

# PoE & PoE+ Giga-McBasic

## USER MANUAL



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Powered by

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## INTRODUCTION - POE GIGA-MCBASIC LFPT

### ABOUT POE GIGA-MCBASIC LFPT

**NOTE:** *Unless otherwise noted in this manual, any reference is applicable for both the 1x9 and SFP version of the PoE Giga-McBasic LFPT.*

The PoE Giga-McBasic is a solution for private network applications that require Power-over-Ethernet (PoE) (IEEE802.3af) for installations inside buildings where PoE is required to power an Ethernet device. The standalone unit offers a model with one SFP or fixed fiber transceiver, 1x9, uplink for the network connection, one PSE 10/100/1000Base-T copper port that provides PoE and one 10/100/ 1000Mbps copper port, to connect a non-PoE unit to the same fiber uplink. As a fiber-fed demarcation unit, it provides both power and data to a remote device over a standard CAT5 copper line, eliminating the need for a power connection to the remote device. The PoE Giga-McBasic LFPT provides up to 15.4 Watts on one copper port and is powered by an internal power supply, supporting 100-240 VAC. ( For more robust power requirements on both copper ports, refer to the information about PoE+ Giga-McBasic LFPT.)

The SFP uplink can support fiber or copper SFPs. The fiber SFP, available in SC or LC connectors, supports 100FDX or 1000FDX; a copper SFP supports the SGMII interface (10/100/1000Mbps). The SFP, with or without DDMI, is available for purchase from B+B SmartWorx. The SFP must be MSA-compliant.

Copper ports auto-negotiate to the connected device's speed and duplex mode: 10 Mbps, 100 Mbps or 1000 Mbps, and HDX or FDX (including Flow Control). The PoE+ Giga-McBasic LFPT supports jumbo frames up to 10240.

**NOTE:** *Some options require items that are sold separately, available from B+B SmartWorx.*

## INSTALLATION

PoE Giga-McBasic LFPT installs virtually anywhere: standalone, table-top device, with rackmount ears, or using a wallmount bracket. The rackmount ears and wallmount bracket are optional accessories available from B+B SmartWorx.

Several models of the PoE Giga-McBasic LFPT support single-strand fiber for operation. Since single-strand fiber products use optics that transmit and receive on two different wavelengths, single-strand fiber products must be deployed in pairs. The two connected products must also have the same speed and distance.

## DIP SWITCH CONFIGURATION

DIP Switch	Name	Description	Default Setting	DIP Switch
1	PoE Reset	ON forces Port 2, PSE/PoE, to OFF on LOS of fiber input.	OFF	
2	LFPT Port 1	ON enables LFPT for Port 1 and the FX Port.	OFF	
3	LFPT Port 2	ON enables LFPT for Port 2 and the FX Port.	OFF	
4	Factory Set	Do not change.	OFF	
5	Factory Set	Do not change.	OFF	
6	Factory Set	Do not change.	OFF	
7	Factory Set	Do not change.	OFF	
8	Factory Set	Do not change.	OFF	

## POE RESET DSW

When set to ON, it will force the PSE output power on the copper port OFF when the LINK state is lost on the SFP line (copper or fiber SFP). By default, the DSW is set to OFF.

## LFPT DIP SWITCHES

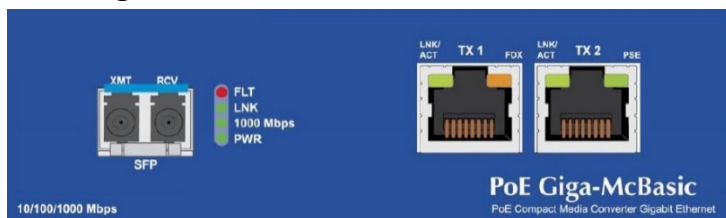
The DIP Switches for LFPT allows a LOS fault to be passed through the unit. When enabled, if link is lost on the FX port, the transmit on the TX port is disabled. If link is lost on a TX port, the transmit on the FX Port is disabled.

**NOTE:** With the fault switches –PoE Reset, LFPT Port 1 and LFPT Port 2, only one fault condition is recognized at a time. The first fault condition is in charge. So, if TX Port 1 has no link and then the FX Port loss link, the loss of TX Port 1 link causes the FX Port to disable transmit.

