



AGILENT 68XX

Clarity Control Module

ENG

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Phone: +420 251 013 400
clarity@dataapex.com
www.dataapex.com

DataApex Ltd.
Petrzilkova 2583/13
158 00 Prague 5
The Czech Republic

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Author: MP

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To facilitate the orientation in the **Agilent 68xx** manual and **Clarity** chromatography station, different fonts are used throughout the manual. Meanings of these fonts are:

Instrument (blue text) marks the name of the window to which the text refers.

Open File (italics) describes the commands and names of fields in **Clarity**, parameters that can be entered into them or a window or dialog name (when you already are in the topic describing the window).

WORK1 (capitals) indicates the name of the file and/or directory.

ACTIVE (capital italics) marks the state of the station or its part.

The bold text is sometimes also used for important parts of the text and the name of the **Clarity** station. Moreover, some sections are written in format other than normal text. These sections are formatted as follows:

Note: Notifies the reader of relevant information.

Caution: Warns the user of possibly dangerous or very important information.

■ Marks the problem statement or trouble question.

Description: Presents more detailed information on the problem, describes its causes, etc.

Solution: Marks the response to the question, presents a procedure how to remove it.

1 Agilent 68xx GC Control Module

The **Agilent 68xx** GC driver can control Agilent **6890**, **6890N**, **6820** and **6850** GC chromatographs.



Fig 1: GC 6890 with autosampler

The direct control can be performed via

- COM (RS232)
- LAN - 6890N, 6820 and 6850 models only

Data acquisition can be performed via

- COM (RS232) - **Clarity** Digital Data Acquisition
- LAN - **Clarity** Digital Data Acquisition
- ANALOG - analog signal to A/D converter (eg. **Colibrick** or **U-PAD2** or **INT9**).

1.1 General Conditions of Agilent Autosampler Control

Clarity allows controlling all Agilent GC autosamplers and for their control is always required to purchase **AS Control Module (p/n A26)** license. Not all combinations of autosamplers and 68xx GCs are possible. To find out if desired combination of autosampler and 68xx GC is available refer to following table.

Tab 1: Possible combinations of Agilent autosamplers and Agilent 68xx gas chromatographs:

		Autosamplers			
		7673 (A, B, II)	7683	7693	6850
Chromatographs	6820	✓	✓	✗	✗
	6890 (N, Plus)	✓	✓	✓	✗
	6850 (II)	✓	✓	✓	✓
	6890 (A)	✓	✓	✓	✗

The 7673 autosampler should be connected to Agilent 6890 A GC via Agilent proprietary connection and its hardware configuration is about to be done as described in the section **Devices Setup on pg 32** because the autosampler control is implemented through DataApex 68xx Control Module.

The 7683 autosampler is connected to GC via Agilent proprietary connection and its hardware configuration is about to be done as described in the section **Devices Setup on pg 32** because the autosampler control is implemented through DataApex 68xx Control Module.

The autosampler 6850 is combined with 6850 GC via Agilent proprietary connection and its hardware configuration is about to be done as described in the section **Devices Setup on pg 32** because the autosampler control is implemented through DataApex 68xx Control Module.

There is a Dual Injection mode support implemented for 6890 GCs. In case of 68xx GCs Dual Injection the hardware configuration is about to be done as described in the section **Devices Setup on pg 32** because the autosampler control is implemented through DataApex 68xx Control Module.

2 Requirements

- **Clarity** Installation CD ROM with GC Control module (p/n A23).

When using LAN communication

Note: LAN communication is supported since **Clarity** 2.4.

- LAN card in the PC
- Cross LAN cable (p/n SK08).

When using COM communication

- Free serial port in the PC (fast - 16550 UART).

Note: Modern computers usually have only 1 (if any) serial (COM) port installed. To use more devices requiring the port, the **MultiCOM** adapter (p/n MC01) is available.

- Serial cross DB9F-DB9F cable (p/n SK01).

Note: Cables are not part of **Clarity** Control Module. It is strongly recommended to order required cables together with the Control Module.

3 Installation Procedure

3.1 Agilent 68xx - Communication

- It is necessary to find out the communication parameters for the desired type of communication (LAN or COM). These parameters will then have to be set in the **Clarity GC Control** module. The GC communication settings are accessible by the Options button from the GC keyboard, then scroll to the Communications section.

Note: **Agilent 6850 GC** can also be purchased without the display unit for setting the communication parameters. It is then necessary to obtain the communication parameters from the Agilent service technician.

- Connect the appropriate cables between the GC chromatograph and PC.

Note: When connecting the 6850 model it is necessary to observe following sequence of steps: 1) connect the cables, 2) then switch on the PC, 3) then switch on the GC. This model detects the type of communication (COM or LAN) automatically.

Serial Connection

The **Agilent 68xx** chromatograph may be controlled by serial (RS232) communication. It uses standard serial cross cable DB9F-DB9F wiring described in the picture.

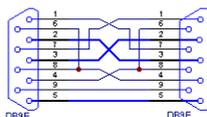


Fig 2: Serial cross cable DB9F - DB9F

For RS 232 communication, the settings should be set to 8 data bits, 2 stop bits, no handshake. Baud rate and terminating sequence must comply with the settings in **Clarity**. When you have the **Agilent 6850** model without display and you do not know the *Baud Rate*, it will most probably be set to *9600*. The Controller Module may be needed to determine or change the settings during the installation, but it is not needed for normal operation.

Note: If serial communication cannot be established and all parameters of communication are correctly set (speed, parity, etc.), then we recommend to remeasure the cable according to the following scheme (especially pin connection 2 and 3).

LAN connection

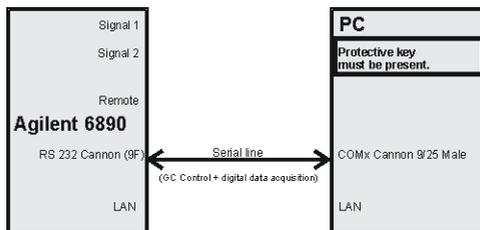
Caution: Do not use the **Agilent 68xx** DHCP server feature.

When using the LAN communication it is recommended to attach the GC chromatograph directly to the PC avoiding HUBs, Switches etc. Contact your local LAN administrator who can make the appropriate settings.

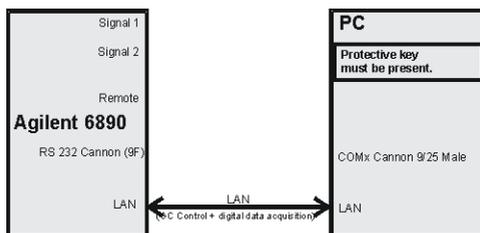
Caution: **Cross LAN** cable is primarily used for the direct connection of the chromatograph and the PC. This cable can also be used for the connection of the device to the switch or network socket, but with older switches, the **straight LAN** cable might be necessary.

