

OMNIWATCH NURSE CALL MONITOR

INSTALLATION AND MAINTENANCE MANUAL

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Contents

BASIC INSTALLATION STEPS FOR RADIO PAGING ONLY	3
BASIC INSTALLATION STEPS FOR COMPUTER REPORTS	3
GENERAL OVERVIEW	4
HARDWARE MOUNTING	4
WIRING	4
SOFTWARE INSTALLATION AND SETUP	7
SETTING DATE AND TIME IN THE CONTROL PANELS	8
COMMUNICATION CHECKLIST	9
PARTS FUNCTION AND MAINTENANCE	10
TROUBLESHOOTING	11
DIAGNOSTIC PROGRAMS INFORMATION	12
Communication errors:	13
STATION CONTROL PANEL PROGRAMMING MENU	14
EEPROM PROGRAMMING NOTES	17
Factory Default Settings for Values Stored in the EEPROM	20
RADIO PAGING PROGRAMMING INFORMATION	21
PAGER SETUP PROGRAM 'PAGERPRG'	22
MAIN CPU PC BOARD	25
Data cable connection	26
32 CHANNEL INPUT BOARD IB32	29
32 Channel Input Board IB32 Schematic	30
SYSTEM CONNECTION WITH 2 INPUT BOARDS	31
32 Channel Input Board IBA32 (OWINP3)	32
Aiphone NHX To Omniwatch Interface Board Version 1	34
Aiphone NHX To Omniwatch Interface Board Version 2	35
Omniwatch 410 Main CPU Board	36

BASIC INSTALLATION STEPS FOR RADIO PAGING ONLY

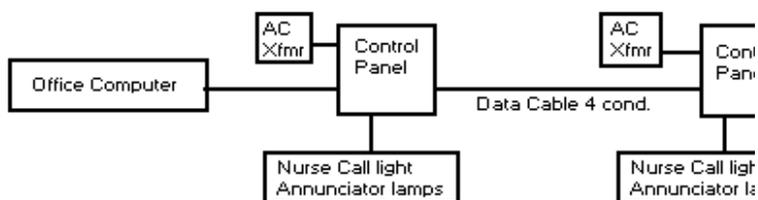
1. Mount control panel near nurse station call light system.
2. Connect wires from control panel to nurse call system.
3. Plug wall transformer into a receptacle and connect to control panel.
4. Connect a computer to the RS232 serial port.
5. Run program 'PAGERPRG' to program the pager numbers and page text.
6. Disconnect the computer and connect the serial port to the paging transmitter.
7. Turn on a call light to test operation.

BASIC INSTALLATION STEPS FOR COMPUTER REPORTS

1. Mount control panel near nurse station call light system.
2. Connect wires from control panel to nurse call system.
3. Plug wall transformer into a receptacle and connect to control panel.
4. Run data cable from control panel to office computer.
5. Connect data cable to computer using the RS232/RS422 adapter.
6. Install software on computer.
7. Program the room numbers and station name into the computer.
8. If installing radio paging, run the paging setup program to program the page data and connect the paging transmitter to the control panel serial port.
9. Turn on and off several call lights, then download the data to check operation.

General Overview

The Omniwatch nurse call light monitor consists of a control panel mounted at each nurse station and a program which is run on an office computer. The control panel is powered by a 12 volt AC wall mount transformer. There is a 4 conductor data cable run between the control panels and the office computer. The system is hooked to the existing call light system with 1 conductor for each annunciator lamp and a wire to the lamp common voltage.



Hardware Mounting

The first step in the installation is to decide where you are going to wire into the existing nurse call light system. This could be at the annunciator lamp panel or a junction box if one is used. The next step is to pick an appropriate location for the Omniwatch control panel. This could be above the ceiling, under a desk console or in a utility room. You must also locate a receptacle for the AC transformer.

Wiring

AC TRANSFORMER

A 2 conductor 22 ga. wire can be used to connect the plug in transformer to the large PC board. (Use 20 ga. wire for distances greater than 10 ft.) The wire will connect to a plug in terminal block on the PC board. This is connector "B" on the diagram and is marked AC IN.

DATA CABLE TO COMPUTER

The data cable consists of 2 twisted pairs. This cable should be a data grade LAN UTP cable of at least level 3. The cable is connected to the control panel main CPU board connector P1 (marked 'A' on enclosed diagram). One twisted pair connects to the Data In terminals and the other pair to the Data Out terminals. The data cable is looped between control panels. That is the Data In on one board is connected to the Data In on the next station board and the Data Out pair on one board to the next board. You must also observe polarity connecting one positive to the next positive. At the office computer end the cable is connected to the RS232/RS-422 converter. At this end the twisted pair from the station control panel Data In terminal is connected to the XMIT or TD terminal on the converter. The pair from the station control panel Data Out is connected to the REC or RD terminal on the converter. You must also observe polarity connecting positive to positive and negative to negative.

CALL LIGHT SYSTEM

The wiring to the call light system consists of two parts. The first is the lamp common connection. Normally one side of the annunciator lamps is connected together and goes to one side of the call light system power supply. This is usually the +24V. point, although some systems may use the -24V. point. The Omniwatch system can use either polarity and any voltage from 12V. to 30V. A single conductor is connected from this call light lamp common to the COM terminal on the input boards. On the input boards there are 2 rows of terminal blocks. The terminal blocks at the edge of the PC board are for the annunciator line and the terminal blocks behind the annunciator connections is the COM terminals. On each input board there are 32 annunciator connections and 32 COM connections. A jumper wire should be used to connect the COM terminals from each board together. If it is necessary to connect to annunciator lamps from 2 different call light systems, you should isolate the COM terminals for the 2 systems.

The second part of the call light wiring is wiring to the individual annunciator lamps. This connection can be made at the back of the lamps or at a junction box or terminal strip. An 8 conductor 22 - 24 ga. cable can be used to make the connections. The first step is to connect a wire to each input one at a time not leaving any blank inputs until you have connected the number necessary for the number of call lamps used. You can unplug the terminal blocks to make connecting the wires easier. The other end of these wires can now be connected to the call light system. It is sometimes helpful to first remove the existing call light wire from its terminal and twist the Omniwatch wire to it. This wire is often called the "point" wire. As you connect each wire you should write down the room number associated with it.

The Omniwatch system requires to see zero volts from input to lamp com. with the

annunciator lamp off and 12 to 28 volts with the lamp on. If the call light system has some other voltage a modification to the Omniwatch system will be necessary. With some digital based call light systems it may be necessary to wire to the dome light outside the patient room. Many of these systems have a switched DC voltage at a central panel that can be used, even if the difference between lamp on and off is only 5 volts. There is a special interface board available for some of these digital call light systems.

Each control panel is assigned a station number. The station number for a control panel can be changed by software. This is done by connecting the control panel serial port to a computer and running the NCWTERM program or other communications software. See the section on this program for more information.

When all wires are connected apply AC power and connect the battery. The red lamp on the microcomputer board should light and the green lamp should turn on and off every 2 seconds.

If the control panel will be more than 300 ft. from the computer, on one panel in a system, jumpers should be installed at P10 on the main CPU board. Three jumpers should be installed, one at TERM, one at -REF and one at +REF. This unit should be the one mounted at the most distant station from the office computer, as the jumpers enable the line terminating resistors.

Computer Setup

In order to set up the computer you need to know the following:

Number of stations
Serial port number
Number of inputs used at each station
Room number for each input connection

SOFTWARE INSTALLATION AND SETUP

To install the software run the "SETUP" program on the first disk. The programs are normally installed in a directory called "Nurse". The installation will install the following programs:

NCWTERM (Terminal program used to change settings in the control panel.)

PAGERPRG (Used to setup the radio paging information.)

NCALL32 (The call light reporting program.)

DNLOAD32 (An automatic call light downloading program.)

If using the system for radio paging only, you will not have "NCALL32" or "DNLOAD32".

If you are setting up the system to do radio paging, you will need to use the program "PAGEPROG". See the section of the manual that describes this program. The rest of this section relates to the computer reporting software.

Start the Omniwatch program 'Ncall32' by clicking on the Omniwatch icon in the Omniwatch program group. When the program starts, if a box displays with the message 'Configuration file not found' click on the ok button. Press a key to display the main menu screen. Now click on the menu item 'Utilities' and then select 'Setup' to setup the program configuration and room numbers information. You can get help on an item by pressing the 'F1' key. First enter the data on the configuration tab, then select the 'Room Data File' tab to enter the room numbers. The 'Room List File' tab is optional and if used could be entered at a later time. Each item of the setup is described below.

Setup Configuration

Total number of stations

Enter the total number of Omniwatch control panels that are connected to the computer.

Facility Name

Enter the name of the facility. When printing reports to paper, this name is printed at the top of the page.

Data File Information

Data File Path: If the call light data is to be on a different drive or directory from the Omniwatch program then enter the drive and directory path.

If the data file drive is a network drive (located on a file server) then check the 'Data file is on a network drive' option box.

Serial Port

In this section set the communications port number that the cable to the Omniwatch control panels is connected to. The baud rate must be set to the same baud rate that is being used in the control panels. This is usually set to 2400. If you are using Windows 95 or higher a setting of 9600 may not work well. In this case you must use 2400. If you want to use 9600 with Win95, you must disable the serial port FIFO buffers. It probable is best to disable the buffers for any baud rate. For the 'Packet size of 60' check box, most installations after 1996 will have this box checked.

