



**Voice Isolation Card
P30142 - Dual Voice Isolation Card with
CID, CW & MWI
-24VDC/-48VDC Input
Description & Installation**

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Figure 1: P30142

1.0 SCOPE

This document describes the technical specifications, technical requirements and installation instructions for the P30142 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. 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.

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 inches fiber optic separation between the Station side and the CO/Remote side circuitry and the result of 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 components of the system fail.

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

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 signal 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, the appropriate model should be chosen. The P30142 POTS card can be powered either by grounded -24VDC or -48VDC source.

4.0 INSTALLATION

4.1 Powering Connections

-24VDC (Grounded)

- Set switch S3 on station side to 24V. Other model does not have this switch options.
- If the Isolation Card **P30142** is used in a 3-slot card shelf (P30075), and an external -24VDC source is used to power the system, connect the 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)

- Set switch S3 on station side to 48V.
- If the POTS Isolation Card **P30142** 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: Model P30142 will not take 130VDC. Use P30123 for this powering configuration.

48VDC (Floated)

Note: Model P30142 will not take floated 48VDC. Connect the 48VDC input as a grounded power source. If a floated 48VDC is needed, use P30124.

120VAC

Note: Model P30142 will not take 120VAC. Use P30123 for this powering configuration.

4.2 Installation Of POTS Card

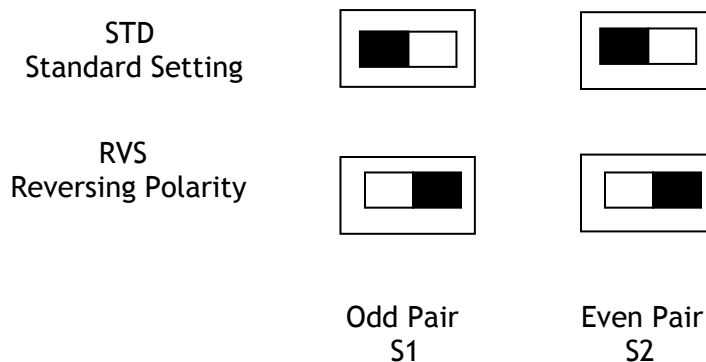
With the card shelf properly installed and properly configured, slide the POTS isolation card into any available card shelf slot and firmly plug it into the card shelf backplane receptacles. This may be done with or without power applied to the card shelf.

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 out going line. For example, if the tip and ring wire of a phone line is connected to Odd pair on the Remote side, the telephone wire from the equipment must also be connected to 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 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		REQUIREMENT			
		Min	Typical	Max	Unit
STATION SIDE P30142 INPUT VOLTAGE		20	24	30	VDC
		45	48	51	VDC
REMOTE SIDE INPUT: Voltage Current	Voltage	11.5	48	250	VDC
	Current	20	-	-	mAmp
INPUT POWER: Station Side Remote Side	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	75	150	Vrms
INPUT RINGING FREQUENCY		15	20	68	Hz

TABLE 3: ENVIRONMENTAL SPECIFICATIONS

CONDITIONS	SPECIFICATION			
	Min	Typ	Max	Unit
TEMPERATURE	-25	-	70	$^{\circ}\text{C}$
	-13	-	158	$^{\circ}\text{F}$
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
Ringing Return Loss Low	10	-	-	dB
Ringing Return Loss High	10	-	-	dB
MESSAGE CIRCUIT NOISE (idle Channel Noise)	-	-	12	dBmC
PHASE JITTER	-	-	1	degree
SIGNAL TO NOISE RATIO	-	-	52	dB
INSERTION LOSS (135 Ohm) (@1004Hz) (600 Ohm)	-0.5 -0.5	0.0 0.0	0.5 0.5	dBm dBm
FREQUENCY RESPONSE (±3.0dB)	100	-	4000	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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