

# Standalone HDSL Unit, 751239

Description and Installation



## **DOCUMENT CONTROL INFORMATION**

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Although Positron Inc. has made every effort to ensure the accuracy of the information contained herein, this document is subject to change without notice.

### **TECHNICAL CUSTOMER SUPPORT**

Should a problem arise, contact your customer support department. If the problem cannot be resolved by your support department or if you have any questions, contact Positron's Technical Customer Support department at 1-888-577-5254.

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# 1. The Standalone HDSL Unit

The Standalone High-bit-rate Digital Subscriber line (HDSL) unit provides high voltage isolation between one, four-wire Remote Terminal Unit (HTU-R) located inside the substation, and an HDSL CO Terminal Unit (HTU-C) located at the Central Office (CO).

The 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 shelf is shipped with a 10' insulated 12-conductor cable for connection to the CO's incoming cable and mounting hardware.

Its features include the following:

- The unit provides isolation 50 kVrms (70 kV peak) while maintaining full communication between terminals.
- Communication is maintained across the gap by isolation transformers that provide low-loss, low-distortion transmission.
- The unit does not require power from either the CO or an external supply to operate.
- The enclosure resists the infiltration of dust, mist, and water from sprinklers.
- The card jumper settings enable you to configure the card to provide a simplex sealing or a loop sealing return path on the CO side. The current will not be transferred to the Station side. The card is shipped with these options disabled.

For a view of the Standalone HDSL Unit enclosure, refer to Figure 1.

For a view of the Standalone HDSL Unit, cover open, refer to Figure 2.

