GPL Odorizers

Software Release Notes

For GPL10000/GPL510 (XL4) Version 13

Harrison Baer
6-4-2025

Version 13

New Features:

- **Dedicated Batch Page for Pulses Gas Source:** A new batch page has been introduced for the "Pulses" gas source. You can access it by selecting the "Batch" button from the main menu when the gas source is set to pulses.

Figure 1: Batch Page for Pulses Gas Source

- **Memory Failure Alarm:** An alarm has been added to detect instances where memory is not retained after a power cycle, helping to identify depleted memory batteries. Please note that this alarm will be triggered following a software update—this does not necessarily indicate battery depletion. Be sure to clear the alarm after updating.

- A Usage Pulse Counter has been added to the I/O page for enhanced monitoring.

- Solenoid cycles are now recorded in the data logs.

- **WebMI** enables remote control of the system for users with modems.

Figure 2: WebMI Remote Access

Changes:

- Redesigned navigation buttons with a unique style for clearer distinction from settings.

- Reset buttons have been standardized across the user interface for consistency.

- **Home Screen:**

    o Removed the pressure switch indicator.

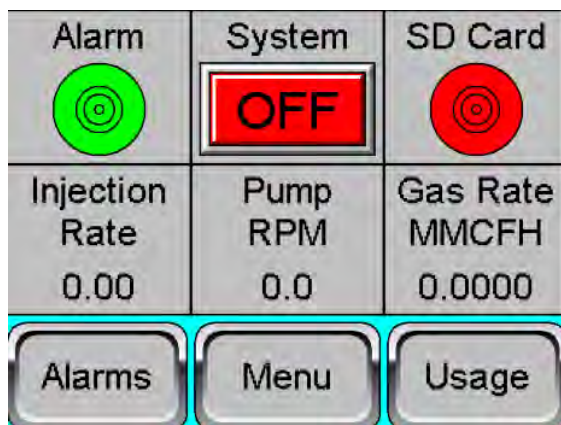   o Replaced the manual gas indicator—gas rate readout now displays "Manual Override."

Figure 3: Home Screen

- **Gas Page:**

    o Removed the "Gas Timeout" setting from the "Pulses**"** gas source.

    o Removed the "Samples to Average" setting from the "4-20mA" gas source.

    o Consolidated the "Configure Gas Source" page, simplifying the gas page into a single screen.
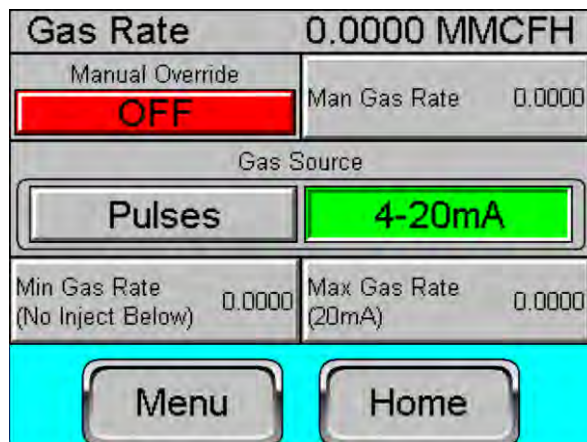

Figure 4: Gas Page

- **Batch Page:**

    o Moved the batch page to the main menu.

Figure 5: Main Menu

    o Introduced a dedicated batch page for the "Pulses" gas source. See **Figure 1**.

- **Setup Page:** Removed the setup page, with key configurations moved.

    o Max RPM relocated to the pump page.

    o IP configuration moved to the soft I/O page.

    o Modbus configuration relocated to the soft I/O page.

    o Batch page moved to the main menu.

- **I/O Page:** Added arrow buttons to scroll between different sections of I/O.
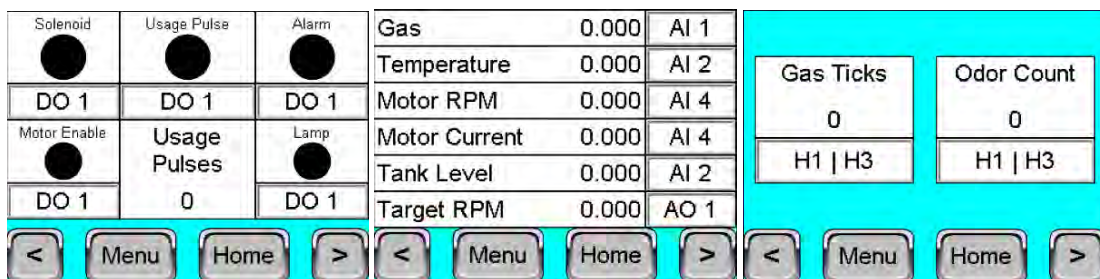