3.2 Connections

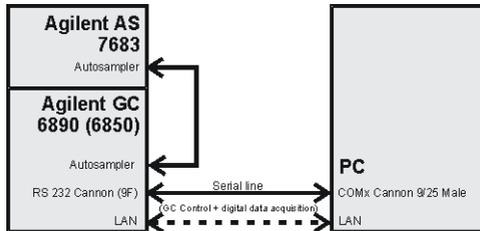
3.2.1 Wiring



AGILENT 6890 - RS232 with digital acquisition



AGILENT 6890 - LAN with digital acquisition



AGILENT 6890N (6850) - with AS 7683

Note: Cables are not part of **Clarity** Control Module. It is strongly recommended to order required cables (p/n SK) together with the Control Module.

3.2.2 Description of connectors:

Signal 1 (2)

- PS/2 connectors with output of both analog amplifiers (connected to detector).

Note: Not necessary when using the digital acquisition.

Remote

- 9 pins male Cannon connector dedicated to send start signal to **Clarity**.

Note: Not necessary when using digital acquisition

RS232

- 9 pins male Cannon connector for direct control and digital acquisition. It also may be labeled "Modem" on some 6890 models.

LAN

- RJ45 connector

Note: Consult the servis manual relevant to the GC type.

3.2.3 Connect chromatograph/s to a Single PC

A single PC equipped with LAN card can be used together with **Agilent 68xx**. When using a **switch** or a **hub**, multiple **Agilent 68xx** can be connected to one PC.

Settings

PC: LAN card, TCP/IP protocol.

Both PC and **Agilent 68xx** should be configured on the same IP range.

Caution: Crossed LAN cable is required (in case the **Agilent 68xx** is connected to LAN card directly, without using the **switch**).

Tab 2: Recommended IP settings:

	Agilent 68xx	LAN card
IP	192.168.0.200	192.168.0.1
Port	80	---
Subnet Mask	255.255.255.0	255.255.255.0
Default Gateway	192.168.0.1	192.168.0.1
Accept From IP	0.0.0.0	---
Accept From Subnet Mask	0.0.0.0	---

Firewall

Ensure that the firewall does not block communication from the **Agilent 68xx**.

Internet connection

Be aware that many Internet connections are provided using the LAN card. If this is the case a separate LAN card must be configured for each Internet and **Agilent 68xx**.

3.3 Clarity Configuration

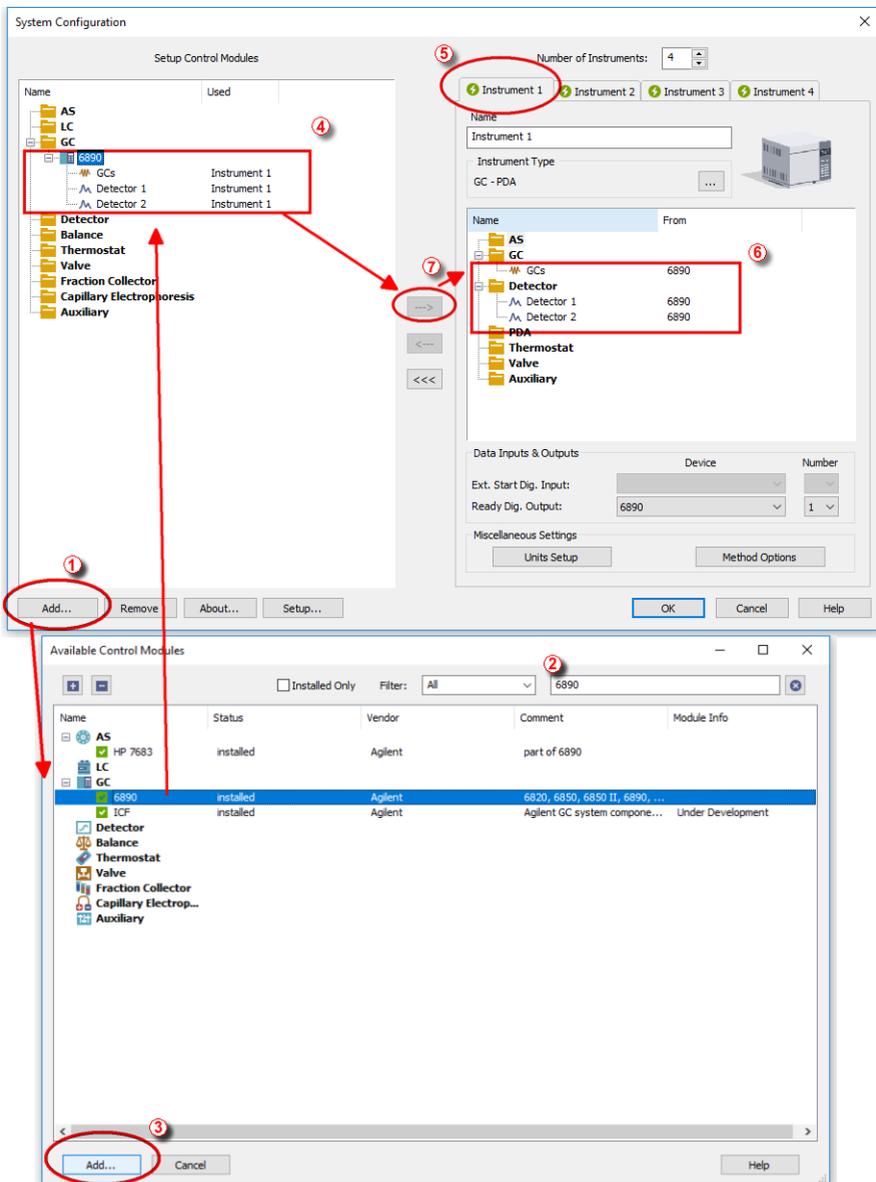


Fig 3: How to add Agilent 6890



- Start the **Clarity** station by clicking on the  icon on the desktop.
- Invoke the **System Configuration** dialog accessible from the **Clarity** window using the *System - Configuration...* command.
- Press the *Add* button ① (see **Fig 3** on pg **9**.) to invoke the **Available Control Modules** dialog.
- You can specify the searching filter ② to simplify the finding of the driver.
- Select the **6890** gas chromatograph and press the *Add* ③ button.

The **Agilent 68xx Setup** dialog will appear.

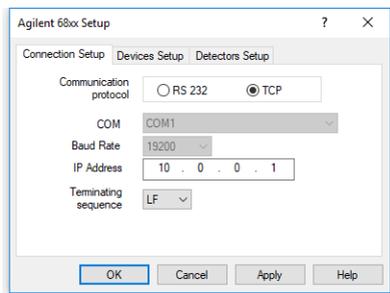


Fig 4: Agilent 68xx Setup

- Select the correct type of the *Communication protocol* and fill in the appropriate *COM* and *Baud Rate* or *IP Address* field. Switch to the **Devices Setup** tab and press the *Auto Detect* button. If the communication is correct, the *Version of the Agilent GC* field should be correctly filled. Check the other fields in the **Agilent 68xx Setup** dialog and press the **OK** button.

