SSCN-3

Hardware Manual

SSCN Series
SN: 20100729 Ver: 1.1

Warning：

▲ Because of the SSCN-3 module uses linear power supply, the heat sink at the bottom would be very hot when the SSCN-3 module is running, please don’t touch the heat sink to avoid to be scalded. And please pay more attention to the cooling of the module.

▲ Digital power supply range: +4.5V~5.0V

1 SSCN-3 instruction

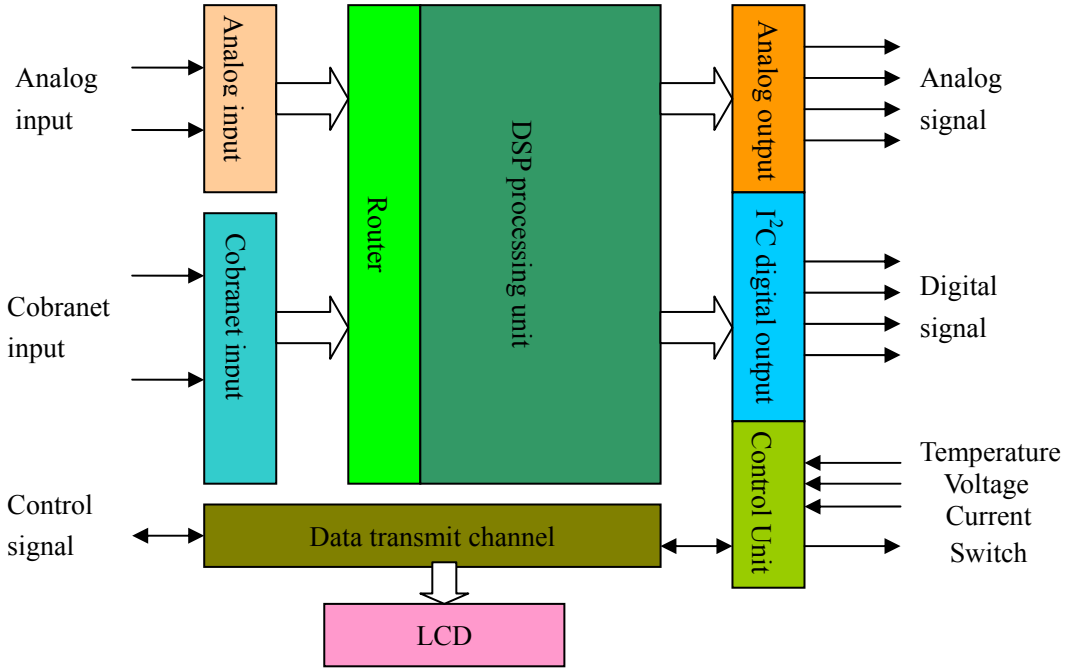
SSCN-3 is a small size network audio processing module, designed to build in the power amplifiers and active speakers. Because of the small size design, it could be installed into the power amplifier or the active speaker very easily. After devices have installed the SSCN-3 module, it would have powerful DSP processing function and CobraNet connector, and could be centralized management through the network. With the SSCN-3 management software, user could manage and monitor hundreds of the devices through the network to switch the input source, control and modify the signal level, detect the device's work status, remote control the power ON/OFF, and also could online configure the DSP parameters.

CobraNet, developed by Peak Audio, is a combination of software, hardware and network protocols designed to deliver uncompressed, multi-channel, low-latency digital audio over a standard Ethernet network.. CobraNet was designed for and used in large-scale audio installations (for example, convention centers, stadiums, airports, theme parks, concert halls). So far, many companies, like Biamp, BOSCH, Crestaudio, Crown, Digispider, Peavey, QSC, YAMAHA, have developed numerous CobraNet devices. CobraNet have many advantages, like low Cabling cost, flexibility, reliability and Audio quality. The uncompressed digital audio is carried through a single, inexpensive CAT-5 cable. The well-designed network provides enhanced flexibility for future changes to the system. For instance, audio routing can be changed on the fly with network commands, and do not require any rewiring. And use of Ethernet by CobraNet affords many high availability features such as Spanning Tree Protocol, Link Aggregation and Network Management. For critical applications, CobraNet devices can be wired with a redundant link. In the case that one CobraNet device, cable, or Ethernet switch fails, the other takes over almost immediately. The audio is transmitted in digital form, it enjoys the benefits include reduced susceptibility to electromagnetic interference, crosstalk, coloration and attenuation due to cable impedance.

