



AGILENT 5890

Clarity Control Module

ENG

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To facilitate the orientation in the **Agilent 5890** manual and **Clarity** chromatography station, different fonts are used throughout the manual. Meanings of these fonts are:

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.

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

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

Chromatogram (blue underlined) marks clickable links referring to related chapters.

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 5890 GC Control Module

The **Agilent 5890** GC driver can control Agilent (formerly HP) **5890A**, **5890 Series II** and **4890D** chromatographs.



Fig. 1: Agilent (HP) 5890 with an autosampler

Tab. 1: Control Board compatibility:

Control Board	Status	Description
19257-60015 HPIB/RS232	✓	Newer type; working; both analog outputs supported.
19257-60010 HPIB/RS232	✓	Tested in DataApex . Older type; working; only one analog output is supported
19242-60010 INET	✗	commonly used with integrators, cannot be used
19242-60015 INET	✗	commonly used with integrators, buffered communication, cannot be used
19242-60030 RS232	✗	RS232 board only, uses different communication protocol, cannot be used

2 Requirements

- **Clarity** installation with GC Control module (p/n A23).

Caution: The control module does not support **EPC**, **FPD** and **Analog Input Board** (19261-60010)

- 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-DB25M cable (p/n SK03).

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

- HPIB/RS232 Interface card set for HP 5890. Can be only obtained from Agilent or third parties.

Caution: Check the **Control Board compatibility** table in the chapter "**Agilent 5890 GC Control Module**" on pg. 1.

Note: The Interface card set includes the HP IB/RS232 Ribbon Cable (p/n **KB58-1**, Agilent order No. 19257-60500), Back Panel (p/n **KB58 2**, Agilent order No. 19257-60020) and the Interface card (p/n **KB58-3**, Agilent order No. 19257-60015). When using the HPIB card from Agilent, the Ribbon Cable and Back panel have to be ordered separately.

3 Installation Procedure

3.1 GC Chromatograph setup

Installing the interface card in the GC unit

Note: Not necessary if the board is already installed

- Unscrew and remove the right-hand panel of the chromatograph
- Remove the original INET card
- Set up the interface card - all switches on the DIP to the ON position (closer to the outer edge of the card)
- Insert the interface card

Note: On newer interface cards provided by DataApex company is the INET loop connector disabled and the connection is provided by wires attached to the back side of the card. If you want to use the loop cable for any reason, cut off the wires on the back side of the card (**Fig. 2** on pg. 3.).

- Install the serial connector at the back of the GC (Models of the first series 5890A do not have a hole for this connector - then it is possible to put the Cannon 25 connectors on the bottom of the GC)

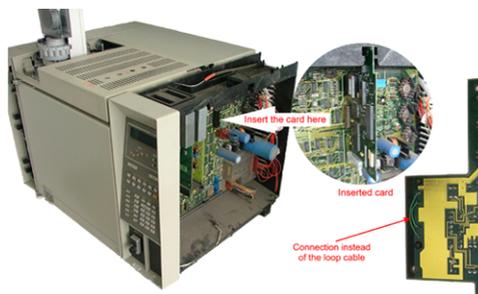


Fig. 2: Installation of the INET card

- Switch the GC over to the **Global Mode** - press successively: **[3] - [ENTER] - [ON] - [CLEAR]**.

Caution: Digital data acquisition works only in GLOBAL mode.

- Test the INET loop function **[.] - [7] - [ENTER]** - and after the test - **[CLEAR]**.

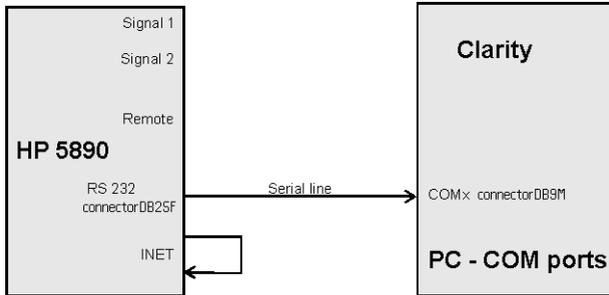
Note: GC would not send „Ready“ signal in local mode.

Analog acquisition alternative

When using A/D converter the GC has to be in Local Mode - press successively: **[3] - [ENTER] - [OFF] - [CLEAR]**.

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3.2 Connections



When the **HP5890** is controlled by the serial line (**RS232**), both **INET** connectors must be connected, which can be done by wiring on the back side of the card or INET loop cable.

- Communication between AS and PC (COM port) proceeds over standard serial printer cable - see Fig 6 (modem cable cannot be used).

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).

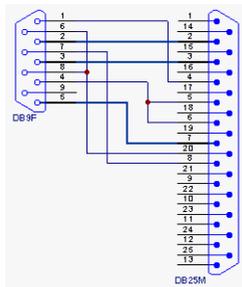


Fig. 3: Serial cross cable DB9F - DB25M

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.

3.3 Description of connectors:

Signal 1 (2)

- 12-pin HP connector with output of both analog amplifiers (connected to detector).
- It is possible to plug in both orientations with same function.

Note: Not necessary when using the digital acquisition.

Remote

- 12-pin HP connector dedicated to send start signal to **Clarity**
- It is necessary to plug it in proper position according to mark on cable connector
- Not necessary when using digital acquisition

INET

- INET loop cable. In case of newer INET cards provided by DataApex company, no loop cable is needed. The cable connection is replaced by wiring on the back side of the card.

RS232

- 25-pin female Cannon connector for direct control and digital acquisition

3.4 Installing the GC module in the PC

- Select and if necessary install a fast serial port in the PC.

Caution: In the following procedure the setup of **HP 5890** with digital acquisition (without A/D converters) will be described.

- Install **Clarity** station.
- Connect the GC to the PC by serial cable; turn the GC power on.

3.5 Clarity Configuration

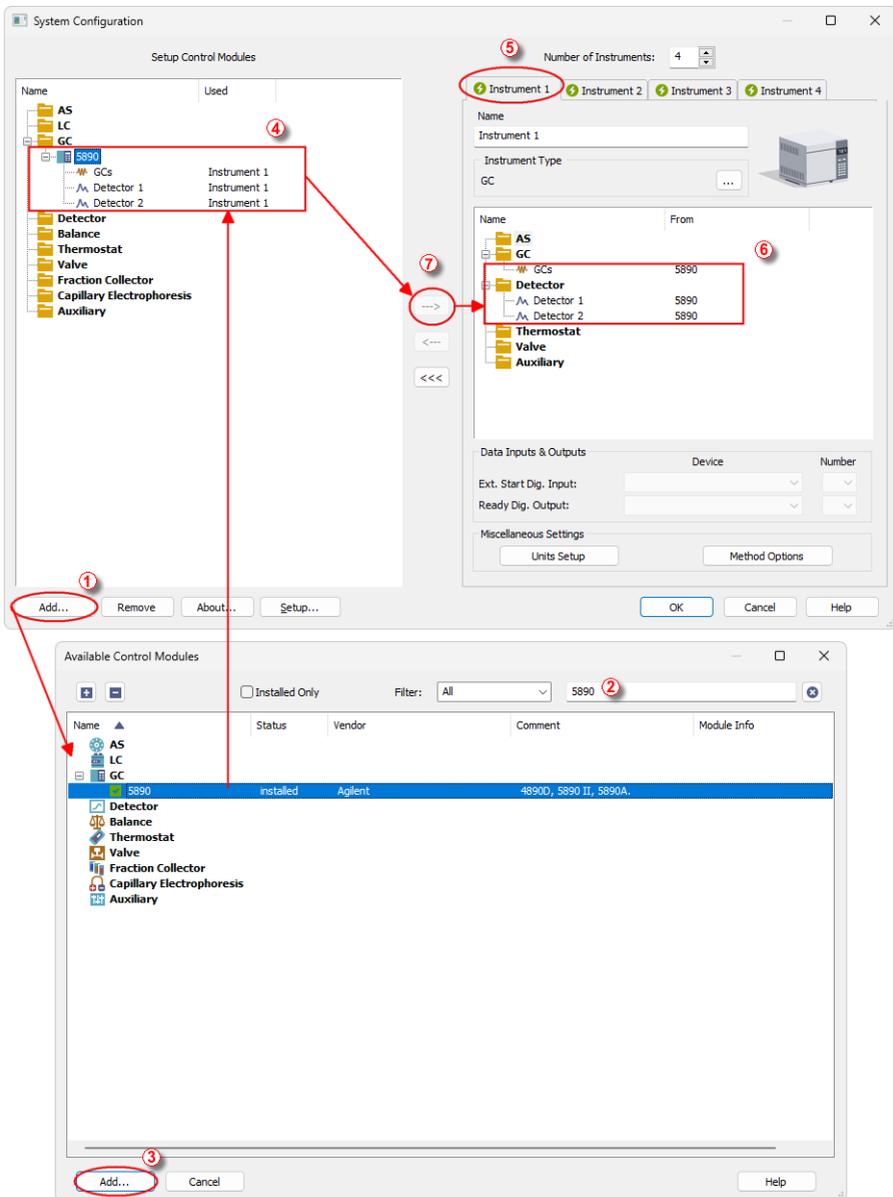


Fig. 4: System Configuration

- 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. 4** on pg. 6.) to invoke the *Available Control Modules* dialog.
- You can specify the searching filter ② to simplify the finding of the driver.
- Select the **5890** and press the *Add* ③ button.
- The *Agilent HP5890 Setup* dialog will appear.

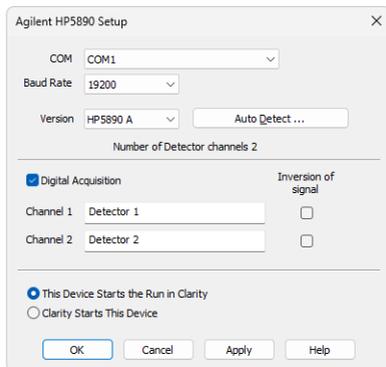


Fig. 5: Agilent HP5890 Setup

- In the *Agilent HP5890 Setup* dialog set COM port, *Baud Rate: 19200*

Note: Other baud rates can be set according to the DIP switches in the GC unit.

- Select the *Version*.
- Check the *Digital Acquisition* checkbox and fill in the names of your detectors. Left this checkbox empty only if you intent to collect the detector signals with another A/D detector.
- Check the *This Device Starts the Run in Clarity / Clarity Starts This Device* radiobutton. 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.

- Use the *Autodetect* button to read in instrument configuration and check the communication.

- Press the *OK* button.

The *Agilent 5890 GC Driver* item ④ will appear in the *Setup Control Modules* list in the left part of *System Configuration* dialog.

- Switch to the desired *Instrument X* tab ⑤ in the right part of the *System Configuration* dialog.

Note: The *Instrument Type* must be set to GC.

- Drag and drop the *HP 5890 GC Driver* from the *Setup Control Modules* in the left to the instrument on the right side ⑥ or use the --> button ⑦ . Set only one detector if you do not wish to acquire both signals simultaneously.
- Press *OK* button to save the settings and close the configuration window.

4 Using the control module

4.1 Method Setup - GC

- Use the *From GC* button to download current method parameters from **Agilent 5890** (and save it under suitable name). You can use this procedure to copy the parameters of your methods already stored in the GC memory to **Clarity**.
- Use the *GC Status* button to see the current GC configuration (inlets, detectors etc.)

Note: Note: in DEMO mode it enables selecting them

- Use the upper tabs in the *Method Setup - GC* dialog to set or modify the GC control parameters.

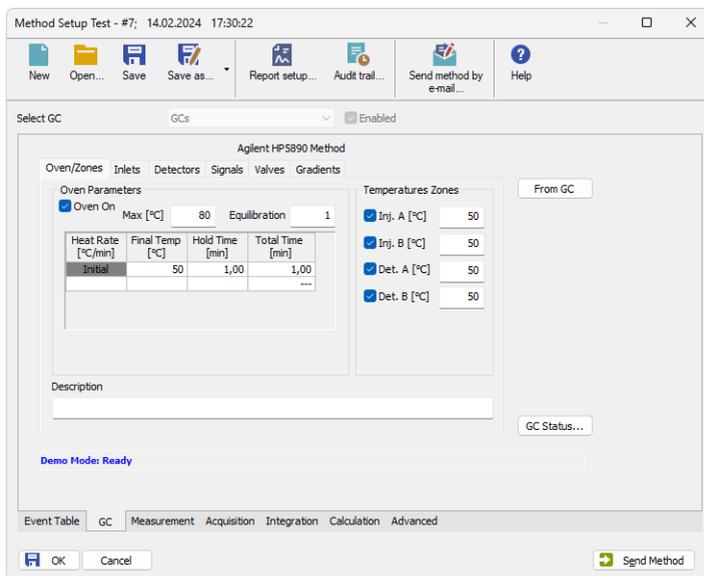
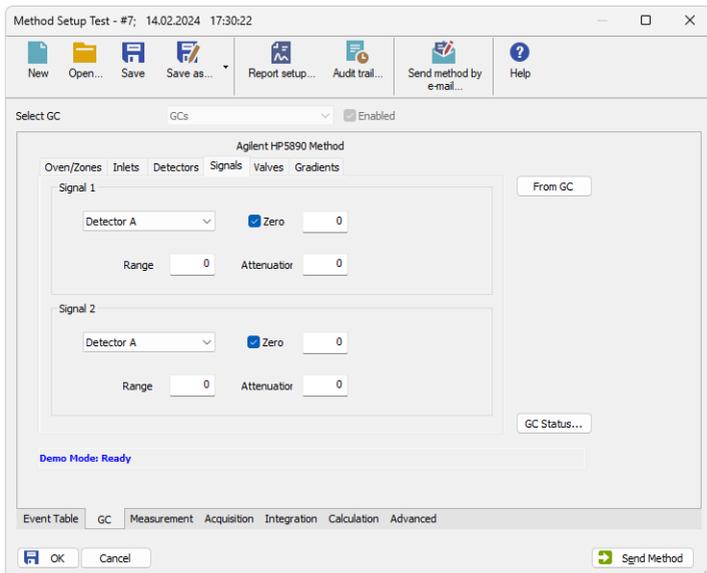


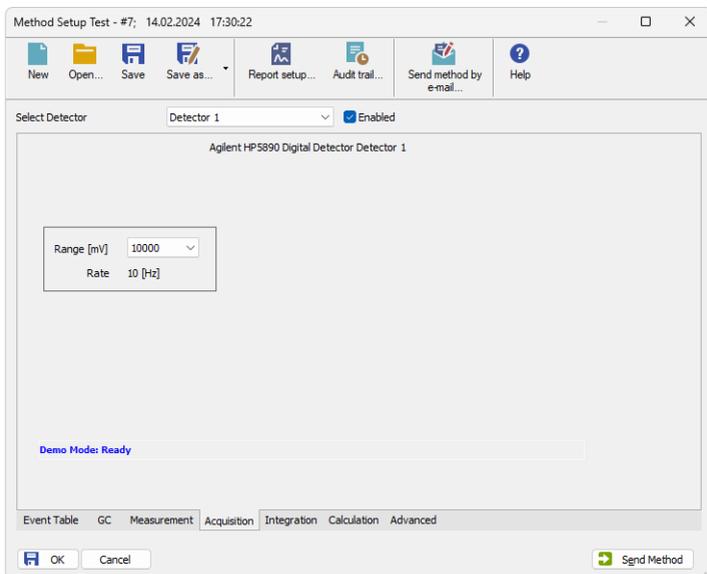
Fig. 6: Method Setup - GC - Oven/Zones

Note: The *Time Events* tab is available for **Agilent 5890 Series II** only.

- On the *Signals* tab, you can assign the Detector (or other signal) to the output Signals.



In the *Method Setup - Acquisition* dialog select the voltage range to be acquired. Signals exceeding this value will be cut.



Note: The acquisition frequency Rate is fixed to 10 Hz for Agilent 5890 with digital data acquisition.

5 Troubleshooting

Configuration for two independent detectors

Independent (isothermal) data acquisition on two independent detectors can be used only with analog data acquisition (using A/D convertor). It cannot be used with digital data acquisition.

Why there is no data coming from the GC once **Start** has been pressed?

Most probably you have set the setting to Local Mode instead of Global Mode. "GC Chromatograph setup" on page 3 for more details.

5.1 Commdrv.ini utility

It is possible to record the communication between **Clarity** and the device.

To activate the recording and specify a file for storing the communication set the COMx key(s) with following parameters in the COMMDRV.INI file located in the **Clarity** installation folder:

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

Note: The file can be edited by any text editor (Notepad).

Note: Separate entries can be specified for each Com port.

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.

Echo

Off (default) - no communication will be recorded.

Filename

The file where the communication should be stored. If the path is not specified the file will be stored in the same folder like the COMMDRV.INI file.

Not received or unrecognized replies will be recorded as "*Timeout on Com line*"

The created log file can be viewed in any text editor.

Note: The record is very helpful for troubleshooting the communication between **Clarity** and the device.

Reset

On - will erase the log each time the station is restarted (otherwise the log can increase substantially after some time)