# S4.3

## MULTI-ROOM SYSTEM

Systemline

Installation Manual

This symbol is to alert the user of the presence of dangerous voltages inside the enclosure of the S4.3 Controller. To reduce the risk of electric shock do not remove any parts of the S4.3 Controller.

This symbol is to alert the user of important operating instructions in the owner's information accompanying the S4.3 Controller.

Safety

***Read all the instructions before connecting or operating the S4.3 Controller. Pay particular attention to the safety information. Keep this manual so you can refer to these safety instructions.***

***WARNING: There are no user serviceable parts inside. Refer all servicing to qualified service personnel.***

***WARNING: To reduce the risk of fire or electric shock, do not expose the S4.3 Controller to moisture or water. Do not allow foreign objects to get into the enclosure. If the unit is exposed to moisture, or a foreign object gets into the enclosure, immediately disconnect the power cord from the wall. Take the unit to a qualified service person for inspection and necessary repairs.***

Clean the S4.3 Controller only with a dry cloth or a vacuum cleaner.

Place the S4.3 Controller on a fixed, level surface strong enough to support its weight. Keep the S4.3 Controller away from radiators, heat registers, stoves, or any other appliance that produces heat.

If the S4.3 Controller is placed in an enclosure, there must be sufficient ventilation of the enclosure to allow proper cooling.

Connect the S4.3 Controller to the power outlet only with the supplied 3-pin grounded power supply cable or an exact equivalent. The cable should be connected to a properly grounded 3-pin wall outlet. Do not modify the supplied cable in any way. Do not use extension cords.

Do not route the power cord where it will be crushed, pinched, bent at severe angles, exposed to heat, or damaged in any way. If the cable shows any sign of wear or damage, immediately stop using it and obtain a proper replacement from a qualified service agency or from the Systemline service department.

If the S4.3 Controller shows signs of improper operation, or if it has been dropped or damaged in any way, immediately disconnect the power cord from the wall. Take the S4.3 Controller to a qualified service person for inspection and necessary repairs.

GUARANTEE

All products are covered by a 2 year Return to Base guarantee for parts and labour. Site visits are not covered by this guarantee and will normally result in a call out charge if such a visit is requested or deemed necessary.

Although we have endeavoured to make this manual as comprehensive as possible, it does not cover every aspect of every possible system installation. Please feel free to call our Technical Service Department if you have any questions.

## 1.1 Basic Architecture

The Systemline S4.3 Controller Multi-Room Control System distributes audio signals from a single set of source components to as many as four separately controlled remote zones or listening areas. The centrally located S4.3 Controller contains source selection, microprocessor controlled communications circuitry and independent preamplifier/power amplifier sections for all zones. Each zone has a pre-amp output which can be configured as either fixed or variable output. A number of equipment source codes are held within the controller enabling instant compatibility with the most popular component brands.

## 1.2 Controlling the Remote Zones

Users can select either of two ways to control remote zone operation. The first is the RHS hand-held remote. This generates infra-red (IR) control pulses read by the wall-mounted DMS module. The DMS module then transmits commands to the S4.3 Controller through hard-wired connections.

The second method uses the optional wall-mounted KMS keypad to transmit commands directly to the S4.3 Controller. The KMS is also hard-wired to the S4.3 Controller.

Users can select a combination of sensor and keypad operation for any zone. The system accepts inputs from up to two DMS modules and three keypads (for a total of five input devices) per zone.

## 1.3 System Flexibility

The Systemline S4.3 Controller Multi-Room Control System is exceptionally flexible. In addition to the S4.3 Controller, a simple two-zone system might include just one RHS hand held controller/DMS combination for one zone and one KMS keypad in the second.

Additionally, any zone can drive two pairs of speakers via the use of an optional 'Zone Splitter'. This enables two pairs of speakers to be switched remotely using the DMS display module.

In a more elaborate form, multiple controllers can be used to form large multi-zone systems with control from many locations using remote handsets and keypads.

## 1.4 System Highlights for Installers

1) For keypad or handset operation - no time consuming programming is required, Up to three Keypads and three DMS modules can be connected to any one zone simply by daisy chaining one to the other.

2) All DMS modules and keypads are interchangeable between zones for easy installation. Simply set the DIP switch on the DMS module to the zone address.

3) Built in equipment codes for RC-5, SONY, PIONEER, YAMAHA, DENON, PACE, NOKIA, PANASONIC, ROTEL, ONKYO, TECHNICS, NAD, LUXMAN, GALAXY, JERROLD and TOSHIBA components. These are normally set up in a matter of seconds with the remote handset, although some options may require initial resetting of switch SW1 on the Translator Card within the S4.3 Controller. It is also possible to use two CD players or tuners with a controller providing in each case that they are from different manufacturers.

4) A Single-button operation for each source selection and activation of Play command.

5) The S4.3 Controller features an enhanced a.c. control link. This enables the a.c. mains outlets to be controlled from any zone on any controller. In addition, an external trigger can be used to activate all controller a.c. outlets without the need to activate a zone.

6) All zones can be put into standby from any zone on any controller in multiple controller installations.

7) A built-in Paging input allows zones to receive PA announcements or to Mute when the doorbell rings!

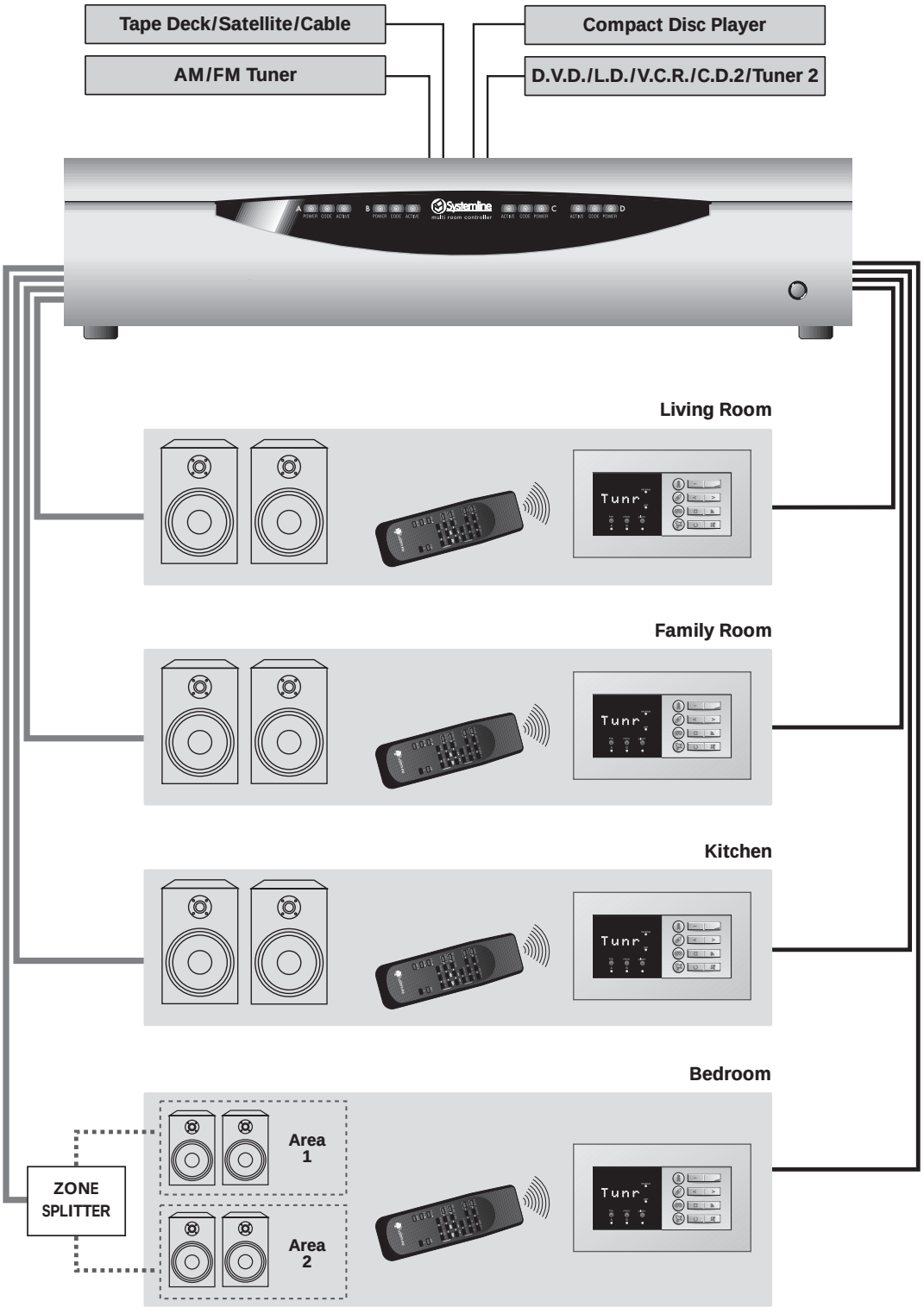
8) The system incorporates a near universal infra-red link which remains active even when a zone is in standby. Simply point any remote at a DMS module to relay the command back to the source components.

9) Zone splitters enable zones to be divided into two areas.

10) Four infra-red 'window emitters' can be plugged directly into dedicated mini jack sockets.

11) Components featuring an RC-5 bus can be plugged directly into a dedicated RC-5 output.

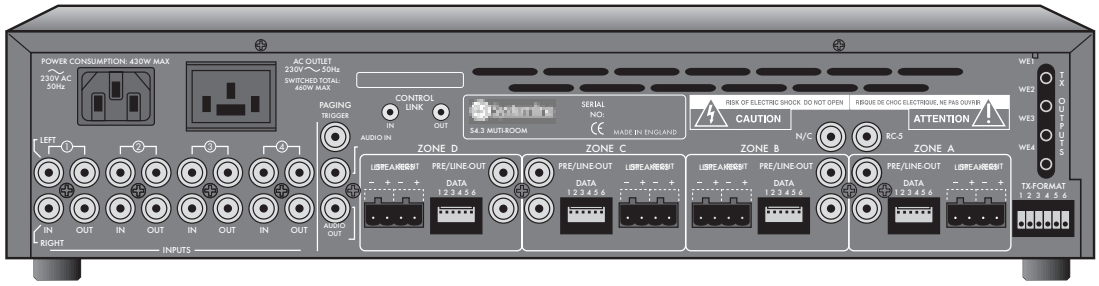
12) The TX configuration terminal allows multiple controllers to be linked together, and still use just one set of IR emitters.



## 2.1 S4.3 Controller

The S4.3 Controller is the heart of the S4.3 Controller Multi-Room Control System. It features:

- Four separate microprocessor-controlled stereo preamplifier/power amplifier sections, one for each remote zone
- PHONO inputs for up to four sources
- "Buffered loop through" PHONO outputs for connection to additional controllers or main system amplifier
- PHONO line level preamplifier outputs (Fixed or variable output)
  Four separate plug-in Line Drivers which enable the volume output for each zone to be configured as either variable or fixed
- Quick Fit speaker plugs and sockets
- PHONO line level input/ output for paging audio source
- Compatibility with industry standard, screened CAT-5 cable using 6-way IDC connectors (supplied)
- PHONO output for RC-5 remote control protocol components (direct connection via RC-5 bus)
- Four mini-jack IR emitter outputs
- One a.c. mains outlet with 400 W capacity, switched to allow easy remote control of total system power if desired
- Front panel LED indicators for each zone showing Power On/Off, status and command pulse processing
- High power front panel IR "flood" emitter to transmit remote zone commands to associated source components
- PHONO paging 'trigger' input for activation by suitable telephone and doorbell systems

## 2.2 RHS IR Remote Control

The RHS remote control serves a dual purpose. In addition to providing dedicated pushbuttons for the most needed functions of both the S4.3 Controller and source components, it also serves as a quick set-up tool during initial configuration. Normal operating mode is explained in Section 6.2. Details of initial set-up will be found in Section 5.23.

The RHS has a special high intensity IR transmitter. In conjunction with the system's sensitive DMS modules, this transmitter assures reliable operation under a wide variety of conditions.

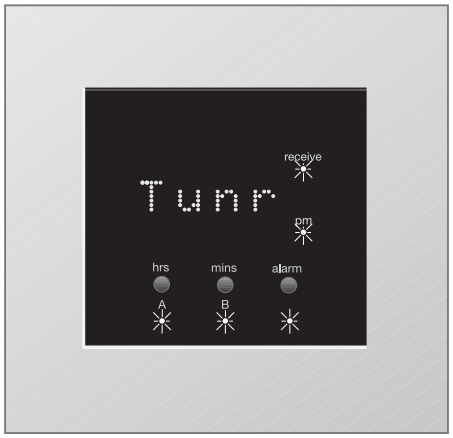

## 2.3 DMS Module

The wall-mounted DMS module receives commands from the RHS hand-held remote and, after processing to ensure maximum data integrity, sends these codes to the S4.3 Controller. When a zone is active, the DMS normally displays the selected source. During volume change or muting, or on receipt of a Paging signal, the DMS displays relevant status indications. Pressing the Alarm button (when the zone is active) will display the time for a few seconds.

When a zone is at standby, the DMS normally displays the time. During activation or shutdown, an appropriate message is displayed.

The DMS enables "A/B" speaker switching when a Zone Splitter is installed.

You will find details of the display in Sections 5.23 and 6.4.




***NOTE: A DMS module connected to the zone A data input MUST be used during initial set-up, particularly with systems where non RC5 source components are included. Details are in Section 5.23.***

## 2.4 KMS Keypad

The KMS keypad provides a remote zone control alternative to the RHS. The keypad can be used as a stand-alone control device although it is most functional with the DMS module. Its design is the optimum balance between flexibility and simplicity.

The four left-hand keys are each used to select a pre-programmed source. When a selection is made, the zone is activated automatically if necessary. Of the four right-hand keys, the upper and lower keys provide volume control (upper key) and standby and mute selections (lower key) for any selected source. The functions of the two centre keys change automatically depending on the selected source. Refer to Section 6.3 KMS Keypad for further information.

The KMS mounts conveniently in a standard single wall box of at least 44mm depth, or in a dual width box mounted ***horizontally**** with a DMS module.

* For some European countries, a **vertical** mounting plate is also available.

## 2.5 Data Cable and Connectors

The connection between the Super Controller and DMS/KMS modules must be made with a shielded six core (+ drain wire) cable. We recommend QED CAT-5 screened or CAT-5 FTP cable for optimum performance. Other cables may work satisfactorily provided they have an overall screen, six 26 awg conductors + drain.

Data cable termination is via industry-standard 6-pin connectors made by Methode and others. (The Methode part number is 1300-106-426.) Pin-out configuration and termination hints are found in Section 4.14.