Figure 1 Model 751239 Enclosure

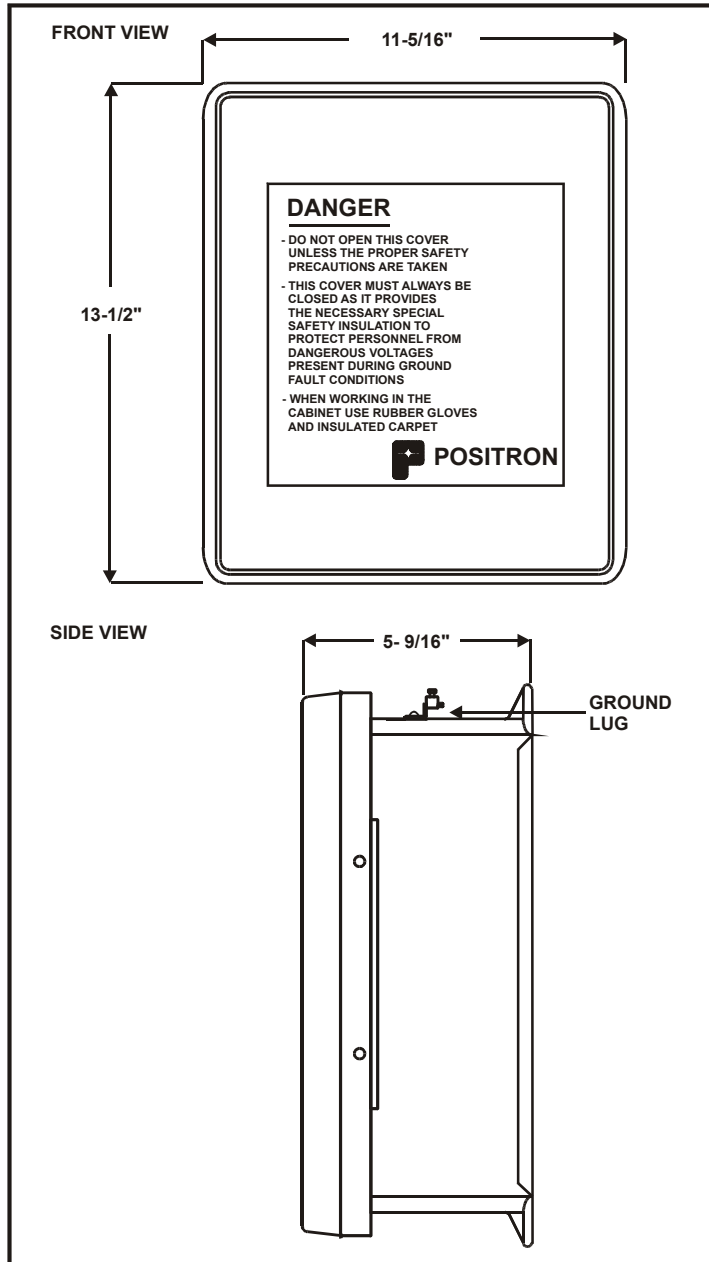
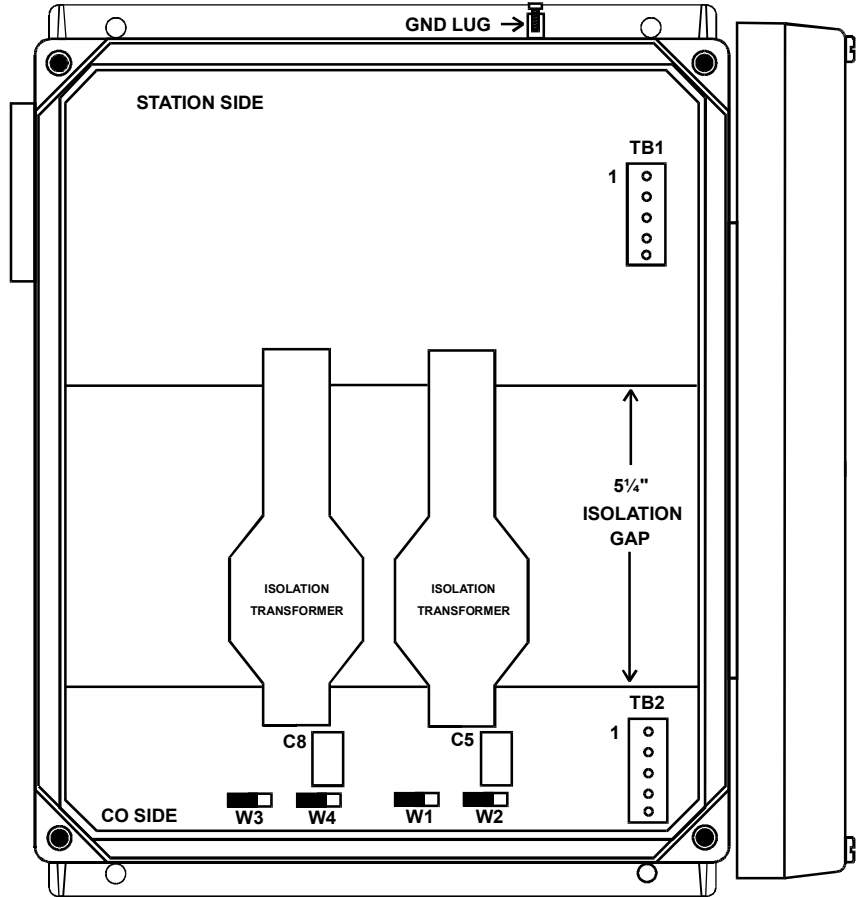


Figure 2 Model 751239 Cover Open (Only Major Components Shown)