Note: The **Agilent 68xx Setup** dialog is more closely described in the chapter "**Agilent 68xx Setup**" on pg 31.

The **Agilent 6890** gas chromatograph item will appear in the *Setup Control Modules* list of the **System Configuration** dialog.

- Drag and drop the **6890** icon from the *Setup Control Modules* ④ list on the left side of the **System Configuration** dialog to the desired *Instrument* ⑤ tab (the *Instrument Type* must be set to *GC*) on the right side ⑥ (or use the  button ⑦ to do so).

Note: Drag only one detector to the **Instrument** tab if you do not wish to acquire both signals simultaneously.

- Set the initial state of the **Agilent 68xx GC** start input according to the expected mode of the operation - the *Initial* value for the operation without the autosampler or for the *PASSIVE* sequence usage should be *Ready*, while the *Initial* state for the operation in the *ACTIVE* sequence has to be set to *Not Ready*. The *Initial* value can be set using the *System - Digital Inputs...* command from the main **Clarity** window. The dialog is more closely described in the chapter "**Digital Outputs**" on pg 12.

3.3.1 Digital Outputs

The **Host Ready Control** dialog defines the initial state of **Agilent 68xx** digital output, used for synchronisation with autosamplers or other external devices.

It is accessible using the *System - Digital Outputs* command from the **Clarity** window.



Fig 5: Host Ready Control

When multiple devices are configured on **Clarity**, select the **Agilent 68xx** driver from the list.

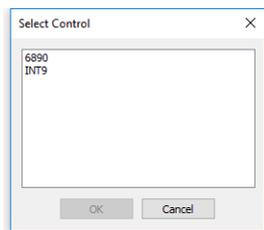


Fig 6: Select control window

The default settings (Ready) are necessary for operation without autosampler, otherwise the GC will be still in *HOST NOT READY* state.

Caution: For Active Sequence, it must be changed to *NOT READY* state.

The Active Sequence changes the digital output state level when the command for injection is sent out and again back, when the injection is performed. If it was initially *READY*, it would have been changed to *NOT READY* and the sampler would be prevented from injection by the *HOST NOT READY* state. It is necessary to restart the **Clarity** station after the setting for the changes to take effect.

4 Using the Control Module

New **Method Setup - GC** tab appears in the **Method Setup** dialog, enabling the setting of the **Agilent 6890** gas chromatograph control method. In case the digital acquisition is used, the **Method Setup - Acquisition** tab will also appear in the **Method Setup** dialog allowing to set the acquisition parameters.

If the **7683** or **ALS 6850** autosampler is configured, there will also be **Method Setup - AS** tab present for setting the autosampler method.

4.1 Method Setup - GC

The *Method Setup - GC* dialog consists of several sub-tabs assigned for the various parts of the **Agilent 6890** GC method. These sub-tabs are **Oven/Zones**, **Front (Back) Inlet**, **Front (Back) Detector**, **Column 1 (Column 2)**, **Signals**, **Valves**, **Time Events**, **Auxiliary** and **Gradients**. Additional buttons allow to display the **Hardware Configuration** dialog of the **Agilent 6890** gas chromatograph or to read the instrument method from the **Agilent 6890** gas chromatograph. The method is sent to the GC every time the *Send Method* or *OK* button is pressed. Other actions in different windows may also cause the sending of the instrument method to the controlled devices including the **Agilent 6890** gas chromatograph - most notable cases being pressing the *Send Method* button in the **Single Run** dialog or starting a new injection from the **Sequence** window (each injection is preceded with sending the instrument method).

To read the **Agilent 6890** method from the gas chromatograph it is necessary to use the *From GC* button available from all sub-tabs of the **Method Setup - GC** dialog. If the instrument method is already established in the GC, it is advisable to download it to **Clarity** using the *From GC* button and save it as a **Clarity** method.

To find the **Agilent 6890** configuration, use the *GC Status* button to display the **Hardware Configuration** dialog.

Caution: The appearance of the individual dialogs depends on actual configuration of the **Agilent 68xx** chromatograph. Individual options (e.g. its availability) may also depend on the settings of other options across the tabs. For example setting in one tab can disable another option on another tab.

4.1.1 Oven/Zones

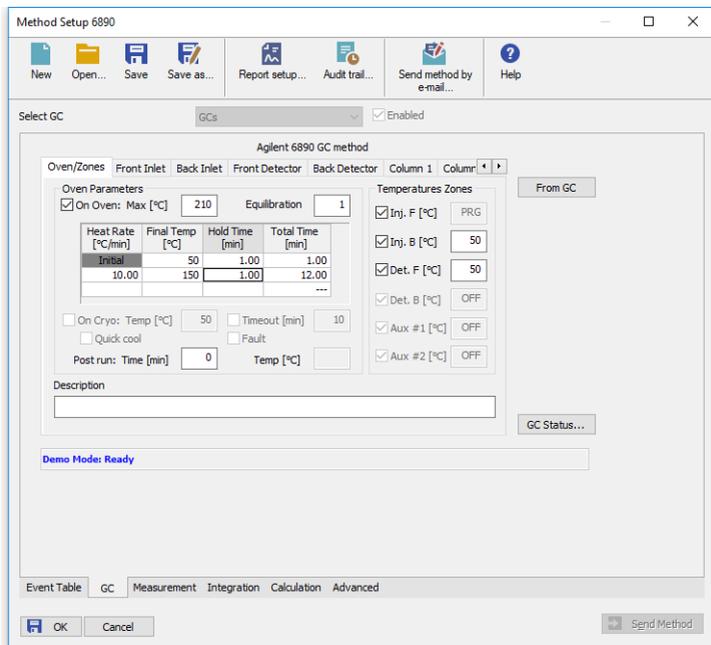


Fig 7: Method Setup - GC - Oven/Zones

This tab allows to set the parameters for oven and temperature zones. Particular fields may vary, according to the configuration.

Oven : Max

Sets the maximal allowed temperature for the column oven.

Note: Please note that the maximum value may differ for certain GC models. In particular, some models of **Agilent 6890** may have maximum oven temperature higher than common 350 °C.

Equilibrly

Sets the time of oven temperature equilibration.

Gradient Table

Sets the *Heat Rate*, desired temperature (*Final Temp*) and time to hold this temperature (*Hold Time*). The *Total Time* column will be calculated automatically. In other words, for isothermal part of the temperature gradient, the temperature set in *Final Temp* will be kept for the interval set in *Hold Time*. To delete a row, simply delete the value in the *Heat Rate* column on that row.

