

HELEOS™ / TREOS™

Version 2.3.1.0

May 16, 2012

**PLEASE READ THIS DOCUMENT
BEFORE USING THIS SOFTWARE**

Although this product has been tested, there remains the possibility of undiscovered fatal errors. Known deficiencies and limitations are listed below.

Please tell us about any defects or anomalies you discover (check the list of known defects below before you call). We may already be aware of a defect, but if we're not, your phone call will alert us to a problem and will improve the quality of the software for all users, including you. When making a report please include complete information regarding the steps leading up to the problem and any messages displayed by the application or Windows (i.e. General Protection Faults (GPF) location and module information).

Email : support@wyatt.com
Phone : (805) 681-9009 Monday - Friday 8am - 5pm (Pacific).

Wyatt Technology Corporation
6300 Hollister Ave
Santa Barbara, CA 93117

SYSTEM REQUIREMENTS

Windows 7, Vista, or XP computer with networking (for distribution delivery and client support)

HARDWARE REQUIREMENTS

Any HELEOS, HELEOS II, or TREOS instrument

INSTALLATION INSTRUCTIONS

1. Establish a network connection from the computer to the HELEOS/TREOS using one of the following:
 - Ethernet crossover cable
 - Local area network
 - Ethernet to USB converter
2. Run the firmware update program, and follow the onscreen instructions.

Revision History

2.3.1.0 May 16, 2012
2.3.0.9 December 6, 2010
2.3.0.5 September 17, 2009

2.3.0.4 August 25, 2009
2.3.0.3 May 19, 2009
2.3.0.2 May 7, 2009
2.3.0.1 March 23, 2009
2.3.0.0 March 9, 2009
2.2.0.21 December 10, 2008
2.2.0.20 July 2, 2008
2.2.0.19 April 22, 2008
2.2.0.18 March 28, 2008
2.2.0.17 January 31, 2008
2.2.0.16 January 16, 2008
2.2.0.15 November 14, 2007
2.2.0.14 October 29, 2007
2.2.0.13 October 16, 2007
2.2.0.12 September 26, 2007
2.2.0.11 September 20, 2007
2.2.0.10 September 12, 2007
2.2.0.9 August 31, 2007
2.2.0.8 August 29, 2007
2.2.0.7 August 28, 2007
2.2.0.6 July 31, 2007
2.2.0.5 July 24, 2007
2.2.0.4 July 17, 2007
2.1.9.1 June 5, 2006
2.1.9.0 June 1, 2006
2.1.8.2 January 10, 2006
2.1.8.1 December 28, 2005
2.1.8.0 December 21, 2005
2.1.7.2 December 1, 2005
2.1.7.1 November 22, 2005
2.1.7.0 November 17, 2005
2.1.5.0 August 10, 2005
2.1.3.0 July 28, 2005

CHANGE HISTORY

2.3.1.0

Added firmware support for touchscreen instruments.
Improved text layout in the HELEOS / HELEOS II batch tab.
Corrected HELEOS I analog output text field behavior.

2.3.0.9

Analog Output settings are preserved across instrument reboots.
Analog Output 3 is now enabled on a TREOS. Physical jumpers must be set for this feature to work properly. For additional information, please refer to the TREOS Hardware manual Rev. B or later.
The Front Panel's "Comm" page no longer prevents the user from tabbing out of it when there is no network connectivity.

2.3.0.5

The firmware now properly forwards daemon errors to ASTRA through the ISI.

2.3.0.4

Lower Tau Cutoff is initialized to zero.
Lower Tau Cutoff is recorded in the configuration file if the parameter has not been defined.
Corrected issue where HELEOS I instruments cannot activate "Laser Dither."

2.3.0.3

Corrected the Front Panel System page ignoring update parameter notifications.
Corrected switch indicators synchronization with hardware state on instrument boot.
Corrected the Front Panel's inability to set the instrument's temperature.

2.3.0.2

The Front Panel Main page now displays all the data traces properly.
Fixed the Front Panel System page tab order.
Corrected the issue where the Front Panel System page ignores updated parameters
Corrected a display issue when updating the Time Interval in the Front Panel System page.
A message is displayed if the user attempts to assign the instrument an IP address that has already been assigned to another machine on the network.

2.3.0.1

Fixed issue which caused the "SetAnalogOutput" command to behave unexpectedly.
The Front Panel Service page now properly lists daemon commands.

2.3.0.0

Merged code from DynaPro NanoStar 2.2.1.17

Graph axes are displayed in exponential notation when possible.

Implemented "RecordRawData" command.

