Agilent G1369C
LAN Interface Card

User Manual

Agilent Technologies

Notices

Manual Part Number

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Software Revision

This guide is valid for A.01.xx revisions of the Agilent G1369C LAN Interface Card software, where xx refers to minor revisions of the software that do not affect the technical accuracy of this guide.

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CAUTION

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WARNING

A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

In This Guide...

This guide contains information to install the LAN Interface Card (G1369C).

1 Introduction - Around your LAN Interface Card

In this chapter you will find an introduction to the LAN Interface Card and its function.

2 Getting Started

In this chapter you will find instructions to help you to set-up your LAN Interface Card based on the Agilent 1100/1200/1260 series HPLC modules.

3 Getting Help

In this chapter you will find support information about troubleshooting, repair and the Agilent web.

Contents

1 Introduction - Around your LAN Interface Card

In this chapter you will find an introduction to the LAN Interface Card and its function.

Introduction to the LAN Interface Card

The LAN Interface Card (Local Area Network) is the Agilent replacement for the previously used used Agilent G1369A/B LAN Interface Card or HP JetDirect card in the Agilent 1100/1200/1260 series HPLC modules, the 8453 UV-vis spectrophometer, the 35900E A/D converter and the 6850 Series GC.

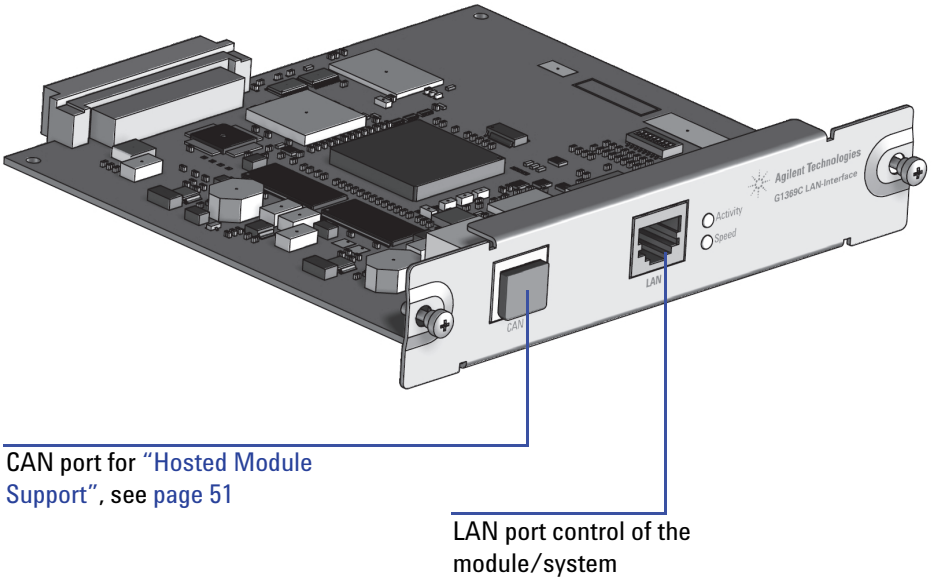


Figure 1 LAN Interface Card

Versions of LAN Cards

Table 1

Product Number	Part Number	Comments
• G1369C	G1369-60012	introduced 04/2011, same features as G1369B plus support of "DHCP" on page 25 and "Hosted Module Support" on page 51, replaces G1369A/B, backward compatible.
• G1369B	G1369-60002	introduced 03/2010, same features as G1369A, replaces G1369A, backward compatible.
• G1369A	G1369-60001	introduced 10/2003, replacement for HP JetDirect card in Agilent 1100/1200/1260 series HPLC modules, the 8453 UV-vis spectrophometer, the 35900E A/D converter and the 6850 Series GC.

NOTE

Compared to the G1369A LAN Card, SW 7 and SW 8 must be always in OFF position on the G1369B/C LAN Card, otherwise the selected modes are not working. See "Configuration Switches" on page 21.

LAN Control - What Exactly Does It Do?

In its simplest form...

- control of your instrument and acquires data "remotely" from your desktop (easier access),
- a direct replacement for GP-IB (HP-IB) interface protocol,
- allows your instrument to be placed anywhere on the laboratory/corporate network,
- improves lab "ergonomics" (better organization),

LAN Interface Card - What Has To Be Done?

- install LAN Interface Card into the instrument
- install network interface card (NIC) into PC (if not already pre-installed or on-board).
- connect to instrument
  - direct with cross-over cable or
  - to HUB with twisted pair cable
- configure instrument on LAN

LAN Control Configurations

The basic LAN configurations are shown below.

Local Configuration Using Cross-over Cable

The simplest way is a configuration with a single system.

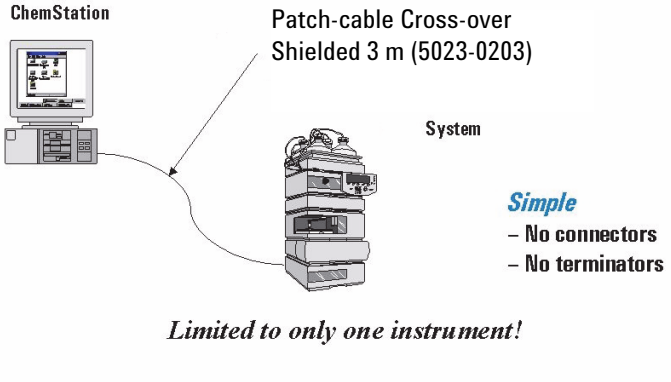


Figure 2 Local configuration using cross-over cable

LAN Using a HUB and Twisted Pair Cables

More complicated setup than direct cross-over connection.

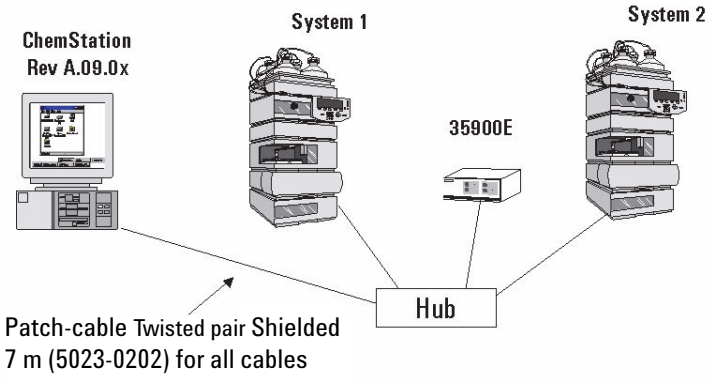


Figure 3 LAN configuration using a HUB and twisted pair cables

LAN With Existing Customer Network

Use MDI/MDI-X port or “Cascade” Port with standard twisted pair cable to connect Hub to a “parent” hub. IP Addresses and other TCP/IP configuration information MUST be provided by the customer’s IT organization. The customer LAN must be able to handle instrument data and must have sufficient bandwidth for instrument acquisition (no overnight backups over the LAN).

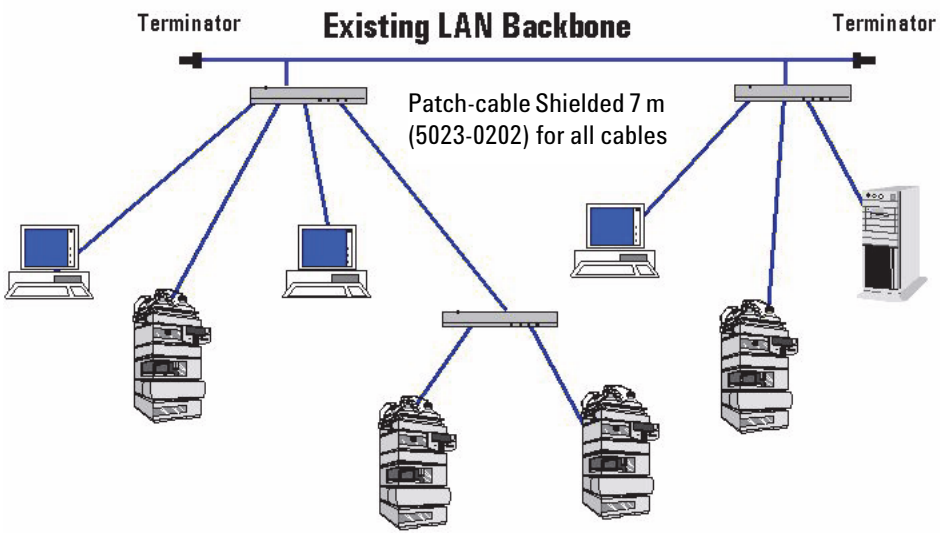


Figure 4 LAN configuration with existing customer network

LAN Interface Card Compatibility

The table below lists the minimum requirements for LAN operation with the LAN Interface Card.

Table 2 LAN Compatibility

Instrument/Operating Software	Revision (minimum)
Agilent 1260/1290 Infinity modules	All revisions
Agilent 1100/1200 modules	Firmware A.03.80 and Revision 2 mainboard, see Table 3
Agilent Instant Pilot G4208A	All revsions show the status page, editing is possible, see Figure 35 on page 46.
Agilent Control Module G1323A	All revsions show just the status page, no editing possible
Agilent Control Module G1323B	All revsions below B.02.02 show just the status page, no editing possible. With B.02.02 and above editing is possible, see Figure 35 on page 46.
Agilent 8453 Spectrophotometer	Firmware 3.30
Agilent 35900E A/D converter	requires G1369A board revision Rev. C.03.00 (introduced 04/2005) or G1369B or G1369C
Agilent 6850 Series GC	requires G1369A board revision Rev. C.03.00 (introduced 04/2005) or G1369B or G1369C
Agilent Control Module G1818A	No viewing or editing possible
Agilent ChemStation software	A.06.02 or later

LAN Compatibility On Early 1100 Modules

All 1100 Series HPLC modules shipped prior to 1997 are NOT compatible with the LAN Interface communication. The modules which host the LAN Interface (usually the detector module) requires a new main board. The serial number break of the 1100 series modules and the part numbers for the new boards are listed below.