Station Data

For each one of the station control panels, enter a name for the station. This name will be used in the program to identify this station. At the 'Total rooms at station' prompt enter the total number of inputs used at each station control panel. After entering the total number of inputs for each station you must go the room data file section of setup and enter the room numbers before saving the configuration data.

Room Data File

This section of setup is where you enter the room numbers for the Omniwatch program. The room number data is stored in a file named 'Room.dat'.

Before entering any room numbers, you must first enter the number of rooms for each station. This is done in the configuration section of setup.

First select the station from the station select drop down box. Then enter the room number or name in the Room Number box. After entering a room number, if you hit the enter key the station input number will advance to the next input. You are allowed to enter a maximum 8 characters for the room number. After entering all the room numbers for all stations, you can save the data and exit setup by clicking on OK.

Room List File

This section of setup is used to create the optional room lists. A room list is a list of rooms that you create and assign a name to. These rooms do not have to be all from the same nurse's station. The Omniwatch program can then print reports based on this room list as a unit.

To create room lists, first decide how many room lists are to be created and how many rooms in each list.

Enter the total number of room lists and then for each room list enter its name and number of rooms in the Room List Information box.

Room List Data box: The room list data entry box has 2 modes of operation. The check box labeled 'Use Room Number Entry Mode' is used to select the desired mode of entry.

Use Room Number Entry Mode: If the mode box is checked, you will create the room list by typing in the room number for each room list entry. You must enter the room number exactly as it was entered in the room data file section of setup.

Do Not Use Room Number Entry Mode: If the mode box is not checked, you will create the room list by entering the station number and input number rather than the room number.

After entering all the room list data, click on OK to save the data and exit the setup. The room list information is saved in a file named Roomlist.dat.

SETTING DATE AND TIME IN THE CONTROL PANELS

If it is necessary to set the time clock in the control panels, select the 'Communicate' main menu option and then select 'Update Station Clock'. After selecting this option, a window will open to allow you edit the computer date and time if incorrect. Next a window will open and wait for you to choose to update all stations or just one station. After a control panel has its clock updated it will read the clock and you will see the result displayed in the window.

COMMUNICATION CHECKLIST

If there is a problem communicating with one or all stations, the following list of things to check may lead you to the problem. You may also use the diagnostic program "NCWTERM.EXE" .

- (1)** Check the Com port selection. You may want to try a different Com port number.
- (2)** Check the wiring of the data cable. Make sure polarities are correct.
- (3)** Make sure you are using the station number that the control panel is set to.
- (4)** When a station panel is first powered up or the reset terminals momentarily shorted, the red lamp on the CPU board should be on and the green lamp should flash on and off. If this is not the case there could be a power problem or a blown fuse. When the red lamp is on, the station computer has turned off its ability to transmit to the office computer. Only one station at a time is allowed to talk to the office computer. When a station senses that the office computer is trying to establish communication with it, the red lamp will be turned off. When the communication is finished, the red lamp will turn back on. If any one station has this lamp off, then communication cannot take place with the other stations.
- (5)** One station in the system may need to have the line termination resistors' jumpers installed if a control is more than 300 ft. from the computer. This is normally the station most distant from the office computer. If you are testing other stations and this last station is not hooked up yet then you could get data communication errors. To get around this for testing purposes, temporarily install the jumpers at the station you are testing. When done testing this station remove the jumpers. It may also be helpful ,when testing one station, to disconnect the other stations from the transmit cable.

PARTS FUNCTION AND MAINTENANCE

32 Channel Input Board

U1 to U8: Input optocoupler LTV-844S. Each part connects to 4 inputs.

RN1 to RN8: Input resistor network for optocoupler. Normally 8.2K but value could be changed for various call light voltages.

RN9 to RN12: 10K pullup resistors for the optocoupler output.

U9 to U12: 74HCT165 IC. Each IC reads 8 inputs.

U13: LM7805 5 volt voltage regulator.

Main CPU Board

RN1: 10K pullup resistor for the microprocessor data bus.

U1: 16F4520 main microprocessor with Omniwatch program.

U2: FM24C64 8K memory IC. This is the first memory IC.

U3 to U8: 24LC256 32K memory IC.

U9: DS1307 real time clock IC.

U10, D8 and Q2: UC3906 IC, 2.5A 1KV diode and TIP42 transistor. Used to provide a fast and trickle charge for the backup battery.

U13: 16F2520 microprocessor. This part sends and receives data from the pager and RS422 serial ports.

U15 and U16: MAX483E transceiver for the RS422 serial port.

U17: LT1134 data transceiver IC for the RS232 serial port.

U18: LM7805 voltage regulator for the 5V power supply.

D1: P6KE51CA Surge protector. This is a 51 Volt bidirectional surge protector.

D2 - D5: 2.5A 1KV diodes. These form a diode bridge to rectify the AC input voltage.

D6 and D7: 2.5A 1KV Diode. D8 is an isolation diode for the diode bridge and D9 is an isolation and switching diode for the backup battery.

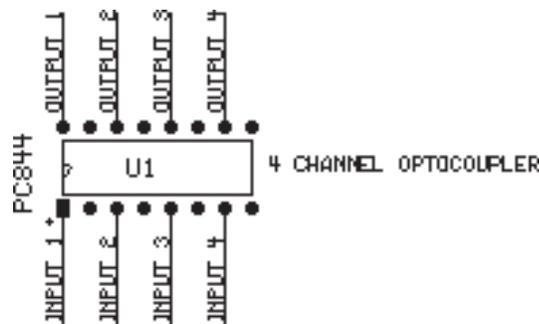
F1: 300 milliamp fuse for the 12VAC input transformer. This is a resettable fuse. It will reset when power is removed.

TROUBLESHOOTING

To test for trouble on one input: An input can be tested by connecting a voltmeter's common lead to the ground connection next to the backup battery connector and the positive lead on one of the output pins of the optocoupler on the 32 channel input board for the input in question. On the newer input boards this point has a test point marked T1 to T32. With the input off you should read 4.5 to 5 volts. With the input turned on you should read less than .4 volts. To check the input side of the optocoupler, connect your voltmeter's common lead to the input board COM terminal connection and the positive lead to one of the input pins of the optocoupler. You should see 0 volts with the input off and about 1 volt with the input turned on. If this voltage is several volts higher than 1 volt then the optocoupler is bad.

Move the voltmeter lead from the input pin of the optocoupler to the input connector to measure the input voltage (keeping the meter's com. lead on COM.).

If the optocoupler output checks good, then the 74HCT165 data shift register may be at fault. If this IC goes totally bad, then you would have 8 inputs that would not register. A good way to test these input parts is to swamp them with the part from a known good input. Often when an input does not register it is because the input in question is not wired to the room number that the software is set for. It is always good to recheck the wiring.



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DIAGNOSTIC PROGRAMS INFORMATION

NCWTERM.EXE

This program allows you to communicate with a station panel and determine information concerning its memory, operation and to program items such as station number, number of input boards, baud rate and paging mode.

To change configuration values in the control panel there is a program called 'PANELPRG' which is easier to use than NCWTERM.

NCWTERM.EXE can be used to view the calls stored at a station, read the current date and time, and check for communication errors.

To start the program click on the NCWTERM program icon. At the top right of the screen is the station number and its associated key. The station control panels are connected in a computer network. Only one station at a time is allowed to transmit data to the office computer. All stations will normally be listening in to the data on the network. When a station panel sees the key character associated with its station number, it will turn on its transmitter and be in communication with the office computer. When one station has its transmitter on, the network is locked up to this station and errors will occur if you try to communicate with another station. Inside each station control panel, on the microcomputer pc board, is a red lamp which will be on if the transmitter is off and will go out when the transmitter is turned on. This lamp, if off, can be set back on by pressing the front panel reset switch if one is present or by momentarily shorting the terminals on the CPU board marked 'Reset'. When running NCWTERM.EXE you can test the basic communication by hitting the key associated with a particular station. The station should respond back by sending its station number. For example if you hit "{" (the key for station 1) you should see, within a couple of seconds, a "01" returned. Within 15 seconds the station panel will release its transmitter, so you can then test another station.

Make sure the on screen station number, com port and baud rate are set to the correct values. Then you must establish a communication with a station panel and cause this panel to exit its normal program. This is accomplished by clicking the button labeled

'Log On to Station'. The program will now communicate with the station and cause it to exit its program. Upon completion you will see a menu, which is transmitted from the station control panel. If you get a communication error when clicking the 'Log on to Station' button, you can try to manually log on the station. To do this for station one do the following: Type the special character for station one which is '{'. When you see the '01' sent from station one type 'END' and then <enter>. The 'END' must be in upper case. You will then see the menu from the station control panel.

When finished working with this station control panel you must hit option 7 to restart the program at this station.

