

Owner's  
Manual

MC70

7 Channel Power Amplifier

MC50

5 Channel Power Amplifier

MC30

3 Channel Power Amplifier

MC20

2 Channel Power Amplifier



HALCRO Logic

[www.halcro.com](http://www.halcro.com)

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# Introduction

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Congratulations on purchasing the Halcro Logic MC20, MC30, MC50 or MC70 multi-channel power amplifier.

Born from a decade of high-performance two-channel Research and Development that produced the world's finest super-high-end amplification systems, comes home theater at the highest level.

Halcro Logic provides unprecedented levels of leading technology, resulting in reliability and Super-Definition performance.

Halcro Logic is used throughout the world by home theater connoisseurs with a genuine love and passion for home entertainment at its best.

Halcro has enjoyed creating perfect audio reproduction for the world's music connoisseurs.

Please enjoy the Halcro Logic audio experience.

If you wish to contact Halcro to give us feedback on your purchase or for general enquiries, please feel free to:

E-mail us at: [admin@halcro.com](mailto:admin@halcro.com)

or phone: +61 8 8238 0807.

Amplification for your home theater system must meet a stringent set of requirements. It must have a dynamic range to suit the most explosive action, the subtlest of tender moments and all that lies between. It must not distract with any intrusive distortion, and it must deliver all of this with pinpoint timing and accuracy.

Each Halcro Logic multi-channel amplifier is a powerhouse that responds precisely to each of these demands, utilizing LYRUS™ technology to ensure the maximum detail and impact is drawn from all soundtracks.

LYRUS™ amplification technology was developed by Bruce Candy, one of the world's leading commercial physicists and a passionate audiophile. LYRUS™ is the only genuine high-performance Class D amplification technology on the world market. It delivers very low levels of Total Harmonic Distortion (THD), the key feature of the Halcro range of monoblock and stereo amplifiers.



# Important Safety Information

## Symbols

The following symbols are used on this equipment:



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated 'hazardous voltage' that may be of sufficient magnitude to constitute a risk of electric shock to a person if exposed or contacted.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the following pages.



The 'CE' symbol indicates compliance of this device with the relevant directives of the European community including the EMC (Electromagnetic Compatibility) and LVD (Low Voltage Directive) standards.



Warning of electrical shock hazard. Do not open cover (or back). There are no user serviceable parts inside. Refer servicing to qualified service personnel.

## Electrical safety



**WARNING:** This product must always be connected to a mains socket outlet with a protective earth connection.

Only use a suitable approved mains cord complying with European individual country requirements in the CE Low Voltage Directive Scheme.



**DANGER:** Do not open the cover or back, or remove any panels, or try to modify or repair the MC20/30/50/70.

Opening the MC20/30/50/70 may expose you to dangerous voltages and will void the warranty.



**WARNING:** The Standby/On button does not disconnect the unit from the mains power.

To disconnect the unit from the mains, switch off the unit at the mains socket outlet and withdraw the mains plug from the socket outlet.

The unit should be installed in a position where the mains plug is easily accessible. Disconnect the unit from the mains if it is to be left unused for a long period.



*WARNING: No naked flame sources, such as lighted candles, should be placed on the unit.*

*If naked flame sources tip over they could result in a fire.*

## Protection from fluids

The Halcro Logic MC20/30/50/70 units are designed for indoor use only and are not protected against liquids. They must not be exposed to dripping or splashing and no objects filled with liquids, such as vases, should be placed on them.

If liquid is accidentally spilled on the device, immediately disconnect the unit from the mains. Allow sufficient time for complete evaporation before using the MC20/30/50/70 again. If the liquid is anything other than water, do not use the device before a qualified service technician has examined it.

Cleaning may be performed with a slightly damp cloth that has been wrung until nearly dry. Refer to the section on *Cleaning* on page 27.



*WARNING: To reduce the risk of fire or electric shock, do not expose this equipment to rain or moisture.*

*Do not allow liquids to enter the unit or contact electrical terminals.*

## Service warnings

All compartments are sealed at the factory. If the seals are broken, the warranty will be void and all service costs will be charged to the owner.



*DANGER: Contains no user serviceable parts. Do not attempt to open any of the MC20/30/50/70 compartments as this may expose you to dangerous voltages and will void the warranty.*

Requires F 10A L 250V fuse for continued protection against the risk of fire. Never bypass or use any other type of fuse. The fuse is located on the rear panel of the multi-channel power amplifier (13).



*WARNING: Always replace the fuse with the same type and rating as specified: F10AL250V.*



*Always disconnect the unit from the mains before touching the loudspeaker terminals or replacing the fuse.*



## Protection from overheating

The MC20/30/50/70 generates a certain amount of heat and requires ventilation. Slots and ventilation holes are provided for ventilation purposes, and to ensure reliable operation of the product. To prevent fire hazards, these openings must never be blocked or covered.

The MC20/30/50/70 may be stacked on top of a Halcro Logic SSP80/100 amplifier but overheating may result if ventilation is inadequate. Ensure there is at least 4 in (10 cm) above the uppermost unit for ventilation.

Follow the precautions listed below. If these precautions are not followed, overheating or failure may result. Overheating also shortens the working life of all components.

- do not block the ventilation holes in the top or bottom of the unit with any object, including paper, cloths or curtains
- do not place the unit on a soft surface such as a rug, or carpet with a thick pile, into which it could sink
- avoid placing the unit in a built-in installation place such as a bookcase or a rack unless you can provide proper ventilation
- do not operate the unit inside a cabinet unless it has adequate ventilation (such as an open back panel)
- allow at least 4 in (10 cm) on all sides of the unit (except the bottom)



*WARNING: Do not obstruct ventilation slots in the chassis.*



## Additional Important Safety Instructions for US

The following instructions should be followed by customers in the USA in addition to the safety instructions in the rest of this chapter:

- o Read these instructions.
- o Keep these instructions.
- o Heed all warnings.
- o Follow all instructions.
- o Do not use this apparatus near water.
- o Clean only with dry cloth or according to the cleaning instructions.
- o Do not block any ventilation openings.
- o Install in accordance with the manufacturer's instructions.
- o Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- o Do not defeat the safety purpose of the polarized or grounding-type plug.

A polarized plug has two blades, with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

Additional instructions continued:

- o Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- o Only use attachments/accessories specified by the manufacturer.
- o Unplug this apparatus during lightning storms or when unused for long periods of time.
- o Refer all servicing to qualified service personnel.

Servicing is required when the apparatus has been damaged in any way, such as if the power-supply cord or plug is damaged, liquid has been spilled, or objects have fallen into the apparatus, if the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

## Interference warning - US FCC Regulations

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- o Increase the separation between the equipment and receiver.
- o Connect the equipment into an outlet on a circuit different from that to which the amplifier is connected.
- o Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by Halcro could void the user's authority to operate the equipment.

## Wiring to the Loudspeaker Terminals to Class 2 Wiring (US Wiring Regulations)

This equipment has been classified as having a Class 2 loudspeaker output requiring wiring to connect the output terminals to class 2 according to the National Electrical Code. Consult a qualified installer or electrical contractor for further information.

