

Network Autoflow Display Board Software Revisions

VERSION: 2.16B REVISED BY: Steve Logue RELEASE DATE: Nov 10, 2003

NOTE: This Version does NOT support Watchdog and the Heater Version MUST be 1.09. HEATER VERS – 1.09 IO VERS – 1.07

- 1) The Wet Bin Rotary Switch Test mode now works correctly when used by itself. This fixed the issue of the low level switch falsely showing YES and the augers being non functional if the Wet Bin Rotary Switch was Disabled by itself.
- 2) The system will now shut down, with the correct error warning, when the Wet Bin Rotary Switch is exposed.
- 3) J9-17 now provides 110 volts when ever the Control Circuit is established and will shut off when the Control Circuit shuts down the same as the Maxon 110 volt control power on a Portable Dryer.

VERSION: 2.15 REVISED BY: Steve Logue RELEASE DATE: Oct 28, 2002

NOTE: This Version does NOT support Watchdog and the Heater Version MUST be 1.09. HEATER VERS – 1.09 IO VERS – 1.07

- 1) The "FAN DELAY" is now called "MOTOR DELAY".
- 2) Added a way for GSI to reset total hours.
- 3) Here is a list of switches/features which can be found under the setup screens accessed via holding in on MODIFY while powering on the Control Power. Below is a description for each defining what it means to disable/enable them:
 - i) AIRSWITCH -> Enabled means you will get a shutdown when a fan loses airflow. Disabled will satisfy the dryer's airflow requirements for the burner regardless of the actual air switch state.
 - ii) LOW LEVEL SWITCH -> Enabled means the drying chamber low level switch will act as normal, i.e, will indicate the real state of the rotary switch. When disabled the dryer will think the low level switch is always covered.
 - iii) WET TANK SWITCH -> Enabled means this switch will act as normal. Disabled means the dryer will think this switch is always covered with grain.
 - iv) START FANS WITH HIGH -> Enabled means the dryer will start fans according to state of drying chamber hi level switch. Disabled means dryer will start according to drying chamber low level switch.
 - v) AERATION FAN BYPASS -> Enabled means the BYPASS is active, which allows the aeration fan to continue to run after a dryer shutdown.
- 4) The REFILL TIMER and the TIME UNTIL LOAD OFF screens are only shown when the dryer is set for Autobatch mode.
- 5) There are two more settings available under the "Power on and Modify key in" sequence for the user to set how many degrees a measured temperature can exceed a setpoint without causing an overheat. The user can set 10 -> 50 degrees above the setpoint to be an overheat condition. The default for the plenum temp is 20F and the default for the grain temp is 30F.
- 6) The low level rotary switch function is the same as it was in 2.14, but now instead of giving a warning which states "DRY CHAMBER EMPTY" when it becomes uncovered it gives "LOW LEVEL SW EXPOSED."
- 7) Added an Out of Grain Timer. The time value can be changed under the setup button. This timer starts whenever either fill systems is running and the load switch is in the auto position. The timer is reset when both load augers stop. If the timer runs out of time an OUT OF GRAIN warning is issued. The default is 20 minutes. Any time the value of this Timer is changed the new value takes effect immediately.
- 8) Changed warning for wet bin empty to state "WET BIN SW EXPOSED" instead of saying "DRYER OUT OF GRAIN".
- 9) Renamed "FILL 1 DELAY" to "FILL SYSTEM #1". Changed name of "FILL 2 DELAY" to "HI LEVEL SW". The HI LEVEL SW delay is always available on both one and two fill system dryers and is used to make sure the dryer is full so you don't get bogus shutdowns. The FILL SYSTEM #1 delay is only available when you are set for two fill systems and it is used to establish auger cleanout time.
- 10) If the Storage Bin High Limit is detected as failed (the N.C. pin and the N.O. pin from the switch are both reporting the same voltage, 0 or 12 volts) a warning is reported as "BIN HI LIMIT SW BAD".
- 11) If wet supply rotary switch becomes uncovered there is a timer which must expire before a warning is given. This timer/delay was called "AUX 1 DELAY", but is now termed "WET BIN SW. delay" It is found under the DELAYS key.
- 12) The time a user has to think about making a change to a timer/setpoint before it automatically proceeds to the next selection screen has been doubled.
- 13) Changed the name of delay/timer "LOW LEVEL TIMER" to "LO LEVEL SWITCH."
- 14) Enabled the "START FANS WITH HIGH" switch function. There was previously a screen available to select this function, but it was never active.
- 15) The cool down timer is now set to the reload value of the cool timer whenever any one of the four following shutdowns takes place:
 - i) Dry and Hold switch is turned to on state.
 - ii) Grain falls away from wet bin supply switch.
 - iii) Storage chamber is full.
 - iv) Dryer is out of grain.
- 16) Fans Off Delay now defaults to 0 minutes instead of 1 minute and has an upper limit of 5 minutes. This delay can be found under the "delay" key.
- 17) The dryer functions the same whether the load switch is in auto or on, but the out of grain timer only times down while the load switch is in the auto position and one of the load augers is running.
- 18) On previous versions of software the dryer was allowed to fill up to the low level rotary switch, the low level timer was then started, and once it expired if the low level switch became exposed again a warning was issued. Starting with this version the software allows the dryer to fill to the low level switch, after pressing start for the first time, with no "LOW LEVEL SW EXPOSED" warnings given. After the low level switch is satisfied for the first time the low level timer is allowed to start timing down if this switch becomes exposed at anytime in the future. If the switch becomes covered again the low level timer will stop and reload its set value. If the timer ever expires then a warning of "LOW LEVEL SW EXPOSED" will be given.