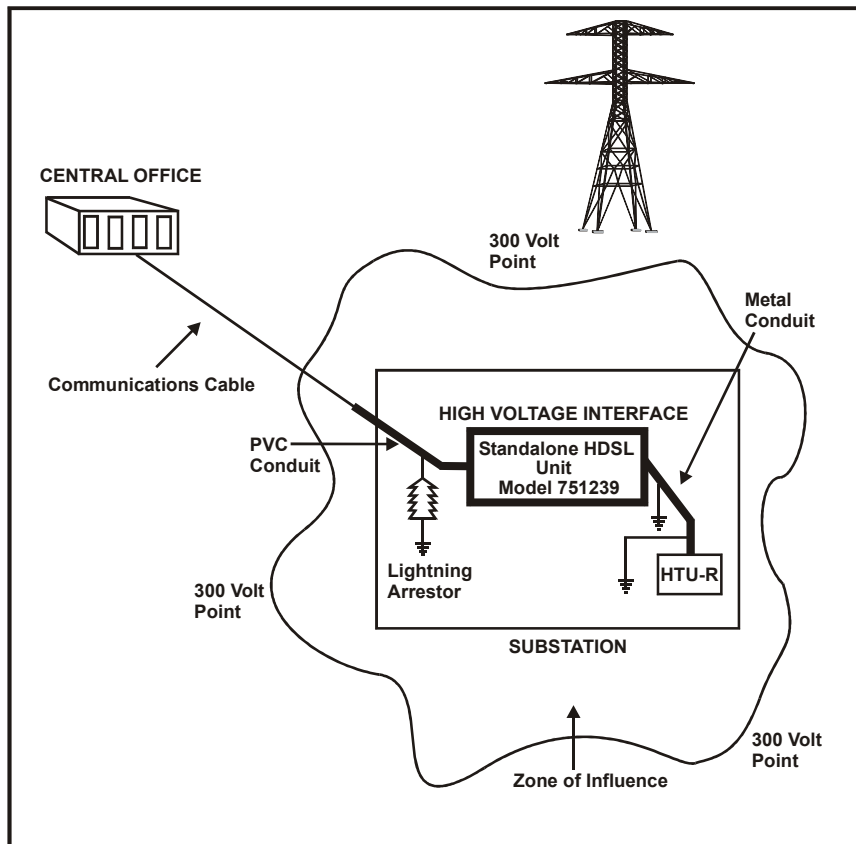
## 2. Applications

The applications of the Standalone HDSL Unit include the following:

- HDSL lines
- Data transmission lines within the passband of the card

For an illustration of the unit's application, refer to Figure 3.

**Figure 3 High Voltage Interface Application**

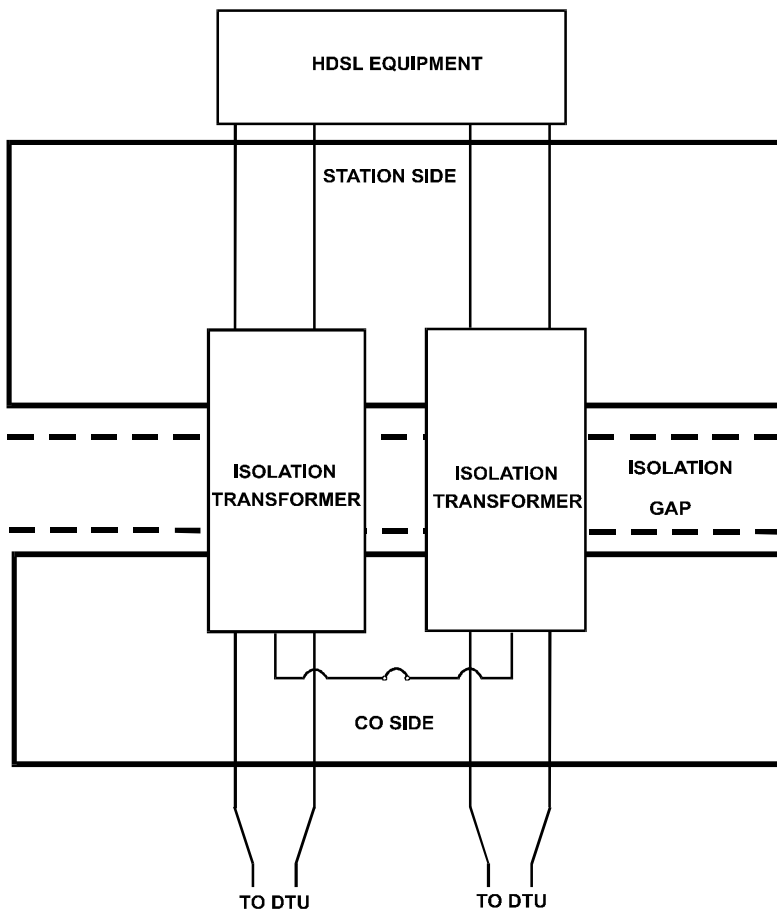




### 3. Hardware Description

The Standalone HDSL Unit contains a Plug-in HDSL card. This card is comprised of two sides. The Station side is located on the upper portion of the card and the CO side is located on the lower portion of the card. The Station side is separated from the CO side by the isolation transformers which create a 5/4 inch isolation gap. For the unit's block diagram, refer to Figure 4.

