Agilent HPLC System Firmware Bulletin

Local Controller

G7108AA InfinityLab Companion

G4208A Instant Pilot

G1323B Control Module

Agilent Technologies

Notices

Manual Part Number

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used with Agilent HPLC systems

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- 1290 Infinity II LC Systems
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- 1290 Infinity LC Systems
- 1200 Series LC
- 1100 Series LC

For information about other HPLC module firmware sets refer to the Firmware Bulletin provided with the set.

Where to Get Latest Information

Visit the Agilent web

https://www.agilent.com/en-us/firmwareDownload?whid=69761

for

- Latest updates
- Firmware Sets / Firmware Bulletin
- Emulation information
- Firmware Update tools and
- Instructions

Document History

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

Table 1 - Document History

Date	Description
Jun 22, 2021	New firmware revision for G4208A • Revision B.02.25
Apr 28, 2021	New firmware revision for G4208A • Revision B.02.24
Feb 23, 2021	New firmware for G7108AA • Revision D.01.04 (Companion version 1.4)
Nov 16, 2020	New firmware for G7108AA • Revision D.01.03
May 26, 2020	New firmware for G7108AA • Revision D.01.02
Dec 06, 2019	New firmware for G7108AA • Revision D.01.01
Nov 13, 2019	Add G7108AA InfinityLab Companion to this document, including update of the cover page Initial firmware for G7108AA • Revision D.01.01
May 22, 2019	New firmware revision for G4208A • Revision B.02.23
Nov 30, 2017	New firmware revision for G4208A • Revision B.02.22
Aug 28, 2017	Changed document to new template. • Corrected typos • Added General Firmware Information • Added Agilent HPLC Controllers
Oct 6, 2016	New firmware revision for G4208A • Revision B.02.21
May 5, 2016	New firmware revision for G4208A • Revision B.02.20
Jul 16, 2015	New firmware revision for G4208A • Revision B.02.19
Jul 8, 2015	New firmware revision for G4208A • Revision B.02.18 • Revision B.02.17
Oct 22, 2013	Updated missing information (crosslink to B.02.15) for G4208A • Revision A.05.15
May 15, 2013	New firmware revision for G4208A • Revision B.02.16
Apr 18, 2013	New firmware revisions for G4208A to correct resident mode (blinking LED) mode • Revision B.02.15 • Revision A.05.15
Feb 13, 2013	Corrected typo in footer information and some cross-references

Feb 12, 2013	Initial Release of this document. Content has been taken from individual HPLC set documents

Compatibility Information

This chapter provides information about compatibility.

The information is related to firmware described in this firmware set.

NOTE This set includes just the latest firmware of each module. It's fully compatible with your CDS that supports this firmware set.

Agilent LC Firmware Set Interoperability and Support Statement

- Agilent releases LC firmware updates as so-called “firmware sets”.
- All Agilent LC instrument firmware sets have been designed and tested to be truly and strictly backward compatible to the installed software base (CDS).
- The module firmware contained in each set is fully compatible and interoperable with all other module firmware of the same set.
- Agilent recommends using always the latest module firmware revision of a firmware set to avoid interoperability issues.
- Generally, Agilent recommends keeping the LC instrument firmware always current.
- Do not mix firmware revisions between different sets. Agilent does not guarantee mixed firmware revisions from older or newer sets.
- If you must document the firmware revision (for validation reasons) please use the term “Revision XXX or later” or “Firmware from Set XX or later”. This might help on discussions in case of required updates due to malfunctions that have been corrected in later releases.

Notes for Agilent LC instruments 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.
- An Agilent LC instrument running a current firmware set is fully supported as long as it meets or exceeds the minimum firmware requirements specified by the 3rd-party CDS software vendor and meets Agilent's firmware set/firmware interoperability requirements.

Examples

NOTE If a new feature has been added in a newer revision, an appropriate CDS revision that supports the new feature might be required. Otherwise it is just not visible/used.

This means

- A later revision than the initial firmware in this set is fully backward compatible and does not require re-validation of the system, unless it is mentioned under the specific change information, see Agilent LC Firmware Set Interoperability and Support Statement and OQ/PV - Validation Information.
- A CDS tested with the initial revision will also work with the later revisions. This is normally also true for non-Agilent control software (3rd party CDS), see Notes for Agilent LC instruments controlled by non-Agilent Chromatography Data Systems (CDS).
- Use firmware from a single set only.
- Use the latest firmware revision if possible.
- Upgrade all modules to latest revision when
  - a (new) module is added to the system or
  - receives a new main board or
  - a module is updated due to solving a problem.
- References in validation documents should not be done to specific revisions. Use (if possible) the term “Set X.XX or later”.

NOTE Do not mix firmware revisions from this set with older or newer sets. This firmware is not tested across set borders.

This means

- Use of firmware from different sets may cause unpredictable problems.

NOTE A.06.xx / B.0x.xx firmware does not talk to old 1100 firmware revisions A.05.xx and below.

This means

- Adding a new 1260/1290 module to an existing 1100 system will not show the new module in the CDS.
- Depending on the interfacing either only the old or new or no module(s) are shown in the CDS.
- You should upgrade either the old module(s) to new firmware or downgrade the new module to old firmware (while the other side is disconnected via CAN).

OQ/PV - Validation Information

If a firmware upgrade has been performed, normally no re-validation of the module/system is required.

NOTE Whether are-validation is required or not is defined on the customer’s requirements.

General Firmware Information

Firmware A

This firmware was introduced with the 1100 series LC modules in 1995. These can be identified by

- No LAN connection
- GPIB connector (not with 1260 modules and later)
- RS-232 connector
- 9-pin APG remote connector
- Interface slot for LAN card (not on G1316A/B/C TCC)

Firmware B

This firmware was introduced with the 1200 series LC modules with new electronic platform starting 2005. These can be identified by

- LAN onboard (instead of Interface slot)
- No GPIB

These modules can work as host for hosted (CAN slave) modules with C-firmware.

Firmware C

This firmware is used in hosted (CAN slave) modules. To operate them, these require a host module with (B- or D-firmware).

- G7116A/B Multicolumn Thermostat (1290 Infinity II)
- G4227A Flexible Cube (1290)
- G1170A Valve Drive (1290)
- G1390B Universal Interface Box II (1260/1290)

Firmware D

D-Firmware is for new Infinity II platform modules introduced August 2014. These can be identified by

- product numbers G71XX and
- 15 pin enhanced remote interface (instead of 9-pin APG remote) and
- mini-USB connection (instead of RS-232)
- Main boards with FUSION core piggyback board and

These modules can work as host for hosted (CAN slave) modules with C-firmware.

NOTE Existing 1100/1200/1260/1290 modules with A/B/C/D firmware must be upgraded to latest firmware (main/resident) from set 7.01 when used with the 1260 Infinity II modules.

Main/Resident Firmware

The module firmware consists of two parts

- Main firmware – for the operation of the module and resident firmware update
- Resident firmware – for boot (if the main is not starting) and main firmware update

NOTE Main and resident firmware revision should be from the same firmware set.

For details see Agilent web for ***LC firmware***! See Where To Get Latest Information.

Firmware for New RFID Tag

New RFID tag assemblies were introduced later in November 2016 on various modules:

- VWD (G1314D, G1314E, G1314F),
- DAD, MWD (G1315C, G1365C, G1315D, G1365D), Infinity DAD (G4212A, G4212B),
- Infinity Binary Pump (G4220A, G4220B),
- TCC (G1316C),
- Universal Valve (G1170A),
- FlexCube (G4227A),
- CE (G7100A)

To support old and new RFID tags compatible firmware is required:

- G1316C TCC with A.06.55 or later,
- B-firmware since release B.06.73 or later.
- C-firmware for G1170A Universal Valve or G4227A Flexible Cube since release C.06.72 or later.
- D-firmware since release D.06.70 or later.

For details see Agilent web for ***RFID Tag Information - Important for all users***! See Where To Get Latest Information.

Agilent HPLC Controllers

Agilent InfinityLab Companion G7108AA

The InfinityLab LC Companion acts as a mobile LC user interface to allow for remote control, monitoring, signal plotting, and diagnostics of Agilent 1260 and 1290 Infinity II LC systems. With the InfinityLab Companion, any mobile device - such as a tablet device or smartphone - with a compatible web browser can be turned into a mobile user interface to quickly check the status of your LC instrument. The InfinityLab Companion combines the features of the Agilent 1200 Infinity Series Instant Pilot with state-of-the-art mobile technology to give you ultimate ease-of-use and maximum flexibility to control and monitor your Infinity II LC systems. Take full control your Agilent LC equipment. From any place. At any time. On any device.

Features:

- Remote control and monitoring of many 1260 and 1290 Infinity II LC modules
- support of additional modules will follow with firmware updates
- Excellent usability and ease-of-use through a user interface specifically tailored to mobile devices - simple, intuitive, and adaptive
- Highest flexibility using your company's existing wireless connection (WLAN) to connect to any mobile device (PIN protection available)
- High flexibility and cost-effectiveness by enabling use of any existing mobile device (requires compatible browser)
- One-time purchase of the USB dongle as the centerpiece of the solution enables InfinityLab LC Companion functionality on your instrument

Agilent 1200 Infinity Series Instant Pilot G4208A

The Agilent 1200 Infinity Series Instant Pilot controller gives you complete control, system monitoring, signal plotting and diagnostic capabilities for a virtually unlimited number of LC system modules. It is connected to the LC system with a CAN cable for power supply and communication.

Features:

- Complete local control and monitoring of an Agilent 1200 Series, 1260 Infinity and 1290 Infinity system or a single module from a single point. However, not for Agilent 1220 Compact LC.
- Mixed system configurations supported, e.g. 1200 Series, 1200 Series SL- and 1100 Series.
- Excellent readability and usability by large colored display with background light, high resolution and contrast.
- Convenient, ergonomic operation either handheld or at the stack with newly developed, secure attachment.
- Handheld or attached to a module in a stack to facilitate operator preferences.

The 1200 Infinity Series Instant Pilot provides:

- Easy automation – recalibration intervals and multi-method sequences satisfy the most stringent automation routines.

- Transfer and archiving of methods, sequences and logbooks via standard USB memory sticks.
- Factory installed software – flat dialog structure, user configurable interface, enhanced sequence engine, for example with wait for baseline stabilization, diagnosis with passed/failed.
- GLP – System logbook and module log-books record errors, unusual events and maintenance activities for GLP traceability.

Agilent 1200 Series Control Module G1323B

The control module provides complete local control and monitoring of a single module or an entire Agilent 1200 Series system. There is no data evaluation in the control module. The control module allows you to do a variety of HPLC tasks including automated sample preparation and injection, isocratic, gradient and multiple method analyses.

Controller History

The G1323A Control Module was introduced with the 1100 Series HPLC Modules in 1996/1996.

The G1323A Control Module was replaced by the G1323B version (more internal memory) in March 1999.

The G1323B Control Module was replaced by G4208A Instant Pilot in March 2006. Newer hardware (display, processor, memory) increased the number of supported LC modules (1100/1200/1260/1290/1200 Infinity, 1260/1290 Infinity II, 1220).

The InfinityLab Companion G7108AA was introduced in November 2019 for the Agilent Infinity II Prime LC Modules and will be expanded to all modules later.

