



TOTAL REACH ISDN/DDS ISOLATION CARD  
WITH 190V SPAN POWERING

Description & Installation  
P30135

## Table of Contents

|     |   |   |
|-----|---|---|
| 1.0 | Product Scope                               | 3 |
| 2.0 | Product Overview                            | 3 |
| 3.0 | Product Features                            | 3 |
| 3.1 | Physical Separation                         | 3 |
| 3.2 | Powering                                    | 3 |
| 4.0 | Installation                                | 4 |
| 4.1 | Powering Connection                         | 4 |
| 4.2 | Installation of P30135 Card                 | 5 |
| 4.3 | Line and Equipment Connections              | 5 |
| 5.0 | Specifications                              | 5 |
|     | Table 1: Isolation Specifications           | 5 |
|     | Table 2: External System Input Requirements | 6 |
|     | Table 3: Performance Specifications         | 6 |

## 1.0 PRODUCT SCOPE

This document describes the technical specifications, requirements and installation instructions for the P30135 SNC Lyte Lynx® ISDN/DDS Isolation Card. It provides an understanding of the basic functions and features available with this card.

## 2.0 PRODUCT OVERVIEW

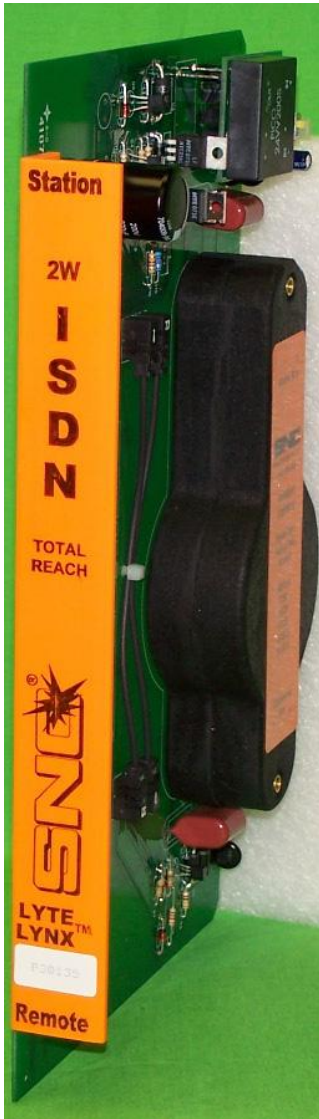


Figure 1: Photo of P30135  
Total Reach ISDN  
Isolation Card

The P30135 is a Total Reach ISDN/DDS Isolation Card designed for use in an SNC Lyte Lynx® 3-slot, 6-slot or 12-slot Card Shelf. This isolation is used to link Basic Rate ISDN, Total Reach ISDN, DDS (56 kbps), Total Reach DDS, HDSL2 and any other 2-wire data communication where span powering of 190VDC is required. The primary function of the card is to provide isolation from voltages while being “transparent” in the circuit. All signaling information within the specified frequency bandwidth will be unaffected.

## 3.0 PRODUCT FEATURES

### 3.1 Physical Separation

The P30135 Isolation 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.

### 3.2 Powering

The electronic circuitry on the remote (CO) side of the isolation card is powered by the 190V span powering voltage provided from the central office Total Reach unit. The circuitry on the station side of the card is powered by a -24VDC or -48VDC source. This card reproduces span powering to power the remote Total Reach terminal unit. However, if 190 volts is not detected at the remote side, the battery feed circuit on the station side will not feed the 190V 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 Connections

In some applications where span powering is turned off, the card can be operated without any power input. However, in most cases, span powering is required. The P30135 total reach isolation card is designed to provide 190VDC span power. If a different level span powering is needed, consult SNC personnel for a different model. In the case where span power is required, a low input voltage of -24VDC or -48VDC is also required to power the card. Unfortunately, 24VDC and 48VDC are rarely available at a substation while 120VAC and 130VDC are readily available in most substations. Therefore, a power converter is required to convert these high input voltages into 24 or 48VDC.

SNC offer various models of power supplies depending on the needs. The power supplies include internal full size and half size power supply cards and external power supplies. With the input voltage properly connected to the card shelf and a power supply firmly inserted into one of the appropriate card shelf slot, the backplane will feed the input voltage to the proper input pins. Power connection is slightly different from one card shelf to another. See the installation instructions that come with the card shelves and the power supply cards for details.