## 2.6 Speaker and Cable Connections

Unshielded two-conductor 42 Strand QED speaker cable is the minimum acceptable standard for connections between the S4.3 Controller and zone loudspeakers. For particularly long runs or where there is a requirement for the best possible sound quality, QED Qudos speaker cable should be used.

The S4.3 Controller amplifier outputs are connected via quick-fit 2-way speaker plugs with screw terminals. These terminals are suitable for wire gauges upto 2.5mm$^2$.

## 3.1 Initial Considerations

The S4.3 Controller can be used in either of two basic ways:

a) As a stand-alone control centre for a multi-zone distribution system using dedicated source components.

b) As a control centre which shares source components with an existing music or home theatre system.

Specific system configurations will determine the best location for the S4.3 Controller. See Section 3.2 immediately below for details.

A second tuner or CD player can be used as source 4 but in either case the two components must be of different brands.

Apart from selecting one of the supported brands (see Section 1.4.3) it is important to consider functionality. Some source components exhibit certain operational quirks or limitations which will affect their suitability for multi-room use. In view of the range of brands that we now support, and some manufacturers predilection for regular model changes, it is impossible for us to document each and every one of these issues.
However, these are SOME of the things you need to look out for and preferably avoid:

1) CD players with integrated play/pause feature.

2) CD players that return to the beginning of the track they are playing when the Play command is re-issued, as they will always return to the beginning the current track when the CD input is selected.

3) Tuners without direct pre-set station selection. Without this option, the Favourite Station feature will not work.

4) If you want to use the a.c. mains switching feature, avoid source components with a soft toggle mains standby.

Also, equipment manufacturers change their remote control system codes from time to time - or in the case of RC-5, some do not adhere correctly to the standard code protocol!! It is therefore advisable to check the operation of a source component with the S4.3 Controller before specifying.

If you encounter any compatibility problems with the supported brands listed in Section 5.22, please notify QED using the FAXBACK page in this manual. This will enable us to check that you have the latest software and also to provide codes for those source components in the future.

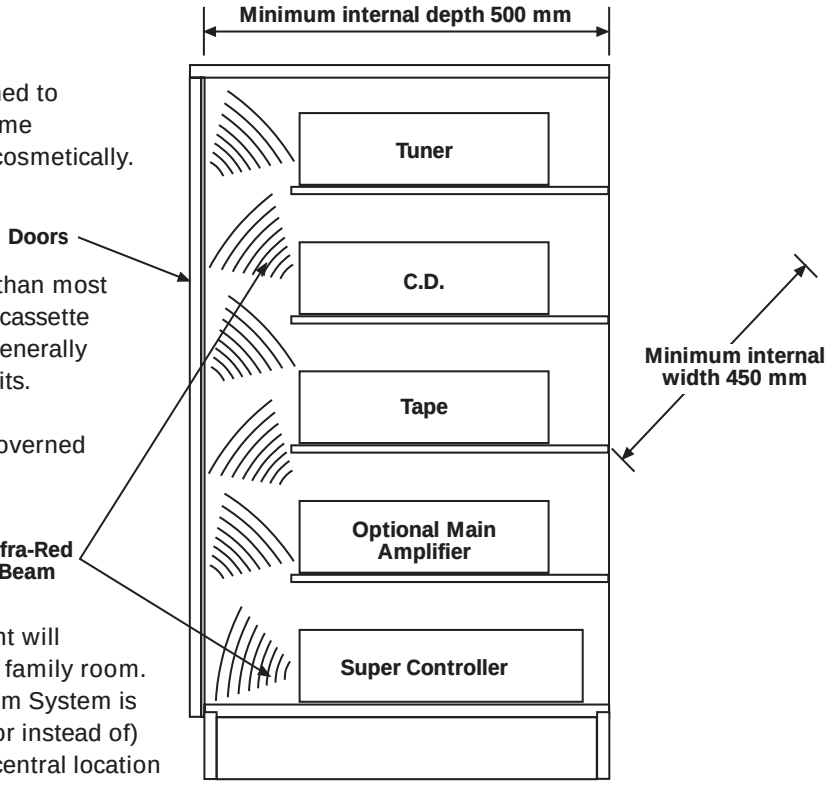
# 3.2 S4.3 Controller Basic Set-up

## 3.21 Placement

The S4.3 Controller is designed to complement high quality home entertainment components cosmetically. Place it on a stable surface in an equipment rack or cabinet. Note that the S4.3 Controller is slightly deeper than most sources (tuners, CD players, cassette decks, etc.) and should not generally be placed on top of these units.

The exact location may be governed by existing wiring such as Satellite or TV points, or be determined by the location of the existing Hi-Fi system in which case the central location point will probably be in the lounge or family room. Alternatively, if the Multi-room System is to operate separately from (or instead of) the main Hi-Fi system, the central location point could be anywhere - hidden in a cabinet in the hall or even under the staircase - the only access required is to change discs or tapes. See also Section 3.4 (Recommended A/V Wiring).

IMPORTANT
The S4.3 Controller contains 4 stereo power amplifiers which can generate significant amounts of heat. It is therefore necessary to ensure that the controller is located in an area where there is adequate ventilation. Under no circumstances should the ventilation slots at the top and rear of the unit be obstructed. If the S4.3 Controller is mounted in a cabinet, ensure that cool air can circulate when the doors are closed. Ventilation slots/holes should be provided at the top and bottom of the cabinet.




**Cut-away of equipment cabinet**

The S4.3 Controller can also be mounted on an open shelf - see Section 3.23.

## 3.22 Connections:

Make sure that you have enough room to run all the connecting cables and dress them appropriately behind the S4.3 Controller. Although each connection is fully explained in the following sections of this manual, take a quick glance through the following list of possibilities and decide how much space you will need. Also remember that these cables will make the S4.3 Controller much more difficult to move when they are connected. Plan accordingly.

a) Four pairs of PHONO to PHONO interconnects – one from each source.

b) Four more pairs of PHONO to PHONO interconnect cables – one each to the appropriate input of the main system's preamplifier, etc., from the corresponding "loop through" output on the S4.3 Controller (These will not be needed if the S4.3 Controller is used as a stand-alone controller).

c) Up to eight QED speaker cable pairs (two for each zone) terminated with quick-fit plugs.

d) Four six-conductor (+shield and drain) CAT-5 data cables, each terminated with the proper IDC connector.
***NOTE: CAT-5 cables normally have eight conductors, six of which can be used for Systemline.***

e) One shielded PHONO to PHONO interconnect for RC-5 remote control code connection (if required).

f) Up to four pairs of PHONO to PHONO interconnects to power amplifiers from the corresponding zone's "Pre-out" terminals (if required).

g) Up to four IR window emitters for connection to the S4.3 Controller's TX Infra-red outputs (if required).

h) Additional PHONO to PHONO shielded cables and loudspeaker connections as required for systems using more than one S4.3 Controller amplifier.

i) Up to six "TX-FORMAT" terminal block jumper wires when cascading multiple S4.3 Controllers.

j) 3.5 mm to 3.5 mm stereo jack lead. Only the top and middle ring of each jack should be connected. This lead is used when a.c. mains outlet control is required from multiple controllers. Connection of this link also enables all zones to be turned off from any zone on any controller.

We STRONGLY RECOMMEND that you attach a tag or strip to each cable and wire that permanently and positively identifies it. This will help in any required troubleshooting immediately after the installation as well as make future service calls or system add-ons much less frustrating.

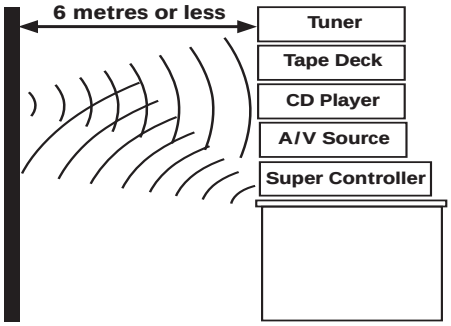
Avoid vague identifiers ("Tape Deck," for example) in favour of carefully defined lines such as "To Input 3 from tape deck." However well you remember each installation just after completing it, you WILL FORGET by the next time you see it.

## 3.23 IR "Flood" Emitter

The S4.3 Controller has a high intensity front panel IR "flood" emitter designed to transmit commands from the remote zones to the appropriate source component. Although exact performance will vary, this high power transmitter has an effective operating range of approximately 6m under normal conditions.

If the S4.3 Controller is on an open shelf, the emitter's signal must first travel to an IR-reflective surface (an opposing wall, for example) and then to the source component.

WARNING:
It is very important that the Flood Infra Red output does not reach any DMS modules. If this happens the system will not perform correctly. Do not forget that Infra red can be reflected by walls and doors into other rooms. If you suspect that this may be happening disconnect the wire link between terminals 2 & 3 of the TX format connector and connect stick-on IR emitters as described in section 3.24.




*Keep total IR signal travel to 12m or less. Remember that it must travel to a hard reflective surface and then back again.*

## 3.24 IR Emitter Jacks & Cabling

Remember that the S4.3 Controller also has four rear panel IR output jacks for use with IR window emitters. Use these where output from the front panel "flood" IR emitter is blocked from the source components by a door, full depth shelf, etc.

## 3.25 N/C Jack

This PHONO connector, located just to the left of the RC-5 output, is unused at present.

# 3.3 Zone Configuration

## 3.31 Basic Zone Complement

Each remote zone includes at least one control code generator and a pair of loudspeakers.

## 3.32 Control Code Generators

The code generator may be an RHS hand held remote and a DMS module combination. It can also be a stand-alone KMS keypad. Details are in Sections 6.2 (RHS Hand-held Remote Control) and 6.3 (KMS Keypad).

Remember that the DMS module also provides visual clues to total system operation. Details are found in Sections 5.23 (Set-up Sequence) and 6.41 (Overview).

Most zones will use multiple control code generators with the combination of one DMS module and one KMS keypad being the most common.
Mounting both the DMS module and keypad in one double-width wall box carries several advantages:

a) It simplifies the installation - all control cables run to a single location.

b) It focuses the user on one location - he or she either walks to the keypad or aims the hand held remote at the wall-plate.

The DMS module reads infra-red signals generated by the RHS hand-held remote and, after translating them into a digital code that is highly resistant to interference, sends them to the S4.3 Controller. The KMS simply translates key pushes into digital code before sending them to the S4.3 Controller.

## 3.33 Loudspeakers

These will vary with installation requirements and user expectations. The S4.3 Controller's amplifier sections are optimized for impedance loads of 4 ohms or higher.

Systemline Hi-Fi standard ceiling speakers are an obvious choice; please ask for details.

## 3.34 Zone Splitters

Zone splitters allow you to divide any zone into two separate areas. The Zone Splitter acts as a remote speaker switch, controlled by a DMS module within the zone, and directs a chosen source input to either or both sets of speakers.

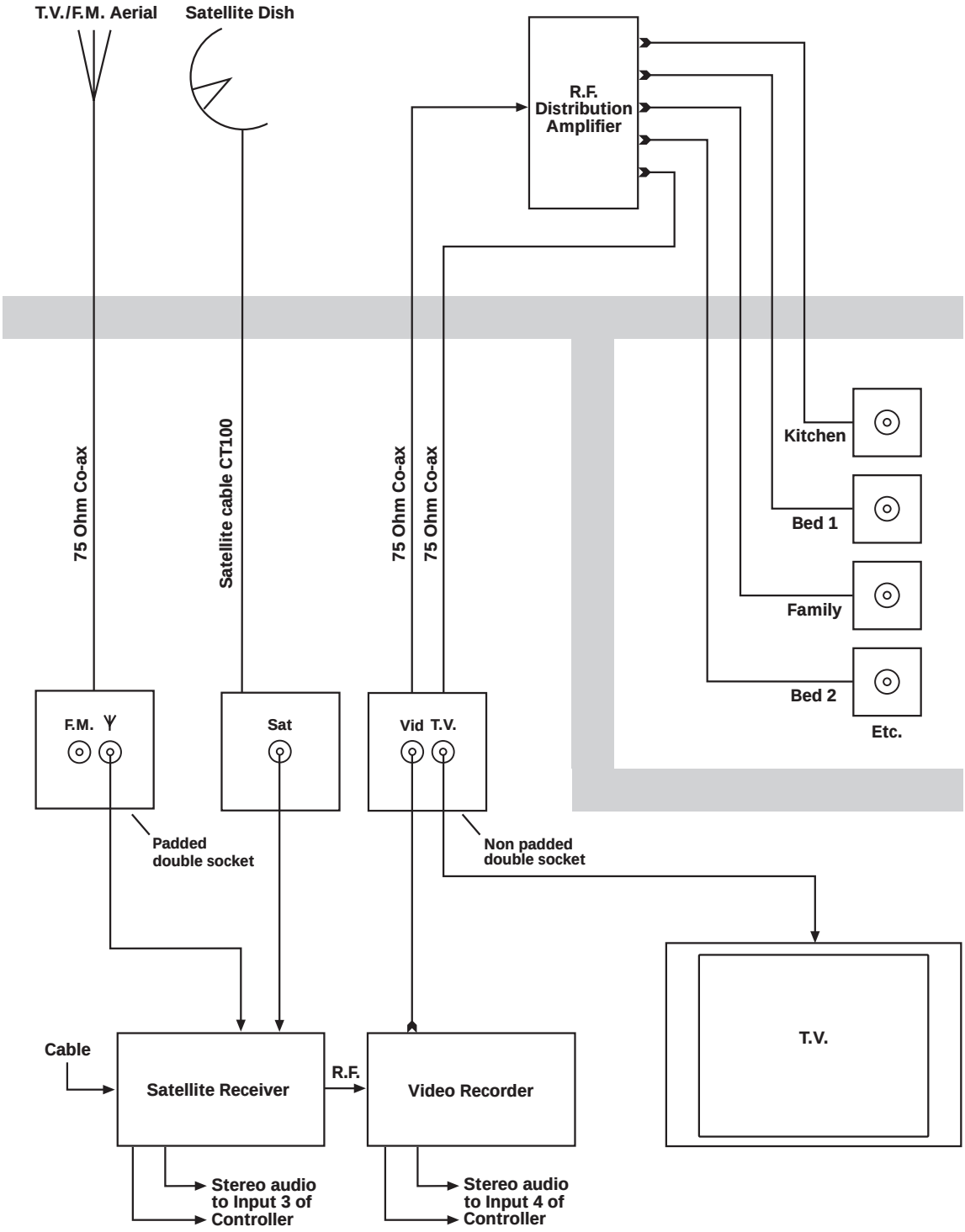
To split a zone, a second set of speakers and a Zone Splitter unit are required.