G7108AA InfinityLab Companion

Overview of Firmware Revisions G7108AA InfinityLab Companion

This chapter provides the details of the various firmware revisions for the G7108AA InfinityLab Companion.

NOTE Do not downgrade firmware of the InfinityLab Companion to earlier revisions. Use always the latest revision. The latest version is always backward compatible to the initial D.01.01

Main Firmware

The main firmware is available for the use of the Agilent provided pre-configured tablet option.

Resident Firmware

The InfinityLab Companion G7108AA does not require a resident firmware.

Table 2 – G7108A Firmware Revisions - Overview

Module	Filename (.DLD)	Date	Information
G7108AA	7108A_D104_001	02/23/2021	FW Update for the use with LC Firmware D.07.33 or higher. Do not use this FW on older LC firmware revisions.
G7108AA	7108A_D103_0023	11/16/2020	FW Update for the use with LC Firmware D.07.33 or higher. Do not use this FW on older LC firmware revisions.
G7108AA	7108A_D102_001	05/26/2020	FW Update for the use with LC Firmware D.07.30. Do not use this FW on older LC firmware revisions.
G7108AA	7108A_D101_001	12/06/2019	Initial firmware for Infinity II modules to enable support for the InfinityLab Companion (compatible with LabAdvisor B.02.14 or later)
G7108AA	7108A_D101_001_727	11/13/2019	Initial firmware for Infinity II modules to enable support for the InfinityLab Companion (only compatible with LabAdvisor B.02.12)

NOTE For the usage of the InfinityLab Companion there must be at least one Infinity II (Fusion-) module in the stack (for wired connection with a free CAN connector).

The usage of the latest firmware from set 7.01 (includes 7.27 firmware for Fusion modules and the Web-server app firmware) and the latest Lab Advisor software (B.02.14 or later) for a firmware update is required.

Ensure that the Infinity II - FUSION module has the latest firmware installed (min. D.07.27, all modules must be on the same firmware set). The Lab Advisor software will automatically install the Web-server app firmware in the Infinity II - FUSION module(s), that hosts the CAN/USB connection to the docking station G7109A or the InfinityLab Companion when only used G7108AA.

Firmware Revision Changes of G7108AA InfinityLab Companion

NOTE Do not downgrade firmware of the InfinityLab Companion to earlier revisions. Use always the latest revision. The latest version is always backward compatible to the initial D.01.01.

Revision D.01.04

Table 3 InfinityLab Companion Changes D.01.04 (G7108AA)

Date Introduced:	February 2021
Revision:	7108A_D104_001.dld
General:	Requires LC Firmware D.07.33 and later
Bugfix:	• KPR#: 490060 Defect entry "Certain browsers are not able run InfinityLab LC Companion application properly"
New Features:	• None
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision D.01.03

Table 4 InfinityLab Companion Changes D.01.03 (G7108AA)

Date Introduced:	November 2020
Revision:	7108A_D103_0023.dld
General:	Requires LC Firmware D.07.33 and later
Bugfix:	• PLRDKAL-1588 Enhancements to access control – Adding the ability to restrict the start of runs to admin users • PLRDKAL-33 For the browser-based version: Ability to print methods, system reports and test summaries • PLRDKAL-1543 Improved readability of the Instrument Logbook • PLRDKAL-1397 More prominent display of instrument status across Companion screens • PLRDKAL-1458 Improved highlighting when comparing methods • PLRDKAL-1502 Improvements to readability and layout of menus
New Features:	• PLRDKAL-1412 Support of Infinity II Bio modules G7132A and G7137A • PLRDKAL-1297 Support of Infinity II Fluorescence Detectors G7121A and G7121B
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision D.01.02

Table 5 InfinityLab Companion Changes D.01.02 (G7108AA)

Date Introduced:	May 2020
Revision:	7108A_D102_001.dld
General:	Compatible with LabAdvisor B.02.14 and later
Bugfix:	• KPR#:118272 On non-tested and non-approved browsers and browser versions, stability, correctly rendered UI or correct function cannot be guaranteed. Tested and approved browser for 7.25 is Google Chrome Version 67. Browser support now extended to Chrome, Safari, Edge and FireFox • KPR#:406771 When controlling a G7120A pump from the InfinityLab LC Companion. the method parameter "Stroke" cannot be set for each channel individually. This issue is fixed. • KPR#:406802 G7120A - Pure solvents can be set up with a composition lower than 100%. When a G7120A method is set up using the InfinityLab LC Companion, pure solvent types can be selected. These solvent types allow to still define a composition percentage although this parameter has no effect for pure solvents. This issue is fixed. • KPR#:406817 G7120A - Maximum flow gradient settings cannot be set individually. When controlling a G7120A pump from the InfinityLab LC Companion. the method parameter "Max. flow gradient" cannot be set for each channel individually. This issue is fixed.
New Features:	• None
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision D.01.01

Table 6 InfinityLab Companion Changes D.01.01 (G7108AA)

Date Introduced:	December 2019
Revision:	7108A_D101_001.dld
General:	Initial firmware – Compatible with LabAdvisor B.02.14 and later
Bugfix:	• None
New Features:	• None
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Table 7 InfinityLab Companion Changes D.01.01 (G7108AA)

Date Introduced:	November 2019
Revision:	7108A_D101_001_727.dld
General:	Initial firmware – Compatibility release for LabAdvisor B.02.12 (only)
Bugfix:	• None
New Features:	• None
OQ/PV Recommendation:	See OQ/PV - Validation Information.

G4208A Instant Pilot

Overview of Firmware Revisions G4208A Instant Pilot

This chapter provides the details of the various firmware revisions for the G4208A Instant Pilot.

NOTE Do not downgrade firmware of the Instant Pilot to earlier revisions. Use always the latest revision. The latest version is always backward compatible to the initial B.01.02.

Main Firmware

The main firmware is available in two versions:

- B for all modules with A.06.xx/B/C/D.xx firmware
- A for modules with A.5.xx firmware.

Resident Firmware

The resident firmware depends on the main firmware version (since B.01.02). Main firmware A does not use resident firmware (just for firmware update to B-versions).

Table 8 – G4208A Firmware Revisions - Overview

Module	Filename (.DLB)	Date	Information
G4208A	4208A_B225_001, Res_4208A_B225_001	05/xx/2021	Latest version, should be used per default. Based on B.02.24.
G4208A	4208A_B224_001, Res_4208A_B224_001	04/28/2021	Latest version, should be used per default. Based on B.02.23.
G4208A	4208A_B223_001, Res_4208A_B223_001	05/22/2019	Latest version, should be used per default. Version for use with A.06.xx/B.0x.xx firmware, based on B.02.22.
G4208A	4208A_B222_002, Res_4208A_B222_002	11/30/2017	Latest version, should be used per default. Version for use with A.06.xx/B.0x.xx firmware, based on B.02.21.
G4208A	4208A_B221_003, Res_4208A_B221_003	10/06/2016	Latest version, should be used per default. Version for use with A.06.xx/B.0x.xx firmware, based on B.02.20.
G4208A	4208A_B220_007, Res_4208A_B220_007	05/05/2016	Version for use with A.06.xx/B.0x.xx firmware, based on B.02.19.
G4208A	4208A_B219_001, Res_4208A_B219_001	07/16/2016	Version for use with A.06.xx/B.0x.xx firmware, based on B.02.18.
G4208A	4208A_B218_001, Res_4208A_B218_001	07/08/2014	Version for use with A.06.xx/B.0x.xx firmware, based on B.02.17.

G4208A	4208A_B217_003, Res_4208A_B216_001	06/25/2014	Version for use with A.06.xx/B.0x.xx firmware, based on B.02.16.
G4208A	4208A_B216_001, Res_4208A_B216_001	05/2013	Version for use with A.06.xx/B.0x.xx firmware, based on B.02.15.
G4208A	4208A_B215_001, Res_4208A_B215_001	03/2013	Version for use with A.06.xx/B.0x.xx firmware, based on B.02.14. Solves a problem with MY94674204 and above with B.02.14 that may fall into resident mode (dark screen and blinking LED). See "Special Instructions" on page 16.
G4208A	4208A_A515_001, resident not required	03/2013	Latest version, should be used per default. Version **for use with A.05.1x firmware**, based on A.05.14. Solves a problem with MY94674204 and above with A.05.14 that may fall into resident mode (dark screen and blinking LED). See "Special Instructions" on page 34.
G4208A	4208A_B214_001, Res_4208A_B214_001	06/2012	Has a problem with MY94674204 and above, falls into resident mode (dark screen and blinking LED)
G4208A	4208A_B213_001, Res_4208A_B213_001	08/2011	Solves problems with MY.... serial number Instant Pilots with the new graphical chip (SM502) from crashing and going to resident.
G4208A	4208A_B212_001, Res_4208A_B212_001	04/2011	
G4208A	4208A_A514_001, resident not required	10/2010	**Version for use with A.05.1x firmware**, based on B.02.07. Support of Instant Pilots manufactured in Malaysia (MY....)
G4208A	4208A_B211_002, Res_4208A_B211_002	08/2010	
G4208A	4208A_B209_003, Res_4208A_B209_003	10/2009	1260/1290 Infinity Release. See Note below.
G4208A	4208A_B208_002, Res_4208A_B208_002	07/2009	1290 Infinity Release. See Note below.
G4208A	4208A_B207_001, Res_4208A_B207_001	08/2008	See Note below.
G4208A	4208A_A513_003, resident not required	08/2007	**Version for use with A.05.1x firmware**, based on B.02.06

G4208A	4208A_B206_007, Res_4208A_B206_007	08/2007	
G4208A	4208A_A512_002, resident not required	06/2007	Version for use with A.05.1x firmware, based on B.02.05
G4208A	4208A_B205_002, Res_4208A_B205_002	06/2007	
G4208A	4208A_A511_005, resident not required	11/2006	**For use with A.05.1x firmware**, based on B.02.01
G4208A	4208A_B201_003, Res_4208A_B201_003	11/2006	
G4208A	4208A_B104_002, Res_4208A_B104_002	06/2006	
G4208A	4208A_B103_001, Res_4208A_B103_001	05/2006	
G4208A	4208A_B102_004, Res_4208A_B102_004	03/2006	Initial for A.06.xx/B.xx firmware

NOTE Instant Pilots with firmware B.02.09, B.02.08 and B.02.07 and new main board cannot be downgraded to B.02.06 and below (also not to A.05.13). This shows up on Instant Pilots manufactured in Malaysia - with MY- serial numbers and B.02.09 installed).

Firmware Revision Changes of G4208A Instant Pilot

NOTE Do not downgrade firmware of the Instant Pilot to earlier revisions. Use always the latest revision. The latest version is always backward compatible to the initial B.01.02.