A feature added with the control panel eprom version 1.17 allows you to cause the control panel to send its diagnostic menu to the computer connected to one of the serial ports. This is done using the jumpers on the CPU board labeled P3. When the jumper marked DEBUG is shorted and the jumper marked RS422DEBUG is open and you reset the CPU the menu will be sent out the RS232 serial pager port. When the jumper marked DEBUG is shorted and the jumper marked RS422DEBUG is shorted and you reset the CPU the menu will be sent out the RS422 serial port. When done with this test you should set the jumpers back to their original position and reset the CPU. The reset is a push-button switch marked reset on the PC board.

Communication errors:

Communications errors can be caused by faults in the data cable or the data cable connections. At the back of the computer is an adapter connected to a serial port. Check to see that this is properly plugged in. Errors can also occur when one station panel's program is not running right. It may help to hit the reset button of the station control panel. This reset is like a warm start. To do a cold start you need to communicate with this station and hit 6 from the control panel's menu. In Win95 you will get errors using a baud rate of 9600 unless you disable the FIFO buffers.

STATION CONTROL PANEL PROGRAMMING MENU

NURSE CALL MONITOR AND RADIO PAGE VERSION 2.0 JULY 04
DIAGNOSTIC WRITTEN BY BILL DIECK 800 539-6664

MENU OPTIONS

- 1 DISPLAY MENU
- 2 PROGRAM STATION NUMBER
- 4 CURRENT CALL STATUS
- 5 DISPLAY CALLS STORED
- 6 COLD START
- 7 WARM START
- 8 READ CLOCK
- 9 PROGRAM THE BAUD RATE
- 0 PROGRAM THE PAGE MODE
- A PROGRAM ADVANCED PAGE MODE
- C SET CLOCK DATE AND TIME
- R PROGRAM THE PAGE RECALL TIME
- V DISPLAY PROGRAMMABLE MEMORY VALUES
- P DISPLAY PROGRAMMED PAGER DATA
- Z ERASE PROGRAMED PAGER DATA

To select a menu item hit the number of the item desired.

When using the unit to do radio paging, the paging setup program PAGERPRG will program item 0 and item R. It should not be necessary to make any changes to the items on the menu, since all items are preset when the control panel is built. You would need to run this program if it is necessary to change the station number or the baud rate of one of the serial ports.

When finished with this menu, you must restart the station control panel program by selecting item 7. You then could exit the NCWTERM program by clicking on Exit.

DESCRIPTION OF MENU OPTIONS

Option 1: This option will redisplay the menu of options.

Option 2: Use this option to change the station number of the unit. Station numbers must be in the range of 1 to 31.

Option 4: This option will display the current status of reading the input boards. A '0' is off and a '1' is on. Each line represents one input board.

Option 5: This will display the calls stored in memory. The first line will show the first call that was recorded since the last time the calls were downloaded to the office computer.

Option 6: This is the software cold start. Upon selecting this item the control panel program will restart its program. It will also reset the recording of calls to the beginning of memory. This effectively erases all calls that are currently recorded. All calls that have been recorded as on but not registered as being turned off yet will also be erased. After this option is performed you will no longer be in communication with this station. You can then click on Exit.

Option 7: This option will restart the station control panel program. You should select this item after you are done working with this menu and before exiting NCWTERM program. After selecting this item you will no longer be in communication with this unit and you can click on Exit to exit the program.

Option 8: This option will display the current date and time from the station control panel real time clock. If the date on this clock is wrong, then the calls recorded will have this wrong date and it will appear as if no calls are being recorded for the correct date. If the station clock goes bad, the station control panel will not record any calls.

Option 9: This option is used to make a change to the serial port baud rate. After changing the baud rate you must select option 6 or 7 to restart the program to perform the baud rate change. You can choose between 1200, 2400, and 9600 for either serial port. The default for the RS422 port is 2400 and for the RS232 port is 9600. The RS422 port is used to connect to the office computer for downloading of call light data. The RS232 port is used to send page data to the radio paging transmitter. With this option you can also change the Dome port that is used to send status data to the Ncdisplay program. You can choose either 2400 or 9600.

Option 0: Use to change the paging mode. A 6 will disable the sending of pages. The radio paging setup program PAGSETUP or PAGEPROG will program the page mode with a number from 0 - 5. The default for this item is 6. The following explains the page modes:

Page mode 0 Individual room assigned pages only
Page mode 1 Individual and alternate pager only
Page mode 2 Individual and manager pager only
Page mode 3 Individual ,alternate pager and manager pager
Page mode 4 Alternate pager only
Page mode 5 Alternate pager and manager pager only

Option A: This is the page mode value used in control panels version 2.30 and up. The value entered here will be in the range of 32 to 63. It will be 32 plus the value for any of the following that are to be enabled.

1 - Individual room assigned pagers
2 - Alternate pager
4 - Manager pager (level 2 page escalation)
8 - Level 1 page escalation
16 - Initial page recall

Option C: Use this to set the control panel's clock date and time.

Option R: Use this to change the pager recall time. The default is 4 min.

Option V: This option will display the current values stored in the programmable memory. The following is an example listing:

```
STATION NUMBER IS 01
NUMBER OF INPUTS IS 32
RS422 BAUD RATE VALUE IS 24
RS232 BAUD RATE VALUE IS 12
PAGE RECALL TIME IS 04
PAGE MODE IS 00 INDIVIDUAL PAGER ONLY
ADVANCED PAGE MODE IS 32
MAX INPUTS ON TO ALLOW IS 255
```

The last item is changed by using the unlisted 'Option L'. It is a hexadecimal number from 00 to FF. It sets the maximum number of call lights that are allowed to be on at any one moment. If this number is exceeded, the control panel will not record any of the calls.

Option P: This option will display the pager data that is programmed from the pager setup program.

Option Z: This option will tell the control panel to erase all radio paging cap code data.

On the next page are notes on programming some additional functions, stored in the EEPROM, using the unlisted 'Option E'.

EEPROM PROGRAMMING NOTES

After displaying the menu from the Omniwatch control panel, type 'E' to program some additional values into the EEPROM.

Memory locations

08 BBSMART Default = 00 00 if false and 54 if true. Would be set to true only when using a smart switch on the serial port. You would use the smart switch if you want to send pages to both a modem and an on-site transmitter.

09 BBPORTC Default = 00 00 if false and 54 if true. Would be set to true when using the port combiner to connect several control panels to one paging transmitter.

0A NETWORK Default = 00 00 if false and 54 if true. Would be set to true when networking several control panels to one paging transmitter through a special network adapter. Note: Always use 00 as this function was never used.

0B POWERFAIL Default = 00 Normally 00 if a power failure occurs, which drains down the backup battery, this location will be set to true (54) by the program. Note: Always program this location with 00.

0C SEND PAGE-FF Default = 00 When true a preamble of "FFH FFH FFH" is sent to the paging transmitter. When false (00) no preamble is sent.

0D PAGE F-CHAR / W(JVS) Default = 57 Pager function code when using a JTech pager. When 00 no function code is sent. When true (54) a function code of '02' is sent. When any other value that value is sent. The function code could be '02' or '03'. When using the WaveWare pager this location must be set to 57 or 'W'. When using this unit with the VisionPro computer this location must be set to 53 or 'S'. Use 56 or 'V' when using a Visiplex VS40 mode. For Comp2 protocol use 00.

To program new values in the EEPROM, you must sequentially enter the values starting at location 08. Next to the 08 is displayed its current value. Type a new value, such as '00' then enter the value for location 09. With version 2.36 and up you can press <enter> to advance to the next line without changing a value. Hit esc when done.

EEPROM PROGRAMMING NOTES CONTINUED

0E IGNORE ENABLE Default = 00 00 if false and 54 if true. If set to true the system will ignore the status of several inputs for a certain time period. All of these selected inputs must be grouped together and programmed with the following 3 EEPROM locations.

0F IGNORE BEGINNING INPUT Default = 00 This value is programmed with the first input number to ignore. The value is in hexadecimal with a range of 00 - FF. All input connections from this value and above will be ignored.

10 IGNORE START HOUR Default = 00 This value will be the first hour to ignore the status of the selected inputs. The value must be entered in hexadecimal with a range of 00 - 17.

11 IGNORE END HOUR Default = 00 This value will be the last hour to ignore the selected inputs with a range of 00 - 17.

Example of locations 0E to 11. If the following values are programmed on a system which has a total of 64 inputs available: 0E=54 0F=38 10=07 11=15 Then input numbers 56 (38H) to 64 would be ignored during the hours of 7:00AM to 9:59PM.

12 SEND CANCEL PAGE Default = 00 00 if false or 54 if true. If true this will enable the sending a radio page when a call light is turned off. The message on the pager will be the room number plus the word cancel. When used with a VisionPro computer this must be set to 54.

13 DAYLIGHT / STANDARD TIME Default = 44 or 53 Enter 00 to disable auto conversion from daylight to standard time. Enter 44 or 'D' if currently on daylight saving time. Enter 53 or 'S' if on standard time.

14 PSEUDOINP ENABLE Default = 00 00 if false and 54 if true. When enabled the system will scan the inputs from 1 to the PSEUDOINP VALUE for an emergency call. It will then turn on an input greater than the physical inputs in the system.

15 PSEUDOINP VALUE Default = 00 This value is entered in hexadecimal from 00 to FF.

16 EMER/URGENT TIMING VALUE Default = 00 00 represents a value of 16. This is a timing value of a flashing lamp to tell the difference between an EMER and URGENT (smoke detector) call. Each count is 10 - 15 ms. of time. Used when location 0D is set to 53.

