

# Basyx IPM

## Internet Communications Module

### Installation & Setup Manual

IPM-ISM Revision 7.1

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# BASYX IPM

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### Warning ( For your Safety )

All electrical connections must be in agreement with local codes, ordinances or the National Electric Code (NEC).

Do not install in areas that experience high levels of electrical interference, moisture or exposure to water.

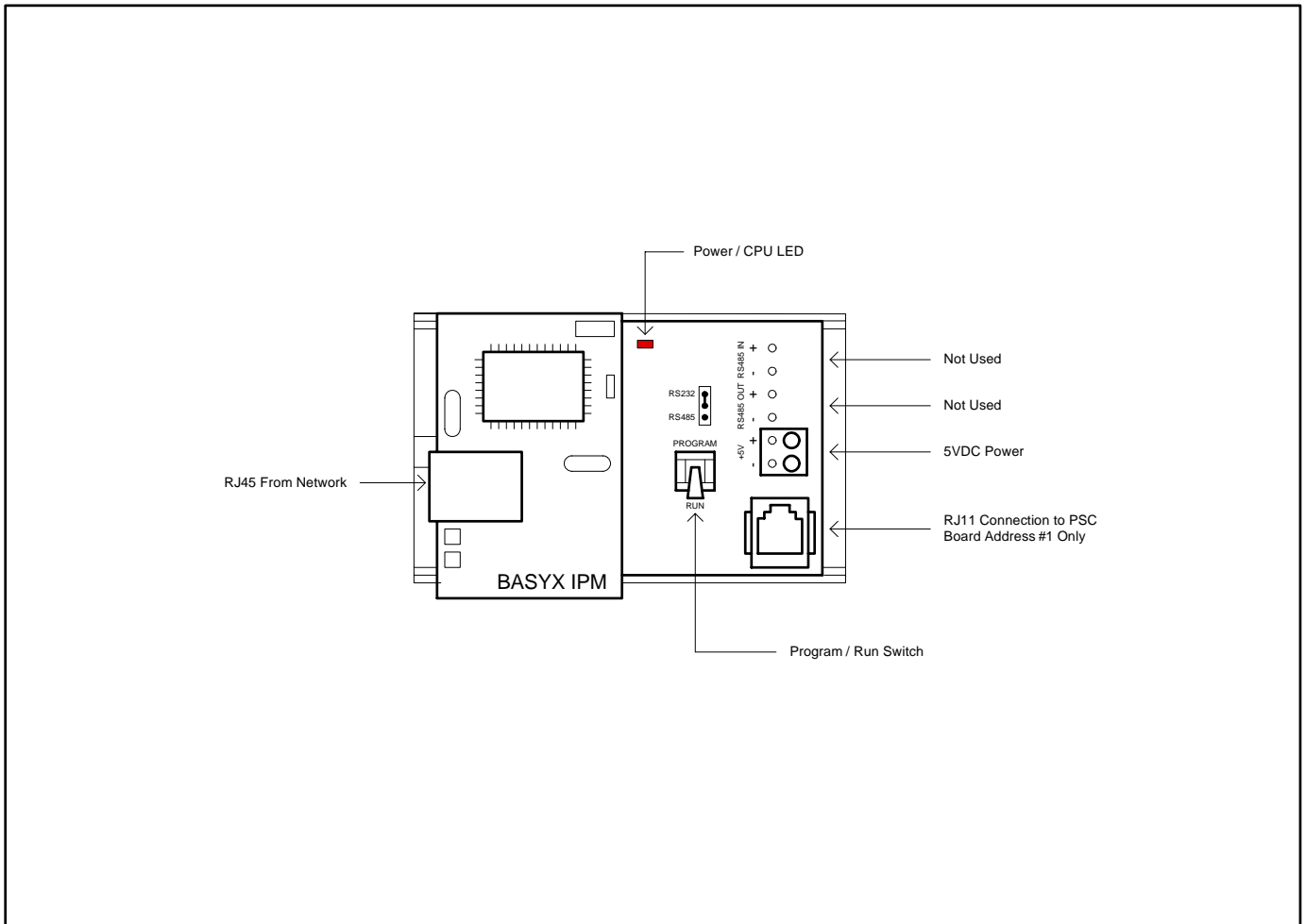
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# OVERVIEW

This manual describes the proper procedure for installation and connection of the Basyx Internet/Intranet communications module. This device performs RS232 to TCP/IP conversion for connection of the Basyx building automation and temperature control system through an Internet or Intranet connection. This controller will interface with network systems using TCP/IP or Mac Address protocol. For IPX/SPX or other protocols, contact Triangle MicroSystems, Inc. Technical Support Department. The Basyx IPM is shipped complete with mounting track for easy mounting. Please follow these instructions carefully to insure proper operation of the TCP/IP communications module.

