

NSC8 SIGNAL CONTROLLER

The QSC NSC8 Network Signal Controller is an analog signal controller for audio power amplifiers. Operated via a serial or Ethernet data link and/or direct contact closure signals, the NSC8 provides eight independent channels of level control, limiting, metering, and muting. The NSC8 will function effectively with any professional power amplifier, QSC or any other brand.

FUNCTIONS

SIGNAL CONTROL

The NSC8 has eight identical independent analog signal control channels, each providing the following functions:

- Gain control
- Input and output signal level metering
- Channel mute
- Compression/limiting (gain reduction)

INPUT SELECTION

Each signal control channel derives its input from any of these sources:

- Channel 1/left input
- Channel 2/right input
- Its respective input
- A common paging/aux input
- An internal tone generator

PROGRAMMABLE PRESETS

- All operating parameters, including NSC8 AC power on/standby, are programmable into 16 presets
- Preset parameters user-defined using PC software
- Selectable via control program or with logic inputs

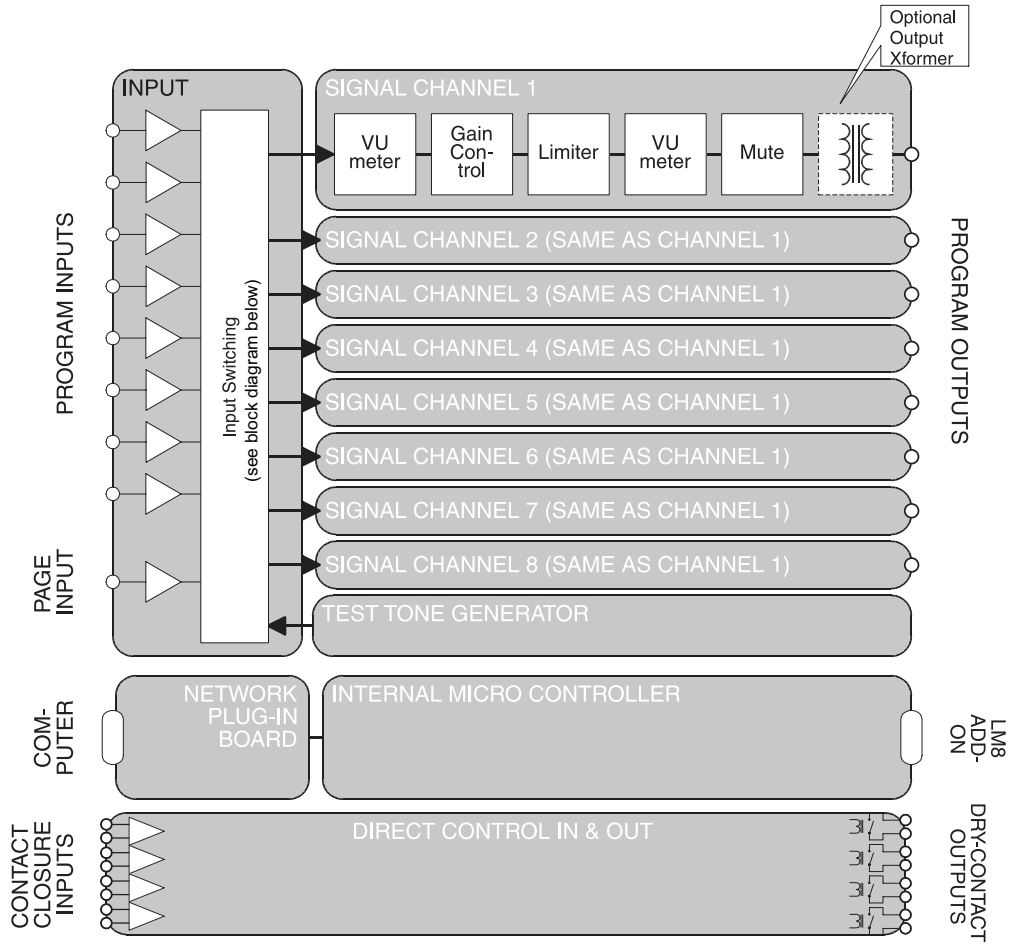
TEST TONE GENERATOR

An internal low-distortion sine wave generator produces 20 Hz–20 kHz test signals

