ISOLATOR

User Manual

ANNOY

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1. Introduction

ISOLATOR has been designed to ease the problems often presented when large VNET systems are constructed. Specifically it addresses the following issues :

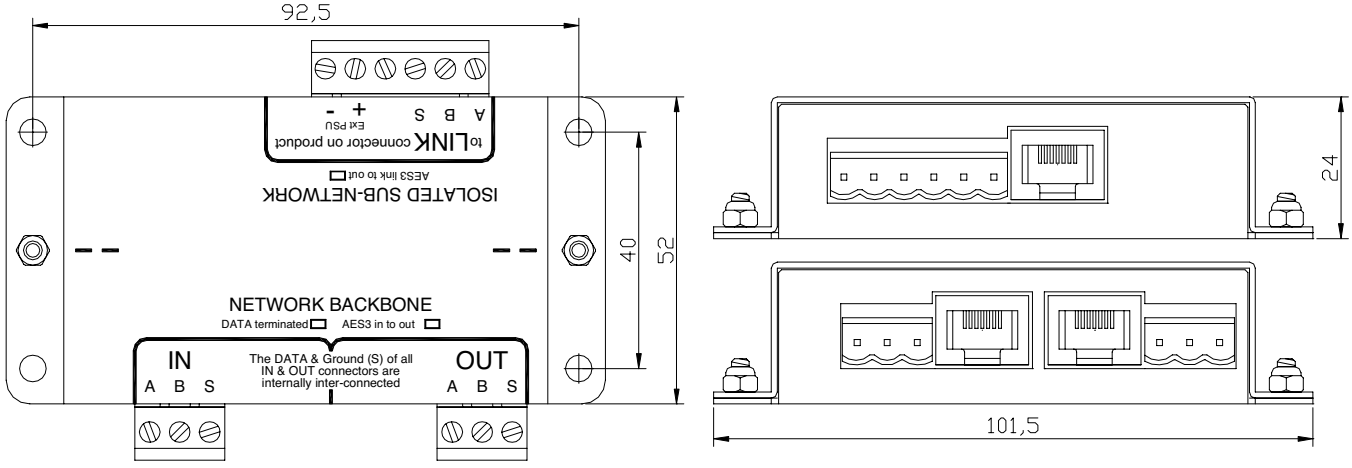
- The possibility that mains earth potentials exceeding +/-15V exists between different network nodes
- Large amounts of electrical noise and interference may be present on the network cables
- Wiring faults on the network cable damaging other network nodes
- It is desired to create networks that have a large 'star' topology
- It is desired to use screw terminal terminated wiring to construct the network
- It is desired to be able to install and test the main 'backbone' network cable without the presence of other equipment (including ISOLATORS)

As It's name implies ISOLATOR limits these problems by making it possible to galvanically isolate different parts of the network from each other and from the controlling computer system. When any of the above situations can be anticipated then ISOLATORS should be incorporated in to the design of the network.

For systems which incorporate AES3 over VNET (VNET2), please contact you vendor for details of how to set the internal jumpers inside the Isolator. Please be aware that some of the application examples shown in this document are not applicable to VNET2 systems.

2. Mounting

ISOLATOR is housed in a strong galvanised steel case that can be mounted using 4mm diameter hardware in the holes that are on 40mm x 92.5mm centres. If dust or moisture resistance is required then it will be necessary to mount ISOLATOR in a suitable enclosure. Note that the case of ISOLATOR is connected to the earth system on the LINK side of the isolation barrier.



3. Connections

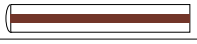
ISOLATOR has three ports: IN; OUT & LINK. Each port has both RJ45 and 'Phoenix' pluggable screw terminal blocks. These connectors are connected directly together so either may be used as convenient.

For example it might be most convenient to connect ISOLATOR 'LINK' to the LINK output of a VNET deviceusing a standard RJ45 patch lead while using the Phoenix connections for the hard wired network 'backbone' cabling on the IN and OUT ports (which are also connected directly together).

