

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Visit our website - *Click HERE*

Agilent 1200 Infinity LC Systems

Firmware Update Guide



Agilent Technologies

Notices

© Agilent Technologies, Inc. 2010

No part of this manual may be reproduced in any form or by any means (including electronic storage and retrieval or translation into a foreign language) without prior agreement and written consent from Agilent Technologies, Inc. as governed by United States and international copyright laws.

Manual Part Number

PDF ONLY

Edition

Edition 09/03/2010

Printed in Germany

Agilent Technologies
Hewlett-Packard-Strasse 8
76337 Waldbronn

Revision

This technical note is valid for the Agilent 1200 Infinity LC Systems Firmware.

Warranty

The material contained in this document is provided "as is," and is subject to being changed, without notice, in future editions. Further, to the maximum extent permitted by applicable law, Agilent disclaims all warranties, either express or implied, with regard to this manual and any information contained herein, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. Agilent shall not be liable for errors or for incidental or consequential damages in connection with the furnishing, use, or performance of this document or of any information contained herein. Should Agilent and the user have a separate written agreement with warranty terms covering the material in this document that conflict with these terms, the warranty terms in the separate agreement shall control.

Technology Licenses

The hardware and/or software described in this document are furnished under a license and may be used or copied only in accordance with the terms of such license.

Restricted Rights Legend

Software and technical data rights granted to federal government customers include only those rights customarily provided to end user Customers of Software. Agilent provides this customary commercial license in Software and technical data pursuant to FAR 12.211 (Technical Data) and FAR 12.212 (Computer Software) and, for Department of Defense purchases, DFARS 252.227-7015 (Technical Data - Commercial Items) and DFARS 227.7202-3 (Rights in Commercial Computer Software or Computer Software Documentation). If a federal government or other public sector Customer has a need for rights not conveyed under these terms, it must negotiate with Agilent to establish acceptable terms in a written agreement executed by all relevant parties.

About this Document

This manual provides information for Firmware Updates of Agilent

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

Where To Get Latest Information

Visit the Agilent web

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

for

- Firmware History documents
- Update Tools and instructions

Updates of this Document

This document will be updated on a regular base when

- the LAN/RS-232 Firmware Update Tools is updated (help of the tool).
- important information needs to be added.

Information on Older Tools

This version does no longer include information about firmware updates using older tools

- GPIB (HPIB)
- Control Module G1323A/B

If this information is required, use the FWUPDATE.PDF version 04/2010.

Content

1 Introduction

This chapter describes general issues for the use of the Firmware Update Tools for firmware updates of the Agilent 1200 Infinity LC Systems of modules.

2 Agilent 1200 Series LC Modules 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 1100 series modules and answering question about adding the new modules into existing systems.

3 Agilent 1200 Infinity LC Modules Overview

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

4 Downgrade Information on Main Boards

This chapter give some guidance on downgrading of Agilent module firmware (if required).

5 Updates via LAN/RS-232 Firmware Update Tool

This chapter describes the use of the LAN/RS-232 Firmware Update Tool for firmware updates of the Agilent LC modules.

6 Updates via LabAdvisor / Instrument Utilities

This chapter describes the use of the Agilent LabAdvisor / Instrument Utilities for firmware updates of the LC modules.

7 Updates via Instant Pilot (G4208A)

This chapter describes the firmware updates of the Agilent Instant Pilot G4208A and the Agilent LC modules via the Instant Pilot G4208A.

Content

1 Introduction

Firmware Description 10
File Naming Convention of Firmware 11

Compatibility Matrix 14
Firmware Sets 14
Special Information on G1323B Control Module 17

Procedures 24

Updates from the Agilent Web 26

2 Agilent 1200 Infinity LC Modules Overview

How can the 1200 Infinity LC Modules be identified? 30

1200 Infinity Compatibility and Emulation Mode 32
Emulation Firmware 35
How to Change Back to Original Module Type 43

3 Agilent 1200 Series LC Modules Overview

How can the 1200 Series Systems and Modules be identified? 46

Can 1200 modules be mixed 48
with 1100 series modules? 48
with 1290 Infinity series modules? 48
What firmware revisions I have to use with my Local Controllers G1323A/B and G4208A Instant Pilot)? 51

Which Firmware Revision of the 1100/1200/1290 modules need to be used for which Agilent ChemStation Revision? 52

3rd Party Control Software 56

4 Downgrade Information on Main Boards

General Information 58

Qualification status of the instrument 58
Minimum firmware revision vs. mainboard revision 59
1100/1200 Series LC Modules 59
1290 Infinity LC Modules 63

5 Updates via LAN/RS-232 Firmware Update Tool

General Information 68
Important 68
Update Sequence 69
Automatic Configuration with Bootp 72
Configuring the Agilent Bootp Service (B.01.xx and above) 76
Installation of the LAN/RS-232 Firmware Update Tool 80
How to un-install the LAN/RS-232 Firmware Update Tool 80
Installation of the Module Firmware on your PC 81
Connect your PC to the Modules 81
Update Durations 82
Setup of the LAN/RS-232 Firmware Update Tool 83
Doing the Firmware Update 89
Firmware Update to A.06.xx 101
Instruction Window 113
Recovering 115
Updating the Instant Pilot 116
Recovering 116
Solving Problems 117
Firmware files are not shown 117
Help file cannot be opened 117
No connection to modules 117
Lost Connenction to Module 120
The RS-232 Update is So Slow 120

Multiple System Updates Not Possible 121
Instant Pilot Screen Is Dark After Firmware Update 121
Instant Pilot Update Does Not Finish 121
Firewall or Anti-Virus Programs may Block the Tool 121
Agilent Contact 122

6 Updates via LabAdvisor / Instrument Utilities

General Information 124
Pre-requisites 125
Setup of LabAdvisor Software 126
Firmware Update 129

7 Updates via Instant Pilot (G4208A)

General Information 134
Update Sequence 135
Updating the Firmware Using The Single Mode 138
Updating the Firmware Using The Wizard 140
Update Information for A.05.1x Firmware 142
Using the Instant Pilot 142
Errors During Firmware Updates 149
Instant Pilot Screen Is Dark During/After Firmware Update 149



1 Introduction

Firmware Description 10
File Naming Convention of Firmware 11
Revision Numbering 12
Compatibility Matrix 14
Firmware Sets 14
Quick Overview on Compatibility 15
Special Information on G1323B Control Module 17
1200/1290 Infinity LC System Compatibility Matrix 18
1100/1200 LC System Compatibility Matrix 20
G4218A ELSD Firmware 23
Compatibility Matrix 14
Update of firmware for MS hardware 25
Updates from the Agilent Web 26

This chapter describes general issues for the use of the Firmware Update Tools for firmware updates of the Agilent 1200 Infinity LC Systems of modules.

Please refer also to

- "Agilent 1200 Infinity LC Modules Overview" on page 29 and
- "Agilent 1200 Series LC Modules Overview" on page 45 and
- "Downgrade Information on Main Boards" on page 57

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

Resident System

This resident section of the firmware is identical for all Agilent 1200 Infinity LC Systems modules. Its properties are:

- the complete communication capabilities (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 (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.

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, Valves	Main	xxxxA_Avvv_bbb.DLB xxxxA_Bvvv_bbb.DLB
Pumps, Autosampler, Detectors, Column Compartment	Resident	res_Avvv_bbb.DLB res_Bvvv_bbb.DLB
1290 Flexible Cube (G4227A)	Main Resident	xxxxA_Cvvv_bbb.DLB xxxxA_Cvvv_bbb.DLB
G4208A Instant Pilot	Main	G4208A_Bvvv_bbb.DLB
G4208A Instant Pilot	Resident	RES_4208A_Bvvv_bb.DLB

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 14 for details.

NOTE The 1290 Infinity Flex Cube (introduced April 2010) is the first module that has a C.06.3x firmware. This module is hosted by a “Nucleus” module (all modules that have build-in LAN - G1314D/E/F, G1315/65C/D, G4212A/B and G4220A).

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/3x and B.06.2x/3x for these modules is possible (and with 1100/1200 series modules on A.06.1x or B.06.1x).

NOTE

The introduction of the 1200 Infinity LC System in July 2010 has modules with new and old electronic platform. It started with A.06.32 and B.06.32. Added to 1100/1200 series modules, the 1100/1200 series modules have to be on the same firmware set.

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 14):

- 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.06.31 / B.06.31 /C.06.31 and below (1100/1200/1290)
- A.06.32 / B.06.32 /C.06.32 and above (1100/1200/1260/1290)

NOTE The 1290 Infinity Flex Cube (introduced April 2010) is the first module that has a C.06.3x firmware. This module is hosted by a "Nucleus" module (all modules that have build-in LAN - G1314D/E/F, G1315/65C/D, G4212A/B and G4220A).

Compatibility Matrix

Firmware Sets

Figure 2 on page 20, Figure 3 on page 21 and Figure 4 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.06.31 and B.06.31 and below (1290 Infinity LC System)
- A.06.32 and B.06.32 and above (1200 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.

NOTE If 1200 Infinity LC modules are added into existing 1100/1200/1290 systems, then the 1100/1200/1290 must have A.06.32 and B.06.32. See additional information ""

Quick Overview on Compatibility

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

Table 1 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)	Y	N	N	N	N
G1323B Control Module (B.04.02)	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 • 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)	N	N	N	Y	Y

* The G1323A ontrol Module (obsolete) supports the original 1100 series LC modules. It does not work with the LAN/RS-232 Firmware Update Tool.

** The G1323B (obsolete) supports the original 1100 series LC modules. New 1200 series LC and 1260 Infinity modules are supported with the feature set of the initial module. Newer modules are NOT known and therefore not supported, see "Special Information on G1323B Control Module" on page 17.

***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.

Special Information on G1323B Control Module

The last firmware release B.04.02 of the G1323B Control Module also control the newer Agilent series modules

- G1310B, G1311B/C, G1312C pumps (*)
- G1329B standard autosampler SL (*)
- G1367B/C/D/E autosampler (*)
- G1314B/C Variable Wavelength Detector (*)
- G1315D Diode Array Detector (DAD) (**)
- G1365D Multiple Wavelength Detector (MWD) (**)
- G1321B Fluoresence Detector (*)

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

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

NOTE To have the complete functionallity available, use the Agilent Instant Pilot G4208A.

The following modules are not supported due to it's different feature set:

- G1312B Binary Pump,
- G1314D/E/F Variable Wavelength Detector,
- G1316B TCC,
- 1290 Infinity modules and 1260 Infinity modules, that have new product numbers other than established with 1100/1200 series.

NOTE Not supported modules will display “resident or unsupported module” or “communication error”.

1200/1290 Infinity LC System Compatibility Matrix

The table below lists the compatibility requirements for the 1200 Infinity LC System.

Table 2 Firmware/Software Requirements for 1200 Infinity LC System

	1290 Infinity		1200 Infinity	Comment
• G4212A Infinity DAD	B.06.23 *	B.06.30	B.06.32	
• G4220A Infinity Binary Pump	B.06.23 *	B.06.30	B.06.32	
• G4226A Infinity ALS	A.06.14 *	A.06.30	B.06.32	
• G1316C Infinity TCC	A.06.14 *	A.06.30	B.06.32	
• G4227A Infinity FlexCube		C.06.30 **	B.06.32	see foot note below.
• G4208A Instant Pilot	B.02.08 *	B.02.09***	B.02.11****	usable for firmware updates
• Agilent 1100/1200 modules	B.06.2x	B.06.2x/3x	B.06.32	modules with on-board LAN
• Agilent 1100/1200 modules	A.06.1x	A.06.1x/3x	A.06.32	modules without on-board LAN
• Agilent 1260 modules			B.06.32	modules with on-board LAN
• Agilent 1260 modules			A.06.32	modules without on-board LAN
• Agilent ChemStation	B.04.02 *	B.04.02 SP1	B.04.02 DSP3 B.04.02 [256]	
• Agilent LabAdvisor / System Utilities	B.01.03 *	B.01.03 SP4	B.01.04	usable for firmware updates
• LAN/RS-232 Firmware Update Tool	2.6 or above	2.7 or above	2.8 or above	usable for firmware updates

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

** If the 1290 Infinity FlexCube is part of the system, all 1290 Infinity LC modules must be on firmware A.06.30/B.06.30 or later.

***1290 release: does not support the 1290 Infinity FlexCube. ChemStation B.04.02 SP1 required.

****1260 release: does not support the 1120 Compact LC and 1220 Infinity LC.

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 1100/1200/1260 modules, see Figure 1 on page 19.

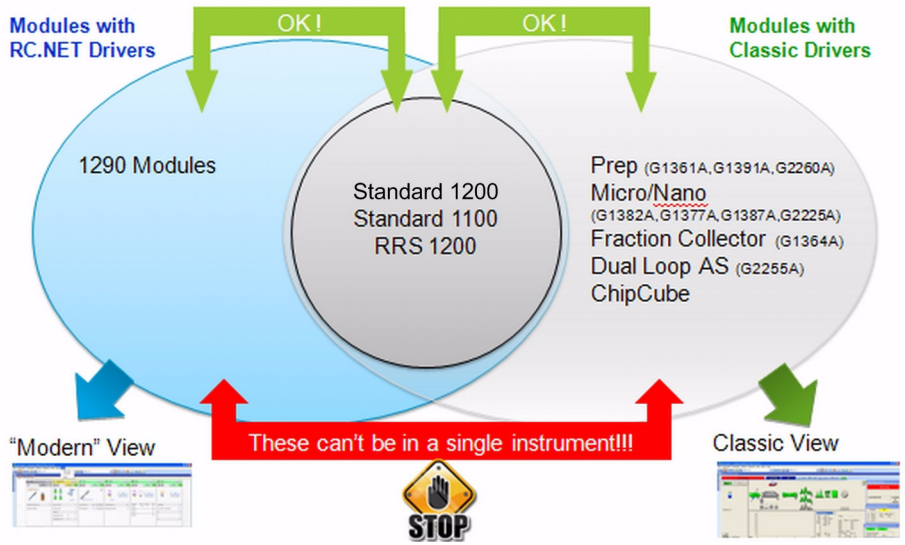


Figure 1 Agilent ChemStation B.04.02 vs. 1290 and 1100/1200 modules

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

1100/1200 LC System Compatibility Matrix

	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 selction 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 perfromance 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 perfromance 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 perfromance 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

	ChemStation Release	B.02.01 SR2 B.01.03 SR2	B.02.01 SR1	B.02.01	B.01.03 SR1
	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 selction 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 perfromance autosampler	A.06.03	A.06.03	A.06.02	A.06.02
G1367C	1200 Series high perfromance autosampler SL	A.06.03	A.06.03	A.06.02	A.06.02
G1367D	1200 Series high perfromance 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 selction 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 perfromance autosampler	A.06.01	A.05.11	A.05.09	A.05.07	A.05.04	A.05.01
G1367C	1200 Series high perfromance autosampler SL	A.06.01	A.05.11	A.05.09	A.05.07	A.05.04	A.05.01
G1367D	1200 Series high perfromance 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

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 possiblities or contact the Agilent Service.

Procedures

Firmware updates can be done using teh following interfaces:

- "Updates via LAN/RS-232 Firmware Update Tool" on page 67 with files from CD-ROM/hard disk/USB Flash Drive.
- "Updates via LabAdvisor / Instrument Utilities" on page 123 with files from CD-ROM/hard disk/USB Flash Drive.
- "Updates via Instant Pilot (G4208A)" on page 133 with files from USB Flash Drive.