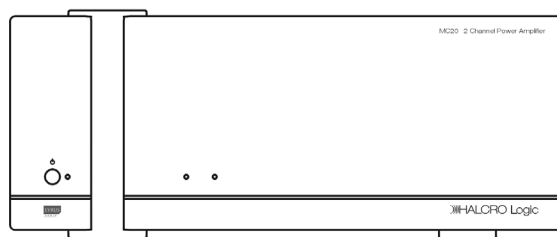


# MC20 Features

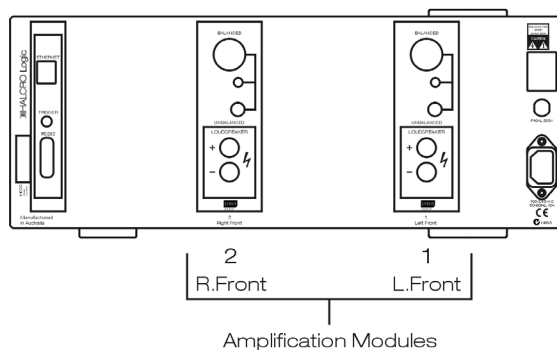
Features of the Halcro Logic MC20 include:

- 2-channel rack mountable or free standing multi-channel power amplifier
- 400 watts per channel
- unbalanced and balanced voltage inputs
- mains voltage: 100-240 V AC
- remote trigger switch between On and Standby
- full control via RS232 or ETHERNET connection
- Command Functions:
  - switch between On and Standby
  - ability to inhibit individual amplifier modules
  - amplifier module will indicate over-temperature condition
  - amplifier module will indicate over-current condition
  - Halcro Reliability Assurance Service (HRAS)

Front View



Rear View

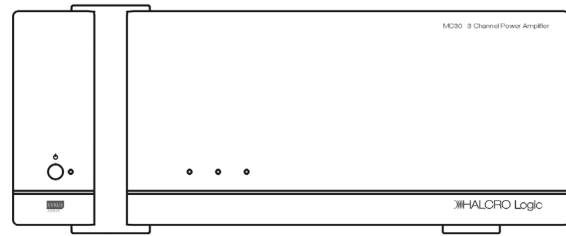


# MC30 Features

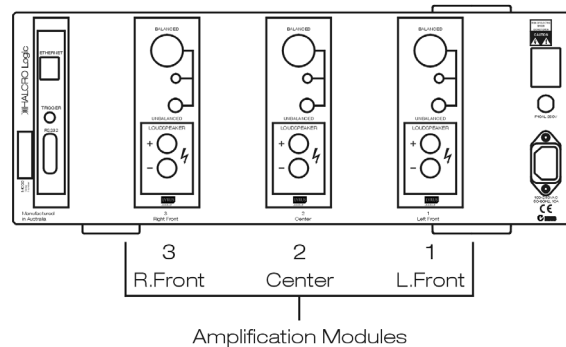
Features of the Halcro Logic MC30 include:

- 3-channel rack mountable or free standing multi-channel power amplifier
- 400 watts per channel
- unbalanced and balanced voltage inputs
- mains voltage: 100-240 V AC
- remote trigger switch between On and Standby
- full control via RS232 or ETHERNET connection
- Command Functions:
  - switch between On and Standby
  - ability to inhibit individual amplifier modules
  - amplifier module will indicate over-temperature condition
  - amplifier module will indicate over-current condition
  - Halcro Reliability Assurance Service (HRAS)

Front View



Rear View

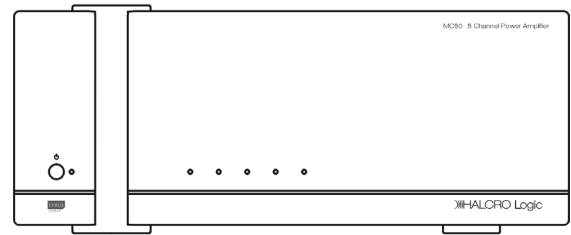


# MC50 Features

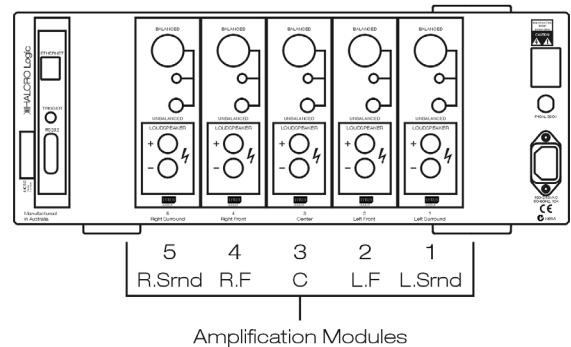
Features of the Halcro Logic MC50 include:

- 5-channel rack mountable or free standing multi-channel power amplifier
- 350 watts per channel
- unbalanced and balanced voltage inputs
- mains voltage: 100-240 V AC
- remote trigger switch between On and Standby
- full control via RS232 or ETHERNET connection
- Command Functions:
  - switch between On and Standby
  - ability to inhibit individual amplifier modules
  - amplifier module will indicate over-temperature condition
  - amplifier module will indicate over-current condition
  - Halcro Reliability Assurance Service (HRAS)

Front View



Rear View



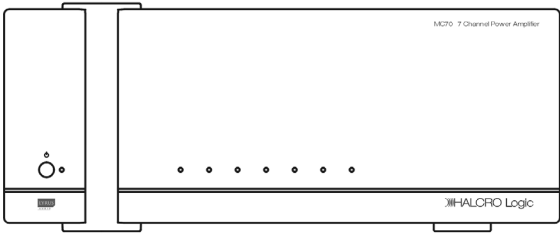


# MC70 Features

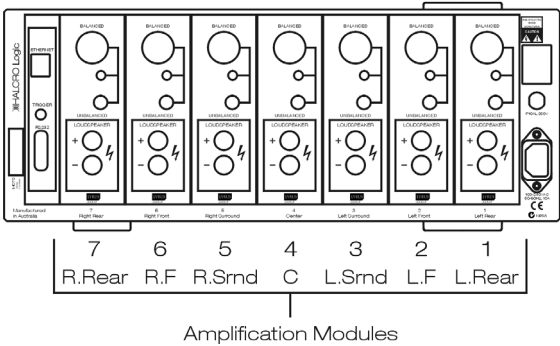
Features of the Halcro Logic MC70 include:

- 7-channel rack mountable or free standing multi-channel power amplifier
- 350 watts per channel
- unbalanced and balanced voltage inputs
- mains voltage: 100-240 V AC
- remote trigger switch between On and Standby
- full control via RS232 or ETHERNET connection
- Command Functions:
  - switch between On and Standby
  - ability to inhibit individual amplifier modules
  - amplifier module will indicate over-temperature condition
  - amplifier module will indicate over-current condition
  - Halcro Reliability Assurance Service (HRAS)

Front View



Rear View



# Installation

Ensure you have read the Important Safety Information on page 5, before installing your Halcro multi channel power amplifier.

If you require assistance in the unpacking and installation of your Halcro multi channel power amplifier, please contact your dealer.

## Unpacking

Unpack the unit carefully, noting that all components are present and undamaged.

Your carton should contain the following items:

- MC20, MC30, MC50 or MC70, as ordered
- mains supply cable (USA and EU)
- three feet (for stacking)
- Owner's Manual and Warranty Card
- CD containing HRAS software

## Storing packaging

The packaging is custom designed to prevent damage from occurring during transport. Store the packaging in a dry location.

## Positioning

We suggest that the Halcro multi channel power amplifier be positioned as near to your front loudspeakers as practical. The unit houses several heat sinks that are used to dissipate heat. The airflow to these should not be interrupted. Ensure there is at least four inches (ten centimeters) clearance around the vents.



