# Agilent HPLC System Firmware Bulletin

**Firmware Set A/B.06.10**

**1100/1200/1120 LC System**
**1220 Infinity LC**
**1260 Infinity LC System**
**1260 Infinity SFC System**
**1290 Infinity LC System**

**B.02.05-09**
**G4208A Instant Pilot**

Agilent Technologies

# Notices



## Manual Part Number

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## Revision

This technical note is valid for the Agilent HPLC System Firmware Bulletin Firmware.

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# About this Document

This document provides the firmware changes in set 6.50 used for the following LC Systems

- 1220 Infinity LC LC
- 1260 Infinity LC Systems
- 1290 Infinity LC Systems
- 1200 Series LC
- 1120 Compact LC
- 1100 Series LC

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

## Where To Get Latest Information

Visit the Agilent web

http://www.chem.agilent.com/scripts/cag_firmware.asp?nmod=LC

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 | Author |
|---|---|---|
| 29-Apr-2014 | Update on Compatibility Section<br>• "Agilent LC Firmware Set Interoperability and Support Statement" , 6 (added)<br>• "Notes for Agilent LC instruments controlled by non-Agilent Chromatography Data Systems (CDS)" , 7 (added)<br>• "Examples" , 8 (modified) | W. Albrecht |
| 06-Mar-2014 | Rework of document (no change on firmware change information)<br>• "About this Document" , 3 (updated)<br>• New chapter added "Compatibility Information" , 5<br>• "Compatibility Information" , 6 (added)<br>• "OQ/PV - Validation Information" , 9 (added) | W. Albrecht |
| 26-Feb-2014 | **Updated information in sections**<br>• "Revision Numbering" , 20 | W. Albrecht |
| 19-Feb-2014 | **Added information on new firmware. For details see**<br>• "DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.26[030]" , 49 | W. Albrecht |
| 31-May-2012 | **Added information on new firmware. For details see**<br>• "DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.25 [030]" , 50<br>• "G4212A Infinity DAD B.06.26 [030]" , 79 | W. Albrecht |
| 31-May-2012 | **Merge of several documents into a single document combining 1100/1200, 1120 and 1290 Infinty LC** | W. Albrecht |

# Compatibility Information



This chapter provides information about compatibility.

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# Compatibility Information

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 in order 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 have to 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.

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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" on page 6 and "OQ/PV - Validation Information" on page 9.
- A CDS tested with the initial revision will also work with the later revsions. 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)" on page 7.
- 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.

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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 have to 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 revalidation of the module/system is required. This is stated in the module specific change information for each revision, see example below.

**Table 2** Module XXX A.0X.XX

| | |
|---|---|
| **Date Introduced** | |
| **General** | |
| **Bugfix** | • |
| **New Features** | • |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

# 1100/1200 Change Information



This chapter provides the details of the various firmware revisions for the Agilent 1100/1200 System..

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# Document History

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

**NOTE** Do not mix firmware revisions from this set (A.06.10/B.06.10 and above) with earlier revisions. This firmware is not tested across set borders.

**Table 3** Document History

| Date | Description | Author |
|---|---|---|
| | • | |
| 19-Oct-2011 | **Added informartin on Firmware**<br>• "1260 Infinity Pumps (G5611A) A.06.10 [040]" on page 36<br>• "1260 Infinity Pumps (G1311C) A.06.10 [040]" on page 36<br>• "DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.25 [020]" on page 50<br>**Removed section "Additional Information" since it is part of the Firmware Update Guide documentation.** | W. Albrecht |
| 19-Oct-2011 | **All information on firmware A.06.3x/B.06.3x is no longer valid in this set and has been removed. The firmware A.06.3x/B.06.3x belongs to the 1200 Infinity System and should be used from firmware set A.06.32/B.06.32.** | W. Albrecht |
| 02-Dec-2010 | Added new firmware with emulation capabilities or due new hardware support for 1260 Infinity LC Modules.<br>• "1260 Infinity Pumps" on page 36<br><br>See information "Emulation/Special Firmware" on page 30. | W. Albrecht |

**Table 3** Document History

| Date | Description | Author |
|---|---|---|
| 01-Sep-2010 | Added new firmware with emulation capabilities or due new hardware support for 1260 Infinity LC Modules.<br>• "1260 Infinity Pumps (G1310B, G1311B/C)" on page 37<br>• "1260 Infinity Binary Pump (G1312B)" on page 38<br>• "1260 Infinity Micro Pump (G1376A)" on page 39<br>• "1260 Infinity Nano Pump (G2226A)" on page 40<br>• "1260 Infinfinty Autosampler (G1367E)" on page 41<br>• "1260 Infinity Variable Wavelength Detector (G1314F)" on page 46<br>• "1260 Infinity Fluorescence Detector (G1321B)" on page 54<br><br>See information "Emulation/Special Firmware" on page 30. | W. Albrecht |
| 13-Apr-2010 | Release of new firmware for<br>• "DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.25" on page 51,<br>• "Thermostatted Column Compartment TCC SL+ (G1316C) (A.06.15)" on page 58 | W. Albrecht |
| 25-Jan-2010 | Updated Compatibility Information in sections<br>• "Instant Pilot (G4208A) B.02.09" on page 64<br>• "Instant Pilot (G4208A) B.02.08" on page 65<br>• "Instant Pilot (G4208A) B.02.07" on page 66, | W. Albrecht |
| 17-Dec-2009 | Release of new firmware for<br>• "Thermostatted Column Compartment TCC SL+ (G1316C) (A.06.17)" on page 57 | W. Albrecht |
| 29-Oct-2009 | Release of new firmware for<br>• "Thermostatted Column Compartment TCC SL+ (G1316C) (A.06.16)" on page 58 | W. Albrecht |
| 13-Oct-2009 | Updated sections<br>• "DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.25" on page 51,<br>• "Variable Wavelength Detector VWD (G1314D/E) - B.06.25" on page 46,<br>• "High Performance Autosamplers (G1367A/B/C/D, G1377A, G2258A)" on page 42<br>• "Thermostatted Column Compartment TCC SL+ (G1316C) (A.06.15)" on page 58,<br>• "Instant Pilot (G4208A) B.02.09" on page 64,<br>Added build numbers of new firmware | W. Albrecht |
| 18-Sep-2009 | Release of new firmware for<br>• Core firmware for "Modules with On-Board LAN (Nucleus) B.06.25" on page 32<br>• "DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.25" on page 51,<br>• "Variable Wavelength Detector VWD (G1314D/E) - B.06.25" on page 46,<br>• "High Performance Autosamplers (G1367A/B/C/D, G1377A, G2258A)" on page 42<br>• "Thermostatted Column Compartment TCC SL+ (G1316C) (A.06.15)" on page 58,<br>• "Instant Pilot (G4208A) B.02.09" on page 64, | W. Albrecht |

**Table 3** Document History

| Date | Description | Author |
|---|---|---|
| 14-Aug-2009 | Release of new firmware for<br>• Core firmware for "Modules with On-Board LAN (Nucleus) B.06.23" on page 32<br>• "DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.23" on page 51,<br>• "Variable Wavelength Detector VWD (G1314D/E) - B.06.23" on page 47,<br>• "Thermostatted Column Compartment TCC SL+ (G1316C) (A.06.14)" on page 59,<br>• "Instant Pilot (G4208A) B.02.08" on page 65 (1290 Release) | W. Albrecht |
| 20-Apr-2009 | Release of "Variable Wavelength Detector VWD (G1314A/B/C)" on page 48 | W. Albrecht |
| 30-Jan-2009 | Release of "Variable Wavelength Detector VWD (G1314D/E) - B.06.21" on page 47<br>Release of "DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.14" on page 52. | W. Albrecht |
| 12-Dec-2008 | Added initial B.06.20 for "Variable Wavelength Detector VWD (G1314D/E) - B.06.20" on page 48<br>Release of A.06.11 "Fluorescence Detector FLD (G1321A)" on page 55.<br>Added initial A.06.10 "Thermostatted Column Compartment TCC / TCC SL (G1316A/G1316B)" on page 60. | W. Albrecht |
| 13-Oct-2008 | Added information to A.06.1x for "High Performance Autosamplers (G1367D)" on page 44 - Backward Compatibility Release (acting as G1367C) | W. Albrecht |
| 26-Aug-2008 | Release A,06.11 for "1260 Infinity Micro Pump (G1376A)" on page 39 and "Nano Pump (G2226A)" on page 40 and "Chip Cube (G4240A)" on page 63 | W. Albrecht |
| 31-Jul-2008 | Release of "Instant Pilot (G4208A) B.02.07" on page 66 | W. Albrecht |
| 30-Jun-2008 | Release of revision B.06.12 for "High Performance Autosamplers (G1367A/B/C/D, G1377A, G2258A)" on page 43 | W. Albrecht |
| 28-Feb-2008 | Release of "DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.13" on page 52 | W. Albrecht |
| 12-Nov-2007 | Release of revision B.06.11 for "High Performance Autosamplers (G1367A/B/C/D, G1377A, G2258A)" on page 43 and "DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.11" on page 53 | W. Albrecht |
| 17-Aug-2007 | Release of "Instant Pilot (G4208A) B.02.06" on page 67 | W. Albrecht |
| 01-Aug-2007 | Initial realease of A.06.10/B.06.10 for all 1100/1200 modules | W. Albrecht |

# Version Information

**Table 4** Version Information (B.06.26)

| | |
|---|---|
| **Released** | February 2014 |
| **Type** | • Release B.06.26 for Agilent 1200 modules (G1315C/D DAD and G1365C/D MWD) |
| **Main firmware revision** | YYYY_B626_x (where x is the build number), refer to the module |
| **Resident firmware revision** | • res_B06.23_x for above modules |
| **Compatibility issues** | **See also Table 11 on page 18.**<br>• B.06.26 belong sto the same firmware set. |

**Table 5** Version Information (B.06.25)

| | |
|---|---|
| **Released** | September, 2009, , September 2011 |
| **Type** | • Release B.06.25 for Agilent 1200 modules (G1314D VWD, G1314E VWD SL+, 1315C/D DAD and G1365C/D MWD) |
| **Main firmware revision** | YYYY_B625_x (where x is the build number), refer to the module |
| **Resident firmware revision** | • res_B06.23_x for above modules |
| **Compatibility issues** | **See also Table 11 on page 18.**<br>• B.06.25 belongs to the same firmware set. |

**Table 6** Version Information (B.06.23)

| | |
|---|---|
| **Released** | August, 2009 |
| **Type** | • Release B.06.23 for Agilent 1200 modules (G1314D VWD, G1314E VWD SL+, 1315C/D DAD and G1365C/D MWD) |
| **Main firmware revision** | YYYY_B623_x (where x is the build number), refer to the module |
| **Resident firmware revision** | • res_B06.20_x for above modules |
| **Compatibility issues** | **See also Table 11 on page 18.**<br>• B.06.23 belongs to the same firmware set. |

**Table 7** Version Information (B.06.20)

| | |
|---|---|
| **Released** | August, 2008 |
| **Type** | • Release B.06.20 for Agilent 1200 modules (G1314D VWD and G1314E VWD SL+) |
| **Main firmware revision** | YYYY_B620_x (where x is the build number), refer to the module |
| **Resident firmware revision** | • res_B06.20_x for above modules |
| **Compatibility issues** | **See also Table 11 on page 18.**<br>• B.06.20 belongs to the same firmware set. |

**Table 8** Version Information (A.06.16)

| | |
|---|---|
| **Released** | September, 2009 |
| **Type** | • Release A.06.16 for Agilent 1100/1200 modules (G1367A/B/C/D, G1377A, G2258A) |
| **Main firmware revision** | YYYY_A614_x (where x is the build number), refer to the module |
| **Resident firmware revision** | • res_A06.10_x for all modules |
| **Compatibility issues** | **See also Table 11 on page 18.**<br>• A.06.16 belongs to the same firmware set. |

**Table 9** Version Information (A.06.12)

| | |
|---|---|
| **Released** | June 30, 2008 |
| **Type** | • Release A.06.12 for Agilent 1100/1200 modules (G1367A/B/C/D, G1377A, G2258A) |
| **Main firmware revision** | YYYY_A612_x (where x is the build number), refer to the module |
| **Resident firmware revision** | • res_A06.10_x for all modules |
| **Compatibility issues** | **See also Table 11 on page 18.**<br>• A.06.12 belongs to the same firmware set. |

**Table 10** Version Information (A.06.11/B.06.11)

| | |
|---|---|
| **Released** | Nov 5, 2007<br>Aug 26, 2008 |
| **Type** | • Release A.06.11 for Agilent 1100/1200 modules (G1367A/B/C, G1377A, G2258A)<br>• Release B.06.11 for all Agilent 1100/1200 modules (G1315C/D and G1365C/D)<br>• Release B.06.11 for all Agilent 1100/1200 modules (G1376A, G2226A and G4240A) |
| **Main firmware revision** | YYYY_A611_x (where x is the build number), refer to the module<br>YYYY_B611_x for G1315C/D DAD and G1365C/D MWD |
| **Resident firmware revision** | • res_A06.10_x for all modules<br>• res_B0610_x for G1315C/D and G1365C/D |
| **Compatibility issues** | **See also Table 11 on page 18.**<br>• A.06.11 and B.06.11 belong to the same firmware set. |

