Installation Manual

ASCO® 5100 Series, Catalog 5150
Connectivity Module
For use with Automatic Transfer Switches & Power Manager

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381333-238 B

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EMERSON Network Power

Who Should Use this Installation Manual

This Installation Manual for the **Connectivity Module** should be used to assist individuals who will:

- install the Connectivity Module (mount and wire)
- configure the Connectivity Module
- enter in information about your Automatic Transfer Switches (*7000 & 4000 Series*, *Series 300*, ASCO *940*,*962*,*436*,*434*,*447*,*448*)
- use Ethernet access to monitor Connectivity Module (connected devices)

Prerequisites

A working knowledge of *Windows 2000* ®, *Windows NT* ®, or *Windows XP* ® and *Windows Internet Explorer 5.0* or higher is necessary to configure the Connectivity Module.

Important information that you will need

To properly set up the software, you will need the nameplate data and other information from all your Automatic Transfer Switches (up to 64) including:

- ATS Name (your designation for the ATS)
- ATS Location (where the ATS is located in the building)
- Voltage Rating, Ampere Rating, and number of Poles for each ATS
- Catalog No. and Serial No. of each ATS
- Type of ATS (ATS or ATS/BP [ATS with bypass-isolation switch])
- Power Manager Address (set in each Power Manager or Data Monitor)

Manuals that you may need

Catalog 5200 & 5200T Power Manager	Operator's Manual	381333-192
Catalog 5220 & 5220T Power Manager Xp	Operator's Manual	381333-199
7000 & 4000 Series ATS Group 5 Controller	User's Guide	381333-126
7000 Series ATS	appropriate Operator's Manual	
4000 Series ATS	appropriate Operator's Manual	
Series 300 ATS	appropriate Operator's Manual	
ASCO 940, 962, 436, 434,447, 448 ATS	appropriate Operator's Manual	
Catalog 5110 Serial Module (Acc. 72A)	Installation Manual	381333-240

Tip ⇨ Communication Address form is included at the back to help you fill in needed information on your Connectivity Modules, ATSs, & Power Managers.

The **Connectivity Module** provides Ethernet-access that allows users to view data from ASCO automatic transfer switches and Power Managers. These precautions must be followed by all users:

⚠ WARNING

Be sure that *Users* to whom you give access are those persons that you want to view information about the electrical system.

⚠ WARNING

Fill in the *Communication Address Form* in the back of this manual. Be sure that you enter <u>correct information</u> about each Connectivity Module, Automatic Transfer Switch, and Power Manager.

Modbus is a registered trademark of Gould Inc.

Overview

The **Connectivity Module** brings together several different serial devices that communicate at different baud rates and with different protocols to a common Ethernet media. It can communicate with up to eight clients, such as Web applications (web pages), Vpi, or third-party *Modbus* ® devices simultaneously over Ethernet media.

Specifications

Power Requirements: 24 V dc nominal (8 – 28 V dc)
1.5 Watt, UL Class 2 power supply, if needed.
Mounting: 35 mm DIN rail
Dimensions: 3.5" H, 2.8" W, 2.9" D (8.9 cm, 7.1 cm, 7.4 cm)

Field Communication Cable Requirements:
Ethernet: Belden 7882A or equiv. UTP CAT 5 with RJ45 connectors (untwisted pair or higher)
Serial: Belden 9842, 9829, 89729, 82729 or Apha 6202C, 6222C, 58902. UL Listed, stranded, twisted pairs, over-all foil shield with stranded drain wire

J1, J2 TTL Port Connectors: Two built-in TTL ports (DB9 pin male) for ATS/PM connectivity

J3 Ethernet Port Connector :
One built-in 10 Base T (RJ45) 10 Mbps Ethernet port

J4 Serial RS-485 Port:
One 5-pin terminal block header with a socket block (J4) designed to be daisy chained for up to 32 devices.
Terminal 1 – RX+ Terminal 4 – TX-
Terminal 2 – RX- Terminal 5 – Com
Terminal 3 – TX+

Ambient Temperature:
Operating 32 to 140° F (0 to 60° C)
Storage - -40 to 185° F (-40 to 85° C)

Configuration Parameters: The parameters that are required to make an Ethernet connection are:
IP Address 169.254.1.1
Subnet Mask 255.255.0.0
Gateway0.0.0.0
TCP Port No. 10001
The TCP port is used for passing the data to the applications and is configurable for user specific requirement.
Baud Rates 19200 (default) or 9600
Flow Control No Flow Control (default)
Interface Mode TTL/RS485 – 4 wires (default)
Reply Timeout 200 milliseconds (default)

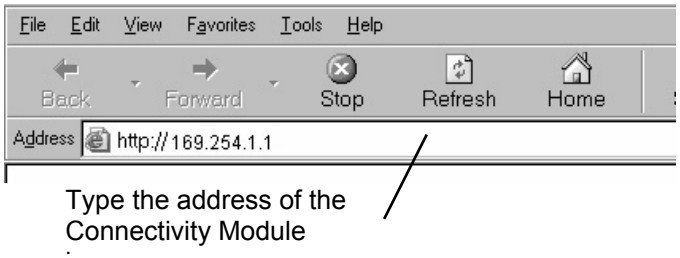
Protocol Support: The following protocols are supported:
Serial Protocol: ASCO I, II, and Modbus
Transport Protocol: TCP, UDP
Application Protocol: HTTP, Telnet, Modbus/TCP

How to View Pages from a Connectivity Module after it is installed

After installation, testing, and configuration is completed (see Section 1) to view pages on a client computer, follow these steps:

1. Be sure that your computer is connected to the Internet.
2. Start *Microsoft Internet Explorer* browser on the computer.
3. In the address bar, type in the address of the Connectivity Module:

http://169.254.1.1



The Connectivity Module sends HTML files to the client computer. *Internet Explorer* interprets these HTML files, formats them, and displays the pages to the user. Pages 2-3, 3-3, 4-2, 5-2, 5-3 shows typical HTML pages (Detail screens).

Tip ☞

You can add the address to your *Favorites* for convenient access to multiple Connectivity Modules; follow these steps:

1. Click *Favorites*, then click *Add to Favorites*, click *New Folder*, then type the *Folder name* (ATSs, for example), and click *OK*.
2. To rename the address, highlight it, and type the new name, and click *OK*.
3. When you are finished viewing pages, close *Internet Explorer*.

How to Install the Connectivity Module on 7000 & 4000 Series and Series 300 ATSs

The Connectivity Module mounts on a DIN rail under the ATS Controller (Group 5 & 1). A short serial cable connects the Connectivity Module to the Controller. If a Power Manager is present, a long serial cable connects the Connectivity Module to the Power Manager. Refer to installation drawings provided and follow the steps below to install the Connectivity Module.

Connectivity Module Kit K754603 for 7000 & 4000 Series and Series 300 only		**Connectivity Module Kit K754603-001** for 7000 & 4000 Series and Series 300 with Power Manager	
Connectivity Module 5150	629800-001	Connectivity Module 5150	629800-001
DIN Rail and Hardware	754607	DIN Rail and Hardware	754607
10-in. Serial Cable for Controller	629798-001	10-in. Serial Cable for Controller	629798-001
		4-ft Serial Cable for Power Manager *	629798-002

* A 9-foot serial cable (629798-004) is required for G7ATB, G7ACTB, G7ADTB.

DANGER

To avoid possible shock, burns, or death, deenergize all electrical sources to the ATS before installing the Connectivity Module.

1. De-energize both Normal and Emergency sources that feed the ATS. Open enclosure door and check with a non-contact AC voltage detector.
2. Mount the DIN rail (supplied in the kit) onto two studs (on the door) below the Controller. Connectivity Module will mount on the right side.
3. Install Connectivity Module onto DIN rail by hooking the bottom of module on bottom of DIN rail and rocking it upward unit it snaps in place.
4. Install the 10-inch serial cable between the Controller receptacle (J7 on Group 5, J4 on Group 1) and the Connectivity Module J1 receptacle.
5. If a Power Manager is present, connect the 4-foot serial cable between the Power Manager J5 receptacle and the Connectivity Module J2 receptacle.*

Now test communications (go to page 1-2).

How to Install the Connectivity Module on ASCO 940/962 ATSs

The Connectivity Module mounts on a DIN rail near the ATS Control Panel. A separate power supply is needed unless it is connected to a Power Manager (PM). Group 6A/7A Control Panel must have a Serial Communication Kit added. A single communication cable (2 twisted pairs and overall shield connects the Connectivity Module to the Control Panel). Refer to installation drawings provided and follow the steps below to install the Connectivity Module.

Connectivity Module Kit K754608 for ASCO 940/962 only		**Connectivity Module Kit K754608-001** for ASCO 940/962 with PM	
Connectivity Module 5150	629800-001	Connectivity Module 5150	629800-001
DIN Rail and Hardware	754610	DIN Rail and Hardware	754610
Serial Com. Kit for Group 6A/7A CP *	467508	Serial Com. Kit for Group 6A/7A CP *	467508
		Serial Cable for PM	629798-002

* Serial communication & transient protection boards.

Required Power Supply ** not supplied	**Communication Cable** (4 wires and an overall shield) not supplied
24 Vdc, 80 mA ** use 16 AWG wire	Belden 9842, 9829, 89729, 82729 or Alpha 6202C, 6222C, 58902 only

** If a Power Manager (PM) is present, a power supply is not needed for the Connectivity Module. The serial cable from the Power Manager provides the power to the Connectivity Module.

DANGER

To avoid possible shock, burns, or death, deenergize all electrical sources to the ATS before installing the Connectivity Module.

1. De-energize both Normal and Emergency sources that feed the ATS. Open enclosure door and check with a non-contact AC voltage detector.
2. Mount DIN rail (supplied in the kit) onto two studs (on the door) below or adjacent to the Control Panel.
3. Install the Connectivity Module onto DIN rail.
4. Prepare and connect the specified communication cable between the Control Panel terminals and the Connectivity Module J4 terminals as listed below:
5. Prepare and connect the 24 Vdc power supply to the Connectivity Module. Use 16 AWG wiring to J5 terminal plug (1 is + positive, 2 is – negative).

Now test communications (go to page 1-2).

How to Install the Connectivity Module for a stand-alone Power Manager

The Connectivity Module mounts on a DIN rail near the Power Manager. A long serial cable connects the Connectivity Module to the Power Manager. Refer to installation drawings provided and follow the steps below to install the Connectivity Module.

Connectivity Module Kit K754611 for a stand-alone Power Manager (not connected to an ATS)	
Connectivity Module 5150	629800-001
DIN Rail and Hardware	754610
4 ft. Serial Cable for Power Manager	629798-002

DANGER

To avoid possible shock, burns, or death, deenergize all electrical sources to the ATS before installing the Connectivity Module.

1. De-energize the power source that feeds the Power Manager. Open enclosure door and check with a non-contact AC voltage detector.

