Eval Kit User Manual

ENS Dashboard

Content Guide

1 Introduction

This document describes the ENS Dashboard software for Windows. The ENS Dashboard is developed for evaluation of environmental sensor devices. Main features of ENS Dashboard include:

- Monitoring and logging sensor measurement and information
- Sensor development kit firmware update

Currently, ENS Dashboard supports the following evaluation kits:

- CCS811-LG_EK_ST(CCS811 Evaluation kit)
- CCS801-DF_EK_ST (CCS801 Evaluation kit)
- ENS210-QF_EK_ST

To communicate with supporting environmental sensor devices on Windows, a USB-I^{2}C bridge is required. Currently ENS Dashboard supports the following USB-I^{2}C bridges:

- USB-I2C Dongle (device driver installation may be required)
- ENS-USB-I2CIO

2 Getting Started

The section describes installation steps of ENS Dashboard software for Windows.

2.1 Prerequisites

The following lists the requirements for installing and running ENS Dashboard on a Windows machine:

- Microsoft Windows 7 or above
- Microsoft .NET Framework 4.5.1 or above
- Internet connection (for installation, software update and access to the latest documentations)

Device driver installation of USB-I^{2}C bridges may be required. Please refer to CCS811 and USB-I2C Dongle user manuals for more information on supported bridges:

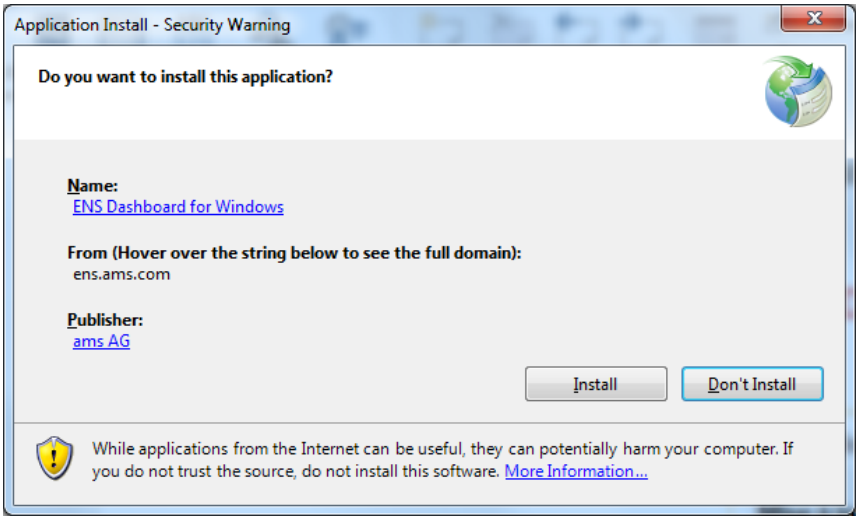
- https://download.ams.com/ENVIRONMENTAL-SENSORS/CCS811
- https://download.ams.com/ENVIRONMENTAL-SENSORS/USB-I2C-DONGLE

2.2 Installation

ENS Dashboard Windows installer program can be downloaded from https://download.ams.com/ENVIRONMENTAL-SENSORS/WINDASHBOARD.

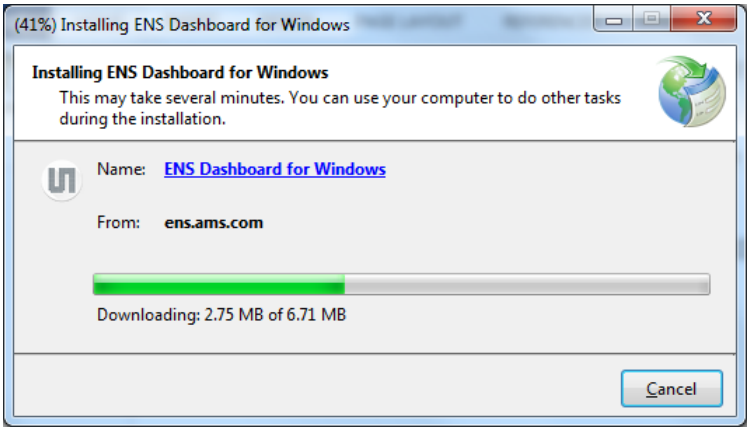
The ENS Dashboard software is deployed via a Windows web installer program. An Internet connection is required during installation. Please also check the downloaded program is digitally signed by ams AG:

Figure 1: ENS Dashboard Installer



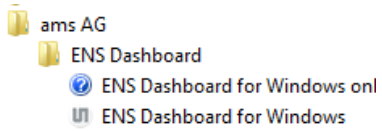
Follow the screen instructions to proceed with the ENS Dashboard installation:

Figure 2: Installing ENS Dashboard



Once installation is completed, ENS Dashboard can be accessed from Windows Start/Program menu:

Figure 3: ENS Dashboard Launcher



2.3 Software Update

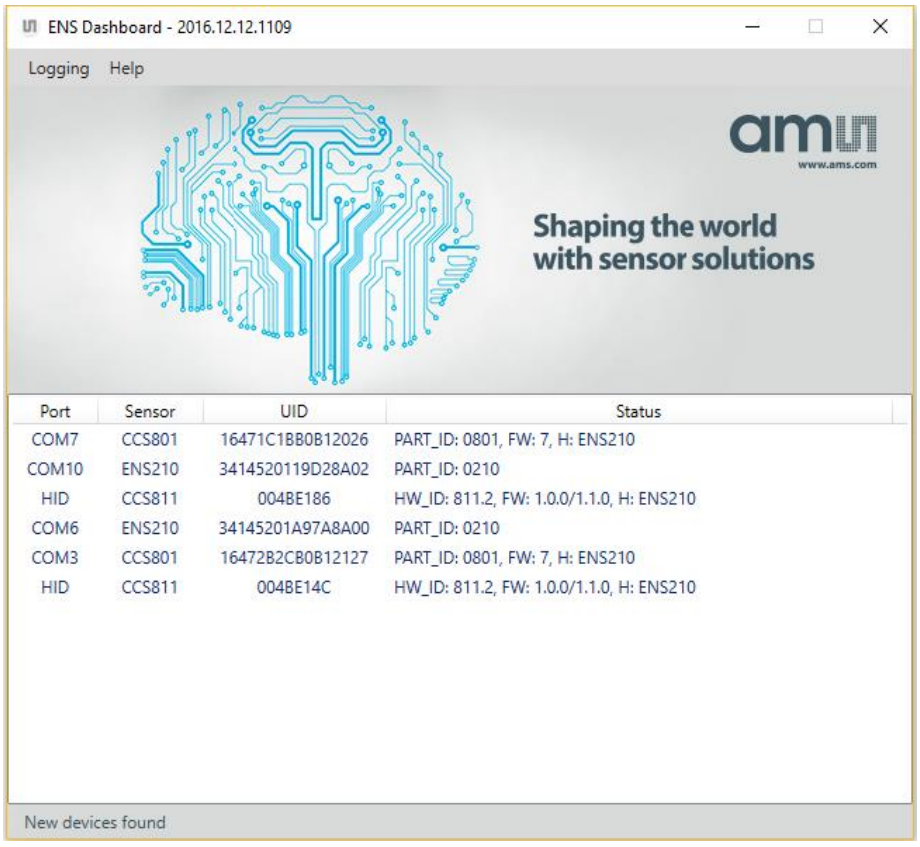
Software update is performed automatically each time when ENS Dashboard is launched. If a newer version is available, user will be promoted for software update. Also refer to section 3.1.4 for information about software update.

Note: Users will still be able to run ENS Dashboard without Internet connection. However, they will not be able to receive software update notification if not connected to internet when launching and running ENS Dashboard.

3 Launcher

The **Launcher** window is shown upon on starting ENS Dashboard. The window shows a list of all currently attached shields/bridges, their connected bridge port, sensor type, UID and status.

Figure 4: Launcher Window



Status will display auxiliary sensors (prefixed with “Extra: “) information if available on the sensor shield device, such as humidity, temperature and pressure sensor. When the sensor device is performing measurement, sensor measurement data will also be displayed in the **Status** (same message as described in section 4.4).

3.1 Menu

Serval menu options are available from the **Launcher** window:

Table 1: Launcher Menu Options

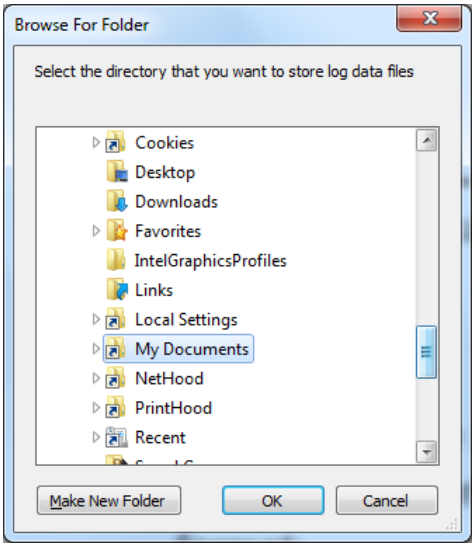
Menu	Options
Logging	**Enable Local Logging**
	View Log Data Files
	Change Log Data Location
Help	User Guide
	Check for Updates
	About ENS Dashboard

3.1.1 Enable Local Logging

By default, measurement and error logging are enabled for all attached devices. Users can use **Enable Local Logging** option to enable/disable local data logging.

The default local logging location can be changed by selecting **Change Log Data Location** option from the menu. User will be promoted to select a new location:

Figure 5: Log file location



Please note that changing local log data location, or enabling/disabling local logging, will have not have effects on existing running devices. Existing opened device **Dashboard** windows will continue to run using previous local logging setup until the device **Dashboard** window is closed and reopened.

By default, log data are stored in *#EnsDashboard* folder locally under user's profile *Documents* directory, typically:

C:\Users\{username}\Documents\#EnsDashboard.

Users can select **View Log Data Files** option from the menu to open log data folder in file explorer.