Table 3 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 2.8	X	X (B)	X	X	X
Instant Pilot G4208A	X		X *	X	
LabAdvisor 1.04	X	X (B)	X *	X	
Instrument Utilities 1.04				X	

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

NOTE Always use the latest version of the firmware update tool mentioned 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 supporting documentation 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

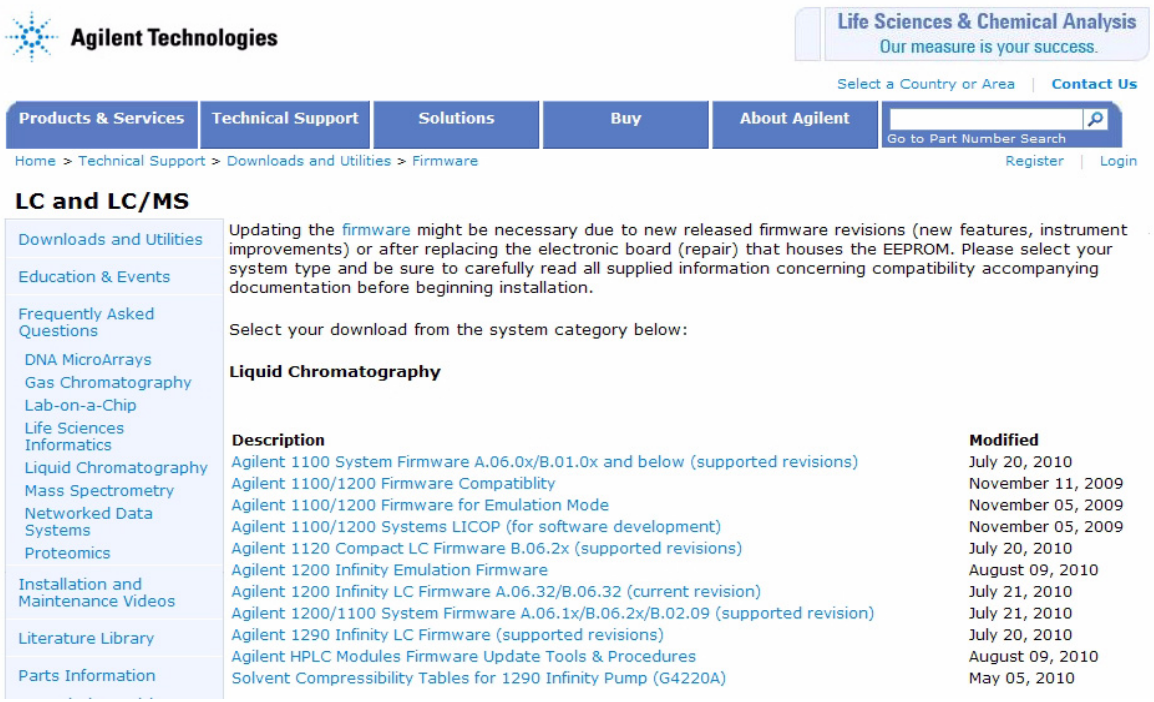


Figure 5 Agilent firmware download page

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 the help in the LAN/RS-232 Firmware Update Tool).
- other related documents (if required).

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



2
Agilent 1200 Infinity LC Modules Overview

How can the 1200 Infinity LC Modules be identified? 30
1200 Infinity Compatibility and Emulation Mode 32
Emulation Firmware 35
Replacing existing modules with new 1260 Infinity modules 38
Firmware Update Process - General Information 39
How to Convert a Module to Emulation Type 41
How to Change Back to Original Module Type 43

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



Agilent Technologies

How can the 1200 Infinity LC 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 Infinity
	Product No.:	G1310B
	Serial No.:	AAazzxxxxx

Hardware Changes:

All Agilent 1200 Infinity LC modules

- start with new serial number format, where
  - AA is the country of manufacturing and could be DE, CN or JP
  - a is alphanumeric code for the 1200 Infinity platform
    A = 1260, B=1290, C=1220
  - zz related to module type
  - Example: DEAAA00101= G1310B pump with serial number 101
- have a 1200 Infinity series label in the front (top left)
- have a new front cover
- have firmware A.06.32/B.06.32 or higher installed.

New Modules:

New modules have been added

- G1310B Isocratic Pump (replaces G1310A)
- G1311B Quaternary Pump (replaces G1311A)
- G1311C Quaternary Pump VL
- G1312C Binary Pump VL
- G1314F VWD (replaces G1314D)
- G1321B Fluorescence Detector (replaces G1321A)
- G1367E HiP Autosampler (replaces G1367A/D)
- G4212B DAD
- G4220B Binary Pump (1290)
- G4227A Flexible Cube

New Specifications/Features:

Some modules got new specifications/features:

Review the user documentation for detailed specifications.

1200 Infinity Compatibility and Emulation Mode

In July 2010, Agilent Technologies released the 1260 Infinity LC System platform. This platform replaces the 1200 Series LC.

The new 1260 Infinity LC System platform extends the capabilities even further with new LC modules, enhanced performance of standard modules, design changes, and new support capabilities.

To protect the 1200 Series LC investment, the 1260 Infinity LC modules are fully backwards-compatible. In the 1200 Emulation Mode individual 1260 modules can be added to 1200 Series LC systems or complete 1260 Infinity LC systems can be operated with existing Agilent and third-party control software.

"Initial 1200 Infinity firmware vs. Emulation Mode" on page 34 shows the 1260 Infinity LC modules and its firmware and the Agilent ChemStation at introduction. All 1260 LC modules were shipped with A.06.32/B.06.32 firmware.

Based on the module there are the following options:

- Modules with same product numbers as in the 1200 series. These can be downgraded to lower firmware revisions based on the limits described in chapter "Minimum firmware revision vs. mainboard revision (1100/1200 Series LC Modules)" on page 59. The 1200 series also had modules that could emulate 1100 modules. There might be some exceptions, see "Initial 1200 Infinity firmware vs. Emulation Mode" on page 34 and "Minimum firmware revision vs. mainboard revision (1200 Infinity LC Modules)" on page 64 based on the use of new main boards.
- Modules with new product numbers (e.g. G1310B) that can be converted to 1200 series product numbers (G1310A). These can be downgraded to lower emulation firmware revisions based on the limits described in "Minimum firmware revision vs. mainboard revision (1200 Infinity LC Modules)" on page 64. The conversion into 1200 series product numbers will result into the feature set of the 1200 series product, see "Initial 1200 Infinity firmware vs. Emulation Mode" on page 34.
- Modules with new product numbers (e.g. G4212B DAD) that cannot be converted or downgraded due to its new electronic platform and/or because it did not exist before.

Read “Firmware Update Process - General Information” on page 39 first before using an emulation firmware.

If a conversion to emulation module type is required, follow the procedure "“How to Convert a Module to Emulation Type” on page 41.

If a conversion to original module type is required, follow the procedure “How to Change Back to Original Module Type” on page 43.

The following new 1260 Infinity LC modules allow emulation of 1200 series modules:

- G1310B Isocratic Pump (replaces G1310A)
- G1311B Quaternary Pump (replaces G1311A)
- G1311C Quaternary Pump VL (replaces G1311A)
- G1312C Binary Pump VL (replaces G1312A)
- G1314F VWD (replaces G1314D)
- G1321B Fluorescence Detector (replaces G1321A)
- G1367E Autosampler (replaces G1367A/B/C/D) (for D hardware upgrade is required)

The following 1260 Infinity LC modules allow emulation of 1200 series modules:

- G1316C TCC (G1316A/B)
- G1314B VWD (G1314A)
- G1314C VWD (G1314A/B)
- G1329B Autosampler (G1329A)
- G1312B Binary Pump (G1312A)

The following 1260 Infinity LC modules require special firmware for downgrade due to hardware changes:

- G1312B Binary Pump
- G1376A Capillary Pump
- G2226A Nanoflow Pump

		ChemStation Release B.04.02 DSP3 B.04.02 [256]	emulate 1200	Limits/Comments
		ChemStation Release Date Jul-10		
G1156A	1260 Infinity 6-Position/7-Ports Valve	A.06.32		
G1157A	1260 Infinity 2-position/10-port valve	A.06.32		
G1158B	1260 Infinity 2-position/6-port valve SL	A.06.32		
G1159A	1260 Infinity 6-position selction valve	A.06.32		
G1160A	1260 Infinity 12-position/13-port valve	A.06.32		
G1162A	1260 Infinity 2-position/6-port micro valve	A.06.32		
G1163A	1260 Infinity 2-position/10-port micro valve	A.06.32		
G1310B	1260 Infinity isocratic pump	A.06.32	G1310A	400 bar, smaller damper
G1311B	1260 Infinity quaternary pump	A.06.32	G1311A	400 bar, no error messages of build-in degassing unit, smaller damper
G1311C	1260 Infinity quaternary pump VL	A.06.32	G1311A	400 bar, no error messages of build-in degassing unit
G1312B	1260 Infinity binary pump	A.06.32	G1312A	400 bar, smaller damper
G1312C	1260 Infinity binary pump VL	A.06.32	G1312A	
G1314B	1260 Infinity variable wavelength detector VL	A.06.32	G1314A	13.74 Hz data rate
G1314C	1260 Infinity variable wavelength detector VL+	A.06.32	G1314A/B	13.74 Hz data rate
G1314F	1260 Infinity variable wavelength detector	B.06.32	G1314D	20 Hz data rate
G1315C	1260 Infinity diode-array detector VL+	B.06.32		
G1315D	1260 Infinity diode-array detector VL	B.06.32		
G1316A	1260 Infinity thermostated column compartment	A.06.32		
G1316C	1290 Infinity thermostated column compartment	A.06.32	G1316A/B	Valve heads will be handled as build-in valve options of the G1316B! There is no pressure check of the valve heads available.
G1321B	1260 Infinity fluorescence detector	A.06.32	G1321A	37 Hz data rate
G1329B	1260 Infinity standard autosampler	A.06.32	G1329A	
G1361A	1260 Infinity preparative pump	A.06.32		
G1362A	1260 Infinity refractive index detector	A.06.32		
G1364B	1260 Infinity fraction collector PS	A.06.32		
G1364C	1260 Infinity fraction collector AS	A.06.32		
G1364D	1260 Infinity fraction collector µS	A.06.32		
G1365C	1260 Infinity multi-wavelength detector VL	B.06.32		
G1365D	1260 Infinity multi-wavelength detector VL	B.06.32		
G1367E	1260 Infinity high perfromance autosampler	A.06.32	G1367A/B/C/D	for D hardware upgrade is required
G1376A	1260 Infinity capillary pump	A.06.32		
G1377A	1260 Infinity high performance micro autosampler	A.06.32		
G1390A	1260 Infinity universal interface box	A.06.32		
G2226A	1260 Infinity nanoflow pump	A.06.32		
G2254A	1260 Infinity automation interface	A.06.32		
G2258A	1260 Infinity dual loop autosampler PS	A.06.32		
G2260A	1260 Infinity preparative autosampler	A.06.32		
G4212B	1260 Infinity diode-array detector	B.06.32	n/a	
G2240A	1260 Infinity chip cube MS interface	A.06.32		
G4208A	1200 Series instant pilot	B.02.11		
	Resident System (A-version)	A.06.32		
	Resident System (B-version)	B.06.32		
	Resident System (G4208A)	B.02.11		

full 1260 Series support (recommended)
full 1200 series support with firmware < A/B.06.32
Emulation Mode: module conversion and FW downgrade (limited feature set). Special new firmware required. Diagnostics may not work completely!
Due to module hardware changes, requires special firmware versions below A.06.32.
Not supported (no further FW downgrade possible due to hardware)

Figure 6 Initial 1200 Infinity firmware vs. Emulation Mode

The following information and instructions are valid for "emulated"

- 1200 Infinity LC modules

Emulation Firmware

The firmware of a module where the type can be changed to "emulate" a different type includes both, the original type and emulation type control, see “Initial 1200 Infinity firmware vs. Emulation Mode” on page 34.

The initial A.06.32/B.06.32 firmware is the first "emulation" firmware. Other revisions will be made available. See “Set A.06.1x/B.06.1x (includes 6.10/6.31)” on page 36 and “Set A.06.02 (includes 6.02/6.06)” on page 37.

NOTE There are no plans to provide "emulation" firmware for A.05.xx and below.

NOTE All Agilent ChemStation software allow the use of newer firmware revisions. For example ChemStation A.09.3 was introduced with firmware A.05.04. Upgrades to newer versions, e.g. to A.06.32 are possible. New module features are ignored.

If you want replace a 1100/1200 series LC module with a new 1260 Infinity module, follow the checkup shown in “Replacing existing modules with new 1260 Infinity modules” on page 38.

Read “Firmware Update Process - General Information” on page 39 first before using an emulation firmware.

Set A.06.1x/B.06.1x (includes 6.10/6.31)

Table 4 Set A.06.1x/B.06.1x (includes 6.10/6.31)

Module	emulates	Original Revision	New Revision	File name [.dlb]	Comment
G1310B	G1310A	n/a	A.06.10 [020]	1310B_A610_020	
G1311B	G1311A	n/a	A.06.10 [020]	1311B_A610_020	
G1310C	G1310A	n/a	A.06.10 [020]	1311C_A610_020	
G1312B	G1312A	A.06.10 [005]	A.06.10 [020]	1312B_A610_020	G1312B pumps that have FW A.06.10 [005] installed, do not require [020]. Difference is the support of the new SSV with [020].
G1312C	G1312A	n/a	A.06.10 [020]	1312C_A610_020	
G1376A	G1376A	A.06.11 [005]	A.06.11 [020]	1376A_A611_020	G1376A/G2226A pumps that have FW A.06.11 [005] installed, do not require [020]. Difference is the support of the new SSV with [020].
G2226A	G2226A	A.06.11 [005]	A.06.11 [020]	2226A_A611_020	
G1314F	G1314D	n/a	B.06.25 [003	1314F_B625_003	
G1321B	G1321A	A.06.11 [005]	A.06.11 [020]	1321B_A611_020	Important: [020] should be used in emulation mode only. Otherwise, the G1321B will not reach the READY state!
G1367E	G1367A-D	n/a	A.06.16 [001]	1367E_A616_001	

Set A.06.02 (includes 6.02/6.06)

Table 5 Set A.06.1x/B.06.1x (includes 6.10/6.31)

Module	emulates	Original Revision	New Revision	File name [.dlb]	Comment
G1310B	G1310A	n/a	A.06.04 [020]	1310B_A604_020	
G1311B	G1311A	n/a	A.06.04 [020]	1311B_A604_020	
G1310C	G1310A	n/a	A.06.04 [020]	1311C_A604_020	
G1312B	G1312A	A.06.06 [001]	A.06.06 [020]	1312B_A606_020	G1312B pumps that have FW A.06.06 [001] installed, do not require [020]. Difference is the support of the new SSV with [020].
G1312C	G1312A	n/a	A.06.04 [020]	1312C_A604_020	
G1376A	G1376A	A.06.02 [001]	A.06.02 [020]	1376A_A602_020	G1376A/G2226A pumps that have FW A.06.02 [001] installed, do not require [020]. Difference is the support of the new SSV with [020].
G2226A	G2226A	A.06.02 [001]	A.06.02 [020]	2226A_A602_020	
G1321B	G1321A	A.06.02 [001]	A.06.02 [020]	1321B_A602_020	Important: [020] should be used in emulation mode only. Otherwise, the G1321B will not reach the READY state!
G1367E	G1367A-D	n/a	A.06.03 [020]	1367E_A603_020	

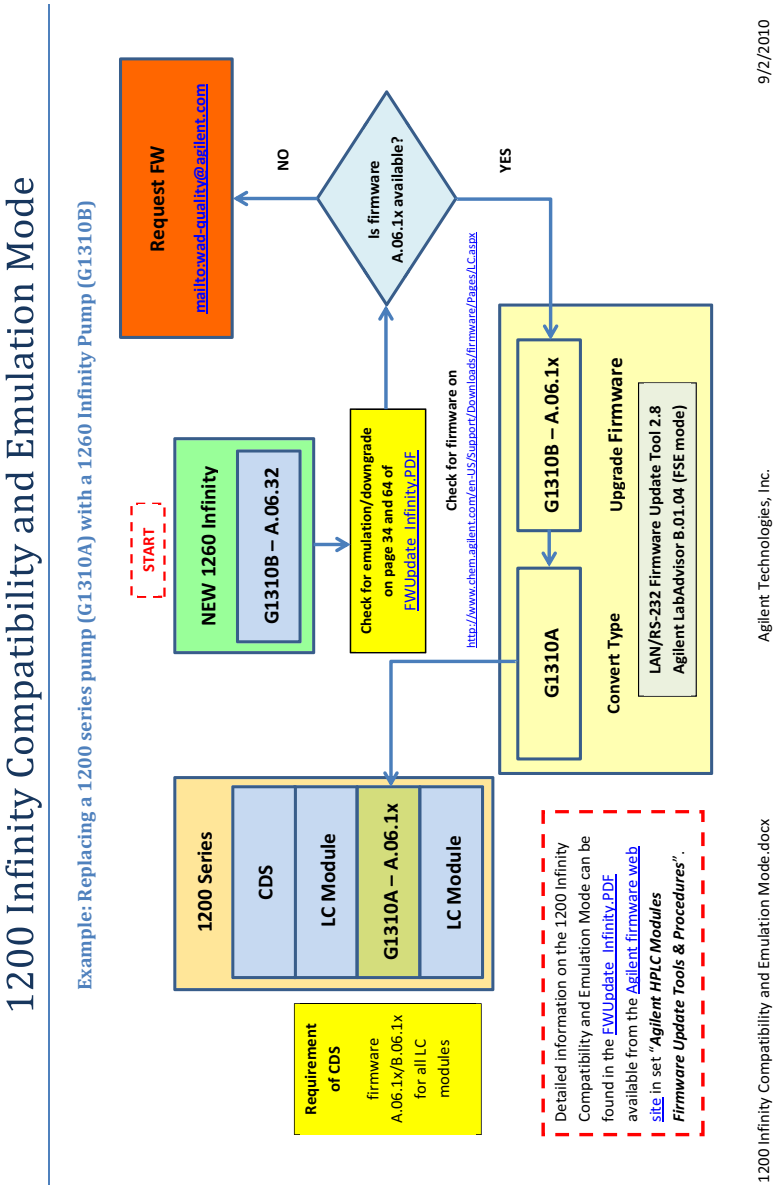


Figure 7 Replacing existing modules with new 1260 Infinity modules

Firmware Update Process - General Information

NOTE

All new 1200 Infinity LC modules, that have new Main Boards, have as initial FW A.06.32 / B.06.32 and cannot be downgraded unless there is a "Emulation" firmware available. See also "Initial 1200 Infinity firmware vs. Emulation Mode" on page 34 and "Downgrade Information on Main Boards" - "1200 Infinity LC Modules" on page 64.