*Do not connect to mains power until all the connections are made and checked.*

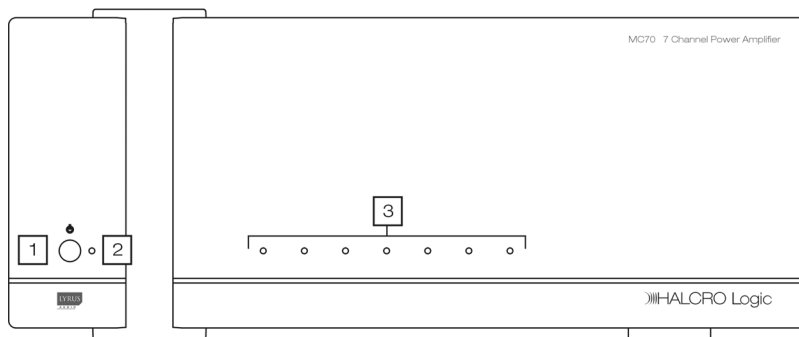


# Controls and Connections

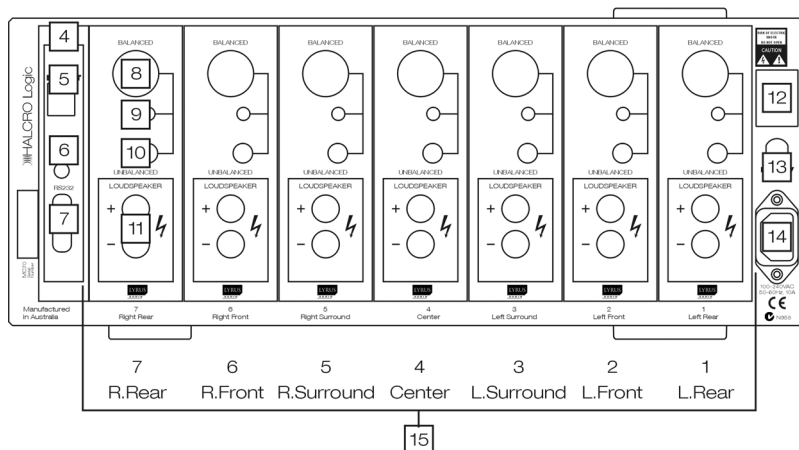
The numbers shown on the diagram below are used throughout the manual to refer to the individual controls and connections on the

front and rear panel. Refer to this page for a quick reference to all controls and connections.

## Front Panel Controls



## Rear Panel Connections



## Front panel

- 1 *Standby/On button*  
Switches the multi-channel power amplifier between Standby and ON.
- 2 *Power LED*  
LED indicating the unit is in Standby mode.
- 3 *Amplifier status indicators*  
LEDs indicating the status of the amplifier modules.
- 8 *Balanced voltage input*  
Connects to an audio source such as a CD player.
- 9 *Selector switch*  
Selects balanced or unbalanced voltage input.
- 10 *Unbalanced voltage input*  
Connects to an audio source such as a CD player.

## Rear panel

- 4 *Communications card*  
RS232, trigger and Ethernet connections to computers or home automation systems or control center.
- 5 *Ethernet connection*  
Connects to a PC.
- 6 *Trigger connection*  
Connects to a control center such as the Halcro Logic SSP80/100 to allow it to control the multi-channel power amplifier.
- 7 *RS232 connection*  
Interface for connection to a home automation system or computer network.
- 11 *Loudspeaker connections*  
Positive and negative loudspeaker connections (maximum of seven in the MC70).
- 12 *Master On/Off switch*
- 13 *Fuse*
- 14 *Mains inlet socket*
- 15 *Amplification modules*  
Connections to up to seven (in the MC70) amplification modules comprising audio input and loudspeaker connections

## MC20/30/50/70 inputs

Connect the audio source to the required input, and make sure the selector switch is in the correct position: up for balanced voltage input; down for unbalanced voltage input.

### Balanced voltage input:

High impedance: suitable for a standard preamplifier or CD player for example. XLR output.

Input impedance: 10 kohms + 10 kohms.

### Unbalanced voltage input:

High impedance: suitable for a standard preamplifier or CD player for example. RCA output.

Input impedance: 10 kohms.

## Connecting loudspeakers



*There may be voltages present at the loudspeaker terminals, which may present an electric shock hazard if touched. Always ensure the unit is switched to OFF or Standby mode when connecting or disconnecting loudspeakers.*

Each amplification module is numbered and named (15) for your convenience. To ensure peak performance, and share the load equally between the power supplies, we recommend you connect the speakers as designated by name. For example, connect the Left Front speaker cable to 'L.Front' on your MC20/30/50/70. (Refer to the diagram on following page.)

Each amplification module has two loudspeaker terminals (11):

- Positive + (red)
- Negative - (black)

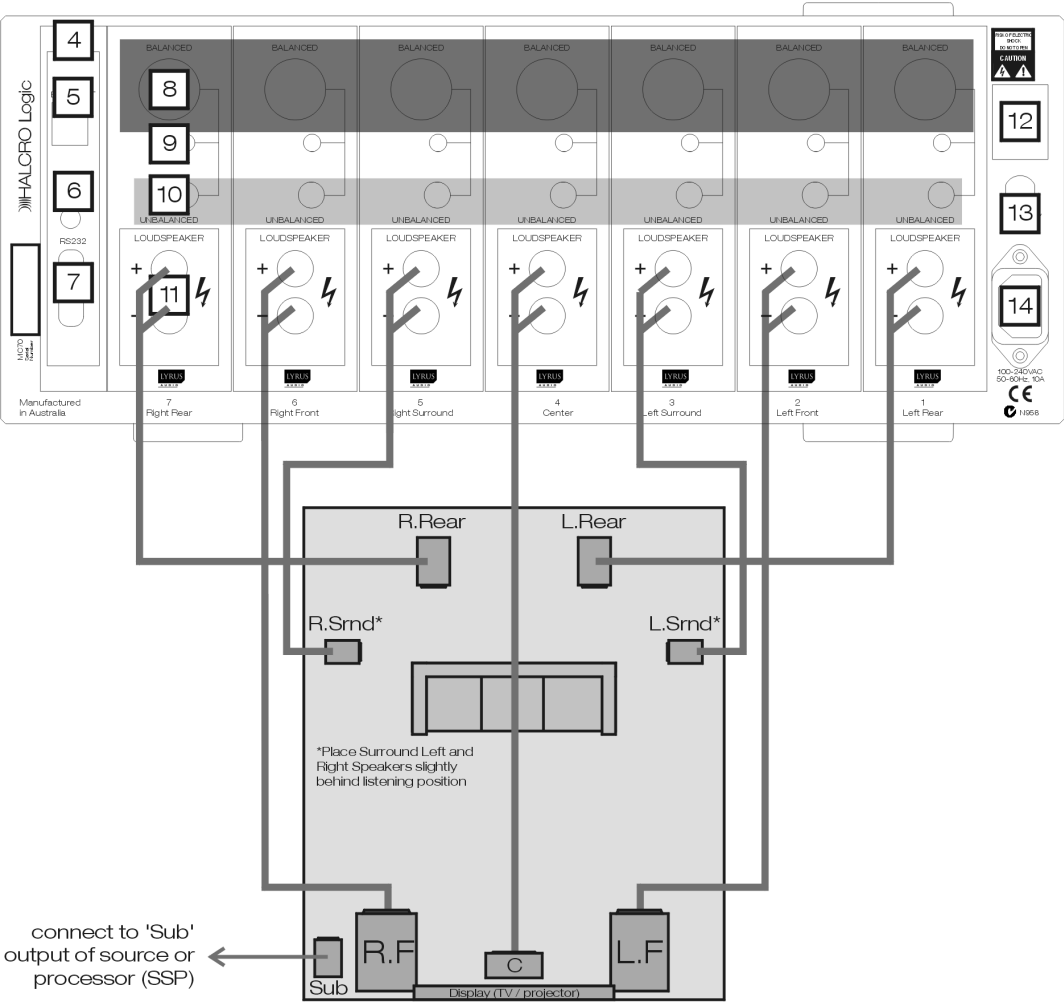
To connect the loudspeakers, connect the positive (red) terminal of the multi-channel power amplifier to the positive (red) terminal of the designated loudspeaker. This will ensure correct phasing of the audio signal. We recommend only one loudspeaker be connected to each amplifier module. Ensure the loudspeaker terminals are securely tightened, but do not over-tighten to the point of damaging the connection.

