# Spectral Products

Spectrometers · Spectrophotometers · Color Instruments · Spectrographs · Monochromators

# SM32ProForUSB and SPdbUSBm.dll Release Note

## 1. Introduction

SM32ProForUSB is software that includes various functions related to driving the spectrometer, and SPdbUSBm.dll is a library that contains API functions for application development. SP is distributing it as a reference for driving and application development of its spectrometer products. For more information, you can download it together with the User Manual from the homepage.

### 1-1. Contact us

For technical inquiries related to the spectrometer and S/W, please contact the e-mail address below or call us.

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### 1-2. Homepage

Website: www.spectralproducts.com

Download: https://www.spectralproducts.com/Downloads

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## 2. Revision History

### 2-1. SM32ProForUSB

| Date | Revision | Description |
|---|---|---|
| 4/9/2015 | v2.34.10 | USB trans packet Size error fixed<br>memory leak error fixed<br>shutter malfunction fixed |
| 12/10/2015 | v2.34.11 | Added delay during the shutter operation |
| 2/15/2017 | v2.34.12 | Error solving when applying FFT |
| 8/1//2018 | v2.34.13 | Some phenomena when using the TimeLine function<br>New Language SDK added |
| 2/1//2019 | v2.34.14 | Add 64Bit DLL<br>Add API function and fix error |
| 3/19/2019 | v2.34.15 | New SM Model added<br>Color Graph UI bug fix<br>Modify export storage form |
| 6/7/2019 | v2.34.16 | New Language SDK added |
| 9/17/2019 | v2.34.17 | SM304 detector inversion code related fixes<br>C # SDK bug fix<br>Add New Language<br>Trigger Option Manual added |
| 2/18/2020 | v2.34.18 | New SM Model added<br>SM304 Base Line Correction function added<br>Fixed some UI bugs<br>Resolve errors when operating multichannel<br>Visual Studio update |
| 3/18/2020 | v2.34.19 | Bug fix related to Record |
| 4/1/2020 | v2.34.20 | Add NLC API Function Manual and SDK |
| 4/13/2020 | v2.34.21 | Fixed some UI bugs<br>Fix Dark Correction function using Optical Black Pixel |
| 5/7/2020 | v2.34.22 | NLC SDK fix<br>Technical Note added and modified |
| 6/29/2020 | v2.34.23 | EEPROM default ini file application method added<br>Add missing Hg-Ar Line information |
| 7/10/2020 | v2.34.24 | SM304 driver recognition issue fix<br>Spectral graph display error fix in Color Scope mode |
| 10/08/2020 | v2.34.25 | Error fix on operating SM304 & SM445 in multichannel mode<br>C# SDK update<br>LabView SDK update<br>Memory error fix on using Channel ID<br>SM303-1007S driver update<br>Minor issue fix on T/R % mode |
| 11/19/2020 | v2.34.26 | Some UI display bug fix |

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| | | |
|---|---|---|
| 12/7/2020 | v2.34.27 | Driver for SM245-EXT added<br>Adding WHQL certificate for SM series driver files |
| 03/31/2021 | v2.34.28 | Error fixed on Time Line dialog<br>Add a section for some extra description in the print |
| 07/07/2021 | v2.34.29 | Add upgraded SM445 drivers<br>Add SDK codes for the upgraded SM445 |
| 07/30/2021 | v2.34.30 | Error fixed in the Peak Find algorithm<br>Bug fixed on the custom calibration save |
| 08/06/2021 | v2.34.31 | Error fixed on the old SM440/SM442 model recognition |
| 08/10/2021 | v2.34.32 | Add SM304-512-EXTm drivers<br>Error fixed on the SM303 model trigger mode display |
| 09/10/2021 | v2.34.33 | Add SM304-256-EXTm drivers |
| 09/13/2021 | v2.34.34 | Add the baseline correction function for the SM304-256-EXTm series<br>Error fixed on the wavelength calibration window |
| 07/21/2022 | v2.34.35 | Add the SM642-EXTm model<br>Error fixed on the SM245 external trigger mode |
| 07/22/2022 | v2.34.36 | Bug fixed at the version update mode in x64 OS |

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## 2-1-1. v2.34.10

**DATE:** 4/9/2015

### Issue:

- Malfunction when operating the spectrometer on 64Bit operating system

- Error occurred when accessing EEPROM

- Shutter malfunction

### Fixed:

- In case of 64Bit operating system, fix USB trans packet size (SPdbUSBm.dll)

- In memory of string split in spReadEEPROM function, a memory leak is found and fixed

- Fix shutter malfunction error in firmware

### Comment :

- The USB trans packet size has been modified in DLL and firmware (system file) and cannot be used in combination with previous versions of dll and system file.