CobraNet data is organized into channels and bundles. A typical CobraNet signal can contain up to 4 bundles of audio traveling in each direction, for a total of 8 bundles per device. Each bundle houses up to 8 channels of 48 kHz, 20-bit audio, for a total capacity of 64 channels. CobraNet is somewhat scalable, in that channel capacity increases when 16-bit audio is used, and channel capacity decreases when 24-bit audio is used. Each transmit CobraNet device has it's own Tx

Bundle Number. The receive device just need to set the Rx Bundle Number match with the Tx Bundle Number. The SSCN-3 module only used for review the CobraNet signal, so in the SSCN-3 Manager software, there just need to set the Rx Bundle Number and the channel number, for detail please refer to the SSCN-3 software manual.

SSCN-3 module including the CobraNet unit, DSP unit, Analog audio input/output unit, and the control unit, the diagram shows below:



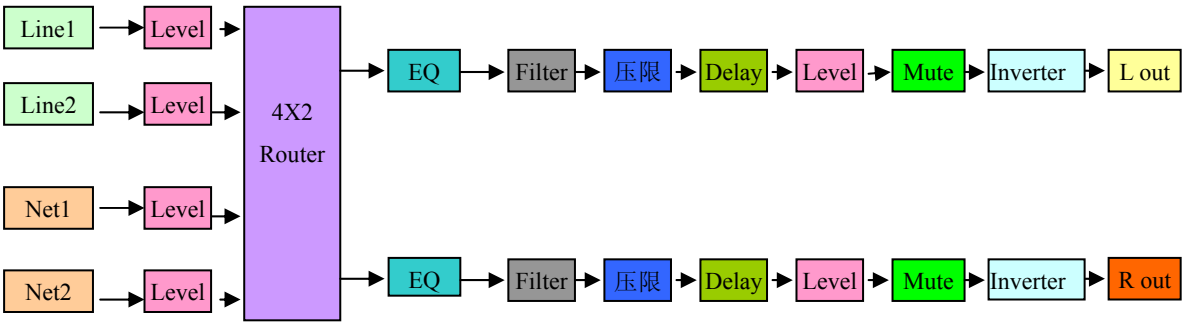
2 SSCN-3 feature

SSCN-3 module's standard configuration:

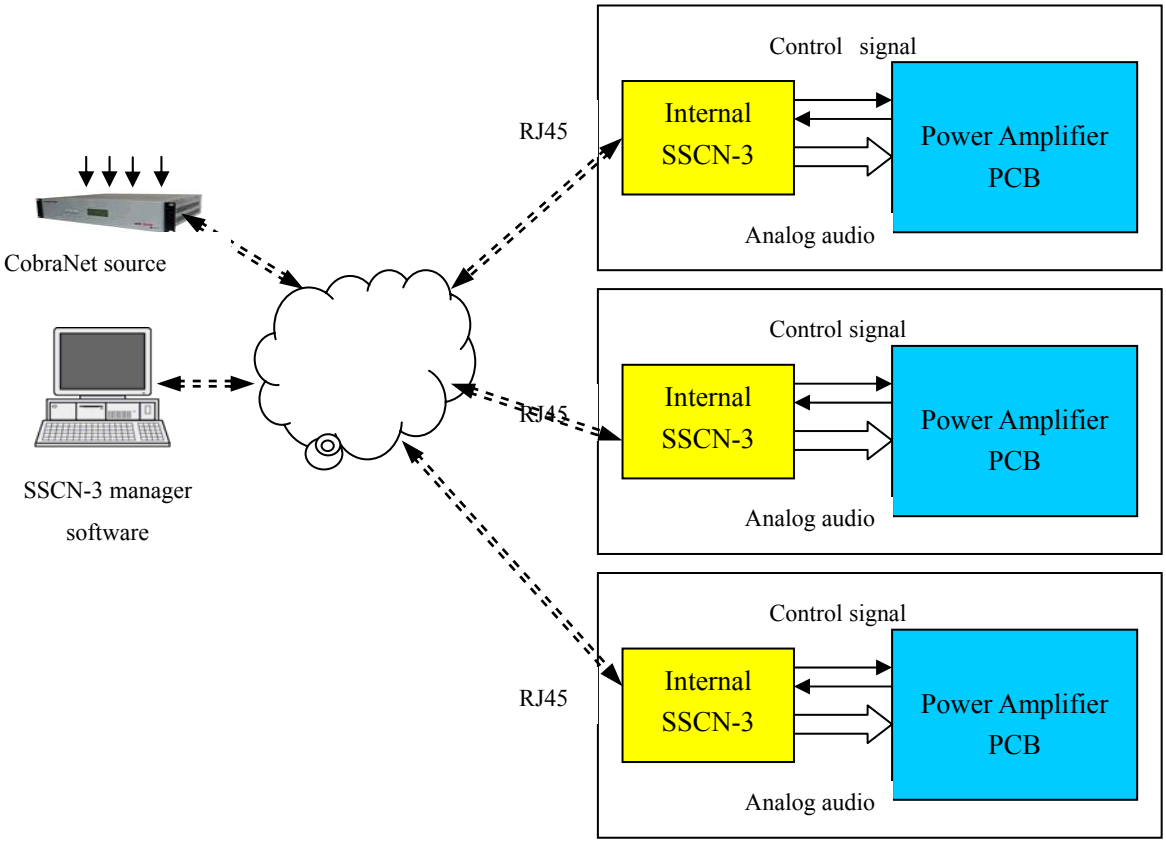
- 2 channels（1 channel stereo）analog audio input；
- 2 channels（1 channel stereo）CobraNet digital audio input；
- 2 channels（1 channels stereo）analog audio output, and PCM digital audio output is also selectable；
- 1 standard CobraNet connector could compose the network audio system with other CobraNet device.
- 1 RS232/RS485 connector can be connected to external device for data communication, and the functions, parameters could be controlled and monitored via RS232 and the network.
- Maximum 8 channels analog control input and 4 channels TTL input，could be used

detect the parameters as voltage, current temperature etc. It could be defined to remote control of the ON/OFF status through the network.

SSCN-3 have powerful DSP function, including router matrix, level control, filter, EQ, compressor, delay, phase inverter, mute etc. DSP flow shows below:



3 Application



Network connection:

Use the CAT-5 Ethernet cable to connect the Switch and the SSCN-3 JP730 test cable's RJ45 connector, and also connect the computer to the same network. After all the connection has been done, the two LED indicators on the RJ45 connector would flash. Open the SSCN-3 manager software, add the SSCN-3 module, it could be networked normal (it needs some setting in the software, please refer to the SSCN-3 manager software manual). Otherwise, user could use the official software CobraNet Discovery to check the SSCN-3 is online or not.

Audio input/output connection:

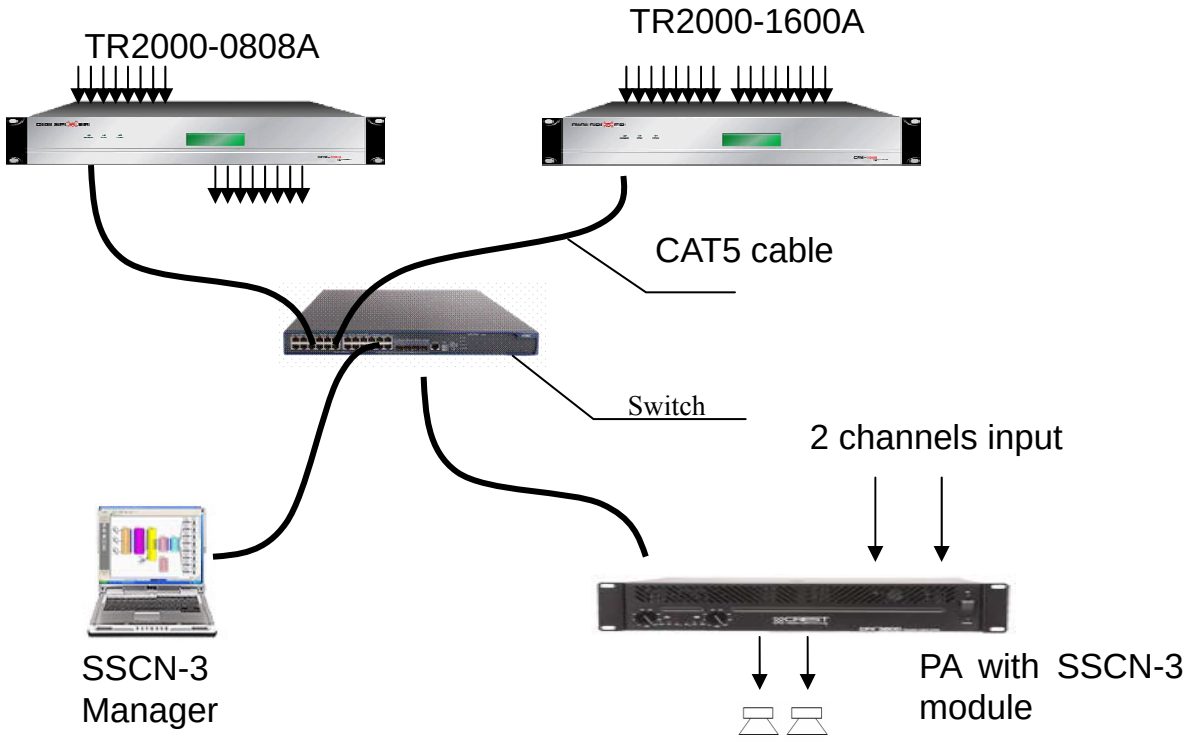
Audio input channels are including the analog audio input and the CobraNet audio signal input.

Analog audio input:

Just connect the audio source device's output connector to the JP730 test cable's input connector. Please pay attention to distinguish the L/R channel if tit is stereo input.

CobraNet audio signal input:

Connect the SSCN-3 to the network that has other CobraNet devices, like Digispider's TR2000, CNP series, or Peavey's Media Matrix .etc, the other third parties' devices. Just set the Rx bundle No. and the channel No. of the SSCN-3 module in the software SSCN-3 manager, then the SSCN-3 would receive the CobraNet audio signal from the network through the Ethernet cable.



Audio output connection:

Just connect the SSCN-3 JP21 test cable's output connector to the other device's input connector, then setting the route in the software.

4 Technical Specification

Analog audio input/output：Maximum level 18dBu；

Frequency response：20--20KHz，+/- 0.2dB；

Digital audio input/output：20bit ,48khz；

THD+N: 0.02% @ 0dBu;

