



T-CARRIER, DS1, PCM

P31043 - Standalone Transformer  
P31006 - Fiberglass Enclosure

Description & Installation

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## 1.0 SCOPE

This document describes the specifications, requirements and installation instructions for the SNC Lyte Lynx® P31043 2-wire T-Carrier isolation transformer and P31006 Fiberglass Enclosure. It provides an understanding of the basic functions and features available with these products.

## 2.0 PRODUCT OVERVIEW

### 2.1 System Requirements

The P31006 and P31043 are mounted as standalone units and do not require a card shelf. No powering is required for these passive devices.

### 2.2 Intended Uses

These Data Isolation Interface models provide an isolated interface for DS1 (such as T1) data circuits, including SuperFrame, Extended SuperFrame, and single or multi-channel DS0 transmission, as well as any other digital channel with a primary signalling frequency in the 10kHz - 2MHz range. Frequency response is 2kHz - 6MHz. Two P31043 models are required for use as a 4-wire unit.

The primary function is to provide an isolation from hazardous voltages while being “transparent in the circuit. All data signalling information within the specified frequency bandwidth will be unaffected. However, DC signaling is not supported. A secondary function is to provide for the loopback of DC simplex sealing current/repeater powering current on the remote (Central Office) side of the units, since there is no DC path for such current through the unit.

SNC Lyte Lynx® isolation is intended for use at power substations and similar locations (such as PCS antenna sites) where high voltage isolation is required on the incoming copper telecom pairs to protect the network from harm and to provide a personnel safety barrier against voltages. This specifically includes protection from longitudinally induced voltage surges and Ground Potential Rise (GPR) surges that may occur during power system faults.



**P31043 2-Wire T-Carrier Isolation**



**P31006 4-Wire T-Carrier Isolation in Fiberglass Enclosure**

### 3.0 PRODUCT FEATURES

#### 3.1 Transformer Isolation

The Lyte Lynx® data isolation interface models are passive, magnetic-coupled devices. Primary to secondary isolation is rated at 65kV BIL. In a 4-wire data circuit, the center tap of the transmit and receive transformers can be connected to one another to provide sealing current or span line powering current loopback at the remote side of the interface.

DO NOT connect center taps of CO/Remote and Station sides together. Doing so would disable the isolation interface and create a hazardous situation.

### 4.0 INSTALLATION



**WARNING:** To provide personnel isolation from local ground, stand on a thick rubber mat and use other adequate insulation devices (rubber gloves) when working on the isolation system.



**CAUTION:** The incoming telephone pairs should be contained in insulated conduit (PVC, etc.), or the pair should be jacketed with sufficient insulation to withstand a voltage rise from ground fault potential and from fault induction voltage.



**CAUTION:** Any metallic shielding on the incoming CO/Remote pair must be isolated from substation grounds all the way from the network low voltage interface (300 volt peak GPR point per IEEE Standard 487) to the entry into the Lyte Lynx®. The conductors must also be isolated.

#### Sealing Current or Powering Current Termination/Drainage

All models provide the option of terminating simplex sealing or span line powering current from 0-160mA of current. This is done by connecting the center taps of the individual transformers in a 4-wire installation.

#### P31006 FIBERGLASS ENCLOSURE

The P31006 model consists of two P31043 2-wire transformers mounted inside a fiberglass enclosure. The enclosure should be mounted to a wall or backboard (non-metallic) with (4) ¼" lag screws. Use a flat washer under the head of each screw.

#### Connections - Station Cable

Loosen the pigtail cord grip on top of the fiberglass enclosure. Insert a 4-conductor, 22 AWG jacketed cable through the cord grip and retighten. Connect the tip and ring conductors to the proper terminals. Make sure the two center screw terminals are connected with a jumper (See Figure 1).

### Connections - CO/Remote Cable

Add an extension of ½" PVC non-metallic conduit to the PVC adapter on the bottom of the enclosure as outlined in the Caution Notes. Bring the CO/Remote cable in through this conduit and terminate on the appropriate terminals. Make sure the two center screw terminals are connected with a jumper. Do not leave any slack cable inside the Lyte Lynx® enclosure.

With the cover secure, the enclosure is safe to personnel contact.

### P31043 Transformer Only

Secure the transformer to a wall or backboard (non-metallic). Use a flat washer under the head of each screw.

