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SMART COMMUNICATION

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BSB BPL Series Industrial Ethernet Switches with Broadband Power Line

Ethernet over the power cables already in place

- Builds an Ethernet link over AC or DC power lines where no data cable can be laid
- LEDs show the power line link, activity and the master unit
- 1, 4 or 7 Ethernet ports at each end of the line

BSB612, BSB615 and BSB618 take Ethernet where no data cable can be laid: the network runs over the AC or DC power cables already in place, at up to 240 Mbps PHY rate and encrypted with 128-bit AES. One unit is the master, the others are slaves, set with a switch on the front panel; 1, 4 or 7 copper ports serve the local devices.

Highlights

1. **No new cable:** data runs over the phase and neutral or phase to phase conductors of an AC line, or over a DC power line.
2. **Master or slave by a front switch:** units connect automatically, without software.
3. **Two firmware options:** direct links without relaying, or multi-hop relaying over up to 10 hops.
4. **Encrypted:** 128-bit AES on the power line link.

Key Figures

240 Mbps
maximum PHY rate of the power line link; the data rate in use depends on the line and on the number of hops

2 - 28 MHz
432 OFDM sub-carriers with LDPC-C error correction

AES-128
link layer encryption of the power line

10 hops
with the multi-hop firmware, up to 1024 units in one network

Class B
EN 55032 and FCC Part 15 B emission class, tested by SGS in 2025

3.7 W
highest measured input power, BSB615 at 264 V AC

Main Features

Power line link

- Wavelet OFDM in the 2 - 28 MHz band, 432 sub-carriers, LDPC-C error correction.
- Up to 127 nodes per network with the standard firmware; up to 1024 nodes and 10 hops with the multi-hop firmware.
- Quality of service in 16 levels, by MAC address, IEEE 802.1p or TCP port.

Ethernet

- 1, 4 or 7 copper ports at 10/100 Mbit/s with auto MDI/MDIX.

Power input

- AC versions: 110 - 240 V AC, 50 - 60 Hz, on a three-phase line; the switch takes its supply from phase 1 and neutral.
- DC versions: 9 - 36 V DC input with an isolated converter.
- Fuses on each line conductor and a varistor on the AC input.

Models

- BSB612: 1 x 10/100 + BPL
- BSB615: 4 x 10/100 + BPL
- BSB618: 7 x 10/100 + BPL

Versions

- PN-AC: AC power, data phase to neutral
- PP-AC: AC power, data phase to phase or phase to neutral
- PP-DC: 9 - 36 V DC power, data on an AC line
- DC-DC: 9 - 36 V DC power, data on the DC power line

Conformity

- EN IEC 62368-1 safety; EN 55032 Class B, EN 55035, EN 61000-3-2 and EN 61000-3-3 for CE; FCC Part 15 B Class B.
- Tested by SGS in 2025 with three-phase AC supply: BSB612, BSB615 and BSB618.