Use only loudspeaker cables with well-insulated terminals.

**DO NOT SHORT-CIRCUIT THE TERMINALS.**



# Connecting loudspeakers

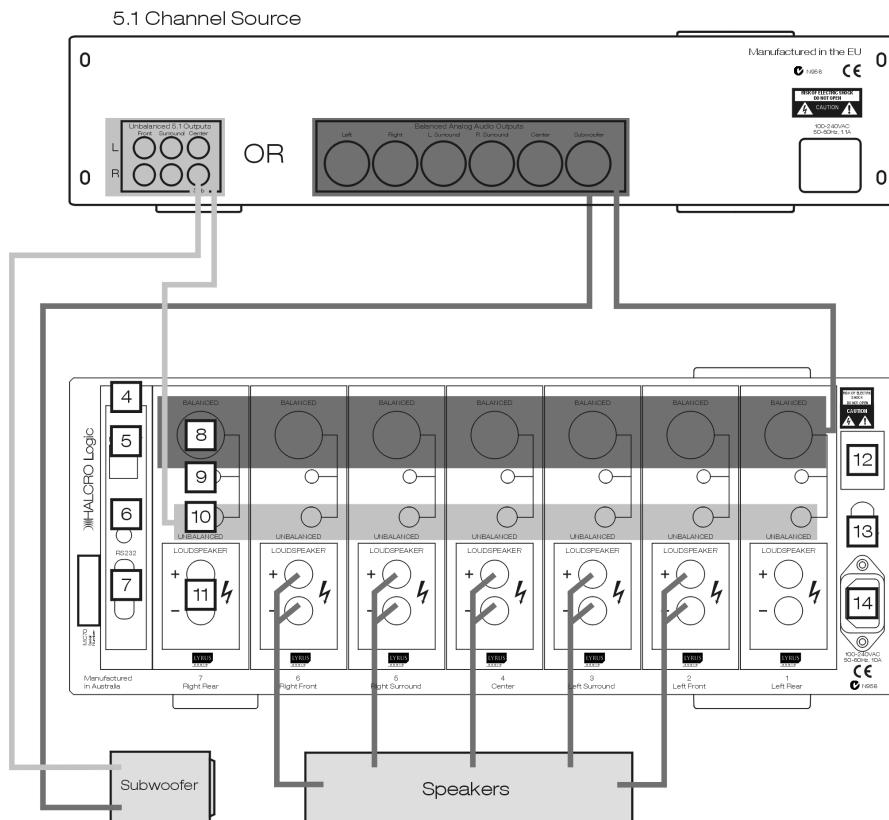


Plan View of Surround Sound Speaker Placement

## Connecting an audio source

Each amplifier module has two switch-selectable inputs with an associated input socket for connection to the audio source such as a CD player). The input sockets (8 and 10) and switch (9) are on the rear panel and the switch must be set to the required

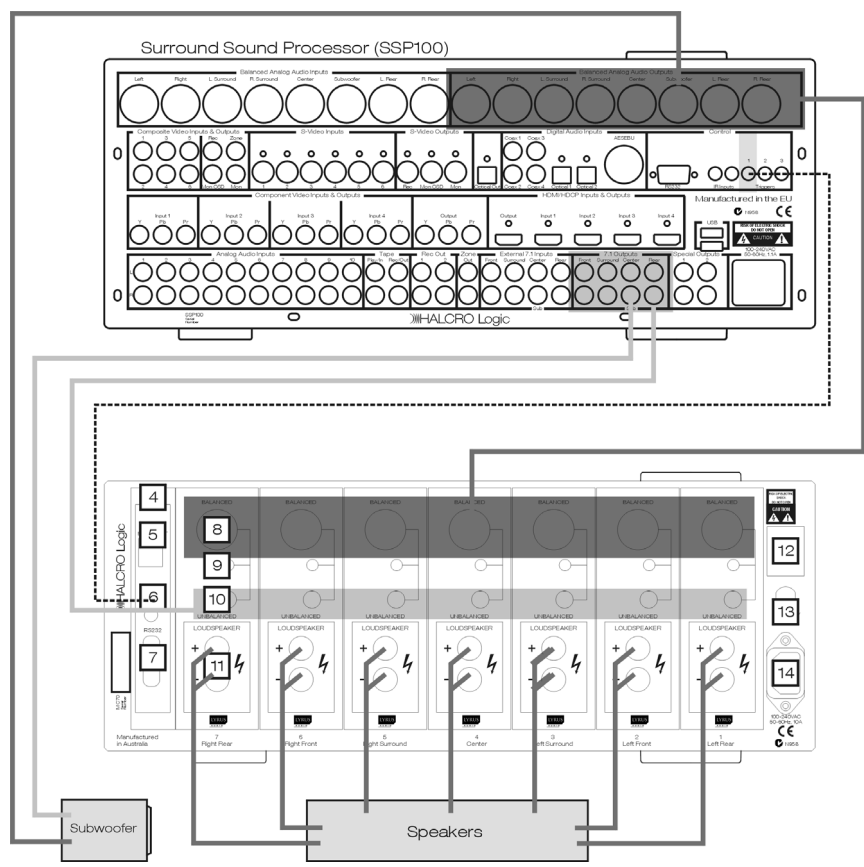
input. Make sure the speaker setup is consistent. For example, make sure the 'Right Front' speaker is connected to the 'Right Front' amplification module that in turn is connected to the 'Right Front' output of the source.



# Connecting a processor

Connect either the balanced (8) or unbalanced (10) inputs on the multi channel power amplifier to the processor, making sure the speaker setup is aligned. For example, connect module 7 (Right Rear) of the amplifier

to the corresponding 'R.Rear' output on the processor. Make sure you set the selector switch (9) on the rear panel to either balanced or unbalanced as per you connections.



## Connecting the trigger

Your MC20/30/50/70 can be turned on remotely from Standby mode if it is connected by trigger cable to a control center such as the Halcro Logic SSP80/100. To activate the remote On/Standby function:

- o Locate a suitable trigger cable. The recommended is a maximum length of three meters of shielded cable. Lengths longer than this and/or the use of unshielded cable may result in radio interference issues.
- o Connect the cable from the trigger input (6) on the multi-channel power amplifier to the trigger output on the control center (SSP).



*When connected by trigger cable, the MC20/30/50/70 cannot be switched to Standby by selecting the Standby/On button.*

If you require more information, please contact your dealer.

## Connecting to a PC

The MC series of multi-channel power amplifiers can be connected to a PC or Network. To connect to the PC/Network:

- o Locate a suitable Ethernet cable (cross-over cable required for direct PC to MC unit connections).
- o Connect the cable from the Ethernet input (7) on the multi-channel power amplifier to the computer's Ethernet adaptor.

## Connecting the mains supply cable

Connect the mains supply cable into the unit's socket (14), which is positioned, at the rear of the unit.

**Continue to read the following pages before connecting to the mains outlet.**

## Break-in period

The multi-channel power amplifier electronic break-in period is completed at the factory. A further break-in period is not required.



# Operation

*Numbers in this chapter refer to the controls and connections diagram on page 17.*

## Starting up

Once the external cables are connected to the units, ensure the Master On/Off switch (12) is in the Off position, and then operate the system as follows:

- o Plug the mains cable into a mains socket outlet.
- o Turn on the mains socket outlet switch.
- o Switch the Master On/Off switch on the rear panel, to ON (12).

After a brief initialization sequence, as displayed on the front panel LEDs, the power LED (2) will glow red, which indicates the unit is in Standby mode. In this mode a small current is drawn from the mains supply, but the unit cannot drive the loudspeakers.

- o Press the Standby/On mode button (1) once to switch between Standby and On modes.

