

Multi-Source Multi-Zone Hub



ABUS-HUB4X8

ABUS



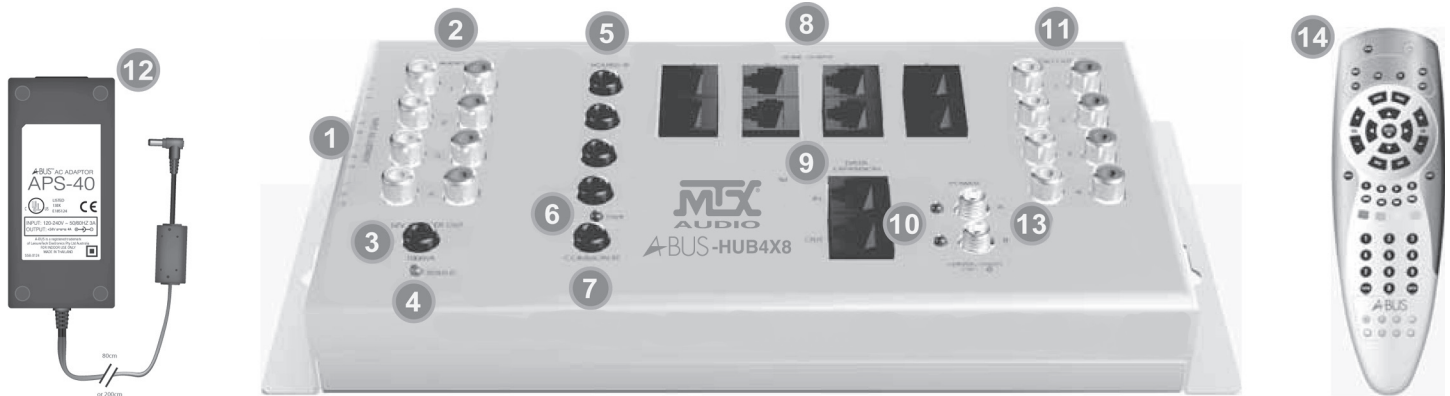
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ABUS-HUB4X8
Multi-Source Multi-Zone Hub



We hope you enjoy your ABUS system. Your ABUS component has been designed to give high quality sound and be simple and functional to operate. All ABUS products bearing the ABUS logo are made to the ABUS standard, so when you connect an ABUS input device, hub or volume control module they are compatible with each other. Some functions on some manufacturer's products may not work with other manufacturer's products; however, most features will be interoperable. All ABUS components are simple to service or upgrade, so upgrading your system with components that offer improved features should be easy.

The ABUS Multi-Source Multi-Zone Hub is the core of your ABUS system. It is the input connection point for the source components. It also distributes power and sound to each room volume control module. It also repeats infrared (IR) commands to the source components. Multiple hubs may be used to expand the system to more than eight rooms.

Operation Chart

<u>Function</u>	<u>ABUS-VC3 Volume Control Module</u>	<u>Multi-Source Multi-Zone Hub</u>
System Off	N/A	System Off
Room ON (zone 1)	Touch any key in a zone Module backlighting turns on Input LED indicates input (same as last selected) Volume (low level)	12v trigger ON to switch on source components System ON status trigger turns on
Room OFF	Tap centre OFF button Status (OFF button) remains on Input indicated	N/A N/A
Room ON	Tap volume UP/DOWN Backlighting ON Volume (same as previous level)	Hub already on
Other rooms (zone 1)	Status indicator ON (Off Button) Input indicated	If system is already on volume level will return to previous setting
Room 2 (zone 1)	Touch volume Up or Down Volume at low level	N/A
Zone 2 ON	Tap button Volume (low level) unless previously on	N/A
Volume	Touch and hold either Up or Down button Input indicates ripple right for volume up and left for volume down	N/A
Select Input 1-4	Tap left or right buttons to change input Four indicator lights	Changes input for that zone only (A & B outputs)
Room Off	Tap centre button Turns off power module Other rooms remain on	N/A
System OFF	Press centre button for three seconds Turns all rooms and zones off	Hub OFF Status light OFF (Green)
Power Supply LEDs		Indicates power status (Red)