2. Mount the DIN rail (supplied in the kit) onto two studs (on the door) below or adjacent to the Power Manager.

3. Install Connectivity Module onto DIN rail by hooking the bottom of module on bottom of DIN rail and rocking it upward unit it snaps in place.

4. Install the 4-foot serial cable between the Power Manager J5 and the Connectivity Module J2 receptacle.

Now test communications (go to next column).

How to Test Communication to the Connectivity Module

You need the following settings from your network administrator or system administrator (sysop) for each Connectivity Module connected to an Automatic Transfer Switch (ATS) or Power Manager PM). Fill in the form provided in the Appendix:

IP Address: _____ (unique for each module)
Subnet mask _____ (usually same for all modules)
Gateway: _____ (usually *blank*)

Required items:

- Portable laptop computer with network card, running *Windows Xp*, *Windows 2000*, or *Windows NT*, and *Windows Internet Explorer 5.0 +* installed.
- Ethernet crossover network cable (part no. 629590-006).
- Connectivity Module connected to the ATS or PM.

1. Directly connect the specified Ethernet crossover cable between your laptop's Ethernet jack and the deenergized Connectivity Module jack J3.

2. For safety, close the ATS or PM enclosure door as far as possible (with the crossover cable running to the laptop computer outside the enclosure). Then energize ATS or PM and the Connectivity Module.

3. Refer to the **Appendix** and select the appropriate *TCP/IP Installation & Configuration* instructions for your laptop computer's operating system. This procedure sets up your laptop computer (if necessary) for network connections and tests communications to the Connectivity Module.

4. After you have confirmed communication with the Connectivity Module, continue to the next page to view and change the configuration of the Connectivity Module and ATS or PM.

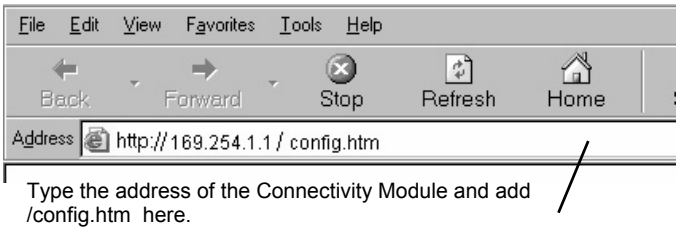
Now view and change the configuration
(go to page 1-3)

How to View & Change Configuration Pages from a Connectivity Module

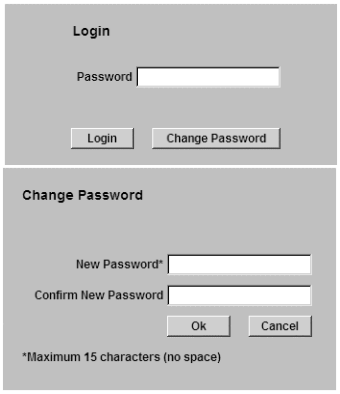
To view and change configuration pages on a client computer, follow these steps:

1. Be sure that your computer is connected to the Internet.
2. Start *Microsoft Internet Explorer* browser on computer.
3. In the address bar, type in the address of the Connectivity Module, add /config.htm, press *Enter* :

http://169.254.1.1/config.htm



PASSWORD



On the Login screen there is no password until you enter one. If you click *Login* without entering a password, there is no protection. If you want protection, click *Change Password*; the Change Password screen appears. Then enter a password (15 char. max.) in *New Password*, enter it again in *Confirm New Password*, and click *OK*. You can set only one password.

The Connectivity Module sends HTML files to the client computer. *Internet Explorer* interprets these HTML files, formats them, and displays the pages to the user.

Pages 2-1, 2-2, 3-1, 3-2, 4-1, 5-1 show Device Configurator screens for ATSs and PMs (go to the appropriate section for the specific ATS or PM).

Tip ☞

You can add the address to your *Favorites* for convenient access to multiple Connectivity Modules; follow these steps:

1. Click *Favorites*, then click *Add to Favorites*, click *New Folder*, then type the *Folder name* (ATS Configuration, for example), and click *OK*.
2. To rename the address, highlight it, and type the new name, and click *OK*.

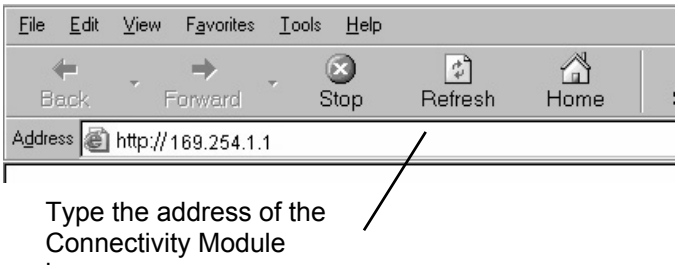
When you are finished viewing pages, close *Internet Explorer*.

How to View Pages from a Connectivity Module after it is installed

After installation, testing, and configuration is completed, to view pages on a client computer, follow these steps:

1. Be sure that your computer is connected to the Internet.
2. Start *Microsoft Internet Explorer* browser on the computer.
3. In the address bar, type in the address of the Connectivity Module:

http://169.254.1.1



The Connectivity Module sends HTML files to the client computer. *Internet Explorer* interprets these HTML files, formats them, and displays the pages to the user.

Pages 2-3, 3-3, 4-2, 5-2, 5-3 show typical HTML pages (Detail screens) for ATSs and PMs (go to the appropriate section for the specific ATS or PM).

Tip ☞

You can add the address to your *Favorites* for convenient access to multiple Connectivity Modules; follow these steps:

1. Click *Favorites*, then click *Add to Favorites*, click *New Folder*, then type the *Folder name* (ATSs, for example), and click *OK*.
2. To rename the address, highlight it, and type the new name, and click *OK*.
3. When you are finished viewing pages, close *Internet Explorer*.

Device Configurator Screen for *7000 & 4000 Series* ATSs

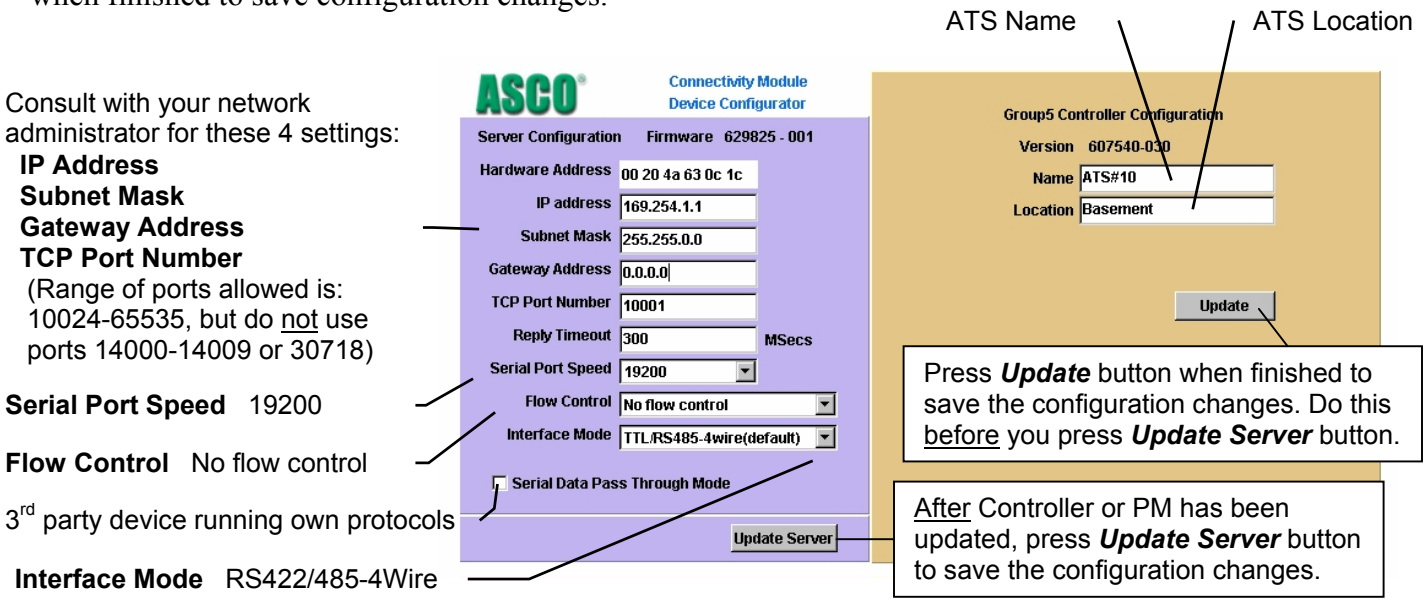
The **Device Configurator Screen** for *7000 & 4000 Series* ATSs shows the Group 5 controller configuration settings (right side) and Connectivity Module (server) configuration settings (left side) for the selected ATS.

Group 5 Controller Configuration (right side)

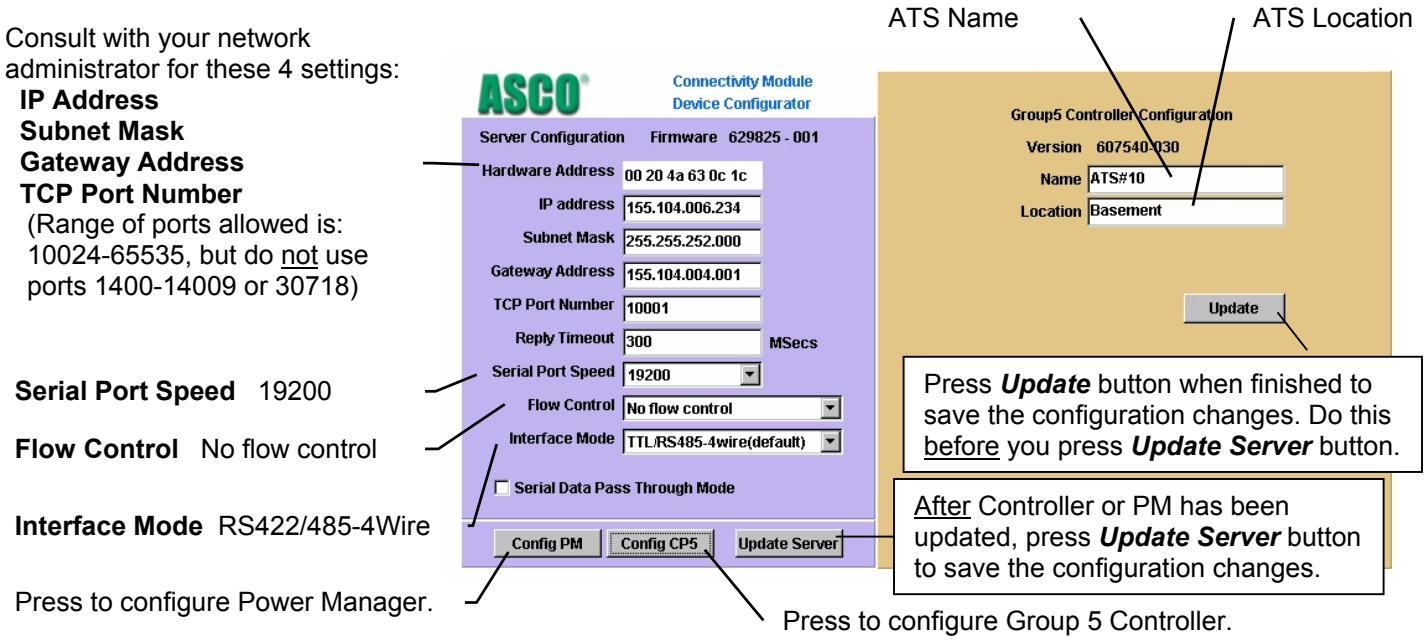
Enter or change the ATS **Name** (8 char. max.)and the ATS **Location** (20 char. max.). Press the ***Update*** button when finished to save the controller configuration changes.