The following points must be considered when planning and installing a Zone Splitter system:

- **The Zone Splitter is a parallel speaker switching device. Therefore, speakers with 8 ohm impedance MUST be used in both areas A and B.**
- Only ONE Zone Splitter per zone may be used.
- When a Zone Splitter is used, both pairs of speakers will share the same volume level and source.
- The switching of the speakers requires a DMS module to be located in one of the split zone areas.

# 3.4 A/V Wiring

### 3.41 Recomended Wiring Configuration For VCR, Satellite and Cable Distribution.



# 4.1 The S4.3 Controller

***NOTE: Some configuration and set-up options may require removal of the top cover of the S4.3 Controller. Before installing the S4.3 Controller, refer to:***
***- Section 5.22 Optional Operating Modes***
***- Section 5.51 Paging Inhibit***
***- Section 5.6 Configuring the Pre-Out Sockets***
***and carry out any necessary internal setting or adjustments.***

**Disconnect the mains supply to the Controller before removing the top cover.**

## 4.11 Source Connections

Connect LINE LEVEL sources (CD player, tuner, etc.) to the S4.3 Controller's rear panel as follows.

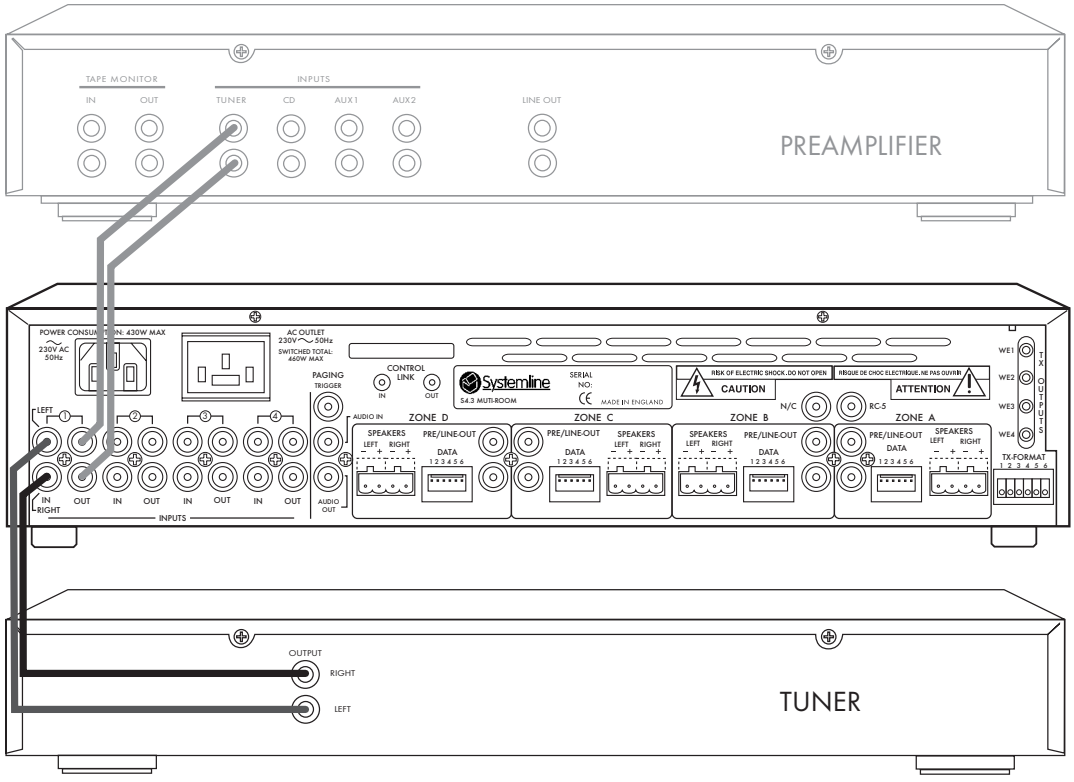
a) Using shielded PHONO to PHONO cables, connect the source's output to the corresponding input on the S4.3 Controller as detailed in the following table:

| | | |
|---|---|---|
| ***Tuner*** | ➠ | ***Input 1*** |
| ***CD player*** | ➠ | ***Input 2*** |
| ***Tape Deck/Sat. Receiver/ Cable*** | ➠ | ***Input 3*** |
| ***DVD/VCR/CD 2/Tuner 2*** | ➠ | ***Input 4*** |

Be sure to observe correct channel continuity from source to S4.3 Controller. The S4.3 Controller's PHONO inputs are labelled for easy identification with Left Channel connections on the top row and Right Channel connections on the bottom row.

***NOTE 1: The S4.3 Controller does not accept a phono cartridge's output directly. If required, use a separate phono preamp (such as QED Discsaver) to boost the phono signal to line level.***

***NOTE 2: To simplify system operation, we strongly suggest using only FIXED LEVEL source outputs to the S4.3 Controller. If no FIXED LEVEL outputs are available, use variable outputs but make sure that the source component's level control is turned up sufficiently but not so high as to overload the S4.3 Controller's inputs.***




*Tuner connected to Source 1 input with optional pass-through to preamp for shared use with separate system.*

b) If the source is shared by another system, connect the appropriate S4.3 Controller source output to the appropriate input of the main system's preamplifier, etc.

## 4.12 Speaker Cable Connections

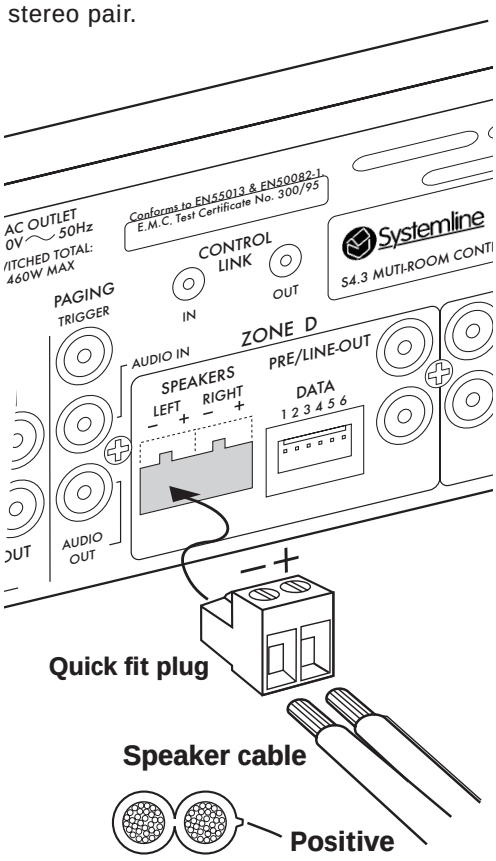
***NOTE: These zone connection instructions deal with one zone only. Connections for all other zones are identical except for the mirror-image connector placement on alternate zones.***

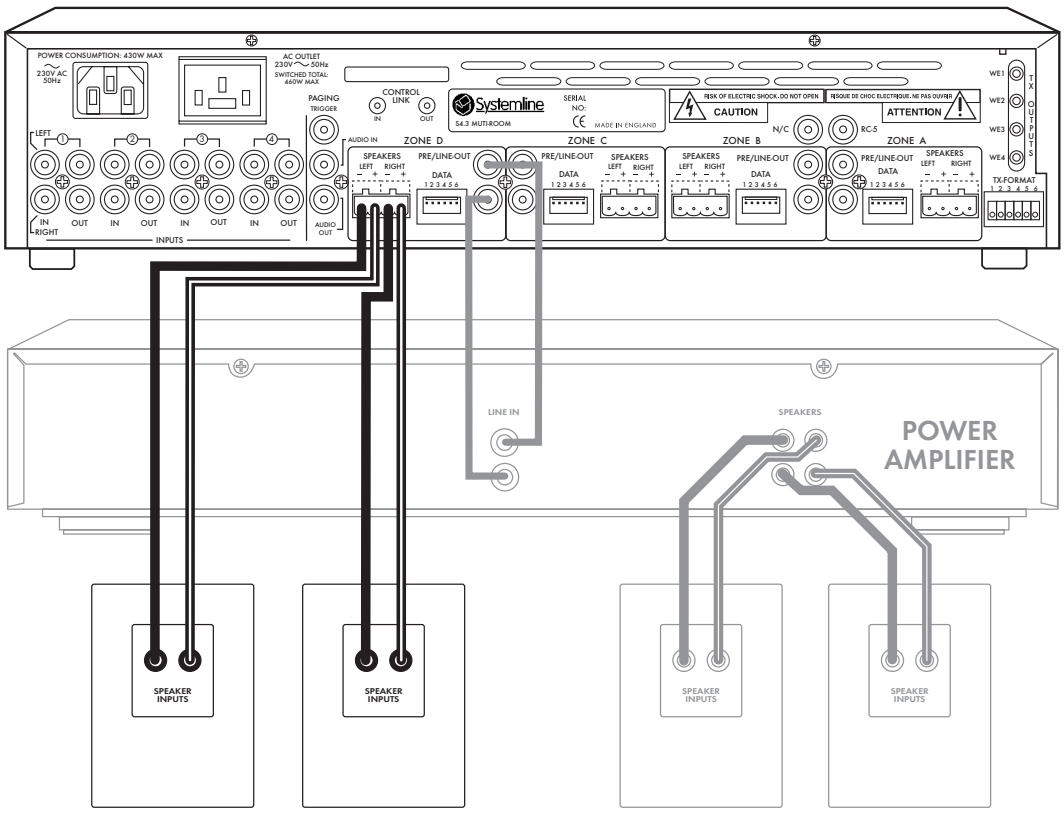
Use the supplied quick-fit terminals for all speaker cable connections.

Strip back each conductor's outer insulation by 6mm, insert bare wire into quick fit plug and secure using the screw terminal fixing. Take care to ensure proper polarity (note "+" is normally identified by a fine rib running along one edge).

BE CAREFUL AND BE PATIENT. This is an admittedly tedious task, particularly when you are hooking up speakers for all four zones, but it is essential for maximum system enjoyment.

"Out of phase" loudspeaker hookups (where one speaker in a stereo pair is inadvertently connected "+" to "-" and vice versa) may not be immediately noticeable but will not be as pleasing in the long term as a properly connected stereo pair.




***Speaker outputs from one zone of the Super Controller. Also showing preamp output connections for use with optional power amplifier.***

The long runs from amplifier to speaker typically found in multi-zone installations demand heavy gauge, low resistance speaker wire. Small diameter wire reduces effective amplifier power and adds substantial distortion to the audio signal. Avoid problems by following these minimum recommendations:

| | | |
|---|---|---|
| ***Under 20 m*** | ➠ | ***QED 42 STRAND 0.75mm² (minimum)*** |
| ***More than 20 m*** | ➠ | ***QED QUDOS 2.5mm²*** |

***Loudspeaker runs over 100m are discouraged.***

## 4.13 Preamp Outputs

Two PHONO jacks (Left and Right Channel) labelled "Pre-out" provide line level output controlled by the corresponding zone command devices. If a zone requires additional amplification, use PHONO-PHONO shielded interconnects from these outputs to a separate power amplifier's unbalanced line inputs.

Each zone's preamp output is fully buffered and may be used either independently or with the S4.3 Controller's internal amplifiers to provide additional flexibility for demanding installations.

The Pre-amp output can also be configured as a fixed level output, independent of the zone's volume level. See Section 5.6 Configuring the Pre-Out Sockets.

## 4.14 Data Cable Connections

Data communication to and from the S4.3 Controller and the remote zone's DMS module and KMS keypads is via 6-conductor shielded cable. We recommend QED CAT-5 FTP Systemline Cable. *(Note that the IDC connectors only accept cable with 26 awg conductors.)*

We also recommend that you run each zone's data cable and speaker cables together to save time. There is absolutely no performance penalty for doing so.

The shield is absolutely essential in maintaining data integrity over the long runs between the controller/amplifier and a zone's control code generating devices. Make sure that the shield is firmly connected at both the S4.3 Controller and at any command device terminal.

***NOTE: Only one data cable needs to run from the S4.3 Controller to each zone. Multiple DMS module and keypad combinations in one zone should be wired via series connections as detailed in Section 4.3.***

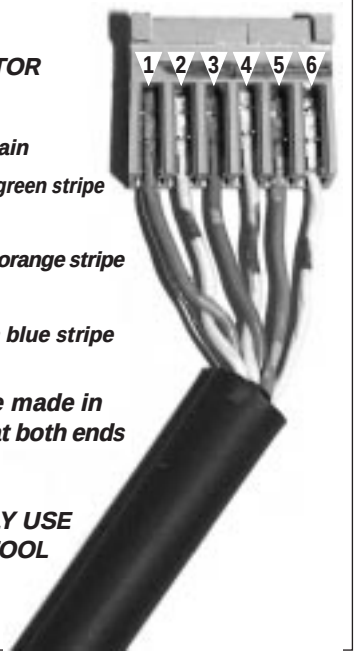
The maximum data cable length for guaranteed operation is 100 m. Even longer lengths may be practical in some installations with low RF (Radio Frequency) and EMI (Electro-magnetic interference).

***DATA CONNECTOR WIRING CODE***

***Pin 1 • green & drain***
***Pin 2 • white with green stripe***
***Pin 3 • Orange***
***Pin 4 • white with orange stripe***
***Pin 5 • blue***
***Pin 6 • white with blue stripe***

***Connections are made in the same order at both ends of the cables.***

***WARNING: ONLY USE CORRECT IDC TOOL (SL-IDC)***




Connectors for the DMS modules and KMS keypads should be wired to follow the same color coding.

The supplied IDC/Methode connectors need to be 'crimped' to lock to the data cable's 26 gauge conductors. IDC tools are available separately.

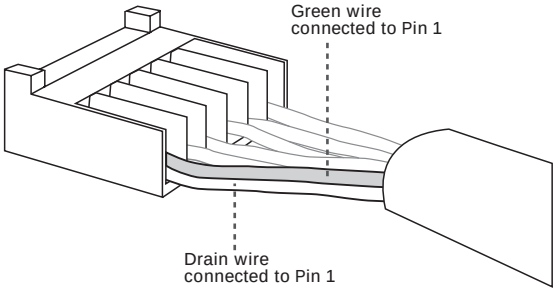
***NOTE: Do not use a screwdriver, metal ruler or knife blade to "crimp" these connections. You may think these tools will work but you will be mistaken. USE THE DEDICATED IDC TOOL SPECIFICALLY DESIGNED FOR THESE CONNECTORS.***

- Strip about 40 to 50 mm of the outer cable insulation using a wire stripper, cutting pliers or sharp knife.

- Separate the foil screen from the conductors and cut back to the level of outer cable insulation.

