



Instruction Manual

BZ7003 Offline
Software

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Chapter 1

BZ7003 Offline Software

January 2018

1. Introduction

In some situations, it may be necessary to set up the Gas-Monitor without connecting it to a PC. The procedure to use the Gas-Monitor as a stand-alone instrument is covered in the User Manual for the Gas Monitor.

Please consult the User Manual for the Gas Monitor for guidance in how to Store Measurement data in the Monitors internal Memories and recalling these data to the display memory. Measurement data stored in the internal Memory location 1 to 10 are to be recalled to the Monitors Display Memory to be uploaded to a PC.

This Manual only describes the use of the BZ7003 Offline Software to upload measurement data stored in the Monitors Display Memory to a PC in Either text or Excel format or make a paper printout.

BZ7003 can utilize the **USB** interface in the newer 1512, 1412i, 1314i and 3434i Gas Monitors:

To use the USB interface the Monitors serial number must be from:

1412i: 713-001

1512: 110-001

1314i: 702-001

3434i: 952-001

BZ7003 will also be able to run via the **RS232** interface using the older 1412i, 1314i, 3434i with lower serial numbers.

Furthermore, the BZ7003 also runs via the **RS232** interface with the 1412A, 1314A, 3434A models.

Chapter 2

Installation of the BZ7003

January 2018

2. Installation of the BZ7003

When taking delivery of the Gas Monitor the BZ7003 Offline Software is delivered on an USB memory stick.

2.1 Installing the BZ7003 Offline Software.

2.1.1 Computer requirements

The Software is targeted to work on a Desktop/Laptop PC environment running a Microsoft Windows Operating System.

Before installing the Software the PC must meet the following minimum requirements:

Processor	Intel dual-core i3 or compatible.
Operating System	Windows XP SP2 Windows 7 (Service Pack 1) Windows 8 Windows 10
RAM	Minimum: 512 MB (XP) 2048 MB (7+8) 4096 (10)
Hard Disk	Up to 500 MB of available space may be required.
Display	Minimum: 1024 x 768 highest colour, 32-bit
Total port connections	1 USB port Or 1 RS232 port
Connection to Gas Monitor	1 USB port Or 1 RS-232 port

Table 2.1 Computer requirements

Microsoft Office is required if using the export to Excel file format functionality in BZ7003.

2.1.2 Installing BZ7003

Please refer to [Appendix A](#) how to perform the installation of the BZ7003 Offline software.

After the installation is successfully completed the LumaSense -> BZ7003 menu is created.

The BZ7003 program icon (Figure 2.1) is also placed on your desktop for easy access to the program.

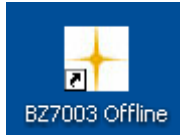


Figure 2.1 BZ7003 Offline desktop shortcut

Chapter 3

Using the Program

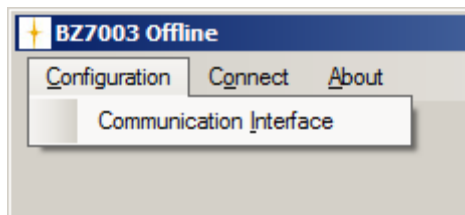
January 2018

3. Using the Program

The **BZ7003 Offline** startup window will appear after starting the application.



3.1 Program configuration



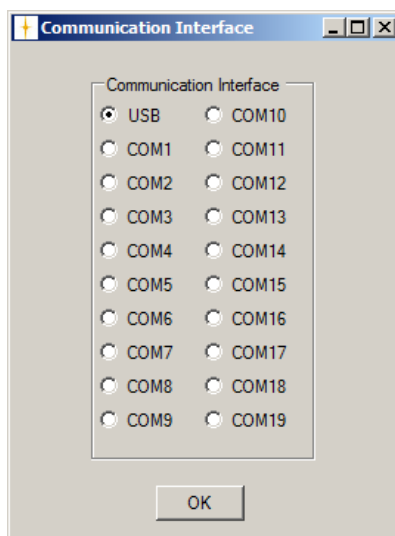
The very first time BZ7003 is started the **Communication Interface** needs to be configured.

The Configuration menu pull-down contains the **Communication Interface** menu item.

After making the configuration it is normally not necessary to change it again, as the communication interface is by preference.

The chosen configuration will be stored, so it needs not to be set when restarting BZ7003.

3.1.1 Communication interface



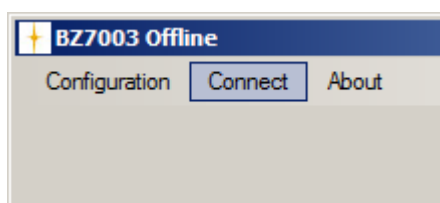
The **USB** interface or a serial (RS232) **COM** port can be chosen.

When using the new 1512, 1412i, 1314i or 3434i the **USB** interface should be used.

When using the older 1412i, 1314i, 3434i or the 1412A, 1314A, 3434A the serial (RS232) **COM** interface should be used.

The selected communication interface setting will be retained when restarting the BZ7003Offline Software.

3.2 Gas monitor connect



In order to connect to the Gas Monitor the file menu item **Connect** is used.

The configured communication interface will be used when connecting to the gas monitor.

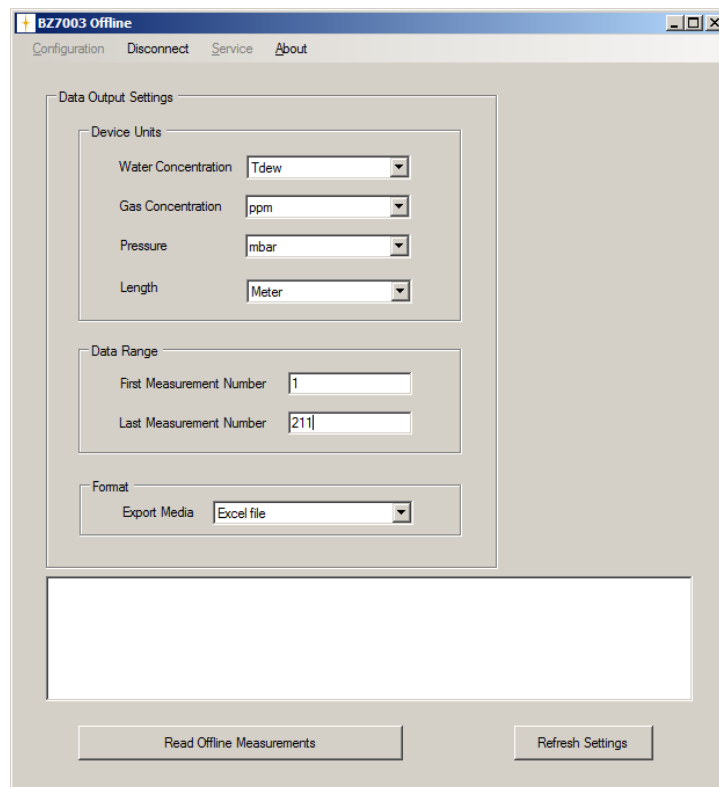
In case of a failed connect a popup error message box will be displayed.

