

# Agilent 1100/1200/1290 Series Firmware Updates



**User Guide**



**Agilent Technologies**

# Notices

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## Software Revision

This guide is valid for the Agilent 1100/1200/1290 Series and describes the firmware update via

- LAN/RS-232 Firmware Update Tool 2.7
- LabAdvisor Software B.01.03
- Instrument Utilities B.01.03
- Instant Pilot G4208A and
- Control Module G1323A/B
- GPIB Firmware Update Tool 4.0

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## In This Guide...

This manual contains information for using the Firmware Updates to upgrade the Agilent 1100/1200/1290 Series of HPLC modules.

### **1 Introduction**

This chapter describes general issues for the use of the Firmware Update Tools for firmware updates of the Agilent 1100/1200/1290 Series of modules.

### **2 Updates via LAN/RS-232 Firmware Update Tool**

This chapter describes the use of the LAN/RS-232 Firmware Update Tool for firmware updates on the Agilent 1100/1200/1290 Series of modules.

### **3 Updates via LabAdvisor / Instrument Utilities**

This chapter describes the use of the Agilent LabAdvisor / Instrument Utilities for firmware updates on the Agilent 1100/1200/1290 Series of modules.

### **4 Updates via Instant Pilot (G4208A)**

This chapter describes the firmware updates of the Agilent Instant Pilot G4208A and the Agilent 1100/1200/1290 series of modules via the Instant Pilot G4208A.

### **5 Updates via Control Module (G1323A/B)**

This chapter describes the firmware updates of the Agilent 1100/1200 series of modules via the Control Modules G1323A/B.

### **6 Updates via GPIB Firmware Update Tool**

This chapter describes the use of the GPIB Firmware Update Tool for firmware updates of the Agilent 1100 series of modules.

## **7 Agilent 1100/1200 Modules - A Quick Overview**

The objective of this chapter is to give you a quick overview about the differences between the new Agilent 1200 series modules versus the Agilent 110 series modules and answering question about adding the new modules into existing systems.

## **8 Downgrade of Agilent 1100/1200/1290 Modules**

This chapter give some guidance on downgrading of Agilent 1100/1200 series modules' firmware (if required).

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# 1

## Introduction

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This chapter describes general issues for the use of the Firmware Update Tools for firmware updates of the Agilent 1100/1200/1290 Series of modules.

Please refer also to

- [“Agilent 1100/1200 Modules - A Quick Overview”](#) on page 145 and
- [“Downgrade of Agilent 1100/1200/1290 Modules”](#) on page 157



# Firmware Description

The firmware of the instrument consists of two independent sections:

- a non-instrument specific section, called resident system,
- an instrument specific section, called main system.

On the Instant Pilot G4208A this depends on the firmware versions:

- all B-revisions have main and resident firmware
- all A-revisions use just main firmware

The Control Module G1323A/B firmware has just main firmware.

## Resident System

This resident section of the firmware is identical for all Agilent 1100/1200/1290 Series modules. Its properties are:

- the complete communication capabilities (GPIB, CAN, LAN and RS-232C),
- memory management,
- ability to update the firmware of the main system.

## Main System

This main section of the firmware is module specific. Its properties are:

- the complete communication capabilities (GPIB, CAN, LAN and RS-232C),
- memory management,
- ability to update the firmware of the resident system.
- In addition the main system comprises the instrument functions that are divided into common functions like
  - run synchronization through APG remote
  - error handling,
  - diagnostic functions,
  - or module specific functions.

NOTE

Update of main system can be done in the resident system only (except the Control Module G1323A/B).

Update of the resident system can be done in the main system only.

## File Naming Convention of Firmware

File naming convention of firmware

Module	Type of firmware	Name
Pumps, Autosampler, Detectors, Column Compartment	Main	xxxxA_Avvv_bbb.DLB xxxxA_Bvvv_bbb.DLB
Pumps, Autosampler, Detectors, Column Compartment	Resident	res_Avvv_bbb.DLB res_Bvvv_bbb.DLB
G4208A Instant Pilot	Main	G4208A_Bvvv_bbb.DLB
G4208A Instant Pilot	Resident	RES_xxxxBvvv_bb.DLB
G1323A Control Module	Main	LCAvvvEN.BIN
G1323B Control Module	Main	LCBvvvEN.BIN

where (e.g. 1315AB\_A511\_001.DLB)

xxxxA is the product number, for example G1315A/B DAD

A is the firmware revision

vvv is the revision number, for example 511 is revision 5.11

bbb is the build number, for example 001 is the first build

NOTE

All modules with on-board LAN (e.g. G1315/65C/D and G1314D/E) and the Instant Pilot require "B" firmware. This "B" firmware works with "A" firmware under specific requirements. See ["Compatibility Matrix"](#) on page 18 for details.

## 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.06.2x or B.06.1x to B.06.2x (decade).
- 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 decade.

This nomenclature expresses that all minor revisions within a decade (A.06.10 to A.06.19 or B.06.10 to B.06.19) are compatible among themselves and may be mixed within a LC stack.

Revisions of different decades (A.06.1x vs. A.06.2x or B.06.1x vs. B.06.2x) are not tested together and must not be mixed.

### NOTE

The introduction of the 1290 Infinity LC System in July 2009 has modules with new and old electronic platform. Therefore a mix of A.06.1x and B.06.2x for these modules is possible (and with 1100/1200 series modules on A.06.1x or B.06.1x).

This arrangement has been communicated to our 3rd-party software providers to implement their firmware checks accordingly (to check just decades).

The above arrangement will be more clear than the already used revision numbering scheme done within sets (See also “[Compatibility Matrix](#)” on page 18):

- A.05.01/A.05.03
- A.05.04/A.05.05
- 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
- A.06.02/A.06.0x and B.01.02/B.01.0x
- A.06.1x and B.06.1x (1100/1200)
- A.06.1x / B.06.2x and above (1100/1200) with A.06.14 and B.06.23 and above (1290)
- A.06.3x / B.06.3x /C.06.3x and above (1100/1200/1290 - latest release)

#### NOTE

The 1290 Infinity Flex Cube (introduced April 2010) is the first module that has a C.06.3x firmware. These modules are hosted by a “Nucleus” module (all modules that have build-in LAN - G1314D/E, G1315/65C/D, G4212A and G4220A). See “Updating Hosted Modules on page ???”

## Procedures

Firmware updates can be done using the following interfaces:

- “[Updates via LAN/RS-232 Firmware Update Tool](#)” on page 27 with files from CD-ROM/hard disk/USB Flash Drive.
- “[Updates via Instant Pilot \(G4208A\)](#)” on page 95 with files from USB Flash Drive.
- Updates via LabAdvisor / Instrument Utilities Software with files from CD-ROM/hard disk/USB Flash Drive
- “[Updates via GPIB Firmware Update Tool](#)” on page 133 with Agilent ChemStation setup and files from CD-ROM/hard disk (16-bit ChemStation only)
- “[Updates via Control Module \(G1323A/B\)](#)” on page 113 with files from a PC-card.

**Table 1** Features vs. Update Tools

Tool	G4208A Instant Pilot	G1323A/B	Modules	System in one step	Multiple Systems in one step
LAN/RS-232 Firmware Update Tool 2.7	X	X (B)	X	X	X
Instant Pilot G4208A	X		X *	X	
LabAdvisor 1.03	X	X (B)	X *	X	X
Instrument Utilities 1.03					X
Control Module G1323A/B	X	X	X		
GPIB Firmware Update Tool **		X (B)	X		

\* requires firmware A.06.0x / B.01.0x or above on the 1100/1200 modules.

\*\* should be used for GPIB updates only. Requires functional 16-bit Chemstation.

### NOTE

The GPIB Firmware Update Tool allows also LAN updates. But in case of LAN communication you should always use the LAN/RS-232 Firmware Update Tool 2.7 or above.

## Update of firmware for MS hardware

After upgrading ChemStation software (e.g. to revision A10.01) the software complains that the MS firmware needs a newer version.

In this case open your \HPCHEM\MS\firmware\ folder and execute the MSUPDATE.EXE. This will open a telnet session and start the update of the MS.

For this update the MS has to be connected to the ChemStation.

## Updates from the Agilent Web

New firmware revisions and the Firmware Updates are provided via the Agilent Technologies web page

<http://www.agilent.com>  
(Products - Chemical Analysis - Technical Support - Firmware)

or direct via

<http://www.chem.agilent.com/en-US/Support/Downloads/firmware/Pages/LC.aspx>

Home > Technical Support > Downloads and Utilities > Firmware Register | Login

### LC and LC/MS

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Updating the [firmware](#) might be necessary due to new released firmware revisions (new features, instrument improvements) or after replacing the electronic board (repair) that houses the EEPROM. Please select your system type and be sure to carefully read all supplied information concerning compatibility accompanying documentation before beginning installation.

Select your download from the system category below:

#### Liquid Chromatography

Description	Modified
Agilent 1100 Firmware A.03.9x and below	November 14, 2008
Agilent 1100 Firmware A.04.0x/1x (supported revision)	November 14, 2008
Agilent 1100 Firmware A.04.1x/2x (supported revision)	November 14, 2008
Agilent 1100 Firmware A.05.01/03 (supported revision)	November 13, 2008
Agilent 1100 Firmware A.05.04/05 (supported revision)	November 13, 2008
Agilent 1100 Firmware A.05.06/10 (supported revision)	November 13, 2008
Agilent 1100 Firmware A.05.11/13 (supported revision)	November 13, 2008
Agilent 1100/1200 Firmware A.06.01/06/B.01.01 (supported revision)	November 13, 2008
Agilent 1100/1200 Firmware A.06.02/06/B.01.02/06/B.02.05 (supported revision)	November 13, 2008
Agilent 1100/1200 Firmware A.06.1x/B.06.1x/B.02.07 (actual revision)	April 20, 2009
Agilent 1100/1200 Firmware Compatibility Matrix	October 04, 2008
Agilent 1100/1200 Firmware for Emulation Mode	October 04, 2008
Agilent 1100/1200 Firmware Update Tools & Procedures	November 13, 2008
Agilent 1100/1200 Systems LICOP (for software development)	November 13, 2008
Agilent 1200 Firmware - 1120 Compact LC B.06.2x (current)	June 02, 2009
Agilent 1290 Infinity LC Firmware (actual revision)	September 04, 2009

Figure 1 Agilent firmware download page



Beside of the software and firmware also following documents are available:

- a Firmware History document (PDF) describes the firmware changes.
- this Technical Note (PDF) that describes the download and update process (is also part of the LAN/RS-232 Firmware Update Tool 2.7).
- other related documents (if required).

All files are zipped to assure complete downloads to your PC.

#### NOTE

The following procedures refer to a folder structure C:\fwupgrad\.... This may differ from your personal file location.

---

## Compatibility Matrix

Figure 2 on page 21 and [Figure 3](#) on page 22 show the timeline of introductions of Agilent 1100/1200 firmware versus the Agilent ChemStations since firmware revision A.05.01.

### NOTE

Firmware used in a system should always be within a firmware revision set to assure full compatibility in the system. See also information on [“Revision Numbering”](#) on page 12

Sets are:

- A.05.01/A.05.03
- A.05.04/A.05.05
- 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
- A.06.02/A.06.0x and B.01.02/B.01.0x
- A.06.1x and B.06.1x/B.06.2x/B.06.3x
- A.06.1x and B.06.2x (1290 Infinity LC System)
- A.06.3x and B.06.3x (1290 Infinity LC System)

### NOTE

If 1290 Infinity LC modules are added into existing 1100/1200 systems, then the 1100/1200 must have A.06.1x and B.06.1x to work with A.06.1x and B.06.2x (1290). The same is true for adding 1100/1200 modules into a 1290 Infinity LC system.

[Table 2](#) on page 19 gives a quick overview.

[Figure 2](#) on page 21 shows the full compatibility with 1200 series modules.

[Figure 3](#) on page 22 shows the possible compatibility of 1200 series modules with 1100 series modules using the [“1100/1200 Series Compatibility and Emulation Mode”](#) on page 68.

[Table 3](#) on page 24 lists the requirements for the Agilent 1290 Infinity LC System.

## Quick Overview on Compatibility

The table below should give you an overview on modules versus firmware revisions.

**Table 2** Compatibility Matrix

Module	A.05.xx	A.06.01	A.06.02/05 B.01.02/06	A.06.1x/B.06.1x B06.2x	A.06.3x/B.06.3x C06.3x
G1323A Control Module (A.02.03 [001]) *	Y	N	N	N	N
G1323B Control Module (B.03.22 and below)	Y	N	N	N	N
G1323B Control Module (B.04.02 and above)	N	Y	Y	Y	Y
1100 series modules (A.05.11 and below)	Y	N	N	N	N
1100 series modules (A.06.01 and above)	N	Y	Y	Y	Y
G1315C DAD / G1365C MWD (B.01.xx and above)	N	Y	Y	Y	Y
G1315D DAD / G1365D MWD (B.01.04 and above)	N	N	Y	Y	Y
G1314D VWD / G1314E VWD SL+ (B.06.20 and above)	N	N	N	Y	Y
G4208A Instant Pilot (A.05.11/13) **	Y ***	N	N	N	N
G4208A Instant Pilot (B.01.02 and above)	N	N	Y	Y	Y
1200 series modules (standard modules) ****	Y	Y	Y	Y	Y
1200 series modules (G1312B, G1314C, G1316B, G1329B, G1367C, G1367D) *****	N/Y	N/Y	Y	Y	Y
G4240 Chip Cube (A.06.01 and above)	N	Y	Y	Y	Y
G4227A Flex Cube (C.06.30 and above) *****	N	N	N	N	Y
1290 Infinity LC system	N	N	N	Y	Y
• G4212A DAD (B.06.23 and above)					
• G4220A BinPump (B.06.23 and above)					
• G4226A ALS (A.06.14 and above)					
• G1316C TCC (A.06.14 and above)					
• G4208A Instant Pilot (B.02.08 and above)					

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

## 1 Introduction

### Compatibility Matrix

- \*\* 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.
- \*\*\*\*\* Modules with C.XX firmware are hosted modules and require a host-module (all modules that have B.06.3x firmware and above).

#### NOTE

The firmware set A.06.1x/B.06.1x has not been tested together with older versions. See “Revision Numbering” on page 12 for more information.

---

## 1100/1200 LC System

		ChemStation Release B.04.02 SR1	B.04.02	B.04.01	B.03.02 SR1	B.03.02	B.03.01 SR1	B.03.01
		ChemStation Release Date	Apr-10	Oct-09	Oct-08	Jul-08	Jan-08	Aug-07
			Apr-07					
G1157A	1200 Series 2-position/10-port valve	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.02
G1158A	1200 Series 2-position/6-port valve	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.02
G1158B	1200 Series 2-position/6-port valve SL	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.02
G1159A	1200 Series 6-position selection valve	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.02
G1160A	1200 Series 12-position/13-port valve	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.02
G1162A	1200 Series 2-position/6-port micro valve	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.02
G1163A	1200 Series 2-position/10-port micro valve	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.02
G1310A	1200 Series isocratic pump	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.04
G1311A	1200 Series quaternary pump	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.04
G1312A	1200 Series binary pump	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.04
G1312B	1200 Series binary pump SL	A.06.11	A.06.11	A.06.10	A.06.10	A.06.10	A.06.10	A.06.06
G1313A	1100 Series standard autosampler	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.04
G1314A	1100 Series variable wavelength detector	A.06.13	A.06.13	A.06.10	A.06.10	A.06.10	A.06.10	A.06.04
G1314B	1200 Series variable wavelength detector	A.06.13	A.06.13	A.06.10	A.06.10	A.06.10	A.06.10	A.06.04
G1314C	1200 Series variable wavelength detector SL	A.06.13	A.06.13	A.06.10	A.06.10	A.06.10	A.06.10	A.06.04
G1314D	1200 Series variable wavelength detector	B.06.25	B.06.25	B.06.20	B.06.20			
G1314E	1200 Series variable wavelength detector SL+	B.06.25	B.06.25	B.06.20	B.06.20			
G1315A	1100 Series diode-array detector	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.04
G1315B	1200 Series diode-array detector	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.04
G1315C	1200 Series diode-array detector SL	B.06.30	B.06.25	B.06.11	B.06.11	B.06.11	B.06.10	B.01.06
G1315D	1200 Series diode-array detector	B.06.30	B.06.25	B.06.11	B.06.11	B.06.11	B.06.10	B.01.06
G1316A	1200 Series thermostated column compartment	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.04
G1316B	1200 Series thermostated column compartment SL	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.04
G1316C	1200 Series thermostated column compartment SL+	A.06.16	A.06.16	A.06.10				
G1321A	1200 Series fluorescence detector	A.06.11	A.06.11	A.06.10	A.06.10	A.06.10	A.06.10	A.06.02
G1329A	1200 Series standard autosampler	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.04
G1329B	1200 Series standard autosampler SL	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.04
G1361A	1200 Series preparative pump	A.06.11	A.06.11	A.06.10	A.06.10	A.06.10	A.06.10	A.06.04
G1362A	1200 Series refractive index detector	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.02
G1364A	1100 Series fraction collector PS	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.03
G1364B	1200 Series fraction collector PS	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.03
G1364C	1200 Series fraction collector AS	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.03
G1364D	1200 Series micro collector/spotter	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.03
G1365A	1100 Series multi-wavelength detector	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.03
G1365B	1200 Series multi-wavelength detector	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.03
G1365C	1200 Series multi-wavelength detector SL	B.06.30	B.06.25	B.06.11	B.06.11	B.06.11	B.06.10	B.01.06
G1365D	1200 Series multi-wavelength detector	B.06.30	B.06.25	B.06.11	B.06.11	B.06.11	B.06.10	B.01.06
G1367A	1100 Series well plate autosampler	A.06.16	A.06.16	A.06.12	A.06.11	A.06.11	A.06.10	A.06.03
G1367B	1200 Series high performance autosampler	A.06.16	A.06.16	A.06.12	A.06.11	A.06.11	A.06.10	A.06.03
G1367C	1200 Series high performance autosampler SL	A.06.16	A.06.16	A.06.12	A.06.11	A.06.11	A.06.10	A.06.03
G1367D	1200 Series high performance autosampler SL+	A.06.16	A.06.16	A.06.12	A.06.12	A.06.10	A.06.10	A.06.03
G1376A	1200 Series capillary pump	A.06.11	A.06.11	A.06.10	A.06.10	A.06.10	A.06.10	A.06.02
G1377A	1200 Series micro well-plate sampler	A.06.16	A.06.16	A.06.12	A.06.11	A.06.11	A.06.10	A.06.03
G1389A	1100 Series thermostatted micro ALS	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.04
G1390A	1200 Series universal interface box	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.02
G2226A	1200 Series nanoflow pump	A.06.11	A.06.11	A.06.10	A.06.10	A.06.10	A.06.10	A.06.02
G2254A	1200 Series automation interface	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.02
G2258A	1200 Series dual loop autosampler PS	A.06.16	A.06.16	A.06.12	A.06.11	A.06.11	A.06.10	A.06.03
G2260A	1200 Series preparative autosampler	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.04
G2240A	1200 Series chip cube	A.06.11	A.06.11	A.06.10	A.06.10	A.06.10	A.06.10	A.06.05
G4208A	1200 Series instant pilot	B.02.09	B.02.09	B.02.07	B.02.07	B.02.06	B.02.06	B.02.01
	Resident System (A-version)	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.10	A.06.02
	Resident System (B-version)	B.06.30	B.06.23	B.06.10	B.06.10	B.06.10	B.06.10	B.01.02
	Resident System (G4208A)	B.02.09	B.02.09	B.02.07	B.02.07	B.02.06	B.02.06	B.02.01
Full 1200 Series support (recommended)								
Emulation Mode: module conversion and FW downgrade (limited feature set)								
Not supported (no further FW downgrade possible due to hardware)								

Figure 2 Agilent 1100/1200 Firmware versus ChemStation Revisions

# 1 Introduction

## Compatibility Matrix

		ChemStation Release	B.02.01 SR2	B.02.01 SR1	B.02.01	B.01.03 SR1
		B.01.03 SR2				
		ChemStation Release Date	Nov-06	Jun-06	Mar-06	May-06
G1157A	1200 Series 2-position/10-port valve		A.06.02	A.06.02	A.06.02	A.06.02
G1158A	1200 Series 2-position/6-port valve		A.06.02	A.06.02	A.06.02	A.06.02
G1158B	1200 Series 2-position/6-port valve SL		A.06.02	A.06.02	A.06.02	A.06.02
G1159A	1200 Series 6-position selection valve		A.06.02	A.06.02	A.06.02	A.06.02
G1160A	1200 Series 12-position/13-port valve		A.06.02	A.06.02	A.06.02	A.06.02
G1162A	1200 Series 2-position/6-port micro valve		A.06.02	A.06.02	A.06.02	A.06.02
G1163A	1200 Series 2-position/10-port micro valve		A.06.02	A.06.02	A.06.02	A.06.02
G1310A	1200 Series isocratic pump		A.06.04	A.06.03	A.06.02	A.06.02
G1311A	1200 Series quaternary pump		A.06.04	A.06.03	A.06.02	A.06.02
G1312A	1200 Series binary pump		A.06.04	A.06.03	A.06.02	A.06.02
G1312B	1200 Series binary pump SL		A.06.04	A.06.03	A.06.02	A.06.02
G1313A	1100 Series standard autosampler		A.06.04	A.06.02	A.06.02	A.06.02
G1314A	1100 Series variable wavelength detector		A.06.04	A.06.03	A.06.02	A.06.02
G1314B	1200 Series variable wavelength detector		A.06.04	A.06.03	A.06.02	A.06.02
G1314C	1200 Series variable wavelength detector SL		A.06.04	A.06.03	A.06.02	A.06.02
G1314D	1200 Series variable wavelength detector					
G1314E	1200 Series variable wavelength detector SL+					
G1315A	1100 Series diode-array detector		A.06.04	A.06.03	A.06.02	A.06.02
G1315B	1200 Series diode-array detector		A.06.04	A.06.03	A.06.02	A.06.02
G1315C	1200 Series diode-array detector SL		B.01.04	B.01.03	B.01.02	B.01.02
G1315D	1200 Series diode-array detector		B.01.04			
G1316A	1200 Series thermostated column compartment		A.06.04	A.06.03	A.06.02	A.06.02
G1316B	1200 Series thermostated column compartment SL		A.06.04	A.06.03	A.06.02	A.06.02
G1316C	1200 Series thermostated column compartment SL+					
G1321A	1200 Series fluorescence detector		A.06.02	A.06.02	A.06.02	A.06.02
G1329A	1200 Series standard autosampler		A.06.04	A.06.02	A.06.02	A.06.02
G1329B	1200 Series standard autosampler SL		A.06.04	A.06.02	A.06.02	A.06.02
G1361A	1200 Series preparative pump		A.06.04	A.06.03	A.06.02	A.06.02
G1362A	1200 Series refractive index detector		A.06.02	A.06.02	A.06.02	A.06.02
G1364A	1100 Series fraction collector PS		A.06.03	A.06.03	A.06.02	A.06.02
G1364B	1200 Series fraction collector PS		A.06.03	A.06.03	A.06.02	A.06.02
G1364C	1200 Series fraction collector AS		A.06.03	A.06.03	A.06.02	A.06.02
G1364D	1200 Series micro collector/spotter		A.06.03	A.06.03	A.06.02	A.06.02
G1365A	1100 Series multi-wavelength detector		A.06.03	A.06.03	A.06.02	A.06.02
G1365B	1200 Series multi-wavelength detector		A.06.03	A.06.03	A.06.02	A.06.02
G1365C	1200 Series multi-wavelength detector SL		B.01.04	B.01.03	B.01.02	B.01.02
G1365D	1200 Series multi-wavelength detector		B.01.04			
G1367A	1100 Series well plate autosampler		A.06.03	A.06.03	A.06.02	A.06.02
G1367B	1200 Series high performance autosampler		A.06.03	A.06.03	A.06.02	A.06.02
G1367C	1200 Series high performance autosampler SL		A.06.03	A.06.03	A.06.02	A.06.02
G1367D	1200 Series high performance autosampler SL+		used as G1367C			
G1376A	1200 Series capillary pump		A.06.02	A.06.02	A.06.02	A.06.02
G1377A	1200 Series micro well-plate sampler		A.06.03	A.06.03	A.06.02	A.06.02
G1389A	1100 Series thermostatted micro ALS		A.06.04	A.06.02	A.06.02	A.06.02
G1390A	1200 Series universal interface box		A.06.02	A.06.02	A.06.02	A.06.02
G2226A	1200 Series nanoflow pump		A.06.02	A.06.02	A.06.02	A.06.02
G2254A	1200 Series automation interface		A.06.02	A.06.02	A.06.02	A.06.02
G2258A	1200 Series dual loop autosampler PS		A.06.03	A.06.03	A.06.02	A.06.02
G2260A	1200 Series preparative autosampler		A.06.04	A.06.02	A.06.02	A.06.02
G2240A	1200 Series chip cube		A.06.03	A.06.03	A.06.02	A.06.02
G4208A	1200 Series instant pilot		B.02.01	B.01.04	B.01.03	B.01.03
	Resident System (A-version)		A.06.02	A.06.02	A.06.02	A.06.02
	Resident System (B-version)		B.01.02	B.01.02	B.01.02	B.01.02
	Resident System (G4208A)		B.02.01	B.01.04	B.01.03	B.01.03

Full 1200 Series support (recommended)

Emulation Mode: module conversion and FW downgrade (limited feature set)

Not supported (no further FW downgrade possible due to hardware)