Local log data filenames are prefixed with sensor type and UID. In general, measurement log data filename has the following format:

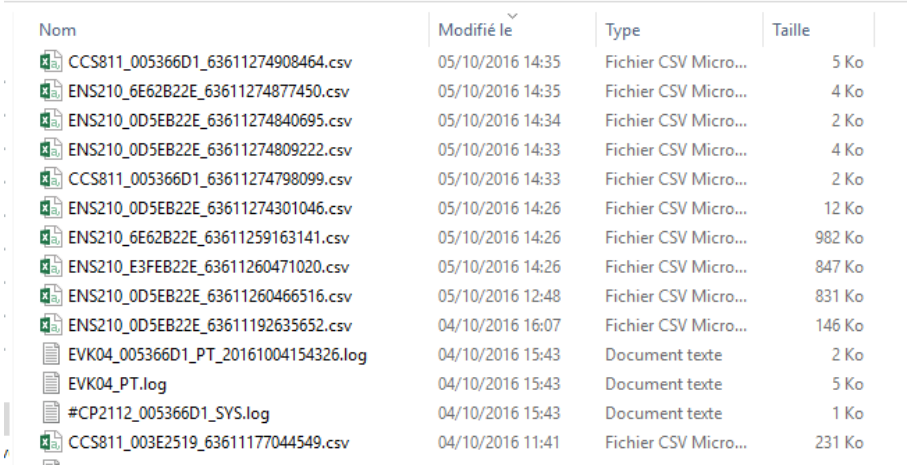
{sensor/device}_{UID}_{timestamp}.csv

System and error data are stored in a file separated from measurement log data file, which has the following filename convention:

#{sensor/device}_{UID}_SYS.log

The following screenshot shows an example of files in log data directory:

Figure 6: Log file Directory



Please refer to "Log File Format" document for information on log file content format.

3.1.2 View Log Files

Selecting this option will open current log data file folder where log data files are stored. Please refer to *ENS Dashboard Log File Data* document for more information on log file data.

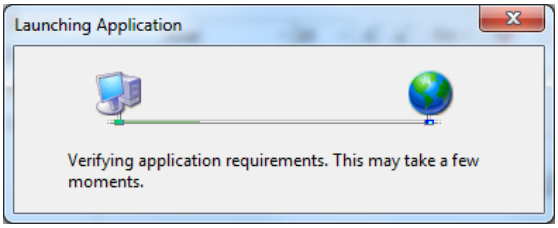
3.1.3 User Guide

User can download the latest ENS Dashboard user manual by selecting this option.

3.1.4 Check for Updates

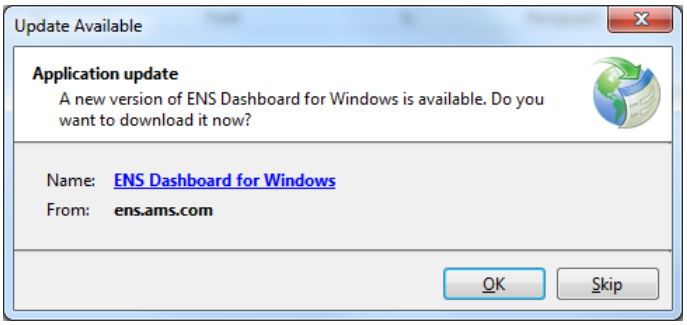
Software update is performed automatically each time when ENS Dashboard is launched:

Figure 7: Check for Updates



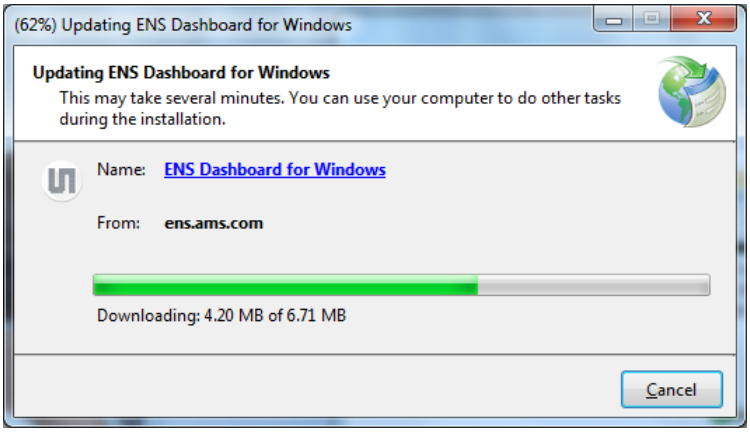
User may also check for software update explicitly by selecting **Check for Updates** from the **Launcher** window menu. If an update is available, user will be promoted for update installation:

Figure 8: Update Available



Follow the screen instructions to proceed update installation:

Figure 9: Updating ENS Dashboard

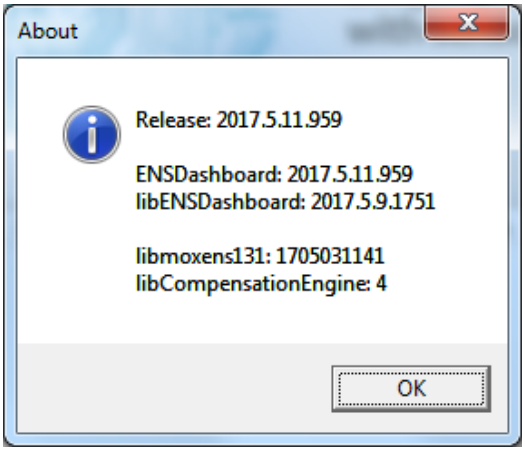


ENS Dashboard will be restarted automatically when the update installation is completed.

