Agilent 7890GC

Firmware Bulletin

Revision B.02.05 and A.01.16

External use only

Agilent Technologies

About this Document

This document provides the firmware changes used for the following GC Systems

- 7890B (G3440B)
- 7890A (G3440A)

Where To Get Latest Information.

The latest versions can be downloaded externally at
http://intranet.chem.agilent.com/_layouts/agilent/downloadFirmware.aspx?whid=50307

Document History

The table below lists all changes that have been made to this document.

Date	Version	Description
3rd Feb 2015	Rev 1.00	Initial release
1st Sep 2015	Rev 1.01	Added Waters info
6th Nov 2015	Rev 1.02	Updated to B.02.04.1
17th March 2016	Rev 1.03	Updated to B.02.04.2
19th August 2016	Rev 1.04	Updated to B.02.04.3
31st March 2017	Rev 1.05	Updated to B.02.05
22nd March 2018	Rev 1.06	Added 7890A info.
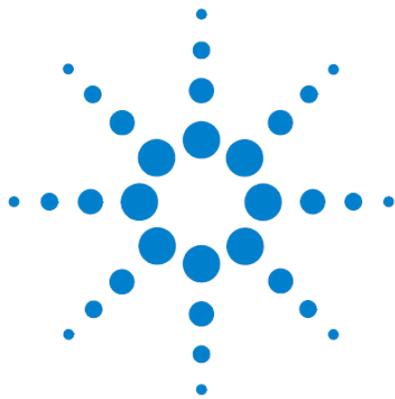
Compatibility Information

- **Agilent 7890 GC Firmware Support Information.**
- **Notes for Agilent 7890 controlled by non-Agilent Chromatography Data Systems (CDS).**
- **OQ/PV - Validation Information.**
- **Data Handling Compatibilities.**

Agilent 7890 GC Firmware Support Information

- Agilent recommends using always the latest firmware revision of a firmware in order to avoid interoperability issues.
- Generally, Agilent recommends keeping the GC instrument firmware always current.

Notes for Agilent 7890 controlled by non-Agilent Chromatography Data Systems (CDS)

- The 3rd-party CDS software vendor is responsible for compatibility testing with the respective CDS revision.
- The 3rd-party CDS software vendor defines the minimum firmware revision required for CDS compatibility.
- The 3rd-party CDS release notes issued by the respective CDS vendor may use different terminology for the firmware requirements such as "tested firmware", "supported firmware", "firmware requirements", "minimum tested firmware", etc.

Waters

Waters have recently released their latest Agilent 7890 driver, instrument control software (ICS) Version 2.6.

The primary benefits of ICS 2.6 over ICS 2.5 is the official support of the 7890B and support of the G3520A.

The G3520A is the 7697 headspace transfer line.

As a reminder, ICS 2.5 would not connect to the 7890 if the G3520A was installed in the 7890.

Officially, 7890B firmware B.02.02 is supported.

We know 7890B firmware B.02.00 and B.02.01 work with ICS 2.5

We also know 7890B, B.02.03, B.02.03.1 and B.02.03.2 work with ICS 2.5

While not officially mentioned by Waters, these revisions are expected to work with ICS 2.6.

OQ/PV - Validation Information

- If a firmware upgrade has been performed, normally no revalidation of the module/system is required. This is stated in the released Service Note applicable to the release.
- In addition this information is stated further on in this document.

Data Handling Compatibilities.

Below is a list of minimum 7890 Firmware requirements to support Agilent Open Lab CDS Chemstation (rev C.01.06 and C.01.07) and Open Lab EZChrom (rev A.04.06 and A.04.07)

Instrument	Model	Supported Firmware Version (minimum)	Notes
7890A	G3440A G3445A	A.01.15	
7890B	G3440B G3445B	B.02.00	GC ALS Controller Card must be A.02.13 to support EMF
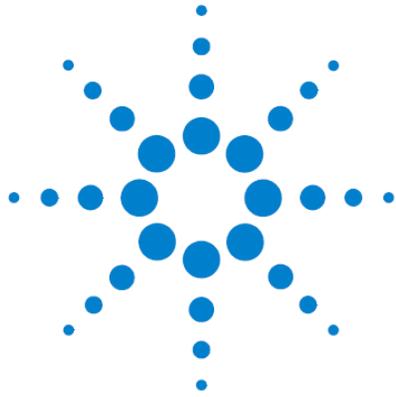
Firmware History

- **Current Version Changes.**
- **Previous Firmware Changes.**

Current Version Changes.

The current firmware for the 7890B (G3440B) is B.02.05.
Released March 2017
Updating to this firmware does not require instrument revalidation.

MMON Version 5.31
WSDL VERSION 473
Fpga version 1.1c
G3430 version A.02.18

Changes/Fixes made since the last version. (B.02.04.3)

TT26100 - Invalid BCR heater range. Changed the info message and enter routine to support 35-80 deg C.
TT27713 - Add 7000D to MSD Type list
TT27559 - Add 7010B to MSD type selection.
TT27560 - fix reset of MSD type on reboot
TT27671 - Fix XCD H2 check with O2 as oxidizer.
TT27621 - Add configure XCD oxidizer to O2 instead of air
TT22718 - Add XCD Burner Pressure as a diagnostic signal.
TT26549 - Fix XCD detector fault messages.
TT27066 - Reversed Sandwich Injection added

The current firmware for the 7890A (G3440A) is A.01.16
Released March 2014
Updating to this firmware does not require instrument revalidation.

Changes made since the last version. (A.01.15.2)
Incorrect flows displayed in the MMI diagnostic screens in direct mode.
TT 19692 - LTM column modules can now be "hot swapped" without damage. Parameter added to "Turn off LTM Module".
TT 19465 - G4513A does not recognise unplugging the tower.
TT 18949 - Allow septum purge setpoint to go sub ambient preventing shutdown at inlet pressure less than 0.25psi.
TT 19859 - Add a second line to the detector fault status display.
TT 19837 - LTM setpoint resets when method is downloaded during a run.
TT 19837 - NPD H2 off resets to on prior to the runtime entered in the time table.
TT 19837 - PCOC setpoint resets during run.
TT 19681 - Extend column config strings from 30 characters to 37 characters

TT 19692 - Disable LTM Modules added to Service Mode key.