Figure 3 Agilent 1100/1200 Firmware versus ChemStation Revisions

		ChemStation Release	B.01.03	B.01.01	A.10.02	A10.01	A.09.03	A.09.01/2
		ChemStation Release Date	Jun-05	Sep-04	Jan-04	Jul-03	Sep-02	Dec-01
G1157A	1200 Series 2-position/10-port valve	A.06.01	A.05.11	A.05.06	A.05.06	A.05.04		
G1158A	1200 Series 2-position/6-port valve	A.06.01	A.05.11	A.05.06	A.05.06	A.05.04		
G1158B	1200 Series 2-position/6-port valve SL	A.06.01	A.05.11	A.05.06	A.05.06	A.05.04		
G1159A	1200 Series 6-position selection valve	A.06.01	A.05.11	A.05.06	A.05.06	A.05.04		
G1160A	1200 Series 12-position/13-port valve	A.06.01	A.05.11	A.05.06	A.05.06	A.05.04		
G1162A	1200 Series 2-position/6-port micro valve	A.06.01	A.05.11	A.05.06	A.05.06	A.05.04		
G1163A	1200 Series 2-position/10-port micro valve	A.06.01	A.05.11	A.05.06	A.05.06	A.05.04		
G1310A	1200 Series isocratic pump	A.06.01	A.05.11	A.05.09	A.05.06	A.05.04	A.05.01	
G1311A	1200 Series quaternary pump	A.06.01	A.05.11	A.05.09	A.05.06	A.05.04	A.05.01	
G1312A	1200 Series binary pump	A.06.01	A.05.11	A.05.09	A.05.06	A.05.04	A.05.01	
G1312B	1200 Series binary pump SL	A.06.01	A.05.12	A.05.10			A.05.01	
G1313A	1100 Series standard autosampler	A.06.01	A.05.11	A.05.06	A.05.06	A.05.04	A.05.01	
G1314A	1100 Series variable wavelength detector	A.06.01	A.05.11	A.05.09	A.05.06	A.05.04	A.05.01	
G1314B	1200 Series variable wavelength detector	A.06.01	A.05.11	A.05.09	A.05.06	A.05.04	A.05.01	
G1314C	1200 Series variable wavelength detector SL	A.06.01	A.05.11	A.05.06	A.05.06	A.05.04	A.05.01	
G1314D	1200 Series variable wavelength detector							
G1314E	1200 Series variable wavelength detector SL+							
G1315A	1100 Series diode-array detector	A.06.01	A.05.11	A.05.06	A.05.06	A.05.04	A.05.01	
G1315B	1200 Series diode-array detector	A.06.01	A.05.11	A.05.06	A.05.06	A.05.04	A.05.01	
G1315C	1200 Series diode-array detector SL	B.01.01						
G1315D	1200 Series diode-array detector							
G1316A	1200 Series thermostated column compartment	A.06.01	A.05.11	A.05.10	A.05.06	A.05.05	A.05.01	
G1316B	1200 Series thermostated column compartment SL	A.06.01	A.05.11	A.05.10	A.05.06	A.05.05	A.05.01	
G1316C	1200 Series thermostated column compartment SL+							
G1321A	1200 Series fluorescence detector	A.06.01	A.05.11	A.05.09	A.05.06	A.05.04	A.05.01	
G1329A	1200 Series standard autosampler	A.06.01	A.05.11	A.05.06	A.05.06	A.05.04	A.05.01	
G1329B	1200 Series standard autosampler SL	A.06.01	A.05.11	A.05.06	A.05.06	A.05.04	A.05.01	
G1361A	1200 Series preparative pump	A.06.01	A.05.12	A.05.09	A.05.06	A.05.04	A.05.01	
G1362A	1200 Series refractive index detector	A.06.01	A.05.11	A.05.06	A.05.06	A.05.04	A.05.01	
G1364A	1100 Series fraction collector PS	A.06.01	A.05.11	A.05.10	A.05.07			
G1364B	1200 Series fraction collector PS	A.06.01	A.05.11	A.05.10	A.05.07			
G1364C	1200 Series fraction collector AS	A.06.01	A.05.11	A.05.10	A.05.07			
G1364D	1200 Series micro collector/spotter	A.06.01	A.05.11	A.05.10	A.05.07			
G1365A	1100 Series multi-wavelength detector	A.06.01	A.05.11	A.05.09	A.05.06	A.05.04	A.05.01	
G1365B	1200 Series multi-wavelength detector	A.06.01	A.05.11	A.05.09	A.05.06	A.05.04	A.05.01	
G1365C	1200 Series multi-wavelength detector SL	B.01.01						
G1365D	1200 Series multi-wavelength detector							
G1367A	1100 Series well plate autosampler	A.06.01	A.05.11	A.05.09	A.05.07	A.05.04	A.05.01	
G1367B	1200 Series high performance autosampler	A.06.01	A.05.11	A.05.09	A.05.07	A.05.04	A.05.01	
G1367C	1200 Series high performance autosampler SL	A.06.01	A.05.11	A.05.09	A.05.07	A.05.04	A.05.01	
G1367D	1200 Series high performance autosampler SL+							
G1376A	1200 Series capillary pump	A.06.01	A.05.11	A.05.06	A.05.06	A.05.05	A.05.01	
G1377A	1200 Series micro well-plate sampler	A.06.01	A.05.11	A.05.09	A.05.07	A.05.04	A.05.01	
G1389A	1100 Series thermostatted micro ALS	A.06.01	A.05.11	A.05.09	A.05.07	A.05.04	A.05.01	
G1390A	1200 Series universal interface box	A.06.01	A.05.11	A.05.09	A.05.06	A.05.04	A.05.01	
G2226A	1200 Series nanoflow pump	A.06.01	A.05.11	A.05.09	A.05.06	A.05.05		
G2254A	1200 Series automation interface	A.06.01	A.05.11	A.05.06	A.05.06	A.05.04		
G2258A	1200 Series dual loop autosampler PS	A.06.01	A.05.12					
G2260A	1200 Series preparative autosampler	A.06.01	A.05.11	A.05.06	A.05.06	A.05.04	A.05.01	
G2240A	1200 Series chip cube	A.06.01	A.05.11	A.05.06	A.05.06	A.05.04	A.05.01	
G4208A	1200 Series instant Pilot	B.xx	A.05.13	not tested				
Resident System (A-version)		A.06.01	A.05.11	A.05.09	A.05.06	A.05.04	A.05.01	
Resident System (B-version)								
Resident System (G4208A)		B.xx	NO A.05.xx resident required.					
Emulation Mode: FW downgrade (limited feature set)								
Emulation Mode: module conversion and FW downgrade (limited feature set)								
Not supported (no further FW downgrade possible due to hardware)								

Figure 4 Agilent 1100/1200 Firmware versus ChemStation Revisions

## 1290 Infinity LC

The table below lists the compatibility requirements for the 1290 Infinity LC System. Refer also to [Figure 6](#) on page 25 for Agilent 1290 Infinity LC Firmware versus ChemStation Revisions.

**Table 3** 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 useable 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 2.7	2.6 *	useable 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 5](#) on page 25.





**Figure 5** Agilent ChemStation B.04.02 vs. 1290 and 1100/1200 modules

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

		ChemStation Release B.04.02 SR1	B.04.02	B.04.02- PRE	
		ChemStation Release Date Apr-10	Oct-09	Aug-09	
G4220A	1290 Infinity binary pump	B.06.30	B.06.25	B.06.23	
G4212A	1290 Infinity diode-array detector	B.06.30	B.06.25	B.06.23	
G1316C	1290 Infinity thermostated column compartment	A.06.30	A.06.16	A.06.14	
G4226A	1290 Infinity autosampler	A.06.30	A.06.16	A.06.14	
G4227A	1290 Infinity Flex Cube	C.06.30			
G4208A	1200 Series instant pilot	B.02.09	B.02.09	B.02.08	
	Resident System (A-version)	A.06.30	A.06.10	A.06.10	
	Resident System (B-version)	B.06.30	B.06.23	B.06.23	
	Resident System (G4208A)	B.02.09	B.02.09	B.02.08	
full 1290 Infinity support (recommended)					
Emulation Mode: module conversion and FW downgrade (limited feature set)					
Not supported (no further FW downgrade possible due to hardware)					

**Figure 6** Agilent 1290 Infinity LC Firmware versus ChemStation Revisions

## **G4218A ELSD Firmware**

The firmware of the 1200 Series Evaporative Light Scattering Detector G4218A (ELSD) is not updatable via the update processes described in this manual. The firmware is in EEPROMS. Refer to the product documentation for update possibilities or contact the Agilent Service.



## 2

# Updates via LAN/RS-232 Firmware Update Tool

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This chapter describes the use of the LAN/RS-232 Firmware Update Tool for firmware updates on the Agilent 1100/1200/1290 Series of modules.



**Agilent Technologies**

## General Information

### Important

The LAN/RS-232 Firmware Update Tool 2.7 replaces

- the previously used LAN/RS-232 Firmware Update Tool (version below actual) for LAN and RS-232 updates
- the previously used Firmware Update Utility (version 4.00) for LAN updates.

#### WARNING

Do not use any older versions of Firmware Update Tool for upgrade of systems with mixed firmware revisions (5.1x and below with 6.0x and above). In some combinations, especially systems with CAN slaves (CAN-valves, UIB or automation interface) included, the order of the upgrade is important. Otherwise modules become invisible.

---

#### NOTE

If you own a system with GPIB communication, use either the [“Firmware Update via RS-232”](#) on page 31 (preferred) or [“Updates via GPIB Firmware Update Tool”](#) on page 133.

#### NOTE

If you want to upgrade the firmware of modules to revision A.06.xx refer to [“Firmware Update to A.06.xx”](#) on page 63 prior to start the process.

Please refer also to

- [“Agilent 1100/1200 Modules - A Quick Overview”](#) on page 145 and
- [“Downgrade of Agilent 1100/1200/1290 Modules”](#) on page 157

## Features

The LAN/RS-232 Firmware Update Tool 2.7 has the following features:

- for 1100/1200/1290 series modules, 8453 Uv-vis Spectrophotometer, 3100 OFFGEL Fractionator and 1120 Compact LC
- CAN slaves (CAN-valves, UIB or automation interface) are recognized
- G1323B Control Module support (optional)
- updates via LAN or RS-232
- simultaneous module updates (one or more complete system(s)) in one step via LAN
- simultaneous module updates (one complete system) in one step via RS-232
- module type conversion for 1100/1200, see [“1100/1200 Series Compatibility and Emulation Mode”](#) on page 68
- displaying additional instrument information
- no Agilent ChemStation is required
- this document is included in the setup as integrated help
- command line for sending instructions to modules.

## Update Sequence

The LAN/RS-232 Firmware Update Tool 2.7 updates the system in the following order:

- 1 Control Module (G1323B), if selected
- 2 CAN slaves (CAN-valves, UIB or automation interface) - sequential
- 3 all resident firmware - parallel
- 4 transfer of all modules into resident mode
- 5 all module main firmware - parallel
- 6 transfer of all modules into main mode.

### NOTE

If you want to upgrade the firmware of modules to revision A.06.xx refer to [“Firmware Update to A.06.xx”](#) on page 63 prior to start the process..

## Firmware Update via LAN

This section describes the special requirements for the use of LAN as interface.

### Firmware Revision Requirements Of The LAN Cards

The below firmware revisions are required for the LAN Card

- On-board LAN (e.g. G1315C/D DAD, G1365C/D MWD, G1314D/E VWD, G4212A Infinity DAD and G4220A Infinity Binary Pump)
- Agilent LAN Communication Card G1369B (G1369-60002)
- Agilent LAN Communication Card G1369A (G1369-60001)
- HP J2552 cards - A.08.06 and above
- HP J410x cards - K.08.04 and above

This can be checked with the Control Module (MIO details) or with the Instant Pilot G4208A (configuration details).

### Set up of Bootp

Refer to [“Automatic Configuration with Bootp”](#) on page 32.

### Set up of PC and Agilent ChemStation

Refer to [“PC and Agilent ChemStation Setup”](#) on page 40.

### Installation Of The LAN/RS-232 Firmware Update Tool On Your PC

Refer to [“Installation of the LAN/RS-232 Firmware Update Tool”](#) on page 42.

### Installation Of The Firmware On Your PC

Refer to [“Installation of the Module Firmware on your PC”](#) on page 43.

### Connect Your PC To The 1100/1200/1290 Modules

Your PC has to be connected by LAN to one of the Agilent 1100/1200/1290 Series of HPLC Modules (typically the detector). All other modules of a system are connected via CAN (internal communication bus).

## Firmware Update via RS-232

This section describes the special requirements for the use of RS-232 as interface.

### RS-232 Cable requirement

Use a 9-to-9 pin (female) connector RS-232 cable (Agilent part number G1530-60600 (2 m), RS232-61600 (2.5 m) or 5181-1561 (8 m)).

#### NOTE

It's a so called "Null Modem Cable" with full handshaking where the wiring is made between pins 1-1, 2-3, 3-2, 4-6, 5-5, 6-4, 7-8, 8-7, 9-9.

### Installation of the software on your PC

Refer to "[Installation of the LAN/RS-232 Firmware Update Tool](#)" on page 42.

### Installation of the firmware on your PC

Refer to "[Installation of the Module Firmware on your PC](#)" on page 43.

### Connect your PC to the 1100/1200/1290 modules

Your PC has to be connected by RS-232 to one of the Agilent 1100/1200/1290 Series of HPLC Modules (typically the detector). All other modules of a system are connected via CAN (internal communication bus).

### RS-232 settings

The FW Update Tool uses

- Baudrate 19200 (overrides the PC settings)
- No Parity
- 8 Data Bits
- 1 Stop Bit
- COM1, COM2 etc.

The settings in the modules that hosts the RS-232 connection requires the same settings.

## Automatic Configuration with Bootp

When automatic configuration with Bootp is selected and the Firmware Updates is powered on, it broadcasts a BOOTP (Bootstrap Protocol) request that contains its MAC (hardware) address. A BOOTP server daemon searches its database for a matching MAC address, and if successful, sends the corresponding configuration parameters to the card as a BOOTP reply. These parameters become the active TCP/IP parameters immediately and the TCP/IP connection can be established.

Based on the Agilent ChemStation version there are two Bootp versions which slightly vary in the setup. Refer to

- [“Configuring the Bootp server program \(A.10.xx and below\)”](#) on page 33 or
- [“Configuring the Agilent Bootp Service \(B.01.xx and above\)”](#) on page 36.

---

### NOTE

All examples shown in this chapter will not work in your environment. You need your own IP-, Subnet-Mask- and Gateway addresses.

---

### NOTE

Assure that the LAN card configuration switch is set properly. The setting should be **Bootp**.

---

### NOTE

If the Agilent Bootp Service is not already installed on your PC, then install it from your Agilent ChemStation CD-ROM, located in folder \Bootp.

---

### NOTE

Assure that if the instrument with the LAN card connected to the network is powered off.

---

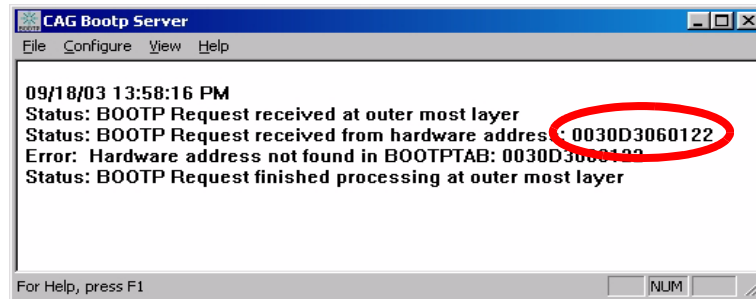


## Configuring the Bootp server program (A.10.xx and below)

- 1 The CAG Bootp Server program is placed in the start-up group and automatically is started during the boot process of the PC. It's minimized and located in the task bar.
- 2 Open the Bootp Server window by clicking on it in the task bar.
- 3 Now turn on the module with the Firmware Updates and view the Bootp Server window. After some time the Bootp Server will display the request from the Firmware Updates with the hardware (MAC) address (this information is also stored in the file trace.txt in the Bootp server directory, if Log to Disk is enabled), see [Figure 7](#) on page 33.

The MAC or hardware address of the Firmware Updates is a world wide unique identifier. No other network device will have the same hardware address.

The MAC address can be found on a label on the card or module (on-board LAN).



**Figure 7** Bootp Server

- 4 Identify your Firmware Updates by the MAC address, see [Figure 7](#).

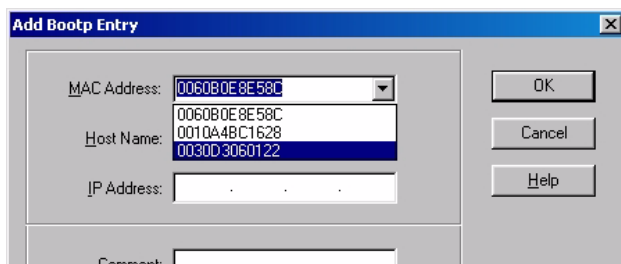
### NOTE

If you are working in a network system, you may see other LAN Interfaces appear, overwriting your Firmware Updates information periodically.

- 5 Select *Configure -> Add Entry* to configure the Bootp Manager ([Figure 9](#)). The drop down box "MAC address" lists all MAC addresses found. Select your MAC address. If no hardware address is found, select *Cancel* and repeat step 3 and step 4.

## 2 Updates via LAN/RS-232 Firmware Update Tool

### Automatic Configuration with Bootp

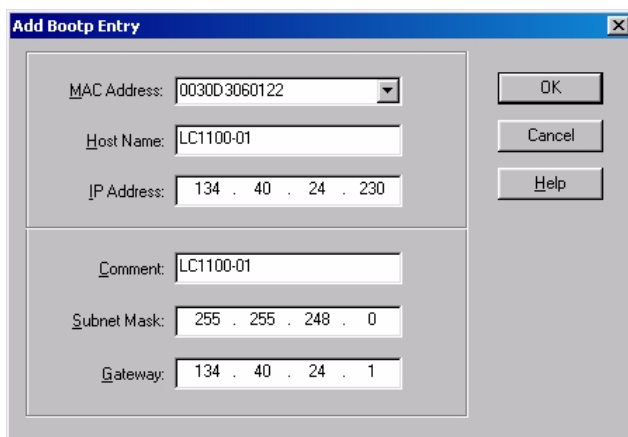


**Figure 8** Add Bootp Entry - Select the MAC address

- Specify the Host Name (LC1100-01), the IP address (134.40.24.230), the Comment (LC1100-01) and the Subnet Mask 255.255.248.0 and the Gateway (134.40.24.1).

#### NOTE

If you are working in a network system, you need your own addresses. Contact your local IT group.



**Figure 9** Add Bootp Entry - Enter your parameter

- Exit with *OK*.
- Select *Configure -> Bootp Manager*. All entries made above are shown in [Figure 10](#) on page 35.

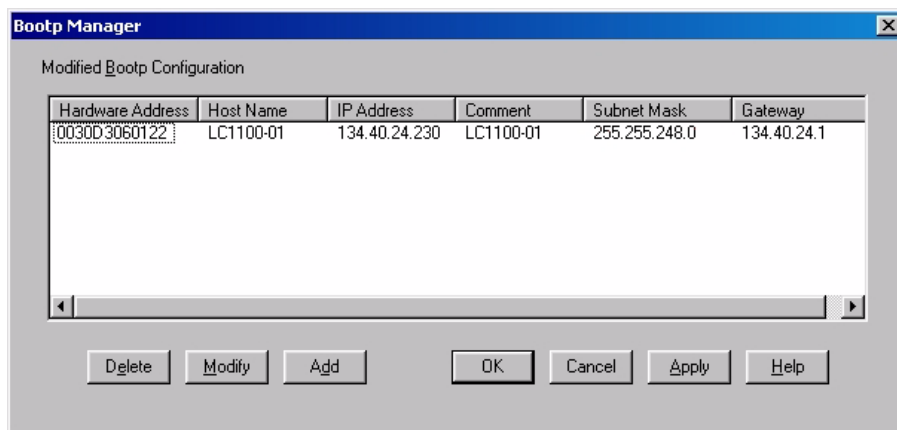


Figure 10 Bootp Manager

- 9 Press *Apply* to activate the changes.
- 10 Press *OK* to exit the Bootp Manager and power cycle the instrument with the Firmware Updates, to force it to send a new Bootp request again. This time, the MAC address will be recognized by the Bootp Server (Figure 11). It will send the configured IP address and subnet mask information which are necessary for communication to the Firmware Updates.

IP address LAN  
Interface is  
134.40.24.230  
IP address PC is  
134.40.30.184

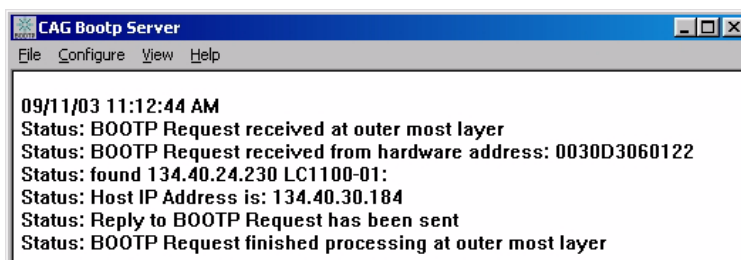


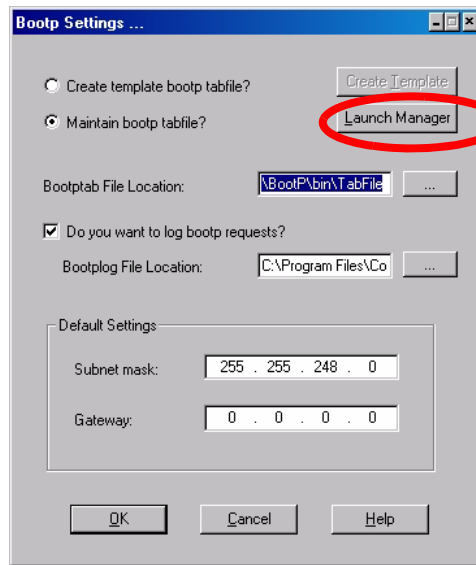
Figure 11 Bootp Server - 1100 module found

#### NOTE

When using this **Bootp** mode, the parameters are not written into the non-volatile memory of the card. If you delete this Bootp Configuration, the LAN Interface will show up as shown in Figure 7 on page 33 (**Bootp** mode).

## Configuring the Agilent Bootp Service (B.01.xx and above)

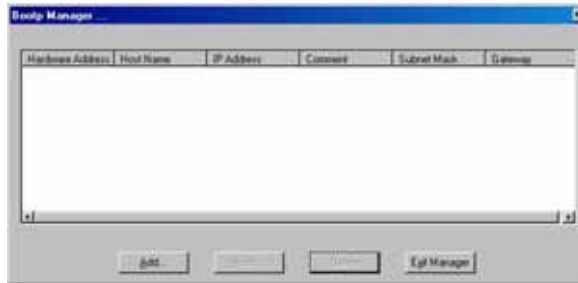
- 1 The Agilent Bootp Service is placed in the start-up group and automatically is started during the boot process of the PC.
- 2 Open the Bootp Settings window (Figure 12) and enter the default settings for your setup.



location of LogFile and TabFile

Figure 12 Bootp Service Settings

- 3 Launch the Manager. It will open the Bootp Manager screen, see [Figure 13](#). This shows all network hardware that has been added (initially empty).



**Figure 13** Bootp Manager

- 4 Select Add to enter the module specific information, see [Figure 14](#):
  - MAC address (from label on the instrument)
  - host name
  - IP dress
  - comment (instrument name / location)
  - subnet mask (if different)
  - gateway (if required)

## 2 Updates via LAN/RS-232 Firmware Update Tool

### Automatic Configuration with Bootp

Modify Bootp Entry ...

Mac Address: 0030d30a0838

Host Name: WADI1171

IP Address: 134 . 40 . 27 . 95

Comment: PP024

Subnet Mask: 255 . 255 . 248 . 0

Gateway: 0 . 0 . 0 . 0

Buttons: OK, Cancel, Help

Figure 14 Bootp Manager - Enter your parameter

- 5 Press OK. The parameter are added to the Bootp Manager, see [Figure 14](#) and added to the TabFile, see [Figure 12](#) on page 36.

Bootp Manager ...

Hardware Address	Host Name	IP Address	Comment	Subnet Mask	Gateway
0030D30A080B	NPI060187	134.40.25.220	PP024	255.255.248.0	0.0.0.0

Buttons: Add..., Modify..., Delete, Exit Manager

Figure 15 Bootp Manager - check your entries

- 6 Press Exit Manager and OK to exit the Agilent Bootp Service.
- 7 Now turn on the module with the detector, wait about 30-60 seconds and view the LogFile, see [Figure 16](#). It should display the request from the detector with the hardware (MAC) address.

```
02/03/05 16:33:56 PM
Status: BOOTP Request received at outer most layer
Status: BOOTP Request received from hardware address: 0030D30A080B
Status: found 134.40.25.220 NPI060187:
Status: Host IP Address is: 134.40.29.56
Status: Reply to BOOTP Request has been sent
Status: BOOTP Request finished processing at outer most layer
```

**Figure 16** LogFile - the detector has received the parameter

## PC and Agilent ChemStation Setup

### PC Setup for Local Configuration

This procedure describes the change of the TCP/IP settings on your PC to match the Firmware Updates default parameters in a local configuration.

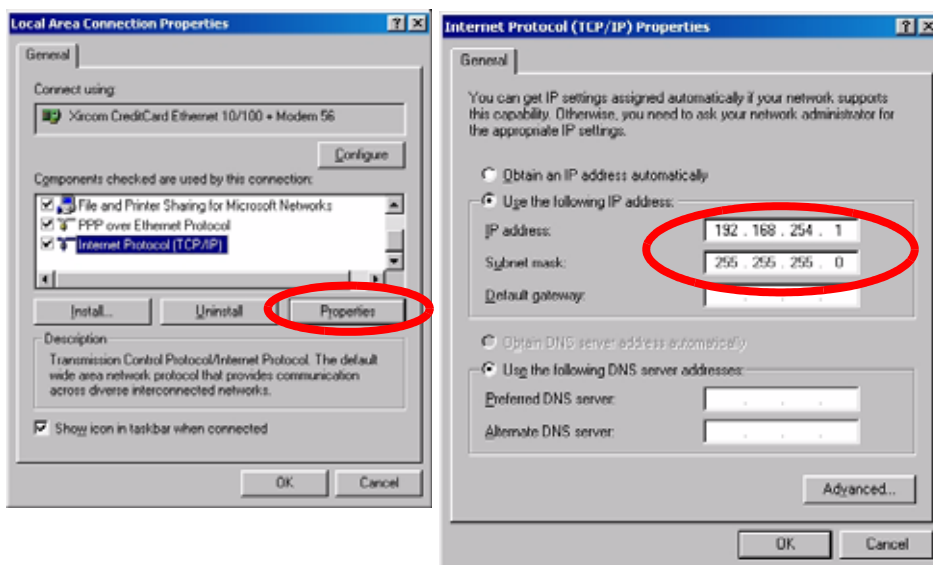


Figure 17 Changing the TCP/IP settings of the PC



## Agilent ChemStation Setup

- 1 Start the Configuration Editor of the Agilent ChemStation.

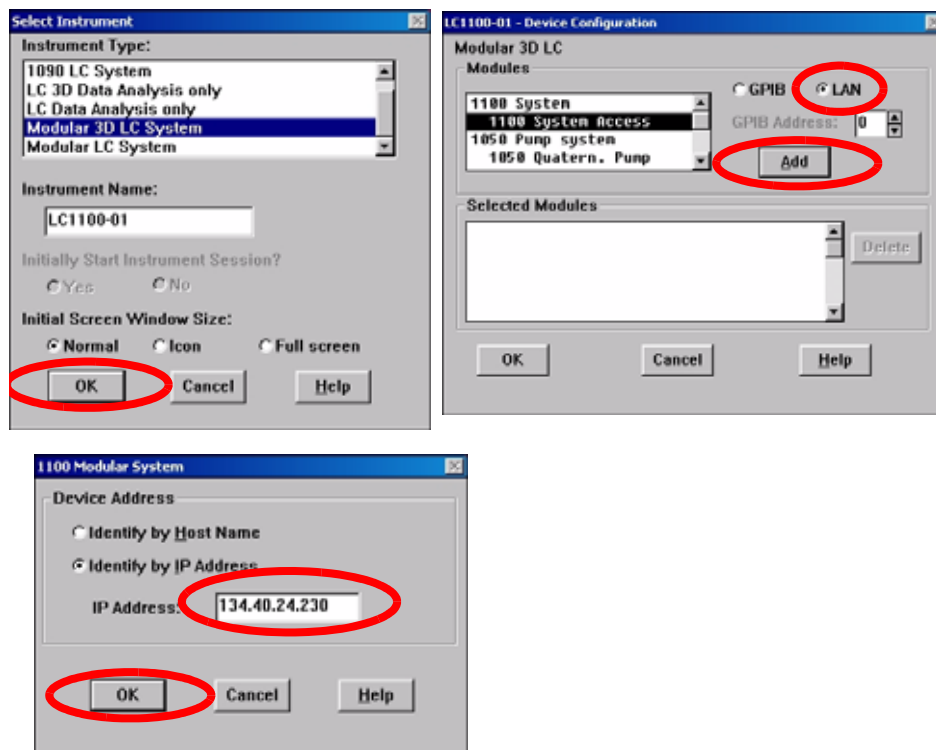


Figure 18 Changing the TCP/IP settings of the Agilent ChemStation

- 2 Add a TCP/IP connection to communicate with the Firmware Updates. Use the IP address of the Firmware Updates.

### NOTE

If using a corporate LAN, IP addresses need to be supplied by the responsible IT department. Also the LAN needs to be able to handle additional traffic.

- 3 Save the configuration, close the Configuration Editor and start the Agilent ChemStation.

## Installation of the LAN/RS-232 Firmware Update Tool

- 1 Download the LAN/RS-232 Firmware Update Tool 2.7 from the Agilent web site (see “[Updates from the Agilent Web](#)” on page 16) onto your PC.