Revision B.02.25

Table 9 – Instant Pilot Changes B.02.25 (G4208A)

Date Introduced:	June 2021
Revision:	4208A_B225_001, Res_4208A_B225_001
General:	
Bugfix:	• KPR#538057 Fixed sporadic communication issues between Instant Pilot and LC modules
New Features:	• None
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.24

Table 10 – Instant Pilot Changes B.02.24 (G4208A)

Date Introduced:	April 2021
Revision:	4208A_B224_001, Res_4208A_B224_001
General:	
Bugfix:	• KPR#278834: Instant Pilot misidentifies Infinity II modules • KPR#395710: Missing Information on Which Vial Position is Being Used by the Ongoing Method • KPR#426700: Setup wizard keeps showing up when a hosted module is in the stack • KPR#437647: Holmium test on G7114 VWD fails on the Instant Pilot, but passes with LabAdvisor • KPR#439843: Remove Arm idle position/Leave at position as not implemented on G7129X • KPR#448493: VWD Holmium Oxide Test results on G4208A can differ from LabAdvisor • KPR#504289: Button for purge of a G1376A Capillary pump does not work • KPR#509430: Cannot log peltier replacement for MCT

	• KPR#521109: X-axis of the intensity test graph on G7115A seems to be shifted • KPR#527385: Lab Advisor shows 2 additional EMF counter for G7120A/G7132A • KPR#527540: Injector Steps fails with G7129A-C and G7157A Vial Samplers when using FW D.07.30 or higher
New Features:	• KPR#300502: Limit for intensity test of G7117B aligned with LabAdvisor • KPR#425574: The user can see in status, if a system is operating as 2D-LC • KPR#492130: The ability to start/stop a run or sequence can be restricted. • KPR#492992: Support G7132A Agilent 1290 Infinity II Bio High-Speed Pump • KPR#492995: Support G7137A Agilent 1290 Infinity II Bio Multisampler
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.23

Table 11 – Instant Pilot Changes B.02.23 (G4208A)

Date Introduced:	May 2019
Revision:	4208A_B223_001, Res_4208A_B223_001
General:	
Bugfix:	TT Entries: • #278825 - Seal-Wash Settings G4208A - G7112B gets changed back to off • #278827 - FLD scan for G7121B does not work on G4208A • #278830 - Missing Function for Turning On&Off Sample Illumination in the Case of a G7129X ALS • #278831 - Incorrect Settable Temperature Range Sample Thermostat • #278836 - Instant Pilot falling into resident mode after booting the Multisampler • #279276 - VWD intensity test does not show "Highest Intensity" and differs from the intensity test in LabAdvisor • #279278 – Instant Pilot does not accept to enter the injection volume on G7129A

	• #279286 - Range of Draw and Eject Speed on Vialsampler is 0 to 0ul • #279294 - Sequence Wizard does not work correctly with Classic Trays • #280130 - No navigation possible out of "Units and Formulas" • #279284 - FW B0222 Instant Pilot G4208A Piston Gripper Change Reset • #279285 – VWD - Calibration time incorrect • #279304 - Auto clean function in Multisampler (Multi-wash) and Vialsampler is not working • #279312 - Wrong loop info showed in the display
New Features:	• None
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.22

Table 12 – Instant Pilot Changes B.02.22 (G4208A)

Date Introduced:	November 2017
Revision:	4208A_B222_002, Res_4208A_B222_002
General:	
Bugfix:	• TT Entry #026824: Missing features in the Instant Pilot (configure the metering device and external tray) • TT Entry #027248: This is a problem with all Well Plate Sampler Injector program lines that contain a location. The commands send to the sampler are correct, but the Instant Pilot is not able to read it again as a valid command (and marks it as "Unknown"). (related to Covance Labs) • TT Entry #027676: Instant pilot is unable to do the firmware update on 1260/1290 Infinity II modules. • TT Entry #029584: Intensity Limits for non-standard orca cell G4212-60038 (not implemented as on Lab Advisor) (G4212/G7117).

New Features:	• Support of new Infinity II modules
	  ○ G7104C QuatPump – 800 bar
	  ○ G7129C Vial Sampler – 800 bar
	• Added new simulated valve tags for G1316C - Column Compartment
	  ○ 5067-4279, 4PS/10PT, PD, COL, 800 bar
	  ○ 5067-4282, 2PS/6PT 800 bar
	  ○ 5067-4283, 2PS/10PT 800 bar Dual MBB
	  ○ 5067-4284, 6 Col Selector 800 bar

OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.21

Table 13 – Instant Pilot Changes B.02.21 (G4208A)

Date Introduced:	October 2016
Revision:	4208A_B221_003, Res_4208A_B221_003
General:	
Bugfix:	• TT Entry #025205: G1315C DAD (FW B.01.06) was not visible • TT Entry #025293: Not all errors for G7129 appear as popup messages • TT Entry #026312: G7114 VWD with FW D.07.02 shows Intensity Test Failed.
New Features:	• Support of new Infinity II modules ○ G7112B Infinity II Binary Pump
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.20

Table 14 – Instant Pilot Changes B.02.20 (G4208A)

Date Introduced:	May 2016
Revision:	4208A_B220_007, Res_4208A_B220_007
General:	
Bugfix:	• TT Entry #023362 - Instant Pilot does not recognize G7167 EMF events • TT Entry #023777 - Intensity Test G1315A, G1315B, G1365A, G1365B: Remove Cell Step Missing • TT Entry #023695 - Upper limits removed for DAD/MWD/VWD Intensity Test • TT Entry #024164 - PM Procedure in G7129 not possible • TT Entry #024163 - G7129 Problem Gripper Exchange is not possible • TT Entry #024162 - G7129 Problem with needle up and needle down.

New Features:	• Support of new 1260 Infinity II modules
	  ○ G7110B Iso-Pump
	  ○ G7111B Quat-Pump
	  ○ G5654A Bio-Inert Quat-Pump
	  ○ G7116A Column Compartment (MCT)
	  ○ G7157A Prep Vialsampler
	  ○ G5668A Bio-Inert Multi Sampler
	  ○ G7114A VWD
	  ○ G7117C DAD HS
	  ○ G7115A
	  ○ G7165A MWD
	  ○ G7121A/B FLD

OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.19

Table 15 – Instant Pilot Changes B.02.19 (G4208A)

Date Introduced:	July 2015
Revision:	4208A_B219_001, Res_4208A_B219_001
General:	
Bugfix:	• TT Entry #023369: When using the Instant Pilot with the G7167 MLS (no connection to ChemStation or Lab Advisor) the needle moves into wrong sample location when a plate configuration for a drawer position is set using Instant Pilot and Instant Pilot controls the sequence. Example: Selected D1F-A1 but needle moves to D1F-F1. No problem occurs when the plate configuration is set using the CDS or when the run is started using the CDS (in this case the CDS will set right configuration before the run is started).
New Features:	• None
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.18

Table 16 – Instant Pilot Changes B.02.18 (G4208A)

Date Introduced:	July 2015
Revision:	4208A_B218_001, Res_4208A_B218_001
General:	
Bugfix:	• TT Entry #023333: G7167A/B Wrong remote services are setup for G13XX Pumps.
New Features:	• None
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.17

Table 17 – Instant Pilot Changes B.02.17 (G4208A)

Date Introduced:	June 2015
Revision:	4208A_B217_003, Res_4208A_B216_001
General:	

Bugfix:	• TT Entry #016462: Missing Lamp/Cell Test info in RFID tag
	• TT Entry #017065: Flexible Cube - Flow in dashboard and actuals not displayed correctly)
	• TT Entry #019037: WL Shift in Intensity Test G4212A/B
	  ○ B.02.16 and below shows a WL shift of about 45 nm to the left. The displayed values do not match with the curve.
	• TT Entry #021140: Wait for Single / Multiple Start Request does not work
	  ○ A change in B.02.08 caused this problem.

	• TT Entry #021932: G7117B Intensity Test wave length range must be 501-640nm • TT Entry #022201: G1316C + VWD G7114B: not ready condition: right temp cluster missing • TT Entry #022209: G1311B - Pressure test does not work in PSI.

New Features:	• Visualize HDR cluster
	• G1312B - implement new pressure test limits
	• Support of the 1200 Infinity II modules (introduction November 2014/July 2015).
	  ○ G7104A Flexible (Quaternary) Pump
	  ○ G7120A High Speed (Binary) Pump
	  ○ G7167A/B Multisampler
	  ○ G7116B Multicolumn Thermostat
	  ○ G7114B Variable Wavelength Detector
	  ○ G7117B Diode Array Detector
	  ○ G7117A Diode Array Detector FS
	  ○ G7129A/B Vial Sampler
	  ○ G7130A Integrated Column Compartment

OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.16

Table 18 – Instant Pilot Changes B.02.16 (G4208A)

Date Introduced:	May 2013
Revision:	4208A_B216_001, Res_4208A_B216_001
General:	
Bugfix:	• TT Entry #015645: Problems with Pressure Test with SL-Systems • TT Entry #017073: Cell Test limits should be same as on Lab Advisor B.02.03 (G1315/65), add also Bio Cell to list • TT Entry #017075: G1315/65 Intensity Test Limit wrong in range 501 to 950 nm.
New Features:	• Supports the G1321C FLD (introduction June 2013).
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.15

Table 19 – Instant Pilot Changes B.02.15 (G4208A)

Date Introduced:	April 2013
Revision:	4208A_B215_001, Res_4208A_B215_001
General:	
Bugfix:	• TT 018151: Instant Pilot with RAM rev G fall into resident mode with MY94674204 and above and firmware B.02.14.
New Features:	• None
Special Instructions	**Update Procedure (use the Firmware Update Tool 2.10 or later or the Lab Advisor)** • The IP must be in either RESIDENT (blinking green LED) or MAIN mode (normal display).

	• If the IP is in resident mode start with the main firmware update first, then the resident. • If the IP is in main mode start in the usual way, resident first and then the main (as the update tool does). Possible situations: • The firmware update tool shows a time out while transferring to main system (IP may have re-booted already). • The firmware update tool shows the update of the main still not finished (IP may have re-booted already). In both situations, close the firmware update tool and unplug / re-connect the IP to the module. If the IP is still in resident mode, redo the update process. Check the firmware information for correct version (B.02.15 or A.05.15). If not correct redo the firmware upgrade process.
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.14

Table 20 – Instant Pilot Changes B.02.14 (G4208A)

Date Introduced:	May 2012
Revision:	4208A_B214_001, Res_4208A_B214_001
General:	
Bugfix:	• TT 014897: Date in Logbook report did not change in sequences.
New Features:	• Support of Universal Interface Box 2. • Support of 1290 Quaternary Pump G4204A. • Support of new supported solvents list for G4220x pumps. • Extend pressure limit range to 0…1200 bar for G4220B pump. • Purge screen changed for G1361A Prep Pump with firmware A.06.50 and above. • ISET indication (icon) added. • Possibility to show the sample name from another controller. • Supported Seat Capillary Volumes for G4226A with 80, 400, 1400 and 5000 µl. • Limits of G4212X Cartridge Cells are the same as in Lab Advisor now. • Watchdog handling / Post Mortem Dump in Resident (for diagnostic of intermittent. • problems, to USB stick).
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.13

Table 21 – Instant Pilot Changes B.02.13 (G4208A)

Date Introduced:	September 2011
Revision:	4208A_B213_001, Res_4208A_B213_001
General:	
Bugfix:	• Solves problems with MY.... serial number Instant Pilots with the new graphical chip (SM502) from crashing and going to resident.
New Features:	• None
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.12

Table 22 – Instant Pilot Changes B.02.12 (G4208A)

Date Introduced:	April 2011
Revision:	4208A_B212_001, Res_4208A_B212_001
General:	
Bugfix:	• Teamtrack 012436: Wrong injection volume in Status UI during analysis (when running with RC.Net) • Teamtrack 012437: FLD timetable offered wrong parameter AT:PKWD instead of AT:PDPW. Now AT:PDPW is used for G1321A/B. • Teamtrack 012485: FLD G1321B: Load method - required instrument option not installed. Now the correct G1321B method is loaded. • Teamtrack 012488: Wrong limits in intensity test for G1314D/E/F VWD. Now the same as in Lab Advisor. • Teamtrack 012524: Rename "Is Sealed" to "Is Wellplate" • Teamtrack 012762: G1314D/E VWD shows up as 1100 module (started as 1200 modules) • Teamtrack 012869: Intensity Test for G4212B DAD has wrong limits. Now the same as in Lab Advisor..

