



LS9000 Kitchen Video Controller



NOTICE

The manufacturer of the Industrial Computer makes no representations or warranties, either expressed or implied, by or with respect to anything in this manual, and shall not be liable for any implied warranties of fitness for a particular purpose or for any indirect, special or consequential damages. Information in this document is subject to change without notice and does not represent a commitment on the part of the manufacturer.

FCC NOTICE

This device complies with Part 15 of FCC Rules. Operations are subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

LOGIC CONTROLS, INC.
355 Denton Ave
New Hyde Park, NY 11040
TEL: (516) 248-0400
FAX: (516) 248-0443
Email: lci@logiccontrols.com
<http://www.logiccontrols.com>

IMPORTANT SAFETY INSTRUCTIONS

Please read the following instructions carefully and save these instructions for future reference.

1. Follow all warnings and instructions for installation and operation of the product.
2. Unplug this product from the wall outlet before cleaning. Use only mild cleaning agents and do not immerse in water.
3. Do not use this product near water.
4. This product should be operated from the type of power indicated on the power adaptor. If you are not sure of the type of power available, consult your dealer or local power company.
5. Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.
6. If an extension cord is used with this product, make sure that the total ampere rating of the equipment plugged into the extension cord does not exceed the extension cord ampere rating. Also, make sure that the total rating of all products plugged into the wall outlet does not exceed the fuse rating.
7. We recommend all servicing done on this product be done by qualified service personnel. Aside from upgrades or swapping out the compact flash please refer all other servicing to the Logic Controls RMA Dept or a repair provider that has been certified by Logic Controls.
8. Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - a) When the power cord or plug is damaged or frayed
 - b) If liquid has been spilled into the product
 - c) If the product has been exposed to rain or water
 - d) If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal condition.
 - e) If the product has been dropped or the cabinet has been damaged
 - f) If the product exhibits a distinct change in performance, indicating a need for service.

CONTENTS

FEATURES.....	1
PRODUCT DESCRIPTION	3
CONNECTOR PINOUTS.....	4
HARDWARE INSTALLATION	6
RUNNING LS9000	7
SYSTEM SETUP	9
TROUBLE SHOOTING.....	100

FEATURES

The LS9000 module is the new version of the classic Logic Net. It is designed to meet the most demanding requirements of today's kitchen video display systems. Logic Controls Logic Net solution has been widely regarded as the most reliable KDS hardware solution. It has been deployed by some of the largest restaurant chains in the world as well as thousands of small local restaurants. The LS9000 module uses no internal cables, hard disk drives, fans, or mechanical moving parts that can easily fail. The enclosure is a heavy-duty die cast case for extra ruggedness. Every module uses snap-to-lock connectors for secure connections.

The LS9000 module is very compact. Two mounting tabs enable these modules to be mounted almost anywhere – on a display monitor arm, wall, ceiling or under a counter. The LS9000 module also uses standard Ethernet connection or wireless (optional) to a system HUB to communicate with the server or workstation running the kitchen production management software.

» **Highly Reliable**

- Low power operation, low internal temperature rise
- Simple hardware with SD Card (no moving parts)

» **Low Cost**

- GNU Linux Operating System
- Network software NOT required
- Network cards NOT required
- I/O expansion hardware NOT required
- Simplified installation and setup

» **Advanced Operations**

- Higher resolutions supported (800x600 or 1024x768)
- DHCP support
- LS6000 command set compatible
- LM/LS3000 command set compatible
- Video Training
- Easy Remote Discovery Setup (ERDS) allows a simplified deployed and configuration of units on the field.

» **Small Size**

- Module size: 6.5"W x 5"L x 1.17"H
- Flexible Installation: Table Mount, Wall Mount, Display Bracket Mount, and Under-the-Counter Mount

» **Highly Secure**

- Enhanced security through proprietary command set
- Immune to most of viruses

» **Minimize Obsolescence Problems**

- Easier software upgrade (through USB flash drive and network)