Table 6 Upgrade/Downgrade Matrix - What is possible

Modules	Upgrade to A.6.32/B.06.32	Downgrade to 1100/1200 A.06.xx/B.06.xx/B.01.xx	Upgrade to > A.06.32/B.06.32
1100/1200	Y	n/a	Y
1290 Infinity (2009)	Y	Y *	Y
1200 Infinity LC			
1290 Infinity	Initial	Y **	Y
1260 Infinity (NEW) with new main boards • e.g. G1310B ISO Pump	initial	Y ***	Y
1260 Infinity (OLD) with new main board • e.g. G1362A RID	initial	Y	Y
1260 Infinity (OLD) with old main board • e.g. G1361A Prep Pump	initial	Y	Y
1260 Infinity (NEW) with "B-firmware" • e.g. G4212B DAD	initial	N	Y
1260 Infinity (OLD) with "B-firmware" e.g. G1315C DAD	initial	Y ****	Y

* just the G1316C (to G1316B or G1316A).

** just the G1316C (to G1316B or G1316A), the G4212A, G4220A and G4226A to their initial 2009 firmware only.

*** for modules that can emulate older modules, a special "emulation" firmware is required.

**** to their initial "B" firmware.

G1311B (NEW) to G1311A (Emulated)

Situation: A new G1311B pump should be used in a system, where the control software requires a G1311A pump. The G1311B pump has firmware A.06.32 installed.

1 Upgrade the firmware using the G1311B firmware to the target revision. This could be any provided firmware 1311B_A6xx for the G1311B (and NOT 1311A_A6xx!!).

2 Convert the G1311B pump into the "emulation" type G1311A; see "How to Convert a Module to Emulation Type" on page 41.

G1311A (Emulated) to G1311B (NEW)

Situation: A new G1311B pump has been converted into a G1311A pump and Agilent provides a newer firmware revision (that solves a problem) or should be converted back to the original type G1311B.

1 Convert the G1311A pump back into the original type; see "How to Change Back to Original Module Type" on page 43.

2 Upgrade the firmware using the G1311B firmware to the target revision.

3 If required, convert the G1311B pump back into the "emulation" type G1311A; see "How to Convert a Module to Emulation Type" on page 41.

NOTE

The firmware update can only be done on the original module type (written on the module's product label). So, if changing from "B" to "A", it requires the "B" firmware and not the "A" firmware. Otherwise it will result into an error "Updating Main System: SW does not support HW requirements".

How to Convert a Module to Emulation Type

Use one of these tools:

- Agilent LabAdvisor Software B.01.04 or above
- LAN/RS-232 Firmware Update Tool 2.8 or above

NOTE

This procedure is for the conversion of new 1200 Infinity modules that should be converted to a "lower" product number, e.g. from G1311B to G1311A, to make the module "compatible" with control software that does not support the new 1200 Infinity module number.

Using the Agilent LabAdvisor

1 Start Agilent LabAdvisor.

2 Connect to LC instrument/system.

3 Open **Tools - Module Service Center** and select the module. If the module can be converted, you will see the **Convert to Emulation Type** button (only permitted conversions are displayed). If there are more than one conversions possible (e.g. G1316C to G1316A or G1316B), then you will see a button for each conversion type.

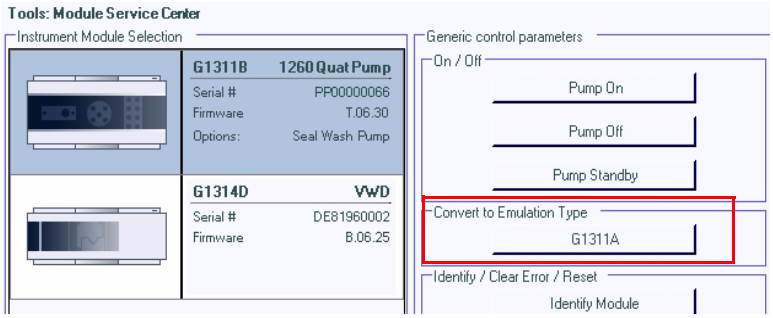


Figure 8 Conversion to Emulation Type in Agilent LabAdvisor B.01.04

4 Click on the button to convert the module. The Reply window should show **RA 0000 TYPE "G1311A"**.

5 Re-boot the module so that the change becomes active. You may use the command **BOOT:RSET** from the command line (see Figure 9) or power cycle the module. After re-boot and reconnect the module should now be listed as G1311A.

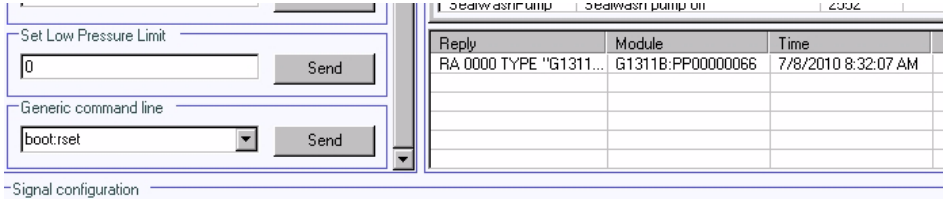


Figure 9 Command Line and Reply Window in Agilent LabAdvisor (FSE Version only)

Using the LAN/RS-232 Firmware Update Tool

1 Start LAN/RS-232 Firmware Update Tool.

2 Connect to LC instrument/system.

3 Right-click on the module in the instrument tree.

4 Select Convert to G1314A (only permitted conversions are displayed). If there are more than one conversions possible (e.g. G1316C to G1316A or G1316B), then you will see a menu entry for each conversion type.

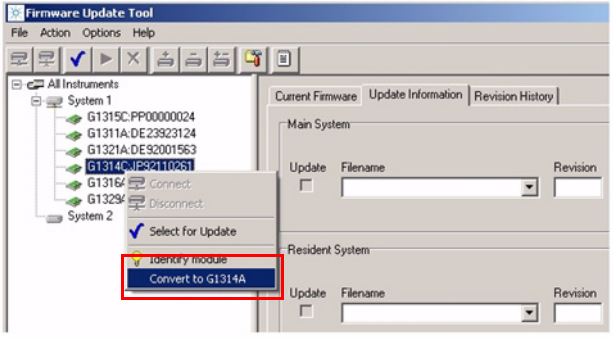


Figure 10 Conversion to Emulation Type in LAN/RS-232 Firmware Update Tool

5 Re-boot the module so that the change becomes active. You may use the command **BOOT:RSET** from the command line (send instruction window, see Figure 11) or power cycle the module. After re-boot and reconnect the module should now be listed as G1314A.

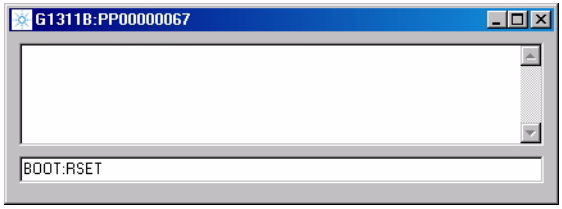


Figure 11 Command Line and Reply Window in LAN/RS-232 Firmware Update Tool

How to Change Back to Original Module Type

Use one of these tools:

- Agilent LabAdvisor Software B.01.04 or above
- LAN/RS-232 Firmware Update Tool 2.8 or above

Using the Agilent LabAdvisor

If the "converted" module should be converted back to the original type, e.g. from G1311A to G1311B, follow these steps:

1 Start Agilent LabAdvisor.

2 Connect to LC instrument/system.

3 Open the **Tools - Module Service Center** and select the module. If the module can be converted, you will see the **Convert to Original Type** button (only the conversion back to the original type is permitted).

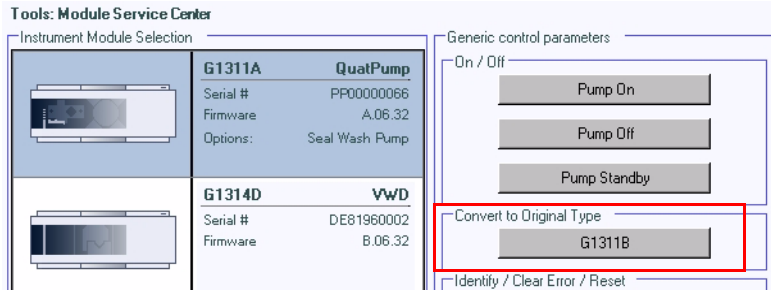


Figure 12 Conversion to Original Type in Agilent LabAdvisor

4 Click on the button to convert the module. The Reply window should show **RA 0000 TYPE "G1311B"**.

5 Re-boot the module so that the change becomes active. You may use the command **BOOT:RSET** from the command line (see Figure 9 on page 42) or power cycle the module. After re-boot and reconnect the module should now be listed as G1311B.

Using the LAN/RS-232 Firmware Update Tool

If the "converted" module should be converted back to the original type, e.g. from G1314A to G1314C, follow these steps:

1 Start LAN/RS-232 Firmware Update Tool.

2 Connect to LC instrument/system.

3 Right-click on the module in the instrument tree.

4 Select Convert to G1314C (only the conversion back to the original type is permitted).

5 Re-boot the module so that the change becomes active. You may use the command **BOOT:RSET** from the command line (send instruction window, see Figure 11 on page 43) or power cycle the module. After re-boot and reconnect the module should now be listed as G1314C.



3
Agilent 1200 Series LC Modules Overview

How can the 1200 Series Systems and Modules be identified? 46

Can 1200 modules be mixed 48

What firmware revisions I have to use with my Local Controllers G1323A/B and G4208A Instant Pilot)? 51

Which Firmware Revision of the 1100/1200/1290 modules need to be used for which Agilent ChemStation Revision? 52

3rd Party Control Software 56

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 1100 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 AAyyy55XXX, 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 µ-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 Information on Main Boards” on page 57 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 Information on Main Boards” on page 57 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 or above.

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

See Table 7 on page 49 for details and “Notes” on page 54 for additional information.

with 1290 Infinity series modules?

YES, 11001200 modules must have the the latest A.06.1x/B.06.2x revision installed for proper communication. See “Firmware/Software Requirements for 1200 Infinity LC System” on page 18 and Table 7 on page 49.

Table 7 Firmware Revisions for 1100/1200/1290 Modules

1100 or 1200 Module with same product# e.g. G1310A)	**NEW 1200 Module** G1314B VWD, G1314C VWD SL, G1316B TCC SL, G1329B ALS SL, G1367B HiP ALS, G1367C HiP ALS SL G1315D DAD G1365D MWD	**NEW 1200 Module** G1312B BIN Pump SL	**NEW 1290 Infinity LC** G4220A BIN Pump G4212A DAD G4226A ALS G1316C TCC G4227A FlexCube G4208A Instant Pilot
Match always a firmware set (horizontal)			
A.06.1x (latest release) B.06.1x (latest release) B.02.09 (G4208A)	B.06.25 (G1314D/E) B.06.30 (G1315C/D) B.06.30 (G1365C/D) A.06.1X/3x (latest release)	A.06.1x (latest release)	B.06.30 (G4220A) B.06.30 (G4212A) A.06.31 (G4226A) A.06.30 (G1316C) C.06.30 (G4227A)
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 (G4226A) 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

Table 7 Firmware Revisions for 1100/1200/1290 Modules

1100 or 1200 Module with same product# e.g. G1310A)	**NEW 1200 Module** G1314B VWD, G1314C VWD SL, G1316B TCC SL, G1329B ALS SL, G1367B HiP ALS, G1367C HiP ALS SL G1315D DAD G1365D MWD	**NEW 1200 Module** G1312B BIN Pump SL	**NEW 1290 Infinity LC** G4220A BIN Pump G4212A DAD G4226A ALS G1316C TCC G4227A FlexCube G4208A Instant Pilot
	Emulation Mode (**) via LAN/RS-232 Firmware Update Tool 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 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 Information on Main Boards” on page 57 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 15 and .

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

See also "Notes" on page 54 for additional information.

Table 8 Software Revisions for 1100/1200 Modules

Software Revision	Module	Firmware
B.04.02 SP1	**1290 Infinity LC modules** *	
	G4220A BIN Pump	B.06.30
	G4212A DAD	B.06.30
	G4226A ALS	A.06.31
	G1316C TCC	A.06.30
	G4208A Instant Pilot	B.02.09
B.04.02 SP1	**1100 / 1200 modules** *	A.06.1x/3x (latest release)
	G1315C DAD / G1365C MWD	B.06.30
	G1315D DAD / G1365D MWD	B.06.30
	G1314D VWD / G1314E VWD SL+	B.06.25
	G4208A Instant Pilot	B.02.09
	G4240A Chip Cube	A.06.1x
B.04.02	**1290 Infinity LC modules** **	
	G4220A BIN Pump	B.06.23
	G4212A DAD	B.06.23
	G4226A ALS	A.06.14
	G1316C TCC	A.06.14
	G4208A Instant Pilot	B.02.08 (1290 release) or above
B.04.02	**1100 / 1200 modules** *	A.06.1x (latest release)
	G1315C DAD / G1365C MWD	B.06.23
	G1315D DAD / G1365D MWD	B.06.23
	G1314D VWD / G1314E VWD SL+	B.06.23
	G4208A Instant Pilot	B.02.09
	G4240A Chip Cube	A.06.1x

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

Table 8 Software Revisions for 1100/1200 Modules

Software Revision	Module	Firmware
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
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

Table 8 Software Revisions for 1100/1200 Modules

Software Revision	Module	Firmware
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
B.01.03	1100 /1 200 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 1 on page 19.

** Due to a new driver concept the initial Agilent ChemStation B.04.02 release does not support all combinations of 1290 Infinity LC System with 1100/1200 modules, see Figure 1 on page 19.

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 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 initional 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.

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 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.

4
Downgrade Information on Main Boards

General Information 58
Minimum firmware revision vs. mainboard revision 59
1100/1200 Series LC Modules 59
1290 Infinity LC Modules 63
1200 Infinity LC Modules 64

This chapter give some guidance on downgrading of Agilent module firmware (if required).

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 26) 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 Series LC Modules

Table 9 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 9 Minimum firmware revision vs. mainboard revision (1100/1200 Series LC Modules)

Module Type	Module description	Mainboard part number	Minimum firmware revision	Notes
Pumps	G1310A Isocratic Pump G1311A Quaternary Pump G1312A Binary Pump	G1311-66540 G1311-66540 G1312-66540	A.04.06 / A.05.09 [007]	4 / 5
	G1310A Isocratic Pump G1311A Quaternary Pump G1312A Binary Pump	G1311-66530 G1311-66530 G1312-66530	A.04.06	4
	G1310A Isocratic Pump G1311A Quaternary Pump G1312A Binary Pump	G1311-66520 G1311-66520 G1312-66520	A.02.03 / 3.32	1 / 2
	G1310A Isocratic Pump G1311A Quaternary Pump G1312A Binary Pump	G1311-66500 G1311-66500 G1312-66500	A.01.05	1
	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

Table 9 Minimum firmware revision vs. mainboard revision (1100/1200 Series LC Modules)

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 G1329-66530	A.03.03 / 3.30 A.05.01 [003]	1 / 2 1
	G2258A Dual Loop Autosampler	G1367-66500	A.05.09 [009]	1
	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
Detectors	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 9 Minimum firmware revision vs. mainboard revision (1100/1200 Series LC Modules)

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

Table 9 Minimum firmware revision vs. mainboard revision (1100/1200 Series LC Modules)

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 106 , no further downgrade possible.

7 Initial version 6.02, downgrade possible in "1100/1200 Series Compatibility and Emulation Mode" on page 106 , with limited feature set.

8 Downgrade possible, G1367D acting as G1367C. Contact you Agilent Support for details.

1290 Infinity LC Modules

Table 10 lists the various Agilent 1290 Infinity LC modules (introduced July 2009 and later), 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 10 Minimum firmware revision vs. mainboard revision (1290 Infinity LC Modules)

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
	G1314E Variable Wavelength Detector	G1314-65080	B.06.20	1
Sampler	G4226A Infinity Autosampler	G4226-65000	A.06.14	1
	G4227A Flexible Cube		C.06.30	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 “Minimum firmware revision vs. mainboard revision” on page 59.