**Table 11** Version Information (A.06.10/B.06.10)

| | |
|---|---|
| **Released** | July 31, 2007 |
| **Type** | • Release A.06.10 and B.06.10 for all Agilent 1100/1200 modules<br>• Release B.06.10 for all Agilent 1100/1200 modules (G1315C/D and G1365C/D) |
| **Main firmware revision** | YYYY_A610_x (where x is the build number), refer to the module<br>YYYY_B610_x for G1315C DAD SL and G1365C MWD SL<br>4208A_B205_x for G4208A Instant Pilot |
| **Resident firmware revision** | • res_A06.10_x for all modules<br>• res_B0610_x for G1315C/D and G1365C/D<br>• res_4208A_B205_x for G4208A Instant Pilot |
| **Compatibility issues** | **See also "Compatibility Matrices" on page 28.**<br>• Firmware A.06.10 and B.06.10 is NOT compatible with ALL previous revisions (A.06.01/06, B.01.01/06, A.05.xx and below)!<br>• NO mixed systems are allowed.<br>• Firmware A.06.10 and B.06.10 is released and tested with the Agilent<br>  • ChemStation B.03.01 SR1<br>  • Instant Pilot B.02.05<br>The following interface should also work with (except for new modules )<br>  • ChemStation B.02.01 SR1/SR2<br>  • ChemStation B.01.03 SR1<br>  • Control Module G1323B (some newer modules only with basic features)<br>• Firmware A.06.10 and B.06.10 runs also on Agilent ChemStations B.01.03 and A.10.02 (except for the new features).<br>• Control Module G1323B with firmware B.03.22 is not compatible with A.06.xx.<br>• Firmware A.05.xx is not compatible with A.06.xx. |

**Table 11** Version Information (A.06.10/B.06.10)

| | |
|---|---|
| **When is an upgrade required** | • if an existing system (with A.05.xx/A.06.0x) gets new 1200 modules integrated.<br>• if a modules requires an upgrade to remove a malfunction or adds a specific feature (see module specific).<br>• an existing 1100/1200 module should be added into a system that has already A.06.1x/B.06.1x. |
| **Important Upgrade information** | • Ugrade from A.05.xx of modules must be made prior to be connected to 1100/1200 modules with A.06.xx or B.01.xx/B.06.xx (G1315C/D and G1365C/D).<br>• Use the new LAN/RS-232 Firmware Update Tool 2.4 or above for upgrades/downgrades. It takes care for the correct update sequence, especially when CAN slaves are used, and allows the “1100 emulation mode”).<br>• Read the new update documentation that comes with the Firmware Update Tools. carefully before you update the firmware.<br>• The Firmware Update Tools and the firmware can be downloaded from http://www.chem.agilent.com/_layouts/agilent/downloadFirmware.aspx?whid=69761 |

# Revision Numbering

Following rules on firmware revision numbering will be implemented with firmware A.06.1x / B.06.1x and above:

- For significant firmware interface changes (all modules) the revision will change from A.06.xx to A.07.1x or B.06.xx to B.07.1x.
- For major releases (all modules) the revision will change from A.06.1x to A.06.3x or B.06.1x to B.06.3x (set).
- For minor releases (just single modules) the revision will change from A.06.11 to A.06.12 or B.06.11 to B.06.12.

**NOTE** The different hardware platforms (e.g. G1315A/B DAD versus G1315C/D DAD) is related to a major change in the electronic main board (hardware and processor) and resulted into the change to the "B" firmware revisions.

The move from B.01.xx to B.06.xx will move both platforms to the same revision numbering. Then A and B revisions are compatible within a set.

This nomenclature expresses that all minor revisions within a set (A.06.10 to A.06.29 or B.06.10 to B.06.29) are backward compatible to the initial A.06.10/B.06.10.

Different sets (A.06.1x vs. A.06.3x or B.06.1x vs. B.06.3x) may not be tested together and must not be mixed. Only those revisions mentioned in this document are tested in this set.

This arrangement has been communicated to our 3rd-party software providers.

3rd-party software providers normally test with the initial revision of a set. Later revisions are accepted and should work as well (Agilent assures the backward compatibility).

Latest firmware information can be found from the Agilent web http://www.chem.agilent.com/_layouts/agilent/downloadFirmware.aspx?whid=69761

The above arrangement will be more clear than the already used revision numbering scheme done within sets:

- A.05.01/A.05.03
- A.05.04/A.05.05
- A.05.06/A.05.07
- A.05.06/A.05.09/A.05.10 (some modules remained on A.05.06)
- A.05.11/A.05.12
- A.06.01 and B.01.01 (use set A.06.02/B.01.02 instead)
- A.06.02/A.06.0x and B.01.02/B.01.0x
- A.06.10/A.06.1x/2x and B.06.10/B.06.1x/B.06.2x

# Actual Firmware Revisions

**Table 12** Actual Firmware Revisions

| Type | Module | Product# | Revision | Build | Filename (.DLB) |
|---|---|---|---|---|---|
| **Pumps** | Isocratic Pump<br>Standard Pumps (G1310A, G1311A, G1312A) | G1310A | A.06.10 | 005 | 1310A_A610_005 |
| | 1260 Infinity Isocratic Pump (G1310B) | G1310B | A.06.10 | 020 | 1310B_A610_020 |
| | Quaternary Pump | G1311A | A.06.10 | 005 | 1311A_A610_005 |
| | 1260 Infinity Quaternary Pump (G1311B) | G1311B | A.06.10 | 020 | 1311B_A610_020 |
| | 1260 Infinity Quaternary Pump (G1311C) | G1311C | A.06.10 | 040 | 1311C_A610_040 |
| | 1260 Infinity Quaternary Pump (G1311C) | G1311C | A.06.10 | 030 | 1311C_A610_030 |
| | 1260 Infinity Quaternary Pump (G1311C) | G1311C | A.06.10 | 020 | 1311C_A610_020 |
| | 1260 Infinity Quaternary Pump Bio (G5611A) | G5611A | A.06.10 | 040 | 5611A_A610_040 |
| | Binary Pump | G1312A | A.06.10 | 005 | 1312A_A610_005 |
| | 1260 Infinity Binary Pump (G1312B) | G1312B | A.06.10 | 020 | 1312B_A610_020 |
| | Binary Pump SL (G1312B) | G1312B | A.06.10 | 005 | 1312B_A610_005 |
| | 1260 Infinity Binary Pump (G1312C) | G1312C | A.06.10 | 020 | 1312C_A610_020 |
| | 1260 Infinity Micro Pump (G1376A) | G1376A | A.06.11 | 020 | 1376A_A611_020 |
| | Micro Pump (G1376A) | G1376A | A.06.11 | 005 | 1376A_A611_005 |
| | Micro Pump (G1376A) | G1376A | A.06.10 | 005 | 1376A_A610_005 |
| | Prep Pump (G1361A) (isocratic high flow) | G1361A | A.06.10 | 004 | 1361A_A610_004 |
| | 1260 Infinity Nano Pump (G2226A) | G2226A | A.06.11 | 020 | 2226A_A611_020 |
| | Nano Pump (G2226A) | G2226A | A.06.11 | 005 | 2226A_A611_005 |
| | Nano Pump (G2226A) | G2226A | A.06.10 | 005 | 2226A_A610_005 |
| **Samplers** | Autosampler (ALS)<br>Autosamplers (G1313A, G1329A/B, G1389A, G2260A) | G1313A | A.06.10 | 006 | 1313A_A610_006 |

**Table 12** Actual Firmware Revisions

| Type | Module | Product# | Revision | Build | Filename (.DLB) |
|---|---|---|---|---|---|
| | Thermostatted ALS | G1329A | A.06.10 | 006 | 1329A_A610_006 |
| | Thermostatted ALS SL | G1329B | A.06.10 | 006 | 1329B_A610_006 |
| | Thermostatted Micro ALS | G1389A | A.06.10 | 006 | 1389A_A610_006 |
| | Thermostatted High Flow ALS | G2260A | A.06.10 | 006 | 2260A_A610_006 |
| | 1260 Infinity Autosampler (G1367E) | G1367E | A.06.16 | 001 | 1367E_A616_001 |
| | Well Plate Autosampler (WALS)<br>High Performance Autosamplers (G1367A/B/C/D, G1377A, G2258A) | G1367A<br>G1367B<br>G1367C<br>G1367D | A.06.16 | 001 | 1367A_A616_001<br>1367B_A616_001<br>1367C_A616_001<br>1367D_A616_001 |
| | Well Plate Autosampler (WALS)<br>High Performance Autosamplers (G1367A/B/C/D, G1377A, G2258A) | G1367A<br>G1367B<br>G1367C<br>G1367D | A.06.12 | 003 | 1367A_A612_003<br>1367B_A612_003<br>1367C_A612_003<br>1367D_A612_003 |
| | Well Plate Autosampler (WALS)<br>High Performance Autosamplers (G1367A/B/C/D, G1377A, G2258A) | G1367A<br>G1367B<br>G1367C | A.06.11 | 001 | 1367A_A611_001<br>1367B_A611_001<br>1367C_A611_001 |
| | Well Plate Autosampler (WALS)<br>High Performance Autosamplers (G1367A/B/C/D, G1377A, G2258A) | G1367A<br>G1367B<br>G1367C | A.06.10 | 006 | 1367A_A610_006<br>1367B_A610_006<br>1367C_A610_006 |
| | Well Plate Autosampler (WALS)<br>Backward Compatibility Release (acting as G1367C) | G1367D | A.06.10 | 020 | 1367D_A610_020 |
| | Micro Well Plate Autosampler | G1377A | A.06.16 | 001 | 1377A_A616_001 |
| | Micro Well Plate Autosampler | G1377A | A.06.12 | 003 | 1377A_A612_003 |
| | Micro Well Plate Autosampler | G1377A | A.06.11 | 001 | 1377A_A611_001 |
| | Micro Well Plate Autosampler | G1377A | A.06.10 | 006 | 1377A_A610_006 |
| | Dual Loop Well Plate Autosampler | G2258A | A.06.16 | 001 | 2258A_A616_001 |
| | Dual Loop Well Plate Autosampler | G2258A | A.06.12 | 003 | 2258A_A612_003 |
| | Dual Loop Well Plate Autosampler | G2258A | A.06.11 | 001 | 2258A_A611_001 |
| | Dual Loop Well Plate Autosampler | G2258A | A.06.10 | 006 | 2258A_A610_006 |

**Table 12** Actual Firmware Revisions

| Type | Module | Product# | Revision | Build | Filename (.DLB) |
|---|---|---|---|---|---|
| | Fraction Collector (G1364A/B/C/D) | G1364A/D | A.06.10 | 006 | 1364A-D_A610_006 |
| **Detectors** | 1260 Infinity Variable Wavelength Detector (G1314F) | G1314F | B.06.25 | 003 | 1314F_B625_003 |
| | Variable Wavelength Detector VWD (G1314D/E) | G1314E<br>G1314D | B.06.25 | 003 | 1314E_B625_003<br>1314D_B625_003 |
| | Variable Wavelength Detector VWD (G1314D/E) | G1314E<br>G1314D | B.06.23 | 006 | 1314E_B623_006<br>1314D_B623_006 |
| | Variable Wavelength Detector VWD (G1314D/E) | G1314E<br>G1314D | B.06.21 | 001 | 1314E_B621_001<br>1314D_B621_001 |
| | Variable Wavelength Detector VWD (G1314D/E) | G1314E<br>G1314D | B.06.20 | 003 | 1314E_B620_003<br>1314D_B620_003 |
| | Variable Wavelength Detector VWD (G1314A/B/C) | G1314C | A.06.13 | 001 | 1314C_A613_001 |
| | Variable Wavelength Detector VWD (G1314A/B/C) | G1314C | A.06.10 | 004 | 1314C_A610_004 |
| | Variable Wavelength Detector VWD (G1314A/B) | G1314A/B | A.06.13 | 001 | 1314AB_A613_001 |
| | Variable Wavelength Detector VWD (G1314A/B) | G1314A/B | A.06.10 | 004 | 1314AB_A610_004 |
| | DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.25 [030] | G1315C<br>G1315D<br>G1365C<br>G1365D | B.06.26 | 030 | 1315C_B626_030<br>1315D_B626_030<br>1365C_B626_030<br>1365D_B626_030 |
| | DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.25 [030] | G1315C<br>G1315D<br>G1365C<br>G1365D | B.06.25 | 030 | 1315C_B625_030<br>1315D_B625_030<br>1365C_B625_030<br>1365D_B625_030 |
| | DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.25 [020] | G1315C<br>G1315D<br>G1365C<br>G1365D | B.06.25 | 020 | 1315C_B625_020<br>1315D_B625_020<br>1365C_B625_020<br>1365D_B625_020 |
| | DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.25 | G1315C<br>G1315D<br>G1365C<br>G1365D | B.06.25 | 003 | 1315C_B625_003<br>1315D_B625_003<br>1365C_B625_003<br>1365D_B625_003 |