After a successful connection to the Gas Monitor the Offline Setup Picture is shown.

Please Note

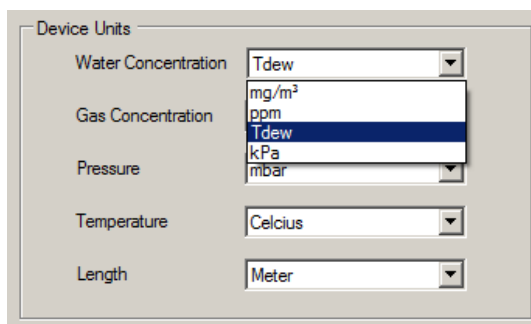
The **Configuration** file menu will be inactive (not changeable) after connecting to the Gas Monitor, implying that the **Communication Interface** cannot be changed while the BZ7003 Offline is connected to the Gas Monitor.

3.3 Offline Setup and Operation



When connecting, the device units and the data range was read from the gas monitor.

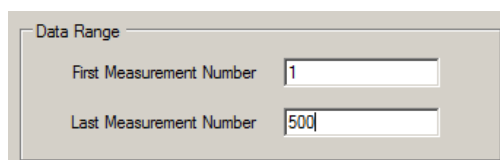
The device units are presented in the **Device Units** group box. The device units can be altered and the selected units will be used when generating the data output file, meaning that the exported data values are calculated according to the selected units.



The available units for the gas monitor data are as shown in the below Table.

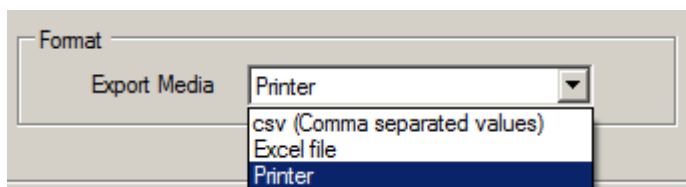
	Available units
Water Concentration	mg/m ³ , ppm, Tdew, kPa
Gas Concentration	mg/m ³ , ppm
Pressure	kPa, mbar, mmHg
Temperature	Kelvin, Fahrenheit, Celsius
Length	Meter, Feet

The **Data Range** represents the number of offline measurements available in the display memory of the gas monitor.



The **First Measurement Number** and **Last Measurement Number** can be changed, if only a part of the measurement data stored in the Monitors Display memory are to be exported. **Please Note:** If Printer is selected as the **Export Media** (see the figure on next page) all data stored in the Monitors Display Memory will be printed. It should be noted, that the export can take a considerable amount of time when using the **RS232** communication interface.

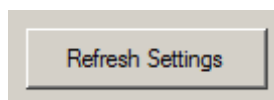
The **Export Media** format can be either 'Excel file'- , 'csv'-format or 'Printer'-format. The selected **Export Media**-setting will be retained when restarting the BZ7003 Offline.



The 'Excel file' content is described in section 3.4.

The 'Csv'-content is described in section 3.5.

When the measurement data in the display memory is updated, for instance when one of the 10 available memory locations in the gas monitor is recalled to the Display Memory, the **Refresh Settings**-button should be used to refresh the **Device Units** and display the recalled data range in the **Data Range** settings.



When recalling a Memory location to the Display Memory in the gas monitor, the filter- and environment-data, which was saved together with the measurements, is recalled as well. When reading the measurements from the gas monitor's Display Memory, the filter- and environment-data are also read, meaning that the filter-, environment- and measurement data are presented together in the export file.

The filter setup data is:

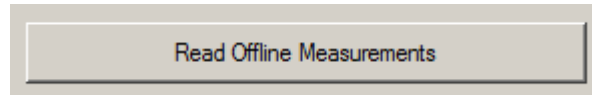
- UA number of the Optical Filter Installed
- Bank number for each filter
- Gas name for each filter
- Mol. Weight for each Gas
- S.I.T (Sample integration time) for each filter
- Alarm limit 1,2 for each filter
- Cross compensation
- Water compensation

The environment setup data is:

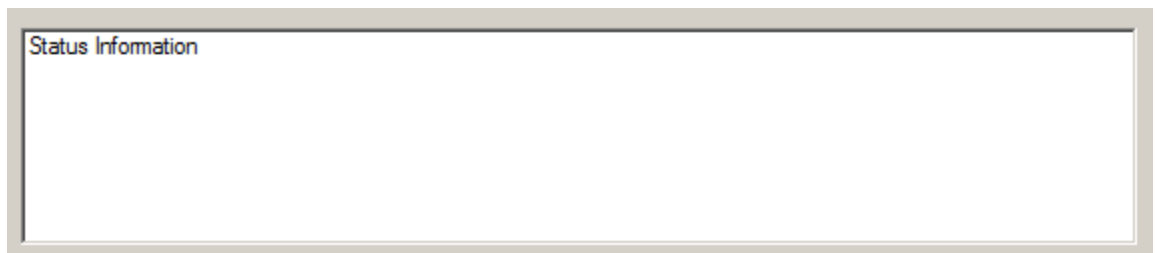
- Flushing mode (Auto or fixed-time enabled)
- Tube length (when auto flushing is enabled)

- Chamber- and tube flush time (when fixed-time flushing is enabled)

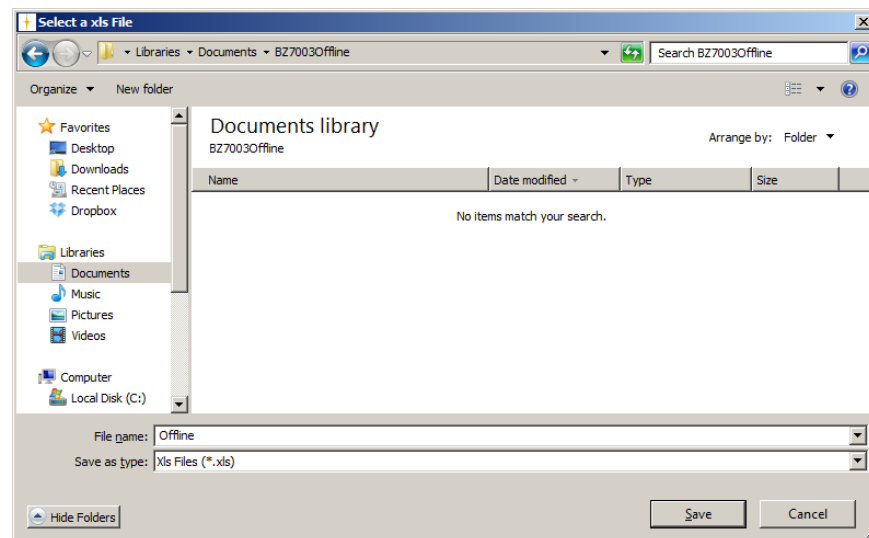
The **Read Offline Measurements**-button will perform the actual read operation of the selected range of data and setup from the gas monitor and afterwards make an output based on the selected **Export Media**.



The **Status Information** list-box will show progress information during the read operation.



After the read operation is finished, a file save dialog is presented if either the 'Excel' or the 'Csv' options was selected.

