

# Synthesis QC Receiver Interface (v 3.0)

## 1. Introduction

### 1.1. Intended use

QCSynthesis is a QC receiver interface intended to

- Receive analytical data from an IL *Synthesis* blood-gas analyser through a serial port.
- Extract control assays from received data.
- Re-send QC data to MultiQC, a QC management software which can be downloaded at [www.multiqc.com](http://www.multiqc.com).

QCSynthesis is compatible with Windows 2000 to Windows 7.

### 1.2. Starting and stopping QCSynthesis

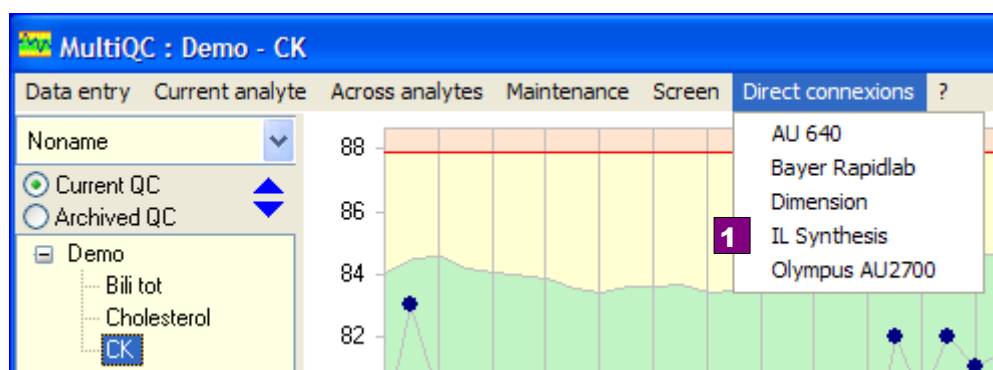
QC receiver interfaces are never directly launched or closed. They are under control of MultiQC. Each interface is automatically launched or closed when MultiQC is launched or closed. Any action that would close a normal program (clicking the Windows close box or pressing the keys Alt+F4) only iconizes the QC receiver interface.

After launching MultiQC, you can check that the installed receiver interfaces are running:

1- They are iconized in the Windows taskbar



2- New sub-menus are added to the main menu of MultiQC [Direct connexions](#).



### 1.3. Data management

QC assays may be extracted from the stream of analytical results by two means :

- Keeping the Synthesis QC system, chart numbers are assigned by the analyser when control materials are injected.
- Dropping out the built-in QC system of the Synthesis, control materials may be managed like patient samples. Each material is identified by a reserved name (read by a cudbear reader or typed in).

## 2. Main Window

In routine work, the QC receiver interface stays iconized in the Windows taskbar. QCSynthesis has to be restored only on installation to enter communication and analytical parameters.

## 2.1. Transmitted QC

This panel shows the latest 100 QC results sent to MultiQC.

- 1- Width of columns can be adjusted.
- 2- The button **Clear** erases all the lines in the list view.

Section	Analyte	Date	Time	Level	Value
Synthesis	pH	10/12/2003	08:11:00	1	7.349
Synthesis	pCO2	10/12/2003	08:11:00	1	41.3
Synthesis	pO2	10/12/2003	08:11:00	1	106
Synthesis	pH	10/12/2003	08:11:00	1	7.349
Synthesis	pCO2	10/12/2003	08:11:00	1	41.3
Synthesis	pO2	10/12/2003	08:11:00	1	106
Synthesis	pH	10/12/2003	08:11:00	1	7.349
Synthesis	pCO2	10/12/2003	08:11:00	1	41.3
Synthesis	pO2	10/12/2003	08:11:00	1	106
Synthesis	pH	10/12/2003	08:11:00	1	7.349
Synthesis	pCO2	10/12/2003	08:11:00	1	41.3

## 2.2. From analyser

This panel shows the raw messages received from the analyser. Only the 100 latest lines are kept.

- 1- The button **Clear** erases all the lines.

```

005,070,71000,00000134,915693
03,11:10,1,10 DEC
7.454,20,201,000,
32.3,21,202,000,
193,21,260,000,
22.9,00,262,000,
-1.2,00,264,000,
99.7,11,220,000,
14.5,04,251,000,      746,21,67
  
```

## 2.3. Parameters

Here you can edit the “ini” file that saves the working parameters of the interface. This file is made of two sections (between brackets). You must only edit the right part of the =

### ➤ [MultiQC]

Refer to picture below :