**Table 12** Actual Firmware Revisions

| Type | Module | Product# | Revision | Build | Filename (.DLB) |
|---|---|---|---|---|---|
| | DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.23 | G1315C<br>G1315D<br>G1365C<br>G1365D | B.06.23 | 007 | 1315C_B623_007<br>1315D_B623_007<br>1365C_B623_007<br>1365D_B623_007 |
| | DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.14 | G1315C<br>G1315D<br>G1365C<br>G1365D | B.06.14 | 001 | 1315C_B614_001<br>1315D_B614_001<br>1365C_B614_001<br>1365D_B614_001 |
| | DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.13 | G1315C<br>G1315D<br>G1365C<br>G1365D | B.06.13 | 002 | 1315C_B613_002<br>1315D_B613_002<br>1365C_B613_002<br>1365D_B613_002 |
| | DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.11 | G1315C<br>G1315D<br>G1365C<br>G1365D | B.06.11 | 001 | 1315C_B611_001<br>1315D_B611_001<br>1365C_B611_001<br>1365D_B611_001 |
| | DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.10 | G1315C<br>G1315D<br>G1365C<br>G1365D | B.06.10 | 003 | 1315C_B610_003<br>1315D_B610_003<br>1365C_B610_003<br>1365D_B610_003 |
| | Diode Array Detector (DAD)<br>DAD/MWD (G1315A/B, G1365A/B) | G1315A/B | A.06.10 | 004 | 1315AB_A610_004 |
| | Multiple Wavelength Detector (MWD) | G1365A/B | A.06.10 | 004 | 1365AB_A610_004 |
| | 1260 Infinity Fluorescence Detector (G1321B) | G1321B | A.06.11 | 020 | 1321B_A611_020 |
| | Fluorescence Detector FLD (G1321A) | G1321A | A.06.11 | 005 | 1321A_A611_005 |
| | Fluorescence Detector FLD (G1321A) | G1321A | A.06.10 | 004 | 1321A_A610_004 |
| | Refractive Index Detector RID (G1362A) | G1362A | A.06.10 | 004 | 1362A_A610_004 |
| **Others** | | | | | |
| | Thermostatted Column Compartment TCC SL+ (G1316C) | G1316C | A.06.17 | 001 | 1316C_A617_001 |
| | Thermostatted Column Compartment TCC SL+ (G1316C) | G1316C | A.06.16 | 001 | 1316C_A616_001 |

**Table 12** Actual Firmware Revisions

| Type | Module | Product# | Revision | Build | Filename (.DLB) |
|---|---|---|---|---|---|
| | Thermostatted Column Compartment TCC SL+ (G1316C) | G1316C | A.06.15 | 001 | 1316C_A615_001 |
| | Thermostatted Column Compartment TCC SL+ (G1316C) | G1316C | A.06.14 | 001 | 1316C_A614_001 |
| | Thermostatted Column Compartment TCC SL+ (G1316C) | G1316C | A.06.10 | 001 | 1316C_A610_001 |
| | Thermostatted Column Compartment TCC / TCC SL (G1316A/G1316B) | G1316B | A.06.10 | 004 | 1316B_A610_004 |
| | Column Compartment TCC (G1316A) | G1316A | A.06.10 | 004 | 1316A_A610_004 |
| | Universal Interface Box (G1390A) | G1390A | A.06.10 | 001 | 1390A_A610_001 |
| | Automation Interface (G2254A) (WPS, AFC) | G2254A | A.06.10 | 001 | 2254A_A610_001 |
| | Valve (6 pos / 7 ports)<br>Valves (G1156/57/58/59/60/62/63A/G1158B) | G1156A | A.06.10 | 001 | 1156A_A610_001 |
| | Valve (2 pos / 10 ports) | G1157A | A.06.10 | 001 | 1157A_A610_001 |
| | Valve (2 pos / 6 ports) SL | G1158B | A.06.10 | 001 | 1158AB_A610_001 |
| | Valve (2 pos / 6 ports) | G1158A | A.06.10 | 001 | 1158AB_A610_001 |
| | Valve (6 pos, column selection valve) | G1159A | A.06.10 | 001 | 1159A_A610_001 |
| | Valve (12 pos / 13 port, prep scale) | G1160A | A.06.10 | 001 | 1160A_A610_001 |
| | Valve (2 pos / 6 ports, micro) | G1162A | A.06.10 | 001 | 1162A_A610_001 |
| | Valve (2 pos / 10 ports, micro) | G1163A | A.06.10 | 001 | 1163A_A610_001 |
| | Chip Cube (G4240A) | G4240A | A.06.11 | 004 | 4240A_A611_004 |
| | Chip Cube (G4240A) | G4240A | A.06.10 | 004 | 4240A_A610_004 |
| **Controller** | Instant Pilot (G4208A) | G4208A | B.02.09 | 003 | 4208A_B209_003 |
| | Instant Pilot (G4208A) | G4208A | B.02.08 | 002 | 4208A_B208_002 |
| | Instant Pilot (G4208A) | G4208A | B.02.07 | 001 | 4208A_B207_001 |
| | Instant Pilot (G4208A) | G4208A | B.02.06 | 007 | 4208A_B206_007 |
| | Instant Pilot (G4208A) | G4208A | B.02.05 | 002 | 4208A_B205_002 |

**Table 12** Actual Firmware Revisions

| Type | Module | Product# | Revision | Build | Filename (.DLB) |
|---|---|---|---|---|---|
| | Control Module (G1323B) | G1323B | B.04.02 | | LCB402EN.BIN |
| **Resident** | | | | | |
| | Resident Firmware (all 1100/1200 modules) | GxxxxA-R | A.06.10 | 004 | Res_A610_004 |
| | Resident Firmware (for G1314D/E VWD, G1315C DAD SL/G1365C MWD SL and G1315D DAD/G1365D MWD) | GxxxxB-R | B.06.23 | 001 | Res_B623_001 |
| | Resident Firmware (for G1315C DAD SL/G1365C MWD SL abd G1315D DAD/G1365D MWD) | GxxxxB-R | B.06.10 | 001 | Res_B610_001 |
| | Resident Firmware (for G1314D VWD and G1314E VWD SL+) | GxxxxB-R | B.06.20 | 001 | Res_B620_001 |
| | Resident Firmware (G4208A Instant Pilot) | GxxxxA-R | B.02.09 | 003 | Res_4208A_B209_003 |
| | Resident Firmware (G4208A Instant Pilot) | GxxxxA-R | B.02.08 | 002 | Res_4208A_B208_002 |
| | Resident Firmware (G4208A Instant Pilot) | GxxxxA-R | B.02.07 | 001 | Res_4208A_B207_001 |
| | Resident Firmware (G4208A Instant Pilot) | GxxxxA-R | B.02.06 | 007 | Res_4208A_B206_007 |
| | Resident Firmware (G4208A Instant Pilot) | GxxxxA-R | B.02.05 | 002 | Res_4208A_B205_002 |

# Compatibility Matrices

## Compatibility Overview (Hardware vs. Firmware)

**Table 13** Compatibility Matrix

| Module | A.05.xx | A.06.01 | A.06.02/05<br>B.01.02/06 | A.06.1x/2x<br>B.06.1x/2x |
|---|---|---|---|---|
| G1323A Control Module (A.02.03 [001]) * | Y | N | N | N |
| G1323B Control Module (B.03.22 and below) | Y | N | N | N |
| G1323B Control Module (B.04.02 and above) | N | Y | Y | Y |
| 1100 series modules (A.05.11 and below) | Y | N | N | N |
| 1100 series modules (A.06.01 and above) | N | Y | Y | Y |
| G1315C DAD / G1365C MWD (B.01.xx and above) | N | Y | Y | Y |
| G1315D DAD / G1365D MWD (B.01.04 and above) | N | N | Y | Y |
| G1314D VWD / G1314E VWD SL+ (B.06.20 and above) | N | N | N | Y |
| G4208A Instant Pilot (A.05.11/13) ** | Y *** | N | N | N |
| G4208A Instant Pilot (B.01.02 and above) | N | N | Y | Y |
| 1200 series modules (standard modules) **** | Y | Y | Y | Y |
| 1200 series modules (G1312B, G1314C, G1316B, G1329B, G1367C, G1367D) ***** | N/Y | N/Y | Y | Y |
| G4240 Chip Cube (A.06.01 and above) | N | Y | Y | Y |
| 1290 Infinity LC system<br>• G4212A DAD (B.06.23 and above)<br>• G4220A BinPump (B.06.23 and above)<br>• G4226A ALS (A.06.14 and above)<br>• G1316C (A.06.14 and above)<br>• G4208A Instant Pilot (B.02.08 and above) | N | N | N | Y |

* The G1323A Control Module does not work with the LAN/RS-232 Firmware Update Tool.

** This firmware does not support modules introduced with firmware releases A.06.xx or are not downgraded to its 400 bar equivalents. That includes G1156A, G1158B, G1312B, G1314B/C, G1315C/D, G1316B, G1329B, G1367B/C and G1365C/D.

This version was tested with revisions A.05.11/12, but should work with lower A.05.xx revisions (limitations might be possible).

***Only tested with A.05.09/10 and A.05.11/12

****might be downgraded to A.06.01 or A.05.xx.

*****might be downgraded to A.06.10 or A.05.xx in "1100/1200 Series Compatibility and Emulation Mode" and working as "G13xxA" modules.

**Notes:**

1 The G1323B does not know the new 1200 series modules (G1312B, G1314B/C, G1367B/C). Only the features/settings of the "A" modules are available.

2 Firmware A.05.11 is not compatible with A.05.10 and below. No mixed systems allowed.

3 Firmware A.06.xx is not compatible with A.05.11. No mixed systems allowed.

## Compatibility Matrix vs. Previous Revisions

For details refer to the document "FW_Compatibility_A.06.10_B.06.10.xls" provided with the firmware.

It includes the following compatibility information:

- to 1100/1200 firmware revisions A.06.01 or older
- to Agilent ChemStation software revisions
- to Agilent Cerity software revisions
- to Picard (MS-TOF software) revisions
- to Instant Pilot G4208A
- to Control Module G1323A/B

# Emulation/Special Firmware

With the introduction of the 1200 Infinity LC series in July 2010, some new modules have been added to the portfolio and some received new hardware features. Therefore new “Emulation” firmware has been added in September 2010.

For details on using the emulation mode refer to the documentation in the set “*Agilent HPLC Modules Firmware Update Tools & Procedures*” on the Agilent Firmware download page.

# Firmware Changes

NOTE Some information in the history is not very detailed and may refer just to specific commands. These are for 3rd party software writers only who need this information for their interfaces.

## Resident Firmware

### All Modules

**Table 14** Resident Firmware

| | |
|---|---|
| **Resident firmware revision** | Res_A610_004 for all standard 1100/1200 modules,<br>Res_B610_001 for G1315C DAD SL, G1365C MWD SL, G1315D DAD and G1365D MWD<br>Res_B620_001 for G1314D VWD, G1314E VWD SL+ |
| **New Features** | None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

# CORE Changes

## Modules with On-Board LAN (Nucleus)

**Table 15** Modules with On-Board LAN (Nucleus) B.06.25

| | |
|---|---|
| **Bugfix** | • Fixed sporadic problems with writing into EEPROMs and reading from empty EEPROMs.<br>• Fixed sporadic problem with RF tags. Sometimes the content of the RFID tags was unwanted deleted. |
| **New Features** | • Implemented new events EV10180, EV10181, EV10182, EV10183 for showing a change in the not-ready conditions. The large not-ready conditions cover 128 bit positions. The new events show each change in any bit-position. |

**Table 16** Modules with On-Board LAN (Nucleus) B.06.23

| | |
|---|---|
| **Bugfix** | • Changed the FILE:DATA commands to accept section and key names with case-insensitiveness. Change is only relevant for local controller G1323B.<br>• Fixed a potential bug with a +1 index error when reading diagnostic buffers. This is only relevant for very large, so far never used, diagnostic buffers.<br>• Fixed a potential bug with a too small buffer for diagnostic buffers. This is only relevant for very large, so far never used, diagnostic buffers.<br>• Fixed the reset of COSY-lists. Sometimes a reset did not cover all elements of a COSY-list.<br>• Fixed the error handling if RF-Tags are in bad position. If RF-Tgas are in bad position for the antenna the state is now reliable in "no RF-tag found".<br>• Fixed that a single byte received via LAN was wrongly interpreted as unallowed. The LAN segmentation of Licop data may also use a single-byte segment. Therefore a single byte is now correctly interpreted as Licop data that is continued in the next segment.<br>• Fixed that the APG remote occasionally crashed on run start.<br>• Fixed that too early APG pulses disturbed the module initialisation. APG pulses during module initialization are now ignored.<br>• Fixed the raw data problem of never ending runs for runs shorter than the filter delay time. |
| **New Features** | • Support of the one-wire EEPROMs was implemented. |

### All Standard Modules (Core Changes)

**Table 17** All Standard Modules (Core Changes) A.06.10

| | |
|---|---|
| **Bugfix** | • PVCS #1591: The Licop command OPEN_SOCKETS has the problem that information longer than 128 bytes is cut. As a resolution, the new Licop command OPEN_SOCKETS_EX was implemented with a larger buffer.<br>• PVCS #1615, #1621, #1622: CAP-module becomes very slow<br>• PVCS #1628: Added new instruction CPTM (check post time)<br>• PVCS #1560: TCC goes in Resident mode during FW-update of G4208A (Instant Pilot).<br>• PVCS #1544: There's a new state machine START_NOT_READY indicating "ready for start" (ES 0129) resp. "not ready for start" (ES 0128).<br>• PVCS #1568: Resolved problems in MO-CU.<br>• PVCS #1574: Module hanging in "WAITY_CONTR" if command ABRT is closely sent to STRT.<br>• Remote PeakDetector lost messages.<br>• PVCS #1472: A run is now always stopped after an analysis. Before, an injector program with a longer duration than the run-time could have led to endless runs.<br>• Cycle time improvement.<br>• Now RESET-state prohibits a start. |
| **New Features** | • New Remote Services for ChipCube<br>• Event Controller Boost by a factor of ~20 |