### NOTE

Do not use older versions of the LAN/RS-232 Firmware Update Tool 2.7 as provided via the Agilent web. All versions below actual should no longer be used.

- 2 Double-click the exe-file to install the program files. Follow the instructions. The program is installed into a folder (default is C:\Program Files\Agilent\LC Firmware Update Tool). You may change this according your needs.

A Firmware Update Tool icon has been installed on your desktop and a program folder under Start - Programs (see [Figure 19](#)).

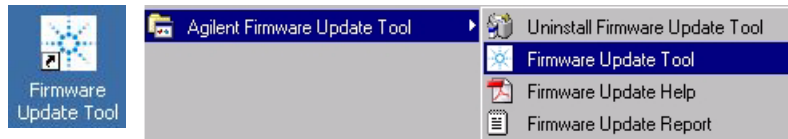


Figure 19 Icon on your desktop and the Program Folder

## How to un-install the LAN/RS-232 Firmware Update Tool

The LAN/RS-232 Firmware Update Tool 2.7 has a un-install routine. If required, remove the LAN/RS-232 Firmware Update Tool 2.7 via the “**Uninstall Firmware Update Tool**” function within the program folder, see [Figure 19](#).

## Installation of the Module Firmware on your PC

- 1 Download the 1100/1200/1290 module firmware from the Agilent web site (see [“Updates from the Agilent Web”](#) on page 16) onto your PC.
- 2 Extract the content into a folder (for example c:\Fwupgrad\lc).

### NOTE

The firmware of the Instant Pilot G4208A and Control Module G1323B should be in the same folder as the 1100/1200/1290 module firmware. This will ensure that the firmware is found for complete system updates (see additional information [“Update Durations”](#) on page 44).

## Connect your PC to the 1100/1200/1290 Modules

Your PC has to be connected by LAN (see [“Setup of the LAN/RS-232 Firmware Update Tool”](#) on page 45 or RS-232, see [“Firmware Update via RS-232”](#) on page 31, to one of the Agilent 1100/1200/1290 Series of HPLC Modules (typically the detector). All other modules of a system are connected via CAN (internal communication bus). Following setups might be possible:

- PC is connected via LAN with normal ChemStation setup
- PC is connected via LAN without a ChemStation
- PC is connected via RS-232

### NOTE

The connection via LAN requires a functional configuration with the LAN interface card (JetDirectCard) (IP address, sub-net mask, name). Required minimum firmware on the JetDirectCard is important, see [“Firmware Revision Requirements Of The LAN Cards”](#) on page 30, [“Configuring the Agilent Bootp Service \(B.01.xx and above\)”](#) on page 36, [“Configuring the Bootp server program \(A.10.xx and below\)”](#) on page 33 and [“Agilent ChemStation Setup”](#) on page 41.

### NOTE

If you cannot establish a connection via LAN to the 1100/1200/1290 modules check the settings of your firewall/anti-virus software. It might block the operation.

## Update Durations

Depending on the module (firmware size and transfer time from main to resident mode and back to main) and the used communication type, the time for the firmware upgrade will differ. Below example was measured with a 1100/1200 Diode Array Detector G1315B and different interface:

**Table 4** Examples of update times

Module to be updated Interface	DAD G1315B	Instant Pilot G4208A	Control Module G1323B
via G1323B Control Module	~ 8:00 minutes	N.A.	~ 9:00 minutes
via G4208A Instant Pilot	~ 3:00 minutes	< 4:00 minutes	N.A.
via LAN Update Tool	< 3:00 minutes	~ 8:00 minutes	> 70:00 minutes
via RS-232 Update Tool	~ 10:00 minutes	> 60:00 minutes	> 70:00 minutes

The real times depends on the firmware size of the used firmware revision.

See also “[RS-232 settings](#)” on page 31.

### NOTE

Due to the long update durations of the Control Module G1323B via LAN/RS-232, it is recommended to use this way of upgrading the firmware on overnight sessions only.

For quick updates of the Control Module G1323B use the PC-card.

## Setup of the LAN/RS-232 Firmware Update Tool

The procedure below works for LAN and RS-232 in the same way.

### NOTE

If a Chemstation is loaded, make sure to close the session before starting the Firmware Updates.

### NOTE

For LAN updates: if no fixed IP address is used (Bootp mode), then the Bootp server/service must run all the time during the firmware update. Otherwise the process will not continue when the modules transfer from main to resident and back.

- 1 Start the LAN/RS-232 Firmware Update Tool 2.7 via the shortcut, see [“Installation of the LAN/RS-232 Firmware Update Tool”](#) on page 42. [Figure 20](#) shows the initial screen.

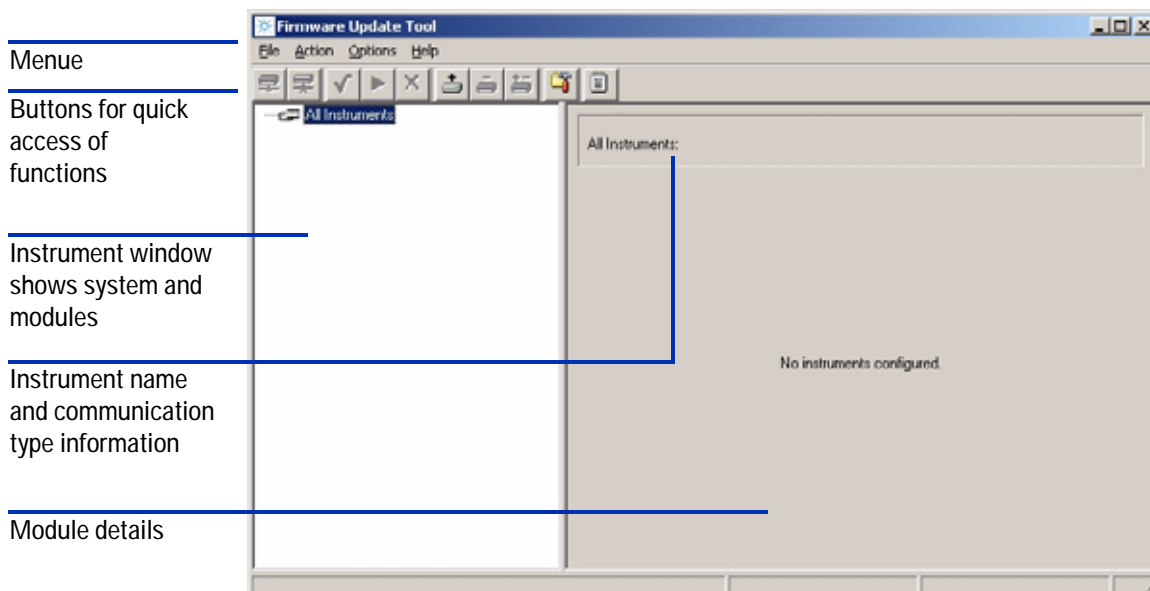


Figure 20 Start-up screen










## 2 Updates via LAN/RS-232 Firmware Update Tool

### Setup of the LAN/RS-232 Firmware Update Tool

If you move with the cursor over the buttons information is given about its function. Alternatively, you may use the menu items.

<b>File</b>	Open Protocol File - Exit
<b>Action</b>	Connect - Disconnect - Select for update - Identify module - Start/Cancel update
<b>Options</b>	Configure Directories - Add/Delete/Modify Instrument - Support G1323B (active/not active)
<b>Help</b>	Help (this document) - About (revision of program)

**Table 5** Functions of Buttons

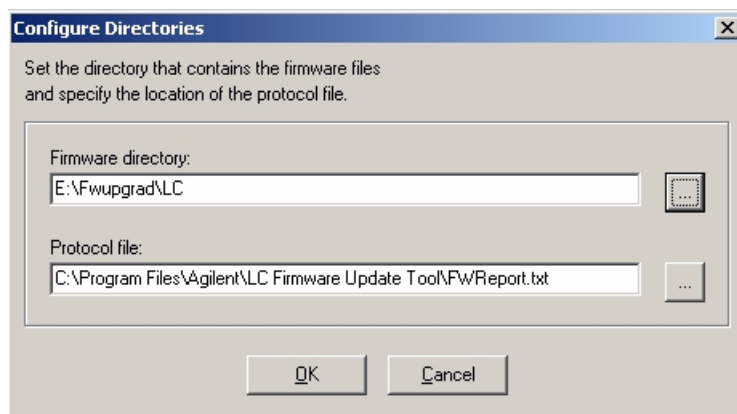
Button	Description
	Connect to module/system
	Disconnect from module/system
	Select for update of all modules of a system
	Start the update for all selected modules
	Add instrument to the list
	Delete instrument from the list
	Modify instrument (name or the connection can be changed)
	Configure directories of the firmware files and report
	Open protocol file (logbook with details of the actions made during the update)

## Configure the LAN/RS-232 Firmware Update Tool

- 1 Select the button **Configure Directories** and browse for the location of the firmware files (e.g. E:\Fwupgrad\LC).



**Figure 21** Select the button Configure Directories



**Figure 22** Configure Directories

### NOTE

The firmware files for the Control Module (G1323B) or Instant Pilot (G4208A) must be in this firmware directory as well. Otherwise these cannot be upgraded when the modules are updated (see information on [“Update Durations”](#) on page 44).

The Protocol file is a text file which gives the complete status of the firmware update process. This file is useful as a compliance document to prove that the module firmware files were updated successfully or as diagnostics information in case of problems, see [“The Log-file”](#) on page 61. Therefore, name the protocol file appropriately.

- 2 Press OK.

## 2 Updates via LAN/RS-232 Firmware Update Tool

### Setup of the LAN/RS-232 Firmware Update Tool

- 3 Select the button **Add Instrument**.

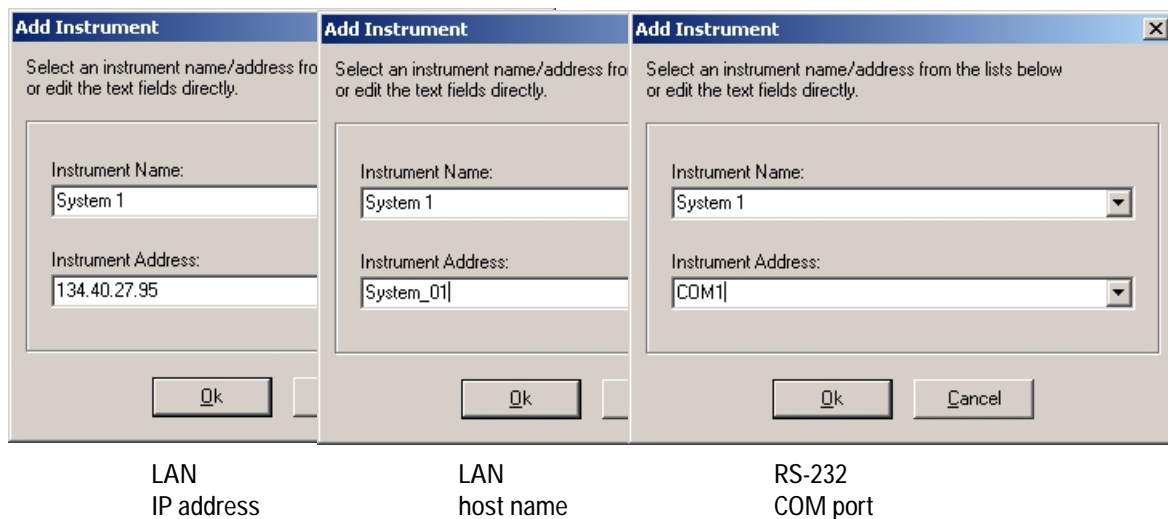


**Figure 23** Select the button Add Instrument

- 4 Enter a name for the system (e.g. System 1)
- 5 Enter the connection information, e.g. the required IP address (format xxx.xxx.xxx.xxx) or host name or COM port.

#### NOTE

If the LAN card was already set up with name and IP-address then you must use these.



**Figure 24** Add instrument screen



6 Press OK.

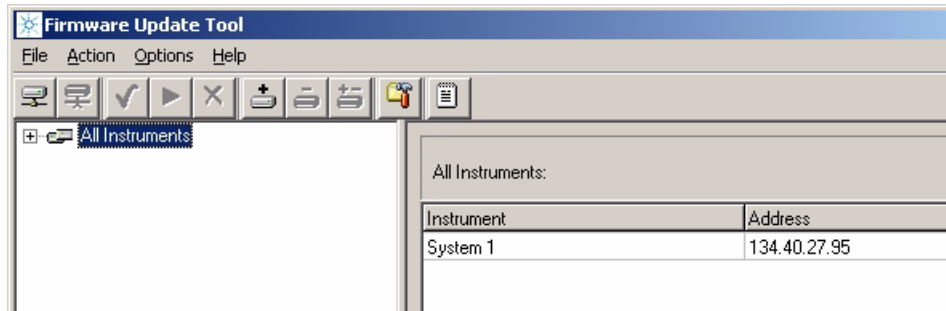


Figure 25 Add instrument screen

7 Double-click on **All Instruments** to expand the view.

8 If you want to add a G1323B Control Module, select **Options** and check **Support Control Module**. For additional information on Control Module updates see [page 44](#).

#### NOTE

The Instant Pilot G4208A shows up in the list like any other 1100/1200/1290 module.

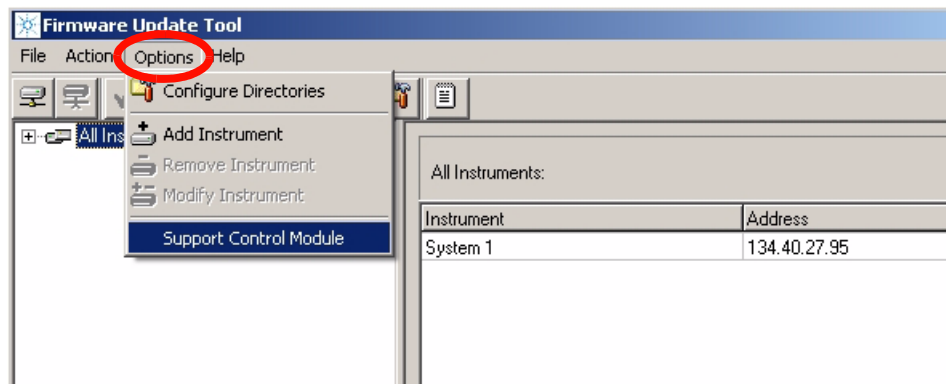


Figure 26 Adding G1323B support

2 Updates via LAN/RS-232 Firmware Update Tool  
Setup of the LAN/RS-232 Firmware Update Tool

9 Select **System 1** and click on the **Connect to Instrument** button.

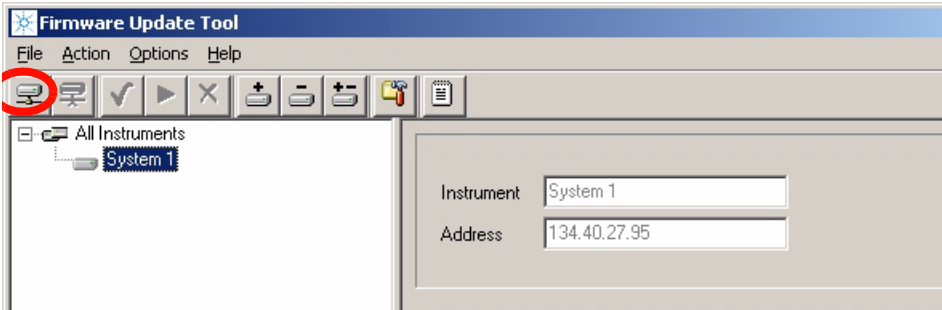


Figure 27 Select instrument 1

All modules within System 1 are listed now with serial number and firmware revision and build number.

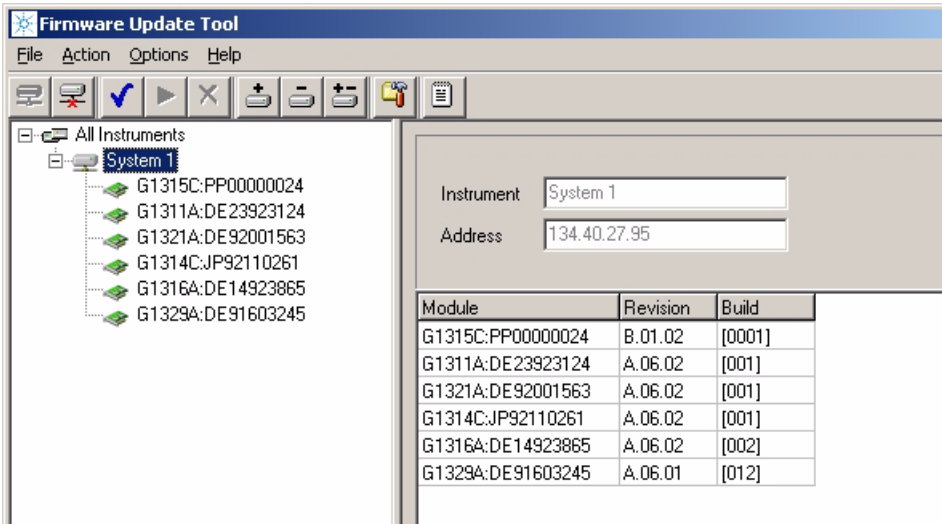


Figure 28 Modules of System 1 are listed

## Doing the Firmware Update

You have three possibilities to update.

- update each module individually (if not all need an update), see below.
- all modules together, see [“Update of a Complete System”](#) on page 57
- all systems together, see [“Update of a Complete System”](#) on page 57

### NOTE

If you want to upgrade the firmware of modules to revision A.06.xx refer to [“Firmware Update to A.06.xx”](#) on page 63 prior to start the process.

---

### NOTE

For LAN updates: if no fixed IP address is used (Bootp mode), then the Bootp server/service must run all the time during the firmware update. Otherwise the process will not continue when the modules transfer from main to resident and back.

---

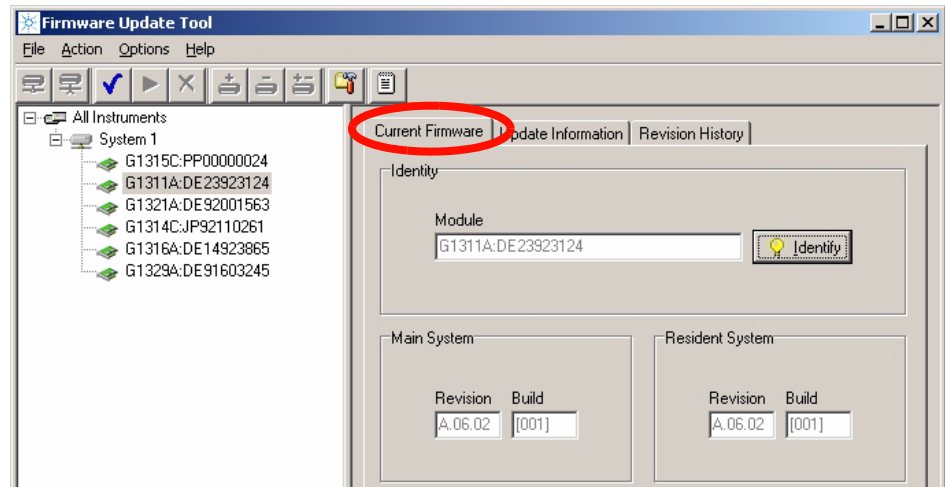
### NOTE

If you cannot establish a connection via LAN to the 1100/1200/1290 modules check the settings of your firewall/anti-virus software. It might block the operation.

---

## Individual Update of Modules

- 1 Select a module.



**Figure 29** Specific module is selected - Current Firmware Information screen

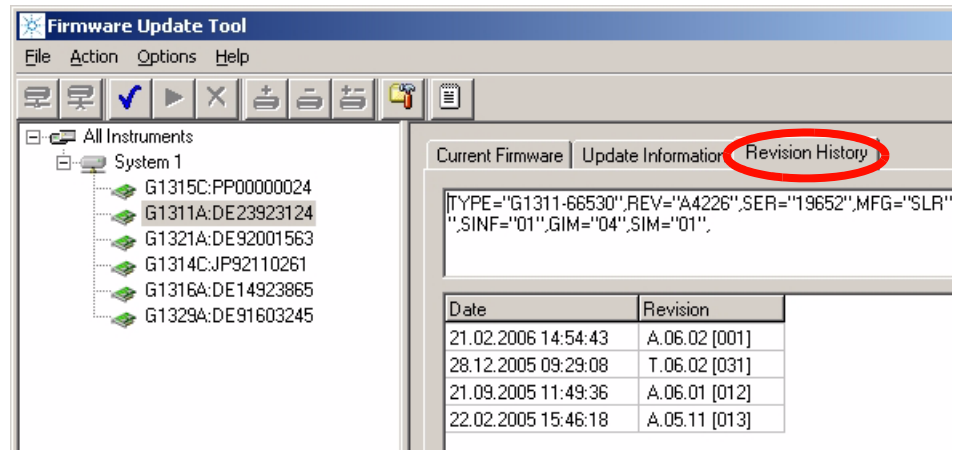
- 2 Above screen shows the current firmware information

### NOTE

The build # is shown with firmware revision 5.01 and above only. The resident revision and build # will be displayed with firmware revisions > A.05.06).

Pressing the **Identify** button will let the LED blink on the selected module (this might necessary if two modules of the same type are in the system).

- 3 Select the **Revision History** tab. This window shows details on the used main board and the update history in the module, see [Figure 30](#).



**Figure 30** Specific module is selected - Revision History Information screen

- 4 Select the **Update Information** tab. In this window you can select the firmware for the main and resident part in the module. The build # is shown with firmware revision 5.01 and above only.

**NOTE**

**Figure 31** If no firmware is listed when you click on the file selection button, correct the firmware folder locations, see [Figure 22](#) on page 47.

- 5 Activate the check boxes for the firmware. Then this firmware part is added to the update list.

## 2 Updates via LAN/RS-232 Firmware Update Tool

### Doing the Firmware Update

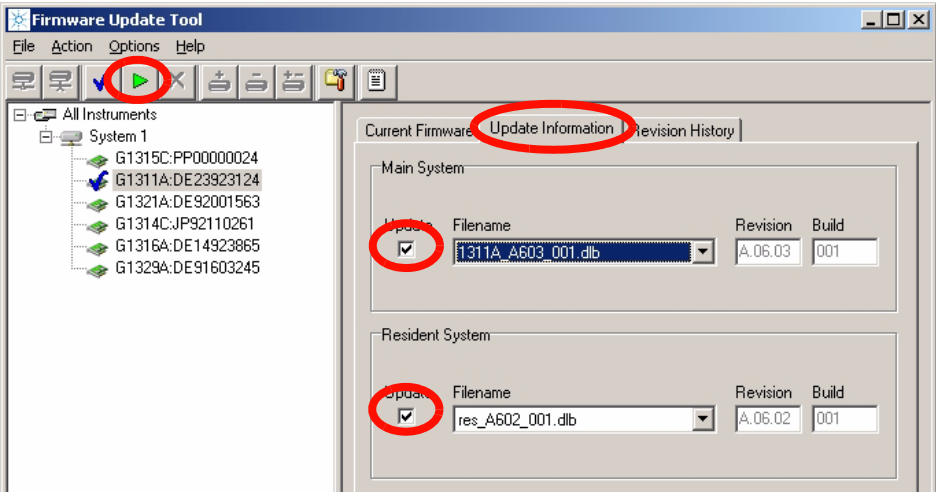


Figure 32 Update Information screen

- 6 You may select other modules in addition for multiple module update. These will be added to the update list.
- 7 Select the **Start Update** button. All selected modules will be updated (resident first - then main firmware). The update status is shown in the bottom.

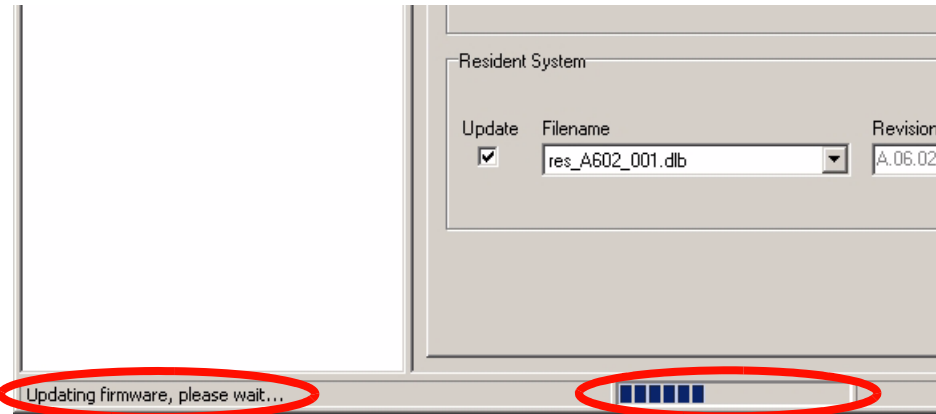


Figure 33 Update is running

**NOTE**

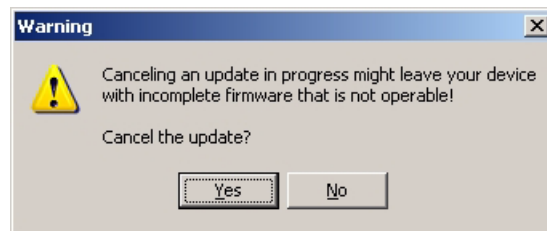
Due to the long update times (see [Table 4](#) on page 44) of the Control Module G1323B via LAN/RS-232, it is recommended to use this way of upgrading the firmware on overnight sessions only.

For quick updates of the Control Module G1323B, the PC-card should be used instead.

If a Control Module (G1323B) is part of the system, the Control Module update will be updated first as described in ["Update Sequence"](#) on page 29.

### Aborting the update process

The update process can be aborted at any state by clicking on the X-button or via the menu Options - Cancel update. A warning will pop up. Please read the information below carefully - otherwise the abortion may result into a non-usable item.



**Figure 34** Aborting the update process

**NOTE**

If you cancel an update, the module will remain in the current mode, resident or main, depending when the process was stopped. It cannot be used until the update process has been restarted. For more information see ["Main firmware update was interrupted"](#) on page 81 on page 35.

**CAUTION**

All modules that have only main firmware (e.g. G1323A/B, CAN slaves, valves) will be unusable when the update process is cancelled. They may be recovered in the factory only.

## 2 Updates via LAN/RS-232 Firmware Update Tool

### Doing the Firmware Update

#### Update has finished

At the end of the update a report is shown. The update status is either SUCCEEDED (successful) or FAILED (not successful), see [Figure 35](#). If the update failed, the Protocol file contains more information, see [“The Log-file”](#) on page 61.

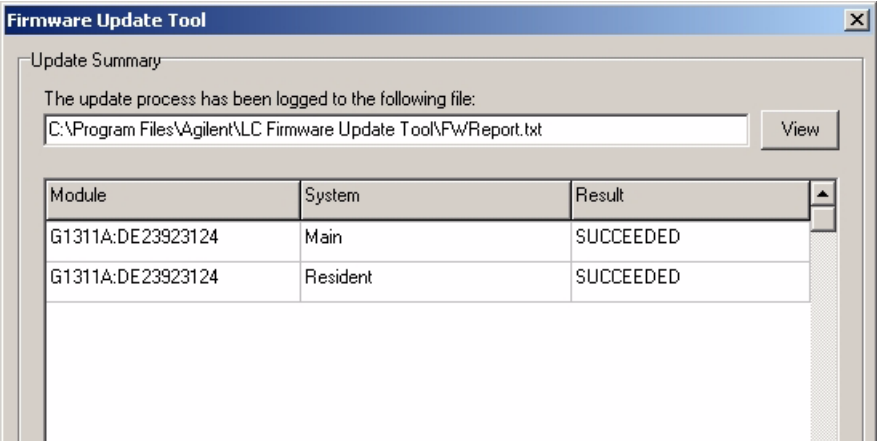


Figure 35 Report Screen

- 8 If desired, open and print the Protocol file.
- 9 Press **OK** to continue.



