



Single Line Voice Isolation Card  
P30049

Two Line Voice Isolation Card  
P30087

Description & Installation

# Table of Contents

	Page
1.0 SCOPE	2
2.0 PRODUCT OVERVIEW	2
2.1 System Requirements	
2.2 Intended Uses	2
3.0 PRODUCT FEATURES	2
3.1 Fiber Optic Separation	2
3.2 Ringing Capability	2
3.3 Powering	3
4.0 INSTALLATION	3
4.1 Card Insertion	3
4.2 Station Powering Selection	3
4.3 Pair Selections	4
5.0 Physical Characteristics	4
5.1 Mechanical Configuration	4
5.2 Environmental Requirements	4
5.3 Physical Dimentions	
6.0 Specifications	5
Table 1: Isolation Specifications	5
Table 2: External System Input Requirements	5
Table 3: Performance Specifications	5



## 1.0 SCOPE

This document describes the technical specifications, technical requirements and installation instructions for the P30049 and P30087 SNC Lyte Lynx® Single Line and Two Line Voice Isolation Cards. It provides an understanding of the basic functions and features available with these cards.

## 2.0 PRODUCT OVERVIEW

### 2.1 System Requirements

These fiber optic Voice Isolation Cards are designed for use in an SNC Lyte Lynx® 3, 6 or 12-slot Card Shelf or a Teleline Isolator® Card Shelf.

### 2.2 Intended Uses

The Voice Isolation Cards are designed for POTS circuits, 2-wire loop start trunks, fax lines, dial-up modem lines, or remote meter reading. The primary function of the cards is to provide an isolation from voltages while being “transparent” in the circuit. All signaling information within the specified frequency bandwidth will be unaffected. SNC Lyte Lynx® systems are intended for use at power substations and similar locations where high voltage isolation is required on the incoming copper phone pairs to protect the network from harm and to provide a personnel safety barrier against voltages. This specifically includes protection from longitudinal voltage surges and Ground Potential Rise (GPR) surges that may occur during power system faults.

Figure 1: P30087

## 3.0 PRODUCT FEATURES

### 3.1 Fiber Optic Separation

The Voice Isolation Card’s high voltage isolation is the result of a 51/4 inch fiber optic separation between the station side and the CO/Remote side circuitry. Because the isolation depends only on this physical separation, protection remains intact even if components of the system fail.

### 3.2 Ringing Capability

The Voice Isolation circuit is capable of ringing five 500 type telephones simultaneously. Ring signals ranging from 40 to 150 volts and 15 to 68 Hz are detectable at the remote interface.

\*Teleline Isolator is a trademark of Positron Industries, Inc.

### 3.3 Powering

The electronics on the remote (telco) side of the Voice Isolation Cards are powered by battery feed from the central office (loop current). The station side electronics on the P30049 and P30087 card require 24VDC or 48VDC. Station power can be provided by an internal or external power supply.

## 4.0 INSTALLATION

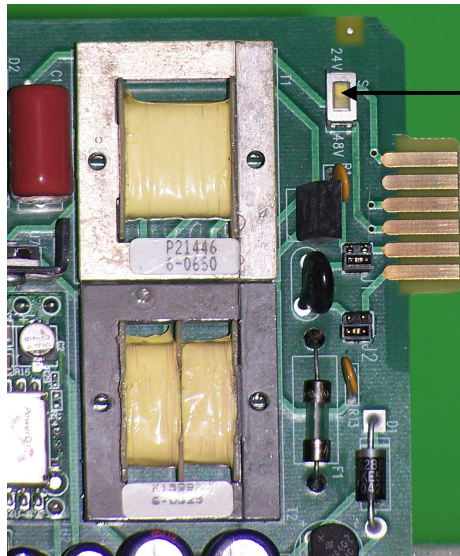
### 4.1 Card Insertion

The P30049 and P30087 Isolation Cards require an installed Lyte Lynx C-line card shelf or Teleline® Isolator card shelf. With the card shelf installed and properly configured, slide the Isolation Card into any available card shelf slot and firmly plug it into the card shelf back plane receptacles. This may be done with or without power applied to the Card shelf.

### 4.2 Station Powering Selection

The P30049 and P30087 cards may be powered by either -24VDC or -48VDC with reference to ground. If a -24VDC power supply is used to power the cards in the card shelf, set the switch S1 on the POTS card to 24V. If a -48V is used to power the cards, set the switch S1 on the POTS card to 48V. See figure 3 to locate switch S1.