Cryo

This section governs the behavior of the cryogenic cooling, if it is present in the chromatograph and configured in the [Agilent 68xx Setup](#) dialog. The whole section can be modified only after checking the checkbox.

Cryo Temp

Sets the temperature setpoint for the cryogenic cooling.

Quick Cool

Turns on/off the Quick Cool feature.

Timeout

Turns on/off and setting the setpoint for Cryo Timeout.

Fault

When checked, GC shuts the oven down if it does not reach setpoint temperature after 16 minutes of continuous Cryo operation.

Post Run (Time and Temp)

Sets the time and temperature of the Post Run period.

Temperature Zones

Sets the temperature of particular zones.

4.1.2 Front (Back) Inlet

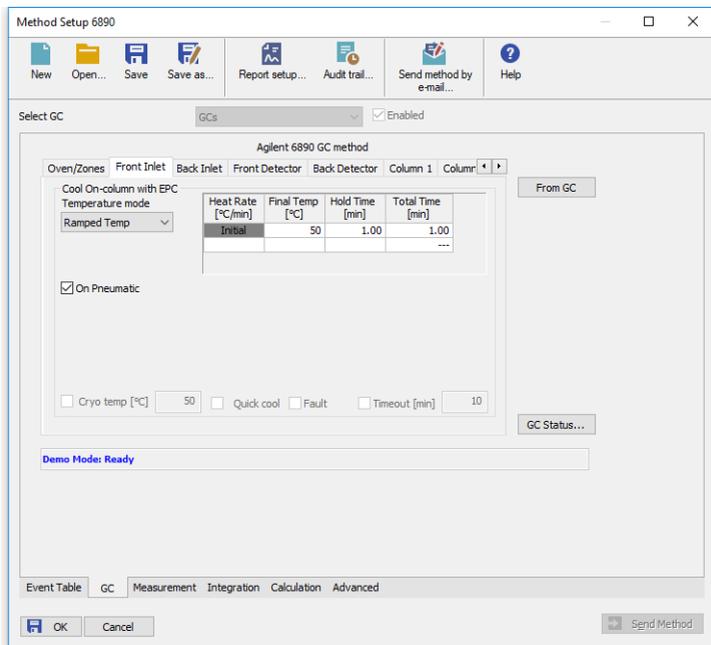


Fig 8: Method Setup - GC - Inlet

This tab governs the settings concerning the inlets of the **Agilent 68xx** chromatograph. According to configuration of particular chromatograph, there can be **Front Inlet** or **Back Inlet** tabs, both with the same appearance. Particular fields may vary, according to the type of the inlet set.

Temperature Mode

Defines the temperature mode for the inlet.

Temperature Gradient Table

Allows to edit temperature ramp for the inlet (up to three rates and plateaus).

Injection Pulse (Press + Time)

Sets the pressure and duration of pressure pulse during injection of the sample.

Pneumatic Mode

Defines the operation mode for the injector port.

Total Flow

Turns on/off and sets the flow rate for carrier gas. The value entered here is used only when there are no columns defined on the GC, however the checkbox have to be checked in order to the inlet work properly.

Split Ratio

The ratio of split vent flow to column flow. This line appears only if the columns in the flow path are defined.

Purge Flow

Sets the flow rate from the purge vent.

Purge Time

Sets the time, after the beginning of the run, when you want the purge valve to open.

Saver (Flow +Time)

Turns on/off and setting the flow and time for the Gas Saver.

Cryo Temp

Sets the temperature setpoint for the cryogenic cooling.

Quick Cool

Turns on/off the Quick Cool feature.

Fault

When checked, GC shuts the oven down if it does not reach the setpoint temperature after 16 minutes of continuous Cryo operation.

Timeout

Turns on/off and setting the setpoint for Cryo Timeout.

4.1.3 Front (Back) Detector

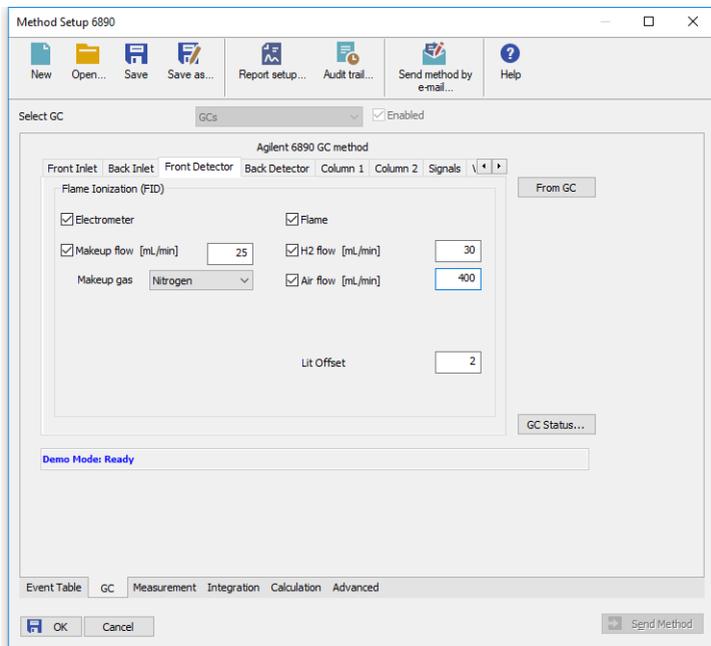


Fig 9: Method Setup - GC - Detector

This tab allows to set the parameters for the detectors available on the GC. Particular fields may vary, according to the type of the detector set.

Makeup Flow

Turns the makeup gas flow on and off, eventually sets the flow. Available for most detectors.

Makeup Gas

Sets the type of makeup gas used for detector. Available for most detectors.

Flame

Turns the detector flame on and off. After turning on turns on the air and hydrogen and initiates the ignition sequence. The temperature of the detector must be greater than 150 °C for the flame to light. Available for FID and FPD detectors.

H2 Flow

Sets the hydrogen flow into the detector. The flow of hydrogen will be turned off automatically after turning off the flame. Available for FID, FPD and NPD detectors.

Air Flow

Sets the air flow into the detector. The flow of air will be turned off automatically after turning off the flame. Available for FID, FPD and NPD detectors.

Negative Polarity

Reverses the polarity of detector signal. Available for TCD detector.

Reference Flow

Sets the flow of reference gas for the detector. Available for TCD detector.

Electronics

Turns on/off the detector electronics. Available for ECD detector.

Lit Offset

Sets the lit offset value. Available for FID, NPD and FPD detectors.

Bead Voltage

Sets the bead voltage. Field is active only with *Auto Adjust* checkbox unchecked. Available for NPD detector. It is important to set the proper voltage for actually installed bead because setting the voltage too high can destroy the bead irreversibly.

Electrometer

Turns On/Off the electrometer of the detector. Available for FID, NPD, FPD and AIB detector.

