

Classic MultiCom



User's Manual

Warranty

Warranty



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Introduction



*The **Classic MultiCom** is an efficient device designed to connect remote Ethernet networks through a Basic-Rate ISDN line or a leased line. It is easy to install and works with standard TCP/IP and IPX/SPX software. To set up your **Classic MultiCom**, simply follow the few quick steps described in the following chapter.*

CHECKING YOUR PACKAGE CONTENTS

1.1

Your **Classic MultiCom** package includes the following:

1. **Classic MultiCom**
2. ISDN cable
3. Console cable
4. Power cable
5. This manual
6. Warranty card



Classic MultiCom



ISDN Cable: A long black cable with RJ45 connectors

IF THE PRODUCT IS RECEIVED DAMAGED 1.2

Forward an immediate request to the delivering carrier to perform an inspection and prepare a damage report. Save the container and packing material until contents are verified.

Report the nature and extent of the damage to Customer Support so that action can be initiated to repair or replace damaged items, or instructions issued for returning items.

The responsibility of the manufacturer ends at the delivery to the first carrier. ALL CLAIMS for loss, damage, or nondelivery must be made against the delivering carrier WITHIN 8 DAYS OF RECEIPT of shipment.

TO RETURN THE PRODUCT 1.3

Please obtain instructions from Customer Support before returning any item(s). Report the fault or deficiency along with the model, type, and serial number of the item(s) to Customer Support. Upon receipt of this information, Customer Support will provide service instructions or shipping information.

Installation



*This chapter describes the installation procedure of the **Classic MultiCom** on a network.*

Your **Classic MultiCom** must be configured before establishing an Ethernet connection. Generally, your dealer or network specialist will configure it for you. If you must set the configuration yourself, refer to § 4, "Configuration" on page 23, before continuing with the installation.

The installation procedure requires that you:

1. Install the **Classic MultiCom** so that ventilation holes are kept clear.
2. Connect the Console Port (optional)
3. Connect the Serial Port (optional)
4. Connect the Ethernet cable
5. Connect the ISDN cable
6. Connect the Power Supply cable
7. Apply power.

Successful connection automatically launches the start-up operation for your **Classic MultiCom**, described in § 2.2, "Starting Up Your Classic MultiCom" on page 18.

INSTALLING YOUR *Classic MultiCom*

2.1

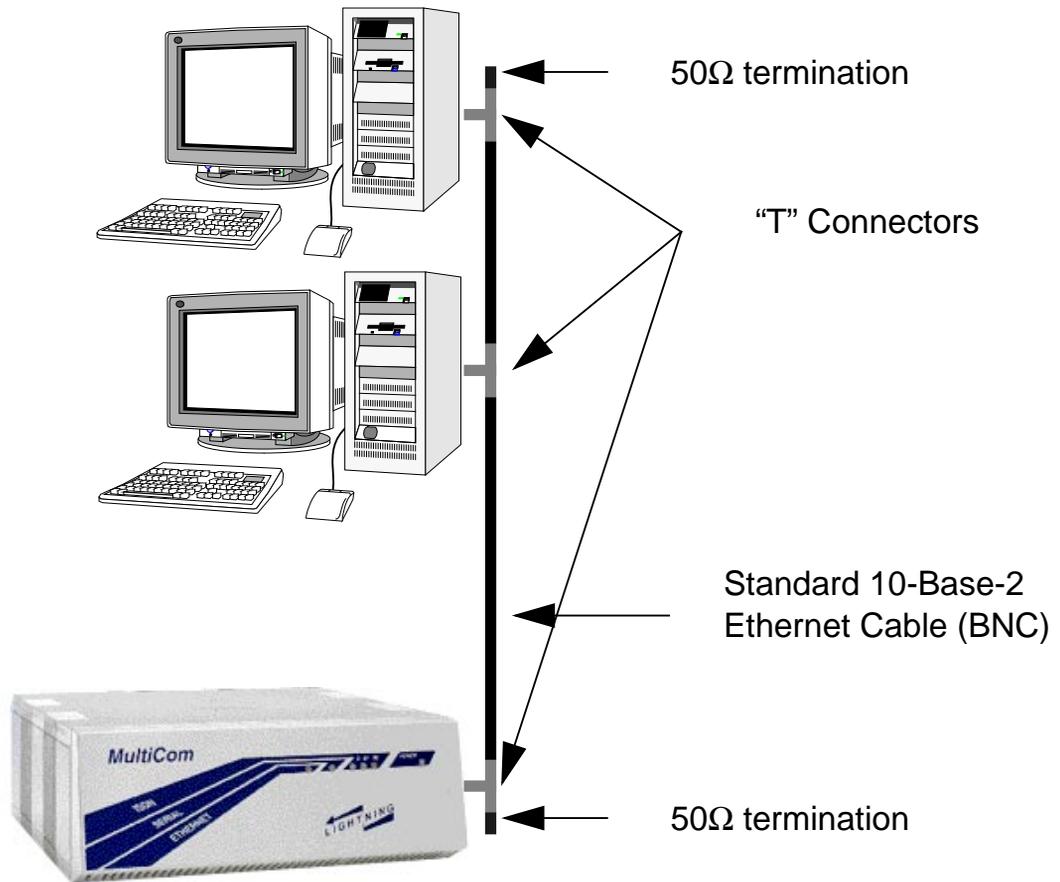


Figure 1 *Classic MultiCom* with a Network

This illustration shows a typical LAN (Local Area Network) setup with a *Classic MultiCom*.

