



## ***McPC 10/100***

***(ISA & PCI Versions)***

## ***Operation Manual***



## **FCC Radio Frequency Interference Statement**

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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**

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IMC Networks warrants to the original end-user purchaser that this product, EXCLUSIVE OF SOFTWARE, shall be free from defects in materials and workmanship under normal and proper use in accordance with IMC Networks' instructions and directions for a period of six (6) years after the original date of purchase. This warranty is subject to the limitations set forth below.

At its option, IMC Networks will repair or replace at no charge the product which proves to be defective within such warranty period. This limited warranty shall not apply if the IMC Networks product has been damaged by unreasonable use, accident, negligence, service or modification by anyone other than an authorized IMC Networks Service Technician or by any other causes unrelated to defective materials or workmanship. Any replaced or repaired products or parts carry a ninety (90) day warranty or the remainder of the initial warranty period, whichever is longer.

To receive in-warranty service, the defective product must be received at IMC Networks no later than the end of the warranty period. The product must be accompanied by proof of purchase, satisfactory to IMC Networks, denoting product serial number and purchase date, a written description of the defect and a Return Merchandise Authorization (RMA) number issued by IMC Networks. No products will be accepted by IMC Networks which do not have an RMA number. For an RMA number, contact IMC Networks at PHONE: (800) 624-1070 (in the U.S and Canada) or (949) 465-3000 or FAX: (949) 465-3020. The end-user shall return the defective product to IMC Networks, freight, customs and handling charges prepaid. End-user agrees to accept all liability for loss of or damages to the returned product during shipment. IMC Networks shall repair or replace the returned product, at its option, and return the repaired or new product to the end-user, freight prepaid, via method to be determined by IMC Networks. IMC Networks shall not be liable for any costs of procurement of substitute goods, loss of profits, or any incidental, consequential, and/or special damages of any kind resulting from a breach of any applicable express or implied warranty, breach of any obligation arising from breach of warranty, or otherwise with respect to the manufacture and sale of any IMC Networks product, whether or not IMC Networks has been advised of the possibility of such loss or damage.

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INCONSISTENT WITH THE WARRANTY SET FORTH ABOVE. ALL IMPLIED WARRANTIES INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY LIMITED TO THE DURATION OF THE EXPRESS WARRANTY STATED ABOVE.

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## **About the McPC 10/100**

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The McPC TX/FX is an IEEE 802.3 single-conversion PC media converter card that converts:

- 10Base-T twisted pair and 10Base-FL multi-mode or single mode fiber, or
- 100Base-TX twisted pair and 100Base-FX multi mode or single mode fiber.

The McPC 10/100 can be installed in any PC with a standard PCI or ISA slot. It includes diagnostic LEDs for each port, and a 4-pin peripheral power supply connector.

## PCI Version

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### Installing the McPC 10/100 (PCI Version)

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Offering plug-and-play operation, the McPC 10/100 comes ready to install, utilizing power from the PC's power supply. To install the McPC 10/100:

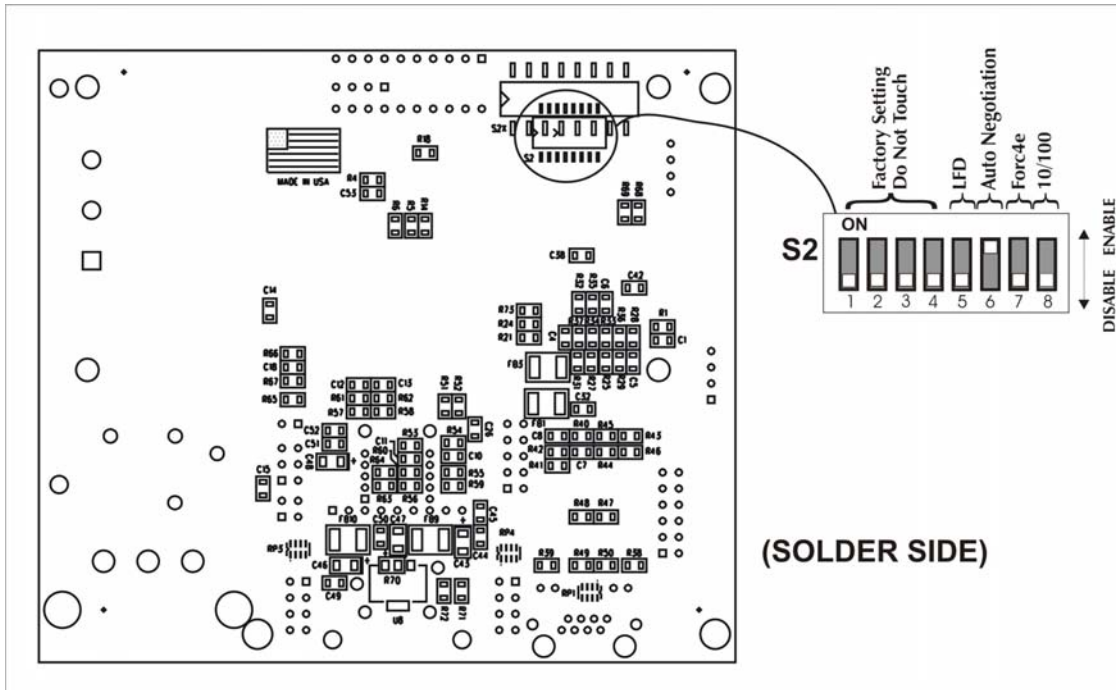
1. Turn off the PC
2. Remove its cover
3. Find an empty PCI slot
4. Align the McPC 10/100 in the slot
5. Screw the the McPC 10/100 into the computer casing's bracket
6. Make sure the McPC 10/100 does not extend past the edge of the case
7. Attach the keyed mini-power connector to the McPC 10/100
8. Attach the male end of the "Y" connector to one of the computer's standard size power connectors
9. Replace the cover
10. Attach the cables between the McPC 10/100 and the devices that will be interconnected

NOTE
<i>The McPC 10/100 DOES NOT plug into the motherboard. McPC 10/100 draws power from the computer; no additional power source is necessary.</i>

### Configuring the McPC 10/100 (PCI Version)

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Before installing, configure McPC 10/100 for desired features using the DIP Switch located as shown below on the printed circuit board (PCB). The following illustration shows the location of the DIP Switch as well as its default settings. Consult the chart below for the function of each switch.



The table below shows the DIP Switch settings for McPC 10/100:

Feature	Switch #	Function	Default
LFD	5	Link Fault Detection (Available in Force modes only)	OFF
AN	6	Auto Negotiation Mode (Valid only when Force mode is disabled)	ON
Force	7	Force Mode – Forces the converter to operate at 10 or 100 Mbps as determined by switch 8	OFF
10/100	8	Valid only when switch 7 is <b>ON</b> . When <b>ON</b> , the converter operates at 10 Mbps. When <b>OFF</b> , the converter operates at 100 Mbps. 8 is only valid in Force Mode, i.e. when switch 7 is <b>ON</b>	OFF

**NOTE**

Switch #'s 1 – 4 are factory configured – **DO NOT CHANGE**

## Modes of Operation (PCI Version)

---

The McPC 10/100 features three modes of operation: **Auto Negotiation mode (AN)**, **Force-10 mode** and **Force-100 mode**. Configure the McPC 10/100 for one of these modes (factory default is Auto Negotiation mode). Refer to the Link Fault Detection section for information on Link Fault Detection (LFD).

### NOTE

*The McPC 10/100 cannot be manually set for Half- or Full-Duplex. Duplex is determined by the devices to which the McPC 10/100 is connected.*

**Auto Negotiation mode** is the mode most ideally suited for the McPC 10/100. In this mode, the converter will optimally and automatically configure for speed (10 or 100 Mbps) depending on the capabilities of the end stations.