3 Initial version, further downgrade possible for use with 1100/1200 modules, see “Minimum firmware revision vs. mainboard revision” on page 59.

1200 Infinity LC Modules

Table 11 lists the various Agilent 1200 Infinity LC modules (introduced July 2010 and later), their main board part numbers and the minimum firmware revisions that can be loaded.

NOTE With the introduction of the 1200 Infinity LC modules, the GPIB interface has been removed. Therefore new part numbers are used.

NOTE All new 1200 Infinity LC modules, that have new Main Boards, have as initial FW A.06.32 / B.06.32 and cannot be downgraded unless there is a "Emulation" firmware available. See "1200 Infinity Compatibility and Emulation Mode" on page 32.

Table 11 Minimum firmware revision vs. mainboard revision (1200 Infinity LC Modules)

Module Type	Module description	Mainboard part number	Initial firmware revision	Notes
Pumps	G1310B Infinity Isocratic Pump	G1310-65040	A.06.32	2, 3
	G1311B Infinity Quaternary Pump	G1311-65040	A.06.32	2, 3
	G1311C Infinity Quaternary Pump	G1311-65035	A.06.32	2, 3
	G1312B Infinity Binary Pump	G1312-65050	A.06.32	4, 3
	G1312C Infinity Binary Pump VL	G1312-65040	A.06.32	2, 3
	G1376A Infinity Micro Pump	G1376-65030	A.06.32	4, 3
	G2226A Infinity Nano Pump	G2226-65030	A.06.32	4, 3
Samplers	G1367E Infinity Autosampler	G4226-65000	A.06.32	2, 3
	G1329B Infinity Autosampler	G1329-65040	A.06.32	5
	G2260A Infinity Prep Autosampler	G1329-65030	A.06.32	5
Detectors	G1314F Infinity VW Detector	G1314-65070	A.06.32	2, 3
	G1321B Infinity Fluoresence Detector	G1321-65000	A.06.32	2, 3
	G4212B Infinity DAD	G4212-65820	B.06.32	1

Table 11 Minimum firmware revision vs. mainboard revision (1200 Infinity LC Modules)

Module Type	Module description	Mainboard part number	Initial firmware revision	Notes
Local Controller	G4208A Instant Pilot with MY.... serial numbers	n/a	B.02.11 B.02.07	6

Notes:

1 New mdoule, no emulation, initial version, no further downgrade possible.

2 New module, allows emulation of 1200 mdodules, requires special emulation firmware versions below A.06.32 (initial version), see also"Initial 1200 Infinity firmware vs. Emulation Mode" on page 34.

3 Firmware A.06.32 includes emulation capabilities.

4 Old module, with new main board (due to module hardware changes), requires special firmware versions below A.06.32 (initial version), see also"Initial 1200 Infinity firmware vs. Emulation Mode" on page 34.

5 Old module, with new main board, requires no special firmware for downgrades. Existing 1200 mdoule firmware can be used.

6 Minimum firmware is B.02.07 due to the elctronics. B.02.11 should be used for all A.06.xx/B.01.xx/B.06.xx firmware.

NOTE All modules not mentioned in above table can be handled as described in "Downgrade Information on Main Boards" - "1100/1200 Series LC Modules" on page 59.

4 Downgrade Information on Main Boards

Minimum firmware revision vs. mainboard revision



5
Updates via LAN/RS-232 Firmware Update Tool

General Information 68
Features 69
Update Sequence 69
Setup of the LAN/RS-232 Firmware Update Tool 83
Firmware Update via RS-232 71
Automatic Configuration with Bootp 72
Installation of the LAN/RS-232 Firmware Update Tool 80
Installation of the Module Firmware on your PC 81
Connect your PC to the Modules 81
Update Durations 82
Setup of the LAN/RS-232 Firmware Update Tool 83
Configure the LAN/RS-232 Firmware Update Tool 85
Doing the Firmware Update 89
Individual Update of Modules 90
Update of a Complete System 95
Update of Multiple Systems 98
The Log-file 99
Firmware Update to A.06.xx 101
1100/1200 Series Compatibility and Emulation Mode 106
Instruction Window 113
Recovering 115
Updating the Instant Pilot 116
Solving Problems 117

This chapter describes the use of the LAN/RS-232 Firmware Update Tool for firmware updates of the Agilent LC modules.



Agilent Technologies

General Information

Important

The LAN/RS-232 Firmware Update Tool 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 want to upgrade the firmware of modules to revision A.06.xx refer to "Firmware Update to A.06.xx" on page 101 prior to start the process.

Please refer also to

- "Agilent 1200 Series LC Modules Overview" on page 45 and
- "Downgrade Information on Main Boards" on page 57

Features

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

- for 1100/1200/1260/1290 series modules, 8453 Uv-vis Spectrophotometer, 3100 OFFGEL Fractionator and 1120 Compact LC, 1220 Infinity 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 1100/1200/1200 Infinity LC, see “1100/1200 Series Compatibility and Emulation Mode” on page 106
- 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 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 101 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/F VWD, G4212A/B 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 72.

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 80.

Installation Of The Firmware On Your PC

Refer to “Installation of the Module Firmware on your PC” on page 81.

Connect Your PC To The Modules

Your PC has to be connected by LAN to one of the Agilent 1200 Infinity LC Systems 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 80.

Installation of the firmware on your PC

Refer to "Installation of the Module Firmware on your PC" on page 81.

Connect your PC to the Modules

Your PC has to be connected by RS-232 to one of the Agilent 1200 Infinity LC Systemss 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 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 73 or
- "Configuring the Agilent Bootp Service (B.01.xx and above)" on page 76.

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 DVD-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 and view the Bootp Server window. After some time the Bootp Server will display the request from the Firmware 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 13 on page 73.

The MAC or hardware address of the Firmware 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).

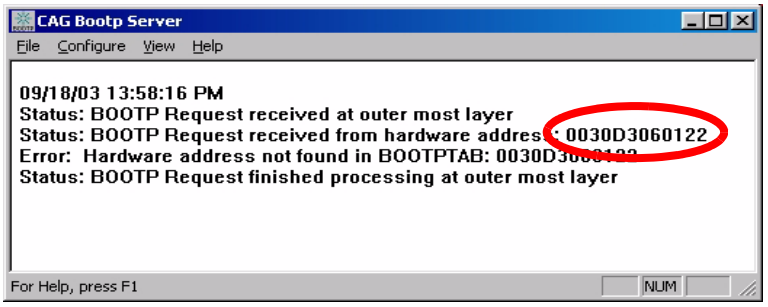


Figure 13 Bootp Server

4 Identify your Firmware by the MAC address, see Figure 13.

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

5 Select *Configure -> Add Entry* to configure the Bootp Manager (Figure 15). 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.

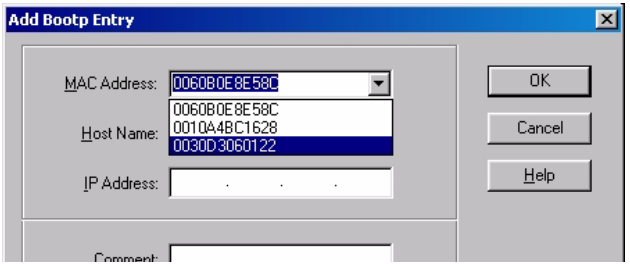


Figure 14 Add Bootp Entry - Select the MAC address

6 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.

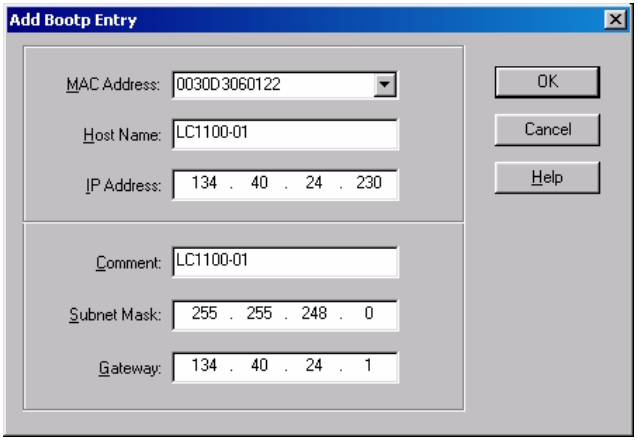


Figure 15 Add Bootp Entry - Enter your parameter

7 Exit with *OK*.

8 Select *Configure -> Bootp Manager*. All entries made above are shown in Figure 16 on page 75.

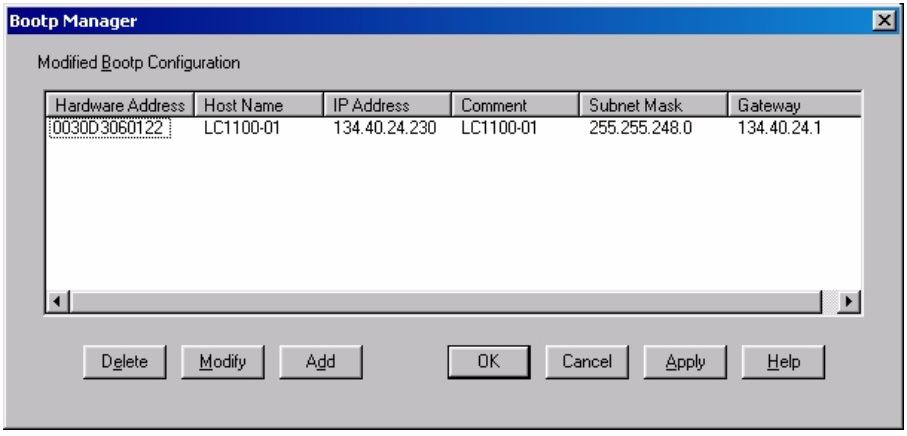


Figure 16 Bootp Manager

9 Press *Apply* to activate the changes.

10 Press *OK* to exit the Bootp Manager and power cycle the instrument with the Firmware, to force it to send a new Bootp request again. This time, the MAC address will be recognized by the Bootp Server (Figure 17). It will send the configured IP address and subnet mask information which are necessary for communication to the Firmware.

IP address LAN Interface is 134.40.24.230

IP address PC is 134.40.30.184

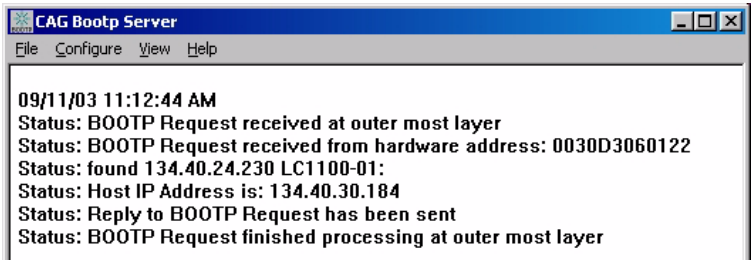


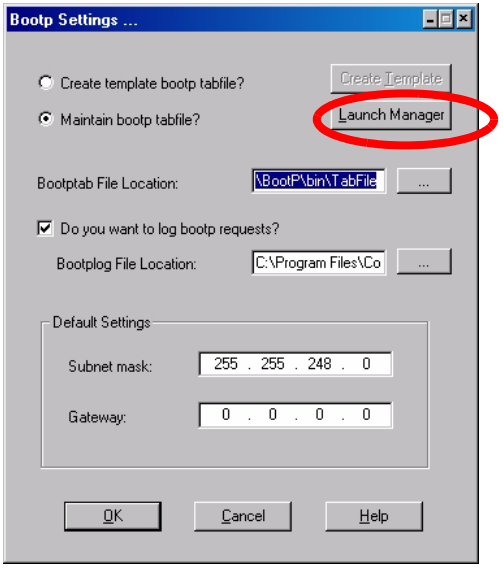
Figure 17 Bootp Server - 1100 module found

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 13 on page 73 (**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 18) and enter the default settings for your setup.



location of LogFile and TabFile

Figure 18 Bootp Service Settings

3 Launch the Manager. It will open the Bootp Manager screen, see Figure 19. This shows all network hardware that has been added (initially empty).

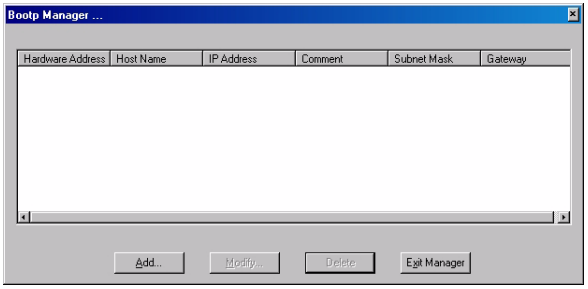


Figure 19 Bootp Manager

4 Select Add to enter the enter the module specific information, see Figure 20:

- MAC address (from label on the instrument)
- host name
- IP dress
- comment (instrument name / location)
- subnet mask (if different)
- gateway (if required)

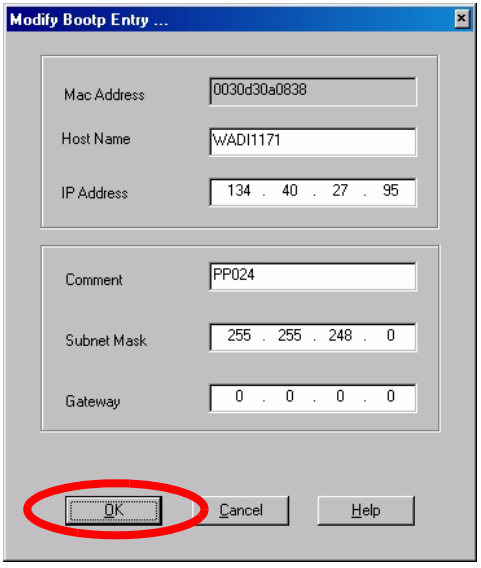


Figure 20 Bootp Manager - Enter your parameter

5 Press OK. The parameter are added to the Bootp Manager, see Figure 20 and added to the TabFile, see Figure 18 on page 76.

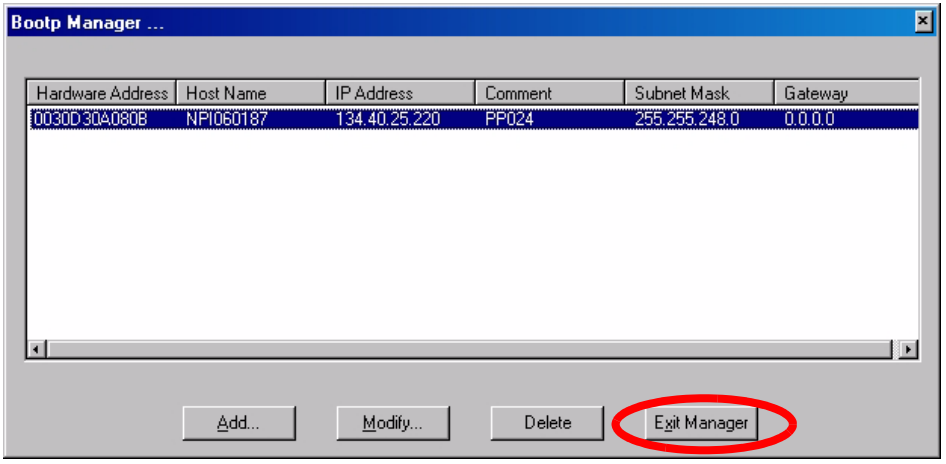


Figure 21 Bootp Manager - check your entries

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 22. 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 22 LogFile - the detector has received the parameter

Installation of the LAN/RS-232 Firmware Update Tool

1 Download the LAN/RS-232 Firmware Update Tool from the Agilent web site (see "Updates from the Agilent Web" on page 26) onto your PC.

NOTE Do not use older versions of the LAN/RS-232 Firmware Update Tool 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 23).

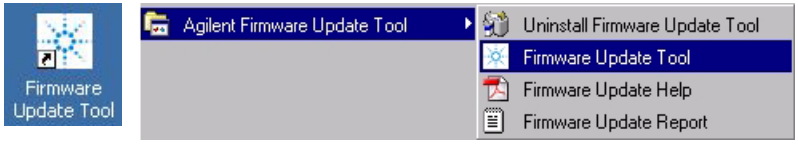


Figure 23 Icon on your desktop and the Program Folder

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

The LAN/RS-232 Firmware Update Tool has a un-install routine. If required, remove the LAN/RS-232 Firmware Update Tool via the "**Uninstall Firmware Update Tool**" function within the program folder, see Figure 23.

Installation of the Module Firmware on your PC

1 Download the module firmware from the Agilent web site (see "Updates from the Agilent Web" on page 26) 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 module firmware. This will ensure that the firmware is found for complete system updates (see additional information "Update Durations" on page 82.

