Teleline™
Standalone 4-wire HDSL With Span Power model 751239SP
Description and Installation Guide

925W751042-02E

POSITRON
Positron Inc.

Contents

Chapter 1

General Information

1.1 Publication Information

Teleline Standalone 4-wire HDSL With Span Power model 751239SP
Description and Installation Guide
Part number: 925W751042-02E

Publication date: April 12, 2012

Published By
Positron Inc.
5101 Buchan Street, Suite 220
Montreal, Quebec, Canada
H4P 2R9
Telephone: US and Canada: 1-888-577-5254
International: 1-514-345-2220

1.2 About this Guide

This guide introduces you to the Teleline Standalone 4-wire HDSL (High speed Digital Subscriber Line) With Span Power model 751239SP and its features and applications. This guide was designed to be read from beginning to end.

1.2.1 Related Documentation

The other guides in the Teleline set are listed below. To order any manuals, please contact your customer service representative.

- Teleline System Manual
- Teleline System Overview
- Teleline Product Guide

1.2.2 Positron Products and Services

Positron engineers and manufactures high voltage isolation products to protect personnel and telecommunications circuits in high voltage areas that are susceptible to the effects of Ground Potential Rise (GPR).

Positron is the leader in isolation technology with its Teleline wireline products and TeleLite optical fiber wireline isolation/protection product families. Positron provides total flexibility in product configuration – from standalone units protecting a single circuit to high-capacity, multi-shelf High Voltage Interface (HVI) preconfigured systems.

Positron also provides a wide range of consulting, analysis and training services for communications companies and electrical utilities.

Full details and contact information are available at **www.PositronPower.com**.

1.3 Service and Support

1.3.1 Positron Contact Information

General information:	Positron Inc. 5101 Buchan Street, Suite 220 Montreal, Quebec, Canada H4P 2R9 US and Canada: 1-888-577-5254 International: 1-514-345-2220 Fax: 514-345-2271 E-mail: info@positronpower.com Website: www.PositronPower.com
Customer Service and Repairs:	US and Canada: 1-888-577-5254 International: 1-514-345-2220 E-mail: customerservice@positronpower.com

1.3.2 Technical Customer Support

Positron is committed to providing excellent ongoing technical support to its customers. A team of specialists is always available for telephone consultations or for on-site visits to assist in the maintenance and troubleshooting of Positron equipment.

For pricing information or assistance in the planning, configuration and implementation of the installation of equipment, contact Technical Customer Service.

1.3.3 Customer Training

Full customer training courses on High Voltage Interface (HVI) are also available. For more information, contact Positron.

1.3.4 Repair Service

All warranty repairs are performed at no cost. Positron reserves the right to repair or replace any equipment that has been found to be defective.

For information about out-of-warranty repairs, contact Positron's Repair Department. Due to the varied nature of repairs, no specific turnaround can be guaranteed, but average turnaround time is 20 working days from date of receipt. In emergency situations, special arrangements can be made. All repaired items are warranted for a period of 90 days.

Before returning any items to Positron for repair, warranty repair or replacement, call the Repair department to obtain a Return Material Authorization (RMA) number. Parts returned without RMA numbers cannot be accepted. The RMA number must always be clearly marked on all boxes, crates, and shipping documents. Bulk repairs (more than five items) will require additional processing time, so please take this into consideration when requesting an RMA number.

To accelerate the repair process, whenever possible, include a report detailing the reason for return with the unit(s). Also, please include the name and phone number of a person who can be contacted should our Repair department need further information.

When packing items being returned for repair, please ensure they are properly packed to avoid further damage. TeleLine plug-in cards should never be shipped while installed in a shelf; this will cause damage that can extend the repair period

1.4 Teleline Warranty

Subject to the provisions of this paragraph, Positron warrants that the equipment shall perform in accordance with Positron's specifications. The warranty remains valid for five (5) years from the date of shipment. The warranty fully covers workmanship, materials and labor. Positron shall, at its sole discretion, repair or replace the problem unit.

Freight costs to ship defective equipment to Positron are borne by the Customer, with return of replaced or repaired equipment to be at Positron's expense.

1.4.1 Limitation of Liability

Subject to anything to the contrary contained herein, Positron's sole obligation and liability and the customer's sole remedy for Positron's negligence, breach of warranty, breach of contract or for any other liability in any way connected with or arising out of, the equipment or any services performed by Positron shall be as follows:

- In all situations involving performance or non-performance of the equipment or any component thereof, the customer's sole remedy shall be, at Positron's option, the repair or replacement of the equipment or said component.
- For any other claim in any other way related to the subject matter of any order under, the customer shall be entitled to recover actual and direct damages; provided that Positron's liability for damages for any cause whatsoever, and regardless of the form of the action, whether in contract or in tort (including negligence), shall be limited to the value of the order.

Positron shall not be obligated to repair or replace any item of the equipment which has been repaired by others, abused or improperly handled, improperly stored, altered or used with third party material or equipment, which material, or equipment may be defective, of poor quality or incompatible with the equipment supplied by Positron, and Positron shall not be obligated to repair or replace any component of the equipment which has not been installed according to Positron specifications.

IN NO EVENT SHALL POSITRON BE LIABLE FOR ANY INDIRECT, INCIDENTAL, SPECIAL, CONSEQUENTIAL, PUNITIVE, EXEMPLARY OR SIMILAR OR ADDITIONAL DAMAGES INCURRED OR SUFFERED INCLUDING

LOSS OF PROFITS, LOSS OF REVENUES, LOSS OF DATA, LOSS OF BUSINESS INFORMATION, LOSS OF GOODWILL, LOSS OF EXPECTED SAVINGS OR BUSINESS INTERRUPTION ARISING OUT OF OR IN CONNECTION WITH THE EQUIPMENT, A PURCHASE ORDER, SUPPLIES, MAINTENANCE SERVICES OR OTHER SERVICES FURNISHED HEREUNDER, EVEN IF POSITRON HAS BEEN ADVISED OR IS AWARE OF THE POSSIBILITY OF SUCH DAMAGES.

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, POSITRON DISCLAIMS ANY FURTHER CONDITIONS, REPRESENTATIONS OR WARRANTIES, WHETHER WRITTEN OR ORAL, EXPRESSED OR IMPLIED, INCLUDING THE CONDITIONS AND WARRANTIES OF MERCHANTABILITY, MERCHANTABLE QUALITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE, PERFORMANCE AND THOSE ARISING FROM STATUTE, TO THE EXTENT PERMITTED BY LAW. POSITRON DOES NOT WARRANT THAT THE SYSTEM WILL OPERATE WITHOUT INTERRUPTION OR THAT IT WILL BE ERROR FREE.