NOTE If an Agilent detector is part of the LC System, the LAN Interface Card should be inserted in the detector module.

Table 3 LAN compatibility on early 1100 modules

1100 Module	S/N break	P/N Mainboard
G1310A	below DE64300355, US64400233	G1311-66520 or higher
G1311A	below DE64301137, US64401134	G1311-66520 or higher
G1312A	below DE64300703, US64400425	G1312-66520 or higher
G1313A	below DE64302092, US64400886	G1313-66520 or higher
G1314A	below JP64201926	G1314-66521 or higher
G1315A	below DE64301532, US64400333	G1315-66520 or higher

2
Getting Started

In this chapter you will find instructions to help you to set-up your LAN Interface Card based on the Agilent 1100/1200/1260 series HPLC modules.

Installing and Cabling the LAN Interface Card

What You Will Get

- G1369C LAN Interface Card
- LAN cables
- Manual on CD-Rom

LAN Interface Card card

LAN Interface Card G1369C (G1369-60012) - Packaging

CAN cable 1 m (5181-1519)

Patch-cable Twisted pair Shielded 7 m (5023-0202

Patch-cable Cross-over Shielded 3 m (5023-0203)

CD-ROM with the manual

Figure 5 What you will get (Content of G1369C/G1369-60012)

What You Have To Do First

CAUTION

Electronic boards and components are sensitive to electrostatic discharge (ESD).

ESD can damage electronic boards and components.

- Be sure to hold the board by the edges and do not touch the electrical components.Always use an ESD protection (for example, an ESD wrist strap) when handling electronic boards and components.

1 Remove the LAN Interface Card from it's packaging.

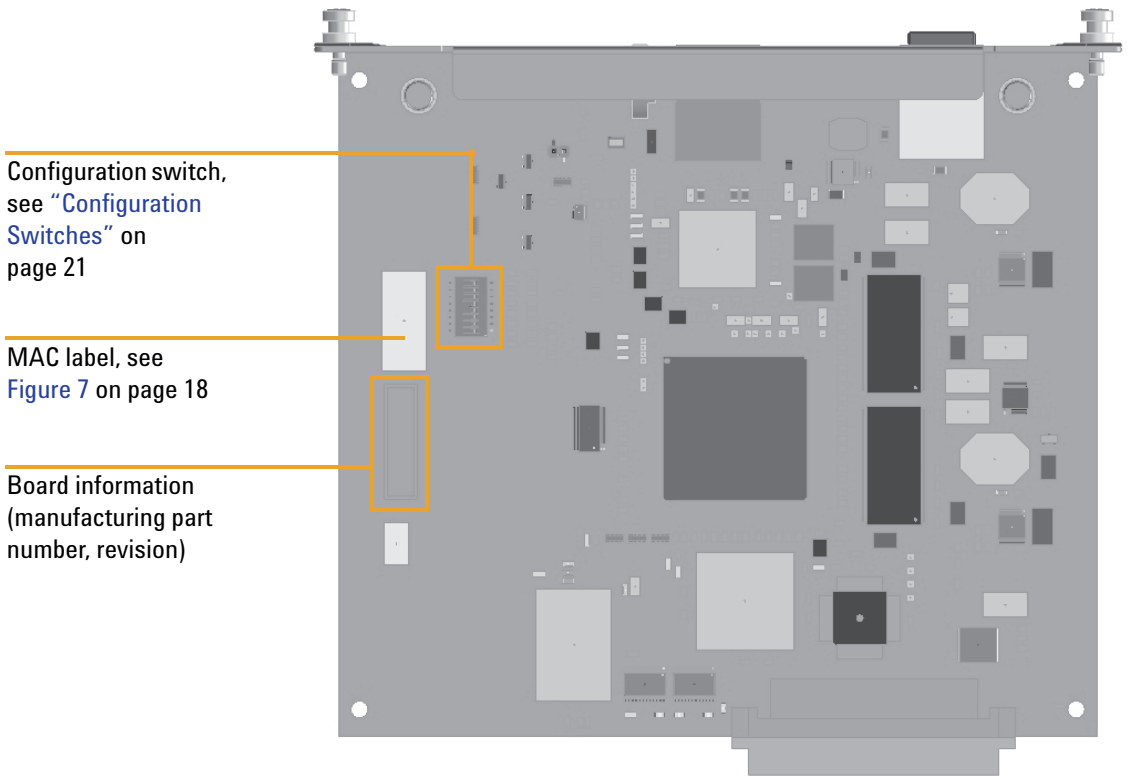


Figure 6 Board Layout G1369C

2 Note the MAC (Media Access Control) address for further reference. The MAC or hardware address of the LAN Interface Card 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 (see Figure 6 on page 17).

Part number of the LAN Interface Card, see page 56
Revision Code, Vendor, Year and Week of assembly
MAC address
Country of Origin

Figure 7 MAC-Label

3 Turn off instrument line power or remove the power cord before installing the LAN Interface Card.

4 On your instrument, identify the option slot for the MIO accessory card.

5 Remove any blank cover plates and ensure that the slot is empty.

NOTE

If the module has the 1100 CAN modification board installed, it probably has a revision 1 mainboard and will not accept the LAN interface. Refer to "LAN Interface Card Compatibility" on page 13

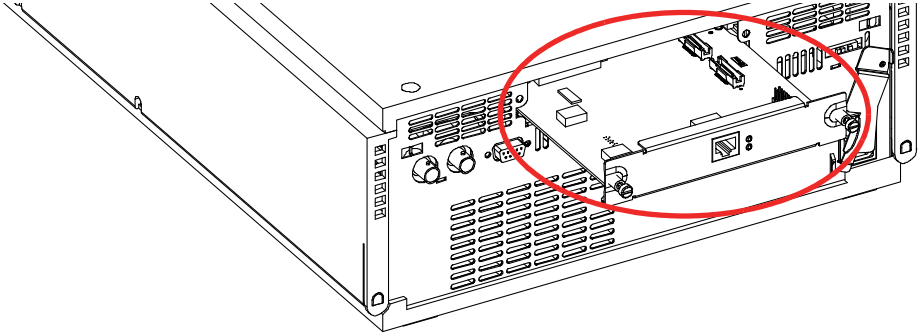


Figure 8 Location of LAN Interface Card (e.g. 1100/1200 series detector)

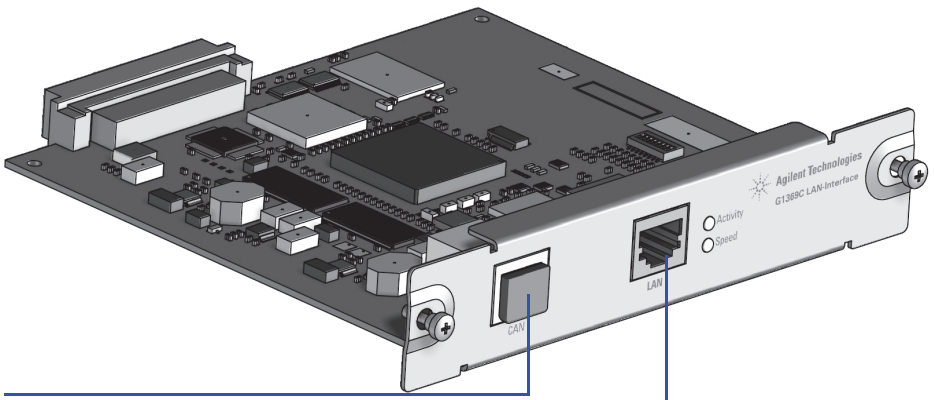
NOTE In 1100/1200/1260/1290 systems, the LAN Interface Card should be installed in the detector (DAD, MWD, FLD, VWD, RID) due to its higher data handling rate. If no 1100/1200/1260 detector available, use the pump or the autosampler (in this order).

NOTE The LAN Interface Card is shipped with the Bootp initialization mode and will use the parameters (IP, Subnet Mask and Default Gateway addresses) from a Bootp server. If you need another initialization mode or other settings, refer to "Initialization Mode Selection" on page 22 for details before doing the next step.

6 Carefully slide the LAN Interface Card into the slot. Some pressure may be necessary to properly seat the board. Tighten the screws.

7 Disconnect your PC from the network and connect the PC network card to the instrument's LAN Interface Card using a Crossover Network cable (point-to-point) or alternatives, see page 11 and page 12.

CAUTION Be careful that you connect the LAN cable to the LAN Interface Card and NOT one of the CAN connections. The CAN bus uses 12-Volt signals, and a misconnection to the CAN bus may destroy network equipment on the other end of the cable.



CAN port for "Hosted Module Support" connect to CAN port of the HPLC module that hosts this LAN interface card (if required). The CAN port of the "hosted module" connect with the provided CAN cable to a free CAN port on the LC system, see page 52.

