Clever Little Box.

so.net
Sound-over-Ethernet

User Guide
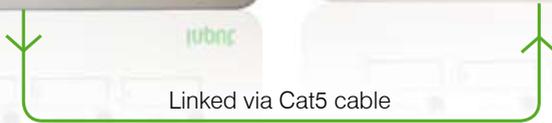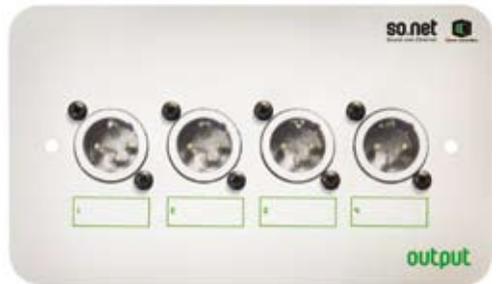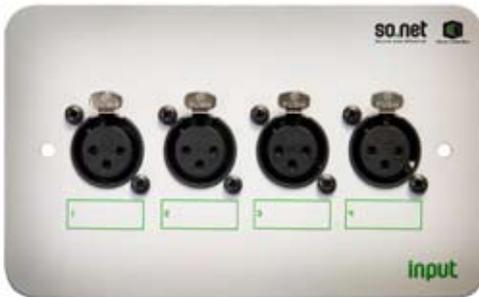
Linked via Cat5 cable
Up to 1000m!

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SONET4: Cat5 Audio Distribution System - 4 in / 4 out

The new 'so.net' Sound-over-Ethernet System has been designed to simplify and speed up installations where multiple microphone inputs or line level inputs need to be situated a distance from the amplifier equipment.

Types of installation include churches, schools, theatres and corporate boardrooms.

It is an extremely versatile and cost effective installation device that removes the need for multiple cable runs from remote audio inputs to the amplifier equipment. The SONET4 System can transmit up to four microphone or line level signals down one screened Cat5e cable for up to 1000m.

Each input and output can be independently configured for balanced or unbalanced signals as well as line level or microphone level. There is also an option to provide phantom power to the microphone inputs independently.

Each unit fits neatly into a standard UK double-gang back box (minimum depth 47mm) and only requires a power supply at the output or amplifier end (PSU supplied as part of system).

Features:

• Reduces installation time

• Up to 1000m between Input and Output plates

• Very high interference immunity

• Balanced or unbalanced inputs & outputs

• Line or Microphone level inputs & outputs

• Phantom powering

• Four XLR sockets on standard 2 gang plates

• No power required at input module

• Power supply included as part of system

Linked via Cat5 cable Up to 1000m
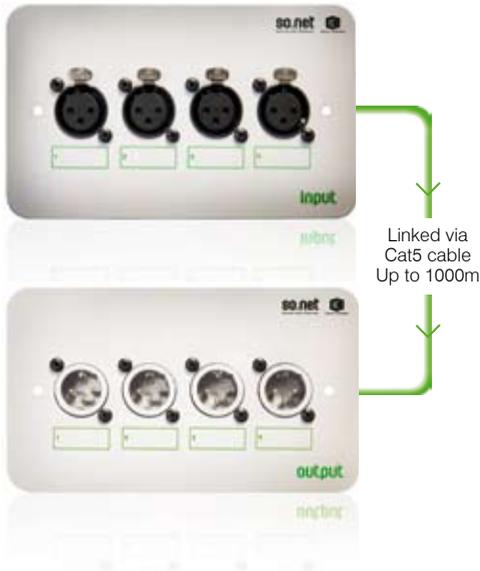
Suggested System Diagram:

4 x MIC/LINE Signals

MIXER/AMPLIFIER

LINE Out

so.net INPUT plate

Standard single Cat5 cable (up to 1000m)

so.net OUTPUT plate

PSU

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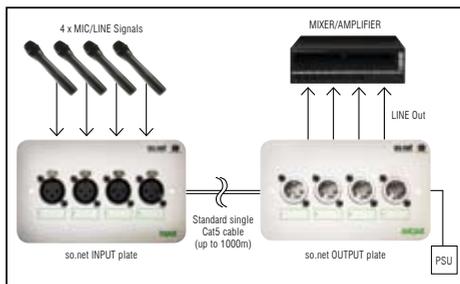
Installation

The system consists of two Modules interconnected with screened Cat5 cable and a 24v DC power supply (supplied). Unscreened Cat5 cable can be used but only three audio channels will be available.

