PhotoGetData

User Manual (Version 1.04)

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1   Introduction

PhotoGetData is a utility to manage the Photometer CE318T. It is used to retrieve raw data, configure and update the Photometer CE318T.

The data could be retrieved manually or automatically.

PhotoGetData could read a K8 file and display its content in the list view. A K8 file contains one or more records created by the Photometer.

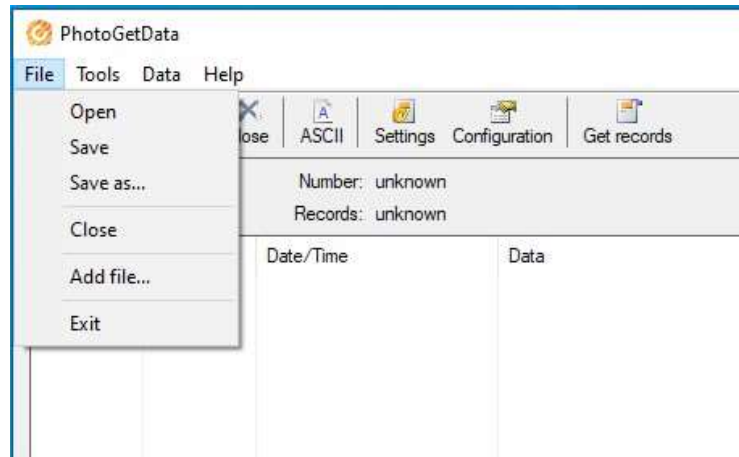The list view displays the last retrieved data or the last opened file(s).

PhotoGetData could generate ASCII files directly from raw data for treatments (AOD computation, triplet variation…).

1.1.   *Main screen*
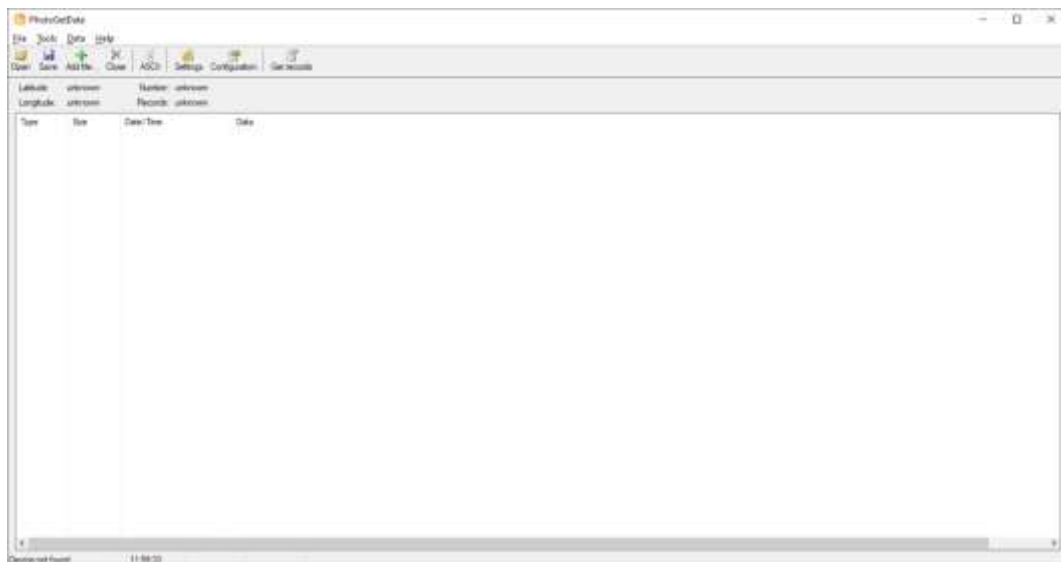
1.2. *Menu description*

1.2.1. File menu

1.2.1.1. File\Open

Open one or multiple K8 files. If multiple files are selected, they will be merged together in a one new K8 file. Previous displayed list will be erased.

Be careful to not merge data from different instrument when using the multiple file selection.

1.2.1.2. File\Save

Save the current displayed list into one K8 file.

1.2.1.3. File\Save as…

Save the current displayed list into one K8 file with a chosen file name.