LAN port control of the module/system

Figure 9 Connect the LAN cable to the correct connector

LAN Interface Card Configuration

TCP/IP Parameter Configuration

To operate properly in a network environment, the LAN Interface Card must be configured with valid TCP/IP network parameters. These parameters are:

- IP address
- Subnet Mask
- Default Gateway

The TCP/IP parameters can be configured by the following methods:

- by automatically requesting the parameters from a network-based DHCP Server (using the so-called Dynamic Host Configuration Protocol)
- by automatically requesting the parameters from a network-based BOOTP Server (using the so-called Bootstrap Protocol)
- by manually setting the parameters using Telnet
- by manually setting the parameters using the Agilent Instant Pilot (G4208A)
- by manually setting the parameters using the Handheld Controller (G1323A/B)

The LAN Interface Card differentiates between several initialization modes. The initialization mode (short form 'init mode') defines how to determine the active TCP/IP parameters after power-on. The parameters may be derived from a Bootp cycle, non-volatile memory or initialized with known default values. The initialization mode is selected by the configuration switch, see Figure 10 on page 21.

Configuration Switches

NOTE The board is sensitive for electrostatic discharge (ESD). See CAUTION on page 17.

The configuration switches are mounted on the card, see Figure 10.

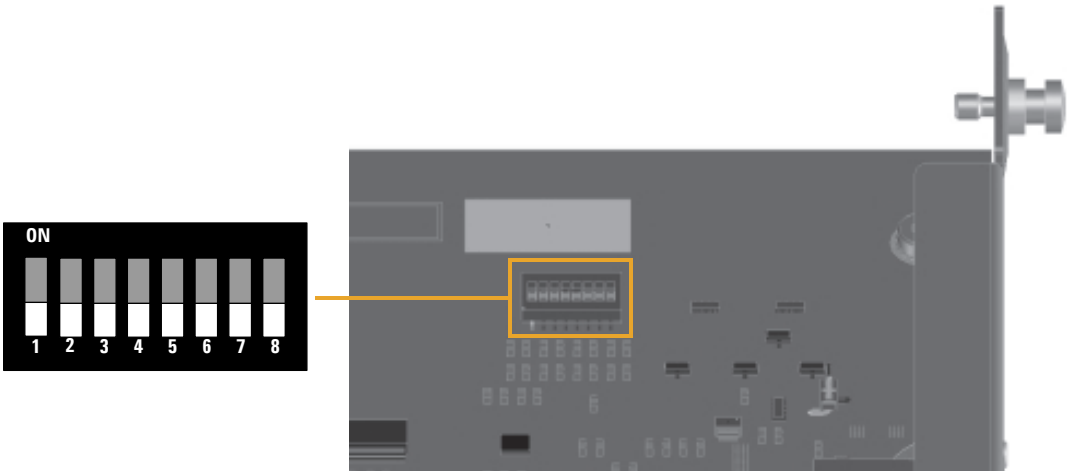


Figure 10 Location of Configuration Switches

The LAN Interface Card is shipped with all switches set to OFF, as shown above.

Table 4 Factory Default Settings

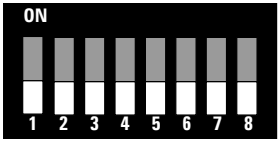
Initialization ('Init') Mode	Bootp, for details see page 22
Link Configuration	speed and duplex mode determined by auto-negotiation, for details see page 27

NOTE **Compared to the G1369A LAN Card, SW 7 and SW 8 must be always in OFF position on the G1369B/B LAN Card, otherwise the selected modes are not working.**

Initialization Mode Selection

The following initialization (init) modes are selectable:

Table 5 Initialization Mode Switches

	SW 4	SW 5	SW 6	SW 7	SW 8	Init Mode
	OFF	OFF	OFF	OFF	OFF	Bootp
	OFF	OFF	ON	OFF	OFF	Bootp & Store
	OFF	ON	OFF	OFF	OFF	Using Stored
	OFF	ON	ON	OFF	OFF	Using Default
	ON	OFF	OFF	OFF	OFF	DHCP

NOTE **Compared to the G1369A LAN Card, SW 7 and SW 8 must be always in OFF position on the G1369B/C LAN Card, otherwise the selected modes are not working.**

Bootp

When the initialization mode “Bootp” is selected, the card tries to download the parameters from a Bootp Server. The parameters obtained become the active parameters immediately. They are not stored to the non-volatile memory of the card. Therefore, the parameters are lost with the next power cycle of the card.

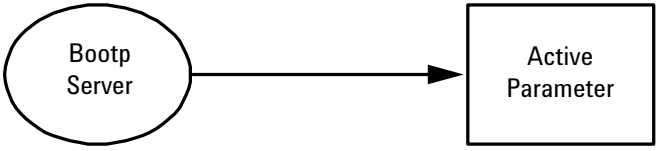


Figure 11 Bootp (Principle)

Bootp & Store

When “Bootp & Store” is selected, the parameters obtained from a Bootp Server become the active parameters immediately. In addition, they are stored to the non-volatile memory of the card. Thus, after a power cycle they are still available. This enables a kind of “bootp once” configuration of the card.

Example: The user may not want to have a Bootp Server be active in his network all the time. But on the other side, he may not have any other configuration method than Bootp. In this case he starts the Bootp Server temporarily, powers on the card using the initialization mode “Bootp &Store”, waits for the Bootp cycle to be completed, closes the Bootp Server and powers off the card. Then he selects the initialization mode “Using Stored” and powers on the card again. From now on, he is able to establish the TCP/IP connection to the card with the parameters obtained in that single Bootp cycle.

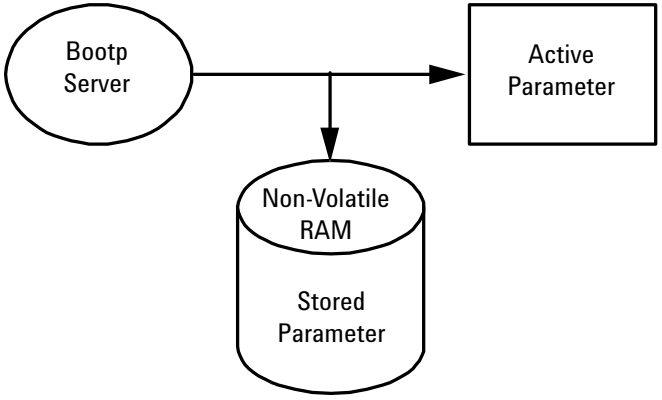


Figure 12 Bootp & Store (Principle)

NOTE Use the initialization mode “Bootp & Store” carefully, because writing to the non-volatile memory takes time. Therefore, when the card shall obtain its parameters from a Bootp Server every time it is powered on, the recommended initialization mode is “Bootp”!

Using Stored

When initialization mode “Using Stored” is selected, the parameters are taken from the non-volatile memory of the card. The TCP/IP connection will be established using these parameters. The parameters were configured previously by one of the described methods.

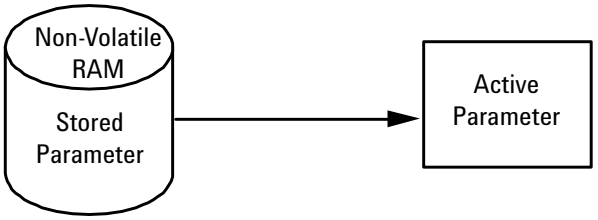


Figure 13 Using Stored (Principle)

Using Default

When “Using Default” is selected, the factory default parameters are taken instead. These parameters enable a TCP/IP connection to the LAN Interface Card without further configuration, see Table 6.

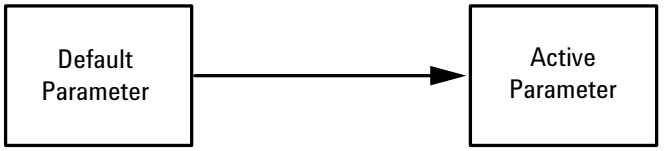


Figure 14 Using Default (Principle)

NOTE Using the default address in your local area network may result in network problems. Take care and change it to a valid address immediately.

Table 6 Using Default Parameters

IP address:	192.168.254.11
Subnet Mask:	255.255.255.0
Default Gateway	not specified

Since the default IP address is a so-called local address, it will not be routed by any network device. Thus, the PC and the card must reside in the same subnet.

The user may open a Telnet session using the default IP address and change the parameters stored in the non-volatile memory of the card. He may then close the session, select the initialization mode “Using Stored”, power-on again and establish the TCP/IP connection using the new parameters.

When the card is wired to the PC directly (e.g. using a cross-over cable or a local hub), separated from the local area network, the user may simply keep the default parameters to establish the TCP/IP connection.

NOTE In the “Using Default” mode, the parameters stored in the memory of the card are not cleared automatically. If not changed by the user, they are still available, when switching back to the mode “Using Stored”.

DHCP

When the initialization mode “DHCP” is selected, the card tries to download the parameters from a DHCP Server. The parameters obtained become the active parameters immediately. They are not stored to the non-volatile memory of the card.

Beside requesting the network parameters, the card also submits its hostname to the DHCP Server. The hostname equals the MAC address of the card, e.g. "0030d3177321". It is the DHCP server's responsibility to forward the hostname/address information to the Domain Name Server. The card does not offer any services for hostname resolution (e.g. NetBIOS).

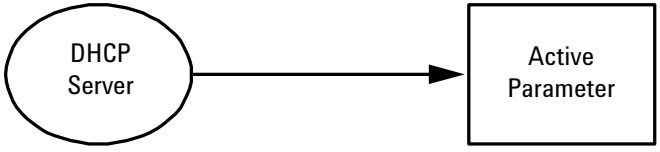


Figure 15 DHCP (Principle)

NOTE DHCP Servers may reject the hostname proposed by the card.

