# DataApex

# Clarity™

## CHROMATOGRAPHY SOFTWARE

# AGILENT 7890

Clarity Control Module                    ENG

# Contents

To facilitate the orientation in the **Agilent 7890** 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 7890 Control module

This manual describes the setting of the **Agilent 7890** chromatograph control module. Supported versions of the chromatograph are **7890A** and **7890B**. The control module enables direct control of the instrument over Local Area Network (LAN).



*Fig 1: Agilent 7890A Gas Chromatograph (with 7683 autosampler)*

## 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 7890 GCs are possible. To find out if desired combination of autosampler and 7890 GC is available refer to following table.

*Tab 1: Possible combinations of Agilent autosamplers and Agilent gas chromatographs:*

|                |      | Autosamplers | | | |
|----------------|------|------------------|------|------|------|
|                |      | **7673** (A, B, II) | **7683** | **7693** | **6850** |
| Chromatograph  | **7890** | ✖ | ✔ | ✔ | ✖ |

The autosampler 7683 (or 7693) is connected to GC via Agilent proprietary connection and its hardware configuration is described in the section **Sampler tab on pg 32** because the autosampler control is implemented through DataApex 7980 Control Module.

There is a Dual Injection mode support implemented for 7890 GCs. In case of 7890 CGs Dual Injection hardware configuration is described in the section **Sampler tab on pg 32** because the autosampler control is implemented through DataApex 7890 Control Module.

# 2 Requirements

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

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*Caution:*　　Minimal firmware version required for **7890A** and **7890B** is **A.01.10.0**.

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

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*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 7890 Setup - Communication

The GC must be fully configured prior to connecting to **Clarity**. No special settings have to be made on the **Agilent 7890** chromatograph, only the correct IP address of the instrument (set on the OPTIONS key screen by using COMMUNICATION - IP item). A default IP address of most Agilent GC's is 10.1.1.101 which is suitable only in case the GC is connected directly to computer using separate network.

*Caution:*    Do not use the **Agilent 7890** 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.
In case your network uses firewall for protection, make sure that connection is not blocked in **both** directions. (chromatograph uses separate connection for control communication and for data sending).

*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.
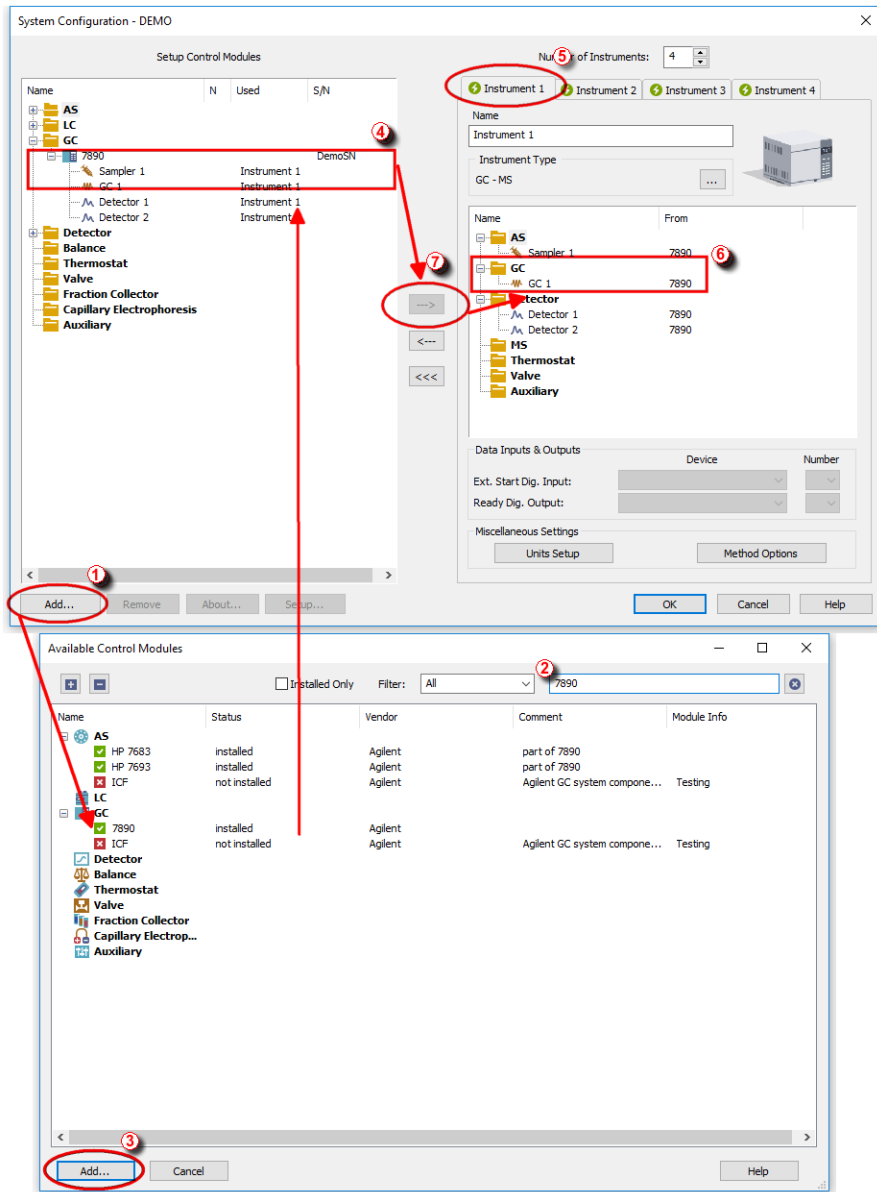
## 3.2 Clarity Configuration



*Fig 2: System Configuration*

- In the System Configuration dialog press the *Add* button ① to invoke the Available Control Modules dialog.

