am

Eval Kit Manual

AS7221

Spectral Sensor Dashboard Installation & Operation Guide

Content Guide

1   General Description

The AS7221 *Cognitive Lighting*™ device resides on an ams AS7221 Smart Lighting Integration Kit (SLIK). The SLIK module connects to a pc based user interface called Spectral Sensor Dashboard.

This ams Dashboard provides a simple yet powerful way to manage, configure, observe and log AS7221 device test data. The Dashboard provides test setup as well as test data observation. CSV formatted log files can also be captured for post-test data analysis.

For detailed information on the AS7221 *Cognitive Lighting*™ device itself, please refer to the separate datasheet document available from ams.

In addition, the AS7221 SLIK comes with built in Bluetooth (BLE) to support iPhone and Android applications from ams. Please contact ams for availability and documentation.

2   Dashboard Installation (for Windows Computers)

What's required for Installation:

1. AS7221-SLIK (Smart Lighting Integration Kit, provided by ams).
2. USB stick with the Spectral Sensor Dashboard software (provided by ams).

Installation Procedure

1. Insert the ams provided USB stick into the computer.
2. From the ams_AS7221_Main folder on the USB stick copy the ".tbc" and the ".gif" file into the working directory of your preference.
3. Install the free community edition of ActiveState TCL and its windowing shell, wish, from the correct Windows sub-folder for your computer (Windows 32 or Windows 64). It will be found in the ActiveState TLC Run-Time Setup folder on the USB stick. Right click on the ".exe" file and install as an administrator.
4. If not already installed on the computer, you will need to install USB serial port com drivers. Right click on the "CDM v2.12.00 WHQL Certified.exe" located in the FTDI Virtual COM Port Driver Setup folder on the USB stick and install as an administrator.
5. Connect the AS4531 board (optional, for adding Daylighting) and the install the USB (pc) to Serial (SLIK UART) cable. Then connect the DC power source to the SLIK. All of this is shown before and after connections in Figures 1 & 2.
6. Launch the Dashboard by clicking on the ".tbc" file in the chosen working directory created in step 2 above.

3 Dashboard Update

Update Procedure

1. Any Dashboard updates from ams will be an updated ".tbc" file.
2. Simple replace the ".tbc" file in the working folder create in the initial installation with the new ".tbc" file.
3. Install module hardware to a USB port as described in step 5 above.
4. Launch the Dashboard by clicking on the updated ".tbc" file.