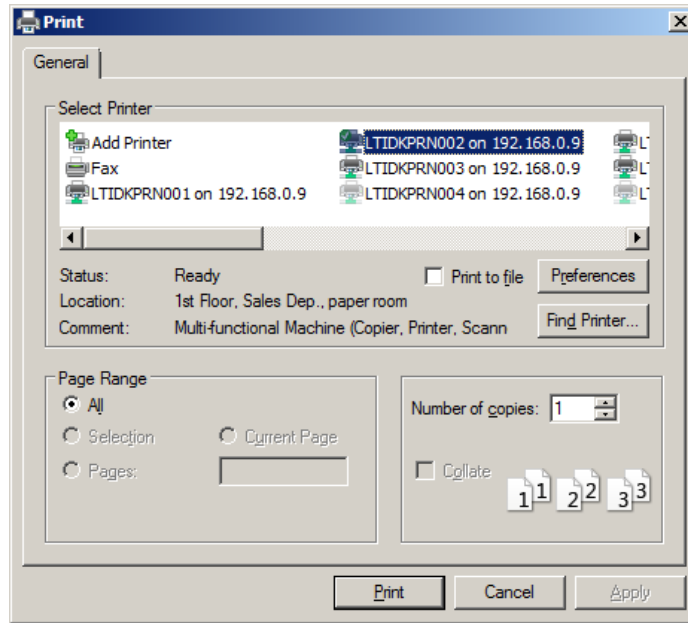


A file name is to be entered, and the data and setup from the gas monitor will be saved in the selected file format.

The Excel-file format can only be generated if Microsoft Office is installed. An error message will be shown if Microsoft Office is not installed, if trying to generate an Excel file.

The content of the Excel- and csv-files is described in the following sections.

If the 'Printer' option was selected a printer dialog is presented in order to select a printer for the 'Printer' output.



3.4 Excel-file content

The Excel file will contain 3 tabs:

1. Measurement Data
2. Filter Setup
3. Environment Setup

3.4.1 Measurement Data tab

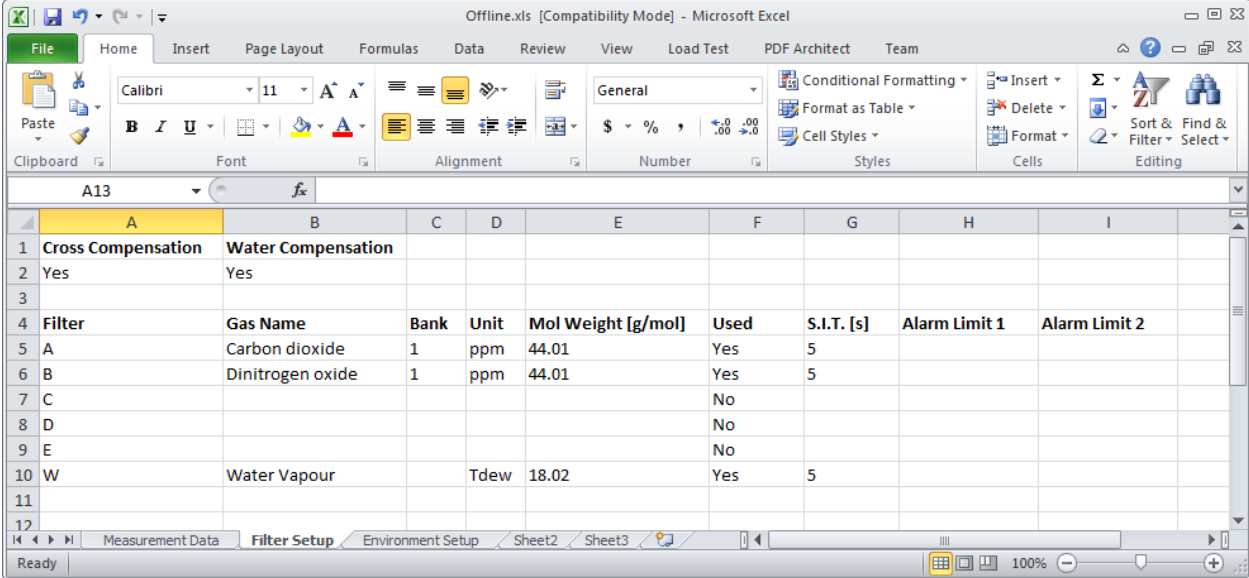
Below figure shows a sample of the measurement data tab. (cut into 2 parts to fit this document)

1	Date & Time	A: "Carbon dioxide" [ppm]	B: "Dinitrogen oxide" [ppm]	C:	D:	E:	W: Water Vapour [Tdew]	P: Pressure [mbar]	Filter A al
2	21-09-2013 09:36:32	643.68					10.546	1012.9	No
3	21-09-2013 09:36:55	646.41					10.544	1012.9	No
4	21-09-2013 09:37:18	649.96					10.489	1012.9	No
5	21-09-2013 09:37:41	651.17					10.504	1013	No
6	21-09-2013 09:38:04	652.72					10.526	1013	No
7	21-09-2013 09:38:27	654.87					10.521	1013	No
8	21-09-2013 09:38:49	656.86					10.559	1013	No
9	21-09-2013 09:39:12	671.51					10.559	1013.1	No
10	21-09-2013 09:39:35	649.56					10.499	1013	No
11	21-09-2013 09:39:58	653.34					10.555	1013	No
12	21-09-2013 09:40:21	680.26					10.582	1013.1	No

1	Filter A alarm	Filter B alarm	Filter C alarm	Filter D alarm	Filter E alarm	Filter W alarm	Operational Error/Warning Flag	User Event Number
2	No	No	No	No	No	No	No	1
3	No	No	No	No	No	No	No	
4	No	No	No	No	No	No	No	
5	No	No	No	No	No	No	No	
6	No	No	No	No	No	No	No	
7	No	No	No	No	No	No	No	
8	No	No	No	No	No	No	No	
9	No	No	No	No	No	No	No	
10	No	No	No	No	No	No	No	
11	No	No	No	No	No	No	No	
12	No	No	No	No	No	No	No	