New Features:	**G4227A - FlexCube Interface Changes**
	• Valve position parameters. The position parameters are defined to the same scheme as already used in old valves.
	  ○ POS Set the absolute position, if used in timetable allows also relative switching.
	  ○ APOS Absolut / relative position at begin of analysis
	  ○ RPOS Absolut / relative position at begin of run
	  ○ HPOS Absolut / relative position at end of analysis
	  ○ RHPO Absolut / relative position at end of run
	• Pressure Cluster Handling
	  ○ Valves can get clustered with pumps to pressure clusters. This allows setting a pressure limit at the clustered pumps which prevents parts from being damaged. E.g. a valve can reduce the applied pressure during it switches between positions.
	• Position Cluster
	  ○ Multiple valves can get clustered to a position clusters. All valves in a position cluster will switch synchronized to the same position index.
	• Resource Locking Information
	  ○ Resource lock info is provided from configuration dialog
	G1170A - Universal Valve Drive
	• Add support for new nucleus slave device G1170A. The valve handling is the same as in FlexCube described above.
	G1316C - Interface Changes
	• The pressure cluster handling is extended to the functionality described or FlexCube. The position

	clustering is introduced new and will only work with G1316C and G1170A devices. Flexcube is not supported! **Support of BioInert Products** • G5611A Quaternary Pump • G5664A Analytical Fraction Collector • G5667A High-Performance Autosampler
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.11

Table 23 – Instant Pilot Changes B.02.11 (G4208A)

Date Introduced:	July 2010
Revision:	4208A_B211_002, Res_4208A_B211_002
General:	
Bugfix:	• Teamtrack 1261: APG remote problem with Manual Injector. • Teamtrack 1262: Timetable entries for FLD missing / not possible. • Teamtrack 1278: Flush Out Pump in Configuration: can't set "None selected" (since B.02.09) • Teamtrack 1279: 1290 Pump Pressure Test is used for all Binary Pumps (since B.02.08).
New Features:	• Added 1260 Infinity modules G1310B Isocratic Pump, G1311B Quaternary Pump, G1311C Quaternary Pump VL, G1312C Binary Pump VL, G1367E High Performance Autosampler, G4212B Diode Array Detector, G1314F Variable Wavelength Detector, G1321B Fluorescence Detector. • Added 1290 Infinity modules G1314E Variable Wavelength Detector, G1316C Thermostatted Column Compartment, G4227A Flexible Cube, G4220B Binary Pump VL. • Harmonize user interface texts for all detector peakwidth parameters. • The firmware update functionality was extended to meet the specific requirements when updating a new CAN slaves. • The user can view the tag content of the installed valves in the Valve Info dialog which is available from FlexCube Maintenance screen. • Increased Pressure for G1310B and G1311B. Upper pressure limit in method and timetable needs to be 600 bar. The diagnostic tests must be updated to the new upper pressure. • Module Naming based on serial number (1100 < 55000, 1200 > 55000, 1260 new format). • Teamtrack 1257: Show the source of the used IP address in configuration screen of Nucleus based modules. • High Pressure Limit Cluster. The LC-system can automatically detect certain devices with pressure ratings – typically, QuickChange Valve heads. These pressure

	ratings can be used to limit the maximum pressure of available pumps in a LC-system. • G1316C - 600 bar Valve Pod Support. The IP retrieves the number of switch positions from valve pod that is mounted in G1316C. The range of the valve position related method and timetable parameters are adopted accordingly. The Column Compartment must be power cycled when valve pod is changed in order to get the ranges updated. • UV Detector Lamp Ignition. The configuration parameter “UV-Lamp Tag” of the UV detectors allow to configure how the lamp will get switched on. The set of methods from which the user can choose depends on the detector type. • Troubleshooting of IP: If the IP falls in resident mode (green LED is flashing) and a USB Flash Disk is inserted at that time, a dump file is generated into folder PMD. This can be used to analyze the cause of the failure. Send this file to product support in Waldbronn.
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.09

Table 24 – Instant Pilot Changes B.02.09 (G4208A)

Date Introduced:	September 2009
Revision:	4208A_B209_003, Res_4208A_B209_003
General:	
Bugfix:	• PVCS #1200: Missing "Save" dialog during modifying method, when using delete line/all in time table. • PVCS #1221: (G4220A) Changes in "Solvent Channel X" or "Injector Program" marks the method as changed '*' but on 'Exit' no "Save changes ?" dialog was shown. • PVCS #1222: (G1316C) Actual valve position on status screen. The actual position was not shown, only a '-' was visible. Also after the valve switched the actual position stays at '-'. • PVCS #1229: Aborted wavelength calibration written into DAD logbook without mention of the abort. • PVCS #1231: (NUCLEUS) New events for LongNotReady and 1290 Pump NotReady. There are 3 new events send from firmware to indicate changes in long not ready bits. They are shown as unknown in the earlier revisions. The 1290 Pump has implemented additional not ready conditions (TUNING, DEFILL, REMOVE_AIR). • PVCS #1237 (in B.02.08 only): The illumination of G4226A (1290 Infinity ALS) is missing. Neither the light at a new G4226A is switched on nor the user interface for illumination is available. • PVCS #1238 (in B.02.08 only): An Instant Pilot (G4208A) connected to a 1290 Infinity LC System and running firmware revision B.02.08 freezes after power-cycling the LC System.

	• And minor changes in screens and help text..
New Features:	• (G4220A) Added a line in status tile "Dynamic Pressure Limit" that indicates the currently used pressure limit.
Known Problems	**Compatibility Issues:** • Instant Pilots with firmware B.02.09, B.02.08 and B.02.07 and new main board cannot be downgraded to B.02.06 and below (also not to A.05.13). This shows up on Instant Pilots manufactured in Malaysia - with MY… serial numbers and B.02.09 installed).
Pre-requisites	**Requires A.06.02/B.01.02 or above on all 1100/1200/1290 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.08

Table 25 – Instant Pilot Changes B.02.08 (G4208A)

Date Introduced:	July, 2009
Revision:	4208A_B208_002, Res_4208A_B208_002
General:	
Bugfix:	• PVCS #1161: Maintenance: valve synchronize -> actual showed always "0" in any selected position. • PVCS #1162: DAD/MWD Intensity Test - Limit 501-950 nm Lowest intensity in range 501nm - 950nm: greater 2000 counts. Same limits for G1315A/B/C/D and G1365A/B/C/D • PVCS #1163: "GHOM" parameter missing in Configuration of ALS. Added function Autosampler go back to home position after every injection. E.g. when using a robotic arm to load vials and the ALS transport arm gets hit if it doesn't move back to home between injections. • PVCS #1164: Injector Program - added extended "draw from vial +" command • PVCS #1165: Missing temperature plot for ALS-Thermostat • PVCS #1166: DAD/MWD Bandwidth limits wrong. The limits for the bandwidth of sample WL is 1-400 nm in steps of 1 nm, for reference WL is 1 to 340 nm in steps of 1 nm. The entry is checked against the limit e.g. a sample WL of 350 nm would not allow 400 nm (350 +/-200). Same implementation now as in ChemStation. • PVCS #1167: Limits of Holmium test changed to +/- 1 nm (G1314A/B/C/D/E VWD) • PVCS #1167: Fraction Collection / Manual trigger. Instant Pilot and ChemStation showed different fraction times due to update problem. • PVCS #1196 EMF limit for TCC not updated. This EMF for the Peltier power has been removed to overcome conflict with ChemStation B.04.02 (1290 Infinity).
New Features:	• Support for 1290 Infinity LC Modules ○ G4212A Infinity DAD

	○ G4220A Infinity Binary Pump ○ G4226A Infinity ALS ○ G1316C Infinity TCC.
Known Problems	**Compatibility Issues:** • Instant Pilots with firmware B.02.09, B.02.08 and B.02.07 and new main board cannot be downgraded to B.02.06 and below (also not to A.05.13). This shows up on Instant Pilots manufactured in Malaysia - with MY… serial numbers and B.02.09 installed).
Pre-requisites	**Requires A.06.02/B.01.02 or above on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.07

Table 26 – Instant Pilot Changes B.02.07 (G4208A)

Date Introduced:	July, 2008
Revision:	4208A_B207_001, Res_4208A_B207_001
General:	
Bugfix:	• PVCS #1118: Extended FLD wave length range EX 200 - 1200 nm, EM 200 - 1200 nm • PVCS #1120: Added FLD - PMT Gain Test (was missing) • PVCS #1121: Added PMT - Gain Settings. PMT gain settings in the method shows the value as 2^X. This is different to the ChemStation where we have just the value X. • PVCS #1119: Fixed ALS needle change procedure. During the Change Needle procedure (Maintenance ALS) you are moving the needle down via button "needle down". When the needle reaches the needle seat, the message "Needle already in lowest position" shows up and the buttons "Needle up", "Needle down" and "Continue" disappear. So, no chance to move the needle up again. "Abort" is the only way to leave this function. Change needle maintenance changed to a two-step procedure. Step 1 moves gripper and needle to change position, step 2 moves gripper and needle back to home position after needle changed. • PVCS #1122: Printing of DAD calibration result. When printing the Calibration report with G1315C DAD-SL Internal Print Error #5 showed up. • PVCS #1139: Extend pressure range in column tag edit dialog to 0…2000 bar (was limited to 400 bar).
New Features:	• Support for G1314D VWD and G1314E VWD SL+ • Support for G1367D High Performance Autosampler SL+ • Start/stop sequence at/from a selected sequence line • Support of new flash ROM type on Instant Pilot main board.
Known Problems	**Compatibility Issues:**

	• Instant Pilots with firmware B.02.09, B.02.08 and B.02.07 and new main board cannot be downgraded to B.02.06 and below (also not to A.05.13). This shows up on Instant Pilots manufactured in Malaysia - with MY… serial numbers and B.02.09 installed).
Pre-requisites	**Requires A.06.02/B.01.02 or above on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.06

Table 27 – Instant Pilot Changes B.02.06 (G4208A)

Date Introduced:	August, 2007
Revision:	4208A_B206_007, Res_4208A_B206_007
General:	
Bugfix:	• New RAM layout • Add a warning dialog analysis is started with Hobbit and a collector is in the system. "Instant pilot is not able to fully control analysis of fractionation instruments [Continue] / [Abort]". • Problem with hanging EMPV Clean when pump is in test mode • SCR#0920: Status screen - the edit position in status setup screen is stored even if the screen is left. • SCR#1005: EMF limits for TCC (Maintenance) for Peltier Power Left and Right is now available. • SCR#1074: Leak test with isocratic pump did not abort automatically on error. • SCR#1075: Keyword Error "AREV?;ABLD?!" with A.06.01 in Details screen. • SCR#1078: Help text changed: for micro mode pressure test. • SCR#1079: Help text changed: EMPV cleaning instead of Leak Test. • SCR#1080: Help text changed: Leak Test for capillary/nano pump with EMPV. • SCR#1084: RID-Not Ready Conditions optimized. • SCR#1085: Hang-up during LAN modification (Configure). • SCR#1090: Problem with multi fraction collector instruments to allow operation with up to three collectors and one recovery collector (was already solved in A.05.12). • SCR#1091: AFC: Status view should show RINSE and WASTE status. • SCR#1093: Print of Sequence table (table is empty) does not work. • SCR#1095: Status - Thermostat - displayed value changed back. • SCR#1097: TCC Col ID: no entries possible in column tag.

