

# Broadband Reach Extender - Extra Long Reach (BRX-XLR)



BRX-XLR-2



BRX-XLR-8

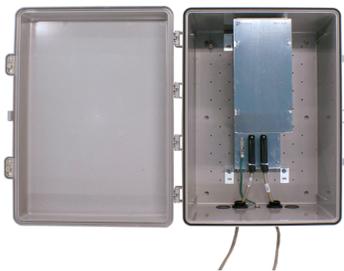
The Broadband Reach Extender – Extra Long Reach (BRX-XLR) is a fully integrated solution that **extends the reach of deployed ADSL / ADSL2+ (Annex-A) DSLAMs or MSANs to deliver 10 Mbps per pair to subscribers at 17,000 feet (5.2 km)** on 24 AWG (0.51 mm) copper pairs. It is being used for a multitude of applications and it is particularly well suited in underserved or unserved markets. An increase in the available bandwidth capacity on existing last mile infrastructure results in higher ARPU, lower attrition and increased customer satisfaction.

The BRX-XLR-AM supports ADSL2+ Annex-M that allows for up to 2x more upstream bandwidth than Annex-A. This is particularly useful to address the demand for more upstream bandwidth for work at home and remote learning. The BRX-XLR-AM solution is compatible with VDSL2 pairs operating in EU-64 mode and with the BRX-VDSL2 amplifier solution. **NOTE:** The main difference between Annex M and Annex A is that the upstream/downstream frequency split has been shifted from 138 kHz up to 276 kHz, allowing upstream bandwidth to be increased from 1.4 Mbps to 3.3 Mbps, with a corresponding decrease in download bandwidth.

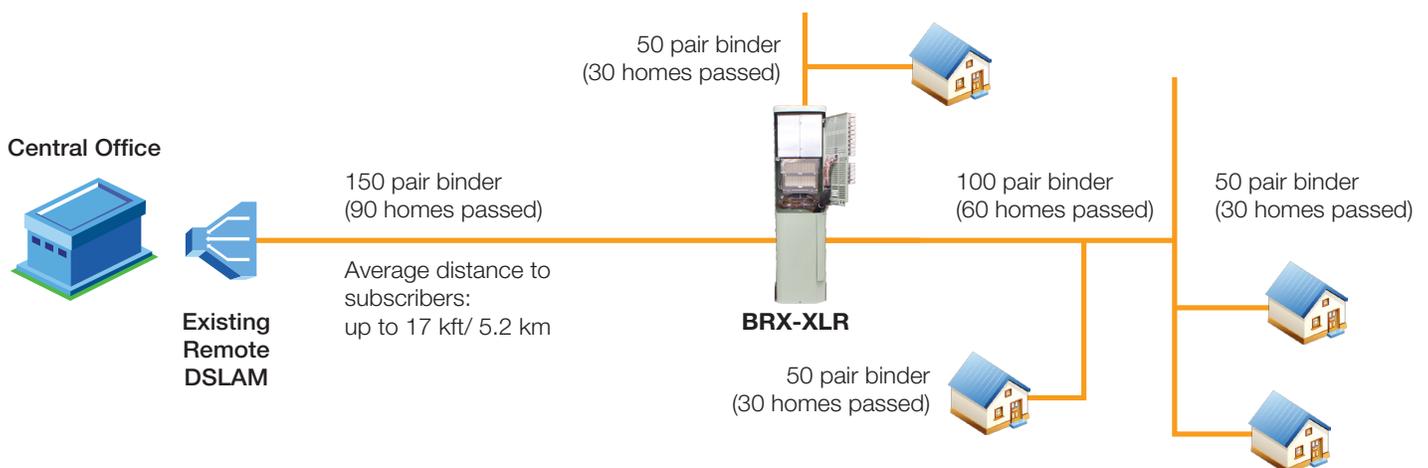
The BRX-XLR solution offers “new life” for installed DSLAMs and the ‘last mile’ of copper with an optimal way to deliver higher speed services. Broadband service operators can instantly provide higher bandwidth to subscribers without the heavy expenditures of bringing Fiber to the Home (FTTH).