To enable Auto Negotiation mode, set switch **6** to the **ON** position, with switches **7** and **8** in the **OFF** position.

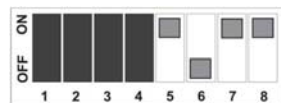
### Auto Negotiation Mode



In **Force 10 mode**, the McPC 10/100 acts as a 10Base-T to 10Base-FL media converter; 100 Mbps signals are not accepted.

To enable **Force 10 mode**, set switch **7** and **8** to the **ON** position, with switch **6** in the **OFF** position.

### Force 10 Mode



In **Force 100 mode**, the McPC 10/100 acts as a 100Base-TX to 100Base-SX multi-mode or 100Base-FX single-mode fiber media converter; 10 Mbps signals are not accepted.

To enable **Force 100 mode**, set switch **7** to the **ON** position, with switches **6** and **8** in the **OFF** position.

### Force 100 Mode



**There is no Auto Negotiation in either of the Force modes.**

### **Auto Negotiation (PCI Version)**

---

When connecting two McPC 10/100s between two end stations (devices such as switches, hubs and repeaters), all devices in the media conversion should ideally support, and be utilizing, Auto Negotiation functionality. While it is possible to have Auto Negotiating devices on one side of the media conversion and fixed (non-Auto Negotiating) devices on the other, link LEDs will react differently depending on where a link fault occurs. Therefore, IMC recommends:

- Configuring every device in the media conversion for Auto Negotiation.
- For installations where Auto Negotiation is NOT possible from one end of the media conversion to the other, manually configure all devices for 10 Mbps or 100 Mbps connections.

### **Transparency (PCI Version)**

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Transparency is only available when using Auto Negotiation mode; it is not available in either of the two Force modes. When the McPC 10/100 is Auto Negotiating, Transparency treats the connection between the two end devices as if there were no media converters installed. For example, in a typical application where two media converters are installed between two copper-based switches, the twisted pair cables as well as the fiber cable are seen as a single entity. Therefore, if a fault occurs on any segment between the two end devices, link LEDs on the end devices will extinguish.

Transparency is available when the McPC 10/100 is operating in Auto Negotiation mode. Therefore **6** (AN) must be **ON** and **5** (LFD), **7** (Force) and **8** (10 or 100) must be **OFF**.

#### **Transparency**



### **Link Fault Detection (PCI Version)**

---

Link Fault Detection (LFD) is only available when using Force 10 or Force 100 mode. It is not available in Auto Negotiation mode. When LFD is enabled and the input link is down at one interface to the McPC 10/100, the transmitter output on that interface will blink. It applies to both network interfaces and to both data rates. If the link at the other interface to the McPC 10/100 is also down, there is no output. LFD causes the Link Up indicator of the link partner to blink.



When the McPC 10/100 is in one of the Force modes, enable LFD by setting **5** to the **ON** position. Disable LFD by resetting **5** to its default, **OFF**, position. In order for LFD to function properly, Force mode must be enabled by setting **7** to **ON** with either **8 ON** for 10 Mbps or **8 OFF** for 100 Mbps.

**NOTE**

**6 must also be ON when enabling LFD.**

#### LFD On Positions for 10 Mbps



#### LFD On Positions for 100 Mbps

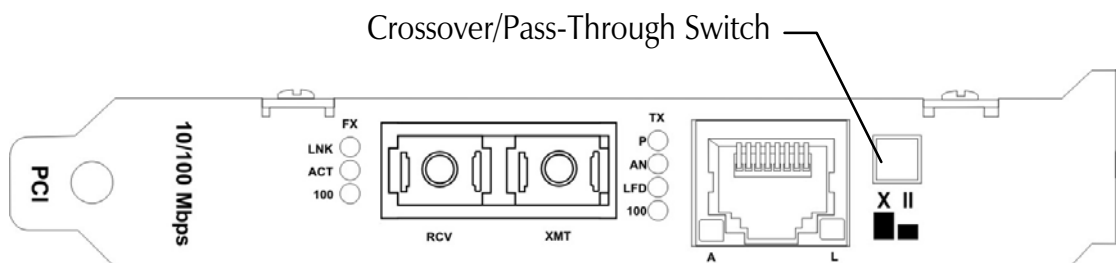


**NOTE**

*When using the LFD feature, if the DIP Switches are in any other combination than listed above, the module may exhibit erratic behavior.*