Figure 6-8: I/O Page

- **Maintenance Page:** Added arrow buttons to scroll between different sections of maintenance.
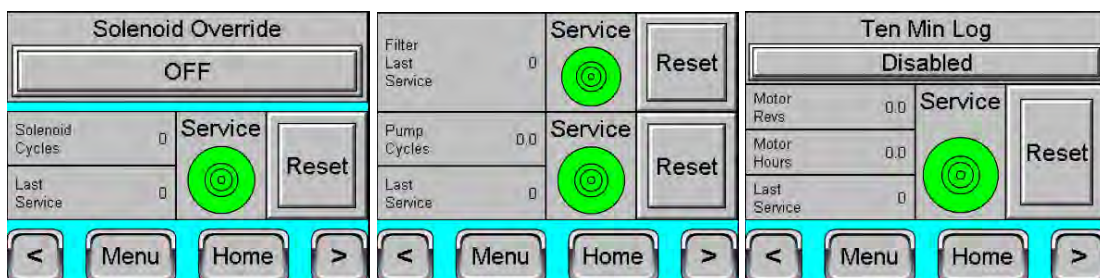

Figure 9-11: Maintenance Page

- **Pump Page:** new symmetrical layout

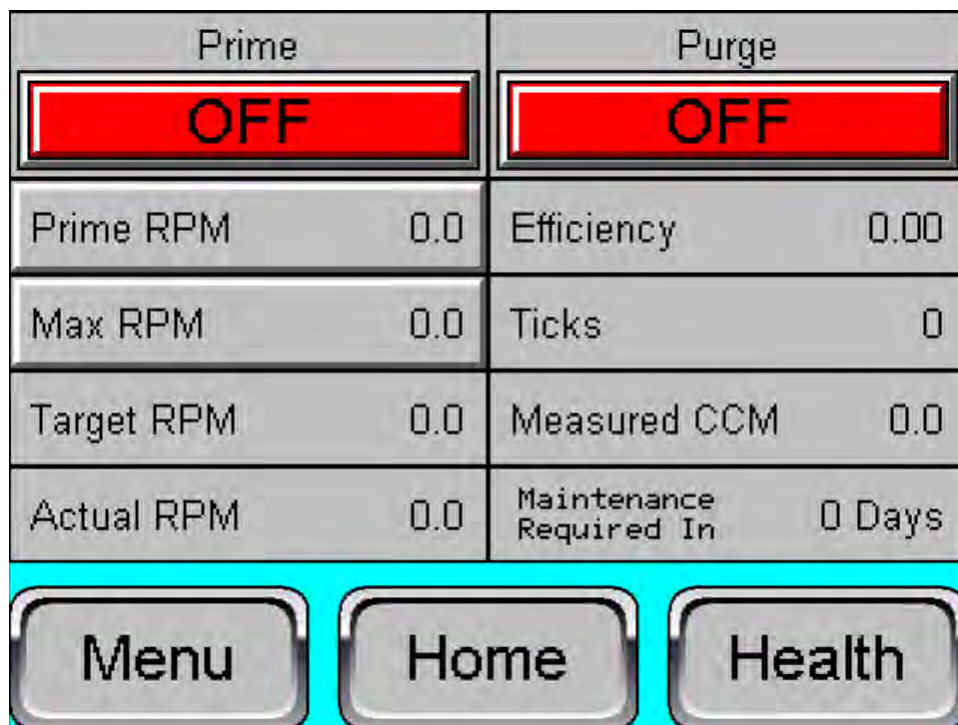 o Reassigned the batch button to the pump health page.

Figure 12: Pump Page

- Contract Hour setting relocated to the usage page.

Fixes:

- Resolved an issue where the system briefly entered batch mode on startup before switching to continuous mode.

- Corrected the "Swap Over Gas Rate" when transitioning from batch mode to continuous mode.

- **Modbus Correction:** Replaced the duplicate "Remote Standby" entry in the Modbus coil block. The coil is now utilized for the "Pump Health Alarm" which alerts users when a reprime is needed.

- Addressed a bug that prevented the motor from ramping up properly.

- **Tank Level Graph:** Accessed by tapping the tank level gauge on the usage page.

  - **Update Frequency:** The graph now updates hourly instead of every ten seconds for better long-term tracking.

  - **Reset Behavior:** The graph now clears when the tank level reset button is activated.

  - **Depletion Handling:** Once the tank is depleted, the graph stops updating, enabling users to analyze odorant usage trends over time.