- If the previous version of the software is installed on the PC, it is recommended to install the new version after confirming that the installation folder and the existing spectrometer driver are completely removed.

## 2-1-2. v2.34.11

**DATE:** 12/10/2015

### Issue:

- Malfunction when the shutter is operated for a long time

### Fixed:

- Delay added when operating the shutter\

- Delay added for the dark measurement

### Comment :

- Operates stably for a long time by operating the shutter for a long time or by continuously adding a delay when changing the position due to a malfunction.

- Prolonged driving test

### 2-1-3. v2.34.12

**DATE:** 2/15/2017

**Issue:**

- Error in FFT calculation of SM440

**Fixed:**

- Check and fix the memory leak due to the pixel count error of SM440 when calculating FFT

### 2-1-4. v2.34.13

**DATE:** 8/1/2018

**Issue:**

- When using the Timeline function, if the Integration Time and Interval are set similarly, the program crashes.
- Add C # SDK

**Fixed:**

- Fixed by fixing code related to thread synchronization.
- Added SDK code for C # developers. A simple driving code of the spectrometer using SPdbUSBm.dll and the ability to output measurement data graphs.

### 2-1-5. v2.34.14

**DATE:** 2/1/2019

**Issue:**

- Add DLL for 64Bit Application
- Added DLL API Function Manual update
- Separate installation version for English

**Fixed:**

- DLL development environment update.

- Visual Studio 6.0-> Visual Studio2012

- Added DLL API Function Manual update

- For the English version, delete the Manual folder in the installation folder

**Comment :**

- Fixed polynomial calculation error in spGetWLTable function in SPdbUSBm.dll.

## 2-1-6. v2.34.15

**DATE:** 3/19/2019

**Issue:**

- SM445, SM303-2048 models added

- UI resizing error when changing window size in Color mode graph

- Modify the separator when saving the export data file

- Some vaccine programs (pills) detected SPdbUSBm.dll as malicious code.

**Fixed:**

- Add SM445, SM303-2048 to apply the driver file and dll to the installation file

- Calculate the graph area ratio of color mode when the window is resized to automatically adjust the size

- When saving the export data file, it is corrected by tapping the separator.

- As the DLL development environment was updated to Visual Stdio2012, it was confirmed that it is detected as a malicious code in the vaccine due to some environmental settings.

## 2-1-7. v2.34.16

**DATE:** 6/7/2019

**Issue:**

- Add Matlab SDK

**Fixed:**

- Added SDK for Matlab developers. Spectrometer basic driving code and measurement data graph output function using SPdbUSBm.dll.

## 2-1-8. v2.34.17

**DATE:** 9/17/2019

**Issue:**

- SM304 detector data upside down code inserted into DLL
- C # SDK error fix
- Add Excel VBA SDK
- Add Trigger Option Manual

**Fixed:**

- SM304 detector data Upside-down code is inserted into DLL to correct related code
- Fixed graph UI component related error in C # SDK
- The internal driving timings of the internal and external triggers of SM Series models are summarized and produced manually.

## 2-1-9. v2.34.18

**DATE:** 2/18/2020

**Issue:**

- SM303-1007S model added
- Add SM304 Base Line Correction function
- Dark Scan Dlg's subtraction UI bug
- When SM304 and SM642 are driven by Multichannel, a pause occurs
- Development environment update

**Fixed:**

- Add SM303-1007S and apply the driver file and dll to the installation file
- In the case of SM304, the Base Line Correction option can be set when measuring Dark.

- Fixed the problem that the subtraction option button of the Dark Scan Dlg disappears when the Integration Time setting value is changed.

- Fixed a memory error that occurred when driving SM304 and SM642 Multichannel

- Development environment update.

- Visual Studio 6.0 > Visual Studio2012

**Comment :**

- Baseline correction is added to remove the pattern noise caused by the CCD characteristics of SM304 and make it appear flat.