1.2.1.4. File\Close

Close the current displayed list.

1.2.1.5. File\Add file…

Append a K8 file to current displayed file. The new file will be merged to the current output file.

Be careful to not merge data from different instrument when using the multiple file selection.

1.2.1.6. File\Exit

Quit the application.

1.2.2. Tools menu
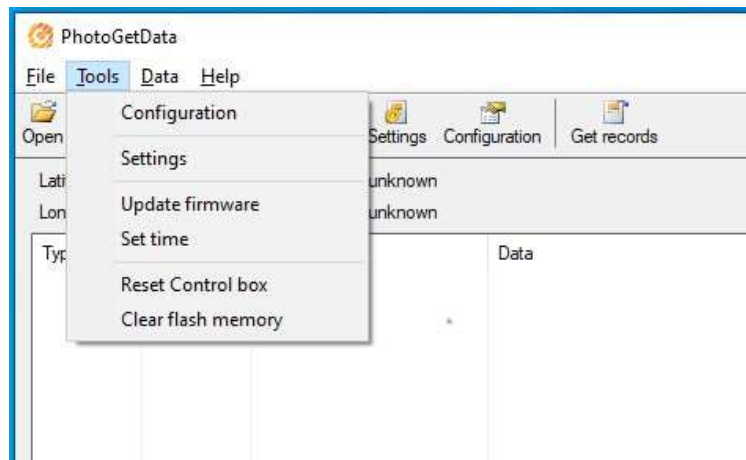
1.2.2.1. Tools\Configuration

Open the configuration dialog. This dialog is used to configure PhotoGetData. See the chapter 2 for more information.

1.2.2.2. Tools\Settings

Open the settings dialog. This dialog is used to read the settings used by the Photometer for the current opened K8 file.
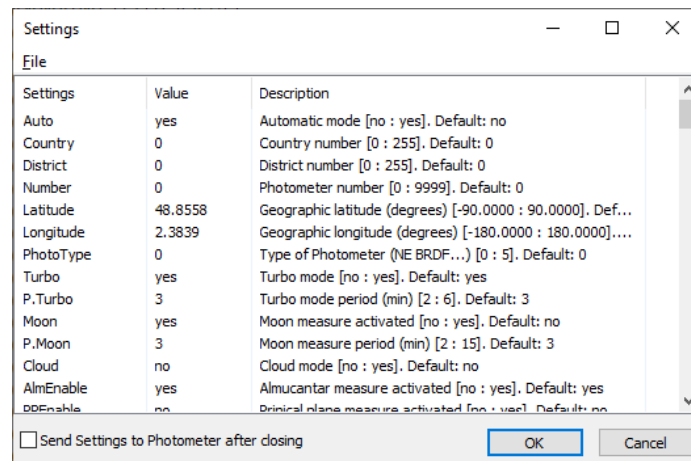
It is also used to modify the current setting of the Photometer.

1.2.2.3. Tools\Update firmware

This menu is used to update the Photometer firmware.
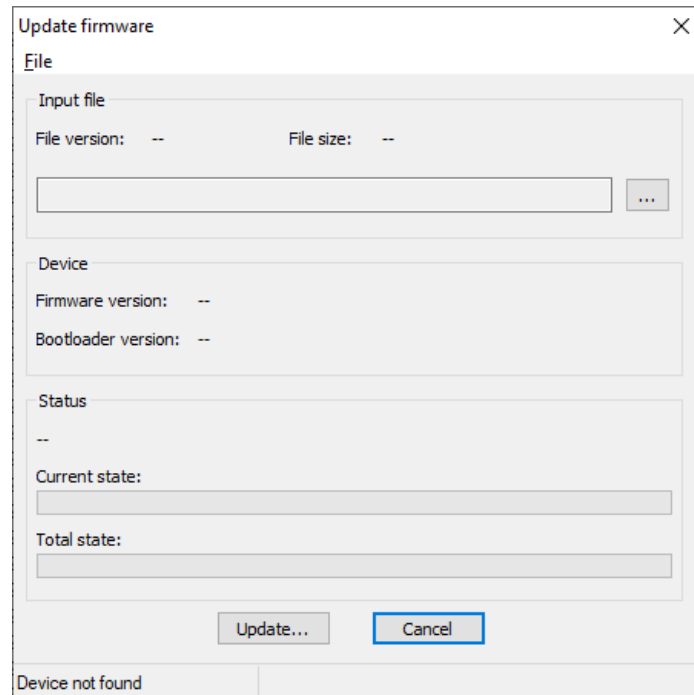
1.2.2.4. Tools\Set time

