

Medium Voltage Broadband Power Line Carrier Couplers

Amperion's Medium Voltage Broadband Powerline Carrier couplers are the industry's most cost effective solution for powerline communications. Amperion's medium voltage couplers have been optimized for low insertion loss and with impedance matching delivering maximum performance with the Griffin BPLC modem.



Smart Grid Application Support

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

Line Protection

B-PLC technology is ideal for extending line protection schemes, like Direct Transfer Trip over MV distribution lines.

SCADA Communications

B-PLC communications can collect SCADA data from devices and substations and send it back to the control center saving the utility the cost of manual readings on site and improving reliability.

Data Backhaul

B-PLC can attach to collectors and data concentrators to backhaul AMI/AMR data, sensing and synchrophasor data, or any other data from devices on the grid and in the substation.

Security

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

Features and Benefits

Passive Coupling to Medium Voltage 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 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 a 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 overhead capacitive couplers are mounted directly on the line. The installation process is the same as installing lightning arresters, and no special training is required. Simply by changing the arrester voltage rate, the solution scales from 10kV up to 36kV. It also has the extra benefit of added lightning protection.

Complete B-PLC Solution

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

Technical Specification:

Electrical:

- Operating Voltage

10kV
18kV
27kV
36kV
- Attenuation (pair) 10dB Average
- Frequency Range 2MHz to 36MHz
- Power Line Frequency 48Hz to 62Hz
- Input impedance 50 Ohms
- Line impedance 400 Ohms
- Connector F-Type Female

Packaging: dimensions weight

- 10kV

13" x 2"	2.2lbs
(33.02cm x 5.08cm)	(4.8kg)
- 18kV

16" x 2"	2.8lbs
(40.64cm x 5.08cm)	(6.2kg)
- 27kV

19.3" x 2"	8.3lbs
(49.02cm x 5.08cm)	(18.3kg)
- 36kV

22.5" x 2"	9.0lbs
(57.15cm x 5.08cm)	(19.8kg)

Mounting Options:

- Line mounted - saddle
- Line mounted - fixed (pole supported)

Differential Combiner (For 2-phase coupling):

- 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
- IEEE P1675 Std.

Ordering Information:

- Single Coupler:

120 - 110y - xxx - 00	Base Unit
xxx	010 10kV
	018 18kV
	027 27kV
	036 36kV
y	0 pole saddle
	1 pole fixed

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.