Link Configuration Selection

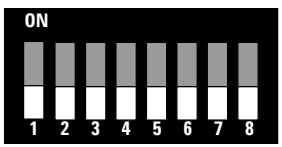
The LAN Interface Card supports 10 or 100 Mbps operation in full- or half-duplex modes. In most cases, full-duplex is supported when the connecting network device - such as a network switch or hub - supports IEEE 802.3u auto-negotiation specifications.

When connecting to network devices that do not support auto-negotiation, the LAN Interface Card will configure itself for 10- or 100-Mbps half-duplex operation.

For example, when connected to a non-negotiating 10-Mbps hub, the LAN Interface Card will be automatically set to operate at 10-Mbps half-duplex.

If the card is not able to connect to the network through auto-negotiation, you can manually set the link operating mode using link configuration switches on the card.

Table 7 Link Configuration Switches

	SW 1	SW 2	SW 3	SW 7	SW 8	Link Configuration
	OFF	-	-	OFF	OFF	speed and duplex mode determined by auto-negotiation
	ON	OFF	OFF	OFF	OFF	manually set to 10 Mbps, half-duplex
	ON	OFF	ON	OFF	OFF	manually set to 10 Mbps, full-duplex
	ON	ON	OFF	OFF	OFF	manually set to 100 Mbps, half-duplex
	ON	ON	ON	OFF	OFF	manually set to 100 Mbps, full-duplex

NOTE **Compared to the G1369A LAN Card, SW 7 and SW 8 must be always in OFF position on the G1369B/B LAN Card, otherwise the selected modes are not working.**

Automatic Configuration with Bootp

When automatic configuration with Bootp is selected and the LAN Interface Card 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.

Configuring the Agilent Bootp Service Program

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

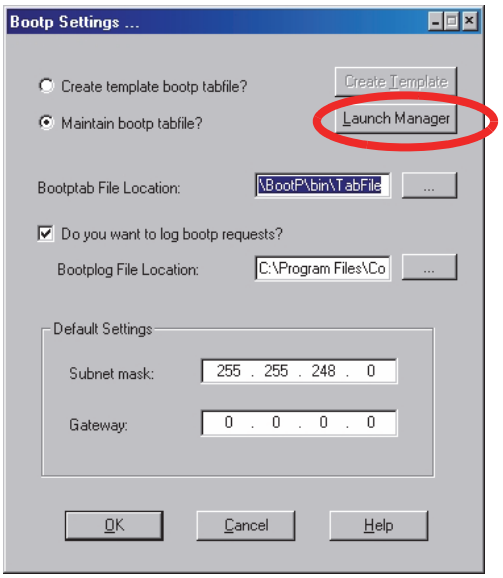
NOTE Assure that the detector configuration switch is set properly. The setting should be either **Bootp** or **Bootp & Store,** see Table 5 on page 22.

NOTE Assure that the detector connected to the network is powered off.

NOTE If the Agilent Bootp Service program is not already installed on your PC, then install it from your Agilent ChemStation DVD, located in folder \Bootp.

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 16) and enter the default settings for your setup.



location of LogFile and TabFile

Figure 16 Bootp Service Settings

3 Launch the Manager. It will open the Bootp Manager screen, see Figure 17. This shows all network hardware that has been added (initially empty).

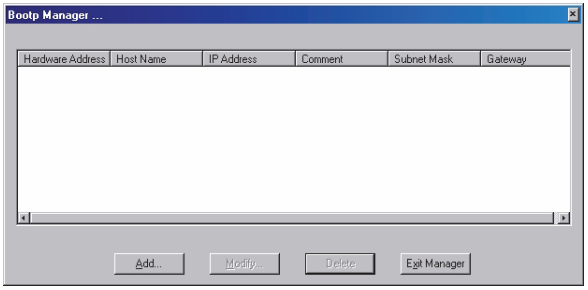


Figure 17 Bootp Manager

4 Select Add to enter the enter the module specific information, see Figure 18:

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

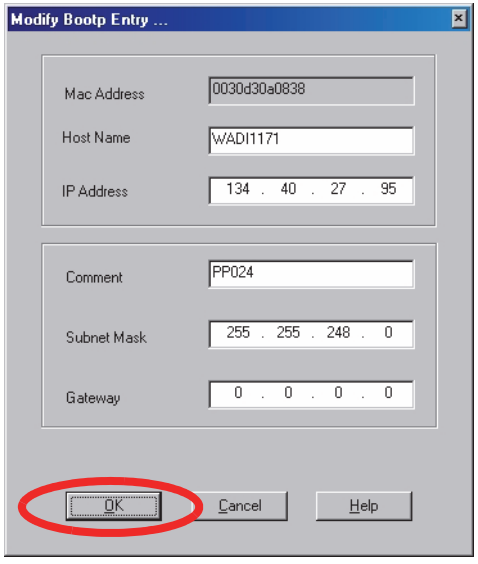


Figure 18 Bootp Manager - Enter your parameter

5 Press OK. The parameter are added to the Bootp Manager, see Figure 18 and added to the TabFile, see Figure 16 on page 29:

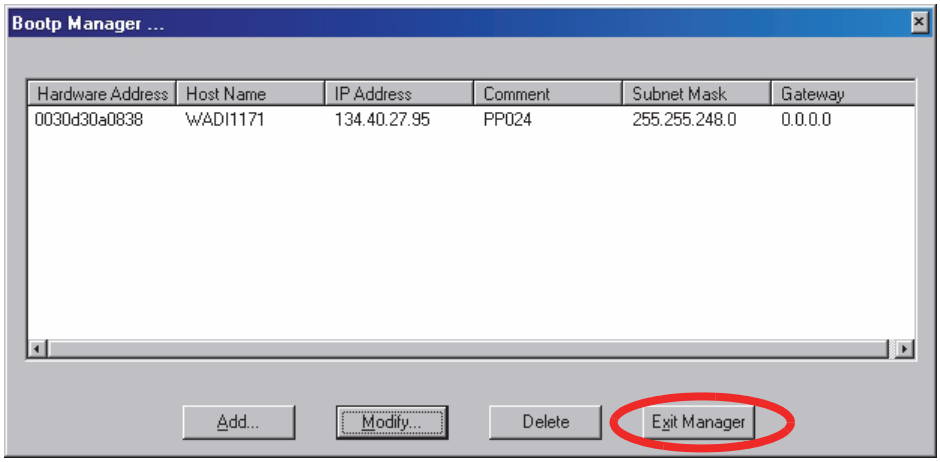


Figure 19 Bootp Manager - check your entries

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 . 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: 0030D30A0838
Status: found 134.40.27.95 WADI1171:
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

LogFile - the detector has received the parameter

NOTE

When using this **Bootp** mode, the parameters are not written into the non-volatile memory of the detector. If you delete this Bootp Configuration, the Bootp Manager will show up as shown in Figure 17 on page 29 (**Bootp** mode).

If you want to store your parameters permanently on the detector (for use without the Agilent Bootp service), refer to "Storing the Settings Permanently with Bootp Program" on page 37.

Configuring the CAG Bootp Server Program

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 Interface Card configuration switch is set properly. The setting should be either **Bootp** or **Bootp & Store,** see Table 5 on page 22.

NOTE

Assure that the instrument with the LAN Interface Card installed and connected to the PC is powered off.

NOTE

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

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 LAN Interface Card and view the Bootp Server window. After some time the Bootp Server will display the request from the LAN Interface Card 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 20 on page 33.

   The MAC or hardware address of the LAN Interface Card 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, see Figure 6 on page 17.

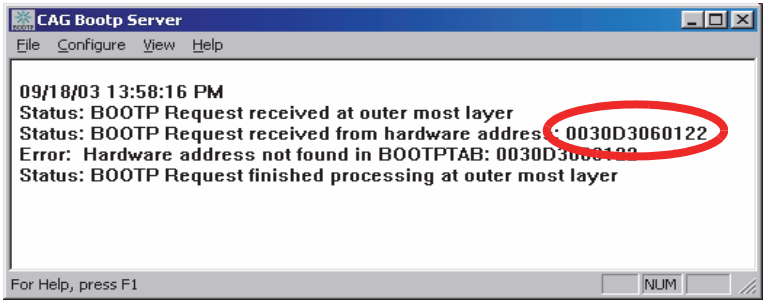


Figure 20 Bootp Server

4 Identify your LAN Interface Card by the MAC address, see Figure 20.

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

5 Select *Configure -> Add Entry* to configure the Bootp Manager (Figure 22). 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.

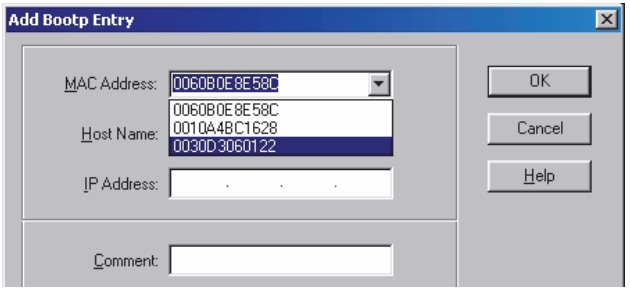


Figure 21 Add Bootp Entry - Select the MAC address

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.