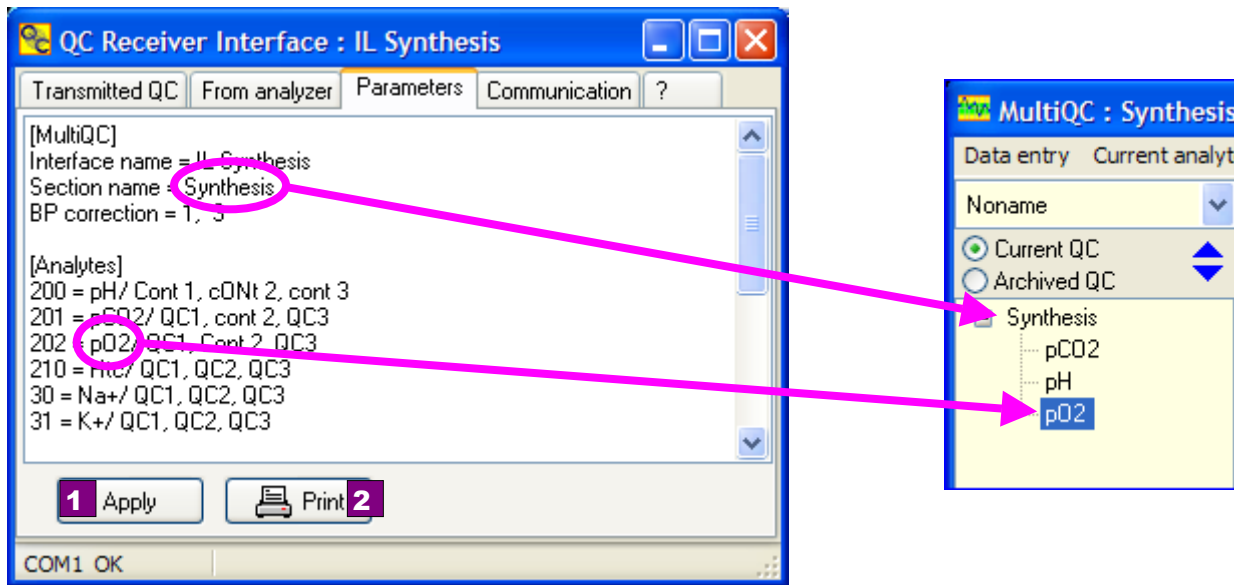
- **Interface name** is the name that is shown in the Windows taskbar and in the additional sub-menu that is created in MultiQC.
- **Section Name** = Name of the section of MultiQC in which the analytes will be grouped.
- **BP correction** = 1, 2, .... When the QC material is a tonometered blood, measured pO<sub>2</sub> and pCO<sub>2</sub> depend on the barometric pressure at the time of the assay. It is therefore necessary to correct pressures before plotting them on a Shewhart chart. For each QC level listed under **BP correction**, pO<sub>2</sub> and pCO<sub>2</sub> are automatically re-calculated for the sea-level barometric pressure according to the formula :

$$P_{sea-level} = P_{measured} \frac{760 - 47}{BP(mmHg) - 47}$$

➤ [Analytes]

Each line is made of three items of information

- Numbers before '=' are test identifiers as received in the messages from the analyser (e.g. 200, 201, 202 ...).
- Captions after '=' are the names of tests in MultiQC (e.g. pH, pCO2, pO2...).
- Optional series of identifiers after '/' are the identifiers assigned to QC materials when they are assayed in patient mode (not case sensitive). The first one will become level 1 in MultiQC and so on. If a bar-code reader is available, QC identifiers might be directly read on the labels of ampoules of control materials. QC identifiers are not necessary if control materials are always injected in QC mode



- 1- Do not forget to click on the button **Apply** after updating parameters.
- 2- You can print parameters with the button **Print**.

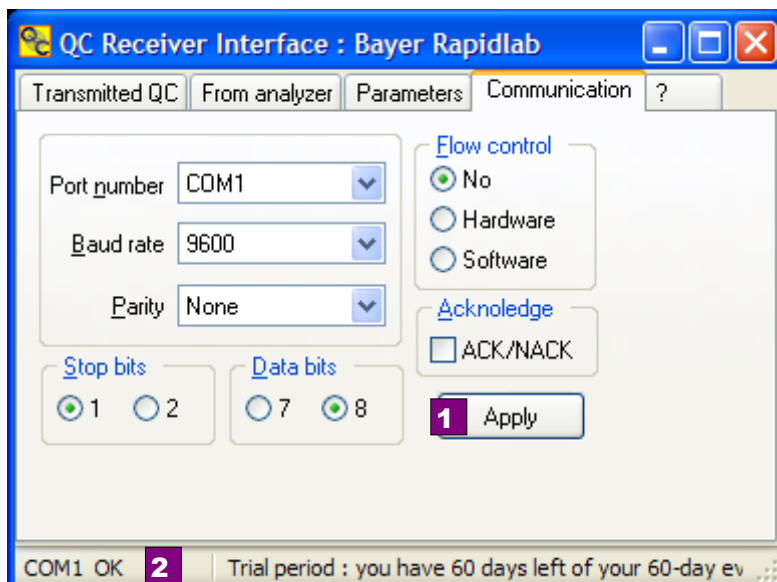
**Example** : 200 = pH/QC1, QC2, QC2

- Test 200 of the Synthesis analyser will be named pH in MultiQC
- pH of patient samples named 'QC1', 'QC2' or 'QC3' will be respectively plotted in charts 1, 2 and 3 of MultiQC.