Dynamic range: 118dB；

Network: 10M/100M；

Analog control input：resolution 10bit，0~5V；

Digital control input：CMOS/TTL level，0~5V；

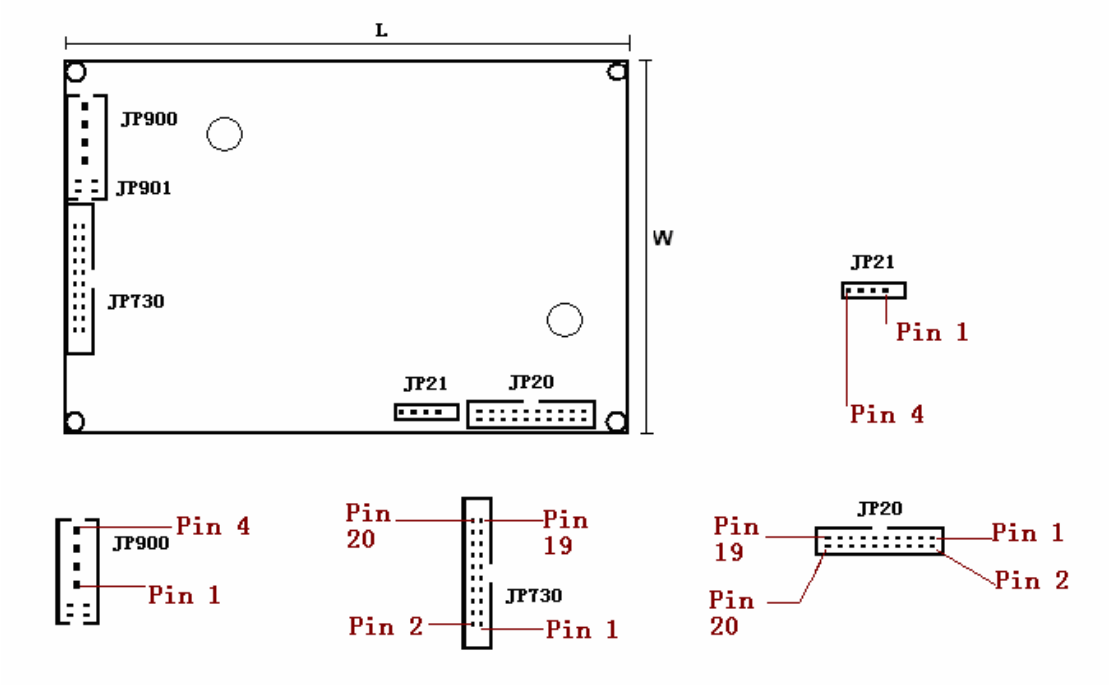
Digital control output：CMOS/TTL level，0~5V；

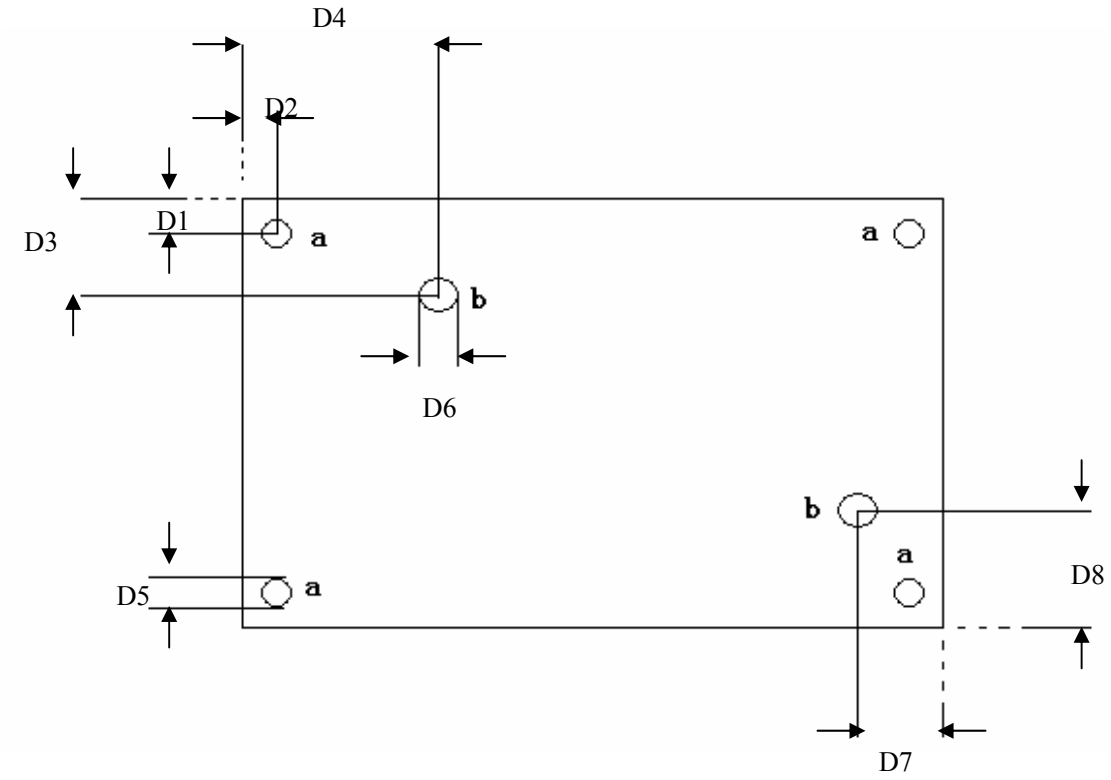
5 The dimension and the connector definition