3.4.2 Filter Setup tab

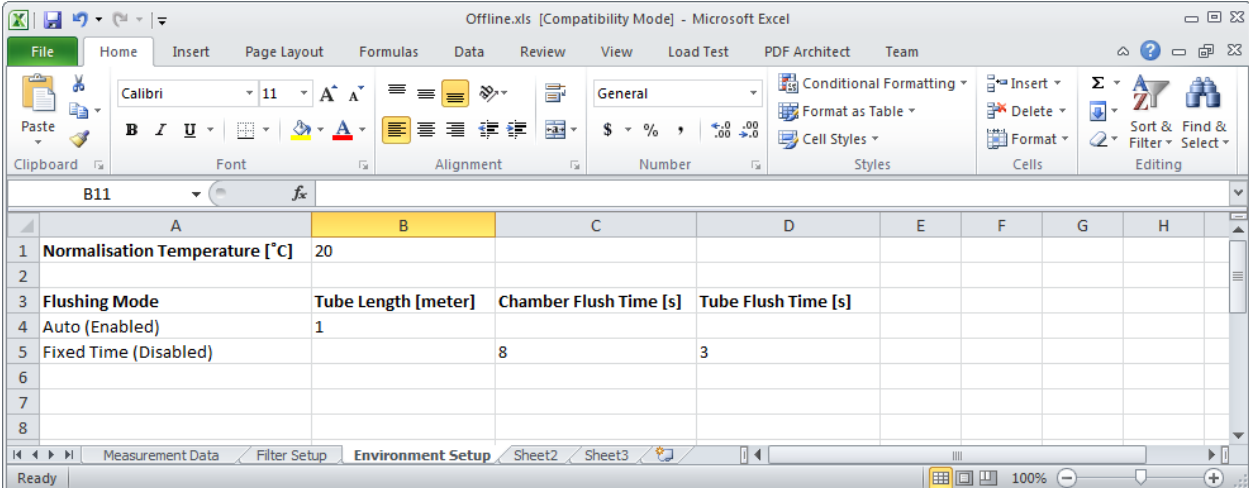
Below figure shows a sample of the filter setup tab.



Filter	Gas Name	Bank	Unit	Mol Weight [g/mol]	Used	S.I.T. [s]	Alarm Limit 1	Alarm Limit 2
A	Carbon dioxide	1	ppm	44.01	Yes	5		
B	Dinitrogen oxide	1	ppm	44.01	Yes	5		
C					No			
D					No			
E					No			
W	Water Vapour		Tdew	18.02	Yes	5		

3.4.3 Environment Setup tab

Below a sample of the environment setup tab is shown.



1	Normalisation Temperature [°C]	20					
3	Flushing Mode	Tube Length [meter]	Chamber Flush Time [s]	Tube Flush Time [s]			
4	Auto (Enabled)	1					
5	Fixed Time (Disabled)		8	3			

3.5 Csv-files content

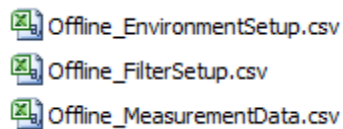
The csv-format will come as 3 files:

1. Measurement data
2. Filter setup
3. Environment setup

The content of the 3 files will be as the 3 different tabs for the Excel file described in the previous sections.

The 3 csv-files will be named by adding the type of data or setup to the name specified in the save file dialog.

Example: The 'Offline' name was specified in the save file dialog. The 3 csv-files will be named as:



3.6 Printer output

The 'Printer' output presents the result on the selected printer below an example is shown.

A sample of the printer output:

```

- 1412i Measurement Data ----- 712-032/9465 - 2013-12-30 13:55 - Page 1 -

1412i Settings:
-----
Compensate for Water Vap. Interference : YES
Compensate for Cross Interference : YES
Sample Continuously : YES
Pre-set Monitoring Period : NO
Store Measurement History : YES

Measure
Gas A: Butane : YES
Gas B: Dinitrogen oxide : YES
Gas C: Enflurane : YES
Gas D: Acetaldehyde : YES
Gas E: Carbon dioxide : YES
Water Vapour : YES

Flushing Mode : AUTO
Sampling Tube Length : 1.00 m
Normalization Temperature : 293.2 K

Sample Integration Time
Filter A : 1 s
Filter B : 1 s
Filter C : 1 s
Filter D : 1 s
Filter E : 1 s
Filter W : 1 s

General Information:
-----
Start Time : 2013-12-30 11:14
Stop Time : 2013-12-30 13:25
Results Not Averaged
Number of Event Marks : 0
Number of Recorded Samples : 211

Alarm 1 Alarm 2 Max Mean Min Std.Dev
-----
Gas A: _____ -115E+03 -117E+03 -120E+03 788E+00
Gas B: _____ -3.9E+03 -4.0E+03 -4.1E+03 27.5E+00
Gas C: _____ 760E+03 737E+03 703E+03 10.6E+03
Gas D: _____ 27.7E+03 26.9E+03 25.7E+03 328E+00
Gas E: _____ 1.96E+06 1.90E+06 1.79E+06 33.8E+03
Water: _____ 1.12E+03 922E+00 813E+00 79.5E+00