• Type "7890" into the searching field on the top of the dialog ② for quick filtering out the desired instrument.
   - Select the **Agilent 7890** in the **GC** section and press the *Add* button.③
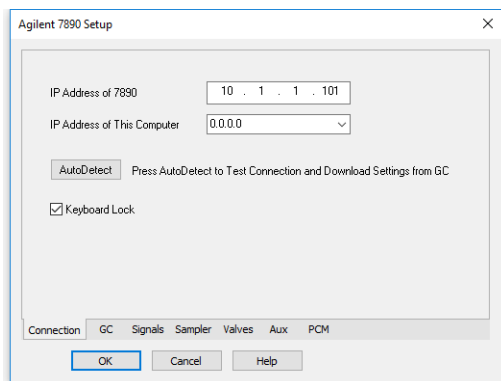   - The Agilent 7890 Setup dialog will appear.



*Fig 3: Agilent 7890 Setup*

- Fill in the *IP address of the 7890* and *IP address for receiving data* (i.e. IP address of computer with installed **Clarity** datastation). Ask your company's IT person if you don't know them. A default IP address of most Agilent GC's is 10.1.1.101 which is suitable only in case the GC is connected directly to computer using separate network.
- Press the *Autodetect* button to read all settings from the instrument. Upon successful detection the serial number of the GC will be displayed.

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*Note:*      In most cases it is recommended not to change the settings obtained through the *Autodetect* function. However some modules (e.g. PCM, valves or Aux Pressure modules) are not autodetected correctly and in certain systems it is necessary to set them manually.

• Check the *Keyboard Lock* checkbox for ensuring the exclusive access to the chromatograph. Apart from locking the keyboard of the device, this will also prevent other users connected to the same network from connecting to the chromatograph.
• Switch to the GC tab to verify the correct detection of injectors, inlets, detectors and columns. Do not change the autodetected values.
   - Switch to the Signals tab (for more details see the Agilent 7890 Setup dialog section later in the manual), select the correct number of signals

you want to acquire, name them and possibly check *This Device Starts the Run in Clarity / Clarity Starts This Device* radiobutton. The *Clarity Starts This Device* option should be checked only when the GC will not start the acquisition (that means it will not be triggered by the GC Start button, external start contact or autosampler). Press the *OK* button.

- On the Sampler tab verify the auto detected sampler version and components, set the *Syringe Size* and *Solvent Wash Mode*.
- On Valves tab verify the identified valves, on the Aux tab verify the detected auxiliaries.
- Press *OK*. The **Agilent 7890** item ④ will appear in the *Setup Control Modules* list of the System Configuration dialog.
- Drag the GC icon from the *Setup Control Modules* list on the left side to the desired *Instrument* tab ⑤ on the right side ⑥, or use the ⟶ button ⑦ to do so.

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*Note:*      In case there is no detector used with 7890 it is necessary to add other detector to the same Instrument (e.g. DEMO detector available on each station), otherwise it would be not possible to send the method and start the GC by **Clarity**.

# 4 Using the control module

New GC tab appears in the Method Setup dialog, enabling the setting of the GC control method. With an automatic sampler configured, AS tab also appears, allowing the setting of the autosampler method.

## 4.1 Hardware Configuration
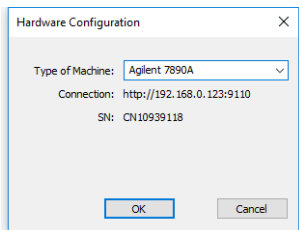


*Fig 4: Hardware Configuration*

This dialog is invoked by pressing the *GC Status* button in the Method Setup - GC dialog. Hardware Configuration dialog displays the type of the chromatograph, it's serial number and the IP address and port to which it is connected.

## 4.2 Method Setup - Autosampler



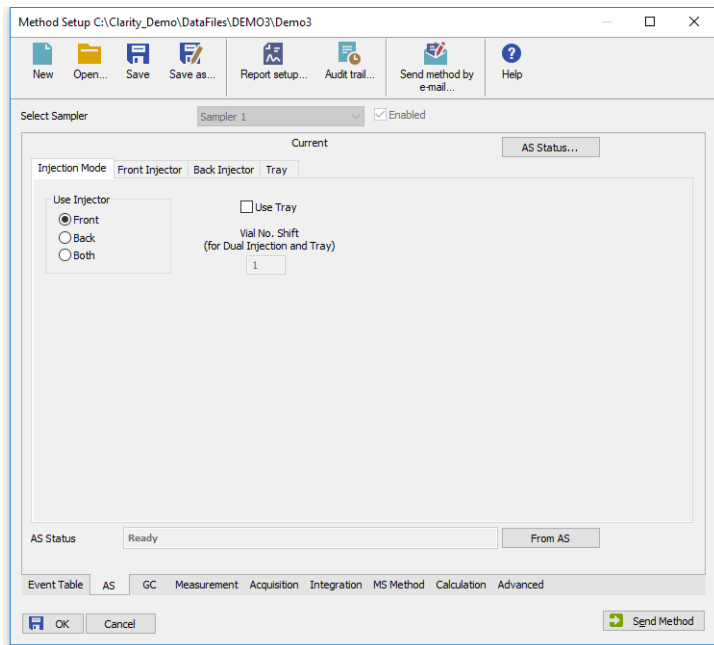*Fig 5: Method Setup - AS - Mode*

**Use Injector**
  Selects the injector which will be used.

**Use Tray**
  Checks if Tray will have to be used.

**Vial No. Shift**
  Sets the shift between numbers of vials injected by both injectors. Active with both injectors and tray used.

