BSB Series Industrial Unmanaged Ethernet Switch with 10/100Base-T(x) Ports and/or BPL (Broadband Power Line Link) User Manual

1. About BSB Series Industrial Unmanaged Ethernet Switch

BSB Series Industrial Unmanaged Ethernet Switches are designed for industrial-grade Ethernet, and particularly for facilities of rugged industry and infrastructure. BSB Series Industrial Unmanaged Ethernet Switches are tailored to perform various features, such as wide temperature, wide range power input range... etc. Thus, BSB Series Industrial Unmanaged Ethernet Switches are the best choice for facility management, sewage treatment, power utility, telecommunication, transportation and all other applications that require reliable Ethernet connectivity.

BSB Series has models also with REDZ Broadband Power Line (BPL) communication. BPL link allows device to communicate with full transparent TCP/IP standard over Low Voltage power lines and allows easy connection between TCP/IP based terminals without use of extra cables.

2. Hardware Features

BSB Series Industrial Unmanaged Ethernet Switches has the versions with and without BPL (Broadband Power Line) Link.

2.1 Features

- Supports up to 8 x 10/100Base-T(X) ports
- AC or DC wide range power options
- Supports Full/Half-Duplex, auto MDI/MDI-X on each port
- Wide operating temperature range from -25 to 70 °C AC and -40 to 85 °C DC power input versions

- Rugged Metal IP-40 housing design
- DIN-Rail mounting

2.2 Extra Features for Models with BPL

- Supports up to 7 x 10/100Base-T(X) ports + 1 x BPL link
- Wide range 3 phase AC input
- Supports up to 30Mbps PHY rate on BPL with Up to 10 hops and 1000 nodes
- Up to 432 sub-carriers from 2 to 28MHz analog bandwidth
- Support LDPC-C FEC with 128-bit AES core
- Plug and play with Master/Slave selection via switch

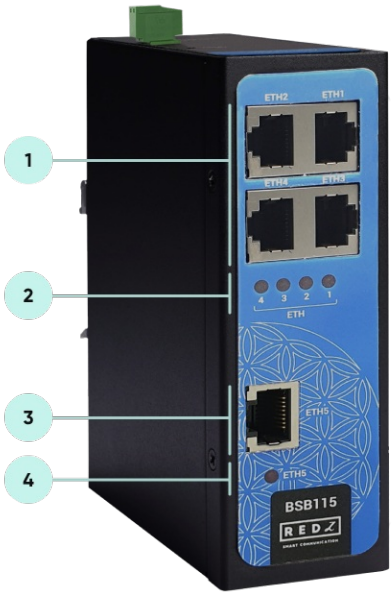
3. Installation

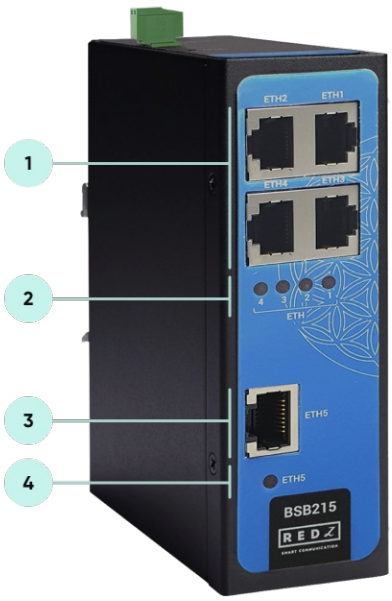
Each switch has a Din-Rail kit on rear panel. The Din-Rail kit helps switch to fix on the Din-Rail. Slant the switch and mount the metal spring to Din-Rail.

Then Push the switch toward the Din-Rail until you heard a “click” sound.