VERSION: 2.14 REVISED BY: Steve Logue RELEASE DATE: Sept 20, 2002

NOTE: This Version does NOT support Watchdog and the Heater Version MUST be 1.09 not the Watchdog version 1.10.

- 1) Fixed software so the burner differential could be set to one degree and it would remain there after loss of power.
- 2) The only way to get into the extended setup is to hold in on the modify button while powering the unit on. The extended settings are those not normally modified for day to day operation.
- 3) Plenum Hi-Limit warnings, regarding the thermistor plenum sensors, are only reported after the plenum temp exceeds 200F, and then only after the plenum temp exceeds the plenum setpoint by 20F.
- 4) Grain Hi-Limit warnings, regarding the thermistor plenum sensors, are only reported after the grain temp exceeds 150F, and then only after the plenum temp exceeds the plenum setpoint by 20F. HEATER VERS – 1.09 IO VERS – 1.07

VERSION: 2.13C REVISED BY: Steve Logue RELEASE DATE: Sept 20, 2002

NOTE: This Version is for Systems using Watchdog and contains the 2.14 changes except for the Plenum and Grain High Limit changes.

- 1) Fixed software so the burner differential could be set to one degree and it would remain there after loss of power.
- 2) The only way to get into the extended setup is to hold in on the modify button while powering the unit on. The extended settings are those not normally modified for day to day operation. HEATER VERS – 1.10 IO VERS – 1.07

VERSION: 2.13 REVISED BY: Steve Logue RELEASE DATE: Sept 28, 2001

- 1) Added watchdog software. HEATER VERS – 1.10 IO VERS – 1.07

VERSION: 2.12 REVISED BY: Steve Logue RELEASE DATE: Sept 7, 2001

- 1) Increased the speed at which a "BIN HI OVERFLOW" warning is given which also brings up the correct warning on 2 wire installs. We started using 3 wires with version 1.02 January of 1998 HEATER VERS - 1.09 IO VERS - 1.07

- 2) When cool down mode is entered, the fans will not start unless in the "AUTO" or "ON" position. This includes the drying fans and the aeration fan.

VERSION: 2.11 REVISED BY: Steve Logue RELEASE DATE: October 27, 2000

- 1) Burner differential would not stay at 1 deg F when the dryer was turn off, using 2.10, now it does.
- 2) When grain reaches the Storage Chamber Rotary Switch, the dryer will enter a "Cool Down Mode". The fan will run and cool the grain for 10 minutes before shutting down due to a Storage Chamber Full error.
- 3) When grain falls away from the Wet Supply Rotary Switch, the dryer will enter a "Cool Down Mode" after the fill system shut off. The fan will run and cool the grain for 10 minutes before shutting down due to a No Wet Supply error.
- 4) When the Dry & Hold switch is placed in the "On" position the dryer will enter a "Cool Down Mode" for 20 minutes before stopping. This only happens at the end of the dry cycle.
- 5) Corrected a problem with the Fans Off Delay. If there is time on this delay, the fans and heaters will shut off during the unload cycle, after the unload cycle is complete the delay counts down. The fans and heaters will not start again until the delay has reached zero.
- 6) Corrected a problem with the Time Until Load Off percentage set in the set-up mode. Now, in Auto batch only, the Fill Systems will shut off if grain has not reached the dry chamber high level rotary switch within the set percentage of the dry timer is completed. Example: 1 hr dry time, 50% Time Until Load off. The fill systems will shut off regardless of rotary switch status after 30min has expired.
- 7) Corrected a problem with the Refill Delay. Now, in Auto batch Only. The Refill Delay begins to count down after the unload cycle is completed. If grain has not reached the drying chamber low level rotary switch before this delay reaches zero, a dry chamber empty error is given.