4. Power

ISOLATOR is powered via its LINK port. As the LINK port on VNET products provides a source of suitable power, connecting the LINK of ISOLATOR to the LINK of the VNET device with an RJ45 patch cable will power it up.

If the connection from the VNET product is to use the LINK Phoenix connector of the ISOLATOR then the following connections need to be made :

VNET Cat5 cable & RJ45 connections					
PIN	**PAIR**	**COLOUR (T568B)**		**Product LINK**	**Isolator LINK**
1	2		white/orange	data+	LINK A
2	2		orange	data-	LINK B
3	3		white/green	No Connection	
4	1		blue	power out+	Ext PSU+
5	1		white/blue	power out-	Ext PSU-
6	3		green	No Connection	
7	4		white/brown	No Connection	
8	4		brown	No Connection	
If a screen cable is used, connect the screen to LINK S					

As VNET products can only supply enough power for a single ISOLATOR, systems requiring more than one will need an external power supply. In this case no connection should be made between the VNET product and the 'Ext PSU' connections of ISOLATOR, these connections should be used for the external power supply.

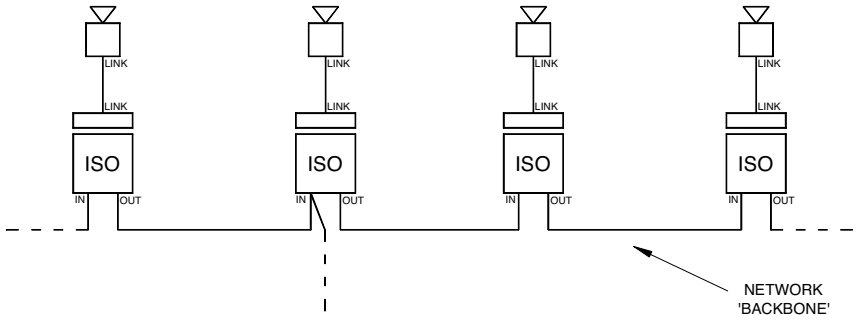
External supplies should produce regulated 12V DC with at least 100mA available for each ISOLATOR that is to be supplied. Tannoy can supply or recommend a suitable power supply.

If the VNET product is connected to the ISOLATOR via its RJ45 connector then as described above this will automatically connect the power from the product's LINK port to the ISOLATOR. This is not a concern because ISOLATOR contains circuitry to prevent any conflict with an external power supply.

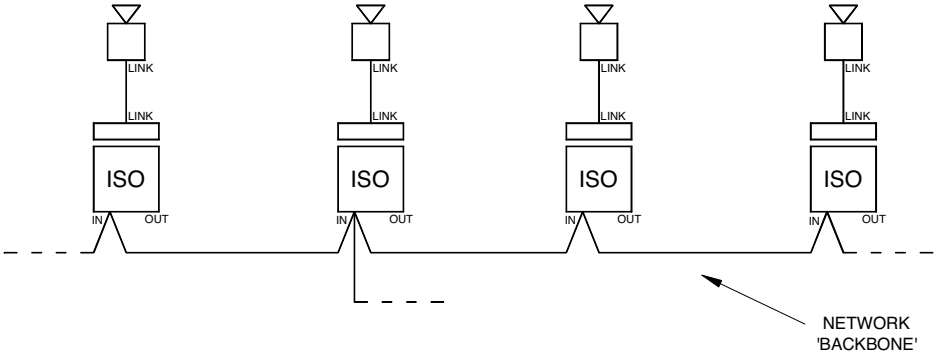
5. Configurations

For maximum flexibility ISOLATOR can be used in a number of ways, below are some examples :