1.4.2 Cancellation and Rescheduling Charges

Should the customer cancel, prior to shipment, any part of an order, the customer agrees to pay to Positron cancellation charges, not as a penalty, which shall total all expenses, including labor expenses, incurred by Positron prior to said cancellation. Equipment that has been specially developed for the customer's specific applications shall not be subject to cancellation. Cancellation or rescheduling is not permissible after shipment of the System.

Chapter 2

Overview

2.1 Introduction

The Teleline Standalone 4-wire HDSL with Span Power model 751239SP provides high-voltage isolation between one, 4-wire Remote Terminal Unit (HTU-R) located inside the substation, and an HDSL Central Office (CO) Terminal Unit (HTU-C).

NOTE The Standalone 4-wire HDSL Classic unit model 751239 has been manufacture discontinued. Positron will continue to support field deployments of this unit through the warranty period.

A standalone unit consists of an isolator card mounted inside a compact enclosure. The enclosure is molded from fiberglass, making it a lightweight, flame-retardant container of high dielectric strength. Its fiberglass body limits the possibility of many kinds of infiltration while providing reliable isolation from external ground potentials.

The standalone unit is shipped with an installation kit that includes a 12-conductor cable for connection to the CO incoming cable, and mounting hardware.

Features for model 751239SP include the following:

- Isolation of 50 kV_{rms} (70 kV peak) while maintaining full communication between terminals.
- Communication maintained across the gap by isolation transformers that provide low-loss low-distortion transmission.
- Operates from -48 Vdc supplied by an integrated, multi-input power supply
  - When operating from a -24 Vdc source, the power supply is polarity sensitive
  - When operating from 42 Vdc to 130 Vdc, or from a 120 Vac source, the power supply is not polarity sensitive.
- Battery backup (when Power Supply Piggyback 220W000021-401 is installed.
- Jumper settings allow configuring the unit to provide a simplex sealing current or a loop sealing return path on the CO side.
- Model 751239SP will provide a -120 Vdc simplex span voltage to power the HTU-R.

- Enclosures resist the infiltration of dust, mist, and water from sprinklers

NOTE

- A jumper setting allows loop or simplex span powering of the HTU-R.
- A loss of 610 m (2,000 ft.) is introduced in the span for each 751239SP card installed.

For illustrations of the Model 751239SP:

- Front and side views, see Figure 1 below.
- Major component layout, see Figure 2 on page 16.