Filament

Turns On/Off the filament of the detector. Available for TCD detector.

Anode Flow

Turns On/Off and sets the anode purge flow for the detector. Available for ECD and micro ECD detector.

Target Output

Sets the Target Output for the detector. Available for NPD and ECD detector.

Ref.Current

Sets the reference current for the detector. Available for ECD detector.

Equilibration [min]

Sets the equilibration time for the detector. Available for NPD detector.

4.1.4 Column

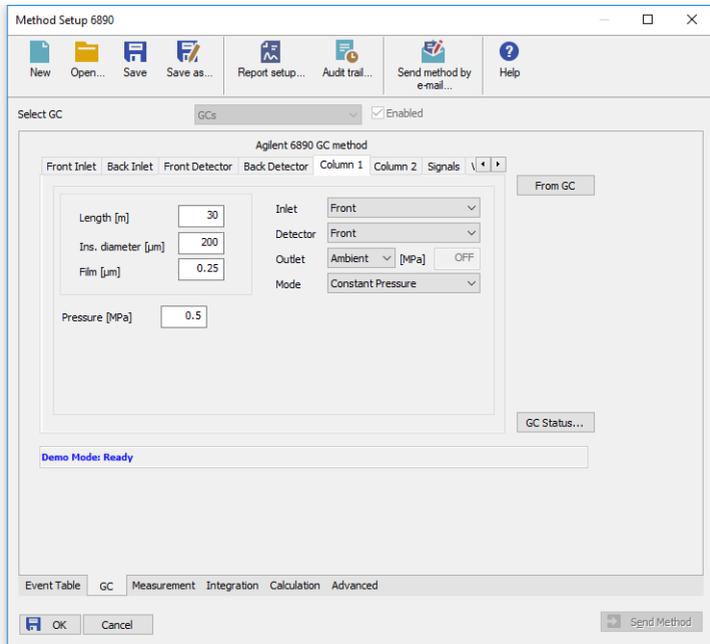


Fig 10: Method Setup - GC - Column

This tab allows to set the parameters for a columns available on the GC. Particular fields may vary, according to the column mode selected.

Length

Sets the length of the column.

Ins. Diameter

Sets the internal diameter of the column.

Film

Sets the thickness of coating of the column.

Inlet

Sets to which inlet is the particular column connected.

Detector

Sets to which detector is the particular column connected.

Outlet

Sets the outlet type of particular column.

Mode

Sets the pressure/flow mode of the column.

Pressure/Flow Gradient Table

Allows to edit the pressure or flow ramp for the column (up to three rates and plateaus). Active in *Pressure Ramp* or *Flow Ramp* mode only.

Pressure

Sets the pressure of a carrier gas in the column. Active in *Constant Pressure* mode only.

Flow

Sets the flow rate of a carrier gas in the column. Active in *Constant Flow* mode only.

4.1.5 Signals

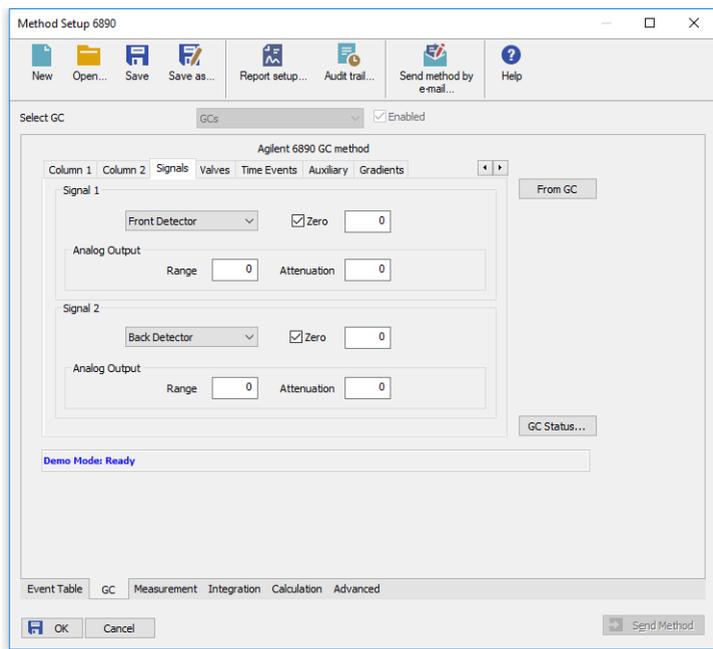


Fig 11: Method Setup - GC - Signals

This tab allows to set the parameters for a signals provided by the GC. For each signal there is a section on the screen, allowing to set parameters for particular signal. Each section allows to set the source (detector) for the output signal set later on the [Method Setup - Acquisition](#) tab.

Note: The Signal 1 or 2 will be then sent to the **Clarity** chromatography station either through analog output to a particular channel of an A/D converter (e.g. **INT7** or **U-PAD**) or using the digital acquisition. This setting is performed in the [Agilent 68xx Setup](#) dialog.

Signal 1 (2)

Selects the source of the signal (detector or auxiliary signal).

Zero

Turns On/Off the signal zeroing and sets the offset of the signal.

Range

Sets the range of the analog signal, as negative binary exponent of the range. 0 = default range, 1 = 50% of the default etc.

Attenuation

Sets the attenuation of the analog signal, as negative binary exponent.

4.1.6 Valves

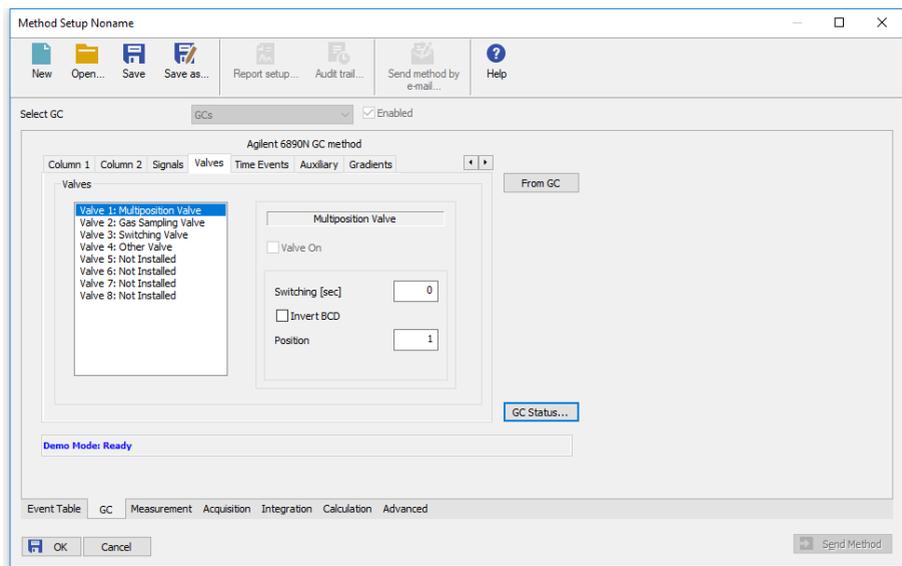


Fig 12: Method Setup - GC - Valves

This tab allows to set the parameters for valves available on the GC. Particular fields may vary, according to the valves installed.