The input module has four XLR female sockets to plug microphones or line level inputs into. The output module has four XLR male sockets to connect to the amplifier or mixer.

There are screw terminals on the rear of the plates for ease of connection of the Cat5 cable.

Power is connected to the Output Module only and is transferred down the Cat5 cable so no power supply is needed at the Input Module end.

1   Decide on the best position for the Input Module avoiding close proximity to mains sockets and wiring.

   The Input Module fits a standard UK 2 gang back box or surface mount box (minimum depth 47mm), which ever is preferred.

2   Run the Cat5 cable from the input position back to the amplifier or mixer location avoiding running the cable alongside mains cables.

   Keep at least 100mm clearance when ever possible to prevent any possibility of interference.

   The cable should be clipped in place to prevent damage to the cable.

   If using unscreened cable (UTP), one of the four pairs will need to be used as the ground return link. This means that only three channels can be used.

   To use all four channels, you must use screened Cat5 cable.

3   Ensure that the relevant links are fitted for 'Mic' or 'Line' level for each channel and the 'phantom' power links are fitted if required. See diagram on page 4.

4   Connect the Cat5 cable to the Input Module as shown in the diagrams over the page taking care to ensure that the pair colours are connected to the same channel number at each end of the Cat5 cable. It is very important that both conductors of a twisted pair are connected to a channel and not split across channels.

   Ensure that the screen wire is connected to the 'GND' terminal if using screened cable or the blue pair (both wires) if using unscreened cable.

5   Double check the wiring is sound and secure and there are no stray bits of wire before fitting the input module into the back box.

6   Select a convenient location for the Output Module which could be within the back of a rack containing the amplifier or alternatively, the Module can be fixed to the wall nearby.

   A mains socket needs to be available for the SONET4 power supply unit.

7   Decide whether the Output Module is supplying 'mic' or 'line' level output signals to the amplifier or mixer and fit links accordingly. See diagram on next page. CAUTION: Ensure that the phantom power of the mixer or amplifier is OFF. The SONET4 will create the phantom power needed at the microphone module if the appropriate links are fitted.

8   Connect the CAT5 cable to the Output Module as shown in diagram on page 4 observing correct colours of wires.

9   Connect the 24v power supply to the terminals marked 'GND & 24v'. The red wire or the wire with a white trace is the '24v' or positive wire.

10 There are holes in the Output Module circuit board to allow the cables to be 'tie-wrapped' in place if desired.

   Before applying power, ensure that there are no stray bits of wire in the modules and that all of the terminals are securely holding the wires in place.

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Wiring for MIC end using screened cable

INPUT MODULE
Using SCREENED
cable

Screen wire

Pair 4
Pair 3
Pair 2
Pair 1

Screened CAT5e
Cable

MIC4   MIC3   MIC2   MIC1

Fit links for MIC level

Remove links for LINE level

Fit link for PHANTOM power
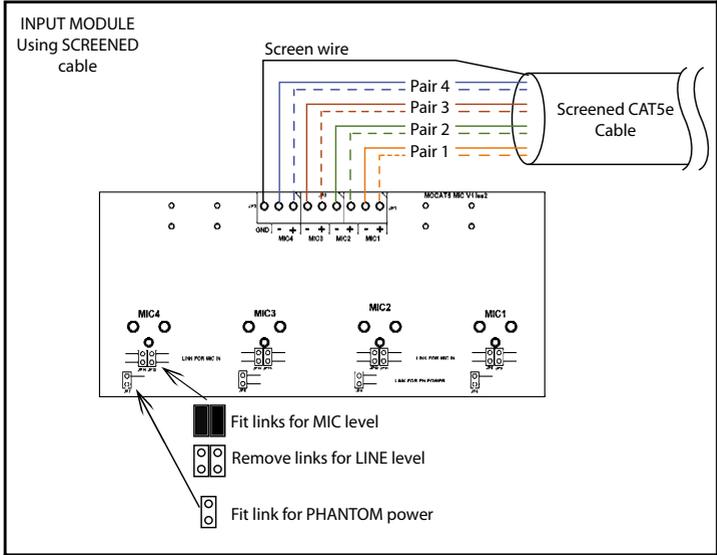
Wiring for AMPLIFIER end using screened cable