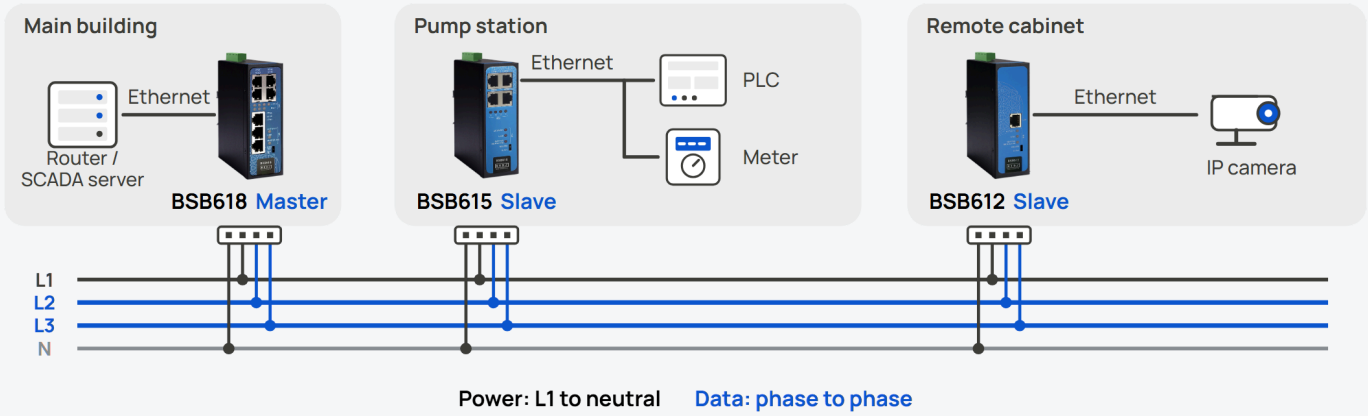
Technical Data

Series

	BSB612 1 port + BPL	**BSB615** 4 ports + BPL	**BSB618** 7 ports + BPL
Ethernet ports	1 x 10/100	4 x 10/100	7 x 10/100
Power input	AC or DC, see versions	AC or DC, see versions	AC or DC, see versions
Power consumption	max. 1.9 W (AC, measured)	max. 3.7 W (AC, measured)	max. 2.6 W (AC, measured)
Protection	Line fuses, varistor on AC	Line fuses, varistor on AC	Line fuses, varistor on AC
Isolation	3 kV AC (AC), 1500 V DC (DC)	3 kV AC (AC), 1500 V DC (DC)	3 kV AC (AC), 1500 V DC (DC)
Operating temperature	-20 to +70 C	-20 to +70 C	-20 to +70 C
Storage temperature	-40 to +85 C	-40 to +85 C	-40 to +85 C
Weight	402 g	454 g	460 g
Housing	Metal, Class II	Metal, Class II	Metal, Class II