## LED OPERATION

The PoE Giga-McBasic LFPT includes LEDs for three ports, as shown below:

### PoE Giga-McBasic LFPT SFP



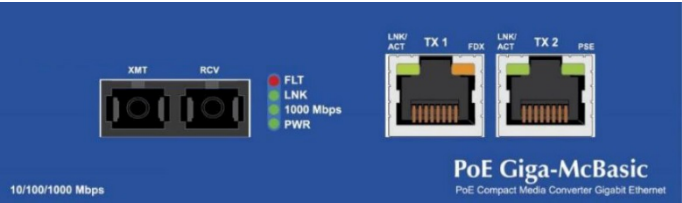
#### SFP LED Functions

FLT	Glows red when a fault has been detected on the unit.
LNK	Glows green with a valid link.
1000 Mbps	Glows green when SFP is running at 1000Mbps.
PWR	Glows green when unit is powered.

#### RJ-45 LED Functions

LNK/ACT (TX1, TX2)	Glows green with a valid link. Blinks green when activity is detected.
PSE (TX2)	Glows green when port is supplying PoE power. Blinks green during fault conditions: 1 Hz flashes to indicate an overload or short; 4 Hz flashes to indicate out-of-range voltage or over-temperature. Off if the port is not supplying power.
FDX (TX1)	Glows amber when port is running full-duplex.

PoE Giga-McBasic LFPT 1x9



1x9 LED Functions

FLT	Glows red when a fault has been detected on the unit.
LNK	Glows green with a valid link.
1000 Mbps	Glows green when is running at 1000Mbps.
PWR	Glows green when unit is powered.

RJ-45 LED Functions

LNK/ACT (TX1, TX2)	Glows green with a valid link. Blinks green when activity is detected.
PSE (TX2)	Glows green when port is supplying PoE power. Blinks green during fault conditions: 1 Hz flashes to indicate an overload or short; 4 Hz flashes to indicate out-of-range voltage or over-temperature. Off if the port is not supplying power.
FDX (TX1)	Glows amber when port is running full duplex.

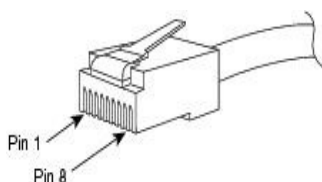
**NOTE:** The fixed twisted-pair port labeled PSE is the only port capable of providing PoE.

## TROUBLESHOOTING

- PWR LED glows green when the unit is powered. If this LED is not lit, contact B+B SmartWorx Technical Support.
- Blinks green during fault conditions: 1 Hz flashes to indicate an overload or short; 4 Hz flashes to indicate out-of-range voltage or over-temperature. The PSE LED should maintain solid green, to indicate consistent power. Check the PD device and its requirements.

## RJ-45 PINOUTS

The following table lists the pin configuration for the RJ-48 connector.



Pin#	Signal Name 1000M	Signal Direction 10/100M	PoE & PoE+ (ALT-B)
1	TXD1+	Out*	
2	TXD1-	Out*	
3	RXD2+	In*	
4	D3+		+V
5	D3-		+V
6	RXD2-	In*	
7	D4+		-V
8	D4-		-V



## SPECIFICATIONS

### Ethernet Connections

- 10/100/1000 BaseT
- Auto Negotiation
- Auto Cross
- Flow Control
- 10240 MTU
- Full Line-Rate Forwarding

### Input Specifications

100 to 240  $\pm 10\%$  VAC Input, 50/60 Hz, 0.5A to 0.2A

### Operating Temperature

0 to +50 °C (+32 to +122 °F)

### Storage Temperature

-40 to +85 °C (-40 to +185 °F)

### Humidity

5 to 95% (non-condensing); 0 to 10000 ft. altitude

### Dimensions

3.71H x 12.09W x 18.59D cm (1.46H x 4.76W x 7.32D in)

### Power Characteristics

Consumes < 10 Watts (heating) plus PSE power

IEEE802.3af Power to Field <15.5 Watts

### Standards Compliance

- IEEE 802.3af Power-over-Ethernet
- IEEE 802.3 Ethernet Standards
- IEEE 802.3u Auto Giga-McBasic LFPT

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## ABOUT POE+ GIGA-MCBBASIC LFPT