*Fig 6: Method Setup - AS - Injector*

**Number of Injections**
  Sets the number of injections performed with every sample.

**Multiple Injection Delay**
  Sets the delay between individual injections in case of multiple injections.

**Pre Injection Dwell Time**
  Sets the time the needle remains in the inlet before the injection.

**Post Injection Dwell Time**
  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.

**Volume**
  Sets the percentage of the syringe volume washed.

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

**Draw Speed**
Sets the speed of drawing the sample.

**Dispense Speed**
Sets the speed of injecting the sample.

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

**Depth offset**
Sets the depth offset of the syringe needle.

*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).

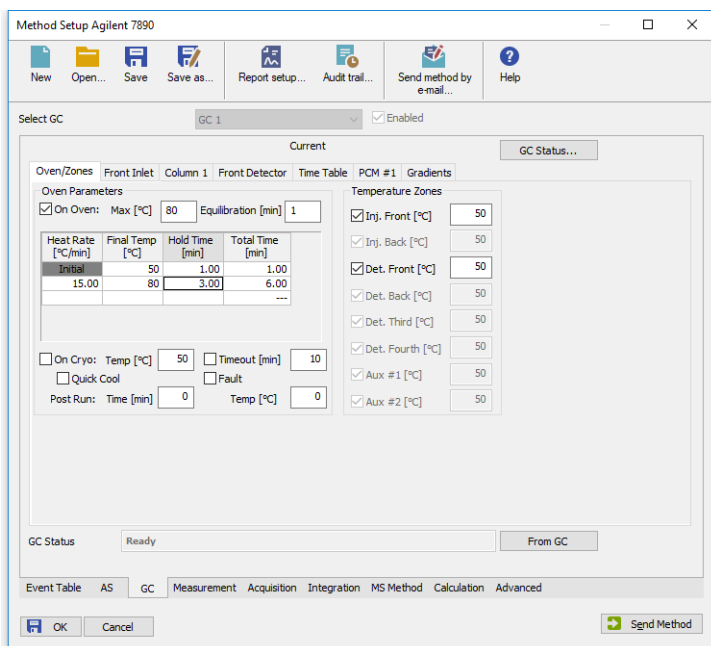# 4.3 Method Setup - GC

## 4.3.1 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.

**Equilibration**
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.

**Temperature Zones**
Sets the temperature of particular zones.

**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 setpoint temperature after 16 minutes of continuous Cryo operation.

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

**Post Run (Time and Temp)**
Sets the time and temperature of the Post Run period.
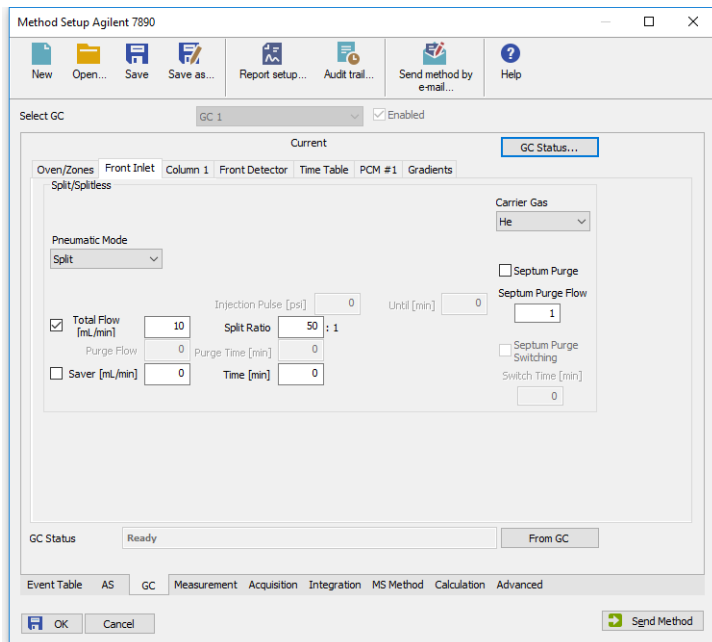
## 4.3.2 Front (Back) Inlet



*Fig 8: Method Setup - GC - Inlet*

This tab governs the settings concerning the inlets of the **Agilent 7890** 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. Available for COC and PTV inlets.

**Carrier Gas**
Sets the type of carrier gas used on this GC.

**Temperature Gradient Table**
Allows to edit temperature ramp for the inlet (up to three rates and plateaus). Available for COC and PTV inlets.

**Injection Pulse (Press + Time)**
Sets the pressure and duration of pressure pulse during injection of the sample. Available for PTV and Split/Splitless inlets.

**Pneumatic Mode**
Defines the operation mode for the injector port. Available for PTV and Split/Splitless inlets.

**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. Available for PTV, Purged Packed and Split/Splitless inlets.

**Split Ratio**
The ratio of split vent flow to column flow. This line appears only if the columns in the flow path are defined. Available for PTV and Split/Splitless inlets.

**Purge Flow**
Sets the flow rate from the purge vent. Available for PTV and Split/Splitless inlets.

**Purge Time**
Sets the time, after the beginning of the run, when you want the purge valve to open. Available for PTV and Split/Splitless inlets.

**Saver (Flow +Time)**
Turns on/off and setting the flow and time for the Gas Saver. Available for PTV and Split/Splitless inlets.