4.1.7 Time Events

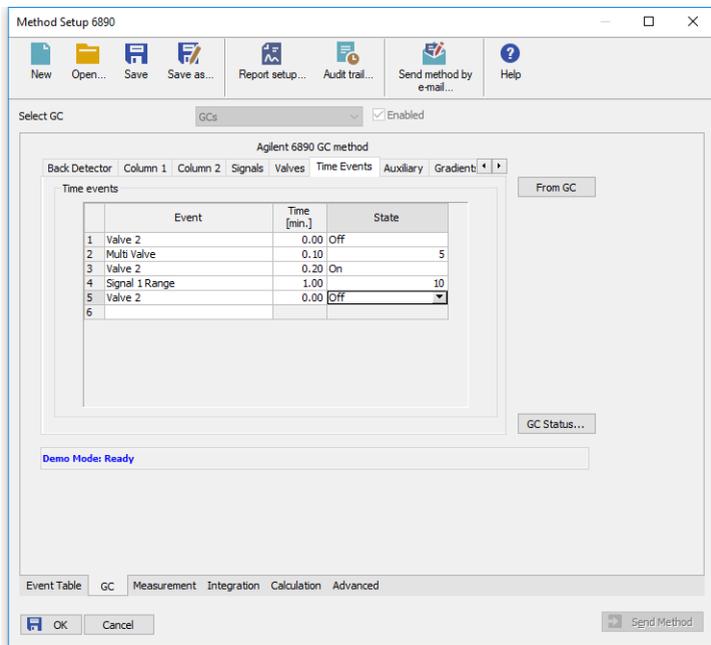


Fig 13: Method Setup - GC - Time Table

This tab allows to set the events that will be triggered during the run based on the analysis time. This includes events like switching the detector range or signal source (where applicable), setting temperatures to detector / injector / auxiliary zones, controlling the valves etc. To delete a row, simply delete the value in the *Time* column on that row.

4.1.8 Auxiliary

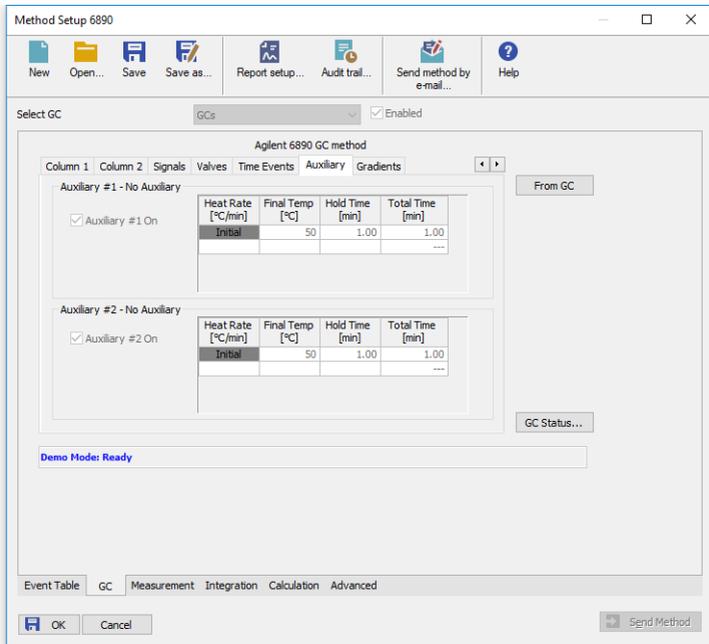


Fig 14: Method Setup - GC - Auxiliary

This tab allows to set the parameters for an auxiliary devices available on the GC. Particular fields may vary, according to the device installed.

4.1.9 Gradients

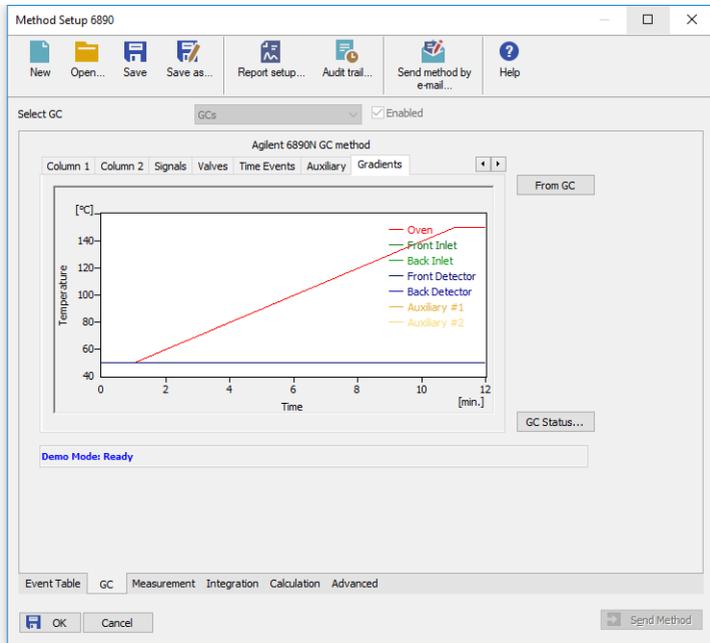


Fig 15: Method Setup - GC - Gradients

This tab displays the temperature gradient as set on the [Method Setup - GC - Oven/Zones](#) tab. Also the other gradients (for inlets, detectors etc.) can be displayed here.

4.2 Method Setup - Acquisition

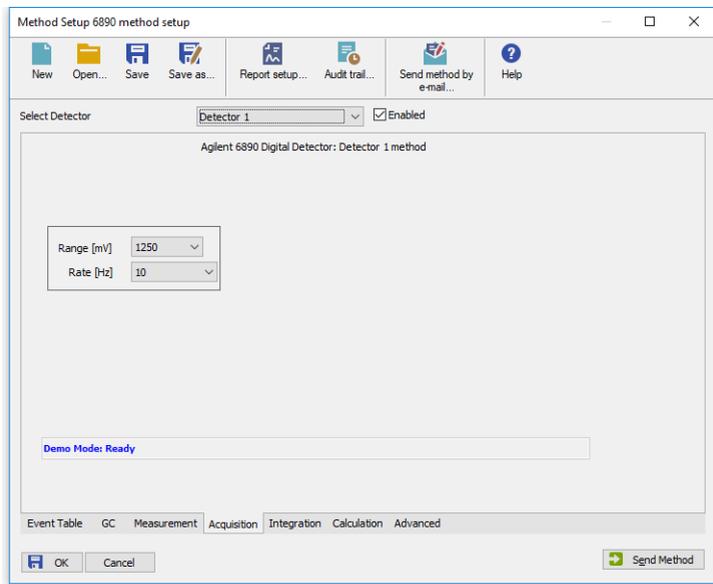


Fig 16: Method Setup - Acquisition

This dialog allows to set the *Range* and sampling *Rate* of the particular detector, which can be switched or disabled in the upper section of the tab using the *Select Detector* drop-down menu.