```

- 1412i Measurement Data ----- 712-032/9465 - 2013-12-30 13:55 - Page 2 -

Samples Measured From 2013-12-30 11:14

Samp. No.	Time hh:mm:ss	Gas A mg/m3	Gas B mg/m3	Gas C mg/m3	Gas D mg/m3	Gas E mg/m3	Water mg/m3
1	11:14:59	-116E+03	-3.9E+03	710E+03	26.0E+03	1.81E+06	1.09E+03
2	11:15:41	-115E+03	-3.9E+03	703E+03	25.7E+03	1.79E+06	1.05E+03
3	11:16:17	-116E+03	-3.9E+03	711E+03	26.4E+03	1.81E+06	1.11E+03
4	11:16:54	-116E+03	-3.9E+03	709E+03	26.0E+03	1.81E+06	1.10E+03
5	11:17:31	-117E+03	-3.9E+03	715E+03	26.1E+03	1.82E+06	1.11E+03
6	11:18:08	-117E+03	-4.0E+03	715E+03	26.3E+03	1.82E+06	1.09E+03
7	11:18:45	-116E+03	-3.9E+03	709E+03	26.0E+03	1.81E+06	1.10E+03
8	11:19:22	-117E+03	-4.0E+03	717E+03	26.2E+03	1.83E+06	1.07E+03
9	11:19:58	-116E+03	-3.9E+03	710E+03	26.0E+03	1.81E+06	1.02E+03
10	11:20:38	-117E+03	-3.9E+03	713E+03	26.0E+03	1.82E+06	1.07E+03
11	11:21:15	-117E+03	-3.9E+03	716E+03	26.2E+03	1.82E+06	1.09E+03
12	11:21:51	-116E+03	-3.9E+03	712E+03	26.3E+03	1.82E+06	1.01E+03
13	11:22:28	-117E+03	-3.9E+03	714E+03	26.0E+03	1.81E+06	1.02E+03
14	11:23:05	-118E+03	-4.0E+03	719E+03	26.4E+03	1.83E+06	1.12E+03
15	11:23:42	-118E+03	-4.0E+03	721E+03	26.3E+03	1.84E+06	1.11E+03
16	11:24:19	-117E+03	-3.9E+03	713E+03	26.1E+03	1.82E+06	1.07E+03
17	11:24:56	-118E+03	-4.0E+03	722E+03	26.3E+03	1.84E+06	1.10E+03
18	11:25:32	-117E+03	-3.9E+03	715E+03	26.2E+03	1.83E+06	997E+00
19X	11:26:09	-117E+03	-4.0E+03	717E+03	26.3E+03	1.83E+06	1.03E+03
20	11:26:46	-117E+03	-4.0E+03	718E+03	26.4E+03	1.84E+06	1.06E+03
21	11:27:23	-116E+03	-3.9E+03	714E+03	26.1E+03	1.82E+06	1.02E+03
22	11:28:00	-117E+03	-3.9E+03	717E+03	26.2E+03	1.83E+06	1.02E+03
23	11:28:38	-117E+03	-3.9E+03	715E+03	26.2E+03	1.83E+06	1.02E+03
24	11:29:14	-117E+03	-3.9E+03	716E+03	26.3E+03	1.83E+06	1.00E+03
25	11:29:51	-118E+03	-4.0E+03	723E+03	26.5E+03	1.85E+06	1.07E+03
26	11:30:28	-118E+03	-4.0E+03	723E+03	26.5E+03	1.85E+06	1.07E+03
27	11:31:05	-118E+03	-4.0E+03	726E+03	26.4E+03	1.85E+06	1.06E+03
28	11:31:41	-118E+03	-4.0E+03	728E+03	26.5E+03	1.86E+06	1.08E+03
29	11:32:18	-118E+03	-4.0E+03	727E+03	26.6E+03	1.86E+06	1.07E+03
30	11:32:55	-119E+03	-4.0E+03	729E+03	26.8E+03	1.87E+06	1.05E+03
31	11:33:44	-117E+03	-4.0E+03	723E+03	26.3E+03	1.85E+06	1.05E+03
32	11:34:21	-118E+03	-4.0E+03	728E+03	26.5E+03	1.86E+06	1.05E+03
33	11:34:57	-118E+03	-4.0E+03	724E+03	26.5E+03	1.85E+06	1.03E+03
34	11:35:34	-118E+03	-4.0E+03	728E+03	26.7E+03	1.86E+06	993E+00
35	11:36:11	-118E+03	-4.0E+03	725E+03	26.6E+03	1.86E+06	983E+00
36	11:36:47	-117E+03	-4.0E+03	723E+03	26.5E+03	1.85E+06	981E+00
37	11:37:24	-118E+03	-4.0E+03	727E+03	26.6E+03	1.86E+06	1.0E+03
38	11:38:01	-118E+03	-4.0E+03	730E+03	26.6E+03	1.86E+06	1.04E+03
39	11:38:38	-118E+03	-4.0E+03	730E+03	26.7E+03	1.87E+06	1.01E+03
40	11:39:14	-119E+03	-4.0E+03	732E+03	26.9E+03	1.88E+06	1.01E+03
41	11:39:51	-119E+03	-4.0E+03	738E+03	26.9E+03	1.89E+06	1.05E+03
42	11:40:27	-118E+03	-4.0E+03	731E+03	26.9E+03	1.87E+06	990E+00
43	11:41:04	-118E+03	-4.0E+03	733E+03	26.8E+03	1.88E+06	1.00E+03
44	11:41:41	-118E+03	-4.0E+03	728E+03	26.8E+03	1.87E+06	955E+00
45	11:42:18	-118E+03	-4.0E+03	730E+03	26.8E+03	1.87E+06	999E+00
46	11:42:55	-118E+03	-4.0E+03	731E+03	26.8E+03	1.87E+06	972E+00
47	11:43:31	-118E+03	-4.0E+03	729E+03	26.8E+03	1.87E+06	946E+00
48	11:44:08	-118E+03	-4.0E+03	731E+03	26.9E+03	1.88E+06	954E+00
49	11:44:45	-119E+03	-4.0E+03	736E+03	26.8E+03	1.88E+06	1.03E+03
50	11:45:22	-119E+03	-4.0E+03	739E+03	27.0E+03	1.89E+06	1.03E+03
51	11:45:58	-118E+03	-4.0E+03	731E+03	26.9E+03	1.88E+06	959E+00
52	11:46:35	-119E+03	-4.0E+03	741E+03	27.1E+03	1.90E+06	1.02E+03
53	11:47:12	-118E+03	-4.0E+03	733E+03	26.8E+03	1.88E+06	974E+00
54	11:47:49	-120E+03	-4.1E+03	747E+03	27.3E+03	1.91E+06	1.08E+03

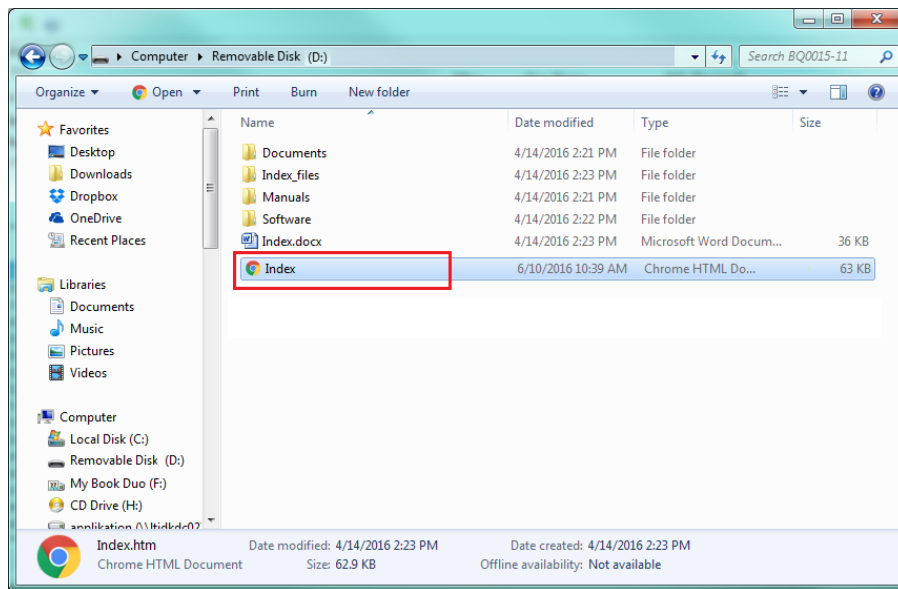
Appendix A

Installation Guide

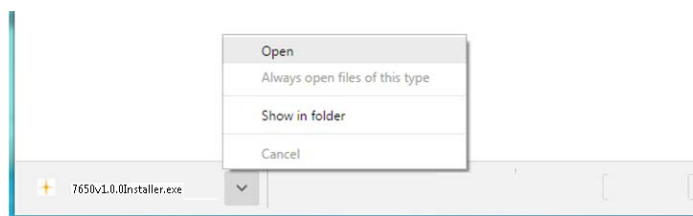
January 2018

Installation of BZ7003

1. When installing the **BZ7003 Offline** software you must be logged in as Administrator that means that you must have “administrator” rights.
Please also note that you must have Administrator rights or Power User rights to run the BZ7003 Offline application after installation.
2. Start the installation of **BZ7003**. Insert the USB memory stick containing the **BZ7003** software into an USB port and open **Windows Explorer**. Locate the **Removable Disk** associated with the USB memory stick. Double-click the **Index** file in order to open its contents in your browser.



Now click to select the appropriate **BZ7003** software for installation. You might get warned that this type of file can harm your computer, which can be skipped. At the bottom of your browser window you can start the installation by selecting the **Open** option.