This menu is used to read and set the time of the Photometer.
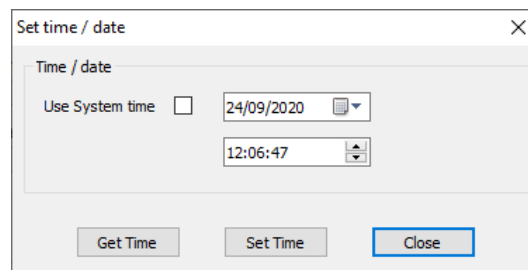
1.2.2.5. Tools\Reset box

This menu requests a software reset on the Photometer.

1.2.2.6. Tools\Clear flash memory

This menu erases the contents of the internal onboard flash memory.

The removable onboard SD card is not affected by this command.

1.3. *Data menu*

1.3.1. Data\Get records

This menu requests the data from the Photometer.

1.3.2. Data\Remove duplicated…

This menu removes the duplicated data in a K8 file.

1.3.3. Data\Order\Ascending and Data\Order\Descending

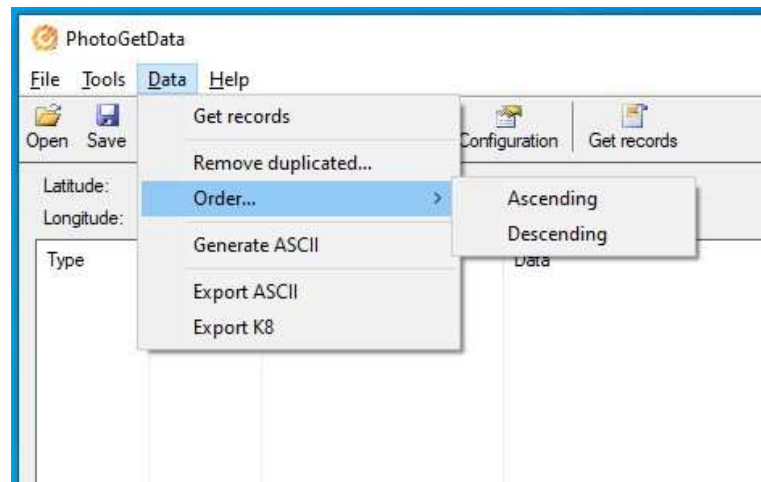This menu changes the organization of the records in the K8 depending on the date. If the ascending choice is chosen, the records are presented with the oldest record up. The descending menu presents the data in the other direction, most recent up.

1.3.4. Data\Generate ASCII

This menu decodes the K8 binary-coded data to human ASCII readable files.

1.3.5. Data\Export ASCII

This menu decodes the K8 binary-coded data to human ASCII readable files and separate the generated files depending the configuration "Files period".

Refer to the chapter 2.2.3 for more information.

1.3.6. Data\Export K8

This menu splits the K8 file into multiple K8 files depending the configuration "Files period".

Refer to the chapter 2.2.3 for more information.

2   PhotoGetData configuration

The configuration dialog is accessible through the menu "Tools\Configuration" or directly by the "Configuration" button in the toolbar.