Connect your PC to the Modules

Your PC has to be connected by LAN (see "Setup of the LAN/RS-232 Firmware Update Tool" on page 83 or RS-232, see "Firmware Update via RS-232" on page 71, to one of the 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 (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 70, "Configuring the Agilent Bootp Service (B.01.xx and above)" on page 76, "Configuring the Bootp server program (A.10.xx and below)" on page 73.

NOTE If you cannot establish a connection via LAN to the 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 12 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 71.

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. See "Information on Older Tools" on page 3.

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 LAN/RS-232 Firmware Update Tool.

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 via the shortcut, see "Installation of the LAN/RS-232 Firmware Update Tool" on page 80. Figure 24 shows the initial screen.

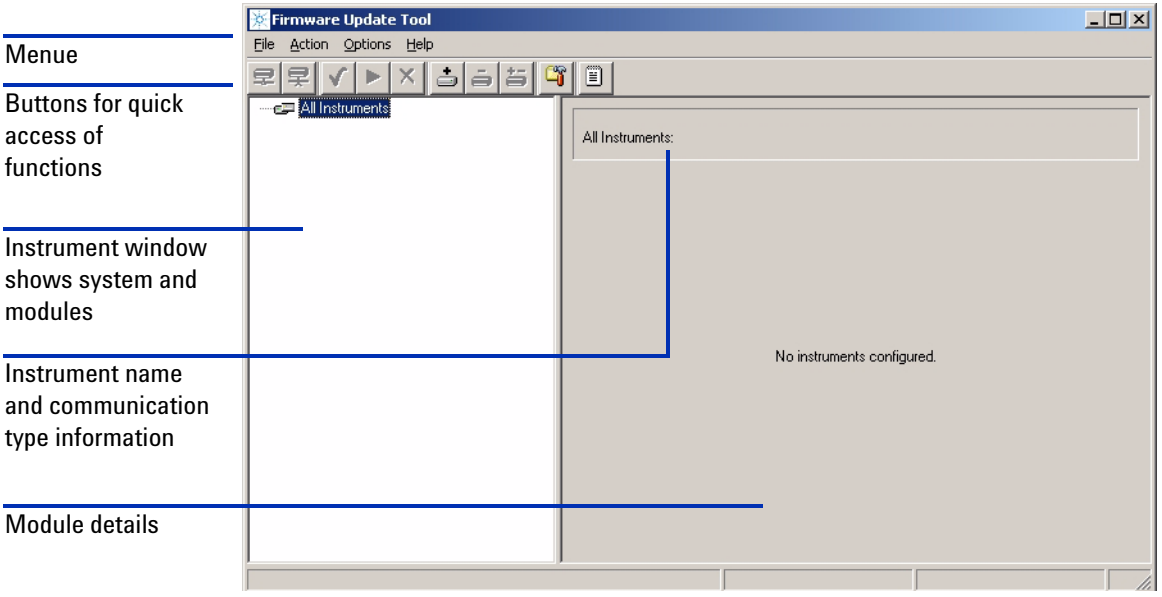


Figure 24 Start-up screen

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

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

Table 13 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).

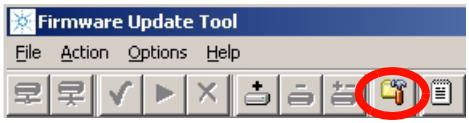


Figure 25 Select the button Configure Directories

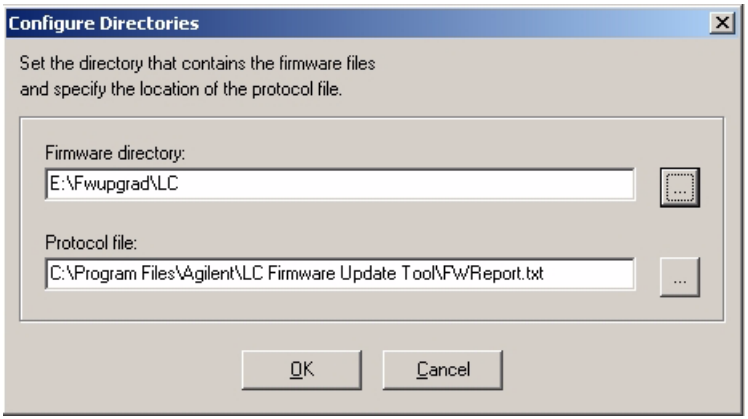


Figure 26 Configure Directories

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 82.

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 99. Therefore, name the protocol file appropriately.

2 Press **OK**.

3 Select the button **Add Instrument**.

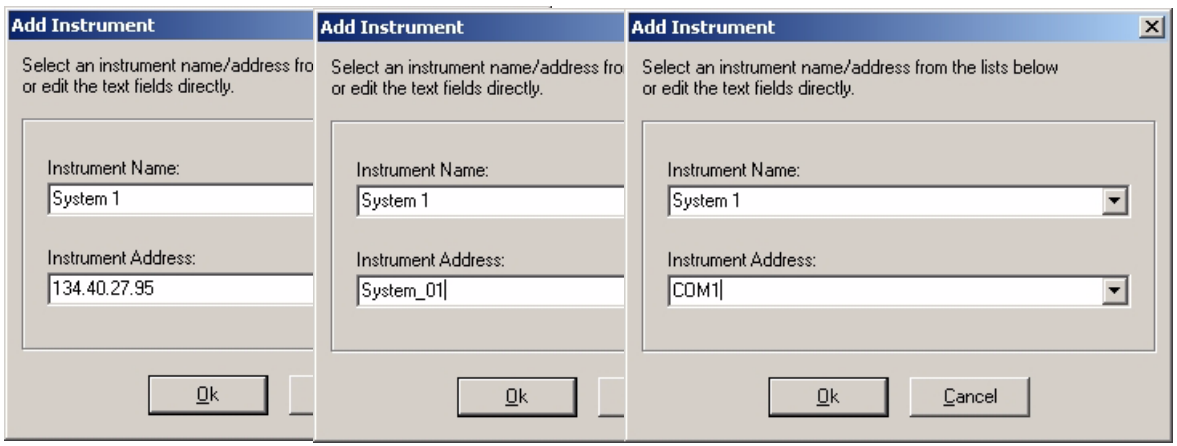


Figure 27 Select the button Add Instrument

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.



LAN
IP address

LAN
host name

RS-232
COM port

Figure 28 Add instrument screen

6 Press **OK**.

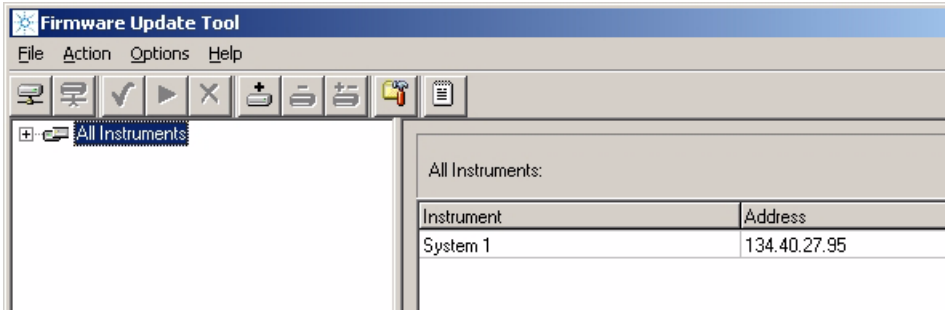


Figure 29 Add instrument screen

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 82**.

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

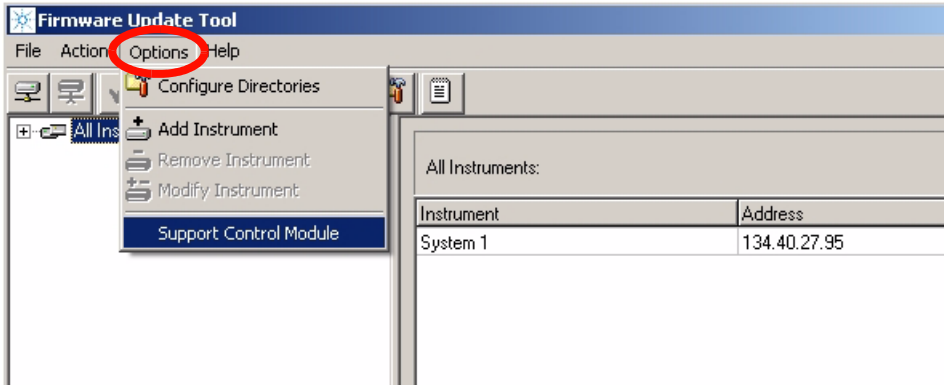


Figure 30 Adding G1323B support

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

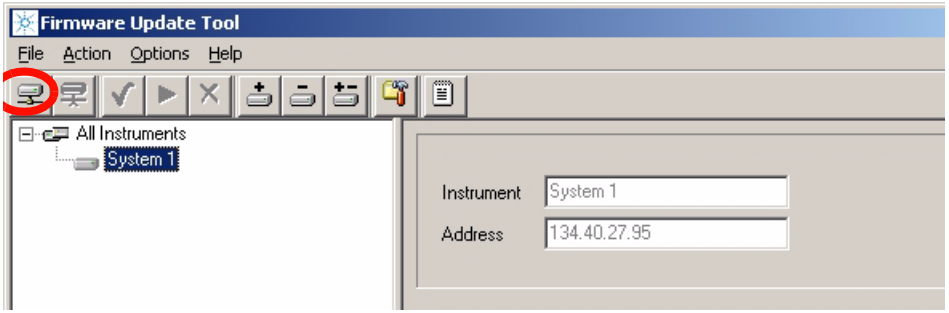


Figure 31 Select instrument 1

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

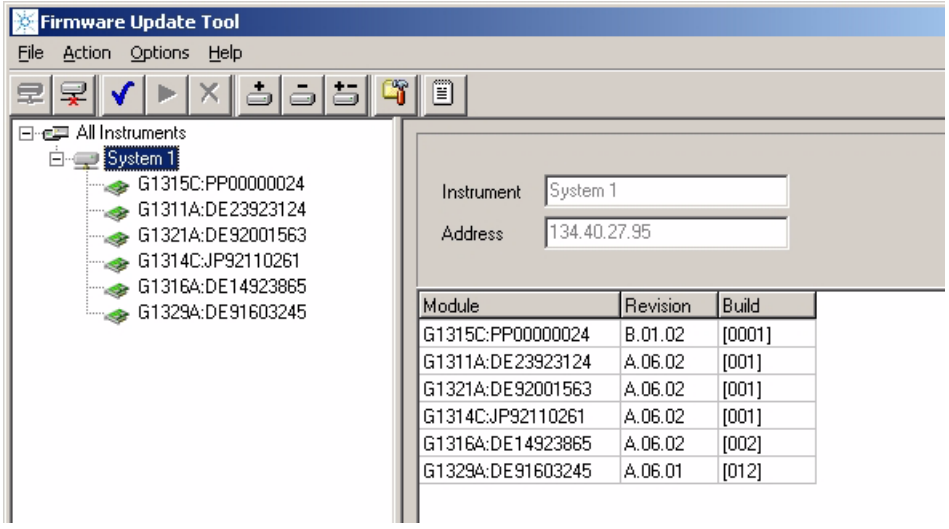


Figure 32 Modules of System 1 are listed

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 95
- all systems together, see "Update of a Complete System" on page 95

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 101 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 modules, check the settings of your firewall/anti-virus software. It might block the operation.

Individual Update of Modules

1 Select a module.

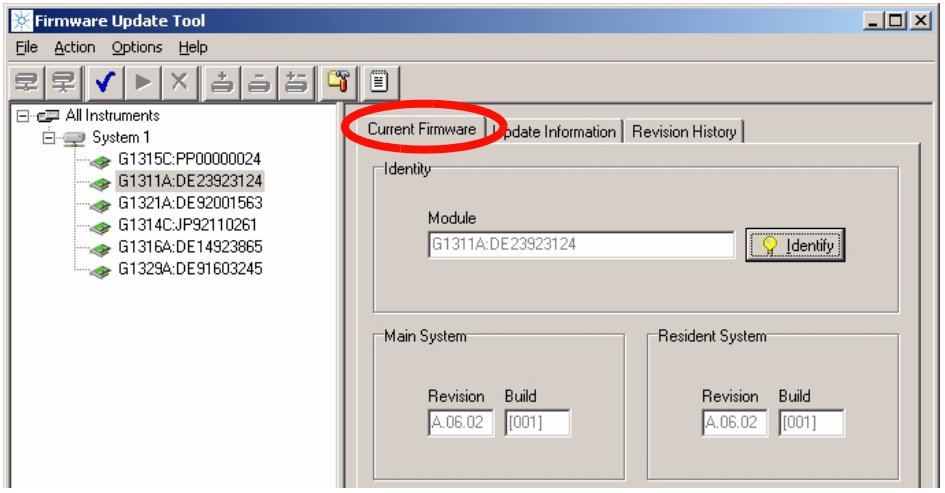


Figure 33 Specific module is selected - Current Firmware Information screen

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 34.

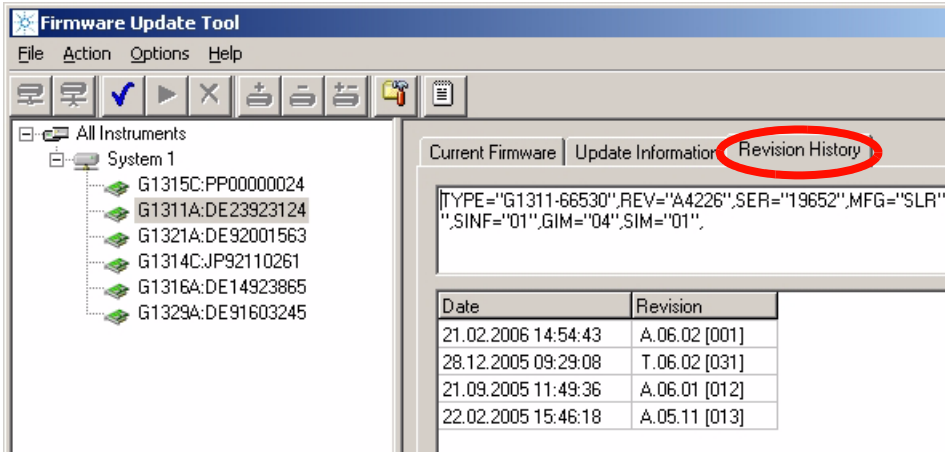


Figure 34 Specific module is selected - Revision History Information screen

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 35 If no firmware is listed when you click on the file selection button, correct the firmware folder locations, see Figure 26 on page 85.

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

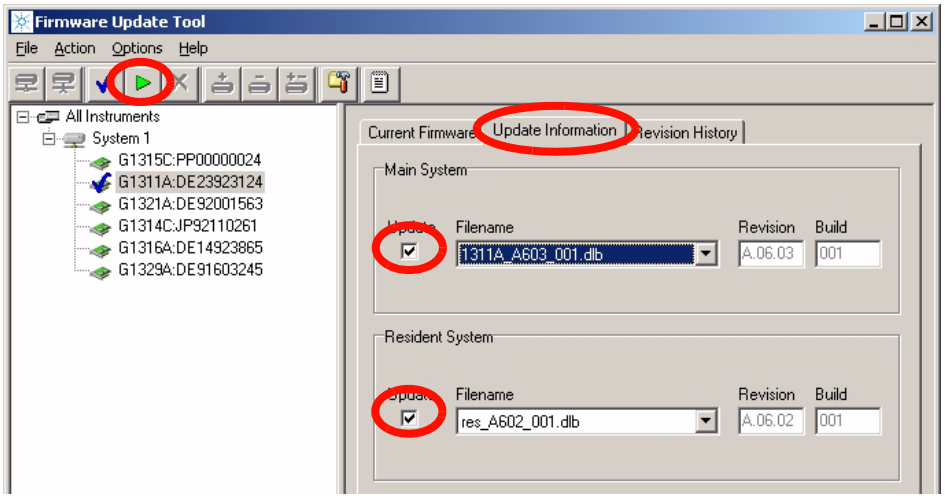


Figure 36 Update Information screen

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.