The steps described at the beginning of this chapter will now be explained with more details.

KEEP VENTILATION HOLES CLEARED

2.1.1

When installing the **Classic MultiCom**, make sure that the holes on the case (under the front panel and on the rear panel) are clear of obstructions, to ensure a good ventilation at all times.

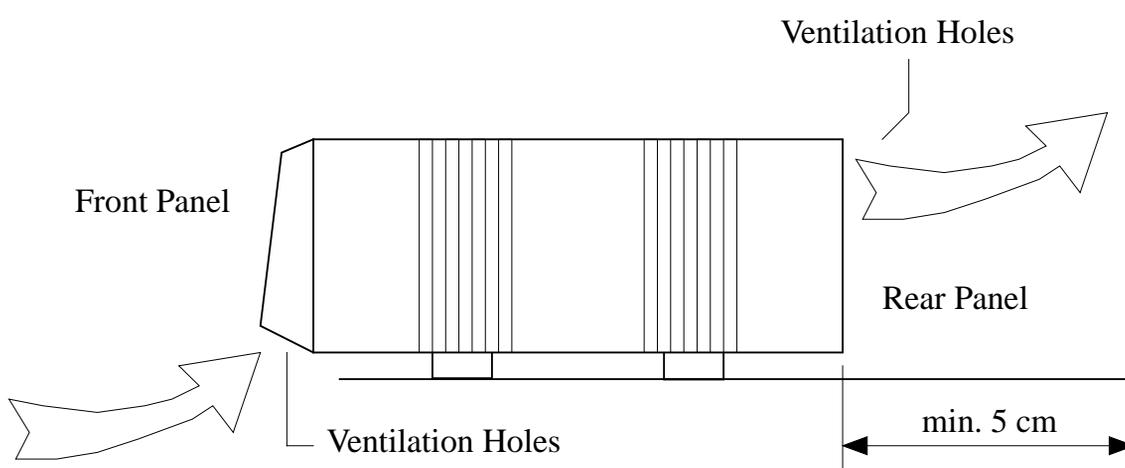


Figure 2 Air flow



PRECAUTION — Do not obstruct the ventilation holes or insert any mechanical parts inside the **Classic MultiCom**. Leave at least 5 cm free for proper ventilation.

CONNECTING THE CONSOLE PORT

2.1.2

The console port is used for connecting a terminal to the **MultiCom**. The connector for this port is located on the rear panel as shown in Figure 3. Figure 4 shows the pin-out for the console connector.