Figure 1: Model 751239SP enclosure

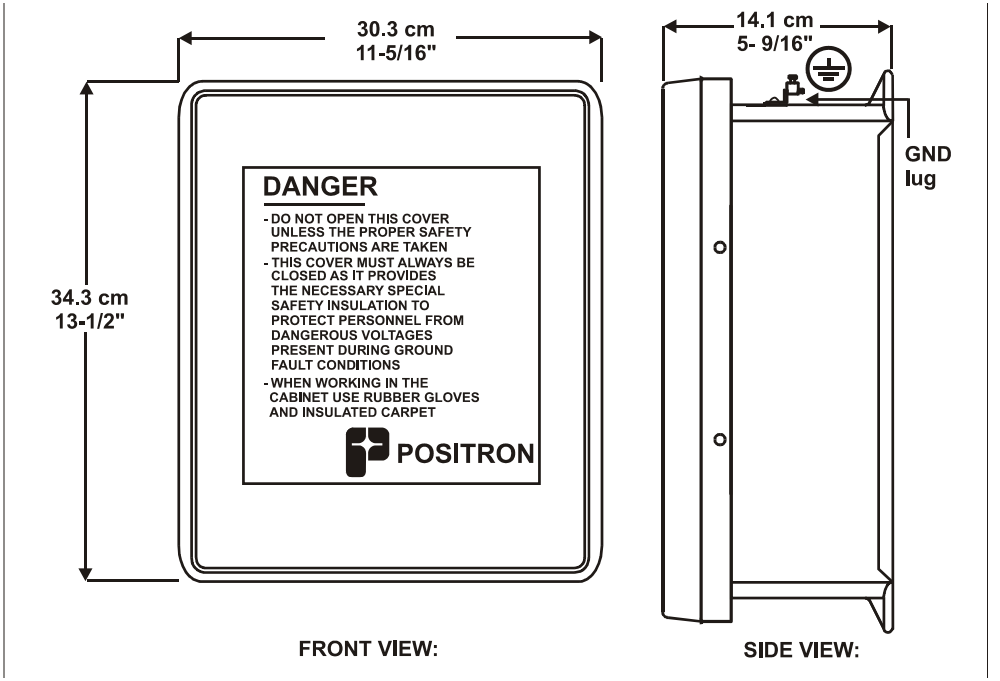
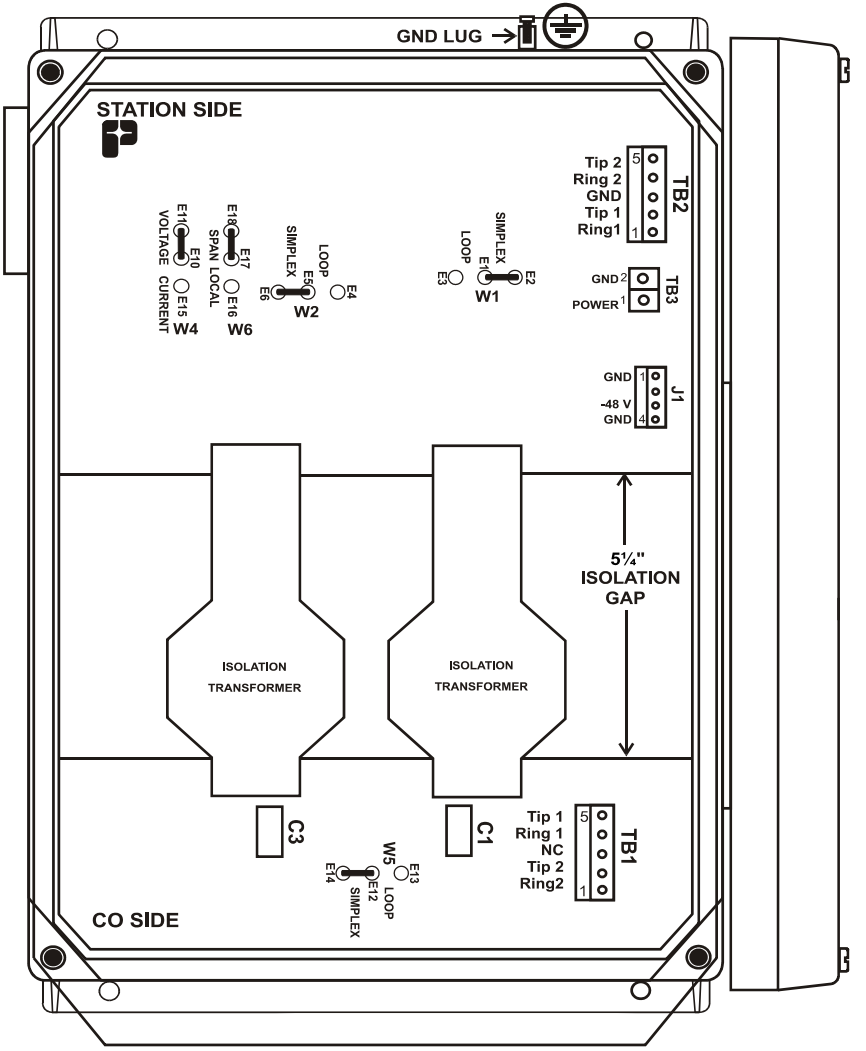
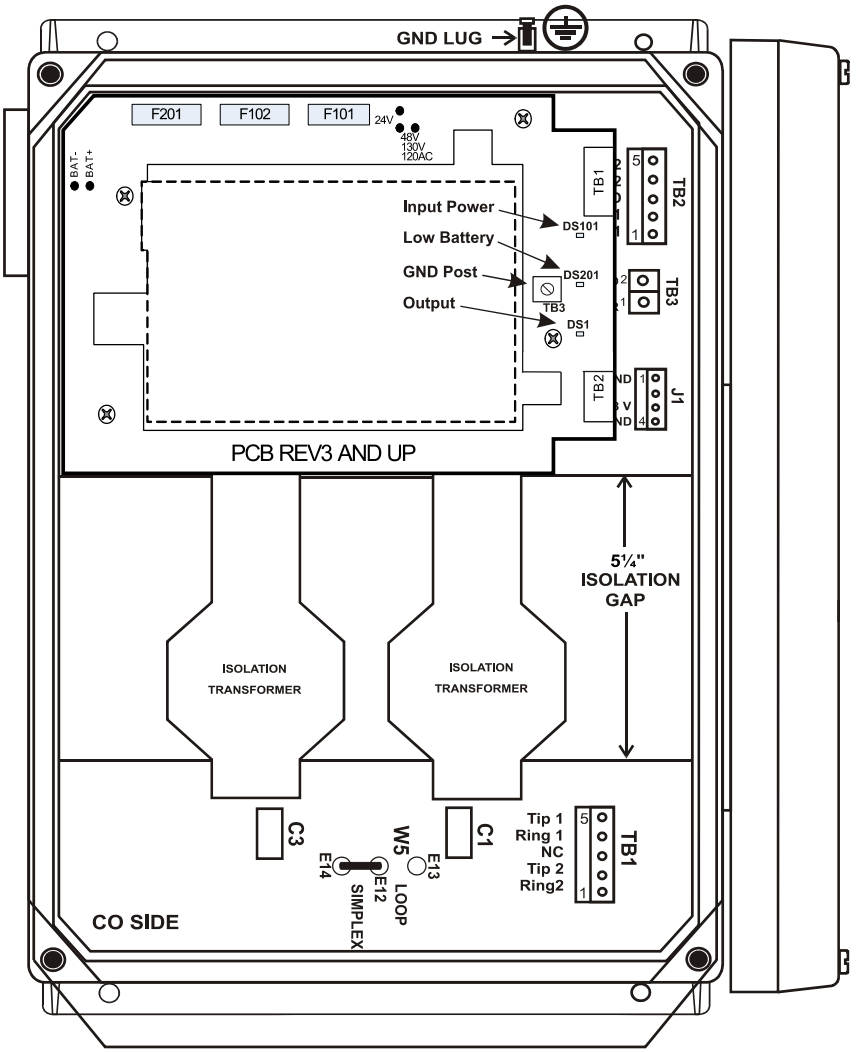


Figure 2: Model 751239SP Component Layout (only major components shown, without power supply)



NOTE The layout shown above illustrates the default jumper settings for model 751239SP.

Figure 3: Model 751239SP Component Layout
(only major components shown, with power supply)



2.2 Applications

2.2.1 Applications for model 751239SP

The model 751239SP can be deployed in installations that use:

- HDSL Classic (2B1Q), one HDSL2, two HDSL2, and one HDSL4 with support of -129 Vdc & -190 Vdc on the loop. For supported span distance, see Table 1 below.
- Data transmission lines within the passband of the card (1.544 Mb/s).
- Station side span powered HTU-R.
- Station side locally powered HTU-R.

For an illustration of how the unit is used as part of the high voltage interface, see Figure 4 on page 19.

NOTE

- The model 751239SP can provide power to the Station side span for a span powered HTU-R.
- For the unit to span-power an HTU-R at 120 Vdc, a power supply (24 Vdc, 48 Vdc to 130 Vdc or 120 Vac) is needed.