- DO NOT strip insulation off the individual conductors as the connector automatically makes contact with the conductor core when crimped.

- Place the shield pig-tail into slot 1 (left hand side) of the connector and press down *lightly* with the crimping tool to hold it in place.
  - Place the GREEN conductor immediately on top of the bare drain wire in slot 1, hold it in place and push down harder with the crimping tool until you hear a slight "click." The drain and green-insulated conductor should now be locked into slot 1 (The clicking sound also tells you that the connector slot contacts have pierced the conductor's insulation). Test the connection by pulling gently on both the drain and conductor.




- Continue the process following the colour code guide above until all other conductors are locked in the appropriate connector slots. Remember that slot 1 is the ONLY ONE to hold both the shield and a conductor. All other slots receive a single conductor.

  There will be two spare conductors if using CAT-5 cable. These should be folded back and secured to the cable using insulating tape. These spare conductors can then be used should other conductors in the cable be damaged.

  After attaching the cable conductors to the connector, snap the connector on to the appropriate zone's 6-pin data terminal on the S4.3 Controller's rear panel. Be careful to centre the connector over the terminal pins before inserting.

## 4.15 Paging Input

The paging input allows announcements to be made over the system, or if required, for zones to be muted: this may be useful when used in conjunction with a door bell.

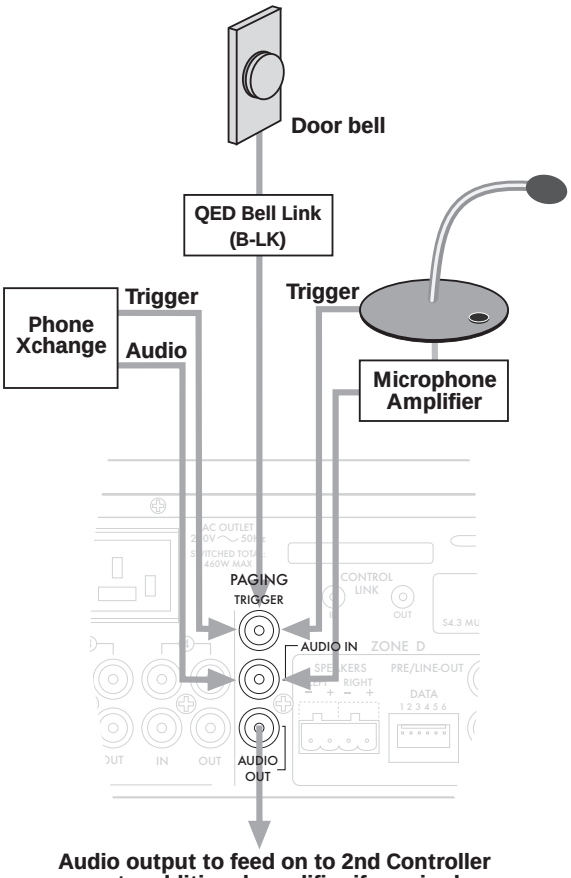
To function, the paging needs to be activated from an external source. This can be achieved via the 'Paging Trigger' phono socket. Any device which shorts the trigger input will cause the controller to enter its paging mode.

***NOTE: Under no circumstances should external voltages be applied to the paging trigger input. Should telephone or door bell connections be required, QED Bell-link and Tel-link interfaces should be used.***

The 'Paging Audio In' phono socket should be connected to the audio output from the announcement system (internal telephone exchange/microphone amplifier).

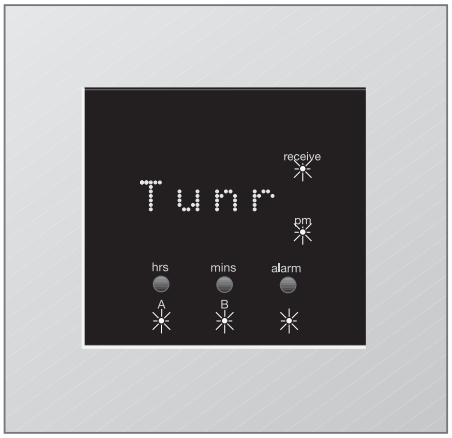
An output can be taken from the 'Paging Audio Out' socket if a second controller is used or if an additional amplifier is required.

***NOTE: Only one audio source should be connected to the Paging Audio input.***



# 4.2 Zone Control Devices

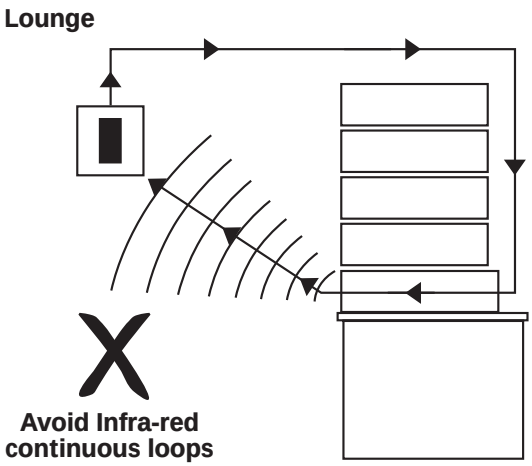
### 4.21 DMS Module

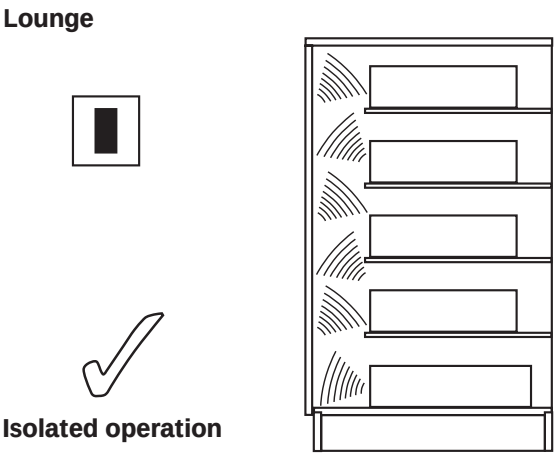



PLACEMENT SUGGESTIONS: Exact placement will vary with each installation but we strongly recommend AGAINST placement where the DMS will be exposed to direct sunlight, powerful fluorescent illumination or the output of a high intensity spotlight, etc. These light sources contain high levels of infrared energy themselves and may cause intermittent operation by saturating the DMS.

Also, avoid infrared “loops” by making sure that a DMS module is *not* placed where it might pick up signals from a source component’s IR repeater or the S4.3 Controller’s IR “flood” emitter.

Lastly, make sure that each DMS is on a relatively uninterrupted “line-of-sight” path to all likely locations from which the hand held RHS remote might be used. You’ll find the DMS/RHS combination much less susceptible to signal interference than other IR remote control links but conservative planning will ensure dependable operation under an even wider variety of conditions.




Each DMS module has eight DIP switches positioned centrally on the internal circuit board and accessed by removing the housing rear cover.

The DIP switches must be set on every DMS module for the system to function correctly. The following table shows the available setting options for each switch:

| Switch 1 | Switch 2 | Address |
|---|---|---|
| OFF | OFF | Zone A |
| OFF | ON | Zone B |
| ON | OFF | Zone C |
| ON | ON | Zone D |
| Switch 3 | Source 3 | |
| OFF | Tape | |
| ON | Sat | |
| Switch 4 | Switch 5 | Source 4 |
| OFF | OFF | Dvd |
| OFF | ON | Tun 2 |
| ON | OFF | Vcr |
| ON | ON | Cd 2 |
| Switch 6 | DMS is | |
| OFF | Master | |
| ON | Slave | |
| Switch 7 | DMS reset | |
| OFF | Default | |
| ON | Reset | |
| Switch 8 | Battery | |
| OFF | Shipping | |
| | Position | |
| ON | Once | |
| | Installed | |

**Zone Configuration.** Select the required zone for the DMS module by setting DIP switches 1 and 2 as appropriate.

**Component Source Configuration.** Sources 1 and 2 are set as standard to tuner and CD respectively. Set DIP switch 3 as appropriate to configure source 3 as a tape deck or satellite/cable. Set DIP switches 4 and 5 as appropriate to configure source 4 as a Dvd, Vcr, Cd 2 or Tun 2.

**Master / Slave Configuration.** In all zones where DMS modules are fitted, ONE DMS module must be set as a MASTER (DIP switch 6 = OFF) and all others set as slaves (DIP switch 6 = ON). The MASTER should be the first module in the serial connection sequence, i.e. the one nearest to the controller.

**Internal Battery.** Each DMS module contains a rechargeable battery which maintains the clock and other configuration information when power to the Controller is switched off. The battery must be enabled during DMS installation. When fully charged, the battery will maintain the stored information for several weeks without recharging.

To enable the battery, set DIP switch 8 to ON.

***NOTE 1: After the display configuration has been changed, DIP switch 7 must be set to ON and then returned to OFF to reset the system.***

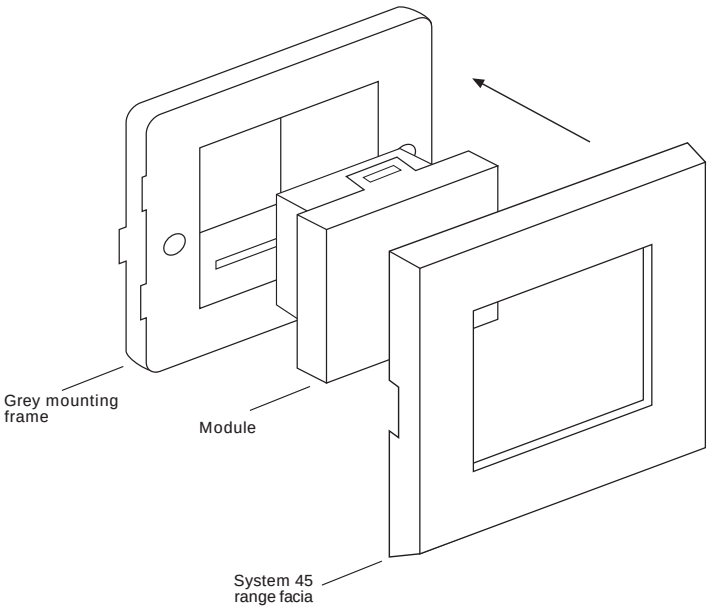
***NOTE 2: After installation, leave the Controller on continuously for a few days to ensure that the internal battery is fully charged.***

## 4.22 The KMS Keypad

a) There are no restrictions on where the KMS can be located. Common sense and user convenience should be the determining factors. Avoid using the keypad in damp environments e.g. bathroom. If the keypad needs to be mounted externally a waterproof enclosure should be used. These are available from QED.

b) KMSs do not need to be set for particular zones as they do not display zone or system status information.

## 4.23 Fitting DMS & KMS Modules into Back Box & Wall Plates




1) Clip module into grey mounting frame, as shown.

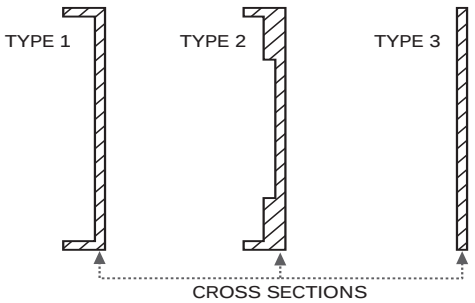
2) Make all necessary wire connections to module.

3) Screw in to wall box.

4) Clip on System 45* facia plate.

*System 45 and Sistema 45 are trade marks of Hamilton Ltd. England and Ave Spa Italy respectively. Alternative versions of mounting plates and facias are available to fit a wide variety of mainland European back-boxes including the round type - please ask your distributor for details.

A very wide variety of System 45 facias are available in numerous colours and finishes, but should you wish to use non-System 45 facias, you will first need determine the category of the type of plates you wish to use.

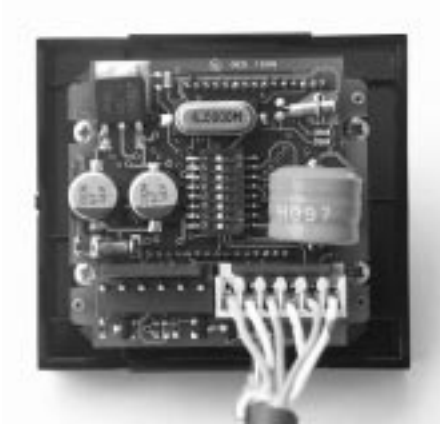



Most conventional "lipped" plates (Type 1) sit comfortably over the grey mounting plate, secured simply by fitting the mounting screws in the conventional way.

Type 2 plates require the mounting frame to be milled to fit. Suitable guideline milling drawings are available on request.

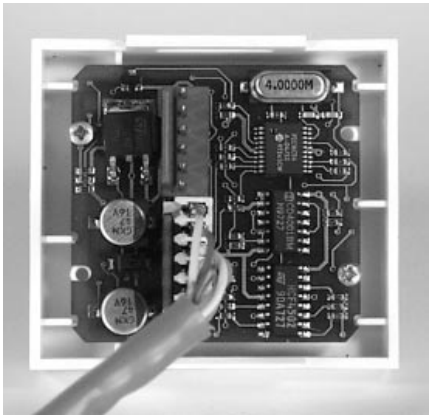
Type 3 plates are completely flush and therefore require the grey mounting frame to be inset into the back box. Suitable frames are available to special order.

**Connecting Modules.** Data cable terminations and connections are made in the same way as previously detailed in Section 4.14. Note that each DMS has two data terminals (labelled IN and OUT) located horizontally at the rear of the module and the KMS has two data terminals (labelled IN and OUT) located vertically at the rear of the module.



Rear View of DMS

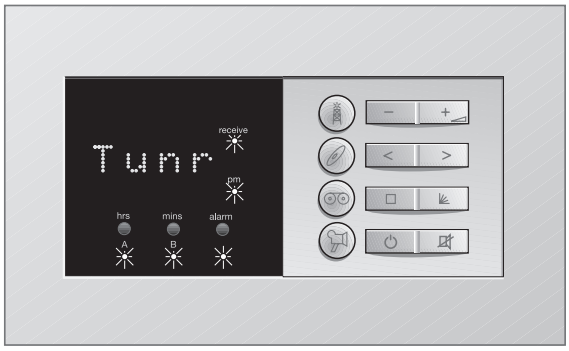
Remember that a DMS module connected to the zone A data cable terminal MUST be used for initial set-up, particularly in systems where non-RC5 source components are included. Details will be found in Section 5.23.