In ON mode, the LEDs (3) on the front panel glow blue to show the unit is active. (When switching from Standby to On, some amplifier module LEDs may briefly flash red before operating a steady blue. This is normal operation.)

The multi-channel power amplifier is now ready to drive your loudspeakers.

*If the multi-channel power amplifier trigger (6) is connected to a control center such as the Halcro Logic SSP, it can be left in Standby mode since the control center will operate the amplifier when required.*

## Shutting down

It is safer to turn the mains power off when not using the multi channel power amplifier for extended periods. However the MC unit may be left in Standby mode for periods between active use. Select the Standby/On button to toggle between Standby and On.

To turn the unit off, switch the master On/Off switch (12), and then switch off and/or disconnect from the mains at the socket outlet.

The multi-channel power amplifier has a very short warm up period when turned on again.



*If the unit is connected via the trigger input (6) to a control center (SSP), the unit cannot be switched to Standby mode using the Standby/On button*





# Care and Maintenance

The multi channel power amplifiers have been designed for indoor use only. Under no circumstances should the amplifier be allowed to get wet. The only maintenance required is to ensure the unit is kept clean.

## Cleaning

Halcro takes no responsibility for any damage caused through careless or improper cleaning techniques.



***WARNING: Never use flammable products when cleaning the MC20/30/50/70 as this may damage the surface finish of the product.***

Please read the following procedures very carefully:

- o Before cleaning, disconnect the unit from the mains supply.

Use only extremely soft cloths.

- o Use a soft dry cloth to remove any dust.
- o Add 0.5 fl oz (15 ml) of very mild household dishwashing detergent to a one-gallon (four-liter) bucket of tepid water.

- o Immerse the soft cloth in the bucket of water and then wring the cloth out thoroughly until the cloth is nearly dry.

- o Use the slightly damp cloth to clean the unit surfaces.

Never clean any electrical fittings or terminals with the damp cloth.

- o After using the slightly damp cloth, wipe over the surfaces with a soft dry cloth.

- o Allow the amplifier to air for at least one hour before turning the power back on.

If you are unsure about the cleaning of the amplifier and require more information, please ask your dealer or contact Halcro at:

[service@halcro.com](mailto:service@halcro.com)



# Troubleshooting

Symptom	Remedy
NO sound and NO lights	<p>Ensure the master switch is On and the mains cable is plugged into the multi-channel power amplifier.</p> <p>Ensure the mains cable is plugged into a working wall socket. (Try testing the wall socket with another appliance.)</p> <p>Check the fuse.</p>
NO sound and a RED Light	Press the Standby / ON button to select ON.
NO sound and all lights are BLUE	<p>Ensure the input selector switch is set to the correct input.</p> <p>Ensure loudspeaker cables are correctly connected (both ends).</p> <p>Ensure the input cables are correctly connected (both ends).</p> <p>Try a different audio source.</p> <p>Try a different loudspeaker.</p>
NO sound or sound missing from one or more loudspeakers, the power light is BLUE and one or more amp lights FLASH RED	Amplifier module is too hot. Wait for it to cool and try again.
NO sound or sound missing from one or more loudspeakers, the power light is BLUE and one or more amp lights are RED	<p>Speaker terminals short-circuited.</p> <p>Major failure in amplifier module.</p>
NO sound or sound missing from one or more loudspeakers, the power light is BLUE, and one or more amp lights are OFF	Check, using HRAS, if any modules have been set to OFF (see page 40). If so, reset the modules to ON as required.



# Halcro Reliability Assurance Service (HRAS)

The Halcro Reliability Assurance Service (HRAS) is an optional feature that may be installed on a computer connected to your home entertainment network. If installed and running, HRAS monitors the performance of the system. It can be set up to alert your dealer, installer, or yourself by E-mail if any amplification module fails, without disruption to your listening pleasure. An event log can also be maintained by HRAS for troubleshooting purposes.

*HRAS is an optional feature, and the performance of the multi-channel power amplifier is not compromised if the service is not installed.*

HRAS can dramatically reduce the time taken to correct faults. The system runs in the background with no operator actions required.

## Installing HRAS Monitor software

To install and run HRAS, you must have a personal computer (PC) with:

- Microsoft Windows® 2000 or later
- CD ROM drive

*The person installing the HRAS software must have administrator rights on the PC.*

For automatic E-mailing of faults an Internet connection is required.

To install HRAS Monitor on your computer:

- o Insert the HRAS CD into your computer CD drive.

The installation program starts and runs automatically.

*If the installation does not start automatically, use Windows® Explorer to view the contents of the CD, then double-click the file Setup.exe.*

When prompted:

- o Click **Next** (twice), to continue the installation.

The default destination folder is shown as *C:\Program Files\Halcro\HRAS*, and we recommend you use this folder unless there is a valid reason to use a different name and path.

- o Click **Next** to accept the destination folder and continue.
- o Click **Install** to install the software.

The installation process takes only a few moments, at the end of which a shortcut icon is placed on the Desktop for easy start up:



When the installation is complete an *Install Shield Wizard* window is displayed, confirming the installation has been successful.

To launch the application:

- o Ensure the *Launch the Program* checkbox is ticked.
- o Click **Finished**.

## Launching HRAS Monitor

To launch the application at times other than during installation:

- o Double-click the shortcut icon on the Desktop.

Note that for users of Windows® XP with Service Pack 2, the following warning message may appear the first time the application is launched:



This is a normal warning that appears when you try to install any program that wishes to use the communication ports.

- o Click **Unblock** to start the application if this warning is displayed.

A welcome screen appears for a few moments, and then an icon appears on the Windows taskbar to indicate the HRAS Monitor is active:



*The HRAS Monitor application runs in the background, with no operator actions required.*

If the computer is connected to the Internet, and an event such as a fault occurs, the fault is logged, and E-mails are automatically sent to the recipients listed on the HRAS Monitor *E-mail notification* page (see page 35). If the computer is not connected to the Internet, the event is logged.

## Setting up HRAS Monitor

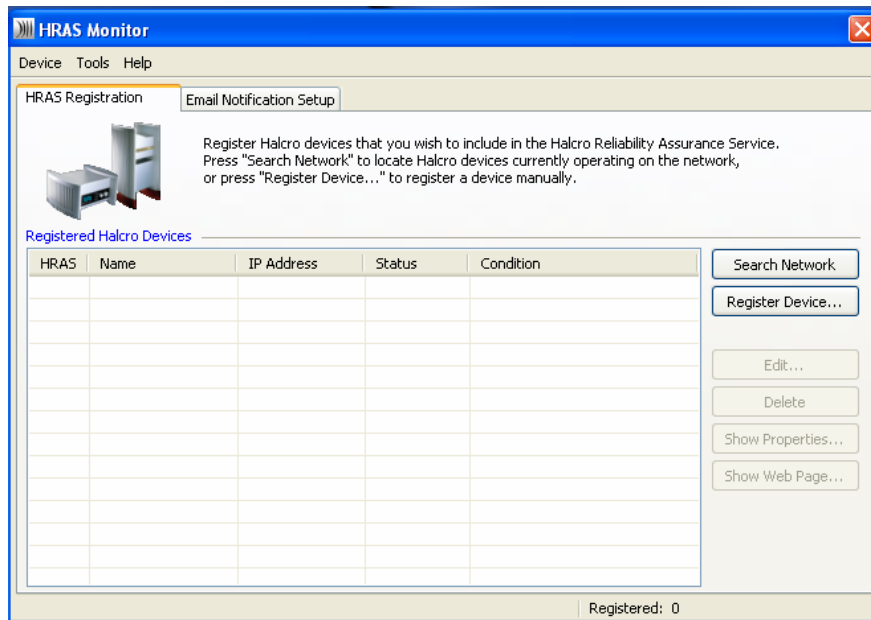
To view the *HRAS Monitor* window and set up the system:

- o Double-click the icon in the taskbar, OR:
- o Right-click the icon and select *Open* from the menu.