ABUS-VC3 Keypad Volume Control Module

The ABUS-VC3 (RJ) Keypad Volume Control Module was designed to work with intelligent ABUS Multi-Source Hubs using standard ABUS commands. The ABUS-VC3 provides the following function:

- Volume Up/Down
- Input Selection Up/Down
- Room Off
- System Off
- Infrared repeating
- Status indication
- Infrared talkback
- Volume level change identification



IR Remote Control ABO-41RC

The ABO-41RC Remote Control is a very flexible device; it has been designed for easy operation and to allow users to tailor the operation for more sophisticated operation. It includes a code library for easy selection of codes, a dedicated ABUS code bank, all buttons can learn commands (including bank buttons) all buttons can learn macros (including the bank buttons). Quite often there are products not listed in the library so it is possible to encode commands into the Remote Control from the ones supplied with the source components. It is also possible to encode multiple commands into one key (macros). For example; you could encode into the SAT bank button commands to turn on your television monitor, the cable box and select the audio input in the ABUS Multi-Source Multi-Zone hub. The operator will then only need to press one button to turn the system on and set it up for normal TV operation. Additional ABO-41RC can be purchased if required.



Note: Macro strings take time to emit, the operator should take care not to turn the remote control away from the infrared receiver on the Volume Control Module or speaker before all commands have been generated.

ABUS-HUB4X8 Multi-Source Multi-Zone Hub

Audio Input (1) (2) - There are four stereo line-level source inputs (2). Each input has individual level adjustments (1) (left and right).

Trigger (3) - The trigger is activated when any part of the system is on; its output is 12 volts at 300mA.

Emitter Ports (5) (7) - Each source input has its routed emitter port (5) if more than one component of the same type is used the remote control commands will not be confused. Eg. 2 tuners. There is also a common emitter port (7) to control components that are common to all zones.

Indicators (4) (6) (10) - The green status indicator (4) is on when the system (one or all zones) is in operation. The red emitter indicator (6) flashes when there is an infrared data command passing through the hub. The power indicators (10) indicate when the corresponding power supply is on.

ABUS Outputs (8 A & B) - Each of the ABUS Outputs provides the power, audio and data signals to feed a Volume Control Module. There are four output zones, each zone may independently select from any of the four sources. Each zone has two outputs bank "A" and bank "B". One power supply is supplied with the hub to power the outputs for one bank. A second power supply can be added to power the second bank or alternatively the second output can be used as an expansion port to feed one or more single source hubs with expansion capability.

CAUTION: Only an approved ABUS 4-Room Power Supply (12) should be used. Substitutes which may appear to be suitable are not recommended and could void warranty.

DC Power Input Sockets (13) - There are two power sockets one for each output bank "A" and "B".

Data Expansion Ports (In/Out) (9) - Another ABUS-HUB4X8 may be connected to this port if additional zones are desired. Up to four ABUS-HUB4X8 Multi-Source Multi-Zone Hubs may be connected together, providing for a maximum of 16 zones. **CAUTION:** The Data Expansion Ports pass the control data between multi-source hubs and may not be used for any other purpose.

Note: The data expansion (9) and audio expansion (11) ports must be connected to additional hubs for proper function.

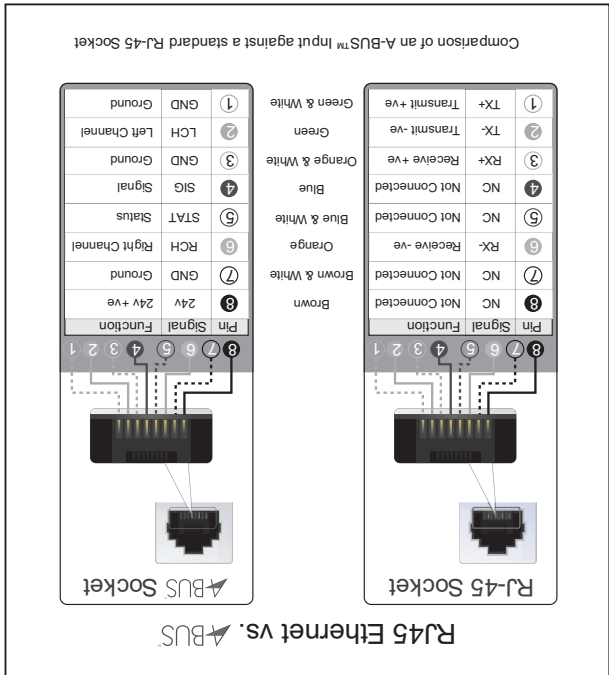
Expansion Ports (Audio) (11) - The RCA Expansion Outputs allow expansion of the audio sources to the main system amplifier or to an additional ABUS-HUB4X8 Multi-Source Multi-Zone Hub. The audio levels adjusted at the input will be the same on the output so no level adjustments will be required on the additional hubs).