Connectivity Module (server) Configuration (left side)

Several configuration settings must be set appropriately as described below. Press the ***Update Server*** button when finished to save configuration changes.



Device Configurator Screen without Power Manager



Device Configurator Screen with Power Manager

Device Configurator Screen for *7000 & 4000 Series* ATSs with a Power Manager

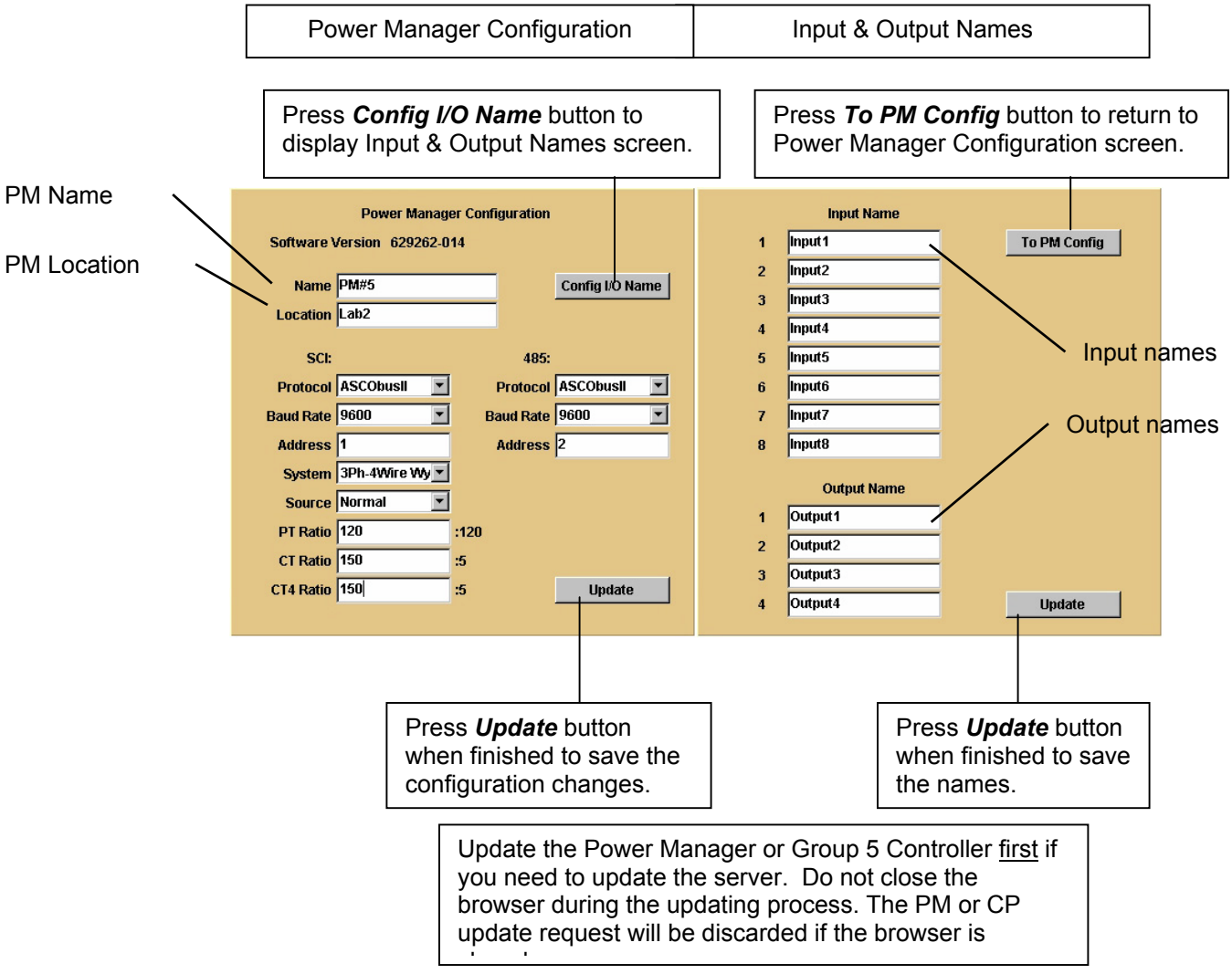
If a Power Manager is used with a *7000 & 4000 Series* ATS, a button appears on the lower left corner of the **Connectivity Module Device Configurator** screen. Press the ***Config PM*** button to display the **Power Manager Configuration** screen (right side).

Power Manager Configuration

Enter or change the Power Manager **Name** (8 char. max.) and **Location** (20 char. max.). Several configuration settings must be set appropriately as described below. Press the ***Update*** button when finished to save the PM configuration changes.

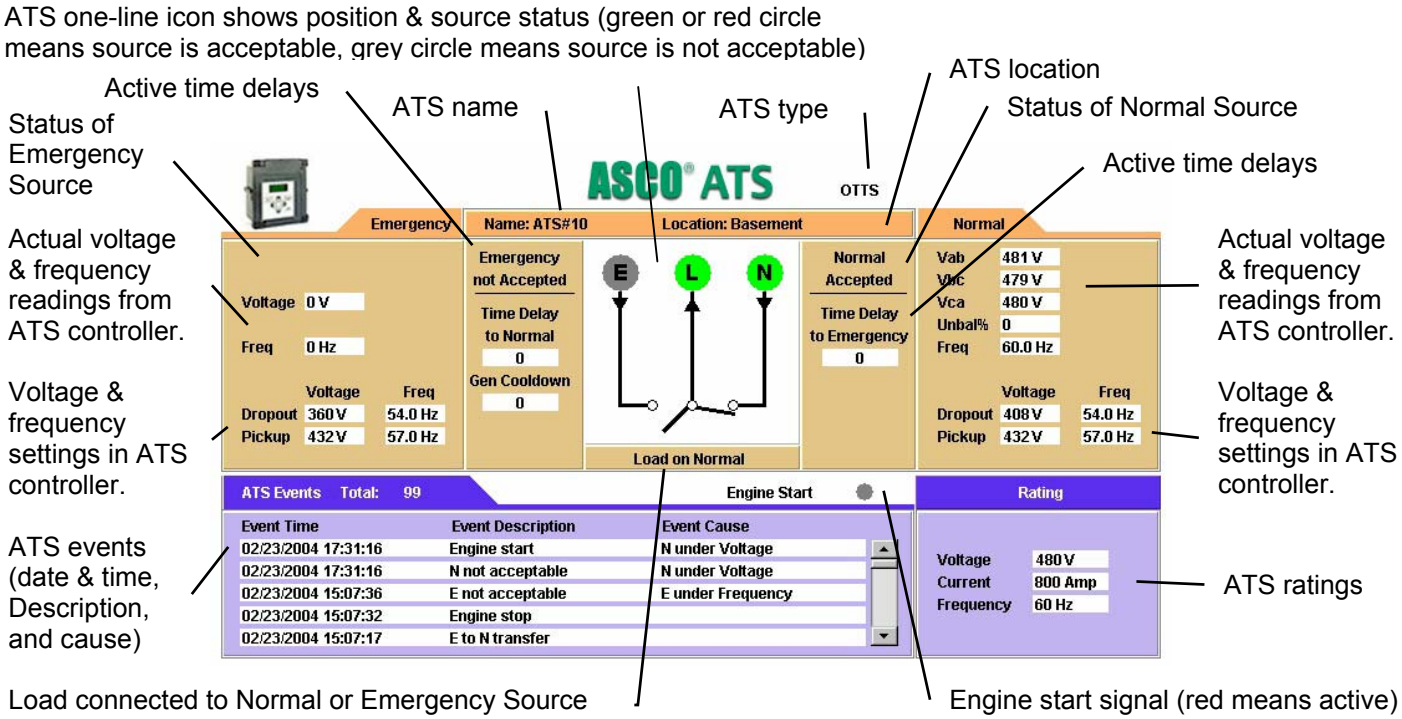
Input Name & Output Names

Press the ***Config I/O Name*** button to display the **Input Name and Output Name** screen. Enter or change the names (16 char. max.) of the inputs and outputs. Press the ***Update*** button when finished to save theses names.



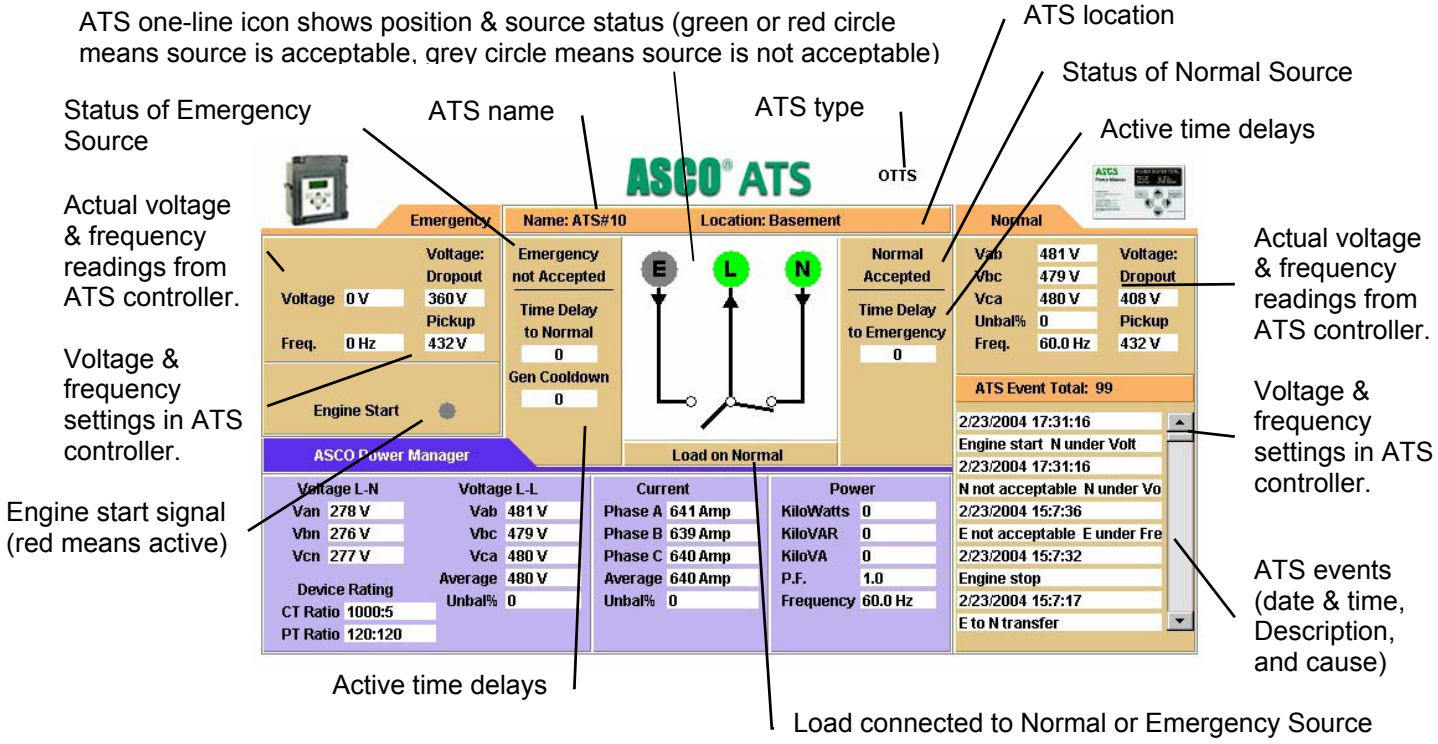
Detail Screen for *7000 & 4000 Series* ATSs

