (valve-on delay) time setting.



Hold for  
3  
seconds

- To change the Pre-time setting, press the **SEL (YES)** key. If the current setting is zero a screen appears that asks if a valve has been installed. By pressing the **BACK (NO)** key, a screen will be displayed as a reminder that a valve is needed. See manual supplied with burner. A valve must be installed to operate in pre-time.



- If the response is **SEL (YES)**, a select Pre-time screen will be displayed. Use the **PREV** and **NEXT** keys to select the desired time setting. Pre-time can be set to either 0, 5, 10, 15, 30, or 45 seconds. **Note that if you install a control that is programmed for**

**pre-time and/or post-time and the burner does not have a valve, an error will be detected by the control.**



- After selecting the desired time, press the **SEL (YES)** key to display a confirmation screen.



- To accept the change press **SEL**, to return to the initial Pre-time screen press the **BACK(NO)** key.
- A **BACK (NO)** response will display a *CHANGE CANCELLED* screen and will return to the initial *PRE-TIME SELECT TO CHANGE* screen. A **SEL (YES)** response will update the pre-time, then display the new time setting on the initial *PRE-TIME, SELECT TO CHANGE* screen.
- From the *PRE-TIME, SELECT TO CHANGE* screen, press **PREV** to return to the *VIEW HISTORY* screen (Paragraph B) or press **NEXT** to set the Post-time (motor-off delay). Note that replacement labels are supplied in the packaging with the Display. After changing the Pre and/or Post-time, peel and mount the correct label over the existing label being careful not to cover the bar code.

## D. Post-time Set Program

1. From the *PRE-TIME, SELECT TO CHANGE* screen, press the **NEXT** key to access the *POST-TIME (motor off delay), SELECT TO CHANGE* screen. The Post-time screen will be displayed showing the current post-time setting.



2. To change the Post-time setting, press the **SEL (YES)** key. If the current setting is zero a screen appears that asks if a valve has been installed. By pressing the **BACK (NO)** key, a screen will be displayed as a reminder that a valve is needed. See manual supplied with burner. A valve must be installed to operate in post-time. If the response is **SEL (YES)** a select Post-time screen will be displayed. Use **PREV** and **NEXT** to select the desired time setting. Post-time can be set to 0, 5, 15, or 30 seconds, or 1, 2, 4, or 8 minutes. **Note that if you install a control that was preprogrammed for pre-time and/or post-time and the burner does not have a valve, an error will be detected by the control.**



3. After selecting the desired time, press the **SEL (YES)** key to display a confirmation screen.



4. To accept the change press **SEL (YES)**, to return to the initial Post-time screen press the **BACK (NO)** key.



5. A **BACK (NO)** response will display a *CHANGE CANCELLED* screen and will return to the initial *POST-TIME, SELECT TO CHANGE* screen. A **SEL (YES)** response will update the post-time then display the new time setting on the initial *POST-TIME, SELECT TO CHANGE* screen. Note that replacement labels are supplied in the packaging with the Display. After changing the Pre and/or Post-time, peel and mount the correct label over the existing label being careful not to cover the bar code.



6. From the *POST-TIME, SELECT TO CHANGE* screen, press **PREV** to return to the Pre-time Change screen (Paragraph C) or press **NEXT** to continue to the Service Message Program (Paragraph E).



## E. Service Message Program

1. From the *POST-TIME CHANGE* screen, pressing the **NEXT** key will display the *SERVICE MESSAGE, SELECT TO CHANGE* programming screen.

*SERVICE MESSAGE  
SEL TO CHANGE*

2. This feature allows customization of the screen that is displayed when the burner detects a hard lockout condition. The screen is divided into two rows of 16 characters each. These characters can be selected to display a custom message. For example, your business name and phone number can be displayed when the burner requires service.

3. From the *SERVICE MESSAGE, SEL TO CHANGE* screen, press the **SEL (YES)** button. The message *CALL FOR SERVICE, ###-###-####* will be displayed. The cursor will automatically highlight the space on the lower row to the left of the number symbol on the display. These characters have been preprogrammed, but all the characters can be easily customized.

**SEL  
(YES)**

4. Using the **PREV** and **NEXT** keys, scroll through the character set until the desired character or a space is displayed, then press the **SEL (YES)** key. The cursor will shift to the right.

Again use the **PREV**, **NEXT** keys to display the desired character and press **SEL (YES)**. Use the **BACK (NO)** key to move the cursor to the previous position. Continue with the character selection until the screen displays the desired message.

**SEL  
(YES)**

*CALL FOR SERVICE  
###-###-####*

5. Pressing the **SEL (YES)** key at the last position on the second line moves the cursor to the first position on the top line.
6. When the desired message is displayed press the **BACK (NO)** key, when the cursor is at the beginning of either line, to save and exit the screen.