## About the BRX-XLR

The Positron Access Solutions BRX-XLR is a next generation performance and distance (reach) enhancement solution for any ADSL / ADSL2+ loops served by a DSLAM. The BRX-XLR is installed between the DSLAM (typically around 8,000 to 12,000 feet / 2.4 to 3.7 km from the DSLAM) and the remote user locations and improves by two to five times the overall performance. By significantly increasing the effective bandwidth and reach of existing xDSL lines, Operators can deliver true broadband speeds to each of their subscribers, even those located in remote areas or currently located too far from the DSLAM to receive any service. The BRX-XLR is designed to deliver a minimum of 10 Mbps on an ADSL2+ (Annex-A) pair at a distance of 17,000 feet (5.2 km) on 24 AWG copper pairs. The BRX-XLR-AM is compatible with DSLAMs that support ADSL2+ Annex-M and enable a 10/1 Mbps service on a single pair up to 11,000 feet (3.4 km) on a single pair (24 AWG) and on two (2) bonded pairs to 16,000 feet (4.9 km).



BRX-XLR-24



## 100% Transparent Support for Pair Bonding

The BRX-XLR has been proven in the field as fully transparent to pair-bonding applications. From simpler data-only applications where two (2) pairs are bonded to deliver 10 Mbps beyond 23,000 feet/ 7 km to more demanding applications such as delivering over 25 Mbps at 14,000 feet (4.2 km) to deliver an IPTV service with 3 HD channels and bandwidth to spare for email and social networking.

## More than Signal Amplification

In addition to delivering a significant increase in performance, field testing has shown that the BRX-XLR will help mitigate some of the common problems impacting the performance of ADSL and ADSL2+ in the Outside Plant (OSP). As it amplifies the xDSL signal, the BRX-XLR significantly improves the signal-to-noise ratio (SNR) to the subscriber modem. Thanks to this improved SNR, the BRX-XLR helps mitigate the impact of bridge taps, especially those resulting from inadequate in-house wiring.

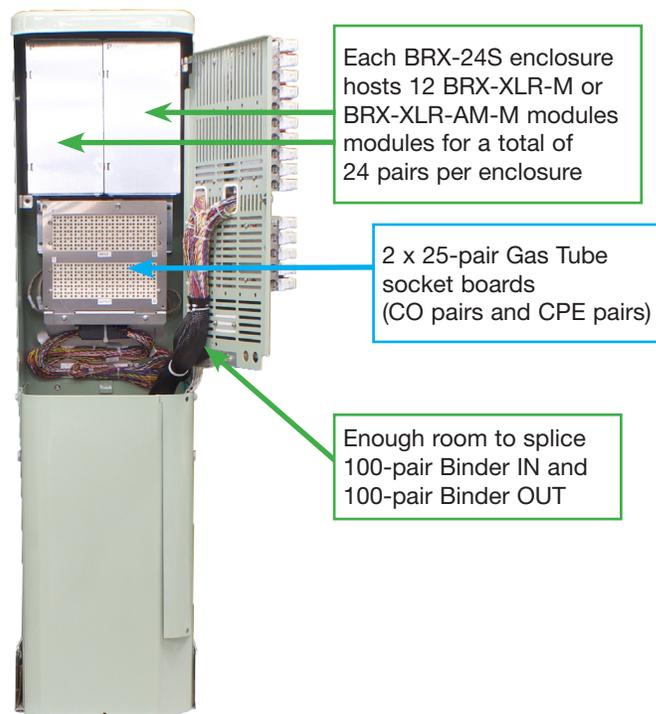
## Assorted Form Factor and Flexible Mounting Options

The BRX-XLR solution is designed to fit seamlessly into splicing cabinets already in use in the copper outside plant (OSP). It is also available in a weather resistant enclosure (IP65) that can be easily mounted on a pole, strand-mount (1, 2 and 8 pair enclosure) or on the outside of an existing cabinet. The product is offered in various form factors including a self-contained 1-pair and 2-pair enclosures and flexible 8, 24 or 48 pair enclosures for higher-density areas.

## Pedestal Integration

The BRX-XLR-24-1SXPF and BRX-XLR-48-1SXPF come with twelve (12) or twenty-four (24) 2-pair BRX-XLR-M modules pre-installed in an Emerson pedestal with extra lightning protection and a cross-connect feature. These BRX-XLR pedestals are a perfect fit when extending the CSA to a large group of customers. These pedestals are also available for the BRX-XLR-AM (ADSL2+ Annex M) devices.

These BRX-XLR pedestals are equipped with gel-filled 100-pair splice modules (3M part# 2810F100-HCO/48-GBM) from the CO and toward the subscribers terminated with 3M MS<sup>2</sup> connectors. The factory installed unit further comes equipped with 50-pair gel-filled splicing modules (3M part# 2810F48-HCO/48-GBM) to facilitate the connectivity of the pairs in and out of the BRX-XLR-24S enclosure.