The **Detail Screen** for *7000 & 4000 Series* ATSs shows the switch location, ratings, timer settings, actual timer values, pickup and dropout settings, event logging, and other status indications.



Detail Screen for *7000 & 4000 Series* ATSs with a Power Manager

The **Detail Screen** for *7000 & 4000 Series* ATSs shows the switch location, ratings, timer settings, actual timer values, pickup and dropout settings, event logging, and other status indications.



Device Configurator Screen for *Series 300* ATSs

The **Device Configurator Screen** for *Series 300* ATSs shows the Group 1 controller configuration settings (right side) and the Connectivity Module (server) configuration settings (left side) for the selected ATS.

Group 1 Controller Configuration (right side)

Enter or change the ATS **Name** (8 char. max.) and the ATS **Location** (20 char. max.). Press the ***Update*** button when finished to save the Group 1 controller configuration changes.

Connectivity Module (server) Configuration (left side)

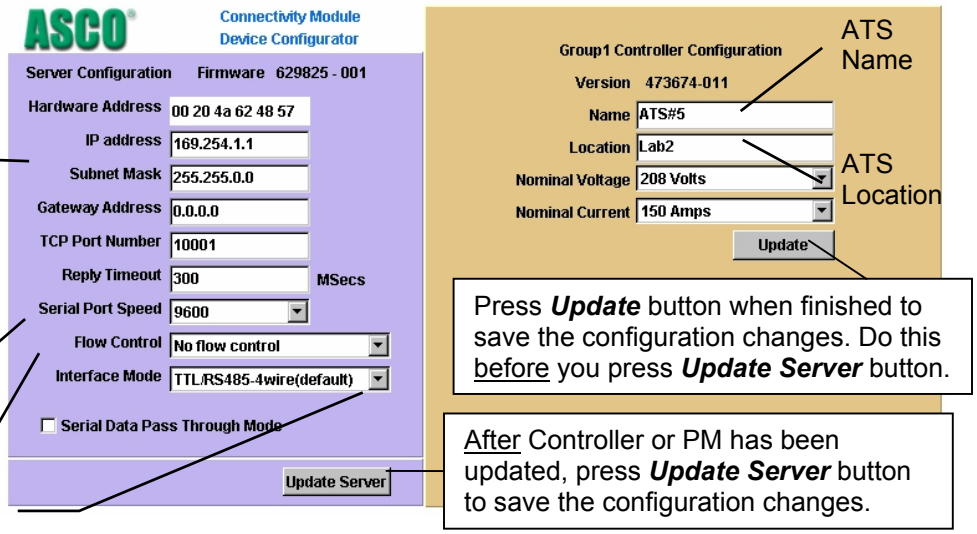
Several configuration settings must be set appropriately as described below. Press the ***Update Server*** button when finished to save configuration changes.

Consult with your network administrator for these 4 settings:
- **IP Address**
- **Subnet Mask**
- **Gateway Address**
- **TCP Port Number**
  (Range of ports allowed is: 1024-65535, but do not use ports 14000-14009 or 30718)

Serial Port Speed 9600

Flow Control No flow control

Interface Mode RS422/485-4Wire



Device Configurator Screen without Power Manager

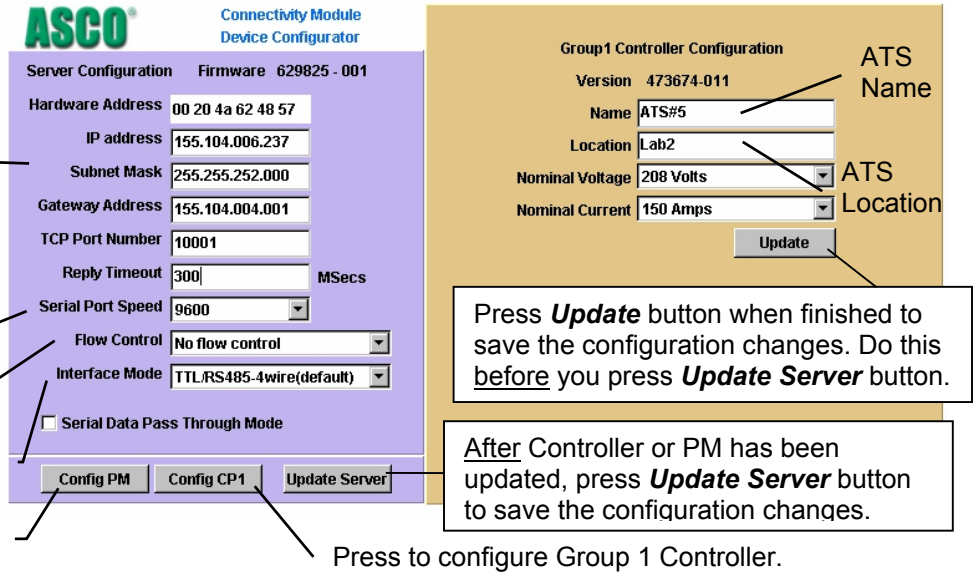
Consult with your network administrator for these 4 settings:
- **IP Address**
- **Subnet Mask**
- **Gateway Address**
- **TCP Port Number**
  (Range of ports allowed is: 1024-65535, but do not use ports 14000-14009 or 30718)

Serial Port Speed 9600

Flow Control No flow control

Interface Mode RS422/485-4Wire

Press to configure Power Manager.



Device Configurator Screen with Power Manager

Device Configurator Screen for *Series 300* ATSs with a Power Manager

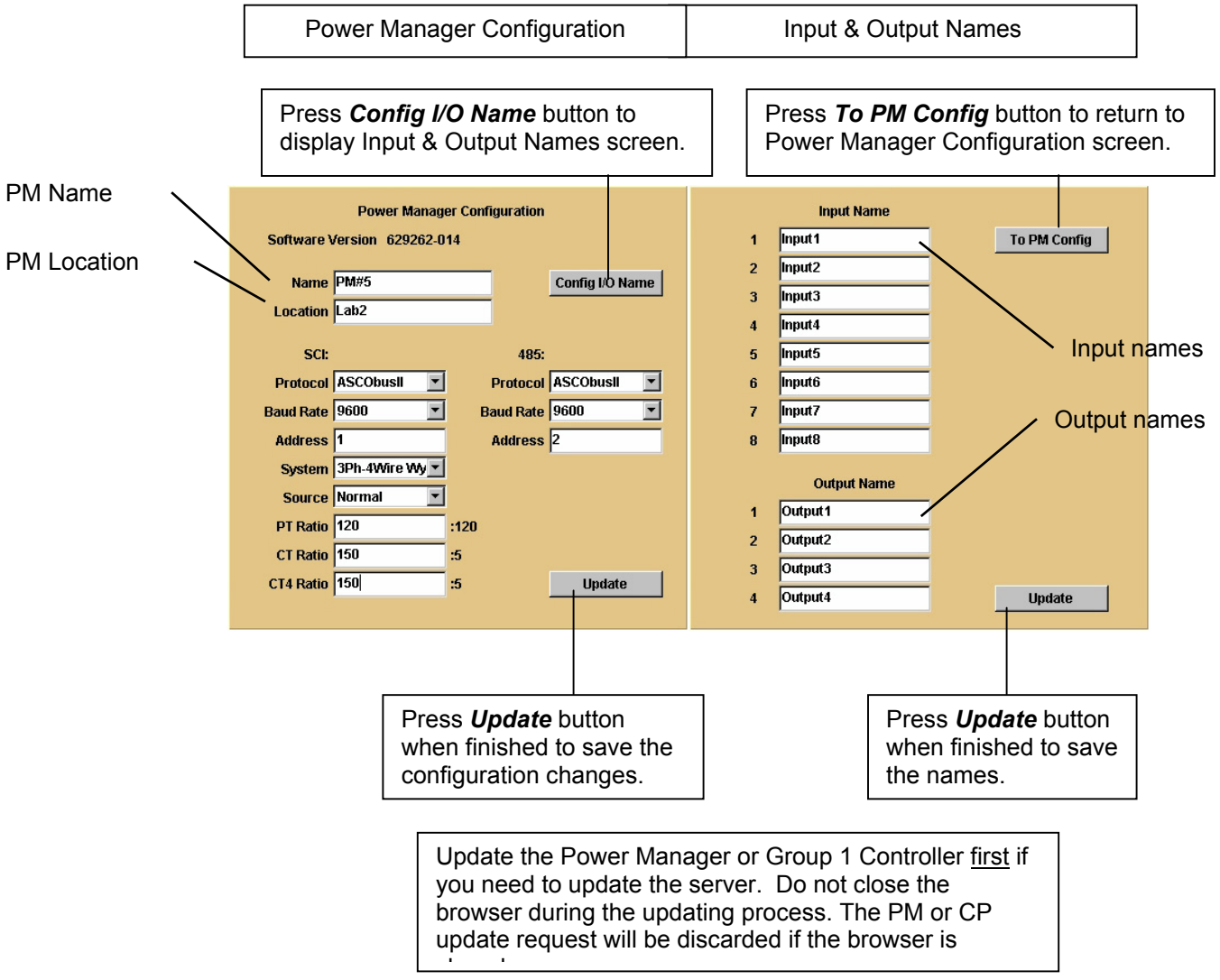
If a Power Manager is used with a *Series 300* ATS, a button appears on the lower left corner of the **Connectivity Module Device Configurator** screen. Press the ***Config PM*** button to display the **Power Manager Configuration** screen (right side).