## Update of a Complete System

### NOTE

If you want to upgrade the firmware of modules to revision A.06.xx refer to “Firmware Update to A.06.xx” on page 63 prior to start the process.

- 1 Select a system and press the button **Select/Unselect for Update**. All modules of the selected system are added to the Update window.

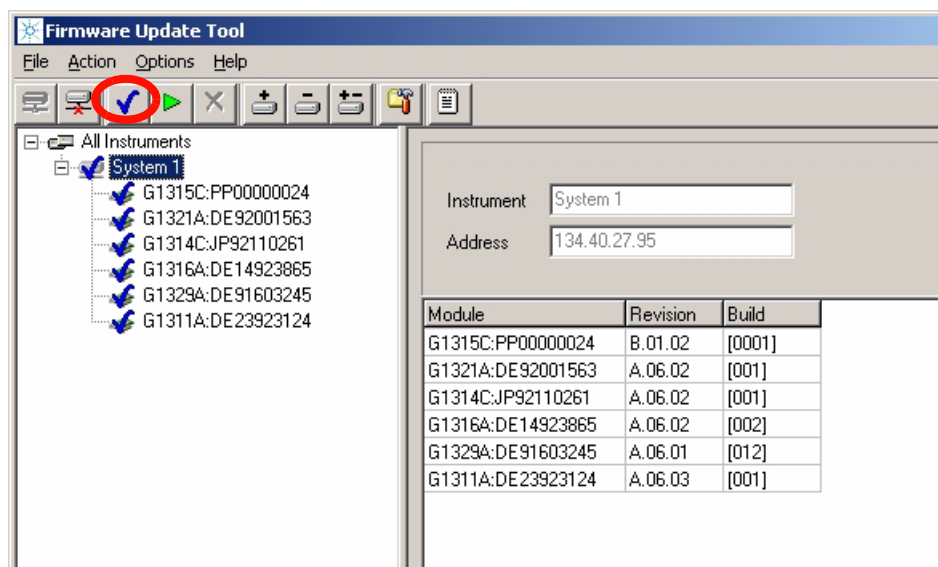


Figure 36 Complete system update

### NOTE

If you want to remove a module from the update list (e.g. the Control Module G1323B), then click on the module in the upper left window and deselect it.

Figure 37 Deselect the G1323B

- 2 Press **Start Update**. All selected modules will be updated (resident first - then main firmware).

## 2 Updates via LAN/RS-232 Firmware Update Tool

### Doing the Firmware Update

#### NOTE

Due to the long update durations of the Control Module G1323B via LAN/RS-232, it is recommended to use this way of upgrading the firmware on overnight sessions only.

For quick updates of the Control Module G1323B use the PC-card.

If a Control Module (G1323B) is part of the system, the Control Module update will be updated first as described in “Update Sequence” on page 29.

#### NOTE

If you want to abort the update process, refer to “Aborting the update process” on page 55.

If extended-can valves, or a Universal Interface Box is part of the system, these modules will be updated, one at a time, after the update of the other modules has been completed.

At the end of the update, a report is shown. The update status is either PASSED (successful) or FAILED (not successful), see [Figure 39](#). If the update failed, the Protocol file contains more information, see “[The Log-file](#)” on page 61.

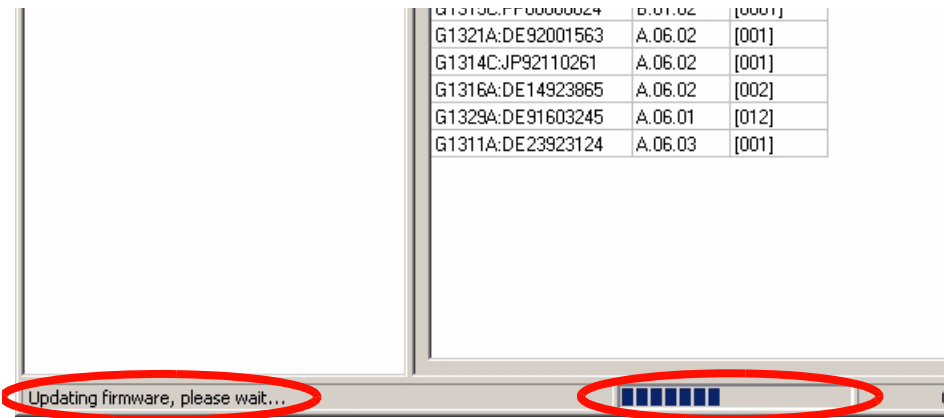
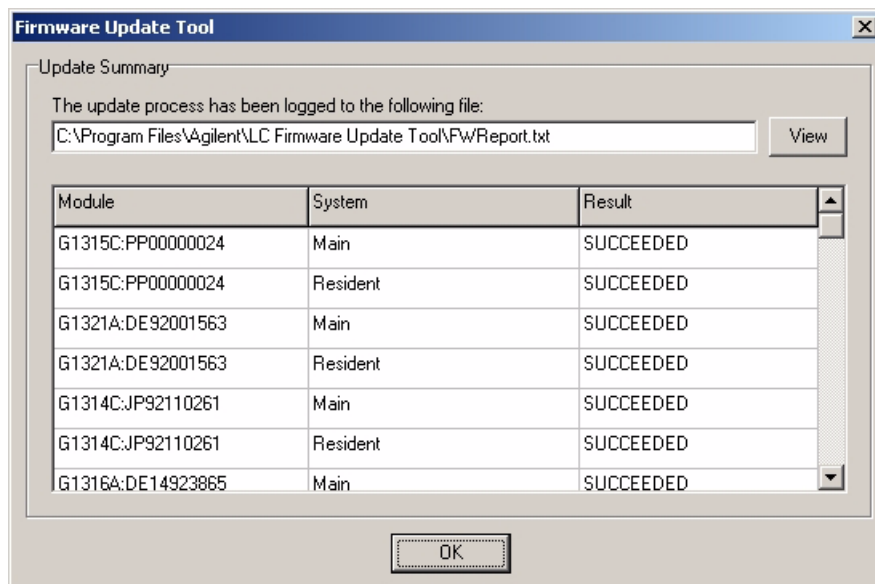


Figure 38 Update is running



**Figure 39** Report screen

- 3 If desired, open and print the Protocol file.
- 4 Press **OK** to continue.

# Update of Multiple Systems

**NOTE**

If you want to upgrade the firmware of modules to revision A.06.xx refer to “Firmware Update to A.06.xx” on page 63 prior to start the process.

- 1 Connect all systems.
- 2 Select each system and press the button **Select for Update**. All modules are added to the Update window.
- 3 Press **Start update**. All modules will be updated.

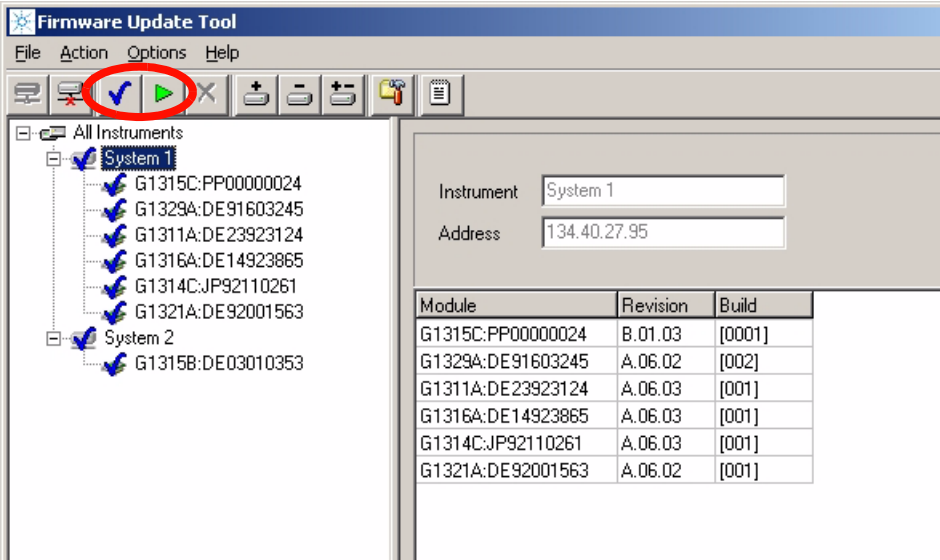


Figure 40 Multiple system update

**NOTE**

For additional information refer to the notes on [page 58](#).

## The Log-file

This file is the verification that the firmware update was completed successfully or in the case of problems, the log-file may give some specific information.

Press the button **Open Protocol File** to open report. Information can be copied/pasted into an e-mail for further help from Agilent support.



**Figure 41** Select the button Open Protocol File

The [Figure 42](#) on page 62 shows all steps during the process with time stamp.

## 2 Updates via LAN/RS-232 Firmware Update Tool

### Doing the Firmware Update

```
[16.10.2007 13:20:00]===== Start of update =====  
all connected modules in the stack are listed with their current revisions  
[16.10.2007 13:20:00]Instrument WA_LAB (G1315C - WADI1171) (wadi1171) connected:  
[16.10.2007 13:20:00]G1314A:JP92110261 (Main A.06.04 [001], Resident A.06.02 [001])  
[16.10.2007 13:20:00]G1315B:DE03010634 (Main A.06.04 [001], Resident A.06.02 [001])  
[16.10.2007 13:20:00]G1315C:DE60755000 (Main B.01.06 [0001], Resident B.01.06 [0001])*  
[16.10.2007 13:20:01]G1321A:DE92001563 (Main A.06.02 [001], Resident A.06.02 [001])  
[16.10.2007 13:20:01]G1329A:DE91603245 (Main A.06.04 [003], Resident A.06.02 [001])  
resident update starts  
[16.10.2007 13:20:02]Update of Resident firmware on G1315C:DE60755000 started (B.01.06 [0001] --> B.06.10 [1], "G:\LC\  
FIRMWARE\1100&1200FW\Versions\Set_A061x_B061x_Actual\res_B610_001.dlb")  
[16.10.2007 13:21:16]Update of Resident firmware on G1315C:DE60755000 succeeded  
after successful resident update the module transfers into resident mode for the main update  
[16.10.2007 13:21:16]Transferring G1315C:DE60755000 to resident  
[16.10.2007 13:21:24]Instrument WA_LAB (G1315C - WADI1171) (wadi1171) disconnected  
[16.10.2007 13:21:31]Instrument WA_LAB (G1315C - WADI1171) (wadi1171) connected:  
[16.10.2007 13:21:31]G1314A:JP92110261 (Main A.06.04 [001], Resident A.06.02 [001])  
[16.10.2007 13:21:31]G1315B:DE03010634 (Main A.06.04 [001], Resident A.06.02 [001])  
the updated module shows the new resident revision  
[16.10.2007 13:21:31]G1315C-R:DE60755000 (Main B.01.06 [0001], Resident B.06.10 [0001])*  
[16.10.2007 13:21:31]G1321A:DE92001563 (Main A.06.02 [001], Resident A.06.02 [001])  
[16.10.2007 13:21:32]G1329A:DE91603245 (Main A.06.04 [003], Resident A.06.02 [001])  
main update starts  
[16.10.2007 13:21:32]Update of Main firmware on G1315C-R:DE60755000 started (B.01.06 [0001] --> B.06.10 [3], "G:\LC\  
FIRMWARE\1100&1200FW\Versions\Set_A061x_B061x_Actual\1315C_B610_003.dlb")  
[16.10.2007 13:23:15]Update of Main firmware on G1315C-R:DE60755000 succeeded  
after successful main update the module transfers into main mode  
[16.10.2007 13:23:15]Transferring G1315C-R:DE60755000 to main  
[16.10.2007 13:23:22]Instrument WA_LAB (G1315C - WADI1171) (wadi1171) disconnected  
[16.10.2007 13:23:41]Instrument WA_LAB (G1315C - WADI1171) (wadi1171) connected:  
[16.10.2007 13:23:41]G1314A:JP92110261 (Main A.06.04 [001], Resident A.06.02 [001])  
[16.10.2007 13:23:41]G1315B:DE03010634 (Main A.06.04 [001], Resident A.06.02 [001])  
the updated module shows the new main/resident revision  
[16.10.2007 13:23:41]G1315C:DE60755000 (Main B.06.10 [0003], Resident B.06.10 [0001])*  
[16.10.2007 13:23:41]G1321A:DE92001563 (Main A.06.02 [001], Resident A.06.02 [001])  
[16.10.2007 13:23:41]G1329A:DE91603245 (Main A.06.04 [003], Resident A.06.02 [001])
```

**Figure 42** Example of log-file with successful update of a single module in a stack (new format with version 2.5 and above)

## Firmware Update to A.06.xx

For special instructions refer to

- [“Firmware Upgrade to A.06.01”](#) on page 65 or , [“Firmware Upgrade to A.06.02”](#) on page 67 or [“1100/1200 Series Compatibility and Emulation Mode”](#) on page 68 or [“Recovering”](#) on page 77.

### NOTE

It's recommended to use always the latest firmware release to have latest features and bug fixes included. All modules must have the same revision (e.g. A.05.11/12, A.06.01 or A.06.02/05), see also [“Revision Numbering”](#) on page 12 and [“Compatibility Matrix”](#) on page 18.

**Table 6** Compatibility Matrix

Module	A.05.xx	A.06.01	A.06.02/05 B.01.02/06	A.06.1x/B.06.1x
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)	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

## 2 Updates via LAN/RS-232 Firmware Update Tool

### Firmware Update to A.06.xx

**Table 6** Compatibility Matrix

Module	A.05.xx	A.06.01	A.06.02/05 B.01.02/06	A.06.1x/B.06.1x
G4240 Chip Cube (A.06.01 and above)	N	Y	Y	Y
1290 Infinity LC system	N	N	N	Y
• G4212A DAD (B.06.23 and above)				
• G4220A BinPump (B.06.23 and above)				
• G4226A ALS (A.06.14 and above)				
• G1316C (A.06.14 and above)				
• G4208A Instant Pilot (B.02.08 and above)				

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

\*\* 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.

#### NOTE

The firmware set A.06.1x/B.06.1x has not been tested together with older versions. See “Revision Numbering” on page 12 for more information.



## Firmware Upgrade to A.06.01

With the introduction of the new 1100 series modules

- G1315C DAD,
- G1365C MWD,
- G4240A HPLC-Chip Cube

in June 2005, the firmware code was changed to address the new main board platform. Therefore the revision A.06.01 was created to communicate with these new products. This revision is not compatible with all previous revisions. All modules in a system must be upgraded to A.06.01 prior to the connection to modules with A.06.01, or the A.06.01 modules must be downgraded to A.05.xx prior to the connection to these modules.

The information below should be used when updating to firmware revision A.06.01 (from revision A.05.xx and below).

### NOTE

If you do not follow these instructions, you may lose the communication to a module. In this case follow the instruction [“Recovering”](#) on page 77.

- Use only LAN/RS-232 Firmware Update Tool 2.7 or above to ensure correct order of update sequence, especially on systems with CAN slaves (CAN-valves, UIB or automation interface) included.
- If a G1315C DAD or G1365C MWD (initial firmware B.01.01) is added to an existing system with firmware A.05.xx and below, first all modules with firmware A.05.xx and below must be upgraded to A.06.01 (the G1315C/G1365C not connected during the update).
- Upgrade a G1323B Control Module to revision B.04.02 together with the modules that are updated to A.06.01. This will ensure that the Control Module recognizes old and new firmware modules. See also information on [“Update Sequence”](#) on page 29, [“Update Durations”](#) on page 44 and [Figure 26](#) on page 49.

## 2 Updates via LAN/RS-232 Firmware Update Tool

### Firmware Update to A.06.xx

#### NOTE

If those modules that need to be upgraded to A.06.xx do not have a LAN interface, then a

- LAN interface (see [“Firmware Update via LAN”](#) on page 30) or
- serial cable (see [“RS-232 Cable requirement”](#) on page 31) or
- a Control Module G1323B

is required.

---

## Firmware Upgrade to A.06.02

In March 2006, the Agilent 1200 series was introduced with firmware revision A.06.02. **This revision is not compatible with all previous revisions.** All modules in a system must be upgraded to A.06.02 prior to the connection to modules with A.06.02, or the A.06.02 modules must be downgraded to A.06.01 or A.05xx prior to the connection to these modules.

[Table 6](#) on page 63 shows the compatibility impact. See also [“Revision Numbering”](#) on page 12 and [“Compatibility Matrix”](#) on page 18.

The information below should be used when updating to firmware revision A.06.02 (from revision A.06.01 or A.05.xx and below).

### NOTE

If you do not follow these instructions, you may lose the communication to a module. In this case follow the instruction [“Recovering”](#) on page 77.

- Use only LAN/RS-232 Firmware Update Tool 2.7 or above to ensure correct order of update sequence, especially on systems with CAN slaves (CAN-valves, UIB or automation interface) included.
- If a G1315C DAD or G1365C MWD (initial firmware B.01.02) is added to an existing system with firmware A.05.xx and below, first all modules with firmware A.05.xx and below must be upgraded to A.06.02 (the G1315C/G1365C not connected during the update).
- Upgrade a G1323B Control Module to revision B.04.02 together with the modules that are updated to A.06.02. This will ensure that the Control Module recognizes old and new firmware modules. See also information on [“Update Sequence”](#) on page 29, [“Update Durations”](#) on page 44 and [Figure 26](#) on page 49.

### NOTE

If those modules that need to be upgraded to A.06.xx do not have a LAN interface, then a

- LAN interface (see [“Firmware Update via LAN”](#) on page 30) or
- serial cable (see [“RS-232 Cable requirement”](#) on page 31) or
- a Control Module G1323B

is required.

## 1100/1200 Series Compatibility and Emulation Mode

### Introduction

In February 2006, Agilent Technologies released the 1200 Series platform of LC systems and modules. The 1200 Series with more than 60 individual modules replaces the 1100 Series LC.

Since its introduction in 1995, the application range of the 1100 Series LC has been continuously extended. Currently it comprises modules ranging from nanoflow LC and HPLC-Chip/MS for highest sensitivity at flow rates as low as 100 nl/min to preparative LC for compound purification at flow rates up to 100 ml/min.

The new 1200 Series extends the capabilities even further with new LC modules for rapid resolution LC, enhanced performance of standard modules, design changes, and new support capabilities.

To protect the 1100 Series LC investment, the 1200 Series LC modules are fully backwards-compatible. In the 1100 Emulation Mode individual 1200 Series modules can be added to 1100 Series LC systems or complete 1200 Series LC systems can be operated with existing Agilent and third-party control software. In addition single 1200 Series SL modules for rapid resolution liquid chromatography can be added to 1100 Series systems to increase the performance step-by-step.

The information below will describe the compatibility of the Agilent 1100 and 1200 Series LC platforms and the 1100 Series Emulation Mode to integrate new modules into existing LC systems without software and firmware upgrade

## Firmware Compatibility Matrix

Refer to the compatibility information “[Compatibility Matrix](#)” on page 18 for the new 1200 series vs. 1100 series FW and the Agilent ChemStation.

### Adding a 1200 Series module to an 1100 Series LC system

All new 1200 Series modules will be delivered with firmware revision A.06.02 and higher (G1315C DAD SL and G1365C MWD SL are delivered with firmware B.01.02 or above). These firmware revisions are compatible with

- ChemStation Rev. B.02.01
- ChemStation Rev. B.01.03 Service Release 1
- EZChrom Elite 3.1.7
- Cerity Pharma A.02.03 Service Release 2
- MS TOF Software A.02.01

The G1315D DAD and G1365D MWD are delivered with firmware B.01.04 or above and are compatible with

- ChemStation Rev. B.02.01 SR2 (Nov 2006)
- ChemStation Rev. B.01.03 SR1 + patch (Nov/Dec 2006)
- EZChrom Elite 3.1.7 Option CD 17 (Oct 2006)
- Cerity Pharma A.02.03 SR2 plus patch (Nov 2006)
- MS TOF Software A.02.01  
Picard: TOF MH A.02.02 (Jan 2007)  
QTOF & QQQ: MH B.01.02 (Feb 2007)  
(only support of DAD, no support of MWD)
- OpenLab ICM Option CD 3 for OL 3.3.1 (Oct 2006)

Agilent Technologies recommends upgrading the instrument control software to one of those revisions and the firmware of all 1100 Series modules to revision A.06.02 (B.01.02). In this case all 1100 and 1200 Series modules are fully compatible and all features of the new 1200 Series module are available.

#### **Emulation Mode for 1200 Series standard modules**

If a firmware and software upgrade is not feasible, all 1200 Series modules can be operated in the 1100 Series "Emulation Mode". In this mode the firmware of the 1200 Series module can be downgraded to any 1100 Series firmware revision. Then it can be controlled by older Agilent control software revisions and by third-party software, which doesn't support the 1200 Series LC modules with firmware A.06.02 and higher.

In the "Emulation Mode" the 1200 Series modules are operated as 1100 Series instrument with the features that are supported by the currently loaded firmware revision and the control software. All previous firmware and software incompatibilities still apply and all LC modules must have the same firmware revision installed.

## Emulation Mode for 1200 modules with new product numbers

The Agilent 1200 Series LC platform comprises several modules with new product numbers:

- G1312B 1200 Series Binary Pump SL
- G1314B 1200 Series Variable Wavelength Detector
- G1314C 1200 Series Variable Wavelength Detector SL
- G1316B 1200 Series Thermostatted Column Compartment SL
- G1329B 1200 Series Autosampler SL
- G1367B 1200 Series High Performance Autosampler
- G1367C 1200 Series High Performance Autosampler SL
- G1367D 1200 Series High Performance Autosampler SL+

These LC modules cannot be controlled by older Agilent control software and third-party software. However all of these modules can be operated in the 1100 Series Emulation Mode with older firmware revisions as described above. In addition the module has to be converted to a "TYPE", that will be recognized by the installed control software.

For example 16-bit ChemStation revision A.10.02 and many third party software packages will not recognize the variable wavelength detector SL G1314C that offers a data acquisition rate of 55 Hz. To control this detector with 16-bit ChemStation revision A.10.02, it has to be converted to the G1314A using the LAN/RS-232 Firmware Update Tool 2.7 or above. To convert the module (see also [“How to change the Type of a Module”](#) on page 74):

The ChemStation will recognize this detector as G1314A in the Emulation Mode, however it will operate with slower data acquisition rate. At any time this detector can be converted back to a G1314C and controlled with software, that support the data rate of 55 Hz and all new 1200 Series features.

To convert the G1312B binary pump SL, new firmware sets for the G1312B have been created

- 1312B\_A601 for the A.06.01 release or
- 1312B\_A512 for the A.05.11/12 release or
- 1312B\_A510 for the A.05.08/10 release or
- 1312B\_A501 for the A.05.01/03 release

### NOTE

When downgrading to 1312B\_A601 or 1312B\_A512 or 1312B\_A510 or 1312B\_A501 the corresponding resident firmware (res\_601 or res\_A511 or res\_A508 or res\_A501) must be installed. Otherwise the interface protocols do not match.

---

The Emulation Mode has been fully tested with Agilent software and based on this we would not expect issues with third-party software.

### Scenario A

**Situation:** I have an 1100 Series LC system with binary pump, manual injector, thermostatted column compartment and variable wavelength detector (all firmware A.05.06) running with ChemStation A.10.01. Now I want to automate my system. Can I add a new 1200 Series standard autosampler? Do I have to upgrade the ChemStation Software?

**Solution:** In general all 1200 Series Modules can be added to an existing 1100 Series LC system. In this case there are two possible solutions:

- 1 If the ChemStation can be upgraded to B.02.01 and the firmware to A.06.02, the system can be used including all features of the new 1200 Series autosampler (illumination).
- 2 In the Emulation Mode the 1200 Series autosampler can be added to this system with ChemStation A.10.01. In this case its firmware must be downgraded to A.05.06. All modules should have the same firmware revision loaded. New features (e.g. Illumination of the sample compartment) are not available.

### Scenario B

**Situation:** I have an 1100 Series LC system with isocratic pump, autosampler, thermostatted column compartment and variable wavelength detector (all firmware A.05.09) running with ChemStation A.10.02. I want to integrate a binary pump for gradient applications. Can I add the new 1200 Series binary pump SL G1312B now and upgrade the ChemStation software later?

**Solution:** The binary pump SL will not be recognized by ChemStation Rev. A.10.02, but in the Emulation Mode this pump can be added to that system.



- 1 Downgrade the firmware to Rev. A.05.09 (G1312B)
- 2 Convert the Type of the pump from G1312B to G1312A using the LAN/RS-232 Firmware Update Tool 2.7 or above

#### NOTE

The downgrade of the new 1200 SL pump differs from the other new 1200 modules (G1314B/C VWD, G1316B TCC and G1367B/C ALS). The steps are reversed.

---

In this case the 1200 Series pump can be controlled with the current ChemStation and G1312A feature set. In the future the system can be upgraded for rapid resolution LC with ChemStation A.02.01 and additional hardware.

#### Scenario C

**Situation:** I am working in a regulated laboratory with several 1100 Series LC systems and a non-Agilent data system. Now I need an additional LC system with binary pump G1312A, standard autosampler G1329A, thermostatted column compartment G1316A and variable wavelength detector G1314B.

Can I add a new 1200 Series LC system with these modules to my third-party software? My version supports Agilent 1100 Series firmware Rev. A.05.11.

**Solution:** The non-Agilent software will not yet recognize the VWD G1314B. But in the "Emulation Mode" this detector can be added to that system.

- 1 Convert the Type of the detector from G1314B to G1314A using the LAN/RS-232 Firmware Update Tool 2.7 or above.
- 2 Downgrade the firmware of all modules to Rev. A.05.11.

#### NOTE

The downgrade of the new 1200 SL pump differs from the other new 1200 modules (G1314B/C VWD, G1316B TCC G1329B ALS and G1367B/C ALS). The steps are reversed.

---

In this case the 1200 Series LC system is operated with the feature set of non-Agilent control software.

### How to change the Type of a Module

- 1 Start LAN/RS-232 Firmware Update Tool 2.7.
- 2 Connect to Instrument.
- 3 Right-Click on Module in the Instrument Tree.
- 4 Select Convert to G13xyz (only permitted conversions are displayed).
- 5 Downgrade the firmware of the module.

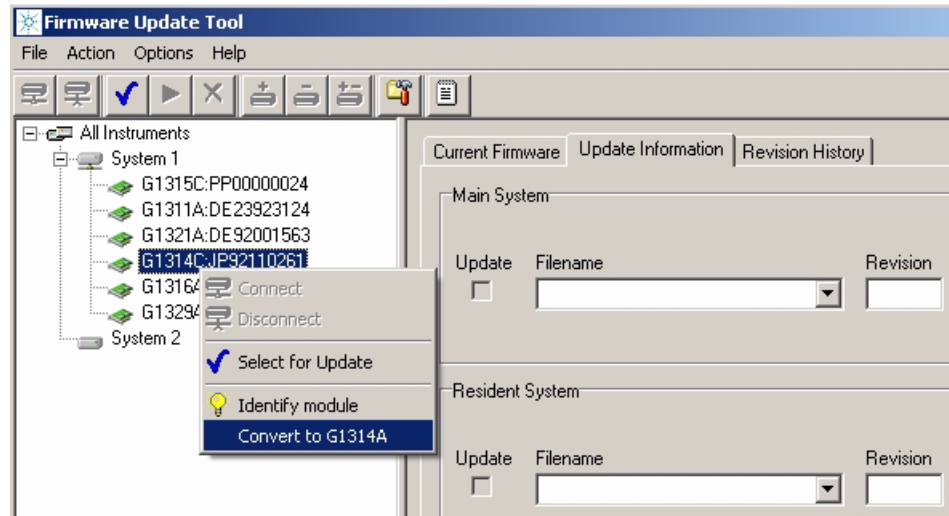


Figure 43 Retyping a G1314C to G1314A

If you have to "downgrade" a 1200 system with G1312B, G1314B/C, G1316B, G1329B and G1367B/C, do the following steps using the LAN/RS-232 Firmware Update Tool 2.7 or above:

- 1 Rename G1314, G1316, G1329 and G1367 to "A".
- 2 Downgrade the firmware of G1312, G1314, G1316, G1329 and G1367.
- 3 Rename G1312B to G1312A.

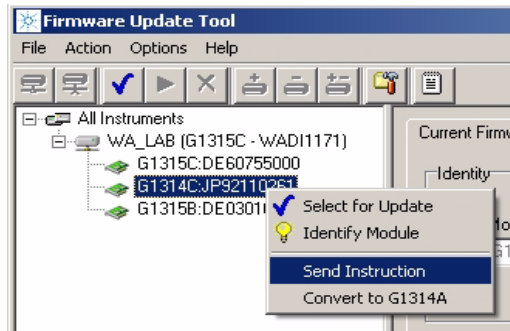
Upgrade is done in the normal way:

- 1 Rename all modules to B/C.
- 2 Upgrade the firmware of all modules to A.06.02 or above.

## Instruction Window

With LAN/RS-232 Firmware Update Tool 2.7 an instruction window has been added. This allows to send specific instructions to the module to gather specific information (e.g. the module type or the board information).

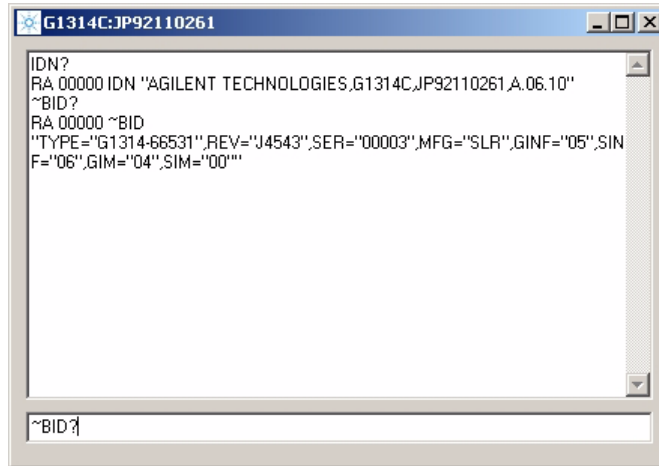
- 1 Open the LAN/RS-232 Firmware Update Tool 2.7 and connect to the system.
- 2 Right-click on the module of interest and select “Send Instruction”.



- 3 Type into the bottom line the provided command and press Enter.

## 2 Updates via LAN/RS-232 Firmware Update Tool

### Instruction Window



4 The text from the reply window can be copied and pasted into a mail for reporting update issues (e.g. if a module does not accept the firmware).

This instruction window can be used like the ChemStation print sendmodule\$ command, but without the surrounding text.

#### Example

ChemStation	print sendmodule\$(lpmp,"type?")
LAN/RS-232 FW Update Tool	TYPE?

#### Useful Commands

IDN?	returns the module information (type, serial number and firmware revision)
~BID?	returns the board information (part number, revision, special settings from board vendor)
TYPE?	returns the product number, e.g. G1314C
BOOT:XFER	boots module in opposite mode
BOOT:RSET	Forces processor to restart code execution at beginning of resident/main system

## Recovering

In case of power fail or LAN/RS-232 cable disconnected during the update to revision A.06xx, one or more modules will no longer visible in the system! It does not communicate with the modules that have A.06.xx firmware.

### Module has LAN or RS-232 communication

If the module has LAN (slot for LAN interface) or RS-232 communication you have to

- 1 Power off all modules.
- 2 Add the LAN/RS-232 communication to the module that is no longer visible.
- 3 Turn this module on.
- 4 Start the firmware update to A.06.xx for this module.
- 5 Power off the module.
- 6 Re-install the LAN/RS-232 communication to the detector (DAD, MWD, FLD, VWD) or, if not available, to pump or autosampler (this order).
- 7 Turn all modules on for normal operation.

### Module has no LAN communication

If the module has no LAN communication (e.g. G1316A TCC) you have to

- 1 Power off all modules except the module that hosts the LAN/RS-232 communication.
- 2 Downgrade this module to firmware A.05xx (resident and main).
- 3 Turn the missing module on.
- 4 Start the firmware update to A.06.xx for both modules.
- 5 Turn all modules on for normal operation.

## Updating the Instant Pilot

The Instant Pilot G4208A is updated like any other 1100/1200/1290 modules with the LAN/RS-232 Firmware Update Tool 2.7 when using firmware revisions A.06.xx/B.01.xx for the modules and B.01.xx for the Instant Pilot.

If you want to downgrade an Instant Pilot to revision A.05.1x (to be compatible with modules that have A.05.09/10 or A.05.11/12 firmware installed), then follow the instructions in [“Update Information for A.05.1x Firmware”](#) on page 104.

## Recovering

In case of power fail or LAN/RS-232 cable disconnected during the update for the Instant Pilot, the firmware may not completely updated (main or resident). In this case the display may be dark and the LED is blinking.

In this case the LAN/RS-232 Firmware Update Tool 2.7 shows the Instant Pilot either in resident mode (-R) or main mode (similar to [“Main firmware update was interrupted”](#) on page 81). Redo the firmware update again for both the main and resident (for all B.xx versions).

If this happens during the downgrade to A.05.xx, then you just need to redo the main update. The firmware A.05.1x has no resident part.

If the Instant Pilot is not shown, check whether the modules may be on different firmware sets (A.05.xx vs. A.06.xx/B.01.xx/B.06.xx). Then use one module with the Instant Pilot’s target firmware to establish communication.

## Solving Problems

### Firmware files are not shown

Configure directories correctly, see [“Configure the LAN/RS-232 Firmware Update Tool”](#) on page 47. This must be done with no connection to the modules/system.

### Help file cannot be opened

In case the Firmware Update Tool’s help could not be open, use the browser to select the correct folder, see [“Configure the LAN/RS-232 Firmware Update Tool”](#) on page 47.

### No connection to modules

If no connection to the modules is possible, check

- correct RS-232 settings (see [page 31](#))
- correct IP address, host name or COM port added (see [page 48](#))
- Bootp service is correctly installed (see [page 36](#))
- HP JetDirect card firmware, see (see [page 30](#))
- Firewall or Anti-Virus programs may block the tool (see [page 83](#))

## Update process does not continue

In case the update process stays for a few minutes at the end of the update of the resident firmware without turning into the resident mode (see Figure 45 on page 34), required for the main firmware update, then click on **Cancel Update** and then **OK**. If the system/modules are still available (shown in the instrument window and the update window as resident module by product number - R (e.g. G1365B-R:), then click in **Start Update** to continue.

If this is not possible, then

- close the Firmware Update Tool,
- re-boot the modules,
- restart the Firmware Update Tool and
- restart the update.

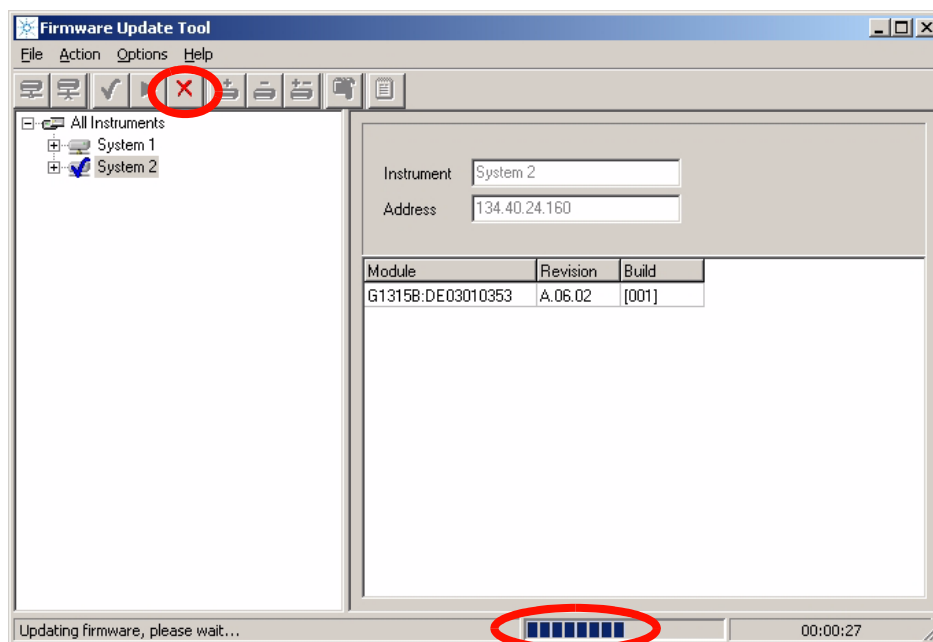


Figure 44 If update does not continue



## Main firmware update was interrupted

If the update of the module's main firmware was interrupted, the module will remain in the 'resident' mode (the mode for the main firmware update) and is blinking. A warning pops up.

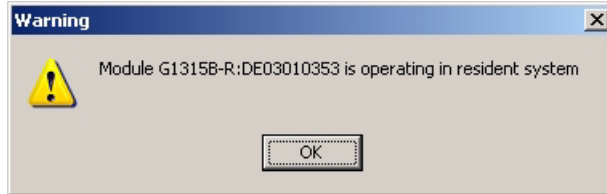


Figure 45 Warning

Press **OK** and select the module which is in resident mode (can be identified by product number - R (e.g. G1315B-R:)) and select the firmware and restart the update.

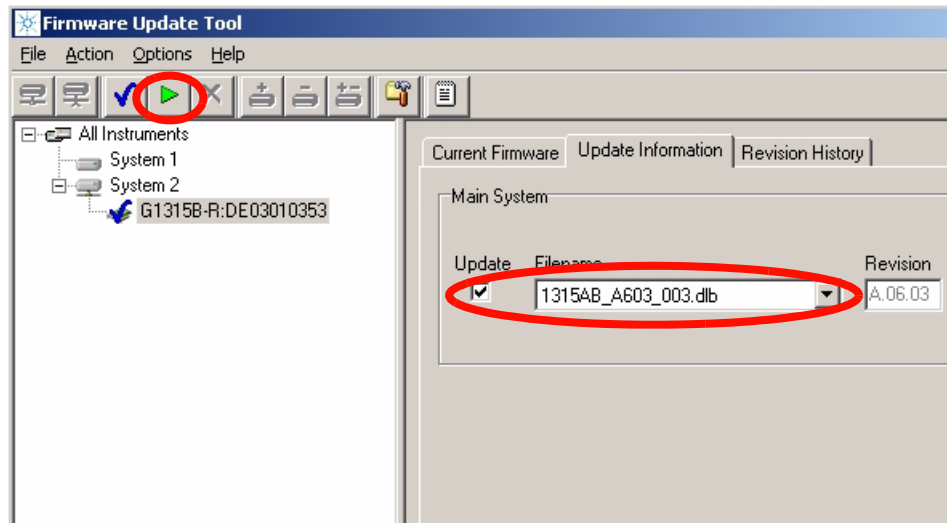


Figure 46 Restart the update

## Lost Connection to Module

If the update fails via LAN cross-over cable due to “lost connection to module” and the module remains in resident mode (flashing status LED), the process is interrupted.

In this situation check your LAN setup, see [“PC and Agilent ChemStation Setup”](#) on page 40.

Do not use a configuration like below. It uses the Default-IP address of the (192.168.254.11) of the module with the LAN-access. This setup does not work stable.

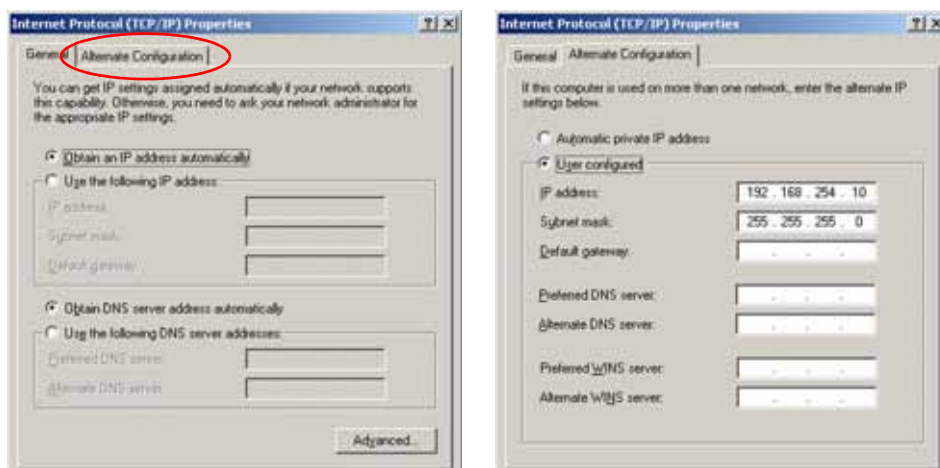


Figure 47 Problematic LAN Setup

## The RS-232 Update is So Slow

Yes, the serial (RS-232) communication protocol is very slow compared to LAN communication. Therefore the LAN communication is the recommended communication protocol for firmware updates. See also [“Update Durations”](#) on page 44.

## Multiple System Updates Not Possible

With a single user licence or using the Instrument Utilities, only a single system can be updated.

## Instant Pilot Screen Is Dark After Firmware Update

If the Instant Pilot's screen stays dark after a firmware update while the LED is green, the Instant Pilot

- has started its screen saver function - press a key to re-activate the display.
- or
- has booted in resident mode. In this mode just a basic system is loaded without the graphics drivers. Start the LAN/RS-232 Firmware Update Tool 2.7 and update the main firmware again. There is no other way to install the main firmware in this mode! See [“Recovering”](#) on page 78.

## Instant Pilot Update Does Not Finish

When updating an Instant Pilot G4208A that is included in a system with G1315C DAD/G1365C MWD and G1316 TCC, the update may fail during update of resident or main firmware. If this happens,

- turn off the G1316 TCC
- perform the update of the Instant Pilot G4208A
- turn on the G1316 TCC.

This problem is caused by the initial A.06.02 firmware of the G1316 TCC and will be solved in the next firmware release of the G1316 TCC.

## Firewall or Anti-Virus Programs may Block the Tool

If you get connect problems to the modules, please check your Firewall or Anti-Virus program setup. It might block the LAN/RS-232 Firmware Update Tool 2.7.

## Update of Firmware for MS hardware

After upgrading ChemStation software (e.g. to revision A10.01) the software complains that the MS firmware needs a newer version.

In this case open your \HPCHEM\MS\firmware\ folder and execute the MSUPDATE.EXE. This will open a telnet session and start the update of the MS.

For this update the MS has to be connected to the ChemStation.

## Agilent Contact

In case you encounter another problem with this Firmware Update Tool, feel free to send an e-mail with your findings via the Agilent firmware download page, see [“Updates from the Agilent Web”](#) on page 16 or contact a local Agilent Representative. Attach your logfile and details of your system, revision and errors.



### 3

## Updates via LabAdvisor / Instrument Utilities

General Information [86](#)

Pre-requisites [87](#)

Setup of LabAdvisor Software [88](#)

Firmware Update [91](#)

This chapter describes the use of the Agilent LabAdvisor / Instrument Utilities for firmware updates on the Agilent 1100/1200/1290 Series of modules.



**Agilent Technologies**

## General Information

With the introduction of the Agilent LabAdvisor Software / Instrument Utilities B.01.03 in July 2009, the firmware of the Agilent 1100/1200/1290 Series modules can be updated by these softwares as well.

### Instrument Utilities

The Instrument Utilities (bundled into any 1200/1290 pump) provides basic access to the Agilent 1100/1200/1290 Series modules for maintenance and tests. This includes firmware updates.

### LabAdvisor Software

The LabAdvisor Software (bundled into any 1200/1290 pump, when ordered) provides basic/extended access to the Agilent 1100/1200/1290 Series modules for maintenance and tests and diagnostics (depending on the licence). This includes firmware updates.

#### NOTE

Both, the Agilent LabAdvisor Software and Instrument Utilities will show up as "Agilent LabAdvisor" after installation. The difference is in the access level of functions.

Therefore, this chapter will use the term "LabAdvisor" only.

---

## Pre-requisites

- functional installation of either the Instrument Utilities or the LabAdvisor Software.
- the PC has a LAN or RS-232 connection to the Agilent 1100/1200/1290 Series stack (usually the detector), see also [“Firmware Update via LAN”](#) on page 30 or [“Firmware Update via RS-232”](#) on page 31.

### NOTE

The use of LAN is recommended because it provides faster communication and therefore faster updates, especially for larger systems and multiple system updates.

The RS-232 is simple to use and requires no special configuration.

---

## Setup of LabAdvisor Software

- 1 Start the **Agilent Instrument Utilities** or the **Agilent LabAdvisor Software** (during the installation of the software a “Agilent Instrument Utilities” or “Agilent LabAdvisor Software” icon has been placed on the PC’s desktop).
- 2 The below screen should appear (if no instrument has been set up before). The **Lab at a Glance** screen is empty.

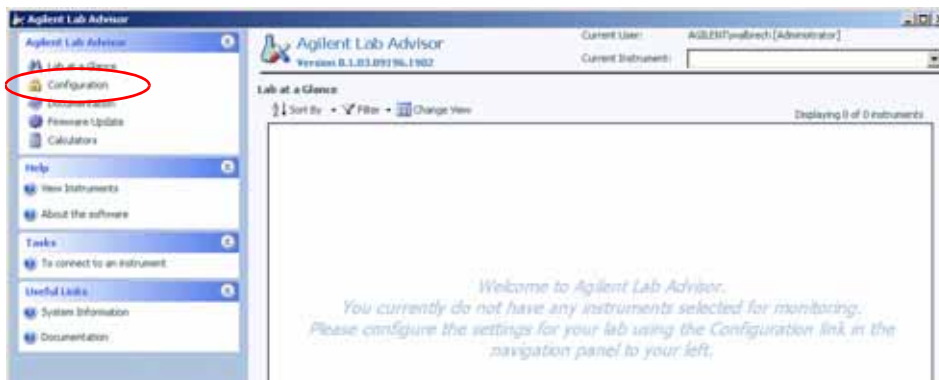


Figure 48 Entry Screen

- 3 Via **Configuration** and **Instruments** you will enter the section **Configure Instruments** to add a new system, use the tab **Manually Add Instrument**.

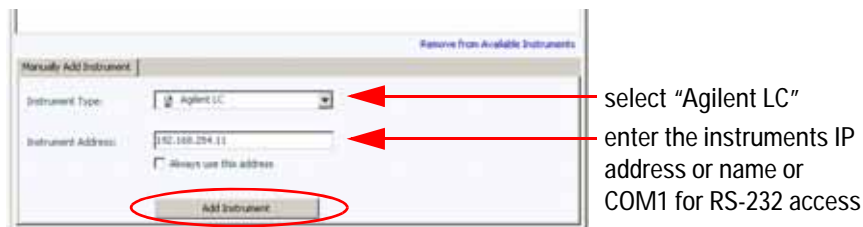


Figure 49 Adding a new instrument



- 4 Click on **Add Instrument**. The new system is listed now in the Configuration Instrument screen.

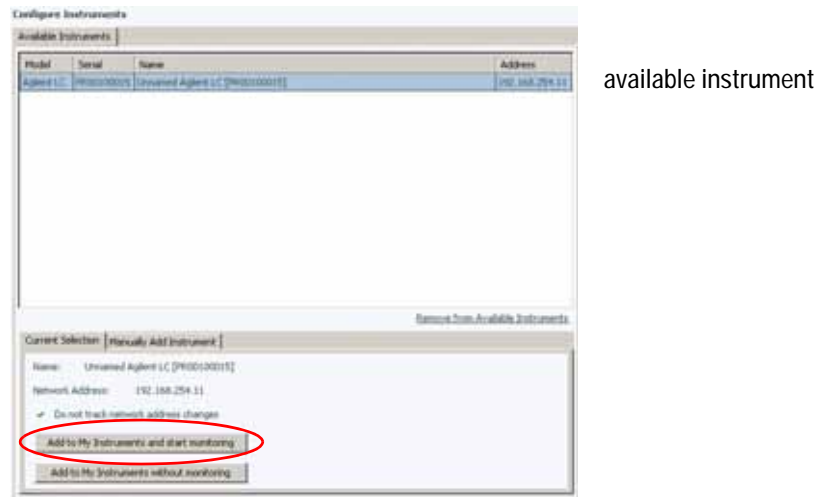
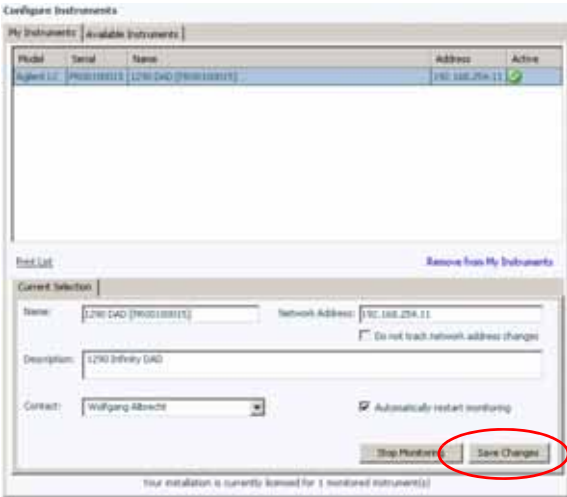


Figure 50 New instrument is listed

- 5 Click on **Add to My Instruments and start monitoring**. The new system is listed now as “active” in the Configuration Instrument screen.

### 3 Updates via LabAdvisor / Instrument Utilities

#### Setup of LabAdvisor Software



available instrument - active

you may change the name and/or the description of the system

select "Automatically restart monitoring"

Figure 51 New instrument is active

- 6 Click on **Save Changes**. The new system configuration has been saved. Close the **Configure Instrument** screen.

The **Lab at a Glance** screen shows now the new system.

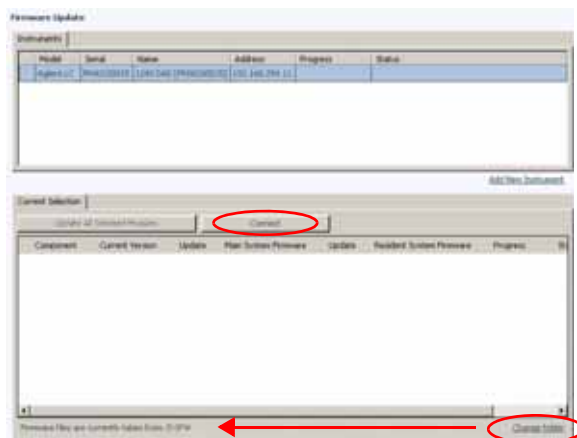


Figure 52 Lab at a Glance screen shows now the new system

- 7 Click on **Firmware Update**.

## Firmware Update

The **Firmware Update** screen shows the available instrument(s).



**Figure 53** Firmware Update screen

- 1 Click on **Change Folder** to change to the location of the firmware files.

### NOTE

All firmware files for all modules should be in the same folder. The program will remember this folder for the next updates.

3 Updates via LabAdvisor / Instrument Utilities  
Firmware Update

2 Click on **Connect** to open a connection to the system.

the connection to  
the system is active

here all modules of  
the system are  
listed with current  
firmware version  
(main/resident)

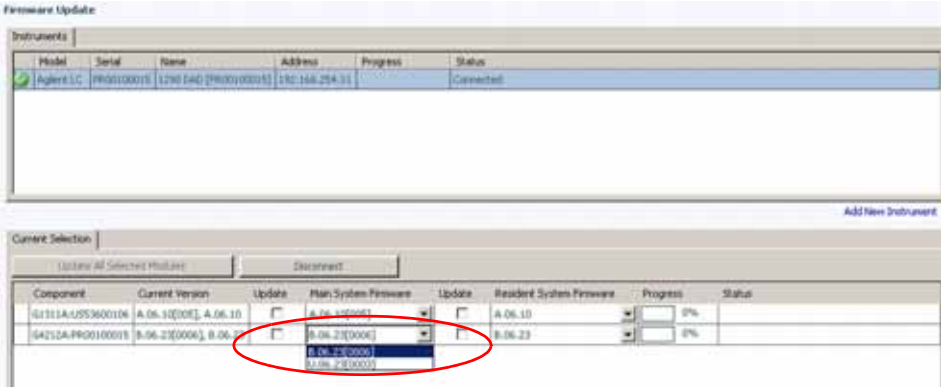


Figure 54 Firmware Update screen

3 Select the required firmware (main and/or resident).

NOTE

All module firmware of the system should be from the same "compatible set". Refer to "Compatibility Matrix" on page 18.

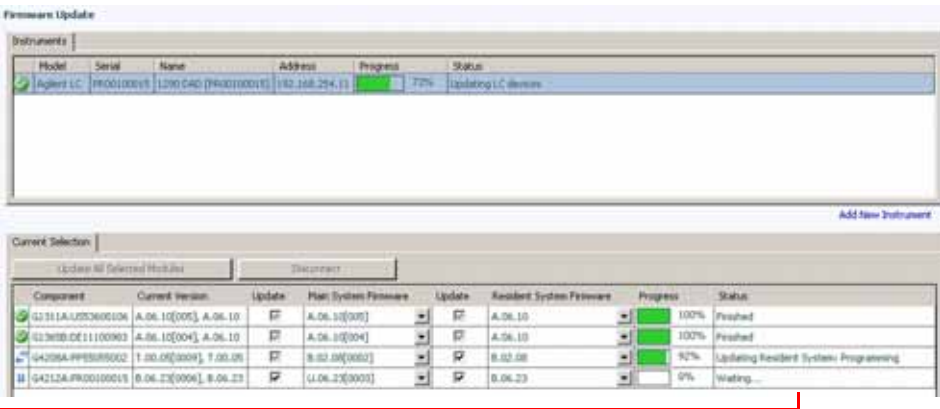
If more than one revision of a module firmware is in the folder, you can select via the drop box the required firmware revision.

You may unselect main and/or resident of a module, if update is not required.

4 Click on **Update All Selected Modules** to start the firmware update.

Update Sequence

- The module with the LAN/RS-232 access transfers into resident mode.
- Then the other modules in the list
  - update the resident firmware (if no main update is selected) or
  - transfer to resident mode,
  - update the main firmware (parallel),
  - transfer back to main mode and
  - update the resident firmware (parallel).
- Finally the module with the LAN/RS-232 access
  - update the main firmware (if required),
  - transfer back to main mode and
  - update the resident firmware (if required).



The status column shows the actual activity

Figure 55 Firmware Update - in progress

NOTE

During the update of the main firmware, the display of the Instant Pilot G4208A is black. DO NOT unplug the Instant Pilot during the complete update process.

3 Updates via LabAdvisor / Instrument Utilities  
Firmware Update

Firmware Update

Instruments

Model	Serial	Name	Address	Progress	Status
	Agilent 1C	0000000015	1290 CAD [P000100015]	192.168.254.15	Finished

Add New Instrument

Current Selection

Update All Selected Modules

Disconnect

Component	Current Version	Update	Main System Firmware	Update	Resident System Firmware	Progress	Status	
	G1311A-0052000108	A.06.10[005], A.06.10		A.06.10[005]		A.06.10		100% Finished
	G1365B-DE11100983	A.06.10[004], A.06.10		A.06.10[004]		A.06.10		100% Finished
	G4308A-PP05070002	B.02.08[0002], B.02.08		B.02.08[0002]		B.02.08		100% Finished
	G4212A-P000100015	U.06.23[0001], B.06.23		U.06.23[0001]		B.06.23		100% Finished

Figure 56 Firmware Update - finished successful

In case of problems during the update process, see “Solving Problems” on page 79.



## 4

# Updates via Instant Pilot (G4208A)

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This chapter describes the firmware updates of the Agilent Instant Pilot G4208A and the Agilent 1100/1200/1290 series of modules via the Instant Pilot G4208A.



## General Information

- The G4208A Instant Pilot firmware can be updated from a USB Flash Drive or with the LAN/RS-232 Firmware Update Tool 2.7 (“[Updates via LAN/RS-232 Firmware Update Tool](#)” on page 27).
- The G4208A Instant Pilot with firmware B.02.08 can update Agilent 1100/1200/1290 Series modules with firmware A.06.1x or B.06.1x and above, see “[Compatibility Matrix](#)” on page 19.
- The G4208A Instant Pilot with firmware B.01.xx and B.02.xx can update Agilent 1100/1200 modules with firmware A.06.02 or B.01.02 and above, see “[Compatibility Matrix](#)” on page 19.
- The G4208A Instant Pilot with firmware A.05.1X can update Agilent 1100/1200 modules with firmware A.05.xx , see “[Compatibility Matrix](#)” on page 19.

### NOTE

DO NOT interrupt the update process. Otherwise the Control Module cannot be used anymore. See “[Recovering](#)” on page 78. If recover is not possible please contact your Agilent Technologies support provider for help.

---

### NOTE

During the firmware update the Instant Pilot has booted in resident mode (to update the main firmware). In this mode just a basic system is loaded without the graphics drivers. After update and reboot into the main mode the screen is back.

---



## Prerequisites

- Agilent Instant G4208A connected to a Agilent 1100/1200/1290 Series series HPLC module
- USB Flash Drive (Agilent part number G4208-68700).
- firmware files from the Agilent web, see [“Updates from the Agilent Web”](#) on page 16.

### NOTE

Since USB-memory sticks may vary from vendor to vendor or from type to type, incompatibilities can occur. In general, USB-memory sticks from Sandisk and Kingston should work. The USB-memory sticks must be FAT-16 formatted and without encryption. Use Agilent USB-Memory Stick Kit G4208-68700.

### NOTE

In case the USB Flash Disk is not recognized by the Instant Pilot, use the operating system of your PC (Windows XP) to re-format the USB Flash Disk. Use as File System FAT (NOT FAT32).

## Update Sequence

Using the Agilent Instant Pilot G4208A, the system is updated in the following order (the Instant Pilot takes care for this order):

### 1 Update of the Instant Pilot

The Instant Pilot can also be updated as described under [“Updates via LAN/RS-232 Firmware Update Tool”](#) on page 27.

- 2 CAN slaves (CAN-valves, UIB or automation interface) (only main firmware)
- 3 all resident firmware
- 4 transfer of all modules into resident mode
- 5 all module main firmware
- 6 transfer of all modules into main mode.

The firmware of Agilent HPLC modules or the Instant Pilot can be updated using the Instant Pilot and a USB Flash Drive that holds the firmware files in the root directory.

**Table 7**    Firmware Update Tools

Module	Update via	Instant Pilot G4208A	LAN/RS-232 Firmware Update Tool 2.7 and a PC with LAN or RS-232 Agilent LabAdvisor Software B.01.03
Instant Pilot G4208A		USB Flash Drive	via the HPLC system plus CAN
HPLC Modules		USB Flash Drive plus CAN	requires LAN / RS-232 plus CAN

The installation of older firmware might be necessary:

- to keep all systems on the same (validated) revision, or
- if third-party control software requires a special version.

To upgrade/downgrade the firmware,

- 1 Download the firmware and the documentation from the Agilent web (see [“Updates from the Agilent Web”](#) on page 16).

**NOTE**

The use of the LAN/RS-232 Firmware Update Tool 2.7 is also possible, see [Table 7](#). It is also available via the above-mentioned Agilent web.

**NOTE**

If the Instant Pilot is in **“Backward compatible mode ON”**, see [“Coexecution with 3rd Party Control Software”](#) in the Instant Pilot’s User Manual, it will not be seen by the LAN/RS-232 Firmware Update Tool 2.7. In this case reconfigure the Instant Pilot to **“Backward compatible mode OFF”**.

**NOTE**

If the Instant Pilot’s main firmware update failed, the Instant Pilot’s screen stays dark (green LED is on). Refer to [“Instant Pilot Screen Is Dark During/After Firmware Update”](#) on page 111.

- 2 Load the firmware into the module(s) as described in “[Updating the Firmware Using The Single Mode](#)” on page 100 or “[Updating the Firmware Using The Wizard](#)” on page 102.

# Updating the Firmware Using The Single Mode

NOTE

Only one firmware revision (set) should be stored on the USB Flash Drive. If more than one firmware version for a module is available, the Instant Pilot always takes the most recent firmware version. In this case, delete those versions not required or move them into folder.

CAUTION

Do not disconnect the Instant Pilot or the USB Flash Drive while a firmware update is running. Otherwise the module may become unusable.

To open the Maintenance - System information, press **More** from the Welcome screen and select **Maintenance**.

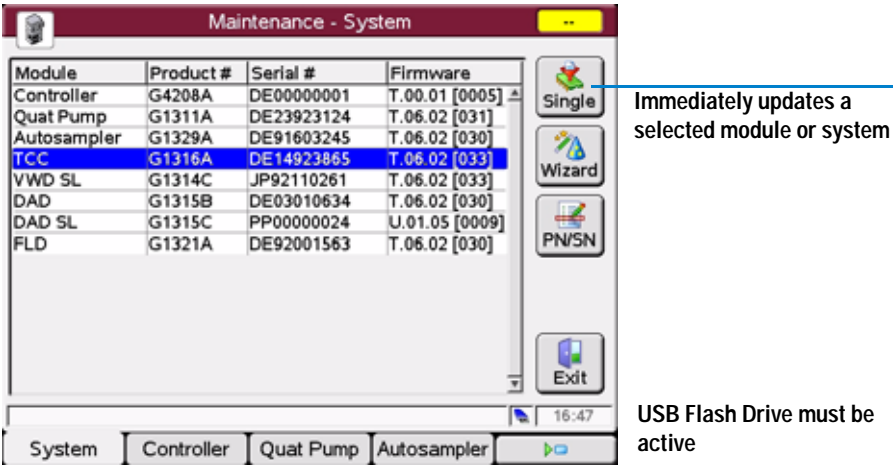


Figure 57 Firmware Update Screen - Simple Mode

- 1 Move the cursor to the module you want to update.
- 2 Press **Single**.

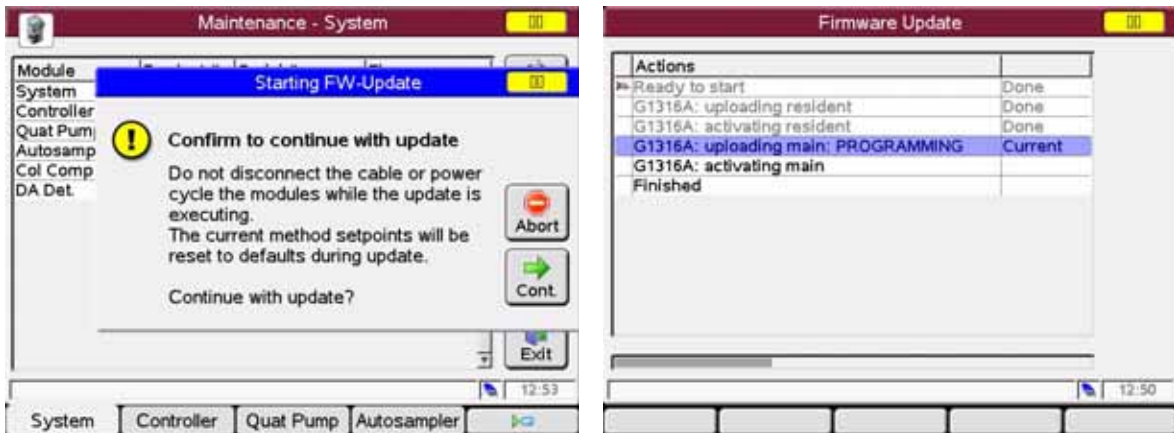
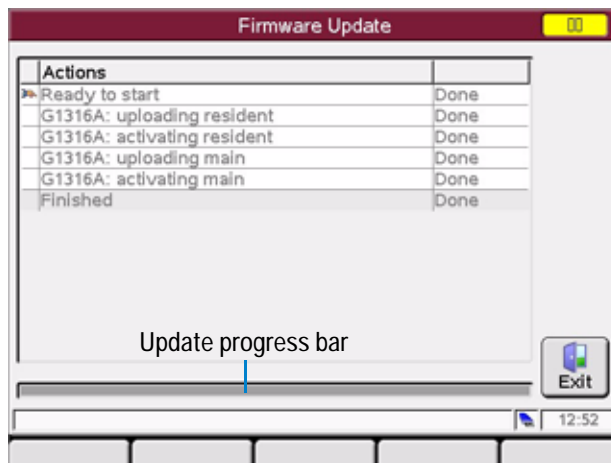


Figure 58 Firmware Update Screen - Ready for Update

- 3 Press **Cont.** button to confirm, and **Cont.** start the update or **Cancel** to exit this screen.

The actions and the progress is shown.



Update Information

When finished, press Exit.

Figure 59 Firmware Update Screen - Update has completed

In the case of an error, refer to “[Errors During Firmware Updates](#)” on page 111.

# Updating the Firmware Using The Wizard

NOTE

Only one firmware revision (set) should be stored on the USB Flash Drive. If more than one firmware version for a module is available, the Instant Pilot will always take the most recent firmware version. In this case, delete those versions not required.

CAUTION

Do not disconnect the Instant Pilot or the USB Flash Drive while a firmware update is running. Otherwise the module may become unusable.

To open the Maintenance - System information, press **More** from the Welcome screen and select **Maintenance**.

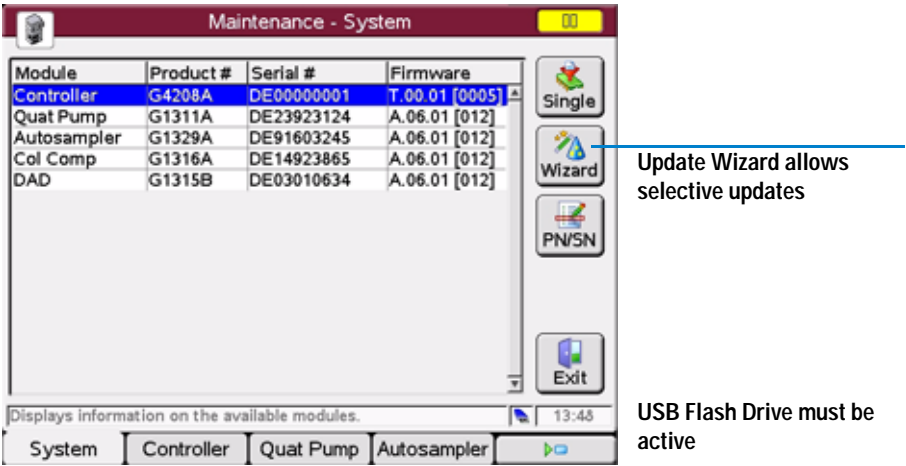


Figure 60 Firmware Update Screen - Update Wizard

The **Update Wizard** allows you to define the modules to be updated. This screen also shows the installed firmware revision versus the available.

- 1 Press **Update Wizard** and then **Cont.**, or **Abort** to cancel the update process.
- 2 The next screen (Figure 61) shows all modules, their installed firmware revisions and the available firmware revisions on the USB Flash Drive.

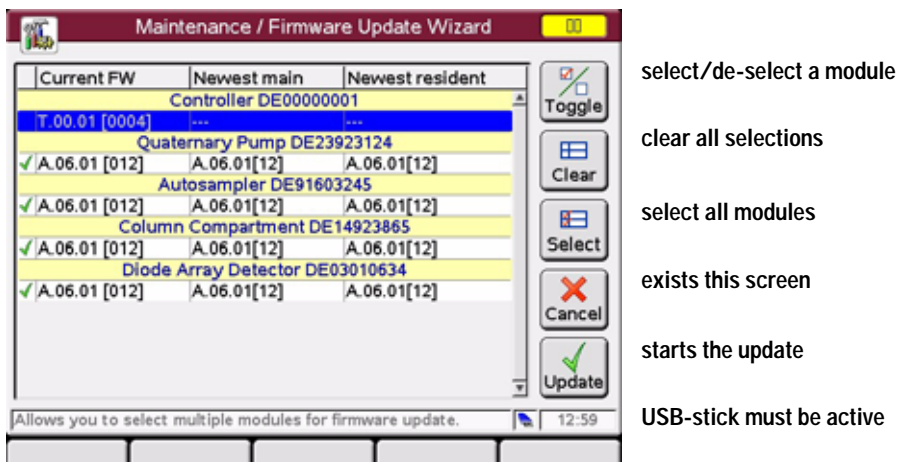


Figure 61 Firmware Update Screen - Update Wizard

3 Do your selections and press **Update**, or **Cancel** to exit the screen.

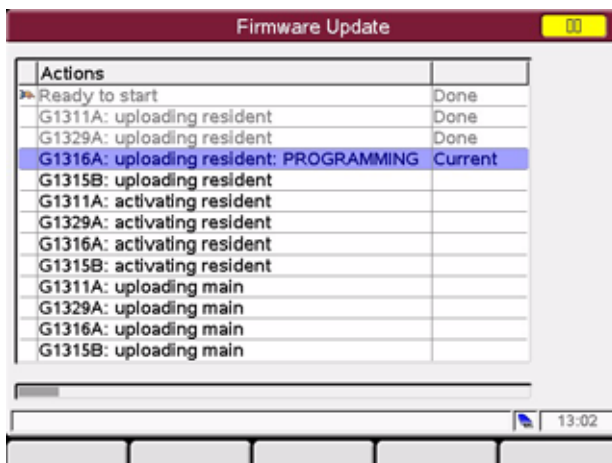


Figure 62 Firmware Update Screen - Update in Progress

In the case of an error, refer to “Errors During Firmware Updates” on page 111.

## Update Information for A.05.1x Firmware

### NOTE

Before you downgrade to revision A.05.1x, upgrade the Instant Pilot to the latest B.02.xx firmware revision. This will assure that the later upgrade from A.05.1x to B.02.xx works smoothly.

---

### NOTE

The firmware revision A.05.1x for the Instant Pilot does not require an A.05.1x resident firmware.

---

## Using the Instant Pilot

### Prerequisites

- the Instant Pilot should have firmware B.02.xx or newer installed (with latest resident firmware)
- all target FW (main/resident) of all LC modules and the Instant Pilot must be on the USB Flash Drive (root)
- no other firmware revisions must be on the USB Flash Drive (root)
- all modules in the stack are connected via CAN
- the Instant Pilot is plugged into one module of the stack
- the USB Flash Drive is plugged into the Instant Pilot

### Downgrade from A.06.xx to A.05.11

In those cases where a Instant Pilot has to be downgraded from B.xx.xx to A.05.1x to allow the operation with A.05.09/12 firmware installed on Agilent 1100/1200 series modules, follow the procedue below.

- 1 Enter the firmware update screen (**More - Maintenance**).
- 2 Select the first LC module (not the Controller!).
- 3 Press '**Single**' and start the resident firmware update of this module.



**NOTE**

After the update/activation of the resident firmware

- the Instant Pilot update screen shows an error (timeout) and/or
- a screen may show up for some seconds showing "Waiting for module". Ignore this message.
- the module's LED is blinking (resident mode)
- this module disappears from the system (no communication with A.06.xx)

- 4 Press **'Abort'** and re-enter the firmware update screen.
- 5 Select the next LC module.
- 6 Repeat steps 3) to 5) until all LC modules are done.
- 7 Update the Instant Pilot to A.05.1x (has only main firmware).
- 8 Press **Exit** and restart the Instant Pilot.

After re-boot, the Instant Pilot shows all resident LC modules.

- 9 Enter the firmware update screen (**More - Maintenance**).
- 10 Select the first resident LC module (not the Controller!).
- 11 Press **Single** and start the main firmware update of this module.
- 12 When finished press **Exit** and **No** to prevent a re-boot.
- 13 Select the next resident LC module and repeat steps 11) to 12) until all LC modules are done.

After the update a screen may show up for some seconds showing "Waiting for module". Ignore this message. It will be closed after some seconds.

- 14 Press **Exit** and restart the Instant Pilot.

### Upgrade to Revision from A.05.xx to B.02.xx

When the Instant Pilot needs to be upgraded to a B.01.xx firmware to be compatible with Agilent 1100/1200 series modules working on A.06.xx/B.01.xx, follow the procedure below.

- 1 Enter the firmware update screen (**More - Maintenance**).
- 2 Select the first LC module (not the Controller!).
- 3 Press **Single** and start the resident firmware update of this module.

**NOTE**

After the update/activation of the resident firmware

- the Instant Pilot update screen shows list with the module(s) where
  - the update was interrupted or a timeout error
  - the module's LED is blinking (resident mode)
  - this module disappears from the system (no communication with A.05.xx)
- 

- 4 Press **Abort**.
- 5 Enter the firmware update screen (**More - Maintenance**).
- 6 Select the next LC module.
- 7 Repeat steps 3) to 4) until all LC modules are done.
- 8 Update the Instant Pilot to B.02.xx (main and resident firmware).
- 9 Press **Exit** and restart the Instant Pilot.

After re-boot, the Instant Pilot shows all resident LC modules.

**NOTE**

If the modules are not shown (continues "Scanning ..."), disconnect the Instant Pilot and reconnect.

---

- 10 Enter the firmware update screen (**More - Maintenance**).
- 11 Select the first LC module (not the Controller!).
- 12 Press **Single** and start the main firmware update of this module.

After the update a screen may show up for some seconds showing all LC modules where the update has been interrupted. Ignore this message. It will be closed after some seconds.

- 13 When finished press **Exit** and **No** to prevent a re-boot.
- 14 Enter the firmware update screen (**More - Maintenance**).
- 15 Select the next resident LC module and repeat steps 12) to 13) until all LC modules are done.

After the update a screen may show up for some seconds showing all LC modules where the update has been interrupted. Ignore this message. It will be closed after some seconds.

- 16 Press **Exit** and restart the Instant Pilot.

## Using the LAN/RS-232 Firmware Update Tool

For details refer to “[Updates via LAN/RS-232 Firmware Update Tool](#)” on page 27.

### NOTE

Use the LAN/RS-232 Firmware Update Tool 2.7 or above. Version 2.3 and below do not work with this procedure.

---

### NOTE

If the Instant Pilot is in “**Backward compatible mode ON**”, it will not be seen by the LAN/RS-232 Firmware Update Tool. For updating firmware reconfigure the Instant Pilot to “**Backward compatible mode OFF**”.

---

### NOTE

If your Agilent 1100/1200 system runs on firmware A.05.xx, the Instant Pilot is not recognized by the LAN/RS-232 Firmware Update Tool. In this case either one of the modules or the complete system must be upgraded to A.06.xx/B.01.xx.

---

### NOTE

Before you downgrade the Instant Pilot to revision A.05.1x, upgrade the Instant Pilot to the latest B.xx.xx firmware revision. This will assure that the later upgrade from A.05.1x to B.xx.xx works smoothly.

---

### NOTE

The preferred way of updating the Instant Pilot firmware should be the use of a USB Flash Drive. This is much faster than the use of the LAN/RS-232 Firmware Update Tool (4 minutes vs. 10 minutes via LAN vs. 70 minutes via RS-232).

---

Use one of the following procedures:

- “[Downgrade from B.xx to A.05.1x](#)” on page 108
- “[Upgrade from A.05.1x to B.xx](#)” on page 108
- “[Upgrade from A.05.11 to A.05.1x \(new build\)](#)” on page 109

### Downgrade from B.xx to A.05.1x

- 1 When the Agilent 1100/1200 series modules are on a firmware platform A.06.xx/B.01.xx, downgrade the Instant Pilot to A.05.1x first. During the downgrade process the screen is black.
- 2 After boot of the Instant Pilot,
  - the Instant Pilot shows “Scanning System ...”
  - the LAN/RS-232 Firmware Update Tool indicates “100% updated” but does not display the result dialog.
- 3 Press **Cancel** (red cross button) on the LAN/RS-232 Firmware Update Tool to stop the Update process. The Instant Pilot is no longer listed in the tree view of the Update Tool.
- 4 Downgrade all 1100/1200 modules together to the target firmware (A.05.1x or A.05.09/10).
- 5 When finished,
  - the LAN/RS-232 Firmware Update Tool shows all 1100/1200 modules without the Instant Pilot.
  - the Instant Pilot shows all modules of the system in the Welcome screen.
- 6 Close the connection and the LAN/RS-232 Firmware Update Tool.

### Upgrade from A.05.1x to B.xx

- 1 When the Agilent 1100/1200 series modules are on a firmware platform A.05.09/12, then update the modules to platform A.06.xx/B.01.xx.
- 2 Connect the Instant Pilot (with A.05.1x firmware) to one of the modules (if not already done).
- 3 After boot, enter the Maintenance screen and press the **Controller** button.

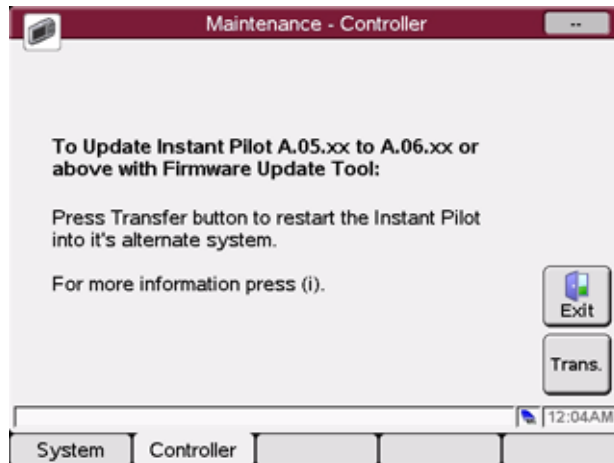


Figure 63 Update Information for firmware A.05.1x

- 4 Press the **Transfer** button. The Instant Pilot will switch into resident mode (black screen) and the Update Tool will list the Instant Pilot.
- 5 Select the Instant Pilot for update to the target firmware revision
- 6 Start the update.
- 7 When finished, the Instant Pilot boots in main mode and shows all modules of the system in the Welcome screen.
- 8 Close the connection and the LAN/RS-232 Firmware Update Tool.

### Upgrade from A.05.11 to A.05.1x (new build)

If the Instant Pilot needs to be updated with a new firmware revision A.05.1x (with new or same build number), follow these steps:

- 1 Disconnect all 1100/1200 series module from that module that hosts the LAN/RS-232 interface.
- 2 Upgrade this module to firmware A.06.xx first (otherwise the Instant Pilot is not visible in the LAN/RS-232 Firmware Update Tool).
- 3 After boot, enter the Maintenance screen and press the **Controller** button.
- 4 Press the **Transfer** button. The Instant Pilot will switch into resident mode (black screen) and the Update Tool lists now the Instant Pilot.
- 5 Select the Instant Pilot for update to the target firmware revision

- 6 Start the update.
- 7 After boot of the Instant Pilot,
  - the Instant Pilot shows “Scanning System ...”
  - the LAN/RS-232 Firmware Update Tool indicates “100% updated” but does not display the result dialog.
- 8 Press **Cancel** (red cross button) on the LAN/RS-232 Firmware Update Tool to stop the Update process. The Instant Pilot is no longer listed in the tree view of the Update Tool.
- 9 Downgrade the 1100/1200 module to the target firmware (A.05.11/12 or A.05.09/10).
- 10 When finished,
  - the LAN/RS-232 Firmware Update Tool shows all 1100/1200 modules modules without the Instant Pilot.
  - the Instant Pilot shows all modules of the system in the Welcome screen.
- 11 Close the connection and the LAN/RS-232 Firmware Update Tool.

## Errors During Firmware Updates

If an error stops the update process, it is displayed.

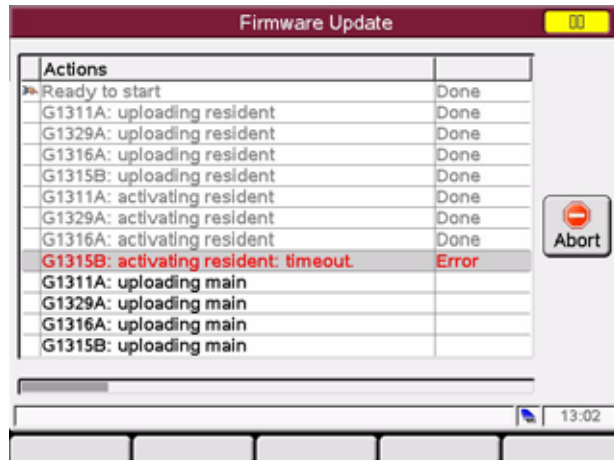


Figure 64 Firmware Update Screen - Error during the update

Press **Abort** to leave the Update process.

In the above example all modules stay in resident mode (blinking yellow).

Restart the firmware update again.

## Instant Pilot Screen Is Dark During/After Firmware Update

During the firmware update the Instant Pilot has booted in resident mode (to update the main firmware). In this mode just a basic system is loaded without the graphics drivers.

After update and reboot into the main mode the screen is back.

If the Instant Pilot's screen stays dark after a firmware update while the LED is green, start the LAN/RS-232 Firmware Update Tool 2.7 and update the main firmware again.

## G1315C DAD / G1365C MWD Main Update Not Possible

In a few cases an update of a stand-alone G1315C DAD / G1365C MWD via the Instant Pilot resulted into a problem when the module switches from main-mode to resident-mode (for main firmware update). The Instant Pilot did not receive power via the CAN bus. In this case

- turn the DAD/MWD off, then on.
- transfer the DAD/MWD into resident-mode.
- start the update of the main firmware again
- if update is still not possible,
  - turn the DAD/MWD off
  - add another 1100/1200 module (if available).
  - turn on the other module first, then the DAD/MWD
  - transfer the DAD/MWD into resident-mode.
  - start the update of the main firmware again
- if update is still not possible, use [“Updates via LAN/RS-232 Firmware Update Tool”](#) on page 27.

The problem is related to the DAD/MWD main board and will be addressed by a new revision of the main board.





## 5 Updates via Control Module (G1323A/B)

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This chapter describes the firmware updates of the Agilent 1100/1200 series of modules via the Control Modules G1323A/B.



## General Information

- The G1323A Control Module firmware can be updated from a PCMCIA card only.
- The G1323B Control Module firmware can be updated from a PCMCIA card, with the LAN/RS-232 Firmware Update Tool 2.7 ([“Updates via LAN/RS-232 Firmware Update Tool”](#) on page 27) or with the GPIB Firmware Update Tool ([“Updates via GPIB Firmware Update Tool”](#) on page 133).
- The procedure below is based on the G1323A Control Module and LCA210EN.BIN is used as firmware file name. For the G1323B Control Module use the LCB322EN.BIN or LCB402EN.BIN instead.
- If you have copied the UPDATE.EXE and CONFIG.INI file in addition to the PC card, refer to [“PC-Card Update Mode”](#) on page 122 and/or [“Changing the Serial Number of Control Module”](#) on page 124.
- HPLC modules should be updated via the Control Module G1323A/B only if no other interface is available. They can be updated using the LAN/RS-232 Firmware Update Tool 2.7 ([“Updates via LAN/RS-232 Firmware Update Tool”](#) on page 27) or with the GPIB Firmware Update Tool ([“Updates via GPIB Firmware Update Tool”](#) on page 133) from the PC in a better way.
- If new 1200 series modules (e.g. G1312B, G1314B/C, G1367B/C/D) are added to an existing 1100 system with firmware revisions below A.06.02, you must use the LAN/RS-232 Firmware Update Tool 2.7 and the [“1100/1200 Series Compatibility and Emulation Mode”](#) on page 68. See also the information on [“Firmware Downgrade from A.06.02 to earlier versions”](#) on page 131.