4. Front Panel Description

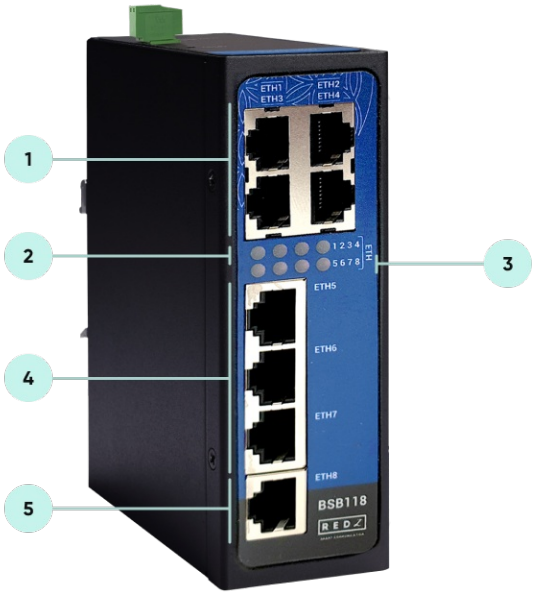
4.1 BSB115 & BSB215

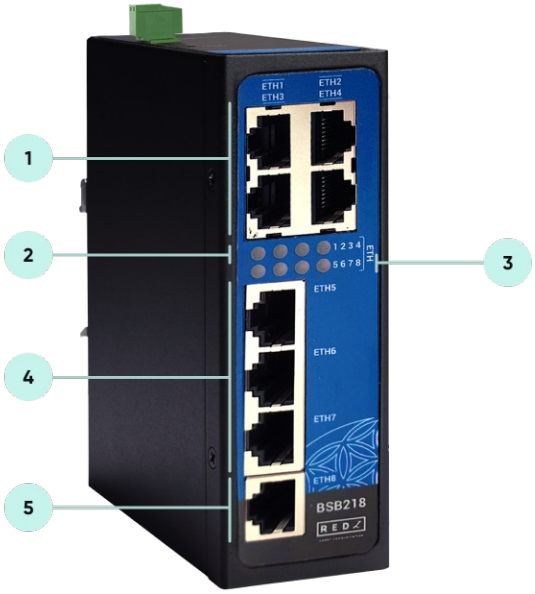




1. 10/100Base-T(X) Ethernet ports 1, 2, 3 and 4.
2. ETHERNET Activity LEDs for port 1, 2, 3 and 4. Blinks during ethernet activity.
3. 10/100Base-T(X) Ethernet port 5.
4. ETHERNET Activity LED for port 5. Blinks during ethernet activity.

4.2 BSB118 & BSB218





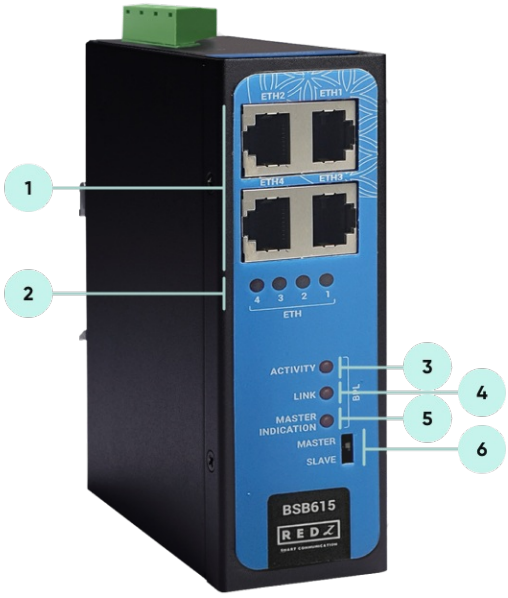
1. 10/100Base-T(X) Ethernet ports 1, 2, 3 and 4.
2. ETHERNET Activity LEDs for port 1, 2, 3 and 4. Blinks during ethernet activity.
3. ETHERNET Activity LEDs for port 5, 6, 7 and 8. Blinks during ethernet activity.
4. 10/100Base-T(X) Ethernet ports 5, 6, 7 and 8.

4.3 BSB612

1. 10/100Base-T(X) Ethernet port.

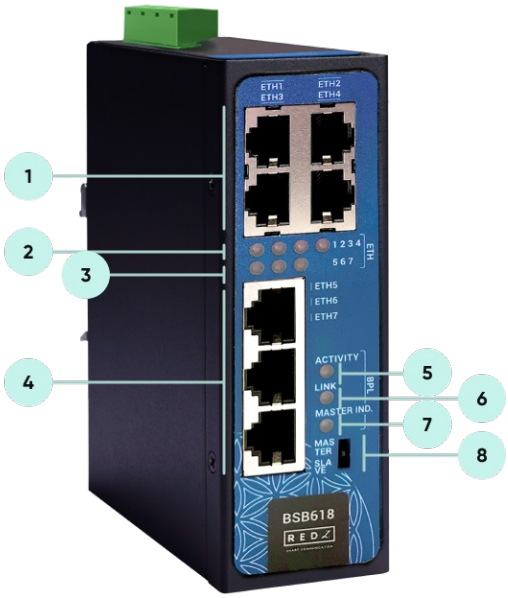
2. BPL Activity LED. Blinks during BPL & Ethernet activity.
3. BPL Link LED. LED Turns ON if the link can be established.
4. Master Indication LED. LED Turns ON if the device is started as “Master” device.
5. Switch position to select the device as “Master” or “Slave”. Device must be repowered after changing the setting to take into effect.