**Figure 4** Block Diagram



## 4. Technical Specifications

For a listing of the unit's electrical specifications, refer to Table 1. For a listing of the unit's physical specifications, refer to Table 2.

**Table 1 Electrical Specifications (measured at 77°F or 25°C, 50% R.H.)**

Parameter	Specifications
ISOLATION DATA	
Isolation resistance	100 000 M $\Omega$
Metallic surge	3 kV maximum
Insulation voltage	50 kVrms (70 kV peak)
INPUT VOLTAGE REQUIREMENT	None
TRANSMISSION DATA	
Longitudinal balance (CO side)	>80 dB @ 60 Hz; >60 dB @ 300 to 40 kHz
Return loss at either side with opposite side terminated at 135 $\Omega$	>25 dB, 1 kHz to 750 kHz
NOISE	
2 to 100 Hz	-60 dBm
Voice band (C weighted message)	< 2 dBnc
Impulse noise	Less than 1 count above 48 dBnc in 30 minutes
SIGNAL	
Insertion loss (@ 350 kHz, 0 dBm)	< 0.5 dB
Frequency response (2 kHz to 750 kHz)	$\pm$ 3 dB relative to 350 kHz

**Table 2      Physical Specifications**

<b>Parameter</b>	<b>Specifications</b>
Operating temperature range	-4°F to +149°F (-20°C to +65°C)
Height	13-1/2" (34.3 cm)
Width	11-5/16" (28.7 cm)
Depth	5-9/16" (14.1 cm)
Weight	8.3 lbs (3.8 kg)

## 5. Installation

The Standalone HDSL Unit is used when the number of lines to be isolated does not justify the installation of a shelf. It will isolate one full HDSL line (two pairs), or two half HDSL lines, provided that there is no metallic current.

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### Caution

- Stand on a thick rubber mat and wear rubber gloves during the installation procedure. It is preferable to perform these procedures on a clear dry day when a Ground Potential Rise (GPR) or transients are less likely to occur.
  - The station and CO cables should be kept at least six inches apart upon wiring in order to prevent an electric arc between the two in the event of damage to, or degradation of their insulation.
- 

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 screw drivers
  - Phillips screwdriver
  - 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 Standalone HDSL Unit and its installation hardware from its protective box.

3. Check the contents of your Standalone HDSL Unit kit. For a listing of the items included in the kit, refer to Table 3.

**Table 3 Model 751239 Kit Contents**

Items Included	Qty	Part Numbers
Standalone HDSL Unit	1	244-751239-401
Description and Installation document	1	924-010160-001
“Danger” label (already affixed)	1	7501-02-103
One-card Shelf, four-wire, accessory kit	1	241-751202-401
10’ insulated cable (12-conductor)	1	207-990000-138
Connector cord grip (1/2” hub)	1	230-990400-027
Connector cord grip (1/2” hub)	1	230-990400-038
Instruction sheet, strain relief	1	241-010006-001
Label, white	1	612-990000-034
Terminal block (0.2”)	2	666-990000-059
Hex nut, 1/2-14NPT	2	714-990000-005
Hex screw with washer (#14A)	4	724-990000-011

4. Confirm that the isolation unit is a Standalone HDSL Unit by identifying the name located inside the cover and the model number on a metallic label on the top of the righthand portion of the unit.
5. Set W1 to W4 according to your application. The default setting does not provide for simplex or loop sealing currents. If your circuit does require simplex or loop sealing currents, change the jumper settings accordingly. For a view of the possible jumper settings, refer to Figure 5.

6. Fasten the 1" thick plywood backboard to the wall, and mount the enclosure on it using the four screws supplied.

**Note**

The Station (subscriber) side of the enclosure is the side connected to the external ground lug. The orientation of the unit does not matter.