» **Extensive Free Software Development Support**

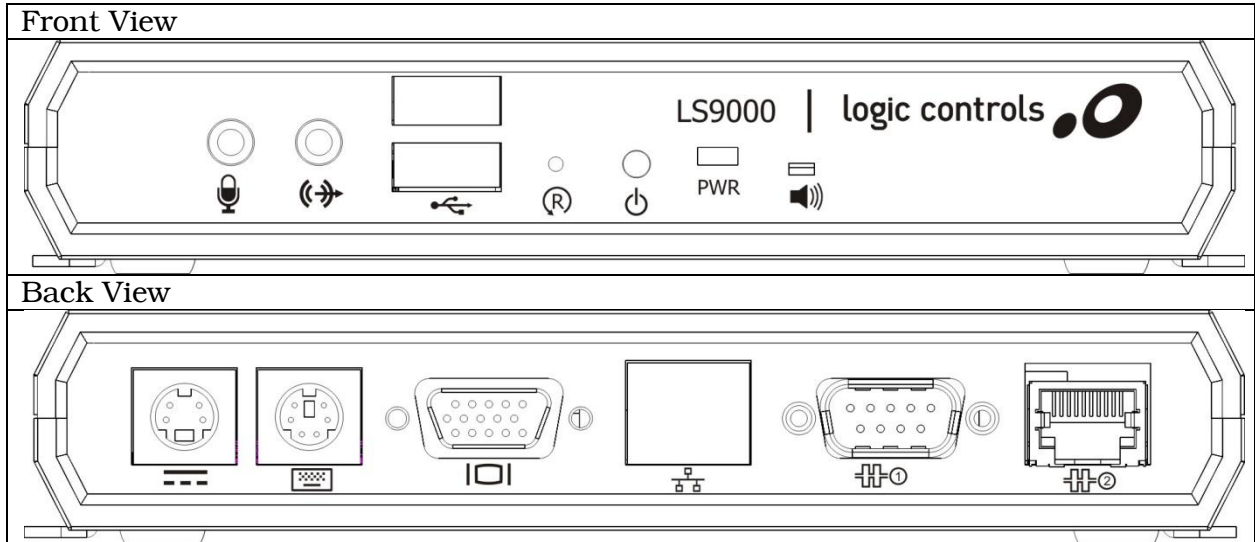
- High-level language software utilities allow developers to write application software with Visual Basic or Visual C++
- OCX control covers all of the Logic Net's command sets
- Command test program with source code to illustrate the applications of the command set
- Source code of mini-applications to answer all how-to-write questions
- Free phone and e-mail technical support

» **International Operations**

- Universal input (100 to 240VAC, 47 to 63Hz) switching power supply

PRODUCT DESCRIPTION

A typical system consists of a host server (PC or POS terminal), where the application software is installed, and a number of LS9000 Logic Net eStation units. Each LS9000 unit can be connected to a VGA monitor, a keyboard, and 2 serial interface devices. The LS9000 units communicate with the host server via TCP sockets on Ethernet connections. Logic Net commands are sent from the server to display data on the eStation VGA monitor and to read key codes of keys entered on the keyboard.



Power on/off Button

Press the Power on/off button located on the front of the LS9000 to power on the unit.

Reset Button

Press the Reset button located on the front of the LS9000 to rest the unit.

Power/Status LED

The power/status LED is located on the front of the LS9000. A light indicates that power is ON.

USB ports

Two USB connector type A are located on the front of the LS9000. The unit complies with USB 2.0 standards.

Audio

Plug for Microphone (audio IN) and speakers (audio OUT) are located on the front panel.

Keyboard

The LS9000 can connect to standard PC keyboards. Other keyboard wedge interface input devices such as Bumpbars can also be connected to the LS9000. The Logic Controls KB1700 Bumpbars are specially designed for use in the kitchen. Refer to the KB1700 manual for more information on the Bumpbar.

Displays: Monochrome or Color VGA

LS9000 supports any standard color VGA displays using a standard 15-pin DSUB VGA connector.

RS-232 Devices

The auxiliary RS-232 ports on the LS9000 supports connection to serial printers, barcode scanners, and other serial interface I/O devices. The serial ports are available in standard 9-pin DSUB connector and in RJ45 connector.

Power Requirements

Nominal Voltage: 100–240 V AC
 Frequency: 47–63 Hz

CONNECTOR PINOUTS

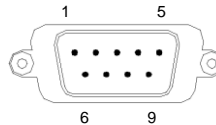
Ethernet interface (8 pin RJ45 connector with 2 LED indicators)

- 1. TXD+
- 2. TXD-
- 3. RXD+
- 4. TCT
- 5. TCT
- 6. RXD-
- 7. RCT
- 8. RCT



RS-232 interface (9 pin DSUB male connector)

- 1. Not connected
- 2. RX
- 3. TX
- 4. Not Connected
- 5. GND
- 6. Not Connected
- 7. RTS
- 8. CTS



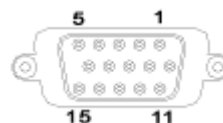
RS-232 interface (RJ 45 female connector)