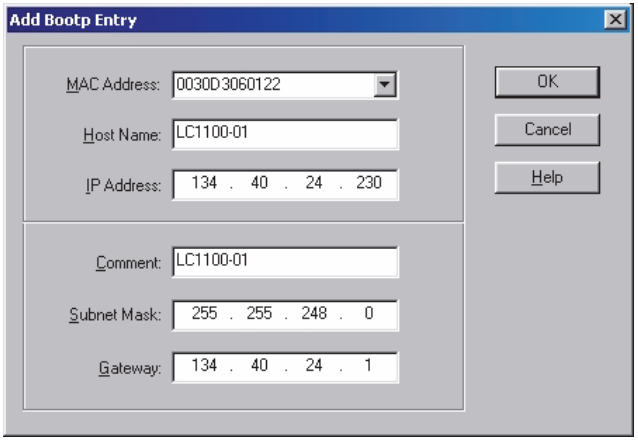


Figure 22 Add Bootp Entry - Enter your parameter

7 Exit with *OK*.

8 Select *Configure -> Bootp Manager*. All entries made above are shown in Figure 23 on page 35.

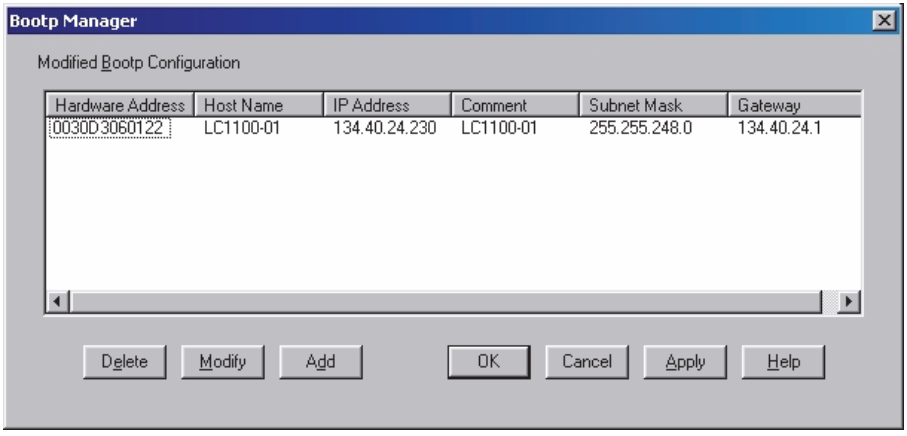


Figure 23 Bootp Manager

9 Press *Apply* to activate the changes.

10 Press *OK* to exit the Bootp Manager and power cycle the instrument with the LAN Interface Card, to force it to send a new bootp request again. This time, the MAC address will be recognized by the Bootp Server (Figure 24). It will send the configured IP address and subnet mask information which are necessary for communication to the LAN Interface Card.

IP address LAN Interface is 134.40.24.230

IP address PC is 134.40.30.184

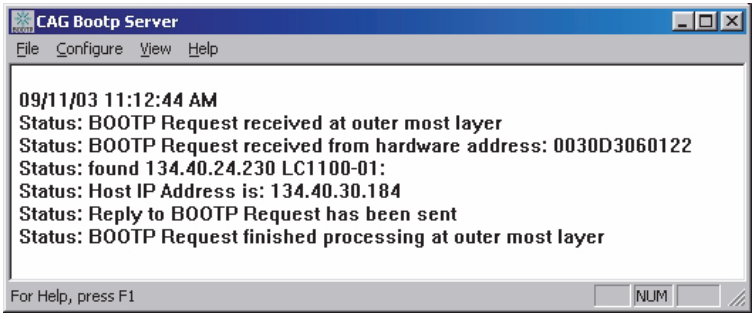


Figure 24 Bootp Server - module found

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 20 on page 33 (**Bootp** mode).

If you want to store your parameters permanently on the card (for use without the CAG Bootp server), refer to "Storing the Settings Permanently with Bootp Program" on page 37.

Storing the Settings Permanently with Bootp Program

If you want to change parameters of the card using the Bootp follow the instructions below.

NOTE Use an ESD (Electro-Static Discharge) wrist strap when handling electronics. Refer to your instrument manual for details.

1. Turn off the module that hosts the LAN Interface Card and remove the card.
2. Change the card's settings of the Configuration Switch to **"Bootp & Store"** mode, see Table 5 on page 22.
3. Install the LAN Interface Card.
4. Start the CAG Bootp Server program and open its window.
5. If required, modify the parameters for the LAN Interface Card according to your needs using the existing configuration.
6. Press *OK* to exit the Bootp Manager.
7. Now turn on the module with the LAN Interface Card and view the Bootp Server window. After some time the Bootp Server will display the request from the LAN Interface Card. The parameters are now stored permanently in the non-volatile memory of the card.
8. Close the CAG Bootp Server program and turn off the module and remove the LAN Interface Card.
9. Change the settings of the card's Configuration Switch to **"Using Stored"** mode, see Table 5 on page 22.
10. Install the card and power cycle the module with the LAN Interface Card. The card can be accessed now via LAN without the CAG Bootp Server program, refer to "PC and Agilent ChemStation Setup" on page 49.

Manual Configuration

Manual configuration only alters the set of parameters stored in the non-volatile memory of the card. It never affects the currently active parameters. Therefore, manual configuration can be done at any time. A power cycle is mandatory to make the stored parameters become the active parameters, given that the initialization mode selection switches are allowing it.

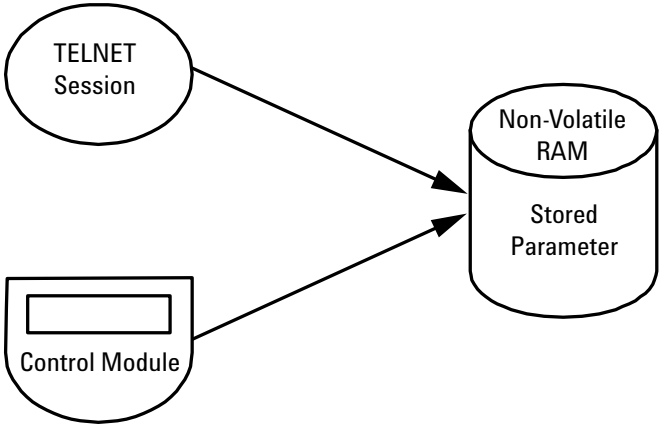


Figure 25 Manual Configuration (Principle)

With Telnet

Whenever a TCP/IP connection to the card is possible (TCP/IP parameters set by any method), the parameters may be altered by opening a Telnet session.

1 Open the system (DOS) prompt window by clicking on Windows START button and select "*Run...*". Type "cmd" and press OK.

2 Type the following at the system (DOS) prompt:

```
c:\>telnet <IP address>
```

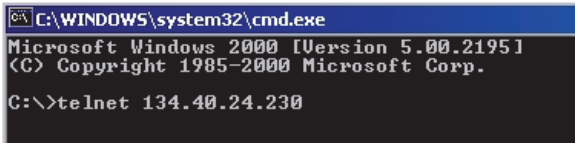


Figure 26 Telnet - Starting a session

where <IP address> may be the assigned address from a Bootp cycle, a configuration session with the Agilent Instant Pilot (G4208A) or Handheld Controller (G1323A/B), or the default IP address (see "Configuration Switches" on page 21).

When the connection was established successfully, the card responds with the following:

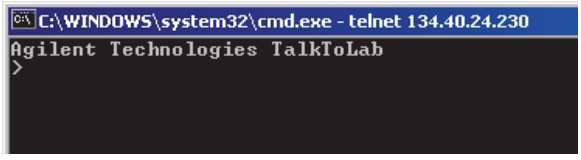


Figure 27 A connection to the module is made

3 To change a parameter follows the style:

parameter value

for example: `ip 134.40.24.230`

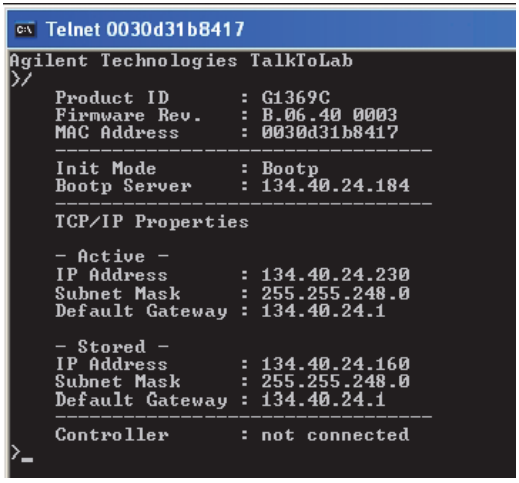
then press [Enter], where parameter refers to the configuration parameter you are defining, and value refers to the definitions you are assigning to that parameter. Each parameter entry is followed by a carriage return.

Table 8 Telnet Commands

Value	Description
?	displays syntax and descriptions of commands
/	displays current settings
ip <x.x.x.x>	sets new ip address
sn <x.x.x.x>	set new subnet mask
gw <x.x.x.x>	sets new default gateway
quit	saves changes and exit shell
exit	exits shell without saving changes

NOTE Any time during the Telnet session you can type "?" then press [Enter] to view available configuration parameters, the correct command format, and a list of additional commands to display.

4 Use the "/" and press Enter to list the current settings.



information about the card
Product id, firmware revision (A.xx.xx are released versions), MAC address, initialization mode

Initialization mode is Bootp
The connected PC/Bootserver is 134.40.24.184

active TCP/IP settings

stored TCP/IP settings in non-volatile memory (not visible if equal to active TCP/IP settings)

connected to PC with controller software (e.g. Agilent ChemStation), here not connected

Figure 28 Telnet - Current settings in Bootp mode

5 Change the IP address (in this example 134.40.24.158) and type "/" to list current settings.

change of TCP/IP setting

Initialization mode is Bootp
The connected PC/Bootserver is 134.40.24.184

active TCP/IP settings

stored TCP/IP settings in non-volatile memory

last user change (not active yet, requires mode "Using Stored" and re-start)

Figure 29 Telnet - Change IP settings

6 When you have finished typing the configuration parameters, type:

`quit` and press [Enter] to store the configuration parameters

or

`exit` and press [Enter] to exit without storing parameters.