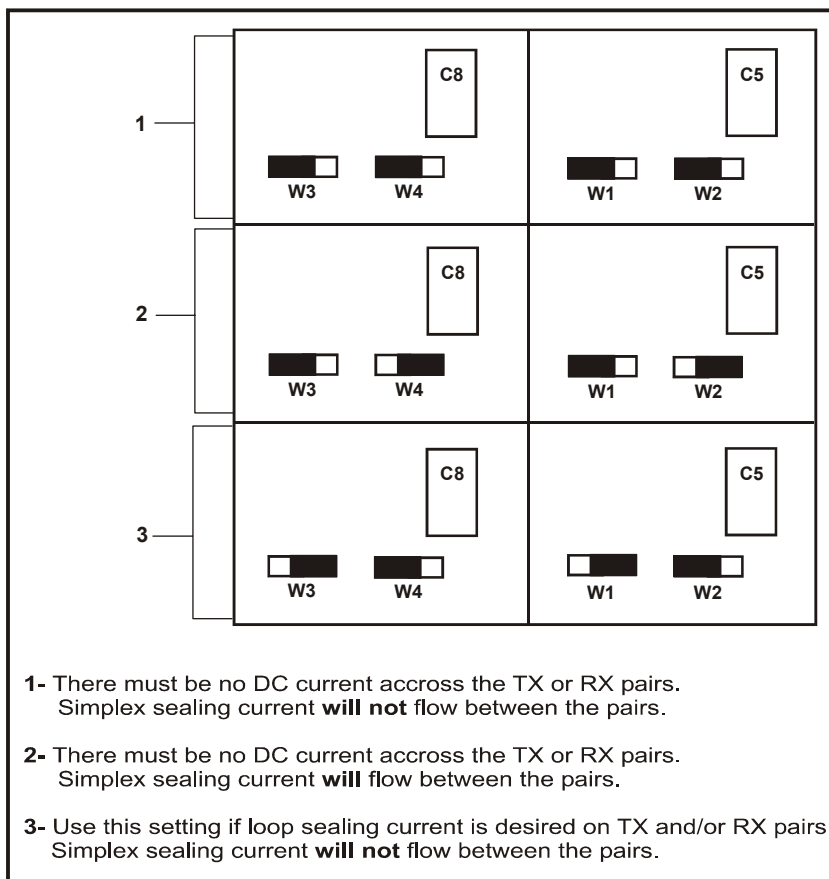
7. The strain reliefs supplied each have a cable entry diameter appropriate to one of the two cables employed in this installation. The CO cable strain relief is the largest, accommodating a cable diameter from 0.375" to 0.570". The station cable strain relief accepts a cable diameter from 0.125" to 0.275". (All measurements are the outside cable diameters).
- ▶ Slide the strain reliefs supplied onto the CO and station cables and affix them to the unit.
  - ▶ Route the two telephone cables, allowing a length of five inches 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.
  - ▶ Strip back the outer jacket of each cable one inch. Strip the inner insulating jacket of each conductor 1/8". Connect these stripped conductors to the designated terminal locations. To locate the connectors, refer to Figure 2. For a listing of the terminal block connections, refer to Table 4.

**Table 4 Terminal Block Connections**

<b>Cable</b>	<b>Signal</b>	<b>Color Coding</b>	<b>Connector Position</b>
Station	DTU (A)	Customer determined	TB1-1
	DTU (A)	Customer determined	TB1-2
	N/C		TB1-3
	DTU (B)	Customer determined	TB1-4
	DTU (B)	Customer determined	TB1-5
CO	DTU (B)	Any of the available 12 conductors	TB2-1
	DTU (B)		TB2-2
	N/C		TB2-3
	DTU (A)		TB2-4
	DTU (A)		TB2-5

- ▶ Bundle the cable conductors with tie wraps.
  - ▶ Ensure that there are no excess wires dangling into the isolation gap between the Station and CO side circuits. Then close and secure the shelf cover with the captive screws.
8. Verify the installation by establishing communication.

**Figure 5 Jumper Settings**



## 6. Service and Support

### **Technical Customer Support**

Positron is committed to providing excellent ongoing technical support to its customers. A team of specialists is always available at our Technical Support Center in Montreal for either telephone consultations or on-site visits, to assist Field Technical personnel in the maintenance and troubleshooting of Positron equipment. During normal business hours, (8:30 a.m to 5:00 p.m. EST), any one of our Technical Customer Support (TCS) staff may be reached by dialing 1-888-577-5254 from anywhere in the continental United States or from Canada. Customers outside North America should dial 1-514-345-2200. Staff may also be contacted via fax at 514-345-2271 or e-mail at [powerdivision@positron.qc.ca](mailto:powerdivision@positron.qc.ca).