VERSION: 2.10 REVISED BY: Steve Logue RELEASE DATE: Sept 11, 2000

- 1) Changed the Minimum Burner Differential to 1 Deg Fahrenheit
- 2) Fixed the problem where the burner was not shutting off when the Dry & Hold switch was placed in the "On" position, the Dry Cycle was complete, and the Dryer was in the Cool Cycle. Now, when the Dry & Hold switch is placed in the "On" position, and the Dry Cycle is complete, the dryer will shut the burner off and will cool for the amount of time on the Cool Timer before stopping.
- 3) Fixed a problem where the dryer was not shutting down with an "Out of Grain" error when the Wet Supply Rotary Switch was exposed. Now when the Wet Supply Rotary Switch is exposed, the Fill #1, and Fill #2 delay will count down and shut off Fill System #1 & #2, then the dryer will shut down with an "Out of Grain" error. If there is still grain against the Low Level Rotary Switch, the dryer can be restarted by pressing the Stop switch to clear the error, turning the Load Auger switch to the "Off" position, and pressing the Start switch. When the Start switch is pressed the screen will say "Press <Enter> to Dry Remaining Grain". If the <enter> button is pressed the dryer will restart. NOTE: If the Load Auger switch is left in the "Auto" position an "Out of Grain" error will be given on startup.

VERSION: 2.09 REVISED BY: Steve Logue RELEASE DATE: May 15, 2000

- 1.) Selection screen for On-Off burner. This cannot be used in conjunction with diesel burner.
- NOTE: Must change heater software also. Use following version number or higher: Heater ==> 1.09

VERSION: 2.08 REVISED BY: Steve Logue RELEASE DATE: May 12, 2000

- 1.) Changed the burner differential setup screen to correctly display Celsius temperatures.
- 2.) Now only a year above 2000 may be entered upon setting the date.
- 3.) Burner differential is now greater than 1 and less than 10 degrees.

VERSION: 2.07 REVISED BY: Steve Logue RELEASE DATE: April 25, 2000

- 1.) Changed the checksum method for the network to help insure data integrity.
- 2.) Force aeration fan to start before drying fans start, unless aeration switch is in off position.
- 3.) Load systems cannot start for five seconds after start of system.

NOTE: Must change heater and I/O software also. Use following version number or higher:
Heater ==> 1.07 IO ==> 1.07

VERSION: 2.06 REVISED BY: Steve Logue RELEASE DATE: April 20, 2000

- 1.) Stopped the ability to change the grain setpoint from heaters.

VERSION: 2.05 REVISED BY: Steve Logue RELEASE DATE: March 30, 2000

- 1.) Fixed a problem with fan 1 reporting air switch already engaged if fan 2 had not started yet.
- 2.) Fixed the low level disabling software so a warning is not reported when the high level grain switch detects grain without the low level detecting grain.

VERSION: 2.04 REVISED BY: Steve Logue RELEASE DATE: Feb 25, 2000

- 1) Made all air switches active once again. New venturi Air Switches must be present on each fan.

VERSION: 2.03 REVISED BY: Steve Logue RELEASE DATE: October 27, 1999

***** NOTE: This software originated from 1.06 and is intended to fix version 2.00.*****

- 1) Added diesel option which if selected pulses the igniter relay on for about 1/2second after power to burner is on.
- 2) Took out option for modem string until it is needed.
- 3) Added safeties for thermistor shorts and opens.
- 4) By holding in on the HELP switch while turning on power you may check for proper wiring of the control panel switches and for correct operation of keypad.
- 5) Made hour meter active. Reset it by holding in on the HOURS key while turning on the power. Press HOURS key to view.
- 6) Moisture control light flashes in temp hold mode.
- 7) Added software to indicate to the user that the DUMP switch is not in the AUTO position.
- 8) If the DRY & HOLD switch is in the ON position the dryer now goes through the cool cycle before shutting down. The cool timer is displayed while this is happening. (Changed to a set 20 minutes in 2.11)
- 9) Changed software so the dryer won't shutdown while changing model number on the dryer.
- 10) The user can no longer go into EXTENDED SETUP while the dryer is running.
- 11) The warning of BIN HIGH PRESSURE LIMIT is now active high - in other words it must get 12VDC on pin J2-20 in order to give a shutdown.

VERSION: 2.02 REVISED BY: Steve Logue RELEASE DATE: October 7, 1999
1) Changed the "Batch percentage off" selection screen to a screen which allows you to enter a time (just like any other timer) at which the dryer will shut off loading in the DRY TIME. The timer is called the BATCH FILL TIME.