**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.

**Vent Flow**
Sets the flow rate for venting. Available for PTV inlet.

**Vent Press**
Sets the pressure of gas used for venting. Available for PTV inlet.

**Vent Time**
Sets the time of venting. Available for PTV inlet.

**Septum Purge**
Turns on/off the Septum Purge function.

**Septum Purge Flow**
Sets the flow rate for Septum Purge.

**Septum Purge Switching**
Turns on/off the Septum Purge Switching function. Available for splitless pneumatic mode.

**Switch Time [min]**
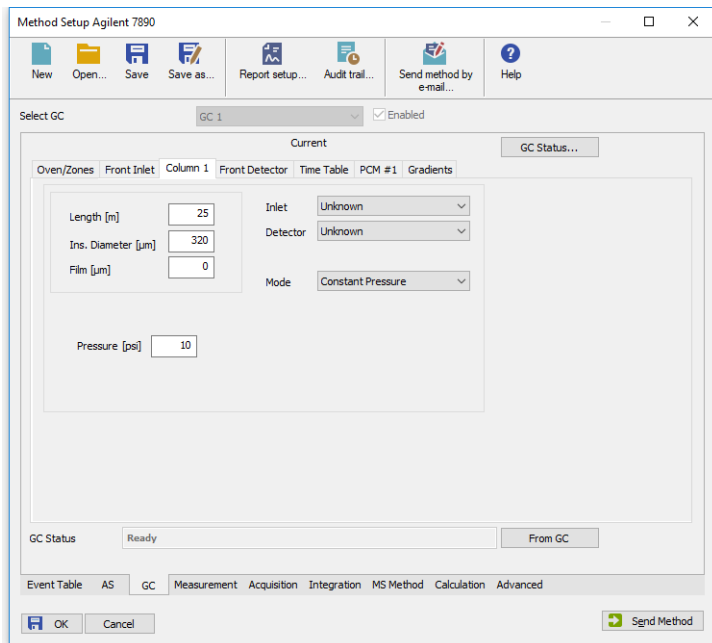Sets the time of Septum Purge Switching function.

### 4.3.3 Column #



*Fig 9: Method Setup - GC - Column*

This tab allows to set the parameters for a column configured in the **Agilent 7890 Setup** dialog. 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.

**Mode**
  Sets the temperature 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.

**Post Run (Flow or Pressure)**

Sets the flow or pressure rate of a carrier gas after finishing the gradient. Active in *Pressure Ramp* or *Flow Ramp* mode only.
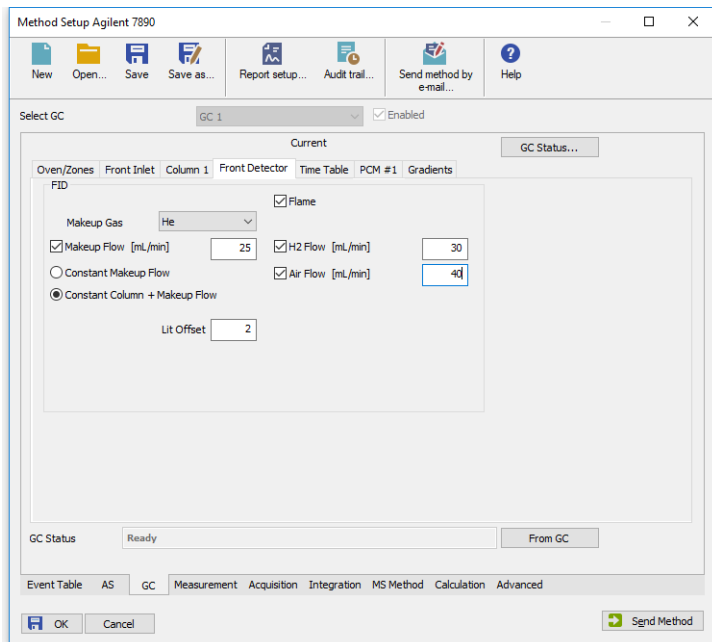
## 4.3.4 Front (Back) Detector



*Fig 10: Method Setup - GC - Detector*

This tab allows to set the parameters for the detector configured in the **Agilent 7890 Setup** dialog. 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.

**Constant Makeup Flow**
Sets the constant makeup flow into the detector. In this mode, GC will keep the actual makeup flow regardless of changes in the total flow during the GC run. Available for most detectors.

**Constant Column + Makeup Flow**
Sets the constant combined flow into the detector. In this mode, GC will be adjusting the actual makeup flow in order to keep the total flow constant. 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.

**Dual**

Turns on/off the Dual mode. Available for FPD detector.

**Electronics**

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

**Auto Adjust**

Turns on/off the automatic bead voltage adjusting. When checked, *Offset* field becomes active, allowing to set the desired current offset value. When unchecked, *Bead Voltage* field becomes active, allowing to set the voltage manually. Available for NPD 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.

**Dry Bead during Warm-up**

Turns on/off the Dry Bead function. This causes the detector to wait 5 minutes at 150°C during warming up. Available for NPD detector.

**Bead Type**

Sets the type of bead installed. It is important to set the proper type of bead because improper setting can destroy the bead irreversibly. Available for NPD detector.
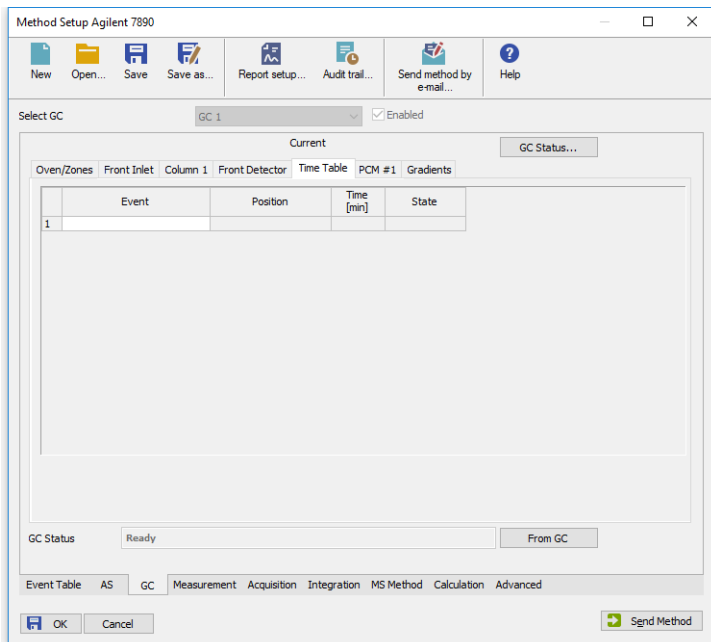
## 4.3.5 Time Table