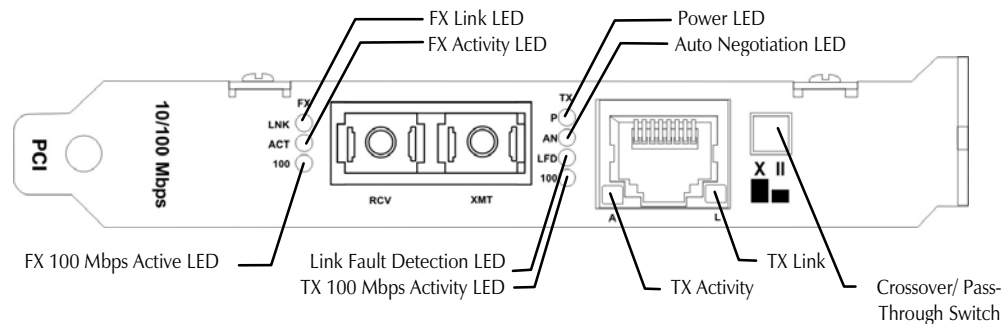
### Twisted Pair Crossover/Pass-Through Button (PCI Version)

The McPC 10/100 features a crossover/pass-through button, located on the faceplate next to the RJ-45 connector, to set the twisted pair connection type. Select a pass-through connection by pressing the button. A crossover connection is selected when the button is **OUT**. If it is not known which connection is needed, set the button to whatever setting makes the twisted pair LNK (link) LED glow.



## LED Indicators (PCI Version)

The McPC 10/100 features four diagnostic LEDs. The following are the LED functions on the twisted pair port:



### Twisted Pair Port

- P** Green when the unit has power
- AN** Green when Auto Negotiation mode is enabled
- LFD** Green when Link Fault Detection is enabled
- 100** Yellow when a 100 Mbps connection is detected

#### NOTE

This feature is only available when either **Force 10** or **Force 100** mode is enabled. For more on this feature, see the LFD LED Activity section, below.)

### Fiber Port

- LNK** Green when a twisted pair link is established
- ACT** Yellow when activity is detected on the port
- 100** Yellow when a 100 Mbps connection is detected

### Link Fault Detection LED Activity (PCI Version)

When LFD is enabled and a fault occurs on a segment of the media conversion, the various Link LEDs in that conversion will either blink or extinguish. LEDs may react differently depending on the type of end devices in the conversion, whether the McPC 10/100 is in **Force 10** or **Force 100** mode, where the fault occurs, etc. For questions, please contact Technical Support.

#### NOTE

*Twisted pair AND fiber optic cables must be connected, and the twisted pair crossover/pass-through switch set correctly, before either LNK LED will glow solid.*

## ISA Version

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### Installing the McPC 10/100 (ISA Version)