3.1.5 About ENS Dashboard

About ENS Dashboard dialog displays ENS Dashboard software version information:

Figure 10: About ENS Dashboard Dialog



Information in this dialog should be noted when reporting any issue.

3.2 Device Options

Various device options are available via right-click context menu. Availability of device actions are device dependent:

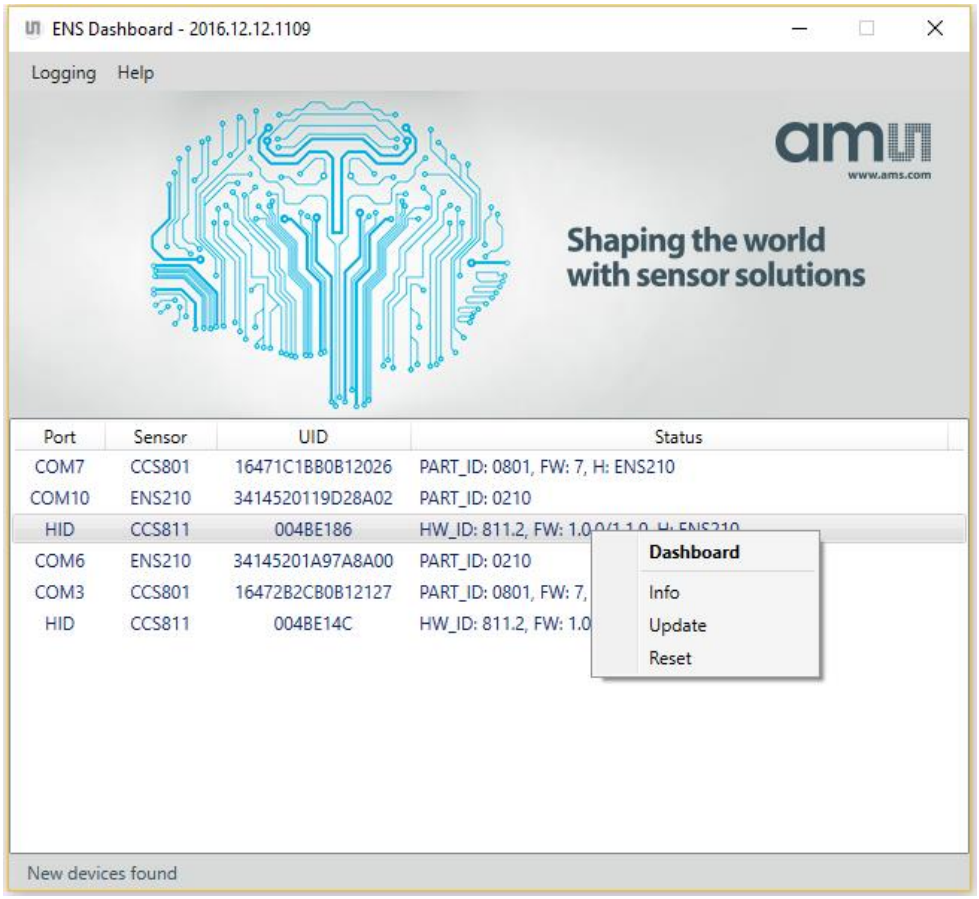
Table 2: Device Menu Options

Option	Description	Supporting Devices
Dashboard*	Main measurement window	ALL
Info	Device version and information	ALL
Update	Device firmware update	CCS811 CCS801
Reset	Device software reset	ALL

* Note: Default option, which is highlighted in bold, can also be accessed by double-click on selected device.

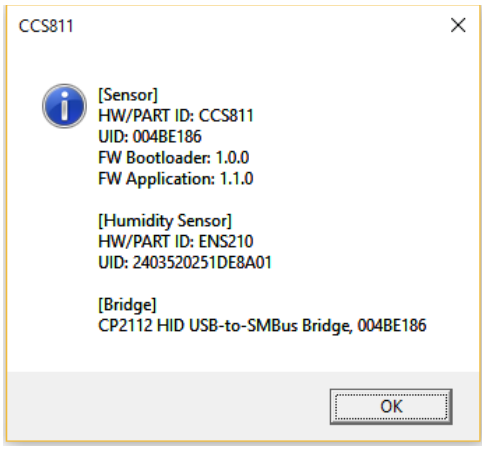
For example, the following shows options available for ENS210 sensor device:

Figure 11: Context Menu



Info option shows device information such as attached bridge and sensor shield device information:

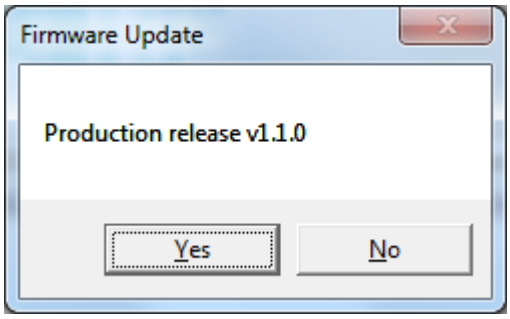
Figure 12: Device Info



3.2.1 Device Firmware Update

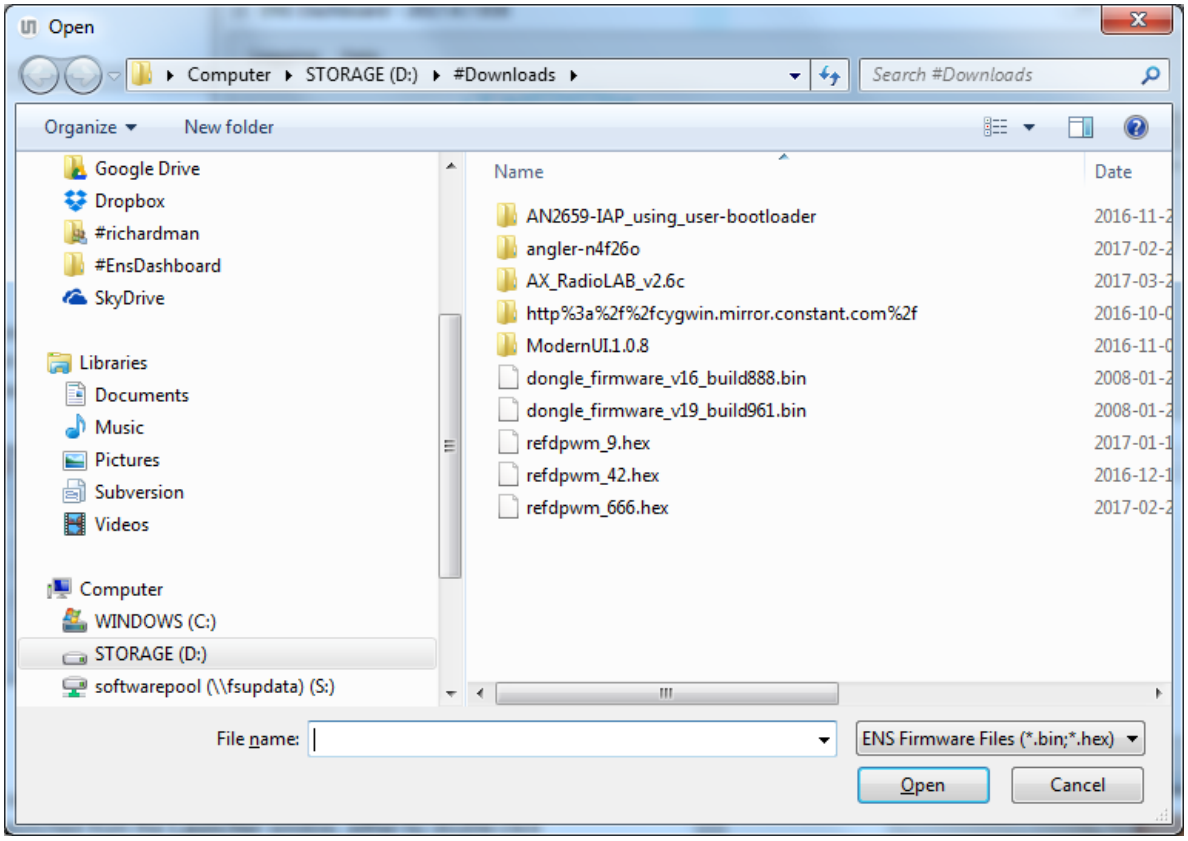
If the attached device supports device firmware update, when the device **Update** option is selected, the **Dashboard** will first try to query and see if there is a newer firmware release available from ams server. If so, user will be prompted a firmware update dialog similar to the following:

Figure 13: Firmware Release from ams Server



If attached device is already loaded with the latest firmware release, or no firmware is available from ams server, or user decided to load a different firmware release, the following dialog will be promoted instead, and user may select firmware image from local disk:

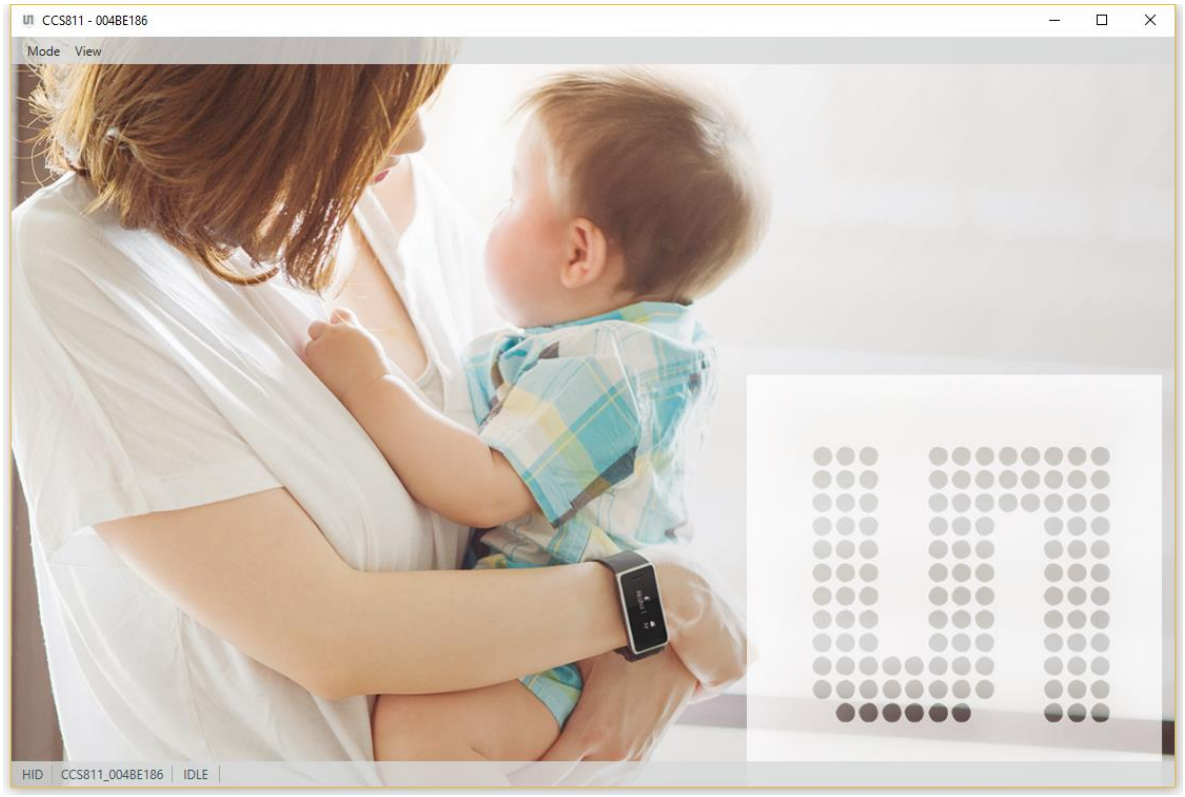
Figure 14: Firmware Image from Local Disk



4 Dashboard

The **Dashboard** window displays sensor information and measurement data of an attached sensor device. The **Dashboard** window can be launched from the **Launcher** window, either by double-click on a selected device, or by selection “Dashboard” from the right-click option menu. By default, all devices will be running in idle mode.

Figure 15: Dashboard Window



The **Dashboard** displays sensor device information and measurement data as described in following sections.

4.1 Status Information

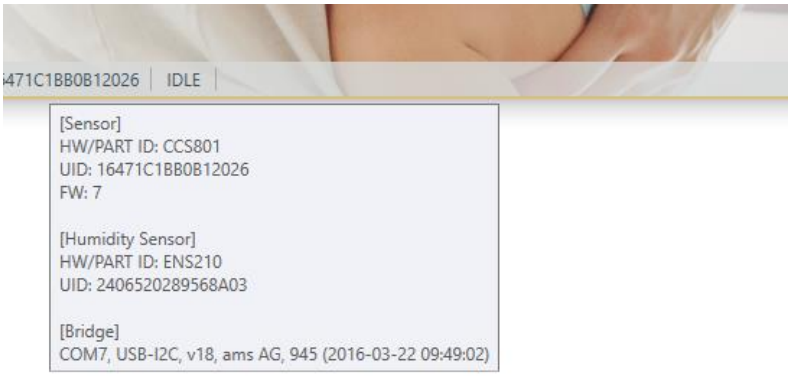
The measurement window provides the following status information at the bottom of **Dashboard** window:

- Bridge Communication Port
- Sensor Type and UID
- Measurement Mode
- Status

4.1.1 Sensor Type and UID

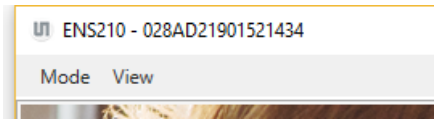
Sensor Type and UID status shows the sensor type and UID of current attached sensor device to the measurement window. Detail information of the sensor device is displayed when user hover on the status area:

Figure 16: Sensor Type and UID



Sensor type and sensor/bridge device UID information are also displayed in the **Dashboard** window's title:

Figure 17: UID



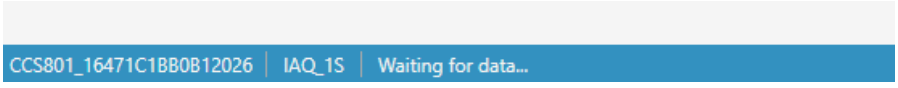
4.1.2 Measurement Mode

Measurement Mode status shows current running measurement mode. For more information about measurement modes, please refer to section 4.2.1.

4.1.3 Status Message

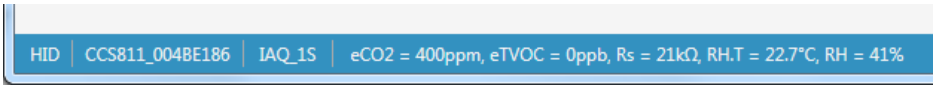
Status displays various device message and status, such as measurement data and error message, etc. For example, the following status message is displayed when CCS811 device enters IAQ 1S measurement mode:

Figure 18: Status Message



The following message is displayed when the CCS811 sensor device is running IAQ 1S measurement mode. Measurement data are displayed:

Figure 19: Status Message with Active Device



Please refer to section 4.4 for information about measurement data display in status.