- **Alarm Configuration Fixes:**

  - The "Auto Clears Allowed" setting in Alarms Config now prevents "Auto Clears Used" from exceeding the allowed limit.

  - Ensured the LoLo Alarm does not automatically clear after shutdown.

- Forced batch mode for the Pulses gas source.

Version 13.1

New:

- **Home Screen:** Added a prime mode indicator to the RPM readout.

- **Alarms Page:** Now Includes a shortcut button to the alarm configuration.

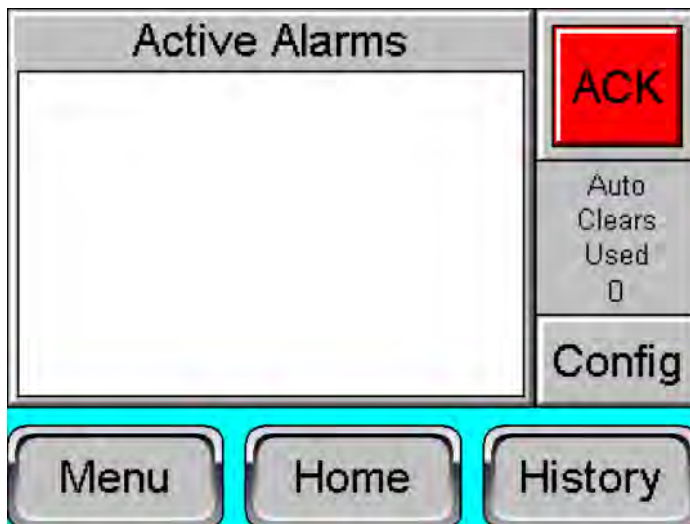**Figure 13:** Alarm Page

Changes:

- **Expanded Efficiency Range:** Adjusted efficiency thresholds to avoid false alarms.

  o Upper threshold increased to 1.35

  o Lower threshold decreased to 0.65

- **I/O Page:**

  o Redesigned the user interface for Modbus settings.

  o Relocated the version number indicator to the IP configuration.

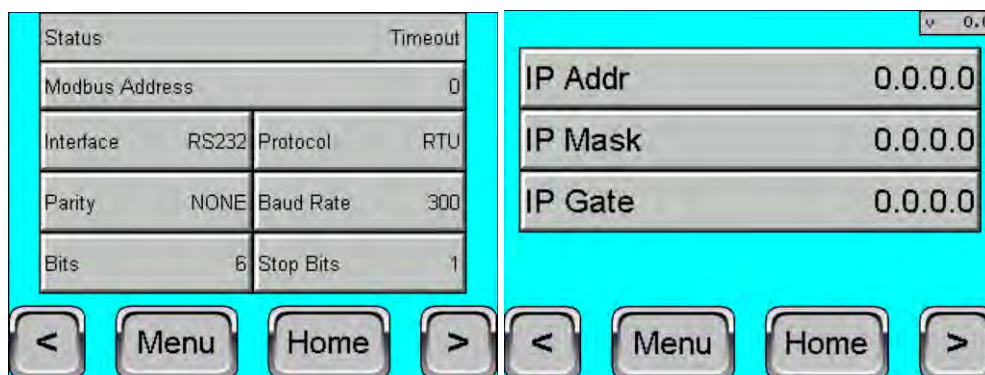**Figure 14 & 15:** I/O Page (Modbus and IP Configuration)

Fixes:

- The high gas alarm now clears automatically when the gas rate falls below the configured high gas set point.

- Batch mode now calculates efficiency based on injection rate accuracy.

- Usage data and health ticks are no longer tracked or logged while in purge mode.

- The system will no longer inject when the target injection rate is set to zero.

Version 13.2

New:

- **Standby Mode Implementation:**

  o The standby input is assigned to digital input 2 by default.

  o Added Gas Signal Standby as an option in the alarm configuration. When enabled, the unit enters standby mode if the 4-20mA gas signal is lost.

  o Added Standby Polarity (normally open/normally closed) to the alarm configuration to control the digital input.

  o Added a standby alarm, which can be disabled in the alarm configuration. This alarm activates when the unit is in standby mode.

  o Standby status is shown on coil 2 of the Modbus map.

Changes:

- **Alarm Changes:**

  o The Motor Alarm, Motor Feedback Alarm, and No Feedback Alarm have been consolidated into a single Motor Alarm, controlled by a single Enable/Disable toggle in the alarm configuration.

  o The Seal Cartridge Alarm, Vapor Lock Alarm, and Reprime Alarm now share a single Pump Health Alarms toggle in the alarm configuration.

  o The High Gas Alarm now uses Autoclears after one minute. The system will shut down if all Autoclears Allowed are exhausted.

  o Maximum allowed Injection Alarm Delay set to 10 cycles.