## Information Chart

Screen Message	Sensor/Monitor/ Message	Notes/Checks
### ohms avg	Cad Cell	Historical cycle data located in Control. Average Cad Cell resistance measurement during burner operation.
### ohms max	Cad Cell	Historical cycle data located in Control. Maximum Cad Cell resistance measurement during burner operation.
##.## run time	Timer	Historical cycle data located in Control. Indicates burner run time.
##.## to light	Timer/Cad Cell	Historical cycle data located in Control. This value is the time elapsed prior to the Cad cell resistance indicating a flame in the chamber.
avg ### v	Line voltage (L1)	Historical cycle data located in Control. Average line voltage measurement during burner operation.
Did Not Light	Cad Cell	Historical cycle data located in Control. Message indicates the Cad cell did not detect a flame during trial for ignition.
Heat Call End	Thermostat or Limit Inputs	Historical cycle data located in Control. Indicates the cycle ended when an open circuit was detected in the T-T or Limit circuit.
Lifetime Cycles	Counter	Counter located in Control, can not be reset and does not require Display to function. Display required to monitor.
Lost Flame	Cad Cell	Historical cycle data located in Control. Message indicates that the control locked out after the burner attempted to recycle multiple times.
Low voltage	Line voltage (L1)	Historical cycle data located in Control. Indicates the cycle ended when the line voltage dropped below approximately 78 volts.
Manual Shutdown	Reset button pressed	Historical cycle data located in Control. Indicates the cycle ended when the Reset button was pressed.
Pre-Time Flame	Cad Cell	Historical cycle data located in Control. Message indicates the cycle ended because the Cad cell detected a flame during the Pre-time function.
Pump Prime	Reset button pressed >15 seconds	Real-time indication of the burner functioning in the pump prime mode.
Recycled	Cad Cell	Historical cycle data located in Control. Indicates the Cad cell detected a loss of flame. Control starts 60 second time delay then initiates a new cycle if there is a call for heat.
Replace Control		Historical cycle data located in Control. Control runs a continuous self-check and will display this message if a cycle ended after detecting an internal malfunction.
Service Messages	Technician entered	Located in Display. When the burner is in hard lockout the display flashes between the customized message and the reason for the lockout.
Since Cleared Cycles	Counter	Counter located in Display, reset from display.
Since Cleared Hours	Timer	Timer located in Display, reset from display.



**Limited**  
**WARRANTY**  
**For Residential, Commercial and Specialty Burners**

The R. W. BECKETT CORPORATION ("Beckett") warrants to persons who purchase its Beckett burners from Beckett for resale or for incorporation into a product for resale ("Customers") that its equipment is free from defects in material and workmanship under normal use and service for 60 months from the date of manufacture for Residential Burners and 18 months from the date of manufacture for Commercial and Specialty Burners. Residential burner models include: AF, AFG, AFII, NX, SF, SR and SMG. Commercial burner models include: CF375, CF500, CF800, CF1400, CF2300A, CF2500, CF3500A, CG10, CG15, CG25 and CG50. Specialty burner models include: ADC, ADCP, ARV, SDC and SM. The provisions of this warranty are extended to individual major burner components as follows:

- a) 60 months from date of manufacture for all Beckett-branded major components, except for 12 Vdc components.
- b) 18 months from date of manufacture for all non-Beckett-branded major components and Beckett branded 12 Vdc components.
- c) 12 months from date of manufacture for all Beckett-branded tools, such as the GeniSys Display.

*Note: Normal service items found to be defective upon receipt by the customer are covered by this warranty.*

**THIS WARRANTY DOES NOT EXTEND TO EQUIPMENT SUBJECTED TO MISUSE, NEGLIGENCE, OR ACCIDENT: NOR DOES THIS WARRANTY APPLY UNLESS THE PRODUCT COVERED BY IT IS PROPERLY INSTALLED BY A QUALIFIED, COMPETENT TECHNICIAN, WHO IS LICENSED WHERE STATE AND LOCAL CODES REQUIRE, AND WHO IS EXPERIENCED IN MAKING SUCH INSTALLATIONS, IN ACCORDANCE WITH THE LATEST EDITION OF NFPA NO. 31 OF THE NATIONAL FIRE PROTECTION ASSOCIATION, THE LATEST EDITION OF THE NATIONAL FUEL GAS CODE (NFPA NO. 54) AND IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND NATIONAL CODES HAVING JURISDICTIONAL AUTHORITY.**

Equipment, which is defective in material or workmanship and within the warranty period, may be returned for credit as follows: Beckett Burners, Beckett-branded major components and non-Beckett-branded major components that came as original equipment on a Beckett burner or were sold as a replacement part by Beckett should be returned, freight prepaid, to Beckett's home office. Credit will be issued to the customer unless the returned equipment is determined by Beckett to be out of warranty or damaged by user, in which case the equipment will be scrapped.

**Note: Beckett is not responsible for any labor cost for removal and replacement of equipment.**

THIS WARRANTY IS LIMITED TO THE PRECISE TERMS SET FORTH ABOVE, AND PROVIDES EXCLUSIVE REMEDIES EXPRESSLY IN LIEU OF ALL OTHER REMEDIES, AND IN PARTICULAR THERE SHALL BE EXCLUDED THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT WILL BECKETT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGE OF ANY NATURE. Beckett neither assumes nor authorizes any person to assume for Beckett any other liability or obligation in connection with the sale of this equipment, Beckett's liability and Customer's exclusive remedy being limited to credit as set forth above.

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