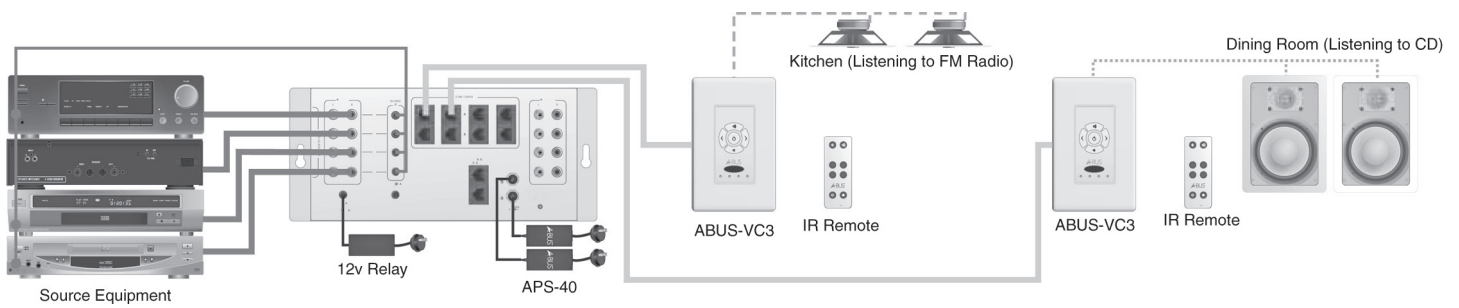
IR Remote Control (14) - One ABUS ABO-41RC remote control handset is supplied with the ABUS-HUB4X8 Multi-Source Multi-Zone Hub. This remote control includes a dedicated ABUS bank and includes keys for most standard functions including color box buttons (not used in all countries). The remote control has a code library built in; however, it is capable of providing advanced functions for user convenience. All keys have learning capability including the bank keys; all keys can also learn multiple commands (macros). See separate instructions.

ABUS Compatibility

This product complies with the A-BUS format. The A-BUS format has been adopted by other manufacturers who make a variety of products that can give your system added flexibility. When looking to expand and/or upgrade your home entertainment system, be sure to look for products that carry the A-BUS trademark.

RJ45 Ethernet vs. ABUS





Setup

Input Level Adjustments (1) - The Input Level Adjustments should all be set to the centre position to start with. If one source is louder than the other sources, turn both the Left and Right Input Level Adjustments for that source counterclockwise, reducing the input level to match the volume level of the other sources. If one source is lower than the others, turn both the Left and Right Input Level Adjustments for that source clockwise, increasing the input level to match the volume level of the other sources.

Trigger Output (3) - The Trigger Output may be used to activate a relay or other device that responds to a steady-state 12 volt trigger signal. This output may be used to power a Power Strip, which may be used to power the source components. When the System Off command is pressed, the 12 Volt Trigger Output will be turned off. Source components that are plugged into a trigger-controlled power strip will be switched off. Care should be taken to ensure that components will not lose their memories (clocks, etc. or presets) after long periods of non-use.

Infrared (IR) Emitter Ports (5) (7) - There are 5 emitter ports, 4 are routed ports. The routed outputs will only emit commands from the zone that has selected that source. This will allow more than one source device with the same code set to be used. If this is the case, light-blocking emitter caps should be used to prevent infrared commands from straying into the infrared receivers of adjacent components. The common emitter port will generate all commands from any zone with infrared capability. Some components have an IR IN socket on the back, it is recommended that this direct connection be used. **CAUTION:** Do not confuse a data bus connection with an infrared port.

TIP: 1. Finding the Infrared receiver location in some components can be difficult. To find the right place, place a large card with a hole the size of a folder punch hole in it over the front of the component and while generating a command from the components IR Remote control handset move the card around until the unit responds to the command.

2. In situations where the unit is not responding to the commands from the emitter or if the response is erratic the signal level may be too high. If the operation improves when the emitter is held away from the component a filter will be required such as some exposed camera film.

3. Some source components may not respond to repeated infrared commands. This is rare and may require a change in component.

System Indicator (4) - The green power light indicates when the system is turned on. The system is activated when the hub receives a source-select command from any zone. Once a command has been received by the Hub to activate, a 12 volt signal will be available at the Trigger Output (3). Other zones may be activated at any time. Individual volume control modules may require activation separately before sound can be heard. Regardless, of which Volume Control Modules are on or off, the 12 volt trigger will remain active until a System Off command is sent to the Hub.

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Infrared Talkback (6) - The Red Talkback indicator flashes when an Infrared data command is passing through the hub.

Mains Power (10) - The two red power lights indicated when the power supplies connected to bank A or bank B are active. These indicators do not indicate the system is active (see System Indicator [4]).

System Design

The ABUS-HUB4X8 Multi-Source Multi-Zone Hub is compatible with any ABUS Volume Control Module; however, some Volume Control Modules do not have the capability to control the ABUS-HUB4X8 Multi-Source Multi-Zone Hub directly from keypad buttons. We recommend using only Volume Control Modules with IR receivers built in, so that you will be able to control the ABUS-HUB4X8 Multi-Source Multi-Zone Hub by pointing an ABUS IR Remote at the Volume Control Module, which will repeat the IR commands to the ABUS-HUB4X8.

ABUS is a very flexible system, it allows for many variations not normally possible in traditional multi-room systems. For instance; it is possible to mix multi-source hubs with single source hubs. There are many reasons you may want to do this, the most common reason is because in open plan houses you may have interconnecting areas which are acoustically the same (family rooms, dining rooms and kitchens). So if you change the source in one area the other rooms can track the same source. Another example is bedrooms with bathrooms. In the master bedroom, the full-function Volume Control Module would normally be used; however, in the bathroom a less-expensive volume control module may be all that is needed. The Multi-Source Multi-Zone Hub has a second output port (the second bank requires a separate power supply) in each zone to cater for this requirement. If additional areas are required, the second output port may be connected to a separate 4-room hub to expand that zone.

Operation

The ABUS-HUB4X8 Multi-Source Multi-Zone Hub is controlled by ABUS Infrared (IR) commands. There are four audio inputs. When the hub receives a command for any one of the four inputs in any zone, the hub will switch on. This will be indicated by the green power indicator. The 12 volt trigger will also activate. If source components are activated by a power strip switched by the trigger, they will also activate. Each zone must have one power module with a keypad that includes buttons with ABUS functions (inputs 1-4 or Input Up/Down, Room Off and System Off commands). Alternatively, any Volume Control Module containing an IR receiver may be used in conjunction with an ABUS remote that has these IR commands built-in. Volume Control Modules without Room On/Off switches will activate when any Zone is turned on. Other modules with individual ON/OFF capability require either an on command or a volume Up/Down command to activate the module. These units will reset to a low volume level the next time the system is turned on. The ABUS OFF command will turn off the Volume Control Module only. To turn the whole system off, the SYSTEM OFF command must be used.

Infrared Repeater - Volume Control Modules that include infrared receivers will pass most infrared commands without difficulty. They will repeat standard 38 kHz commands and 56 kHz commands which are often used in satellite receivers. Care should be taken to ensure the emitters are properly placed over the receiver on the front of the component.

Infrared Range - The operating range of your remote control will vary according to the light conditions in the room, the quality of the IR remote (and battery condition) and the system design in the components. In ideal conditions in areas with low light the range should be up to 20M (70ft.), however, in areas of high sunlight or lighting such as low-voltage lighting which can emit light in the infrared frequency range the operating range can be substantially less. In direct sunlight the range will go down to 5M (15ft.). Care should be taken when planning your ABUS system installation to locate the Volume Control Modules in a position away from direct light and in a position convenient to the users to point the IR remote control to the receiver in the module.

Note: Remote controls are not RF devices. The commands are sent by line-of-sight and will not go around corners or through furniture or curtains.

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