If the Initialization Mode Switch is changed now to **“Using Stored”** mode, the instrument will take the stored settings when the module is re-booted. In the example above it would be 134.40.24.158 on QUIT and 134.40.24.160 on EXIT.

With Agilent Instant Pilot

To configure the TCP/IP parameters before connecting the detector to the network, the Instant Pilot (G4208A) can be used.

1 From the Welcome screen press the **More** button.

2 Select **Configure.**

3 Press the **DAD** (MWD) button.

4 Scroll down to the LAN settings.

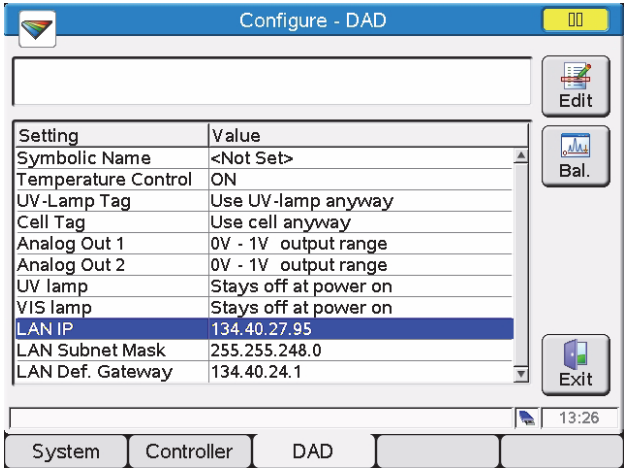


Figure 30 Instant Pilot - LAN Configuration

5 Press the **Edit** button, perform the required changes and press the **Done** button.

6 Leave the screen by pressing the **Exit** button.

With Handheld Controller G1323B

NOTE The module screenshots in this section are taken with the G1369B LAN Interface card. Therefore the displayed product number and fimware revision is different.

To configure the TCP/IP parameters before connecting the card to the network, the Handheld Controller (**G1323B with firmware B.02.02 or above for 1100/1200 series modules only**, see "LAN Interface Card Compatibility" on page 13) can be used.

1 Press F5 "Views", select "System" and press the "Enter" key.

2 Press F2 "Configure", select the module where the LAN Interface Card is installed and press the "Enter" key (Figure 31).

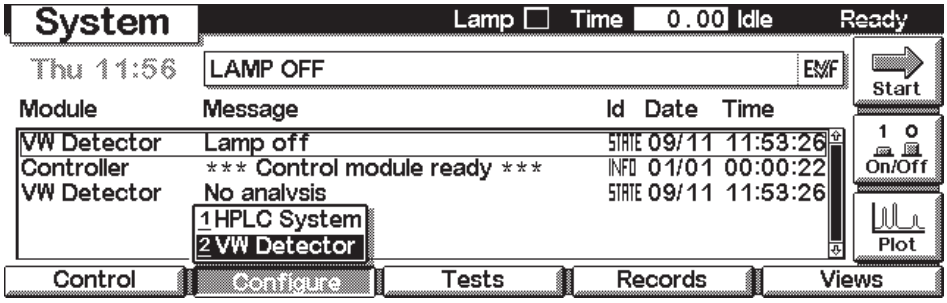


Figure 31 Select module

3 Press F1 “Interfaces”, select “MIO” and press the “Enter” key (Figure 32).

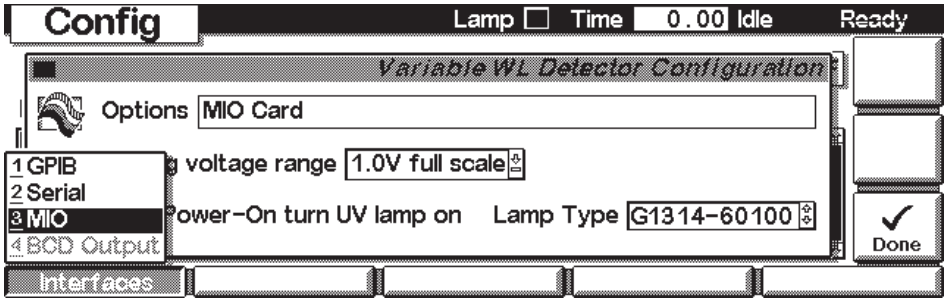


Figure 32 Select MIO

4 A Warning message shall pop up. Press “Continue” (Figure 33).

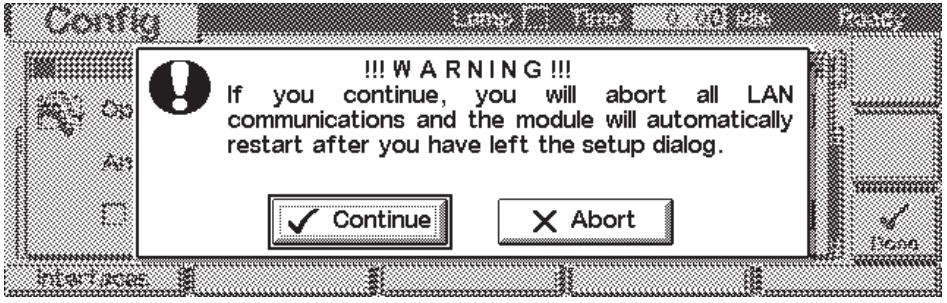


Figure 33 Warning message

5 After the Handheld Controller was reading out the LAN Interface Card you will get an overview of all the parameters that are set in the card

(LAN Interface Card Status Page). The information corresponds to the information in Figure 28 on page 41.

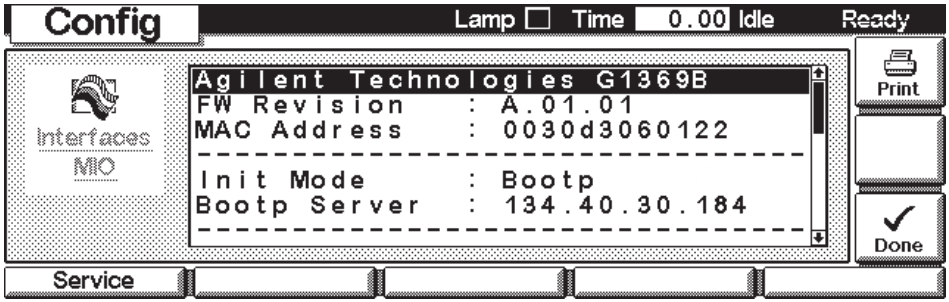


Figure 34 LAN Interface Card Status Page

In Figure 35 on page 46 the complete listing is shown. For explanations refer to Figure 28 on page 41.

```
Agilent Technologies G1369C
FW Revision    : B.06.40 0003
MAC Address    : 0030d31b8417
--------------------------------
Init Mode      : Bootp
--------------------------------
TCP/IP Properties
- active -
IP Address     : 0.0.0.0
Subnet Mask    : not specified
Def. Gateway   : not specified
- stored -
IP Address     : 134.40.24.160
Subnet Mask    : 255.255.248.0
Def. Gateway   : 134.40.24.1
--------------------------------
TCP/IP Status : Error
Bootp timeout
--------------------------------
Controller     : not connected
```

Figure 35 LAN Interface Card Status Page (complete)