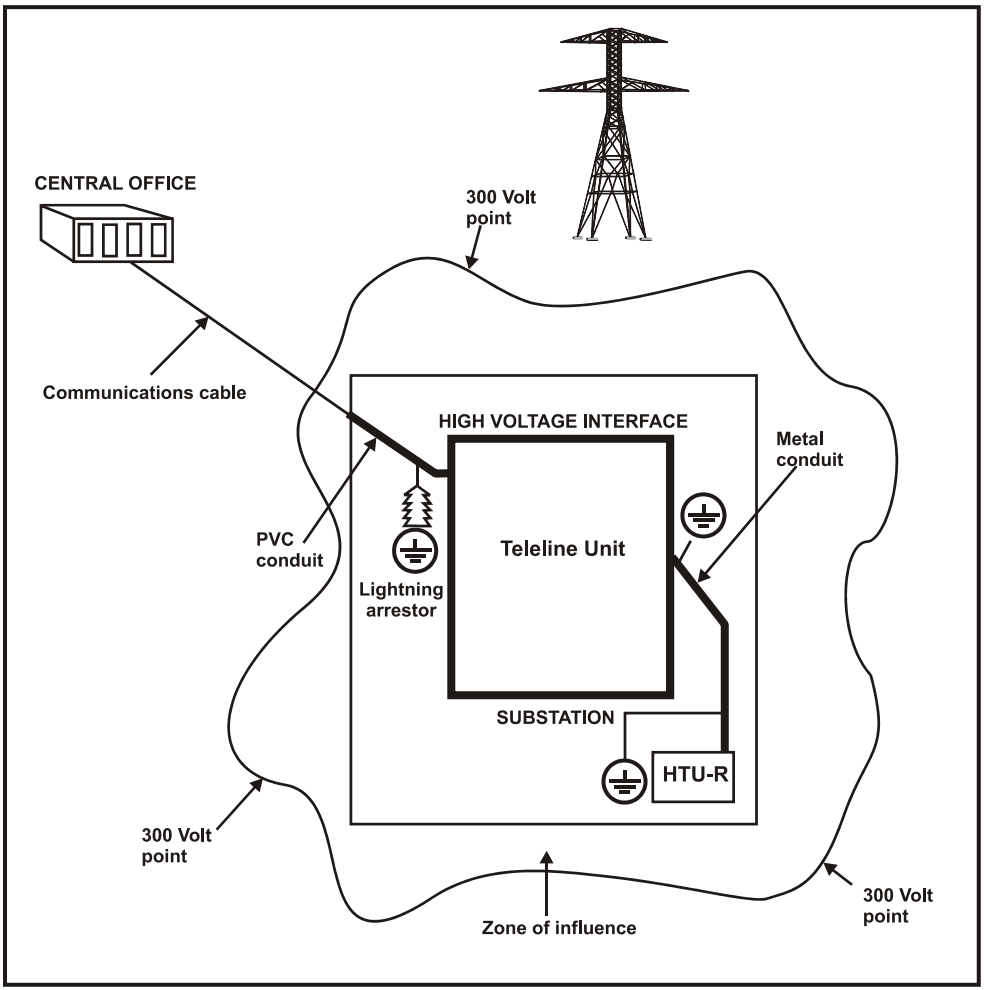
Table 1: Span Distance Reductions for model 751239SP

Application	Local Power Mode
HDSL Classic (2B1Q)	610m (2,000 ft)
HDSL2	610m (2,000 ft)
Two HDSL2	Half of the total span distance
HDSL4	610m (2,000 ft)

NOTE

- The total span is the distance between the CO and the Station side equipment.

Figure 4: High Voltage Interface



NOTE

- When using model 751239SP with a power source, the HTU-R can be span powered and does not require local powering.

2.3 Hardware Description

The Model 751239SP contains a built-in 4-wire HDSL card. Each isolation card has two sides:

- The **Station side** is located on the upper portion of the card.
- The **CO side** is located on the lower portion of the card.

The isolation transformers separate the Station side from the CO side, creating a 13.2 cm (5¼") isolation gap.

The center taps of the two transformers are shorted together on the PCB to allow the simplex sealing loop current to flow across the pairs.

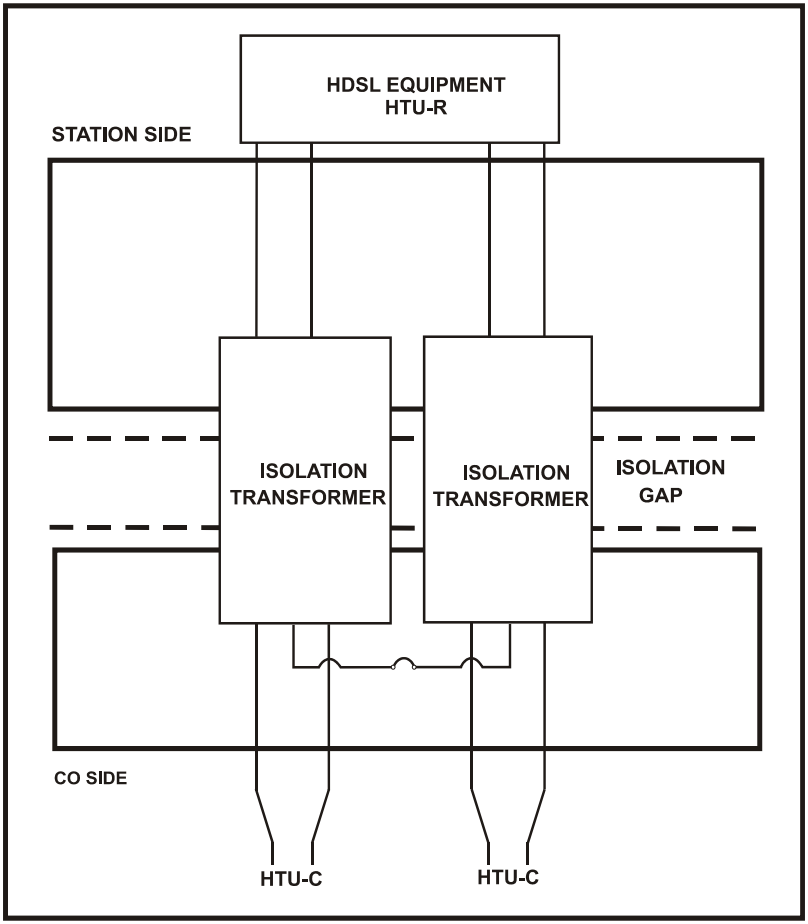
2.3.1 Power Supply LED Description

The Power Supply piggyback has three LEDs to facilitate troubleshooting of the unit. The LEDs are shown in Figure 3 on page 17. For a description of the LEDs see Figure 2 on page 21.