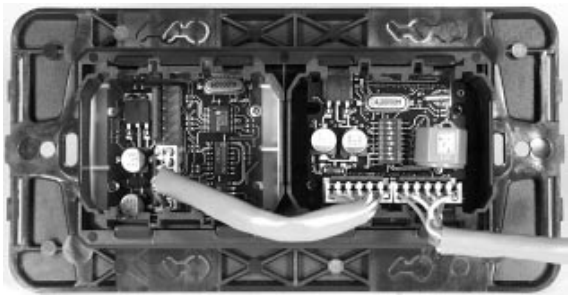


Rear View of KMS

Mounting a DMS and KMS module in a double-width wall box is the most sensible arrangement from an installation viewpoint (fewer cable runs) but may not be practical in all rooms.

***NOTE: When installing a DMS and KMS together in a double width wall box, the only wiring required is a single link cable to join the two modules and a single cable to the Controller. This prevents any danger of a cable jam behind the units.***



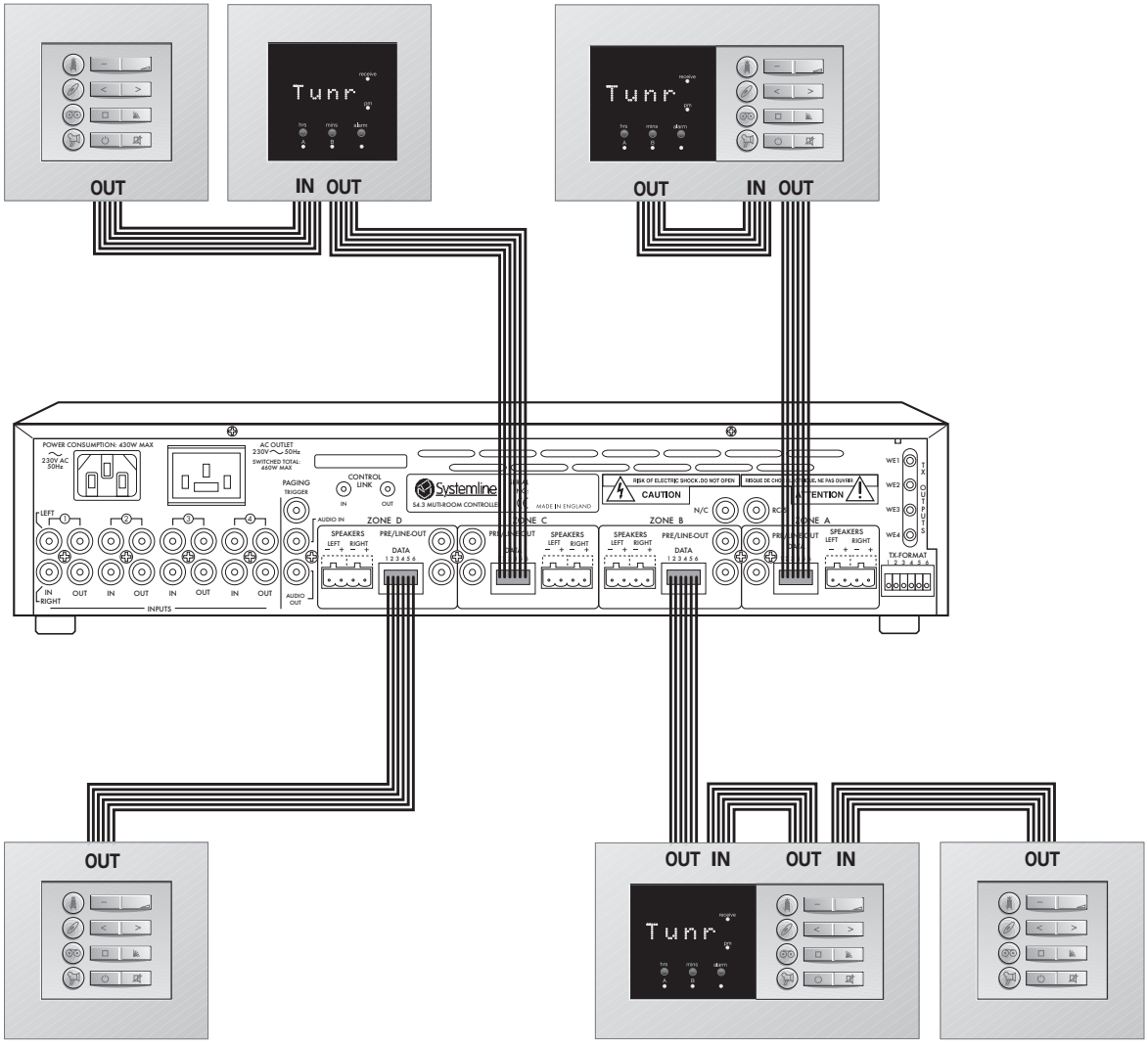
## 4.3 Zone Connection Strategies

a) Each zone will support two DMSs and three KMSs. All the command devices for one zone should connect to each other in serial fashion using their appropriate circuit board-mounted “In” and “Out” terminals.

b) Each DMS signals when it receives and processes a command. This happens regardless of whether the command was generated by a keypad or a hand held remote. However, a keypad located “downstream” of a DMS module will *not* trigger that sensor’s command processing indicator.

Whenever possible, we suggest that you always wire a DMS/KMS double wall box so that the DMS is located “downstream” from the adjacent KMS (i.e., between the KMS and the S4.3 Controller). This ensures that the DMS module always signals the user when the adjacent keypad is used.

Whenever possible, we suggest that you configure each combined DMS and keypad module, with the 'Out' of the keypad connecting to the 'In' on the DMS.



# 4.4 Splitting a Zone

A separately available product called a Zone Splitter may be used to add a second pair of speakers to a zone. This enables a zone to be "split" between two rooms or areas. Control of both the "prime" zone and the sub-zone is via the DMS - see Section 6.46 Zone Splitter Control for further details.

The Zone Splitter is essentially a remote control speaker switch and as such, requires the speaker output and data cables to be connected to it. The two pairs of speakers and the data wires from the prime and sub-zone are also connected to the Zone Splitter - see diagrams below.

The sub-zone may be fitted with either a KMS, a DMS or both. It could also be fitted with a QED Speaker Volume Control (in line with the speaker cables) or indeed, no control at all. All speaker selections, however, can only be carried out from the prime zone DMS.

The following points must be considered when installing a Zone Splitter system:

- **Important: The Zone Splitter is a parallel speaker switching device. Therefore, speakers with 8 ohm impedance MUST be used in both areas A and B.**

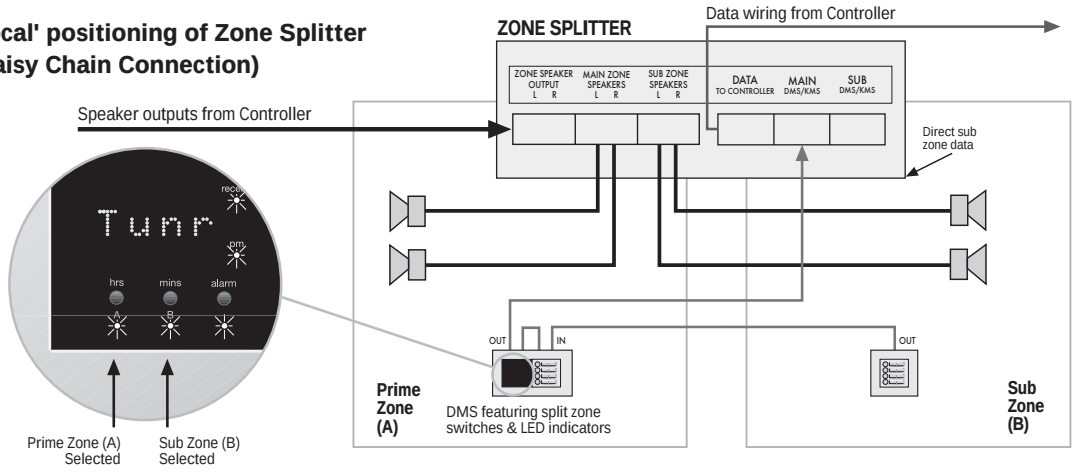
  Two-way Quick-Fit speaker plugs (supplied) must be used for speaker wiring and I.D.C. plugs (supplied) for data wiring. These are identical to those used on the S4.3 Controller - see sections 4.12 and 4.14.

- The Zone Splitter can be installed anywhere but you must be able to connect the cables from each pair of speakers directly to the unit.

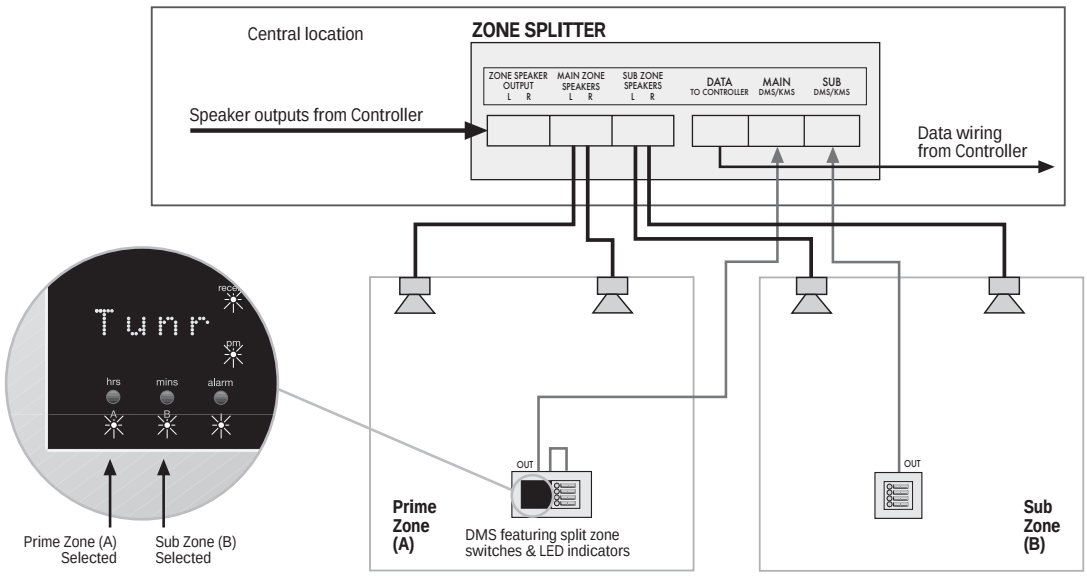
- There is no requirement for a power connection to the Zone Splitter; the supply is taken from the data cable.

  Control of the Zone Splitter is described in Section 6.46.

a) **'Local' positioning of Zone Splitter (Daisy Chain Connection)**




b) **'Central' positioning of Zone Splitter (Star wired connection)**



# 5.1 A.C. Line Considerations

### 5.11 A.C. for the S4.3 Controller

Connect the S4.3 Controller to an **unswitched** a.c. source only.

### 5.12 A.C. for Source Components

At the rear of the S4.3 Controller is a switched a.c. mains outlet. This can be used to power source components in installations where the user wants to power down source components from a remote zone.

Switched a.c. outlet: When the front panel switch of the S4.3 Controller is Off, the switched a.c. outlet is also off. When the front panel switch is turned On (i.e., when the S4.3 Controller first powers up to "Standby" mode), the switched outlet remains off until the S4.3 Controller receives a zone activation command.

The switched a.c. outlet then remains on until the front panel power switch is turned Off or the S4.3 Controller receives a "power down" command from a remote zone (STBY command sent for >3 seconds).

### 5.13 Multi-Controller Control Link

In a multi-controller system, the Control Link enables the control of all S4.3 Controller switched a.c. outlets from any zone on any controller. It is also possible to turn all zones off from a single zone on any controller when this link is in place.

Each controller has two 3.5 mm sockets marked CONTROL LINK IN and CONTROL LINK OUT on the back panel. To enable the enhanced a.c. link, connect the CONTROL LINK OUT socket on the first controller to the CONTROL LINK IN socket on the second unit. If appropriate, connect controllers 2 and 3 in the same way.

**CAUTION**
**To interconnect CONTROL LINK IN and CONTROL LINK OUT sockets, either obtain a STEREO 3.5 mm jack plug interconnect lead from QED or make up suitable leads.**
**If making up leads, DO NOT USE MONO LEADS OR PLUGS. Only the TIP and INNER RING of the stereo jack plugs should be connected - DO NOT connect the OUTER ground/earth.**

### 5.14 External Control of Switched A.C. Mains Outlets.

When external control of the a.c. outlet is required, connect terminal 6 of the TX FORMAT connector on the back panel to terminal 1 (ground). In a multi-controller system, terminal 6 of the TX FORMAT connector on each controller must be daisy chained using suitable hook up wire to enable full remote control of a.c. switching.

If the pins 1 and 6 are shorted, all controller a.c. outlets are switched On permanently and the "power down" command has no effect. If the external control signal to terminal 6 is switched Off, the a.c. outlet(s) will be turned Off unless any zone of any controller is On. In this case, the a.c. outlet(s) will remain on.

### 5.15 A.C. Power Recommendations

a) When using the switched mains a.c. outlet to supply source components it is recommended that a mains distribution unit be used with the IEC plug supplied.

b) Ensure that the total power consumption of all the source components connected to each switched a.c. outlet does NOT exceed 400W.

c) Power amplifiers are not suitable for connecting directly to the controller's switched a.c. mains outlet.

d) Source components featuring a standby mode i.e. a soft toggle Power On/Off button should not be used with the switched controller a.c. mains outlet.

# 5.2 Source Component Setup

***NOTE: Equipment manufacturers change their remote control systems from time to time. It is therefore advisable to check the operation of a source component with the S4.3 Controller before specifying.***

If you encounter any compatibility problems with the supported components listed in 5.22, please notify QED using the FAXBACK page in this manual. This will enable us to check that you have the latest software, and also to provide codes for these components in the future.

## 5.21 Default Operating Mode

The codes for the programmable inputs to the S4.3 Controller are stored on two code banks or "pages" within the translator card as detailed in 5.22 below. On delivery, the controller is factory set with the Page 1 codes available for use.