Power Manager Configuration

Enter or change the Power Manager **Name** (8 char. max.) and **Location** (20 char. max.) Several configuration settings must be set appropriately as described below. Press the ***Update*** button when finished to save the PM configuration changes.

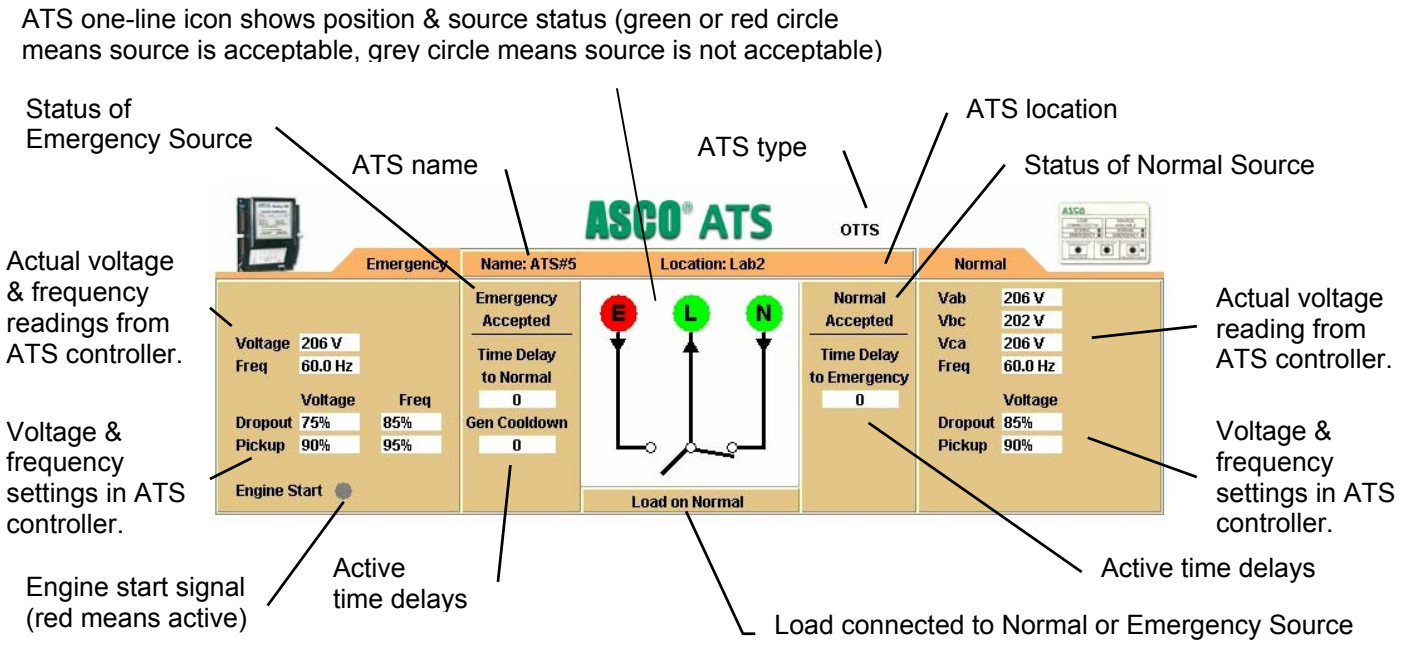
Input Name & Output Names

Press the ***Config I/O Name*** button to display the **Input Name and Output Name** screen. Enter or change the names (16 char. max.) of the inputs and outputs. Press the ***Update*** button when finished to save theses names.



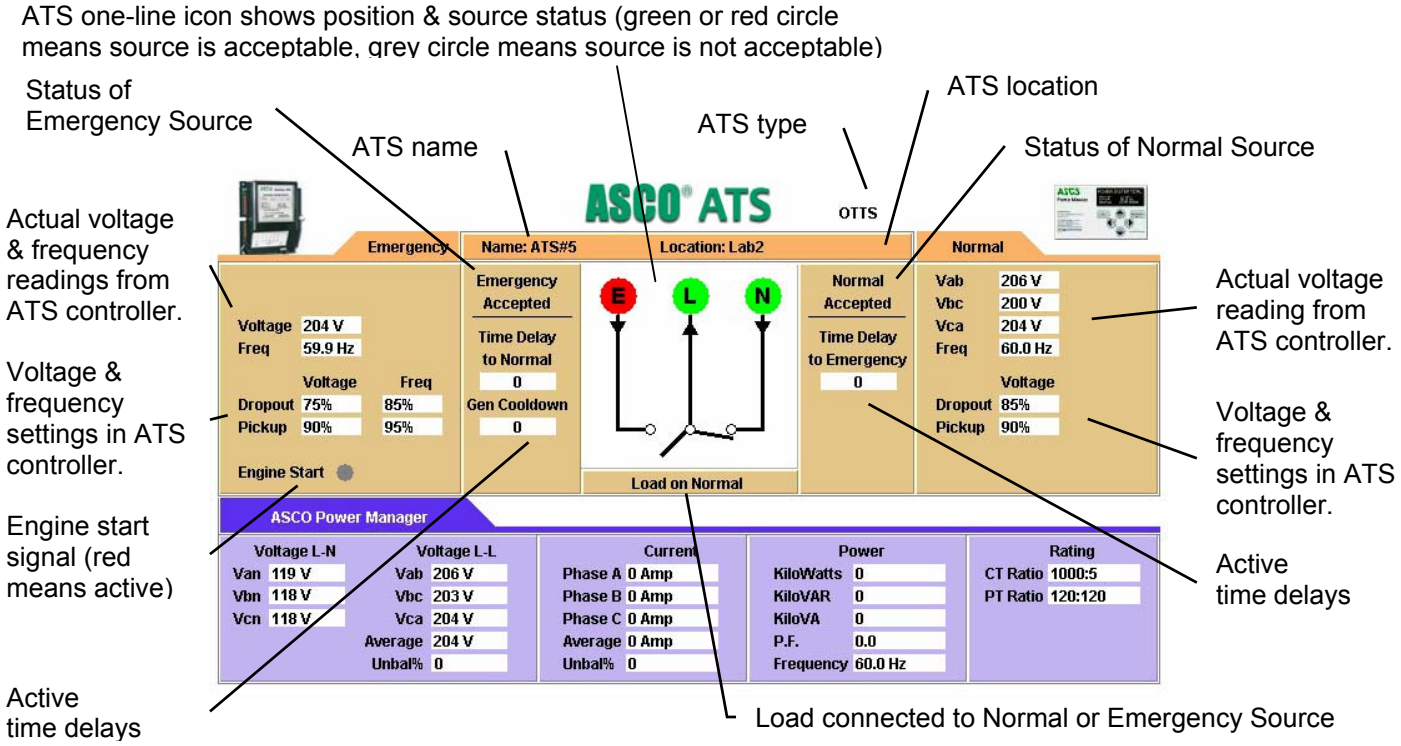
Detail Screen for *Series 300* ATSs

The **Detail Screen** for *Series 300* ATSs shows the switch location, ratings, timer settings, actual timer values, pickup and dropout settings, and other status indications.



Detail Screen for *Series 300* ATSs with a Power Manager

The **Detail Screen** for *Series 300* ATSs shows the switch location, ratings, timer settings, actual timer values, pickup and dropout settings, and other status indications.



Device Configurator Screen for *ASCO 940/962* ATSs

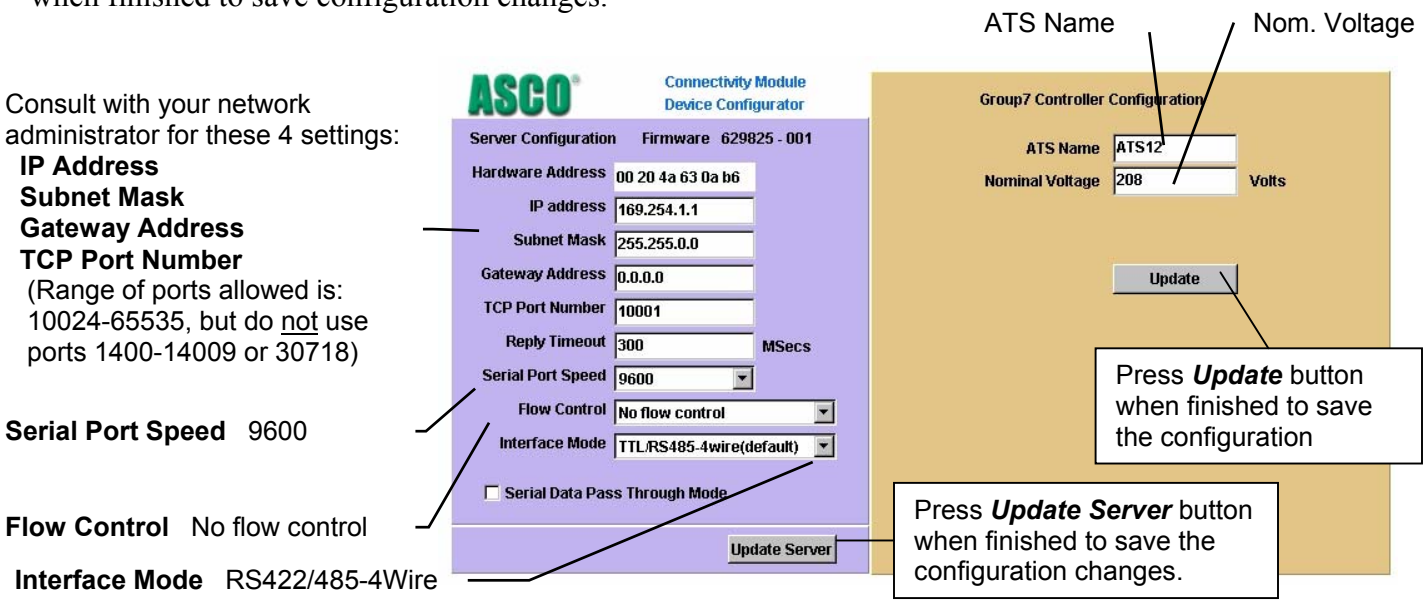
The **Device Configurator Screen** for *ASCO 940/962* ATSs shows the Group 7A controller configuration settings (right side) and the Connectivity Module (server) configuration settings (left) for the selected ATS.

