Soundweb™

Overview

The Soundweb 9088*ii*DSP unit is the heart of the Soundweb system. As a standalone single rack space device it has all the facilities required for a sound system processor; 8 inputs, 8 outputs, a DSP engine, networking for connection and signal distribution to other Soundweb units, analogue GPI control interfacing, and RS232 ports for external control by PC or Panja/Crestron type systems. Plug in an audio source, an amplifier, and speakers and you are away.

All the facilities are included in a 9088*ii*, there is no additional Soundweb system hardware required to begin building physical systems. The only option decision to make is the choice of line input, mic/line input cards or AES/EBU Digital input/output cards. Each digital card accepts 2 stereo inputs at sample rates from 32kHz to 96kHz, and can output at 44.1, 48, 88.2, and 96kHz. When digital inputs are used, the analogue outputs remain in use as a mirror version of the digital output.

Each Soundweb 9088*ii* can typically hold up to 12 completely different system designs in its own memory. Programming the unit is accomplished via the Soundweb Designer software, available free of charge from the BSS Audio website (www.bss.co.uk)

For safety-critical systems, the Soundweb 9088*ii* has an opto-isolated output which functions as a watchdog. The opto-isolator conducts when power is applied to the unit and the software is functioning correctly but, stops conductingin the event of a power failure or other fault. This function can be used to trigger alarm systems or to construct redundant systems.

> » **8 Analogue Mic/Line Inputs and 8 Analogue Outputs**
>
> » **Optional AES/EBU digital input/output (2xstereo) cards with external word clock input**
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> » **Standalone unit with 200MIPS of DSP resource**
>
> » **Integral multivoltage PSU (85V - 270V AC)**
>
> » **Analogue Control ports for GPI hardware interfacing eg faders, switches & LEDs**
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> » **Front and rear access RS232 ports for PC control**
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> » **Integral memory holds up to12 DSP system designs.**
>
> » **Optional lacing bar to secure cabling**

Architects and Engineers Specifications

The Digital Signal Processor shall be a stand-alone unit of one rack space, capable of providing a fully-functional system with 8 analogue inputs and 8 analogue outputs, without the need for a dedicated, on-line computer system. The Analogue inputs shall have a remotely-adjustable gain stage prior to A/D conversion.

The system designer shall be provided complete flexibility in system configuration.

Line inputs or combination Microphone/Line inputs shall be provided, together with channel-selectable 48 volt phantom power for the microphone inputs. The unit shall provide a tamper-proof front-panel with no user-adjustable controls. Front panel LED indicators will provide monitoring of signal presence, clip and network status. Analogue/Digital/Analogue conversion shall be by 24-bit A-D converters and 24-bit D-A converters to provide maximum operating headroom and performance. The Dynamic Range shall be 105dB minimum (unweighted, 108dB A-weighted), with a THD figure of less than 0.01%.

Optional AES/EBU Digital input/output cards shall be available, each card having 2 stereo inputs and 2 stereo outputs. Input sample rates shall be accepted from digital sources with rates from 32kHz to 96kHz, and the user shall be able to select output sample rates of 44.1kHz, 48kHz, 88.2kHz, 96kHz or any sample rate between 32KHz and 96KHz using external clock synchronisation. Clock synchronisation shall be possible with the first digital input, the internal clock or an external word clock on a BNC connector.

Input and Output connections are provided via modular, Phoenix/Combicon style hardware. Mating connectors (Phoenix/Combicon MSTB 2.5/6-ST-5.08 or equivalent) shall be supplied with each unit on delivery or in advance.

The Signal Processor shall also be networkable over Category 5 cable (as established in the TIA/EIA-568-B standard), to provide 8 channels of audio signals and control data routing between processors for system expansion or communication. This network shall be terminated on RJ-45 connectors, and be stable over distances up to 1000 feet between units. There shall be available a fibre-optic converter to extend this distance to 1.2 miles. The network shall allow system expansion at a later date through the addition of further Signal Processors.