### NOTE

DO NOT interrupt the update process. Otherwise the Control Module cannot be used anymore. In such a case please contact your Agilent Technologies support provider for help.

## Prerequisites

- Control Module G1323A or G1323B connected to a 1100/1200 series HPLC module
- PC card, see [“Solving Problems”](#) on page 127
- firmware file LCB322EN.DLB or above for G1323B or LCA210.DLB for G1323A from the Agilent web, see [“Updates from the Agilent Web”](#) on page 16
- HPLC module specific firmware (main and resident) from the Agilent web, see [“Updates from the Agilent Web”](#) on page 16

**Table 8**    Compatibility Matrix G1323A/B

Module	A.05.xx	A.06.01	A.06.02/06	A.06.1x B.06.1x
G1323A Control Module (A.02.10) *	Y	N	N	N
G1323B Control Module (B.03.22 and below)	Y	N	N	N
G1323B Control Module (B.04.02)	N	Y	Y	Y

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

See also [“Quick Overview on Compatibility”](#) on page 19.

**NOTE**

The G1323B Control Module received its last firmware revision B.04.02 in September 2005. This means that newer Agilent 1100/1200 modules are controllable with some restrictions.

- G1314B Variable Wavelength Detector (\*)
- G1314C Variable Wavelength Detector SL (\*)
- G1314D Variable Wavelength Detector (\*)
- G1314E Variable Wavelength Detector SL+ (\*)
- G1316B Thermostatted Column Compartment (\*)
- G1316C Thermostatted Column Compartment (\*)
- G1329B standard autosampler SL (\*)
- G1367B high performance autosampler (\*)
- G1367C high performance autosampler SL (\*)
- G1367D high performance autosampler SL +(\*)
- G1315D Diode Array Detector (DAD) (\*\*)
- G1365D Multiple Wavelength Detector (MWD) (\*\*)
- 1290 Infinity LC System - unsupported

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

(\*\*) with feature set of the "C" module (except for the high data rate)

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

## Update Sequence

Using the Control Module, the system should be updated manually in the following order:

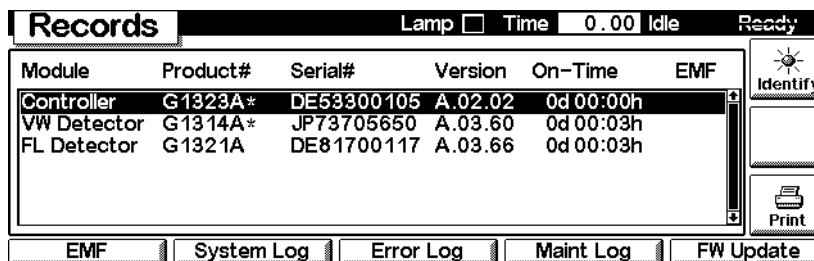
### 1 Update of Control Module

- G1323A has to be done via PC card and

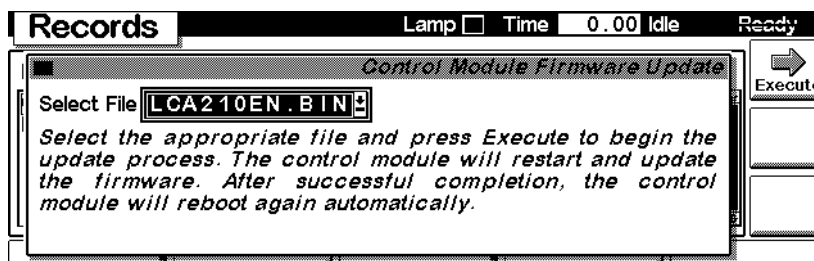
- G1323B via PC card (preferred) or via LAN/RS-232 Firmware Update Tool 2.7 or via GPIB Firmware Update Tool.
- 2 CAN slaves (CAN-valves, UIB or automation interface) (only main firmware)
  - 3 all resident firmware
  - 4 transfer of all modules into resident mode
  - 5 all module main firmware
  - 6 transfer of all modules into main mode

## Updating the Control Module

- 1 Copy the file LCA210EN.BIN (for G1323A) or LCB322EN.BIN or above (for G1323B) or above from the directory to your PC card's root directory.
- 2 Insert the PC card into the Control Module and restart the Control Module by pressing *m-key* and *Restart* on Analysis screen.
- 3 Press *Views-System-Records* and select the Control Module (Controller).



- 4 If the revision of the Control Module listed above is below the revision you have downloaded, press *FW-Update*.



- 5 Select file LCA210EN.BIN (for G1323A) or LCB301EN.BIN (for G1323B) or above and press Enter, Execute and confirm the next screen. The Control Module will be updated now.

The Control Module will boot twice during the update process.

# Updating the HPLC Module Firmware via Control Module



NOTE

If you want to upgrade the firmware of modules to revision A.06.xx refer to “Firmware Update to A.06.xx” on page 63 prior to start the process.

NOTE

CAN slaves (CAN-valves, UIB or automation interface) have only main firmware.

- 1 Copy the DLB files (HPLC module firmware) to your PC card’s root directory.
- 2 Insert the PC card into the Control Module and restart the Control Module by pressing *m-key* and *Restart* on Analysis screen.
- 3 Press Views-System-Records and select the module you want to update.

Records						Lamp <input type="checkbox"/>	Time 0.00	Idle	Ready
Module	Product#	Serial#	Version	On-Time	EMF	<div> Identify</div> <div> Print</div>			
Controller	G1323A*	DE53300105	A.02.02	0d 00:01h					
FL Detector	G1321A*	DE81700117	A.03.66	0d 00:06h					

## 5 Updates via Control Module (G1323A/B)

### Updating the HPLC Module Firmware via Control Module

- 4 Press *FW-Update* to open the following screen.

**Records** Lamp ☐ Time 0.00 Idle Ready

**Module Firmware Update**

Select File: **RESA380.DLB** Status: Idle

You need to transfer the module into its alternate system before you can update its firmware.  
Press Transfer to pass control to the alternate system. After the reboot press Execute to update the modules firmware.

0%

Execute Transfer

- 5 Select resident file and press *Enter*, *Execute* and confirm the next screen. The module will update the "Resident System".

#### NOTE

The resident system should be updated together with the main firmware (provided with the same download). The revision number can be obtained when the module has been switched into the "Resident System" and is listed as Generic GXXXXA-R.

- 6 When completed, press the *Transfer* button. The module will turn now into the "Resident System" (Status-LED flashes yellow) and the Control Module restarts.
- 7 Press *Views-System-Records* and select the module you want to update again. The list shows the module as "Generic".

**Records** Time 0.00 Idle Ready

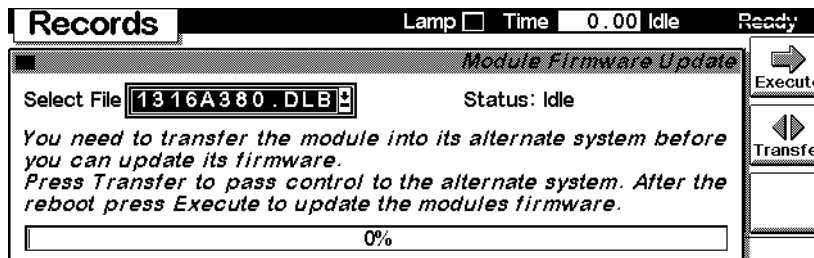
Module	Product#	Serial#	Version	On-Time	EMF
Controller	G1323A*	DE53300105	A.02.02	0d 00:00h	
Generic	G1321A-R*	DE81700117	A.03.30	0d 00:00h	

Identify Print

EMF System Log Error Log Maint Log FW Update

- 8 Press *FW-Update* to open the following screen.





- 9 Select module specific file.
- 10 Press *Enter*, *Execute* and confirm the next screen. The module will update the “Main System”.
- 11 When the update has completed, press the *Transfer* button. The module will return into the “Main System” and the Control Module restarts.
- 12 Repeat the steps above for all other HPLC modules, if required.

## PC-Card Update Mode

This mode is available when the PC card holds also the UPDATE.EXE and CONFIG.SYS.

### NOTE

See also special information [“Message ‘Serial Number Invalid’”](#) on page 126.

- 1 Insert the PC-card and re-boot. The display will show an update screen.

```
Control Module Update Version 3.19 (c) 1996-2001 Agilent Technologies
1) program Control Module
2) disable update at boot-up
3) change serial number
4) change display contrast

6) display load address
9) program 2nd rom

0) exit

select function: _
```

- 2 Select (1) to start the programming.
- 3 Select (n) LCB322EN.BIN (or newer) or LCA210EN.BIN. After entering (n) the update process starts. The Control Module firmware is written into the module.
- 4 When the update has finished, press <Enter> to re-boot.
- 5 Select (2) to disable update at boot-up. Otherwise the Control Module starts always in this update mode. Now the CONFIG.SYS file is changed.
- 6 Select (0) to exit and press <Enter> to re-boot.

## Getting back into the PC-Card Update Mode

To switch the Control Module back into this update mode proceed as follows:

- 1 Insert the PC-card (LCB322EN.BIN or LCA210EN.BIN, CONFIG.SYS, UPDATE.EXE should be on the card).
- 2 Enter the *RECORDS* screen (via Views-System) and select the G1323A/B.
- 3 Press *FW Update* and then the *m-key*.
- 4 Select *Enable Update* and leave the *RECORDS* screen.
- 5 Re-boot by pressing the *m-Key* and selecting 'Restart'.

## Changing the Serial Number of Control Module

To change the serial number of an Control Module, for example when it shows serial number DE00000000 or CN00000000, proceed as follows:

### NOTE

For entering CN serial numbers you need the UPDATE.EXE version dated March 16, 2001 (version 3.19) added March 28, 2001 from the download servers. For details [“Changing the Serial Number of Control Module”](#) on page 124.

- 1 Copy files LCB322EN.BIN, CONFIG.SYS, UPDATE.EXE to a PC-card.
- 2 Insert the PC-card and re-boot. The display will show an update screen.

```
Control Module Update Version 3.19 (c) 1996-2001 Agilent Technologies
```

- 1) program Control Module
- 2) disable update at boot-up
- 3) change serial number
- 4) change display contrast
  
- 6) display load address
- 9) program 2nd rom
  
- 0) exit

```
select function: _
```

- 3 Select (3) to change the serial number (preparation).
- 4 Select (1) to start the programming.
- 5 Select (n) LCB322EN.BIN (or newer, if available).

```
Serial number invalid
```

```
Press <Enter> to input number found on rear side of Control Module
```

```
—
```

- 6** Press <Enter> and select the country of the serial number you want to enter.

```
1) country Germany      (DE.....)
2) country USA          (US.....)
3) country Japan        (JP.....)
4) country China        (CN.....)
2) re-enter serial number
```

select country: \_

- 7** Complete the serial number (8 digits) and press <Enter>.

```
enter serial number (max 8 digits): DE12345678
1) set serial number to DE12345678
2) re-enter serial number
```

select function: \_

- 8** Select (1) to finish or (2) to redo the entry.

After entering (1) the update process starts. First the serial number is changed and then the Control Module firmware is written into the module.

- 9** When the update has finished, press <Enter> to re-boot.

- 10** Select (2) to disable update at boot-up. Otherwise the Control Module starts always in this update mode.

- 11** Select (0) to exit and press <Enter> to re-boot.

## Message 'Serial Number Invalid'

To avoid a "Serial Number Invalid" message during update of Control Modules that have serial number starting with CN... and software revision B.02.02 installed, you must copy the latest UPDATE.EXE (revision 3.19 or above, dated 03/16/01 or later) onto the same flash card with the B.03.22 or later firmware. All updates from this card will then be processed the normal way without showing the described error message.

If the error already occurred, press <Enter> and type the serial number printed on the rear side of the Control Module into the shown mask. Then press <Enter> and <1><Enter> to acknowledge the serial number.

The message should not occur again, after an update to revision B.03.01 or above.

### NOTE

The described problem does not occur during remote updates via PC.

## Solving Problems

### Supported PC-cards

The Control Module supports PCMCIA 2.0 type I and II memory cards. Terms that refer to memory cards include mass storage cards, PC cards, flash cards, CompactFlash cards (with PC card adapter), flash disks and RAM cards.

Agilent Technologies has tested the following memory card types for compatibility with the Control Modules. The list below shows which types are known to be compatible or not compatible:

#### **COMPATIBLE are**

- SanDisk CompactFlash Memory Cards (SDCFBx-yy) with SanDisk CompactFlash PC Card Adapter (SDCF-yy)
- SanDisk Flash Disk PCMCIA/PC Card ATA (SDP3Bx-yy)

#### **NOT COMPATIBLE are**

- SanDisk Ultra CompactFlash Memory Cards (SDCFH-yy)
- Kodak CompactFlash (all)
- Kingston CompactFlash Storage Card (CF/yy)
- Kingston DataFlash ATA Flash Storage (DP-ATA/yy)
- Hitachi CompactFlash (HB2860yyyy)
- Hitachi PC-ATA Card (HB286yyyyy)

#### **FAT16 (File Allocation Table with 16 Bit entries)**

Theoretical the FAT16 format can address up to 2 GB of storage space. But due to some limitations in the Control Module, only memory cards up to 128 MB are supported.

In addition you should keep in mind, that the Control Module - independent of overall capacity of the card and the size of the files - can only store up to 512 files on one card. The Control Module stores all files in the root directory of the card and the root directory is limited to 512 files

### Reformatting CompactFlash Card

Usually CompactFlash Cards (e.g. from SanDisk) using a PC Card Adapter are used. If no 128 MB cards or smaller are available, any other card is OK (see “Supported PC-cards” on page 127), but it has to be formatted/sized as described below.

#### NOTE

If this card was formatted under Windows 2000 or XP, content of the card is not visible in the Control Module anymore (different FAT system).

The web site <http://www.mager.org/mkdosfs/> provided a small tool that allows the formatting/resizing of the CompactFlash Cards.

Download the mkdosfs.zip archive containing a compiled Windows binary.

**Solution 1:** Use the tool mentioned in the documentation and use command to format the CompactFlash Card:

```
mkdosfs -v -F 16 -n volname <drive>:
```

**Solution 2:** Use a Digital Camera with CF-slot and reformat.

**Solution 3:** For all CompactFlash Cards greater than 128 MB use the command:

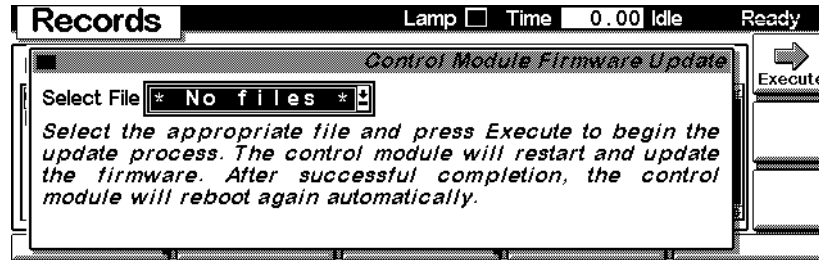
```
mkdosfs.exe -v -F 16 -S 512 -s 4 <drive>: 250880
```

exactly as mentioned. Otherwise it will not work. With this command the disk space above 128 MB becomes unavailable (also via Windows explorer). To make it available, you must use Solution 1 or 2.



## Files not found on PC-card

If the Control Module displays



and either no files are on the PC-card or the PC-card is not recognized by the Control Module. This happens when the PC-card has been formatted using the Windows Operating system (Windows NT, Windows 2000 and Windows XP). Even if the required FAT16 is used, the PC-cards become invisible. If you run into this situation there are two possibilities for recovering of the PC-card:

- Use a digital camera with PC-card slot (PCMCIA or CF-card) and use the camera's formatting feature.
- Use a tool described on the website <http://www.mager.org/mkdosfs/> with the FAT16 option.

## Control Module Has Wrong Firmware Revision

If the Control Module has the wrong firmware revision (e.g. B.03.22) and is connected to an Agilent 1100/1200 system with A.06.xx, the Control Module does not start correctly. It cannot not talk to the 1100/1200 modules due to mismatch in firmware. To overcome this situation use the [“PC-Card Update Mode”](#) on page 122.

## G1315C DAD / G1365C MWD Main Update Not Possible

In a few cases an update of a stand-alone G1315C DAD / G1365C MWD via the Control Module resulted into a problem when the module switches from main-mode to resident-mode (for main firmware update). The Control Module did not receive power via the CAN bus. In this case

- turn the DAD/MWD off, then on.
- transfer the DAD/MWD into resident-mode.
- start the update of the main firmware again
- if update is still not possible,
  - turn the DAD/MWD off
  - add another 1100/1200 module (if available).
  - turn on the other module first, then the DAD/MWD
  - transfer the DAD/MWD into resident-mode.
  - start the update of the main firmware again
- if update is still not possible, use [“Updates via LAN/RS-232 Firmware Update Tool”](#) on page 27.

The problem is related to the DAD/MWD main board and will be addressed by a new revision of the main board.

## Firmware Downgrade from A.06.02 to earlier versions

Below you will find information on what happens when you downgrade a series 1200 modules with A.06.02 firmware to earlier versions.

**Situation:** One or more 1200 series modules should be added to an existing 1100 system and the firmware of the 1100 modules cannot be upgraded to A.06.02. One of the new 1200 modules is a G1314C VWD-SL. The G1323B has B.04.02.

**The Process:** You start the downgrade of the G1314C with the G1323B to A.05.11. First you do the resident part. That works fine. After pressing TRANSFER, the VWD re-boots into resident and disappears from the G1323B. Reason: only the A.06.02 modules are still visible.

Disconnecting the rest of the system and re-booting the G1323B shows the G1314C-R. So far everything is OK. But now you start the main downgrade and the G1323B will show up with a message "Update failed - wrong type - error (7)". This is because the module is still a "C" and is expecting "C" firmware and not "A" firmware.

**Solution:** It's only possible to do this downgrade these new modules using the LAN/RS-232 Firmware Update Tool 2.7 and the ["1100/1200 Series Compatibility and Emulation Mode"](#) on page 68 and changing the module type to G1314A..

When the modules have been downgraded to A.05.11, the G1323B works with the "new" modules like with the old 1100 module - as "A" modules.

### Recommendations:

- 1 The G1323B requires firmware B.04.02 for communication with A.06.xx modules.
- 2 If possible, use only the LAN/RS-232 Firmware Update Tool 2.7 for all firmware upgrades and downgrades.
- 3 If new 1200 series modules (e.g. G1312B, G1314B/C, G1316B, G1367B/C/D) are added to an existing 1100 system with firmware revisions below A.06.02, you must use the LAN/RS-232 Firmware Update Tool 2.7 and the ["1100/1200 Series Compatibility and Emulation Mode"](#) on page 68.
- 4 Standard 1100/1200 modules can be downgraded individually using the G1323B (first resident, then main firmware).

## 5 Updates via Control Module (G1323A/B)

### Solving Problems



## 6

# Updates via GPIB Firmware Update Tool

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This chapter describes the use of the GPIB Firmware Update Tool for firmware updates of the Agilent 1100 series of modules.



## General Information

This program should be used for

- GPIB updates only

### NOTE

This GPIB Firmware Update Tool is not compatible with Agilent 32-bit ChemStation B.xx.

If you have to upgrade old GPIB system use these alternatives:

- Do the upgrade of the firmware while a 16-bit ChemStation (A.10 or below) is installed (especially for G1600 CE instruments).
- Use the LAN/RS-232 Firmware Update Tool 2.7 for upgrading 1100 modules via RS-232 or LAN (requires a LAN interface in one of the modules of a system) as described in [“Updates via LAN/RS-232 Firmware Update Tool”](#) on page 27.

### NOTE

If you own a system with LAN or RS-232 communication, you should use [“Updates via LAN/RS-232 Firmware Update Tool”](#) on page 27.

If you want to upgrade the firmware of modules to revision A.06.xx refer to [“Firmware Update to A.06.xx”](#) on page 140 prior to start the process.

The screens in this note may vary from your screens due to other firmware revision.

The GPIB communication is no longer supported with Agilent ChemStation revision B.01.01 and above.

## Prerequisites

- GPIB Firmware Update Tool from the Agilent web
- proper working ChemStation communication with the 1100 system/modules
- HPLC module specific firmware (main and resident) from the Agilent web

## Features:

The GPIB Firmware Update Tool has the following features:

- for GPIB only
- for 1100/1200 series modules
- for 8453 UV-vis Spectrophotometer
- G1600 Capillary Electrophoresis Instruments

### NOTE

This GPIB Firmware Update Tool does not update CAN slaves (CAN-valves, UIB or automation interface). To update, use either

- [“Updates via LAN/RS-232 Firmware Update Tool”](#) on page 27 or
  - [“Updates via Instant Pilot \(G4208A\)”](#) on page 95 or
  - [“Updates via Control Module \(G1323A/B\)”](#) on page 113.
- 

## Update Sequence

Using the LAN/RS-232 Firmware Update Tool 2.7, the system should be updated manually in the following order:

- 1 Update of Control Module
  - G1323A has to be done via PC card and
  - G1323B via PC card (preferred) or via this GPIB Firmware Update Tool or via the LAN/RS-232 Firmware Update Tool 2.7.
- 2 all resident firmware
- 3 transfer of all modules into resident mode
- 4 all module main firmware
- 5 transfer of all modules into main mode

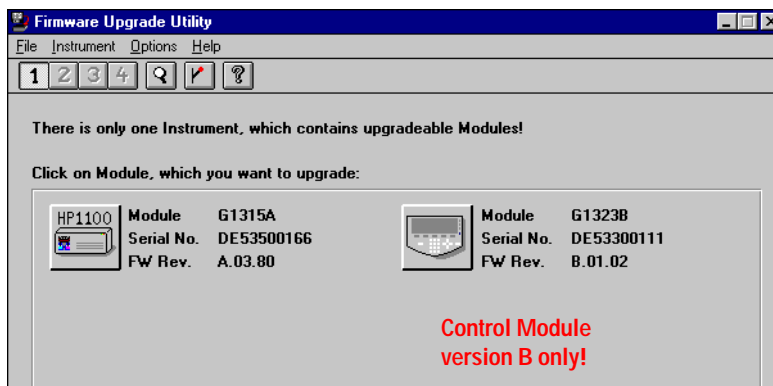
### NOTE

If you want to upgrade the firmware of modules to revision A.06.xx refer to [“Firmware Update to A.06.xx”](#) on page 140 prior to start the process.

---

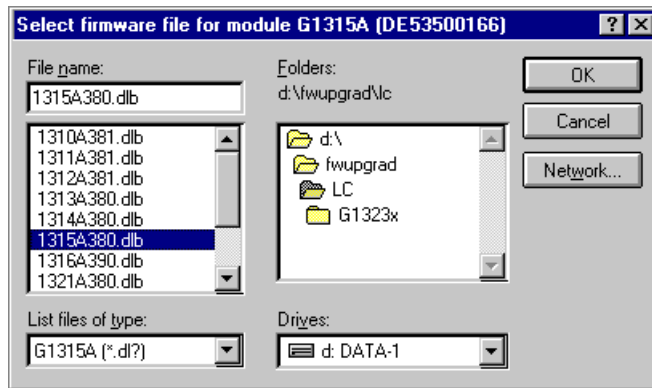
## Updating Module Firmware

- A properly installed LC ChemStation is required
  - Download the GPIB Firmware Update Tool and the module firmware files to your PC as described in “[Updates from the Agilent Web](#)” on page 16.
- 1 Check that the 1100 System Access is configured using the Configuration Editor (Windows Start - Agilent ChemStation - Configuration Editor):
    - Configure instruments
    - Instrument Type = Modular (3D) LC System
    - Dialog box: Instrument x - Device Configuration
    - 1100 System Access with correct GPIB address of the module that is connected via GPIB (typically a detector) must be set
    - GPIB must be chosen (depends on your communication path)
  - 2 Start FWUPGRAD.EXE from the directory \FWUPGRAD.
  - 3 For all modules identified under a certain instrument number the program displays an icon, the product number of the instrument, the serial number and main system firmware revisions.





- 4 If you have several instruments configured, you can select with the 1, 2, 3, 4 buttons or the Instrument menu the group of modules that is associated with the appropriate instrument number.
- 5 Click on the module (you want to update) to start the download process for the associated instrument module.




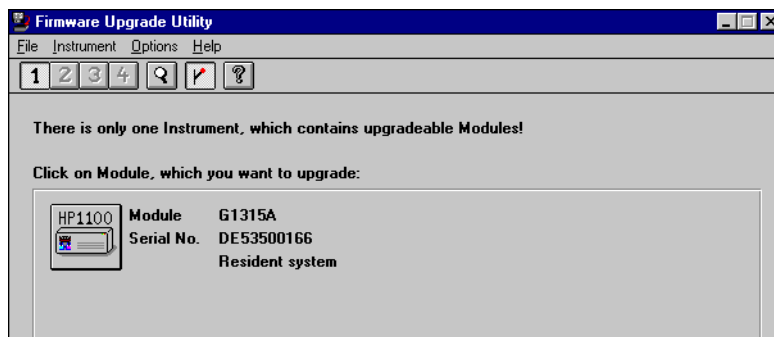
- 6 Select the appropriate firmware file in the directory, e.g. \FWUPGRAD\LC.
- 7 Press OK.

The complete update process (download + wait times) will take approximately 2 minutes. At the end of the download procedure the new firmware revision is displayed.

## 6 Updates via GPIB Firmware Update Tool

### Updating Module Firmware


- 8 Select  to switch to the “Resident System”.



- 9 Click on the module (you want to update) to start the download process for the associated instrument module.
- 10 Select the resident firmware file RESA511.DLB in the directory, e.g. \FWUPGRAD\LC.
- 11 Press OK.

#### NOTE

The resident firmware revision cannot be displayed by the utility.

- 12 Select  to switch back to “Main System”.
- 13 Repeat the above steps for other HPLC modules.

#### NOTE

It's recommended to update all modules to latest revisions.

- 14 Quit the utility. The update has been completed.

## Updating the Control Module Firmware

### NOTE

The GPIB Firmware Update Tool can update G1323B Control Modules only.

---

- 1 Start FWUPGRAD.EXE from the directory \FWUPGRAD.
- 2 Click on the Control Module to start the download process for the associated instrument module.
- 3 Select the appropriate firmware file in the directory, e.g. \FWUPGRAD\G1323X\LCB402EN.BIN and press OK.

The complete update process (download + wait times) will take approximately. 35 minutes (depends on the system configuration).

### NOTE

DO NOT interrupt the update process. Otherwise the Control Module cannot be used anymore. In such a case please contact your Agilent Technologies support provider for help.

---

At the end of the download procedure the new firmware revision is displayed.

- 4 Quit the utility. The update has been completed.

## Firmware Update to A.06.xx

For special instructions refer to

- [“Firmware Upgrade to A.06.01”](#) on page 140 or
- [“Firmware Upgrade to A.06.02”](#) on page 141 or
- [“Recovering”](#) on page 142.

[Table 6](#) on page 63 shows the compatibility impact.

### NOTE

It's recommended to use always the latest firmware release to have latest features and bug fixes included. All modules must have the same revision (e.g. A.05.11, A.06.01 or A.06.02).

## Firmware Upgrade to A.06.01

With the introduction of new 1100 series modules

- G1315C DAD,
- G1365C MWD,
- G4240A HPLC-Chip Cube

in June 2005, the firmware code was changed to address the new main board platform. Therefore the revision A.06.01 was created to communicate with these new products. This revision is not compatible with all previous revisions. All modules in a system must be upgraded to A.06.01 prior to the connection to modules with A.06.01, or the A.06.01 modules must be downgraded to A.05.xx prior to the connection to these modules.

The information below should be used when updating to firmware revision A.06.01 (from revision A.05.xx and below).

### NOTE

If you do not follow these instructions, you may lose the communication to a module. In this case follow the instruction [“Recovering”](#) on page 142.