TT 19939 - LTM Tag readiness test set to Actual Less than Setpoint+10 and Greater than Setpoint-3 in Run Idle.

TT 18542 - 7890B error (FW B 0201) if 7683ALS installed at back tower
TT 18540 - 7890B - B.02.01 - mounting injector on parking post the 7890B will go "Not Ready" and can't make a manual Injection.

Previous Firmware Versions. (7890B).

This section details previous versions of 7890B firmware giving release notes.

B.02.04.3. 7890B GC Firmware.

Released August 2016

Updating to this firmware does not require instrument revalidation.

Changes/Fixes made since the last version. (B.02.04.2)

TT25458 - Fix display of long bar codes causing GC to reboot.

TT25296 - FPD plus Emission block heater temperature can't change from OL ChemSttaion.

TT24448 - Back inlet leak check broken.

TT23775 - New Chinese messages.

TT25405 - Change MSD ready to include acquiring data. In 7890B/5977B with MH Acq B.07.04, GC front panel Not Ready status turn on after injection due to "MS is not ready".

B.02.04.2. 7890B GC Firmware

Released March 2016

Changes made since the last version. (B.02.04.1)

TT24271 - Key sequences cause GC to reboot. (Fixed)

TT22435 - Two Aux EPC modules cause Mass Hunter 7.04 to crash.

TT24279 - Fixed PTV EMF values.

TT23993 - Resolved Problem with PCM/AUX configuration.

TT23022 - Oven Temp Standby Info incorrect.

TT24410 - Allow BackCryo and Chiller Bath to be configured.

B.02.04.1 7890B GC Firmware

Full compatibility for the Agilent XCD.

Full compatibility for the 5977B MS.

TT23872 - If a numeric entry was inputted as a column configuration exit, the GC will reboot.

TT23776 - Front detector heating too slowly.

Fix QQQ_BF pressure programming bug with the Collision Cell backflush ready EPC Module

TT 23721 Fix Vent Done message PopUp

TT23661 - QQQ_BF only configurable with const or ramped flow.

TT23699 - Add High Energy Source to 5977B & 7010

TT19466 - Set inlet leak test pressure limits based on column and connection.

TT20498 - Fix COC Septum Purge Regulator AutoZero.

TT22938 - CP_DET is allowed to have column + fuel = constant.

TT22287 - Improve cryo timeout info.

TT23533 Cannot configure instrument with FPD+ with older versions of Chemstation.

Added "Reboot Request" when MSD IP config change is accepted.

TT20914 Have 7697 headspace synchronize clock when connecting.

Add FPGA version to Instrument Status.

Allow access to GC setpoints during vent processing.

TT23086 - Fixed FPD+ Emission block On/Off.

TT22436 - Fix MMI & SS purge flow when column flow is negative

TT 020066 - H2 sensor configuration freezes the keyboard.

TT 19845 - Improper manufacturing date on H2 sensor.

TT 19939 - Reset LTM tag readiness to +12 to -3 degrees during run Idle.

TT 19692 - Fix updating column LTM tag info.

In addition to the above changes a modification has been made to the FPGA to help resolve an issue that we are seeing resulting in detector baseline noise and oscillation.

The download of the FPGA is done as part of the firmware download.

Status not ready if Fpga version < 1.1b ***This version of FPGA must be installed with B.02.04.1***

B.02.03.2 7890B GC Firmware

Fix diagnostic thermal duty cycle signals.

Duty cycle signals from the PPIP heater now available.

Keyboard information for QQQ backflush fixed.

The EPC Channel does not set Ignore Ready to TRUE.

Set Ignore Ready to TRUE for the Backflush EPC Channel. The channel still shows Not Ready - Fixed

Info for Collision cell gas type.

Corrected info screen on collision cell gas type

Gas Type Configuration for QQQ backflush.

Fixed problem with configuring carrier gas type.

Column Compensation in Analog Out.

Fixed inability to run column comp in Analog out.

Added MS7010A to Mass Spec Type.

B.02.03.1 7890B GC Firmware.

Released June 2014

Added QQQ II Aux diag panel

Stop display of pressure program for QQQ modules.

Fix event log message for QQQ BF Shutdown.

Add QQQ II Aux pressure diagnostic signals.

Add QQQ II module for Backflush

Fix Detector Zone heating too slowly.

B.02.03 7890B GC Firmware

Released March 2014

Improper manufacturing date on H2 sensor.

The factory calibration date for H2 sensor can now be read from the GC.

Reset LTM transfer module (tag) readiness to +12 to -3 degrees during run Idle.

The GC oven temperature affects the LTM II transfer line readiness delaying the start of the next run. Readiness band widened to +12 deg to -3 deg.

Fix updating column LTM tag info.

LTM II modules not allowing hot swap - customer changes without powering off the GC, damages components and wrong info written to the chip. Turn off LTM Module added in Service Mode.

Do not modify setpoints if in OvenTrack.

The PCOC oven track temperature jumps to a high temperature during the early part of a run and then resets itself to the setpoint. Problem caused "sampler method" being loaded when ALS finishes post washes.

Do not reset LTM to initial values after method loading.

LTM Temp Ramp drops mid run and then recovers. Problem caused "sampler method" being loaded when ALS finishes post washes.

NPD H2 Off resets.

The 7890 NPD H2 off value resets during run. Problem caused "sampler method" being loaded when ALS finishes post washes.

Reset signal display filter when delta is > 100000

FID signal displays incorrectly.

QQQ Argon flow incorrectly reported.

QQQ Collision Cell displays Ar Collision Gas Actual as higher than setpoint and GC Actual.

MMI Cryo Fast Cool Down

In B.02.01 firmware, if a MMI is the front inlet and cryo fast cool down is being used, the GC would automatically reboot.

Stop Key Pressed reported late.

Manually pressing STOP during a run on the 7890B in not executed immediately on the Open Lab Data Handling systems. The 7890A STOP is handled correctly.

Fix timeout on ALS.

With the Data System connected but not in a sequence or run method resolution occurs saying that an injector is missing when the injector is still physically connected. There have been periodic loss of the injector in the configuration. This has occurred sporadically. It will also happen during runs.

This has happened over several revs of the 7890A firmware also.

Change default method to Oven ON @ 30C

Default Method changed to 30 degC and ON.