4 Hardware setup

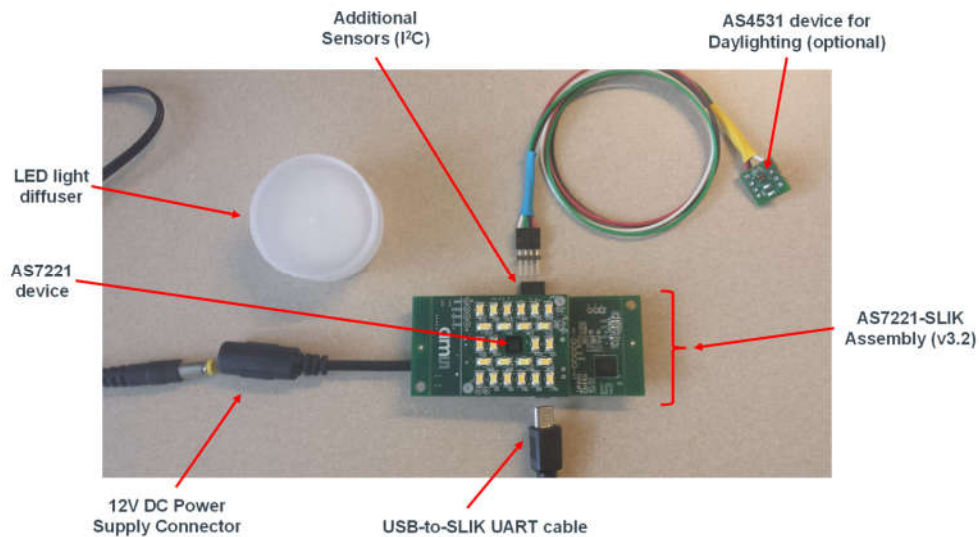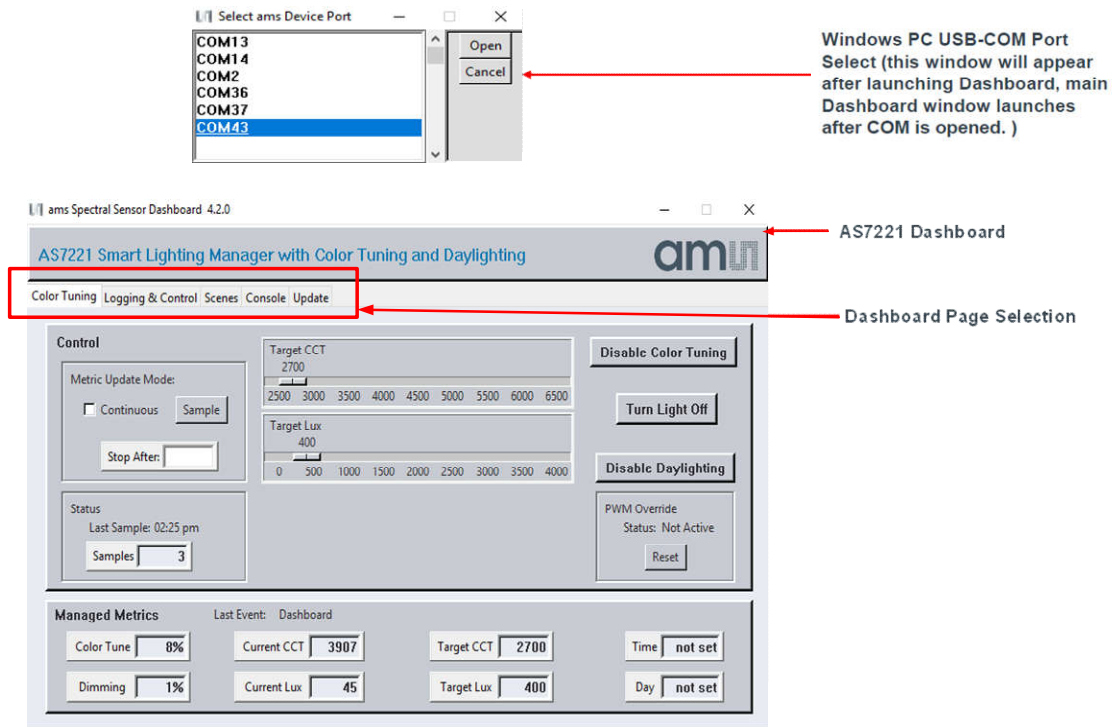Figure 1. AS7221 SLIK & AS4531 – Disconnected from PC & Power

Figure 2. AS7221 SLIK & AS4531 – Connected to PC & DC Power

5   Usage of the Dashboard software

Figure 3. AS7221 Spectral Sensor Dashboard display after startup[1]


As shown above (Figure 3), the pc USB-COM select window will appear first after Dashboard launch (and hardware is connected to the USB port). Once COM is selected and opened the Color Tuning page will open as shown.

Typical steps to find which (if more than one showing) COM port to select:

- Open Windows Device Manager
- Click on "Ports (COM & LPT)"
- Find the "USB Serial Port (COMxx)", and use to select the correct COMxx

[1] In case of incorrect displays or moved menus, please stop the Dashboard software. Start "Tcl – Installation directory \ bin \ wish86.exe, select the parameters "/ Properties / Compatibility" by clicking the right mouse key, select "Override high DPI scaling behavior" and "In Scaling performed by: System". Then click ok and start the dashboard software again.