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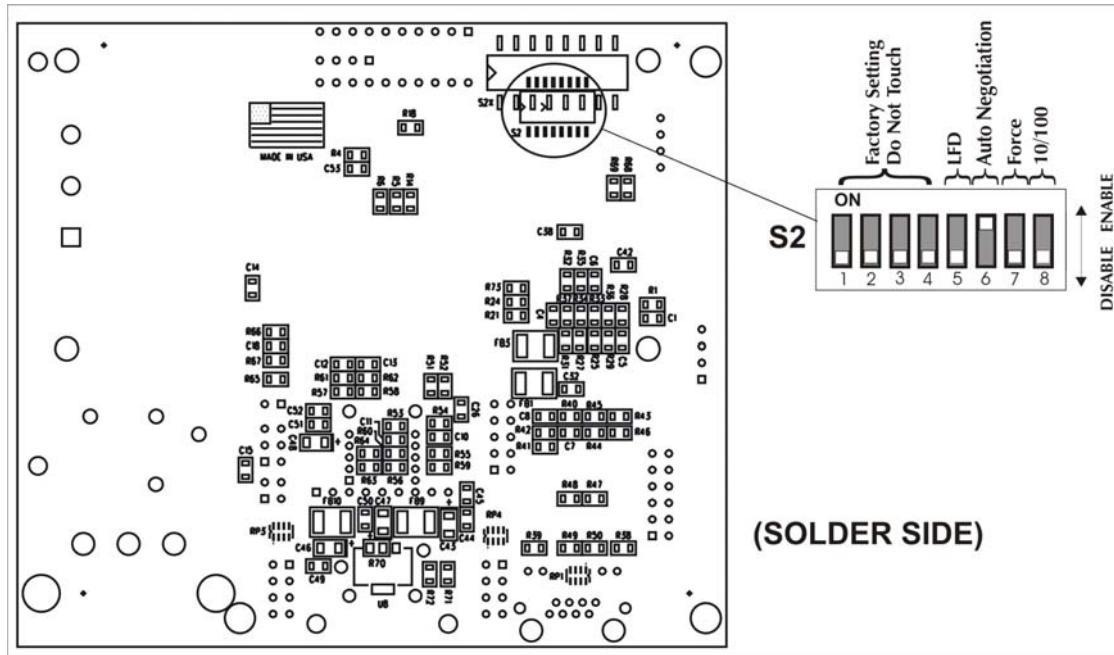
Offering plug-and-play operation, the McPC 10/100 comes ready to install, utilizing power from the PC's power supply. To install the McPC 10/100:

11. Turn off the PC
12. Remove its cover
13. Find an empty ISA slot
14. Align the McPC 10/100 in the slot
15. Screw the the McPC 10/100 into the computer casing's bracket
16. Make sure the McPC 10/100 does not extend past the edge of the case
17. Attach the keyed mini-power connector to the McPC 10/100
18. Attach the male end of the "Y" connector to one of the computer's standard size power connectors
19. Replace the cover
20. Attach the cables between the McPC 10/100 and the devices that will be interconnected

NOTE
<i>The McPC 10/100 DOES NOT plug into the motherboard. McPC 10/100 draws power from the computer; no additional power source is necessary.</i>

## Configuring the McPC 10/100 (ISA Version)

Before installing, configure McPC 10/100 for desired features using the DIP Switch located as shown below on the printed circuit board (PCB). The following illustration shows the location of the DIP Switch as well as its default settings. Consult the chart below for the function of each switch.



The table below shows the DIP Switch settings for McPC 10/100:

Feature	Switch #	Function	Default
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AN	6	Auto Negotiation Mode (Valid only when Force mode is disabled)	ON
Force	7	Force Mode – Forces the converter to operate at 10 or 100 Mbps as determined by switch 8	OFF
10/100	8	Valid only when switch 7 is ON. When ON, the converter operates at 10 Mbps. When OFF, the converter operates at 100 Mbps. 8 is only valid in Force Mode, i.e. when switch 7 is ON	OFF

### NOTE

Switch #'s 1 – 4 are factory configured – DO NOT CHANGE

## Modes of Operation (ISA Version)

---

The McPC 10/100 features three modes of operation: **Auto Negotiation mode**, **Force-10 mode** and **Force-100 mode**. Configure the McPC 10/100 for one of these modes (factory default is Auto Negotiation mode). Refer to the Link Fault Detection section for information on Link Fault Detection.