OUTPUT MODULE
Using SCREENED
cable

Screen wire

24VDC
Input

Pair 4
Pair 3
Pair 2
Pair 1

SCREENED
CAT5 Cable

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MIC4   MIC3   MIC2   MIC1

POWER

CAT5

Fit links for MIC level

Remove links for LINE level

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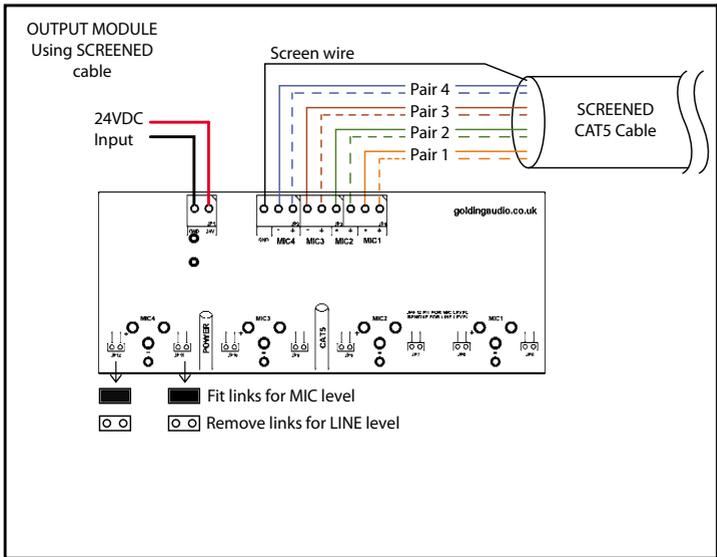
Wiring for MIC end using un-screened cable

INPUT MODULE
Using UNSCREENED cable

Pair 4
Pair 3
Pair 2
Pair 1

Unscreened UTP CAT5e Cable

MICCAT5 MIC V1 Iss2

GND MIC4 MIC3 MIC2 MIC1

MIC4   MIC3   MIC2   MIC1

LINK FOR MIC IN

LINK FOR MIC IN

LINK FOR PH POWER

Fit links for MIC level

Remove links for LINE level

Fit link for PHANTOM power
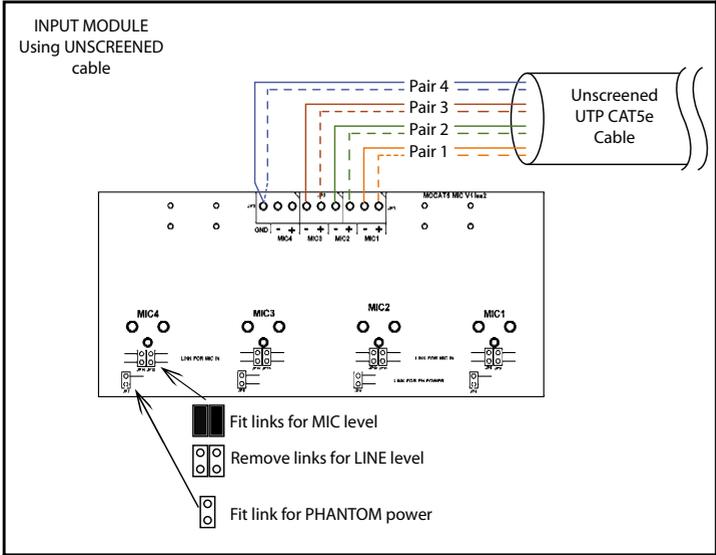
Wiring for AMPLIFIER end using un-screened cable