## 5.22 Optional Operating Modes

The S4.3 Controller supports a number of equipment brands with the codes stored on two code banks or "pages" as listed below. Two setup overlay cards (one for each page) are supplied for use during source component configuration.

| Switch 1 = OFF | | Switch 2 = OFF | | Switch 3 = OFF | | Switch 4 = OFF | |
|---|---|---|---|---|---|---|---|
| Code | Input 1 | Code | Input 2 | Code | Input 3 | Code | Input 4 |
| RC-5 | Tuner | RC-5 | CD Player | RC-5 | Tape | RC-5 | Video |
| SONY | Tuner | SONY | CD Player | SONY | Tape | SONY* | CD Player |
| PIONEER | Tuner | PIONEER | CD Player | PIONEER | Tape | PIONEER | CD Player |
| YAMAHA | Tuner | YAMAHA | CD Player | YAMAHA | Tape | PANASONIC | Video |
| DENON | Tuner | DENON | CD Player | DENON | Tape | SONY | Video |
| | | SONY | Mini Disc | PACE | Satellite | PIONEER | DVD |
| | | | | NOKIA | Satellite | | |

**SONY code 2*

If the available sources are all on Page 1, no internal adjustment is required. If any or all sources are on Page 2, the configuration of the translator card must be changed by altering the setting of the four miniature switches which form switch SW1, as detailed below..

| Switch 1 = ON | | Switch 2 = ON | | Switch 3 = ON | | Switch 4 = ON | |
|---|---|---|---|---|---|---|---|
| Code | Input 1 | Code | Input 2 | Code | Input 3 | Code | Input 4 |
| ROTEL | Tuner | ROTEL | CD Player | ROTEL | Tape | RC-5 | Tuner 2 |
| ONKYO | Tuner | ONKYO | CD Player | ONKYO | Tape | SONY | Tuner 2 |
| TECHNICS | Tuner | TECHNICS | CD Player | TECHNICS | Tape | PIONEER | Tuner 2 |
| NAD | Tuner | NAD | CD Player | NAD | Tape | YAMAHA | Tuner 2 |
| LUXMAN | Tuner | LUXMAN | CD Player | LUXMAN | Tape | TOSHIBA | DVD |
| | | | | GALAXY | Satellite | SONY | CD Player |
| | | | | JERROLD | Cable Box | | |

As this requires removal of the top cover of the controller, it is recommended that SW1 is configured BEFORE installation of the controller. Use a ballpoint pen or similar to move each switch (Right = ON, Left = OFF).

**WARNING**
**Disconnect the mains supply to the controller before removing the top cover.**

To use a Sony tuner on Input 1, a Rotel CD player on Input 2, a PACE satellite on Input 3 and a Toshiba DVD on Input 4 for example, SW1 should be set as follows:

| | |
|---|---|
| Sony tuner on Page 1 | SW1 switch 1 to OFF |
| Rotel CD on Page 2 | SW1 switch 2 to ON |
| PACE satellite on Page 1 | SW1 switch 3 to OFF |
| Toshiba DVD on Page 2 | SW1 switch 4 to ON |

***NOTE: As can be seen from the Page 1 and Page 2 tables, it is possible to use either two CD players or two tuners as two of the source components. However, the two components MUST be different brands; i.e. Pioneer CD on input 2 and a Panasonic CD on input 4.***

## 5.23 Set-up Sequence

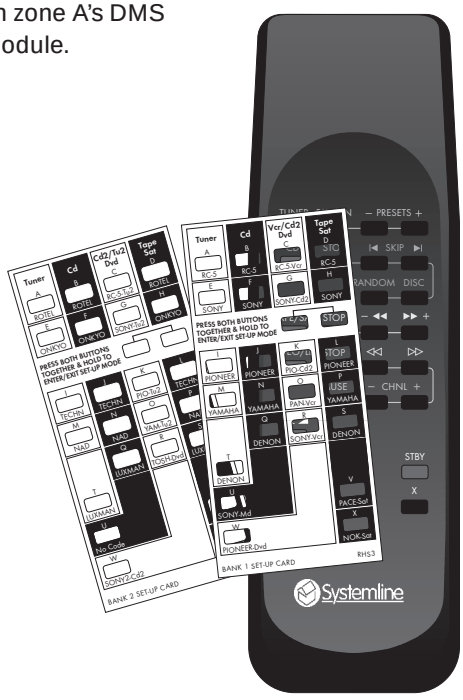
a) Refer to 5.22 above - Ensure that switch SW1 on the S4.3 Controller translator card has been re-configured as necessary if the codes for any source components are stored on code bank (page) 2.

b) Locate the DMS module for zone A. Optional operating modes CANNOT be changed from any other zone, or even from zone A's (optional) keypad. To confirm that the DMS is connected to zone A, send a command with the RHS hand held remote and monitor zone A's green Code LED on the S4.3 Controller's front panel: it will flash when the S4.3 Controller recognizes and processes a command.

Ensure that the flood output is disconnected (remove the link between pins 2 & 3 of the TX format connector) if set-up is carried out in the same room as the controller.

***NOTE: Any DMS module can be connected to the zone A data terminal for this procedure. Even if zone A is equipped with a wall mounted DMS module, it is probably more convenient to temporarily disconnect the data cable from that unit and substitute another DMS placed near the S4.3 Controller and source components. Make sure that any DMS used in this set-up sequence has the circuit board DIP switches set for zone A. (See Section 4.21 b) for details.)***

c) Select any input (tuner, CD etc.) on the RHS so that the corresponding indication shows on zone A's DMS module.




d) Place the appropriate Set-up Card over the RHS's pushbuttons.

e) With the RHS pointing at the DMS module, enter "Set-up" mode by pressing the Set-Up buttons (RANDOM and DISC buttons) as indicated on the overlay card and holding them depressed for a **few seconds** until "Set?" is displayed. This indicates that the system is ready to receive source set-up information.

f) Push the desired command code button of the input you want to set. You may select any required combination of brands, but remember:

- The appropriate switch within translator card switch SW1 must be configured for the code bank (page) holding the code for the component for each input. Refer to Section 5.22.
- for each input you must use the correct overlay card for the configured code bank; i.e. Card 1 for Page 1 and Card 2 for Page 2.
- if you are using two CD players or two tuners, they must be different brands.

Zone A's DMS will display the following characters to indicate your choice of custom command configuration.

| | | Bank 1 Set Up Card | | Bank 2 Set Up Card | |
|---|---|---|---|---|---|
| A | = | RC-5 | Tuner | Rotel | Tuner |
| B | = | RC-5 | CD | Rotel | CD |
| C | = | RC-5 | VCR | RC-5 | Tuner2 |
| D | = | RC-5 | Tape | Rotel | Tape |
| E | = | Sony | Tuner | Onkyo | Tuner |
| F | = | Sony | CD | Onkyo | CD |
| G | = | Sony | CD2 | Sony | Tuner2 |
| H | = | Sony | Tape | Onkyo | Tape |
| I | = | Pioneer | Tuner | Technics | Tuner |
| J | = | Pioneer | CD | Technics | CD |
| K | = | Pioneer | CD2 | Pioneer | Tuner2 |
| L | = | Pioneer | Tape | Technics | Tape |
| M | = | Yamaha | Tuner | NAD | Tuner |
| N | = | Yamaha | CD | NAD | CD |
| O | = | Panasonic | VCR | Yamaha | Tuner2 |
| P | = | Yamaha | Tape | NAD | Tape |
| Q | = | Denon | CD | Luxman | CD |
| R | = | Sony | VCR | Toshiba | DVD |
| S | = | Denon | Tape | Luxman | Tape |
| T | = | Denon | Tuner | Luxman | Tuner |
| U | = | Sony | MiniDisc | No Code | |
| V | = | Pace | Sat | Galaxy | Sat |
| W | = | Pioneer | DVD | Sony2 | CD2 |
| X | = | Nokia | Sat | Jerrold | Cable |

g) After selecting the desired command codes for all the component categories you wish to change, exit “Set-up” by pressing the Set-Up buttons (RANDOM and DISC buttons) as indicated on the overlay card.

The DMS will display “Save” while quitting set-up to indicate that the system has stored chosen command codes and exited the Set-up mode.

All changes are stored in non-volatile memory and can not be accidentally erased, even by unplugging the S4.3 Controller. The only way to change command code operation is to access Set-up mode again.

h) Once set-up has been completed the controller must be turned off (using the front panel power switch on the controller) for 15 seconds and then on again for the new settings to take effect.

For example, if you want to re-configure the system to operate with a Pioneer CD player and a Panasonic Video player, simply:

1. Ensure that the appropriate switches within switch SW1 on the controller translator card are set correctly for the components.

2. Use the correct overlay card for each component.

3. Enter Set-up mode (“Set ?” will show on the DMS).

4. Push the button marked “Pioneer” in the C.D. Input column. ("J" will be shown on the DMS)

5. Push the button marked “PANASONIC” in the VCR/CD2/DVD input column.("O" will be shown on the DMS)

6. Exit Set-up mode (“Save” will be displayed on the DMS).

# 5.3 IR System and Control Codes

## 5.31 Overview

The S4.3 Controller’s IR system provides extensive remote control flexibility. With the possible exception of the points in Sections 5.32 and 5.33 below, nothing needs to be done to set up the IR system.

However, please note the following points:

a) The IR codes generated by the RHS hand held remote are S4.3 Controller “system specific” codes and ARE NOT the same codes generated by a source component controller, even for functions that appear identical such as “CD play,” for example. In other words, you can not use the RHS to directly control a Marantz CD player but must use it through a DMS module from a remote zone. The S4.3 Controller system does the following:

- A wall mounted DMS module receives the remote’s code sequence and translates it into proprietary 5 bit digital code.

- This digital code travels over the data cable to the S4.3 Controller.

- The translator card in the S4.3 Controller restores the code’s original configuration (when required) and sends it to both the IR “flood” emitter and the rear panel IR outputs for use by the appropriate source component.

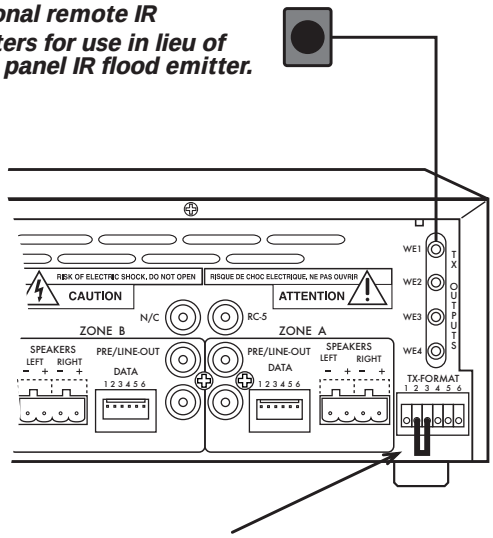
b) In addition to passing S4.3 Controller system codes, the IR system will pass ALMOST any IR code sequence from a DMS to a source component. This allows you to control equipment brands which are not supported by the internal translator card. (These few exceptions use a non-standard IR transmission frequency.)

### 5.32 Front Panel IR Flood Emitter

All S4.3 Controllers are shipped with the front panel IR “flood” emitter engaged. However, there may be applications (system installations on open shelves in very large, bright rooms, for example) where the IR “flood” emitter might interfere with proper source component operation or will not be particularly effective in communicating control pulses.

To disable the IR “flood” emitter, remove the jumper wire between screws 2 and 3 of the TX FORMAT terminal block located on the lower right hand side of the S4.3 Controller’s rear panel.

***Optional remote IR emitters for use in lieu of front panel IR flood emitter.***




***Remove this jumper to disable front panel IR flood emitter.***

### 5.33 Rear Panel IR Emitters

The S4.3 Controller rear panel has four paralleled 3.5 mm mini-jack sockets labeled "TX OUTPUTS-WE". These accept the QED window emitters (Order Code RL-WE).

Use these optional IR window emitters in situations where the S4.3 Controller is located some distance away from the source components or where the IR “flood” emitter may have difficulty transmitting reliable source control data.

- Each IR window emitter is fixed to the front of the source component by means of an adhesive. It is very important that the window emitter is located over the IR receiver of the source component (normally behind an acrylic panel). If you are unsure about the location of the receiver, send a control code from a keypad or RHS in a remote zone while slowly moving the window emitter over the front panel of the source component. Once reliable operation is obtained note the position and affix the window emitter.

***NOTE: •The adhesive backing should be removed whilst locating the receivers “sweet spot”.***

## 5.4 Advanced Multi-Zone Systems

### 5.41 8 - and 12 - Zone Systems

The S4.3 Controller is designed to supply independently controlled sound to four separate zones. In many instances, a complex system may require even more flexibility. To satisfy these requirements, typically two or three S4.3 Controllers may be cascaded to form an 8 to 12 independent zone system. Under these circumstances, all S4.3 Controllers can still use only one set of source components.

### 5.42 Large System Configuration

Should more than three controllers be required, then this is possible provided that care is taken to ensure that all controllers are adequately supported and ventilated. It is important to ensure that no more than three controllers are physically stacked on top of one another.

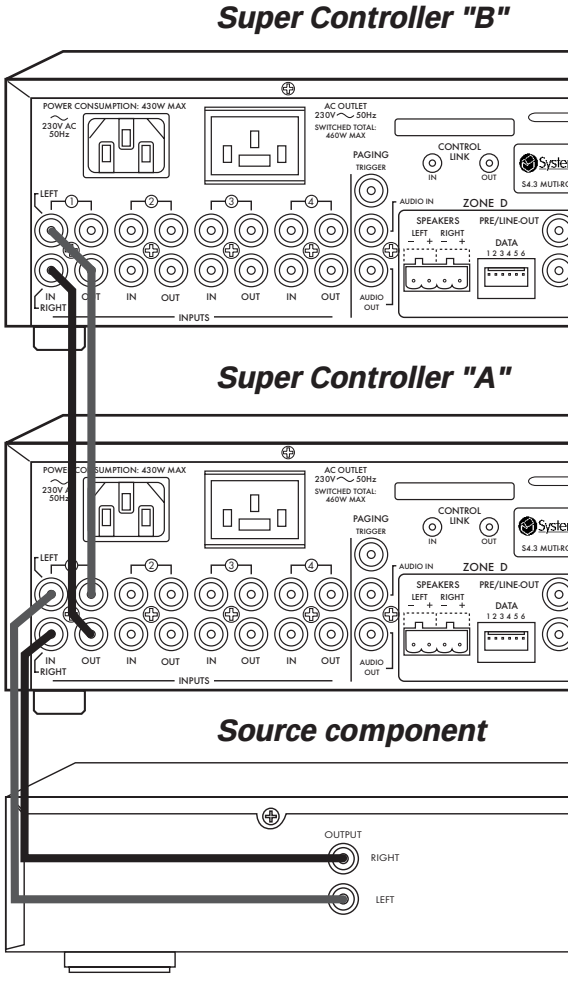
The following examples explain how two or three S4.3 Controllers can be linked together. The same principles apply for larger systems employing more than three Controllers.

All hookup instructions will assume that zones 1-4 will be handled by the bottom S4.3 Controller (“A”), zones 5-8 by the S4.3 Controller immediately above it (“B”) and zones 9-12 by the top unit (“C”).