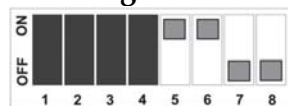
### NOTE

*The McPC 10/100 cannot be manually set for Half- or Full-Duplex. Duplex is determined by the devices to which the McPC 10/100 is connected.*

**Auto Negotiation mode** is the mode most ideally suited for the McPC 10/100. In this mode, the converter will optimally and automatically configure for speed (10 or 100 Mbps) depending on the capabilities of the end stations.

To enable Auto Negotiation mode, set switch **6** to the **ON** position, with switches **7** and **8** in the **OFF** position.

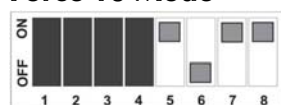
### Auto Negotiation Mode



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To enable **Force 10 mode**, set switch **7** and **8** to the **ON** position, with switch **6** in the **OFF** position.

### Force 10 Mode



In **Force 100 mode**, the McPC 10/100 acts as a 100Base-TX to 100Base-SX multi-mode or 100Base-FX single-mode fiber media converter; 10 Mbps signals are not accepted.

To enable **Force 100 mode**, set switch **7** to the **ON** position, with switches **6** and **8** in the **OFF** position.

### Force 100 Mode



**There is no Auto Negotiation in either of the Force modes.**

### **Auto Negotiation (ISA Version)**

---

When connecting two McPC 10/100s between two end stations (devices such as switches, hubs and repeaters), all devices in the media conversion should ideally support, and be utilizing, Auto Negotiation functionality. While it is possible to have Auto Negotiating devices on one side of the media conversion and fixed (non-Auto Negotiating) devices on the other, link LEDs will react differently depending on where a link fault occurs. Therefore, IMC recommends:

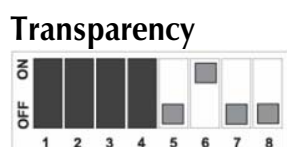
- Configuring every device in the media conversion for Auto Negotiation.
- For installations where Auto Negotiation is NOT possible from one end of the media conversion to the other, manually configure all devices for 10 Mbps or 100 Mbps connections.

### **Transparency (ISA Version)**

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Transparency is only available when using Auto Negotiation mode; it is not available in either of the two Force modes. When the McPC 10/100 is Auto Negotiating, Transparency treats the connection between the two end devices as if there were no media converters installed. For example, in a typical application where two media converters are installed between two copper-based switches, the twisted pair cables as well as the fiber cable are seen as a single entity. Therefore, if a fault occurs on any segment between the two end devices, link LEDs on the end devices will go out.

Transparency is available when the McPC 10/100 is operating in Auto Negotiation mode. Therefore **6** Auto Negotiation must be **ON** and **5** (LFD), **7** (Force) and **8** (10 or 100) must be **OFF**.



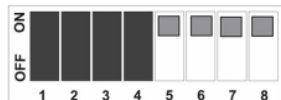
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When the McPC 10/100 is in one of the Force modes, enable LFD by setting **5** to the **ON** position. Disable LFD by resetting **5** to its default, **OFF**, position. In order for LFD to function properly, Force mode must be enabled by setting **7** to **ON** with either **8 ON** for 10 Mbps or **8 OFF** for 100 Mbps. NOTE: **6** must also be **ON** when enabling LFD.