Figure 4. Dashboard – Logging & Control Page
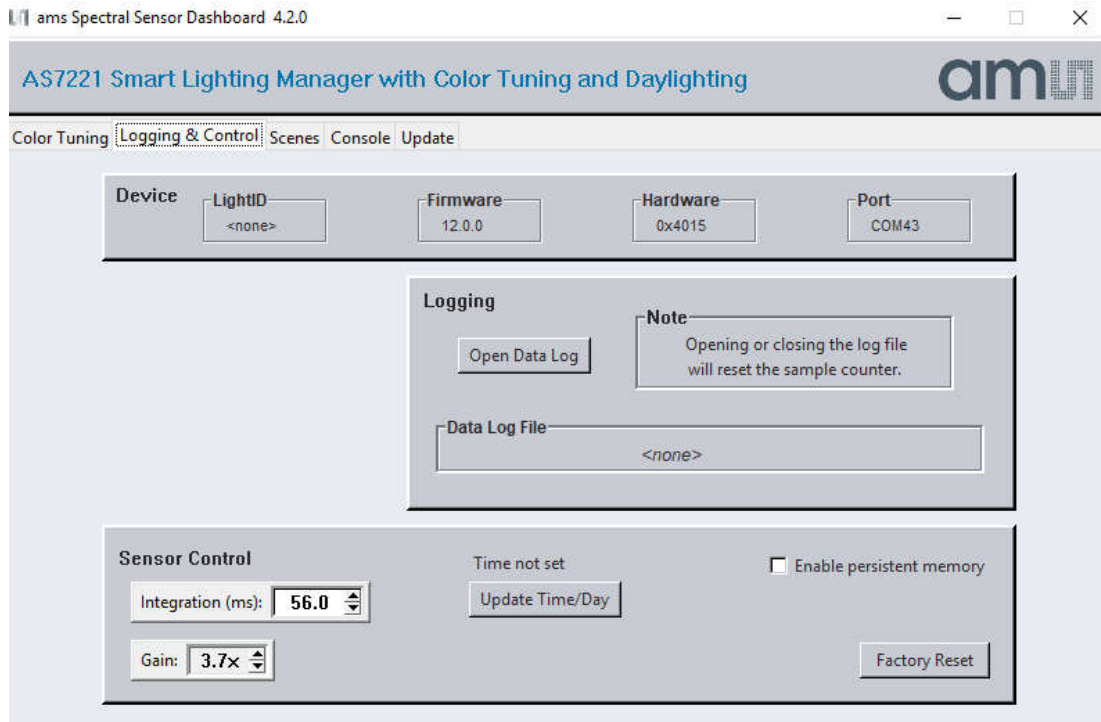
As shown above (Figure 4) the Logging & Control page can do factory reset, logging, sensor control and Update time/day :

- Update the Time/Day to sync the AS7221 with the PC real-time clock at least once. (Must be completed before Scenes is operated).
- If desired, open a log file to store AS7221 data (Excel CSV format), when done close the log file to store the data.
- Modify the Sensor Controls for Integration Time and Gain as needed.
- LightID and other slik information parameter can be saved in EEPROM if "Enable persistent memory" enable.
- "Factory Reset" erases all of the information stored on the device and restore the device to its original default settings.

Logged Data Format (When data file is designated and logging is enabled)

Sample	Color Tune (%)	Current CCT	Dimming (%)	Current Lux	Device Time	Device Day	Int Time	Gain	Temp	Timestamp
1	Color Tune(%)_1	CCT Reading_1	Dimming Reading_1	Lux Reading_1	Device Time_1	Device Day_1	Int Time_1	Gain_1	Temp_1	Time stamp_1
2	Color Tune(%)_2	CCT Reading_2	Dimming Reading_2	Lux Reading_2	Device Time_2	Device Day_2	Int Time_2	Gain_2	Temp_2	Time stamp_2

