



ISDN Isolation Cards

P30085: -48VDC Input

P30086: -24VDD Input

Description & Installation

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Figure 1: Photo of P30085 ISDN Isolation Card: -48VDC Input

1.0 SCOPE

This document describes the technical specifications, technical requirements and installation instructions for the P30085 and P30086 SNC Lyte Lynx® isolation cards. It provides an understanding of the basic functions and features available with these cards.

2.0 PRODUCT OVERVIEW

2.1 System requirements

The Integrated Services Digital Network (ISDN) Isolation Cards are designed for use in an SNC Lyte Lynx® 3, 6 or 12-slot Card Shelf or in a Positron *Teleline Isolator® Card Shelf.

2.2 Intended Uses

The ISDN Isolation Cards are designed for ISDN and DDS circuits including those that require 48VDC span powering. 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 or outgoing copper 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 Physical Separation

The ISDN Card’s high voltage isolation is the result of a high dielectric molding material which provides the 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.

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

3.2 Powering

Powering is not required unless 48VDC is expected at tip and ring terminals to power the customer equipment. The electronic circuitry on the Remote (CO) side of the isolation card is powered by the span powering voltage provided from the central office. The circuitry on the Station side of the card is powered by a 24VDC (P30086) or 48VDC (P30085). These cards reproduce 48VDC span powering to power the remote terminal unit. However, if a span voltage is not detected at the remote side, the battery feed circuit on the station side will not feed 48V to the tip and ring terminals on the station side either. This feature allows it to operate in an application where no span powering is required.

4.0 INSTALLATION

4.1 Powering Requirements

Note: If the remote ISDN or DDS unit is locally powered, no span power is required.

P30086 requires -24VDC with reference to ground.

P30085 requires -48VDC with reference to ground.

The ISDN Isolation card model should be chosen based on the available voltage at the card shelf or at the substation. If the available voltage is 24VDC, a P30086 should be chosen. If the available voltage is 48VDC, a P30085 should be chosen. However, if neither 24VDC nor 48VDC is available while 120VAC or 130VDC is, an external or internal power converter and the appropriate ISDN model should properly be chosen.

Powered By An Internal Power Converter

An internal power supply card converts 120VAC or 130VDC to the required voltage depending on power supply card and the model of ISDN Isolation card. The internal power supply feeds the correct voltage to the appropriate pins in the card shelf backplane. See the instruction sheet that comes with the power supply card and the card shelf for proper connections.

Powered By An External Power Supply

If an external power supply or battery is used, connect the outputs to the card shelf as instructed in the instruction sheet that comes with the card shelf.

4.2 Installation of ISDN Card

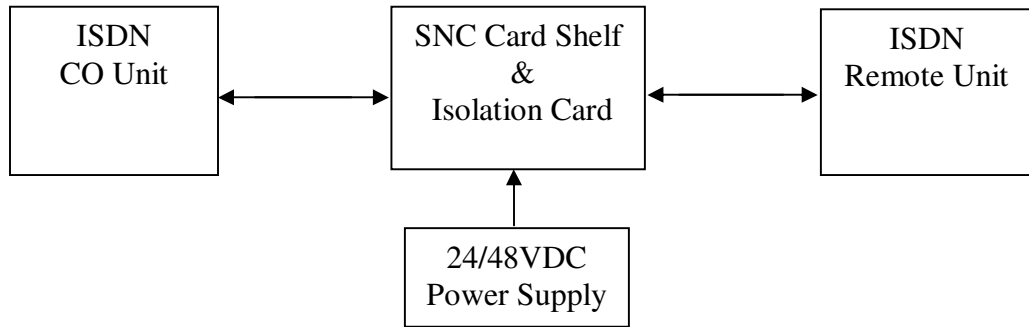
With the card shelf properly installed and properly configured, slide the Isolation card into any available card shelf slot and firmly plug it into the card shelf backplane receptacles. This may be done with or without power applied to the card shelf. However, inserting the card with power on may cause a little spark.

Note: The syncing process may take several minutes to complete. If for some reason the circuit does not sync up, the ISDN CO unit needs to be initialized (turn off and on again).

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 tied together, the incoming line and outgoing line of the twist wire pair may be connected to either the Odd or Even pair on the Remote and Station side of the card shelf.

Figure 1 – System Level Block Diagram



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. (See Figure 2) The physical size of the card is designed to fit one SNC card shelf slot. (See Table 1)

TABLE 1: PHYSICAL SIZE

	HEIGHT	WIDTH	DEPTH
P30085 or P30086 ISDN Isolation Cards	12.00" (30.48 cm)	7.25" (18.42 cm)	1.35" (3.43 cm)

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 to 70° C (32° F – 158° F) under humidity condition from 0% to 95% non-condensing.

6.0 SPECIFICATIONS

TABLE 2: ISOLATION SPECIFICATIONS

LONGITUDINAL SURGE (1.2 × 50μs)		65kV peak
CONTINUOUS RATING	AC	20kVrms
	DC	58kVdc

TABLE 3: EXTERNAL SYSTEM INPUT REQUIREMENTS

INPUT SPECIFICATION		REQUIREMENTS
SIGNAL SOURCE & TERMINATION IMPEDANCES		100, 124, 135, 600, or 900Ω
LOOP ATTENUATION (Sum of remote side and station side loops)		34dB Maximum
SIGNAL LEVEL	1000 – 1200Hz @ 600Ω 32kHz @ 135Ω	+10dBm Maximum +19dBm Maximum
STATION SIDE DC Line Voltage (Battery)	P30085 P30086	48VDC Typical 24VDC Typical
REMOTE SIDE	Span Powering Voltage	48VDC Typical 75VDC Maximum 30VDC Minimum

TABLE 4: PERFORMANCE SPECIFICATIONS

PARAMETER		SPECIFICATIONS
TIP & RING VOLTAGE	Station Span Powering	41VDC Typical
LONGITUDINAL BALANCE	1.2 – 300kHz	>70dB
RETURN LOSS	1200 – 4000Hz @ 600Ω 2.4kHz @ 135Ω 32kHz @ 135Ω	>18dB >14dB >18dB
MESSAGE CIRCUIT NOISE	1.2k – 4kHz @ 600Ω	<0dBrc
PHASE JITTER		<0.5°
SIGNAL TO NOISE RATIO		>50dB
INSERTION LOSS	Relative to 1.2kHz @ 600Ω Relative to 32kHz @ 135Ω	<0.3dBm <0.1dBm
FREQUENCY RESPONSE	Relative to 1.2kHz @ 600Ω Relative to 32kHz @ 135Ω	200Hz – 200kHz 2kHz – 600kHz
NOISE TO GROUND	C-Message 3kHz	>45dBrc >55dBrc
CROSSTALK (to adjacent channel)		<-65dB
SINGLE FREQUENCY DISTORTION		<2% THD
OPERATING TEMPERATURE		-40 to +100°C (-40 to 212°F)
OPERATING HUMIDITY		5 to 99% Relative Humidity
DRAINAGE CAPACITY – Minimum		0.5 Amps continuous (400 A²S Surge Drainage Rating)

For further information or for technical support –call 800-558-3325
or visit www.sncmfg.com



SNC Manufacturing Co., Inc.
101 West Waukau Ave., Oshkosh, WI 54902-7299
800-558-3325 or 920-231-7370 FAX 920-231-1090
E-mail: telecom@sncmfg.com
Website: www.sncmfg.com