## MODULE DETAILS

**Figure 1** shows the layout of the Basyx IPM module. The module contains one (1) RJ11 jack for RS-232 communications, one (1) RJ45 ethernet communications jack for connection to Internet/Intranet system and one (1) position terminal for 5VDC power connection.



**Figure 1:** BASYX IPM Module Details

POWER / RUN LED:

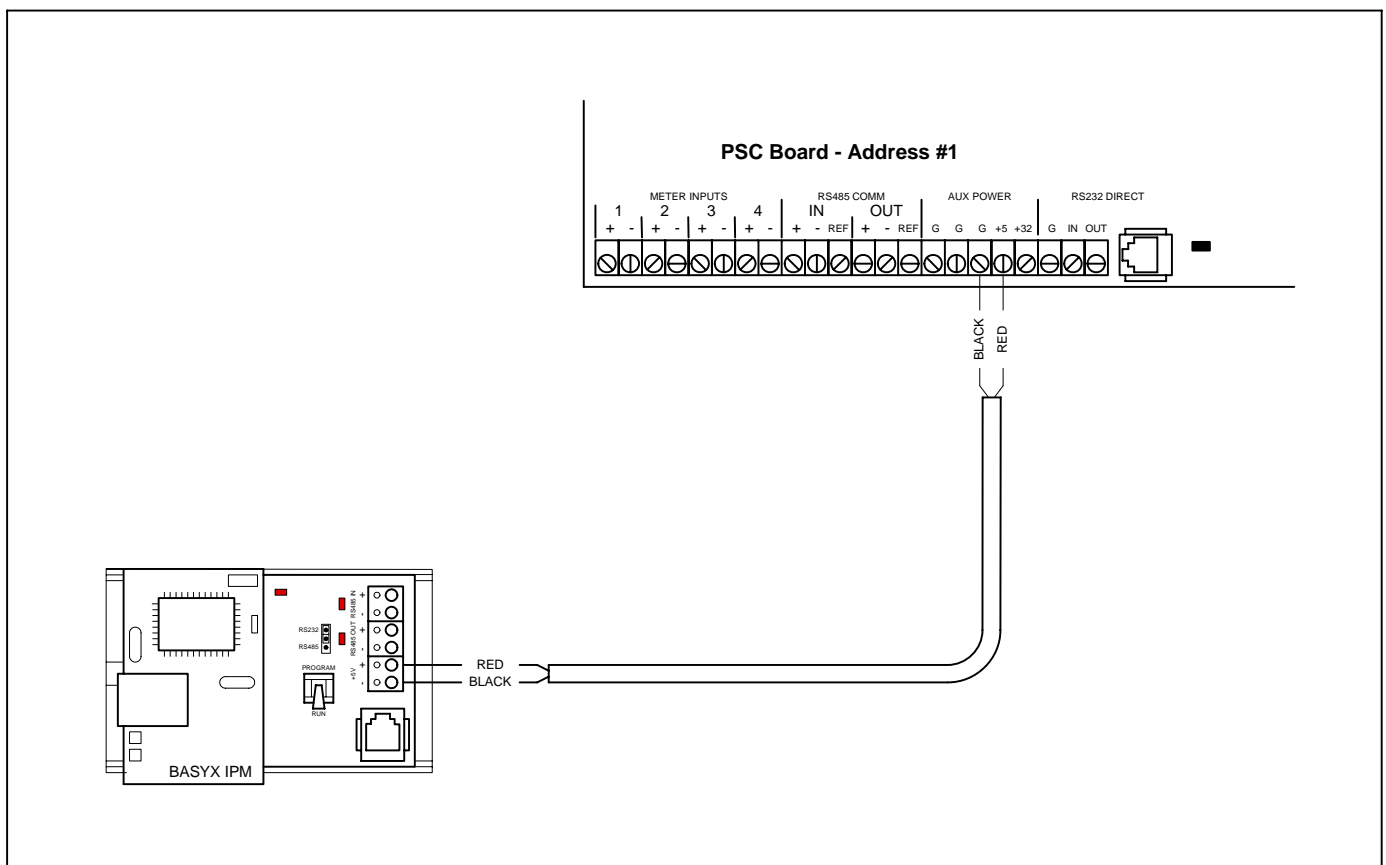
This is a red or green indicator light, and flashes when power is applied to the module and the unit is in the RUN mode. The LED is on constant when in the PROGRAM mode and will flash SLOW in Internet Mode.