Implemented Instrument Startup diagnostic features.

Improved the Firmware Installer system.

Enhanced the Firmware Updater software.

The graphs on the Front Panel now share time scales with other Wyatt instruments.

Implemented commands that calculates and sets the Dither Correlation Correction Reference.

The Count Rate on the QELS tab now updates at the same rate as the data on the graph.

Temperature lock duration and temperature lock range parameters are now configurable.

Implemented QELS Lower Tau Cutoff on the Front Panel.

Added "ClearParameter" command.

Password protected configuration files to prevent inadvertent changes.

Improved the (in house) "Service" tab to allow configuration of multiple daemons.

Expanded the "Integration Time" text box to fit longer time values.

- Correlation correction factors can now be subtracted from the auto correlation function.
- Added "SetLowerTauCutoff", "SetCorrectionScale" and "SetCorrelationReference" commands.

Fixed issue where a user can repeatedly get prompted to "Take-over control and resubmit the command?"

- The Front Panel Service page makes the configuration parameters editable when the user enters the correct password.
- Temperature ramp rate is set to the maximum allowable rate at instrument start up.

2.2.0.21

Added ISI commands SetPercentLaserPower and GetPercentLaserPower.

Replaced library to improve the stability of Wyatt QELS model WIQ-01 in HELEOS I instruments.

Fixed issue which required instruments to be upgraded to HELEOS/TREOS 2.2.0.19 first before upgrading to the latest HELEOS/TREOS firmware.

During the firmware install process, instruments without a Nitrogen Pressure line no longer prompt the user to "please disconnect the Nitrogen line from the back of the instrument."

Added more system logging for diagnostics purposes.

2.2.0.20

Corrected the Nitrogen Pressure calibration values for HELEOS II Heated Cooled

instruments.

2.2.0.19

Corrected the polarity of the Auto Inject signal for the TREOS to be active high.
Revised the Auto Inject behavior to only trigger collections on the rising edge of the signal.

Suppressed harmless error message if the instrument cannot support Wyatt QELS model WIQ-02.

Fixed issue that can cause Wyatt QELS model WIQ-02 to not be recognized on certain instruments

Fixed issue which can cause HELEOS I instruments to have nonfunctioning Analog Output feature.

Recycle valve is always set to the RECYCLE position at instrument startup.

COMET is always turned OFF at instrument startup.

2.2.0.18

Reversed polarity of the Recycle output line to match Orbit requirements.

Revised the Waste/Recycle user interface to clarify valve operation, display “Recycle” when valve is in recycle state, and display “Waste” when valve is in waste state.

Fixed Network Time Protocol issue that can cause a delay at the start of ASTRA’s collection with some instruments.

Corrected a potential timing issue with the HELEOS Electronic Module.

Made HELEOS II firmware compatible with HELEOS I instruments.

2.2.0.17

Correct timing issue with the HELEOS Electronic Module

2.2.0.16

Added support for the new single board computer.

Correct temperature control logic to avoid the possibility of over heating.

2.2.0.15

Correct temperature ramp rate logic to avoid too rapid temperature changes.

Correct QELS screen error that could cause the time axis of the correlation function view to display improperly.

2.2.0.14

Correct Batch Page for HELEOS 8+. Previously it was not permitting the user to turn detectors on and off.

2.2.0.13

Correct timestamp logic to properly sync when starting new collections.

Enlarge some correlator memory areas to support the 264 bins available in the new correlator hardware. Previously these were limited to 255 bins.

2.2.0.12

Correct configuration file access error that can be generated during the manufacturing process.

2.2.0.11

Revised the laser power control so that the laser dither (which is deactivated when laser power drops below 50%) is reactivated when laser power rises above the threshold.

Corrected a bug that caused the EOSd to crash when changing the Analog Output "Redirect" value (i.e., which data trace to send over the analog output).

Corrected cut-off labels on batch page ("Normalization Coefficient" and "Select detectors to display")

Changed the HELEOS II logo image to the correct pixel size.

2.2.0.10

Display the Laser Monitor and Forward Monitor on the front panel as percentages of total voltage. Data transmitted from the instrument continues to be in volts.

Display QELS correlation function biased towards the bottom so that there is not so much blank space at the bottom of the graph.

Finalize support for new model QELS correlator.

2.2.0.9

Correct integration time setting when set through the ASTRA collection interface.

This was incorrectly doubling the integration time. Note that the integration time setting on the front panel always worked properly.

2.2.0.8

Add new Laser Voltage measurement to HELEOS II data slice.

Display instrument over network as "Heleos II".

2.2.0.7

Correct time handling in new correlator hardware support.

