



Dual Line Voice Isolation Card
With CID, CW & MWI

-24VDC/-48VDC Input
P30123

Description & Installation

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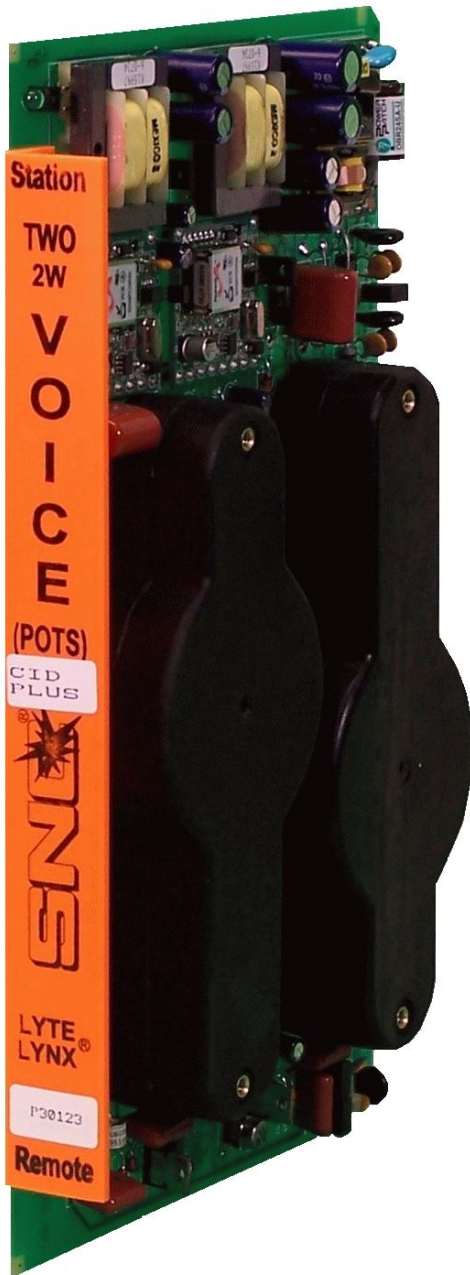


Figure 1: P30123

1.0 SCOPE

This document describes the technical specifications, technical requirements and installation instructions for the P30123 SNC Lyte Lynx® Dual Line POTS Isolation Cards. It provides an understanding of the basic functions and features available with these POTS isolation cards.

2.0 PRODUCT OVERVIEW

2.1 System Requirements

These POTS isolation cards are designed for use in an SNC Lyte Lynx® 3, 6 or 12-slot Card Shelf or in a Teleline Isolator® Card Shelf. A -24VDC or -48VDC voltage source is required to power the station side electronic circuitry.

2.2 Intended Uses

The POTS isolation cards are designed for regular POTS, POTS with caller ID, Call Waiting on Caller ID and Message Waiting Indicator, Analog or Digital Centrex, fax lines, 2-wire loop start trunks, dial-up modem lines or remote meter reading. The primary function of the cards is to provide 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.

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

3.0 PRODUCT FEATURES

3.1 Two In One

Each of these POTS cards is compressed from two POTS isolation circuits - meaning each card consists of two separate circuits for two different POTS lines. The purpose of the compression is to save card shelf space and cost.

3.2 Dielectric Separation

The POTS Card's high voltage isolation is the result of a 5.25 inch fiber optic separation between the Station side and the CO/Remote side circuitry and the 1 to 1 ratio transformer with high electrical resistance potting material. Because the isolation depends only on these physical separations, protection remains intact even if system components fail.

3.3 Ring Capability

Ring signals ranging from 40 to 150Vrms and 15 to 68 Hz can be detected on the Remote interface. The ring circuit is capable of ringing up to twelve phones instantaneously (12 REN). Ring signals ranging from 45 to 86Vrms and 16.7 to 50Hz are available at the output of the Station side. The ring signal is set to 20Hz, 5 REN and 75Vrms as default. At the default setting, these cards can ring five old 500-type telephones instantaneously without any voltage depletion.

3.4 Powering

The electronic circuit on the Remote (telco) side of the POTS isolation card is powered by battery feed from the central office (loop current). The Station side electronic circuit can be powered by any available input voltage. However, a compatible model should be chosen.