PROGRAM / RUN SWITCH: This is a 3 position toggle switch which controls the program/run function of the controller. Move fully *AWAY* from the RJ11 for PROGRAM mode, and *TOWARDS* the RJ11 for RUN mode. The center position of the switch is not used on the IPM module.

## CONNECTION DETAILS

### PSC POWER CONNECTION

**Figure 2** shows the proper power connections when using a BASYX PSC controller.



**Figure 2:** Power Connection for PSC Controller

## RS232 COMMUNICATIONS CONNECTION

The Basyx IPM must be connected to the first PSC Controller which also is addressed as #1. The connection is made with a standard 4 conductor telephone cord (included with the BASYX IPM).

The telephone cord is plugged into the RJ11 port on the IPM module, and connects to the PSC RJ11 connector marked "RS-232 DIRECT".

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IMPORTANT NOTE:

**DO NOT PLUG THIS MODULE INTO THE RJ11 MARKED "PHONE" on the PSC controller as this port is reserved for the system modem. Serious damage may occur to the modem or IPM module if connected to the PHONE port.**

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Figure 3 shows the RS232 connection.

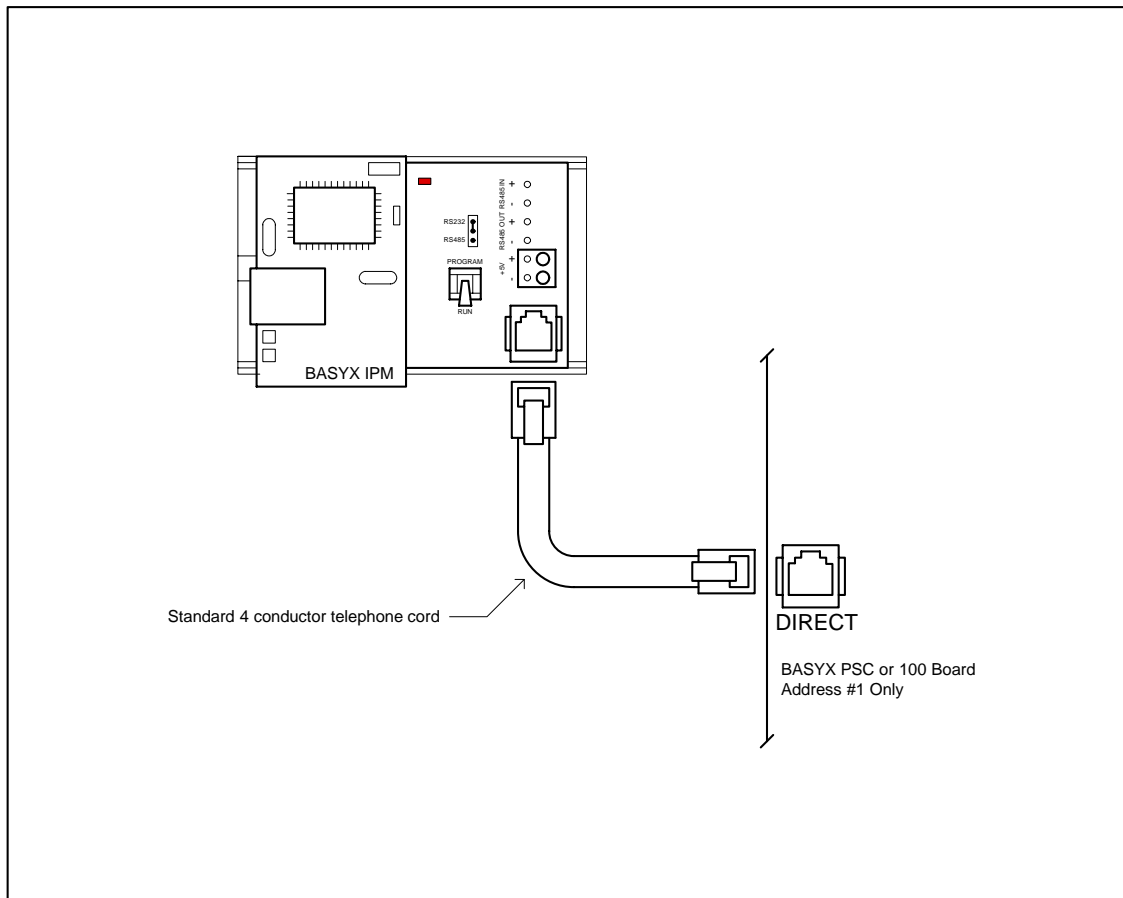
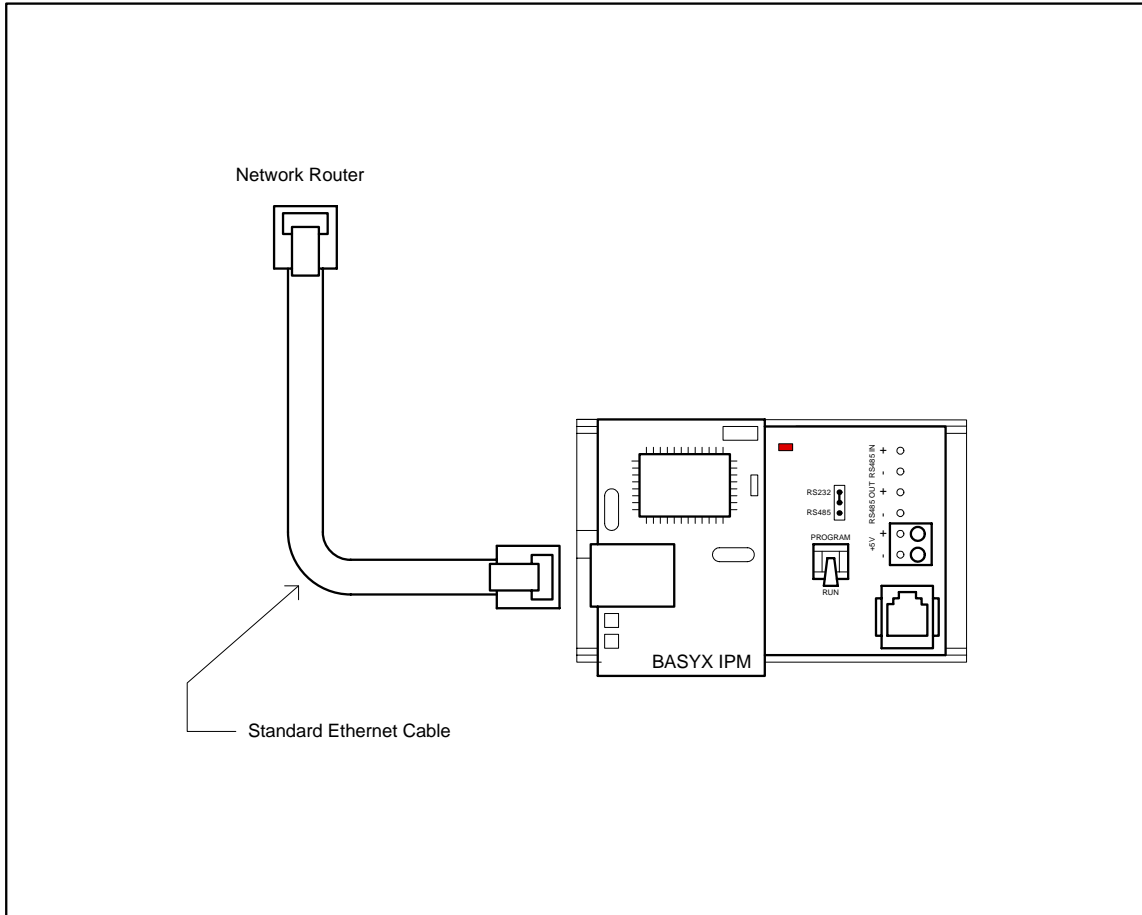


