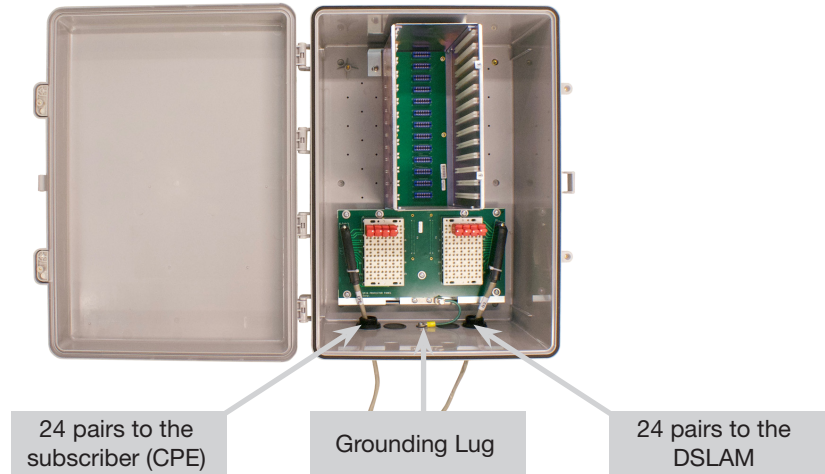


# BRX-VDSL2-24

## 24-pair Sealed Enclosure

### Quick Start Guide



\* Shown with optional Gas Tube Protection Module

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Slot Number	Pair Assignment	Pair Color
1 (topmost slot)	1 (left side), 2 (right side)	White-Blue / White-Orange
2	3 (left side), 4 (right side)	White-Green / White-Brown
3	5 (left side), 6 (right side)	White-Slate / Red-Blue
4	7 (left side), 8 (right side)	Red-Orange / Red-Green
5	9 (left side), 10 (right side)	Red-Brown / Red-Slate
6	11 (left side), 12 (right side)	Black-Blue / Black Orange
7	13 (left side), 14 (right side)	Black-Green / Black-Brown
8	15 (left side), 16 (right side)	Black-Slate / Yellow-Blue
9	17 (left side), 18 (right side)	Yellow-Orange / Yellow-Green
10	19 (left side), 20 (right side)	Yellow-Brown / Yellow-Slate
11	21 (left side), 22 (right side)	Violet-Blue / Violet-Orange
12 (bottom slot)	23 (left side), 24 (right side)	Violet-Green / Violet-Brown

## Connecting the BRX-VDSL2-24

**Step 1:** Select the location where the BRX-VDSL2-24 will be inserted using the BRX Cloud Calculator for the **longest** loop that requires amplification.

**Step 2:** Connect the grounding lug of the unit to a proper ground (usually available near the splice point).

**Step 3:** Insert a BRX-BYPASS-TEST module in slot 1 and ensure that both switches are in BYPASS mode.

**Step 4:** Connect the first two (2) pairs to be amplified to the first two (2) pairs of the BRX-VDSL2-24. Make sure to match the DSLAM pair color to the CPE pair color.

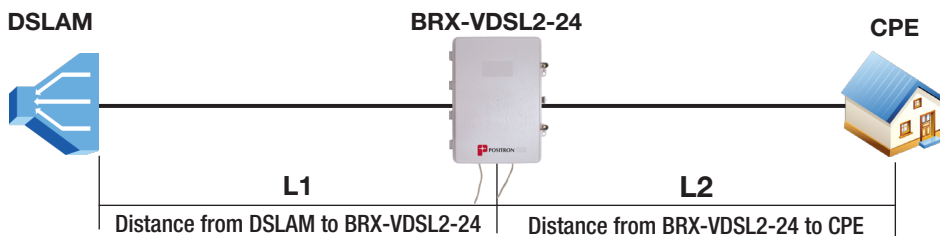
**Step 5:** Test for continuity between the DSLAM pair and CPE pair at the splice point. If a pair is powered with a -48Vdc sealing current, the corresponding LED on the BRX-BYPASS-TEST module will be ON. If either circuit is not powered, a continuity test will confirm that the pair is spliced properly (no open, short or ground fault) but you will need to verify the DSLAM is able to provide the current. If operating on a dry pair, you should use a BRX Power Injector.