The P30123 POTS card can be powered either by grounded -24VDC or -48VDC source.

4.0 INSTALLATION

4.1 Powering Connections

Note:

- **Old revision P30123 cards (Rev. B or earlier) may be powered by a grounded -24V or a floated 130VDC or 120VAC.**
- **New revision P30123 cards (Rev. C or later) may be powered by a grounded -24V or a grounded -48VDC. The new revision will not accept 130VDC or 120VAC.**

-24VDC (Grounded)

- Set switch S1 on station side to 24V. Older revision does not have switch.
- If the Isolation Card P30123 is used in a 3-slot card shelf (P30075) and an external -24VDC source is used to power the system, connect positive (+) terminal to pin 3 of J4 and connect negative (-) terminal to pin 1 of J4.
- If it is used in a 6-slot card shelf (P30112), connect the positive (+) terminal to pin 2 of connector ST1 and negative (-) terminal to pin 1 of connector ST1.
- If it is used in a 12-slot card shelf (P30069), connect the positive (+) terminal to pin 17 of connector ST1 and negative (-) terminal to pin 18 of connector ST1.

-48VDC (Grounded) Note: The older revision P30123 (Rev. B or earlier) will not take - 48VDC.

- Set switch S1 on station side to 48V.
- If the POTS Isolation Card P30123 is used in a 3-slot card shelf (P30075) and an external -48VDC source is used to power the system, connect the positive (+) terminal to pin 3 of J4 and connect negative (-) terminal to pin 4 of J4.
- If it is used in a 6-slot card shelf (P30112), connect the positive (+) terminal to pin 2 of connector ST1 and negative (-) terminal to pin 20 of connector ST2.
- If it is used in a 12-slot card shelf (P30069), connect the positive (+) terminal to pin 17 of connector ST1 and negative (-) terminal to pin 35 of connector ST2.

130VDC (Floated) Note: The new revision P30123 (Rev. C or later) will not take 130VDC.

For older revision P30123 (Rev. B or earlier), see following instructions:

- If the POTS Isolation card P30123 is used in a 3-slot card shelf (P30075) and a 130VDC is used to power the Lyte Lynx® system, connect the positive (+) terminal to pin 2 of J4 and connect negative (-) terminal to pin 4 of J4.
- If it is used in a 6-slot card shelf (P30112), connect the positive and negative terminals of the 130V external battery or power supply to the (+) and (-) screw terminals marked "BAT" on the card shelf. Ensure correct polarity and then set the switch S5 on the right side of the station backplane to SECONDARY POWER position.
- If it is used in a 12-slot card shelf (P30069), connect the positive and negative terminals of the external battery or power supply to the (+) and (-) screw terminals marked "BAT" on the card shelf. Ensure correct polarity and then set the switch S3 on the left side, station backplane to SECONDARY POWER position.

48VDC (Floated) Note: The P30123 POTS cards (old or new revision) will not take floated 48VDC.**120VAC Note: The new revision P30123 (Rev. C or later) will not take 120VAC.**

For older revision P30123 (Rev. B or earlier), see following instructions:

- If the POTS Isolation card P30123 is used in a 3-slot card shelf (P30075) and a 120VAC source is used to power the Lyte Lynx® system, connect the line (Black or Brown) wire to pin 2 of J4 and connect neutral (White or Blue) wire to pin 4 of J4.
- If it is used in a 6-slot card shelf (P30112), connect the power cord from a wall outlet to the power receptacle marked "AC" on the card shelf. Then set the jumper J26 on the left side, station backplane to PRIMARY POWER position.
- If it is used in a 12-slot card shelf (P30069), connect the power cord from a wall outlet to the power receptacle marked "AC" on the card shelf. Then set the switch S3 on the left side of the station backplane to PRIMARY POWER position.

4.2 Installation Of POTS Card

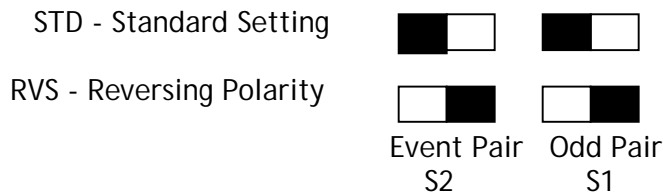
With the card shelf properly installed and properly configured, slide the POTS isolation card into any available card shelf slot and firmly plug it into the card shelf backplane receptacles. This may be done with or without power applied to the card shelf.