If the card is to be powered with -24VDC, the tip and ring voltage toward the equipment will be about 24V. If the card is to be powered with -48VDC, the tip and ring voltage toward the equipment will be about 48V. Either of the mentioned voltages can be fed to the POTS cards using an internal or external power supply. See the installation sheet comes with the card shelf for details of powering connections.



Set switch S1 to 24V  
or 48V as needed

**Figure 2:** Powering Switch Selection

\*Teleline Isolator is a trademark of Positron Industries, Inc.

### 4.3 Pair Selections

The P30049 Isolation Card is a single line POTS card. The new version of this card is factory set for odd pair only. On remote side, odd or even pair may be used because they are tied together, but on station side, only odd pair may be used.

The P30087 Isolation Card is a dual lines POTS card. The odd pair is designated for line 1, and the even pair is designated for line 2.

## 5.0 PHYSICAL CHARACTERISTICS

### 5.1 Mechanical Configuration

Mechanical stability is provided by two separate back planes in the card shelf, one on the substation side and one on the remote side. The Isolation Card is a two-sided printed circuit board manufactured in accordance with the appropriate PCB standards.

### 5.2 Environmental Requirements

The Lyte Lynx system may be installed in an indoor or moderate outdoor environment, and is guaranteed operable in temperatures ranging from -20°C to 50°C (-4°F - 158°F) under humidity conditions from 0-95 percent, non-condensing.

### 5.3 Physical Dimensions

**Table 1:** PHYSICAL SIZE

	HEIGHT	WIDTH	DEPTH
P30049 or P30087 POTS Isolation Cards	12.00" (30.48 cm)	7.25" (18.42 cm)	1.35" (3.43 cm)

## 6.0 SPECIFICATIONS

**TABLE 1: ISOLATION SPECIFICATIONS**

LONGITUDINAL SURGE	65 kV
CONTINUOUS RATING	20 kV

**TABLE 2: EXTERNAL SYSTEM INPUT REQUIREMENTS**

INPUT SPECIFICATION	REQUIREMENT
STATION POWER SUPPLY LEVEL	+24 V $\pm$ 10% or +48V $\pm$ 10%
REMOTE SIDE DC REQUIREMENTS	11.5 V Minimum @ 20 mA Current Draw
SIGNAL SOURCE AND TERMINATION IMPEDANCES	600 Ohm, $\pm$ 10%
LOOP ATTENUATION (sum of remote side and station side loops)	34 dB Max.
INPUT SIGNAL AMPLITUDE (measured at 1000 Hz)	3.0 dBm Max.
INPUT RINGING VOLTAGE	40 – 150 Vrms

**TABLE 3: PERFORMANCE SPECIFICATIONS**

PARAMETER	SPECIFICATIONS
LONGITUDINAL BALANCE: 300 – 3000 Hz	>70 dB
RETURN LOSS (either transmission direction; 600 Ohm resistive + 2.16 microFarad termination) Echo Return Loss Singing Return Loss Low Singing Return Loss High	>18 dB >10 dB >10 dB
MESSAGE CIRCUIT NOISE (Idle Channel Noise)	<15 dBmC
PHASE JITTER	<1 degree
SIGNAL TO NOISE RATIO	>40 dB
INSERTION LOSS (1004 Hz @ 0 dBm)	0 dB $\pm$ 0.25
FREQUENCY RESPONSE ( $\pm$ 0.5 dB)	300 – 4000 Hz
RINGING FREQUENCY RANGE - INPUT	15 - 68 Hz
RINGING FREQUENCY RANGE - OUTPUT	17/20/25/50 (P30049) 15 - 68 Hz (P30087)
OUTPUT RINGING VOLTAGE	140 Vp-p or 198 Vp-p (P30049) 180 Vp-p (P30087)
INPUT ON-HOOK RESISTANCE	5 Megohms
CROSSTALK (to adjacent channel)	< -60 dB
DYNAMIC RANGE (400–3400 Hz)	-35 dBm to +3 dBm
RINGING CAPACITY (R.E.N.)	5 Ringers
SINGLE FREQUENCY DISTORTION 1000 Hz 2000 – 4000 Hz	<-40 dBm <-30 dBm

For further information or for technical support - call 800-558-3325  
or visit [www.sncmfg.com](http://www.sncmfg.com)



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