This card may be powered by either -24VDC or -48VDC with reference to ground. If a -24VDC power supply is used to power the cards, set the S1 switch on the card to 24V. If a -48V is used to power the cards, set the S1 switch on the Total Reach Isolation card to 48V. (See Figure 2 to locate switch S1.)

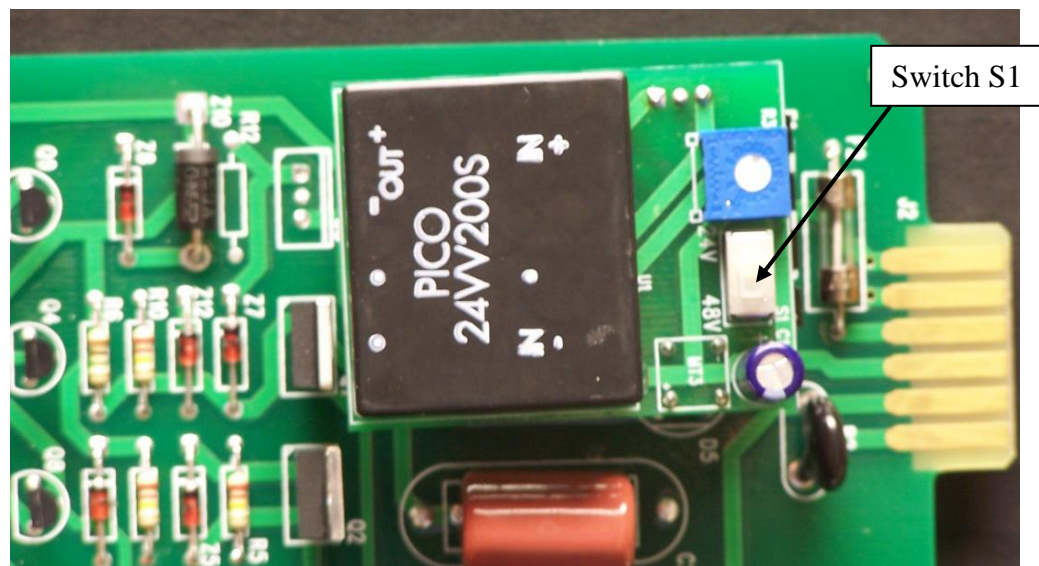


Figure 2: Station Side Circuitry- Showing Switch S1

## 4.2 Installation of P30135 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 while the power is off is recommended.

**Note:** The syncing process may take several minutes to complete. If the circuit does not sync up after 2 minutes, the total reach CO unit needs to be rebooted. (Turn off and on again). If the problem persists, swap the tip and ring connections on remote side then restart the syncing process again.

## 4.3 Line and Equipment Connections

The Numeric Pair and Alpha Pair (T1, R1, TA, RA ...) sometimes are called Odd Pair and Even Pair (T1, R1, T2, R2 ...). Because the P30135 card's odd and even pairs are tied together, the cable from the Central Office may be connected to either the odd or even pairs of the remote side card shelf terminals while the cable from the station equipment may be connected to the odd or even pairs of the station side card shelf terminals. (See the documents that come with the card shelf for details)

**Note:** SNC terminology is slightly different from Telco Terminology. From SNC's standpoint, the REMOTE side means the CO side while the STATION side refers to the substation equipment side.