4.4 BSB615



1. 10/100Base-T(X) Ethernet ports 1, 2, 3 and 4.
2. ETHERNET Activity LEDs for port 1, 2, 3 and 4. Blinks during ethernet activity
3. BPL Activity LED. Blinks during BPL & Ethernet activity
4. BPL Link LED. LED Turns ON if the link can be established.
5. Master Indication LED. LED Turns ON if the device is started as “Master” device.
6. Switch position to select the device as “Master” or “Slave”. Device must be repowered after changing the setting to take into effect.

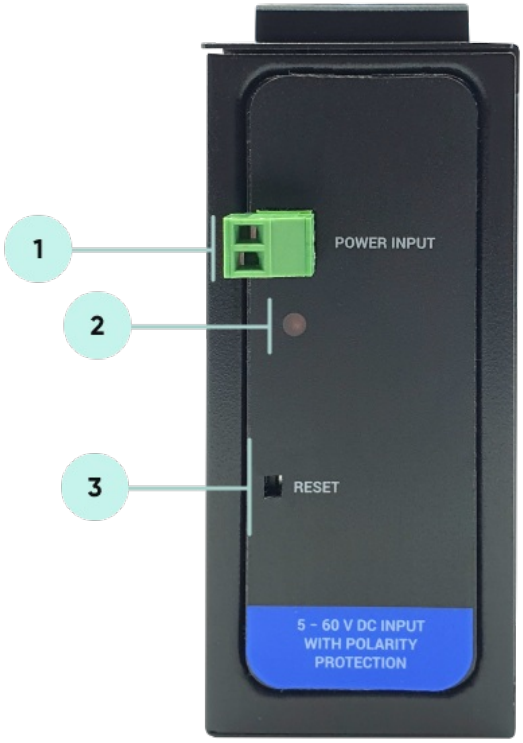
4.5 BSB618



1. 10/100Base-T(X) Ethernet ports 1, 2, 3 and 4.
2. ETHERNET Activity LEDs for port 1, 2, 3 and 4. Blinks during ethernet activity.
3. ETHERNET Activity LEDs for port 5, 6, and 7. Blinks during ethernet activity.
4. 10/100Base-T(X) Ethernet ports 5, 6, and 7.
5. BPL Activity LED. Blinks during BPL & Ethernet activity.
6. BPL Link LED. LED Turns ON if the link can be established.
7. Master Indication LED. LED Turns ON if the device is started as “Master” device.
8. Switch position to select the device as “Master” or “Slave”. Device must be repowered after changing the setting to take into effect.

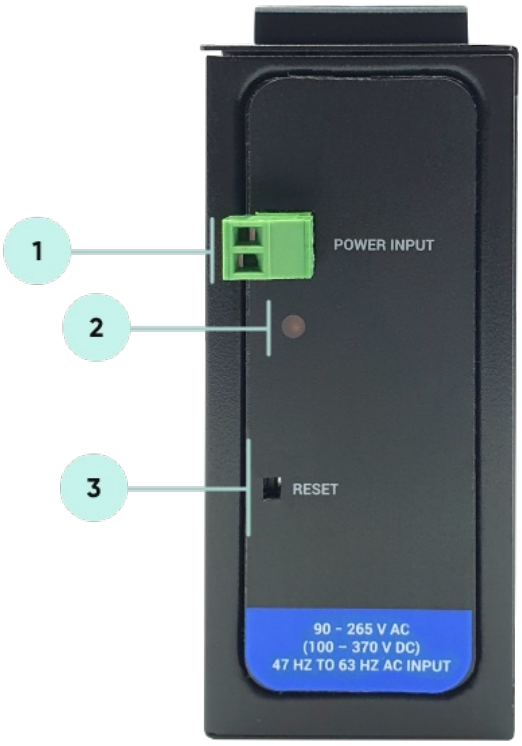
5. Top Panel Description

5.1 BSB115 & BSB118



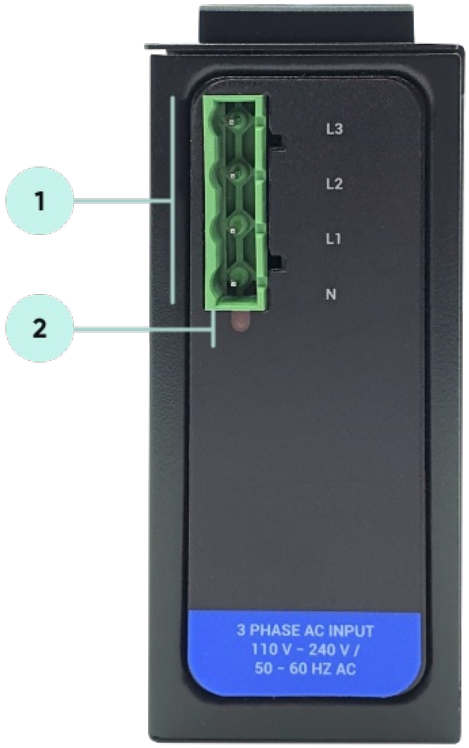
1. Power Input DC: 5-60V DC. Polarity protected so that the power input can be connected in any direction.
2. Power LED: Turns ON when there is power in device.
3. Reset Button: Reset the device.