As shown above, for 2 samples, the logged test data is saved in Excel CSV format. Data is saved in the user specified file name and location. Device Time is in minutes from midnight, Device Day starts with 0 for Monday and goes to 6 for Sunday. Timestamp is date/time using YYYYMMDD/HHMMSS.
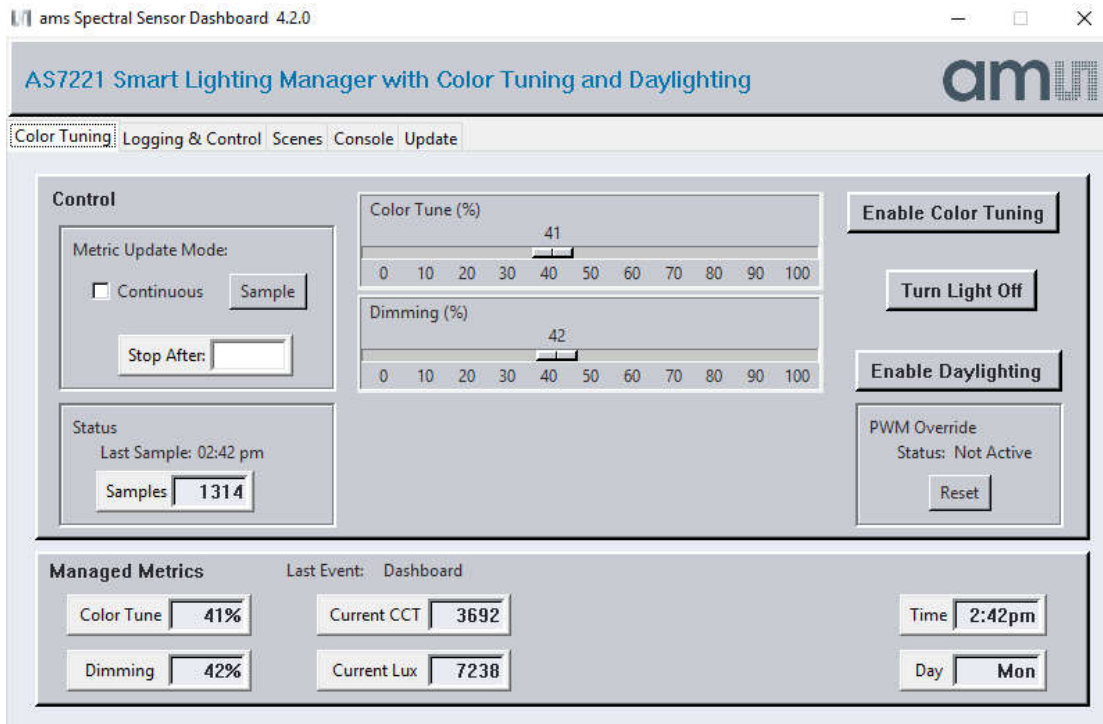
Figure 5. Dashboard – Color Tuning and Daylighting both Enabled
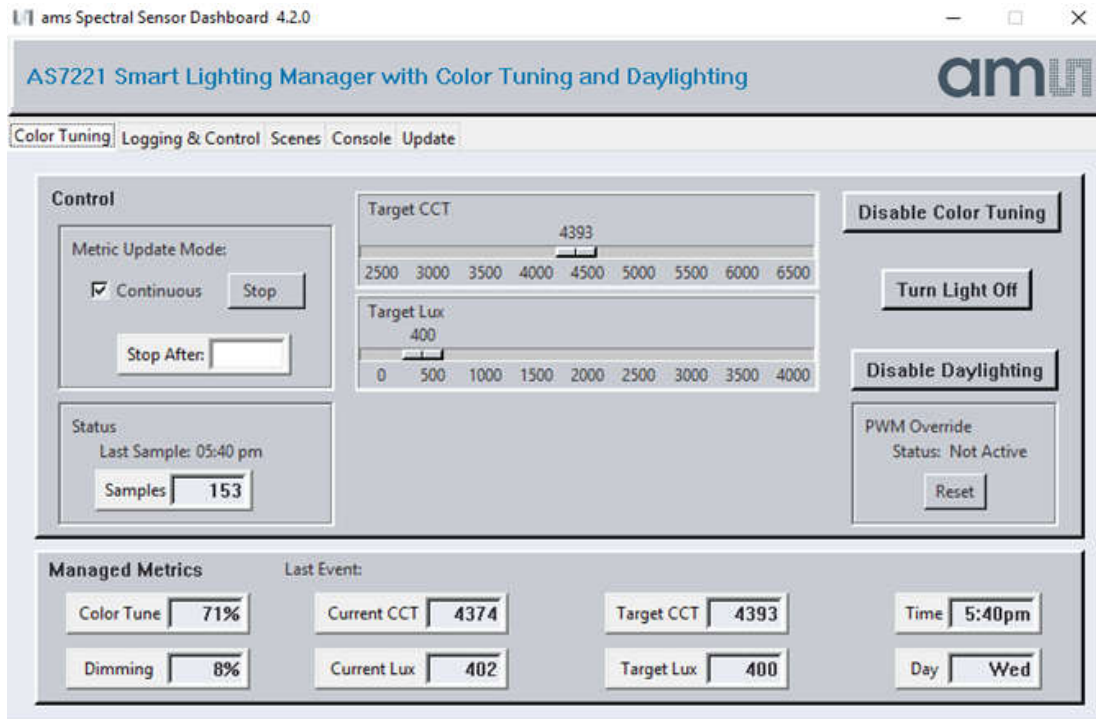
As shown above (Figure 5) the Color Tuning page is used for Control and Managed Metrics to setup and then display test results:

- Under Control, a typical setup is to make the control continuous and then "start" that mode.