Table 2: LED Functions

	State	Description
Input LED	OFF	No input power or input fuses damaged
	YELLOW	Input power present
Output LED	OFF	No output voltage
	GREEN	Output voltage present
Low Battery	OFF OUTPUT GREEN	With Input LED ON, means battery charged and normal operation
		With Input LED OFF, means operating from battery, battery charged
	RED OUTPUT GREEN	With Input LED ON, means battery charging from input
		With Input LED OFF, means operating from battery, battery low and failure is approaching
Low Battery	OFF OUTPUT OFF	With Input LED Yellow, means defective unit
		With Input OFF means battery fully discharged
	RED OUTPUT OFF	With Input LED Yellow, means defective unit
		With Input OFF means battery fully discharged

Figure 5: Block Diagram for 751239SP



2.4 Technical Specifications

- For electrical specifications for Model 751239SP, see Table 3 on page 23.
- For physical specifications for Model 751239SP, see Table 4 on page 24.

Table 3: Electrical Specifications for 751239SP (measured at 25°C or 77°F, 50% R.H.)

	Parameter	Specification
Isolation Data:	Isolation Resistance	100,000 MΩ
	Metallic Surge	3 kV maximum
	Insulation Voltage	50 kV_{rms} (70 kV peak)
Input Voltage Requirement:	HTU-R Span Power	120 Vdc - 190 Vdc
751239SP	Input Voltage WITH Power Supply Installed	24 Vdc, 48 Vdc, 130 Vdc or 120 Vac
	Input Voltage WITHOUT Power Supply Installed	-48 Vdc
Transmission Data:	Longitudinal Balance (CO side)	> 80 dB at 60 Hz
	Return Loss (at either side with opposite side terminated at 135 Ω)	> 25 dB, 2.5 kHz to 350 kHz
Signal:	Insertion Loss at 100 kHz	< 0.5 dB
	Frequency Response	-1 dB at 2.5 kHz, 300 kHz -3 dB at 1.5 kHz, 650 kHz
	Total Harmonic Distortion at 22 dBm, 10 kHz	< -70 dB
Power:	Power Dissipation (HDSL2)	6.7 W
	Power Dissipation (HDSL4)	10 W
	Power Consumption (HDSL2) based on a typical HTU-R consumption NOTE: WHEN CHARGING THE BATTERY: add 8 W to power dissipation and 13 W to power consumption	6.7 W
	Power Consumption (HDSL4) based on a typical HTU-R consumption	6.7 W
Battery Backup Time:	HDSL2 or HDSL4	4 hours

Table 4: Physical Specifications for 751239SP

Parameter	Specifications
Operating Temperature Range WITH Battery	0°C to 40°C (32°F to 104°F)
Operating Temperature Range WITHOUT Battery	-40°C to 65°C (-40°F to 149°F)
Height	34.3 cm (13-½”)
Width	28.7 cm (11-5/16”)
Depth	14.1 cm (5-9/16”)
Weight	3.8 kg (8.3 lbs)

Chapter 3

Installation

3.1 Installation

ESD Precaution

INCORRECT HANDLING MAY VOID WARRANTY

These procedures must be followed when handling an electrostatic sensitive device.

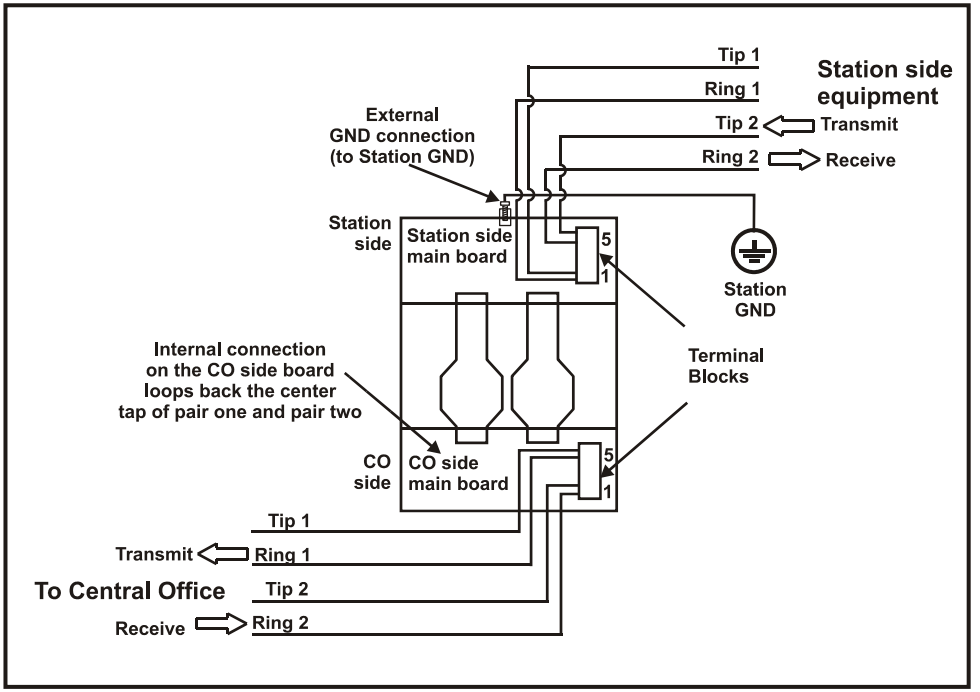
- A grounded wrist strap must be worn at all times during installation.
- When unpacking, place the antistatic bag containing the device on an electrostatic discharge (ESD) safe surface. An ESD safe surface is a conductive surface connected directly to an earth ground.
- When moving, carry the device in an ESD safe container or the antistatic bag, provided with the device.

CAUTION

- Stand on a thick rubber mat and wear rubber gloves during the installation procedure. Perform these procedures on a clear dry day when a Ground Potential Rise (GPR) or Transients are less likely to occur.
- When wiring a unit, keep the Station and CO cables at least 15 cm (6”) apart to prevent an electric arc between them in the event of, damage to, or degradation of cable insulation.

The Model 751239SP is used when the number of lines to be isolated does not justify the installation of a shelf. It will isolate one 4-wire HDSL circuit.