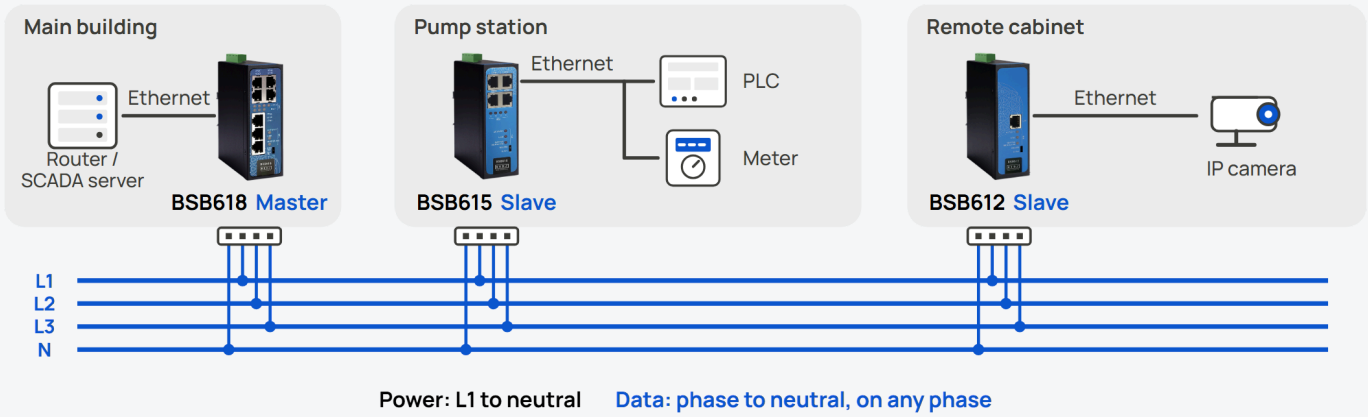
Typical Application

PP-AC versions



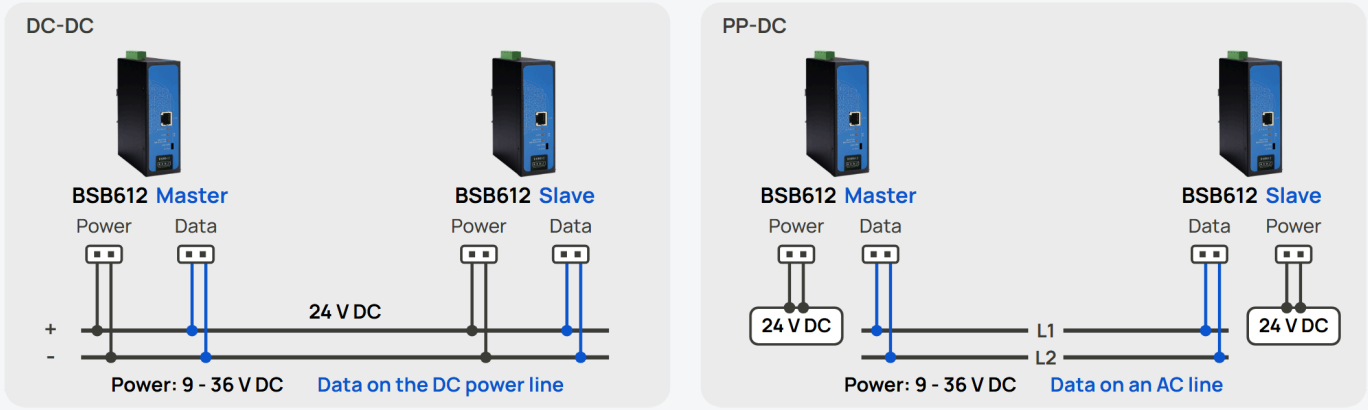
PP-AC versions: the units take their supply from L1 and neutral and carry the data phase to phase.

PN-AC versions



PN-AC versions: the units take their supply from L1 and neutral and carry the data phase to neutral, on any of the three phases.

DC versions



DC versions: DC-DC units carry the data on the DC power line, PP-DC units on an AC line; both take a 9 - 36 V DC supply.

Versions

Version	Power input	Data coupling
PN-AC	110 - 240 V AC, 3-phase	Phase to neutral, up to 3 phases
PP-AC	110 - 240 V AC, 3-phase	Phase to phase or phase to neutral
PP-DC	9 - 36 V DC	Phase to phase or phase to neutral of an AC line
DC-DC	9 - 36 V DC	DC power line, e.g. 24 V+ and 24 V-

Product Comparison

BSB BPL	612 PN-AC	612 PP-AC	612 PP-DC	612 DC-DC	615 PN-AC	615 PP-AC	615 PP-DC	615 DC-DC	618 PN-AC	618 PP-AC	618 PP-DC	618 DC-DC
1 x 10/100 port	●	●	●	●								
4 x 10/100 ports					●	●	●	●				
7 x 10/100 ports									●	●	●	●
AC power input, three-phase line	●	●			●	●			●	●		
9 - 36 V DC power input			●	●			●	●			●	●
Data on an AC line	●	●	●		●	●	●		●	●	●	
Data on a DC power line				●				●				●

Ordering Information

Model	Ports	Power	Coupling
BSB612-PN-AC	1 x 10/100 + BPL	110 - 240 V AC	Phase to neutral
BSB612-PP-AC	1 x 10/100 + BPL	110 - 240 V AC	Phase to phase or phase to neutral
BSB612-PP-DC	1 x 10/100 + BPL	9 - 36 V DC	Phase to phase or phase to neutral
BSB612-DC-DC	1 x 10/100 + BPL	9 - 36 V DC	DC power line
BSB615-PN-AC	4 x 10/100 + BPL	110 - 240 V AC	Phase to neutral
BSB615-PP-AC	4 x 10/100 + BPL	110 - 240 V AC	Phase to phase or phase to neutral
BSB615-PP-DC	4 x 10/100 + BPL	9 - 36 V DC	Phase to phase or phase to neutral
BSB615-DC-DC	4 x 10/100 + BPL	9 - 36 V DC	DC power line
BSB618-PN-AC	7 x 10/100 + BPL	110 - 240 V AC	Phase to neutral
BSB618-PP-AC	7 x 10/100 + BPL	110 - 240 V AC	Phase to phase or phase to neutral
BSB618-PP-DC	7 x 10/100 + BPL	9 - 36 V DC	Phase to phase or phase to neutral
BSB618-DC-DC	7 x 10/100 + BPL	9 - 36 V DC	DC power line