5.2 BSB215 & BSB218



1. Power Input AC: 90 - 265V AC (100 – 370V DC), 47Hz to 63Hz AC input.
2. Power LED: Turns ON when there is power in device.
3. Reset Button: Reset the device.

5.3 BSB612 & BSB615 & BSB618



1. Power Input AC: 3 phase input, 110V–240V/50-60Hz. It is also ok to connect only single phase to the device such as L1-N connection only.

   AC Power supply use L1-N only. Phase 2-3 connections are used to BPL signal transmission.

2. Power LED: Turns ON when there is power in device.

6. Ethernet Cables

BSB Series Industrial Unmanaged Ethernet Switches have standard Ethernet ports. According to the link type, the switches use CAT 3, 4, 5, 5e UTP cables to connect to any other network device (PCs, servers, switches, routers, or hubs).

6.1 Cable Type and Specifications

Cable	Type	Max. Length	Connector
10BASE-T	Cat. 3, 4, 5 100-ohm	UTP 100 m (328 ft)	RJ-45
100BASE-TX	Cat. 5 100-ohm UTP	UTP 100 m (328 ft)	RJ-45

6.2 ETH Cable Pin Assignments

With 100BASE-TX/10BASE-T cable, pins 1 - 2 are used for transmitting data and pins 3 - 6 are used for receiving data.

Pin Number	Description
1	TD+
2	TD-
3	RD+
4	Not Used
5	Not Used
6	RD-
7	Not Used
8	Not Used

7. Connection Diagrams

BSB Series Industrial Unmanaged Ethernet Switches connections vary based on with and without BPL (Broadband Power Line) Link versions.

7.1 BSB612 & BSB615 & BSB618 Connection Diagram

7.2 BSB115 & BSB118 & BSB215 & BSB218 Connection Diagram

8. System Comparison Between CAT5 and BPL Links

	CAT5 Based System	BPL Link Based System
Media	CAT5	Power Line
Bandwidth	100Mbps	Up to 30Mbps
Re-Wire	Yes	No, Using existing Power Line
Span	<100m	<600m
Multiple Nodes	N/A	Up to 10 hops/1000 nodes
Encryption	Yes, but difficult to configure	Yes, Plug & Play
Installment	Difficult	Easy, simply user power line
Installment Cost	High	Low
Total Cost	High	Low

9. Ordering Information

BSB115: Industrial Unmanaged Ethernet Switch, 5 x 10/100 T(x) ETH ports, 5-60V DC Power Input

BSB118: Industrial Unmanaged Ethernet Switch, 8 x 10/100 T(x) ETH ports, 5-60V DC Power Input

BSB215: Industrial Unmanaged Ethernet Switch, 5 x 10/100 T(x) ETH ports, 90 - 265V AC (100 – 370V DC), 47Hz to 63Hz AC Power Input

BSB218: Industrial Unmanaged Ethernet Switch, 8 x 10/100 T(x) ETH ports, 90 - 265V AC (100 – 370V DC), 47Hz to 63Hz AC Power Input

BSB612: Industrial Unmanaged Ethernet Switch, 1 x 10/100 T(x) ETH ports + 1 x BPL (Broadband Power Line) Link, 3 Phase AC Power Input, 110V–240V/50-60Hz

BSB615: Industrial Unmanaged Ethernet Switch, 4 x 10/100 T(x) ETH ports + 1 x BPL (Broadband Power Line) Link, 3 Phase AC Power Input, 110V–240V/50-60Hz

BSB618: Industrial Unmanaged Ethernet Switch, 7 x 10/100 T(x) ETH ports + 1 x BPL (Broadband Power Line) Link, 3 Phase AC Power Input, 110V–240V/50-60Hz

10. Product Selection

Model	5-60V DC Power Input	90 - 265V AC (100 – 370V DC), 47Hz to 63Hz AC Power Input	3 Phase AC Power input, 110V–240V/50-60Hz AC Power Input	8 x 10/100 T(x) ETH Ports	7 x 10/100 T(x) ETH Ports	5 x 10/100 T(x) ETH Ports	4 x 10/100 T(x) ETH Ports	1 x 10/100 T(x) ETH Ports	BPL (Broadband Power Line) Link
BSB115	X					X			
BSB118	X			X					
BSB215		X				X			
BSB218		X		X					
BSB612			X					X	X
BSB615			X				X		X
BSB618			X		X				X