Soundweb™

Soundweb™ 9000

Installation Guide

BSS Audio

Regulatory Information

An example of this equipment has been tested and found to comply with the following European and international Standards for Electromagnetic Compatibility and Electrical Safety:

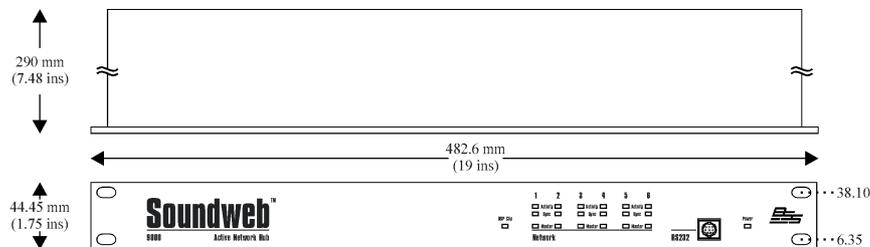|		
Radiated Emissions (EU):	EN55022B	(1994)
Immunity (EU):	EN50082/1	(1992) RF Immunity, Fast Transients ESD
Mains Disturbance (EU):	EN61000/3/2	(1995)
Electrical Safety (EU):	EN60065	(1993)
Radiated Emissions (USA):	FCC part 15 Class B	
Electrical safety (USA):	UL6500	

Important safety information - read and follow

Do not remove covers. No user serviceable parts inside, refer servicing to qualified service personnel. For continued compliance with international EMC regulations, it is important that all cables be screened, and connected as follows: Control cable screens to the ground screws adjacent to the connector. Network cables should be of type CAT.5. **WARNING: This equipment must be earthed**. It should not be necessary to remove any protective earth or signal cable shield connections to prevent ground loops. Any such disconnections are outside the recommended practice of BSS Audio, and will render the EMC or safety certificate void. Do not defeat the safety purpose of the polarised/grounding plug. A polarised plug has **2** blades, one wider than the other. A grounding type plug has **2** blades, and a **third** grounding prong. The third prong is provided for your safety. When the provided plug does not fit an electrical outlet, consult a qualified electrician.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

No-user servicable parts compartment warning.

Mechanical Installation

290 mm
(7.48 ins)

482.6 mm
(19 ins)

44.45 mm
(1.75 ins)

Note: All dimensions in mm.

If the unit is likely to undergo extreme vibration through extensive road trucking and touring, the unit must be supported at the rear and/or sides to lessen the stress on the front mounting flange. The necessary support can generally be bought ready-built as a rack tray, or the 9000 unit can be mounted between other units. Damage caused by insufficient support is not covered by the warranty. To prevent cosmetic damage to the front panel finish, use protective plastic cups under the rack mounting bolts.

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Front panel LED functions

Network monitoring

Each node has 3 LED indicators showing:

Network

Master

Flashing - The network is initialising. If it does not cease to flash, there is a cabling fault - either a double ring error or a problem with one of the cable connectors.

Steady - This node has become the hub master for this unit. It is either directly connected to the network master, or connected to a ring which contains the network master.

Off - This node is slaving to the master's clock.

Sync

Steady - This indicates the presence of a valid network connection on this node.

Flashing - There is a problem with the incoming network signal - possibly the maximum cable length has been exceeded.

Activity

Flashing - This LED indicates data transfer. The flashing is not regular, but dependant on the rate of transfer.

The node 1 light also indicates RS232 serial messaging in the same manner.

DSP Clip

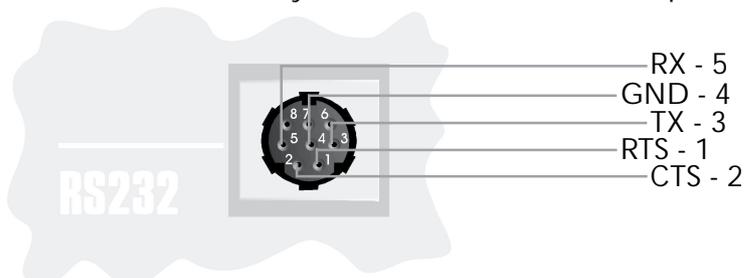*Illuminated* - Indicates that the signal is clipping internally.

Power

Steady - This indicates that the power supply is functioning.

Front panel details

RS232

Used to connect one of the 9000 units in the network to a controller PC, which can then communicate with any device on the network. The pin out is:

RX - 5
GND - 4
TX - 3
RTS - 1
CTS - 2

Control cable wiring details

All control connections to the 9000 are via Klippon pluggable terminal block connectors (also known as BL, Phoenix or Combicon). 6-way female Klippon connectors are supplied for making these connections.