OUTPUT MODULE
Using UNSCREENED cable

24VDC
Input

Pair 4
Pair 3
Pair 2
Pair 1

Unscreened UTP CAT5e Cable

GND 24V

GND MIC4 MIC3 MIC2 MIC1

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MIC4   POWER   MIC3   CAT5   MIC2   MIC1

Fit links for MIC level

Remove links for LINE level

Connection Details
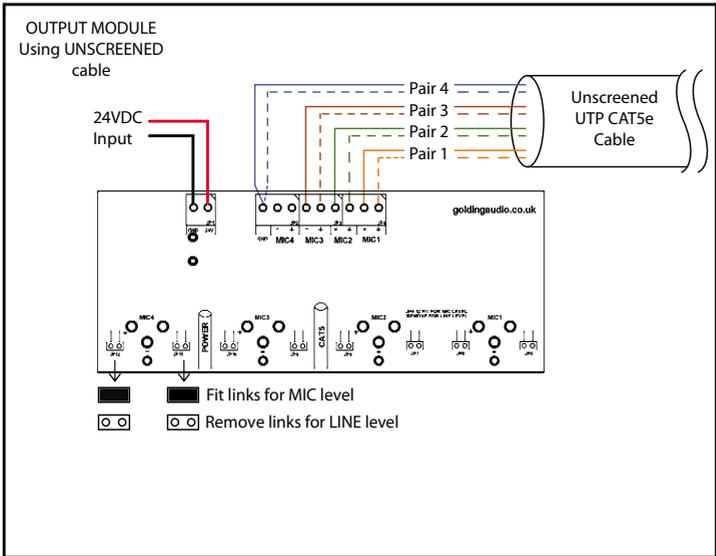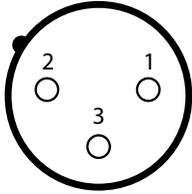
Input module.
Female socket
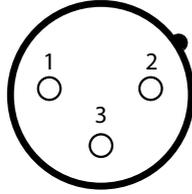
Output module.
Male socket

XLR pinout

Pin 2 Positive (hot)

Pin 3 Negative (cold)

Balanced v Unbalanced

It is always best to use balanced signals where possible as this type of connection is much less susceptible to interference from items such as mobile phones and noisy electrical switches. Most PA amplifiers have balanced inputs as do most professional microphones.

However, some devices such as CD players or less expensive microphones have unbalanced outputs.

These can be connected to a balanced input by wiring up as follows:

Unbalanced input

Connect the screen of the device to pin 1

Connect the signal wire to pin 2

Connect a shorting link between pin 1 and pin 3

If the Output Module is to be connected to an unbalanced input, it is simply a case of wiring up as follows:

Unbalanced output

Connect the screen of the amplifier to pin 1

Connect the signal to pin 2

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Specifications

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Specifications:

INPUT Module:

Power	Over Cat5 cable
Ground	Over Cat5 cable screen (or spare pair)
Inputs x 4	Balanced XLR female
MIC/LINE in	Selectable by jumper
Phantom power	15v jumper selectable
MIC impedance	600R
MIC level input	10mV RMS
LINE impedance	50K
LINE input level	700mV RMS (1.5v RMS max)
Cat5 termination	Screw terminals
Dimensions	145(W) x 85(H) x 35(D)mm

OUTPUT Module:

Power requirements	24v DC @ 100mA
Outputs x 4	Balanced XLR male
MIC/LINE out	Selectable by jumper
MIC out impedance	600R
MIC level output	20mV RMS (into 600R)
LINE out impedance	20K
LINE level output	700mV RMS (into 20K)
Dimensions	145(W) x 85(H) x 35(D)mm

General:

Channels	Four, individually configurable
Bandwidth	100Hz to 20KHz (-3dB)
Crosstalk	>60dB
Signal to Noise Ratio	>60dB
Cable Spec	Screened Cat5e cable (can use UTP but one pair required for ground meaning only three channels would be available)
Cable length	1000m maximum
Cat5 terminators	Screw terminals

Protected against short circuit on Cat5 cable to ground

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Take a look at our new website for details on our
full range of Clever Little Box products

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