Figure 3: RS232 Communications Port Connection

## NETWORK COMMUNICATIONS CONNECTION

This controller will interface with network systems using TCP/IP or MAC ADDRESS protocols. The Basyx IPM connects to the network system as shown in **Figure 4**, and requires information from the network administrator for addressing and connection (see Software and Module Setup section).



**Figure 4:** Network Connection Details

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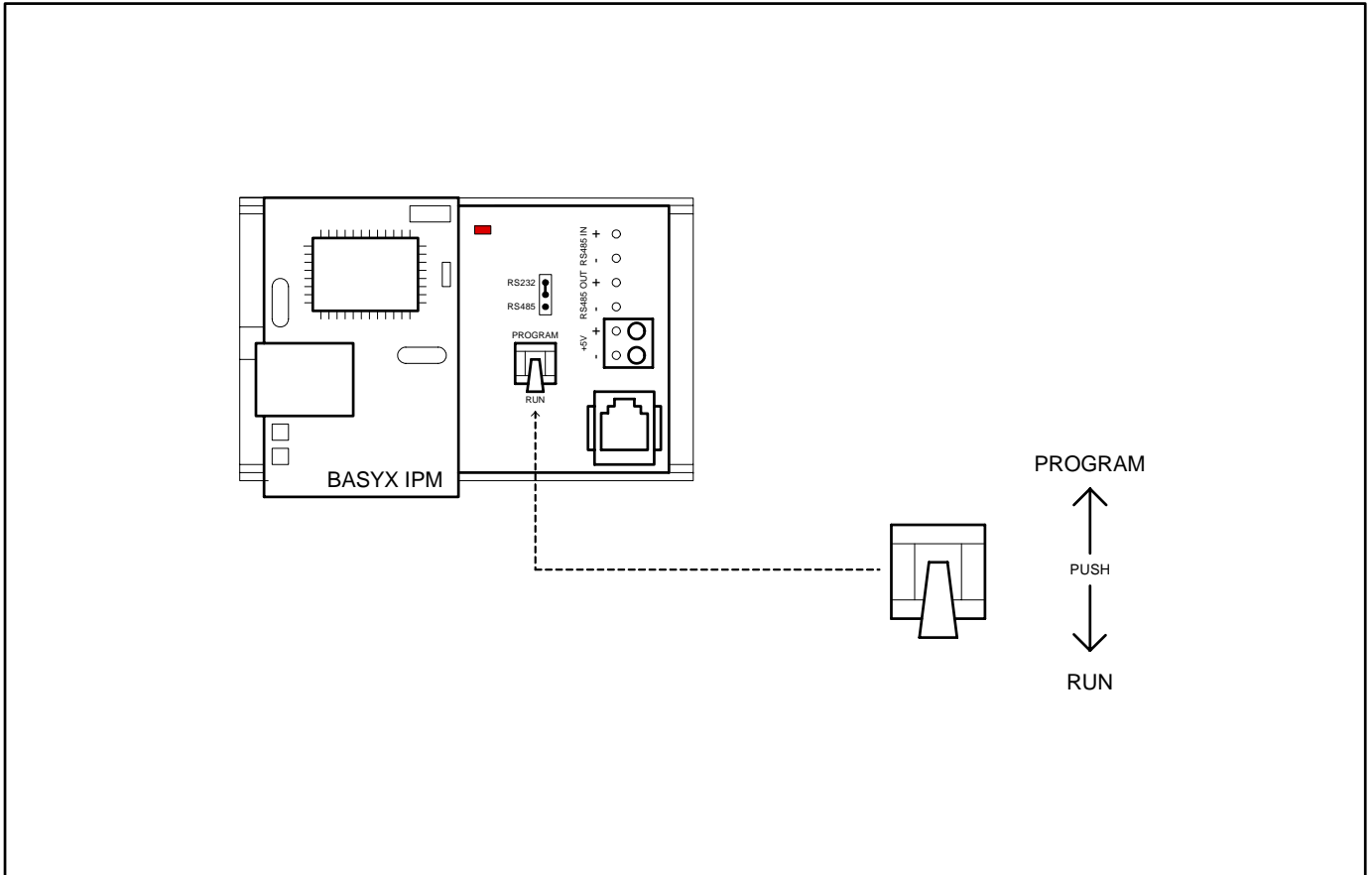
**NOTE:** The IPM module **MUST** be connected to board #1 for proper system operation.

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# PROGRAM / RUN SWITCH OPERATION

The Basyx IPM must be setup to respond to the IP address assigned by the network administrator, or if using Mac addresses the internal module address must be determined. This setup is performed through the Internet Setup program, and must be performed with the IPM in the program mode.

The program mode is controlled by the program switch located adjacent to the RJ11 connector, and is in the PROGRAM mode when the switch is fully *AWAY* from the RJ11 as indicated in **Figure 5**.



**Figure 5:** Program Switch Operation

After programming the IP address or obtaining the Mac address, push the program switch fully *TOWARDS* the RJ11 connector to return to the RUN mode.