Connect the tip and ring station conductors to the proper screw terminals.

The two center screw terminals (center taps - on Remote Side) must be jumpered and connected to the center taps on the Remote Side of another P31043 transformer for simplex current loopback in 4-wire applications.

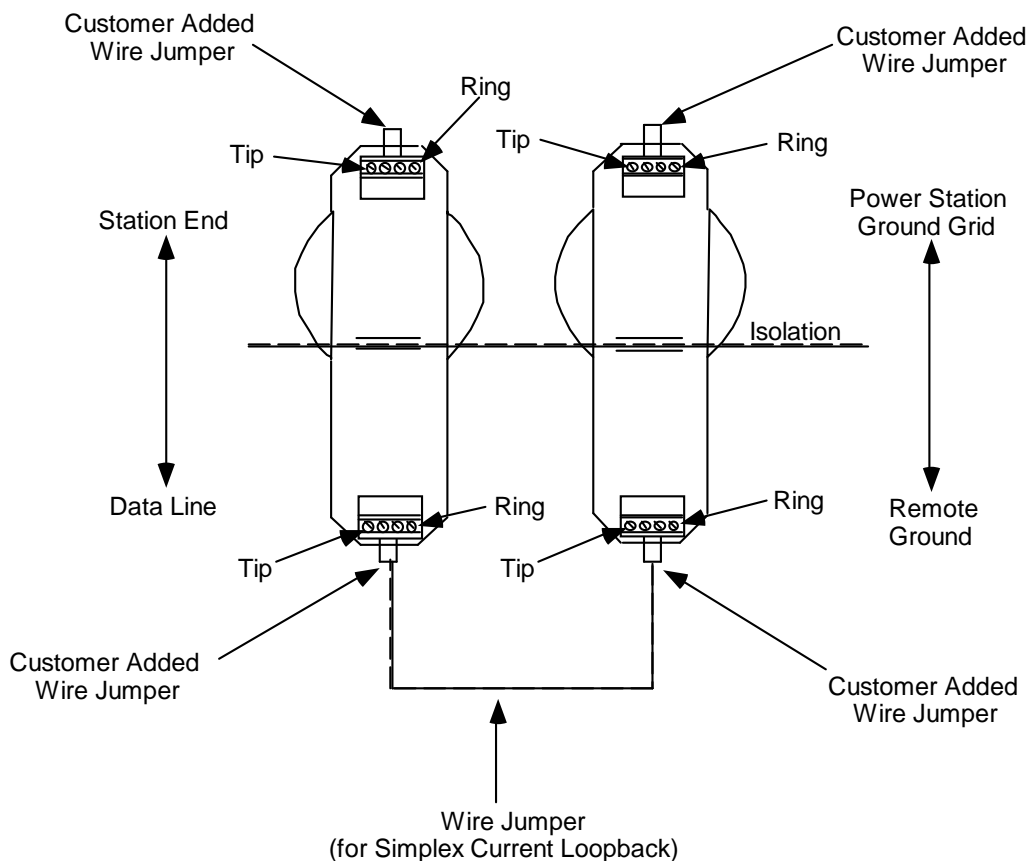


Figure 1: Sealing Current Termination - (P31006, P31043)

## 5.0 PHYSICAL CHARACTERISTICS

### 5.1 Mechanical Configuration

**Table 1: Physical Dimensions**

PART NUMBER	HEIGHT	WIDTH	DEPTH
P31006	13.375" (29.25 cm)	11.25" (23 cm)	5.25" (10.75 cm)
P31043	8.75" (22.2 cm)	3" (7.6 cm)	2" (5.1 cm)