Fix field width for MMI split ratio

MMI Split Ratio field on the GC Display has too many characters

Fix MSshutdown for flow programmed columns

Start MS Shutdown loads inlet as 'Sleep mode', pressure 0 when non-H2 gas; LTM configuration hides Aux EPC inlet setting.

B.02.02 7890B GC Firmware

Released August 2013

Firmware Support for GC/MS Triple Quad 7000 Direct Communication

It is possible to enable Direct Communication with the 7890B GC and GC/MS Triple Quad.

Strange Characters are Displayed in Chinese Mode

In Chinese mode, strange characters were displayed intermittently after power on.

Updated TCD Error Messages

When an error is created, the Not Ready light will blink and the Status key will say X Detector Fault, where X is the position of the TCD. The error will either say TCD Open Filament when it is open or TCD Bridge Voltage when there is a short.

Split Vent Test Default Total Flow Value are Changed

The default value is dependent on gas type; it is 150 for Nitrogen and 400 for any other gas type.

INFO Key Text is Available for Gas ID Voltage

Gas ID Voltage can be used to identify if there is a mismatch in gas configuration and the actual gas coming into the instrument. When viewing the Gas ID Voltage, press the INFO key to determine what the voltage should be for different gas types.

7697A Headspace Information is Displayed on the GC

7697A Headspace configuration and actuals can be viewed on the 7890B GC when Direct Communication is enabled.

Error When 7683 ALS is Installed on the Back Injection Port

Sample Error 133 would appear when the 7683 ALS was installed on the back injection port. This is resolved in B.02.02 firmware.

Injector Ready Behavior

When the Injector is off of the post, the GC status is ready (Status will read ALS not mounted). The ALS status is Fault. When the injector door is open, the GC status is not ready (Status will read Front/Back Inj Door Open). The ALS Status is Fault.

MMI Cryo Fast Cool Down

In B.02.01 firmware, if a MMI is the front inlet and cryo fast cool down is being used, the GC would automatically reboot.

Cool on Column EPC Auto Zero Septum Purge

In previous versions of firmware, the Cool on Column EPC Auto Zero Septum Purge was OFF by default. The default is now ON.

Bar Coding Events

In previous versions of firmware, bar coding events were not passed to the software, which caused issues when a bar code reader was used with the 7890B GC connected to software versions prior to A.01.05 OpenLAB CDS and B.07.00 GCMS MassHunter.

Updates to INFO key text and Terminology for SLEEP and WAKE Scheduling

Behavior of Selecting Vent then Pump-down on a System with Direct Communication Enabled

In previous versions of firmware, if a user had Direct Communication enabled between their 7890B GC and 5977A MSD and decided to vent the system and changed their mind to pump down the system instead, the mass spec would go into pump down and became ready as expected but the GC continued to load the setpoints for the Vent Method. In B.02.02 firmware, pump down will exit the GC from the shutdown and/or fast vent.

Default 7890 Model when New 7890B Logic Board is Installed in 7890B GC

In previous versions of firmware, when a new 7890B logic board was installed in a 7890B GC, the default view in status showed that the GC was a 7890A+. After entering the serial number and power cycling the GC, the view showed that it was a 7890B GC. The default view in status has been changed to a 7890B GC.

GC Will Not Exit SLEEP Status if GC Cannot Communicate with ALS Controller Board

In previous versions of firmware, if the GC could not communicate with the ALS controller board and a SLEEP method was loaded, the GC would not exit SLEEP status.

The MS Will Not Wake Up When the GC Goes Into Conditioning Run

In previous versions of firmware, if a conditioning run was selected to run before the GC loads the WAKE method, the MS would stay in SLEEP status until after the conditioning run was complete. In B.02.02, the MS will WAKE up when the Conditioning Method is loaded on the GC.

GC will Turn Off Hydrogen Gas if in Shut Down State

If the Air source is no longer sufficient, the detector Air Flow and Hydrogen Flow will be turned off.

B.02.01 7890B GC Firmware.

Released April 2013

Oven Standby Configuration Mode

An oven standby configuration mode is now available in B.02.01 7890B GC firmware. This standby mode will allow for a high oven temperature when a user has not injected a sample for a period of time.

GC x GC Valve Parameter

GC x GC valve name has been changed from Sample Time to Inject Time.

Removed Serial Number from Syringe Barcode Configuration

Changed Serial Number to Lot Number for Syringes

Added 5977A MSD Status to 7890B Status Parameters

Added MS status and MS Transfer Line status to the 7890B Status

Changed Sleep/Wake INST Schedule text to Schedule

LTM Maintenance Column Length Threshold Limits

In B.02.00 Firmware the LTM column length range was invalid.

Added Status Message for Bar Code Scanning

Added "waiting for info from data system" status message after scanning Syringes or Liners from the GC. After the syringe or liner has been read, the installation date will be recorded as verification that the action was logged by the instrument.

EMF for Bead On Time Changed to Hours

Cryo On/Off Determines the Use of Cryo for the Cyro Focus Zone

Scanning Column, Liner or Syringe and Entry to Maintenance Log

When a column, liner or syringe is scanned by a bar code reader, this event will be logged in the maintenance log.

7890B GC Error Message Handling with MS Goes into Shutdown

When the MS goes into shutdown, the GC goes into a shut-down state. It is not possible to change set points until the MS Shutdown state is cleared from the DET key.

Hyperion 1300g Scanner

The Hyperion 1300g scanner stops decoding when left idle for 13 days. A clock table event has been added to the GC to power cycle the scanner so that it does not go idle.

5977 MSD Parameters are Not Translated

In B.02.00 Firmware, some items were not translated in Chinese. In B.02.01 Firmware all translated text is available.

Volatiles Inlet and Cool on Column Maintenance Feedback

In B.02.00 Firmware, the Volatiles Inlet and Cool on Column Inlet showed a maintenance counter for a liner which is invalid. The liner has been removed in B.02.01 Firmware.

Volatiles Inlet Bar Code Scanning

In B.02.00 Firmware, the Volatiles Inlet allowed for a liner to be scanned with a bar code reader which is invalid. The liner scanning has been removed in B.02.01 Firmware.

Liners and Syringes Display Install Date

In B.02.00 Firmware, when a liner or syringe was scanned with the bar code reader, the installation date was not recorded. It is recorded starting with B.02.01 Firmware.