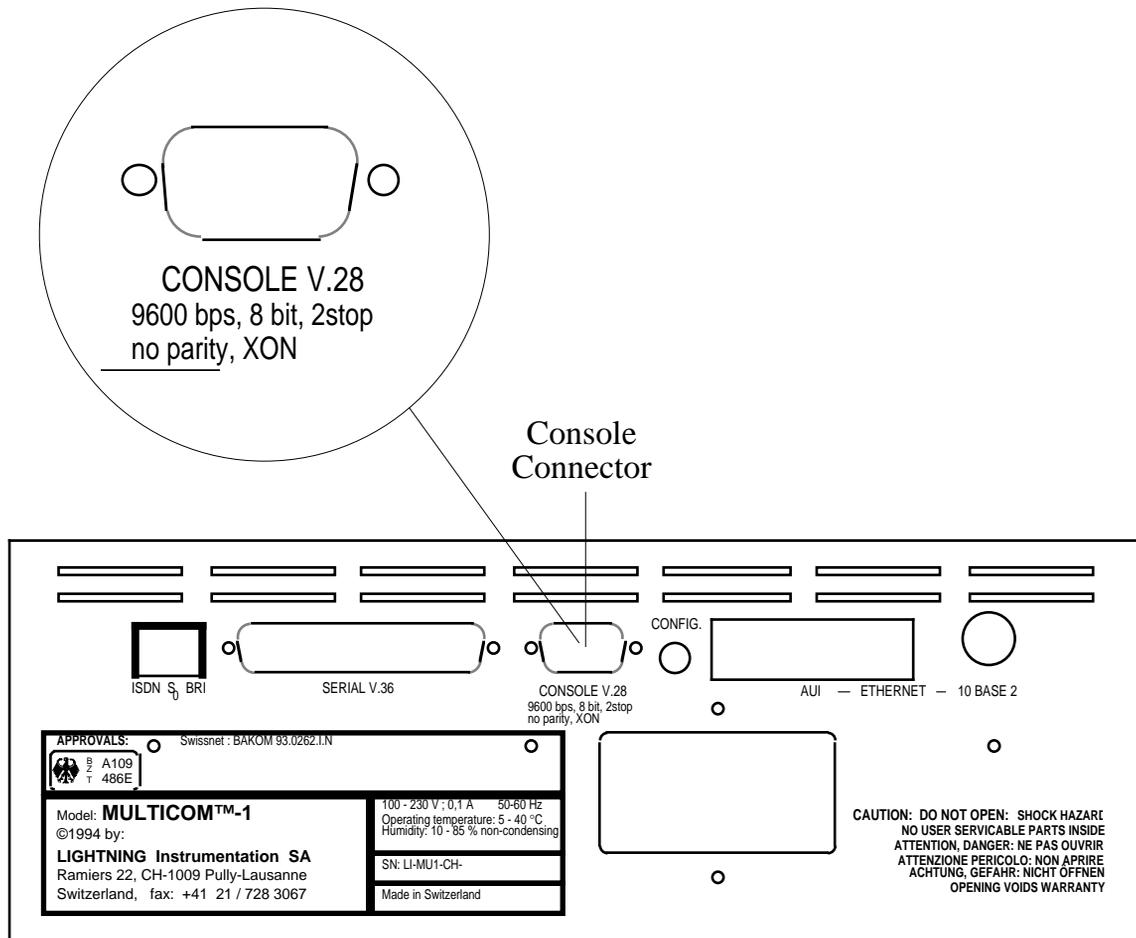


Figure 3 Location of the serial console connector (CONSOLE)

The protocol used by this port is a standard asynchronous transfer protocol with the following parameters :

Protocol	Asynchronous
Baud rate	9600 bits per second
Number of data bits	8
Parity bit	No parity
Number of stop bits	2
Handshake	XON/XOFF
Line drivers	RS422/RS423

Pin #	Description
1	Carrier Detect
2	Receive Data
3	Transmit Data
4	Data Terminal Ready
5	Ground
6	(not connected)
7	Request To Send
8	(not connected)

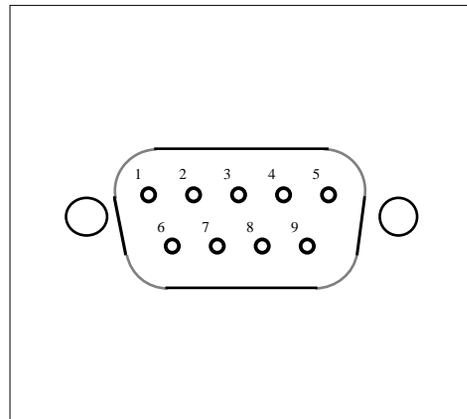


Figure 4 Pin-out of the console connector.

CONNECTING THE SERIAL PORT

2.1.3

The Serial Port, as shown in Figure 5, is used for connecting the **MultiCom** to synchronous serial leased line modems.

You may skip this paragraph if you have not bought the serial option.

The port conforms to the V.36 standard. Lightning sells the following three types of cable for the serial port:

Table 6 Serial port cables

Cord reference #	Description	Connector types
CBL-V36F-V36M	V.36 cable (2meters)	V.36 female <-> V.36 male
CBL-V36F-V35M	V.35 adaptor cable (2meters)	V.36 female <-> V.35 male
CBL-V36F-X21M	X.21 adaptor cable (2meters)	V.36 female <-> X.21 male

These cables are available through your distributor.