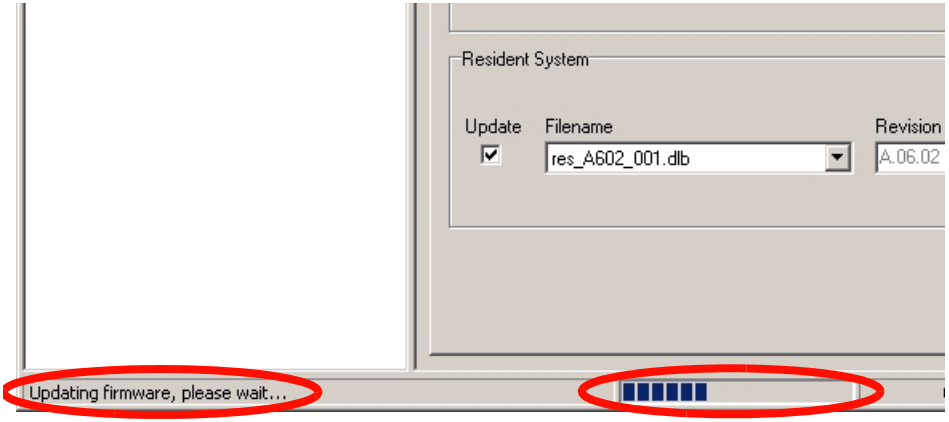


Figure 37 Update is running

NOTE

Due to the long update times (see Table 12 on page 82) 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. See "Information on Older Tools" on page 3.

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 69.

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.

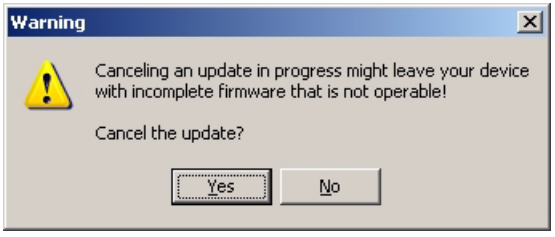


Figure 38 Aborting the update process

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 119 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.

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 39. If the update failed, the Protocol file contains more information, see "The Log-file" on page 99.

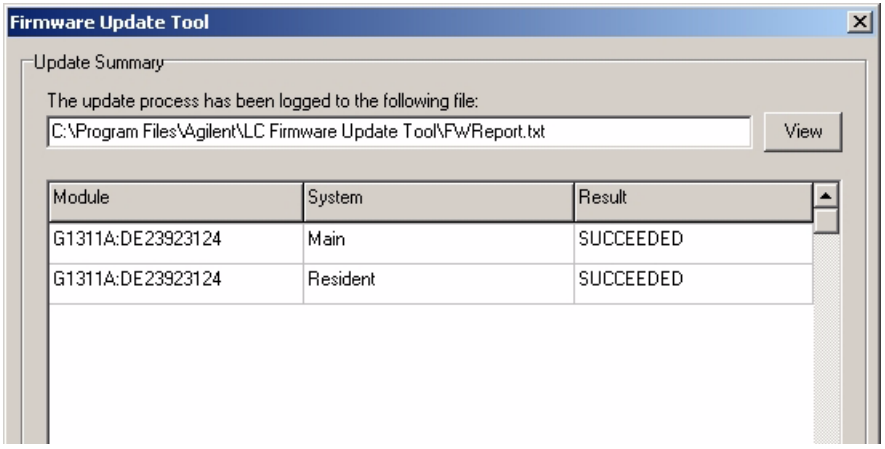


Figure 39 Report Screen

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 101 prior to start the process.

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

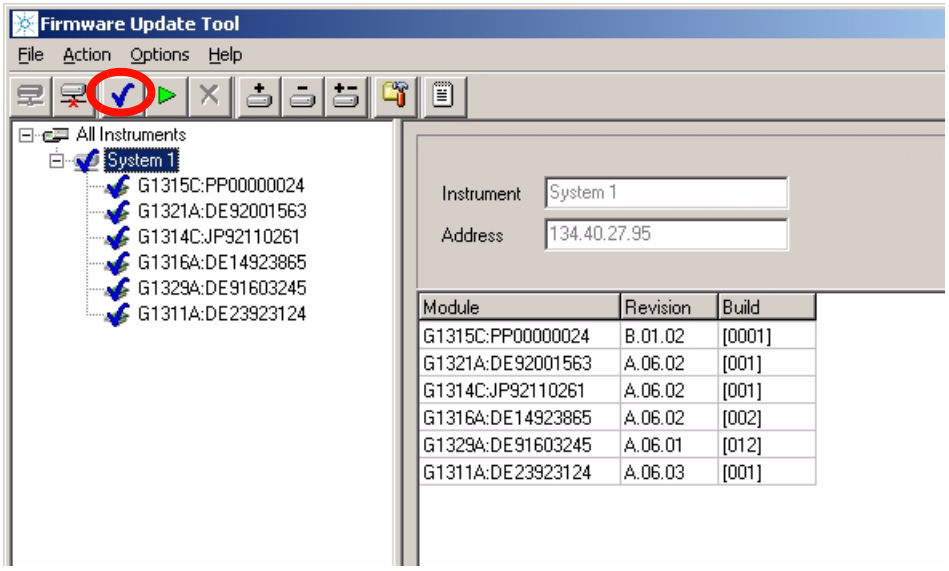


Figure 40 Complete system update

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 41 Deselect the G1323B

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

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. See “Information on Older Tools” on page 3. See “Information on Older Tools” on page 3.

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 69.

NOTE

If you want to abort the update process, refer to “Aborting the update process” on page 93.

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 43. If the update failed, the Protocol file contains more information, see “The Log-file” on page 99.

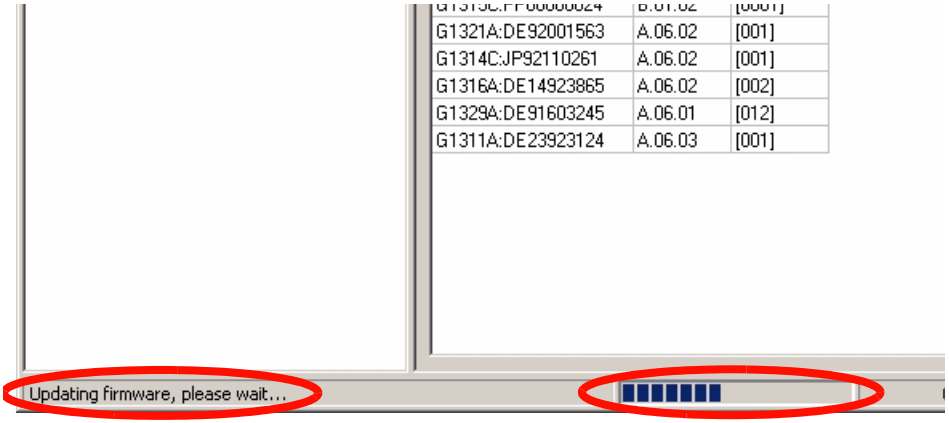


Figure 42 Update is running

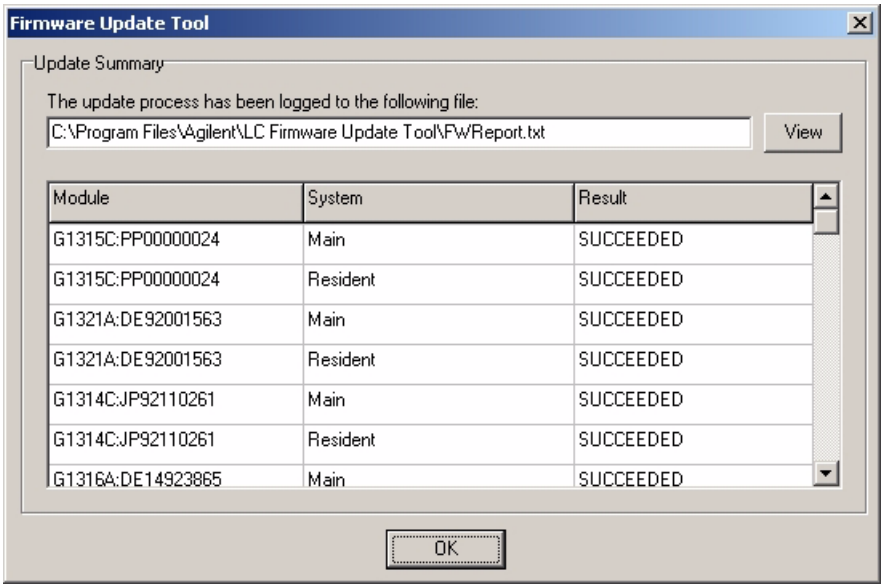


Figure 43 Report screen

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 101 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.

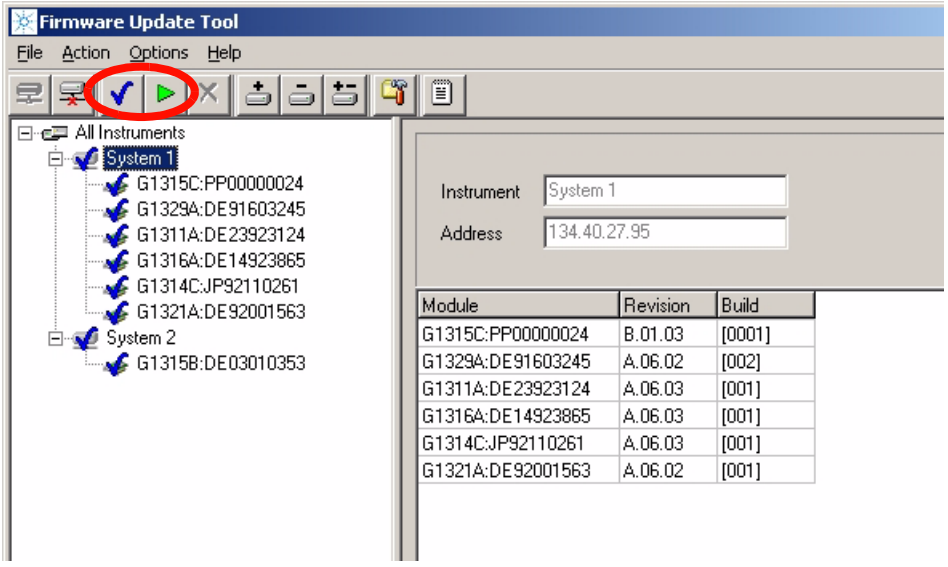


Figure 44 Multiple system update

NOTE For additional information refer to the notes on page 96.

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.