- 1. DSR Shorted
- 2. DCD Shorted
- 3. DTR Shorted
- 4. GND Ground
- 5. RX Receive data
- 6. TX Transmission data
- 7. CTS Clear To Send
- 8. RTS Request To Send



VGA interface (15 pin DSUB female connector)

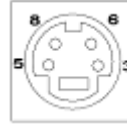
- 1 Red
- 2 Green



- 3 Blue
- 5,6,7,8 &10 GND
- 13 H-Sync
- 14 V-Sync

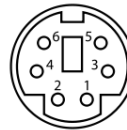
DC Power (Shielded snap lock mini-DIN connector with EMI/RFI suppression)

- 5 +5 V dc
- 8 +5 V dc
- 3 GND
- 6 GND

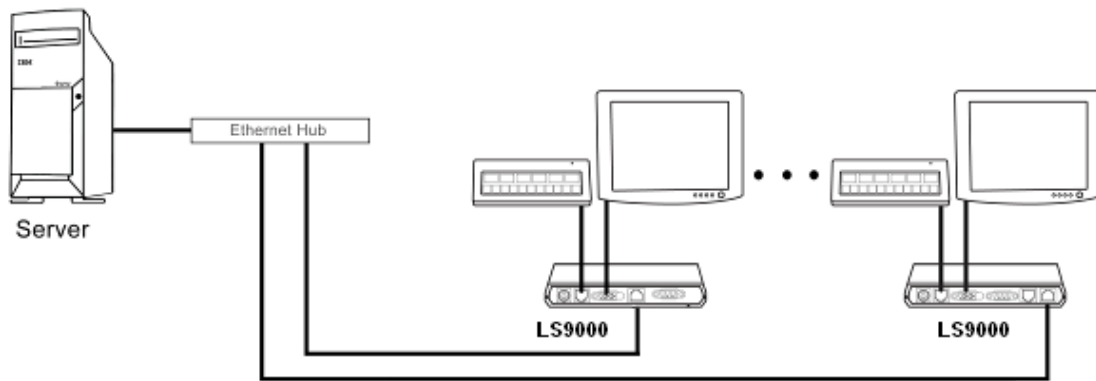


Keyboard (PS2 Female Mini Dim)

- 1 +DATA
- 2 Not connected
- 3 GND
- 4 VCC
- 5 +CLK
- 6 Not connected



HARDWARE INSTALLATION



Component Placement

The following is recommended when you plan the Logic Net setup:

- Place the LS9000 so that you can use the mounting brackets located at the bottom of the unit.
- Place the LS9000 so that the RESET/POWER buttons are accessible.
- Place the LS9000 so that the beeps from the speakers can be heard.
- Place the LS9000 so that the LED indicator on the front panel can be seen.
- Place the LS9000 above grill/counter level, out of the way of possible spills.

Mounting Instructions

Mounting brackets are provided to facilitate mounting the LS9000 to a wall, ceiling or display monitor mounting arm. The installer should insure that the wall anchors used with the mounting brackets have the capacity to support 4.3 kg (9.5 lb.). This weight is determined by adding a safety margin weight to the weight of the unit. Wall anchors with specified weight capacity are available commercially.

Connections

Make sure that all systems are powered off before making or removing any connections to the LS9000 unit. Follow the steps below in connecting the devices:

1. Connect the VGA cable of the display monitor to the LS9000.
2. Connect the RS232 cable of serial devices to the LS9000 (if any).
3. Connect the keyboard device to the LS9000.
4. Connect the Ethernet cable from Ethernet hub or switch to the LS9000.
5. Connect power to all peripheral devices and turn on power.
6. Connect power adapter to the LS9000 and power cord to the power adapter.
7. Plug the power cord into AC power outlet.
8. If necessary, reset the LS9000 by pressing the reset button or using the power on/off button.