Figure 6: Layout for model 751239SP

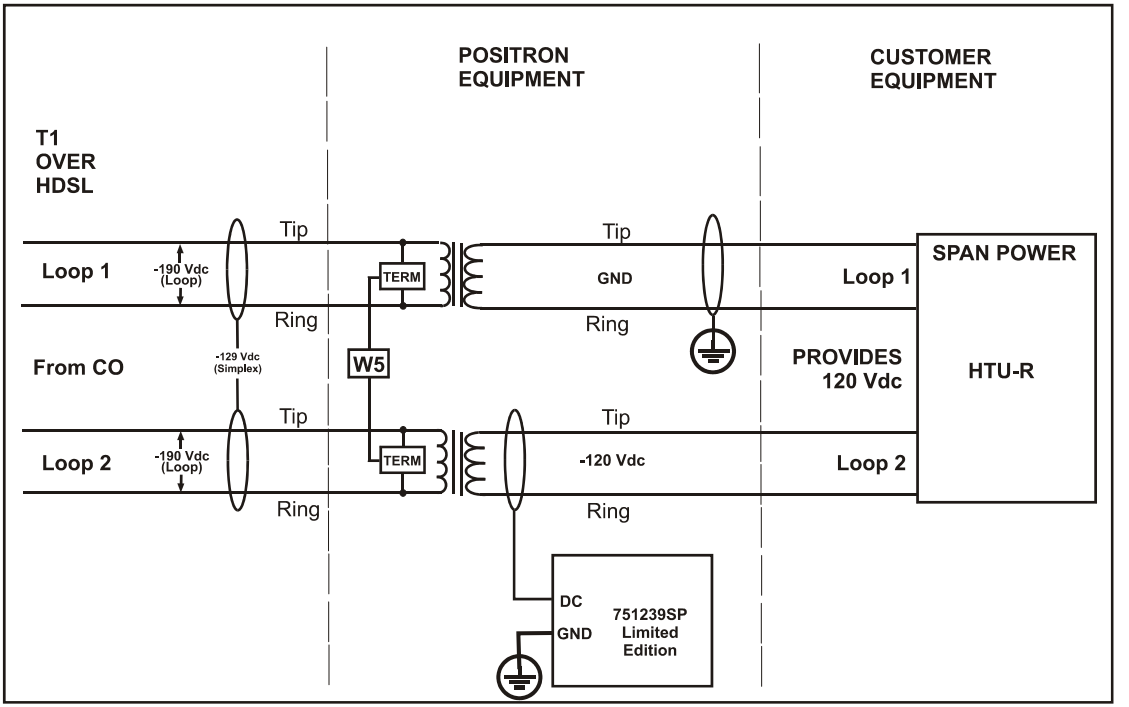


NOTE

- Station end HDSL carrier terminal equipment CANNOT be powered from the CO line side cable pairs using this type of card.
- An internal connection of the board can loop or simplex the current back to the CO side CT of Loop 1 and Loop 2.
- Loop 1 and Loop 2 can be interchanged.

For an illustration of a setup with system span-powered for model 751239SP, see Figure 7 on page 28.

Figure 7: Setup for Model 751239SP Station Side Span Power



NOTE

- Sealing Current mode: between pair 1 (GND) and pair 2 (-120 Vdc)
- Loop Current mode: between Tip X (GND) and Ring X (-120 Vdc)
- TB2 and TB3 are located on the Station side backplane.

➤ To Install the model 751239SP

1. Verify that you have the following customer supplied tools and hardware, which are required to install the unit:
   - Station cable
   - Center punch
   - Electric drill with a 5/32” diameter bit
   - 7/16” hex wrench
   - 1/8” and 1/4” common blade screwdrivers
   - Phillips screwdriver
   - 2.5 cm (1”) thick plywood backboard with appropriate mounting hardware
   - Cable clamps and mounting hardware for routing cables exterior to the shelf (quantity determined by the cable lengths involved).
2. Unpack the model 751239SP, the Power Supply Piggyback (220W000021-401) and installation hardware from the protective box.
3. Check the contents of your model 751239SP kit. For kit contents, see Table 5 on page 30.

Table 5: Installation Kit Content for Model 751239SP

Description	Qty.	Part Number
CABLE, PWR SUP, 3 COND, 6 FT, GRAY	1	207-990000-020
CABLE, SHLD, SEALPIC, 6-PAIR, #22AWG	10 foot	207-990000-138
CABLE, 3X#18AWG, 300V, 60C, SJT PVC, BLACK	8 foot	207W000007-001
CON, CORD GRIP, HUB:1/2”, BLK	1	230-990400-036
CON, CORD GRIP, HUB:1/2”, BLK	1	230-990400-037
CON, CORD GRIP, HUB:1/2”, BLK	1	230-990400-038
INSTRUCTION, STATION RELIEF:A	1	241-010016-001
SCREW, HEX W/WASHR, #14A X 1"L	4	724-990000-011
FASTENER, CABLE, NYL,.75” DIA.	5	706-990000-010
FUSE, 2A, 250VAC, FAST-ACTING, 5X20mm (Input)	2	294W000010-001
FUSE, 6.3A, 250VAC, SLO-BLO, 5X20mm (Battery)	1	294W000050-001

4. Confirm that the isolation unit is a model 751239SP unit by identifying the name located inside the cover, and the model number printed on a metallic label on the top right-hand portion of the unit.
5. Unfasten the unit’s cover.
6. Insert jumpers according to your application. See section 3.2 on page 37 for possible CO and Station side jumper settings.

The strain reliefs supplied each have a cable entry diameter appropriate for one of the three cables used in this installation. The CO cable strain relief is the largest, accommodating cable diameters from 0.40” to 0.56”. (All measurements are outside cable diameters)

- The Station cable strain relief accepts cable diameters from 0.125” to 0.275”.
- The Power cable strain relief accommodates cables with diameters of 0.25” to 0.40”.

7. Affix the three strain reliefs to the unit.

3.1.1 Installing the power supply

The Power Supply Piggyback board is not fastened to the main isolation card prior to shipment and requires installation.

8. If the unit is to be powered from 24 Vdc, then set the input jumper (W101) located near F101 on the Power Supply piggyback, to E104-E105. If the unit is powered from 48 Vdc, 130 Vdc or 120 Vac, jumper W101 should be between E105 - E106 (see Figure 3 on page 17).

NOTE

- If unit is powered from 48 Vdc, 130 Vdc or 120 Vac, it is NOT polarity sensitive. If the unit is powered from 24 Vdc, the unit IS polarity sensitive (see Table 6 on page 34 for proper polarity).

9. Run the HDSL (Station side) cable through the strain relief nearest the bottom of the enclosure to connector TB-2. (see Figure 2 on page 16)
10. Remove the screws and lock washers from the standoff (spacers) mounted on the Station side circuit board.
11. Position the power supply board onto the spacers and align the board holes with the spacers. (See Figure 3 on page 17)
12. Secure the power supply to the standoffs using the four screws and lock washers.
13. Fasten the 1” thick plywood backboard to the wall.
14. Position the enclosure on the backboard with the air vent facing down or to the left, and mount it to the backboard using the four screws supplied.