"EMV at Last Tune" Maintenance Counter

In B.02.00 Firmware, the "EMV at Last Tune" counter displayed a value with 3 digits to the right of the decimal. The software shows these values in whole numbers and the B.02.01 Firmware was updated to match the software.

Manufacturer information added for Syringes and Liners

When a Headspace or CTC is Connected, Inlet Counters are Not Incremented

In B.02.00 Firmware, the column, detector and instrument run counts would increment but the inlet counters would not increment. This is fixed in B.02.01 Firmware.

Corrected Chinese Translation for Column Configuration Parameters

In B.02.00 Firmware, the Config Column Install Date and "waiting for info" text was not translated. It is translated in B.02.01 Firmware.

Added AUX #2 Temperature Info Range

In B.02.00 Firmware, the Aux #2 Temperature range is 0 to 0 degrees C or OFF.

Previous Firmware Versions. (7890A).

This section details previous versions of 7890A firmware giving release notes.

A.01.06 to A.01.07
(Released Jan 2008)

Addition of GC Modulator parameters.
Enhancements:
Baseline Subtraction now available
Digital Signal Auto Zeroing available
Column Compensation available from Keyboard
Cryo Type for PTV and Oven now configurable.
Thermal Aux 3 temperature can now be entered
Able to save method from Chemstation to GC
Valve Box supports Single 70W or 100W heater, or two 70 W heaters (heater nominal wattages ±20%).
The ECD Pulsar is turned On and Off with the Gas 3 On and Off.
Many info screens have been added in GC Keyboard Diagnostics If the GC has an FID and AIB installed, both detectors are reported as FID. Fixed
Computer connection information access needs improvement. This information has been added under Service Mode | Diagnostics |Communications. There is a line for number of connections and
two lines for owner, one for the title and one for the owner ID. This way the owner ID can be displayed up to 29 characters without needing to parse it into multiple lines.
Incorrect text under power diagnostics: Under Service Mode |
Diagnostics | Electronics | Power Info, the line for Back Detector actually says Front Detector.
Bugs Fixed:
Column Dimensions not rounded down. Column id of customized column now read correctly.
GC keyboard now displays when Septum Purge Flow actual does not match setpoint.
PCM pressure stays NOT READY when column outlet is configured to MSD
The Aux Channel of a PCM in back pressure mode with no column attached will maintain an absolute pressure, with the setpoint expressed in NTP Gauge.
Channel partner configuration causes heater thermal shutdown Error: "Front Inlet heating too slowly: temperature shut off" should read Front Inlet heating too slowly.
DataNotification returns fixed IP address rather than active IP address

A.01.07 to A.01.08
(Released April 2008)

Remove temperature line when valve box is not configured.
Prevent clock table from running when chemstation is connected
Update Chinese messages
Fix several service test info keys.
Fix atmospheric pressure column compensation

Silent upgrade of instrument configuraion from 1.06 & 1.07 to 1.08. (If firmware versions A.01.06 or A.01.07 is upgraded to A.01.08, the GC configuration will remain unchanged).
Release ownership of counters for LMD.
Add switch for auto zero of signal files.
Add diagnostic signal AverageLinearVelocity to columns
Add COC inlet leak down test
Fix Access Error caused by premature closing of socket.
Fix sporadic loss of connection caused by lan reusing an open local port.
Prevent lan from using local port 1434 possible conflict with firewall.
Fix NPD detector analog out.
MMON 4.05 Pick up lan patches
Fix problem with PTV configuration display.
MMON 4.04 fix flow control for PCM modules.
Stop bad displays on NPD when error occurs.
Fix inlet tests
Add inlet tests to clock table
Add second heater to valve box and detectors in WSDL
Report Volatiles inlet plumbed/capped status in WSDL
Cryo Focus option
FPGA rev 2_18
Fix NPD bead voltage after chemstation re-configure BLOS Bead configuration switch.
Add several diagnostic thermal zones to WSDL.
Change PTV solvent vent mode to a gage pressure when configured to MSD.
PTV is forced to ready during solvent vent when vent pressure is set to 0.
Run never starts if AutoPrepRun engaged
 - disable AutoPrepRun when license is accepted.
 - change WSDL to report actual value of AutoPrepRun.
Anomalous behavior for FPD PMT On/Off
Fixed update detectors and set Pmt On/Off
Disable oven track mode if not a COC inlet.
Add cryo trap as Thermal Aux type
Fix Zero Request to account for fewer than 2 zero times.
Align P3 selector to chemstation use for PCM and AUX modules
Add Cryo-Trap to aux thermal zones.
Updated WSDL to latest chemstation version.
Removed Cryo Focus from configuration
Fix improper column heater configuration.
Add CP_Inlet to configuration to allow PCM or PP modules
Labels do not persist correctly
Cannot turn off small zone after epc shutdown.
Clock Table does not auto adjust dual NPD
NPD AutoAdjust calculation changed.
NPD Config Max BeadVoltage added
NPD Config AutoAdjust on turn-on added

NPD Config Bead Drying added
New state machine with new displays and info
New state machine for FID/FPD and TCD
Detectors do not turn on until temperature ready
New status displays and updated info messages
OF needs to support detector module test in MMON
Small zone control added to MMON
Conversations to control small zones added to MMON
Configure detector module added
Conversations to read detector data added to MMON
Valve box display disappears when there is a heater fault
Fix small zone temperature ramps after method download.
Fix Chinese labels for inlets and detectors. Add labels for Aux Epc channels.
2DGC delay time error message does not match the info
2DGC the cycle time can be set to less than the sample time.
The sample time must be less that the cycle time.
PTV inlet temperature needs to hold setpoint through post-run.
Unplugging an EPC board creates a beep but no messages.
Pop-Up added for comm. Loss for Inlets, Aux, Pcm, and Detectors
Disconnect and reconnect log entries created for comm. Loss.
Communications lost is displayed for missing epc modules.
A missing module is not ready.
A missing module may be ignored.
When epc is reconnected, everything resumes.