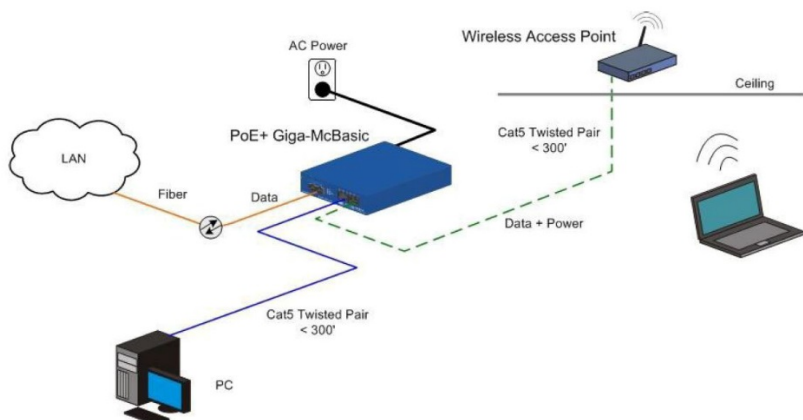
**NOTE:** *Unless otherwise noted in this manual, any reference is applicable for both the 1x9 and SFP version of the PoE+ Giga-McBasic LFPT.*

PoE+ Giga-McBasic LFPT is a solution for private network applications that require Power-over-Ethernet (PoE) (IEEE802.3af) for locations inside buildings where PoE is required to power an Ethernet device. The standalone unit offers a model with one SFP or fixed fiber transceiver, 1x9, uplink for the network connection, two PSE 10/100/1000Base-T copper ports that provide PoE to connect a non-PoE unit to the same fiber uplink. As a fiber-fed demarcation unit, it provides both power and data to a remote device over a standard CAT5 copper line, eliminating the need for a power connection to the remote device. The PoE+ Giga-McBasic LFPT provides up to 25.5 Watts per copper port and is powered by an internal power supply, supporting 100-240 VAC.

The SFP uplink can support fiber or copper SFPs. The fiber SFP, available in SC or LC connectors, supports 100FDX or 1000FDX; a copper SFP supports the SGMII interface (10/100/1000Mbps). The SFP, with or without DDML, is available for purchase from B+B SmartWorx. The SFP must be MSA-compliant.

The copper ports auto negotiate to the connected device's speed and duplex mode: 10 Mbps, 100 Mbps or 1000 Mbps, and HDX or FDX (including Flow Control). The PoE+ Giga-McBasic supports jumbo frames up to 10240.

## TYPICAL APPLICATION



## INSTALLATION

PoE+ Giga-McBasic LFPT installs virtually anywhere: standalone, table-top device, with rackmount ears or using a wallmount bracket. The rackmount ears and wallmount bracket are optional accessories available from B+B SmartWorx.

Several models of the PoE+ Giga-McBasic LFPT support single-strand fiber for operation. Since single-strand fiber products use optics that transmit and receive on two different wavelengths, single-strand fiber products must be deployed in pairs. The two connected products must also have the same speed and distance.

## DIP SWITCH CONFIGURATION

DIP Switch	Name	Definition	Default Setting	DIP Switch
1	PoE Reset	ON forces Ports 1 & 2 PSE/PoE to OFF on LOS of Fiber input.	OFF	
2	LFPT Port 1	ON enables LFPT for Port 1 and FX Port.	OFF	
3	LFPT Port 2	ON enables LFPT for Port 2 and FX Port.	OFF	
4	Factory Set	Do not change.	OFF	
5	Factory Set	Do not change.	OFF	
6	Factory Set	Do not change.	OFF	
7	Factory Set	Do not change.	OFF	
8	Factory Set	Do not change.	OFF	

## POE RESET DSW

When set to ON, it will force the PSE output power on the copper port OFF when the LINK state is lost on the fiber segment. By default, the DSW is set to OFF.

## LFPT DIP SWITCHES

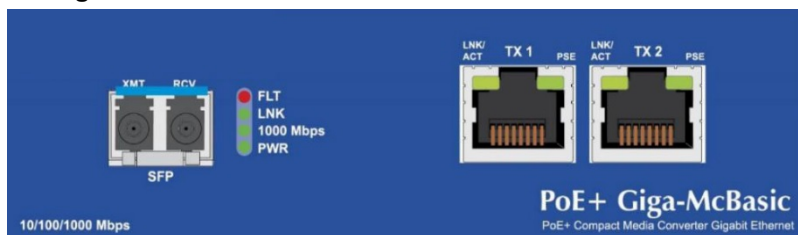
The DIP Switches for LFPT allow a LOS fault to be passed through the unit. When enabled, if link is lost on the FX port, the transmit on the TX port is disabled. If link is lost on a TX port, the transmit on the FX Port is disabled.