The *HRAS Monitor* window is displayed. It has two pages: one to register devices, and the other to set E-mail options. A menu bar at the top offers further functions, including Help in using the software.

*The **Edit/Delete/Show Properties** and **Show Web Page** buttons shown in the illustration only become available after a device is registered and selected in the Halcro Devices list.*



## Registering devices

Devices must be registered with HRAS Monitor before they can be monitored. Currently, the only devices monitored by HRAS are the MC series of multi-channel power amplifiers.

It is possible to register devices manually (see page 35), but it is generally easier and quicker to allow the software to do this automatically.

To allow HRAS Monitor to find and register devices:

- o Make sure HRAS Monitor is running and the *HRAS Registration* page is displayed.
- o Make sure your multi-channel power amplifier is turned on and connected to the network (as described previously).
- o On the *HRAS Registration* page, click the **Search Network** button.

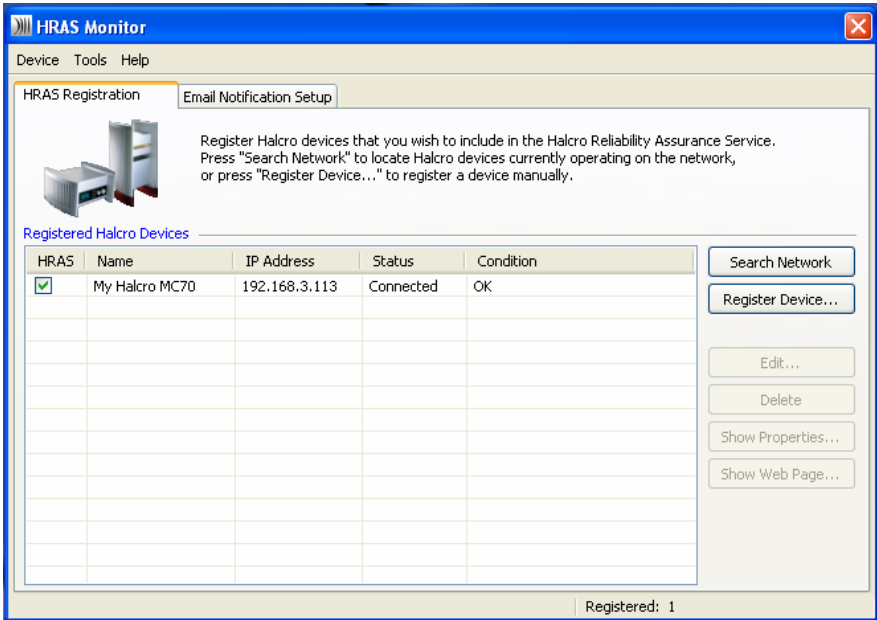


The software begins a search for devices connected to the network and displays the results. The name, IP address and status information should appear automatically.

- o Make sure the checkbox in the HRAS column is checked (click in the box if not) if you want the device to be monitored.

*You can still register a device even if it is not to be monitored by HRAS.*

When a device is registered and selected, buttons become available on the right of the window for editing, deleting or showing properties of the device. These functions are also available from the *Device* menu, and are described on page 39.



## Manually registering a device

To register a device manually instead of allowing the HRAS Monitor to search for connected components:

- o Click **Register Device...** on the *HRAS Registration* page.

The *Register Device* dialog is displayed.

Enter a device name and its IP address in the boxes, and ensure the check box is ticked if you want the device to be monitored.

- o Click **Register** to register the device and return to the *HRAS Registration* page.

The device should now appear on the list.



## Setting up E-mail notification

HRAS Monitor can send E-mails to up to three recipients if problems occur with your system.

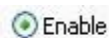
To setup the E-mail addresses:

- o Click the *E-mail Notification Setup* tab on the *HRAS Monitor* window.

The *E-mail Notification Setup* page is displayed:

The top section of this page determines whether E-mail notification is enabled or disabled.

- o To enable E-mail notification, make sure **Enable** is checked, as shown:



**HRAS Monitor**

Device Tools Help

HRAS Registration Email Notification Setup

**E-mail Notification**

Choose whether the e-mail notification function is to be enabled or not.

☒ Enable ☐ Disable Select Events...

**E-mail Server**

Enter the IP address of your Internet Service Provider (ISP) or the SMTP server that is to be used for sending e-mail.

IP Address:  Port:

The SMTP server of your ISP may require your account username and e-mail address before it will forward any e-mail.

Your Username:

Your E-mail Address:

**Destination Addresses**

Enter e-mail addresses of recipients of notification messages.

E-mail 1:  Advanced...

E-mail 2:

E-mail 3:  Send Test E-mail

Registered: 1

To setup which events should trigger an E-mail (normally failure of an output channel only).

- o Click **Select Events**.
- o Select the checkbox for desired settings and click **OK** or simply click **OK** to accept the default.

The E-mail Server section of the *E-mail Notification* page sets up your Internet connection details.

- o Enter the IP address of your Internet Service Provider (ISP) (contact your Internet Service Provider if you are not sure of the address).
- o Enter "25" at the **Port** of SMTP server field.
- o Enter the username you use for your E-mail program to log on to your ISP.
- o Enter your full E-mail address.

The bottom section of this page allows you to enter up to three E-mail addresses. If a problem occurs with your system, these E-mail recipients will receive notification of the problem. Typically the major recipient would be the Halcro service department, but you may wish to send an E-mail to the installer, your Halcro dealer, or even your own E-mail address.

- o Enter at least one E-mail address.

## Customizing settings

If you wish, you can customize the E-mail settings, as follows:

- o Click the **Advanced...** button to view the *Advanced E-mail Settings* dialog.
- o At the top, check the box and insert your name and telephone details if you want them included in the E-mail.
- o In the bottom section, check the box and insert the installer's details if you want them included in the E-mail.
- o Click **OK** to save the changes, or **Cancel** to lose them.

The *E-mail Notification* page is displayed again.

If you wish, you can send a test E-mail to the recipient(s) listed at the bottom of this screen. To do this:

- o Click **Send Test E-mail**.

We recommend you telephone the recipient(s) to confirm they have received the test E-mail, which will confirm the E-mail setup is correct. Note: Some Internet service providers may block the 'alert' E-mails sent by HRAS.

**Advanced E-mail Settings**

**Customer's Contact Details**

☒ Include customer's contact details in the e-mail notifications

Customer's Name: Mr. George Bright

Preferred Method of Contact: ☐ E-Mail ☒ Telephone

Telephone Number: 8368-8888

**Installer's Details**

☒ Include installer's details in the e-mail notifications

Installer's Name: Mr. Andrew Smith

Installation Date (dd/mm/yy): 13 / 1 / 05

OK Cancel

## Setting HRAS options

To check or change the HRAS setup options:

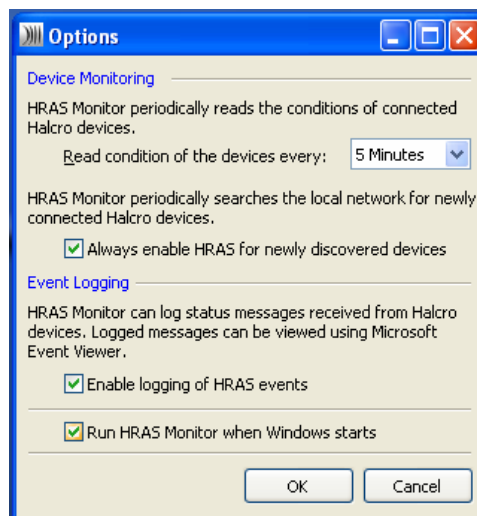
- o Select **Options** from the *Tools* menu.