- Use "Turn Light On" to turn the SLIK LEDs, or other controlled light source, on/off

- Here Color Tuning and Daylighting are both enabled and the slide bars (shown above as "Target CCT" and "Target Lux") can be changed as needed.
  - Daylighting is only available if the AS4531 sensor is installed (via I2C cable into SLIK)

- Managed Metrics will change as samples are taken.

- Use the "Reset" button to reset the SLIK.

- Note that the SLIK LED array will likely not be sensed by the AS7221 device well enough for complete Color Tuning operation without some sort of color diffusion device installed. See Figures 1 & 2.

**Figure 6. Dashboard – Color Tuning and Daylighting both Disabled**

As shown above (Figure 6) again the Color Tuning page is used for Control and Managed Metrics to setup and then display test results:

- In the Control section, selecting Sample will update the displayed metrics with the most current data. Selecting Continuous, then Start will enable display and continuously update metrics.

- Use "Turn Light On" to turn the SLIK LEDs, or other controlled light source, on/off

- Here Color Tuning and Daylighting are both disabled
    - Instead of "Target CCT", the "Color Tune(%)" slider can be used to directly set the LED string color mix (between warm white and cool white LED strings)
    - Instead of "Target Lux" (Daylighting), the "Dimming (%)" slider can be used to set LED dimming
    - An LED light diffuser can be used but since the color is only set by the AS7221 and not feedback tuned it is only needed for viewing a diffused light

- Managed Metrics will change as samples are taken either manually or continuously, based upon the Control section selection.

Figure 7. Dashboard – Scenes Page
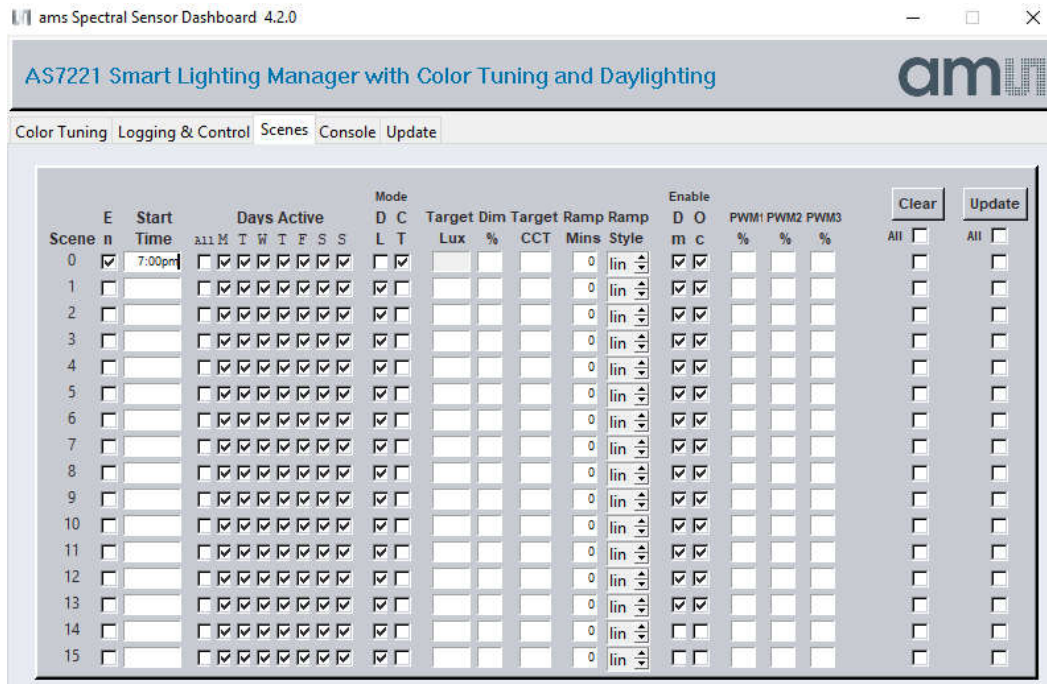
As shown above in Figure 7, one scene (Scene 0) has been enabled. The Scenes page is used to optionally configure up to 16 scenes:

- Each scene is setup using "checks marks" or txt as needed. Use Enable Scene to queue the scene once the Update box is checked and Update is clicked. A scene will not run immediately, but is triggered when the time of day (and day) set for the scene is next encountered.