**NOTE:** With the fault switches –PoE Reset, LFPT Port 1 and LFPT Port 2, only one fault condition is recognized at a time. The first fault condition is in charge. So if TX Port 1 has no link and then the FX Port loss link, the loss of TX Port 1 link causes the FX Port to disable transmit.

## LED OPERATION

The PoE+ Giga-McBasic LFPT includes LEDs for three ports, as shown below:

## PoE+ Giga-McBasic LFPT SFP



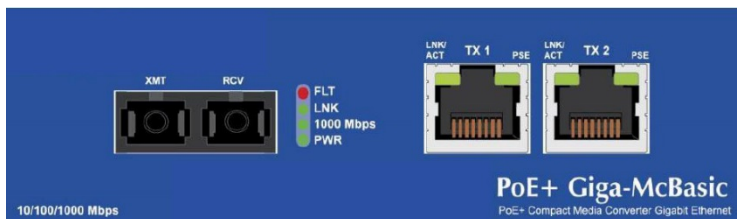
## SFP LED Functions

FLT	Glows red when a fault has been detected on the unit.
LNK	Glows green with a valid link.
1000 Mbps	Glows green when SFP is running at 1000Mbps.
PWR	Glows green when unit is powered.

## RJ-45 LED Functions

LNK/ACT (TX1, TX2)	Glows green with a valid link. Blinks green when activity is detected.
PSE (TX1, TX2)	Glows green when port is supplying PoE power. Blinks green during fault conditions: 1 Hz flashes to indicate an overload or short; 4 Hz flashes to indicate out-of-range voltage or over-temperature. Off if the port is not supplying power.

## PoE+ Giga-McBasic LFPT 1x9



### SFP LED Functions

<b>FLT</b>	Glows red when a fault has been detected on the unit.
<b>LNK</b>	Glows green with a valid link.
<b>1000 Mbps</b>	Glows green when SFP is running at 1000Mbps.
<b>PWR</b>	Glows green when unit is powered.

### RJ-45 LED Functions

<b>LNK/ACT (TX1, TX2)</b>	Glows green with a valid link. Blinks green when activity is detected.
<b>PSE (TX1, TX2)</b>	Glows green when port is supplying PoE power. Blinks green during fault conditions: 1 Hz flashes to indicate an overload or short; 4 Hz flashes to indicate out-of-range voltage or over-temperature. Off if the port is not supplying power.

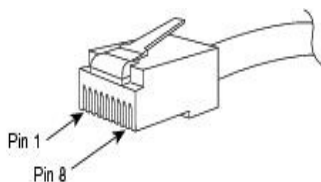
## TROUBLESHOOTING

If the PoE+ Giga-McBasic LFPT is not responding to the power provided to it, the following conditions may be responsible:

- Blinks green during fault conditions: 1 Hz flashes indicating an overload or short; 4 Hz flashes indicating out-of-range voltage or over-temperature. The PSE LED should maintain solid green to indicate consistent power. Check the PD device and its requirements.
- If the PoE injector has power that can be verified, but the PSE LED is Off, then contact B+B SmartWorx Technical Support.

## RJ-45 PINOUTS

The following table lists the pin configuration for the RJ-48 connector.



Pin#	Signal Name 1000M	Signal Direction 10/100M	PoE & PoE+ (ALT-B)
1	TXD1+	Out*	
2	TXD1-	Out*	
3	RXD2+	IN*	
4	D3+		+V
5	D3-		+V
6	RXD2-	IN*	
7	D4+		-V
8	D4-		-V

## SPECIFICATIONS

### Ethernet Connections

- 10/100/1000 BaseT
- Auto Negotiation
- Auto Cross
- Flow Control
- 10240 MTU
- Full Line-Rate Forwarding

### Input Specifications

100 to 240  $\pm$  10% VAC Input, 50/60 Hz, 1.6A to 0.7A

### Operating Temperature

0 to +40 °C (+32 to +104 °F)