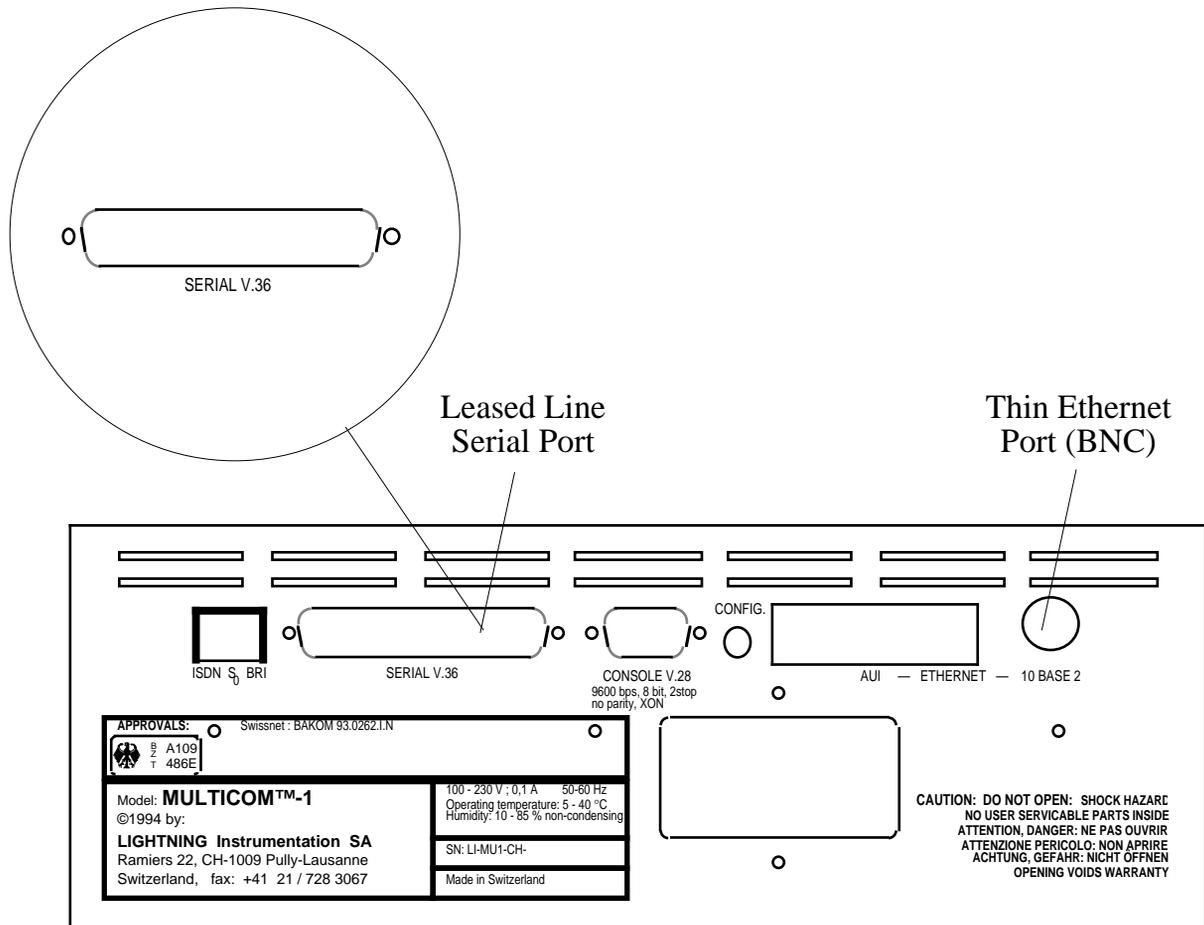


Figure 5 Serial port connector

NOTE - Currently, dial-up modems and asynchronous leased line modems are not supported.

CONNECTING THE ETHERNET PORT

2.1.4

The connection to an Ethernet network may be done in two ways:

1. With the BNC connector, to connect a Thin Ethernet link (10-Base-2).
2. With the Adapter Unit Interface (AUI), to connect a Thick (10-Base-5), a Twisted-Pair (10-Base-T) or a Fibre Ethernet link.



WARNING — Only one Ethernet port should be connected at a time. Connecting both ports simultaneously may cause data loss.

The *Classic MultiCom* has a standard BNC and an AUI (DB15 female) connector on the right hand side of the rear panel, as shown in Figure 6. Connect only one of the two Ethernet links at a time. When the *MultiCom* is booted, it automatically detects the type of Ethernet connection. If none is found, it defaults to BNC.

NOTE - The automatic detection of the Ethernet connection is only done during the boot phase. If the *MultiCom* is connected to Ethernet after it has booted or if the Ethernet connection is swapped to the other port, it will be necessary to reboot the *MultiCom*.