4.3 Line and Equipment Connections

The Numeric Pair and Alpha Pair sometimes are called Odd Pair and Even Pair. Because the card's odd and even pairs are used to separate the two circuits, the incoming line must match the outgoing line. For example, if the tip and ring wire of a phone line is connected to the Odd pair on the Remote side, the telephone wire from the equipment must also be connected to the Odd pair on the Station side.

4.4 Polarity of Tip and Ring

Since the Remote side circuitry is sensitive to polarity, you may need to set the two switches on the Remote side to correct the polarity if they are reversed. The card is factory set to standard (STD). If you experience hard to hear dial tone or high dB loss on any line, simply set the switch of that line to the other position (RSV).



5.0 PHYSICAL CHARACTERISTICS

5.1 Mechanical Configuration

Mechanical stability is provided by two separate backplanes 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 SNC Lyte Lynx® system may be installed in an indoor or moderate outdoor environment and is guaranteed operable in temperatures ranging from 0°C - 70°C (32°F-158°F) under humidity conditions from 0-100%, non-condensing.

6.0 SPECIFICATIONS

TABLE 1: ISOLATION SPECIFICATIONS

LONGITUDINAL SURGE	65kVrms
CONTINUOUS RATING	20kVrms

TABLE 2: EXTERNAL SYSTEM INPUT REQUIREMENTS

INPUT SPECIFICATIONS		REQUIREMENTS			
		Min	Typical	Max	Unit
STATION SIDE INPUT VOLTAGE	P30123	20	24	30	VDC
		90	130	135	VDC
		85	120	132	VAC
REMOTE SIDE INPUT:	Voltage	11.5	48	250	VDC
	Current	20	-	-	mAmp
INPUT POWER:	Station Side	3	-	-	Watt
	Remote Side	2.3	-	-	Watt
TERMINATION IMPEDENCE		75	600	660	Ω
LOOP ATTENUATION		-	-	34	dB
INPUT SIGNAL AMPLITUDE		-	-	3.0	dBm
INPUT RINGING VOLTAGE		40	-	150	Vrms
INPUT RINGING FREQUENCY		15	-	68	Hz

TABLE 3: ENVIRONMENTAL SPECIFICATIONS

CONDITIONS	SPECIFICATIONS			
	Min	Typical	Max	Unit
TEMPERATURE	-25	-	70	°C
	-13	-	158	°F
HUMIDITY (Non-Condensing)	0	-	100	%

TABLE 4: PERFORMANCE SPECIFICATIONS

PARAMETER	SPECIFICATIONS			
	Min	Typical	Max	Unit
LONGITUDINAL BALANCE: 300-3000Hz	70	-	-	dB
RETURN LOSS (600Ω & 2.16 μF Termination)				
Echo Return Loss	18	-	-	dB
Singing Return Loss Low	10	-	-	dB
Singing Return Loss High	10	-	-	dB
MESSAGE CIRCUIT NOISE (idle Channel Noise)	-	-	12	dBnC
PHASE JITTER	-	-	1	degree
SIGNAL TO NOISE RATIO	-	-	52	dB
INSERTION LOSS				
(135 Ohm)	-0.5	0.0	0.5	dBm
(@1004Hz)	-0.5	0.0	0.5	dBm
FREQUENCY RESPONSE (±3.0dB)	100	-	400k	Hz
OUTPUT RING FREQUENCY	16.7	20	50	Hz
OUTPUT RING VOLTAGE (Sinusoidal wave)	45	75	86	Vrms
RING CAPACITY (1 REN = 9630Ω + 8μF)	-	5	12	REN
POWER CONSUMPTION	-	-	3	Watt
DYNAMIC RANGE (400-3400 Hz)	-35	-	3	dBm
INPUT ON-HOOK RESISTANCE	5	-	-	MΩ
CROSS TALK (to adjacent channel)	-	-	-60	dB
SINGLE FREQ. DISTORTION				
1000 Hz	-	-	-40	dBm
2000 - 4000 Hz	-	-	-30	dBm

For further information or for technical support - call 800-558-3325
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