**Step 6:** Replace the BRX-BYPASS-TEST module with a BRX-VDSL2-M module. The correspondent DS LED will turn GREEN to confirm presence of -48Vdc sealing current and proper operation. The US LED currently not used.

**Step 7:** The DSLAM and CPE will now retrain the circuit and bring up the ADSL2+ / ADSL link with the amplified bandwidth. The performance may be limited (or capped) by a setting in the DSLAM and/or BRAS configuration.

**Step 8:** Repeat **steps 3 to 7** for the eleven (11) slots of the BRX-VDSL2-24

## Summary Diagram of Typical Installation



**IMPORTANT NOTE:** The BRX-VDSL2 unit is powered from the Sealing Current found on a standard POTS pair. Each pair of the BRX-VDSL2-24 is powered independently with each pair requiring the presence of the -48Vdc sealing current for proper operation. The BRX-VDSL2-24 will not operate on a dry pair (line with no -48Vdc sealing current). You can use the Positron BRX Power Injector to provide the -48Vdc sealing current when operating on dry pairs.

The **BRX Cloud Calculator** can help determine the optimal installation location for each specific loop. To access the BRX Cloud Calculator, sign up on the Positron Access Portal at [www.positronaccess.com/Portal.php](http://www.positronaccess.com/Portal.php). You will get a username and password to access the Portal.

## Placement Guidelines for BRX-VDSL2 Devices

The BRX-VDSL2 amplifies VDSL2 loops and supports profiles 17a, 8a, 8b and 8d. It is designed to deliver solid amplification of the loops as long as the BRX-VDSL2 device is installed within 45% to 60% of the total loop distance. It is recommended to install the BRX-VDSL2 unit at an existing splice point that is within the recommended placement range. When multiple splice points exist within that range, you should select the one that is most convenient.

The BRX-VDSL2 installation should follow these simple rules:

- L1 - Minimum Loop Length from DSLAM to BRX-VDSL2** should be no less than 2000 feet (0.6 km) for 24 AWG (0.5 mm) gauge or 1600 feet (0.5km) for 26 AWG (0.4 mm) gauge.
- L2 - Minimum Loop Length from CPE to BRX-VDSL2** should be no less than 650 feet (200m) for 24 AWG (0.5mm) gauge or 500 feet (150m) for 26 AWG (0.4 mm) gauge.

For a 25 / 3 Mbps service, the recommended range is as follows (single pair):

- Maximum total loop length:** 6250 feet (1.9 km) for 24 AWG (0.5mm) gauge or 5000 feet (1.5 km) for 26 WG (0.4 mm) gauge.
- Recommended placement range:** 3000 to 3600 feet (0.9 to 1.1 km) of 24 AWG (0.5mm) gauge or 2400 to 2900 feet (0.7 to 0.9 km) of 26 AWG (0.4 mm) gauge.

For a 10 / 1 Mbps service in VDSL2 mode (useful when you want to limit the use of ADSL2+ loops inside a binder mostly used for VDSL2 loops), the recommended range is as follows (single pair):

- Maximum total loop length:** 10000 feet (3 km) for 24 AWG (0.5mm) gauge or 8000 feet (2.4 km) for 26 WG (0.4 mm) gauge.
- Recommended placement range:** 4500 to 5500 feet (1.4 to 1.7 km) of 24 AWG (0.5mm) gauge or 3600 to 4400 feet (1.1 to 1.3 km) of 26 AWG (0.4 mm) gauge.

## Recommended DSLAM Settings

In order to fully benefit from the amplified VDSL2 signal, there are a few DSLAM settings to be set as per the following recommendation:

Parameter	Downstream	Upstream
Maximum Bitrate	100 Mbps	50 Mbps
Maximum Delay	8 msec	8 msec
Path Latency	Interleaved	
Impulse Noise Protection (INP)	2	1
Target SNR Margin	8.0 dB	8.0 dB

You should also make sure that the DSLAM and/or the BRAS settings are not set at a lower level than the target service offered to the subscriber for this loop.

**NOTE:** You should always follow your corporate guidelines for the DSLAM settings if they differ from the Positron recommendation. If in doubt, you should check with the Engineering or Operation team.