

CH-100
Internet Hub Controller



Instruction Manual

Computer Automation Technology Inc.
4631 N.W. 31st. Avenue, Suite 142
Fort Lauderdale, Florida 33309
Phone: 954 978-6171 – Internet: www.catauto.com

Introduction and Specifications

The CH-100 is a ROIP repeater hub designed to support the operation of up to ten CL-100 units. Digital control and audio packets received from one CL-100 will be forwarded to up to nine other CL-100s.

CH-100 Normal Operation

In this mode any CL-100 can connect to the CH-100.

CH-100 Controlled Operation

In this mode, the CH-100 has a ten-position look-up table. A CL-100 wishing to connect to the hub must have had its IP address entered into one of the CH-100 look-up table positions.

CH-100 Automatic Operation

If the CH-100 is used in a dedicated linking system it can be configured for an automatic connection. If Internet service is interrupted or there is a power failure the CH-100 will automatically reconnect to any CL-100 having its IP and MAC addresses stored in the look-up table.

Specifications

Microprocessor	TI ARM Cortex Processor
Memory Look-up Table	10 IP Addresses
Temperature Range	-15 to +55 degrees C
RS-232 Interface	38400 Baud 8N1 (No Flow Control)
Power	+9 to +15VDC at 150mA MAX
Size	5.0" x 5.0 x 2.0"

FCC Part 15 RF Interference

The CH-100 has been tested and found to meet the standards for a Class A digital device, as specified in Part 15 of the FCC Rules. These specifications are designed to provide reasonable protection against such interference in a commercial installation. However, there is no guarantee that interference will not occur in a particular installation.

Dip Switch Settings

A four-position dipswitch configures various functions of the CH-100.

Switch 1 This switch is used to enable controlled operation. When this switch is on only CL-100s are permitted to connect to the hub if their IP address is stored in the look-up table.

Switch 2 This switch is used to enable the "automatic connect" feature. When power is applied, the CH-100 will automatically connect to the IP addresses stored in its look-up table. If there is an interruption in Internet service or a loss of power, the CH-100 will reestablish the connections when service or power are restored. NOTE: CL-100 units in the system must have their dipswitch #2 turned on and have the CH-100's IP address stored in their table position one.

Switch 3 This switch is used to place the CH-100 in the RS-232 programming mode. Set this switch to ON and apply power to the CH-100. The RS-232 programming menu will be displayed on the computer screen.

Switch 4 This switch is reserved for future use.

CH-100 Hub Operation

The CH-100 will support up to ten CL-100s. The CH-100 can be located anywhere a high-speed Internet connection is available. To support ten connections the Internet upload speed should be 1.5Mbps.

Power Requirements

DC power is supplied through coaxial power jack J3. In normal mode if a power failure occurs all of the CL-100s connected to the CH-100 will disconnect. To prevent loss of connection the CH-100 should be supplied with a constant 12VDC power.

Router Setup

When the CH-100 is connected to a router a port must be opened. The CH-100 is defaulted to port 1450. Use your Internet browser to access your router's setup page. In the case of a Linksys router select the tab called "Applications & Gaming". Enter port 1450 to 1450 and set the protocol to "UDP". Also check the enable box.

CH-100 Programming RS-232

Connect a "direct" RS-232 cable between the RS-232 port on the CH-100 and your computer. Open your Hyper Terminal program and select the active COMM port. Set the port for 38400 Baud 8N1. Set the Flow Control to NONE.

To activate the RS-232 port, remove the DC power. Set dipswitch #3 to ON and apply DC power. The computer should display the CH-100 parameters setup menu.

CH-100 Setup Window

```
CH-100 processor initialization completed OK.. Version 1.00C
Entering CH-100 parameters setup
CH-100 HIB Setup.
Default.....Load parameters with factory default values.
Exit.....Exit CH-100 Setup.
MyID/r.....Display HUB ID.
MyID/w.....Set HUB ID.
Mygw/r.....Display my Gateway address.
Mygw/w.....Set my Gateway address.
Myip/r.....Display my IP address.
Myip/w.....Set my IP address.
Mymac/r.....Display my Mac address.
Mymask/r.....Display my Mask address.
Mymask/w.....Set my Mask address.
Port/r.....Unit Port Number.
Port/w.....Set unit Port Number.
Save.....Save parameters to non volatile memory.
User/r.....Display white list user IP addresses.
User/e1-10..Erase white list parameters #1-10.
User/w1-10..Set white list parameters #1-10.
Uer.....Display firmware version.
Cmd >
```

NOTE: If a communications problem is experienced while using a USB to RS-232 adapter cable, review CAT Note 19 at: www.catauto.com.

Program Hub Identification

From the programming menu use the **Mycall/r** to read the Hub identification and **Mycall/w** to program the Hub identification. Memory space is provided for eight letters or numbers. The default identification is: CH100.

Program Gateway Address

In most cases the CH-100 will be connected to the Internet through a router. Program the CH-100 with the router's gateway address. If the CH-100 is directly connected to a DSL or cable modem enter the GW address assigned by your Internet provider. From the Programming menu use the **Mygw/r** and **Mygw/w** commands to display and program the Gateway Address.

My IP Address

If the CH-100 is directly connected to a DSL or cable modem enter the IP address assigned by your Internet provider. The CH-100 requires a static IP address. Use the **Myip/r** and **Myip/w** commands to display and program this IP Address.

Read MAC Address

From the Programming menu use the **Mymac/r** command to display the Mac Address. This is a unique number assigned to any device that is connected to the Internet. This number can be used as an electronic serial number for your CH-100.

Program MASK Address

If the CH-100 is connected to a router the MASK address is 225.225.225.0. It is not necessary to change this address. If the CH-100 is directly connected to a DSL or cable modem enter the MASK address assigned by your Internet provider. From the Programming menu use the **Mymask/r** and **Mymask/w** commands to display and program the Mask Address. The default MASK address is 225.225.225.0.

CH-100 Port Number

The CH-100's factory default port number is 1450. This port may be changed. Remember to open the new port number on your router. Two CH-100s can share the same IP address when they are connected to the same router and are using different port numbers. From the Programming menu use the **Port/r** and **Port/w** commands to display or assign the CH-100's port number.

Program IP Address Look-up Table

If the CH-100 is operated in the controlled mode with dipswitch #1 on, the IP address of approved CL-100s must be entered in the look-up table. If the CH-100 is used in the automatic connect mode with dipswitch #2 on the IP and MAC addresses must be entered in the look-up table. From the Programming menu use the **User/r** to display the IP Address Look-up table. Use the **User/e1-10** command to erase a table position. Use the **User/w1-10** to program the IP address and MAC address for each of the ten memory locations.

Exit Programming mode.

From the Programming menu use the **Exit** command and **Yes** to save the changes and return to normal operation. Set dipswitch #3 to OFF and cycle power.

CH-100 Front Panel Display Indicators

Four LED indicators display the CH-100 activity. The green POWER LED will light when +12VDC is supplied to the CH-100. The red HEARTBEAT LED will flash once a second to indicate the CH-100 is executing its program. The yellow CONNECT LED will light when the CH-100 is connected to a DSL or CABLE modem. The green ACTIVE LED will flash when data is being sent or received.

CH-100 Rear Panel Connections

J1 is a 9 pin "D" connector used to program the CH-100 through its RS232 port. J2 is a RJ45 connector used to connector to the router or modem. J3 is a 2.5/5.5mm DC power connector. The center pin is (+).