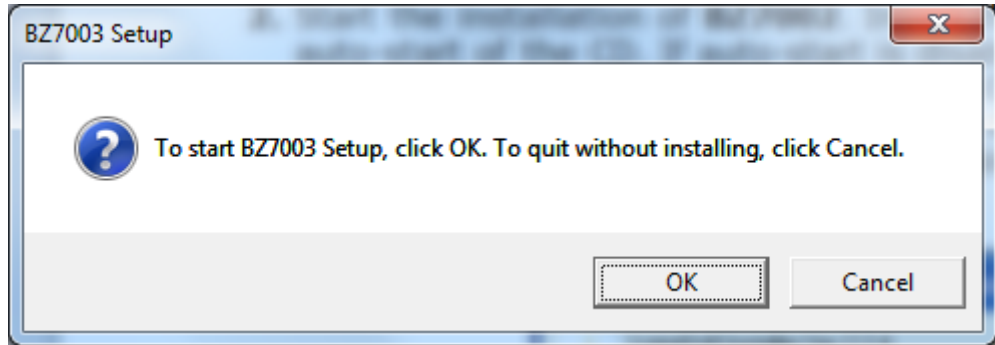


The installation file will automatically install all the necessary packages required to run the **BZ7003** application.

The installer will start unpacking with the following window.

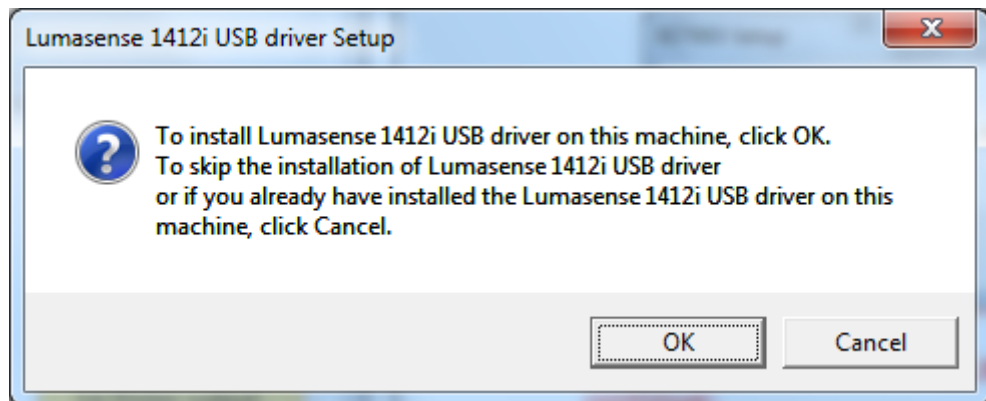
Please wait.

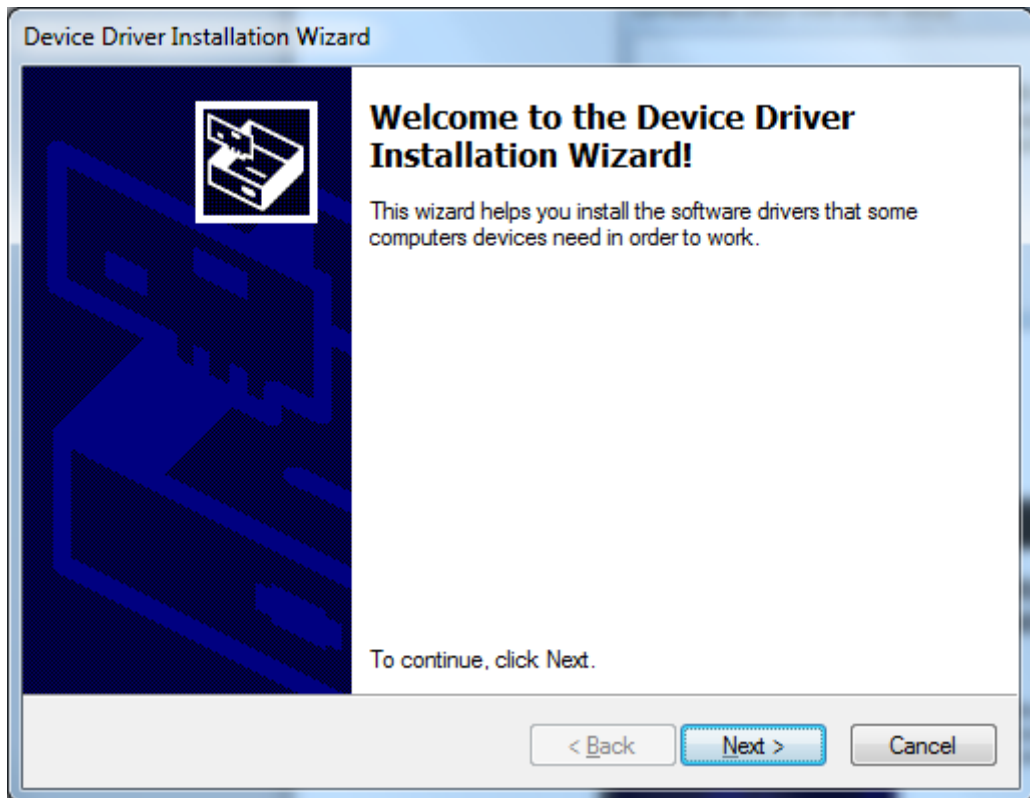
After a while the following window appears. Press the **OK** button to continue:



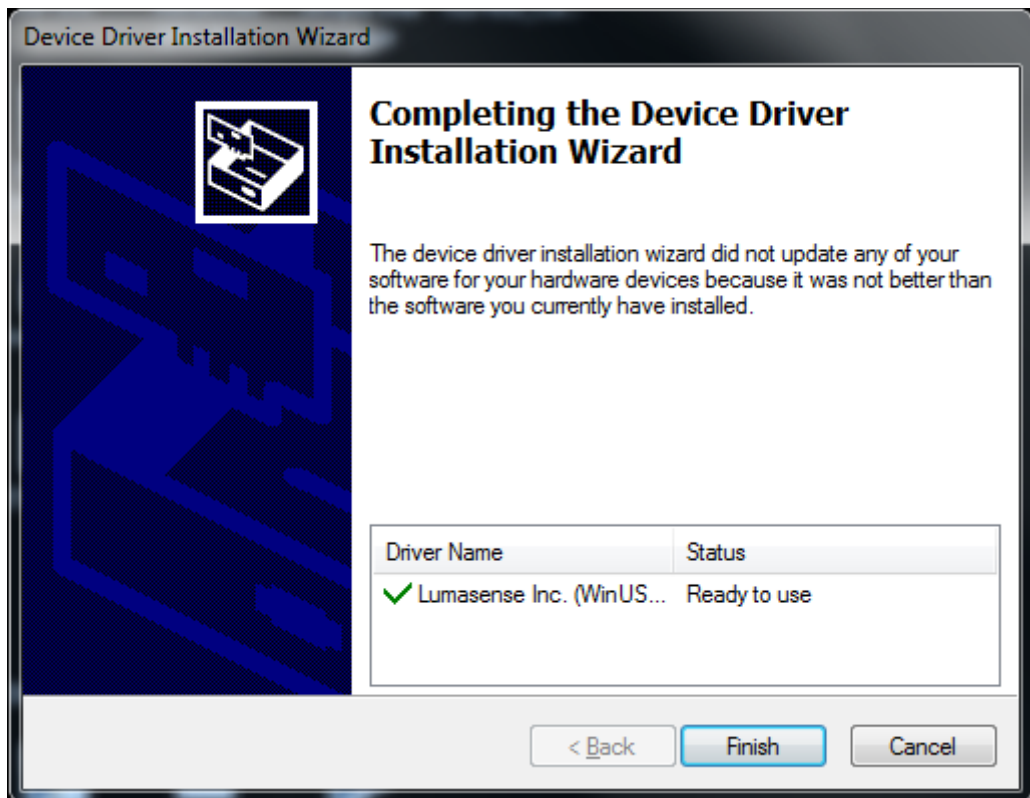
3. First you are prompted to install the USB driver to enable the PC to communicate with the gas monitor through the USB interface.