## G1315C/D DAD /G1365C/D MWD (Core Changes)

**Table 18** G1315C/D DAD /G1365C/D MWD (Core Changes) B.06.26 [030]

| | |
|---|---|
| **Bugfix** | • TeamTrack #006524, #006567 (TT-legacy #01261, #01304, PVCS #1804, #1858): Fixed 'hanging LAN interface'. Occasionally the LAN interface was hanging when there was loads of broadcast traffic. The LAN interface was completely blocked and only a power cycle helped after that.<br>• TeamTrack #006582 (TT-legacy #01319, PVCS #1873): Fixed deleting the time table occasionally resulted in crashes when downloading the next method. This bug only occurred if a special command was used for deleting the time table and if a method without time table was loaded after a method with time table. This bug only occurred in firmware revisions B.06.23, B.06.24 and B.06.25.<br>• Both fixes were introduced already for G4212A/B, see "Core Changes B.06.26/B.06.27" on page 75. |
| **New Features** | • None |

**Table 19** G1315C/D DAD /G1365C/D MWD (Core Changes) B.06.25 [020]

| | |
|---|---|
| **Bugfix** | • none |
| **New Features** | • Support of new optical variable slit assembly that will be introduced in the optical units of G1315/65C/D in 2012. This firmware assures compatibility for both slit versions. |

**Table 20** G1315C/D DAD /G1365C/D MWD (Core Changes) B.06.25

| | |
|---|---|
| **Bugfix** | • Fixed sporadic problems with writing into EEPROMs and reading from empty EEPROMs.<br>• Fixed sporadic problem with RF tags. Sometimes the content of the RFID tags was unwanted deleted. |
| **New Features** | • Implemented new events EV10180, EV10181, EV10182, EV10183 for showing a change in the not-ready conditions. The large not-ready conditions cover 128 bit positions. The new events show each change in any bit-position. |

**Table 21** G1315C/D DAD /G1365C/D MWD (Core Changes) B.06.10

| | |
|---|---|
| **Bugfix** | • If command STRS was rejected with more than one reason, a PANIC occurred with system going to resident. This bug is fixed now.<br>• In very rare cases there was a possibility of a system crash if monitoring the actual status and asking for the status by a controller request was done at the same time. This bug is fixed now.<br>• PVCS #1590: The Licop command OPEN_SOCKETS has the problem that information longer than 128 bytes is cut. As a resolution, the new Licop command OPEN_SOCKETS_EX was implemented with a larger buffer.<br>• PVCS #1472: A run is now always stopped after an analysis. Before, an injector program with a longer duration than the run-time could have led to endless runs.<br>• Due to changes in the resident system (for supporting future products) the memory mapping was changed. The execution code is loaded to a higher address now, allowing the resident system being loaded to a lower address. This change requires to use the new resident system B.06.10. Older resident systems are incompatible with this change. |
| **New Features** | • None |

# Pumps

## 1260 Infinity Pumps

**Table 22** 1260 Infinity Pumps (G5611A) A.06.10 [040]

| | |
|---|---|
| **Main firmware revision** | 5611A_A610_040 |
| **Released** | October 2011 |
| **General** | Same changes as on A.06.36 [001] |
| **Bugfix** | • TeamTrack #010620: Error event EE_DEGASSER_ADC (EE 2243) was erroneously displayed in case of heavy duty.<br>• TeamTrack #014574: G1311C emulated as G1311A used wrong pressure limits. |
| **New Features** | • TeamTrack #014475: G5611A can emulate G1311B in emulation mode. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 23** 1260 Infinity Pumps (G1311C) A.06.10 [040]

| | |
|---|---|
| **Main firmware revision** | 1311C_A610_040 |
| **Released** | October 2011 |
| **General** | Same changes as on A.06.36 [001] |
| **Bugfix** | • TeamTrack #010620: Error event EE_DEGASSER_ADC (EE 2243) was erroneously displayed in case of heavy duty.<br>• TeamTrack #014574: G1311C emulated as G1311A used wrong pressure limits. |
| **New Features** | • TeamTrack #014475: G5611A can emulate G1311B in emulation mode. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 24** 1260 Infinity Pumps (G1311C) A.06.10 [030]

| | |
|---|---|
| **Main firmware revision** | 1311C_A610_030 |
| **Released** | December 2010 |
| **General** | This release is for the 1260 Infintity version G1311C introduced July 2010. This firmware is required when downgrading the modules to A.06.10 firmware. It allows to operate the G1310C as G1311A (emulation mode). |
| **Bugfix** | TeamTrack #01492: Firmware A.06.04[020] and A.06.10[020] released for the Quaternary Pump G1311C calculated a pressure which was too high by a factor of about 1.4, potentially resulting in an overpressure error stopping measurements. The revisions A.06.04[030] and A.06.10[030] correct this issue. Only G1311C was affected. |
| **New Features** | None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

## 1260 Infinity Pumps (G1310B, G1311B/C)

**Table 25** 1260 Infinity Pumps (G1310B, G1311B/C)

| | |
|---|---|
| **Main firmware revision** | 1310B_A610_020, 1311B_A610_020, 1311C_A610_020 |
| **Released** | September 2010 |
| **Bugfix** | This release is for the 1260 Infintity version G1310B and G1311B/C introduced July 2010. This firmware is required when downgrading the modules to A.06.10 firmware. It allows to operate the G1310B as G1310A and G1311B/C as G1311A (emulation mode). |
| **New Features** | None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

### Standard Pumps (G1310A, G1311A, G1312A)

**Table 26** Standard Pumps (G1310A, G1311A, G1312A)

| | |
|---|---|
| **Main firmware revision** | 1310A_A610_005, 1311A_A610_005, 1312A_A610_005 |
| **Bugfix** | None |
| **New Features** | • New RemoteServices for ChipLC:<br>• new traps in main-cosy-list: "PreInit- and PostInit-Wait" |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

### 1260 Infinity Binary Pump (G1312B)

**Table 27** 1260 Infinity Binary Pump (G1312B)

| | |
|---|---|
| **Main firmware revision** | 1312B_A610_020 |
| **Released** | September 2010 |
| **Bugfix** | This release is for the 1260 Infintity version G1312B introduced July 2010. This firmware is required when downgrading the modules to A.06.10 firmware. It allows to operate the G1312B as G1312A (emulation mode).<br>G1312B pumps that have FW A.06.10 [005] installed, do not require [020]. Difference is the support of the new SSV with [020]. |
| **New Features** | None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

### Binary Pump SL (G1312B)

**Table 28** Binary Pump SL (G1312B)

| | |
|---|---|
| **Main firmware revision** | 1312B_A610_005 (initial firmware) |
| **Bugfix** | • Event numbers for SealWash changed, was dublicated with 1361A purge event numbers. |
| **New Features** | None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

### Prep Pump (G1361A)

**Table 29** Prep Pump (G1361A)

| | |
|---|---|
| **Main firmware revision** | 1361A_A610_004 |
| **Bugfix** | None - system release |
| **New Features** | None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

### 1260 Infinity Micro Pump (G1376A)

**Table 30** 1260 Infinity Micro Pump (G1376A)

| | |
|---|---|
| **Main firmware revision** | 1376A_A611_020 |
| **Released** | September 2010 |
| **Bugfix** | None |
| **New Features** | This release is for the 1260 Infintity version introduced July 2010. This firmware is required when downgrading the module to A.06.11 firmware.<br>G1376A pumps that have FW A.06.10 [005] installed, do not require [020]. Difference is the support of the new SSV with [020]. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

### Micro Pump (G1376A)

**Table 31** Micro Pump (G1376A) - A.06.10

| | |
|---|---|
| **Main firmware revision** | 1376A_A610_005 |
| **Bugfix** | None - system release |
| **New Features** | None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

### 1260 Infinity Nano Pump (G2226A)

**Table 32** 1260 Infinity Nano Pump (G2226A)

| | |
|---|---|
| **Main firmware revision** | 2226A_A611_020 |
| **Released** | September 2010 |
| **Bugfix** | None |
| **New Features** | This release is for the 1260 Infintity version introduced July 2010. This firmware is required when downgrading the module to A.06.11 firmware.<br>G2226A pumps that have FW A.06.11 [005] installed, do not require [020]. Difference is the support of the new SSV with [020]. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

### Nano Pump (G2226A)

**Table 33** Nano Pump (G2226A)

| | |
|---|---|
| **Main firmware revision** | 2226A_A611_005 |
| **Bugfix** | None |
| **New Features** | Improved cycle times (gradient delay reduction) together with CLC G4240A. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 34** Nano Pump (G2226A)

| | |
|---|---|
| **Main firmware revision** | 2226A_A610_005 |
| **Bugfix** | None - system release |
| **New Features** | None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

# Autosamplers

## Autosamplers (G1313A, G1329A/B, G1389A, G2260A)

**Table 35** Autosamplers (G1313A, G1329A/B, G1389A, G2260A)

| | |
|---|---|
| **Main firmware revision** | 1313A_A610_006, 1329A_A610_006, 1329B_A610_006, 1389A_A610_006, 2260A_A610_006 |
| **Bugfix** | • "PVCS #1643: new commands ACT:DRPO?, ACT:INPO? ("last draw/inject sample location"), ACT:DRVO?, ACT:INVO? ("last draw/inject volume").<br>• PVCS #1602: switching the light of the sample chamber failed. |
| **New Features** | None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

## 1260 Infinfinty Autosampler (G1367E)

**Table 36** 1260 Infinfinty Autosampler (G1367E)

| | |
|---|---|
| **Main firmware revision** | 1367E_A616_001 |
| **Released** | September 2010 |
| **Changes** | This release is for the 1260 Infintity version G1367E introduced July 2010. This firmware is required when downgrading the module to A.06.16 firmware. It allows to operate the G1367E as G1367A/B/C/D (emulation mode). |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

## High Performance Autosamplers (G1367A/B/C/D, G1377A, G2258A)

**Table 37** High Performance Autosamplers (G1367A/B/C/D, G1377A, G2258A)

| | |
|---|---|
| **Main firmware revision** | 1367A_A616_001, 1367B_A616_001, 1367C_A616_001, 1367D_A616_001, 1377A_A616_001, 2258A_A616_001 |
| **Bugfix** | • PVCS #1726: (only G1377A) Fixed that the 40 µl-loop capillary was not supported.<br>• PVCS #1861: Fixed that sporadically a software watchdog occurred when switching the valve to bypass after sample was flushed out (in the modes "overlapped injection after sample is flushed out" or "automated delay volume reduction").<br>• PVCS #1750, #1834: Fixed that a mix in flush port let the module crash.<br>• PVCS #1715: Fixed that the module showed 'ready' during heating/cooling when switching the thermostat off and immediately on again. Since the module is still heating/cooling the module now correctly shows 'not ready'.<br>• PVCS #1686: Fixed that the module showed 'not ready' with temperature control set to 'not controlled'. If the thermostat is switched off, the temperature control is set to 'not controlled' and the "enable analysis within +/- 1 degree" is enabled, the module wrongly showed 'not ready' instead of 'ready'.<br>• PVCS #1864: Allow manual moving of the theta arm during maintenance procedures "change needle" and "change loop".<br>• PVCS #1860: (G4226A only) Fixed that multi-draw is now correctly suppressed if no large seat capillary is installed.<br>• PVCS #1867: (G4226A only) Fixed that the module sometimes wrongly reported EE4706 (missing vessel) after measuring the blind seat.<br>• PVCS #1865: Implemented to perform a 'RESET' after each maintenance procedure finished. This is wanted for safety reasons to prevent the needle from possible damage after maintenance procedures. |
| **New Features** | • None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 38** High Performance Autosamplers (G1367A/B/C/D, G1377A, G2258A)

| | |
|---|---|
| **Main firmware revision** | 1367A_A612_003, 1367B_A612_003, 1367C_A612_003, 1367D_A612_003, 1377A_A612_003, 2258A_A612_003 |
| **Bugfix** | • PVCS #1645: The actual draw/inject volume was too high for High-Flow-WPS if loop-overfilling-mode was selected.<br>• PVCS #1655: Auto-power-on (APON) did not work if thermostat temperature was set to 'not controlled'.<br>• PVCS #1673: "valve switching failed" error in case of 'overlapped injection after time', 'valve switching times = 0' and injector purge kit installed and enabled.<br>• PVCS #1678: Fixed offset for flush seat. The offset was not reproducibly linked to a special z-position. Now offset=0 means "same z-position as if needle is in seat".<br>• No PVCS: Some changes for improvement of speed performance, e.g. the "wait equilibration time" before draw was removed.<br>• No PVCS: Fixed a sporadic crash at CNOF (end of needle change procedure). |
| **New Features** | • New module type added: G1367D<br>Introduction of High Performance Autosampler SL+ G1367D |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 39** High Performance Autosamplers (G1367A/B/C/D, G1377A, G2258A)

| | |
|---|---|
| **Main firmware revision** | 1367A_A611_001, 1367B_A611_001, 1367C_A611_001, 1377A_A611_001, 2258A_A611_001 |
| **Bugfix** | • PVCS #1647: Injector valve cleaning was executed prior to begin of run instead of waiting for the respective times within the run. That caused too early valve switching. in case of LC-Chip/MS if a trap volume is given |
| **New Features** | • None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

