Red Board System Diagnostics Screen Cheat Sheet

(last modified 2022-09-19)

Summary

The Diagnostics Screen displays many of the sensor readings and calculated internal values used in the Continuous Flow Automatic Algorithms. The purpose is to help understand what is going on with the Automatic Algorithm(s), and to provide information to help diagnose any issues.

How to Access

From the Red Board Interface Dashboard, go to the "About" screen, and then press/click on the "Diagnostics Screen" button.

Segments

The 32 Segments of a single Dryer Pass are displayed. The Segments begin at Segment 0 (representing incoming grain) and end with Segment 31 (representing outgoing grain). In addition, a "Dry Segment" is displayed, which represents the most recent outgoing grain measurements.

Another way of thinking about the Segment data is that the most recent Segment data is at the top, and the "older" Segment data is at the bottom.

Additionally, one can think of the Segment # as the number of *completed* Dryer Segments time periods for that Segment. For example, Segment 0 represents a given amount of grain that has not been through a complete Segment's length of time yet, whereas Segment 31 represents a given amount of grain that has been through 31 complete Segments and is in the 32nd (and last) Segment time. The Dry Segment represents a given amount of grain that has been through 32 complete Segment time periods and has exited the Dryer.

Segments move from the top of the Diagnostics Screen to the bottom. After each Segment timer expires, the Segment # will increment and that data will be moved to the next lower line in the table.

Data Fields

Wet M%

This represents the (averaged) incoming moisture % for the given Segment. Note that after this value is measured for a given Segment (i.e., after the Segment timer has expired), it will not change for the duration of the Dryer Pass.

Wet Temp

This represents the (averaged) incoming temperature for the given Segment. Note that after this value is measured for a given Segment (i.e., after the Segment timer has expired), it will not change for the duration of the Dryer Pass.

Avg Plenum Temp

This represents the averaged Plenum Temperature for a given Segment. This value is continuously updated from the time grain enters the Dryer all the way until the grain exits.

Elapsed Minutes

This represents the minutes that have elapsed for a given Segment. This value is updated every 6 seconds (i.e., after every tenth of a minute).

Elapsed Deg-Mins

This represents the Degree-Minutes that have elapsed for a given Segment of the Dryer. This value is derived from the Avg Plenum Temp and the Elapsed Deg-Mins values.

Calculated Current M%

This represents the estimated (i.e., not measured) current moisture % for a given Segment, based on the measured Wet M% for that Segment, the Elapsed Deg-Mins for that Segment, and the current global Drying Factor. Note that as the global Drying Factor changes, this value will change (perhaps significantly) over the course of the Dryer Pass.

The general idea is that as the global Drying Factor gets dialed in (i.e., becomes more accurate), this value will become a more accurate representation of the Current Moisture % of each Dryer Segment.

Calculated Final M%

This represents the estimated (i.e., not measured) "final" dry moisture % for a given Segment, based on the measured Wet M% for that Segment, the Elapsed Deg-Mins for that Segment, the current global Drying Factor, the current Plenum Temperature and the current Unload Rate. Note that as the global Drying Factor changes, this value will change (perhaps significantly) over the course of the Dryer Pass.

The general idea is that as the global Drying Factor gets dialed in (i.e., becomes more accurate), this value will become a more accurate representation of the Final Moisture % of each Dryer Segment.

Dry M%

This represents the (averaged) outgoing moisture % for a given Segment. Note that this value is only measured in the last Segment since it is the outgoing Segment.

Dry Temp

This represents the (averaged) outgoing temperature for a given Segment. Note that this value is only measured in the last Segment since it is the outgoing Segment.

Measured Drying Factor

This represents the Drying Factor for a given Segment. Note that this value is only measured in the last Segment, since the outgoing moisture % is required to calculate this value.