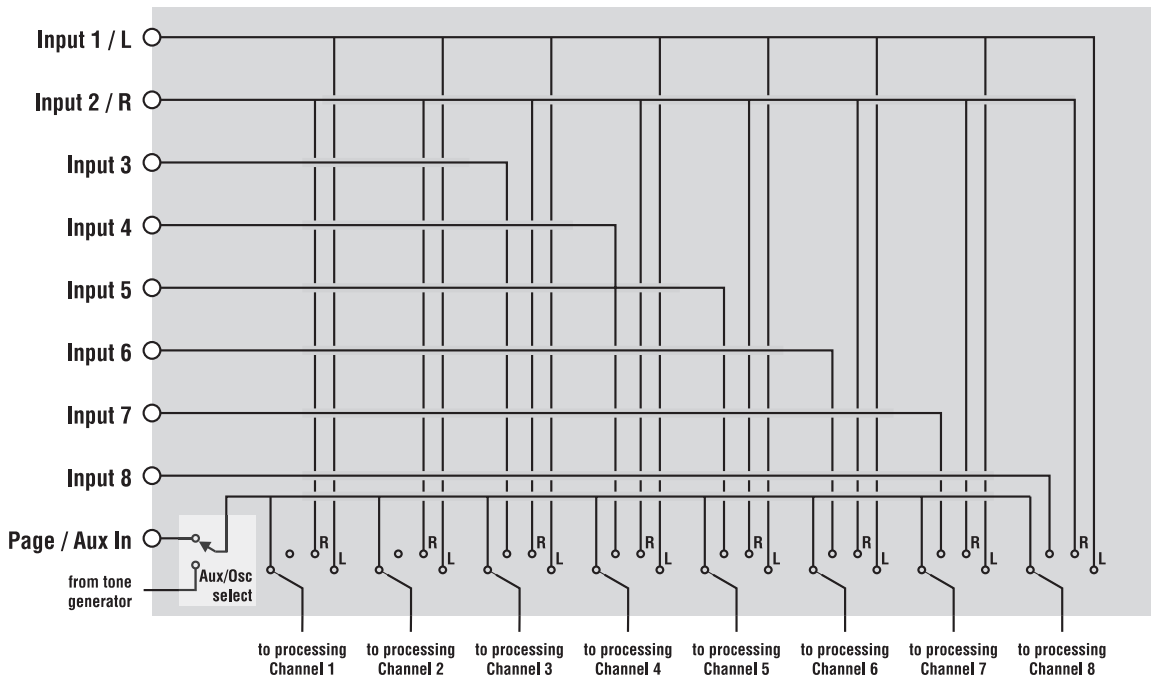
EXTERNAL INTERFACING

- Direct inputs—can be driven by switches or logic circuits
- Floating dry-contact relay outputs

BLOCK DIAGRAM



NSC8 PROCESSING ARCHITECTURE



NSC8 INPUT SWITCHING

ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The NSC8 Network Signal Controller shall provide eight identical independent channels of analog signal control. Each channel shall provide input level, output level, and gain reduction metering, gain control, gain-reduction compression / limiting, and mute.

The NSC8's input connectors shall comprise eight program inputs numbered one through eight, and a ninth input designated as the common paging input. Each processing channel shall receive its input from a signal routing function that allows the channel to derive its input from the Channel 1 connector, the Channel 2 connector, the connector whose number is the same as the number of the channel in question, the common paging input, or the internal test tone generator. For example, it shall be possible to select channel 5's input from program input connectors 1, 2, or 5, or from the common paging input, or from the internal test tone generator.

All inputs shall be electronically balanced, shall have high common-mode rejection, and shall be highly EMI-resistant. Maximum input level shall be +24 dBu. All outputs shall be unbalanced; however, an internal output balancing transformer option shall be provided for each channel. Maximum output level shall be +20 dBu. Audio connectors shall be of the "Phoenix" removable barrier strip type.