17 SEND FLASH VALUE WHEN UPLOADING CALLS Default=54 54 is used with Omniwatch program version 4.3.0.0 and above. 00 will disable this. This allows the use of a data file filter to only show normal or emergency calls.

18 SEND CALL STATUS OUT 485 DOME PORT Default=00 00 if false and 54 if true. Will output call status out RS485 'Dome' port if jumper JMP7 is on otherwise RS422 will be used. This call status can be used by a computer to display calls using the NCDisplay program.

19 SEND PAGE DATA OUT ALTERNATE PORT Default=00 00 if false and 54 if true. The page data can be sent out another port than the normal paging port. If true the page data will go out the RS422 port. There are jumpers on the PC board that also affect this.

1A PENDANT AUTO RESET TIME Default=03 This is the time in seconds divided by 10 that a wireless pendant will be reset. The value is in hex. For 60 seconds enter 06. For 30 minutes enter B4.

1B SEND STATUS OUT PAGE PORT INSTEAD OF DOME Default=00 00 if false and 54 if true. With this option the status data can be sent out the RS232 port.

1C SEND CKSUM WITH STATUS Default is 00 00 if false and 54 if true. A checksum number can be sent along with the status data to the Ncdisplay program. Need to have Ncdisplay version 3.4 and up.

1D STATUS CONTINUOUS UPDATE IN SEC /10 Default=00 The time between status updates to Ncdisplay program divided by 10. This number is in hex. To send the updates every 90 seconds you would enter a 09 here. To use this you need Ncdisplay program version 3.4 and up.

1E CALL ON TIME FOR RELAY IN MINUTES Default=00 When this is 00, the on board relay will be active whenever a call is active. If this is a value of 1 to 63 in hex, the relay will only be active when there is a call on for that number of minutes. For 10 minutes enter 0A, For 15 minutes enter 0F.

Factory Default Settings for Values Stored in the EEPROM

Address	Value	Notes
00	147	This value cannot be changed
01	12	Baud rate for RS232 port. Changed with menu option '9'
02	24	Baud rate for RS422 port. Changed with menu option '9'
03	01	Station number. Changed with menu option '2'. Each control panel in a system will have its own station number starting with 1.
04	06	Page mode (06 = disable pages). Changed with menu option '0'. This value is automatically set when programming the pager data.
05	08	Input boards. Changed with menu option '3'. This value is also set when programming the pager data. The default will be 08 only with a control panel built with 8 input boards. This value must equal the number of input boards present for the system to read all the boards.
06	4	Page recall time in minutes. Changed with menu option 'R'.
07	FF	Maximum inputs active to allow. Changed with menu option 'L'.

The following locations are changed with menu option 'E'

08	00	For external smart switch (00 = not used)
09	00	For external port combiner (00 = not used)
0A	00	For networked pager interface (00 = not used)
0B	00	Power Fail indicator Set by control panel CPU to 54 to indicate a prolonged power failure.
0C	00	Pager preamble 'FF' sent if true (54 = true and 00 = false)
0D	00	Pager function character for Jtech or 57 (W) for WaveWare pager or 4A (J) for Jtech 7 digit format or 53 (S) for VisionPro computer. Use 00 for Comp2 protocol.
0E	00	Ignore enable to ignore some inputs (54 = true and 00 = false)
0F	00	Ignore beginning input number (01 - FF)
10	00	Ignore start hour expressed in hexadecimal (00-17)
11	00	Ignore end hour expressed in hexadecimal (00-17)
12	00	Send cancel page if true (54 = true and 00 = false)
13	44/53	Daylight / Standard time (00 = disable 44 = daylight 53 = standard)
14	00	PseudoInp enable if true (54 = true and 00 = false)
15	00	PseudoInp value (00 - FF)
16	00	Emergency / Urgent timing value in hexadecimal (00-20)
17	54	Send Flash value when uploading calls (54 = true and 00 = false)
18	00	Send call status out RS422 or RS485 'Dome' port (54 = true, 00=false)
19	00	Send page out alternate port (54 = true and 00 = false)
1A	03	Reset time for wireless pendant /10 default is 30sec.

RADIO PAGING PROGRAMMING INFORMATION

Jumpers on CPU PC board:

Jump1 or RS232DEBUG When this is on, the configuration menu is transmitted out the RS232 or pager port each time the board is reset.

Jump2 or RS422DEBUG When this is on, the configuration menu is transmitted out the RS422 or main data port each time the board is reset.

Jump3 or COLDSTART When this is on, after a reset memory is cleared including calls stored.

Jump4 or TAP is for TAP or PET protocol. A jumper placed here will set communication with the Pager to be in the PET or TAP protocol.

Jump5 or PAGE- DOME When eeprom address 19 'Send page out alternate port' is true, if this jumper is off the page will go out the RS422 port. If this jumper is on, the page will go out the RS485 'Dome' port

Jump6 or PAGE + 232 When eeprom address 19 'Send page out alternate port' is true, the page will be sent out the normal pager port in addition to the port selected using jmp 6 above.

Jump7 or STATUS- DOME When eeprom address 18 'Send call status out 485 Dome port' is true. If this jumper is on, the call status data is sent out the RS485 'Dome' port. If this jumper is off then the call status data is sent out the RS422 main data port. This status data is then used by an external PCB to transmit this data using WIFI or wireless networking or the data can also be sent with a serial port. The data is received by a computer to display the active call status or send the data by email.

Jump8 if on when using a slave cpu will allow the main cpu to reset the slave and page cpu.

RTS/CTS jumper will connect the RTS signal to the CTS input. There are 2 jumpers on the board marked RTS/CTS. The one for the pager port is the one closest to the DB9 connector. Normally this will be left open.

To program the pager data for each input:

Connect a serial cable from the RS232 connector to the serial port on a computer. The RJ12 connector next to the DB9 connector could also be used with the supplied adapter. If you are connecting an office computer to the RS422 connector for the Omniwatch computer reporting, this connection would be used to program the radio page data. Either port could be used to program the pager. You may unconnect the CPU PC board from the rest of the pager interface, so it can be taken close to a computer for programming. The pager data is stored in EEPROM memory so it will retain all programming information. After the board is connected to the computer run the program supplied which is called PAGERPRG. This program will load the current data from the PC board if needed. After programming the pager data, connect the radio paging transmitter to the RS232 serial port.

Pager Setup Program 'Pagerprg'

This program is used to program the pager text messages and pager numbers and transmit this information to the station control panel.

General Items

Load Data Button

When clicking this button, a command is sent to the control panel to have the pager data that is currently in the control panel sent to the computer for editing.

Send Data Button

This command will transmit the data to the Omniwatch unit.

Erase Data In Control Panel

When clicking this button a command is sent to the control panel to have the pager data erased from its memory.

General Info Tab

Time Before Escalation in Min.

When the Omniwatch unit sends a page, it will wait this escalation time, and if the input is still activated it will send a page according to the current level of page escalation. The order of page escalation is:

- 1 Recall (repeat of initial page)
- 2 Level 1 pager
- 3 Manager pager

These levels are enabled or disabled under the Page Mode tab. You must have Omniwatch control panel version 2.30 and up in order to disable Recall or enable Level 1 pager. The time between each stage of escalation is set by this value. It has a range of 1 to 9 minutes.

Alternate Pager Number

Enter the number of the beeper for the alternate pager. An alternate pager will receive a page whenever any input in the Omniwatch control panel is activated. This page will be sent out in addition to any pager setup for the individual control panel inputs. To use the alternate pager, you must select this mode under the Page Mode tab.

Level 1 Pager Number

Enter the cap code number for the pager for the level 1 pager. The level 1 pager is enabled under the Page Mode tab. You must have Omniwatch control panel version 2.30 and up in order to use the Level 1 pager.

Manager Pager Number

Enter the number of the beeper for the manager pager. The manager will get a page if the control panel input is still activated after 1 or more times the escalation time. See Escalation Time above.

The pager number is the 7 digit number on the back of the beeper. If using the group pager option, you would enter the group number for the pager number. Group numbers are 900 to 931.

Communications Tab

Station Number

Enter the station number of the Omniwatch unit that you are entering data for. If there is only one Omniwatch unit installed, then this will be station 1.

Communications Port

Enter the Com port number, that the cable to the Omniwatch unit is connected to.

Baud Rate

The baud rate selected must be the same rate that the Omniwatch control panel is set to. The default Omniwatch baud rate is 1200 for the RS232 port and 2400 for the RS422 port. The paging transmitter normally uses 1200 baud. To change the baud rate in the Omniwatch control panel, use the NCWTERM program or the PANELPRG program. If using Windows 95 or above a baud rate of 9600 may not work very well.

Pager Mode Tab

This section sets the mode of operation for the Omniwatch control panel. You must select at least one of the first two check boxes.

Send Individual Input Pages

This item should normally always be checked. This tells the Omniwatch control panel to send pages using the pager number entered for each control panel input.

Send to Alternate Pager

This item, if checked, will send a page to the alternate pager whenever any control panel input is activated. If Individual Inputs is also checked, then 2 pages will be sent whenever a call light is turned on.