## High Performance Autosamplers (G1367D)

**Table 40** High Performance Autosamplers (G1367D)

| | |
|---|---|
| **Main firmware revision** | 1367D_A610_020 |
| **Released** | September 2008 |
| **Changes** | • Because the G1367D High Performance Autosampler SL+ is using the same main board as the G1367C High Performance Autosampler SL it is possible to load the G1367C firmware versions older than A.06.12 on to it. As the G1367D has a different metering device as the G1367C, problems may occur with some softwares which always assumes the sampler has a 100µl metering device and thus inject 2,5x too little or even gives an error. In order to overcome this problem there are two G1367D specific firmwares available (A.06.10 and A.06.03).<br>The procedure to downgrade to these FW's is decribed below. This procedure should always be followed in order to avoid problems.<br>  • Load firmware A.06.12 to G1367D used as a G1367C (if already a G1367D ignore this step)<br>  • Re-type the sampler to G1367D (if already a G1367D ignore this step)<br>  • Load new G1367D specific firmware (A.06.10 or A.06.03)<br>  • Re-type the sampler to G1367C.<br>• Firmware downgrade for G1367D re-typed to a G1367C using other FW's<br>If for any reason a different firmware revision is needed and an original G1367C FW isloaded there is a risk that the sampler will not inject the correct volume. Ensure correct operation upon completion of FW install. The G1367D will operate according to G1367C specifications if operated with a G1367C firmware. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 41** High Performance Autosamplers (G1367A/B/C/D, G1377A, G2258A)

| | |
|---|---|
| **Main firmware revision** | 1367A_A610_006, 1367B_A610_006, 1367C_A610_006, 1377A_A610_006, 2258A_A610_006 |
| **Bugfix** | • "PVCS #1643: new commands ACT:DRPO?, ACT:INPO? ("last draw/inject sample location"), ACT:DRVO?, ACT:INVO? ("last draw/inject volume").<br>• PVCS #1602: switching the light of the sample chamber failed.<br>• PVCS #1557: DSPD, ESPD, IVOL is set to default when loop or seat capillary is changed by MPRM.<br>• PVCS #1570: Two state machines (Metering-Device, Peristaltic Pump) weren't reported as startup events, though the changes were reported. |
| **New Features** | • New location (wash port) for commands EJCT, DRAW, PURG, PURS.<br>• Implemented new injector purge functionality using the kit. (not G2258A). |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

# Detectors

## 1260 Infinity Variable Wavelength Detector (G1314F)

**Table 42** 1260 Infinity Variable Wavelength Detector (G1314F) - B.06.25

| | |
|---|---|
| **Main firmware revision** | 1314F_B625_003 |
| **Released** | September 2010 |
| **Changes** | This release is for the 1260 Infintity version G1314F introduced July 2010. This firmware is required when downgrading the module to B.06.25 firmware. It allows to operate the G1314F as G1314D (emulation mode). |
| **Bugfix** | None |
| **New Features** | None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

## Variable Wavelength Detector VWD (G1314D/E)

**Table 43** Variable Wavelength Detector VWD (G1314D/E) - B.06.25

| | |
|---|---|
| **Main firmware revision** | 1314E_B625_003, 1314D_B625_003, requires resident firmware Res_B623_001 |
| **Bugfix** | • Core changes only, see Table 15, “Modules with On-Board LAN (Nucleus) B.06.25,” on page 32. |
| **New Features** | None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 44** Variable Wavelength Detector VWD (G1314D/E) - B.06.23

| | |
|---|---|
| **Main firmware revision** | 1314E_B623_006, 1314D_B623_006, requires resident firmware Res_B623_001 |
| **Bugfix** | • Fixed an error in the operating system trace (TraceOS/oslog debugging feature). This error only occurred in revisions B.06.20 and B.06.21: If more than 11 warnings were written to the trace, the system started to write all further warnings to wrong memory locations. This could lead to serious errors and crashes (mostly panics with "unexpected exception" 0x92000113 "data store translation miss exception"). |
| **New Features** | None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 45** Variable Wavelength Detector VWD (G1314D/E) - B.06.21

| | |
|---|---|
| **Main firmware revision** | 1314E_B621_001, 1314D_B621_001, requires resident firmware B.06.20 |
| **Bugfix** | • PVCS #1697: Fixed the bug that setting the attenuation of the AnalogOutput to 4000 was not working.<br>• PVCS #1716: Fixed that rejection of timetable sample scan did not send an event. Two new events are implemented:<br>EV 7352 (EV_BLANK_NOT_AVAILABLE) if trying to take a sample scan without having a blank scan.<br>EV 7353 (EV_BLANK_MISMATCH) if trying to take a sample scan without having the range covered by the available blank scan.<br>• PVCS #1717: Fixed the bug that the detector delivered the temperature of the cell in the wrong scale. The temperature was wrong by a factor of 1/100 and caused problems if TCC's temperature was chosen as same "as detector cell". |
| **New Features** | None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 46** Variable Wavelength Detector VWD (G1314D/E) - B.06.20

| | |
|---|---|
| **Main firmware revision** | 1314E_B620_003, 1314D_B620_003, requires resident firmware B.06.20 |
| **Bugfix** | Initial release |
| **New Features** | New 1200 series VWD and VWD-SL Plus |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

## Variable Wavelength Detector VWD (G1314A/B/C)

**Table 47** Variable Wavelength Detector VWD (G1314A/B/C)

| | |
|---|---|
| **Main firmware revision** | 1314AB_A613_001, 1314C_A613_001 |
| **Bugfix** | This revision solves ignition problems with UV lamps that require continuous heating (standard VWD lamps G1314-60100/-60101). The heating time has been increased from 12 to 20 seconds. |
| **New Features** | None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 48** Variable Wavelength Detector VWD (G1314A/B/C)

| | |
|---|---|
| **Main firmware revision** | 1314AB_A610_004, 1314C_A610_004 |
| **Bugfix** | None - system release |
| **New Features** | None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

## DAD/MWD (G1315A/B, G1365A/B)

**Table 49** DAD/MWD (G1315A/B, G1365A/B)

| | |
|---|---|
| **Main firmware revision** | 1315AB_A610_004, 1365AB_A610_004<br>The firmware is the same for A and B versions. |
| **Bugfix** | • PVCS #1616: now it is possible to take a SCAN even another controller has locked CLASS_START. The command SCAN now belongs to CLASS_CONTROL |
| **New Features** | None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

## DAD / MWD (G1315C, G1365C, G1315D, G1365D)

**Table 50** DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.26[030]

| | |
|---|---|
| **Main firmware revision** | 1315C_B626_030, 1315D_B626_030, 1365C_B626_030, 1365D_B626_030 |
| **Resident firmware revision** | Res_B623_001 |
| **Date Introduced** | February 2014 |
| **General** | The fix in the CORE part was already implemented with the G4212A/B DAD firmware. Now it has been released also for the G1315/65C/D detectors. |
| **Bugfix** | • See "G1315C/D DAD /G1365C/D MWD (Core Changes) B.06.26 [030]" on page 34 |
| **New Features** | • None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 51** DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.25 [030]

| | |
|---|---|
| **Main firmware revision** | 1315C_B625_030, 1315D_B625_030, 1365C_B625_030, 1365D_B625_030 |
| **Resident firmware revision** | Res_B623_001 |
| **Date Introduced** | May 2012 |
| **General** | Must be used with optical units that have the new VSA micro slit assembly. This firmware assures compatibility for both slit versions. |
| **Bugfix** | • None |
| **New Features** | • Support of future new VSA micro slit assembly. This new VSA micro slit assembly will replace the current slit assembly (planned for July/August 2012). |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 52** DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.25 [020]

| | |
|---|---|
| **Main firmware revision** | 1315C_B625_020, 1315D_B625_020, 1365C_B625_020, 1365D_B625_020 |
| **Resident firmware revision** | Res_B623_001 |
| **Release Date** | September 2011 |
| **Bugfix** | • None. |
| **New Features** | Support of new optical variable slit assembly that will be introduced in the optical units of G1315/65C/D in 2012. This firmware assures compatibility for both slit versions. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 53** DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.25

| | |
|---|---|
| **Main firmware revision** | 1315C_B625_003, 1365D_B625_003, 1365C_B625_003, 1365D_B625_003 |
| **Resident firmware revision** | Res_B623_001 |
| **Bugfix** | • Core changes, see Table 15, "Modules with On-Board LAN (Nucleus) B.06.25," on page 32.<br>• PVCS #1841: Fixed that wavelength calibration always failed if the VIS lamp was turned on. This bug was introduced with revision B.06.23 and only occurred in revision B.06.23. |
| **New Features** | None. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 54** DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.23

| | |
|---|---|
| **Main firmware revision** | 1315C_B623_007, 1315D_B623_007, 1365C_B623_007, 1365D_B623_007 |
| **Resident firmware revision** | Res_B623_001 |
| **Bugfix** | • PVCS #1631: Fixed that reconnect via RS232 was not possible. It was possible to connect via RS232, but disconnect and reconnect was not possible before next power-on.<br>• Fixed occasional crash after traffic bursts (e.g. ARP request attacks) in LAN interface. After the LAN burst the LAN interface took too much of CPU time and was leading to watchdog timeouts of other processes.<br>• Take-over the update of the flash file-system library FFX. The old library contained a bug that led occasionally to crashed flash disks after power-cycle. |
| **New Features** | None. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 55** DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.14

| | |
|---|---|
| **Main firmware revision** | 1315C_B614_001, 1315D_B614_001, 1365C_B614_001, 1365D_B614_001 |
| **Resident firmware revision** | Res_B610_001 |
| **Bugfix** | • PVCS #1680: Fixed occasional crash with out-of-memory. Sometimes the I2C bus did not answer in the specified time (for board temperature readings). The endless waiting for the answer led to signal consumption in the processes signal queue and the module's firmware was crashing with out-of-memory. Fixed by using a time-out to keep the process running.<br>• PVCS #1712: Fix to support the Kingston 1 GB compact flash card. |
| **New Features** | None. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 56** DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.13

| | |
|---|---|
| **Main firmware revision** | 1315C_B613_002, 1315D_B613_002, 1365C_B613_002, 1365D_B613_002 |
| **Resident firmware revision** | Res_B610_001 |
| **Bugfix** | • Fixed bug in slope-threshold based fraction collection. If the threshold condition became true without slope condition then it could have happened that the first peak of next run wasn't collected.<br>• Peak based fraction collection: If a peak timeout occurs the end of peak time was too late to an amount of up to one data point, i.e. at default peak width the fraction ended up to 0.4s too late. This causes a change in fraction width by lower than 2%. This is not relevant to purification solutions, as peak timeout is used mainly for addressing wrong down-slope-parameterization and in this case the collected fraction contains far more volume than expected.<br>• Fixed occasional crash after traffic bursts (e.g. ARP request attacks) in LAN interface. After the LAN burst the LAN interface took too much of CPU time and was leading to watchdog timeouts of other processes. |
| **New Features** | None. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 57** DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.11

| | |
|---|---|
| **Main firmware revision** | 1315C_B611_001, 1315D_B611_001, 1365C_B611_001, 1365D_B611_001 |
| **Resident firmware revision** | Res_B610_001 |
| **Bugfix** | • Occasionally there was a problem in running out of internal used buffers for raw-data, leading to a crash. Increased the number of buffers to a value sufficient for all cases. |
| **New Features** | None. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 58** DAD / MWD (G1315C, G1365C, G1315D, G1365D) - B.06.10

| | |
|---|---|
| **Main firmware revision** | 1315C_B610_003, 1315D_B610_003, 1365C_B610_003, 1365D_B610_003 |
| **Resident firmware revision** | Res_B610_001 |
| **Bugfix** | See CORE changes "G1315C/D DAD /G1365C/D MWD (Core Changes)" on page 34. |
| **New Features** | None. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

## 1260 Infinity Fluorescence Detector (G1321B)

**Table 59** 1260 Infinity Fluorescence Detector (G1321B)

| | |
|---|---|
| **Main firmware revision** | 1321B_A611_020 |
| **Released** | September 2010 |
| **Bugfix** | This release is for the 1260 Infintity version G1321B introduced July 2010. This firmware is required when downgrading the module to A.06.11 firmware. It allows to operate the G1321B as G1321A (emulation mode).<br>IMPORTANT: This version should be used in emulation mode only. Otherwise, the G1321B will not reach the READY state! |
| **New Features** | None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