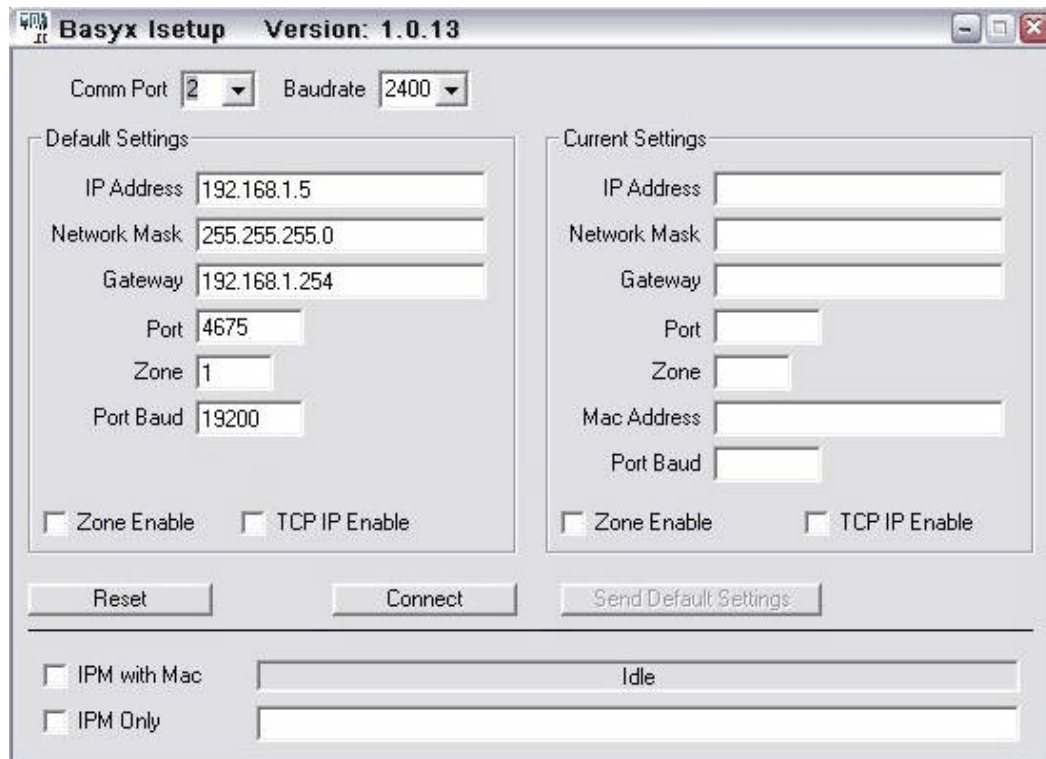
# MODULE SETUP / INTERNET OPERATION

The system is programmed through the Basyx Internet Setup software program, and connects to the module with the BCS CP cable package.

To access the TCP/IP setup program, double click the desktop shortcut icon labeled "INTERNET SETUP" or run the program Isetup.exe from the C:\Program Files\Triangle MicroSystems\Basyx subdirectory.



and the BASYX ISETUP opening screen will appear:



This is the opening setup screen for the IPM module, which has no data in the "Current Settings" portion of the screen. However, data may appear in the "Default Settings" boxes from previous connections.

## STEP 1: SET THE SOFTWARE COMMUNICATIONS PARAMETERS

Make sure that the Comm Port setting is correct for your computer, and that the baud rate is set to 2400.

## STEP 2: CONNECT TO THE IPM MODULE

To connect to the IPM mode, make sure the board is powered as shown in **Figure 2**. Connect the standard BCS CP cable directly from your PC/Laptop into the RJ11 connector on the IPM Module.

Verify that the program switch is set to the PROGRAM mode as described in **Figure 5**.

Hi-light and click the Connect button towards the bottom of the screen. The software will establish communications with the IPM board, and the screen will indicate a successful connection by displaying “Comm Port Open” in the status box at the bottom of the screen as shown below:

The screenshot shows the 'Basyx Isetup' software window, Version 1.0.13. At the top, there are dropdown menus for 'Comm Port' (set to 3) and 'Baudrate' (set to 2400). Below these are two main sections: 'Default Settings' and 'Current Settings'. The 'Default Settings' section contains text boxes for IP Address (192.168.1.5), Network Mask (255.255.255.0), Gateway (192.168.1.254), Port (4675), Zone (1), and Port Baud (19200). It also has checkboxes for 'Zone Enable' (unchecked) and 'TCP IP Enable' (checked). The 'Current Settings' section has empty text boxes for IP Address, Network Mask, Gateway, Port, Zone, Mac Address, and Port Baud, with 'Zone Enable' and 'TCP IP Enable' checkboxes also unchecked. At the bottom of the settings area are three buttons: 'Reset', 'Connect', and 'Send Default Settings'. Below the buttons are two rows of checkboxes: 'IPM with Mac' (unchecked) and 'IPM Only' (unchecked). To the right of these checkboxes is a status box containing the text 'Comm Port Open'.

No data will appear in the “Current Settings” portion of the screen. You may see program default data in the “Default Settings” portion if this is not the initial setup of the board. You are now ready to retrieve any existing settings from the Basyx IPM.