Range

Sets the signal range of the detector. Signals that will exceed the value set in the *Range* field will be cut in the resulting chromatograms.

Rate

Sets the sampling rate of the detector. The default value for the **Agilent 6890** detectors is 10 Hz.

Caution: When using another sample rate (*Rate*) then the default in **Single Run** analyses, it is necessary to send the method to the device manually before starting the acquisition (using the **Send Method** button in the **Method Setup** dialog). The GC resets the setting to default every time it gets into sleep mode or when switched off.

Note: In case of digital acquisition the signal is transmitted to the PC only when GC is running. When the run is finished (e.g. after elapsing the time set in the gradient table), GC is sending a monitoring signal, not suitable for real analysis.

4.3 Method Setup - AS

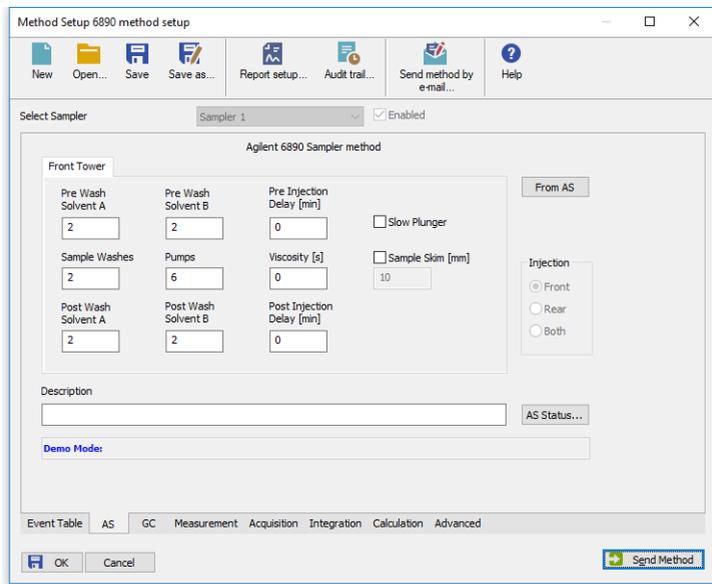


Fig 17: Method Setup - AS - Front Tower

This tab allows to set the parameters of the injection cycle for the **Agilent 7683** or **ALS 6850** autosampler, if it is connected to the GC and configured in the [Agilent 68xx Setup](#) dialog. In case the autosampler has two towers, two sub tabs will be present in the dialog.

The *From AS* button loads the sampler method from the sampler, while the AS Status command opens the [Hardware Configuration](#) dialog for the autosampler allowing to check the settings of the autosampler.

Pre Injection Delay

Sets the time the needle remains in the inlet before the injection.

Post Injection Delay

Sets the time the needle remains in the inlet after the injection.

Pre Washes

Sets how many times the syringe will be washed by a particular solvent or sample before the injection.

Post Washes

Sets how many times the syringe will be washed by a particular solvent after the injection.

Pumps

Sets how many times the syringe plunger is moved up and down with the needle in the sample.

Viscosity

Sets how many seconds the plunger pauses at the top of the pump and injection strokes.

Sample Skim

Sets the depth offset of the syringe needle.

Injection

Sets which injector will be used for injection.

Note: Autoinjector turret without external tray does not support identification of missing vials. In case there will be requested to inject from position where vial is not placed the injection will take place as usual. This injection will result in chromatogram with unexpected signal pattern (for example).

4.4 Hardware Configuration

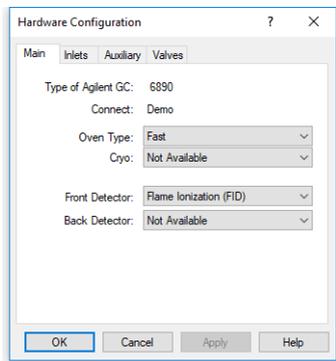


Fig 18: Hardware Configuration - GC

The *GC Status* button in the [Method Setup - GC](#) displays the [Hardware Configuration](#) dialog. In the full version, this dialog displays gas chromatograph model, automatically detected communication parameters and the presence of several optional parts of the **Agilent 6890** gas chromatograph.

In the demo version the presence of the particular options can be set to demonstrate the possibilities of the GC with selected configuration.

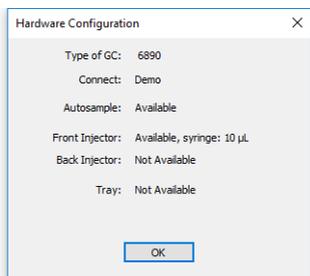


Fig 19: Hardware Configuration - AS

The *AS Status* button in the [Method Setup - AS](#) displays the [Hardware Configuration](#) dialog for the autosampler, showing the options set for the autosampler in the [Agilent 68xx Setup](#) dialog.

4.5 Device Monitor



Fig 20: Agilent 6890 Device Monitor

The Monitor window for the **Agilent 68xx** chromatograph displays all set and actual temperatures in each temperature zone and the column oven.

4.6 Agilent 68xx Setup

This dialog allows to configure the **Agilent 6890** GC. Please check the help file (accessed by pressing the **F1** key or *Help* button) or the **Agilent 6890** control module manual for the meaning of each item in the dialog.

4.6.1 Connection Setup

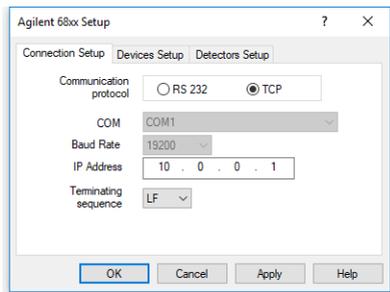


Fig 21: Connection Setup

The **Connection Setup** tab sets the communication parameters of the **Agilent 68xx** gas chromatograph.

Communication Protocol

Allows to select the communication protocol used. The selection in this section influences the availability of other fields on this tab - when *RS 232* is selected, user may set the *COM* and *Baud Rate* values, while when the *TCP* option is selected, the *IP Address* needs to be set. The communication selected in this dialog must match the communication parameters set in the GC itself - for more details please see the the chapter "**Installation Procedure**" on pg 4.

Terminating Sequence

Allows to select the terminating sequence for communication between the **Agilent 6890** GC and the computer.