RUNNING LS9000

Each time the LS9000 is powered on, a self diagnostic screen will show relevant information to regarding the hardware configuration.

```
Logic Controls Enhanced Net Station

Model: LS9000
Micro-processor: AT91SAM9M10
Firmware version: V1.0.760
Firmware Date: Jan 17 2011 10:00:29
Station ID: 1

VGA Port: 16 bits color, 640x480 -- 1024X768
PS/2 Interface: PS/2 Keyboard connected

COM1 DB9 power: OFF
Dataflash: AT45DB642D, size: 8MB
SD/MMC Card: **** MB

Ethernet Poer: DHCP Enable, 100BaseT & Full Duplex
MAC : 00-0e-c3-07-ff-55
IP : 010.140.100.206
Mask: 255.255.000.000
GW : 010.140.010.011
TCP Port : 8888
UDP Port : 5002

Press <Del> or <Arrow-Down> key to enter setup screen
. . . . .

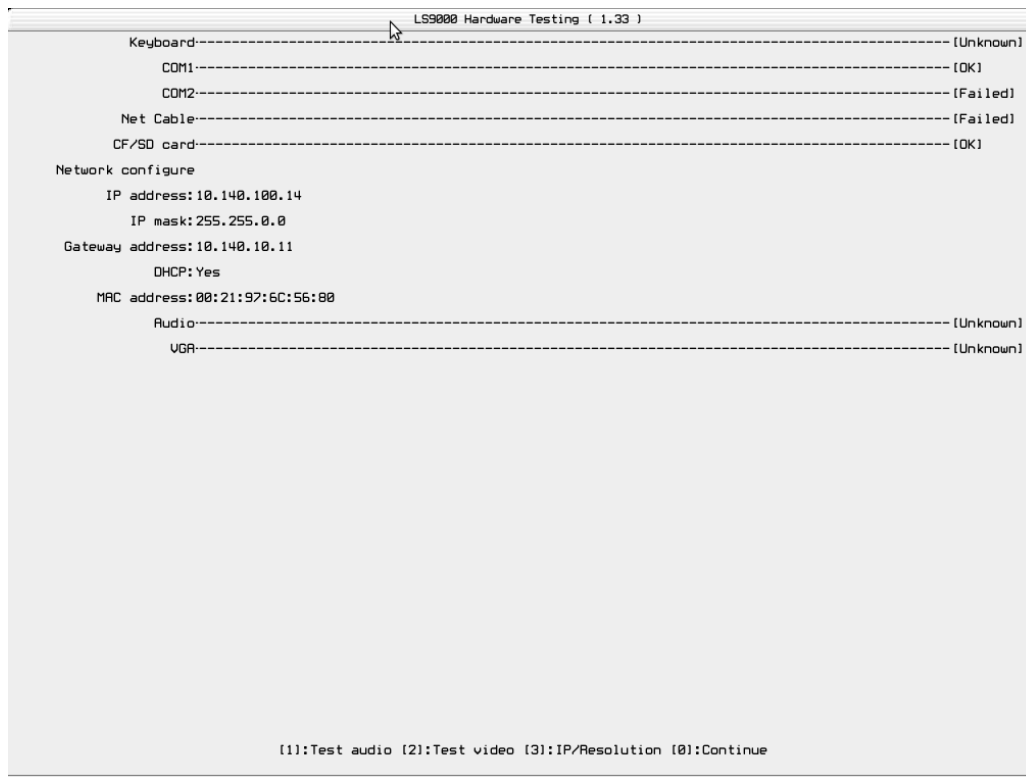
Press <Del> or <Arrow-Down> key to enter setup screen
. . . . .
```

It will be followed up by the information message below. At this time, the Operating System is loading and the application will be launched automatically at the end of the loading procedure.

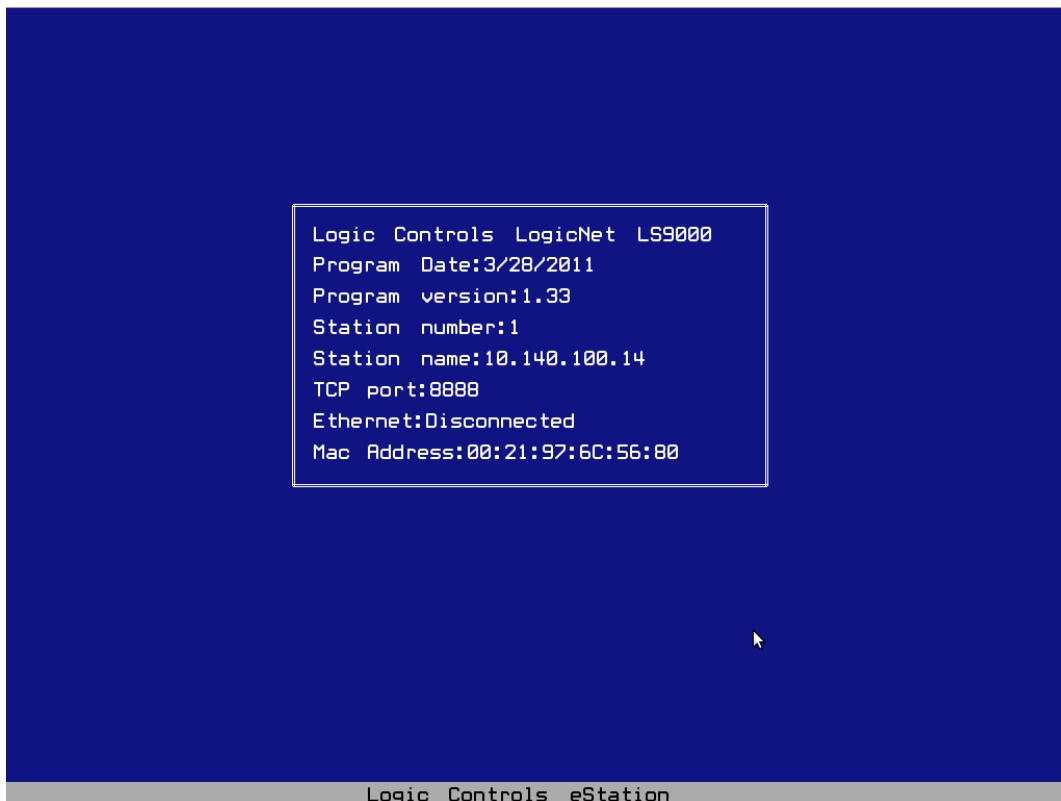
```
*****
*   LS9000 Loading   *
*   Please, Wait    *
*****
```