If the USB driver has been installed due to a previous BZ7002 installation you can skip this by pressing the Cancel-button otherwise please press the OK-button to continue.





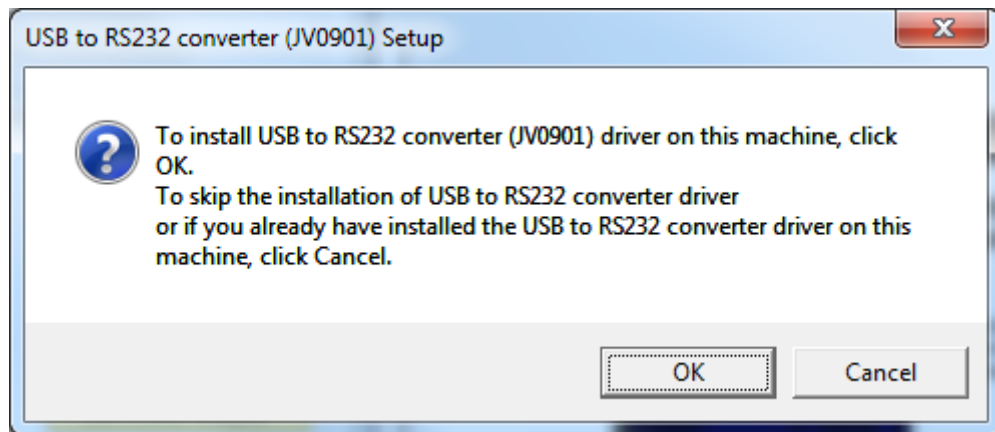
Press **Next** to continue.



Press **Finish** to continue

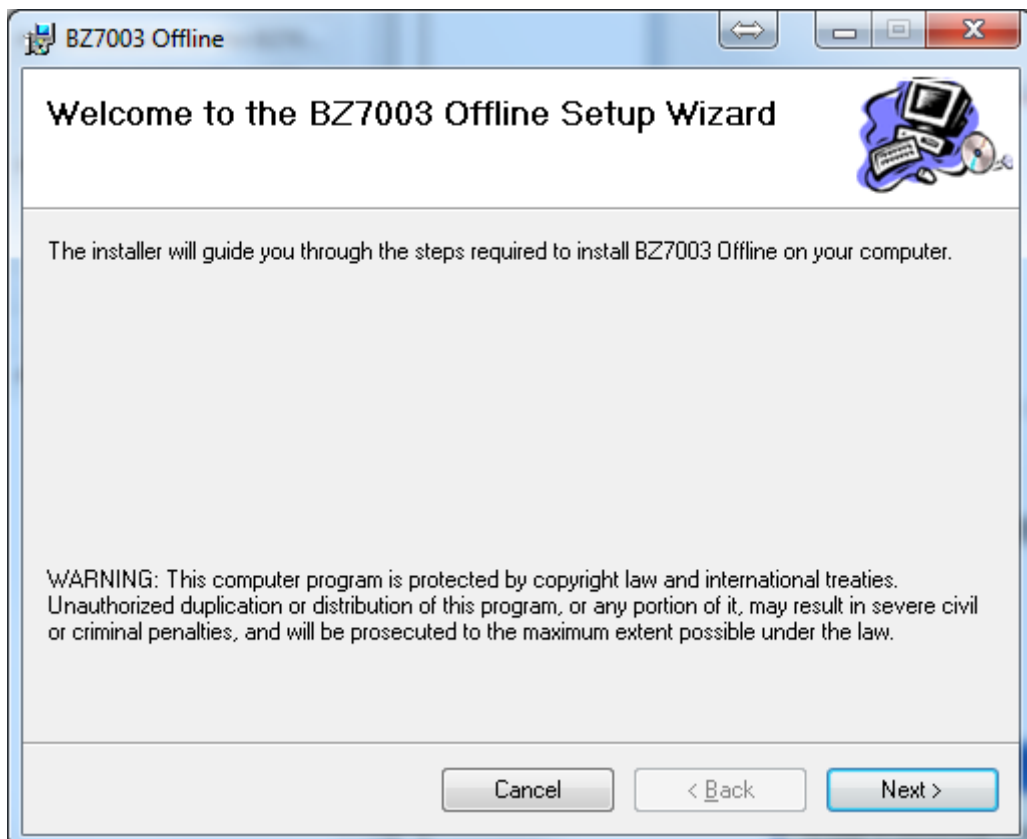
4. Then you are prompted to install the driver for the USB to RS232 converter.

If the USB driver has been installed due to a previous BZ7003 installation you can skip this by pressing the Cancel-button otherwise please press the OK-button to continue.