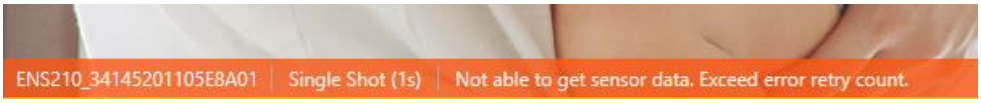
Status area is colour coded based on the device and measurement state:

Table 3: Device Menu Options

Colour	Measurement/Device State
Grey	Device is idle, not running measurement
Blue	Device is running in one of supported measurement mode
Amber	Device error, or measurement data invalid.

Examples of colour coded status messages when indicates error:

Figure 20: Amber coloured error status



4.2 Menu Options

The **Dashboard** window provides several menu options to perform sensor measurement and display. From the **Dashboard** window menu, user may start or switch between supported measurement modes on attached device, and toggle various measurement display options.

4.2.1 Measurement Modes

Measurement **Modes** menu lists all supported operation modes of sensor devices. These options allow user to switch between supported measurement modes on attached sensor device. Available measurement modes are device dependent:

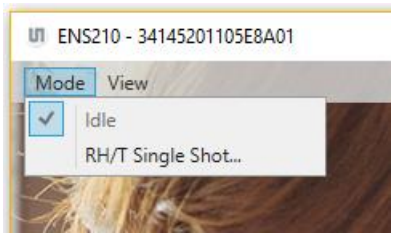
Table 4: Measurement Modes

Sensor	Modes
CCS811	IAQ 1s IAQ 10s IAQ 60s RH/T Single Shot
ENS210	RH/T Single Shot

Note: IAQ 1s/10s/60s performs resistance/eCO2/eTVOC measurement at 1 second, 10 seconds and 60 seconds interval respectively. Please refer to evaluation kit datasheets for information about measurement and drive mode each sensor kits support.

For example, measurement **Mode** options available for ENS210 are:

Figure 21: Measurement Modes



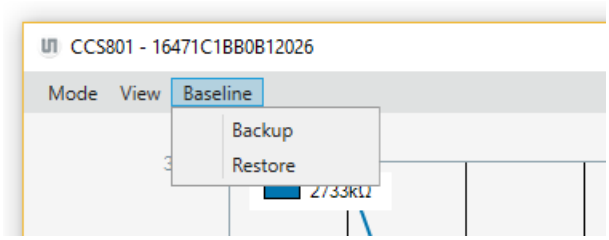
4.2.2 Device Options

Additional sensor device dependent menu options may appear depends on device attached and running measurement mode:

Table 5: Device Options

Sensor	Mode	Options	Description
CCS811 CCS801	Non-Idle	Baseline	Baseline backup and restore

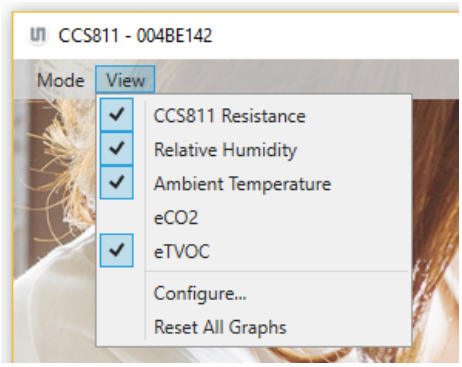
Figure 22: Sensor Device Dependent Options



4.3 View Options

View menu provide options to configure measurement graphs. User can adjust various setting of displaying measurement graph. Measurement graphs can be individually enabled or disabled, by selecting corresponding measurement graph from the **View** menu. For example, for CCS811, available measurement graphs are:

Figure 23: View Options



Availability of measurement graphs are sensor device dependent. The table below shows list of measurement graphs available for all supporting devices:

Table 6: Measurement Graphs

Menu	Graph
CCS811	CCS811 Resistance CCS811 Current* Ambient Temperature Relative Humidity eCO2* eTVOC
CCS801	CCS801 Resistance CCS801 Temperature Ambient Temperature Relative Humidity eCO2* eTVOC
ENS210	Relative Humidity Temperature

* Graphs are hidden by default.

The following table lists general view options which will apply to all displaying measurement graphs:

Table 7: View Options

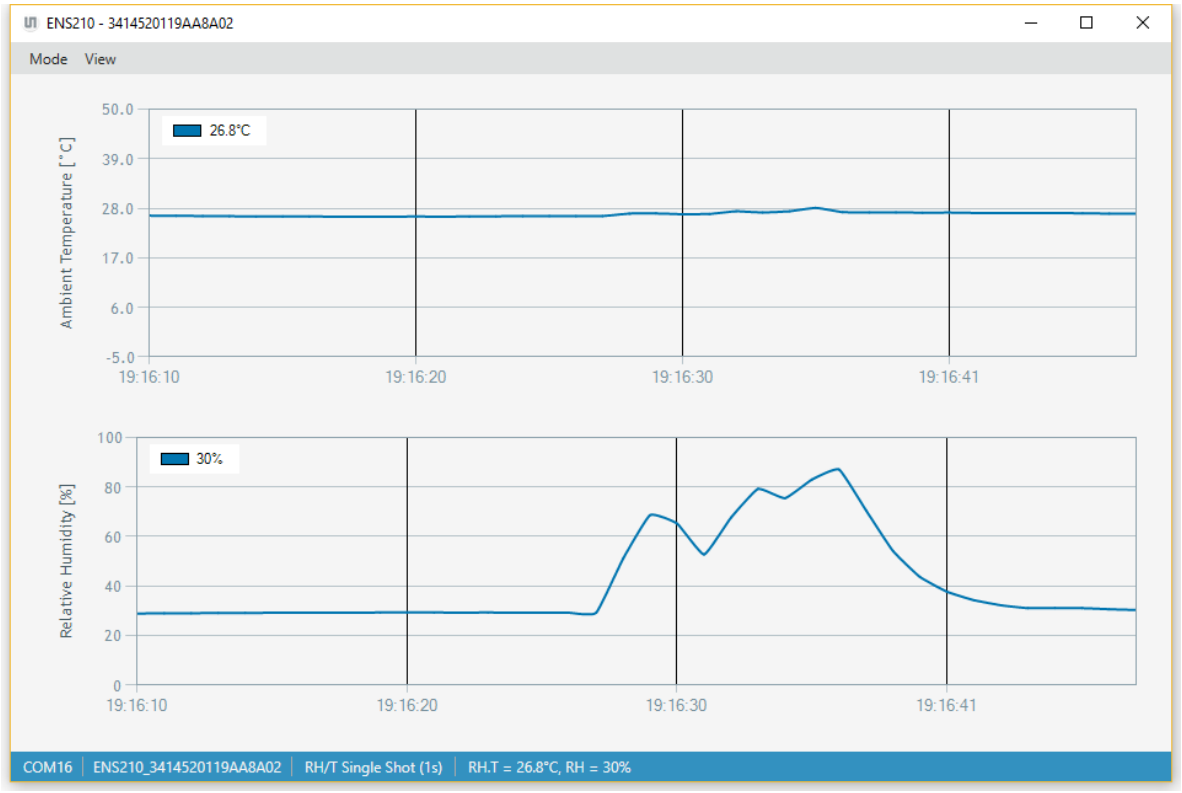
Menu	Description
Configure	Adjust maximum number of display points on all measurement graphs
Reset	Clear measurement points from all graphs

4.4 Measurement Graphs

When the device is not idle and running one of supported measurement modes, the **Dashboard** window will display all available sensor measurement graphs by default (refer to Table 6: Measurement Graphs). This provides user a graphical overview of all sensor measurement data received from the attached device.

For example, ENS210 sensor device has only humidity and temperature measurement data available. By default, graphs for both measurement data are displayed when the device is not idle:

Figure 24: Measurement Graphs



Measurement graphs can be individually enabled/disabled. However, all sensor measurement data will still be shown in the **Status**.

Displaying measurement data are sensor device dependent. In general, one or more of the following measurement data may be displayed:

- {SENSOR}.T: Ambient temperature in degree Celsius °C
- {SENSOR}.RH: relative humidity in %
- {SENSOR}.Rs: sensor resistance in ohms Ω
- eCO2: equivalent CO2 in ppm

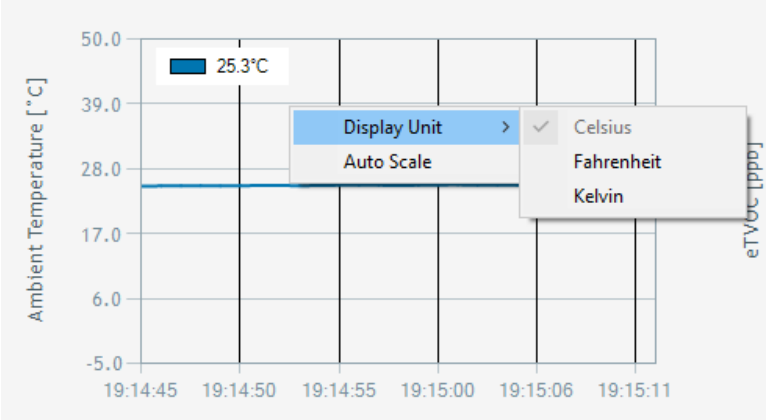
- eTVOC: total equivalent TVOC in ppb

Currently, all measurement data will be displayed in measurement units as described above.

4.4.1 Graph Options

Several graph options are available via independent context menu (right-click). For example:

Figure 25: Graph Options



Context menu available for each of measurement graph:

Table 8: Measurement Graph Options

Graph	Options
Relative Humidity	Auto Scale
Ambient Temperature	Display Unit* Auto Scale

5 Contact Information

ENS Dashboard for Windows software support and issue report:

www.ams.com/ICdirect

General enquires and ENS sensor and device kits support:

www.ams.com/contact

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7 Revision Information

Changes from previous version to current revision 1-09 (2017-Oct-30)
Version 1-09: Various updates.
Version 1-08: Various document content updates.
Version 1-07: Updated on screenshots to reflect naming changes in menu options and graphs.
Version 1-06: Removed legacy CCS EVKs support.
Version 1-05: Minor updates.
Version 1-04: Changed setup program download link.
Version 1-03: Various updates.
Version 1-02: Various updates to reflect ENS Dashboard 2016.12.20.1437 release
Version 1-01: Various updates to reflect ENS Dashboard 2016.11.10.1234 release
Initial version 1-00

Note: Page numbers for the previous version may differ from page numbers in the current revision.
Correction of typographical errors is not explicitly mentioned.