- Upgrade a G1323B Control Module to revision B.04.0x together with the modules that are updated to A.06.xx. This will ensure that the Control Module recognizes old and new firmware modules. See also information on [“Update Sequence”](#) on page 135 and [“Update Durations”](#) on page 44.

## Firmware Upgrade to A.06.02

In March 2006, the Agilent 1200 series was introduced with firmware revision A.06.02. This revision is not compatible with all previous revisions. All modules in a system must be upgraded to A.06.02 prior to the connection to modules with A.06.02, or the A.06.02 modules must be downgraded to A.06.01 or A.05xx prior to the connection to these modules.

[Table 6](#) on page 63 shows the compatibility impact.

For details refer to [“Firmware Update to A.06.xx”](#) on page 63

### NOTE

If you do not follow these instructions, you may lose the communication to a module. In this case follow the instruction [“Recovering”](#) on page 142.

Upgrade a G1323B Control Module to revision B.04.02 together with the modules that are updated to A.06.xx. This will ensure that the Control Module recognizes old and new firmware modules. See also information on [“Update Sequence”](#) on page 135, [“Update Durations”](#) on page 44 and [Figure 26](#) on page 49.

## Recovering

In case of power fail or GPIB cable disconnected during the update to revision A.06xx, one or more modules will no longer visible in the system! It does not communicate with the modules that have A.06.xx firmware.

### Module has GPIB communication

If the module has GPIB communication you have to

- 1 Power off all modules.
- 2 Add the GPIB communication to the module that is no longer visible.
- 3 Turn this module on.
- 4 Start the firmware update to A.06.xx for this module.
- 5 Power off the module.
- 6 Re-install the GPIB communication to the detector (DAD, MWD, FLD, VWD) or, if not available, to pump or autosampler (this order).
- 7 Turn all modules on for normal operation.

### Module has no GPIB communication

If the module has no GPIB communication (e.g. G1316A TCC) you have to

- 1 Power off all modules except the module that hosts the GPIB communication.
- 2 Downgrade this module to firmware A.05xx (resident and main).
- 3 Turn the missing module on.
- 4 Start the firmware update to A.06.xx for both modules.
- 5 Turn all modules on for normal operation.

## Solving Problems

### Firmware files are not shown

Configure directories correctly.

### Main firmware update was interrupted

If the update of the module's main firmware was interrupted, the module will remain in the 'resident' mode (the mode for the main firmware update) and is blinking. A warning pops up.

Select the module which is in resident mode (can be identified by product number) and select the firmware and restart the update.

### Update of firmware for MS hardware

After upgrading ChemStation software (e.g. to revision A10.01) the software complains that the MS firmware needs a newer version.

In this case open your \HPCHEM\MS\firmware\ folder and execute the MSUPDATE.EXE. This will open a telnet session and start the update of the MS.

For this update the MS has to be connected to the ChemStation.

### Agilent Contact

In case you encounter another problem with this Firmware Update Tool, feel free to send an e-mail with your findings via the Agilent firmware download page, see "Updates from the Agilent Web" on page 16 or contact a local Agilent Representative. Attach your logfile and details of your system, revision and errors.

## 6 Updates via GPIB Firmware Update Tool

### Solving Problems





## 7

# Agilent 1100/1200 Modules - A Quick Overview

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Can 1200 modules be mixed [148](#)

What firmware revisions I have to use with my Local Controllers  
G1323A/B and G4208A Instant Pilot)? [152](#)

Which Firmware Revision of the 1100/1200/1290 modules need to be  
used for which Agilent ChemStation Revision? [153](#)

3rd Party Control Software [156](#)

The objective of this chapter is to give you a quick overview about the differences between the new Agilent 1200 series modules versus the Agilent 110 series modules and answering question about adding the new modules into existing systems.



**Agilent Technologies**

## How can the 1200 Series Systems and Modules be identified?

### Serial Numbers:

All Agilent instruments carry a product number and a serial number for identification in addition to the family name,

e.g.      Family name:      1200 Series,  
                 Product No.:      G1310A  
                 Serial No.:      DE60555000

### Hardware Changes:

All 1200 modules

- start with serial numbers AAyy55XXX, where AA could DE, CN or JP
- have firmware A.06.02/B.01.02 or higher installed
- have a 1200 series label in the front (top left)
- have a new color (lighter gray)
- have a darker front window

All autosamplers and fraction collectors got an illuminated tray compartment (requires new mainboard version that has the connector, FW A.06.02 and ChemStation B.02.01).

The WPS with older firmware(<5.09 and <ChemStation 10.x) will NOT see the tray properly because the tray has been changed.

**New Modules:**

New modules have been added

- G1312B binary pump SL
- G1314B VWD (replaces G1314A VWD, just a product number change)
- G1314C VWD SL
- G1314D VWD
- G1314E VWD SL+
- G1315D DAD (replaces the G1315B DAD)
- G1316B TCC SL
- G1329B ALS SL
- G1365D MWD (replaces the G1365B MWD)
- G1367B High Performance ALS (replaces G1367A WPS)
- G1367C High Performance ALS SL
- G1367D High Performance ALS SL+
- G1379B  $\mu$ -Degasser (replaces G1379A)
- G4208A Instant Pilot (local user interface)

The Rapid Resolution System (1200RR Series LC) may consist of these product numbers: G1315C/G1365C/G1314C, G1316B, G1312B, G1367C, G1379B.

**New Specifications/Features:**

Some modules got new specifications/features:

Review the user documentation for detailed specifications.

## Can 1200 modules be mixed

### with 1100 series modules?

**YES**, all 1100 modules can be upgraded to A.06.02/B.01.02 firmware to make them compatible with the 1200 modules (recommended - but may require a ChemStation upgrade for new functionality). Refer to [“Downgrade of Agilent 1100/1200/1290 Modules”](#) on page 157 for limitations on downgrade/upgrades. Mixed configurations with other 1100/1200 Series SL modules will not give the full performance of a 1200 Series Rapid Resolution LC system.

**YES**, all 1200 modules that already exists as 1100 module (typically as "A") can be downgraded to 1100 FW revisions (same limitations as known on the 1100 modules). The G1315C/G1365C cannot go below B.01.01. Refer to [“Downgrade of Agilent 1100/1200/1290 Modules”](#) on page 157 for limitations on downgrade/upgrades. The ALS illumination feature is not active.

**YES**, all new 1200 series modules mentioned above (typically as "B" or "C") can be downgraded to 1100 functionality into the so called "1100 emulation mode" to specific firmware revisions. The new module's type will be changed to "A" via the new LAN/RS-232 Firmware Update Tool 2.7 or above.

**NO**, when the firmware between 1100 and 1200 modules does not match.

See [Table 9](#) for details and [“Notes”](#) on page 155 for additional information.

### with 1290 Infinity series modules?

**YES**, 1100/1200 modules must have the the latest A.06.1x/B.06.2x revision installed for proper communication. See [“1290 Infinity LC”](#) on page 24 and [Table 9](#) on page 149.

**Table 9** Firmware Revisions for 1100/1200/1290 Modules

<b>1100 or 1200 Module</b> with same product# e.g. G1310A)	<b>NEW 1200 Module</b> G1314B VWD, G1314C VWD SL, G1316B TCC SL, G1329B ALS SL, G1367B HiP ALS, G1367C HiP ALS SL G1315D DAD G1365D MWD	<b>NEW 1200 Module</b> G1312B BIN Pump SL	<b>NEW 1290 Infinity LC</b> G4220A BIN Pump G4212A DAD G4226A ALS G1316C TCC G4208A Instant Pilot
Match always a firmware set (horizontal)			
A.06.1x (latest release) B.06.1x (latest release) B.02.08 (G4208A)	B.06.23 (G1314D/E) B.06.23 (G1315C/D) B.06.23 (G1365C/D) A.06.1X (latest release)	A.06.1x (latest release)	B.06.23 (G4220A) B.06.23 (G4212A) A.06.14 (G3226A) A.06.14 (G1316C) B.02.08 (G4208A)
A.06.1x B.06.1x B.02.07 (G4208A)	B.06.20 (G1314D/E) A.06.12 (G1367D)	A.06.1x	n/a
A.06.10/11 B.06.10/11 (G1315/65C) B.02.05/06 (G4208A) A.06.10 (G4240A) All modules received a new revision 6.10, some 6.11.	A.06.10 B.06.10 (G1315/65D) All modules received a new revision 6.10, some 6.11.	A.06.10/11	n/a
A.06.02/03/04/05 B.01.02/03/04/05/06 (G1315/65C) B.01.02/03/B.02.01/05 (G4208A) A.06.02/03 (G4240A) 1200 series started with revision A.06.02/B.01.02; not all modules received a newer revision	A.06.02/03/04/05 B.01.04/05/06 (G1315/65D) not all modules received a newer revision	A.06.02/03/04/06	n/a

## 7 Agilent 1100/1200 Modules - A Quick Overview

Can 1200 modules be mixed

**Table 9** Firmware Revisions for 1100/1200/1290 Modules

<b>1100 or 1200 Module</b> with same product# e.g. G1310A)	<b>NEW 1200 Module</b> G1314B VWD, G1314C VWD SL, G1316B TCC SL, G1329B ALS SL, G1367B HiP ALS, G1367C HiP ALS SL G1315D DAD G1365D MWD	<b>NEW 1200 Module</b> G1312B BIN Pump SL	<b>NEW 1290 Infinity LC</b> G4220A BIN Pump G4212A DAD G4226A ALS G1316C TCC G4208A Instant Pilot
	Emulation Mode (**) via LAN/RS-232 Firmware Update Tool 2.7 now G1314A, G1316A, G1367A with standard firmware modules will loose features No downgrade of 1315C DAD SL and G1365C MWD SL below B.01.01 and 1315D DAD and G1365D MWD below B.01.04.	Emulation Mode (**) via LAN/RS-232 Firmware Update Tool 2.7 now G1312A with specific firmware versions only! module will loose features	n/a
A.06.01 B.01.01 (G1315/65C)	same as left column	G1312B_A601_002	n/a
A.05.11/12 A.05.11/12/13 (G4208A)	same as left column	G1312B_A512_002	n/a
A.05.06/10	same as left column	G1312B_A510_002	n/a
A.05.04/05 (*)	same as left column (*) G1316A505_01 (minimum)	no firmware available for this set	n/a
A.05.01/03 (*)	same as left column (*)	G1312B_A501_001	n/a
A.04.1x/2x (*)	same as left column (*)	no further downgrade possible	n/a
A.04.0x (*)	same as left column (*)		
A.03.8x (*)	same as left column (*)		
A.03.6x (*)	same as left column (*)		
A.03.3x (*)	same as left column (*)		

- (\*) firmware downgrade might be limited by board revision, refer to [“Downgrade of Agilent 1100/1200/1290 Modules”](#) on page 157 for details.
- (\*\*)
  1. Rename G1314, G1316 and G1367 to "A" (if none of these modules, skip this step).
  2. Downgrade the firmware of G1312, G1314, G1316 and G1367.
  3. Rename G1312B to G1312A.

## What firmware revisions I have to use with my Local Controllers G1323A/B and G4208A Instant Pilot)?

Please refer to [“Quick Overview on Compatibility”](#) on page 19 and .



Which Firmware Revision of the 1100/1200/1290 modules need to be used for which Agilent ChemStation Revision?

## Which Firmware Revision of the 1100/1200/1290 modules need to be used for which Agilent ChemStation Revision?

See also “Notes” on page 155 for additional information.

**Table 10** Software Revisions for 1100/1200 Modules

Software Revision	Module	Firmware
B.04.02	<b>1290 Infinity LC modules *</b> G4220A BIN Pump G4212A DAD G4226A ALS G1316C TCC G4208A Instant Pilot	B.06.23 B.06.23 A.06.14 A.06.14 B.02.08 (1290 release) or above
B.04.02	<b>1100 / 1200 modules *</b> G1315C DAD / G1365C MWD G1315D DAD / G1365D MWD G1314D VWD / G1314E VWD SL+ G4208A Instant Pilot G4240A Chip Cube	A.06.1x (latest release) B.06.23 B.06.23 B.06.23 B.02.09 A.06.1x
B.04.01	1100 / 1200 modules G1315C DAD / G1365C MWD G1315D DAD / G1365D MWD G1314D VWD / G1314E VWD SL+ G1367D WPS SL+ G4208A Instant Pilot G4240A Chip Cube	A.06.1x B.06.1x B.06.1x B.06.20 A.06.12 B.02.07 A.06.1x
B.03.02 SR1	1100 / 1200 modules G1315C DAD / G1365C MWD G1315D DAD / G1365D MWD G1314D VWD / G1314E VWD SL+ G1367D WPS SL+ G4208A Instant Pilot G4240A Chip Cube	A.06.1x B.06.1x B.06.1x B.06.20 A.06.12 B.02.07 A.06.1x

## 7 Agilent 1100/1200 Modules - A Quick Overview

Which Firmware Revision of the 1100/1200/1290 modules need to be used for which Agilent ChemStation Revision?

**Table 10** Software Revisions for 1100/1200 Modules

Software Revision	Module	Firmware
B.03.02	1100 / 1200 modules G1315C DAD / G1365C MWD G1315D DAD / G1365D MWD G4208A Instant Pilot G4240A Chip Cube	A.06.1x B.06.1x B.06.1x B.02.05/07 A.06.1x
B.03.01 SR1	1100 / 1200 modules G1315C DAD / G1365C MWD G1315D DAD / G1365D MWD G4208A Instant Pilot G4240A Chip Cube	A.06.1x B.06.1x B.06.1x B.02.05/07 A.06.1x
B.03.01	1100 / 1200 modules G1315C DAD / G1365C MWD G1315D DAD / G1365D MWD G1329B ALS SL G4208A Instant Pilot G4240A Chip Cube	A.06.02/06 B.01.02/06 B.01.04/06 A.06.04/06 B.01.02/03/04/B.02.01/07 A.06.02/06
B.02.01 SR2	1100/1200 modules G1315C DAD SL / G1365C MWD SL G1315D DAD / G1365D MWD G1329B ALS SL G4208A Instant Pilot G4240A Chip Cube	A.06.02/06 B.01.02/06 B.01.04/06 A.06.04/06 B.01.02/03/04/B.02.01/07 A.06.02/06
B.02.01 SR1	1100/1200 modules G1315C DAD SL / G1365C MWD SL G4208A Instant Pilot G4240A Chip Cube	A.06.02/06 B.01.02/06 B.01.02/03/04/B.02.01/07 A.06.02/06)
B.02.01	1100/1200 modules G1315C DAD SL / G1365C MWD SL G4208A Instant Pilot G4240A Chip Cube	A.06.02/06 B.01.02/06 B.01.02/03/04/B.02.01/05 A.06.02/06)
B.01.03 SR2	1100/1200 modules G1315C DAD SL / G1365C MWD SL G1315D DAD / G1365D MWD G1329B ALS SL G4208A Instant Pilot G4240A Chip Cube	A.06.02/06 B.01.02/06 B.01.04/06 A.06.04/06 B.01.02/03/04/B.02.01/05 A.06.02/06

Which Firmware Revision of the 1100/1200/1290 modules need to be used for which Agilent ChemStation Revision?

**Table 10** Software Revisions for 1100/1200 Modules

Software Revision	Module	Firmware
B.01.03	1100 / 1200 modules G1315C DAD / G1365C MWD G4240A Chip Cube	A.06.01 B.01.01 A.06.01
B.01.01/A.010.02	1100 / 1200 modules	A.05.11/12
A.10.02 and below	1100 / 1200 modules	A.05.05/10 and below

\* 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 5](#) on page 25.

## Notes

- 1 There is no communication between modules with firmware A.06.02/B.01.02 with A.05.11/12 and below (all must be on A.06.02/B.01.02)  
A.06.01/B.01.01 with A.05.11/12 and below (all must be on A.06.01/B.01.01)  
A.05.11/12 with A.05.06/10 and below (all must be on A.05.11/12)
- 2 If new 1200 modules (G1312B, G1314B, G1314C, G1316B, G1329B, G1367B, G1367C) have to be downgraded, the LAN/RS-232 Firmware Update Tool 2.7 or above must be used to change the type to G13XXA (so called 1100 emulation).
- 3 The detectors G1315C DAD SL, G1365C MWD SL, G1315D DAD and G1365D MWD cannot be downgraded below its initial B.01.xx firmware (different hardware platform).
- 4 All modules of a system should have the revision of a revision set (main and resident), see [“Revision Numbering”](#) on page 12.
- 5 All 1100 modules can be upgraded from revisions A.02.xx to any revision above in one step, using the LAN/RS-232 Firmware Update Tool 2.7.
- 6 Note that there might be reasons to use A.05.06 and higher depending on hardware features vs. ChemStation revision.

## 3rd Party Control Software

If 3rd Party Control Software is used, these 3rd party vendors need to update their software packages to include the new 1200 modules. Until they provide patches, the new 1200 modules can be downgraded to 1100 functionality into the so called "1100 emulation mode" to specific firmware revisions. The new module's type will be changed to "A" via the new LAN/RS-232 Firmware Update Tool 2.7 or above.

Specific cases are

- the G1329A ALS, that replaces the 1100 G1313A ALS. For systems that have a G1329A without a thermostat G1330B, 3rd party software may require/ask for a thermostat (temperature setting). For this case SN 1200-010 provides a workaround by changing the type of the G1329A to G1313A via the LC Diagnostic Software (can be changed back at a later time).
- The G1315C DAD SL/G1365C MWD SL and G1315D DAD/G1365D MWD cannot go below B.01.01/B.01.04 and will not work in 1100 emulation modes A.05.11/12 and below.
- The G4208A Instant Pilot can be made invisible for 3rd party software using a switch in its configuration setup. It works only with firmware A.06.02/B.01.02.
- The G4208A Instant Pilot can be downgraded to A.05.13 to work in 1100 emulation modes A.05.11/12 and below.



## 8

# Downgrade of Agilent 1100/1200/1290 Modules

General Information [158](#)

Minimum firmware revision vs. mainboard revision [159](#)

1100/1200 Modules [159](#)

1290 Infinity LC Modules [163](#)

This chapter give some guidance on downgrading of Agilent 1100/1200 series modules' firmware (if required).



**Agilent Technologies**

## General Information

### Qualification status of the instrument

In this chapter "update" refers to a change to the firmware, older or newer.

Review the *Firmware Revision History* document located on Agilent web (see [“Updates from the Agilent Web”](#) on page 16) to assure that a repeat of the OQ/PV is not recommended after update of the firmware. Update the firmware following the instructions in this document.

## Minimum firmware revision vs. mainboard revision

### 1100/1200 Modules

Table 11 lists the various Agilent 1100/1200 modules, their main board part numbers and the minimum firmware revisions that can be loaded.

#### NOTE

When downgrading or upgrading, the corresponding resident firmware should be loaded as well. For revisions refer to the Firmware Revision History document.

**Table 11** Minimum firmware revision vs. mainboard revision (for notes see below table)

Module Type	Module description	Mainboard part number	Minimum firmware revision	Notes
Pumps	G1310A Isocratic Pump	G1311-66540	A.04.06 /	4 / 5
	G1311A Quaternary Pump	G1311-66540	A.05.09 [007]	
	G1312A Binary Pump	G1312-66540		
	G1310A Isocratic Pump	G1311-66530	A.04.06	4
	G1311A Quaternary Pump	G1311-66530		
	G1312A Binary Pump	G1312-66530		
	G1310A Isocratic Pump	G1311-66520	A.02.03 / 3.32	1 / 2
	G1311A Quaternary Pump	G1311-66520		
	G1312A Binary Pump	G1312-66520		
	G1310A Isocratic Pump	G1311-66500	A.01.05	1
	G1311A Quaternary Pump	G1311-66500		
	G1312A Binary Pump	G1312-66500		
	G1312B Binary Pump SL	G1312-66550	A.06.02 A.06.01 A.05.12/10/01	6
	G1361A Preparative Pump	G1361-66500	A.04.17	1
	G1376A Capillary Pump	G1376-66530	A.04.08	1
	G2226A Nano Pump	G2226-66530	A.05.05 [002]	1

## 8 Downgrade of Agilent 1100/1200/1290 Modules

Minimum firmware revision vs. mainboard revision

**Table 11** Minimum firmware revision vs. mainboard revision (for notes see below table)

Module Type	Module description	Mainboard part number	Minimum firmware revision	Notes
Samplers	G1313A Autosampler	G1313-66520	A.02.06 / 3.30	1 / 2
	G1313A Autosampler	G1313-66500	A.01.04	1
	G1329B Autosampler SL	G1329-66540	A.06.04 / 3.30	7 / 2
	G1329A/G1330B Thermostatted Autosampler	G1329-66530	A.05.01 [003]	1
	G1329A/G1330A Thermostatted Autosampler	G1329-66500	A.03.03 / 3.30	1 / 2
	G1367D High Performance Autosampler SL+	G1367-66520	A.06.12	1 / 8
	G1367C High Performance Autosampler SL	G1367-66520	A.05.01	1
	G1367B High Performance Autosampler	G1367-66520	A.05.01	1
	G1367A Well Plate Autosampler	G1367-66520	A.05.01	1
	G1367A Well Plate Autosampler	G1367-66510	A.05.01	1
	G1367A Well Plate Autosampler	G1367-66500	A.04.08	1
	G1377A Micro Well Plate Autosampler	G1367-66500	A.04.13	1
	G1389A Micro Autosampler	G1329-66500	A.04.06	1
	G2260A Thermostatted Prep Autosampler	G1329-66500	A.03.03 / 3.30	1 / 2
		G1329-66530	A.05.01 [003]	1
	G2258A Dual Loop Autosampler	G1367-66500	A.05.09 [009]	1
Detectors	G1364B/C/D Fraction Collector	G1364-66520	A.05.06 [011]	1
	G1364B/C/D Fraction Collector	G1364-66500	A.05.06 [011]	1
	G1364A Fraction Collector	G1364-66500	A.05.01 [009]	1
	G1314E Variable Wavelength Detector SL+	G1314-65080	B.06.20	1
	G1314D Variable Wavelength Detector	G1314-65070	B.06.20	1
	G1314C Variable Wavelength Detector SL	G1314-66532	A.06.02 / 3.30	7 / 2
	G1314C Variable Wavelength Detector SL	G1314-66531	A.06.02 / 3.30	7 / 2
	G1314A/B Variable Wavelength Detector	G1314-66526	A.06.02	1 / 2 / 6



**Table 11** Minimum firmware revision vs. mainboard revision (for notes see below table)

Module Type	Module description	Mainboard part number	Minimum firmware revision	Notes
	G1314A/B Variable Wavelength Detector	G1314-66525	A.06.02 / 3.30	1 / 2
	G1314A Variable Wavelength Detector	G1314-66525	A.06.02 / 3.30	1 / 2
	G1314A Variable Wavelength Detector	G1314-66521	A.02.05 / 3.30	1 / 2
	G1314A Variable Wavelength Detector	G1314-66520	A.02.03	1
	G1314A Variable Wavelength Detector	G1314-67501	A.01.06	1
	G1315D Diode Array Detector	G1315-66565	B.01.04	1
	G1315C Diode Array Detector SL	G1315-66563	B.01.02	1
	G1315C Diode Array Detector SL	G1315-66560	B.01.01	1
	G1315A/B Diode Array Detector	G1315-66540	A.04.11	1
	G1315A/B Diode Array Detector	G1315-66530	A.04.03	1
	G1315A Diode Array Detector	G1315-66520	A.02.03 / 3.30	1 / 2
	G1315A Diode Array Detector	G1315-66500	A.01.05	1
	G1321A Fluorescence Detector	G1321-66500	A.03.43	1
	G1362A Refractive Index Detector	G1362-66500	A.03.60	1
	G1365D Multiple Wavelength Detector SL	G1365-66565	B.01.04	1
	G1365C Multiple Wavelength Detector SL	G1365-66563	B.01.02	1
	G1365C Multiple Wavelength Detector SL	G1365-66560	B.01.01	1
	G1365A/B Multiple Wavelength Detector	G1365-66540	A.04.11	1
	G1365A/B Multiple Wavelength Detector	G1365-66530	A.04.03	1
	G1365A Multiple Wavelength Detector	G1365-66520	A.03.61	1
Others	G1316C Thermostatted Column Compartment SL+	G1316-65050	A.06.10	1
	G1316B Thermostatted Column Compartment SL	G1316-66540	A.06.02 / 5.05	7
	G1316A Thermostatted Column Compartment	G1316-66535	A.05.05	1
	G1316A Thermostatted Column Compartment	G1316-66530	A.05.05	1

## 8 Downgrade of Agilent 1100/1200/1290 Modules

### Minimum firmware revision vs. mainboard revision

**Table 11** Minimum firmware revision vs. mainboard revision (for notes see below table)

Module Type	Module description	Mainboard part number	Minimum firmware revision	Notes
	G1316A Thermostatted Column Compartment	G1316-66520	A.02.03 / 3.30	1 / 2
	G1316A Thermostatted Column Compartment	G1316-66500	A.01.05	1
	G4208A Instant Pilot with DE... serial numbers	n/a	B.01.02 / A.05.11	1 1
	G4208A Instant Pilot with MY... serial numbers	n/a	B.02.07 / A.05.14	1 1
	G1323B Control Module	n/a	B.01.01	1
	G1323A Control Module	n/a	A.01.04	1
	G4240A Chip Cube	G4240-66520	A.06.01 [017]	1
	G4240A Chip Cube	G4240-66510	A.06.01 [017]	1
	G4240A Chip Cube	G4240-66500	A.06.01 [017]	1

#### Notes:

- 1 Initial version, no further downgrade possible.
- 2 Introduction of AMD flash ROMs, boards with these chips limit the downgrade.
- 3 Backward compatible to previous board version.
- 4 The three pumps are now produced containing the new style main electronics board, which accepts ONLY the A.04.06 revision firmware and above.
- 5 The three pump boards now support the Active Seal Wash feature, which requires the A.05.09 [007] revision firmware and above.
- 6 Initial version 6.02, downgrade possible in “[1100/1200 Series Compatibility and Emulation Mode](#)” on page 68 , no further downgrade possible.
- 7 Initial version 6.02, downgrade possible in “[1100/1200 Series Compatibility and Emulation Mode](#)” on page 68 , with limited feature set.
- 8 Downgrade possible, G1367D acting as G1367C. Contact you Agilent Support for details.

## 1290 Infinity LC Modules

Table 12 lists the various Agilent 1290 Infinity LC modules, their main board part numbers and the minimum firmware revisions that can be loaded.

### NOTE

When downgrading or upgrading, the corresponding resident firmware should be loaded as well. For revisions refer to the Firmware Revision History document.

**Table 12** Minimum firmware revision vs. mainboard revision (for notes see below table)

Module Type	Module description	Mainboard part number	Minimum firmware revision	Notes
Pump	G4220A Infinity Binary Pump	G4220-65800	B.06.23	1
Detector	G4212A Infinity Diode Array Detector	G4212-65800	B.06.23	1
Sampler	G4226A Infinity Autosampler	G4226-65000	A.06.14	1
TCC	G1316C Infinity Thermostatted Column Compartment	G1316-65050	A.06.14 (A.06.10)	2
Local Controller	G4208A Instant Pilot with DE... serial numbers	n/a	B.02.09	3
	G4208A Instant Pilot with MY.... serial numbers	n/a	B.02.09	3

### Notes:

- 1 Initial version, no further downgrade possible.
- 2 Initial version for 1290 Infinity system. When used as G1316C in Method development system, minimum is A.06.10, see Table 11.
- 3 Initial version, further downgrade possible for use with 1100/1200 modules, see [Table 11](#) on page 159.

**8    Downgrade of Agilent 1100/1200/1290 Modules**  
Minimum firmware revision vs. mainboard revision

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- LAN/RS-232
- Instant Pilot G4208A
- Control Module G1323A/B
- GPIB
- 1100 vs 1200 series
- Downgrades (firmware vs. main boards)

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