The *Options* dialog is displayed.

- o If a period other than the default is required, select it from the pull-down list.
- o Make sure “Always enable HRAS for newly discovered devices” is checked, to ensure any new devices are added automatically.
- o Make sure “Enable logging of HRAS events” is checked, to ensure events are logged to aid in troubleshooting.

*The oldest events in the log are automatically deleted when the events log has reached its set maximum capacity.*

- o Make sure “Run HRAS Monitor when Windows starts” is checked, to ensure your system is monitored whenever the computer is turned on.
- o Click **OK** to save the changes, or **Cancel** to lose them.



## Modifying device properties

To view or monitor a device's properties:

- o On the *HRAS Registration* page, highlight the device concerned.
- o Click **Edit** (or select *Edit* from the *Device* menu).

The *Edit* dialog is displayed.

- o View or change the details as required.
- o Click **OK** to save the changes or **Cancel** to lose them.

More details can be viewed by clicking on **Show Web Page**.

## Viewing or changing device properties

To view or change the properties of a registered device:

- o On the *HRAS Registration* page, highlight the device concerned.
- o Click the **Show Properties...** button (or select from the *Device* menu).

The *Properties* window is displayed. This window has two pages: *General* and *Configuration*.



*General*

This page indicates the model and serial number of the device highlighted on the *HRAS Registration* window, and shows the mode and status (on or off) of each of the channels.

In the bottom section the amplifier channel numbers or PS (power supply) are shown in red if there is a fault in the respective channel or power supply unit.

- o Click a button in this section to view more information of the condition of the channel or power supply unit.

*Configuration*

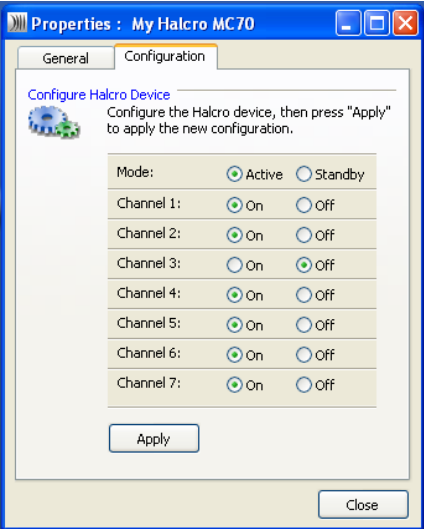
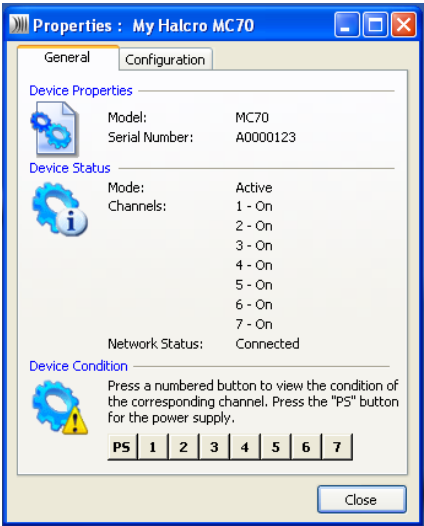
This page can be used to turn individual amplifier channels on or off. The default is for all channels to be turned on. To turn one or more channels off:

- o Click the **Off** button for the channel(s) you want to turn off.

The **Apply** button becomes active when you make a change.

- o Click **Apply** to apply the change to the device.
- o Click **Close** to close and return to the *HRAS Registration* page.

Clicking **Close** without clicking **Apply** first will lose the changes.



## Viewing the events log

The events log keeps a record of events pertaining to the system monitored by the HRAS application. It is a normal Windows® function.

To view the events log:

- o View the *HRAS Monitor* window by double-clicking the HRAS icon on the Taskbar.
- o Select *Event Viewer* from the *Tools* menu.

The *Event Viewer* window is displayed.

- o Click *Application*.

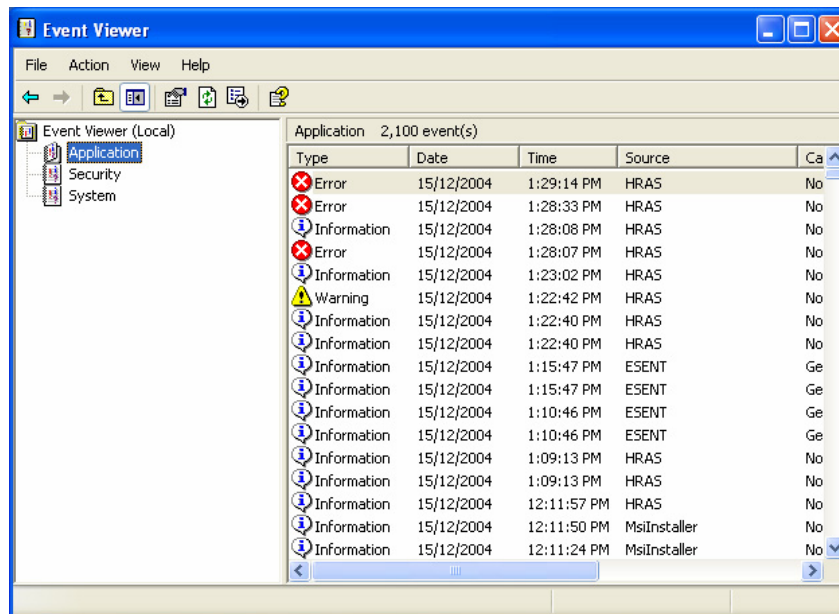
To view the HRAS events:

- o Click *Source* to sort the list by application name.
- o Scroll through the list to the HRAS application events.

To view further information on an event:

- o Double-click on the event.

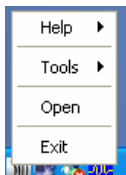
The *Event Properties* dialog is displayed.





## Shutting down HRAS Monitor

To exit the HRAS Monitor program, right click the HRAS application icon in the Windows® Taskbar, and then select *Exit* from the menu.



Note that closing the HRAS Monitor window does not shut down the application. If the icon is present on the Toolbar, the HRAS Monitor is still running.

## Uninstalling HRAS Monitor

If you need to uninstall HRAS Monitor for any reason, proceed as follows:

- o Shut down the HRAS Monitor if it is running (refer to previous section).
- o Click the Windows® **Start** button.
- o Select *Settings / Control Panel / Add or Remove Programs*.

A list of installed programs is displayed.

To remove the application:

- o Scroll through the list to find and select *HRAS Monitor*.
- o Click **Remove**.
- o Click **Yes** on the warning dialog to confirm you do wish to uninstall the program.
- o Close the window.



*As with any other software, do not try to uninstall the program by just deleting it.*

*It is important to remove it as described above, or your computer's operating system could become unstable.*

# Communications

The Halcro MC series have can be controlled and monitored via a personal computer (PC). A serial and an Ethernet port are available for this purpose.

Each port has two modes of operation: plain ASCII and pseudo-binary. In ASCII mode commands and messages are sent as plain text. In pseudo-binary mode commands and messages are encoded.

## Setting the IP address

The IP address can be manually setup or automatically assigned by a DHCP server on the network, depending on the DHCP state of the amplifier.

If DCHP is set to 'never' an IP address and netmask must be assigned via the serial port.

If DHCP is set to 'auto' and an IP address has been assigned manually; you must reset the IP address to 0.0.0.0 then the DHCP sever will assign a new address at next start up.

If DHCP is set to 'always' a new IP address will be obtained at start up.

If an IP address is set by DHCP the easiest way to determine the number is to use the Halcro HRAS software. This will communicate with any Halcro equipment on the network via UDP and report the IP addresses found. For more information on HRAS software please see page 31.