## 5.43 Source Connections

Connect all sources to the first S4.3 Controller ("A") in accordance with the instructions in Section 4.11. Connect Source 1's "loop through" outputs on S4.3 Controller "A" to the corresponding Source 1 inputs on S4.3 Controller "B" using shielded PHONO to PHONO cables. Follow this procedure for all inputs.

The loop "OUT" for each of the sources on the last controller in the chain can be connected to the main system amplifier's inputs if required.




If a system requires a third S4.3 Controller, simply repeat this procedure but connect source outputs on S4.3 Controller "B" to the corresponding inputs on S4.3 Controller "C".

***NOTE: It is particularly important to observe proper channel continuity when connecting source components to more than one S4.3 Controller. Once again, BE PATIENT AND BE CAREFUL.***

## 5.44 IR Flood Emitter Connections

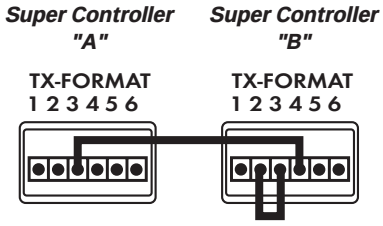
When two or three S4.3 Controllers are used in the same system, we recommend that you connect them so that only one IR "flood" emitter works. This avoids potential interference that may lead to erratic operation.

Use the following connection guide for multiple S4.3 Controller systems:

a) For 5-8 zone systems (two S4.3 Controllers):

- Remove the jumper between terminals 2 and 3 of the TX FORMAT block on S4.3 Controller "A" but leave the jumper in place on S4.3 Controller "B".
- Connect terminal 3 of S4.3 Controller A's TX FORMAT block to terminal 4 on S4.3 Controller "B".

This completes the signal link to the IR "flood" emitter on S4.3 Controller "B".

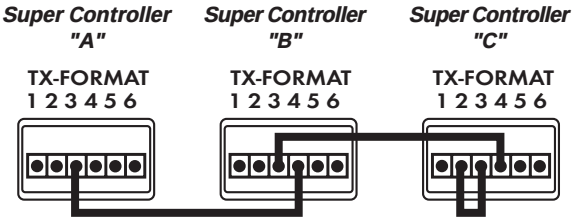



***Use this jumper arrangement in a system with 2 Super Controllers to disable the flood IR emitters on the first controller and enable the emitter on the second.***

b) For 9-12 zone systems (3 S4.3 Controllers):

- Remove the jumpers between terminals 2 and 3 of the bottom two S4.3 Controller's TX FORM blocks (S4.3 Controller "A" and "B") but leave the jumper in place on S4.3 Controller "C".
- Connect terminal 3 of the S4.3 Controller "A" TX FORM block to terminal 4 on S4.3 Controller "B".
- Connect terminal 3 of the S4.3 Controller "B" TX FORM block to terminal 4 on S4.3 Controller "C".

This completes the signal link to the IR "flood" emitter on S4.3 Controller "C".




***Use this jumper arrangement in a system with 3 Super Controllers to disable the flood IR emitters on the first two Controllers and enable the emitter on the third.***

## 5.45 IR Repeater Connections

Use the following connection guide for multiple S4.3 Controller systems:

a) For 5-8 zone systems (two S4.3 Controllers): Connect all IR repeaters to only S4.3 Controller “B”.

b) For 9-12 zone systems (three S4.3 Controllers): Connect all IR repeaters to only S4.3 Controller “C”.

## 5.46 RC-5 Bus Connection

Some source components feature an “RC-5” phono socket for sending and receiving commands. If for example you wish to use an RC-5 tuner it may not have its own IR receiver. If this is the case then the only way of sending commands to the tuner will be via the RC-5 phono socket on its rear panel. To connect the tuner to the controller take a single phono lead and from the RC-5 socket on the controller to the RC-5 IN socket on the tuner.

***NOTE: The Audio lead must be connected from the tuner to the controller for this link to work.***

## 5.47 IsoLink Connection

Some source brands such as Pioneer feature an IR CONTROL BUS similar in operation to the RC-5 Bus detailed in section 5.46. QED can supply an optional adapter called IsoLink which enables equipment fitted with a suitable 3.5mm Bus socket to be controlled via an IR TX Output on the controller. All instructions are supplied with the adapter.

## 5.48 A.C. Connections

In systems using multiple S4.3 Controllers, ensure that the controllers are powered from a suitably rated mains outlet. Ensure when using a mains distribution unit that it has a high enough capacity for the total number of controllers and source components.

If you wish to control the a.c. mains supply to the source components then this is possible using the switched outlet on each of the controllers. Each outlet has a 460W capacity which must not be exceeded. It is possible to connect all source components to one controller switched a.c. outlet if within the 460W rating. Alternatively source components can be connected to different switched a.c. outlets in a multiple controller installation provided that the Control Link detailed in Section 5.13 is in place.

## 5.49 Engaged Operation

When a single S4.3 Controller is used, the DMS module lets the user know when two zones are listening to the same source by changing the first character of the source description from upper case to lower case i.e. from “Cd” to “cd”.

This is a polite message to let the user know that if they change tracks or skip channels it will do so in two or more zones.

When multiple controllers are used this feature is still operational, but only indicates the engaged status for the zones connected to any one controller. This means that a zone connected to controller A and a zone connected to controller B, listening to the same source, will not indicate “engaged”.

## 5.5 Paging Operation

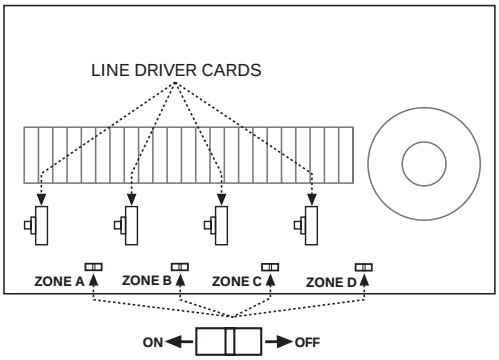
When the Paging trigger is activated, any zone that is in standby will be turned On automatically by the controller. The display will show (()).

If a zone is listening to a source and the Paging trigger is activated the controller will automatically switch to the Paging Input. The display will show "(())". Any audio present at the paging Audio IN socket will be relayed over the speakers.

As soon as the Paging Trigger returns to an open circuit the zone will revert to its previous status, the clock or the original input.

### 5.51 Paging Inhibit

You can select which zones will receive an announcement when the paging is activated. Each zone has an internal paging switch which can be set to ON or OFF when the top cover of the controller is removed.




***NOTE 1: If a zone is in Standby, (or is selected to input 1,2 or 3) and its paging switch is set to OFF, the zone will remain in its present status when the paging is activated.***

***NOTE 2: If a zone is selected to Input 4 with its paging switch set to OFF, the paging input will be heard when activated.***

## 5.6 Configuring the Pre-Out Sockets

Each zone is equipped with a plug-in PCB Line Driver module that enables configuration of the output that each zone PRE-OUT socket provides.

The factory default setting is a conventional variable pre-amp output that can be used directly with an external power amplifier. In this configuration, output level is controlled with the handset or keypad volume controls.

If a fixed level output is required, for recording or home theatre use, each zone can be configured independently to provide a fixed level output from its PRE-OUT socket.

***NOTE: The level of the fixed output impedance is 220 ohms.***

To configure a zone for a fixed level output:

**WARNING**
**Disconnect the mains supply to the Controller before removing the top cover.**

1. Remove the top cover of the controller and locate four small plug-in PCB modules between the front panel and the internal heatsink. These are configured as zone A on the left to zone D on the right when viewed from the front of the unit.
2. Unplug the relevant PCB module, rotate it and plug the pin header labelled 'Line Driver' into the 15-way micro-socket. Ensure that pin 1 is pointing to the rear of the controller.
3. Refit the top cover.

The source for the PRE-OUT socket is selected using the handset or keypad, and is turned OFF when the zone is set to Standby.

## 6.1 Preliminary Observations

Once properly installed and set up, the S4.3 Controller Multi-Room System is exceptionally easy to operate.

As detailed in Section 5.11, the S4.3 Controller should ALWAYS be plugged into an uninterruptable a.c. source. This ensures that essential S4.3 Controller system benefits such as remote controlled zone activation and source selection are always available.

Zone control devices (the KMS keypad and DMS module) are powered from the data cables and are always active as long as the S4.3 Controller is connected to a.c. and switched on.

## 6.2 RHS Hand-held Remote Control


The RHS controller provides easy and convenient system operation from any zone equipped with a DMS module. The RHS/DMS's operating range is longer and the angle of acceptance is wider than with many other hand held controllers. This increased operating convenience is a direct result of a more powerful transmitter in the remote and more sensitive receiving circuitry in the DMS modules.

### 6.21 Input Selector Buttons

Depending on system status, pressing any of the input buttons TUNER, CD, TAPE/SAT or VID/DVD will do one of the following:

a) If the entire system is "Off" (i.e., the S4.3 Controller is in "Standby" mode and the source components are powered from the switched a.c. mains outlet), pressing any input button will activate the zone, power up the source components and start the source playing.

b) If only the requesting zone is in "Standby" (and the rest of the system, including sources, is active), selecting an input will enable that zone's microprocessor-controlled switching circuitry and direct that source's output to the requesting zone. If the requested source is not already in use by another zone, selecting the source will also engage Play mode.

c) If the requesting zone is already playing a different source, pushing another input selector button will simply choose the new source.

d) Input selector buttons for CD, TAPE/SAT and VID/DVD double as "Play" command buttons for their respective sources. This is important when a source is in "Stop" mode: Simply press the proper input selector again to resume play.

### 6.22 Tuner (Source 1) Control Buttons

Ensure that the tuner aerial is connected and stations programmed into memory before checking this handset feature.

a) **TUNER**: This selects source 1.

b) **FAV. STN (Favourite Station):** This will select the first station (Preset No.1) programmed into the tuner's memory.

c) **- PRESETS:** This selects the next PRE-PROGRAMMED station LOWER in frequency than the one playing.

d) **PRESETS +:** This selects the next PRE-PROGRAMMED station HIGHER in frequency than the one playing.

***NOTE: BOTH - PRESETS and PRESETS + select only pre-programmed stations; they do not perform a station search.***

### 6.23 CD (Source 2) Control Buttons

a) **CD:** This selects source 2.

b) **STOP:** This button stops the CD.

c) **RANDOM:** This instructs the single CD player to play tracks in a random order. On Multi Disc CD Players random tracks are selected from the disc library.

d) **DISC** (functional only with multi-play CD players): This advances the CD player to the next available disc.

e) **SKIP ▶I** : This advances the CD player to the next track on the disc being played.

f) **I◀ SKIP** : This button reverts to the beginning of the track being played. Two quick pushes access the previous track.

### 6.24 Tape/Satellite or Cable (Source 3) Control Buttons

a) **TAPE/SAT:** This selects source 3.

b) -**◀◀ (Rewind)**:This rewinds the tape. Press the 'Tape' button to put the deck back into PLAY mode.

FOR SATELLITE RECEIVER, this function decrements the channel number.

c) **▶▶+ (Fast forward)**: Same as b) above but in the opposite direction.

FOR SATELLITE RECEIVER, this function increments the channel number.

## 6.25 VCR/DVD/Tuner 2/CD 2 (Source 4) Control Buttons

**VID/DVD** : This selects source 4 and starts the source playing.

### VCR Functions

a) **STOP:** This button stops the Video.

b) ◀◀ **(Fast reverse/Scan)**: This rewinds the video tape.

c) ▶▶ **(Fast forward/Scan)**: As above except opposite direction.

d) **-CHNL (Channel minus):** Decrements to lower channel number utilising the video's built- in TV Tuner.

e) **CHNL+ (Channel plus)**: Increments to a higher channel number.

f) **PAUSE:** This button pauses the VCR.

### DVD Functions

a) **STOP (Stop disc)**: This stops the DVD.

b) ◀◀ **(Scan back)**: This scans back through the disc program.

c) ▶▶ **(Scan forward)**: This scans forward through the disc program.

d) **PAUSE:** This button pauses the DVD disc.

e) **-CHNL** This button reverts to the beginning of the track/chapter being viewed. Two quick pushes accesses the previous track/chapter.

f) **CHNL+**: This advances the DVD player to the next track/chapter.

### Tuner 2 Functions

a) **STOP (Favourite station)**: This button selects the first station (Preset No 1) programmed into the tuner's memory.

b) **— ◀◀ (- Preset)**: This selects the next PRE-PROGRAMMED station LOWER in frequency than the one playing.

c) ▶▶ **+ (Preset +)**: This selects the next PRE-PROGRAMMED station HIGHER in frequency than the one playing.

d) **PAUSE**: No Function

e) **-CHNL**: No Function

f) **CHNL+**: No Function

### CD2 Functions

a) **STOP (Stop disc)**: This stops the CD.

b) **— ◀◀ (Track -)**: Returns the CD to the beginning of the track being played. Two quick pushes access the previous track.

c) ▶▶ **+(Track +)**: This advances the CD to the next track.

d) **PAUSE**: No Function

e) **-CHNL (Random play)**: This instructs a single CD player to play tracks in a random order. On multi-disc CD players, random tracks are selected from the disc library.

f) **CHNL+ (Next disc)**: This advances the CD to the next disc.

## 6.26 VOLUME UP ◢, VOLUME DOWN ◣

Press the desired button to change the volume level in the zone.

## 6.27 MUTE

This temporarily reduces the zone volume to a very low level for telephone conversations, etc. Press Mute again to restore volume to original level. You can also press Volume Up, Volume Down or any Input button to restore original level.

### 6.28 STBY

This button has two functions:

a) A brief push will put the zone from which the command originated into Standby status. All other zones will remain unaffected. Source components will remain on.

b) A continuous push of more than 3.5 seconds will have one of the following effects depending on the system configuration:

***NOTE: The Display will momentarily show "Off!" to acknowledge this command.***

- In a system using only one S4.3 Controller, a continuous push of more than 3.5 seconds will power down the entire system including source components.

- In a system using multiple controllers, a push of more than 3.5 seconds will power down all controller zones and turn all source components connected to the switched a.c. mains outlets OFF.

***NOTE: The Control Link must be in place for the above to work as described. It should also be noted that the external a.c. mains control via the TX Format connector must be open circuit. See section 5.14 for details.***

### 6.29 "X"

This is reserved for future use and is inoperative at the present time.

## 6.3 KMS Keypad

The KMS keypad offers easy access to most S4.3 Controller system functions. It has eight individual keys to send commands to the S4.3 Controller.

### 6.31 Key Functions

The keys in the left column each select a connected source with a single press the top key selecting source 1 and the bottom key selecting source 4. Pressing any source key automatically activates the zone if it is in standby and selects the source; if the zone is already active, it changes to the new selected source.