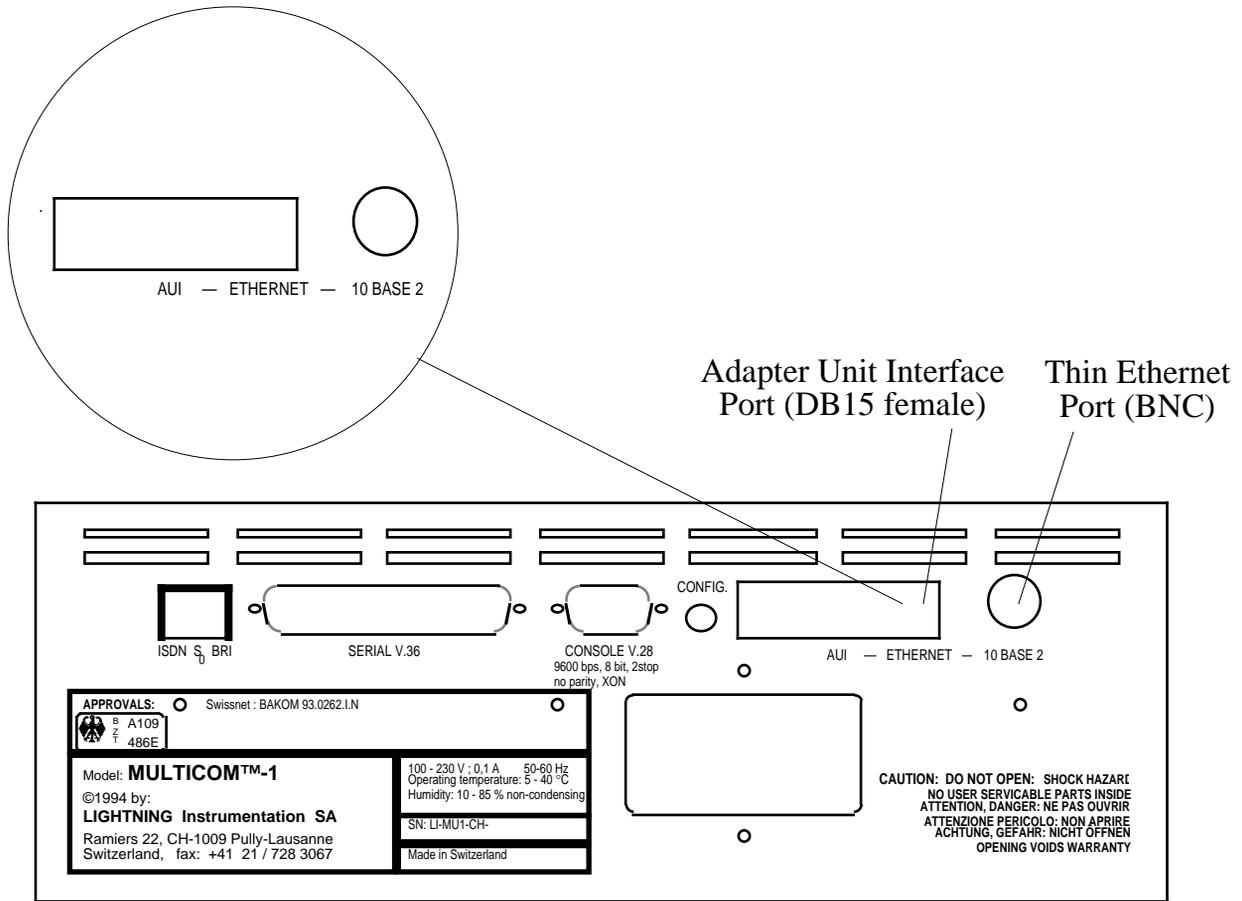


Figure 6 Location of the Ethernet ports

CONNECTING THE ISDN PORT

2.1.5

The **MultiCom** ISDN connector should be connected to an ISDN line, using the cable that is delivered with the it, as shown in Figure 7.



WARNING — Do not connect the **MultiCom** to an ISDN line with any cable other than the one delivered with the **MultiCom**. Twisted pair Ethernet (10-Base-T) cables use the same RJ45 connectors as ISDN but they are **not** compatible.

Using the wrong cable or connecting the ISDN port to an Ethernet Hub may damage the **MultiCom**.

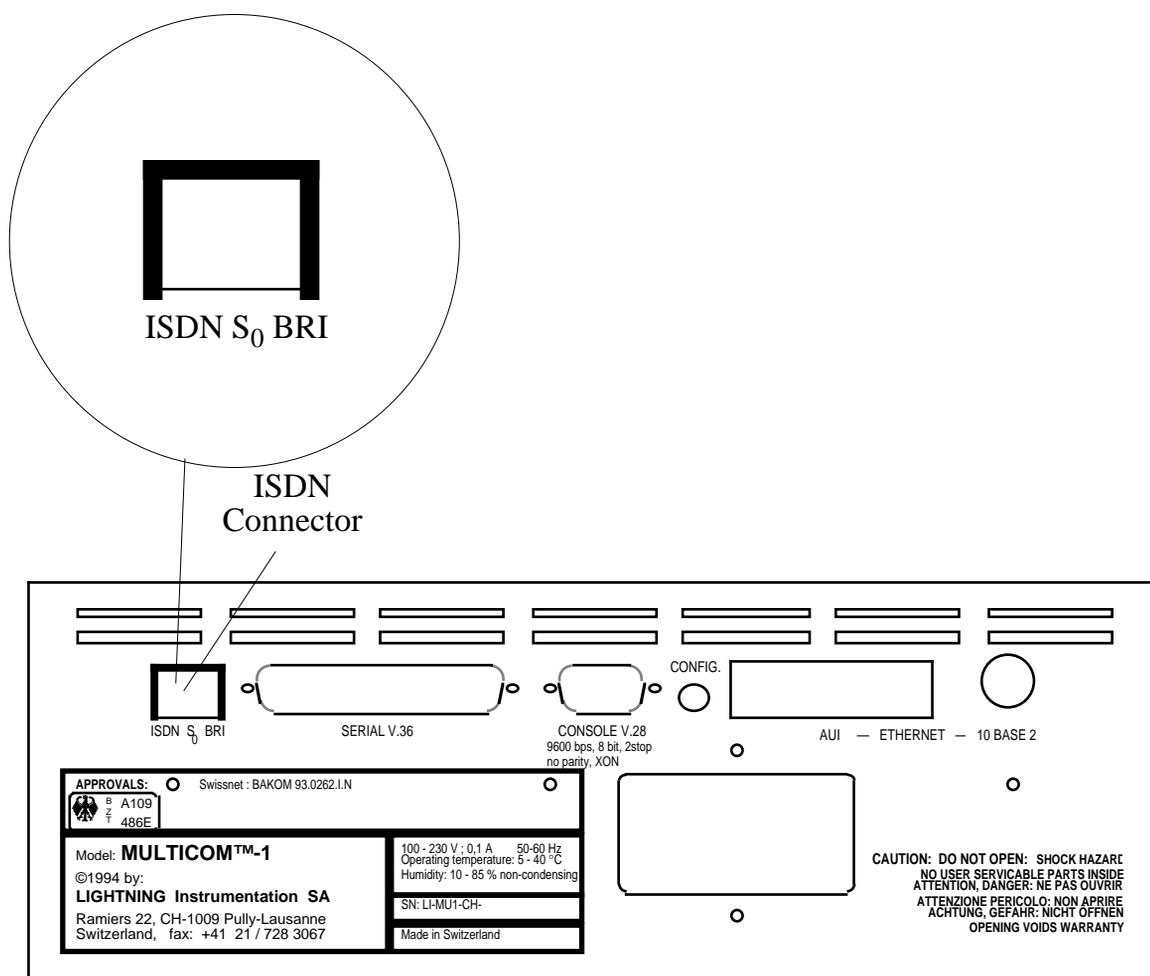


Figure 7 Location of the ISDN connector

Once the **MultiCom** has been connected to the ISDN network and switched on, the light labelled **D** on the front pannel should become green for at least several seconds, as shown in Figure 8. If the ISDN connection is not functioning correctly, this light will remain red.