2.1.   *General tab*
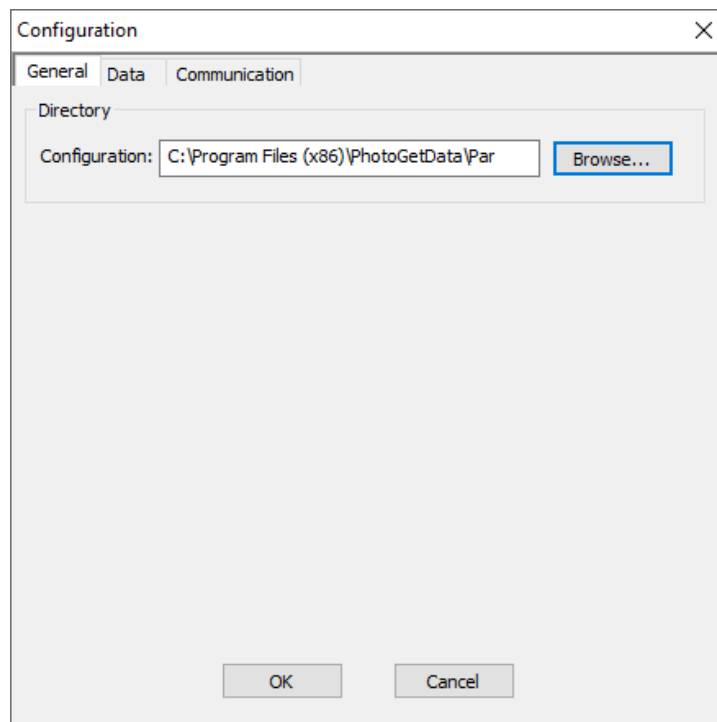
2.1.1. Directory

The configuration directory field is the tools path of the dictionaries used by PhotoGetData to decode the K8 file.

2.2. *Data tab*

2.2.1. Files directory

Set the files directory field to the desired output directory for all K8 files.

2.2.2. Automatic retrieval

PhotoGetData can retrieve data stored in the Photometer automatically and periodically.

- "Enable": when checked, PhotoGetData retrieves record from the Photometer automatically.
- "Create K8": When checked, all received records are stored in K8 files on the PC.

- "Create ASCII": When checked, all received records are also stored in ASCII files on the PC.
- "Start time" / "Period": These settings define the period of record acquisition. For example, with Start time equal to "00:30:00" and Period equal to "1 Hour", the acquisition times will be: "00:30:00", "01:30:00", "02:30:00" …

2.2.3. Files name

All exported files are composed by a base name and a record period represented by a date. The date is used to separate data.

2.2.3.1. Files period

K8 and ASCII files could be divided when exported. The period of these created files is user selectable.

- None:
  - PREFIX.* (.K8, .STA…).
- Annual:
  - PREFIX_YYYY.* (.K8, .STA…).
- Monthly:
  - PREFIX_YYYYMM.* (.K8, .STA…).
- Daily:
  - PREFIX_YYYYMMDD.* (.K8, .STA…).
- Retrieval date:
  - PREFIX_YYYYMMDDhhmmss.* (.K8, .STA…).

- Where:

- PREFIX: dependent of the base name settings (see 2.2.3.2)
- YYYYMMDDhhmmss
  - YYYY: Year
  - MM: Month
  - DD: Day
  - hh: Hour
  - mm: Minute
  - ss: Second

The name of each created files depends of the record date and of the recording period except for "Retrieval date". In this case, the name of each created files is based on the PC date.

2.2.3.2. Base name

The base name of all files could have a prefix that is dependent of the "Prefix" edit field. There are two specifics keywords that add Photometer information in the base name:

- %VERS% is translated to: 81TTVVNN where
  - 81: Photometer family.
  - TT: Photometer subfamily.
  - VV: Software major version.
  - NN: Software minor version.
- %HEAD% is translated to: nnnn
  - nnnn: Optical head number.

2.3. Communication tab

2.3.1. Link

2.3.1.1. USB connection
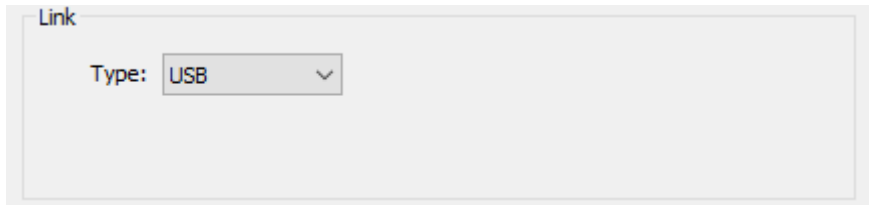
Choose "Tools\Configuration\Communications" and select "USB" in communication Type combo box.