When the screen below appears, you can press the <3> key to configure you network parameters. Consult *LS9000 User Manual* for more details and explanation of how to configure your unit.

Quick Start Guide for LS9000 Kitchen Video Controller



If no key is pressed, the LS9000 Controller Software goes into operation mode. By default, the LS9000 will be using DHCP to automatically retrieve the network configuration.



SYSTEM SETUP

- 1 Install the LS9000 units as described in HARDWARE INSTALLATION section.
- 2 Setup optional parameters on LS9000 if necessary (for example: operation mode, RS232 baud rate, video training folder, etc).
- 3 Setup the LS9000 station address used for quick identification of the station.
- 4 Setup LS9000 IP address, subnet mask and port number to the required values. Check with system administrator for proper settings. Note that the IP address must match the IP group of the host server and the TCP port address must match the port number used by the application software.
5. Save parameters and exit setup.
- 6 Verify that the values on the boot up screen shows the correct set up values. If not, repeat step 2 to 5 to correct the settings.
- 7 The setup for one LS9000 is now completed. Repeat as necessary for each LS9000 in the system, ensuring a unique IP address for each LS9000 (if static IP address is being used). Always verify the setting on the boot up screen.
8. Check the host server IP address to make sure that it's in the same IP group as the LS9000 units. Setup the server IP address if necessary.
9. Setup the application software if necessary, including TCP port number setting.
10. Run the application software or a test program to verify functions of the system.

TROUBLE SHOOTING

There are no user serviceable components inside the LS9000. Service should be performed only by Logic Controls or qualified personnel certified by Logic Controls. The following guide lines will help in identifying the source of a problem:

VGA monitor display is blank

1. Check that the monitor and LS9000 power supplies are plugged into functioning AC outlets.
2. Adjust the contrast controls.
3. Check that the VGA cable is plugged in properly.
4. Check that the LS9000 is properly connected to its power supply adapter.
5. If the LS9000 is connected to a power supply but the power LED is off, replace the power supply.
6. Press the Power ON/OFF button on the LS7000 to check whether boot up screen is displayed.
7. Replace the LS9000 if necessary.

One VGA monitor display is solid blue or frozen

1. Reset the LS9000 and check the system information on the boot up screen and status screen.
2. Check that the LS9000 IP address is correct and unique.
3. If the host IP address is not shown in the status screen, check Ethernet cable connections.
4. Check the Ethernet cable connections at the LS9000 and at the Ethernet hub or switch.
5. Check host server application software setup. Restart software if necessary and test again.

Two or more (but not all) station displays are solid blue or frozen

1. Reset the LS9000s at the stations experiencing problems and check that the LS9000s' IP addresses are correct and unique.
2. Check the Ethernet cable connections at the problem LS9000s and at the Ethernet hub or switch.
3. Check host server application software setup. Restart software if necessary and test again.

All station displays are solid blue or frozen

1. Check that the Ethernet hub or switch is connected to the host server properly.
2. Check that host server IP address matches the LS9000 IP address group.
3. Check host server application software IP address and socket number setup. Restart software if necessary and test again.

4. Reboot the host server and test again.
5. Replace Ethernet hub or switch and test again.

Software Controller Application does not start – Solid black display

1. If the LS9000 Controller Application does not start, after restarting the unit several times, the internal SD Card may be damaged and will need to be replaced.

LS9000 Kitchen Video Controller



logiccontrols.com