Depending on the type of telephone exchange (or PABX) that you are connected to, this light may become red after a certain time. It should become green again as soon as you open an ISDN connection.

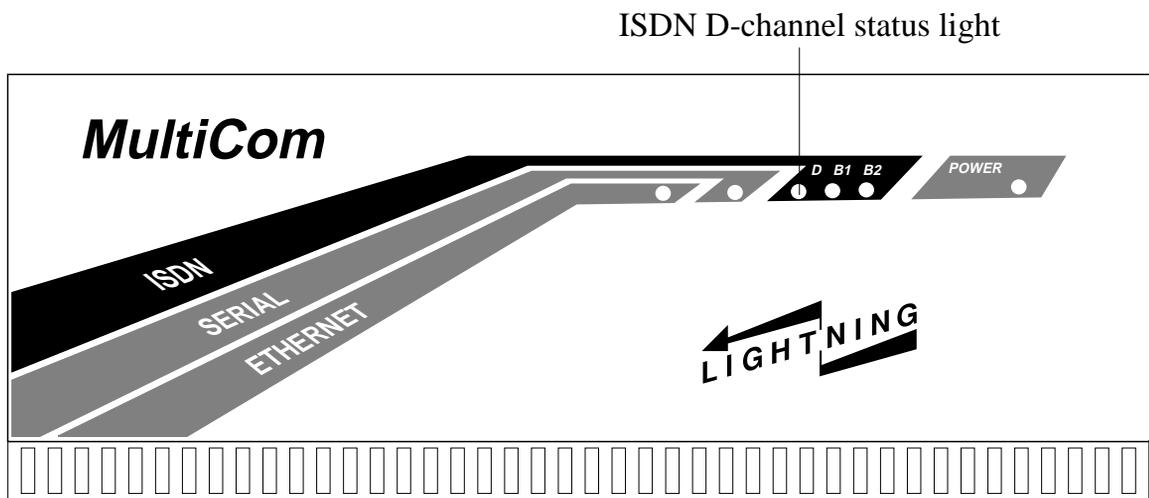


Figure 8 ISDN D-channel status light

CONNECTING THE POWER CABLE

2.1.6

Connect the Power Cable to an AC wall socket and then to the power connector on your **Classic MultiCom**.

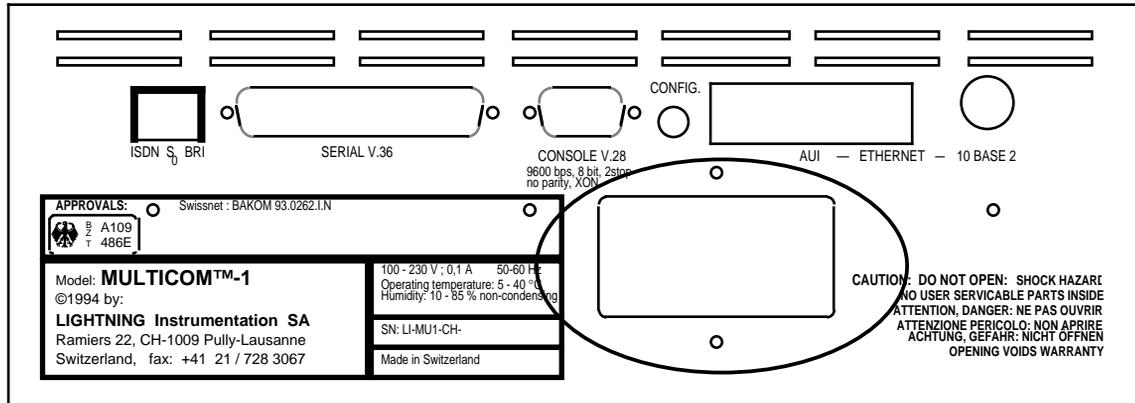
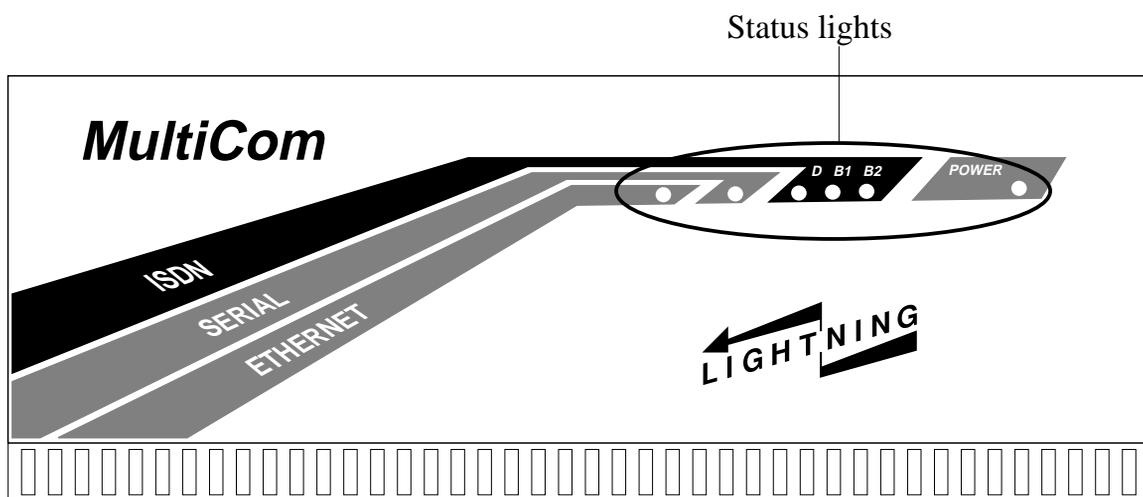