Plug-in the Photometer to the PC through an USB cable and wait for Windows to begin its driver installation process.

If the USB driver is unknown for Windows, please follow the chapter "2.3.1.1.1 USB driver installation". After, follow the next instructions.

Wait until the end of the driver loading. The Sun Photometer's SD card is seen as a mass storage and must be present in "My computer".

Note:

Only one instance of the driver can be loaded at a time.

When the Photometer is connected to a PC through USB, a (U) suffix is added on its display at the end of the time at the root menu.

Warning:

The USB communication should only be used for punctual control. It must not be used as a permanent link. If the Photometer is always plugged to a computer through an USB cable, it can't execute the daily backup of its internal memory on the SD card.

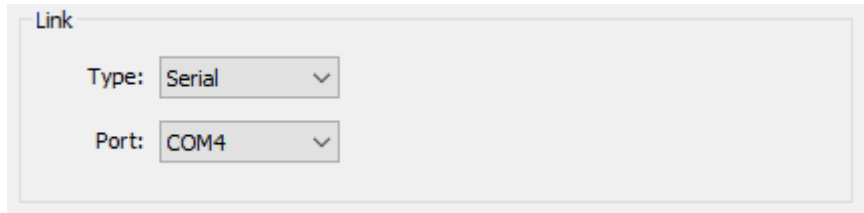*Measurement quality may be degraded when USB cables is plugged.*

2.3.1.1.1. USB driver installation

The driver installation is automatic on a Windows computer with Windows 8 or above.

For Windows 7 and previous version, download and install the "CE318-T USB Driver – Setup" driver.

This driver setup is available here: https://www.cimel.fr/downloads/
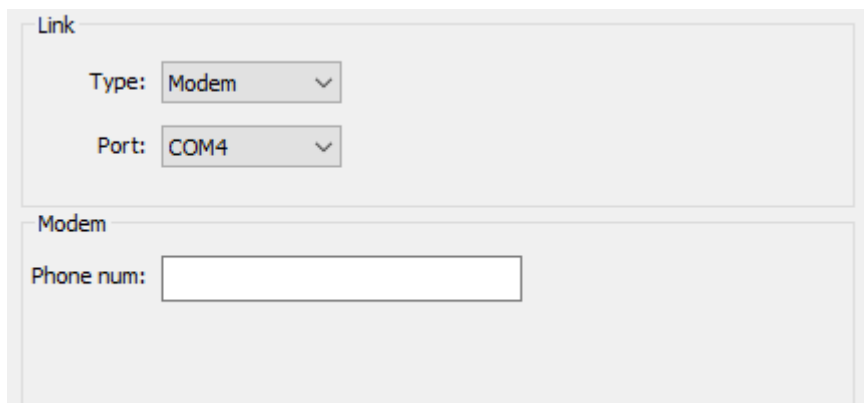
2.3.1.2. Serial connection

Choose "Tools\Configuration\Communications" and select "Serial" in communication Type combo box.

Select the right serial port where the Photometer is connected in the list of available serial ports.

2.3.1.3. Modem connection

This communication is only available for photometers with only 2G/3G active hardware.
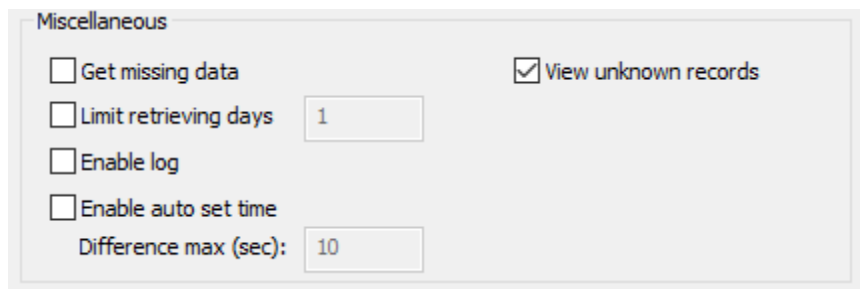
Choose "Tools\Configuration\Communications" and select "Modem" in communication Type combo box.

Select the right serial port where the modem is connected in the list of available serial ports.