System Configuration shall be by a Personal Computer, which may be disconnected after configuration without affecting installed operation of the unit. Up to 12 System Configurations shall be stored in each processing device, and these configurations shall not be limited by factory-only presets or pre-determined processing. It shall be possible to configure a number of system presets, which may be recalled at any time via the PC or external control devices.

The unit's software shall provide a palette of audio processing objects for use in system designs to include, but not be restricted to: Automatic Microphone Mixers, Ambient Noise Compensators, Crossovers, Compressors, Gates, Duckers, Expanders, Limiters, Gain blocks, Graphic Equalisers, Parametric Equalisers, Stereo Parametric Equalisers, Filters, Metering points, Delays, Mixers, Matrix Routers, Matrix Mixers, Source Matrices, Tone Generators, and Source Selectors. The software shall provide the facility to construct user-defined control panels incorporating elements of the processing object parameter controls. Multi-level password-based security shall protect the integrity of the system.

The device configuration window shall provide a DSP gauge to inform the designer as to the percentage of DSP usage. The system design software shall be compatible with either Windows 95 or Windows NT4, 32 bit operating systems.

The software shall provide a facility to create personalised, custom processing objects for use in system designs, with provision for intellectual property cloaking via Macros.

It shall be possible to connect standard potentiometers and switches or control voltages to 8 control input ports to allow non-technical operators to change system presets or variable parameters. An additional 8 control output ports shall provide logic outputs for purposes of signal indication, external switching systems, or other similar system control applications. An opto-isolated failsafe indicator shall be provided on an open-collector output.

Two RS-232 ports shall be provided to allow control of the unit from Multimedia Systems such as AMX, Crestron, Dataton, Avenger or other PC devices communicating in a serial mode, as well as independent, simultaneous control and programming from a PC operating Soundweb Designer software. The RS232 port on any device shall provide access to all devices that are properly networked together. It shall be possible to use multiple PC's connected to separate signal processors in a network to control the system. It shall also be possible to remotely control the system network using a PC & modem to connect over telephone lines to another modem connected to the system network.

To aid in system management, the software shall provide a method of event logging so that system diagnostics are available. This event log shall include failures, warnings and information notices, and shall display the time of the event occurrence and the device to which the event applies and the design file originally loaded.

Soundweb™ 9088*ii* DSP System
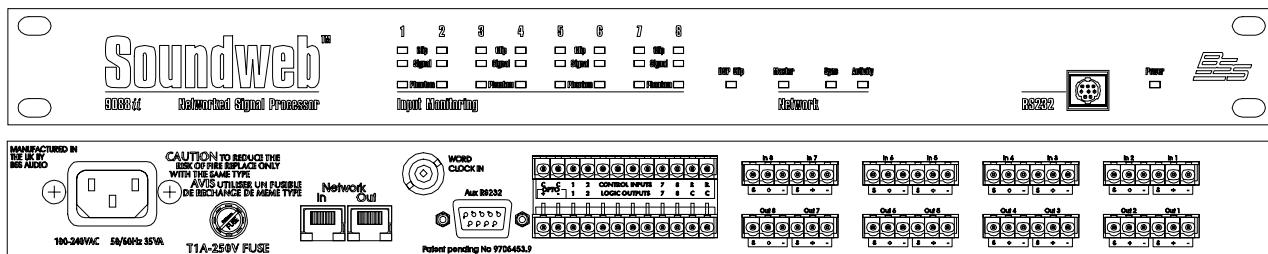
9088*ii* Technical Specifications