VERSION: 2.01 REVISED BY: Steve Logue RELEASE DATE: October 4, 1999
1) Attempted to fix the problem of grain setpoint changing by itself.
2) Fixed problem of batch dryer always shutting down with a "DRYING CHAMBER EMPTY" warning. A delay called the "REFILL TIMER" allows the dryer to fill back up.

VERSION: 2.00 REVISED BY: Jeff Falconer RELEASE DATE: January 6, 1999
1) Fixed hour timer so dryer will now show running time of dryer.
2) Changed the way the dryer shut down when using the dry and hold switch, now it will cool the grain using the cool timer before it shuts down to prevent heat buildup of grain past the grain temp set points thereby causing a shutdown condition. Works in Autoflow and AutoBatch modes.
3) Fixed the clock to properly roll over in the year 2000.
4) Added a user batch count and user timer independent from the Total batch and Total time allowing monitoring of different users drying grain or different fields for comparison of drying time.
5) Added a test procedure for the keypad. Turning all of the control switches to the right (on position) and holding in the stop switch while turning on the control power activates it. User can now test each individual keypad switch for malfunction or stuck keys. (Taken out in 2.03)
6) Added control switch testing by pressing and hold the plenum and grain switches in while turning on the control power. This will allow the user to test for failed switches or computer failure to detect switch position changes. (Changed in 2.03 to turn power on with Help key depressed)
7) Removed garbage displayed when user selected to view total running time and total batches.
8) Added a check to make sure the dump switch is always in the Auto position. Otherwise if left in manual close will cause the dryer never to dump.
9) Fixed several bugs that were reported to use by users and dealers.
10) I added the ability to reset the Total Dryer running time by pressing the HOUR and RESET button together and turn on the dryer.
11) Removed watchdog option in Extended setup mode since watchdog has not been implemented yet.
12) Changed the wording to some of the error messages concerning the rotary switches to help eliminate some confusion of which switch was at fault.
13) Moisture control light will now flash to give a visual indication that the dryer is in temperature hold.

VERSION: 1.06 REVISED BY: STEVE LOGUE RELEASE DATE: November, 98
1.) Fixed dryer so the grain hi limit occurs at 20 F above the grain temp setpoint.
2.) Made timeout on the open/close of the actuator 20 seconds instead of 15 seconds. This extra time was added to compensate for the weaker batteries taking longer to close the chutes.

VERSION: 1.05 RELEASE DATE: September, 98
1.) Made the out of grain timer active.

VERSION: 1.04 RELEASE DATE: July, 98
1.) The application of 12v to terminal number j1-20 will shutdown the dryer and give an indication that the bin is full due to the high level of static pressure within."BIN AIR PRESSURE LIM" will be displayed on screen's top line until the user corrects the problem. (Originally looked for lack of 12v, fixed in 2.00)
2.) Corrected the hour meter problem.
3.) Changed how the dry timer is displayed: Now when the dry timer goes to zero it will begin counting upward at the user set time as long as the dryer remains in temp hold.

VERSION: 1.03 RELEASE DATE: March, 98
1.) Added software to allow the aeration fan to continue running even if there was a dryer shutdown. The aeration fan BYPASS mode must be selected under setup.

VERSION: 1.02 RELEASE DATE: Jan, 98
1.) The Bin high limit rotary switch is monitored in both states to insure that a switch failure has not taken place. If both switches are in the same state a switch failure is reported.

VERSION: 1.01 RELEASE DATE: NO OFFICIAL DATE ASSIGNED
1.) Added burner differential adjustment to be set at master under extended setup.
2.) Gary Woodruff's software for holding the fans off during a portion of the dry cycle. This is adjusted under delays.
3.) Attempted to make the dryer dry remaining grain when a wet supply empty error takes place.
4.) Added software to display a negative incrementing counter, where the dry timer used to be, during temp hold. (Changed in 1.04)

VERSION: 1.00 RELEASE DATE: SEPTEMBER 16, 1997
1.) We changed resistor number 107 on the display board from 10K to 3.0K to allow the contrast to work without resetting the computer.
2.) Put in a contrast adjustment for the display. While turning the control power on, hold in on the screens key, and this will enter the contrast adjustment mode. Now use the UP/DOWN arrow keys to adjust. If the screen is solid black press the down arrow key, if nothing appears on the screen press the up arrow keys. NOTE: You cannot hold in on the UP/DOWN arrow keys to adjust, you must continue to press and then release them or nothing will happen.
3.) Put Software in for 3rd Fan and Heater.

VERSION: 0.05 RELEASE DATE: 1996
This was the first version released for customer operation. This particular version could only control 2 Fan and Heaters.