### Storage Temperature

-40 to +85 °C (-40 to +185 °F)

### Humidity

5 to 95% (non-condensing); 0 to 10000 ft. altitude

### Dimensions

3.71H x 12.09W X 18.59D cm (1.46H x 4.76W x 7.32D in)

### Power Characteristics

- Consumes <10 Watts (heating) plus PSE power
- IEEE802.3af/at Power to Field < 50 Watts (2 x 25.5 Watts)

### Standards Compliance

- IEEE 802.3af PoE
- IEEE 802.3at PoE+ Standards
- IEEE 802.3 Ethernet Standards
- IEEE 802.3u Auto Negotiation
- RFC-2474
- RFC-2475 DiffServ QoS



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## STATEMENTS, PRECAUTIONS, GUIDELINES, REGULATORY

## FCC RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class A computing device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which the user will be required to correct the interference at his own expense.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

The use of non-shielded I/O cables may not guarantee compliance with FCC RFI limits. This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par le ministère des Communications du Canada.

## POE PRECAUTIONS (INSIDE BUILDING INSTALLATION ONLY)

**The PoE Giga-McBasic LFPT, PoE+ Giga-McBasic LFPT (and PoE McBasic) are for inside-a-building installation only.** These devices cannot be installed in an outside-of-a-building environment, as they cannot meet PoE requirements per the PoE standard. If installing the device outside, serious damage can occur and void any B+B SmartWorx warranty.

## ELECTROSTATIC DISCHARGE (ESD) PRECAUTIONS

Electrostatic discharge (ESD) can cause damage to any product, add-in modules or stand alone units, containing electronic components. Always observe the following precautions when installing or handling these kinds of products.

1. Do not remove unit from its protective packaging until ready to install.
2. Wear an ESD wrist grounding strap before handling any module or component. If the wrist strap is not available, maintain grounded contact with the system unit throughout any procedure requiring ESD protection.
3. Hold units by the edges; do not touch the electronic components or gold connectors.
4. After removal, always place boards on a grounded, static-free surface, ESD pad or in a proper ESD bag. Do not slide the modules or stand-alone units over any surface.



**WARNING!** Integrated circuits and fiber optic components are extremely susceptible to electrostatic discharge damage. Do not handle these components directly unless you are a qualified service technician and use tools and techniques that conform to accepted industry practices.

## FIBER OPTIC CLEANING GUIDELINES

Fiber Optic transmitters and receivers are extremely susceptible to contamination by particles of dirt or dust, which can obstruct the optic path and cause performance degradation. Good system performance requires clean optics and connector ferrules.

1. Use fiber patch cords (or connectors, if you terminate your own fiber) only from a reputable supplier; low-quality components can cause many hard-to-diagnose problems in an installation.
2. Dust caps are installed at the factory to ensure factory-clean optical devices. These protective caps should not be removed until the moment of connecting the fiber cable to the device. Should it be necessary to disconnect the fiber device, reinstall the protective dust caps.
3. Store spare caps in a dust-free environment such as a sealed plastic bag or box so that, when reinstalled, they do not introduce any contamination to the optics.
4. If you suspect that the optics have been contaminated, alternate between blasting with clean, dry, compressed air and flushing with methanol to remove particles of dirt.

## REGULATORY, STANDARDS, COMPLIANCES

UL/cUL: Listed to Safety of Information Technology Equipment, including Electrical Business Equipment.



**Class 1 Laser product, Luokan 1 Laserlaite,  
Laser Klasse 1, Appareil A'Laser de Classe**

CE: The products described herein comply with the Council Directive on Electromagnetic Compatibility (2004/108/EC) and the Council Directive on Electrical Equipment Designed for use within Certain Voltage Limits (2006/95/EC). Certified to Safety of Information Technology Equipment, Including Electrical Business Equipment. For further details, contact B+B SmartWorx.

European Directive 2002/96/EC (WEEE) requires that any equipment that bears this symbol on product or packaging must not be disposed of with unsorted municipal waste. This symbol indicates that the equipment should be disposed of separately from regular household waste. It is the consumer's responsibility to dispose of this and all equipment so marked through designated collection facilities appointed by government or local authorities. Following these steps through proper disposal and recycling will help prevent potential negative consequences to the environment and human health. For more detailed information about proper disposal, please contact local authorities, waste disposal services, or the point of purchase for this equipment.



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