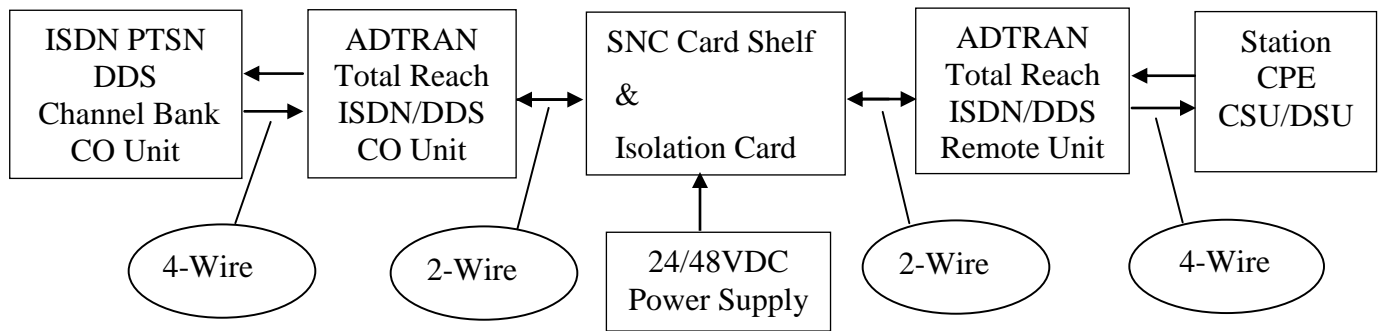


Figure 3 - System Level Block Diagram

## 5.0 SPECIFICATIONS

TABLE 1: ISOLATION SPECIFICATIONS

|   |           |
|---|-----------|
| LONGITUDINAL SURGE (1.2 $\mu$ 50 $\mu$ s) | 65kV peak |
| CONTINUOUS RATING                         | AC        |
|   | DC        |
|   | 20kVrms   |
|   | 58kVdc    |

**TABLE 2: EXTERNAL SYSTEM INPUT REQUIREMENTS**

| <b>INPUT SPECIFICATION</b>                                      |  | <b>REQUIREMENT</b>  |
|---|--|---|
| SIGNAL SOURCE & TERMINATION IMPEDANCES                          |  | 100, 124, 135, 600, or 900 $\square$                          |
| LOOP ATTENUATION<br>(Sum of remote side and station side loops) |  | 34dB Maximum  |
| SIGNAL LEVEL  | 1000 - 1200Hz @ 600 $\square$<br>32kHz @ 135 $\square$   | +10dBm Maximum<br>+19dBm Maximum                              |
| STATION SIDE  | DC Line Voltage (Battery)<br><br>Power required per card | 18VDC Minimum<br>24VDC Typical<br>48VDC Maximum<br>6W Minimum |
| REMOTE SIDE   | Span Powering Voltage                                    | 160VDC Minimum<br>190VDC Typical<br>200VDC Maximum            |

**TABLE 3: PERFORMANCE SPECIFICATIONS**

| <b>PARAMETER</b>                |  | <b>SPECIFICATION</b>   |
|---------------------------------|--|--|
| TIP & RING VOLTAGE              | Station Span Powering  | 170VDC Minimum<br>190VDC Typical<br>200VDC Maximum               |
| LONGITUDINAL BALANCE            | 1.2 - 300kHz   | >70dB  |
| RETURN LOSS                     | 1200 - 4000Hz @ 600 $\square$<br>2.4kHz @ 135 $\square$<br>32kHz @ 135 $\square$ | >18dB<br>>14dB<br>>18dB  |
| MSSG CIRCUIT NOISE              | 1.2k - 4kHz @ 600 $\square$  | <0dBrc   |
| PHASE JITTER                    |  | <0.5 $\square$   |
| SIGNAL TO NOISE RATIO           |  | >50dB  |
| INSERTION LOSS                  | Relative to 1.2kHz @ 600 $\square$<br>Relative to 32kHz @ 135 $\square$          | <0.3dBm<br><0.1dBm   |
| FREQ RESPONSE                   | Relative to 1.2kHz @ 600 $\square$<br>Relative to 32kHz @ 135 $\square$          | 200Hz - 200kHz<br>2kHz - 600kHz                                  |
| NOISE TO GROUND                 | C-Message<br>3kHz  | >45dBrc<br>>55dBrc   |
| CROSSTALK (to adjacent channel) |  | <-65dB   |
| SINGLE FREQUENCY DISTORTION     |  | <2 THD   |
| OPERATING TEMPERATURE           |  | -40 to +100 $\square$ C (40 to 212 $\square$ F)                  |
| OPERATING HUMIDITY              |  | 5 to 99% Relative Humidity                                       |
| DRAINAGE CAPACITY - Minimum     |  | 0.5 Amps continuous (400 A <sup>2</sup> S Surge Drainage Rating) |

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



**SNC Manufacturing Co., Inc.**

101 West Waukau Ave., Oshkosh, WI 54902-7209  
800-558-3325 or 920-231-7370 FAX 920-231-1090  
E-mail: [telecom@sncmfg.com](mailto:telecom@sncmfg.com)  
Website: [www.sncmfg.com](http://www.sncmfg.com)