## 6.0 SPECIFICATIONS

**TABLE 2: ISOLATION SPECIFICATIONS**

LONGITUDINAL SURGE, 1.2 x 50mS	65 kV Peak
CONTINUOUS RATING	20 kV rms 60 Hz

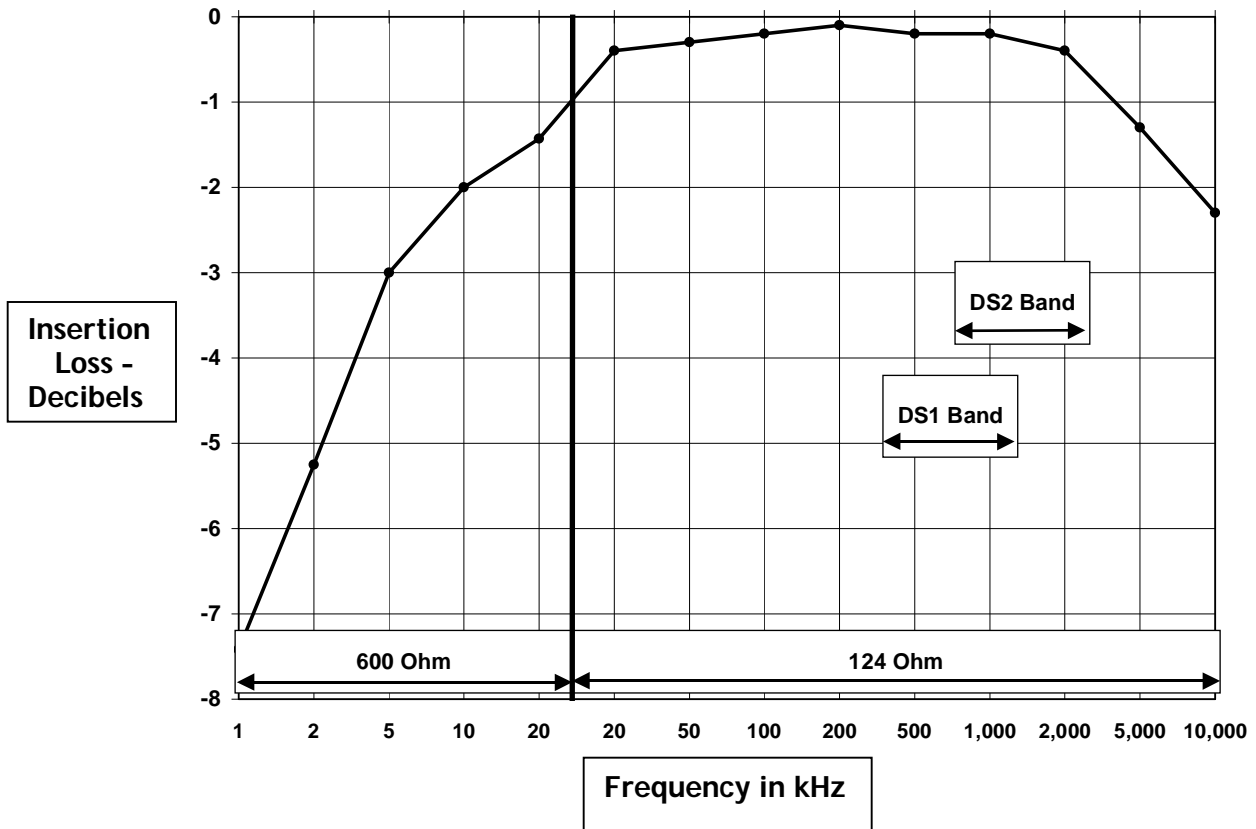
**TABLE 3: EXTERNAL SYSTEM INPUT REQUIREMENTS**

INPUT SPECIFICATION	REQUIREMENT
TRANSMIT AND RECEIVE IMPEDANCES	100 -135 Ohms
LOOP LOSS	34dB Maximum
SIMPLEXED SEALING CURRENT/POWERING CURRENT	160 mA Maximum

**TABLE 4: PERFORMANCE SPECIFICATIONS**

PARAMETER	SPECIFICATIONS
INSERTION LOSS 772kHz @ 124 Ohms 1.544 @ 124Ohms	<0.1 DbM <0.3 DbM
FREQUENCY RESPONSE Relative to 772 kHz @ 124 Ohms; +3.0 dB	10 kHz - 10 MHz
CROSSTALK (to adjacent channel) @772 kHz	< -45 dB
SIGNAL TO NOISE RATIO	>50 dB
PHASE JITTER	<0.5 degree
LONGITUDINAL BALANCE	>60 dB
TEMPERATURE RANGE	-40 to +100° C (-40 to 212° F)
HUMIDITY RANGE	0 to 99% Relative Humidity
DRAINAGE CAPACITY - Maximum	0.5 Amps continuous (400 A2S Surge Drainage Rating)

Figure 2: SNC T-Carrier Transformer (P31043)



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



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