- First click the "Color Tuning" page and "Reset" the SLIK. Now setup the start time of the scene in terms of time and days of the week.

- Daylighting (DL) and Color Tuning (CT) can be enabled or disabled. If Daylighting is enabled (checked box) "Target LUX" will need to be entered and DIM % is disabled. If Daylighting is disabled (unchecked box) then the "Target LUX" will be disabled and the lamp DIM % should be entered. As mentioned before, an AS4531 will also be required for DL operation (connected via I^{2}C to SLIK).

- The Ramp Time and Ramp Style (Log or Linear) can be entered as desired. A setting of 0 Ramp Time is a smooth somewhat rapid transition. All other settings are in minutes.

- One can allow local override of the scenes by enabling local dimming and occupancy sensing response.

- Entering a number between 0 and 100 (integer) in one of the 3 PWM% boxes allows the user to remove that PWM from the scene control and drive it to a fixed percent dimming. If no text is entered into the PWM% boxes – all 3 PWMs are controlled by the scene parameters.

- The Clear button can be used to disable any/all scenes & reset all parameters to their default.

- During the 'Scenes' running, do not click 'Color Tuning' because SLIK will take those parameters as input.

Figure 8. Dashboard – Console Page
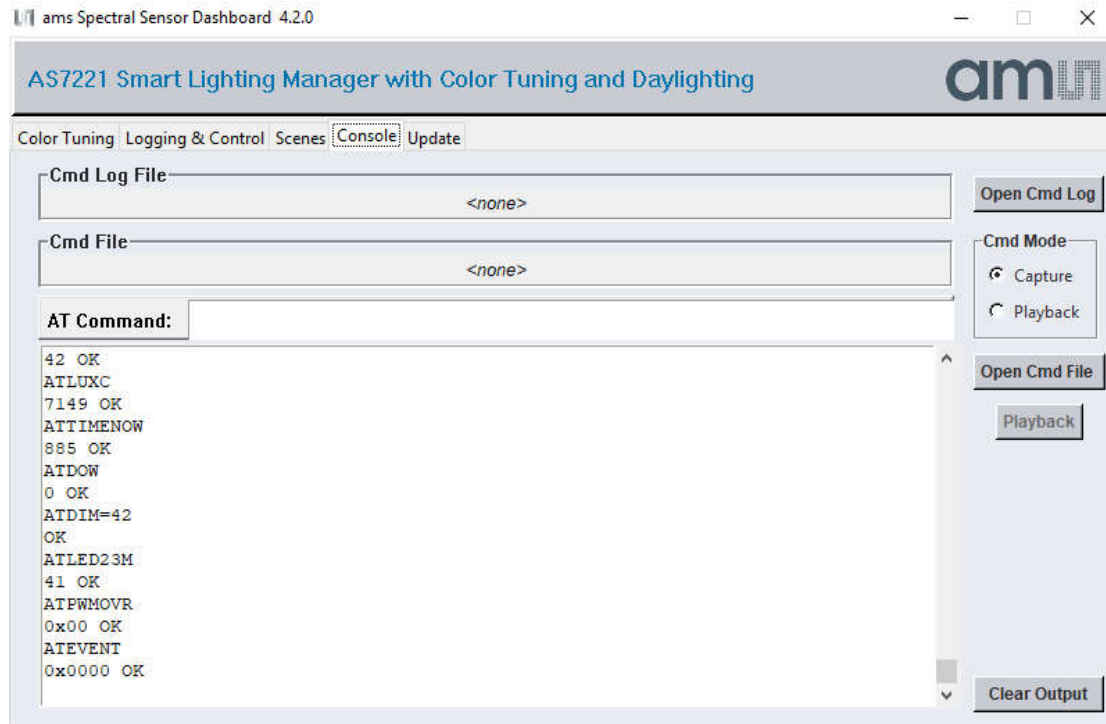
As shown above (Figure 8) on the Console page, Commands can be both observed and entered:

- After a control is selected on Daylighting or Logging & Control Pages, the resulting Commands needed can be observed on this page and optionally captured on the computer running Dashboard.