A.01.08 to A.01.09
(Released September 2008)

Changes applicable to Customers and Suppport Providers are as follows.
Able to specify Cryo Type for User Aux Heaters
Fixed analog out noise problem.
Turn on PMT voltage when FPD flame is turned ON.
Turn off FID air and H2 on ignition fail and gas shutdown
Enable test signals for valve box heaters
Add current limit to NPD SetBead voltage. If current exceeds 100pA during bead
turn on, detector will turn off.
Add ColComp setpoints to method.
Add zone_limit to AuxHeater config reporting
Add several aux temp models for ICPMS
Fix reporting of AuxDet Heater On/Off
Remove Cryo Focus Valve configuraion.
Add Configure Collision Gas Control Module.
Fix status display to not allow flow on COC.
Add Column Compensation output in analog and digital modes (via config detector).

Network settings (IP address, DHCP etc) can now be modified from the keyboard while in MMON mode.
ALS appeared to go off line after 3 weeks of continuous use. Power reset resolved issue. Now fixed.
(ALS firmware A.01.01)
Gaps in Bar Code Reader can now be read. (ALS firmware A.01.01)

A.01.09 to A.01.09.1
(Released October 2008)

A list of defects fixed are as follows:
Fix cryo trap for JAS
Fix oven cryo shutdown.
Fix download during run for oven thermal, and pressure zones.
Fix download during a run for column flow programs.
PCM AuxC reports as PCM AuxB Not Ready (p_aux.c)
Fix detector makeup mode for download.
Fix status message for bad serial #.
Fix entering zero value for analog out.
Fix analog out for detector OFF.

A.01.09.1 to A.01.09.2
(Released November 2008)

The heating control coefficients (PIDs) have been modified in the firmware to better control and resolve these fluctuating temperatures.
The new firmware revision is A.01.09.2
If you have a customer with a PCOC inlet, regardless of whether they are experiencing temperature problems or not, it is advisable to update the firmware to A.01.09.2

A.01.09.2 to A.01.10
(Released March 2009)

Enhancements:
Support for the 7693A ALS and associated modules.
Support for the 7000A Triple Quad GCMS.
Support for the MMI.
Fixes:
Fix PTV Cryo for SOLVENT VENT Time.
Fix method download during a run for non-programmed zones.
New PCOC PIDï¿½s and control.
Fix missing small zone fault messages and events.
Fix download of column calibration.
Clean up small zone readiness calculations.

Fix small zone shorted sensor detection.
Add delay to valve state upload during a run.
Fix power up procedure to not energize the small zone contactor when there is
a shorted driver.
Fix detector thermal shutoff status messages.
Fixed readiness for external devices
Fix method file upload and download of inlet temperature ramps.

A.01.10 to A.01.10.1
(Released May 2009)

Front/Back detector hardware fault Spurious error message.
Error introduced in A.01.10. Evident at power on.
NPD Analog signal always 0.0V.
Error introduced in A.01.10. Digital Signal works OK.
At times, GC keyboard, UI & LAN response is sluggish/stalled
PTV cryogenic cooling operating as per A.01.07. Cryo did not control inletduring run.
Fixes for External ready for 7820A.
Fix method file upload and download of inlet temperature ramps.
Fix power up procedure to not energize the small zone contactor when there is a shorted
driver.
Fix detector thermal shutoff status messages.
Fix download of column calibration.
Clean up small zone readiness calculation.
Fix small zone shorted sensor detection.
Add delay to valve state upload during a run.
Fix PTV Cryo for SOLVENT VENT Time.
Fix method download during a run for non-programmed zones.
New PCOC PIDs and control.
MMI Temperature minimum for MMI multimode inlet set to -180 degC
LVI with a 500ul syringe set incorrect draw speed.
Fix Solvent Vent pressure calculation, use gage pressure. Give MMI inlets 10 ramps.
7693 ALS
7890 System Calibration should fail if G4514A internal calibration not completed
Tray LED does not flash when G4514A does not find a bottle during return all.
GC display updates BCR firmware revision correctly after a firmware update.
Tray chiller info and text modified ï¿½ chiller temperature upper limit is now 60C.
Give MMI inlets 10 ramps
Fix error in FPD single heater configuration.
Tray Chiller configuration items added under Tray Config
Tray Chiller temperature added to GC readiness
Sampler devices reset after a firmware update/SN change causes 7890 to reconfigure QQQ
Fix collision cell fault messages.
Add QQQ to system readiness,

Add QQQ shutdown test.
Add QQQ diagnostic panels.
Add Argon control mode to QQQ based on ECD Nitrogen and Argon frit calibrations.
Add QQQ Collision cell gas controller
Fix cannot pick collision cell from aux epc list

A.01.10.1 to A.01.10.2
(Released October 2009)

Fixes:
7890 GC keypad now allows entry of serial numbers for injectors and tray.
In certain circumstances the oven will not shut down if it cannot reach temperature for reasons such as an oven flap failure – This has now been fixed.
Lab advisor can now connect to the GC whilst it is in MMON mode resolving firmware download connection problems.
7890 GC can now store barcode labels that contain more than 34 characters
Injector light is inconsistent with 7890 Tower LED

A.01.10.2 to A.01.10.3
(Released March 2010)

Fixes:
The parameters for the draw Speed, Dispense speed are displayed with Use Method Value. However, they are using the Values of the default Default Method and not of the Method loaded.
This causes the Enhanced Syringe Carriage to stall unless manual values are entered.
Lab Advisor needs to query 7890 to retrieve injectors and tray logs.
S/SL inlet and configured for Hydrogen. create a leak and after a few minutes you get a beep, then a different two-tone and an error message "Front inlet flow shutdown".
You DO NOT get "Hydrogen Safety Shutdown" as described in the service manual.
By pressing "Status" then scrolling down you can see a message "Hydrogen shutdown", not "Hydrogen Safety Shutdown".
Event Log shows "Front inlet flow shutdown" but should show "Hydrogen Safety Shutdown".
Recovery after power cycling does not match the 7890 service manual.
The PTV temperature control lags that of the 6890 PTV control.
There is a preceptable difference in the time to reach final temp during the last part of the heat up. It appears to take about .5 min longer to reach frinal temp than the 6890. This is in the control algorithm.
The expected temperature is the temperature the user would expect to be reached. For the PTV with the following temp program:
The 7890 has six heated zones. Some of the zones although configured may not be used during the run and are turned off.
Intermittently the zones that are turned off exhibit the error message "Thermal zone heating too slowly" on the GC display.