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INPUTS	8 Analogue; electronically balanced
Connectors:	Phoenix/Combicon removable screw connectors.
Line Inputs:	Nominal gain 0dB, electronically switchable to +12dB gain, input impedance 10kOhm
Mic/Line Inputs:	Nominal gain 0dB, electronically switchable up to +72dB, in +6dB steps, input impedance 3.5kOhm
Maximum input level:	+20dBu with 0dB input gain (+8dBu with 12dB gain)
CMRR	>75dB at 1KHz
Equiv. Input Noise (EIN):	<-128dBu typ with 150 Ohms source
Phantom power:	48V nominal, selectable per input
AES/EBU Digital Inputs:	2x 2 channel inputs per card
Sample Rates:	32 to 96kHz, auto selected
Connectors:	Phoenix/Combicon removable screw connectors
OUTPUTS	8 Analogue; electronically balanced
Connectors:	Phoenix/Combicon removable screw connectors.
Maximum Output Level:	+20dBu
AES/EBU Digital Outputs:	2x 2 channel outputs per card
Sample Rates:	44.1, 48, 88.2, 96kHz, user selectable
Connectors:	Phoenix/Combicon removable screw connectors
Digital Resolution:	24 bit
Frequency Response:	15Hz to 20KHz (+-0.5dB)
THD:	<0.01% (20Hz to 20KHz, +10dBu output)
Dynamic Range:	105dB typ. (22Hz to 22KHz unweighted) 108dB typ. (A-weighted)
Crosstalk:	<-75dB
CONTROL PORTS	8 inputs and 8 outputs
Control Input Voltage:	0 to 4.5v
Control Input Impedance:	4.7kOhms to +5V (2-wire mode) >1MOhm (3-wire mode)
Logic Output Voltage:	0 or +5V unloaded
Logic Output Impedance:	440 Ohm
WATCHDOG OUTPUT	Phoenix/Combicon connector for failsafe control
Opto Output current:	14mA maximum
Withstanding voltage:	80V maximum (Off)
Series Impedance:	220 Ohms (isolated)
NETWORK	
Connectors:	2x RJ45
Maximum cable length:	300m/1000ft, (longer using 9014 fibre converters)
Panel Led Indicators:	Signal Present (per input), CLIP (per input), network input active, network output active, network Master indicator.
Mains Voltage:	85-270V AC, 50/60Hz,
Power Consumption:	<35VA

Input Connector Pin-outs
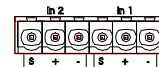
Each connector accomodates two inputs, pin 1 is on right when viewed from rear:
Pin 1: Input 1 (3,5,7) Screen (ground)
Pin 2 : Input 1(3,5,7) +ve (hot)
Pin 3 : Input 1 (3,5,7) -ve (cold)
Pin 4 : Input 2 (4,6,8) Screen (ground)
Pin 5 : Input 2 (4,6,8) +ve (hot)
Pin 6: Input 2 (4,6,8) -ve (cold)

Output Connector Pin-outs
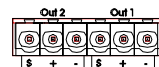
Each connector accomodates two inputs, pin 1 is on right when viewed from rear:
Pin 1:   Output 1 (3,5,7) Screen (ground)
Pin 2 : Output 1(3,5,7) +ve (hot)
Pin 3 : Output 1 (3,5,7) -ve (cold)
Pin 4 : Output 2 (4,6,8) Screen (ground)
Pin 5 : Output 2 (4,6,8) +ve (hot)
Pin 6:   Output 2 (4,6,8) -ve (cold)

Digital cards have 2 inputs and 2 outputs per card, wired as above, with inputs to the right as viewed from the rear.

Network Port pin-outs
Pairs, according to TIA/EIA-568-B standard
Pin 1 (White) with Pin 2 (Orange)
Pin 3 (White/Green) with Pin 6 (Green)
Pin 4 (Blue) with Pin 5 (White/Blue)
Pin 7 (White/Brown) with Pin 8 (Brown)

Control port pin-outs
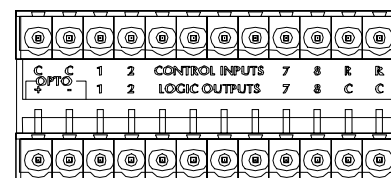
Upper Row: Logic Inputs
Pin 1, 2, : Common. Pin 11, 12 : Reference
Pin 3,4,5,6,7,8,9,10: Logic Input
Lower Row: Logic Outputs
Pin 1, 2, 11, 12 : Common
Pin 3,4,5,6,7,8,9,10: Logic Output

BSS Audio have a policy of continued product improvement and accordingly reserve the right to change features and specifications without prior notice.