Group 7A Controller Configuration (right side)

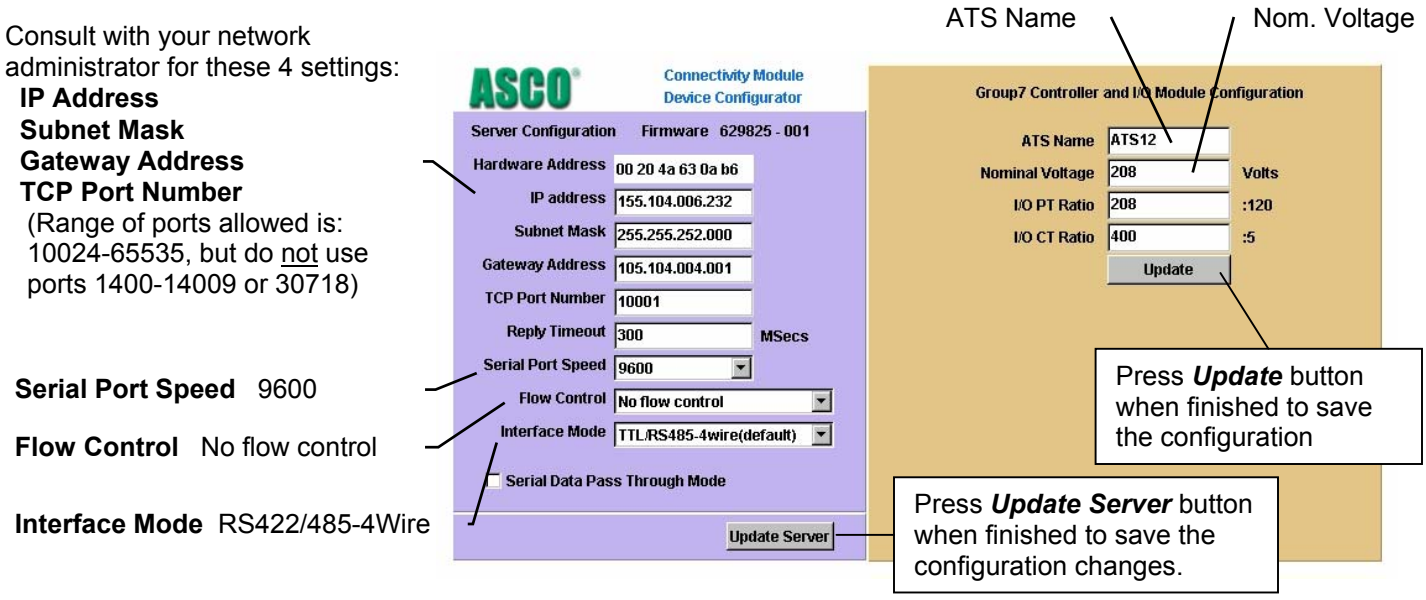
Enter or change the ATS **Name** (18 char. max.) and ATS **Nominal Voltage** (must be entered to get correct reading). Press the ***Update*** button when finished to save the Group 7A controller configuration changes.

Connectivity Module (server) Configuration (left side)

Several configuration settings must be set appropriately as described below. Press the ***Update Server*** button when finished to save configuration changes.



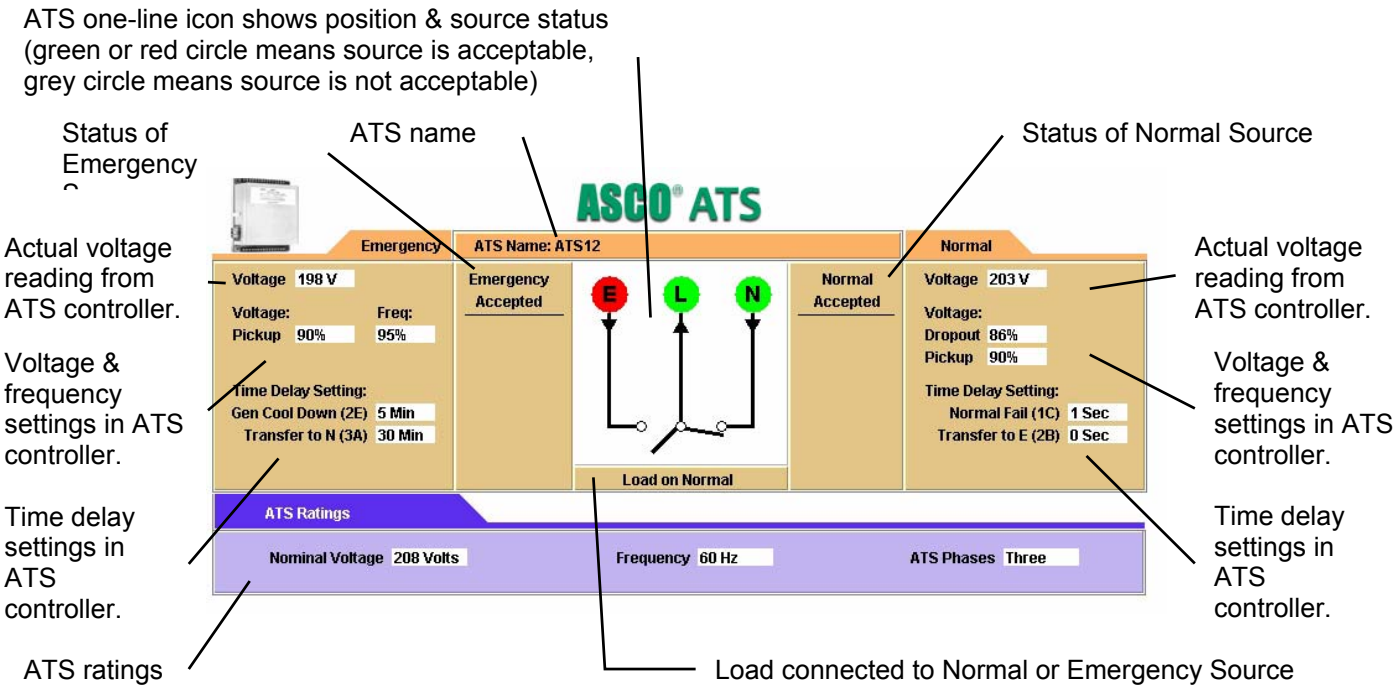
Device Configurator Screen without Power Manager



Device Configurator Screen with Power Manager

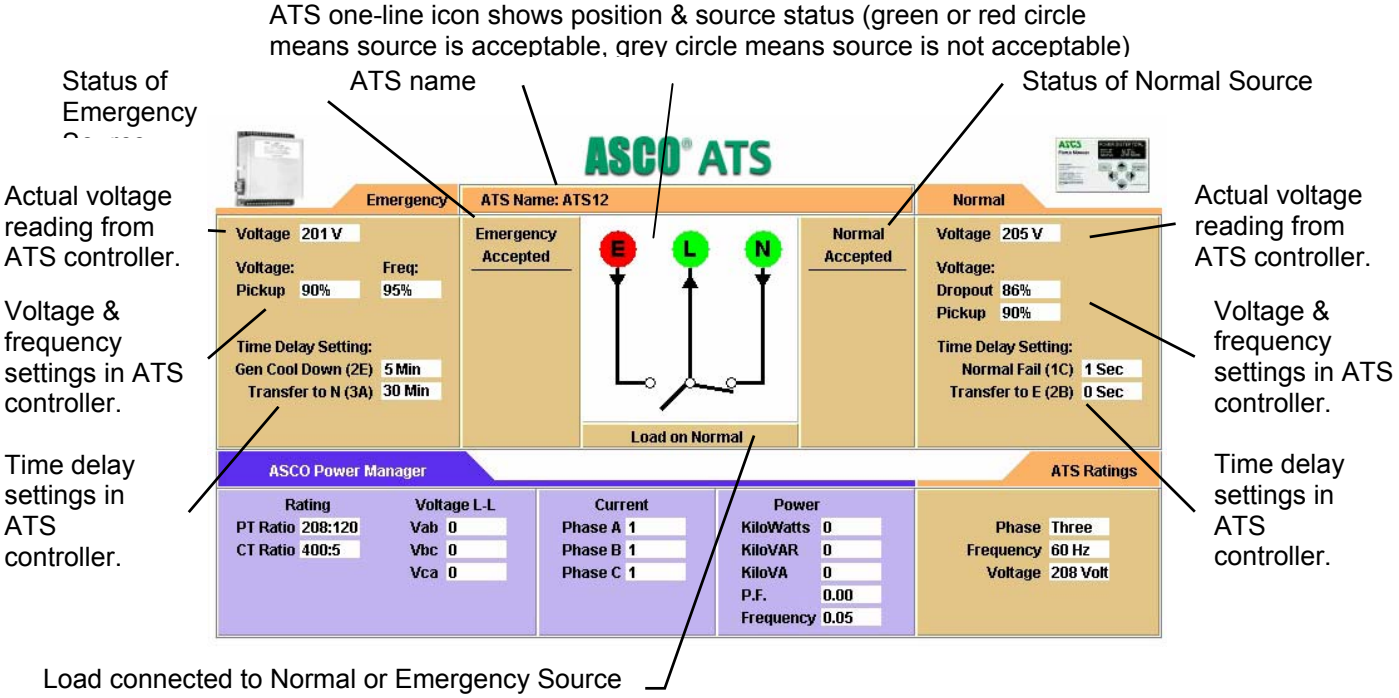
Detail Screen for *ASCO 940/962* ATSs

The **Detail Screen** for *ASCO 940/962* ATSs shows the switch location, ratings, timer settings, actual timer values, pickup and dropout settings, and other status indications.



Detail Screen for *ASCO 940/962* ATSs with a Power Manager

The **Detail Screen** for *ASCO 940/962* ATSs shows the switch location, ratings, timer settings, actual timer values, pickup and dropout settings, and other status indications.