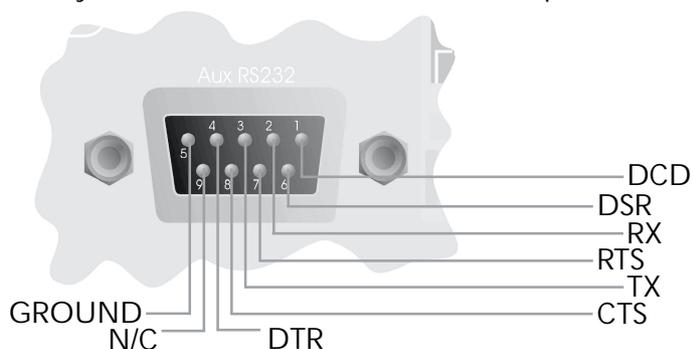# Rear panel details

Mains inlet

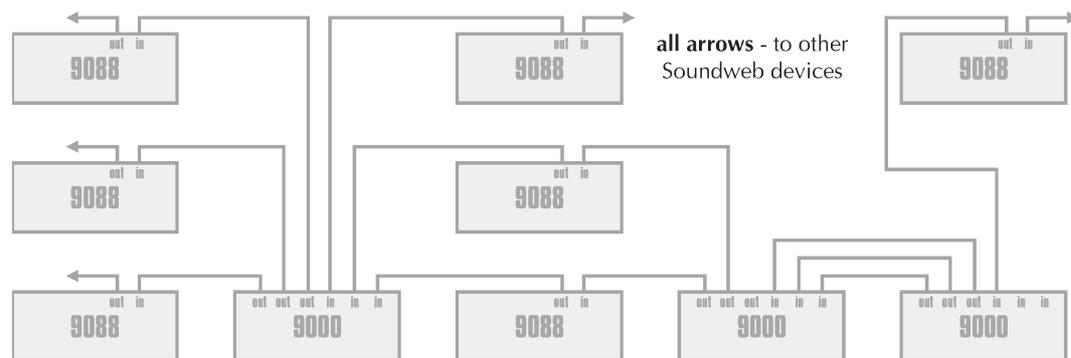IEC power connector for removable mains supply.

Fuse holder

Mains fuse - requires a 20mm T1A type fuse.

Aux RS232

This is for connection to a PC, modem, AMX panel or other RS232 controller. A control PC may be connected here, or via the front panel RS232 port. The pin out is as follows:

An example system showing possible connection set-ups.

Each network socket on the SW9000 can be thought of as a terminal device node. The unit allows each branch of the network connected to each socket to act as a 'ring'. Note that several cables may be used to interconnect two or more SW9000 devices, and so increase the number of audio channels that may be passed between them. The connecting cable is CAT. 5 network cable, terminated with RJ45 connectors, with all 8 cores wired straight through.

Note that the twisted pairs in any CAT.5 network cable must be wired to the following pin pairs at each terminal (see page 8 for diagram):
1 (White-Orange) with 2 (Orange)   3 (White-Green) with 6 (Green)   4 (Blue) with 5 (White-Blue)   7 (White-Brown) with 8 (Brown)

Note: There must be at least **1 (one)** 9088 unit in the network, with only one node connected. For example, if you wish to have two 9000 units and one 9088 unit in the same network, the 9088 **must** be a terminal device.

Control Inputs

Used to connect switches or potentiometers to the 9000. These eight inputs are internally 'pulled up' to +5V DC via a 4.7kOhm resistor, so no external voltage source is needed. Four common (ground) connections are provided (all connected together internally). A 47kOhm log potentiometer connected between one input and common will allow parameters to be controlled linearly. Alternatively, a switch may be connected between an input and common, or a multiway switch may be connected to several inputs with the wiper connected to common.

Logic Outputs

Used to connect the 9000 to 'tally' indicator LEDs or relays. There are eight standard logic outputs which produce 0V or +5V DC via an internal 440 Ohm resistor. Two common (ground) connections are provided (connected together internally). A LED connected between one output (Anode, A) and common (Cathode, K) will illuminate when the logic output is activated, without requiring any external current limiting resistor. A high sensitivity relay (such as a reed relay) may be driven by connecting four outputs in parallel. This arrangement will develop 4V across a 500 Ohm coil, providing that all four outputs are made logic 1 simultaneously.