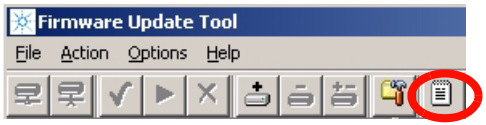


Figure 45 Select the button Open Protocol File

The Figure 46 on page 100 shows all steps during the process with time stamp.

```
[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 46 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 103 or , "Firmware Upgrade to A.06.02" on page 105 or "1100/1200 Series Compatibility and Emulation Mode" on page 106 or "Recovering" on page 115.

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 14.

Table 14 Compatibility Matrix

Module	A.05.xx	A.06.01	A.06.02-06 B.01.02-06	A.06.10-31 B.06.10-31
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
G4240 Chip Cube (A.06.01 and above)	N	Y	Y	Y

Table 14 Compatibility Matrix

Module	A.05.xx	A.06.01	A.06.02-06 B.01.02-06	A.06.10-31 B.06.10-31
1290 Infinity LC system • 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)	N	N	N	Y
1200 Infinity LC System (new modules) • G1310B Isocratic Pump (B.06.32 and above) • G1311B Quaternary Pump (B.06.32 and above) • G1311C Quaternary Pump VL (B.06.32 and above) • G1312C Binary Pump VL (B.06.32 and above) • G4220B Binary Pump VL (B.06.32 and above) • G1367E HiP Autosampler (B.06.32 and above) • G1314F Variable Wavelength Detector (B.06.32 and above) • G1321B Fluorescence Detector (B.06.32 and above) All modules listed above can be run in “Emulation” mode to allow downgrade to lower revisions. • G4227A Flexible Cube (B.06.3x and above) • G4212B DAD (B.06.32 and above)	N	N	N	N

* 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 loose the communication to a module. In this case follow the instruction "Recovering" on page 115.

- Use only LAN/RS-232 Firmware Update Tool 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 69, "Update Durations" on page 82 and Figure 30 on page 87.

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 70)or
- serial cable (see "RS-232 Cable requirement" on page 71) 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 14 on page 101 shows the compatibility impact. See also "Revision Numbering" on page 12 and "Compatibility Matrix" on page 14.

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 loose the communication to a module. In this case follow the instruction "Recovering" on page 115.

- Use only LAN/RS-232 Firmware Update Tool 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 69, "Update Durations" on page 82 and Figure 30 on page 87.

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 70)or
- serial cable (see "RS-232 Cable requirement" on page 71) 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 14 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 recognized 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 or above. To convert the module (see also “How to change the Type of a Module” on page 112):

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 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 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 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 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.

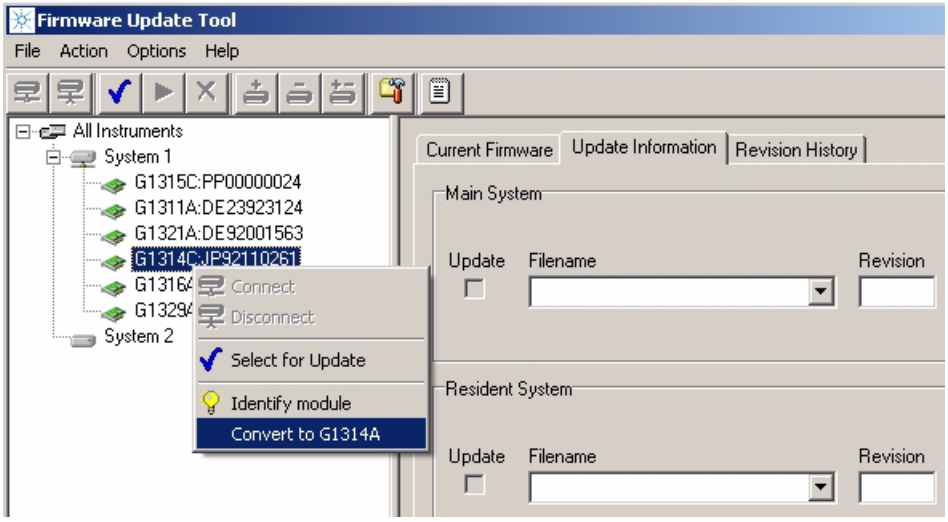


Figure 47 Converting a G1314C to G1314A

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 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.

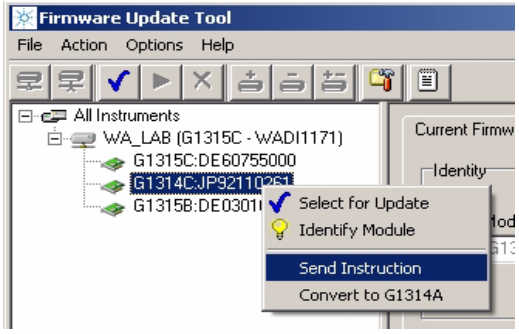
2 Upgrade the firmware of all modules to A.06.02 or above.

Instruction Window

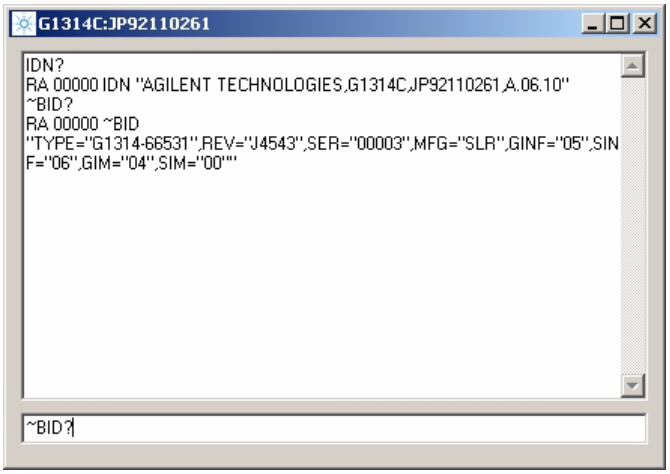
With LAN/RS-232 Firmware Update Tool 2.7 an instruction window has been added. This allows to send specific instructions to the module to gather specific information (e.g. the module type or the board information).

1 Open the LAN/RS-232 Firmware Update Tool and connect to the system.

2 Right-click on the module of interrest and select “Send Instruction”.



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



Reply Window

RA - accepted command

RE - invalid command

command line

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 when using firmware revsions 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 142.

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 (mian 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 shows the Instant Pilot either in resident mode (-R) or main mode (similar to "Main firmware update was interrupted" on page 119). Redo the firmware update again for both the main and resident (for all B.xx versions).

If this happend during the downgrade to A.05.xx, the 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 85. 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 85.

No connection to modules

If no connection to the modules is possible, check

- correct RS-232 settings (see page 71)
- correct IP address, host name or COM port added (see page 86)
- Bootp service is correctly installed (see page 76)
- HP JetDirect card firmware, see (see page 70)
- Firewall or Anti-Virus programs may block the tool (see page 121)

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.

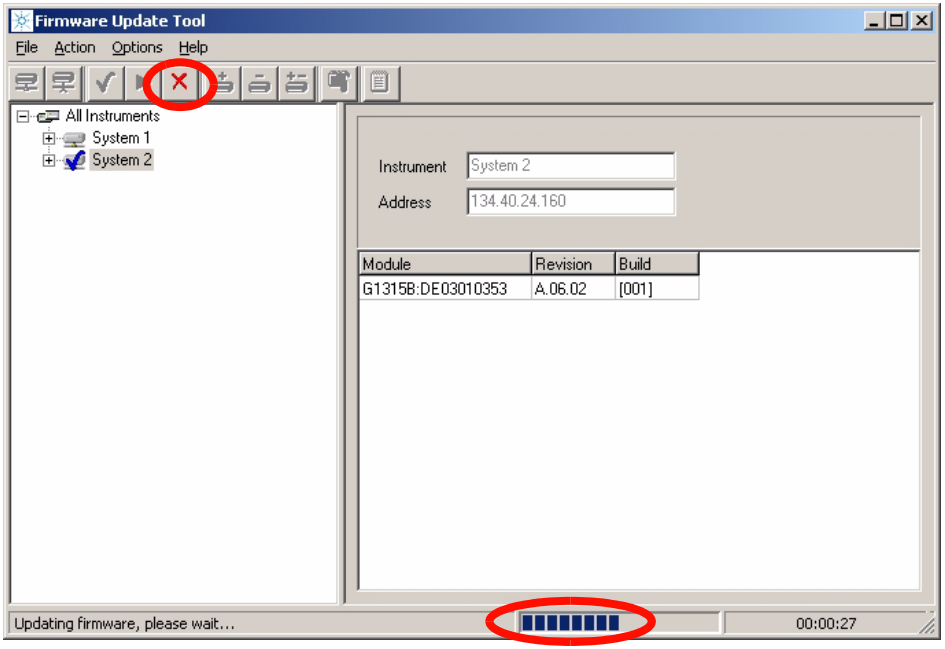


Figure 48 If update does not continue

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.

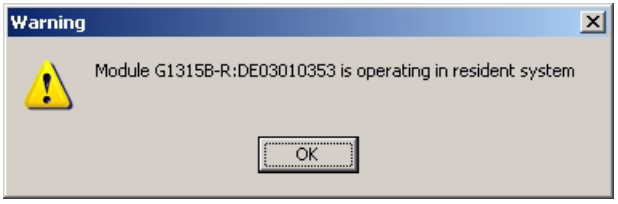


Figure 49 Warning

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.

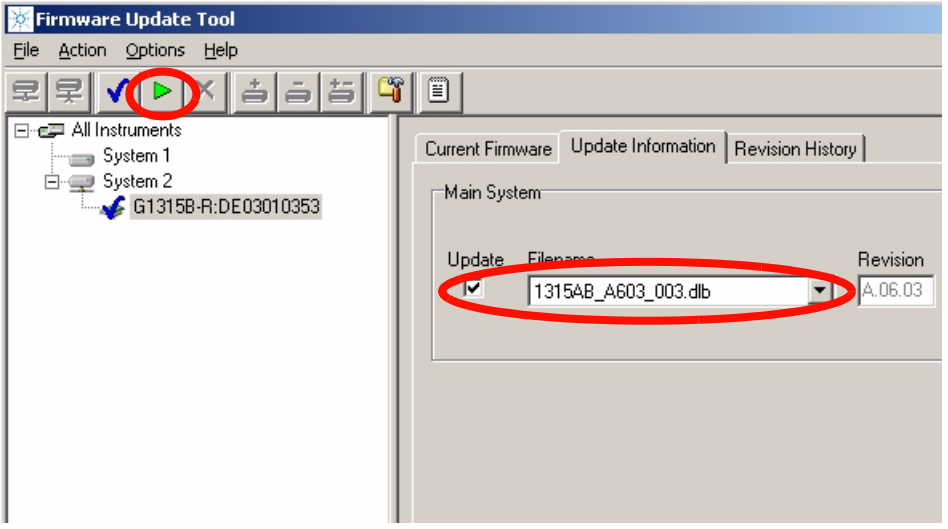


Figure 50 Restart the update

Lost Connenction 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.

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.

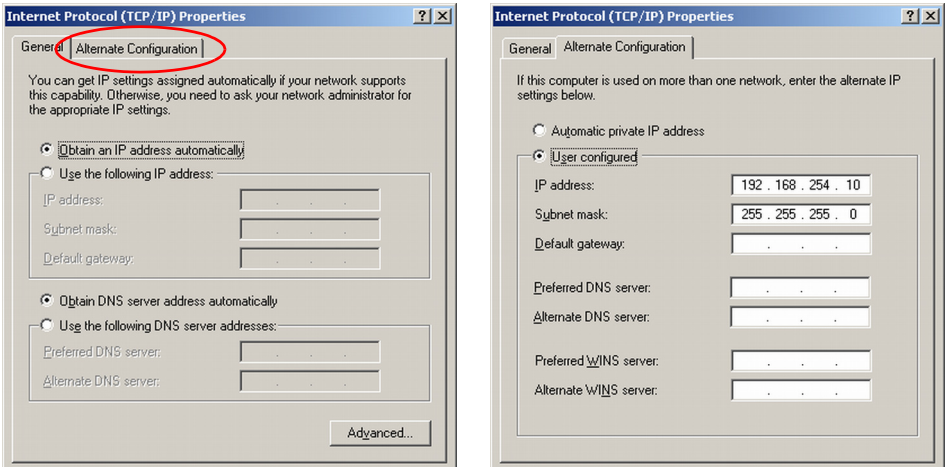


Figure 51 Problematic LAN Setup

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 82.

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 and update the main firmware again. There is no other way to install the main firmware in this mode! See "Recovering" on page 116.

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.

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 26 or contact a local Agilent Representative. Attach your logfile and details of your system, revision and errors.



6 Updates via LabAdvisor / Instrument Utilities

General Information 124
Pre-requisites 125
Setup of LabAdvisor Software 126
Firmware Update 129

This chapter describes the use of the Agilent LabAdvisor / Instrument Utilities for firmware updates of the LC 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 1200 Infinity LC Systems modules can updated by these softwares as well.

Instrument Utilities

The Instrument Utilities (bundled into any 1200/1290 pump) provides basic access to the Agilent 1200 Infinity LC Systems 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 1200 Infinity LC Systems 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 1200 Infinity LC Systems stack (usually the detector), see also “Firmware Update via LAN” on page 70 or “Firmware Update via RS-232” on page 71.

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 intstrument has been set up before). The **Lab at a Glance** screen is empty.

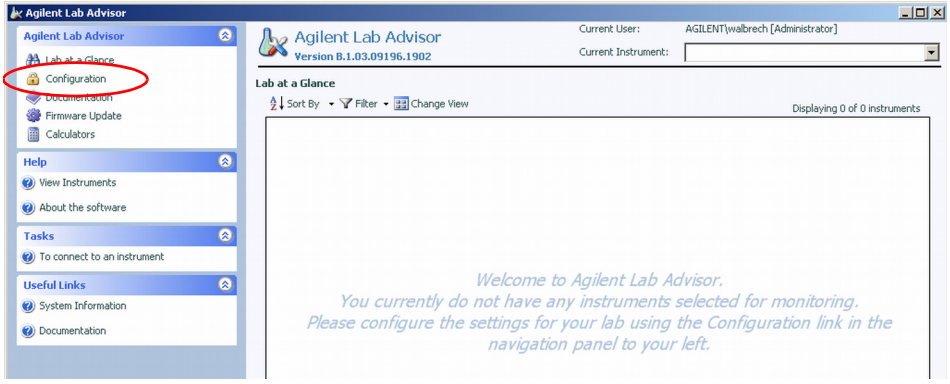


Figure 52 Entry Screen

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

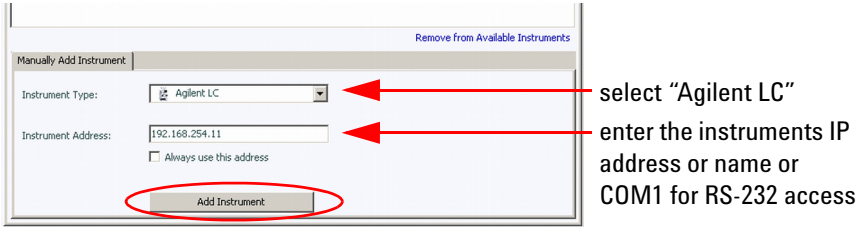
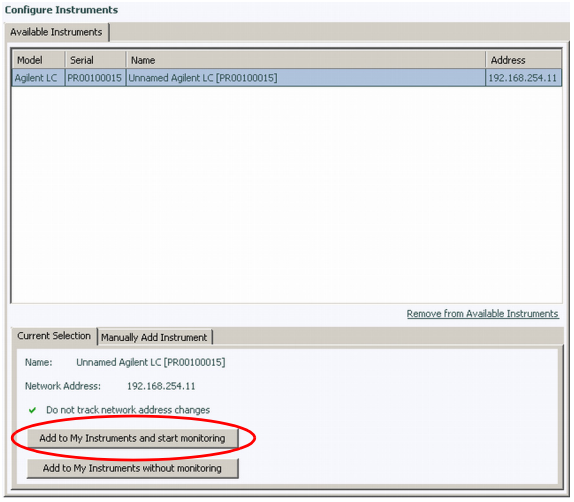


Figure 53 Adding a new instrument

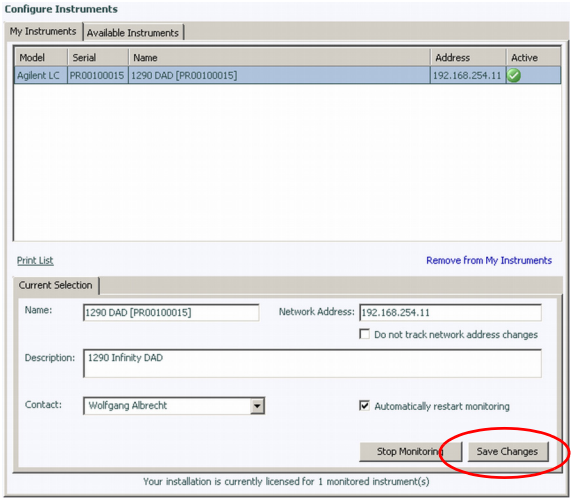
4 Click on **Add Instrument**. The new system is listed now in the Configuration Instrument screen.



available instrument

Figure 54 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.



available instrument - active

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

select “Automatically restart monitoring”

Figure 55 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.

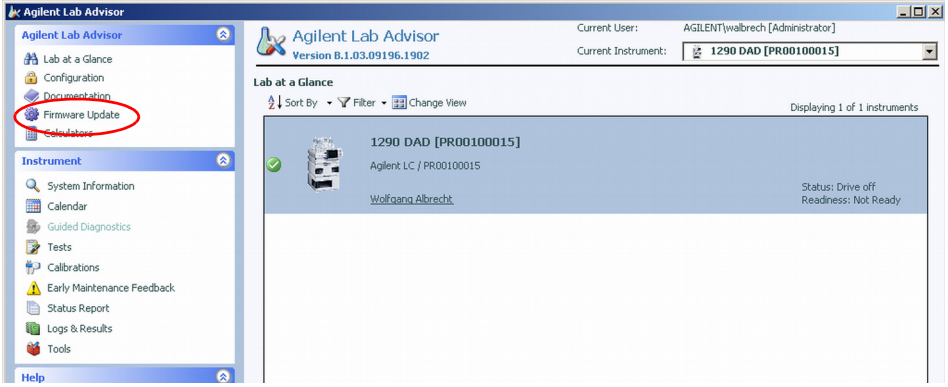


Figure 56 Lab at a Glance screen shows now the new system

7 Click on **Firmware Update**.

Firmware Update

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

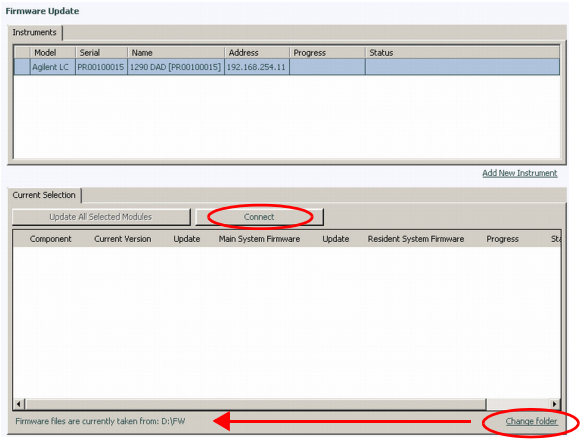


Figure 57 Firmware Update screen

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.

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)

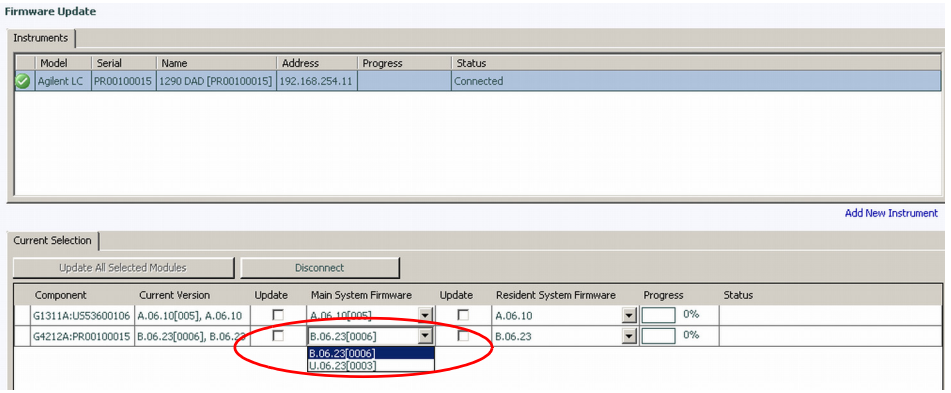


Figure 58 Firmware Update screen

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 14.

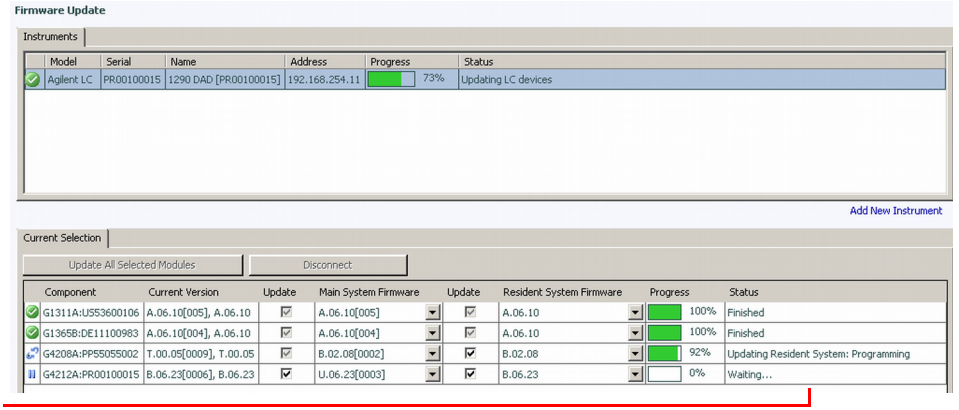
If more than one revision of a module firmware is in the folder, you can select via the drop box the required firmware revision.

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 acivity

Figure 59 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.

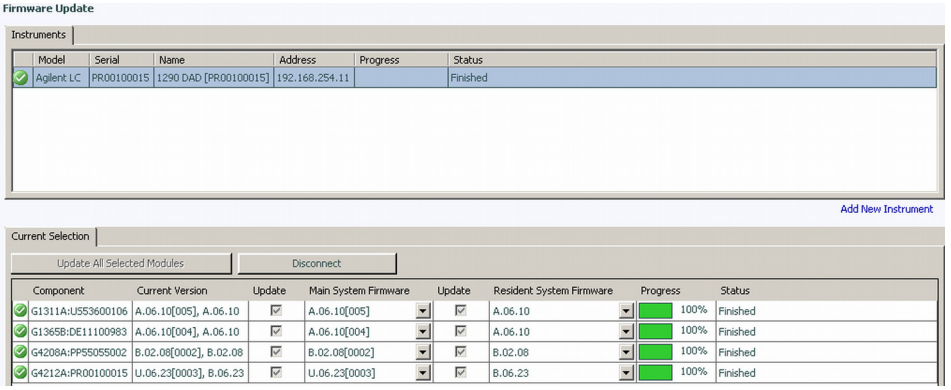


Figure 60 Firmware Update - finished successful

In case of problems during the update process, see “Solving Problems” on page 117.

7
Updates via Instant Pilot (G4208A)

General Information 134
Prerequisites 135
Updating the Firmware Using The Single Mode 138
