

# IE-MiniMc

## USER MANUAL



**B+B** SMARTWORX

Powered by

**ADVANTECH**

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## FCC RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B 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 B 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 B prescrites dans le Règlement sur le brouillage radioélectrique publié par le ministère des Communications du Canada.

## WARRANTY

Effective for products of B+B SmartWorx shipped on or after May 1, 2013, B+B SmartWorx warrants that each such product shall be free from defects in material and workmanship for its lifetime. This limited lifetime warranty is applicable solely to the original user and is not transferable.

This warranty is expressly conditioned upon proper storage, installation, connection, operation and maintenance of products in accordance with their written specifications.

Pursuant to the warranty, within the warranty period, B+B SmartWorx, at its option will:

1. Replace the product with a functional equivalent;
2. Repair the product; or
3. Provide a partial refund of purchase price based on a depreciated value.

Products of other manufacturers sold by B+B SmartWorx are not subject to any warranty or indemnity offered by B+B SmartWorx, but may be subject to the warranties of the other manufacturers.

Notwithstanding the foregoing, under no circumstances shall B+B SmartWorx have any warranty obligations or any other liability for: (i) any defects resulting from wear and tear, accident, improper use by the buyer or use by any third party except in accordance with the written instructions or advice of the B+B SmartWorx or the manufacturer of the products, including without limitation surge and overvoltage conditions that exceed specified ratings, (ii) any products which have been adjusted, modified or repaired by any party other than B+B SmartWorx or (iii) any descriptions, illustrations, figures as to performance, drawings and particulars of weights and dimensions contained in the B+B SmartWorx' catalogs, price lists, marketing materials or elsewhere since they are merely intended to represent a general idea of the products and do not form part of this price quote and do not constitute a warranty of any kind, whether express or implied, as to any of the B+B SmartWorx' products.

THE REPAIR OR REPLACEMENT OF THE DEFECTIVE ITEMS IN ACCORDANCE WITH THE EXPRESS WARRANTY SET FORTH ABOVE IS B+B SMARTWORX' SOLE OBLIGATION UNDER THIS WARRANTY. THE WARRANTY CONTAINED IN THIS SECTION SHALL EXTEND TO THE ORIGINAL USER ONLY, IS IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, AND ALL SUCH WARRANTIES AND INDEMNITIES ARE EXPRESSLY DISCLAIMED, INCLUDING WITHOUT LIMITATION (I) THE IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND OF MERCHANTABILITY AND (II) ANY WARRANTY THAT THE PRODUCTS ARE DO NOT INFRINGE OR VIOLATE THE INTELLECTUAL PROPERTY RIGHTS OF ANY THIRD PARTY. IN NO EVENT SHALL B+B SMARTWORX BE LIABLE FOR LOSS OF BUSINESS, LOSS OF USE OR OF DATA INTERRUPTION OF BUSINESS, LOST PROFITS OR GOODWILL OR OTHER SPECIAL, INCIDENTAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES. B+B ELECTRONIC SHALL DISREGARD AND NOT BE BOUND BY ANY REPRESENTATIONS, WARRANTIES OR INDEMNITIES MADE BY ANY OTHER PERSON, INCLUDING WITHOUT LIMITATION EMPLOYEES, DISTRIBUTORS, RESELLERS OR DEALERS OF B+B SMARTWORX WHICH ARE INCONSISTENT WITH THE WARRANTY, SET FORTH ABOVE.

## ABOUT THE IE-MINIMC

The IE-MiniMc Industrial Ethernet media converter features 10/100 switching copper-to-fiber conversion. Miniature in size, it offers plug-and-play operation, and supports an extended voltage range as well as extended operating temperature.. The media converter can function as a PD device, and is compliant to the IEEE 802.3af Power Over Ethernet (PoE) standard.

Available in a variety of Single Mode and Multi Mode fiber types, it supports an MTU of 1916 bytes. Several mounting options and powering options are available and detailed in the following sections of the manual.

## HARDWARE INSTALLATION -BOTH PRODUCT LINES

The IE-MiniMc installs virtually anywhere as a standalone device in locations with extremely limited space. Installation options include:

- Velcro strips
- DIN rail mounting with DIN Rail clips
- A wall mount bracket
- A PowerTray/18 for high density applications

## HARDWARE MOUNTING OPTIONS

The IE-MiniMc can be mounted on a DIN rail or using wall mount brackets (shown below).



Figure 1. Wall Mount Bracket

DIN rail clips (part number 806-39105) and wall mount brackets (part number 895-39229) are available for purchase through an B&B Electronics Distributor.

The DIN Rail clips include screws, to allow the installation onto a DIN Rail. Install the screws into DIN Rail clips, which should be mounted parallel or perpendicular to the DIN Rail. Snap the converter onto the clips. To remove the converter from the DIN Rail, use a flat-head screwdriver into the slot to gently pry the converter from the rail.