4.6.2 Devices Setup

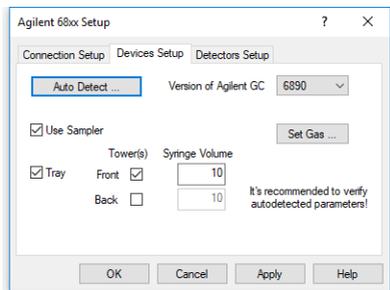


Fig 22: Devices Setup

The **Devices Setup** tab sets the properties of the **Agilent 6890** chromatograph, including its type, autosampler settings and the carrier gas settings.

Auto Detect

Using the Auto Detect button reads the values from the **Agilent GC** configuration using the communication parameters set on the **Connection Setup** tab and sets them into the **Agilent 68xx Setup** dialog. It is recommended to check the autodetected settings against the real configuration of the GC.

Version of Agilent GC

Selects the version of the GC. The selection in this field may influence the availability of some parameters in the **Agilent 68xx Setup** dialog and in the **Method Setup - GC** dialog.

Pressure Unit

Sets the pressure units used by the **Agilent 6890** gas chromatograph. All values concerning the pressure in the **Method Setup - GC** dialog will be shown in the selected units.

Set Gas

Invokes the **Set Gas** dialog, allowing to set the type of the carrier gas.

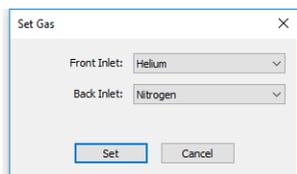


Fig 23: Set Gas

Use Sampler

Allows or disallows the usage of the **Agilent 7683** or **ALS 6850** autosampler controlled through the GC.

Tray

Sets whether the connected **Agilent 7683** autosampler uses the vial tray. If this checkbox is checked, presence of one or two autosampler towers may be set using the appropriate checkbox in the *Tower(s)* column, and the volume of the syringe(s) may be set in the *Syringe Volume* column.

4.6.3 Detectors Setup

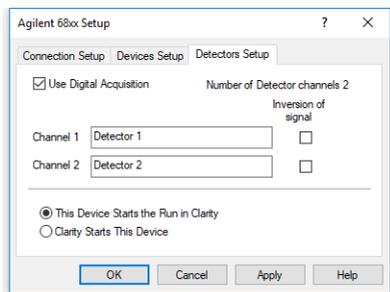


Fig 24: Detectors Setup

The [Detectors Setup](#) tab sets the properties of the **Agilent 6890** detectors.

Use Digital Acquisition

Sets whether the chromatograph allows the gathering of the data using the digital acquisition, or if the A/D converter has to be used for that purpose. Without digital acquisition, some fields on the [Detectors Setup](#) tab and in the [Method Setup - GC](#) dialog will be disabled (inactive).

Channel 1 (2)

Allows to set a custom name for both detector signals. This name will be then displayed in the [System Configuration](#) dialog.

Inversion of signal

When checked, inverts the polarity of the signal given by the detector (negative peaks become positive and vice versa). This may be important as **Clarity** is better suited for detection of positive peaks than negative ones.

This Device Starts the Run in Clarity / Clarity Starts This Device

This radiobutton enables to start the analysis run from the **Clarity**. With *This Device Starts the Run in Clarity* checked, the device is started prior to **Clarity** by its front button or autosampler connected to this device and passes the start to **Clarity**. When *Clarity Starts This Device* is checked, **Clarity** is started prior to this device by separately wired autosampler, Start button in Single Run or different device and then starts this device.

Note: The *This Device Starts the Run in Clarity* option is checked by default.

5 Troubleshooting

When the remedy for some problem cannot be discovered easily, the recording of communication between **Clarity** and the thermostat can significantly help the **DataApex** support to discover the cause of the problem.

The recording can be enabled by adding or amending the COMMDRV.INI file in the **Clarity** installation directory (C:\CLARITY\CFG by default). The file can be edited in any text editor (e.g. Notepad). Following section should be edited or added:

```
[COM1]
echo=on
textmode=on
filename=Agilent_68xx_%D.txt
reset=off
```

Note: %D (or %d) in the filename parameter means that the log will be created separately for each day. The *reset=off* parameter disables deleting the content of the log each time the station is started during the same day.

Instead of COM1 type the correct port used to communicate with the **Agilent 68xx** chromatograph. This information is displayed when the GC *Status* button in the [Method Setup - GC](#) dialog is invoked or in the [Agilent 68xx Setup](#) dialog.

- For operating the **Agilent 68xx** chromatograph over the serial line, the correct format is [COMx].
- For operating the **Agilent 68xx** chromatograph over the LAN, the correct format is [TCP_IP xxx.xxx.xxx.xxx:yyyy] where the x part corresponds to the IP address and y part to the port (9100 by default) used for the LAN communication.

The created *.TXT files found in the **Clarity** installation directory (C:\CLARITY\CFG by default) will greatly help in diagnosis of unrecognized errors and problems in communication. Note that the file size may be quite significant, so in case the error occurs on a regular basis, it might be better to set the Reset=on, start **Clarity**, invoke the error, close **Clarity** and send the diagnostics file (the file will be once more reset during the next start of **Clarity**).

5.1 Specific Problems

The display on the Agilent 68xx chromatograph shows the "Host not ready" message and the analysis run will not start.

Description: The reason is most probably wrong setting of the *Initial* state of the **Agilent 68xx** external start input.

Solution: Check the *Initial* state of the digital outputs of the **Host ready Control Agilent 6890**. For manual injection or passive sequence using the autosampler, the state should be *READY*, while for active sequence with autosampler it must be *NOT READY*. Restart the **Clarity** station afterwards for the changes to take effect. This dialog can be invoked by the *System - Digital Outputs...* command from the main **Clarity** window.

The display on the Agilent 68xx chromatograph shows the "Buffer Overflow" message.

Description: Communication speed (Baud rate on serial line) is probably too low, so the 6890 internal buffer is getting overflow.

Solution: Increase the communication speed (recommended value is 57600 Baud). This must be done both in **Clarity Agilent 68xx Setup** dialog and on the GC. GC must be restarted for the change to take effect. In such case please consider that some data will be probably missing in the resulting chromatogram, so it will be wise to repeat particular sample analysis.

Error while starting the sequence.

Description: The *ACTIVE* sequence should be started from **Clarity** environment. If it is started from both **Clarity** and the **GC Keyboard** simultaneously, an error message will be issued.

Solution: Only start the *ACTIVE* sequence from **Clarity**.

Problems with Agilent 68xx LAN connection.

Description: Most probably, the **Agilent 68xx** is set to work as a DHCP server in its configuration.

Solution: When connecting the 68xx to a PC using the LAN cable, do not use the DHCP server feature. Please refer to the **Agilent 68xx** manual for tips on how to set the DHCP server feature off.

If the DHCP server setting is not the cause, check the IP address settings and the type of cable used. For more details see the chapter **"Installation Procedure"** on pg 4.