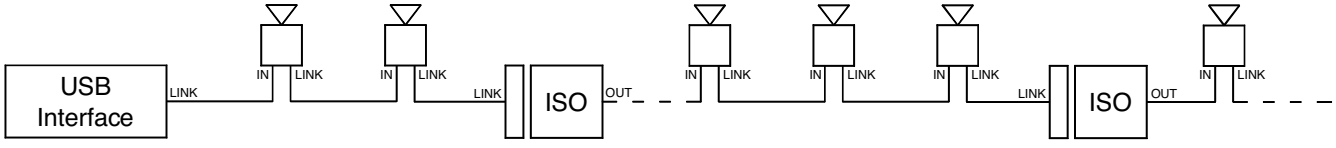
1. Basic IN to OUT daisy-chaining with additional branches as required



2. Using only the Phoenix IN (or OUT) ports allows the network wiring to be installed and tested before other equipment is installed

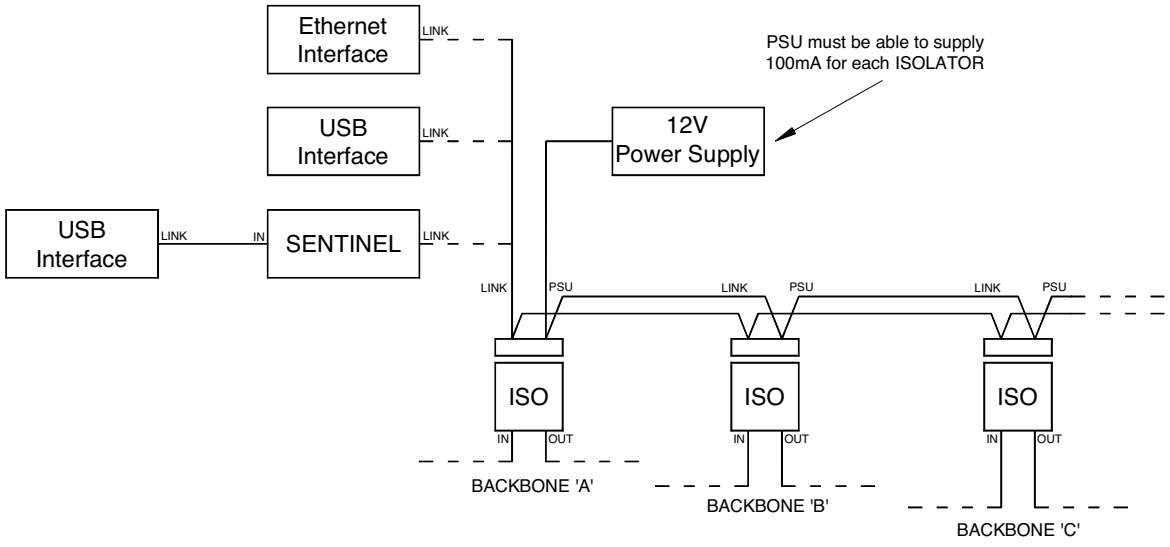


3. ISOLATORs may be used to segment a large network as convenient, protecting each segment from the others. Note that using them in this way does NOT allow the network to exceed the 1km total maximum length limit

