

Broadband Power Line Carrier Couplers

Amperion's high performance Broadband Powerline Carrier couplers are the industry's most cost effective solution for attaching to the utilities' high voltage transmission lines. Amperion's high voltage couplers have been specifically engineered to maximize performance from 46kV to 138kV sub-transmission and transmission lines.



Smart Grid Application Support

The B-PLC coupler was uniquely designed to support transmission communications applications.

Line Protection

The B-PLC technology is ideal for deploying the latest line protection schemes for transmission lines, like Current Differential, POTT, and DCB.

Automated SCADA Collection

SCADA data is collected at the substation and automatically sent across the B-PLC network to other substations and/or back to the control center saving the utility the cost of manual readings on site and improving reliability.

Lease Line Replacement

With B-PLC leased phone lines to substations can now be retired, saving the utility recurring telecom expenses.

Station Security

B-PLC is a low cost way to meet NERC-CIP requirements for station security using video surveillance to protect against copper theft and vandalism.

Features and Benefits

Passive Coupling to Transmission Line

The B-PLC couplers are passive devices, requiring no external power source and providing maximum reliability and installation flexibility.

Based on Industry Standard Arrestor Technology

The coupler is based on proven lightning arrestor technology that has been deployed for many years. Installation of the B-PLC coupler is similar to installing a lightning arrestor on the transmission line. No specialized training is required for installation. Installation is fast, safe and simple.

No Frequency Blockers

Unlike conventional Power Line Carrier, the next generation B-PLC technology does not require line traps to be installed. This simplifies the installation process, minimizes cost and improves reliability of the system.

Redundancy & High Availability

To maximize performance in harsh EMI environments Amperion has developed patent protected differential technology that enables the B-PLC signal to travel on two phases. With this option distances and performance are significantly increased, and communications is maintained through a loss of a single phase.

Installation Simplicity and Scalability

The couplers are mounted directly on the substation bus structure for connection to the transmission line. The installation process is the same as installing lightning arresters, and no special training is required. Simply by changing the arrester class to a higher voltage, the solution scales from 46kV up to 138kV. It also has the extra benefit of added lightning protection.

Complete B-PLC Solution

The B-PLC Coupler together with the Phoenix gateway and the Amperion NMS, make up a complete solution set of B-PLC communications on sub-transmission and transmission lines for smart grid applications.

Technical Specification:

Electrical:

- Operating Voltage

46kV
69kV
138kV
- Attenuation (pair) 10dB Average
- Frequency Range 2mHz to 36mHz
- Power Line Frequency 48 to 62 Hz
- Input impedance 50 Ohms
- Connector BNC-Connector Female

Packaging: dimensions weight

- 46kV

53cm x 35cm x 107cm	26kg
(21" x 14" x 42")	(58lbs)
- 69kV

53cm x 35cm x 127cm	32kg
(21" x 14" x 50")	(71lbs)
- 138kV

53cm x 35cm x 213cm	59kg
(21" x 14" x 84")	(130lbs)

Mounting Options:

- Station truss - Upright
- Station truss - Inverted
- Line mounted - saddle
- Line mounted - fixed (pole supported)

Differential Coupler (Optional):

- Reduces EMI emissions
- Improves Signal to Noise 10dB
- Connector 50 ohm N

Environmental:

- Operating Temperature - -40° to 85°C
- Storage Temperature -40° to 85°C
- Humidity 10% to 80% non-condensing

Compliance:

- IEEE Std. C62.11 – 2005
- IEC 60099-4
- Each Unit Doble Tested

Ordering Information:

- Differential Coupler:

120 - 120y - xxx - 00		Base Unit
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- Single Coupler:

120 - 110y - xxx - 00		Base Unit
xxx	046	46kV
	069	69kV
	138	138kV
y	0	pole saddle
	1	pole fixed
	2	truss upright
	3	truss inverted



Protected by multiple US and International Patents: US 5,684,450; US 5,929,750; US 5,933,071; US 6,172,597; US 6,144,192; US 6,282,405; US 6,756,776; US 6,885,674; US 6,985,715; US 6,993,317; US 7,307,357; US 7,492,245; US 7,535,685; US 5,864,284; US 6,040,759; US 7,319,717 and other U.S. and Foreign patents pending.