#### LFD On Positions for 10 Mbps



#### LFD On Positions for 100 Mbps

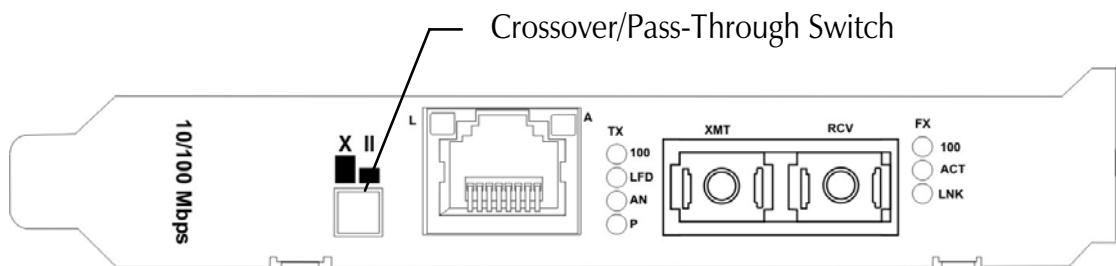


#### NOTE

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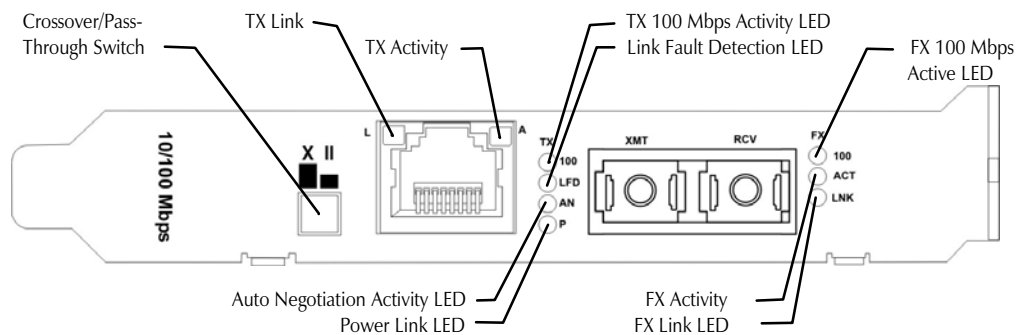
### Twisted Pair Crossover/Pass-Through Button (ISA Version)

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## LED Indicators (ISA Version)

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- LFD** Green when Link Fault Detection is enabled
- 100** Yellow when a 100 Mbps connection is detected

#### NOTE

This feature is only available when either **Force 10** or **Force 100** mode is enabled. For more on this feature, see the Link Fault Detection LED Activity section, below.

### Fiber Port

- LNK** Green when a twisted pair link is established
- ACT** Yellow when activity is detected on the port
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## Link Fault Detection LED Activity (ISA Version)

When LFD is enabled and a fault occurs on a segment of the media conversion, the various Link LEDs in that conversion will either blink or extinguish. LEDs may react differently depending on the type of end devices in the conversion, whether the McPC 10/100 is in **Force 10** or **Force 100** mode, where the fault occurs, etc. For questions, please contact Technical Support.

#### NOTE

*Twisted pair AND fiber optic cables must be connected, and the twisted pair crossover/pass-through switch set correctly, before either LNK LED will glow solid.*



## **Specifications (PCI and ISA Versions)**

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### **Environmental**

#### **Operating Temperature**

32° - 104° F (0° - 40° C)

#### **Storage Temperature**

0° - 160° F (-20° - 71° C)

#### **Humidity:**

5 - 95% (non-condensing)

#### **Current Draw:**

0.7A @ 5VDC

### **Electrical**

#### **Input Load**

5V

## **IMC Networks Technical Support**

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**Tel:** (949) 465-3000 or (800) 624-1070 (in the U.S. and Canada);  
+32-16-550880 (Europe)

**Fax:** (949) 465-3020

**E-Mail:** [techsupport@imcnetworks.com](mailto:techsupport@imcnetworks.com)

**Web:** [www.imcnetworks.com](http://www.imcnetworks.com)

## **Fiber Optic Cleaning Guidelines**

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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 IMC Networks 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.

## Safety Certifications

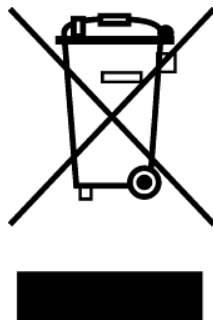
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UL/CUL: Listed to Safety of Information Technology Equipment, including Electrical Business Equipment.

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 IMC Networks.



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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**Document Number 55-80217-01 C0**

**August 2009**

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