Device Configurator Screen for Power Manager

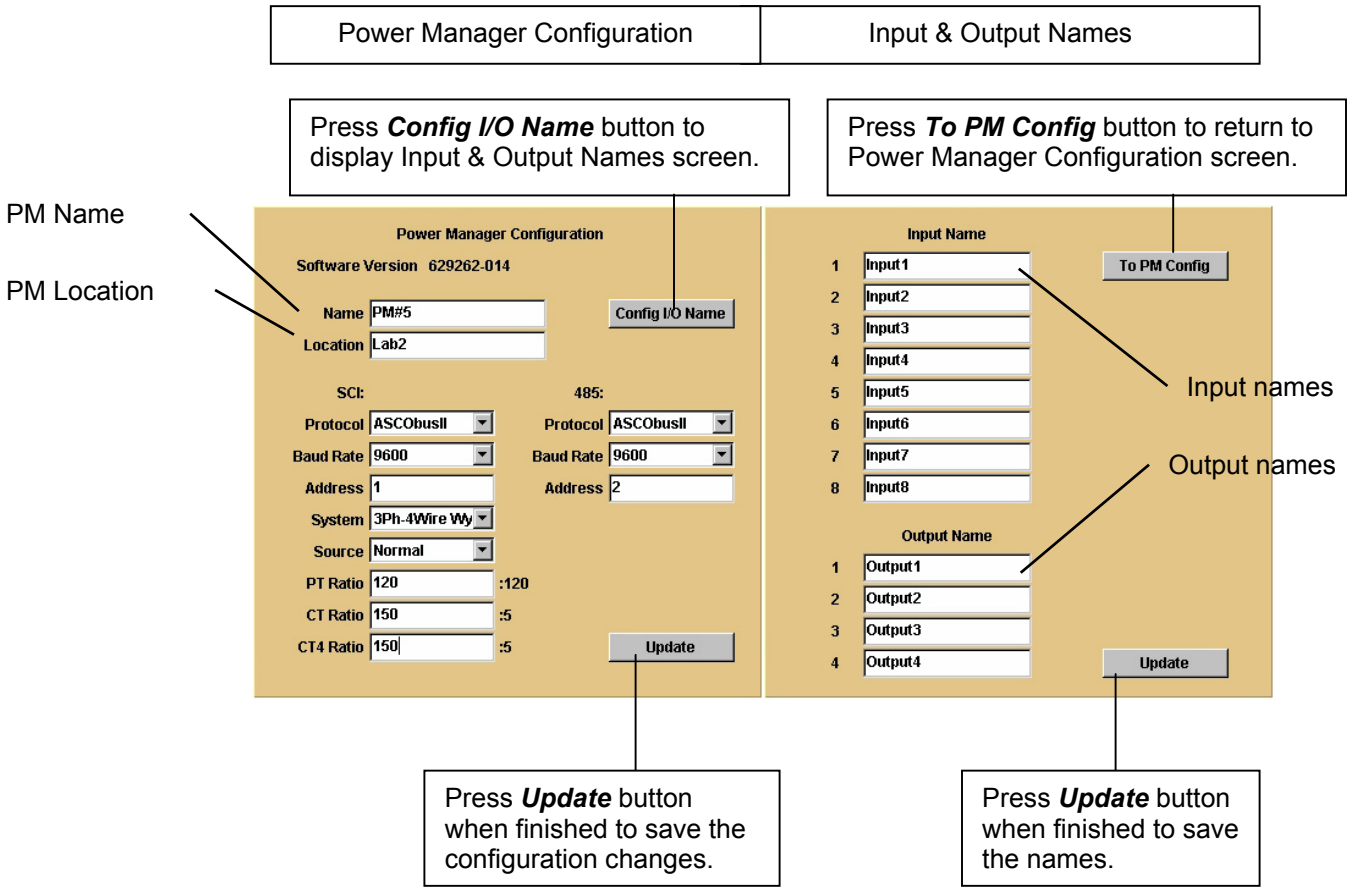
If a stand-alone Power Manager is used, a button appears on the lower left corner of the **Connectivity Module Device Configurator** screen. Press the ***Config PM*** button to display the **Power Manager Configuration** screen (right side).

Power Manager Configuration

Enter or change the Power Manager **Name** and **Location**. Several configuration settings must be set appropriately as described below. Press the ***Update*** button when finished to save the PM configuration changes.

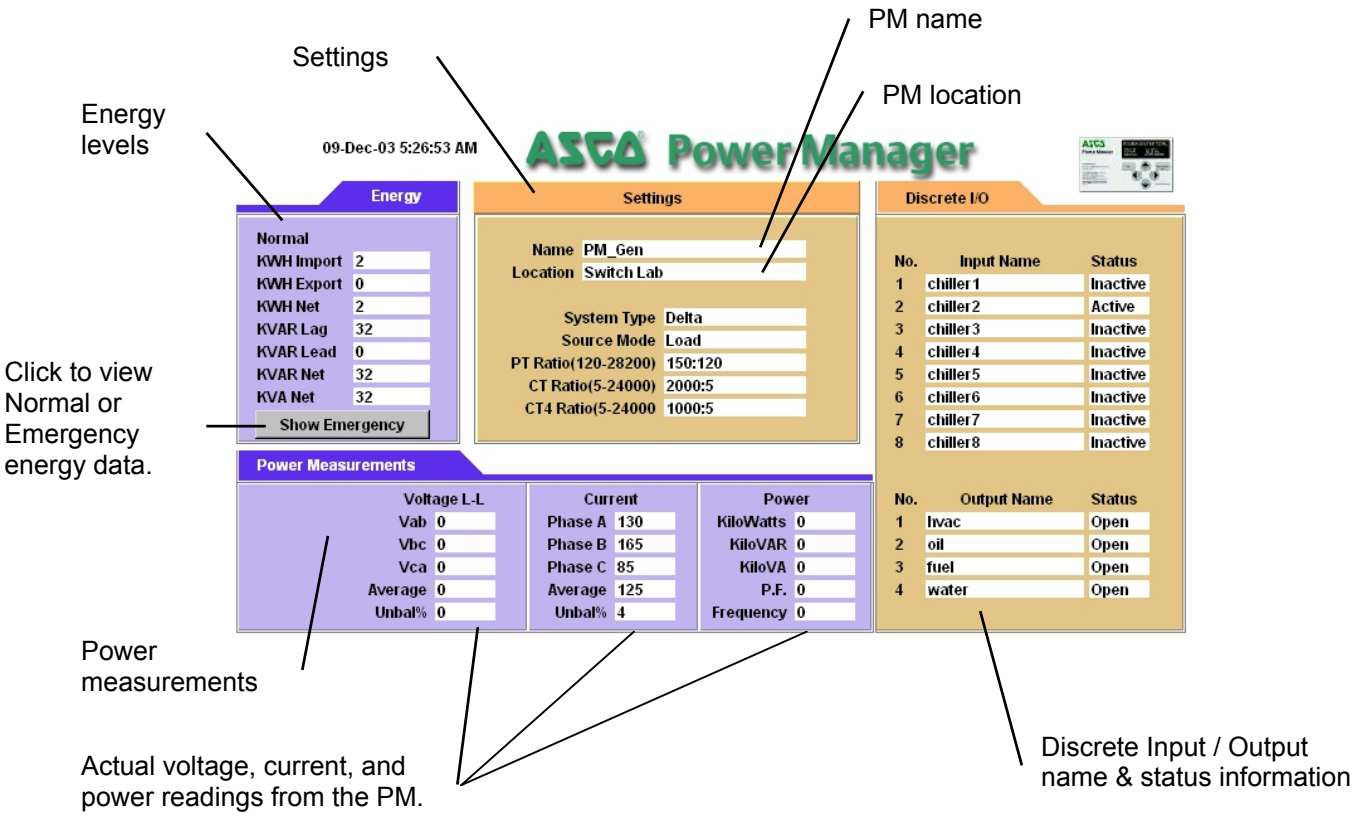
Input Name & Output Names

Press the ***Config I/O Name*** button to display the **Input Name and Output Name** screen. Enter or change the names of the inputs and outputs. Press the ***Update*** button when finished to save theses names.



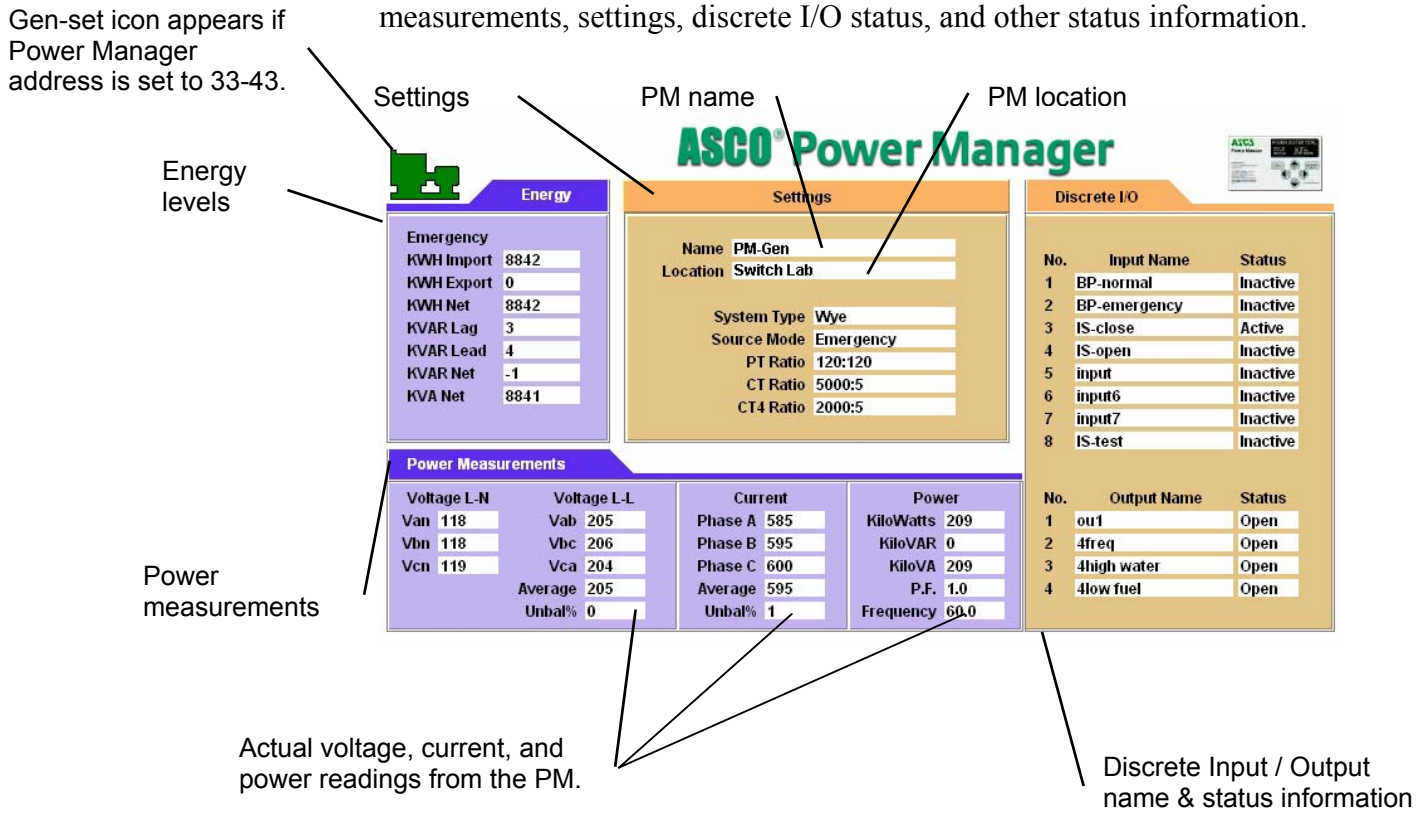
Detail Screen for *Power Managers* connected to a Load

The **Detail Screen** for *Power Managers* shows energy levels, power measurements, settings, discrete I/O status, and other status information.