	• SCR#1098: Injector program problem – WPS Mix Parameter. • SCR#1099: Dual loop: change loop does not work. • SCR#1100: Injector program editing hangs after the attempt to edit a not editable line e.g. "Draw default amount".
New Features:	• None
Known Problems	• None
Pre-requisites	**Requires A.06.02/B.01.02 or above on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.05

Table 28 – Instant Pilot Changes B.02.05 (G4208A)

Date Introduced:	June 2007
Revision:	4208A_B205_002, Res_4208A_B205_002
General:	
Bugfix:	• PVCS# 0947: Button to delete a timetable completely missing • PVCS# 1003: no "pump off" information in status dialog (prep pump) • PVCS# 1021: Units for pump EMF limits missing • PVCS# 1022: Invalid sampler configuration using WPS and Wizard • PVCS# 1024: Max pressure in the Bin Pump SL timetable could not be set to 600 bar. • PVCS# 1025: No pictures after printing to "out of disc space" USB-Flash Drive. • PVCS# 1041: 1367C Injector seat volume 2.3 µl not displayed • PVCS# 1047: Internal error (event code 300) when entering the LAN Settings • PVCS# 1065: Cannot activate a blank run for vial ranges dialog in the Start screen

New Features:	• reworked System ON/OFF screen. Simplified to a pure system on/off dialog.
	• reworked Status View. The status has two new tile types:
	  ○ small editable method parameter tiles and large 'G1323' module summary tiles based on G1323 analysis screen layout.
	  ○ The status view setup shows these new tile types as '... - editable' and 'Analysis'
	  ○ ALS and WPS now shows the actual vial number and injection volume not only during injection, but preserves it and shows it continuously during analysis.
	  ○ New 'Wavelength' status tiles show the actual used wavelength for DAD, MWD or VWD. It could defer from the method wavelength shown in the existing

	'Signal' tiles, when a timetable is used to change the set wavelength over runtime. o Entering the setup select dialog now focuses the currently selected tile's entry in the list or – if it is an empty tile – the last selected entry. o Properties added (history and lock/unlock status views) • Automated Fraction Collectors o The IP will support some but not all functions of the fraction collectors (G1364A, G1364B, G1364C, and G1364D). o The IP will be used together with purification software and the most important function will be the manual trigger function. o Beside this the IP will support the events and error messages and basic maintenance functionalities. o Clusters of up to 3 collectors plus one recovery collector (SEE KNOWN PROBLEMS). o Manual Trigger View via Control / System - Manual Trigger (SEE KNOWN PROBLEMS) o Zero Fill Volumes Request o Initialize Micro Fraction Collector o EMF Counter, Needle Counter will be supported. o Generic configuration parameters (module name, LAN, RS232) are supported. o Switch temperature On/Off set temperature. • Not supported Automated Fraction Collectors functions are: o Fraction Parameters o Location Setup (Reserved Loc., Recovery Loc., Fraction…) o Trigger Modes o Configuration o Delay Setup / Calibration o Tray Setup / Well Plate Setup o Cluster Setup o Tests o Control Functions o Status Information o Method o Import from G1323B o Editing. • Sequence: Overview of Tray o The current sequence's status is shown graphically o View and Print Sample Ranges • WPS: Custom Well Plate Dialog to view plate definitions and setup custom plate definitions • RID: Two control functions for the RID are added to control the recycle and the purge valve and the parameters in configuration are removed. • Method/Sequence/Status Setup File Protection

	○ If a file is protected, the user cannot edit the currently loaded content or its filter settings. • System Info (Details): Board ID of Instant Pilot is shown. • Fast Scrolling in Lists: All lists are now speeding up scrolling after a few lines if the up or down button remains pressed. • FLD: Calibration Printing ○ The FLD deviations and the calibration history can be printed from Maintenance/ FLD Calibration Dialog. • UIB: Visible as supported module. It does not have any settings or features. • Leak Test (Binary STD (G1312A only), Isocratic, Quaternary, Micro, Nano, Prep) ○ Added leak test procedures to the diagnosis screen. Preparation is described in help. Preparation steps (like purging the pump) are NOT included in the automatic actions list itself. ○ NOTE: The G1312B SL pump uses a different Leak Test • VWD: Intensity Test with Raw Sample / Reference Signal Counts ○ Added two lines to the VWD intensity test results that show the raw sample and reference signal counts right before the intensity test was started. There is no passed/failed information available for these values. It uses the currently selected wavelength. • FLD: Excitation / Emission Spectrum (under Control/More) • USB Flash Drive: Handling of Unsupported Formats ○ If an unsupported format on a newly inserted USB flash drive is found, the Instant Pilot brings up a warning and asks the user to format the drive in a proper way.
Known Problems	• SCR#1090: After release of the firmware it has been encountered that when using the Manual Trigger Dialog, switching from one AFC to the next, the Instant Pilot hangs up (crashes). So, only one AFC is supported with B.02.05. • SCR#1072: During executing the Leak Test for the Isocratic Pump, an "Wait Timeout" error message may occur. After pressing "Ackn." the test runs not to completion and has to be aborted. This is due to that a leakage (the pressure cannot be build up). • SCR#1005: Agilent LC Diagnostic provides the EMF limits Right and Left Heater Energy for G1316A/B TCC. The IP shows therefore an unknown limit event (2853), which is not editable via the IP. • These malfunctions will be fixed with the next release B.02.06, expected in July/August 2007.
Pre-requisites	**Requires A.06.0x/B.01.0x or above on all 1100/1200 modules.**

OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.01

Table 29 – Instant Pilot Changes B.02.01 (G4208A)

Date Introduced:	November 2006
Revision:	4208A_B201_003, Res_4208A_B201_003
General:	
Bugfix:	• PVCS# 857: Option not installed error with BinPump SL • PVCS# 884: «Error Keyword» appears systematically on the control module • PVCS# 970: Lamp Counter Reset failure (G1315C/G1365C/G1315D/G1365D)
New Features:	• Print to USB Flash Drive ○ There is no direct print via printer connected to the 1100/1200 modules possible. This gives more flexibility on usable printers and allows the formatted printing. • Added Sample Range in Start Analysis screen • User defined Injector Program (Method) • DAD/MWD/VWD Spectrum (Control) • DAD/MWD Wavelength Calibration Test (Maintenance) • Autosampler Transport Alignment (Maintenance) • FLD Intensity Test (Diagnosis) • Instrument Name added (Startup Wizard, Config/System) • Support of new modules G1329B ALS/G1315D DAD/G1365D MWD • Service Dialog (hidden feature - for Service Engineers)
Known Problems	• None
Pre-requisites	**Requires A.06.02/B.01.02 or above on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.01.04

Table 30 – Instant Pilot Changes B.01.04 (G4208A)

Date Introduced:	June 2006
Revision:	4208A_B104_002, Res_4208A_B104_002
General:	
Bugfix:	• SCR#872 "Instant Pilot and finding the Nano Pump Solvent Calibrations" Cap-/Nano-Pump calibration curve is selectable within the method and can be edited and saved. Same handling is possible for Da Vinci methods imported. • SCR#873 "Board identify query returns empty string" (for production only). • SCR#785 "No Fast Composition Change when Overlap enabled" Fast Composition Change is not executed when

	overlap is enabled for the WPS. No error message is displayed.
New Features:	• None
Known Problems	• See information with revision B.01.02 of “Revision B.01.02” on page 33.
Pre-requisites	**Requires A.06.0x /B.01.0x or above on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.01.03

Table 31 – Instant Pilot Changes B.01.03 (G4208A)

Date Introduced:	May 2006
Revision:	4208A_B103_001, Res_4208A_B103_001
General:	

Bugfix:	• SCR#865: "G1314A/B/C VWD Lamp Intensity Test does not work". The G1314A/B/C VWD Lamp Intensity Test on the Instant Pilot had a false Passed/Failed check for one limit/boundary, so good lamps did fail the test. Now the limits are corrected and the test will determine the lamp's performance.
	• SCR#849: "Backward Compatibility set to ON: Instant Pilot restarted in Resident". In some cases, the forced restart after a change to the "Configure/Controller/3rd Party Software" parameter or a firmware update did end in a black screen, which required an additional power cycle of the Instant Pilot. The Instant Pilot now does normal restarts and comes up with the "Welcome Screen" again.
	• SCR#869: "Recognition problems of some Kingston and Hama USB sticks". The Instant Pilot now accepts
	  ○ Hama 57059 v2 FlashPen Mini USB 2.0 512MB and
	  ○ Kingston DTI/128 Data Traveler 128MB USB sticks.

New Features:	• None
Known Problems	• See information with revision B.01.02 of “Revision B.01.02” on page 33.
Pre-requisites	**Requires A.06.02 on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.01.02

Table 32 – Instant Pilot Changes B.01.02 (G4208A)

Date Introduced:	March 2006
Revision:	4208A_B102_004, Res_4208A_B102_004
General:	Initial firmware
Bugfix:	• None
New Features:	• None
Known Problems	• See “Thermostatted Column Compartment TCC / TCC SL (G1316A/G1316B)” in changes A.06.02.

	• SCR#686: Status view: 4 bottles empty is not displayed complete.
	  ○ Press Control button and select System: Get Ready screen to see all not ready conditions.
	• SCR#785: Fast Composition Change is not executed when overlap is enabled for the WPS. No error message is displayed.
	• SCR#842: G4208A was connected to an 1100 LC consisting of isocratic pump. When putting the upper pressure limit as 'OFF' in the method view, the pump goes into an error state (pressure above upper limit).
	• SCR# 848: G4208A hangs (screen corrupted, no reaction on further input), do the following actions:
	  ○ Configure > Module (with LAN card installed)
	  ○ Select "LAN Settings"
	  ○ Press Help button "i"
	  ○ Exit Help screen
	  ○ Press Enter button
	  ○ Select YES
	• SCR# 856: When selecting "Injection Mode/Injector Program" on a sampler with no injector program a correct error "Missing Injector Program" occurs. When now pressing "Cancel", every parameter I try to change in the sampler brings a "Missing Injector Program" on "Done". This could only be undone by changing to "Needle Wash" and then back to "Standard" or by using "Control/System:Set Defaults".
	• All SCR's will be fixed with next releases.