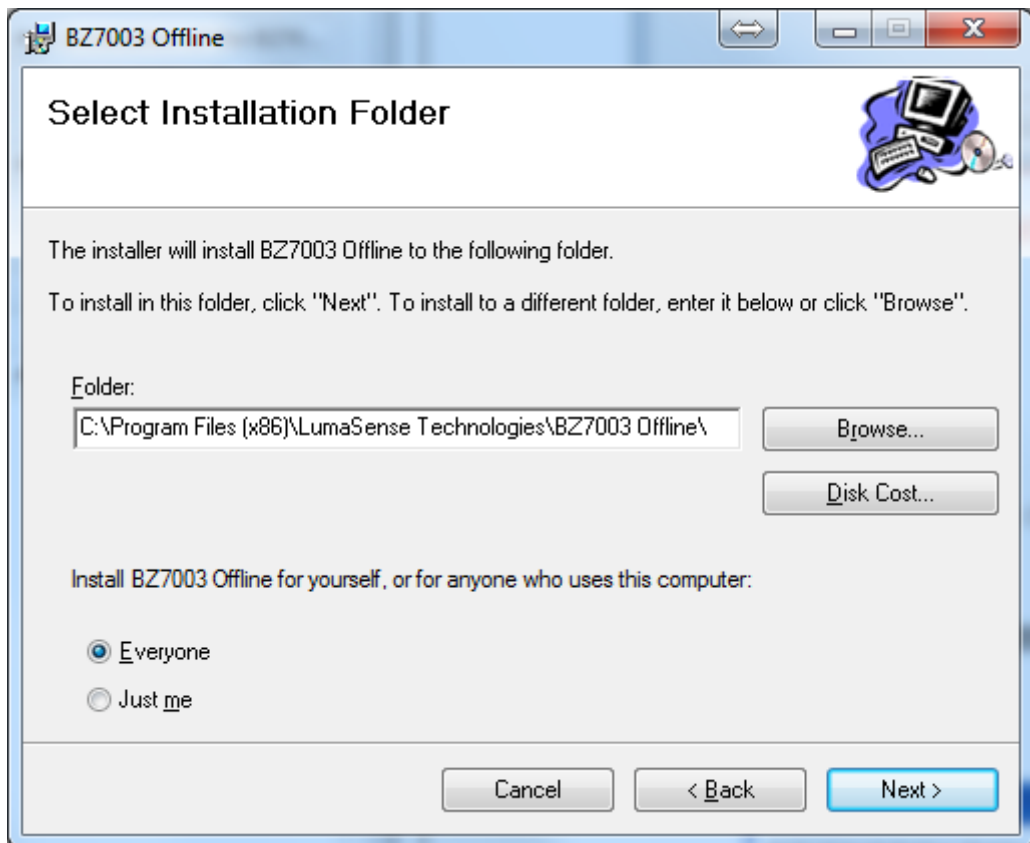


Press **OK** to continue.

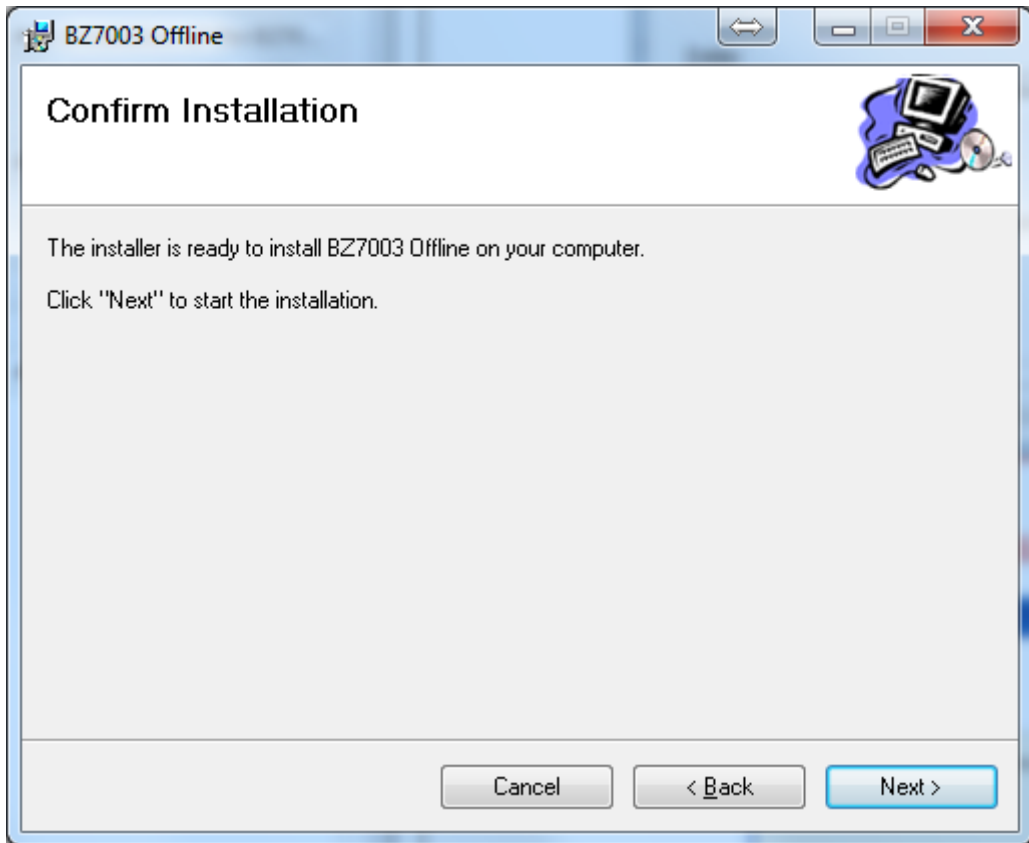
5. Finally the BZ7003 application is installed. Press **Next** to start installation of BZ7003 Offline.



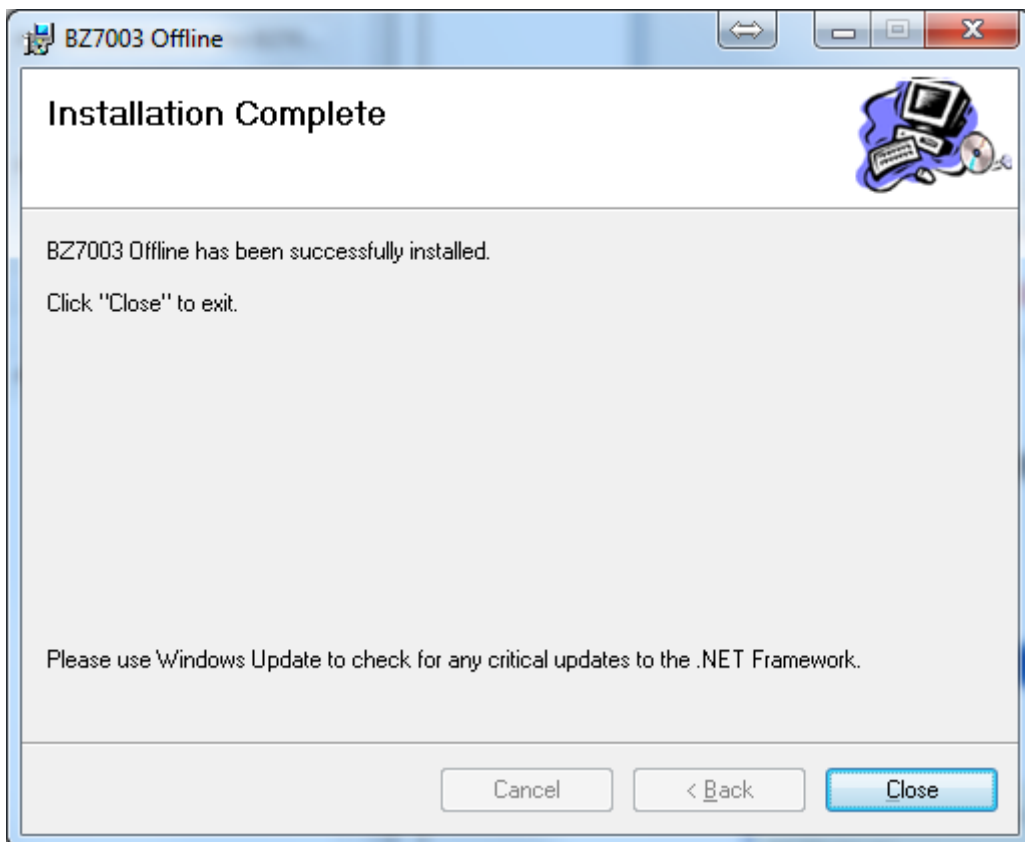
Select install for **Everyone** and press **Next**



Select **Next** to confirm installation of BZ7003 Offline



After installation of BZ7003 press **Close**.



BZ7003