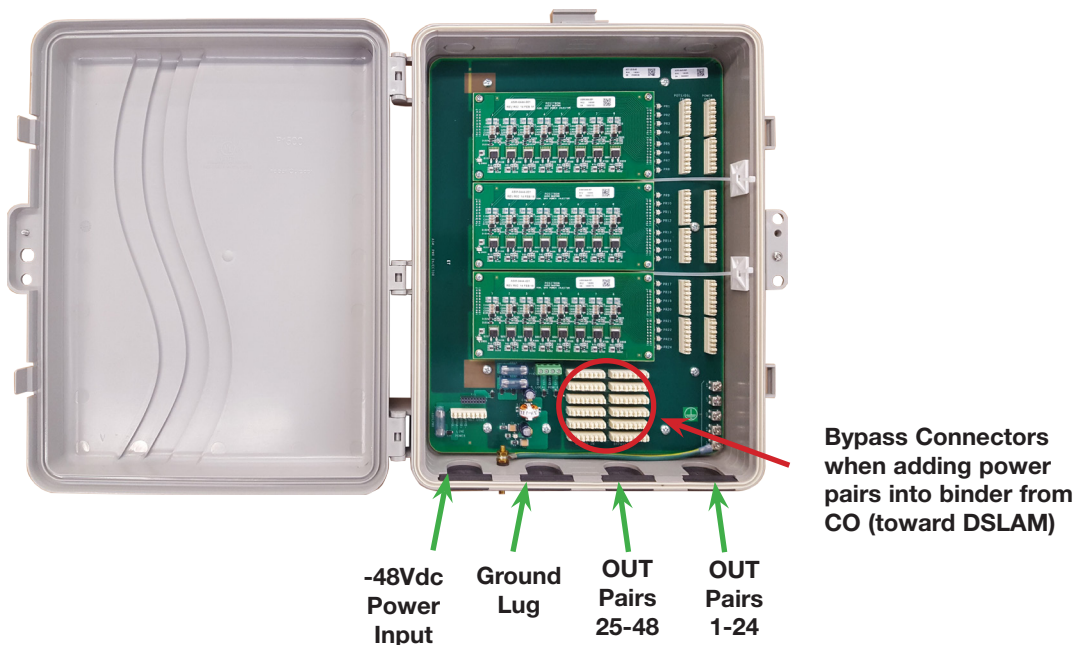# Positron BRX Power Injector for BRX-XLR and BRX-VDSL2

The family of Positron Broadband Reach eXtender (BRX) products amplifies ADSL2+ (BRX-XLR) and VDSL2 (BRX-VDSL2) copper loops and are powered from the -48Vdc sealing current present on POTS pairs.

Customers increasingly migrate from their POTS services and rely only on their mobile phone resulting in a higher percentage of xDSL loops without sealing current. The increase use of bonded xDSL circuits to deliver higher speed Internet services often means that the second xDSL pair is a "dry pair or naked DSL" where there is no -48Vdc sealing current. There is therefore a need for an alternative solution to provide the sealing current that powers the Positron BRX amplifiers.

The BRX Power Injector (BRX-PWR) provides the -48Vdc sealing current on loops with a BRX amplifier. It simply mounts next to the DSLAM or MSAN serving subscribers with BRX amplifiers. The BRX-PWR simply connects to the POTS port(s) of the DSLAM (or MSAN). The BRX-PWR is available in 8, 16 or 24 pair configurations packaged in a UL-rated IP65 (NEMA-4X) enclosure.

Bypass Connectors when adding power pairs into binder from CO (toward DSLAM)