Updating the Firmware Using The Wizard 140
Update Information for A.05.1x Firmware 142
Errors During Firmware Updates 149
Instant Pilot Screen Is Dark During/After Firmware Update 149
G1315C DAD / G1365C MWD Main Update Not Possible 150

This chapter describes the firmware updates of the Agilent Instant Pilot G4208A and the Agilent LC modules via the Instant Pilot G4208A.

Agilent Technologies

General Information

- The G4208A Instant Pilot firmware can be updated from a USB Flash Drive or with the LAN/RS-232 Firmware Update Tool ("Updates via LAN/RS-232 Firmware Update Tool" on page 67).
- The G4208A Instant Pilot with firmware B.02.08 can update Agilent 1200 Infinity LC Systems modules with firmware A.06.1x or B.06.1x and above, see "Compatibility Matrix" on page 15.
- 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 15.
- 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 15.

NOTE DO NOT interrupt the update process. Otherwise the Control Module cannot be used anymore. See "Recovering" on page 116. 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 1200 Infinity LC Systems 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 26.

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 67.

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 15 Firmware Update Tools

Module	Update via Instant Pilot G4208A	LAN/RS-232 Firmware Update Tool 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 26).

NOTE The use of the LAN/RS-232 Firmware Update Tool is also possible, see Table 15. 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. 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 149.

2 Load the firmware into the module(s) as described in “Updating the Firmware Using The Single Mode” on page 138 or “Updating the Firmware Using The Wizard” on page 140.

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**.

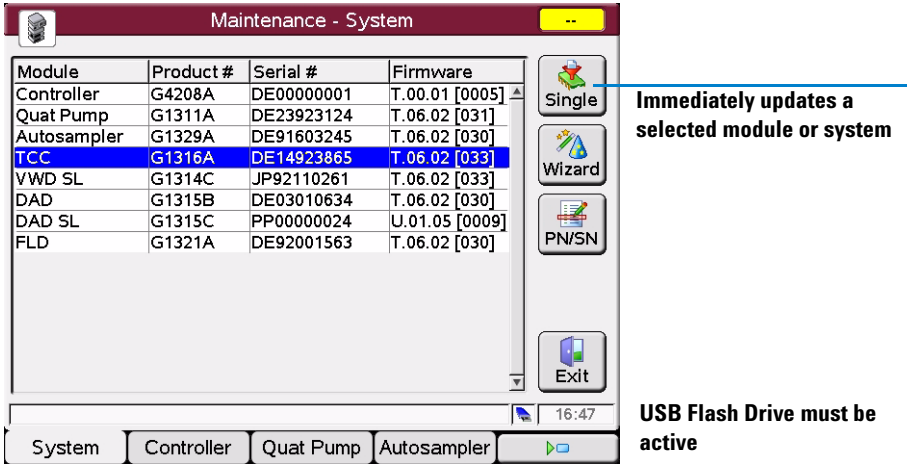


Figure 61 Firmware Update Screen - Simple Mode

1 Move the curser to the module you want to update.

2 Press **Single**.

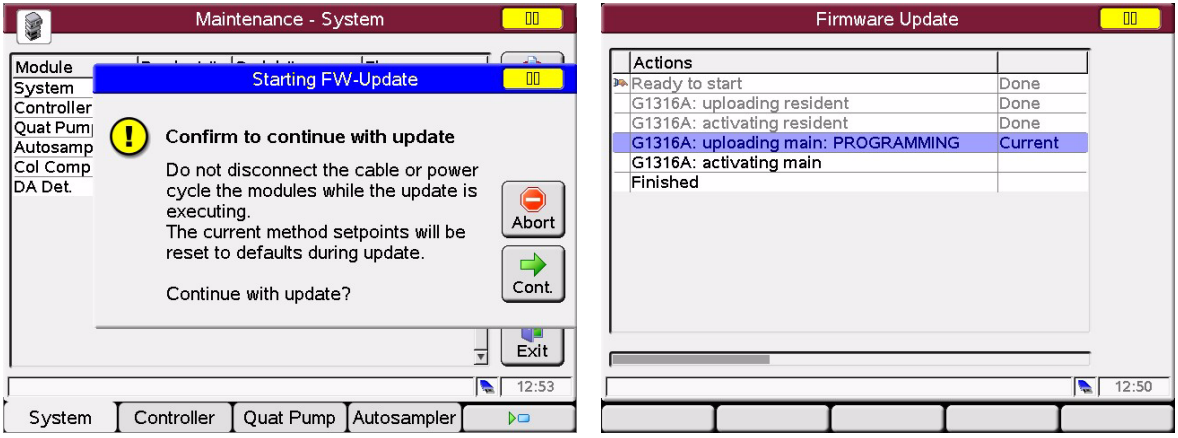


Figure 62 Firmware Update Screen - Ready for Update

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

The actions and the progress is shown.

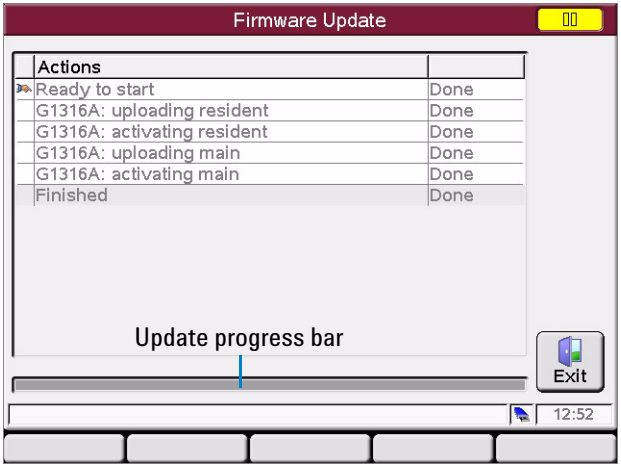


Figure 63 Firmware Update Screen - Update has completed

In the case of an error, refer to “Errors During Firmware Updates” on page 149.

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**.

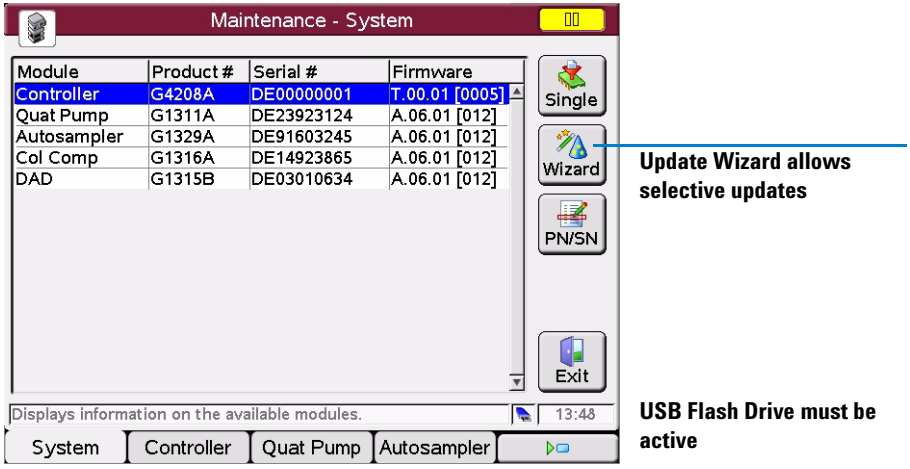
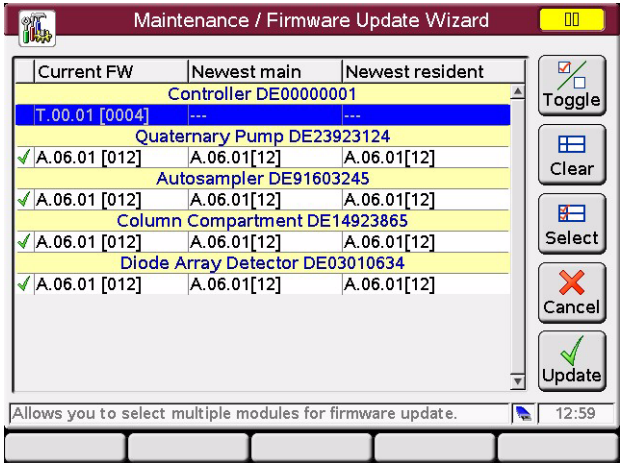


Figure 64 Firmware Update Screen - Update Wizard

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 65) shows all modules, their installed firmware revisions and the available firmware revisions on the USB Flash Drive.



select/de-select a module

clear all selections

select all modules

exists this screen

starts the update

USB-stick must be active

Figure 65 Firmware Update Screen - Update Wizard

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

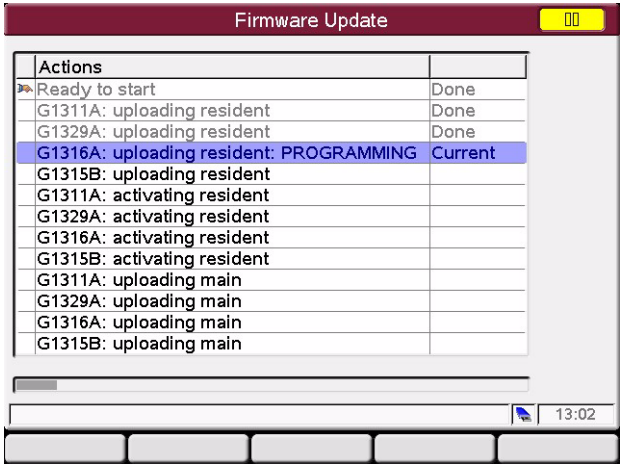


Figure 66 Firmware Update Screen - Update in Progress

In the case of an error, refer to "Errors During Firmware Updates" on page 149.

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 finshed 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 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 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 (continuoes “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 finshed 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 detailes refer to "Updates via LAN/RS-232 Firmware Update Tool" on page 67.

NOTE Use the LAN/RS-232 Firmware Update Tool 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 prefered 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 procedues:

- "Downgrade from B.xx to A.05.1x" on page 146
- "Upgrade from A.05.1x to B.xx" on page 146
- "Upgrade from A.05.11 to A.05.1x (new build)" on page 147

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 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.

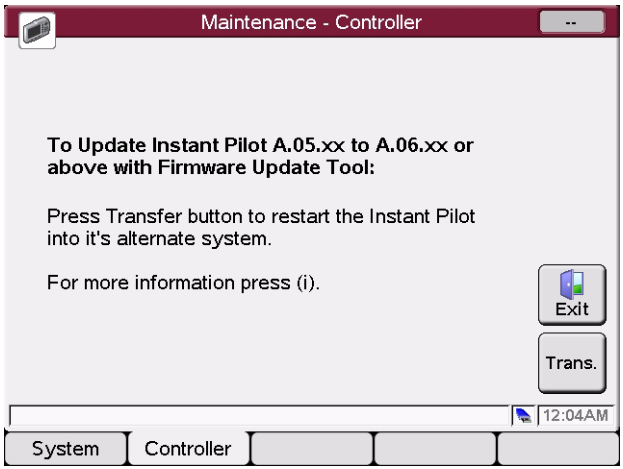


Figure 67 Update Information for firmware A.05.1x

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.

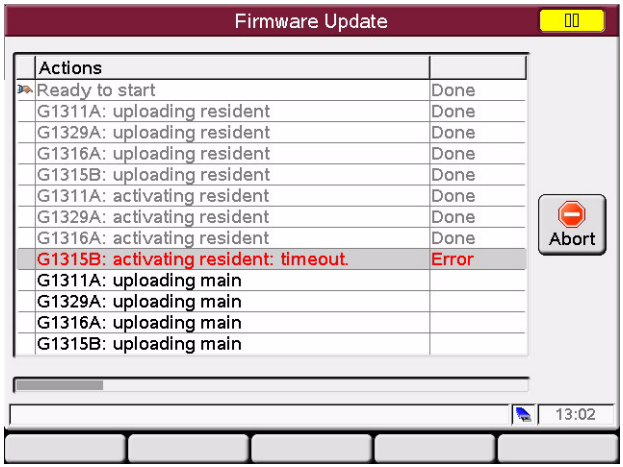


Figure 68 Firmware Update Screen - Error during the update

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 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 67.

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

Index

Numerics

1100/1200
compatibility and emulation mode, 106
1100/1200 firmware vs. ChemStation, 20
1200 Infinity
identification, 30
LC Modules Overview, 29
new modules, 31
1200 series firmware, 14
1200/1290 Infinity LC System Compatibility Matrix, 18

A

A.05.11
firmware down/upgrade, 142
aborting the update process, 93
add instrument, 86
Agilent contact, 122
Agilent web, 26

B

backward compatible mode, 136
baudrate, 71
Bootp, 72
server program, 73
Service, 76

C

cable
RS-232, 71
cancel an update, 93
Cerity Pharma A.02.03 SR2, 107
change type of a module, 112
ChemStation
B.01.03 SR1, 107
B.02.01, 107
COM ports, 71
compatibility
matrix, 15, 101
compatibility and emulation mode, 106
compatibility matrix, 14, 107
complete system update, 95
configure
LAN/RS-232 firmware update tool, 85
configure directories, 85
contact Agilent, 122

D

dark screen
Instant Pilot, 149
downgrade
minimum firmware, 59
downgrade of modules, 29, 45, 57

E

emulation mode, 106
examples, 110
for 1200 module, 109
errors
during firmware updates, 149
Instant Pilot, 149
EZChrom Elite 3.1.7, 107

F

FAILED, 94, 96
features
LAN/RS-232, 69
file naming convention, 11
firmware
A.05.11, 142
compatibility matrix, 14
description, 10
doing the update, 89
downgrade information, 29, 45, 57
file naming convention, 11
from Agilent web, 26
LAN/RS-232 tool, 68
main, 10
minimum revision, 59
resident, 10
revision numbering, 12
update durations, 82
update for MS hardware, 25
update sequence (LAN), 69
update to A.06.xx (LAN/RS-232), 101
firmware update
A.05.11, 142
errors, 149
using single mode, 138
using the wizard, 140
functions of buttons, 84

G

G1323B
support, 87
update via LAN/RS-232, 87
G4218A ELSD Firmware, 23

H

HP J2552 cards, 70
HP J410x cards, 70

I

identification
1200 Infinity LC modules, 30
installation
LAN/RS-232 firmware update tool, 80
Instant Pilot
backward compatible mode, 136
errors, 149
general information, 134
prerequisites, 135
screen dark, 121, 149
solving problems, 149
update sequence, 135
update via LAN/RS-232, 82, 87
updates via, 133
using single mode, 138
using wizard, 140
Instant Pilot recovering, 116
instruction window, 113
interrupting an update, 93

L

LAN
Communication Card G1369A, 70
Communication Card G1369B, 70

on-board, 70
requirements, 70
LAN/RS-232
features, 69
firmware update tool, 68
firmware update tool installation, 80
firmware update tool setup, 83
functions of buttons, 84
instruction window, 113
recovering, 115
solving problems, 117
update of a complete system, 95
update of individual modules, 90
update of multiple systems, 98
update sequence, 69
updates, 67, 123
log-file, 99

M

MAC address, 72
main system, 10
MS
firmware update, 25
MS TOF Software A.02.01, 107
multiple system update, 98

O

On-board LAN, 70

P

PASSED, 94, 96
prerequisites
Instant Pilot, 135
protocol file, 97, 99

R

recovering
LAN/RS-232, 115
recovering Instant Pilot, 116
report screen, 94, 97
requirements
for LAN updates, 70
RS-232, 71
resident system, 10
revision numbering, 12
RS-232
baudrate, 71
cable, 71
requirements, 71
settings, 71

S

settings
RS-232, 71
setup
LAN/RS-232 firmware update tool, 83
single mode
Instant Pilot, 138
solving problems
Instant Pilot, 149
LAN/RS-232, 117
SUCCEEDED, 94
support
of G1323B, 87
of Instant Pilot G4208A, 87

T

TCP/IP, 72
troubleshooting
instruction window, 113
type change, 112

U

un-install
LAN/RS-232 firmware update tool, 80
update durations, 82
update info screen, 92
Update Information for A.05.11
Firmware, 142
update process stops, 118
update sequence
Instant Pilot, 135
LAN/RS-232, 69
update was interrupted, 119
update wizard
Instant Pilot, 140
updates
via Instant Pilot, 133
via LAN/RS-232, 67, 123
updates from the Agilent Web, 26
USB Flash Drive
part number, 135

W

wizard
Instant Pilot, 140

www.agilent.com

In This Book

This guide contains information about the Firmware Update of the Agilent 1200 Infinity LC Modules.

- LAN/RS-232
- LabAdvisor
- Instant Pilot G4208A
- 1200 Infinity LC Systems
- 1100 vs. 1200 series
- Downgrade Information on Main Boards

© Agilent Technologies 2010

Printed in Germany
Edition 09/03/2010

PDF ONLY

Agilent Technologies

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP