



Clever Little Box.

ZSU-5A Zone Selector Unit

User Instructions



www.cleverlittlebox.com

Introduction:



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The **ZSU-5A** is a zone selector unit which, when used with a public address amplifier, allows up to 5 speaker zones to be controlled individually or simultaneously from an external console microphone or similar unit.

The Unit has an integral signal muting facility.

The Unit is supplied in a plastic case which can be wall or table mounted and is powered either by 240v (120v option) 50/60Hz mains and/or 24v DC.



By using the hinged quick-release catch, the enclosures can easily be closed by hand – use a standard screwdriver to open.



Description:



• Zone Control:

The zone control section consists of five DPCO relays which can be selected individually as required or all together by activation of the corresponding zone select terminal(s).

The 100v speaker line signal is connected to the AMP IN terminals which are connected to the Normally Open contacts of each relay. When the required relay is activated, the amplifier signal is routed to the corresponding zone's output terminals (e.g. +Z1 OUT and -Z1 OUT in the case of Zone 1).

Each Zone also has a set of terminals marked +Z1 IN (in the case of Zone 1) which are wired to the Normally Closed contacts of the corresponding selection relay. When the relay is relaxed (not selected) these are connected straight through to the +Z1 OUT and -Z1 OUT terminals allowing another amplifier to feed that zone. This could be used for background music etc., allowing a paging amplifier connected to AMP IN terminals to be routed to selected zones without disturbing the background music in the others.

The Zone IN terminals can be paralleled together as required. If no amplifier is connected to them they should be shorted together with a wire link to prevent crosstalk (i.e. +Z1 IN to -Z1 IN, +Z2 IN to -Z2 IN, etc.)

Activation of a selected zone is achieved by connecting the appropriate selection terminal to 0v (e.g. to activate Zone 1, the Z1 terminal should be connected to the 0v terminal, typically via a zone select switch in a microphone console).

An LED adjacent to the zone relay illuminates when the zone is selected, giving a visual indication of its operation and helping to confirm correct selection wiring etc.

The terminal marked AC is the All Call which activates all zones when selected by connecting it to the 0v terminals.

Description:



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• Signal Muting:

A signal muting facility is supplied, consisting of a DCPO signal relay which has all contacts brought out to the 'SIGNAL MUTE' terminal group. The actual muting can be achieved in several ways depending on the system requirements, although typically the signal (from tuner, tape deck, etc.) would be connected to the common terminal (C-1) and the normally open terminal (N\O-1). When the mute relay is activated the contacts close and the signal is short-circuited. It is important to check that the signal source from the tuner, tape deck, etc., is suitably buffered so that shorting-out the signal will not damage the source. If in doubt, the relay contacts should be configured to open circuit the signal to the amplifier.

As there are two sets of contacts available, several muting arrangements are possible. These include muting balanced signals, muting two separate signals or using one set of terminals to trigger a chime.

Activation is achieved by connecting the MUTE terminal to the 0v terminal on the zone select terminal group, visual indication of operation being given by LED6 'MUTE'.

• Signal Wiring point:

When wiring a multizone microphone these terminals can be used as a neat and convenient wiring point for the microphone signal. These can then be wired to the amplifier mic input.

• DC OUT:

A 24 volt DC fused supply is available from the Unit, and is suitable for powering ancillary equipment such as multizone consoles, line amplifiers, tone generators, etc. The current available is limited to 100mA by a fuse (F2).

• DC IN:

The ZSU can be powered from an external 24 volt power supply via these terminals. The Unit has reverse current protection, so that both the mains supply and the external 24v can be connected at the same time (e.g. when used in systems requiring battery backup).

• MAINS INPUT:

Connect the mains input to the 'L', 'N' and 'E' terminals and ensure that the supply cord is held firmly in place by the cable clamp adjacent to the terminals. The Unit is supplied with a standard input voltage of 240v 50/60 Hz, although it can be supplied with a 120v 50/60 Hz input as an option.



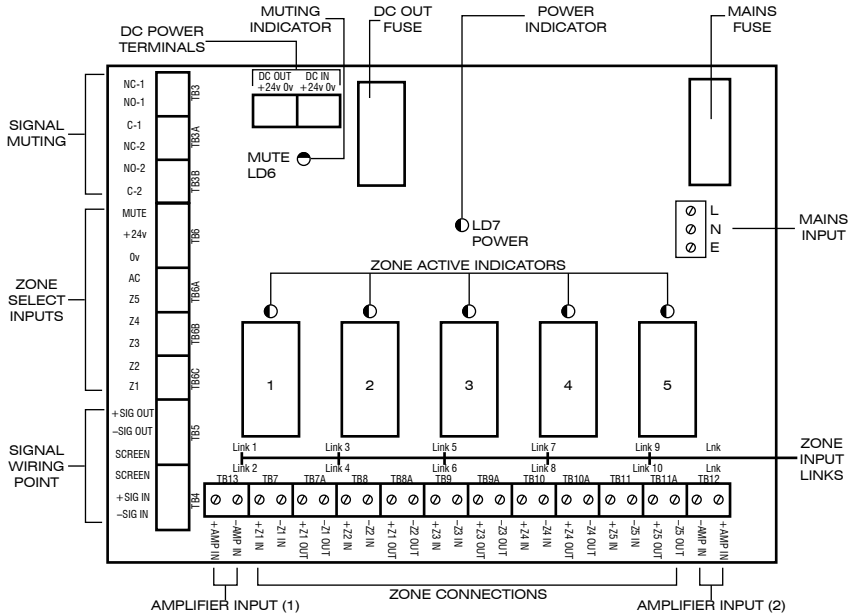
• WARNING:

Under no circumstances should any wiring be carried out to the unit while the mains power is connected.

Layout Diagram:



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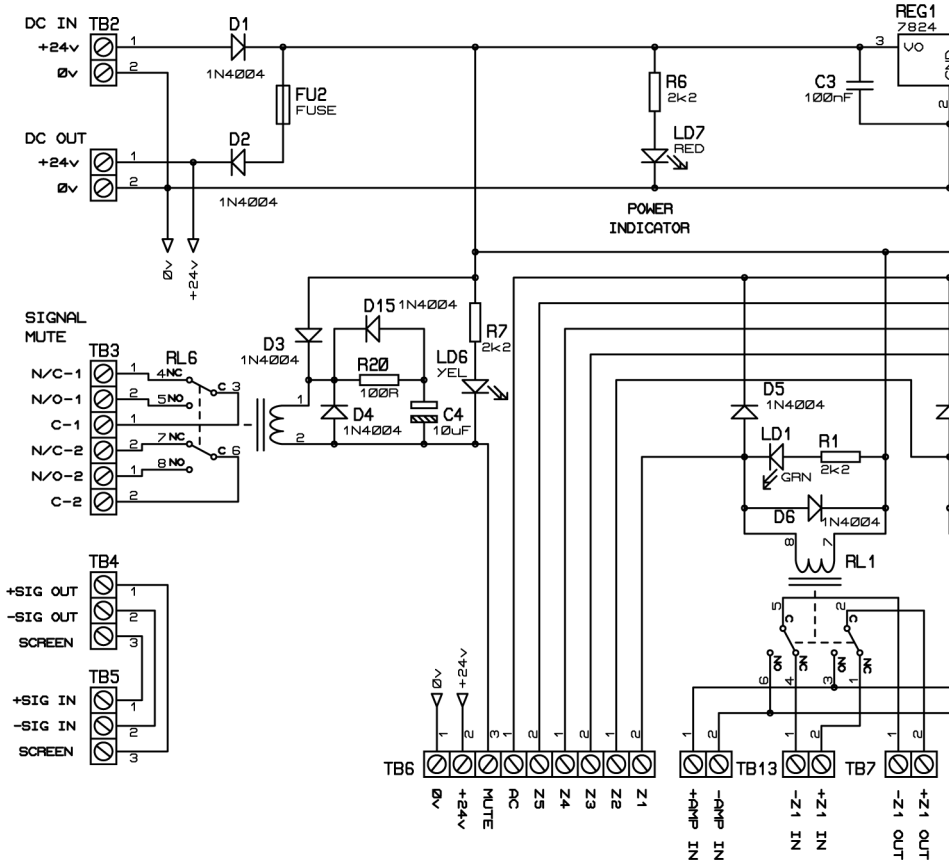


Specifications:

Zone switching:	5 individually selectable zones, plus All-Call
Muting operated:	2 sets of change-over contacts-over (2 pole 2 way) from a single input
Zone relay ratings:	DPCO 5 Amp 250v AC contact rating with 24v DC coil
Muting relay rating:	DPCO 1 Amp 30v AC contact rating with 24v DC coil
Visual status indication:	By LED indicators mounted on PCB
Power handling:	750W with 100v line signal
Connections:	Screw terminations on PCB
Power requirements:	240v AC 50/60 Hz (120v option) and/or 24v DC
Power consumption:	11W using 240v AC supply, 185mA using 24v supply
DC supply	
Case materials:	Light grey painted metal
Case dimensions:	220(L) x 165(W) x 50(H) mm
Weight:	1.7kg

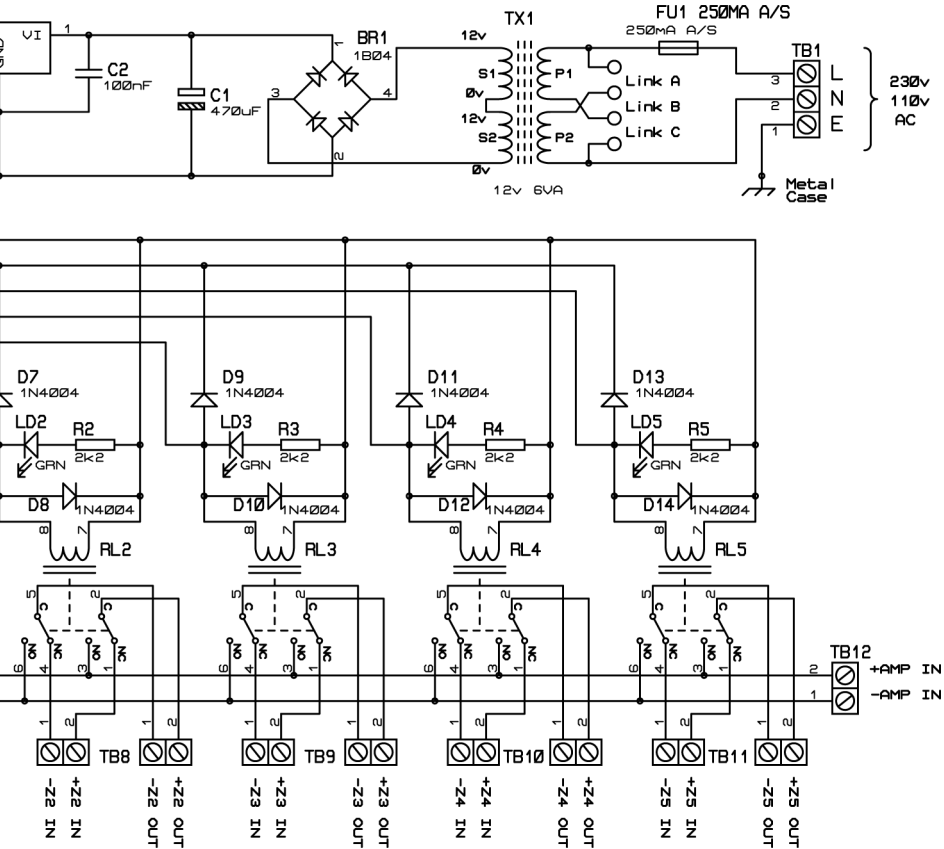
Circuit Diagram:

Zone Select





or Unit 5A



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BY: Richard Turrell	PAGE:
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All connections to the ZSU are made via screw terminals mounted on the edge of the printed circuit board.

• Amp in:

There are two pairs of 'AMP IN' terminals, one on the right side of the ZONE CONNECTIONS and the other on the left. The output of the amplifier can be connected to either as by default they are connected together internally.

It is however possible to isolate the two pairs of terminals so that two separate amplifiers can be used, e.g. one amplifier supplying Zones 1 and 2, and the other supplying zones 3,4 and 5. Please contact our Technical Department for further information. (See our website for contact details).

In the case of an unbalanced or polarised system, the 'earthy' or ground line should be connected to the -AMP IN terminal.

• Zone in:

Abbreviated to +Zn IN and -Zn IN (where 'n' represents the zone number). An output from an auxiliary amplifier supplying BGM etc., can be connected to these terminals as they are routed directly to the corresponding Zone OUT terminals when the zone is not selected. The Zone IN terminals can be paralleled together as required (observe polarity!). If they are not used, a shorting link should be fitted in between them (i.e. +Z1 IN to -Z1 IN, in the case of Zone 1 to prevent crosstalk).

• Zone Out:

Abbreviated to +Zn OUT and -Zn OUT (where 'n' represents the zone number). The wiring from the speakers within a particular zone should be connected to these terminals e.g. the wiring from the speakers in Zone 1 should be connected to +Zn OUT and -Zn OUT. Similarly, the wiring from Zone 2 should be connected to +Z2 OUT and -Z2 OUT etc.

• Zone Select:

These terminals are identified by the zones they control (i.e. Z1 activates Zone 1, Z2 activates Zone 2, etc). The terminal marked AC is the 'all call' input which activates all the zones simultaneously. The 'MUTE' terminal controls the operation of the SIGNAL MUTE RELAY.

Selection is carried out by connecting any of these terminals to the 0v terminal, usually by closing switch contacts in a microphone console.

Connection details:



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• Signal Mute:

These are simply the two sets of muting relay contacts brought out to terminals. N/C refers to Normally Closed contacts, N/O to Normally Open contacts and C to the Common contact. For wiring options see the section 'Signal Muting'. DC OUT 24 volts DC at a maximum of 100mA is available from these terminals. The output is protected by a 100mA plain fuse (F2).

• DC IN:

An external 24v supply which is to be used to power the unit should be connected to these terminals.

• Mains Input:

The mains power input should be connected to these terminals. The supply input should be 230 volts ($\pm 10\%$) 50/60 Hz. A 120 volt 50/60 Hz option is available. The Live conductor should be connected to the terminal marked 'L' the Neutral to the terminal marked 'N' and the Earth to the terminal marked 'E'.

• Mains supply colour coding:

The UK convention for mains supply colour coding is:

LIVE:	BROWN
NEUTRAL:	BLUE
EARTH:	GREEN/YELLOW

• Accessories supplied:

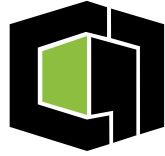
4 x 1.25" x 6 mounting screws

4 x 30mm plastic rawlplugs

Notes:



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