-48Vdc Power Input Ground Lug OUT Pairs 25-48 OUT Pairs 1-24
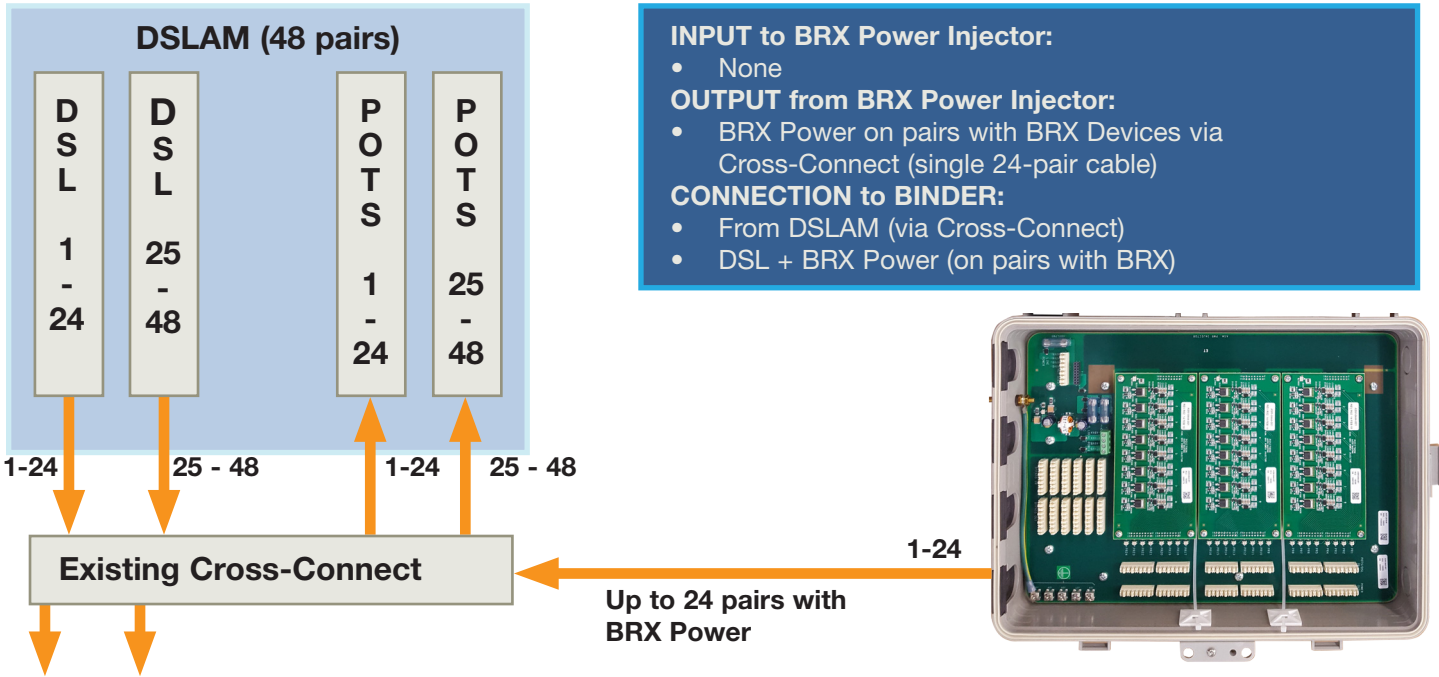
Flexible Powering Source Options

The power source of the BRX Power Injector can either be a local -48Vdc source or Express Power Pairs. A single Express Pair is sufficient to power 24 BRX devices. Support for a second Express Power Pair is included whenever redundancy is required. When using Express Pairs, the BRX-PWR is factory installed with a down converter module (±190Vdc to -48Vdc) from either Alpha Technologies or from GE Lineage.

Note: You need to make sure to use the same brand of up converter (-48Vdc to ±190Vdc) and down converter for full compatibility.

The BRX Power Injector use the -48Vdc power source to deliver -48Vdc (0.5w) for each pair where a BRX amplification device is installed. The BRX-PWR modules connect to the pairs from the POTS port of the DSLAM via a standard 110 punch down block.
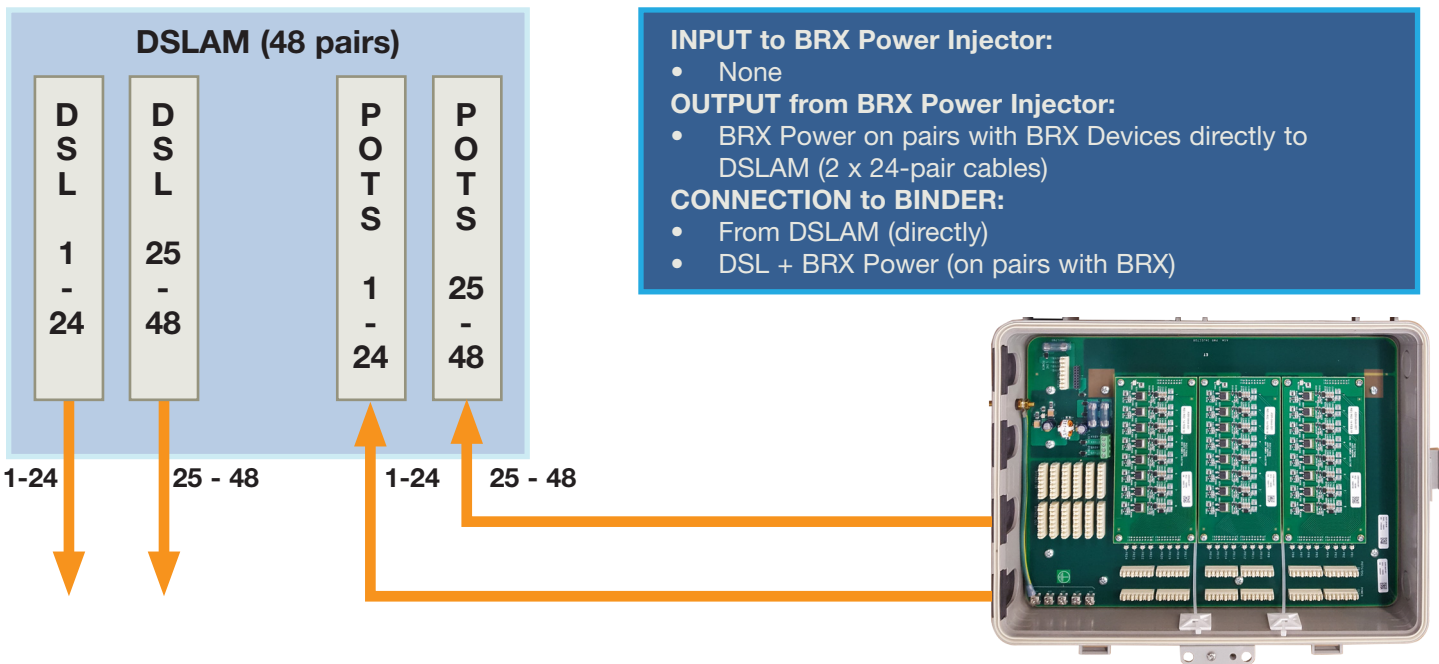
Scenario #1: Connecting BRX-PWR to the DSLAM via a Cross-Connect