3.1.2 Ground Connections

CAUTION

- The equipment ground must be connected before any other connection is made to the unit.
- Installations must conform to local electrical code.
- All units must be permanently connected to earth.
- There shall be no switching or disconnecting devices in the earthed circuit conductor between the unit and the earthing electrode conductor.

15. Connect the ground cable inside the unit to connector TB-3 on the power supply. (See Figure 3 on page 17)
16. Connect the ground lug on the outside of the unit to Station ground using a #6 AWG stranded wire.
17. Using the supplied cable connect the power supply's output connector TB-2 to J1 on the main isolation card. Refer to Figure 9 on page 39.

To prevent discharge during shipping, the power supply unit is shipped with both leads of the battery disconnected.

18. Route the power to the unit using one of the power cables provided with the kit. If powering the unit from 120 Vac, use the AC cable (with the prong plug) and if powering from AC (24 Vdc, 48 Vdc or 130 Vdc) use the unterminated cable. MAKE SURE YOU HAVE SET THE INPUT JUMPER CORRECTLY (see step 8) Refer to Table 6 on page 34 for connections.

NOTE The Station side of the enclosure is the side connected to the external ground lug. Mount the unit with the air vent facing the bottom or left.

19. Make sure that there are no excess wires dangling into the 14 cm (5-1/4") isolation gap between the Station and CO side circuits inside the enclosure. If necessary, bundle the individual cable conductors with tie wraps to prevent them intruding into the isolation gap.
20. Route the Black PIC CO cable, and the Grey Station cable through the strain reliefs, allowing a length of 13 cm (5") per cable for the internal connections to the terminal blocks. Cut the excess wire once the exact internal length is established, and tighten the strain reliefs.

21. Strip back the outer jacket of each cable to a length of 2.5 cm (1”). Strip the inner insulating jacket of each conductor to a length of 3.2 mm (1/8)”. Connect these stripped conductors to the designated terminal locations.

- To locate connectors, see Figure 2 on page 16.
- For a listing of terminal block connections, see Table 6 on page 34.

Table 6: Terminal Block Connections

Cable	Signal	Color Coding	Connector Position	
Station TB2	DTU (A)	Customer determined	TB2-1	
	DTU (A)	Customer determined	TB2-2	
	GND		TB2-3	on Main PCB
	DTU (B)	Customer determined	TB2-4	
	DTU (B)	Customer determined	TB2-5	
CO TB1	DTU (B)	Any of the 12 available conductors	TB1-1	
	DTU (B)		TB1-2	
	N/C		TB1-3	on Main PCB
	DTU (A)		TB1-4	
	DTU (A)		TB1-5	
Power	Live/"+"	Black	TB1-1	
	Neutral/"-"	White	TB1-3	on Power Supply PCB
	Ground	Green	TB1-2	

22. Connect the battery cables to their respective PCB cables: Red wire from PCB (+) to red wire from battery and Black wire from PCB (-) to black wire from battery.

    - DS201 (Low Battery) might turn RED if battery is low.

NOTE Should the polarity of the battery be reversed when connection is made to the leads on the PCB, the fuse F201 of the Power Supply piggyback will blow to protect the Power Supply circuit. If this happens, correct the polarity of the red and black wires and replace the fuse using the spare fuse in the kit.

23. Power up the unit.
24. Observe the LEDs on the power supply between TB-1 and TB-2.

In normal operation the LEDs should illuminate as follows:

- DS101 (Input LED) should be YELLOW if input power is correct.
- DS201 (Low Battery) should be OFF. It will be RED if there is Low Battery.
- DS1 (Output LED) should be GREEN if there is output power.

25. Verify the installation by establishing communication.

NOTE

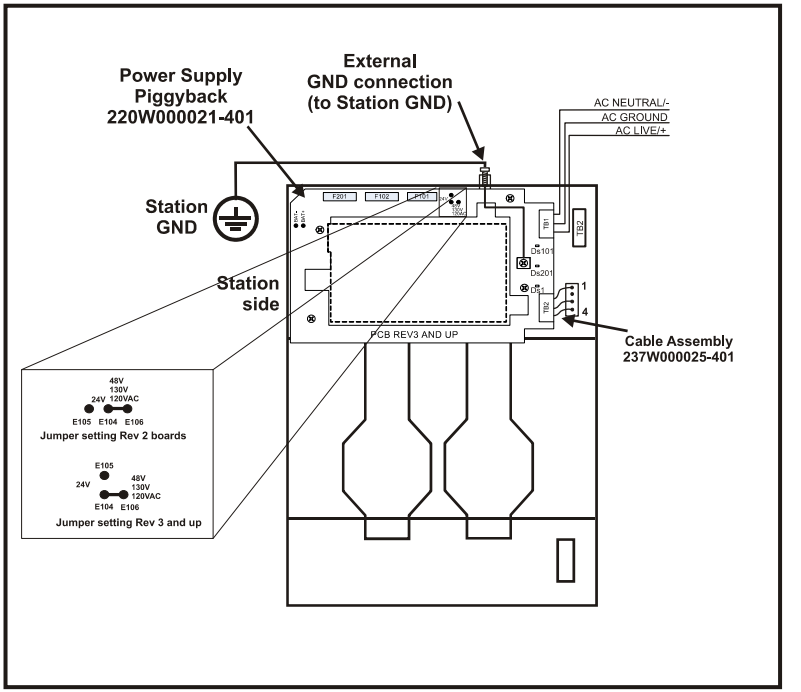
The layout shown in Figure 2 on page 16 illustrates the default jumper settings for model 751239SP.

26. Close and secure the enclosure cover with captive screws.

CAUTION

- Keep the Station and CO cables outside the unit at least 15 cm (6”) apart to prevent an electric arc between them in the event of, damage to, or degradation of cable insulation.

Figure 8: Power Supply connections and jumper settings



3.2 Settings

3.2.1 CO side Settings for model 751239SP

Table 7: CO Side Jumper Settings (W5) for 751239SP

Application	Mode of Operation	PIN Location
HDSL2	LOOP (E12-E13)	Insert jumper pin in W5 LOOP
HDSL4	LOOP (E12-E13)	Insert jumper pin in W5 LOOP
HDSL4	SIMPLEX (E12-E14)	Insert jumper pin in W5 SIMPLEX

NOTE The default CO side jumper settings for the model 751239SP provide simplex sealing current (E12-E14).