*Fig 11: 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 polarity, 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.
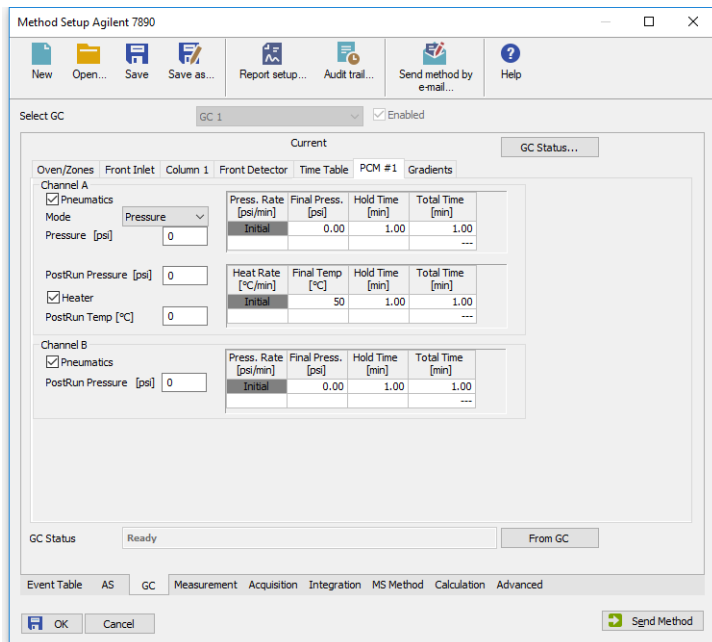
## 4.3.6 PCM



*Fig 12: Method Setup - GC - Inlet*

This tab governs the settings concerning the Pressure Control Modules installed in the **Agilent 7890** chromatograph. According to configuration of particular chromatograph, there can be several tabs, both with the similar appearance.

**Pneumatics**
Turns on/off the pneumatic control of a particular channel.

**Mode**
Sets the working mode of PCM Channel A.

**Pressure**
Sets the initial pressure (available only in Pressure mode).

**Total Flow**
Sets the initial Flow (available only in Flow mode).

**Postrun Pressure**
Sets the postrun pressure (available only in Pressure mode).

**Postrun Flow**
Sets the postrun Flow (available only in Flow mode).

**Gradient Table**

Sets the Pressure/Flow/Temperature rate, desired value and time to hold this value (*Hold Time*). To delete a row, simply delete the value in the *Rate* column on that row.

**Heater**

Turns on/off the heater.

**Postrun Temperature**
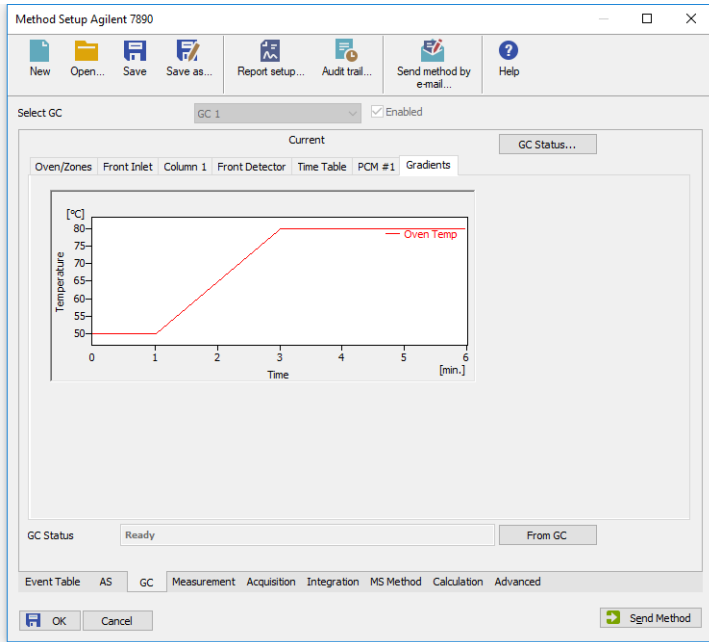
Sets the postrun temperature.

## 4.3.7 Gradients



*Fig 13: Method Setup - GC - Gradients*

This tab displays the temperature gradient as set on the Method Setup - GC - Oven/Zones tab.
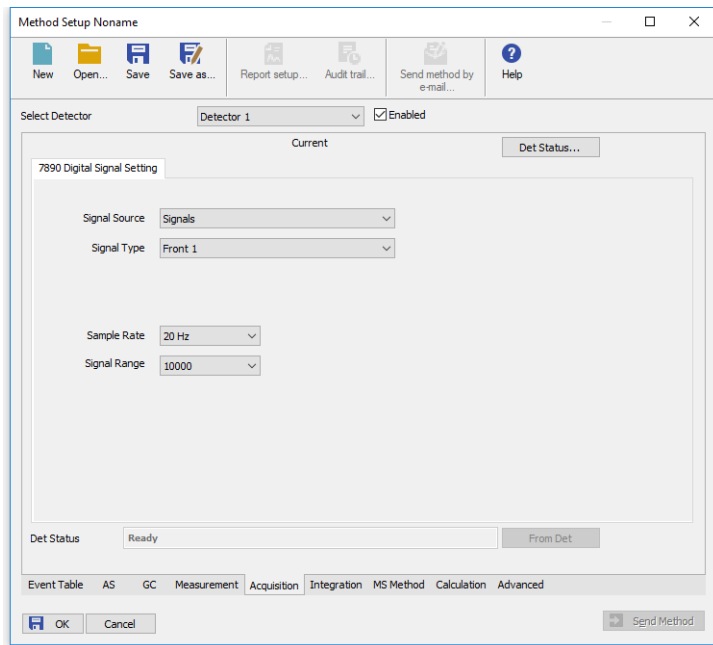
# 4.4 Method Setup - Acquisition



*Fig 14: Method Setup - Acquisition*

Each detector allows to set the source of signal on the appropriate tab. To switch to another detector, use the *Select Detector* field in the upper left corner of the Method Setup - Acquisition dialog.