- **Purge Mode:**

  o Turning the injection system on now automatically turns off purge mode to prevent users from leaving purge on accidentally.

  o Purge can still be turned on manually once the system is on.

Fixes:

- **Usage Tracking:**

  - Fixed a bug that caused monthly usage data corruption after a power cycle.

  - Added a daily log to the data stored on the SD card.

- Corrected date formatting for last service dates on the maintenance page.

- **Modbus**: RS232/RS485 now outputs on port MJ1/MJ2.

- Increased the threshold for stuck batch detection.

- Simplified the No Odor Alarm logic for efficiency.

- Removed Pressure Switch functionality.

- Hard-coded timer values to prevent a bug that could set the delay to zero.

- Removed unexecuted processes to improve performance.

- Replaced counter rollover recovery logic with a reset to prevent false rollovers following a power cycle.

- Resolved an issue where tick mass failed to update when Odorant Density was changed while using the Pulses gas source.

- Corrected the mislabeled alarm test setting, which was incorrectly named alarm polarity. Added alarm polarity as a separate configuration option.

Version 13.3

New:

- **Compatibility:** This version is now available for the GPL510 in addition to the GPL10000.

- **Data Logs:**

  o **Watchdog Data Log:** Logs data after every efficiency calculation

    ▪ Can be disabled on the maintenance page (enabled by default)

  o **Login Logs:** Tracks up to four WebMI logins at a time alongside the controller's local login.

    ▪ A new entry is logged whenever the number of users changes.

  o **SD Storage Alarm:** informs users when they are running low on storage.

    ▪ Soft alarm state triggered when the SD card is more than 80% full.

Changes:

- **Login Screen:** Increased font size and field size for username and password.

- **Data Logs:** Changed the ten-minute logging interval to one minute.

  o Changed the ten-minute log toggle on the maintenance page to the watchdog log toggle. The one-minute log is now always enabled.

- **Gas Signal Alarm Config:** Replaced Gas Signal Standby with Gas Signal Shutdown

  o **Enabled:** the system will shut down if the gas signal is lost rather than going on standby mode. Gas Signal Shutdown is enabled by default.

  o **Disabled:** the system will switch to the manual gas rate and continue to odorize after gas signal loss. The Gas Signal Alarm will still activate the alarm output.

- **Tank Signal Alarm Config:** Removed enable/disable toggle from the Alarm Config.

  o Tank Signal Alarm is now automatically enabled when an Analog input is assigned to tank level. Tank signal is assigned "OFF" by default.

- **Hi Gas Alarm Enhancements:**

  o The alarm clears when the gas rate drops below the Hi Gas Rate setting.

  o The Hi Gas Alarm no longer uses auto clears; instead, the alarm operates on an independent counter. If the Hi Gas Alarm is triggered three times within an hour, the system will shut down.

  o If the Hi Gas Alarm persists for three consecutive minutes, the system will shut down.

Fixes:

- Fixed an error that would allow the motor RPM to slightly exceed the user's Max RPM setting. This was caused by the Target RPM recalculating after being limited repeatedly.

- Implemented a timer for the gas signal alarm to reduce false alarms during power cycles.

- Resolved an issue where gas pulses could not be added to a batch cycle following a cold start, specifically when gas ticks were carried over from the prior version.

Version 13.4

New:

- **Extended the Modbus Map:**

  o Added daily odorant usage (in pounds) and daily gas volume to the Modbus Register Block. These registers are updated hourly.

  o Added gas volume until batch to the Modbus Register Block.

  o Added a Batch Mode indicator to the Modbus Coil Block.

- **Enhanced Batch Page:** Added "More" settings page.

  o Added "Deadband Scale Factor" to the advanced batch settings. This feature allows users to manually adjust the gas rate deadband between batch mode and continuous mode along with the "Minimum CCM."

  o The new page shows the current gas rate instead of gas volume until batch, along with the gas rate ceiling for batch mode and the floor for continuous mode.

  o These settings are not applicable to the Pulses gas source. The Pulses gas source has its own batch page and operates exclusively in batch mode.

Figure 16 & 17: Batch Page With More Settings

Changes:

- The injection rate is now reset to zero while the system is off.

Fixes:

- Resolved an error where the GPL510 mistakenly initialized the Target RPM as if it were a GPL10000. This fix eliminates the unnecessary motor ramp-up delay during startup.

- Added a delay to injection rate calculations when entering or exiting batch mode to prevent erroneous calculations and false Lo alarms. Fixed false Lo alarm when starting the system in batch mode.