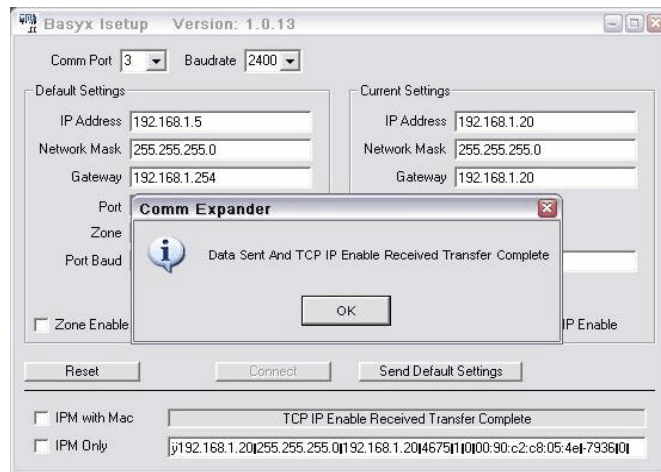
### STEP 3: RETRIEVE THE EXISTING IPM MODULE SETTINGS

The system will retrieve the existing TCP/IP settings if any, and will also display the Mac Address of the IPM module.

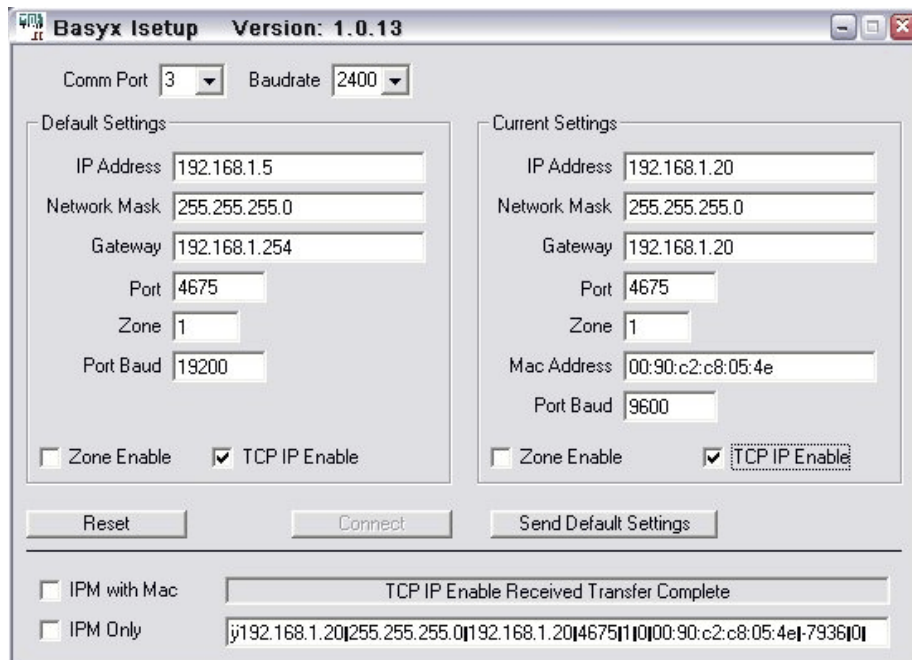
THE NEXT STEP IS EXTREMELY IMPORTANT !!

1. While still connected to the IPM, toggle the Program/Run switch to **“Run”** and then back to **“Program”** (see **Figure 5**).

The system will retrieve the existing settings from the IPM module, and will display a pop-up message box when the retrieval is complete.



Click on **“OK”** to acknowledge and close the message box. The system will now display the retrieved settings in the **“Current Settings”** portion of the screen.



## STEP 4: ENTER THE NEW IPM MODULE SETTINGS

If your network requires it, the Mac Address for the IPM will be displayed at the bottom of the “Current Settings” portion of the screen. Provide your system administrator with this address for completion of the network setup.

If using a TCP/IP connection, you must change the settings to match the static TCP/IP address which is provided by your system or network administrator.

To change the settings, place the cursor in the IP Address bar in the “Default Settings” portion of the screen.

Enter the proper information as required for your network connection (using the TAB key to move between entries):

- \* IP Address This must be a **static** IP address through your network
- \* Network Mask See your network administrator
- \* Gateway See your network administrator
- \* Port This is a software port and is typically 4675 as shown, see your network administrator if you question this port address
- \* Zone This is not currently used and should be set to 1
- \* Port Baud This is the PSC direct connect baud rate and should be set to 9600 for version 1.XX PSC boards and 19200 for version 2.xx PSC Boards.
- \* TCP/IP Enable **Check this box for Internet operation (Important).**

The system screen should typically appear as follows at this point:

**Basyx Isetup Version: 1.0.13**

Comm Port  Baudrate

**Default Settings**

IP Address   
Network Mask   
Gateway   
Port   
Zone   
Port Baud

Zone Enable  TCP IP Enable

**Current Settings**

IP Address   
Network Mask   
Gateway   
Port   
Zone   
Mac Address   
Port Baud