Pre-requisites	**Requires A.06.02 on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision A.05.15

This version supports the A.05.1x LC firmware platform and is based on Revision B.02.15.

Table 33 – Instant Pilot Changes A.05.15 (G4208A)

Date Introduced:	April 2013
Revision:	4208A_B515_001, Resident "B" not used.
General:	For use with module firmware A.05.1x.
Bugfix:	• TT 018151: Instant Pilot with RAM rev G fall into resident mode with MY94674204 and above and firmware A.05.14 • TT 015191: Instant Pilots with MY serial number crashed and fall into resident mode.
New Features:	• None
Special Instructions:	**Update Procedure (use the Firmware Update Tool 2.10 or later or the Lab Advisor)** • The IP must be in either RESIDENT (blinking green LED) or MAIN mode (normal display). If the IP is in resident mode start with the main firmware update first, then the resident

	If the IP is in main mode start in the usual way, resident first and then the main (as the update tool does). Possible situations: ○ The firmware update tool shows a time out while transferring to main system (IP may have re-booted already). ○ The firmware update tool shows the update of the main still not finished (IP may have re-booted already). In both situations, close the firmware update tool and unplug / re-connect the IP to the module. If the IP is still in resident mode, redo the update process. • Check the firmware information for correct version (B.02.15 or A.05.15). If not correct redo the firmware upgrade process.
Pre-requisites	**Requires A.05.1x on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision A.05.14

This version supports the A.05.1x LC firmware platform and is based on Revision B.02.07**.**

Table 34 – Instant Pilot Changes A.05.14 (G4208A)

Date Introduced:	September 2010
Revision:	4208A_A514_001, Resident “B” not used.
General:	For use with module firmware A.05.1x.
Bugfix:	• Support of Instant Pilots with serial number MY.... and DE .... • PVCS #1118: Extended FLD wave length range EX 200 - 1200 nm, EM 200 - 1200 nm • PVCS #1120: Added FLD - PMT Gain Test - was missing • PVCS #1121: Added PMT - Gain Settings. The PMT gain settings in the method shows the value as 2^X. This is different to the ChemStation where we have just the value X. • PVCS #1119: Fixed ALS needle change procedure. During the Change Needle procedure (Maintenance ALS) you are moving the needle down via button "needle down". When the needle reaches the needle seat, the message "Needle already in lowest position" shows up and the buttons "Needle up", "Needle down" and "Continue" disappear. So, no chance to move the needle up again. "Abort" is the only way to leave this function. Change needle maintenance changed to a two-step procedure. Step 1 moves gripper and needle to change position, step 2 moves gripper and needle back to home position after needle changed.

	• PVCS #1122 Printing of DAD calibration result. When printing the Calibration report with G1315C DAD-SL Internal Print Error #5 showed up. • PVCS #1139 Extend pressure range in column tag edit dialog to 0…2000 bar. Was limited to 400 bar. • And minor changes in screens and help text.
New Features:	• Based on revision B.02.07 • Support for G1314D VWD and G1314E VWD SL+ • Support for G1367D High Performance Autosampler SL+ • Start/stop sequence at/from a selected sequence line. • Support of new flash ROM type on IP main board.
Known Problems	• None
Pre-requisites	**Requires A.05.1x on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision A.05.13

This version supports the A.05.1x LC firmware platform and is based on Revision B.02.06**.**

Table 35 – Instant Pilot Changes A.05.13 (G4208A)

Date Introduced:	August 2007
Revision:	4208A_A513_003, Resident “B” not used.
General:	For use with module firmware A.05.1x.
Bugfix:	• New RAM layout. • Add a warning dialog analysis is started with Hobbit and a collector is in the system. "Instant pilot is not able to fully control analysis of fractionation instruments [Continue] / [Abort]". • Problem with hanging EMPV Clean when pump is in test mode. • SCR#0920: Status screen - the edit position in status setup screen is stored even if the screen is left. • SCR#1005: EMF limits for TCC (Maintenance) for Peltier Power Left and Right is now available. • SCR#1074: Leak test with isocratic pump did not abort automatically on error. • SCR#1075: Keyword Error "AREV?;ABLD?!" with A.06.01 in Details screen. • SCR#1078: Help text changed: for micro mode pressure test. • SCR#1079: Help text changed: EMPV cleaning instead of Leak Test. • SCR#1080: Help text changed: Leak Test for capillary/nano pump with EMPV. • SCR#1084: RID-Not Ready Conditions optimized. • SCR#1085: Hang-up during LAN modification (Configure). • SCR#1090: Problem with multi fraction collector instruments to allow operation with up to three collectors and one recovery collector (was already solved in A.05.12).

	• SCR#1091: AFC: Status view should show RINSE and WASTE status. • SCR#1093: Print of Sequence table (table is empty) does not work. • SCR#1095: Status - Thermostat - displayed value changed back. • SCR#1097: TCC Col ID: no entries possible in column tag. • SCR#1098: Injector program problem – WPS Mix Parameter. • SCR#1099: Dual loop: change loop does not work. • SCR#1100: Injector program editing hangs after the attempt to edit a not editable line e.g. "Draw default amount".
New Features:	• None
Known Problems	• None
Special Instructions:	• How to downgrade the Instant Pilot from B.01.xx/B.02.xx to A.05.13 and vice versa is described in the FWUPDATE.PDF provided with the LAN/RS-232 FWUpgrade Tool 2.4 or above. It provides additional descriptions not covered in the User Guide of the Instant Pilot (G4208-90003, 05/07).
Pre-requisites	**Requires A.05.1x on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision A.05.12

This version supports the A.05.1x LC firmware platform and is based on Revision B.02.05**.**

Table 36 – Instant Pilot Changes A.05.12 (G4208A)

Date Introduced:	June 2007
Revision:	4208A_A512_002, Resident “B” not used.
General:	For use with module firmware A.05.1x.
Bugfix:	• PVCS# 0947: Button to delete a timetable completely missing. • PVCS# 1003: no "pump off" information in status dialog (prep pump). • PVCS# 1021: Units for pump EMF limits missing. • PVCS# 1022: Invalid sampler configuration using WPS and Wizard. • PVCS# 1024: Max pressure in the Bin Pump SL timetable could not be set to 600 bar. • PVCS# 1025: No pictures after printing to "out of disc space" USB-Flash Drive. • PVCS# 1041: 1367C Injector seat volume 2.3 µl not displayed. • PVCS# 1047: Internal error (event code 300) when entering the LAN Settings. • PVCS# 1065: Cannot activate a blank run for vial ranges dialog in the Start screen.

New Features:	• Reworked System ON/OFF screen. Simplified to a pure system on/off dialog.
	• Reworked Status View. The status has two new tile types:
	  ○ small editable method parameter tiles and large 'G1323' module summary tiles based on G1323 analysis screen layout.
	  ○ The status view setup shows these new tile types as '… - editable' and 'Analysis'
	  ○ ALS and WPS now shows the actual vial number and injection volume not only during injection, but preserves it and shows it continuously during analysis.
	  ○ New 'Wavelength' status tiles show the actual used wavelength for DAD, MWD or VWD. It could defer from the method wavelength shown in the existing 'Signal' tiles, when a timetable is used to change the set wavelength over runtime.
	  ○ Entering the setup select dialog now focuses the currently selected tile's entry in the list or – if it is an empty tile – the last selected entry.
	  ○ Properties added (history and lock/unlock status views).
	• Sequence: Overview of Tray.
	  ○ The current sequence's status is shown graphically.
	  ○ View and Print Sample Ranges.
	• WPS: Custom Well Plate Dialog to view plate definitions and setup custom plate definitions.
	• RID: Two control functions for the RID are added to control the recycle and the purge valve and the parameters in configuration are removed.
	• Method/Sequence/Status Setup File Protection
	  ○ If a file is protected, the user cannot edit the currently loaded content or its filter settings.
	• System Info (Details): Board ID of Instant Pilot is shown.
	• Fast Scrolling in Lists: All lists are now speeding up scrolling after a few lines if the up or down button remains pressed.

	• FLD: Calibration Printing. The FLD deviations and the calibration history can be printed from Maintenance/ FLD Calibration Dialog. • UIB: Visible as supported module. It does not have any settings or features. • Leak Test (Binary STD (G1312A only), Isocratic, Quaternary, Micro, Nano, Prep) • Added leak test procedures to the diagnosis screen. Preparation is described in help. Preparation steps (like purging the pump) are NOT included in the automatic actions list itself. NOTE: The G1312B SL pump uses a different Leak Test • Automated Fraction Collectors

	○ The IP will support some but not all functions of the fraction collectors (G1364A, G1364B, G1364C, and G1364D). ○ The IP will be used together with purification software and the most important function will be the manual trigger function. ○ Beside this the IP will support the events and error messages and basic maintenance functionalities. ○ Clusters of up to 3 collectors plus one recovery collector (SEE KNOWN PROBLEMS). ○ Manual Trigger View via Control / System - Manual Trigger (SEE KNOWN PROBLEMS) ○ Zero Fill Volumes Request ○ Initialize Micro Fraction Collector ○ EMF Counter, Needle Counter will be supported. ○ Generic configuration parameters (module name, LAN, RS232) are supported. ○ Switch Temperature On/Off set temperature. • Not supported Automated Fraction Collectors functions are: ○ Fraction Parameters ○ Location Setup (Reserved Loc., Recovery Loc., Fraction…) ○ Trigger Modes ○ Configuration ○ Delay Setup / Calibration ○ Tray Setup / Well Plate Setup ○ Cluster Setup ○ Tests ○ Control Functions ○ Status Information ○ Method ○ Import from G1323B ○ Editing.
Known Problems	• SCR#1072: During executing the Leak Test for the Isocratic Pump, an "Wait Timeout" error message may occur. After pressing "Ackn." the test runs not to completion and has to be aborted. This is due to that a leakage (the pressure cannot be build up). • SCR#1005: Agilent LC Diagnostic provides the EMF limits Right and Left Heater Energy for G1316A/B TCC. The IP shows therefore an unknown limit event (2853), which is not editable via the IP.
Special Instructions:	• How to downgrade the Instant Pilot from B.01.xx/B.02.xx to A.05.11 and vice versa is described in the FWUPDATE.PDF provided with the LAN/RS-232 FWUpgrade Tool 2.4 or above. It provides additional descriptions not covered in the User Guide of the Instant Pilot (G4208-90003, 05/07).
Pre-requisites	**Requires A.05.1x on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision A.05.11

This version supports the A.05.1x LC firmware platform and is based on Revision B.02.01**.**

Table 37 – Instant Pilot Changes A.05.13 (G4208A)

Date Introduced:	November 2006
Revision:	4208A_A511_005, Resident “B” not used.
General:	Initial firmware. For use with module firmware A.05.1x.
Bugfix:	• None
New Features:	• Revision A.05.11 for the Instant Pilot G4208A supports the Agilent 1100/1200 modules with firmware A.05.09/10 and A.05.11/12 installed. • Revision A.05.11 is not compatible with A.06.xx and B.01.xx! • It has the same functionality as the current firmware revision B.02.01 [0003] for modules with A.06.xx/B.01.xx
Known Problems	• PVCS# 1018: Error message in system info screen. From welcome screen, when selecting the "Details", for a short time an error message appears: "Error: Unknown tag status". Ignore message. • PVCS# 1020: Hobbit remains in "scanning system" with 5.11 Firmware due to a too large system. • PVCS# 1021: Units for pump EMF limits missing.
Special Instructions:	• How to downgrade the Instant Pilot from B.01.xx/B.02.xx to A.05.11 and vice versa is described in the FWUPDATE.PDF provided with the LAN/RS-232 FWUpgrade Tool 2.4 or above. It provides additional descriptions not covered in the User Guide of the Instant Pilot (G4208-90002, 10/06).
Pre-requisites	**Requires A.05.09/1x on all 1100 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

G1323B Control Module

Overview of Firmware Revisions G1323B Control Module

The G1323B Control Module replaced the 1100 Control Module G1323A in 1999. Larger memory size (2 MB) increased the number of supported LC modules (1100/1200).