6 To change the TCP/IP settings, press F1 “Service”.

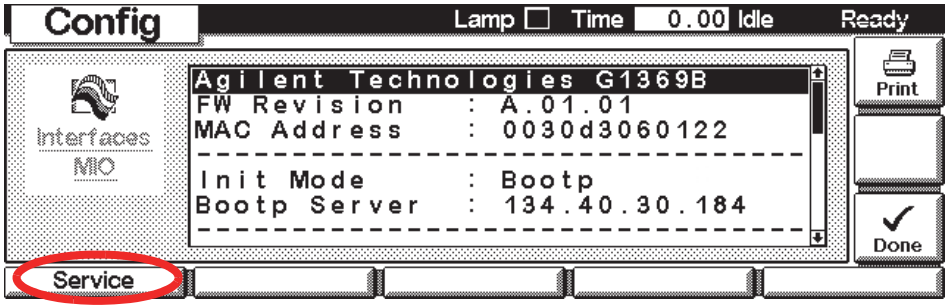


Figure 36 Entering the Service Mode

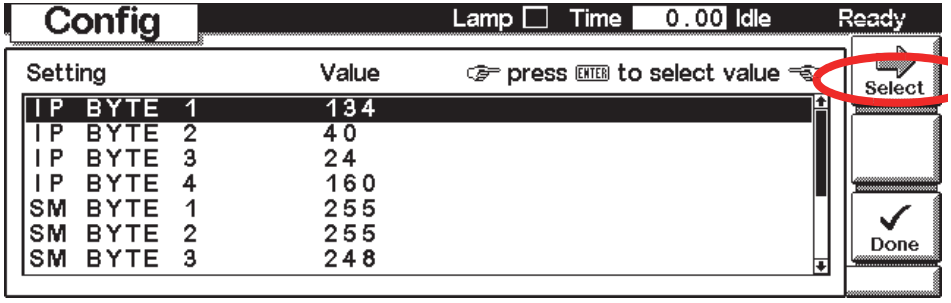


Figure 37 TCP/IP parameters

7 Move to the parameter you want to change, enter the new value and press “Enter”.

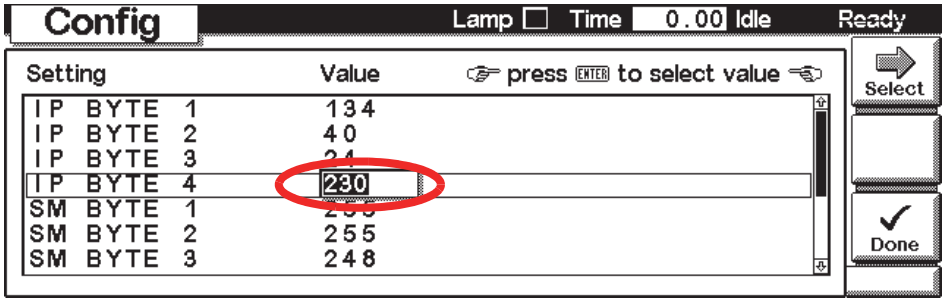


Figure 38 Service

8 If you completed your changes, press “Done” to leave the Service section.

9 Press F6 “Done” and restart the module by pressing “OK” .

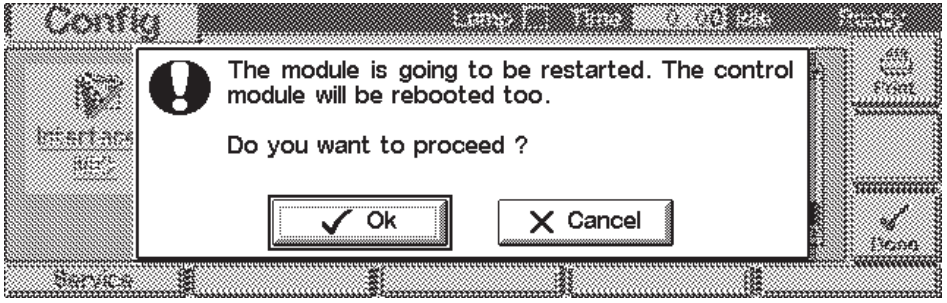


Figure 39 Re-boot screen

PC and Agilent ChemStation Setup

PC Setup for Local Configuration

This procedure describes the change of the TCP/IP settings on your PC to match the LAN Interface Card default parameters in a local configuration (see also "Local Configuration Using Cross-over Cable" on page 11 and "Using Default" on page 24).

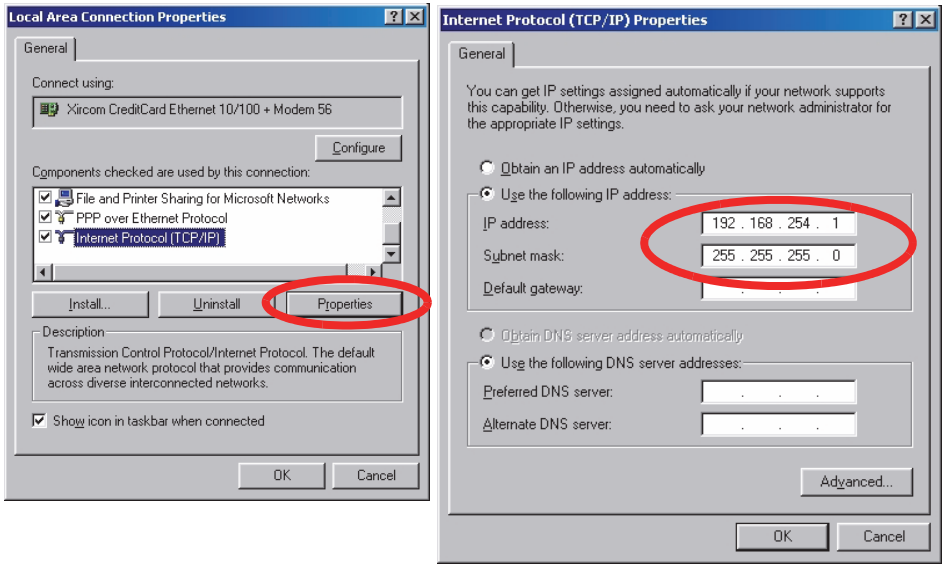


Figure 40 Changing the TCP/IP settings of the PC

Agilent ChemStation Setup

1 Start the Configuration Editor of the Agilent ChemStation.

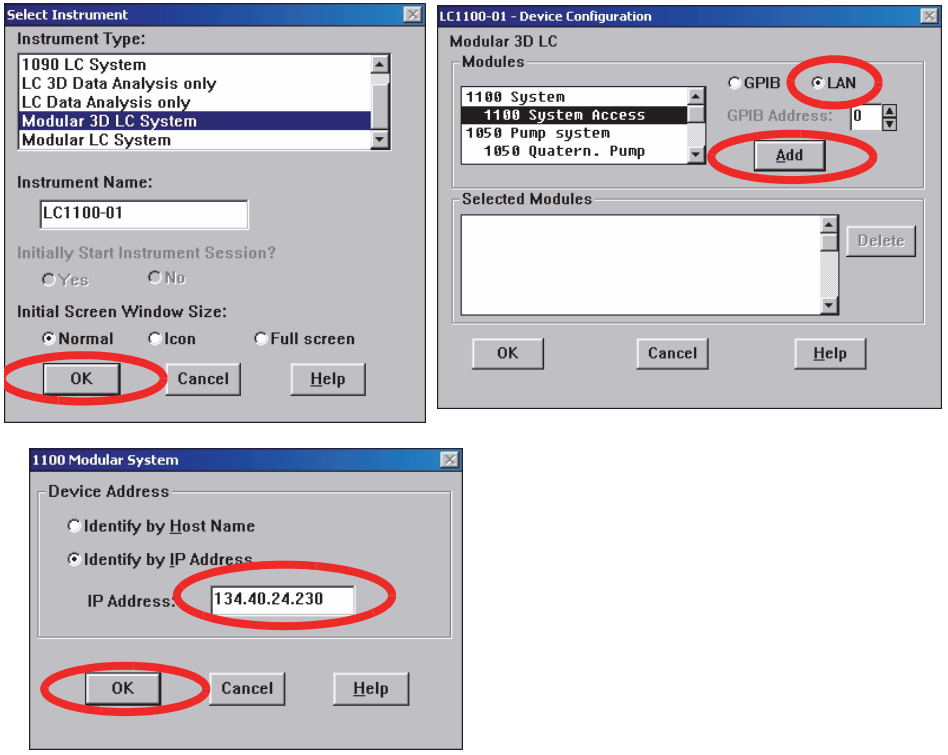


Figure 41 Changing the TCP/IP settings of the Agilent ChemStation

2 Add a TCP/IP connection to communicate with the LAN Interface Card. Use the IP address of the LAN Interface Card.

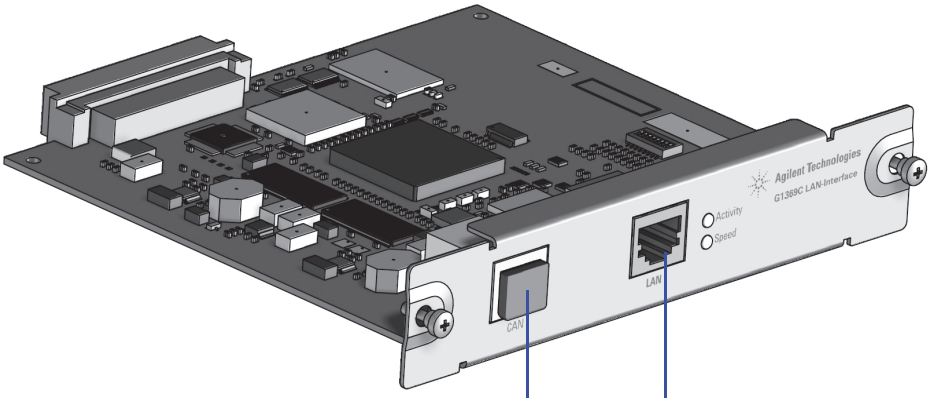
NOTE If using a corporate LAN, IP addresses need to be supplied by the responsible IT department. Also the LAN needs to be able to handle additional traffic.

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

Hosted Module Support

The G1369C LAN Interface Card is able to host a so-called Agilent Hosted Module (e.g. Universal Valve Drive, G1170A). This functionality can be used when the HPLC system does not include a module with integraded LAN interface (G4212A/B DAD, G4220A/B Pump, G1315/65C/D, G1314D/E/F VWD). To make use of the hosting functionality, just connect the provided CAN cable between the LAN card's CAN port and one of the instrument's CAN ports, see Figure 42 on page 51.

NOTE A standard Agilent HPLC module without integrated LAN interface does not support Hosted Modules.



CAN port for "Hosted Module Support" connect to CAN port of the HPLC module that hosts this LAN interface card (if required). The CAN port of the "hosted module" connect with the provided CAN cable to a free CAN port on the LC system, see "How to connect hosted modules" on page 52.

LAN port control of the module/system

Figure 42 Hosted Module Support

How to connect hosted modules

- All modules must be on the same FW level (A/B/C.06.32 or A/B/C.06.50 or later). No mixed revisions possible! See additional information in section "Firmware Update" on page 58.
- Install the G1369C LAN Card in a module with LAN card slot (preferentially a detector, e.g. G1314C).

NOTE In 1100/1200/1260/1290 systems, the LAN Interface Card should be installed in the detector (DAD, MWD, FLD, VWD, RID) due to its higher data handling rate. If no 1100/1200/1260 detector available, use the pump or the autosampler (in this order).