A.01.10.03 to A.01.11
(Released July 2010)

Enhancements
Compatible with new MMI Thermocouple Board.
Ability to Ignore Ignition to allow for manual ignition without ignitor.
Column configurations and Max Temp added for LTM
Zone cannot be turned by method load if it has been shut down pneumatically
(requires interaction at keyboard
TCD filament and gasses turn off during hydrogen shutdown or any inlet pneumatic shutdown.
FID Flame and gasses turn off during hydrogen shutdown or any inlet pneumatic shutdown.
NPD Bead and gasses turn off during hydrogen shutdown or any inlet pneumatic shutdown.
Post Run temperature and total flows can have changed for the MMI.
If the GC is connected to Chemstation which goes down the GC can be forced not ready via
Host Not Ready configuration.
Configured using <CONFIGURE><INSTRUMENT><Require host connection>.
Mass Spec Transfer line configuration now kept in flash memory.
MMI Thermocouple type kept in flash memory.
Bug Fixes
Uploading Method sometimes multiplies the event value by 1000.
uECD unit modified for Chemstation.
GC loses ALS configuration after power fail.
FID fuel gasses turned off if makeup gas is shut down.

A.01.11 to A.1.11.1

(Released Feb 2011)

Bug Fixes.
Blank run causes soap parse error
Parsing of SubscribeToData request requires a specific ordering
of attributes
Allow ICPMS interface to be correctly configured.

A.01.11.1 to A.01.12
(Released March 2011)

Enhancements and defects fixed.

If ignitor is defective and the user tries to ignite flame, the H2 gas would remain on. Changed state to off.

G4514A Tray Parked Status is now reported with status request within Chemstation.

Film Thickness entry fixed for Non-ID LTM columns

Manufacturing Date gets lost.

Thermal Aux Cryo shutdown used with the Cryo Focus Module and cryo traps.

LTM II basic support

Update UDP poll response to A.01.02

Add owner name and address to UDP poll response.

Add port 9101 owner address to UDP poll response

MMON 4.25 Update UDP poll response to A.01.02

Add port 9101 owner to MMON UDP poll response

SetUserConfiguration for Ion Trap

Change Ion Trap transfer line messages to Ion Trap GCHI.

LTMII changes to populate LTM status in WSDL

Add ICP transfer line and argon preheater types to WSDL aux type for driver ve4rsion later than 2010-10-1.

 TCD run table editing from front panel (polarity change).

Signal zeroing is fixed as well as any other data time events (freeze and signal switch).

Add Ion Trap transfer line to 7890 configurations.

LTM enhancements and bug fixes

New ALS controller A.02.09 to support the Shot and Chaser and BCR offset

Configure multiple LTM columns

Diagnostics detect multiple columns and both boards

The LTM board can be connected now to any of the 3 channels

Allow 0 length columns

Block loading method if in shutdown

Ignore setting Unknown heater type

A.01.12 to A.01.12.1

(Released May 2011)

Enhancements:

XLSI compatible. (Added XLSI to Aux Heater configuration menu)

Defects:

LTM status when no LTM's present reported incorrectly

Thermal Shutdown caused by open sensor does not show up GC Status.

Set LTM II max rate to 1800 and fix error message

Column ID Film Thickness is in nM, 7890 uses uM*100Divide by 10.

Change scale of LTM column equib time to minutes * 1000

Change Max LTM Column equib time to 9.999 minutes

Maximum ramp rate for LTMII column

Thermal Shutdown" is reported as a FAULT

Allow diagnostic temperature signal for detectors with no epc module.

Stop reporting old run log events.

LTM column configuration values

Fix column max temp override OFF.

Remove Film Calib from IDï¿½d columns

Column ID chip status installed.

Time over column Max Temperature (seconds 0 .. 100Days).

Time over column MaxProgram Temperature (seconds 0 .. 100days).

Maximum temperature applied to column   (degrees 100 .. 600).

Time column is installed (seconds 0 .. 1941 days)

Number of runs for this column (0 .. 196600)

Length change from manufactured length (-32000mm .. 32000mm)

Diameter change from manufactured diam (-10.0 .. 10.0uM)

Film change from manufactured film (-1.0 .. 1.0uM)

Create Colum temperature override value (Column PgmMax .. 450)

Zeigler-Nichols control terms for ION-TRAP transfer line.

Shutdowns involving LTM II

LTMII Diagnostics

LTMII override Column Absolute max temp

LTMII column configuration

Excess LTM information

Shutdown events for PCM flow shutdown

5in LTM II column with tag is not configured correctly

LTM II columns 2,3,4 display Rate as ***

A.01.12.1 to A.01.13

(Released October 2011)

Nonexistent column max temp is being enforced.

Incorrect column segment diameter and film thickness info.

Column segment configure info is changed to reflect actual limits.

Small zones turning off after 3-4 weeks.

Comm Error Events are not properly reported in the GC Status.

Barcode Vial command error handling.

Method that exceeds column max can be loaded.

LTM fan fault is not displayed in GC Status

Column Max Temp set to 0.

Column calibration from flow and pressure is blocked on the 7890 for multi segment columns.

Single columns work as before.

If 7890 gets into an error state (like flame off) this is NOT reported with the 7890 status

window.

Fix clear detector events for FID & FPD states.

Fix LTM temperature and setpoint signals for Chemstation.

XLSI type is added.

7890 Keyboard lock works independently of Chemstation keyboard lock.

Keyboard setting temperature fails to turn LTM zone ON.

Two LTM modules can be configured to the same address.

LTM II - Keyboard entry of temperature ignored if zone is off and set to same value.

If a column is configured for an LTM II heater and the module is missing there is no indication of the problem.

If an LTM II module is broken there is no status message.

PCM Pressure Setpoint missing in Status, using Channel 1 of the PCM - the pressure setpoint shows up in the main PCM menu, but not in the GC Status.

Inlet type OTHER is implemented. - Allows ALS to be mounted onto a non Agilent Inlet.

LTM column equib time is not handled correctly.

LTM not ready during a run is not in run log.

LTM tag zones go not ready during a run.

Unable to set column equib time.

Add LTM configuration faults to column display.

Add Module fault tests and status displays.

Add LTM Module Status display.