Enter the phone number of the SIM card inserted in the Photometer in the "Phone num" field.

2.3.2. Miscellaneous

2.3.2.1. Get missing data

When this check box is checked, PhotoGetData will retrieve only missing data. It starts from the most recent record stored in the photometer and get previous record until the received record has already been received.

If this check box is unchecked, PhotoGetData will retrieve all data from the Photometer. It will stop after the oldest record is received or after a number of days specified in "Limit retrieving days".

Note: In serial communication and if the Photometer internal onboard memory is full (up to 100 days of measurement), PhotoGetData can take up to 3H00 to retrieve all data.

2.3.2.2. Limit retrieving days

When this check box is checked, PhotoGetData will retrieve maximum a number of days specified in the near edit field. The maximum number of days is subtracted to the date of the most recent record in the photometer.

The maximum number of days is 30.

2.3.2.3. Enable log

When this check box is checked, a log file "PhotoGetData.log" stored in same folder than PhotoGetData stores information about the program execution, communication, data…

2.3.2.4. Enable auto set time

When this check box is checked, the PC checks and corrects the Photometer time if this one is different.

The "Difference Max (sec)" field indicates the maximum difference acceptable without correction.

2.3.2.5. View unknown records

All records are decoded thanks to a dictionary. If the dictionary is not up to date with the current firmware version of the Photometer, PhotoGetData is not able to decode the unknown records.

When this check box is checked, these un-decoded records are displayed in hexadecimal in the list view.

Type	Size	Date/Time	Data
---	137	08/04/2020 15:05:26	Unknown: "0B89805AF1105108CD200100E2190000AC170000FC1500008A130000C9110000A53A0200BB1402(
STA	17	08/04/2020 15:06:07	08/04/2020,15:06:07,A,13.9,30.9,17.0,1012.4
NSU	136	08/04/2020 15:06:17	08/04/2020,15:06:17,412151,885997,553495,582428,227681,361127,340224,158545,17566,22,411209,885849,
CCS	144	08/04/2020 15:07:37	08/04/2020,15:07:37,9385,8574,7891,7283,6753,6296,5896,5561,5267,5003,4767,4540,4334,4156,4021,4751,1

To decode the unknown records, keep PhotoGetData up-to-date with the "Cimel Update – Setup" software.

This software is available here: https://www.cimel.fr/downloads/

3   Data retrieval

When new scenarios are retrieved from a Photometer, they are appended to the current displayed list.

3.1.   *Manually retrieval*

Choose the right communication link in the "Tools\Configuration\Communication" (See chapter 2.3.1).

Press the "Data\Get Records\ menu" or "Get records" button from the toolbar. The PhotoGetData software requests records from the Photometer.

If success, all received scenarios are showed in the list view. In the other case, no scenarios are appended. A new "Get records" command should be used to retrieve data.

3.2.   *Automatically retrieval*

To retrieve data automatically:

- Select "Enable", choose the output directory, the start time and the periodicity. Select "Create K8" and / or "Create ASCII" to generate automatically the K8 and ASCII files respectively.

- Select the Files period

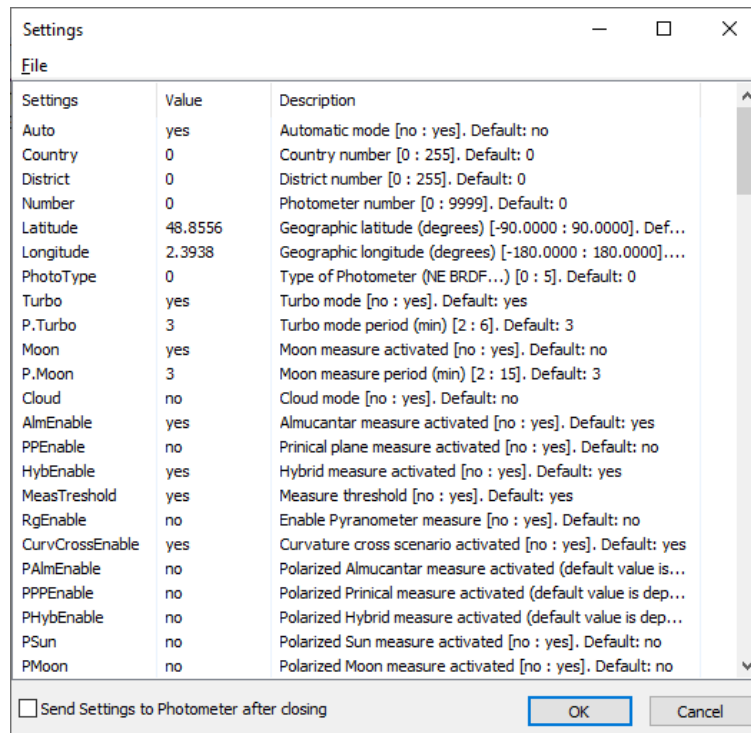- Set the base name of the produced files.