**Signal Source**
Selects the source of the signal (signal from a particular detector or various internal and auxiliary signals, used for monitoring the state of the device).

**Signal Type**
Selects the type of signal from the particular *Signal Source*.

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*Note:*     In case your GC has some non-standard detector installed (so called Channel Partner detectors), it would be not possible to configure it in Agilent 7890 Setup window, however its signal would be available for acquisition. In such a case you have to select the signal according to position of the detector.

**Specific Signal**
Selects the specific signal available for selected *Signal Type*.

**Channel #**
Selects the channel of the signal. Available for some signals only.

### Sample Rate

Sets the frequency of the data sent from the **Agilent 7890** detector to **Clarity**, it has nothing to do with the frequency of the actual data acquisition in the instrument. The sample rate is common to all signals of the same instrument.

*Note:*      Only for detector signal it is possible to change the sample rate, all auxiliary signals are collected at 50 Hz sample rate. In case some of the collected signals are auxiliary (e.g. oven temperature or column gas flow), all signals will be sampled at 50 Hz.

### Signal Range

Sets the range for the output signal. As the range is increasing, sensitivity is decreasing, so the overall resolution is still the same (24 bit).
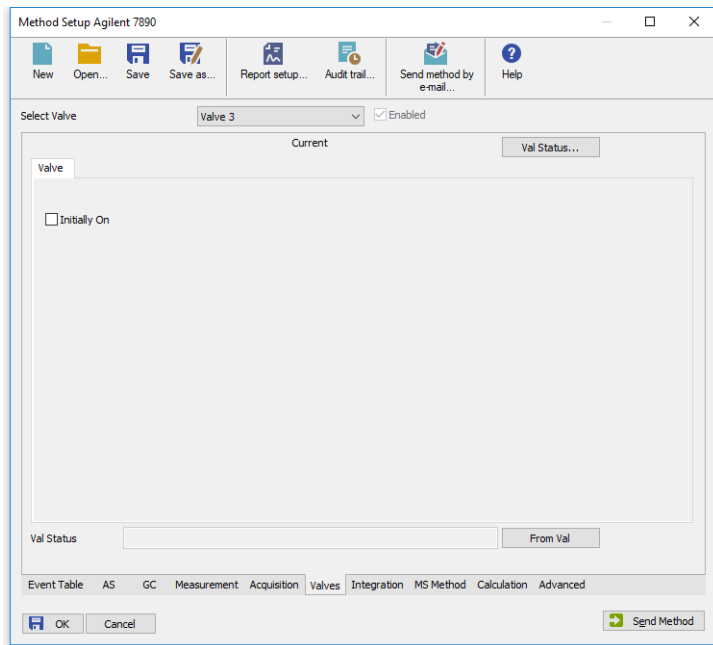
## 4.5 Method Setup - Valves



*Fig 15: Method Setup - Valves*

Each valve allows to set its parameters on the appropriate tab. To switch to another valve, use the *Select Valve* field in the upper left corner of the Method Setup - Valves dialog. Each type of valve has different parameters available, thus the appearance of Valves panel depends on the type of selected valve.

**Initially On**
Selects the initial state of the valve. Available for *Switch* and *Other* valves only.

**BCD Inverted**
Available for *Multiposition* valves only.

**Step Time [s]**
Sets the Step Time. Available for *Multiposition* valves only.

**Position**
Sets the position. Available for *Multiposition* valves only.

**Loop Volume [cm3]**
Sets the Loop Volume. Available for *Gas Sampling* valves only.

**Load Time [min]**

Sets the Load Time. Available for *Gas Sampling* valves only.

**Inject Time [min]**

Sets the Inject Time. Available for *Gas Sampling* valves only.

## 4.6 Using Dual Injector

In case your GC is equipped with two injectors, it is possible to use them simultaneously. For this purpose it is necessary to have two unused Instrument available.

- At first, ensure the GC has two injectors and tray correctly detected. See also 7890 Setup - Sampler.
- Configure the GC, Sampler and Detector 1 on the first Instrument. See also **Clarity** Configuration.
- Configure the Detector 2 on the second Instrument.
- First instrument serves as a master, all GC and AS method parameters will be set here. In the method setup, AS tab, select the option *Use Both Injector* and fill in the *Vial No. Shift*.
- On the second instrument, the AS and GC tabs are not available in method setup. Only the Acquisition tab is available to set the configured detector *Range* and *Sample rate*.

The sequence on first Instrument defines the vial numbers for first injector and injection volume for both. The injection vial and injection volume in the second instrument sequence are just informative, injection volume is equal to that on first instrument, the vial number is equal to the vial number in first instrument and the specified vial shift. To run the system, prepare methods and sequences for both instruments, start the sequence on second instrument and then the sequence on first instrument. Sequence on the master Instrument (controlling the GC) needs to have *Active Sequence* checkbox checked, the sequence on the second Instrument needs to have it unchecked (passive sequence). Checkbox is available on the Sequence Options dialog.
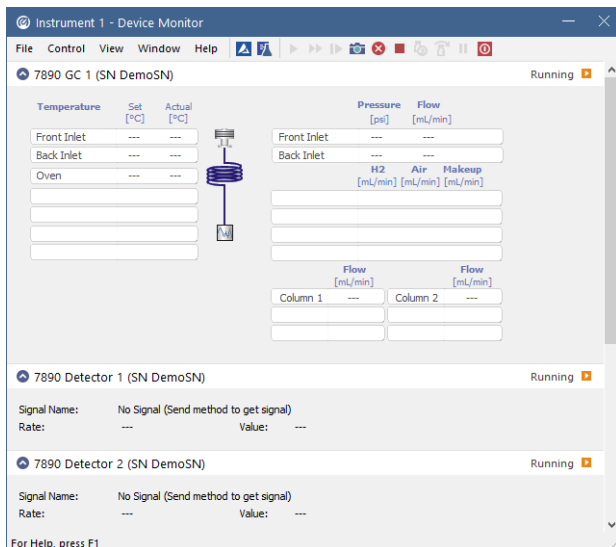
# 4.7 Device Monitor



