**PureFocus850 Software Revision Status**

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| **Release** | **Date** | **Comments** | **ECO** |
|  |  | **This document details the release history for the software involved in the PureFocus850 product. As such, it covers the firmware in the controller itself along with the upgrade tools and GUI demonstrator/configuration tool.** |  |
| **PF850 Production Release R11** | **26/10/23** | **GUI 1.17**  **+ Fixed some GUI related bugs.**  **+GUI improvement**  **+Fixed “racing problem” in GUI.**  **+Controller firmware was modified to save piezo distance in floating-point format.**  **+Setting the integration time in the laser menu is restricted to <=65ms.**  **Notes:**  **You should upgrade the controller firmware for this release. See readme.docx**  **Run LF\_UgradeTool.exe to update your existing controller firmware.** | **E11250-E** |
| **PF850 Production Release R10** | **23/1/23** | **GUI 1.15.0.0**  **+ Support new features in Controller 1.12.**  **Controller 1.12**  **+ Sensor exposure time now on a per objective basis.**  **+ Added higher level setting for sample detection.**  **+ Objective names can be edited and saved as custom objectives.**  **+ Auto adjust laser powerer based on A+B setpoint.**  **+ Interface flag correction jump.**  **LF\_UpgradeTool.exe 2.0.0.0**  **+ No change**  **LF\_sflash.exe 2.0.0.0**  **+ Upgraded to .NET4.5**  **PriorTerminal.exe 3.6.0.0**  **+ No change**  **Ecp.hex. v23**  **+ In addition to the existing measures to extinguish the laser, when the laser 0 command is issued, any residual current is routed away from the laser diode and into a passive load. For any other laser value, the demanded current is passed through the diode as before.**  **+ Fixed the changing background levels after power cycle. The method by which the analog converter reference and data sample signals are generated has been re-written to force synchronisation to the clock, which de-multiplexes the reference/data signal path.**  **Notes:**  **You should upgrade *both* the FPGA code and the controller firmware for this release. See readme.docx**   1. **Run LF\_sflash.exe to upgrade the FPGA code in the head.** 2. **Run LF\_UgradeTool.exe to update your existing controller firmware.** | **E11085** |
| **PF850 Production Release R9** | **26/9/22** | **GUI 1.14.0.0**  **+ No change.**  **Controller 1.11**  **+ Simplified API for setting AD9944 offset level control.**  **+ FPGA/firmware changes to ensure laser fully off.**  **+ FPGA changes for background level changes over power cycles.**  **+ Firmware update to limit EXPOSURE time to 1..65us**  **LF\_UpgradeTool.exe 2.0.0.0**  **+ No change**  **LF\_sflash.exe 2.0.0.0**  **+ Upgraded to .NET4.5**  **PriorTerminal.exe 3.6.0.0**  **+ No change**  **Ecp.hex. v23**  **+ In addition to the existing measures to extinguish the laser, when the laser 0 command is issued, any residual current is routed away from the laser diode and into a passive load. For any other laser value, the demanded current is passed through the diode as before.**  **+ Fixed the changing background levels after power cycle. The method by which the analog converter reference and data sample signals are generated has been re-written to force synchronisation to the clock, which de-multiplexes the reference/data signal path.**  **Notes:**  **You must upgrade *both* the FPGA code and the controller firmware for this release. See readme.docx**   1. **Run LF\_sflash.exe to upgrade the FPGA code in the head.** 2. **Run LF\_UgradeTool.exe to update your existing controller firmware.** | **E11136** |
| **PF850 Production Release R8** | **27/9/21** | **GUI 1.14.0.0**  **+ Change to graphing in setup screen such that zero level line displayed properly.**  **Controller 1.10**  **+ Added production command for configuring the AD9944 level offsets.**  **LF\_UpgradeTool.exe 2.0.0.0**  **+ Upgrade to .NET4.5**  **LF\_sflash.exe 1.0.0.0**  **PriorTerminal.exe 3.6.0.0**  **Notes:**  **Use LF\_UgradeTool.exe to update your existing controller firmware.**  **Use LF\_sflash.exe to upgrade the FPGA code in the head.** | **E11018** |