- And if desired Commands can be entered on this page, in the Command line at the top of the page or via the Playback of previously captured commands.

- Use Open Cmd File, then Close Cmd File to Capture. And Open Cmd File, then Playback, to execute the stored commands.

- Use "Clear Output" to clean the console screen.

Figure 9. Dashboard – Update Page
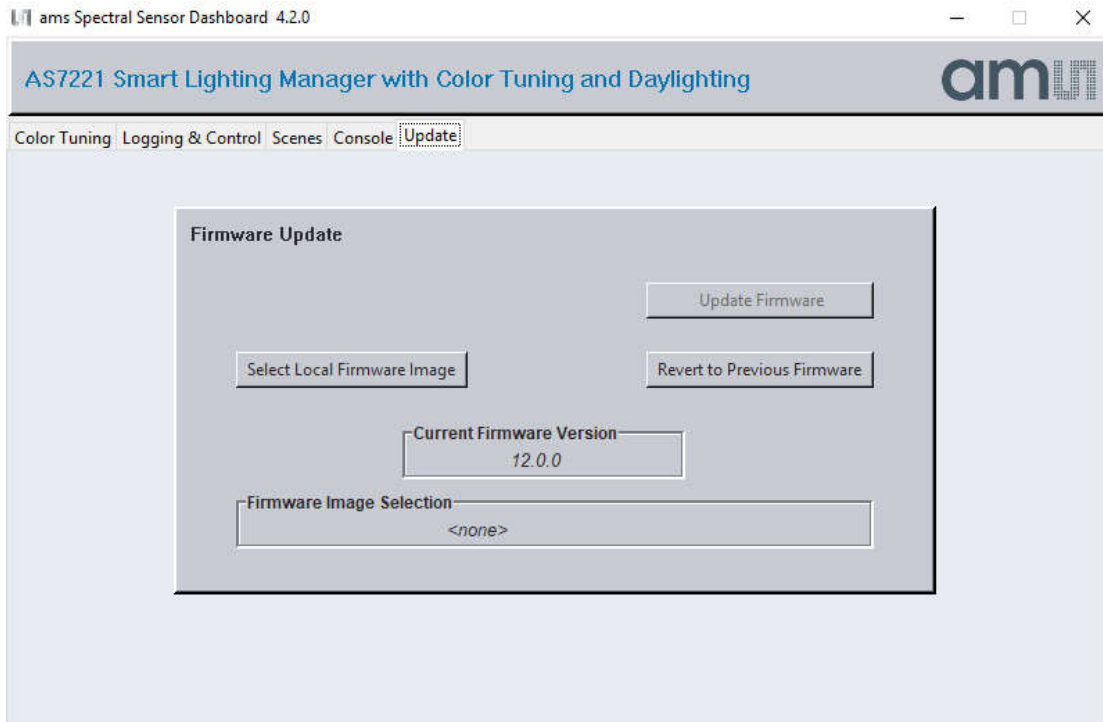
As shown above (Figure 9) on the Update page, SLIK firmware can be updated from the Dashboard:

- Obtain the latest "*.bin" SLIK firmware file from ams, via email or USB flash drive, etc.
- Use the "Select Local Firmware Image" button as shown above to navigate to the "*.bin" file.
- Next, select the "Update Firmware" button to start the update procedure.
- After Firmware is updated completely close the Dashboard software, cycle power on SLIK and re-launch Dashboard.

6   Contact Information

Buy our products or get free samples online at:

www.ams.com/ICdirect

Technical Support is available at:

www.ams.com/Technical-Support

Provide feedback about this document at:

www.ams.com/Document-Feedback

For further information and requests, e-mail us at:

ams_sales@ams.com

For sales offices, distributors and representatives, please visit:

www.ams.com/contact

Headquarters

ams AG

Tobelbader Strasse 30

8141 Premstaetten

Austria, Europe

Tel: +43 (0) 3136 500 0

Website: www.ams.com

7   Copyrights & Disclaimer

8   Revision Information

Changes from previous version to current revision 2-09 (2018-Jun-18)	Page
New functions and compatibility new firmware versions 11..0.0 and higher	ALL

Note: Page numbers for the previous version may differ from page numbers in the current revision.

Correction of typographical errors is not explicitly mentioned.