NOTE Do not downgrade firmware of the G1323B Control Module to earlier revisions. Use always the latest revision. The latest version is always backward compatible to the initial version.

There are two platforms that are supported by the G1323B Control Module:

- Firmware B.04.02 supports the A.06.xx/B.01xx/B.06.xx LC modules
- Firmware B.03.22 supports the A.05.xx LC modules and below.

Table 38 – G4208A Firmware Revisions - Overview

Module	Filename (.BIN)	Date	Information
G1323B	LCB402EN	06/2012	Latest version, should be used per default for all systems with firmware A.06.xx/B.01.xx/B.06.xx
G1323B	LCB401EN	01/2004	
G1323B	LCB322EN	01/2004	Latest version, should be used per default for all systems with firmware A.05.xx and below
G1323B	LCB321EN	01/2004	
G1323B	LCB311EN	09/2002	
G1323B	LCB302EN	07/2002	
G1323B	LCB301EN	12/2001	
G1323B	LCB202EN (Update)	03/2001	This is an update of the B.02.02
G1323B	LCB202EN	01/2001	
G1323B	LCB201EN	07/2000	
G1323B	LCB104EN	05/2000	
G1323B	LCB103EN	03/1999	
G1323B	LCB102EN	03/1999	
G1323B	LCB101EN	03/1999	Initial version. Based on revision A.02.02 (G1323A) This version does not work on G1323A control modules due to limited memory size!

Firmware Revision Changes of G1323B Control Module

NOTE Do not downgrade firmware of the G1323B Control Module to earlier revisions. Use always the
latest revision. The latest version is always backward compatible to the initial B.04.01.

Revision B.04.02

This version supports the A.06.xx / B.xx LC firmware platform controls the new Agilent 1200 series modules

- G1314B Variable Wavelength Detector (*)
- G1329B standard autosampler SL (*)
- G1367B high performance autosampler (*)
- G1367C high performance autosampler SL (*)
- G1315D Diode Array Detector (DAD) (**)
- G1365D Multiple Wavelength Detector (MWD) (**)

(*) with feature set of the "A" module

(**) with feature set of the "C" module

The RRLC modules G1312B Binary Pump SL and G1316B TCC SL are not supported due to its different feature set.

Table 39 – Control Module Changes B.04.02 (G1323B)

Date Introduced:	September 2005
Revision:	LCB402EN.BIN
General:	
Bugfix:	• Fixed “connect“ problem for G1323Bs with serial number CN22504008 and above when • upgrading to B.04.01.
New Features:	• None
Known Problems	• See Revision B.04.01.
Pre-requisites	**Requires A.06.xx / B.xx on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.04.01

NOTE This version (and above) supports just the 1100/1200 modules with firmware A.06.xx / B.xx! It is based on B.03.22.

Table 40 – Control Module Changes B.04.01 (G1323B)

Date Introduced:	July 2005
Revision:	LCB401EN.BIN
General:	
Bugfix:	• Pooling with AFraCo did not work if no sampler is within system. • PVCS 1776: G1323B shows misleading error messages when setting up bottle fillings for a G1361 ISO HF pump. • PVCS 1778: Problem with large calibration intervals - "every x samples" - when using G1313A/G1329A/G1389A/G2260A with a 100-vial tray. The sequence goes into an infinite loop when: [sample range last position] + [calibration interval] > 99. • PVCS 1779: G1389A injector program wash in vial display problem. • PVCS 1780: Error when executing EMPV cleaning on a G2226A Nano Pump.
New Features:	• Support for G1315C, G1365C detectors • Support for new CAN protocol - old can protocol is still working. • Support for Injector Purge Kit including G1156A valve. • Enable overlap injection for Dual Loop Sampler G2258A.
Known Problems	• May not connect to 1100 system after upgrade to this version (serial numbers CN22504008 and above), requires B.04.02. • Not compatible with G4240 Chip Cube. • PVCS 1812: No more analysis can be started after using "Wait for repeated start request" AND aborting the analysis while waiting for the start request coming over the remote line. Everything works fine when an analysis is aborted after start request was received.
Pre-requisites	**Requires A.06.xx / B.xx on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.03.22

NOTE This version (and below) support just the 1100/1200 modules with firmware A.05.xx and below! The latest version is always backward compatible to the initial B.01.01.

Table 41 – Control Module Changes B.03.22 (G1323B)

Date Introduced:	January 2004
Revision:	LCB322EN.BIN
General:	
Bugfix:	**FOR DUAL LOOP AUTOSAMPLER G2258A REQUIRED!** • G1323B firmware B.03.21 was the first release with control capabilities for the Dual Loop Autosampler G2258A. This revision contains a critical bug <1773>. When the parameter "Draw Plug" is activated, the sampler does not draw a plug but toggles the position of the 10-port injection valve instead. This has been corrected.
New Features:	• None
Known Problems	• None
Pre-requisites	**Requires A.05.xx and below on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.03.21

Table 42 – Control Module Changes B.03.21 (G1323B)

Date Introduced:	January 2004
Revision:	LCB321EN.BIN
General:	
Bugfix:	• PVCS 1740: On well plate samplers, when using a single location range with "shortest path" scheme over plates with uneven number of columns or rows (like Eppendorf 0.5 ml), the second plate was not correctly processed (also visible in Samples View preview). • PVCS 1690: Slave errors are now reset in System On. • PVCS 1694: Waittime is now rounded to at least 1sec. • PVCS 1703: For unknown inj.program commands "UNKNOWN" is shown in inj.programm view. • PVCS 1704: Fixed bug in instruction to set slave serial numbers. • PVCS 1719: Fixed bug which hides external contacts in method view. • PVCS 1722: "Grating assembly reset" is now added to maintenance log.
New Features:	• Support for Dual Loop Autosampler (DLA) • Support for new generation AFraCo Types B, C, D • Support for new tray types: low height 2 wellplate, 20 funnel, 40 funnel • Micro system shows hints to configure startup in bypass and to use Fast Composition Change • Seal wash function for G1310A, G1311A, G1312A • New method parameters for well plate samplers. They are only editable in method screen. • Minimized Carry Over - automatic carryover reduction (not for G2258A) • Lowest Carry Over - provides settings for the injector program with the same name • Seal wash parameter On Time for G1361A is now specified in minutes instead percent. • Sampler method parameter "Valve to Bypass After Inj." in method screen renamed • to "Delay Volume Reduction" to be in line with ChemStation and own settings screen.
Known Problems	• Do not use this version with DUAL LOOP AUTOSAMPLER G2258A, use Revision B.03.22 instead.
Pre-requisites	**Requires A.05.xx and below on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.03.11

Table 43 – Control Module Changes B.03.11 (G1323B)

Date Introduced:	September 2002
Revision:	LCB311EN.BIN
General:	
Bugfix:	• PVCS #1560: Manual trigger button update. • PVCS #1565: Update of trigger parameters in fraction view. • Recycle Valve State of RI Detector in logbook is now in line with analysis screen • After selecting "Stop multiple injections" or "Stop current vial range" on the analysis stop dialog the sequence did not continue with next location or range. Only Rev. B.03.01 or above. • PVCS #1685: Fixed row-by-row, shortest way (meander) processing order of WellPlate Sampler when used in a sequence including calibration samples. • PVCS #1302: Edit of active or previous sequence lines is prevented. • PVCS #1354: Interlock Cap/Nano Pump's Fast Composition Change against Well Plate Sampler's Overlap, that only one could be enabled. • PVCS #1360: When a new method is loaded without an injector program, a previously existing injection program is deleted.

New Features:	• Edit method parameters inline in Method view.
	• It is now possible to EDIT METHOD PARAMETERS INLINE in the Method-View. This means, if you enter the Method-View from the Analysis-View by pressing (F3), you can NOW edit all method parameters in each line. These parameters were previously only displayed for reviewing in this view.
	• Cerity support (disable controls and dialogs when function is locked by Cerity / other controller).
	• Automation interface (G2254A) and Wellplate Handler calibration and test support.
	• Support for 2-Pos/10-Port Valve Column Compartment (G1316A) option.
	• Support for 1100 series Valves
	  ○ Simple Switching (no automation)
	  ○ Synchronization
	  ○ EMF
	  ○ FW update (important, since the current FW upgrade utility cannot update the firmware of CAN slaves.
	• Added Nano Pump (G2226A) micro mode pressure test
	• Selection if End Actions should be processed when analysis is aborted by user.
	• Added function to stop sequence after completion of actual running analysis (additional choice in stop dialog).

Known Problems	• Do not use this version with DUAL LOOP AUTOSAMPLER G2258A, use Revision B.03.22 instead.
Pre-requisites	**Requires A.05.xx and below on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.03.02

Table 44 – Control Module Changes B.03.02 (G1323B)

Date Introduced:	July 2002
Revision:	LCB302EN.BIN
General:	
Bugfix:	• PVCS #1573: Problem with multiple external start requests for a single run. If two 'remote start' requests are submitted, the control module aborts the current sequence. Now, a start request during a run is. It's just generating a logbook entry "Ext. start request while in run".
New Features:	• Control added for new products • Nano Pump (G2226A) support - NOT including Flow Sensor Accuracy Calibration.
Known Problems	• See Revision B.03.01.
Pre-requisites	**Requires A.05.xx and below on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.03.01

Table 45 – Control Module Changes B.03.01 (G1323B)