## Fluorescence Detector FLD (G1321A)

**Table 60** Fluorescence Detector FLD (G1321A)

| | |
|---|---|
| **Main firmware revision** | 1321A_A611_005 |
| **Bugfix** | • PVCS #1705:<br>"ADC overflow" event was not sent for channel 2, 3, 4.<br>The event is now sent for all channels.<br>• CS PVCS #14806:<br>Complementary wavelength in spectra header had wrong unit. Due to the wrong unit specification the complementary wavelength was wrongly scaled which lead to random numbers. Due to a bug in the Agilent ChemStation, this fix will not take effect in current ChemStation releases (B.04.01 and below). The displayed unit range will still be wrong. Future ChemStation releases (planned for B.04.01 Service Pack 1) will fix the bug and will then show the correct unit range.<br>The fix works only with firmware A.06.11 plus B.04.01 Service Pack 1. |
| **New Features** | • PVCS #1704<br>Up to firmware A.06.10, an "ADC overflow" was not visible in the chromatogram under certain method conditions. Overflow could be concealed by smoothing of a filter and thus not visible for the user. In the Agilent ChemStation, the "ADC overflow" event was only shown in the logbook.<br>This problem did only occur if the Peakwidth (Responsetime) parameter has been set similar or larger than the real width of the chromatographic peak. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 61** Fluorescence Detector FLD (G1321A)

| | |
|---|---|
| **Main firmware revision** | 1321A_A610_004 |
| **Bugfix** | • None - system release |
| **New Features** | None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

## Refractive Index Detector RID (G1362A)

**Table 62** Refractive Index Detector RID (G1362A)

| | |
|---|---|
| **Main firmware revision** | 1362A_A610_004 |
| **Bugfix** | • PVCS #1593: WaitTime after Purge was waited twice. |
| **New Features** | None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

# Other Modules

## Thermostatted Column Compartment TCC SL+ (G1316C)

**Table 63** Thermostatted Column Compartment TCC SL+ (G1316C) (A.06.17)

| | |
|---|---|
| **Main firmware revision** | 1316C_A617_001 |
| **Resident firmware revision** | Res_A610_004 |
| **Release Date** | December 2009 |
| **Bugfix** | • Implemented restoring mechanism for lost tag contents. If the module was switched off whilst the RFID tag was accessed for writing, the content of the tag was lost. Now, a safe restoring mechanism is implemented.<br>• Wrong number of the error event for "valve initialization failed". Now the correct error event EE_VALVE_INIT_FAILED is sent with the correct number EE 2875 instead of the wrong EE 2860.<br>• TeamTrack #01141, #01146, #01344 (PVCS #1679, #1685, #1898): Increased the following ranges: column length to 500 mm, column diameter to 50.0 mm, max. pressure to 2000 bar and max temperature to 250°C |
| **New Features** | • Implemented state events ES_VALVE_PRESENT (ES 2879) and ES_VALVE_NOT_PRESENT (ES 2878) for showing presence or absence of a supported valve. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 64** Thermostatted Column Compartment TCC SL+ (G1316C) (A.06.16)

| | |
|---|---|
| **Main firmware revision** | 1316C_A616_001 |
| **Resident firmware revision** | Res_A610_004 |
| **Release Date** | October 2009 |
| **Bugfix** | • PVCS #1889: Up to firmware A.06.15, the ports #1 and #2 of the 2 pos/6 port ultra-high pressure valve 1200 bar (5067-4117) were interchanged (1290 Infinity TCC). |
| **New Features** | • None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 65** Thermostatted Column Compartment TCC SL+ (G1316C) (A.06.15)

| | |
|---|---|
| **Main firmware revision** | 1316C_A615_001, |
| **Resident firmware revision** | Res_A610_004 |
| **Release Date** | October 2009 |
| **Bugfix** | • None |
| **New Features** | • PVCS #1811: The valve initialization did not finish after power-up, if the special toggle mechanism with negative valve position was used before power-off. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 66** Thermostatted Column Compartment TCC SL+ (G1316C) (A.06.14)

| | |
|---|---|
| **Main firmware revision** | 1316C_A614_001, |
| **Bugfix** | • None |
| **New Features** | • Implemented the Valve Cluster mechanism. This mechanism enables synchronous switching of column selection valves in several TCCs.<br>• Implemented the Pressure Limit Cluster mechanism. This mechanism enables the TCCs to request a High Pressure Limit at the pump in order to protect the column switching valve and the column from over-pressure.<br>• Redefinition of RFID Tag contents of the column switching valve. Major change: valve serial number no longer modifiable at customer side. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 67** Thermostatted Column Compartment TCC SL+ (G1316C) (A.06.10)

| | |
|---|---|
| **Main firmware revision** | 1316C_A610_001, |
| **Bugfix** | • Initial release of G1316C. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

### Thermostatted Column Compartment TCC / TCC SL (G1316A/G1316B)

**Table 68** Thermostatted Column Compartment TCC / TCC SL (G1316A/G1316B)

| | |
|---|---|
| **Main firmware revision** | 1316A_A610_004, 1316B_A610_004 |
| **Bugfix** | • PVCS #1613: in case no CSV is installed both ColldTag should be incremented.<br>• PVCS #1560: TCC goes in Resident mode during FW-update of G4208A (Instant Pilot). |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

## Fraction Collector (G1364A/B/C/D)

**Table 69** Fraction Collector (G1364A/B/C/D)

| | |
|---|---|
| **Main firmware revision** | 1364A-D_A610_006 |
| **Bugfix** | • "PVCS #1630: uS-FC stays permanently in ABORT-state when it is in state WAIT_FOR_RESET and receives command ABRT.<br>• PVCS #1627: avoid crash "Software Watchdog"<br>• PVCS #1609: AFC-cluster: after RSET not possible to open the front door.<br>• PVCS #1610: missing event EV 4263 (TrayChangeFinished).<br>• PVCS #1602: switching the light of the sample chamber failed.<br>• PVCS #1553: don't use Reserved Locations for fractions.<br>• send EV_SYS_CHANGED (EV 0201) in case any cluster configuration is changed or in case any delay is changed. |
| **New Features** | • query next free position: ACT:NPOS? |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

### Universal Interface Box (G1390A)

**Table 70** Universal Interface Box (G1390A)

| | |
|---|---|
| **Main firmware revision** | 1390A_A610_001 |
| **Bugfix** | • If a CAN slave's host goes into resident the CAN slave didn't notice at all that the host is gone. |
| **New Features** | • Introduced Run-State-Events ES 0104, ES 0103. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

### Automation Interface (G2254A)

**Table 71** Automation Interface (G2254A)

| | |
|---|---|
| **Main firmware revision** | 2254A_A610_001 |
| **Bugfix** | • If a CAN slave's host goes into resident the CAN slave didn't notice at all that the host is gone. |
| **New Features** | • Introduced Run-State-Events ES 0104, ES 0103. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

### Valves (G1156/57/58/59/60/62/63A/G1158B)

**Table 72** Valves (G1156/57/58/59/60/62/63A/G1158B)

| | |
|---|---|
| **Main firmware revision** | 1156A_A610_001, 1157A_A610_001, 1158AB_A610_001, 1159A_A610_001, 1160A_A610_001, 1162A_A610_001, 1163A_A610_001 |
| **Bugfix** | • If a CAN slave's host goes into resident the CAN slave didn't notice at all that the host is gone. |
| **New Features** | None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

## Chip Cube (G4240A)

**Table 73** Chip Cube (G4240A)

| | |
|---|---|
| **Main firmware revision** | 4240A_A611_004 |
| **Bugfix** | • Fixed the bug that toggling next position with Outer Rotor (VOP x; with -7 <= x <= -2) caused G4240A to fall to resident system. |
| **New Features** | • Improved cycle times (gradient delay reduction) together with Micro Pump G1376A or Nano Pump G2226A.<br>• Implemented to support "valve next position" for prepare phase within an analysis. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 74** Chip Cube (G4240A)

| | |
|---|---|
| **Main firmware revision** | 4240A_A610_004 |
| **Bugfix** | • PVCS #1611: Support new chip layouts by adding a new chip related offset, that is chip specific and listed in the chip's description. |
| **New Features** | None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

# Local Controllers

## Instant Pilot (G4208A)

**Table 75** Instant Pilot (G4208A) B.02.09

| | |
|---|---|
| **Main firmware revision** | 4208A_B209_003 (build number was not final at print of this document.)<br>Res_4208A_B209_003 |
| **Date Introduced** | September 2009 |
| **Bugfix** | • PVCS #1200: Missing "Save" dialog during modifying method, when using delete line/all in time table.<br>• 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.<br>• 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 '-'.<br>• PVCS #1229: Aborted wavelength calibration written into DAD logbook without mention of the abort.<br>• 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.<br>The 1290 Pump has implemented additional not ready conditions (TUNING, DEFILL, REMOVE_AIR).<br>• 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.<br>• 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.<br>• 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:<br>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** | No repeat OQ/PV tests are recommended after update |

**Table 76** Instant Pilot (G4208A) B.02.08

| | |
|---|---|
| **Main firmware revision** | 4208A_B208_002<br>Res_4208A_B208_002 |
| **Date Introduced** | July, 2009 |
| **Bugfix** | • PVCS #1161: Maintenance: valve synchronize -> actual showed always "0" in any selected position.<br>• 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<br>• 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.<br>• PVCS #1164: Injector Program - added extended "draw from vial +" command<br>• PVCS #1165: Missing temperature plot for ALS-Thermostat<br>• PVCS #1166: DAD/MWD Bandwith limits wrong. The limits for the bandwith 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.<br>• PVCS #1167: Limits of Holmium test changed to +/- 1 nm (G1314A/B/C/D/E VWD)<br>• PVCS #1167: Fraction Collection / Manual trigger. Instant Pilot and ChemStation showed different fraction times due to update problem.<br>• 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<br>  • G4212A Infinity DAD<br>  • G4220A Infinity Binary Pump<br>  • G4226A Infinity ALS<br>  • G1316C Infinity TCC |
| **Known Problems** | Compatibility Issues:<br>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** | No repeat OQ/PV tests are recommended after update |

**Table 77** Instant Pilot (G4208A) B.02.07

| | |
|---|---|
| **Main firmware revision** | 4208A_B207_001<br>Res_4208A_B207_001 |
| **Date Introduced** | July, 2008 |
| **Bugfix** | • PVCS #1118: Extended FLD wave length range<br>EX 200 - 1200 nm, EM 200 - 1200 nm<br>• PVCS #1120: Added FLD - PMT Gain Test (was missing)<br>• PVCS #1121: Added PMT - Gain Settings<br>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.<br>• PVCS #1119: Fixed ALS needle change procedure<br>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.<br>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.<br>• PVCS #1122: Printing of DAD calibration result<br>When printing the Calibration report with G1315C DAD-SL Internal Print Error #5 showed up.<br>• 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+<br>• Support for G1367D High Performance Autosampler SL+<br>• Start/stop sequence at/from a selected sequence line<br>• Support of new flash ROM type on Instant Pilot main board |
| **Known Problems** | Compatibility Issues:<br>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** | No repeat OQ/PV tests are recommended after update |

**Table 78** Instant Pilot (G4208A) B.02.06

| | |
|---|---|
| **Main firmware revision** | 4208A_B207_001<br>Res_4208A_B206_007 |
| **Date Introduced** | August, 2007 |
| **Bugfix** | • New RAM layout<br>• 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]"<br>• Problem with hanging EMPV Clean when pump is in test mode<br>• SCR#0920: Status screen - the edit position in status setup screen is stored even if the screen is left<br>• SCR#1005: EMF limits for TCC (Maintenance) for Peltier Power Left and Right is now available<br>• SCR#1074: Leak test with isocratic pump did not abort automatically on error<br>• SCR#1075: Keyword Error "AREV?;ABLD?!" with A.06.01 in Details screen<br>• SCR#1078: Help text changed: for micro mode pressure test<br>• SCR#1079: Help text changed: EMPV cleaning instead of Leak Test<br>• SCR#1080: Help text changed: Leak Test for capillary/nano pump with EMPV<br>• SCR#1084: RID-Not Ready Conditions optimized<br>• SCR#1085: Hang-up during LAN modification (Configure)<br>• 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)<br>• SCR#1091: AFC: Status view should show RINSE and WASTE status<br>• SCR#1093: Print of Sequence table (table is empty) does not work<br>• SCR#1095: Status - Thermostat - displayed value changed back<br>• SCR#1097: TCC Col ID: no entries possible in column tag<br>• SCR#1098: Injector program problem – WPS Mix Parameter<br>• SCR#1099: Dual loop: change loop does not work<br>• 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** | No repeat OQ/PV tests are recommended after update |

**Table 79** Instant Pilot (G4208A) B.02.05

| | |
|---|---|
| **Main firmware revision** | 4208A_B205_002<br>Res_4208A_B205_002 |
| **Date Introduced** | June, 2007 |
| **Bugfix** | None |
| **New Features** | None |
| **Known Problems** | • See "Thermostatted Column Compartment TCC / TCC SL (G1316A/G1316B)" on page 60.<br>• SCR#686: Status view: 4 bottles empty is not displayed complete .<br>  • Press Control button and select System: Get Ready screen to see all not ready conditions.<br>• SCR#785: Fast Composition Change is not executed when overlap is enabled for the WPS. No error message is displayed.<br>• 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).<br>• SCR# 848: G4208A hangs (screen corrupted, no reaction on further input), do the following actions:<br>  • Configure > Module (with LAN card installed)<br>  • Select "LAN Settings"<br>  • Press Help button "i"<br>  • Exit Help screen<br>  • Press Enter button<br>  • Select YES<br>• 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".<br>  This could only be undone by changing to "Needle Wash" and then back to "Standard" or by using "Control/System:Set Defaults".<br>All SCR's will be fixed with next releases. |
| **Pre-requisites** | Requires A.06.02/B.01.02 or above on all 1100/1200 modules |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

## Control Module (G1323B)

**Table 80** Control Module (G1323B)

| | |
|---|---|
| **Main firmware revision** | LCB402EN.BIN<br>(NO FURTHER FW RELEASE IN FUTURE, REPLACED INSTANT PILOT G4208A) |
| **Date Introduced** | July 19, 2005 |
| **Bugfix** | • Pooling with AFraCo did not work if no sampler is within system.<br>• DaVinci shows missleading error messages when setting up bottle fillings for a G1361 ISO HF pump (PVCS 1776).<br>• 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 1778).<br>• G1389A injector program wash in vial display problem (PVCS 1779).<br>• Error when executing EMPV cleaning on a G2226A Nano Pump (PVCS 1780). |
| **New Features** | • Support for G1315C, G1365C detectors<br>• Support for new CAN protokoll - old can protokoll is still working<br>• Support for Injector Purge Kit including G1156A valve<br>• Enable overlap injection for Dual Loop Sampler G2258A |
| **Known Problems** | • Not compatible with G4240 Chip Cube.<br>• 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 (PVCS 1812). |
| **Compatibility Issues** | • The new relase has been tested with ChemStation B.01.03 and firmware A.06.01.<br>• Using the new G1323B release (B.04.01/02) with firmware A.05.11 and below may<br>• show incompatibilities. Therefore we recommend to install the B.04.01 only<br>• on those G1323Bs that are connected to systems with A.06.01. |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

# 1290 Infinty Change Information



This chapter provides the details of the various firmware revisions for the Agilent 1290 Infinity System.