- When the Baseline Correction option is activated, after dark measurement, apply Base Line intensity 7000 and gain 1.5

## 2-1-10. v2.34.19

**DATE:** 3/18/2020

**Issue:**

- When recording the program, a certain unexpected phenomenon occurs

**Fixed:**

- Infinite wait due to bottleneck related to synchronization of Record Thread

- Fix data pending code and lock function when operating UI during recording

## 2-1-11. v2.34.20

**DATE:** 4/1/2020

**Issue:**

- Nonlinearity Correction function-related content added

**Fixed:**

- Nonlinearity Correction SDK (VC ++) and Function Manual added

## 2-1-12. v2.34.21

**DATE:** 4/13/2020

**Issue:**

- Program freeze when using File Open Dialog

- Modification of Optical Black Pixel selection method

**Fixed:**

- Changed File Open Dialog call class

- Changed and added the Optical Black Pixel selection method

**Comment :**

- For the existing Optical Black Pixel, Dark Correction was performed by selecting several of the Dummy Pixels of the CCD, but only one of the Dummy Pixels was selected after the change.

- When creating a spectrometer, a function that can be used as an optical black pixel by adding light to a few pixels among effective pixels in addition to a dummy pixel has been added.

- The above function can be used as a spAutoDark function. For more information, refer to the Function Manual.

## 2-1-13. v2.34.22

**DATE:** 5/7/2020

**Issue:**

- Nonlinearity Correction SDK code modification
- Technical Note added and modified

**Fixed:**

- NLC SDK comment and message English work

- Technical Note: TE Cooling added

- Technical Note: Auto Dark Correction

SP SPECTRAL PRODUCTS

## 2-1-14. v2.34.23

**DATE:** 6/29/2020

**Issue:**

- EEPROM default ini file application method added

- Hg-Ar Line information added

**Fixed:**

- If EEPROM is not supported or the model is empty, the confirmation message that occurs and the CCD type selection Dlg are omitted and 'serial.ini' can be applied immediately.

- Add Hg-Ar Line information to'SM32ProX.ini' file

**Comment :**

- Added'EconUnit' keyword to the'SM32ProX.ini' file. Corrected how to apply the 'serial.ini' file according to the 'EconUnit' setting value.

- If 'EconUnit=1', confirmation message and CCD type selection Dlg are omitted.

- If 'EconUnit=0' or there is no item, apply through confirmation message and CCD Type selection dlg as it is in the existing method

## 2-1-15. v2.34.24

**DATE:** 7/10/2020

**Issue:**

- SM304 driver recognition issue on Windows 10

- Spectral Graph Display error in Color scope mode

**Fixed:**

- Due to the digital code sign issue on Windows 10, SM304 driver installation sometimes caused some recognition issues and it was solved by applying EV code signing

- The data on the spectral graph in the Color scope mode was displayed wrong and it was solved.

## 2-1-16. v2.34.25

**DATE:** 10/08/2020

**Issue:**

- Error on operating SM304 and SM445 at the same time in the multi-channel configuration

- C# SDK update

- LabView SDK update

- SM303-1007S driver update

- Minor issue on T/R % mode

**Fixed:**

- Fixed the multi-channel configuration issue of the SM445 when operating with SM304, by changing the default setup parameters

- Update for the C# SDK functions

- Update for the LabView SDK with adding some more vi files

- Fixed the memory error when using an assigned channel ID that was damaged

- Update the SM303-1007S driver for Windows x86

- Fixed the issue that Ref./Dark scans at the T/R % mode caused the data displayed to disappear

## 2-1-17. v2.34.26

**DATE:** 11/19/2020

**Issue:**

- Graphic Control toolbar button sizes get collapsed/changed when some OS display setting was changed

**Fixed:**

- Graphic Control toolbar button size is properly adjusted per Windows display layout scale.

### 2-1-17. v2.34.27

**DATE:** 12/7/2020

**Issue:**

- Driver files for SM245-EXT were not included in

- WHQL certification for SM series drivers was missing

**Fixed:**

- SDK & system driver files for SM245-EXT were added.

- Applying WHQL digital certificate from Microsoft on all the driver files for SM series

### 2-1-18. v2.34.28

**DATE:** 3/31/2021

**Issue:**

- Error when clicking the browse button on the Time Line dialog

- Need for adding more description in the print

**Fixed:**

- Fixed the error on the Time Line dialog.

- Adding a new section to put more description in the print.

### 2-1-19. v2.34.29

**DATE:** 7/7/2021

**Issue:**

- The SM445 was upgraded

**Fixed:**

- Adding new driver files for the upgraded SM445.

- Adding new SDK codes for the upgraded SM445.