Date Introduced:	December 2001
Revision:	LCB301EN.BIN
General:	
Bugfix:	• Intermittent lockup of control module on Agilent 1100 system. • Fixed sporadic lockups after setting up new timetable entries. • G1313A flow/eject speed ranges and 900 µl syringe option corrected.
New Features:	• Control added for new products • Automated Fraction Collector (G1364A) Single only • High Flow ALS (G2260A) • Extension Boxes (Multiple Purpose Switching Valve G1160A • Universal Interface Box G1390A) • Peristaltic Pump control in Well Plate Sampler (G1367A AND G1377A) allows "Prime the Flush Pump". • Added hidden dialog for 2-point calibration on G1316A TCC.
Known Problems	• Manual trigger for fraction collection does only support one Agilent 1100 Series Fraction Collector (G1364A). If

	more than one Fraction Collector is present, the manual trigger function of the control module is not accessible. The Control Module will display the message "Error: Multiple AF Collectors". • Display update using manual trigger not updated. • The manual trigger (0/1) button-icon isn't updated when the ChemStation/Purify run ends before the trigger was set to off (0). After next use of the trigger button, the button reading is OK. The function itself is working without problems. • Control Module Revision B.03.01 connected to an instrument with Extension Boxes (Valves, UIBs) will need a running G1364A fraction collector for undisturbed operation. If it's not recognizing a G1364A in the system, the Control Module will wait up to 2 minutes during startup ("start communication"). • If a Fraction Collector is powered on during that period, the wait time is aborted as the module is announcing its presence. If no Fraction Collector is found after 2 minutes the Control Module will connect to the system, but it's recommended to first power down the whole system before the Fraction Collector is integrated again in the system. • Note that the described behavior is only visible with Control Module Revision B.03.01 connected to an instrument that includes Extension Boxes. • Before updating Extension Boxes (Valves, UIBs) firmware with the Control Module Revision B.03.01, make sure only one Agilent G1364A Fraction Collector is powered on. Otherwise the control module may not find the correct bootloader after the module transfers from resident to normal mode. • "Serial Number Invalid" message during new software update of G1323B Control Modules with a serial number starting with CN... and preinstalled software revision B.02.02. To avoid a "Serial Number Invalid" message during update of Control Modules that have serial number starting with CN... and software revision B.02.02 installed, you must copy the latest UPDATE.EXE (revision 3.19 or above, dated 03/16/01 or later) onto the same flash card with the B.03.01firmware. All updates from this card will then be processed the normal way without showing the described error message. • If the error already occurred, press <Enter> and type the serial number printed on the rear side of the control module into the shown mask. Then press <Enter> and <1><Enter> to acknowledge the serial number. The message should not occur again, after an update to revision B.03.01 or above. NOTE: The described problem does not occur during remote updates via PC.
Pre-requisites	**Requires A.05.xx and below on all 1100/1200 modules.**

OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.02 (Update)

Table 46 – Control Module Changes B.02.02 Update (G1323B)

Date Introduced:	March 2001
Revision:	LCB202EN.BIN
General:	
Bugfix:	• None
New Features:	• The G1323B Agilent 1100 Series Control Module and the G1819A Agilent 8453E Spectrophotometer Control Module manufacturing will be transferred to China in April. To support the transition, we have changed the default country code prefixing the serial number from DE... to CN... in the current revisions. This topic is mainly affecting manufacturing, but you have to be aware that we had to change the update program (UPDATE.EXE) bundled with the binaries and had to patch the following binaries: ○ LCB202EN.BIN - Latest LC control module revision ○ UVA153ML.BIN - Multilanguage UV/VIS control module ○ UVA203CH.BIN - Chinese UV/VIS control module This is a silent role out (no changes in revisions) and we checked the new binaries against the current shipping binaries to make sure only the serial number prefixes have changed. In addition to the binary patches the update (UPDATE.EXE) program bundled with the binaries has changed to revision 3.19 to support the CN... serial number prefixes. The older update programs (revision 3.18 or below) will report CN... prefixed serial numbers as invalid and will not offer it as an alternative when setting/programming a new serial number.
Pre-requisites	**Requires A.05.xx and below on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.02

Table 47 – Control Module Changes B.02.02 (G1323B)

Date Introduced:	January 2001
Revision:	LCB202EN.BIN
General:	
Bugfix:	• Well Plate Autosampler driver bug in vessel calculation for sequence lines with alternating calibration sample positions • In Well Plate Autosampler injector program dialogs changed displayed 'Wait Equilibration' unit from minutes 'min' to correct unit seconds 's'.
New Features:	• This release adds control for new 1100 modules: Preparative Pump (G1361A) and Preparative Pump Gradient Extension, Micro Well Plate Autosampler (G1377A). • Fast reconditioning for Capillary Pump (G1376A) in combination with a Micro Well Plate Autosampler (G1377A). • Adds control for new 1100 modules: Preparative Pump (G1361A) and Preparative Pump Gradient Extension, Micro Well Plate Autosampler (G1377A). • Fast reconditioning for Capillary Pump (G1376A) in combination with a Micro Well Plate Autosampler (G1377A) • Capillary Pump (G1376A) support for manual purge valve in leak/pressure tests • Support for new Autosampler injector program commands supported with the latest sampler firmware (>= A.04.10): Position Increment/Reset, Syringe Home • Bottom sensing setting for Well Plate Autosamplers • Changed Align Transport procedure for standard autosampler (G1313A/G1329A/ G1389A) • Added 'Service' dialog to the MIO extension card configuration screen.
Pre-requisites	**Requires A.05.xx and below on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.02.01

Table 48 – Control Module Changes B.02.01 (G1323B)

Date Introduced:	July 2000
Revision:	LCB201EN.BIN
General:	
Bugfix:	• FLD Acquisition Type for Spectra In Settings/FL Detector/More/Scan the order of the "Store Spectra" selection list for excitation or emission spectra should be "off - apex - all in peak - all - all w/o signals", and not "off - all in peak - apex - all - all w/o signals". Because of the switch of "apex" and "all in peak" this may lead to a false data acquisition setting in the instrument. • DAD timetable peak detector peakwidth The "Peakwidth" (Peak Detector Peakwidth) setting in a DAD timetable has a wrong selection list. It should have the following entries: ○ same value as the method's peakwidth ○ 2-times the method's peakwidth ○ 4-times the method's peakwidth ○ 8-times the method's peakwidth instead of: ○ <0.01 min (<0.1 s) ○ >0.01 min (0.2 s) ○ >0.03 min (0.5 s) ○ >0.05 min (1 s) ○ >0.1 min (2 s) ○ >0.2 min (4 s) ○ >0.4 min (8 s) ○ >0.85 min (16 s) The last four entries of the last list result in a "8-times" the method's peakwidth setting.
New Features:	• Control for new 1100 modules: Capillary LC pump (G1376A), Well Plate Autosampler (G1367A) and Micro Autosampler (G1389A). • Multiple modules of the same type can be operated now. • Speed optimized on plot drawing routines.
Pre-requisites	**Requires A.05.xx and below on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.01.04

Table 49 – Control Module Changes B.01.04 (G1323B)

Date Introduced:	May 2000
Revision:	LCB104EN.BIN
General:	
Bugfix:	• None
New Features:	• This release adds control for new 1100 DAD/MWD version G1315B/G1365B that will be available in July. • Method handling adjusted to handle different module versions as different configurations (warning "Method from different configuration" when methods from A is loaded into B version and vice versa). • Date code information in diagnosis buffer is now shown as real date and no longer as seconds starting from 1.1.1970.
Pre-requisites	**Requires A.05.xx and below on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.01.03

Table 50 – Control Module Changes B.01.03 (G1323B)

Date Introduced:	March 1999
Revision:	LCB103EN.BIN
General:	This release changes logo and name appearances in correspondence to Agilent.
Bugfix:	• None
New Features:	• None
Pre-requisites	**Requires A.05.xx and below on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.01.02

Table 51 – Control Module Changes B.01.02 (G1323B)

Date Introduced:	March 1999
Revision:	LCB102EN.BIN
General:	
Bugfix:	• 'Instrument out of memory' when saving methods The error now displays again in the logbook. The remaining parts of the incomplete – not correctly saved - method are now automatically removed, when the save failed because of an instrument error. • FLD lamp lifetime % display in EMF screen. The displayed percentage value was by a factor of 10 too high. Now it shows the correct value. • Calibration 'after' sequence lines. Calibration lines set to 'calibrate after' are now correctly executed. • Samples View Sequence Simulation. Selecting or changing the sequence lines to view in the samples dialog may have resulted in a never ending rotating busy cursor. This was due to an error in the sequence simulation procedure, which calculates the used vials for display in the dialog's tray representation. • Double Error Messages. An error message generated by the instrument may have showed up twice and other messages at the same time may have not been popped up as an error box.
New Features:	• Sequence with nonexistent method (NEW) • A message box now warns the user when starting a sequence that contains a nonexistent method. If the user continues, the sequence uses the actual method for all nonexistent methods, which are parts of the sequence. • Additional checks when validating injector program (NEW). The control module now checks for valid draw/eject/mix volumes with the current method settings and metering device capabilities during the 'Autosampler/Settings/Inj. Program/Validate' process. The vial positions are checked against the installed trays. • Messages/Events. The 'Method loaded/saved/deleted' entries in the logbook are now referred as controller messages. The error message box text now includes the name of the module where the error occurred. • Running sequences with ALS optimization modes activated. The ALS optimization modes 'Prefetch Sample Vial' and 'Overlap Injection Cycle' now work also over sequence lines and switches between sequence and calibration vial ranges. The only exception is overlap over a method change.
Pre-requisites	**Requires A.05.xx and below on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

Revision B.01.01

Table 52 – Control Module Changes B.01.01 (G1323B)

Date Introduced:	March 1999
Revision:	LCB101EN.BIN
General:	Initial Firmware • Based on revision A.02.02 (G1323A) • This version does not work on G1323A control modules due to limited memory size!
Bugfix:	**Changes (vs A.02.02):** • Startup: Added "synchronizing with modules" as last initialization step, to wait if one module's parameter set copy in the controller modules is not yet initialized (e.g. visible when switching on the DAD with control module plugged in). Removed message "Information held in the modules may not be format compatible", if the module holds no information for the control module (e.g. updated/new module). • System On/Off: Reworked systems on/off screen to see all module states and to allow each module to be switched on individually. Last revision the on/off screens did not support more than one detector/pump. The Screen dynamically attaches to the number/type of modules present. If no module with on/off capability is present (e.g. standalone Autosampler) the system on/off key is not visible. 'System On' now only switches on lamps that are necessarily required by the actual method to reach the ready condition of the system. • Pumps Online Plot: Added ripple signal to all pumps by default. In the previous version ripple was only visible in single module systems. • Status Line: Time in status line now shows the remaining time before a time out (if set) will occur. Visible between two analyses while the system is idle. If an Auto-On action is set, the scheduled time is displayed in the System view's status line. If a sequence or vial range was aborted, the vial and injection number of the interrupted analysis keeps visible in analysis view's status line, until the next analysis is started. • Sequence: The control module now waits between two runs for the system to get ready (visible as "Rdy. Wait" in the status line). This may lead to a timeout error, if the system won't get ready in the timeout period specified in 'End Actions' dialog. If timeout is active (between two runs) the timeout countdown is displayed in the status line. Sequence logbook now holds all entries of a full control module sequence.

	• VWD/FLD: Analog Signal Plot: The analog signal plot may not have shown the selected signal source after restarting the control module or switching the signal source. • Binary Pump: Flow - Range Check. In the analysis view corrected the validation of the flow value. • Printouts: Changed print routines to be compatible with the new generation DeskJet/LaserJet printers.

New Features:	• Control of the G1362A Refractive Index Detector • Control of the G1365A Multiple Wavelength Detector • Remote Update - NO PC CARD REQUIRED Possibility to update the control module via the firmware upgrade utility delivered with ChemStation (support included with the following versions: 3.x for the firmware upgrade utility and LCB101EN.BIN for the control module firmware). The update time is about 33 minutes.
Pre-requisites	**Requires A.05.xx and below on all 1100/1200 modules.**
OQ/PV Recommendation:	See OQ/PV - Validation Information.

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