Figure 9 Power connector

STARTING UP YOUR *Classic MultiCom* 2.2

Turn the power switch, next to the power connector, to “On”.

The *Classic MultiCom* automatically launches the start-up operation as soon as you’ve carried out the appropriate installation procedure described previously. The following signals provide information on the status of the operation:



- **Ethernet, ISDN (D, B1, B2), and Power signals turn orange**
This indicates that your *Classic MultiCom* is carrying out the initial tests: Flash EPROM, Dynamic RAM, and Peripherals, as described in the Reference Manual.
- **Power signal remains orange slightly longer than the others**
This indicates that your *Classic MultiCom* is carrying out the software initialization procedure.
- **Power signal turns green**
This indicates that start-up is successful. Your *Classic MultiCom* is now ready for use.
- **ISDN D signal turns green**
This indicates that the ISDN connection is correctly powered and wired.
- **Ethernet signal turns green**
This indicates that the Ethernet connection is OK.

Testing



*This chapter provides instructions for checking whether your **Classic MultiCom** is correctly configured and that the Ethernet and ISDN connections are working correctly.*

It includes the following three tests:

- **Connecting to a Distant Site**
This test is the easiest way to confirm that your **Classic MultiCom** is in working order.
- **Checking the Ethernet Connection**
Carry out this test if you encountered a problem with the first test.
- **Checking the ISDN Connection**
Carry out this test if you could not connect to a distant site but the Ethernet connection is working.

CONNECTING TO A DISTANT SITE

3.1

Connecting to a distant site is the quickest and easiest ways to ensure that your Ethernet and ISDN connections are functioning correctly:

1. Run Telnet, FTP, Ping or a Web browser.
2. Connect to a distant site, according to the procedure appropriate for your particular software.

Once connected, you verify that your **Classic MultiCom** is working correctly.

If you could not connect, try connecting to another site to make sure that the problem does not reside on the other side of the line. If you can not connect on your second attempt, carry out the following test.

CHECKING THE ETHERNET CONNECTION

3.2

You can use either Telnet, FTP or ping to carry out the following:

1. Run your software, specifying the IP address of your **Classic MultiCom**.
2. The connection opens, thereby confirming that your Ethernet software is working correctly.

If the connection does not open, make sure that you typed in the correct IP address. If you did, there is probably a problem with either the configuration of your **Classic MultiCom** or your computer. Refer to § 4, "Configuration" on page 23 for details.

CHECKING THE ISDN CONNECTION

3.3

Carry out the following ISDN test if your Ethernet connection is functioning correctly, but you cannot connect to a distant site:

1. Launch a Telnet software. It then asks for a host address.
2. Type in the IP address for your **Classic MultiCom**. The software opens and asks for the user name and password.
3. Type in your user name and password.
4. At the next prompt, type in the following command: `isdn conn`
A D-channel LED turns green, indicating a successful connection.

If the *ISDN connection is not OK*, check the configuration of your **MultiCom** for problems. Check also to see if there is a problem with your telephone wires.

If the *ISDN connection is OK* but you still cannot connect to a distant site, it is probably because of one of the following:

- There is a problem with your computer's configuration.
- There is a problem with the configuration of the other site's **MultiCom** or computer.

FURTHER TROUBLE-SHOOTING

3.4

Please refer to the Reference Manual for further trouble-shooting.

Configuration



*This chapter describes how to install your **Classic MultiCom** in order to set the configuration for the first time or to modify the existing configuration. It also provides instructions for resetting the default configuration.*

INSTALLING FOR CONFIGURATION

4.1

Configuring your **Classic MultiCom** requires a direct serial port connection. For this, you need either a terminal or a computer with a terminal emulation software (this is included with most computers).

NOTE - For a direct connection, the serial port of your computer must have a specific configuration, see § 5.1.2, "Serial Port" on page 28 for details.

To set up your **Classic MultiCom** for configuration purposes:

1. Turn off the power from your **Classic MultiCom**, if necessary.
2. Connect a terminal or a computer running a terminal emulation software to the console port (see § 2.1.2, "Connecting the Console Port" on page 9 for details on how to do this).
3. Power on your **Classic MultiCom**.

The five signals on front turn orange, indicating that your **Classic MultiCom** is carrying out the start-up operation as described in § 2.2, "Starting Up Your Classic MultiCom" on page 18.

Once the initialization process is finished, your **Classic MultiCom** will displays its user interface on your screen. You can now configure your **Classic MultiCom** according to the instructions in the "Creating Your Config File" section of the Reference Manual. Or you can reset the default configuration, as described below.