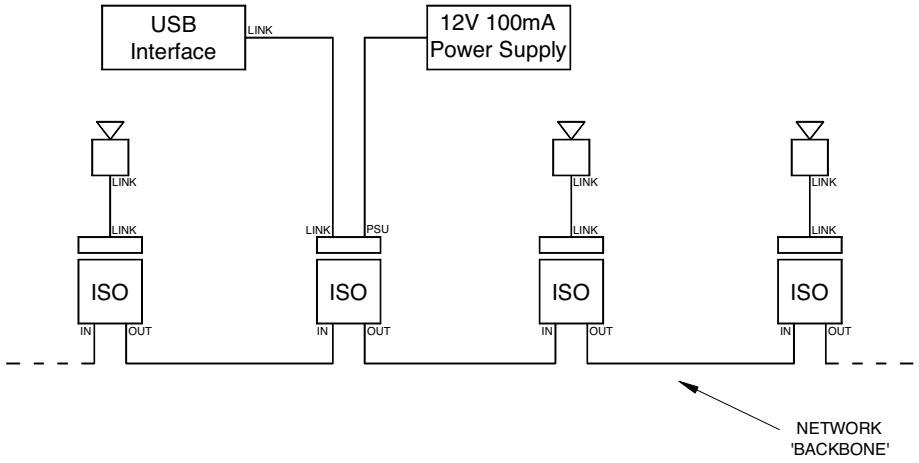


4. Here multiple ISOLATORS are used to create multiple backbones. As long as the ISOLATORS are local to each other and the controlling system, then each backbone may be the full 1km long.

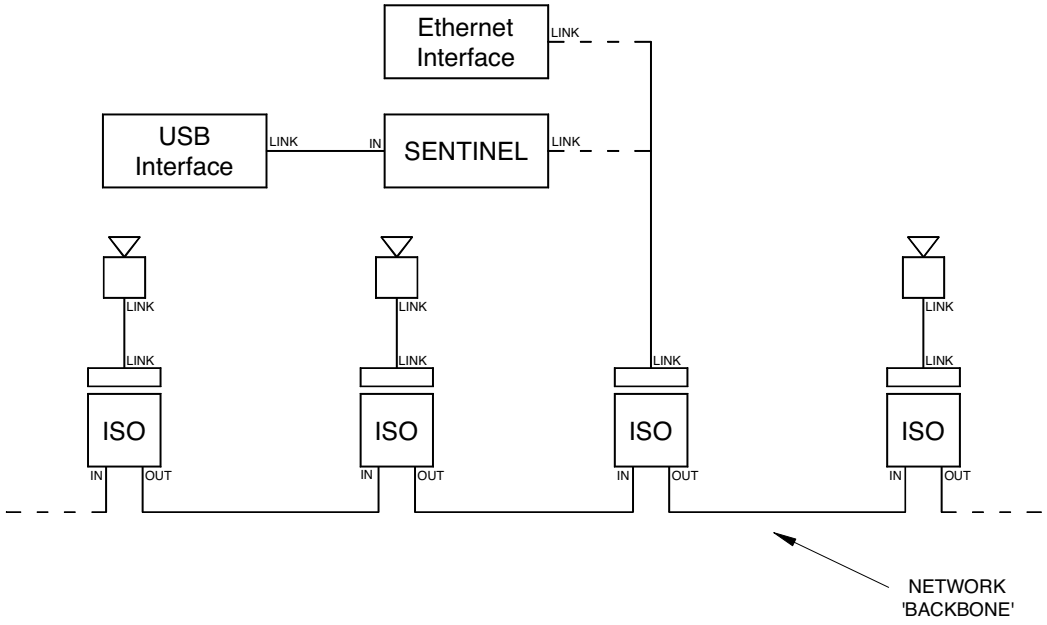
Note that the maximum number of VNET products per network (not per backbone) remains 32.



5. Because of the limited power available from a USB interface, connecting Linea's USB interface directly to an ISOLATOR will not work unless an external power supply is connected either to the rear of the USB interface or, as shown, to the ISOLATOR



6. Both Tannoy's SENTINEL and Ethernet interface can provide sufficient power for one ISOLATOR



6. Technical specifications

Performance	
Maximum voltage between LINK and IN / OUT	1kV AC or DC
Data protocol and format	Linea OSNET over VNET
Maximum length of IN / OUT CAT5 backbone cable	1000m
Power requirement	12V DC <100mA
Environmental protection	IP40
Weight	0.15 kg
Dimensions	102 mm x 52 mm x 24 mm

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7. Notes

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Tannoy operates a policy of continuous research and development. The introduction of new materials or manufacturing methods will always equal or exceed the published specifications. All specifications are subject to change without notice.
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