Send to Level 1 Pager

This item, if checked, will send a page to the Level 1 pager after the escalation time has elapsed. This item will only function when using Omniwatch control panel version 2.30 and above.

Send to Manager Pager

This item, if checked, will send a page to the manager pager after the escalation time period has elapsed twice.

Enable Page Recall

The recall is a repeat of the initial page. This is done after the page escalation time has elapsed. This item can only be disabled when using Omniwatch control panel version 2.30 and above.

The alternate pager number and the manager pager number as well as the escalation time is entered from the General Info tab.

Individual Inputs Tab

Input

This is the number of the input connection in the Omniwatch control panel.

Display Norm/Emer

If this box is checked, 'Norm' or 'Emer' will be displayed on the beeper after the pager text. A 'Norm' condition is a steady voltage on the control panel input. An 'Emer' will be when the input voltage is pulsating or for a flashing call light. Norm/Emer display would not be used for monitoring a door alarm or with some call light systems that do not provide a pulsating voltage.

Pager Number

Enter the number of the beeper for this input. The pager number is the 7 digit number on the back of the beeper. If using the group pager option, you would enter the group number for the pager number. Group numbers are 900 to 931.

Pager Text

Enter the text to be displayed on the beeper. You are allowed up to 22 characters which can be letters or numbers. You should not use any punctuation or other characters.

Once you set the Norm/Emer check box on the first input, this value will be carried to the next input. To input the data. First set the input to 1 and then set the Norm/Emer check box. Go to the pager number box and enter the pager number and then hit the enter key. The cursor will move to the text entry box. Enter the pager message and then hit the enter key. The input number will now advance and you can then enter the data for the second input.

Group Pagers Tab

The group pager option allows the sending of pages to multiple beepers from a single input being activated.

Group Pager Number

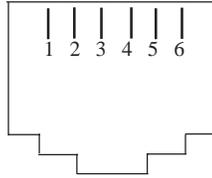
Group pager numbers start at 900 and go to 931. Each group pager number can represent 2 or 3 beeper numbers.

Pager Numbers for this Group

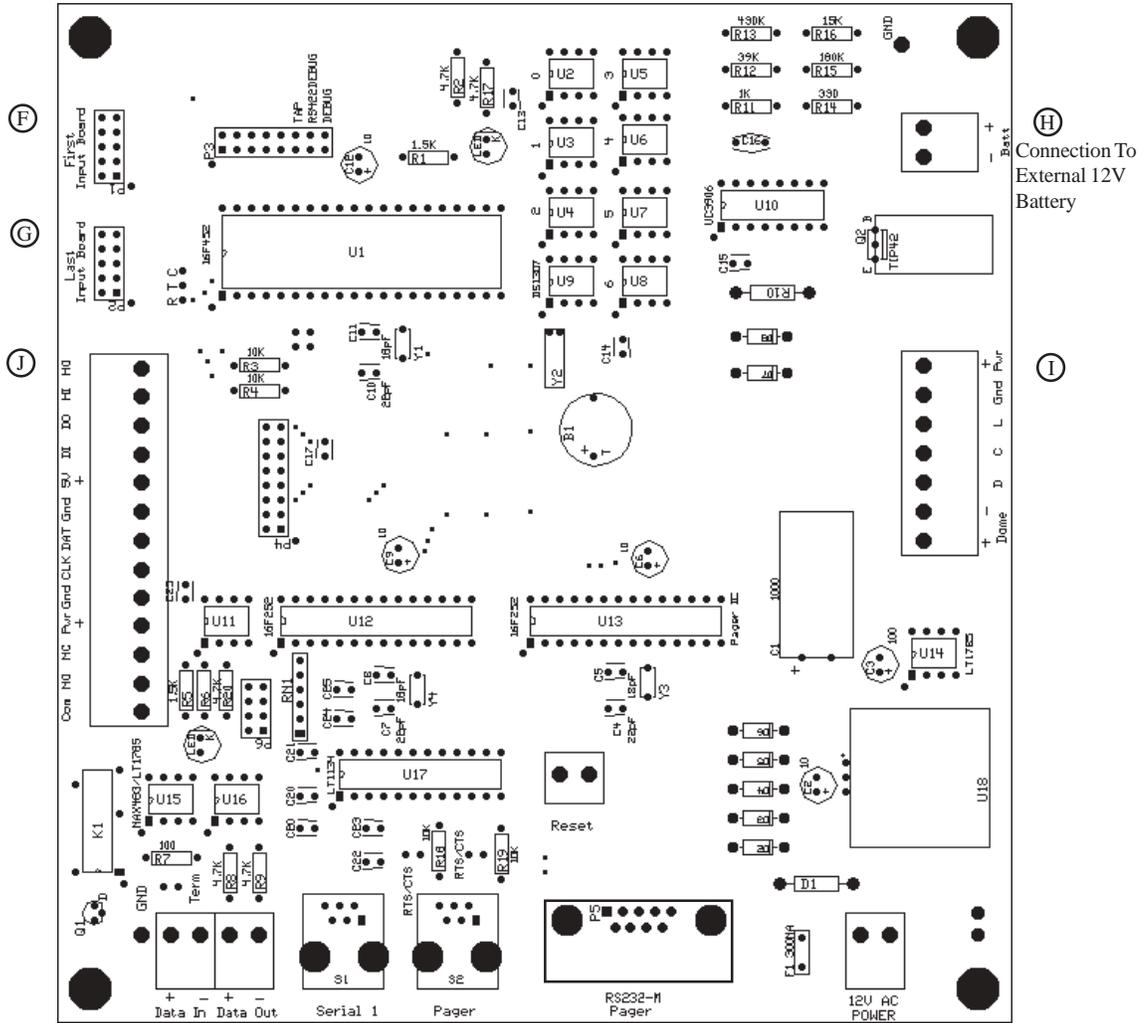
Enter here the 2 or 3 beeper numbers to be represented by this group number. You could also enter the number of another group to allow more than 3 beepers for this group. For each beeper number in the group a separate page must be sent from the paging transmitter. It would not be practical to set up too many beeper numbers as it would take a long time to transmit to all the beepers.

MAIN CPU PC BOARD

RJ12 Serial Port Wiring



- 1 Ground
- 2 CPU board serial data output
- 3 CPU board serial data input
- 4 CPU board CTS input
- 5 CPU board RTS output
- 6 Not connected



(A) RS422 Data Cable Connection

(E) Serial 1 RS232 Serial Port

(D) Additional Connector For RS232 Serial For Radio Paging

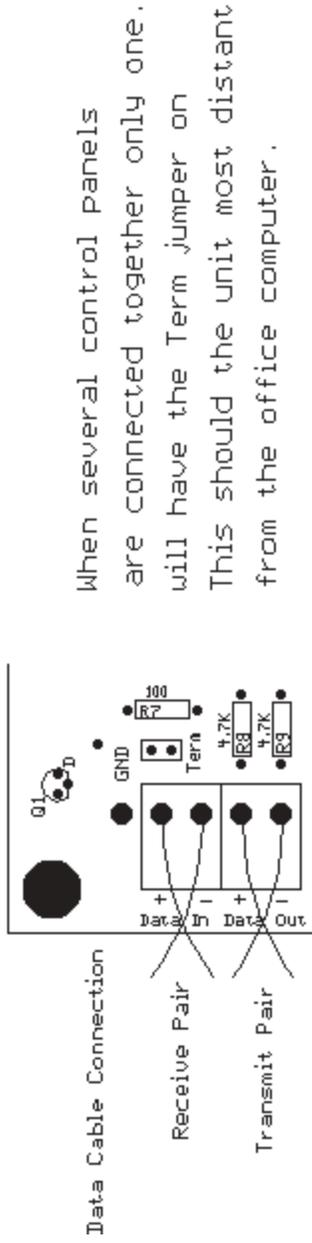
(C) RS232 Serial Port For Radio Paging

(B) 12V AC Power Input

(H) Connection To External 12V Battery

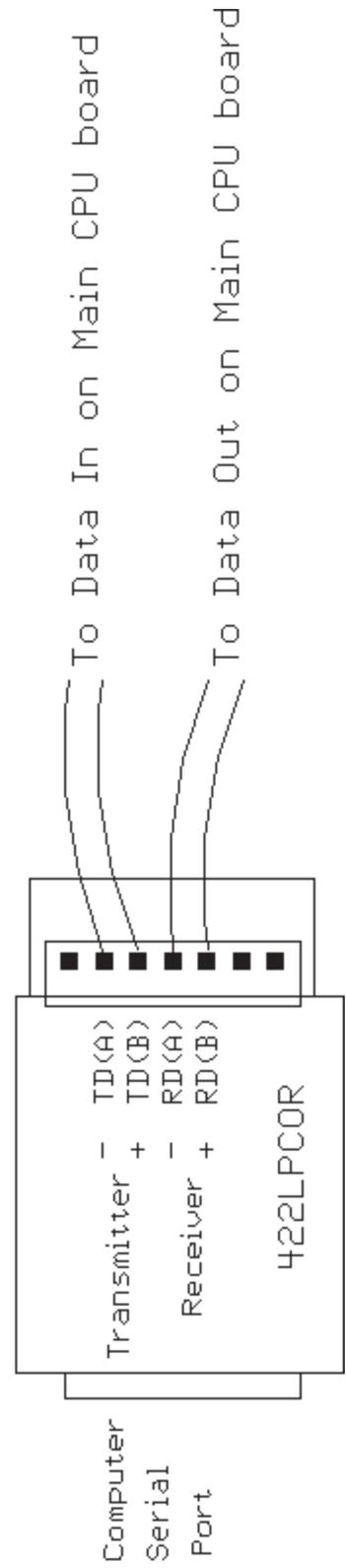
(I)