3.2.2 Station side Settings for Model 751239SP

The following sections include Station side settings options for:

- Sealing Current Mode
- Span Power Mode

3.2.2.1 Sealing Current Mode

This source provides span current of 60mA when set in current mode.

The unit will feed simplex span current via the station side cable across TB2-2 and TB2-5.

➤ To supply current sealing mode:

1. Set jumper W4 on unit to “CURRENT” (E10-E15); see Figure 9 on page 39.

NOTE

- LOOP setting on jumper W1 (E1-E3) and W2 (E4-E5) must be set for this functionality.

3.2.2.2 Span Power Mode

When 130 Vdc is fed to the power supply of the unit, it will source -48 Vdc to power the base board through J1.

The model 751239SP converts the -48 Vdc to -120 Vdc. The station span can be powered in voltage mode.

➤ To supply -120 Vdc to the Station side span in simplex mode:

NOTE For jumper locations, see Figure 9 on page 39.

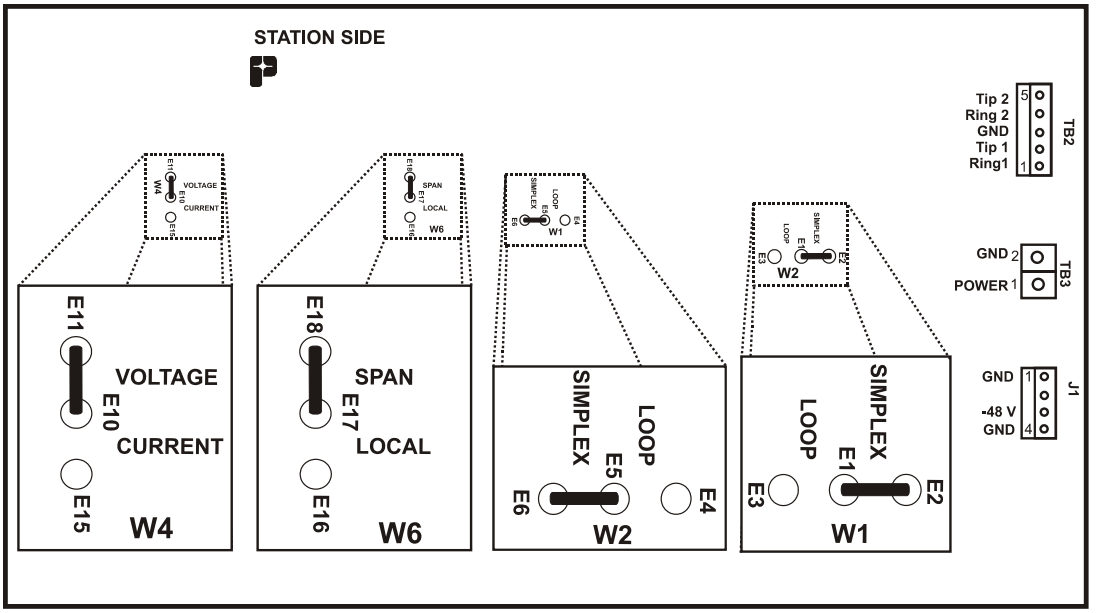
1. Set W4 to VOLTAGE mode (E10-E11)
2. Set W2 to SIMPLEX mode (E5-E6)
3. Set W1 to SIMPLEX mode (E1-E2)
4. Set W6 to SPAN (E18-E17)

➤ To supply -120 Vdc to the Station side span in loop mode:

NOTE For jumper locations, see Figure 9 on page 39.

1. Set W4 to VOLTAGE mode (E10-E11)
2. Set W2 to LOOP mode (E4-E5)
3. Set W1 to LOOP mode (E1-E3)
4. Set W6 to SPAN (E18-E17)

Figure 9: Default Station Side Jumper Settings for Model 751239SP



3.2.2.3 Span vs. Local

When the 751239SP is used to isolate a locally-powered HTU-R, the unit should be set to “SPAN” if the input power is present to supply sealing current.

If input power is not available, the battery must be disconnected (see step 25.) and jumper W6 should be set to “LOCAL” In this case, the pairs are referenced to ground and no sealing current is provided.

3.3 Battery replacement procedure

After its expected life of 5 years, the battery will need to be replaced.

3.3.1 Replacement Batteries

The battery has to be UL approved with a UL94V rated casing.
The following sources are approved to be used as replacement:

- Power Sonic #PS1221S
- Enersys #NP2-12FR
- Yuasa #NP2-12
- MK Battery #ES2-12SLM

3.3.2 Replacement procedure

1. Disconnect input power to the unit.
2. Disconnect the output cable of the power supply from the telephone card underneath.
3. Disconnect the black and red wires of the battery from the black and red wires of the PCB.
4. Remove the screws holding the battery holding bracket (see Figure 3 on page 17).
5. Remove the battery from the power supply.
6. Move the wires from the old battery to the new battery. Be sure to installed the black wire to the “-” and the red wire to the “+” of the new battery.
7. Install the new battery on the power supply and back the battery holding bracket using the screws.
8. Connect the output cable of the power supply to the connector of the telephone card underneath.

9. Connect the red wire of the battery to the red wire of the power supply and the black wire from the battery to the red wire from the PCB.

NOTE Should the polarity of the battery be reversed when connection is made to the leads on the PCB, the fuse F201 of the Power Supply piggyback will blow to protect the Power Supply circuit. If this happens, correct the polarity of the red and black wires and replace the fuse using the spare fuse in the kit.

10. Reconnect the input power to the unit.

NOTE The new battery might be partially discharged when you install it, allow it to charge for a couple of hours before verifying the LED statuses.

11. Use Table 2 on page 21 to verify the LEDs statuses.

Appendix A

Acronyms

Acronyms

CO	Central Office
CT	Center Tap
DTU	Data Terminal Unit
GND	Ground
GPR	Ground Potential Rise
H4TU-C	HDSL4 Terminal Unit - Central Office
HDSL	High-speed Digital Subscriber Line
HTU-R	HDSL Terminal Unit - Remote user
HVI	High Voltage Interface
PCB	Printed Circuit Board
PIC	
RTU	Remote Termination Unit
RMA	Return Material Authorization
RMT	Remote
RX	Receive
SP	Span Power
TX	Transmit