## Specifications / Features

Feature	Description
xDSL Standards	ITU G.992.5 ADSL2+ Annex A (BRX-XLR) and Annex M (BRX-XLR-AM) ITU G.992.3 ADSL2 Annex A (BRX-XLR) and Annex M (BRX-XLR-AM) ITU G.992.1 ADSL Annex A (BRX-XLR) and Annex M (BRX-XLR-AM)
Reach Improvement	Extends ADSL/ ADSL2/ ADSL2+ broadband CSA coverage up to two times its current value
Rate Improvement	Improves effective bandwidth for ADSL/ ADSL2/ ADSL2+ loops up to five times
PSD Mask Compliance	Compliant with ANSI T1.413 and ETSI TS 101 830-1
Signal to Noise Ratio	Improves the Signal to Noise Ratio (SNR)
Power Draw	Maximum power drawn is 100 mw per pair from the 48V sealing current from the CO or DSLAM/ MSAN
Enclosure	Flexible shelf design allows more subscribers to be added in the future
Over-current Protection	8/20 $\mu$ sec, 10 kA (1 operation) 10/700 $\mu$ sec, 6 kV, 300A (50 operations)
Regulatory Compliance	Tested to IP65, UL/CSA and FCC part 15 Class A WEEE and ROHS compliant
Operating Temperature	-40 to +65 °C
Relative Humidity	5% to 95%, non-condensing
Dimensions	BRX-XLR-M and BRX-XLR-AM-M: 8" x 5" (203 mm x 127 mm) BRX-XLR-1 and BRX-XLR-AM-1: 9.25" x 5.5" x 1.5" (235 mm x 140 mm x 38 mm) BRX-XLR-2 and BRX-XLR-AM-2: 9.25" x 5.5" x 1.5" (235 mm x 140 mm x 38 mm) BRX-XLR-8 and BRX-XLR-AM-8: 11.5" x 5.5" x 4.7" (292 mm x 140 mm x 120 mm) BRX-XLR-24 and BRX-XLR-AM-24: 21.5" x 17" x 11" (546 mm x 432 mm x 280 mm)
Installation Location	Installed adjacent to a splice point or cross connect cabinet in the outside plant (OSP) No equipment needed in the Central Office / Exchange
Auto-Provisioning	Automatic gain control with no software or hardware configuration, self-adjusts based on loop length and line conditions between the DSLAM and the CPE
Number of Ports per Module	Each BRX-XLR-M or BRX-XLR-AM-M module incorporates two (2) independent copper pairs, 100% transparent to pair bonding (if used)

## Popular Ordering Part Numbers and Description

Part Number	Description
<b>Outdoor IP65 Assemblies</b>	
BRX-XLR-1	BRX-XLR single pair module with primary protection enclosed in IP65 enclosure (Annex-A)
BRX-XLR-2	BRX-XLR two-pair module with primary protection enclosed in IP65 enclosure (Annex-A)
BRX-XLR-8	BRX-XLR-8 (includes 4 x BRX-XLR-M 2-pair modules in IP65 enclosure) (Annex-A)
BRX-XLR-24	BRX-XLR-24 (includes 12 x BRX-XLR-M 2-pair modules in IP65 enclosure) (Annex-A)
BRX-XLR-AM-1	BRX-XLR single pair module with primary protection enclosed in IP65 enclosure (Annex-M)
BRX-XLR-AM-2	BRX-XLR two-pair module with primary protection enclosed in IP65 enclosure (Annex-M)
BRX-XLR-AM-8	BRX-XLR-8 (includes 4 x BRX-XLR-M 2-pair modules in IP65 enclosure) (Annex-M)
BRX-XLR-AM-24	BRX-XLR-24 (includes 12 x BRX-XLR-M 2-pair modules in IP65 enclosure) (Annex-M)
<b>Pedestal Assemblies</b>	
BRX-XLR-24-1SXPF	BRX-XLR enclosure factory installed in Pedestal with 12 x BRX-XLR-M Kit includes: 1 x BRX-XLR-24-1SX 12 x BRX-XLR-M 1 x BRX-50PR-PROT-PANEL
BRX-XLR-48-1SXPF	BRX-XLR enclosure factory installed in Pedestal with 24 x BRX-XLR-M Kit includes: 1 x BRX-XLR-48-1SX 24 x BRX-XLR-M 2 x BRX-50PR-PROT-PANEL

See the Product Selection Guide document for detailed information about the BRX product family of ADSL2+ (Annex-A and Annex-M) and VDSL2 (EU-32 and EU-64) amplifiers and ancillary parts.

**Note:** The BRX-XLR product family comes with a 2-year hardware warranty.