DATA CABLE CONNECTION AND TERM JUMPER

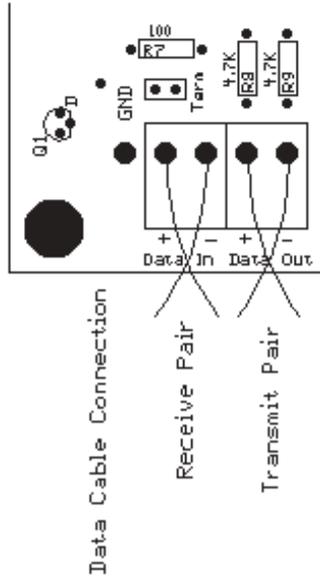


RS422 data cable connection to office computer or next station

B & B 422LPCOR RS422 TO RS232 ADAPTER



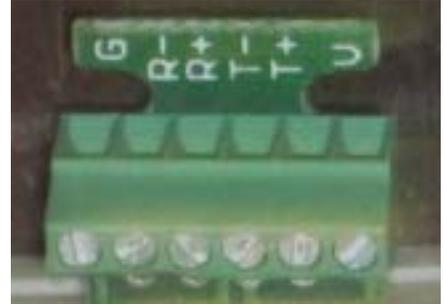
DATA CABLE CONNECTION AND TERM JUMPER



When several control panels are connected together only one will have the Term jumper on. This should be the unit most distant from the office computer.

RS422 data cable connection to office computer or next station

Antona RS422 to RS232 Adapter



Receive -

Receive +

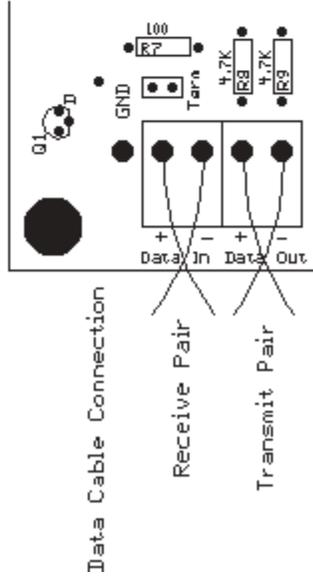
Transmit -

Transmit +

To 'Data Out' in the control panel

To 'Data In' in the control panel

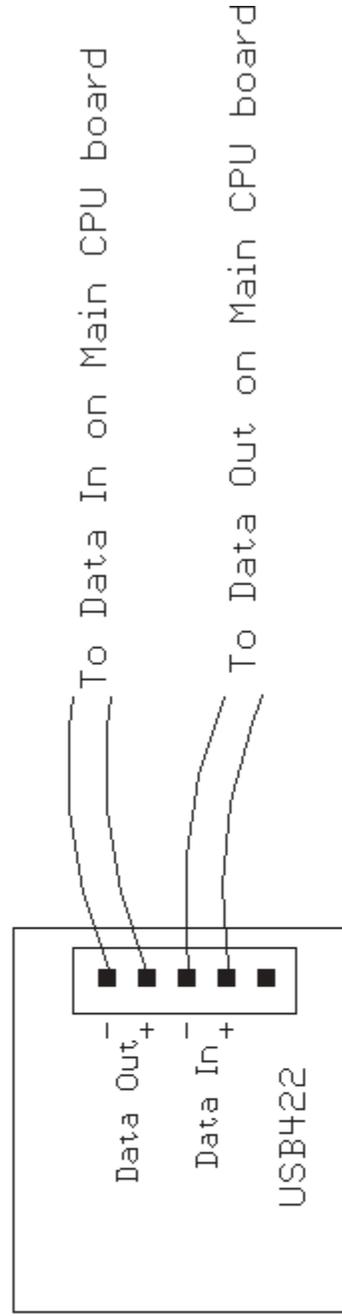
DATA CABLE CONNECTION AND TERM JUMPER



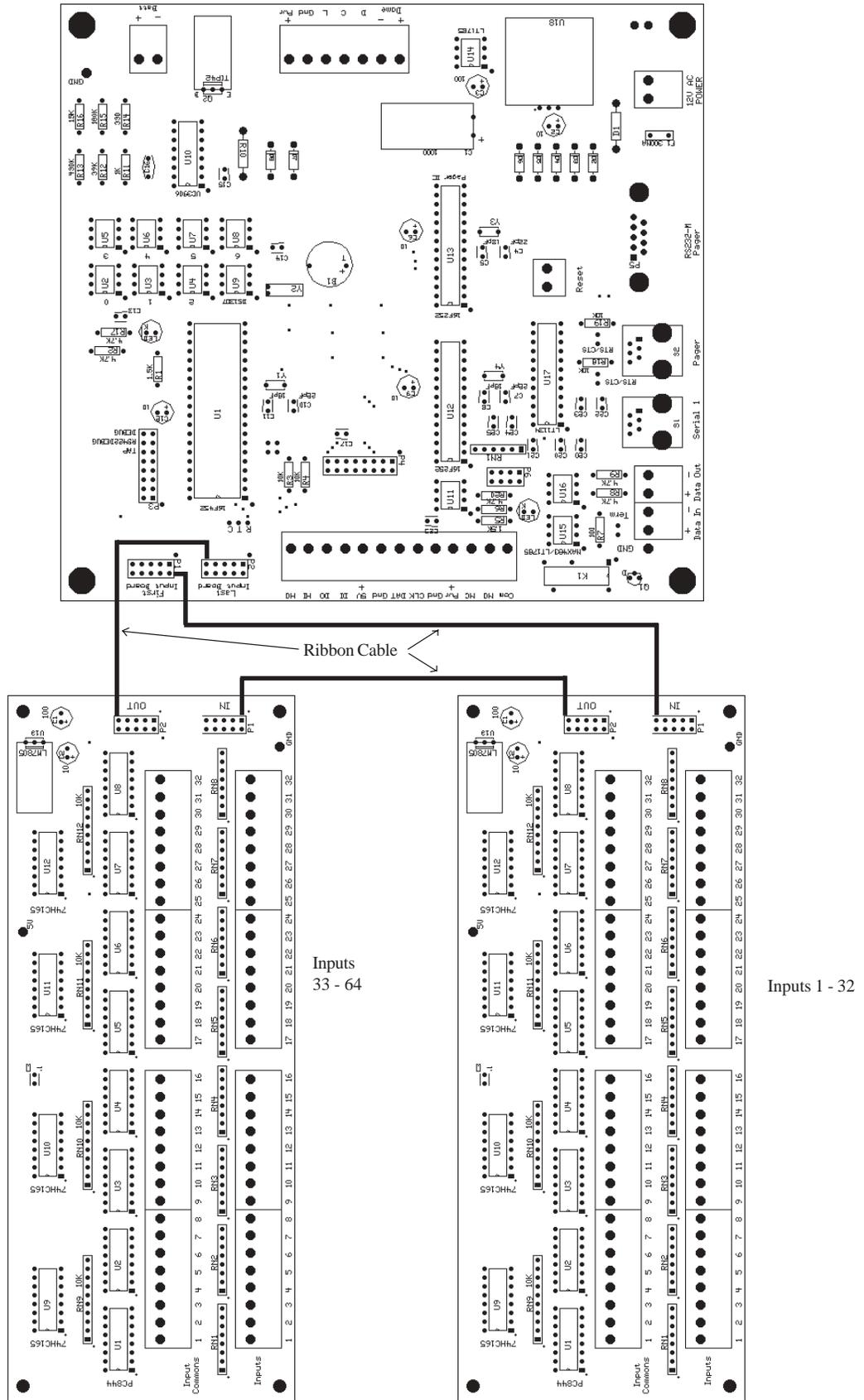
When several control panels are connected together only one will have the Term jumper on. This should be the unit most distant from the office computer.

