What's New in Version 2.20

Update Type

V2-20T1U2-20T1-X.stf contains the following upgrade details.

1. Controller Firmware V2.20
2. HMI Touchscreen 2.20 (User Interface)
3. Profile Export Text pro-forma version 2.

This update includes all the patches applied to previous versions.

Purpose

Version 2.20 is a bit of a mixed bag, being driven by our own to do list, requests, user feedback and some bench analytical time.

Future

The next version is undefined; however, I do have a few experimental things in mind that I would have liked to possible have included in the Version 2.20 however would have meant a significant release delay and the advantages of V2.20 are too beneficial.

Install

1. With the SuperTrickler **powered on** and from the main sub menu, remove the Micro SD card (tweezers are a great help).
2. Copy the V2-10T1U2-10T1-X.stf file on the root (top level) directory of the Micro SD card.
3. Reinsert the card back into the SuperTrickler.
4. The system should automatically take you to the Upgrade screen. (System – Setup - System Core – Firmware Update)
5. Press & Hold the Start button for several seconds until the process starts.

Changes are from the previous Version 2.10 firmware

New

- Flow Waves, Predictive Analytics; our little quiet achiever the AIS (Artificial Intelligence that read the scales), sits quietly in the background unnoticed, however plays some of the most significant functions in the charge operation. It reads the serial data from the scale, then based on the data, begin thinking ahead of the scale data and goes into the wizardry of prediction and then hands the predictions over to the AIO (orchestrator) that controls the process. As powder flows through the tubes, it has a tendency to flow with an oscillation factor, or more correctly, as waves (as the oscillations are not even in time). This new technology carefully monitors the waves and feeds this into the predictive analytics calculation, this gives better predictions, resulting in less overthrows and far better accurate information for the AIS Self-Learning to build the profile with.
- Pulse High Speed Limit; This was an idea from one of our owners while making eyeball observations during the pulsing phase. He discovered that at times, with some powders, the speed dithering process would hit the tube with too much power (speed) resulting in a big glob of powder falling rather than kernel by kernel or a few kernels at a time. This new feature allows the operator to set a limit that the dithering will not exceed, result in very good and precise pulse control.
- Used Instrument metadata and operation metrics can now be selected as to what the operator would like to view on the charge screen. See changes and Improvements for more details on these features.

Changes & Improvements

Changes to the profile

- Pulse Screen layout changed to accommodate the new High Speed Limit functionality.
- Pulse "Speed" button renamed to "Nominal Speed" as its not the lower limit and is the nominal speed that dithering bounces around.
- The "Restore Default" button is nowd changed to "Reset" for reasons of calirity.
- The "Save" button has been rename to "Copy" as people were assuming it was required, to save changes to the profile. This is not the case as the button saves a COPY of the profile to the clipboard. Profile Saving occurs when you press the OK button or if the AI Self-learning has made changes.
- The "Recall" button has been changed to "Paste" to align to the clipboard terminoly standards. Paste will take the profile saved in the clipboard and paste it into the current profile.
- The bulk speed can now be increased to over 100% up to 120%. As it was found that some flake or doughnut powders such as Trail Boss, flows very slowley and as a result a little extra speed would help the flow rate.

Factory Restore

- This has been significantly extended and now spread across two screens.
- Delete All Profiles: Allows you to delete the profiles database removing all powder profiles and presets.
- Memory & Defaults: Will clear the non-volitaile memory and restore all setting to the factory settings.
- Complete Factory Restore: Will do the same as 'Delete All Profiles' and 'Memory & Defaults' restore, leaving the system in the condition as it was from the factory.

Charge screen preferences

- The options screen (now called preferences) has a new button called "Charge Screen…"
- Used Instrument metadata: Up until now the metadata displayed after each throw would show the instruments used and the amount of inflight measured for that throw. This is now selectable to either Inflight or Time. Time, will display the time each instrument was used for in each throw. Either type metadata has a place in finetuning your system to optimize it to your preference.
- Metrics data: The metrics data now has the option to be hidden from the charge screen and or select the type of data that is displayed. When hidden this includes the metrics reset button.
- When the display is selected on, all the options will display a "Success Rate" percentage as a guide to tell you how well your machine is operating in relation to failures.
- Up until now the only metrics data displayed on the charge screen were the successive (successes in a row) and the success count. We have now added an option to select either the Success Count or Ave Time.
- The Average Time display will display the average time for each throw and the count that the calculation was averaged from.
- The Average Time has a sub option to include Overthrows in the average time. In that case the count would represent the total number of throws and if turned off the count represents the number of successful throws.

Menu & Name Changes

- To accommodate the new features/changes and in continual quest to keep the system as intuitive as possible, it was required to rearrange the locations and some names in the menu system.
- The "Options" page has been renamed to "Preferences" to better reflect the obtainable functionality.
- The "Options & More" menu has had a name change to "Preferences & Settings"
- Data Logging has been removed from the "Preferences" screen and moved to the "Preferences & Settings" menu.
- The "Profile Import Export" has been moved from the "Preferences & Settings" menu to the "Tools & Settings" menu.
- The "Automatic power up times" has been moved from the "Tools & Settings" menu to the "Preferences & Settings" menu.

- On the "Tools & Settings" menu the "Options & More'" button has been changed to "Preferences & Settings"

Powder Cup Laser Sensor

- Finally, the laser has been completed. The purpose of the laser is to compliment the cup state detection derived from the scale. It is designed to stop you from accidently dispensing with no cup or with a charge already in the cup.
- Powder Cup Laser Sensor screen has been upgraded to suit the new laser system software.

Other Changes & Improvements.

- Laddering: Now has a setting that will allow the system to pause between weight change steps, this can be useful to ensure the operator is organized with everything in order between each step change.
- On the self-learning screen; turning OFF the Inflight Tracking now requires a confirmation OK button to be pressed. It is not recommended to turn this feature off and its not truly a part of self-learning rather its function of compensation. In the future I might rearrange some of the profile menu to place this functionally in a more intuitive location.
- The external control device (robot or SuperFiller) Interface control document has been finalized and the interface has now been fully installed and tested. The option remains disabled by default.
- The Profile Export Text file now has a better format and contains the addition of the Pulse High Speed Limit field.
- When exporting a .pie file a text file will also be automatically created as well.
- Startup Step number added to the splash screen. This can be of assistance in the event someone is having a lockup on start occurring.

Bug Fixes

- When importing a new type of powder the new import would appear before the file date, now resolved.
- If a priming operation was started and stopped before the vibrating tube has started, the tube will start irrespectively, now resolved.
- During a self-test the red light test, would display "Red OFF" rather than "Red Light", resolved.

Technical System Changes

- The previous system fix files that could be issued to make changed to the system has been made redundant. Some of the functionality has been included in the Factory Restore functionality and some in the script file system.
- A new, far more advanced, Function Implementation Script (*.fis) system, now replaces the FIX file system. These scrips allow personalized and or broad owner changes to take place not available via other means such to the system menu system.
- Gen Implementation for future requirements added.
- System configuration log file was removed as it was not being used in a practical sense and used valuable code space in the microcontroller.