The gain control of each channel shall be of the voltage-controlled amplifier type, and shall be of sufficient quality to limit end-to-end total harmonic distortion of each channel to .08% from 20 Hz to 20 kHz. Gain control range shall be at least 127 dB, with step size of 0.5 dB. Maximum channel gain shall be +27.5 dB.

Each of the eight signal channels shall include an internal socket for an optional active or passive input pre-processing module. Each socket shall provide access to its respective input connector, to the channel signal inputs, and to the microprocessor, and shall provide DC power.

The NSC8 shall provide four direct contact-closure sense inputs, and four dry-contact floating relay outputs.

The NSC8 shall support the attachment of an LM8 Load Monitor to provide on-line monitoring and off-line measurement functions in the power amplifier output circuit, for the purposes of loudspeaker failure detection and system maintenance.

All NSC8 functions shall be controlled and monitored via a serial or Ethernet data link to an IBM-compatible computer running QSC-supplied control software. The computer connection to the NSC8 shall be implemented on its own plug-in printed circuit board, thereby allowing field upgrade to future data communication interfaces.

The NSC8 shall be fully programmable, with all operating parameters under software control. Up to 16 separate parameter sets ("presets") shall be definable by the control software, and shall be recallable either by the control computer or via signals input to the contact-closure sense inputs. The definitions of all presets and their relationships to the contact-closure signals shall be stored in nonvolatile memory within the NSC8.

The NSC8 shall be packaged in a 2RU case, with no front panel controls other than power on/standby.

SPECIFICATIONS

AUDIO CONTROL

Inputs

Connector type	Phoenix-type detachable barrier strips
Type	Electronically balanced,
Nominal level	+4 dBu
Maximum level	+23 dBu
Input impedance	15k Ω differential
Common-mode rejection	>50 dB 20 Hz–20 kHz
Equivalent input noise, 20-20k unweighted	-95 dBu

Maximum level	+20 dBu
Output impedance	10 Ω
Frequency response	20 Hz–20 kHz \pm 0.5 dB
THD+N @ 0 dBu out	0.03% 1kHz
	0.08% 20-20kHz

Gain control

Range	-100 dB to +27.5 dB
	in 0.5 dB steps

Channel Output Metering

Type	True RMS in decibels
Range	-45 dBu to +24 dBu

Outputs

Connector Type	Phoenix-type detachable barrier strips
Type	Single-ended; balancing transformers optional
Nominal level	+4 dBu

Compressor/ limiter

Ratio	2:1, 4:1, 8:1, ∞ :1
Threshold	-36 dBu to +24 dBu
	in 0.25 dB steps
Time constant	11 ms, 35 ms, 112 ms

DIRECT CONTROL

Inputs

Configuration	4 discrete inputs Single-ended input with internal 5 VDC pullup. Open = logical "1" TTL & CMOS compatible.
Sense current	1.5 mA max
Input voltage	\pm 50 VDC max

Outputs

Configuration	4 discrete outputs Electromechanical relay contacts, floating
Switching current	2.0 A (DC), 1.0 A (AC) max
Holding current	1.5A (DC), 0.75A (AC) max
Ground isolation	70V max

DATA INTERFACES

Computer interface

Link type	SCC-1 RS-232 serial link
Raw data rate	9600 bits per second
Connector/Cable type	DB9/null modem

ECC-1

10baseT Ethernet or 10 Mbits per sec. RJ-45/Cat. 5
--

LM8 Expansion port

Connector	DB15
Cable length	6 feet max

GENERAL

Physical

Height	3.5" (2RU)
Width	19" (standard rack mount)
Depth	13.5"
Weight	10 lbs (4.5 kg).

Power

Voltage	110-120 VAC 50-60 Hz, 220-240 VAC 50-60 Hz, selectable
Modes	On, off, standby. On/standby software-selectable.



QSC Audio Products, Inc.

1675 MacArthur Blvd., Costa Mesa, CA 92626-1468

Ph (714) 754-6175 **Fax** (714) 754-6174 **Email** info@qscaudio.com **Web** www.qscaudio.com