## Ethernet communications

The multi-channel amplifiers can be connected to an Ethernet network. There are three modes of communication which operate on different ports:

- port 60001 is Pseudo-binary on TCP/IP
- port 60002 is ASCII on TCP/IP
- port 60003 is UDP/IP

HyperTerminal can be used to communicate with a multi-channel power amplifier.

The commands are the same as for the serial communications.

## Serial communications

Almost any terminal program can be used on a PC to communicate with a multi-channel power amplifier. Windows provides a tool called HyperTerminal, which can be used for this purpose.

The settings for serial communications are:

Speed:	38400 bps
Data bits:	8
Parity:	None
Stop bits:	1
Flow control:	Hardware

When first connected to the amplifier via the serial port, communications are in pseudo-binary mode.

The commands are as follows:

- \*m=xx      set amplifier enable  
              bitmask to hex value
- \*m?        print current amplifier  
              enable mask in hex
- \*p0        power off (standby)
- \*p1        power on
- \*s?        status query
- LF LF LF    exit to ASCII mode

- Axxxxxxx    indicates which amplifier  
              modules are active, 0 = not  
              active, 1 = active
- Txxxxxxx    indicates the temperature  
              status amplifier modules, 1  
              = OK, 0 = Over  
              temperature
- Cxxxxxxx    indicates the load status of  
              amplifier modules, 1 = OK, 0  
              = Over current
- Dxxxxxxx    indicates the operational  
              status of the amplifier  
              modules, 1 = OK, 0 = Faulty
- Fxxxxxxx    indicates the operational  
              status of the fans, 1 = OK 0  
              = Faulty
- Hxxxxxxx    indicates the time in  
              minutes the amplifier has  
              been in power On mode.  
              This does not include time  
              spent in standby.

The status message is in the form:

\*S!:M0xRxxxxxxxPxVxxxxAxxxxxxxTxxxxx  
xxCxxxxxxxDxxxxxxxFxxxxxxxHxxxxxxx

where:

- \*S!:        indicates a message sent  
              from the amplifier as a  
              result of an error.
- \*S?:        Indicates a message sent  
              as a response to a request  
              for status query.
- M0x        indicates model number,  
              M01 = MC20, M02 =  
              MC30, M03 = MC50 and  
              M04 = MC70.
- Rxxxxxxx    indicates serial number of  
              amplifier
- Px        indicates power status, 1 =  
              On, 0 = Standby
- Vxxxx        indicates the status of the  
              power supplies in the order  
              -5V, +12V, +72Va, +72Vb.  
              0= off, 1 = on

To enter ASCII mode press return three times to send three line feeds. Once in ASCII mode you cannot return to pseudo-binary mode without disconnecting and reconnecting. The ASCII commands are as follows:

help	print list of commands
version	print firmware version information
status	print status information
on	enter full-power mode
standby	enter standby mode
off	enter standby mode
serial	print amplifier serial number
model	print amplifier model
hours	print total hours run
enable	print current amplifier enable mask in hex
enable xx	set amplifier enable bitmask to hex value
set	print settings
set ethernet <addr>	print or set IP address

set ip <addr>	print or set IP address
set netmask <addr>	print or set netmask
set broadcast <addr>	print or set broadcast address
set gateway <addr>	print or set gateway
set dhcp <state>	print or enable/disable DHCP
net	show active settings
net reload	apply new settings
exit	disconnect

Valid states for DHCP are: always, never auto.

Once a change to the network settings has been made, such IP address or DHCP state, the command 'net reload' must be issued for these changes to take effect.



# Service and Warranty Information

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## Overview

All Halcro products are designed and built to world-class standards of quality, reliability, and performance. Since so much care has gone into our products, we are able to offer a strong warranty that protects your investment in Halcro products for years to come. It is our expressed desire that your Halcro products work flawlessly and that you enjoy music, movies, and audio/video entertainment without interruption or compromise to performance.

It is the goal of Halcro Customer Service to provide efficient and timely service to Halcro owners and to our dealers. In the event of a technical problem or failure, we will work with you and your authorized Halcro dealer to minimize down time and provide expedient service to remedy the situation. We suggest that your Halcro dealer be the first point of contact should you experience any problems. Solutions are often simple and can be handled in the field.

Please do not attempt to open up sealed compartments on any Halcro products.

## Product warranty

Halcro warrants the MC20, MC30, MC50 and MC70 multi-channel power amplifiers to be free from defects in materials and workmanship for a period of three years from the original date of purchase. During the warranty period, Halcro will remedy all such defects without charge for parts or labor.

## Exclusions to the warranty

This warranty does not extend to damage resulting from improper installation or setup, misuse, neglect, or abuse. Changes in the appearance of the product resulting from normal wear and tear, moisture, or atmospheric conditions are not warranted. The warranty shall be void and of no effect if any of the following occur:

- the defect has resulted from improper, unreasonable, or negligent use
- the defect is a result of accident, tampering, alteration, or modification
- the defect is a result of improper installation or setup by a third party
- the unit's serial number has been removed, altered, or made illegible
- Halcro is not liable for incidental or consequential damage of any kind
- Halcro does not warrant system design or installation

## Transferability

Transferability means that the warranty stays with the product from the date of original purchase through the full warranty period, regardless of who owns the product.

The Halcro warranty is transferable, providing that the original sales receipt or proof of purchase is supplied to both subsequent owners and to Halcro when ownership changes.

## Warranty verification

It is the owner's responsibility to show proof of purchase verifying that the unit to be serviced is within the warranty period. Proof of purchase options include:

- copy of sales receipt showing name of original owner, dealer, and purchase date
- copy of credit card voucher or cancelled check accompanied by owner's record of purchase date and serial number

## Warranty registration

While not required for service, we request that you register your Halcro product as soon as you purchase it. Please use the Halcro Product Warranty Registration form that is provided or request a copy from your Halcro dealer.

## If service is required

We suggest that you work with your authorized Halcro dealer when the need for technical service, training, or applications advice arises. If your Halcro product requires service or repair, your product should be shipped to Halcro or your authorized Halcro dealer to be returned to the factory for service. To qualify for free warranty service, the following conditions must be met:

- the unit must be returned to Halcro or its authorized repair center in the original packing materials

This will ensure the safety of the equipment. If you have misplaced or damaged the original packaging, you can purchase new packaging through your dealer or directly from Halcro.

- the unit must be accompanied by a copy of the Halcro Product Warranty Registration card and the original sales receipt
- shipments to Halcro must include a Return Authorization number

To obtain this authorization, please ask your dealer or email Halcro directly (see contact information below).

- Halcro cannot be responsible for any damage caused to your equipment during shipping due to improper packaging

If the packaging material needs to be replaced on its arrival at the factory, the owner will be informed of the replacement cost.

## Transportation of products

Halcro pays freight one-way to return product once warranty repair is completed. Halcro requests prepaid shipment to the factory or to a designated repair center or service agency. We are not equipped to accept freight collect shipments.

Halcro is not liable for freight, courier, or other charges incurred in transporting a unit to and from a dealership, service center, or the factory unless written approval and instructions are issued in advance. Such documents must include the Halcro Return Authorization number, a detailed description of the situation, and signature of authorized Halcro representative.

## Freight damage claims

If a unit being returned to Halcro is damaged in shipment, Halcro will contact the carrier for inspection. The carrier will contact the shipper regarding the claim. Halcro is not liable for damage or delays caused in shipment to or from Halcro facilities.

## If you have moved

In the event that you have changed locations since your original Halcro purchase, we will happily direct you to your nearest authorized Halcro dealer upon request.

## Thank you for choosing Halcro!

We trust you will enjoy the performance of your Halcro equipment long past the warranty period. Thank you for choosing Halcro!





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