Do not trigger laser monitor alarm when the laser has been turned off.

Do not turn QELS or laser off when vapor alarm is triggered.

2.2.0.6

Revised laser power control logic to reduce unnecessary updates.

Extended syslog logging to the new correlator process.

2.2.0.5

Corrected display problem with new QELS module.
Improve Bonjour responder to pass Apple compliance suite.

2.2.0.4

Added support for the HELEOS-II hardware.

Support for new QELS modules.

Corrected problem with analog output drop-downs that prevented the settings from being retained when switching between screens.

Communications panel simplified and made more reliable.

2.1.9.1

Fixed a bug which prevented the hostname from being longer than 15 characters.

Since the default numbering wyatt-xxx-treos was 15 digits, there was an overflow which corrupted the hostname display.

The outputs for the autoinject and the alarm out were swapped on the back panel.

This is corrected so that the signals agree with the back panel labels.

2.1.9.0

- Initial Release with TREOS support.

2.1.8.2

- Removed ISI 90 second startup delay. (560)
- Added ISI status light to "Restart ISI" button on the system page. (570)
- Fixed QELS Integration-Time vs. ASTRAV Interval mismatch which caused data to be returned at improper time indices. (710)
- Fixed QELS Correlation function auto-scaling problem – minimum scale was too large. (709)
- Fixed QELS page unresponsiveness after selecting the "Power" button. (575)
- Fixed "Auto-Inject Out" relaying. (661)
- Corrected QELS GetSliceDescription parameters. (671)

2.1.8.1

- Added ability to set negative values for the aux output scale ranges on the System Page. (566)
- Auto Inject Out relay was not working, this was fixed. (661)

2.1.8.0

- "Machine Gun" auto-inject fix added. Now only the last twenty auto-inject signals will be displayed. (558)
- Added reboot notification upon firmware upgrade. (563)

2.1.7.2

- QELS controller stability problem fixed.

2.1.7.1

- Static IP Address truncation bug fixed
- ISI version mismatch between HELEOS and Astra has been resolved.

2.1.7.0

- Instrument initialization was made more robust.
- A bug that could cause data collection to lock up (triggering an instrument reboot) under heavy loading was corrected.
- QELS count rate display frequency was changed to increase instrument responsiveness.
- A bug in the temperature control was fixed so that it takes less time to stabilize on a fixed temperature.
- A bug that caused the setting of a Static IP address to not be persistent after a reboot was fixed.
- StartISI has been modified to include error checking and to resolve the bug which caused a StartISI failure panel to float above the user interface.
- Instrument initialization was made more robust. In previous versions a bug existed where, on some instruments, the temperature and AUX readings would show an anomalously large noise level (+1C on the temperature). In the past, a reboot typically corrected the problem. The new version always initializes correctly.

2.1.5.0

- Change to color of status indicators for COMET and Recycle valve. Green now means ready to take data. Yellow means standby.
- Change to the interrupt structure to allow the temp control PWM to interrupt all other functions. This will allow better timing control, solving the problem with the temp oscillation at some temperature settings. An analysis of the timing showed that glitches due to disabling interrupts were of the scale of 1.27 msec, which 0.58% of full scale, which is consistent with the measured power fluctuations when the system begins to oscillate. The temperature stability now exceeds 0.01C *rms* which was a design requirement. Typical stability is 0.001C *rms*.
- There is now a limit of 10 second on time constant to prevent excessive computation which may result in loss of data or even control of instrument.
- The Time Constant entry on the "System" page is replaced by "Time Interval" which sets time constant to TWICE the value, to be backward compatible with rEX. The interval now sets the time between consecutive data points.
- If a different time constant is desirable, it may be set independently using command SetTimeConstant AFTER interval is set.
- To comply with SI unit terminology, on the "QELS" page the unit of "Integration

- Time" is changed from (sec) to (s).
- Classification of the "Overheat" alarm is changed from Major to Critical to reflect the fact that overheat is often associated with component failure.
 - Major alarms are no longer logged in a file, only Critical alarms are logged, with a time stamp.
 - Data I/O errors with the EIC now cause the firmware to restart. In the past, they would be logged and the instrument would stop collecting.

2.1.3.0

- Initial Release

KNOWN DEFICIENCIES

- Resetting the ISI using the HELEOS front panel "System" page while the Diagnostic Manager is running will cause the Diagnostic Manager to stop collecting data. After restarting the ISI, selecting the "stop monitoring" button on the Diagnostic Manager causes an "Application Exception Detected" error and the Diagnostic Manager will shutdown.