

Agilent / HP-6890 (6850) in UniChrom

Short installation guide

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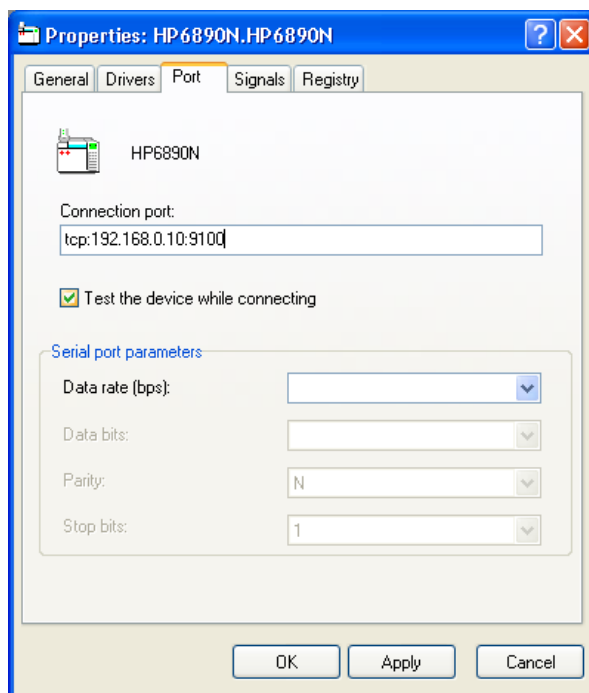
Agilent / HP 6890 (6850) driver installation

Install the UniChrom software.

During the application setup choose HP-6890 driver and drag the icon from list of available instrument to the list of installed instrument.

Communication port settings

After double-clicking the instrument icon in the left pane the instrument properties window will be shown



At the page «Port» have to be specified the communication port name for the selected instrument.

UniChrom communication layer supports many types of connection. The type of connection port is determined by its name.

There are three types of connection:

1. Serial
2. GPIB (through HPIOLIBS)
3. TCP/IP network

Serial communications

Supported only in 6890A, 6890 Series I, Series II, 6850 and all instruments with “Modem” socket on back pane.

Serial connection resource defined by name COM1 ... COM255 of system serial port. Default data rate 19200 bps, which should be configured in communication options of instrument.

Instrument button [Options] sub-menu “Communication” serial port settings should be defined as: Bitrate **19200**, Parity **None**, Data Bits **8**, Stopbits **1**

GPIB (HPIB) IEEE-488 communications

Supported only in 6890A, 6890 Series I, Series II but not 6850.

GPIB communication resource specified by the name starting from gpib or hpib and instrument ID delimited with comma. For instance **gpib0,15**

The second parameter is the instrument GPIB ID which can be configured by instrument button [Options] sub-menu “Communication”.

On the PC have to be installed then HPIOLIBS communication layer package. HPIOLIBS package can be downloaded from Agilent test and measurement equipment web-site.

<http://www.google.com/search?q=hpiolibs.exe>

During the HPIOLIBS configuration the name for GPIB host-controller is defined (e.g. **gpib0** or **hp82350**). UniChrom treats the communication port as GPIB bus only if the host-controller name starts with **gpib** or **hpib** strictly.

LAN communications

Supported only in 6890 Plus, 6890N and 6850.

Communication port name have to be defined in the following style:

tcp:ipaddress_or_name:portnumber

where

ipaddress_or_name – dotted decimal representation of instrument IP address, or the host name which given to instrument in DNS

portnumber – number of TCP port the instrument listens. Should be specified the default value **9100** – JetDirect port. Other values can be specified when instrument is behind TCP tunnel or firewall.

For Agilent 6890 Plus and newer instruments the IP address is defined form the keyboard button [Option] sub-menu “Communication”. In the case of dynamic IP address assignment – look in the stock BOOTP server configuration or ask the LAN administrator for the IP address assigned to instrument by DHCP.

For instance:

When the GC has the address 192.168.0.10, then «Connection port» should be:

tcp:192.168.0.10:9100

TCP/IP connection peculiarities.

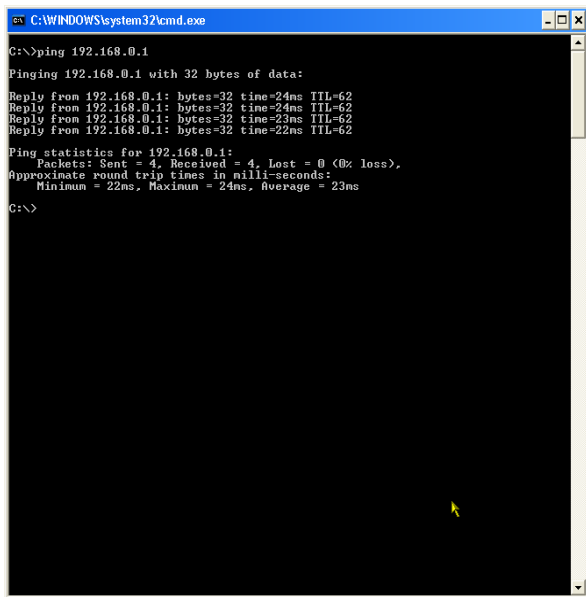
In simplest case both the instrument and computer have to reside in common IP network.

It means that no matter if they are connected directly to each other or through switching equipment, the **IP addresses** of PC and GC have to be **DIFFERENT, but SUBNET MASK – have to be THE SAME.**

For instance:

The instrument have configured IP address **192.168.0.10** and subnet mask **255.255.255.0**

The computer have to be configured IP address **192.168.0.11** and subnet mask **255.255.255.0**



```
C:\WINDOWS\system32\cmd.exe
C:\>ping 192.168.0.1
Pinging 192.168.0.1 with 32 bytes of data:
Reply from 192.168.0.1: bytes=32 time=24ms TTL=62
Reply from 192.168.0.1: bytes=32 time=24ms TTL=62
Reply from 192.168.0.1: bytes=32 time=23ms TTL=62
Reply from 192.168.0.1: bytes=32 time=22ms TTL=62
Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 22ms, Maximum = 24ms, Average = 23ms
C:\>
```

When all cable connections are in place – LINK LEDs are lit on network card, on switch for both ports (GC and PC connections) and on instrument the logical connection can be tested:

Run on the PC command line (menu Start Run\execute **cmd.exe**), and in command line type: **ping 192.168.0.10** and press Enter:

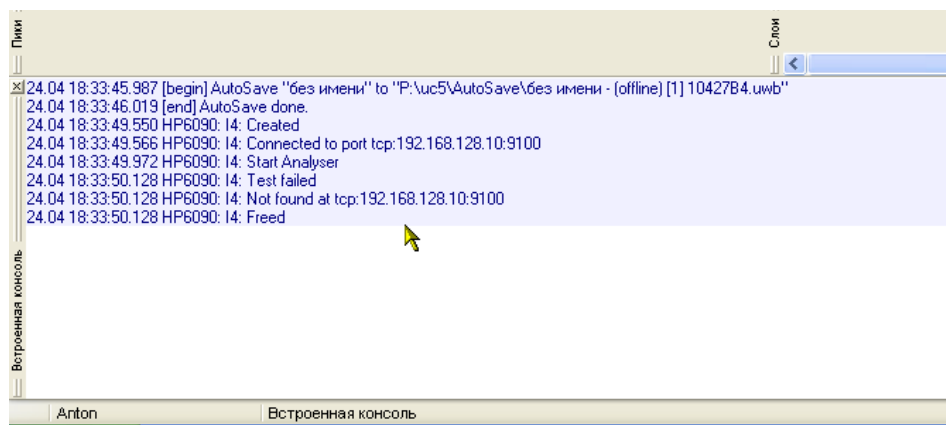
Should be tested the connection of the computer with itself (ping 192.168.0.11), either as with GC (ping 192.168.0.10).

Testing the instrument connection

After successful network connection testing we can connect to the instrument. New method can be created in one of the following manners:

- Create in UniChrom method of appropriate type (menu New) and connect it to the selected GC using “wrench” button in toolbar.
- Select from drop-down menu on ”New” button – New on HP-6890
- Right click the instrument icon in UniChrom Navigator window and select “New”.

If the instrument connection succeeds the “GC Instrument” page starts displaying instrument actuals and setpoints. If connection fails – the dialog message informs problem with possible reasons. For connection problem diagnosis the **instrument log** can be used: in main UniChrom menu select View/Information forms/Built-in console. The instrument logs and UniChrom logs are saved in UniChrom\log directory.



The picture show unsuccessful connection.

PC was connected to GC but got not meaningful answer.

When connection attempt succeeds – it is possible to press “Run” button in UniChrom toolbar and look at chromatographic signal.

Runtime events

The instrument contains set of controlled objects which settings can be modified according to timetable. The procedure of changing specific object at specified time starting from run is called runtime event.

The instrument supports the following objects:

Number	Name	Parameter units
1	VALVE_1	<on/off> [1 0]
2	VALVE_2	<on/off> [1 0]
3	VALVE_3	<on/off> [1 0]
4	VALVE_4	<on/off> [1 0]
5	VALVE_5	<on/off> [1 0]
6	VALVE_6	<on/off> [1 0]
7	VALVE_7	<on/off> [1 0]
8	VALVE_8	<on/off> [1 0]
9	MULTI_VALVE	[1- 32]
10	SIGNAL_1_DEF	<signal_type>
11	SIGNAL_2_DEF	<signal_type>
12	SIGNAL_1_ZERO	<signal_zero>
13	SIGNAL_2_ZERO	<signal_zero>
14	SIGNAL_1_ATTN	[0- 10]
15	SIGNAL_2_ATTN	[0- 10]
16	SIGNAL_1_RANGE	[0- 13]
17	SIGNAL_2_RANGE	[0- 13]
18	AUX_3_PRESSURE	pressure units
19	AUX_4_PRESSURE	pressure units
20	AUX_5_PRESSURE	pressure units
21	FRNT_DET_POLARITY	detector negative polarity on/off [1 0], only applicable to the TCD

Number	Name	Parameter units
22	BACK_DET_POLARITY	detector negative polarity on/off [1 0], only applicable to the TCD
23	FRNT_DET_FUEL_GAS	detector fuel gas flow on/off [1 0], only applicable to the NPD
24	BACK_DET_FUEL_GAS	detector fuel gas flow on/off [1 0], only applicable to the NPD

The runtime events table for instrument is defined at “GC Instrument” page section Events/List.

The runtime events table itself represent three-column table which describes at which time the specified object should change its state.

Example:

Object	State	Time
MULTI_VALVE	1	0.1
VALVE_1	ON	0.5
VALVE_1	OFF	3

Sampling system

Recent version of 6890 driver automatically detects sampling devices. The UniChrom sampling device concept state the following:

The entire sampling system is configured per instrument.

Each sampling system consists of up to 4 samplers.

Each sampler can have up to 2 injection devices (towers, motors) etc, for instance 7673 sampler can have 2 towers, Gas Sampling Valve has 1 gas-injection mechanism.

During the instrument detection samplers list is filled in the order: ALS, valves 1..8.

The sample table line have to use “Tower” parameter to identify which sampling machine would inject the specified sample.

Tower numbers are hardcoded:

Towers: 1,2 – belong to the ALS.

Towers: 3,4 – Valve #1 etc.