***NOTE: When delivered, the key caps for sources 3 and 4 keys are not fitted. A selection of key caps, appropriate to all possible source components connected as sources 3 and 4, are provided for fitment during installation. This enables the KMS to correctly indicate each connected source.***

The keys in the right column provide command functions. The upper and lower keys provide standard system functions applicable to any selected source. The functions provided by the two centre keys change automatically depending on the selected source.

## 6.32 System Commands

**(Volume -)**: Press to decrease volume in the zone.

**(Volume +)**: Press to increase volume in the zone.

**(Standby)**: This button has two functions:

a) A brief push will put the zone from which the command originated into Standby status. All other zones will remain unaffected. Source components will remain on.

b) A continuous push of more than 3.5 seconds will have one of the following effects depending on the system configuration:

***NOTE: The Display will momentarily show "Off!" to acknowledge this command.***

- In a system using only one S4.3 Controller, a continuous push of more than 3.5 seconds will power down the entire system including source components.

- In a system using multiple controllers, a push of more than 3.5 seconds will power down all controller zones and turn all source components connected to the switched a.c. mains outlets OFF.

***NOTE: The Control Link must be in place for the above to work as described. It should also be noted that the external a.c. mains control via the TX Format connector must be open circuit. See section 5.14 for details.***

**(Mute)**: This temporarily reduces the zone volume to a very low level for telephone conversations, etc. Press Mute again to restore the volume to the original level. Pressing the volume control key (up or down) or any source key will also restore volume.

## 6.33 Tuner (Source 1) Commands

(-Preset): This selects the next PRE-PROGRAMMED station LOWER in frequency than the one playing.

**(Preset +)**: This selects the next PRE-PROGRAMMED station HIGHER in frequency than the one playing.

**(Favourite station)**: This selects the first station (Preset No 1) programmed into the tuner's memory.

**No Function**

## 6.34 CD (Source 2) Commands

**(Track skip back)**: This reverts to the beginning of the track being played. Two quick pushes select the previous track.

**(Track skip forward)**: This advances the CD to the next track.

**(Stop disc)**: This stops the CD.

**(Next disc)**: This advances the CD to the next disc (when appropriate).

## 6.35 Tape Deck/Satellite/Cable (Source 3) Commands

### Tape Deck

**(Fast rewind)**: This rewinds the tape. Press source 3 key to put the deck back into Play mode.

**(Fast forward)**: Same as above except in the forward direction.

**(Stop tape)**: This stops the tape deck.

**No Function**

### Satellite or Cable

**(- Channel)**: This changes to a lower channel number.

**(Channel +)**: This changes to a higher channel number.

**No Function**

**No Function**

## 6.36 VCR/DVD/Tuner 2/CD 2 (Source 4) Commands

### VCR

**(Fast rewind / scan back)**: This rewinds the tape, with scan if the tape is being played when the function is selected.

**(Fast forward / scan forward)**: Same as above except in the forward direction.

**(Stop VCR)**: This stops the VCR.

**(VCR Ch+)**: This advances the VCR to the next channel.

### DVD

**(Scan back)**: This scans back through the disc program.

**(Scan forward)**: This scans forward through the disc program.

**(Stop disc)**: This stops the DVD.

**No Function**

### Tuner 2

**(- Preset)**: This selects the next PRE-PROGRAMMED station LOWER in frequency than the one playing.

**(Preset +)**: This selects the next PRE-PROGRAMMED station HIGHER in frequency than the one playing.

**(Favourite station)**: This selects the first station (Preset No 1) programmed into the tuner's memory.

**No Function**

### CD 2

**(Track skip back)**: This reverts to the beginning of the track being played. Two quick pushes select the previous track.

**(Track skip forward)**: This advances the CD to the next track.

**(Stop disc)**: This stops the CD.

**(Next disc)**: This advances the CD to the next disc (when appropriate).

# 6.4 DMS Module

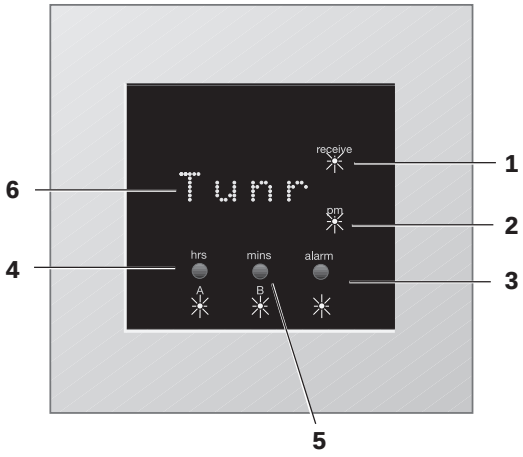
## 6.41 Overview

When a zone is active, the DMS module responds to control commands from the RHS handset, the KMS keypad and also from other infra-red devices. It displays appropriate system status messages.

When a zone is at Standby, the DMS displays the time.

If the DMS display is blank, this indicates that the S4.3 Controller is switched Off.

## 6.42 Controls and Indications




1 **receive LED**: This lights when the DMS receives a signal (infra-red code) from the handset or from the KMS keypad in the same zone.

2 **pm LED**: This lights up between 12 noon and 12 midnight.

3 **alarm button and LED**: The button is used when setting the alarm and clock time. The LED is lit when the alarm is set.

4 **hrs / A button and LED**: This button is used (as hrs Button) when setting the time or alarm and also, when appropriate, (as A speakers button) to control speakers connected to the A output on the Zone Splitter.

5 **mins / B button and LED**: This button is used (as minutes button) when setting the time or alarm and also, when appropriate, (as B speakers button) to control speakers connected to the B output on the Zone Splitter.

6 **Dot Matrix Display**: This is used to display the time and appropriate status and setup messages, as described below.

## 6.43 Dot Matrix Display

a) Selected Source: The display shows the in-use source as follows:

Source 1

Source 2

Source 3 - Tape Deck

Source 3 - Satellite or Cable

Source 4 - VCR

Source 4 - DVD

Source 4 - CD 2

Source 4 - Tuner 2

b) **Clock Display and Greeting**: When a zone is in standby mode, the time is displayed in 4-digit 12hr format. When the zone is activated, the DMS shows a scrolling greeting 'Good morning', 'Good afternoon' or 'Good evening' appropriate to the time of day. At shutdown and between 10pm and midnight the DMS shows 'Good night'. When a zone is active, pressing the alarm button will display the time.

c) **Volume Level**: When a Volume control command is sent, the DMS will display a 2-digit number counting up or down between vo 00 (min. volume) to vo 63 (max. volume).

Minimum Volume

Maximum Volume

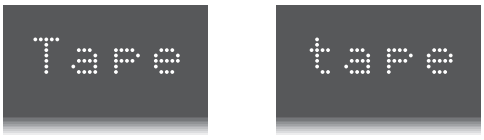
When a Mute ON signal is sent the volume level decreases to zero and the DMS displays the message 'Mute'. On receipt of a Mute off, or source select, or volume up/down command signal, the display will return to its previous level.

If a zone is active and a Paging signal is received, the volume level decreases to zero and the DMS displays '(())'. If a Paging signal is received while the zone is muted, the DMS display will immediately show '(())'.

If the zone is in standby mode and a Paging signal is received, the DMS will display the appropriate greeting for the time of day and then '(())'.

d) **Automatic Brightness Adjustment**: An ambient light sensor in the DMS module adjusts the brightness of the display as the background lighting varies, to give a more even perceived brightness.

e) **Engaged Indication**: If a source is engaged, the leading character of the selected source is shown in lower case.




SOURCE SELECTED ZONE ENGAGED

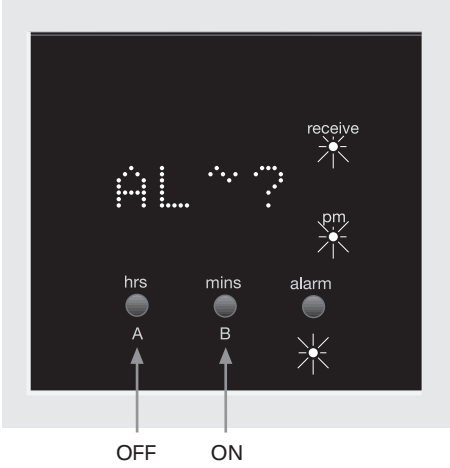
f) **Internal Battery Indication**: If the time display flashes when a DMS module is first connected, this indicates either that the clock has not been set or that the battery has not been enabled - see Section 4.21 DMS Module. If the display flashes after the system has been turned off for a period of time, this indicates that the internal battery charge is low. The clock time should be reset to stop the flashing and the system left On for a few days to recharge the internal battery.

## 6.44 Operation

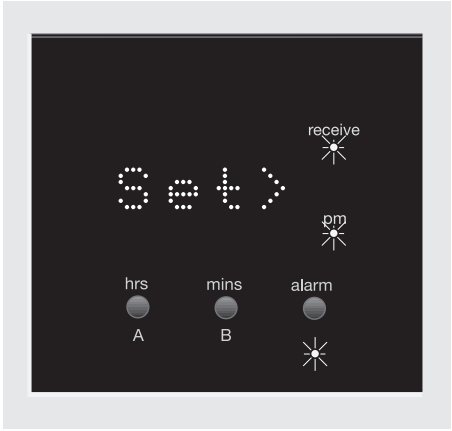
With the zone in Standby, the DMS module displays the time. Use the handset or keypad as previously described in Sections 6.2 and 6.3 to select the required functions.

## 6.45 Setting Alarms and Time

With the DMS zone in Standby mode, press the alarm button. The display will show the first 'Mode' function. Repeatedly pressing the alarm button will step through the remaining functions and return the DMS to Standby mode (a total of five steps).

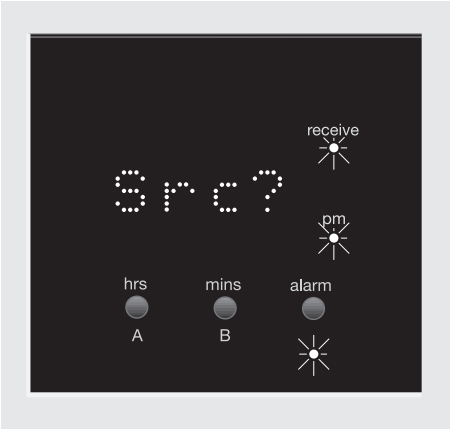



**1. Select Alarm**
Press the hrs/A button to select alarm off, or the mins/B button to select alarm on.




**2. Set Alarm Time**
The display will show the last alarm time set. Use the hrs/A and the mins/B buttons to advance to the required alarm time.

***NOTE: Make sure that the pm indicator is also showing the correct 12hr period for the alarm.***




**3. Select Source**
Select the source to play when the alarm is activated. Press the hrs/A button to select tuner, or the mins/B button to select CD.


**4. Set Clock**
Use the hrs/A and mins/B buttons to advance to the required clock time.

***NOTE: The clocks in different zones may be slightly out of synchronisation due to drift or inaccurate setting. They will be synchronised automatically at 12 noon each day with the master system clock in zone A.***

**5. Return to Standby mode**
Pressing the alarm button exits the Mode function.

***NOTE: If a DMS is set as a slave (See Section 4.21 DMS Module) only the clock can be set. Only one alarm in each zone is permitted.***

## 6.46 Zone Splitter Control

If a zone is divided into two separate areas through the installation of a second set of speakers and a Zone Splitter, the prime DMS within that zone is used to control the Zone Splitter and direct a selected source input to either or both areas.

To set the DMS in 'Zone Splitter' mode, press both the A and B buttons on the prime DMS and hold them pressed for six seconds. The A and B LEDs illuminate as appropriate to indicate the status of the speakers in the A and B areas. If an LED is lit, that speaker pair is switched ON.

If both speaker pairs are On (both LEDs illuminated), one pair can be switched Off by pressing the appropriate A or B button.

If one speaker pair is switched On, the other set can also be switched On by pressing the appropriate A or B button. Alternatively, to switch from one set to the other, both A & B speakers must be switched ON before turning the other set OFF.

***NOTE 1: It is not possible to switch BOTH pairs of speakers Off - this avoids the possibility of having no audio output when a zone is active.***

***NOTE 2: The A and B button Zone Splitter control function is active whether the zone is Active or in Standby.***

***NOTE 3: When a Zone Splitter is used, both pairs of speakers will share the same volume level and source.***

# 7 Specification

| | |
|---|---|
| Number of audio channels: | 8 (4 x Stereo) |
| Number of audio inputs: | 4 Stereo. |
| Audio loop out frequency response: | 20Hz-20kHz +/- 0.8dB into 22k Ohms. |
| Audio loop out distortion: | THD+N <0.005% 20hz-30kHz bandwidth. |
| Audio loop out level: | -0.14dB lower than Input level. |

**Pre-Amplifier Output**

| | |
|---|---|
| Fixed & variable level output: | frequency response 20Hz-20kHz +/- 0.8dB |
| Fixed level output distortion: | THD+N 0.005% @1kHz |
| Variable level output distortion: | THD+N 0.01% @1kHz |

**Power Amplifier Output**

| | |
|---|---|
| Frequency response: | 20Hz-20kHz +/- 1dB |
| Distortion: | THD+N 0.07% into 5 Ohms @ 13W |
| Output power per channel: | 23W into 5 Ohms @ <0.4% THD+N |

| | |
|---|---|
| Dimensions: | 430mm (w) x 360mm (d) x 98mm (h) |
| Weight: | 9.8kg |
| Max Power Consumption: | 430Watts |

***QED Audio Products Ltd. reserves the right to alter the specifications of the products described in this manual at any time and without prior notice.***

# QED FAX BACK

**FAX TO: (01276) 452211**

## SOURCE COMPONENT COMPATIBILITY PROBLEM

| |
|---|
| Installer/Dealer Name: |
| Your Fax Number: |
| Your Telephone Number: |

| |
|---|
| Controller Serial Number: |

| |
|---|
| 1st Component Type. CD etc. |
| Brand. SONY, Denon etc. |
| Model Number: |
| Details of problem.... |

| |
|---|
| 2nd Component Type: |
| Brand: |
| Model Number: |
| Details of problem.... |

| |
|---|
| 3rd Component Type: |
| Brand: |
| Model Number: |
| Details of problem.... |

| |
|---|
| Any other comments |

Systemline

RIDGEWAY HOUSE ■ RIDGEWAY CLOSE ■ LIGHTWATER ■ SURREY ■ GU18 5XU ■ ENGLAND

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We operate a policy of continual improvement and reserve the right to improve designs and specifications without prior notice.