Zone Enable  TCP IP Enable

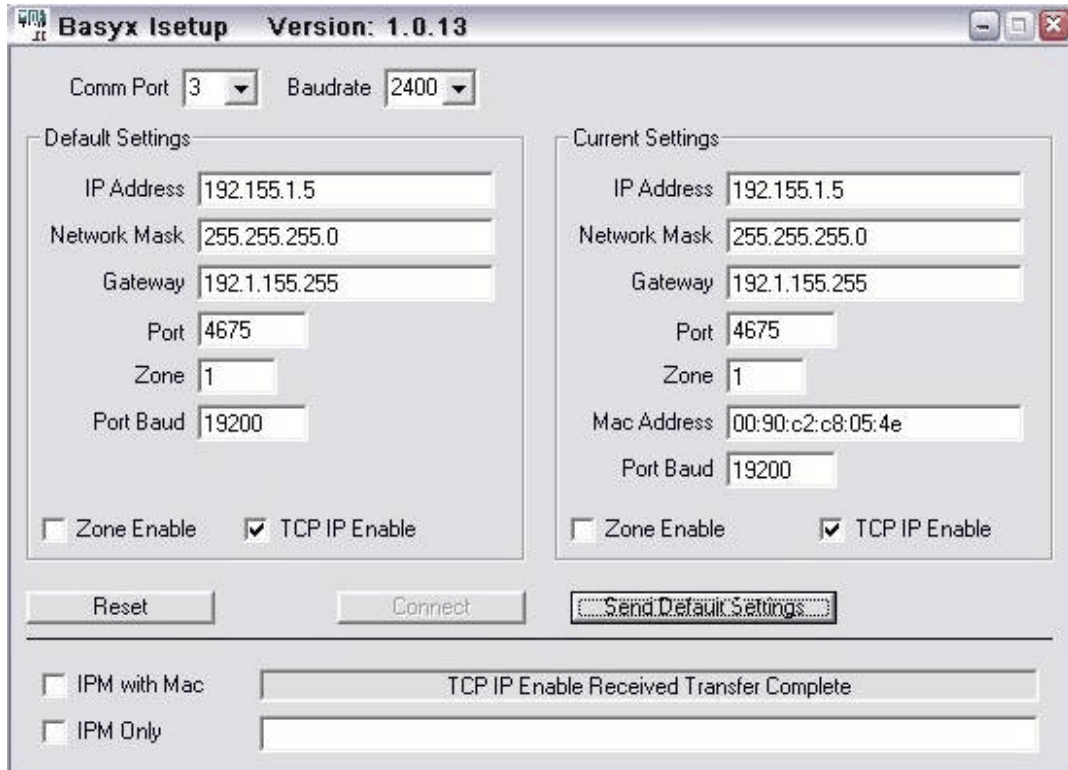
IPM with Mac  IPM Only

TCP IP Enable Received Transfer Complete

j|192.168.1.20|255.255.255.0|192.168.1.20|4675|1|0|00:90:c2:c8:05:4e|7936|0|

## STEP 5: DOWNLOAD THE NEW IPM MODULE SETTINGS

Verify that the new information is correct and click on the ‘Send Default Settings’ button at the bottom of the screen to download the new settings. Once the download is completed, the screen will again display the pop-up message box with “Data Sent And Mac Address Received Transfer Complete” as described in Step 3. Click on “OK” to acknowledge and close the message box, and notice the status box at the bottom of the screen also indicates that the transfer is complete. The system will now display the new settings in the “Current Settings” portion of the screen as shown:



This completes the software setup of the Basyx IPM module.

## STEP 6: COMPLETING THE IPM INSTALLATION

1. Verify that the current settings are correct, and that the TCP/IP Enable box is checked.
2. Connect the RJ11 port to the PSC Direct Connect Port as shown in **Figure 3**.
3. Place the program switch in the RUN mode as shown in **Figure 5** and connect to your network as shown in **Figure 4**.
5. Run/CPU light should flash **SLOW**.

## ABOUT THE Basyx PRODUCT LINE

The Basyx IPM is one product in a line of Basyx control products. The TriComm interface software package is a Windows based human interface used with the Basyx automation and control system. Tricomm will operate on any personal computer with the Windows 98,ME,2000, XP or VISTA operating system.

The program provides a simple interface through direct connect, modem or internet to setup, operate and modify the operating parameters of the Basyx system, using easy to understand point-and-click commands. The drop-down system menus allow access to all system functions, and requires minimal computer experience for normal daily interaction with the system.

The Basyx system is designed specifically to meet today's building automation, facility and energy management needs. Triangle MicroSystems, Inc. develops and provides application support for control systems around the world. The company has a continuing commitment to research and development in order to provide new and improved products to the building automation market.

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