Figure 2. DIN Rail Mounting

## POWERING OPTIONS

The IE-MiniMc includes multiple powering options:

- A country-specific, high-reliability AC power adapter (included)
- The IEEE 802.3af Power over Ethernet standard; draws power from power sourcing equipment (NON-Telco version only)
- The 4-terminal DC power block
- IE-PowerTray/18 for Rack Mounting



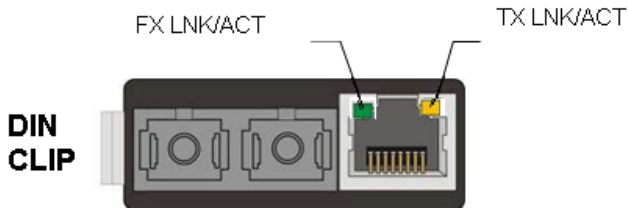
## Power Over Ethernet

Power Over Ethernet technology allows the IE-MiniMc to be a Powered Draw device (PD) and draw power when connected to Power Sourcing Equipment (PSE). Power Sourcing Equipment distributes an electrical current across existing copper data cabling.

## LEDS

Each IE-MiniMc includes two LEDs, located on the RJ-45 connector.

LED functions are as follows:



<b>FX LNK/ACT</b>	Glows green when a link is established on the fiber port; blinks green when activity is detected on the fiber port.
<b>TX LNK/ACT</b>	Glows amber when a link is established on the copper port; blinks amber when activity is detected on the copper port.

Table 1. LEDS

## DC TERMINAL BLOCK WIRING INSTRUCTIONS

The IE-MiniMc can also be powered with the DC terminal block. From a power source, connect to any one positive and any one negative terminal on the IE-MiniMc

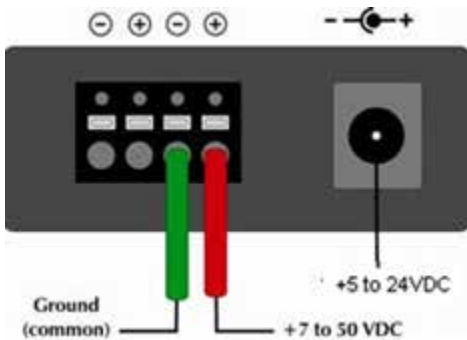


Figure 3. DC Terminal Block

### NOTE

*When using stranded wire, the leads must be tinned and equivalent to a 16 AWG solid conductor. The DC terminal block is protected against mis-wiring. If the unit is mis-wired, positive power lead to the negative terminal and negative power lead to the positive terminal, it will not function. When powering a unit with voltages near the upper limit of the device's specification (for example: 50 volts) take precautions to limit the voltage at the units terminal block. When turning on high voltage DC circuits, initial voltages may exceed the maximum allowed duration of the unit's transient protection devices.*

## Cascading DC Power

When installing multiple IE-MiniMc units on a DIN rail, the end user can connect to one DC input source, and then cascade from one DC block to the next, until reaching the maximum current available.

## SPECIFICATIONS

<b>Connectors</b>	
Copper	RJ-45
Fiber	ST, SC
<b>Environmental -- Intended for indoor and outdoor use.</b>	
Operating Temperature	-40°F to +185°F (-40°C to +85°C) DC configuration +14°F to +122°F (-10°C to +50°C) with AC wall adapter
Storage Temperature	-40°F to +185°F (-40°C to +85°C)
Operating Humidity	5 to 95% (non-condensing); 0 to 10,000 ft. altitude
<b>LED Indicators</b>	
<b>One Green LED</b>	
Copper RJ-45 port LNK/ACT	Color = GREEN Blink = GREEN when data is passing Off = NO COLOR
Fiber Port LNK/ACT	Color = AMBER Blink = AMBER when data is passing Off = NO COLOR
<b>Power Input</b>	
DC Terminal Block	7 to 50 VDC, 1-0.1A
DC jack	5 to 24 VDC
PoE	When IE-MiniMc uses PoE technology to be a PD, the maximum supply voltage is 50V

Table 2. Specifications

## CERTIFICATIONS/APPROVALS

Certifications	
<b>FCC</b>	FCC Part 15 Class B
<b>CE</b>	
EN55022	CISPR 22 Class B
EN61000-3-2	Generic Standards for Residential, Commercial, & Light Industrial
EN61000-4-2	ESD (15kV air & 4kV contact)
EN61000-4-3	RFI
EN61000-4-4	EFT
EN61000-4-5	Surge
EN61000-4-6	CI
EN61000-4-8	Power Frequency Magnetic
EN61000-4-11	Voltage Dips & Interruptions
Regulatory Approvals	
ROHS and WEEE Compliant	

Table 3. Certifications

## ELECTROSTATIC DISCHARGE 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:

Do not remove unit from its protective packaging until ready to install.

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.

Hold the units by the edges; do not touch the electronic components or gold connectors.

After removal, always place the 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.

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## 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.

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.

Dust caps are installed at B+B SmartWorx 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.

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.

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.

**CERTIFICATIONS**

CE: The products described herein comply with the Council Directive on Electromagnetic Compatibility (2004/108/EC). For further details, contact B+B SmartWorx.



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

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.



**ISO 9001:2008  
REGISTERED**



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