*Fig 16: Agilent 7890 Device Monitor*

The Monitor window for the **Agilent 7890** chromatograph displays all set and actual temperatures in each temperature zone and the column oven. It also displays gas flows and pressures for all important parts of the GC. An unequilibrated values are displayed in red letters. Besides that, there are sections for each detector and autosampler present. Detector section shows names of the signals, its sampling rates and the actual value of a particular signal.

## 4.8 Agilent 7890 Setup

Agilent 7890 Setup dialog (accessible through the System Configuration dialog) allows to view and manually set the hardware configuration of the chromatograph. Most fields (with the exception of IP addresses ) can be read from the chromatograph by using the *Autodetect* button, however it is recommended to check the settings after autodetection. In case some part of the GC cannot be autodetected, user has to set it manually.
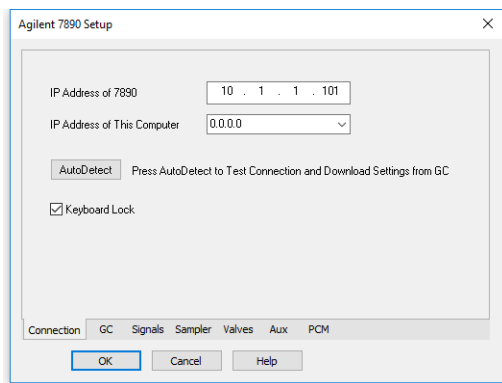
### 4.8.1 Connection tab



*Fig 17: Agilent 7890 Setup - Connection*

**IP address of 7890**
Fill in the IP address of the **Agilent 7890** chromatograph.

**IP Address of This Computer**
The IP address of the computer with installed **Clarity** datastation. In case the computer is connected to more than one network, select the IP address corresponding to the network with **Agilent 7890** connected.

**Autodetect**
Read all settings from the instrument. Upon successful detection the serial number of the GC will be displayed.
Please note that some modules (e.g. PCM, valves or Aux Pressure modules) are not autodetected correctly and in certain systems it is necessary to set them manually.

**Keyboard Lock**
Use this checkbox to ensure the exclusive access to the chromatograph. Apart from locking the keyboard of the device, this will also prevent other users connected to the same network from connecting to the chromatograph.
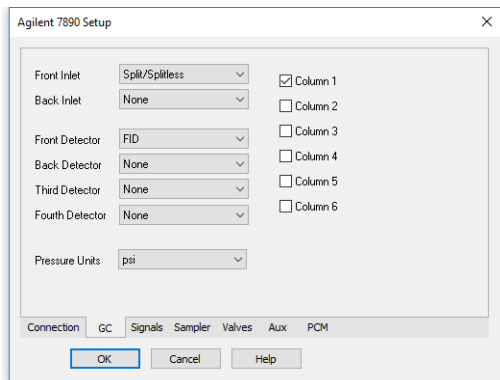
## 4.8.2 GC tab



*Fig 18: Agilent 7890 Setup - GC*

After successful autodetection of GC parameters it is advisable to verify them manually.

**Front (Back) Inlet**
Sets the type of inlet installed in the GC.

**Front (Back, etc.) Detector**
Sets the type of detector installed in the GC.

**Column #**
Check the presence of the columns installed in the GC.

**Pressure Units**
Sets the pressure units used for setting the pressure of a carrier gas. After changing the units the values in the methods will be converted automatically.
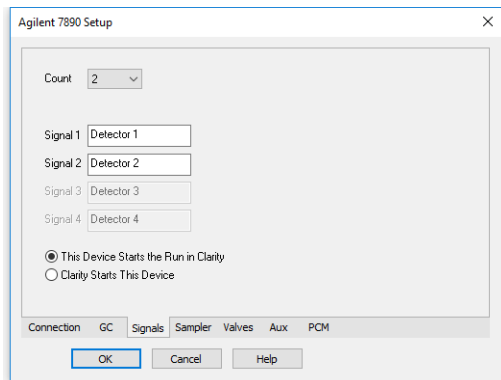
## 4.8.3 Signals tab



*Fig 19: Agilent 7890 Setup - Signals*

This tab defines the number of signals that will be processed by **Clarity**.

**Count**
Defines the number of signals received by **Clarity** . These signals correspond to **Clarity** detectors and will have their own sub-tabs in the Method Setup - Acquisition dialog, if configured on the given **Clarity** Instrument.

**Signal 1 (..4)**
Sets the name of the particular signal.

**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.
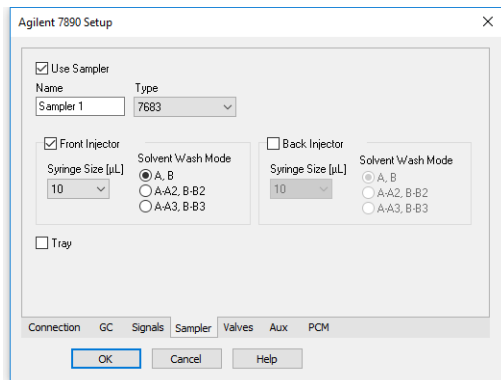
## 4.8.4 Sampler tab



*Fig 20: Agilent 7890 Setup - Sampler*

This tab displays the settings of the automatic liquid sampler (autosampler) connected directly to GC. Settings on this tab may be read from the chromatograph using the *Autodetect* button, however it is advisable to verify them manually.