## 2.4. Communication

Enter the communication parameters of the serial port connected to the analyser.

- 1- Do not forget to click on the button **Apply** after updating parameters.
- 2- Look at the status bar to check if the serial connection is OK

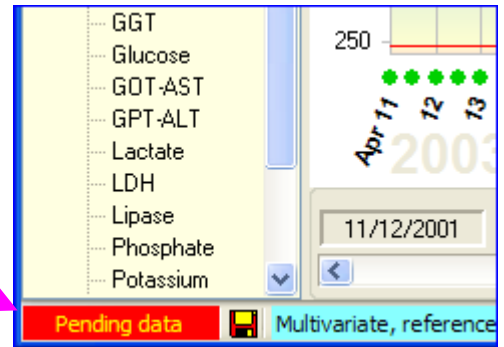


## 3. Receiving QC data in MultiQC

### 3.1. Arrival of QC data

Received QC data are piled up in the pending queue of MultiQC waiting for validation. As soon as one result has been transmitted, two warnings are activated:

- The icon QCSynthesis blinks blue/orange in the Windows taskbar (only Windows XP).
- When MultiQC is active, the left panel of the status bar blinks red/yellow.



### 3.2. Assembling QC vectors

In multi-level QC, materials are sequentially assayed by the analyser. For each analyte it is necessary to lump together the different QC levels in a unique vector. This is made on a time interval basis. QC levels are associated in the same QC vector if the time interval between the assays is less than the limit entered in MultiQC :

- Menu : [Configure](#) → [Miscellaneous](#)
- Tab : General
- Field : Max time interval between levels (default 5 minutes)

When rebuilding a QC vector with separate QC values, the final time is the time of the earliest QC value.

Do not start validation before all the QC levels have been received

### 3.3. Validating QC data

Click on the yellow/red blinking panel of MultiQC (shortcut F4) and proceed as indicated in the user manual section 5.4.

If the name of an analyte is unknown by MultiQC, a new analyte is automatically created with default parameters. Later, you will have to enter the appropriate parameters through the main menu [Configure](#)→[Analytes](#).

## 4. Installation

### 4.1. Installation of programs

Download MultiQC at [www.multiqc.com](http://www.multiqc.com) and install the package. The version of MultiQC must be 5.0.0.0 or later (the number of version is visible in the “About” box : main menu ? → [About](#)) .

Download QCSynthesis at [www.multiqc.com](http://www.multiqc.com) and install the package. To comply with the User Access Control of Windows 7, the program files are installed in the folder :

*C:\Program files\MultiQC6\Synthesis*

and the data files are installed in a different folder that depends on the version of Windows :

Win XP = *C:\Documents and Settings\All Users\Application Data\MultiQC6\Synthesis*

Vista or Win 7 = *C:\ProgramData\MultiQC6\Synthesis*

By default, Windows hides the folders [C:\Documents and Settings\All Users\Application Data\](#) and [C:\ProgramData\](#). To display these folders in the Windows Explorer you must check the box < [Tool](#) menu -> [Folder options](#) -> [View](#) tab -> [Show hidden files and folders](#) > .

## 4.2. Connecting analyser and computer

### ➤ Synthesis analyser

Synthesis analysers have 3 communication ports. Anyone can be used to send data to MultiQC.

- Go to the analyser interface set-up.
- Select a serial channel 1, 2 or 3 to connect the QC receiver computer.
- Enter DMS as specific external device.
- Enter the serial channel parameters dedicated to the QC receiver computer
  - Baud rate : 9600
  - Data bits : 8
  - Parity : None
  - Stop bits : 1
  - ACK/NACK : No
  - Xon/Xoff: No
  - Send cal data : No
  - Send patient data : Yes (If you wish to inject QC materials like patients)
  - Send QC data : Yes
  - Autotransmission : Yes

### ➤ QC receiver computer

Edit the communications parameters in the [Communication](#) panel of the QC Receiver Interface so that they match the parameters of the analyser

### ➤ Connection cable

The cable between the analyser and the computer is a terminal cable (not a null-modem cable).