Add LTM Column Temp to status display.

Update max column temperature when override is turned off.

Retune LTM PIDs for transfer heaters and add variable bounds testing for readiness.

Change LTM equib time to use setpoint for test.

A.01.13 to A.01.14

(Released April 2012)

Driver displays inlet flow setpoint instead of actual.

Open sensor not repoted for thermal aux3

LTM fault event logs do not have column #.

PTV Solvent Vent Time and Purge Time are not checked & info is incorrect.

Septum purge mode switching added to MMI.

Oven not shut off when PP inlet shuts down.

COC Septum purge error and info messages changed.

VI total flow calculations wrong when column length = 0.

Thermal shutdown if oven > 260 and turned on.
Add gas flows for CP DET with epc.
Add missing RIS message in Configure Aux.
Thermal Aux cryo not properly reported in wsdl.
ECD Makeup info range is wrong.
Reset of MPV blocked if configuration does not change.
PTV table shows Rate 4.
PTV Config
Heating too slowly test blocked when zone is inhibited by power management.
COC oventrack info updated.
VI Purge time info now shows Entry > sample time.
Add support for G4567
FPD Flameout at 120C.
Third detector shutdown by epc comm error.
Allow lowed column outlet pressure setting. Changed from -3 to -12psi.
Make the selection of the type of MSD transfer line a user option. RIS is added as a configurable type.
Instrument actuals is not showing MPV position.
Multi-Position Valve Support - current position is added to the wsdl
ECD is turned OFF with makeup gas OFF. Feature removed.
Add config command (config SN = US0000000) to application.

In addition, the firmware package contains a modification to the Boot Loader order.
This was released to overcome the possibility of heated zone runaways.
The Boot Loader can only be changed with Instrument Utilities A.01.07 in CE Mode.

A.01.14 to A.01.15
(Released March 2013)

Inlets and PCM's are ready - defined PID value - Inlet heating too slowly when using user zero during flow auto
Keyboard lock does not lock state of Sample Tray Vial Heater and Vial Mixer
Add Detector Fuel On/Off to run time events
7890A remains Not Ready when an injector is swapped while in a fault condition
Edit film thickness on column segments
Fix valve box max temp configuration
Cryo trap can start a run in the wrong state
Update 7890A FW to lower default wash and pump cycle speeds towards reduced plunger bending
UPS power capacity protection feature
7890A not indicating Not Ready for ALS fault
Move Method load and store under keyboard lock

Fix total inlet flow for backflush

Add constant fuel flow to detectors

All counts in reminder increase with each run changed to detect front/back injector for syringe liner and septum counters (columns still increment always)

Automatic septum purge zero does not work for COC inlet.

 Don't calculate flow for columns with undefined inlet.

 Change RIS heater from 60W to 70W

 Status will report not present when the chiller is not present.

TAll Disp speeds draw speeds and injection volumes were not properly compensated for syringe volume.

Column outlet pressure range changed to -12 to 15psi.

Volatiles Inlet added to type of inlet supporting negative column flow.

A.01.15 to A.01.15.2

(Released October 2013)

 In certain circumstances and configurations, the GC would report that the ALS was missing.
 This was caused by a timeout issue in the G3430.elf.S19 file.
 When the Injector was installed on the parking post the ALS would register as Not Ready making it not
 possible to inject in Manual Mode without an error.

Default COC to be set to auto septum purge ON.

Turn OFF H2 to flame detector when air slowly shuts down.
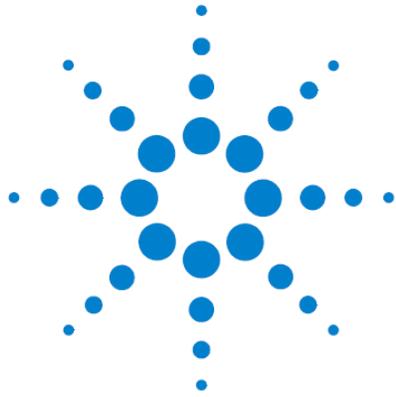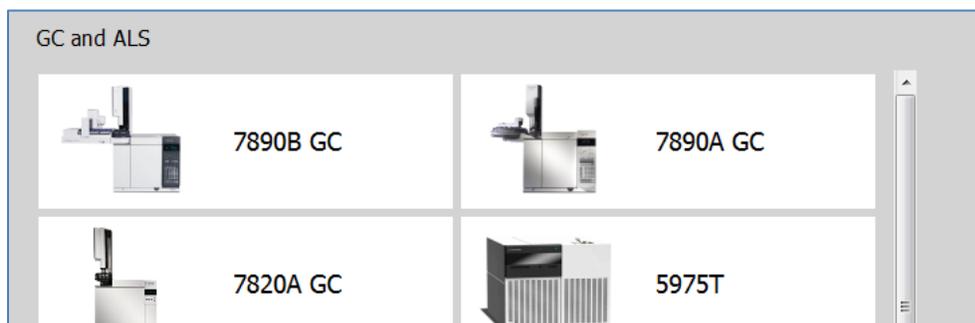
Firmware Update Program.

Firmware Update Program.

The GC firmware update program is supplied as part of the Agilent GC and GC/MS User Manuals and Tools DVDs.

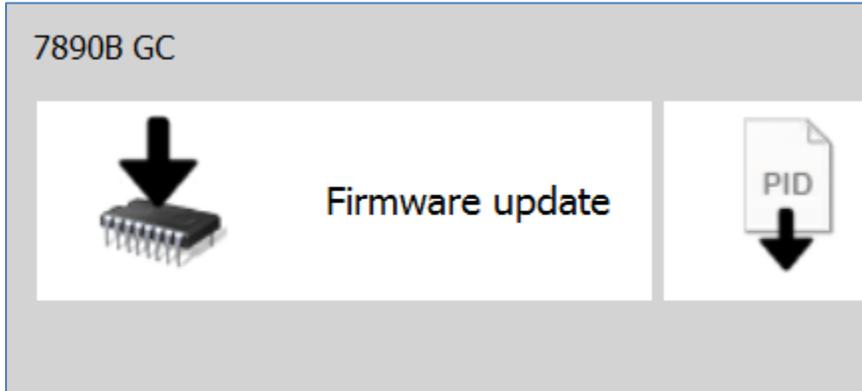After the program has been loaded and executed the following screen appears.