Agilent Technologies

# Document History

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

**Table 81** Document History

| Date | Description | Author |
|---|---|---|
| | | |
| 25-Jan-2010 | Updated Compatibility Information in sections<br>• "Instant Pilot (G4208A) B.02.09" | W. Albrecht |
| 17-Dec-2009 | Release of new firmware for<br>• "G1316C Infinty TCC A.06.17"<br>• "G4220A Infinity Binary Pump B.06.27" | W. Albrecht |
| 07-Dec-2009 | Release of new firmware for<br>• "G4212A Infinity DAD B.06.26" | W. Albrecht |
| 29-Oct-2009 | Release of new firmware for<br>• "G1316C Infinty TCC A.06.16" | W. Albrecht |
| 13-Oct-2009 | Updated sections<br>• "G4212A Infinity DAD B.06.25"<br>• "Instant Pilot (G4208A) B.02.09"<br>Added section<br>• "G4226A Infinity Autosampler A.06.15" | W. Albrecht |
| 12-Oct-2009 | Added build numbers of new firmware | W. Albrecht |
| 18-Sep-2009 | Release of new firmware for<br>• "Core Changes B.06.25"<br>• "G4220A Infinity Binary Pump B.06.25"<br>• "G4212A Infinity DAD B.06.25"<br>• "G4226A Infinity Autosampler A.06.16"<br>• "G1316C Infinty TCC A.06.15"<br>• "Instant Pilot (G4208A) B.02.09" | W. Albrecht |
| 02-Sep-2009 | Release of new firmware for<br>• "G4220A Infinity Binary Pump B.06.24" | W. Albrecht |
| 31-Jul-2009 | Initial Information "Firmware Revision Overview" | W. Albrecht |

# Firmware Revision Overview

**Table 82** Firmware Revision Overview

| Type | Module | Product# | Revision | Build | Filename (.DLB) | Initial New |
|---|---|---|---|---|---|---|
| **Main** | | | | | | |
| | 1290 Infinity DAD | G4212A | B.06.26 | 030 | 4212A_B626_030 | N |
| | 1290 Infinity DAD | G4212A | B.06.26 | 004 | 4212A_B626_004 | N |
| | 1290 Infinity DAD | G4212A | B.06.25 | 003 | 4212A_B625_003 | N |
| | 1290 Infinity DAD | G4212A | B.06.23 | 006 | 4212A_B623_006 | I |
| | 1290 Infinity Binary Pump | G4220A | B.06.27 | 001 | 4220A_B627_001 | N |
| | 1290 Infinity Binary Pump | G4220A | B.06.25 | 003 | 4220A_B625_003 | N |
| | 1290 Infinity Binary Pump | G4220A | B.06.24 | 003 | 4220A_B624_003 | N |
| | 1290 Infinity Binary Pump | G4220A | B.06.23 | 006 | 4220A_B623_006 | I |
| | 1290 Infinity Autosampler | G4226A | A.06.16 | 001 | 4226A_A616_001 | N |
| | 1290 Infinity Autosampler | G4226A | A.06.15 | 001 | 4226A_A615_001 | N |
| | 1290 Infinity Autosampler | G4226A | A.06.14 | 001 | 4226A_A614_001 | I |
| | 1290 Infinity TCC | G1316C | A.06.17 | 001 | 1316C_A617_001 | N |
| | 1290 Infinity TCC | G1316C | A.06.16 | 001 | 1316C_A616_001 | N |
| | 1290 Infinity TCC | G1316C | A.06.15 | 001 | 1316C_A15_001 | N |
| | 1290 Infinity TCC | G1316C | A.06.14 | 001 | 1316C_A14_001 | I |
| | Instant Pilot | G4208A | B.02.09 | 003 | 4208A_B209_003 | N |
| | Instant Pilot | G4208A | B.02.08 | 008 | 4208A_B208_008 | I |
| **Resident** | | | | | | |
| | 1290 Infinity DAD and Binary Pump | | B.06.23 | 001 | Res_B623_001 | I |
| | 1290 Infinity Autosampler and TCC | | A.06.10 | 004 | Res_A610_004 | I |

**Table 82** Firmware Revision Overview

| Type | Module | Product# | Revision | Build | Filename (.DLB) | Initial New |
|---|---|---|---|---|---|---|
| | Instant Pilot | G4208A | B.02.09 | 003 | Res_4208A_B209_003 | N |
| | Instant Pilot | G4208A | B.02.08 | 002 | Res_4208A_B208_002 | I |

# Core Changes

**Table 83** Core Changes B.06.26/B.06.27

| | |
|---|---|
| **Main firmware revision** | 4220A_B627_001, 4212A_B626_004 |
| **Resident firmware revision** | Res_B623_001 |
| **Date Introduced** | December 2009 |
| **Bugfix** | • PVCS #1804, #1858: Fixed 'hanging LAN interface'. Occasionally the LAN interface was hanging when there was loads of broadcast traffic. The LAN interface was completely blocked and only a power cycle helped after that.<br>• PVCS #1873: Fixed deleting the time table occasionally resulted in crashes when downloading the next method. This bug only occurred if a special command was used for deleting the time table and if a method without time table was loaded after a method with time table. This bug only occurred in firmware revisions B.06.23, B.06.24 and B.06.25. |
| **New Features** | • None |
| **Known Problems** | None |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 84** Core Changes B.06.25

| | |
|---|---|
| **Main firmware revision** | 4220A_B625_003, 4212A_B625_003 |
| **Resident firmware revision** | Res_B623_001 |
| **Date Introduced** | September 2009 |
| **Bugfix** | • Fixed sporadic problems with writing into EEPROMs and reading from empty EEPROMs.<br>• Fixed sporadic problem with RF tags. Sometimes the content of the RFID tags was unwanted deleted. |
| **New Features** | • Implemented new events EV10180, EV10181, EV10182, EV10183 for showing a change in the not-ready conditions. The large not-ready conditions cover 128 bit positions. The new events show each change in any bit-position. |
| **Known Problems** | None |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

# G4220A Infinity Binary Pump

**Table 85** G4220A Infinity Binary Pump B.06.27

| | |
|---|---|
| **Main firmware revision** | 4220A_B627_001 |
| **Resident firmware revision** | Res_B623_001 |
| **Date Introduced** | December 2009 |
| **Bugfix (Core)** | • See "Core Changes B.06.26/B.06.27" on page 75. |
| **Bugfix** | • TeamTrack #01342 (PVCS #1896): There was a wrong flow value in the method after execution of 'prime', 'leak test' or 'primary air removal'.<br>• TeamTrack #01338 (PVCS #1892): The EMF counter values disappeared after power-cycle.<br>• The module occasionally showed unwanted effects (e.g. pulsing pressure, deny writing of some diagnostic buffers) after ca. 24 days continuous running |
| **New Features** | • None |
| **Known Problems** | None |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 86** G4220A Infinity Binary Pump B.06.25

| | |
|---|---|
| **Main firmware revision** | 4220A_B625_003 |
| **Resident firmware revision** | Res_B623_001 |
| **Date Introduced** | September 2009 |
| **Bugfix** | • See "Core Changes B.06.25" on page 75.<br>• PVCS #1836: Fixed that pump wrongly fell into error state when seal wash was enabled.<br>• PVCS #1832: Fixed that the seal wash function mixed up operation modes. The modes "On together with PUMP On/Standby" and "On all the time" were mixed up.<br>• PVCS #1829: Quick-step is now been switched off during a solvent gradient.<br>• PVCS #1814: Fixed that "prime" was only working once. If "prime" was stopped before normal end, it did not work anymore until next power-off.<br>• PVCS #1812: Fixed that the mixer name was not updated if the mixer was changed without power-off.<br>• Fixed that seal wash motors were sporadically and wrongly classified as 'defect' or 'absent'. |
| **New Features** | • None |
| **Known Problems** | None |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 87** G4220A Infinity Binary Pump B.06.24

| | |
|---|---|
| **Main firmware revision** | 4220A_B624_003 |
| **Resident firmware revision** | Res_B623_001 |
| **Date Introduced** | September 2, 2009 |
| **Bugfix** | • Enlarged the duration for the overdrive current for the solvent selection valve according to the actual switching time of the valve from 10 ms to 65 ms.<br>• Fixed the error that the swift lock was not limited to two seconds. During analytical operation this time limit is never reached anyway. The time limit ensures proper leak testing in production and is only relevant for this special case.<br>• Enlarge the list of allowed purge valves with purge valve type "5067-4119". Up to now, the production used a preliminary prototype ID for the purge valve. The final ID is now fixed and was be added to the list of allowed purge valves.. |
| **New Features** | • None |
| **Known Problems** | None |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 88** G4220A Infinity Binary Pump B.06.23

| | |
|---|---|
| **Main firmware revision** | 4220A_B623_006 |
| **Resident firmware revision** | Res_B623_001 |
| **Release Date** | July 21, 2009 |
| **Bugfix** | • initial revision |
| **New Features** | • initial revision |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

# G4212A Infinity DAD

**Table 89** G4212A Infinity DAD B.06.26 [030]

| | |
|---|---|
| **Main firmware revision** | 4212A_B626_030 |
| **Resident firmware revision** | Res_B623_001 |
| **Release Date** | May 2012 |
| **General** | Must be used with optical units that have the new VSA micro slit assembly. This firmware assures compatibility for both slit versions. |
| **Bugfix** | • None |
| **New Features** | • Support of future new VSA micro slit assembly. This new VSA micro slit assembly will replace the current slit assembly (planned for July/August 2012). |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 90** G4212A Infinity DAD B.06.26

| | |
|---|---|
| **Main firmware revision** | 4212A_B626_004 |
| **Resident firmware revision** | Res_B623_001 |
| **Release Date** | December 2009 |
| **Bugfix (Core)** | • See "Core Changes B.06.26/B.06.27" on page 75 |
| **New Features** | • Support for 60 mm Cartridge Flow Cell<br>If the 60 Cartridge Flow Cell is used with detector firmware B.06.25 and below, the detector output (digital and anlog) is normalized to 1 cm. This means the peak hight would be the same as on the 10 mm Cartridge Flow Cell. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 91** G4212A Infinity DAD B.06.25

| | |
|---|---|
| **Main firmware revision** | 4212A_B625_003 |
| **Resident firmware revision** | Res_B623_001 |
| **Release Date** | September 2009 |
| **Bugfix** | • See "Core Changes B.06.25" on page 75. |
| **New Features** | • None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 92** G4212A Infinity DAD B.06.23

| | |
|---|---|
| **Main firmware revision** | 4212A_B623_006 |
| **Resident firmware revision** | Res_B623_001 |
| **Release Date** | July 21, 2009 |
| **Bugfix** | • initial revision |
| **New Features** | • initial revision |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

# G4226A Infinity Autosampler

**Table 93** G4226A Infinity Autosampler A.06.16

| | |
|---|---|
| **Main firmware revision** | 4226A_A616_001 |
| **Resident firmware revision** | Res_A610_004 |
| **Release Date** | September 2009 |
| **Bugfix** | • PVCS #1861: Fixed that sporadically a software watchdog occurred when switching the valve to bypass after sample was flushed out (in the modes "overlapped injection after sample is flushed out" or "automated delay volume reduction").<br>• PVCS #1750, #1834: Fixed that a mix in flush port let the module crash.<br>• PVCS #1715: Fixed that the module showed 'ready' during heating/cooling when switching the thermostat off and immediately on again. Since the module is still heating/cooling the module now correctly shows 'not ready'.<br>• PVCS #1686: Fixed that the module showed 'not ready' with temperature control set to 'not controlled'. If the thermostat is switched off, the temperature control is set to 'not controlled' and the "enable analysis within +/- 1 degree" is enabled, the module wrongly<br>• showed 'not ready' instead of 'ready'.<br>• PVCS #1864: Allow manual moving of the theta arm during maintenance procedures "change needle" and "change loop".<br>• PVCS #1860: (G4226A only) Fixed that multi-draw is now correctly suppressed if no large seat capillary is installed.<br>• PVCS #1867: (G4226A only) Fixed that the module sometimes wrongly reported EE4706 (missing vessel) after measuring the blind seat.<br>• PVCS #1865: Implemented to perform a 'RESET' after each maintenance procedure finished. This is wanted for safety reasons to prevent the needle from possible damage after maintenance procedures. |
| **New Features** | • None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 94** G4226A Infinity Autosampler A.06.15

| | |
|---|---|
| **Main firmware revision** | 4226A_A615_001 |
| **Resident firmware revision** | Res_A610_004 |
| **Release Date** | August 2009 |
| **Bugfix** | • Check for blind seat during initializationfailed due to wrong dimensions. |
| **New Features** | • None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 95** G4226A Infinity Autosampler A.06.14

| | |
|---|---|
| **Main firmware revision** | 4226A_A614_001 |
| **Resident firmware revision** | Res_A610_004 |
| **Release Date** | July 21, 2009 |
| **Bugfix** | • initial revision |
| **New Features** | • initial revision |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

# G1316C Infinty TCC

**Table 96** G1316C Infinty TCC A.06.17

| | |
|---|---|
| **Main firmware revision** | 1316C_A617_001 |
| **Resident firmware revision** | Res_A610_004 |
| **Release Date** | December 2009 |
| **Bugfix** | • Implemented restoring mechanism for lost tag contents. If the module was switched off whilst the RFID tag was accessed for writing, the content of the tag was lost. Now, a safe restoring mechanism is implemented.<br>• Wrong number of the error event for "valve initialization failed". Now the correct error event EE_VALVE_INIT_FAILED is sent with the correct number EE 2875 instead of the wrong EE 2860.<br>• TeamTrack #01141, #01146, #01344 (PVCS #1679, #1685, #1898): Increased the following ranges: column length to 500 mm, column diameter to 50.0 mm, max. pressure to 2000 bar and max temperature to 250°C |
| **New Features** | • Implemented state events ES_VALVE_PRESENT (ES 2879) and ES_VALVE_NOT_PRESENT (ES 2878) for showing presence or absence of a supported valve. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 97** G1316C Infinty TCC A.06.16

| | |
|---|---|
| **Main firmware revision** | 1316C_A616_001 |
| **Resident firmware revision** | Res_A610_004 |
| **Release Date** | October 2009 |
| **Bugfix** | • PVCS #1889: Up to firmware A.06.15, the ports #1 and #2 of the 2 pos/6 port ultra-high pressure valve 1200 bar (5067-4117) were interchanged (1290 Infinity TCC). |
| **New Features** | • None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 98** G1316C Infinty TCC A.06.15

| | |
|---|---|
| **Main firmware revision** | 1316C_A15_001 |
| **Resident firmware revision** | Res_A610_004 |
| **Release Date** | September 2009 |
| **Bugfix** | • PVCS #1811: The valve initialization did not finish after power-up, if the special toggle mechanism with negative valve position was used before power-off. |
| **New Features** | • None |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

**Table 99** G1316C Infinty TCC A.06.14

| | |
|---|---|
| **Main firmware revision** | 1316C_A14_001 |
| **Resident firmware revision** | Res_A610_004 |
| **Release Date** | July 21, 2009 |
| **Bugfix** | • initial revision |
| **New Features** | • initial revision |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

# 1290 Infinity LC - Compatibility Information

The table below lists the compatibility requirements for the 1290 Infinity LC System.

**Table 100** Firmware/Software Requirements for 1290 Infinity LC System

| 1290 Infinity LC System | Revision | Comment |
|---|---|---|
| • G4212A Infinity DAD | B.06.23 * | |
| • G4220A Infinity Binary Pump | B.06.23 * | |
| • G4226A Infinity ALS | A.06.14 * | |
| • G1316C Infinity TCC | A.06.14 * | |
| • G4208A Instant Pilot | B.02.08 * | 1290 release<br>usable for firmware updates |
| • Agilent 1100/1200 modules | B.06.2x | modules with on-board LAN |
| • Agilent 1100/1200 modules | A.06.1x | |
| • Agilent ChemStation | B.04.02 * | |
| • Agilent LabAdvisor / System Utilities | B.01.03 * | usable for firmware updates |
| • LAN/RS-232 Firmware Update Tool | 2.6 | usable for firmware updates |

* initial revision or revision that supports the 1290 Infinity modules the first time.

**NOTE** Due to a new driver concept the initial Agilent ChemStation B.04.02 release does not support all combinations of 1290 Infinity LC System with 1100/1200 modules, see Figure 1 on page 88.

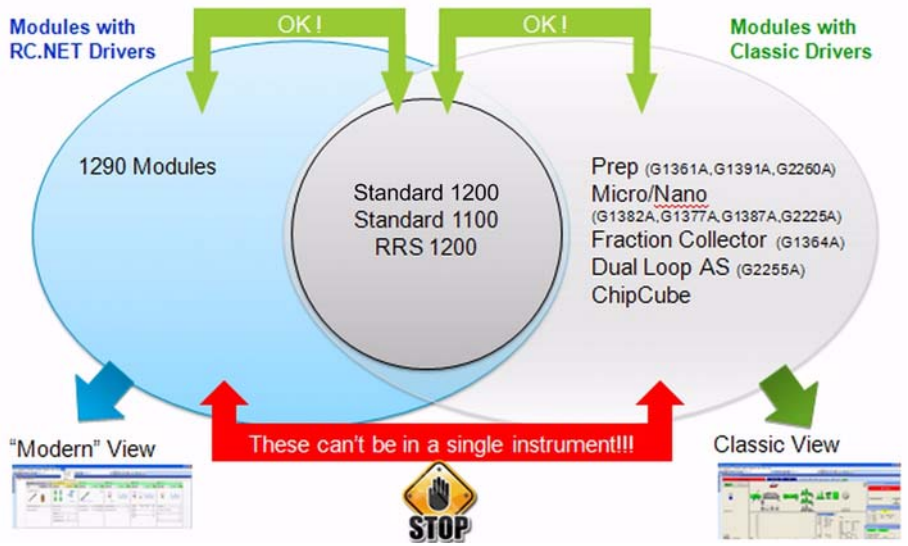


**Figure 1** Agilent ChemStation B.04.02 vs. 1290 and 1100/1200 modules

For a complete compatibility matrix contact your local Agilent ChemStation Support.

# 1120 Compact LC Change Information



This chaper provieds the details of the various firmeare revisions for the Agilent 1120 Compact LC.

Agilent Technologies

# Document History

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

**Table 101** Document History

| Date | Description | Author |
|---|---|---|
| | | |
| 27-Oct-2009 | Update of build numbers for revison B.06.25 | W. Albrecht |
| 18-Sep-2009 | "Firmware Revision B.06.25" on page 91 | W. Albrecht |
| 02-Jun-2009 | "Firmware Revision B.06.22" on page 93 | W. Albrecht |
| 04-Jul-2008 | "Firmware Revision B.06.21" on page 95 | W. Albrecht |
| 01-Mar-2008 | Initial"Firmware Revision B.06.20" on page 97 | W. Albrecht |

# Firmware Revision B.06.25

**Table 102** Firmware Revision B.06.25

| Type | Module | Product# | Revision | Build | Filename (.DLB) |
|---|---|---|---|---|---|
| **Main** | Compact LC | G4286A | B.06.25 | 003 | 4286A_B625_003 |
| | Compact LC | G4287A | B.06.25 | 003 | 4287A_B625_003 |
| | Compact LC | G4288A | B.06.25 | 003 | 4288A_B625_003 |
| | Compact LC | G4289A | B.06.25 | 003 | 4289A_B625_003 |
| | Compact LC | G4290A | B.06.25 | 003 | 4290A_B625_003 |
| **Resident** | Compact LC | | B.06.23 | 001 | Res_B623_001 |

# Changes B.06.25

**Table 103** Changes B.06.22

| | |
|---|---|
| **Main firmware revision** | B.06.25 |
| **Resident firmware revision** | B.06.23_001 |
| **Release Date** | September 2009 |
| **Bugfix (CORE)** | • Fixed sporadic problems with writing into EEPROMs and reading from empty EEPROMs.<br>• Fixed sporadic problem with RF tags. Sometimes the content of the RFID tags was unwanted deleted. |
| **Bugfix (Main FW)** | • PVCS #1833: Enlarged the duration for the overdrive current for the solvent selection valve according to the actual switching time of the valve from 10 ms to 65 ms. |
| **New Features (CORE)** | • Implemented new events EV10180, EV10181, EV10182, EV10183 for showing a change in the not-ready conditions. The large not-ready conditions cover 128 bit positions. The new events show each change in any bit-position. |
| **When is an upgrade required** | • If a malfunction is corrected by a new version. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

# Firmware Revision B.06.22

**Table 104** Firmware Revision B.06.22

| Type | Module | Product# | Revision | Build | Filename (.DLB) |
|---|---|---|---|---|---|
| **Main** | Compact LC | G4286A | B.06.22 | 002 | 4286A_B622_002 |
| | Compact LC | G4287A | B.06.22 | 002 | 4287A_B622_002 |
| | Compact LC | G4288A | B.06.22 | 002 | 4288A_B622_002 |
| | Compact LC | G4289A | B.06.22 | 002 | 4289A_B622_002 |
| | Compact LC | G4290A | B.06.22 | 002 | 4290A_B622_002 |
| **Resident** | Compact LC | | B.06.20 | 001 | Res_B620_001 |

# Changes B.06.22

**Table 105** Changes B.06.22

| | |
|---|---|
| **Main firmware revision** | B.06.22 |
| **Resident firmware revision** | B.06.20_001 (not changed) |
| **Release Date** | June 2, 2009 |
| **Bugfix** | • "PVCS #1723: Fixed the bug that due to board change (Rev B to Rev C) the degasser made an error of 40% for the pressure. Also the instrument showed an error (invalid pressure) after power on.<br>Fixed by FW internal detection of board revision and use an adapted setup for the degasser and added a fixed time to let the pressure sensor stabilize its output after switching-on.<br>• "No PVCS : Fixed an error in the operating system trace (TraceOS/oslog debugging feature). This error only occurred in revisions B.06.20 and B.06.21: If more than 11 warnings were written to the trace, the system started to write all further warnings to wrong memory locations. This could lead to serious errors and crashes (mostly panics with "unexpected exception" 0x92000113 "data store translation miss exception"). |
| **New Features** | • none |
| **When is an upgrade required** | • If a malfunction is corrected by a new version. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

# Firmware Revision B.06.21

**Table 106** Firmware Revision B.06.22

| Type | Module | Product# | Revision | Build | Filename (.DLB) |
|---|---|---|---|---|---|
| **Main** | Compact LC | G4286A | B.06.21 | 001 | 4286A_B621_001 |
| | Compact LC | G4287A | B.06.21 | 001 | 4287A_B621_001 |
| | Compact LC | G4288A | B.06.21 | 001 | 4288A_B621_001 |
| | Compact LC | G4289A | B.06.21 | 001 | 4289A_B621_001 |
| | Compact LC | G4290A | B.06.21 | 001 | 4290A_B621_001 |
| **Resident** | Compact LC | | B.06.20 | 001 | Res_B620_001 |

# Changes B.06.21

**Table 107** Changes B.06.21

| | |
|---|---|
| **Main firmware revision** | B.06.21 |
| **Resident firmware revision** | B.06.20_001 (not changed) |
| **Release Date** | July 4, 2008 |
| **Bugfix** | • No PVCS: If the degasser stayed switched off for a longer period, occasionally the degasser does not reach the ready condition after switching on again. This was caused by solvent condensation in the degasser and the instrument shows error event EE 8053 (Degasser timeout). Changed the control of the degasser to reach the ready condition even with prior solvent condensation.<br>• PVCS #1677: Fixed the bug that the pump does not stop if only one solvent gets empty (reaches 0). Now the pump stops as soon as one of the solvents gets empty. |
| **New Features** | • none |
| **When is an upgrade required** | • If a malfunction is corrected by a new version. |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

# Firmware Revision B.06.20

**Table 108** Firmware Revision B.06.20

| Type | Module | Product# | Revision | Build | Filename (.DLB) |
|---|---|---|---|---|---|
| **Main** | Compact LC | G4286A | B.06.20 | 001 | 4286A_B620_001 |
| | Compact LC | G4287A | B.06.20 | 001 | 4287A_B620_001 |
| | Compact LC | G4288A | B.06.20 | 001 | 4288A_B620_001 |
| | Compact LC | G4289A | B.06.20 | 001 | 4289A_B620_001 |
| | Compact LC | G4290A | B.06.20 | 001 | 4290A_B620_001 |
| **Resident** | Compact LC | | B.06.20 | 001 | Res_B620_001 |

## Changes B.06.20

**Table 109** Changes B.06.20

| | |
|---|---|
| **Main firmware revision** | B.06.20 |
| **Resident firmware revision** | B.06.20_001 |
| **Release Date** | March 2008 |
| **Bugfix** | • initial revision |
| **New Features** | • initial revision |
| **Known Problems** | None Documented |
| **OQ/PV Recommendation** | No repeat OQ/PV tests are recommended after update |

# 1 1120 Compact LC Change Information

## Firmware Revision B.06.20

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## In This Book

This bulletin contains information about the firmware revision for the Agilent HPLC System.



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