Positron TCS staff are available to provide technical assistance and/or to supervise the installation of Positron equipment. Assistance in the planning, configuration, and implementation of the installation will be provided as requested. Arrangements and pricing information regarding field assistance may be obtained by contacting the Technical Customer Support department. Please contact Positron for scheduling at least four weeks prior to the actual requested visit date.

### **Customer Training**

Positron offers full customer training courses, as requested. Seminars are also available on High Voltage Interface (HVI). For more information, contact a customer representative by dialing 1-888-577-5254 or use our e-mail address, [powerdivision@positron.qc.ca](mailto:powerdivision@positron.qc.ca).

### **Warranty**

Positron warrants that all equipment shall perform in accordance with Positron's specifications. The warranty remains valid for five (5) years from the date of shipment. The warranty will be honored provided that the equipment has not been abused and provided that the equipment has been installed and used in accordance with Positron's installation instructions and specifications. The warranty fully covers workmanship, materials and labor.

This warranty is in lieu of all other warranties, whether expressed or implied, including warranties of merchantability and fitness for a particular purpose. Positron guarantees that all equipment shall perform in accordance with Positron's specifications. Positron disclaims any warranty that Positron



equipment will meet customer requirements beyond the product specification. Positron disclaims any warranty that operations will be uninterrupted or error free.

### **Repair Service**

Positron Inc. offers repair services by which customers can count on timely and quality repairs, regardless of customer location.

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

For information about out-of-warranty repairs, contact Positron's Repair department at 1-800-661-4911 (from anywhere in the continental United States or from Canada) or dial 514-345-2228. Due to the varied nature of repairs, no one time frame for turnaround can be guaranteed. However, average turnaround time is two weeks from date of receipt. In emergency situations, special arrangements can be made by contacting our Repair department. All repaired items are warranted for a period of 90 days. Bulk repairs (more than five items) will require additional processing time, therefore, please take this into consideration when requesting a Return Material Authorization (RMA) number.

Before returning any items to Positron for repair, warranty repair or replacement, call the Repair department to obtain an RMA number. Parts returned without RMA numbers cannot be accepted. The RMA number must always be clearly marked on all boxes and crates and on all shipping documents.

Items under warranty are to be shipped prepaid to Positron and will be returned prepaid to the customer. Items that are not under warranty are to be shipped prepaid to Positron and will be returned prepaid with freight charges included on the invoice. Positron cannot accept items shipped collect. A purchase order number is required for all repairs.

To accelerate the repair process, whenever possible, customers should include a report detailing the reason for return with the unit(s) being returned. 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 that the item(s) is properly packed to avoid further damage. Teleline Isolator cards should never be shipped while installed in a shelf; this will cause damage and will almost invariably extend the repair period.

**Ordering Information**

Positron's Teleline equipment can be ordered by telephone, facsimile, or by mail. All orders should be directed to the Positron Inside Sales department. Ordering by telephone, or facsimile will eliminate any delays arising from postal services. However, a hard copy purchase order is required as a confirmation. In addition to the model numbers of the items being ordered, the following information is required:

- Company name, contact name and telephone number
- Purchase order number
- "Ship To" address
- "Bill To" address
- Date required on site

All orders must be followed by a confirming order. Equipment will not be shipped until such confirmation is received.

For a list of our contact information, refer to Table 5.

**Table 5            Positron Contact Information**

Address	Positron Inc.
	5101 Buchan St.
	Montreal, Quebec, Canada
	H4P 2R9
Main telephone number	514-345-2200
Customer Service department telephone number	514-345-2200, 1-888-577-5254
General e-mail address	powerdivision@positron.qc.ca
Customer Service department fax number	514-345-2271
TCS department toll-free number	1-888-577-5254
TCS department fax number	514-345-2271
TCS department e-mail address	scarbonaro@positron.qc.ca
Repair department telephone numbers	514-345-2228 or 1-800-661-4911
Customer representative e-mail address	customerservicepower@positron.qc.ca