This enables the user to select which instrument type needs to have its firmware downloaded. In this case we select the GC and ALS.
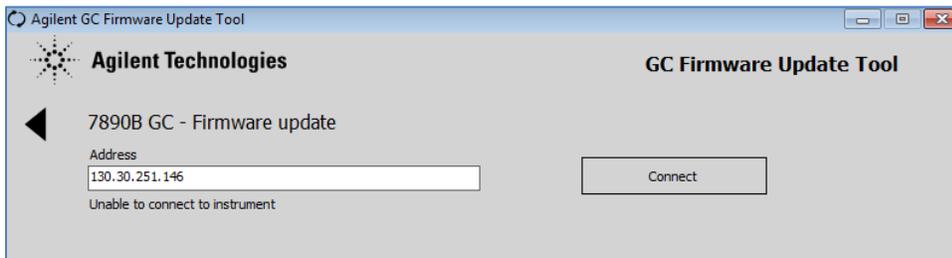

The 7890B is chosen from the Product menu.

The next screen allows us to either modify firmware or PID values for the EPC modules.

Firmware update is selected.

After choosing to update firmware, you must then enter the IP address of the 7890B that you wish to connect to and then press Connect.

Information such as current installed firmware will then be displayed.

Press Update.
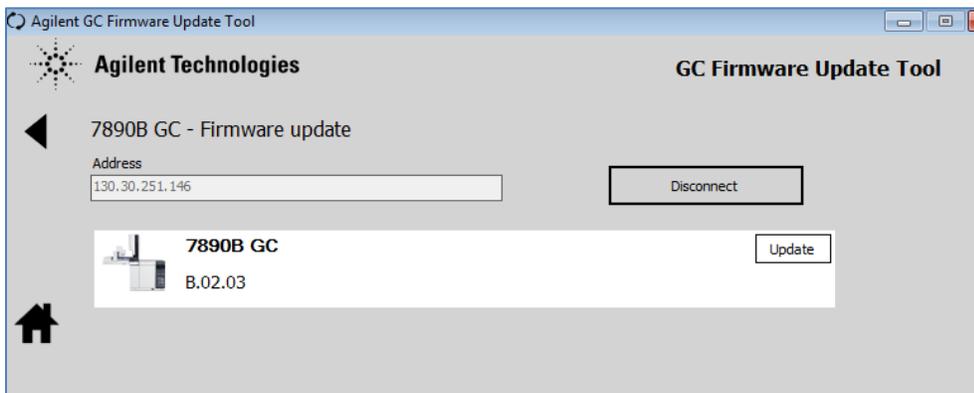
A Windows Explorer directory will then appear and you must select the firmware revision that needs to be downloaded.

If the required firmware version is not displayed then you can "browse" your harddrive to find it.

As mentioned earlier firmware files (.bin format) can be download from the Support Portal or via the Agilent.com site.
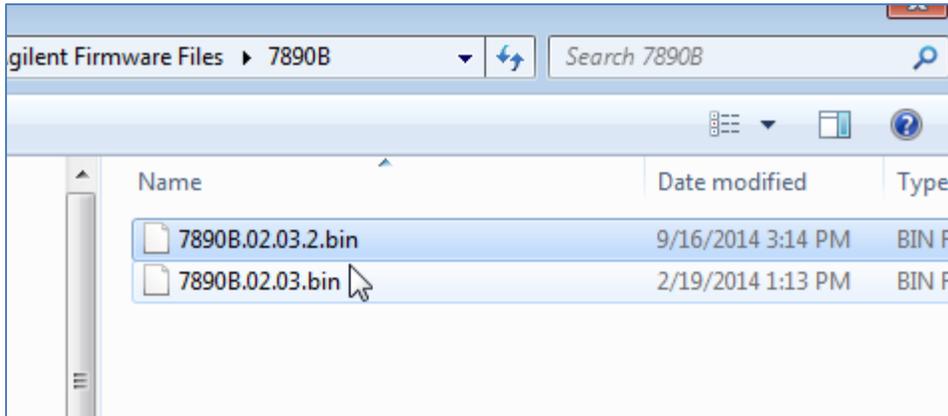
After you have selected the correct file the firmware will automatically be downloaded.
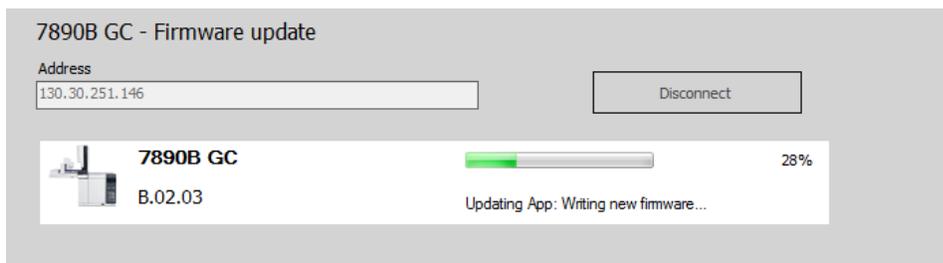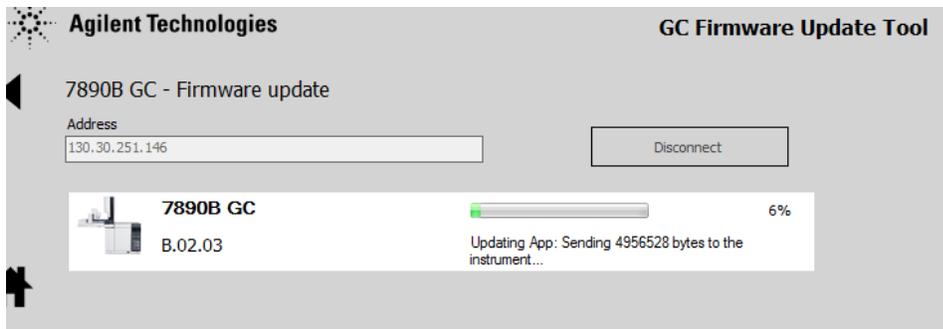
After the download is finished the GC will reboot and the firmware update is complete.

Depending on how old the original 7890B firmware prior to update was you may have to download some of the chromatographic parameters.