RS422 data cable connection to office computer or next station

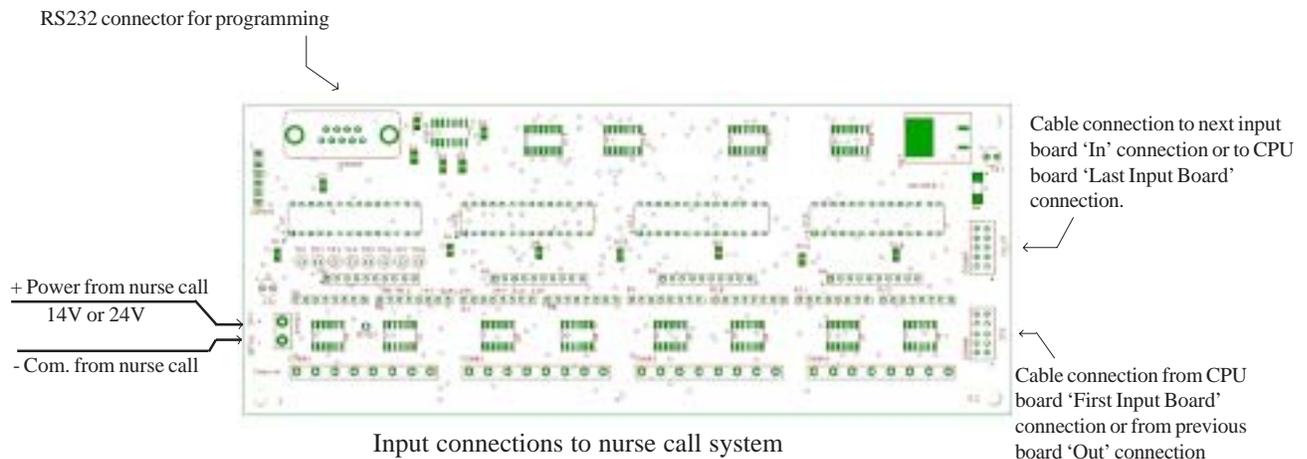
USB422 RS422 TO USB ADAPTER



SYSTEM CONNECTION WITH 2 INPUT BOARDS



32 Channel Input Board IBA32 (OWINP3)



The power connection on the lower left connects to the nurse call system power. It can be either 14V or 24V system. For a 24V system the plug in resistor packs need to be 22K. For a 14V system the plug in resistor packs need to be 10K.

The inputs are high impedance and will not place a load on the nurse call system. This input board is used in systems that have an analog voltage that changes with type of call. For example in a 14V system, the call off voltage is 6.8V, the normal call is 9.3V and the emergency call is less than 1V. This board is programmed to have a range of voltages for a normal call and also for an emergency call. Any voltage outside of these ranges is considered a call off signal.

Programming: To program connect a computer to the RS232 connector and run a terminal program such as the Omniwatch Newterm program on the computer. You will be programming the IC marked U9. This IC handles the first 8 inputs. To program the other 3 IC's, you will need to place them in the socket for U9 as this socket is the only one connected to the RS232 port. Next to U9 there are test points 1 - 8 for inputs 1 to 8. Place a volt meter on one of these test points (the neg lead of the meter is connected to the neg power input from the nurse call system). Now measure the voltage at the test point with the call off, with a normal call and with an emergency call. Now on the computer set the baud rate for 9600 and press 'control p'. You will now see a menu of items. It will also show the current program values for normal and emergency calls. Now press '1' to enter the minimum voltage and maximum voltage for a normal call. The value is entered in millivolts using 4 digits from 0000 to 5000. You will be entering a range of voltage values that is considered a normal call. Now press '2' to enter the values for an emergency call. Any voltage value that is outside these 2 voltage ranges is considered a call off signal. The default values for the IC is the following:

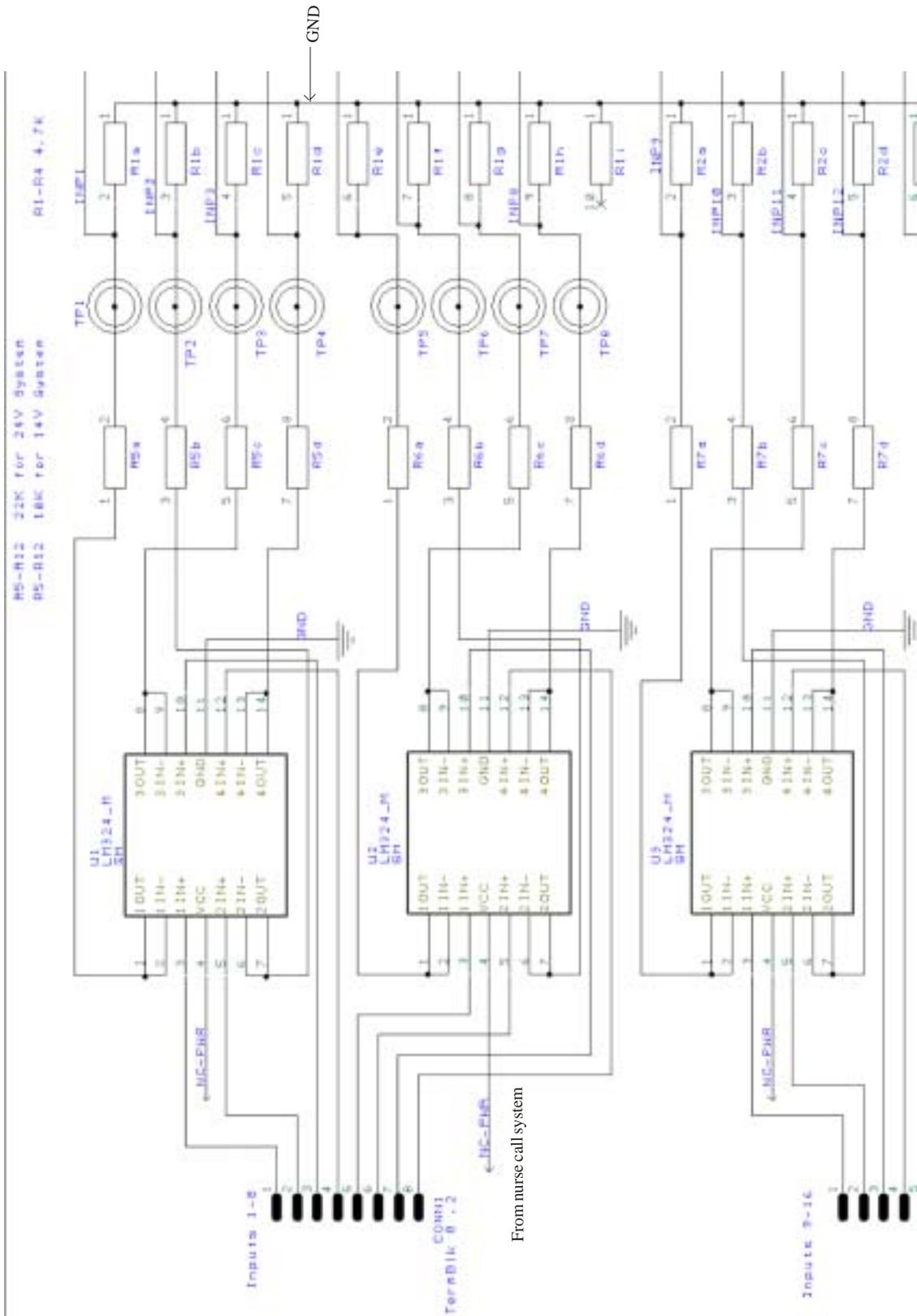
Emergency min. 0000 max. 1279

Normal min. 2558 max. 3517

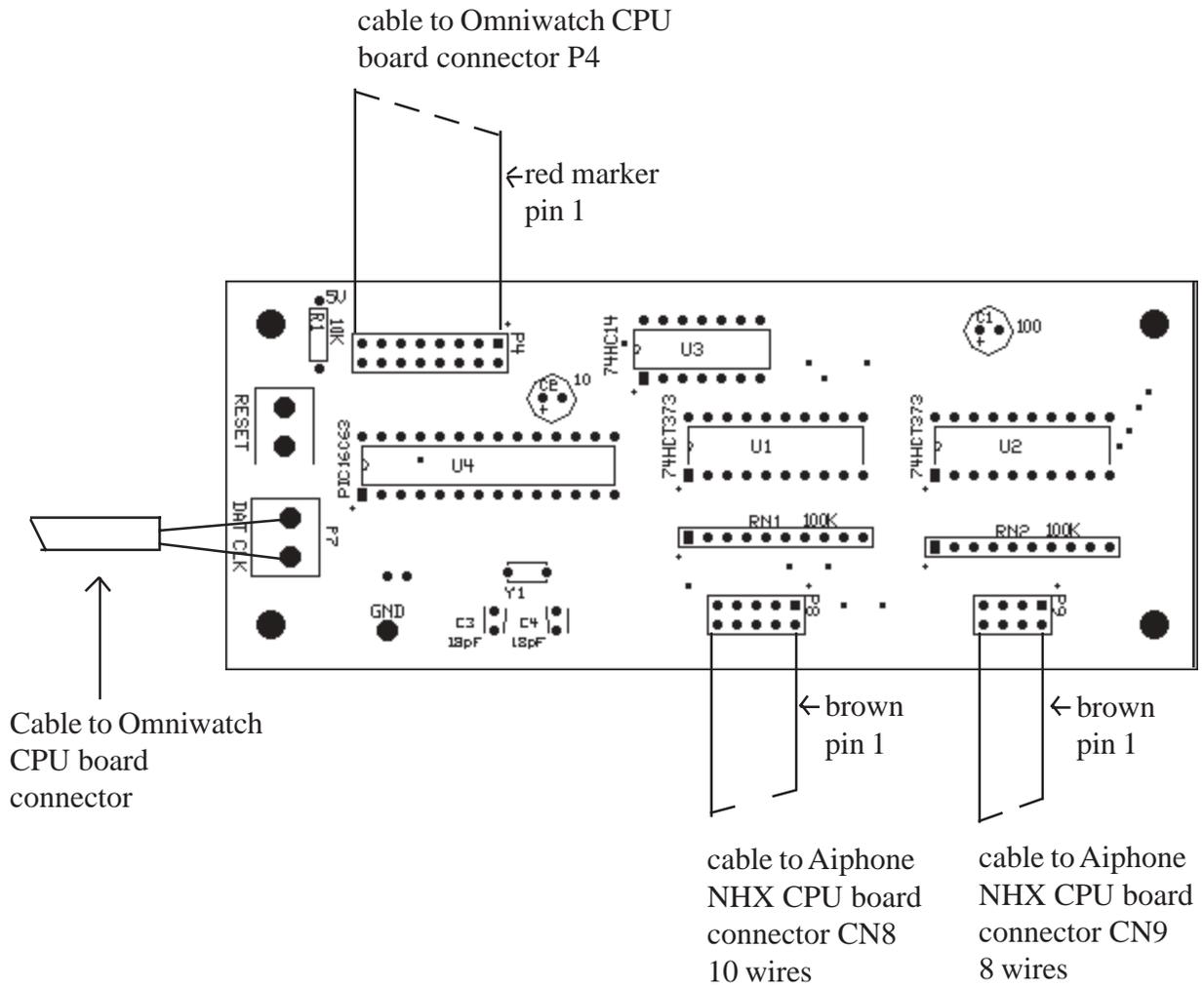
These values are for test points with Emer. call = 0V, call off = 2.18V and Norm. call = 2.98V.