Opto output

In addition to the eight standard logic outputs, there is an isolated output, which fails safe (open circuit) if the 9000 becomes faulty. This is effectively the collector-emitter of a transistor (which may be thought of as a switch) in series with a 220 Ohm protection resistor. In conjunction with an external DC power source (max 80V), this may be used to drive various loads such as relays.
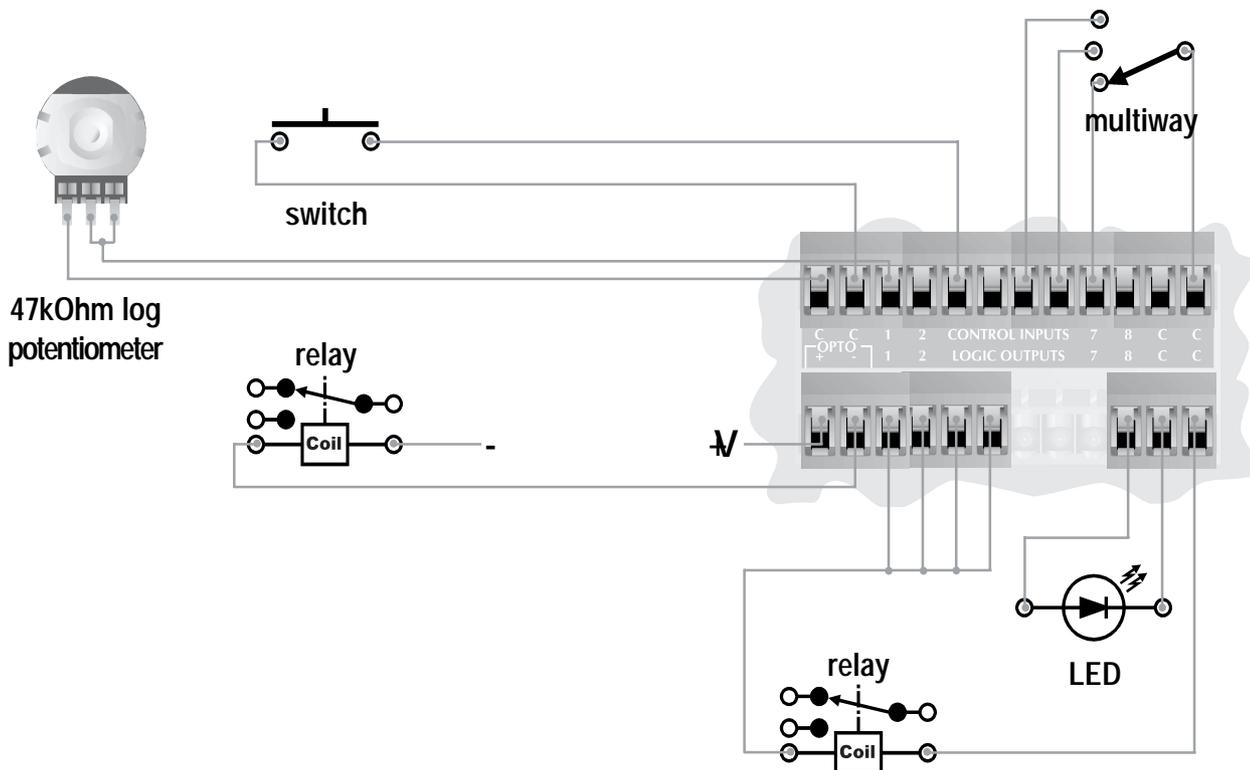
Technical specifications

General

Maximum network cable length	300m/1000ft
Power consumption	<35VA
Mains Voltage	85-270V 50/60Hz

Control ports

Logic output voltage	0 or +5V unloaded
Logic output impedance	440 Ohm
Opto output series impedance	220 Ohms (isolated)
Control input voltage	0 to 4.5v
Control input impedance	4.7kOhms to +5V
Opto Output current	14mA max
Opto output withstanding voltage (off)	80V max.

Network cable wiring

Wiring convention for all CAT.5 cables.
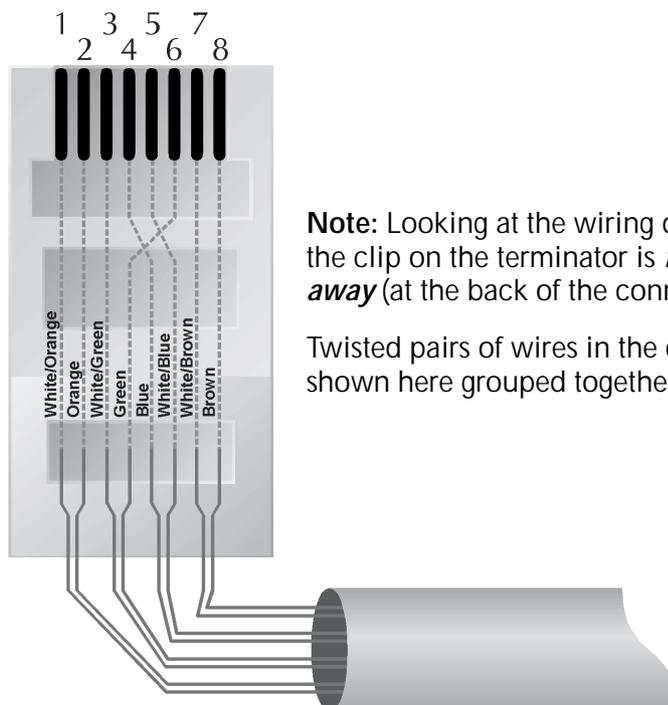
Note: Looking at the wiring diagram, the clip on the terminator is *facing away* (at the back of the connector).

Twisted pairs of wires in the cable are shown here grouped together.