This preferred approach leverages an existing Cross-Connect pedestal to connect the BRX Power Injector pairs to the DSLAM / MSAN. A single 24-pair cable between the BRX-PWR and the Cross-Connect pedestal connects each of the powered pairs to the POTS ports of the DSLAM.

DSLAM (48 pairs)

| D S L 1 - 24 | D S L 25 - 48 | P O T S 1 - 24 | P O T S 25 - 48 |

1-24   25 - 48   1-24   25 - 48

INPUT to BRX Power Injector:
- None

OUTPUT from BRX Power Injector:
- BRX Power on pairs with BRX Devices via Cross-Connect (single 24-pair cable)

CONNECTION to BINDER:
- From DSLAM (via Cross-Connect)
- DSL + BRX Power (on pairs with BRX)

Existing Cross-Connect

1-24

Up to 24 pairs with BRX Power

Scenario #2: Connecting the BRX Power Injector Directly to the DSLAM

In the absence of a Cross-Connect pedestal, the BRX-PWR connects directly to the DSLAM. In this case, it is important to match the power pairs out of the BRX-PWR to the POTS ports of the DSLAM (or MSAN). As such, the BRX-PWR supports two (2) 24-pair cables to handle situations where the amplified pairs requiring the sealing current are not inside the same 24-pair binder.

DSLAM (48 pairs)

| D S L 1 - 24 | D S L 25 - 48 | P O T S 1 - 24 | P O T S 25 - 48 |

1-24   25 - 48   1-24   25 - 48

INPUT to BRX Power Injector:
- None

OUTPUT from BRX Power Injector:
- BRX Power on pairs with BRX Devices directly to DSLAM (2 x 24-pair cables)

CONNECTION to BINDER:
- From DSLAM (directly)
- DSL + BRX Power (on pairs with BRX)

Specifications / Features

Feature	Description
Modular Design	• Each BRX-PWR-M powers up to eight (8) pairs • Field upgradeable from 8 and 16 pair devices with the BRX-PWR-M up to 24 pairs
Flexible Power Input	• Local -48Vdc (acceptable DC input : 42Vdc – 55 Vdc • Express (line) Powering: 1 or 2 pairs with factory installed: GE or ALPHA Down Converter (±190Vdc to -48Vdc)
-48Vdc Sealing Current per pair	Current limiter per pair: 32mA to 38mA
Output Pairs with -48Vdc Sealing cCrrent	Connected via standard 110 punch-down connectors
Dimensions	• 16.9" W x 22.7" H x 5.85 D • 429 mm W x 577 mm H x 149 mm D
Weight	4.85 lbs / 2,2 kg
Diagnostics LEDs	• Power Source: -48Vdc source for the BRX-PWR • Pair Status: one (1) single LED per BRX-PWR pair

Ordering Information

Part Number	Description	Product
BRX-PWR-M	8-pair BRX Power Module for use with any of the BRX-PWR units	
BRX-PWR-8	8-pair BRX Power Injector with local -48Vdc input	
BRX-PWR-16	16-pair BRX Power Injector with local -48Vdc input	
BRX-PWR-24	24-pair BRX Power Injector with local -48Vdc input	

Part Number	Description	Product
BRX-PWR-8-A	8-pair BRX Power Injector with ALPHA Express Power input	
BRX-PWR-16-A	16-pair BRX Power Injector with ALPHA Express Power input	
BRX-PWR-24-A	24-pair BRX Power Injector with ALPHA Express Power input	
BRX-PWR-8-G	8-pair BRX Power Injector with GE Express Power input	
BRX-PWR-16-G	16-pair BRX Power Injector with GE Express Power input	
BRX-PWR-24-G	24-pair BRX Power Injector with GE Express Power input	