- Establish a CAN connection between G1369C LAN card and the module which holds the LAN card.
- Connect the hosted module to a free CAN connector in the stack.
- Maximum 3 hosted modules can be connected to the stack.

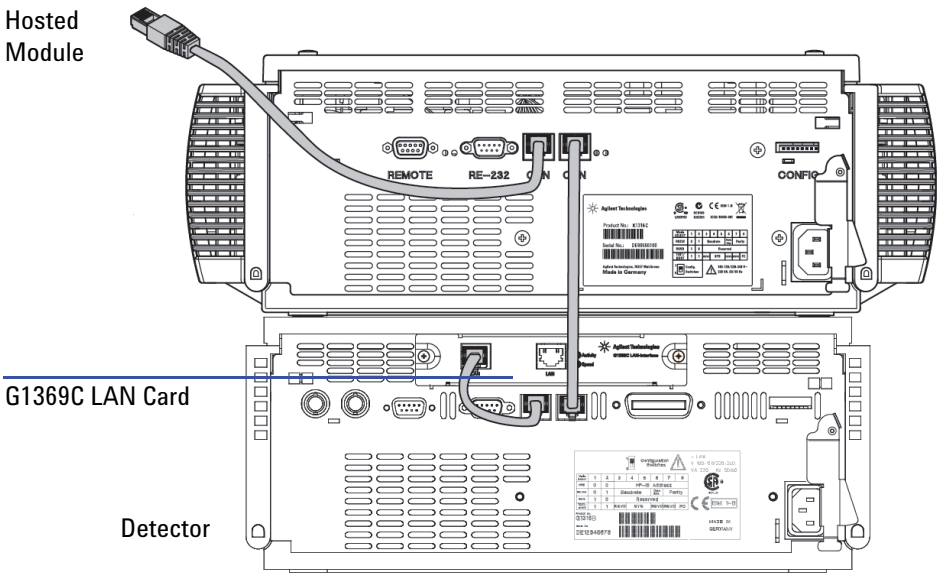


Figure 43 How to connect hosted modules

3
Getting Help

In this chapter you will find support information about troubleshooting, repair and the Agilent web.

Troubleshooting

If the LAN Interface Card does not successfully connect to the network, there are several ways to get status information from the card.

Link Status LEDs

On the card, near the RJ-45 connector, two status LEDs are mounted. See Figure 44.

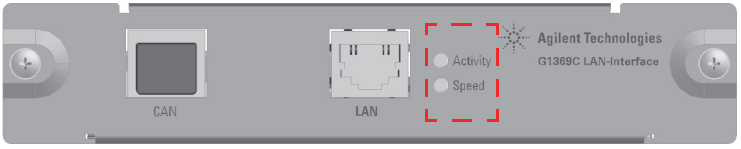


Figure 44 Status LEDs

The LED named “Speed” shows the actual link speed.

Table 9 LED “Speed”

LED off	link speed 10 Mbps
LED on	link speed 100 Mbps

The LED named “Activity” shows whether the physical link is established or not. In addition, it shows whether the card is transferring data or not.

Table 10 LED “Activity”

LED off	no physical link established
LED on	physical link established
LED blinking	transferring data

Error Messages

The error messages are shown in the LAN Interface Card Status Page on the Control Module (G1323A/B) only, refer to "With Handheld Controller G1323B" on page 44.

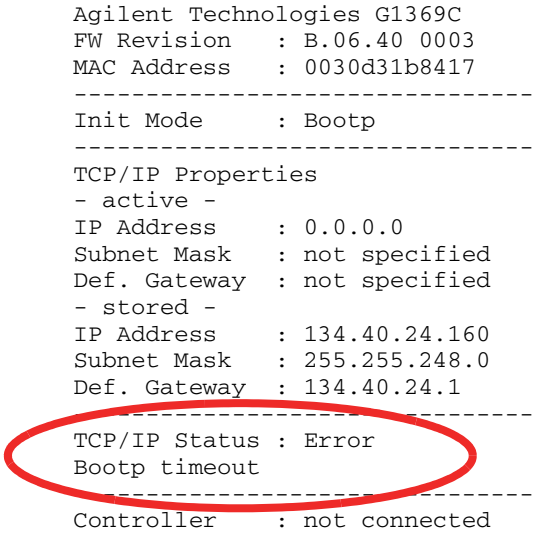


Figure 45 LAN Interface Card Status Page (complete)

If status "Error" shows up, possible error conditions are listed below.

Table 11 Error conditions

Error	Description	Action
Bootp timeout	No reply on Bootp request received	Start Bootp server and/or add settings for the LAN Interface Card.
Bootp reply incomplete	Bootp reply contained not all information	Complete the neccessary information
Gateway in unreachable network	Default Gateway does not match the specified IP address and Subnet Mask	Correct the settings

Repair and Parts Information

The repair level of the product Agilent G1369C LAN Interface Card is replacement of the complete board.

LAN Interface Card card

LAN Interface Card G1369C (G1369-60012) - Packaging

CAN cable 1 m (5181-1519)

Patch-cable Twisted pair Shielded 7 m (5023-0202

Patch-cable Cross-over Shielded 3 m (5023-0203)

CD-ROM with the manual

Figure 46 What you will get (Content of G1369C/G1369-60012)

Table 12 Order information

Order number	Description
G1369C	complete product, Agilent G1369C LAN Interface Card (includes CD-ROM with electronic manual)
G1369-60012	same as G1369C. The board G1369-65810 is a manufacturing number only and cannot be ordered.
G1369-90002	The actual manual as PDF file is available via the Agilent web only, see "Agilent Web" on page 59
5181-1519	CAN cable 1 m
5023-0203	Cross-over (point-to-point) network cable (shielded, 3 m long)
5023-0202	Twisted pair network cable (shielded, 7 m long)

Firmware Update

The LAN Interface Card's firmware can be updated, using the firmware provided by the Agilent support web side. A procedure will be provided with the firmware.

Initial firmware revision: B.06.40 (for "Hosted Module Support" on page 51)

Updates may be required in case the "Hosted Module Support" on page 51 requires an update (only when this feature is used). For normal LAN operation firmware changes may not be required.

For the G1369C LAN card a more convenient firmware update mechanism is available that replaces the old Telnet procedure. PLease refer to the LAN/RS-232 Firmware Updated Tool (version 2.9 or later).

WARNING **Do not load G1369C firmware on a G1369B card! The G1369B card will become inoperable.**

Update Procedure

1. Download the actual firmware from the Agilent web http://www.chem.agilent.com/scripts/cag_firmware.asp?nmod=LC
2. The zipped firmware archive contains all required files and the procedure for the update.
3. Follow the provided instructions.

Agilent Support Information

Reporting of Problems

If the LAN Interface Card shows problems in your system report it with the following information (from the MAC-Label, see Figure 8 on page 18):

- Part number of the LAN Interface Card
- Board Revision Code, Vendor, Year and Week of assembly
- MAC address
- Installed firmware revision (if known or still accessable, see Figure 28 on page 41 or Figure 45 on page 55).

Agilent Web

Latest documentation or firmware updates for this product (Agilent G1369C LAN Interface Card) can be obtained from the Agilent web side

http://www.agilent.com

> Life Sciences/Chemical Analysis

For firmware select “Technical Support”, then look for “Firmware for LC & LC/MS”

For manual select “Library”, then search for G1369C and “manual”

Glossary

Table 13 Glossary

Term / Acronym	Definition
10/100Base-TX	Twisted pair Ethernet cable.
Bootp	Bootstrap Protocol, an Internet protocol that enables a diskless workstation to discover its own IP address
CAN	Controller Area Network; a shared broadcast bus, which runs at speeds up to 1Mbit/sec; it is a serial data communications bus for real-time applications.
CAG	Chemical Analysis Group (Agilent term)
DOS	Disk Operating System. The term DOS can refer to any operating system, but it is most often used as a shorthand for MS-DOS (Microsoft disk operating system).
ESD	Electrostatic discharge, the rapid discharge of static electricity from one conductor to another of a different potential. An electrostatic discharge can damage integrated circuits
Ethernet	A local area network (LAN) specified as IEEE 802.3
Gateway	A node on a network that serves as an entrance to another network.
HP-IB or GP-IB	The IEEE-488 Interface Bus (HP-IB) or general purpose interface bus (GP-IB) was developed to provide a means for various instruments and devices to communicate with each other under the direction of one or more master controllers. The HP-IB was originally intended to support a wide range of instruments and devices, from the very fast to the very slow.
IP address	An identifier for a computer or device on a TCP/IP network.
Host	A computer system that is accessed by a user working at a remote location.
Hub	Is some kind of router, which allows clients to connect each other.
LAN	Lab Area Network

Table 13 Glossary

Term / Acronym	Definition
LED	Light Emitting Diode
MAC address	Media Access Control address, a hardware address that uniquely identifies each node of a network.
MIO	Modular Input/Output; interface specification from Hewlett-Packard
RJ-45 connector	Registered Jack-45, an eight-wire connector used commonly to connect computers onto a local-area networks (LAN), especially Ethernets. RJ-45 connectors look similar to the RJ-11 connectors used for connecting telephone equipment, but they are somewhat wider.
Subnet Mask	A mask used to determine what subnet an IP address belongs to. Subnetting enables the network administrator to further divide the host part of the address into two or more subnets.
TCP/IP	Transmission Control Protocol/Internet Protocol; LAN (Ethernet) protocol
Telnet	A terminal emulation program for TCP/IP networks such as the Internet.

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In This Book

This guide contains information to install the LAN Interface (G1369C).

- Introduction - Around your LAN Interface
- Getting Started
- Getting Help

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