Note: If the "directory" field is empty, the output files are stored in the same folder than PhotoGetData program.

4   Configure Photometer

PhotoGetData is able to configure the settings of the Photometer.

Refer to the CE318-T user manual to know the purpose of each setting.

4.1.   *Settings modification*

- Connect the PC to the Photometer.

- Read some data from the Photometer. It is not necessary to download all the memory data. The current Photometer configuration is included with the data.

- Press the menu Tools\Settings or press the button "Settings" from the toolbar to open the Settings dialog.

- Change a setting by a double-click on it.

- Check the checkbox "Send Settings to Photometer after closing".

- Close the dialog by "OK" button.

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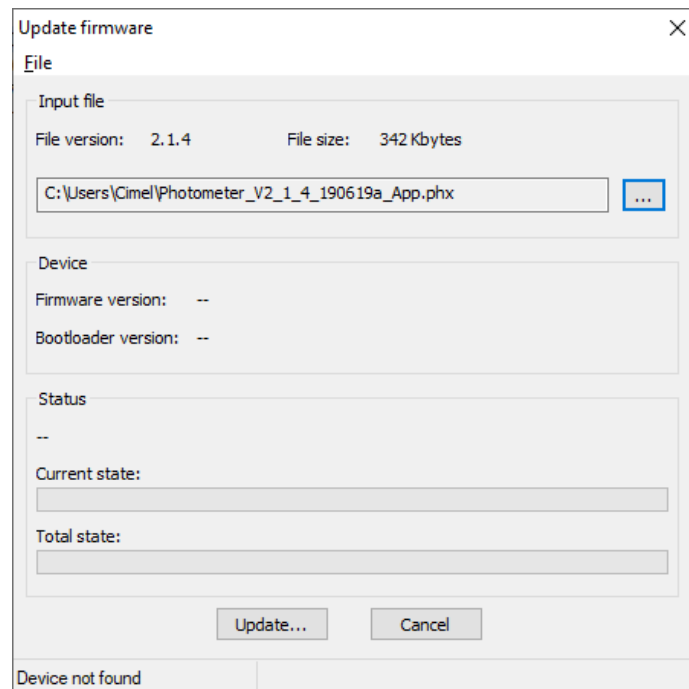
4.2. *Save the currents settings*

Click the menu "File\Save" to save the current loaded settings in a file.

4.3. *Load a settings file*

Click the menu "File\Open" to load a file into the Setting dialog.

5 Photometer firmware update

PhotoGetData can update the firmware of the Photometer. The used file is a factory file format with "*.phx" extension.

5.1. *Firmware update procedure*

- Connect the PC to the Photometer.

- Select the *.phx firmware file.

- Press "Update…" button.

- Wait till the end of the procedure.

6   Convert a K8 file to ASCII in command line.

PhotoGetData can convert K8 file in ASCII files in batch mode. No windows will be showed during the file conversion.

Launch PhotoGetData.exe from the installed directory and add the *–ASCII* option and the full path of the K8 file to convert.

It is possible to convert multiple files in one command. Each file must be preceded by the *–ASCII* option.

Example of a multiple files conversion:

```
"C:\Program Files (x86)\PhotoGetData\PhotoGetData.exe" -ASCII
"C:\Users\Cimel\Files\TS_1749_20200901.k8" -ASCII
"C:\Users\Cimel\Files\TS_1749_20200902.k8"
```


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