## 2-1-20. v2.34.30

**DATE:** 07/21/2021

**Issue:**

- Error in the Peak Find algorithm

- Error in saving the custom calibration data

**Fixed:**

- The +/-1 pixel offset in the finding peak was fixed.

- The data overlapping error when saving a new custom calibration data into the ini file.

## 2-1-20. v2.34.31

**DATE:** 08/06/2021

**Issue:**

- Error when running the software with old SM440/SM442 series

**Fixed:**

- The error in the initial board recognition process for the old SM440/SM442 series was fixed.

## 2-1-20. v2.34.32

**DATE:** 08/10/2021

**Issue:**

- Adding new SM304-512-EXTm drivers

- Error on SM303 trigger mode display

**Fixed:**

- The driver files and SDK examples for the SM304-512-EXTm model were added.

- The error in the trigger mode display for the SM303 was fixed.

## 2-1-20. v2.34.33

**DATE:** 09/10/2021

**Issue:**

- Adding new SM304-256-EXTm drivers

**Fixed:**

- The driver files and SDK examples for the SM304-256-EXTm model were added.

## 2-1-20. v2.34.34

**DATE:** 09/13/2021

**Issue:**

- Missing baseline correction function for the new SM304-256-EXTm series
- Some bugs in the wavelength calibration window

**Fixed:**

- The baseline correction function was added for the new SM304-256-EXTm model.
- The error on the wavelength calibration window was fixed.

## 2-1-20. v2.34.35

**DATE:** 07/21/2022

**Issue:**

- Add SM642-EXTm model
- Fix the error in the SM245 external triggering

**Fixed:**

- The new driver file for the SM642-EXTm was included and the related new SDK was added.

- The driver file for the SM245 was fixed.

## 2-1-20. v2.34.36

**DATE:** 07/22/2022

**Issue:**

- The driver files were saved in the wrong system folder when updating the older version in x64 OS.

**Fixed:**

- Fixed the driver file location issue when updating the older version in x64 OS.

### 2-2. SPdbUSBm.dll

| Date | Revision | Description |
|------|----------|-------------|
| 4/9/2015 | v2.34.1.0 | Fixed Shutter operation error<br>Fixed spReadEEPROM function memory error<br>Visual Studio update<br>New API Function added<br>spGetWLTable function error fix<br>Fixed a phenomenon that some vaccine programs detect as malicious code<br>SM304 data upside down code added |
| 2/18/2020 | v2.34.2.1 | SM304 Base Line Correction function added |
| 4/1/2020 | v2.34.2.2 | Add Nonlinearity Correction Function |

### 2-2-1. v2.34.1.0

**DATE:** 4/9/2015

**Issue:**

- Shutter operation error

- spReadEEPROM function memory error

- Development environment update

- New API Function added

- spGetWLTable function error fix

- Phenomenon detected as malicious code in some vaccine programs

- SM304 data upside down code added

**Fixed:**

- Adds delay after changing the position due to a malfunction when the shutter is operated for a long time or when it is driven continuously rapidly.

- Fixed memory error when splitting a string in the spReadEEPROM function

- Development environment update and 64-bit build environment added

- Visual Studio 6.0 > Visual Studio2012

- Fix order count error when calculating polynomial in spGetWLTable function

- It is corrected by checking that it is detected as malicious code in the anti-virus program due to some setting values during the Visual Studio update process.

- SM304 data upside down code added to spReadDataEx function

**New Function :**

- spGetDevIsNew

- spSetIntMod

- spSetExtEdgeMode

- spDevInfo

- spGetModel

- spGetWLTable

- spInsShutter

## 2-2-2. v2.34.2.1

**DATE:** 2/18/2020

**Issue:**

- SM304 Base Line Correction function added

**Fixed:**

- New function added for SM304 Base Line Correction function

- The Base Line Correction function adjusts the baseline to intensity 7000 using the measured data at the time of application and applies gain x1.5.

- Base Line Correction applied when spSetTrgEx, spSetDblIntEx, spSetIntEx function is called is automatically cleared.

**New Function :**

- spBaseLineCorrection

- spBaseLineCorrectionClear

## 2-2-3. v2.34.2.2

**DATE:** 4/1/2020

**Issue:**

- Add Nonlinearity Correction Function

**Fixed:**

- New function added for nonlinearity correction function

- Ability to read and correct Nonlinearity Coefficient values stored in EEPROM

**New Function :**

- spReadDark

- spReadNLCDataEx