**Use Sampler**
Enables the autosampler for use with **Agilent 7890** chromatograph. Needs to be unchecked if you want to start the acquisition from the **Clarity**.

**Name**
Allows to set the arbitrary name for the autosampler.

**Type**
Sets the type of the autosampler installed.

**Front (Back) Injector**
Enables the use of the particular injector.

**Syringe Size**
Sets the size of the syringe installed.

**Solvent Wash Mode**
Sets the solvent wash mode for the autosampler.

**Tray**
Sets the presence of an autosampler tray.
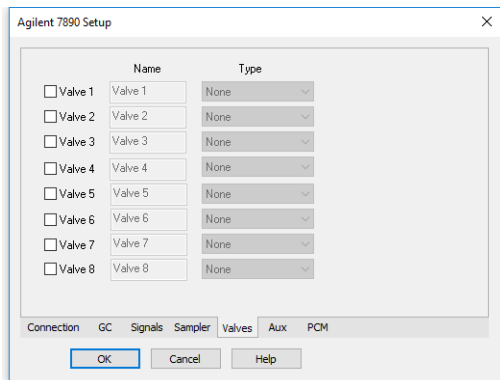
## 4.8.5 Valves tab



*Fig 21: Agilent 7890 Setup - Valves*

This tab displays the settings of valves in the GC. Settings on this tab may be read from the chromatograph using the *Autodetect* button, however it is advisable to verify them manually.
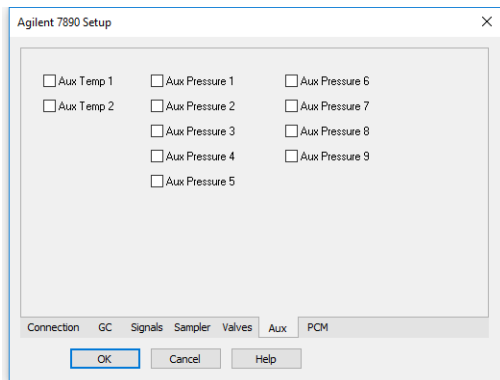
## 4.8.6 Aux tab



*Fig 22: Agilent 7890 Setup - Aux*

This tab displays the settings of auxiliary devices in the GC. Settings on this tab may be read from the chromatograph using the *Autodetect* button, however it is advisable to verify them manually.
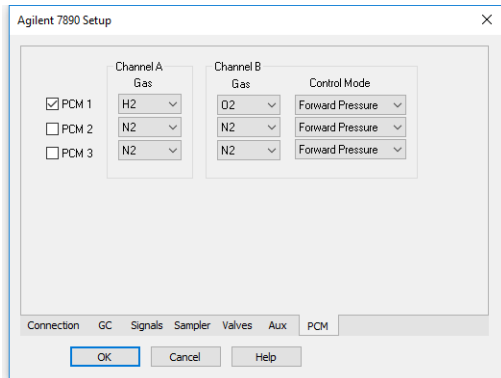
## 4.8.7 PCM tab



*Fig 23: Agilent 7890 Setup - PCM*

This tab displays the settings of Pneumatic Control Modules in the GC. Settings on this tab may be read from the chromatograph using the *Autodetect* button, however it is advisable to verify them manually.
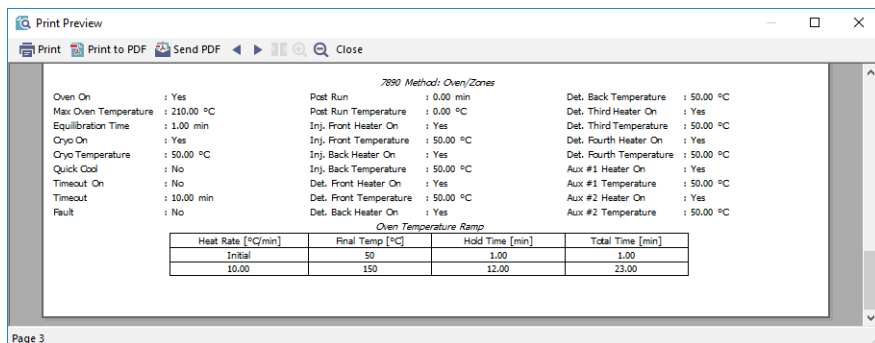
# 5 Report Setup



*Fig 24: Agilent 7890 - report preview*

All chromatograph-specific settings (e.g. temperatures set to particular temperature zones) are reported as a part of the data displayed by the use of *Instrument Control* checkbox of the Report Setup - Method dialog.

# 6 Troubleshooting

When the remedy for some problem cannot be discovered easily, the recording of communication between **Clarity** and the chromatograph 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:

> [TCP_IP 192.168.0.100:9110]
>
> echo=on
>
> textmode=on
>
> filename=Agilent7890_%D.txt
>
> reset=off

*Note:*    Instead of 192.168.0.100:9110 type correct IP address and port used to communicate with the **Agilent 7890** chromatograph. This port number is displayed when the *GC Status* button in the Method Setup - GC dialog is invoked or in the Agilent 7890 Setup dialog.

*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.

The created *.TXT files will greatly help in diagnosis of unrecognised errors and problems in communication.

# 6.1 Specific Problems

▌ **Communication error occurs shortly after opening the instrument window with the GC properly connected**

*Description:*    The reason is most probably wrong Firewall setting.

*Solution:*       In Windows Defender Firewall with Advanced Security, Inbound rules must be Enabled for *Chromatography Station for Windows*. The default setting is Disabled in case the used network was set as Public.