Dimension

100（L）x70（W）x25（H）mm **(±0.1mm)**

Note: the space height need to>30mm；





D1：3.5mm

D2：3.5mm

D3：11.4mm

D4：26.8mm

D5：4.5mm（diameter of hole a）

D6：5.8mm（diameter of hole b）

D7：8.6mm

D8：18.6mm

The connector description

JP900：Power connector，4x1 Euro block header

Pin1：GND

Pin2：+5V

Pin3：+12V

Pin4：-12V

JP901：Power connector，4x2 header，reserved；

JP730：10x2 header，include input，RJ45，RS232，LED indicator；

Pin No.	Define	Pin No.	Define
Pin1	INR-	Pin11	LED BUF1
Pin2	INR+	Pin12	LED BUF0
Pin3	GND	Pin13	WGND
Pin4	GND	Pin14	WGND
Pin5	INL-	Pin15	RJ45 TXD-
Pin6	INL+	Pin16	RJ45 TXD+
Pin7	GND	Pin17	WGND
Pin8	+5V	Pin18	WGND
Pin9	RS232 RXD	Pin19	RJ45 RXD-
Pin10	RS232 TXD	Pin20	RJ45 RXD+

JP730 test cable：

JP21：4x1 output header

Pin1： Output L；

Pin3： Output R；

Pin2，4： GND；

Note：The JP21 of the SSCN-3 demo board have 5 pins, the pins near the JP20 is not connected, and correspond with the test cable's not connected pin.

JP21 test cable：

JP22：4x2 output header，reserved；

JP20：10x2 header connector

Pin No.	Define	Pin No.	Define
Pin1	+5V	Pin11	Analog voltage input 0~5V
Pin2	+5V	Pin12	GND
Pin3	GND	Pin13	TTL level output 0~5V
Pin4	GND	Pin14	GND
Pin5	Analog voltage input 0~5V	Pin15	TTL level output 0~5V
Pin6	GND	Pin16	GND
Pin7	Analog voltage input 0~5V	Pin17	TTL level input 0~5V
Pin8	GND	Pin18	GND
Pin9	Analog voltage input 0~5V	Pin19	TTL level input 0~5V
Pin10	GND	Pin20	GND

JP20 test cable：

GPIO application note：

Analog voltage input：Input a 0~5V analog voltage from the outside circuit to the SSCN-3 module.

Purpose: for example could monitor the temperature of the PA device by detect the voltage of the thermal resistor；And also it could be defined by user their selves.

TTL level output：SSCN-3 module could output a 0~5V TTL level through the SSCN-3 manager software button，then user could use this TTL level to control the outside circuit.

Purpose: for example the TTL level output could be used to control the status of the LED indicator or the ON/OFF status of the PA device. And also it could be defined by user their selves.

TTL level input：Input a 0~5V TTL level from the outside circuit to the SSCN-3 module.

Purpose: for example could be used to control one channel's mute or bypass, and it could be defined by user their selves.