Note: Any unused inputs must be tied to a voltage that represents a call off condition.

Input Board IBA32 Schematic showing input section

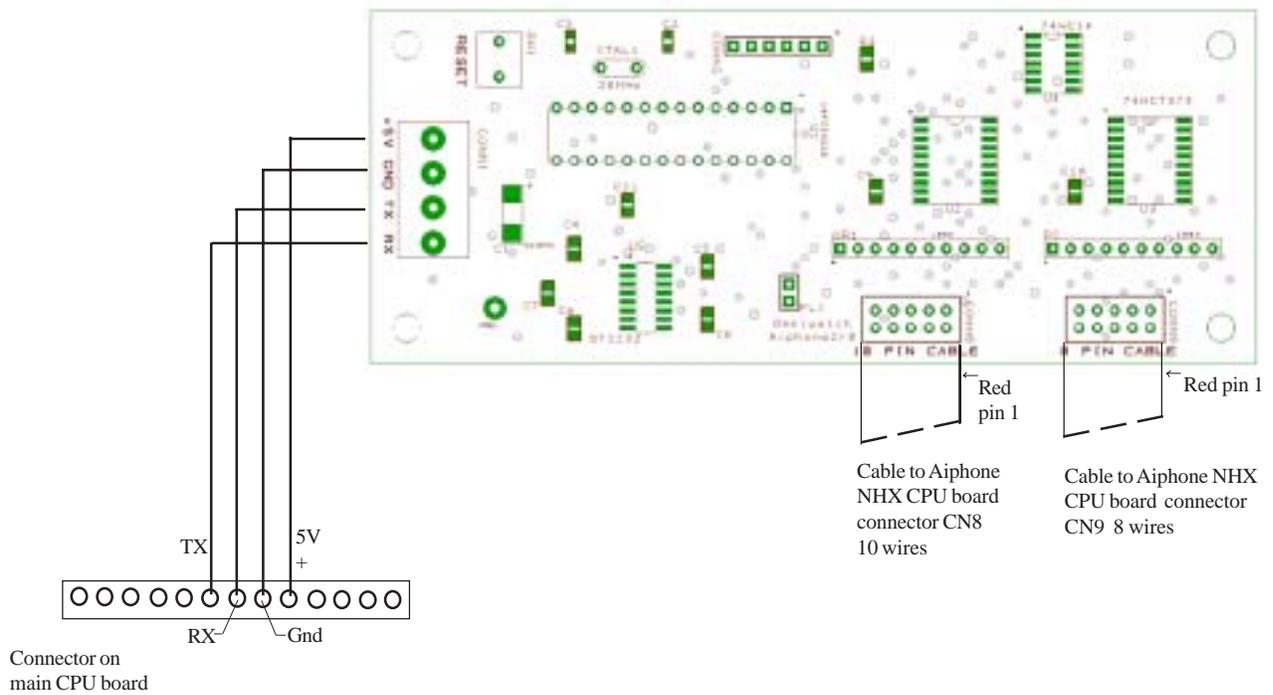


Aiphone NHX To Omniwatch Interface Board Version 1

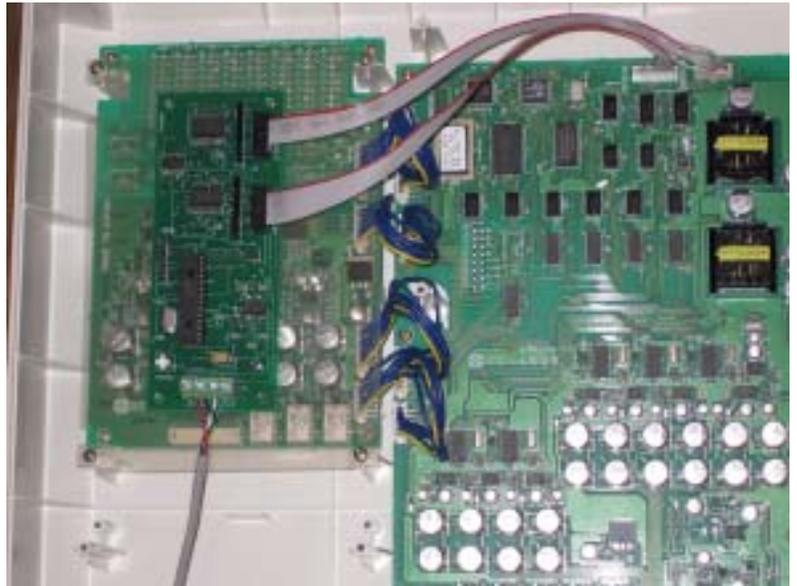


This interface board should be mounted inside the Aiphone NHX control unit. It can be mounted at the top as the connection to the Aiphone CPU is in the control unit cover and the connections to CN8 and CN9 are at the top.

Aiphone NHX To Omniwatch Interface Board Version 2

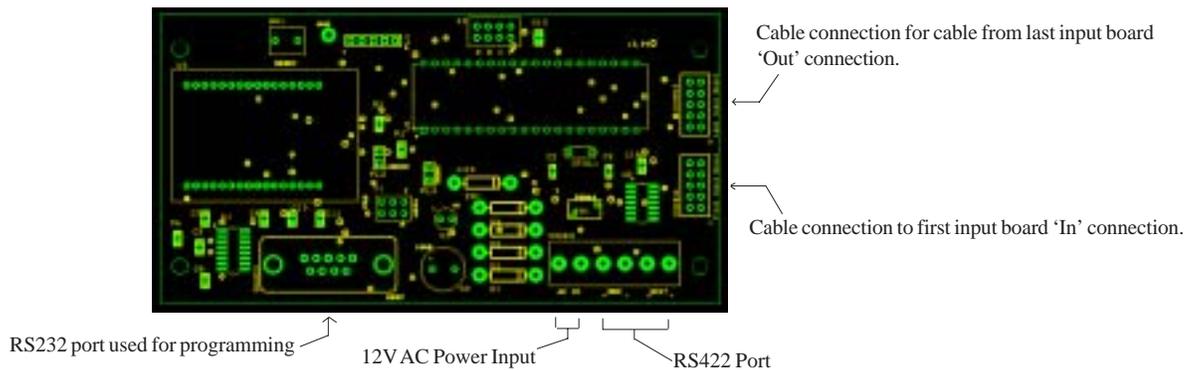


Omniwatch main board connection



The interface board shown mounted inside the NHX control unit. The board is mounted using double side tape.

Omniwatch 410 Main CPU Board



This board will read the 32 channel input boards and send this information out either the RS232 port or the RS422 port to a computer running the NCDISPLAY program. This program will display the call on the computer screen and record the call information. The program has a basic call reporting function and can also send an email or use a two way radio to speak the call information.

Programming:

The station number, RS422 baud rate and the output destination (RS232 or RS422) can be changed.

The default values are:

Station number - 1

RS422 baud rate - 9600

Output destination - RS232

To program connect a computer to the RS232 port using a terminal program such as the Omniwatch NCWTERM program and set the baud rate to 9600. Now press 'Control P' on the keyboard. You will see a menu with the following options:

- 1 - DISPLAY MENU - Redisplay the menu
- 2 - PROGRAM STATION NUMBER - enter the station number using 2 digits from 01 to 31
- 4 - CURRENT CALL STATUS - will display the current status of the input boards
- 7 - WARM START - press this number when finished to exit programming and restart the board
- 9 - PROGRAM RS422 BAUD RATE - you can set the baud rate to 9600, 2400 or 1200
- Q - PROGRAM THE OUTPUT DESTINATION - enter 2 for RS422 or 4 for RS232 this will have the call data sent out the selected port
- V - DISPLAY PROGRAMMABLE MEMORY VALUES - display what is currently programmed

When finished press '7' to exit programming mode.