NOTE - If you see messages from the **Classic MultiCom**, but you cannot type commands, please check that the terminal handshake is set to "XON/XOFF", instead of "RTS/CTS" or "Hardware".

RESETTING THE DEFAULT CONFIGURATION 4.2

There are two ways to set up your **Classic MultiCom** with the default configuration once it has been changed, depending on whether you have a direct connection or not.

SETTING THE CONFIGURATION WITH A TERMINAL 4.2.1

If you are directly connected to a terminal or a computer with terminal emulation software, you can quickly and easily set the default when you start up your **Classic MultiCom**:

1. Install your **Classic MultiCom** for a console connection, as described in the above section.
2. **During the start-up operation — when all five signals are orange — press the minus key (-) 10 times.**

Upon initialization, your **Classic MultiCom** will be reset to the default configuration. This can be seen on your terminal: the MyIPAddr should be 1.1.1.1.

To permanently reset your **Classic MultiCom** with the default configuration, follow the standard set of instructions for modifying configuration, as described in the “Creating Your Config File” section of your Reference Manual.

SETTING THE CONFIGURATION WITHOUT A TERMINAL 4.2.2

Follow the steps below to reconfigure your **Classic MultiCom**:

1. Turn power off
2. Hold the configuration switch pressed.

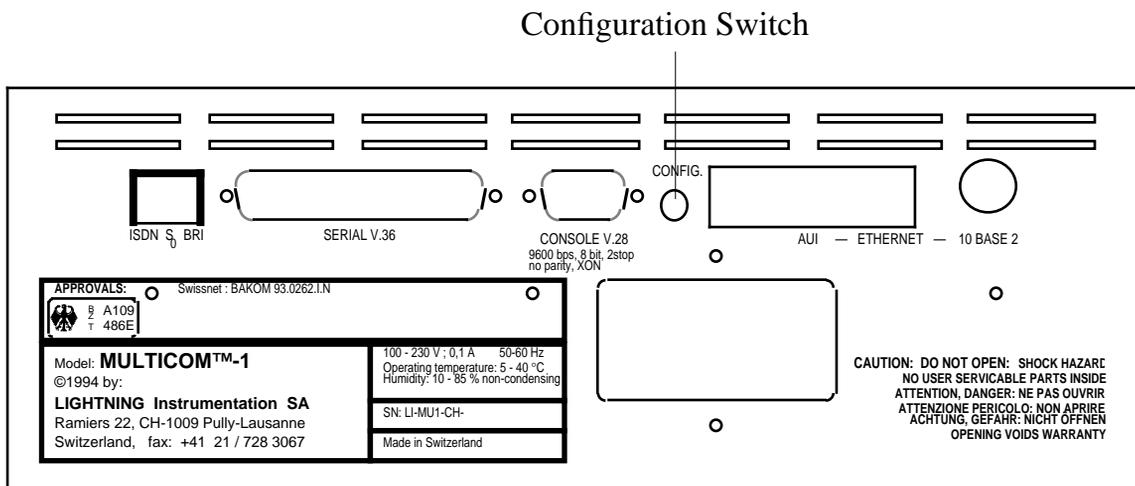


Figure 10 The configuration switch.

3. Turn power on without releasing the configuration switch
4. Wait until the power signal turns green
5. Release the configuration switch

You can now reconfigure your **Classic MultiCom** from your computer with Telnet and FTP. Follow the instructions in the “Creating Your Config File” section of the Reference Manual.

NOTE - The default IP address for your **Classic MultiCom** is: 1 . 1 . 1 . 1.

Appendix



SPECIFICATIONS 5.1

CLASSIC MULTICOM HARDWARE 5.1.1

Dimensions	30 x 28 x 11 cm
Weight	2400 g
Ethernet Connection	IEEE 802.3 AUI / 10-Base-2 10 Mbits/s
ISDN Connection	FCC68 (EuroISDN-RJ45); 2 x 64 kbits/s
Serial Connection	RS-232 (with special cable and adapter)
Power Requirements	100-230 V, 100 mA, 50-60 Hz
Temperature Ranges	5° to 40° C
Humidity	10% to 85% non-condensing
Noise Level	Noiseless
Approvals	CE 0188 X EuroISDN (NET3) by BAKOM and Swiss PTT; BZT (Germany)

SERIAL PORT 5.1.2

Protocol	Asynchronous RS-232 (RX/TX only)
Baud Rate	9600 bits/s
Number of Data Bits	8
Number of Stop Bits	2
Parity Bit	No parity
Handshake	XON/XOFF
Line Drivers	RS-232

DECLARATION OF CONFORMITY

5.2

Conforms to EN45014 of the ISO/IEC

Manufacturer	LIGHTNING Instrumentation S.A.
Address	Avenue des Boveresses 50 CH-1010 Lausanne Switzerland

declares that the product:

Name of Product	<i>Classic MultiCom</i>
Reference Number	<i>Classic MultiCom</i>

conforms to the following specifications:

Security Norms	IEC 950 / EN 60950 EN41003
EMC	EN 55022 Class B / CISPR-22 Class B EN 50082-1
French ISDN Deltas	For VN4 ITAAB: Advisory NoteNumber 054 rev. 1
Commentary information	none

Lausanne, Switzerland

October 1996