| **PF850 Production Release R7** | **12/7/21** | **GUI 1.13.0.0**  **+ Lock controller keyboard when configuring system from parameters or file**  **+ Fixed EXPOSURE setting in SYSTEM.TXT for line mode configurations**  **+ In setup mode update selected objective PINHOLE only if apply to all objectives declined.**  **GUI 1.12.0.0**  **+ Added CONFIG,H mode**  **Controller 1.09**  **+ Adding KBDLOCK command.**  **KBDLOCK queries keyboard lock state**  **KBDLOCK,1 locks keyboard**  **KBDLOCK,0 unlocks keyboard**  **+ Fixed bug that left residual digipot buffer entries if rotated in servo mode causing a small move when exiting servo mode.**  **+ Fixed bug that left servo off if consecutive servo on commands received.**  **Controller 1.08**  **+ Adding error sensor mode output.**  **Activated by CONFIG,H**  **LF\_sflash.exe 1.0.0.0**  **LF\_UpgradeTool.exe 1.0.0.0**  **PriorTerminal.exe 3.5.0.0**  **Notes:**  **Use LF\_UgradeTool.exe to update your existing controller firmware.** | **E10933**  **E10979** |
| **PF850 Production Release R6** | **11/11/20** | **API version 1.2.0**  **User Manual version 2.1 (see Prior website)**  **GUI 1.11.0.0**  **+ Added support for Controller 1.07 features**  **Controller 1.07**  **+ Addition of timing command from receipt of servo on until in focus stable for in focus period.**  **+ Addition of servo limit function for stepper systems. This prevents the servo position from moving the focus outside of the specified range.**  **LF\_sflash.exe 1.0.0.0**  **LF\_UpgradeTool.exe 1.0.0.0**  **PriorTerminal.exe 3.5.0.0**  **Notes:**  **Use LF\_UgradeTool.exe to update your existing controller firmware.** | **E10933** |
| **PF850 Production Release R5** | **10/6/20** | **API version 1.1.0**  **User Manual version 1.8 (see Prior website)**  **GUI 1.9.0.0**  **+ No changes**  **Controller 1.05**  **+ Addition of PULSE,N command which causes the laser to switch on/off every with 50/50 duty cycle of N milliseconds.**  **LF\_sflash.exe 1.0.0.0**  **LF\_UpgradeTool.exe 1.0.0.0**  **PriorTerminal.exe 3.5.0.0**  **Notes:**  **Use LF\_UgradeTool.exe to update your existing controller firmware.** | **Evaluation** |
| **PF850 Production Release R4** | **5/3/20** | **API version 1.1.0**  **User Manual version 1.8 (see Prior website)**  **GUI 1.9.0.0**  **+ No changes**  **Controller 1.04**  **+ Fixed a bug introduced in 1.03 that could cause movement in wrong direction when using V, U or D commands.**  **+ VZ direction consistent with PS3**  **+ Large UPR values (i.e. 1000 for OpenStand) caused rounding errors on position reporting.**  **LF\_sflash.exe 1.0.0.0**  **LF\_UpgradeTool.exe 1.0.0.0**  **PriorTerminal.exe 3.5.0.0**  **Notes:**  **Use LF\_UgradeTool.exe to update your existing controller firmware.** | **E10880** |
| **PF850 Production Release R3** | **21/11/19** | **API version 1.1.0**  **User Manual version 1.8 (see Prior website)**  **GUI 1.9.0.0**  **+ No changes**  **Controller 1.03**  **+ Fixed a bug in offset lens control that was allowing point-to-point moves to move beyond end limit switches.**  **+ LASER,0 command now switches the integrator mode of the FPGA as some light was still being emitted. This greatly reduces any residual light output.**  **LF\_sflash.exe 1.0.0.0**  **LF\_UpgradeTool.exe 1.0.0.0**  **PriorTerminal.exe 3.5.0.0**  **Notes:**  **Use LF\_UgradeTool.exe to update your existing controller firmware.** |  |
| **PF850 Production Release R2** | **8/5/19** | **API version 1.1.0**  **User Manual version 1.8 (see Prior website)**  **GUI 1.9.0.0**  **+ menu options to select slice or line mode**  **+ default parameter folders based on line/slice/piezo/stepper configuration**  **+ default background reset to zero on factory reset.**  **+ objective names cleared on factory reset.**  **+ OUTLIM parameters automatically changed when switching between stepper/piezo mode**  **+ Fixed a bug resulting in loss of objective names in the gui.**  **+ minor gui wording changes**  **+ Gui checks compatibility of controller firmware and prompts for controller upgrade if needed.**  **Controller 1.02**  **+ Default offset lines position modified to reflect changes to production optics**  **+ Extending CONFIG command to have option second parameter to select either slice mode or line mode. So now there are 4 configuration combinations**   * **CONFIG,S,S stepper and slice mode** * **CONFIG,P,S piezo and slice mode** * **CONFIG,S,L stepper and line mode** * **CONFIG,P,L piezo and line mode**   **LF\_sflash.exe 1.0.0.0**  **LF\_UpgradeTool.exe 1.0.0.0**  **PriorTerminal.exe 3.5.0.0**  **Notes:**  **Use LF\_UgradeTool.exe to update your existing controller firmware.** | **E10768** |
| **PF850 Production Release R1** | **9/1/19** | **GUI 1.6.0.0**  **Controller 1.00**  **LF\_sflash.exe 1.0.0.0**  **LF\_UpgradeTool.exe 1.0.0.0**  **PriorTerminal.exe 3.5.0.0**  **Notes:**  **Use LF\_UgradeTool.exe to update your existing controller firmware.** |  |
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