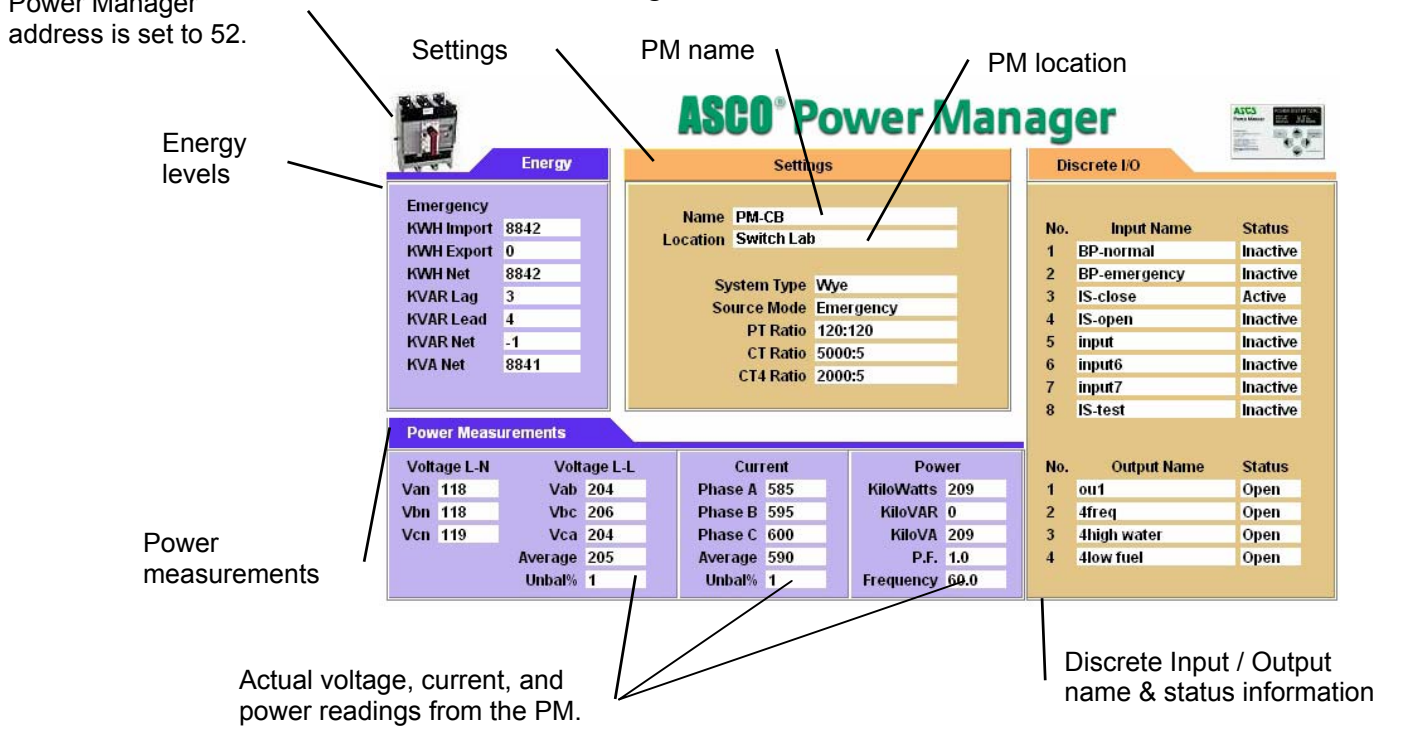
Detail Screen for *Power Managers* connected to a Generator

The **Detail Screen** for *Power Managers* shows energy levels, power measurements, settings, discrete I/O status, and other status information.



Detail Screen for *Power Managers* connected to a Circuit Breaker

The **Detail Screen** for *Power Managers* shows energy levels, power measurements, settings, discrete I/O status, and other status information.



Communication Address Form for Connectivity Module (CM)

Row No.	IP Address	Subnet mask	Gateway	ATS Serial No.	ATS Catalog No.	Address set in ATS Controller*	Address set in PM**
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

Instructions: Fill in the information for each Connectivity Module (CM) with an Automatic Transfer Switch (ATS) and/or Power Manager (PM).

* For Group 5 Controller (*7000 & 4000 Series*) refer to **User's Guide 381333-126**

* For Group 1 Controller (*Series 300*) refer to Communication Interface Module **Instructions 381339-189**

* For Group 7A Control Panel (*ASCO 940, 962, 436, 434, 447, 448*) refer to Accessory 72A **Instructions 381339-172**

** For Power Manager refer to **Operator's Manual 381333-199** or **–192** (see page ii) or for Data Monitor refer to **Operator's Manual 381333-143.**

For Serial Module Catalog 5110 (Accessory 72A) refer to **Installation Manual 381333-240**.

Communication Address Form for Connectivity Module (CM)

Row No.	IP Address	Subnet mask	Gateway	ATS Serial No.	ATS Catalog No.	Address set in ATS Controller*	Address set in PM**
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							

Instructions: Fill in the information for each Connectivity Module (CM) with an Automatic Transfer Switch (ATS) and/or Power Manager (PM).

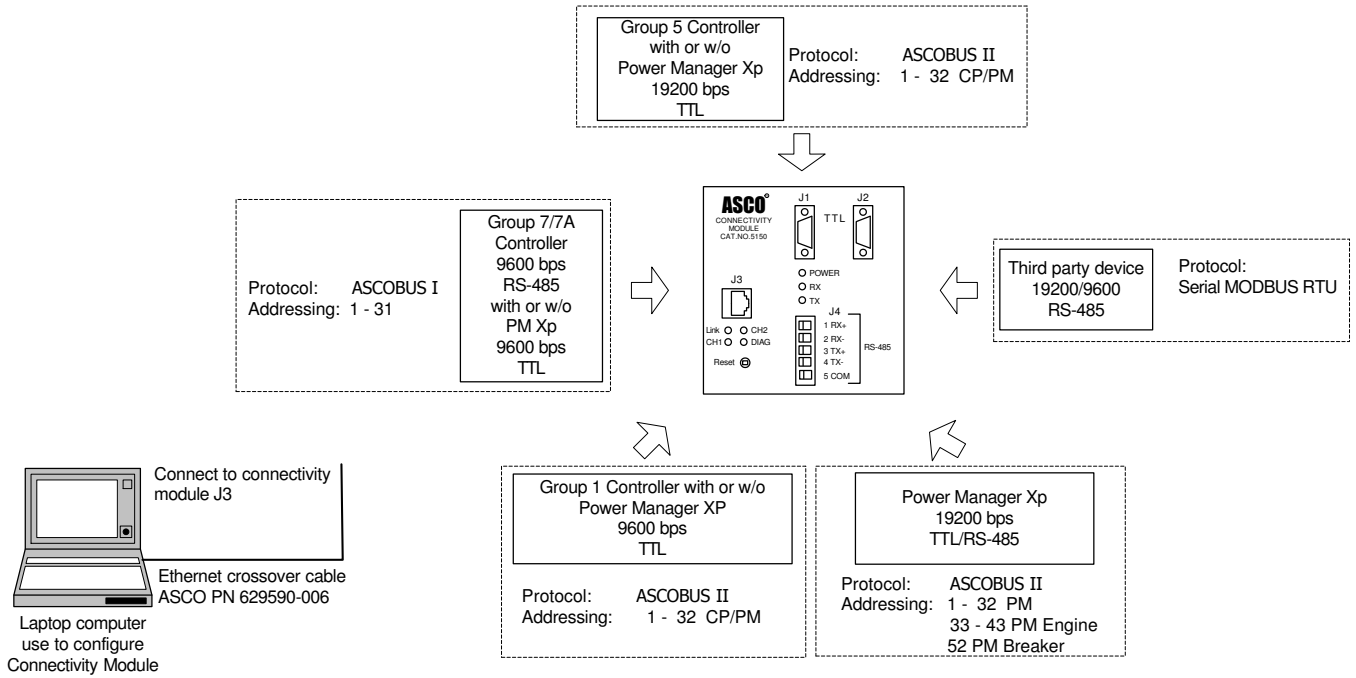
* For Group 5 Controller (*7000 & 4000 Series*) refer to **User's Guide 381333-126**

* For Group 1 Controller (*Series 300*) refer to Communication Interface Module **Instructions 381339-189**

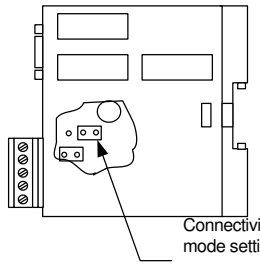
* For Group 7A Control Panel (*ASCO 940, 962, 436, 434, 447, 448*) refer to Accessory 72A **Instructions 381339-172**

** For Power Manager refer to **Operator's Manual 381333-199** or **–192** (see page ii) or for Data Monitor refer to **Operator's Manual 381333-143.**

For Serial Module Catalog 5110 (Accessory 72A) refer to **Installation Manual 381333-240**.



Connectivity Module side view and internal mode jumper settings



Mode jumper settings:
Ethernet Mode - on the right two pins.
Upload Mode - on the left two pins.

Connectivity Summary Information

Device Connectivity to Connectivity Module	Connectivity Module J1 & J2 (TTL) *	Connectivity Module J4 (RS-485)	Connectivity Module J3 (Ethernet)
7000 series ATS with or w/o Power Manager Xp	ATS's, PM's, ASCO II Protocol, 19.2K/9600 Bps		
Series 300 ATS with or w/o Power Manager Xp	ATS's, PM's ASCO II Protocol, 9600 Bps		
Series 900 ATS with or w/o Power Manager Xp	PM's, ASCO I Protocol, 9600 Bps	ATS's, ASCO I Protocol, 9600 Bps	
Power Manager Xp	PM's ASCO II Protocol, 19.2K/9600 Bps	Serial Modbus RTU Protocol, 19.2K/9600 Bps	
Power Manager Xp at Engines	PM's ASCO II Protocol, 19.2K/9600 Bps(Add. 33-43)	Serial Modbus RTU Protocol, 19.2K/9600 Bps	
Power Manager Xp at Circuit Breakers	PM's ASCO II Protocol, 19.2K/9600 Bps(Add. 52)	Serial Modbus RTU Protocol, 19.2K/9600 Bps	
Supported Third Party Devices		**Serial Modbus RTU Protocol, 19.2K/9600 Bps**	
PC - NT 4.0, Windows 2K, XP w/Internet Explorer 5.0 or higher			PC's

Note: Baud rates of connectivity module and all other devices connected to it MUST BE SAME.

Factory default settings:
IP Address 169.254.1.1
Subnet 255.255.0.0
Gateway 0.0.0.0

LED label	LED Description	LED Function
POWER	Power indication. Green/Amber.	Green- Ethernet, Amber- RS-485 only. Set by Factory.
RX	Data receiving status.	Blinks to indicate receiving data from clients
TX	Data transmit status.	Blinks to indicate transmit data to clients
LINK	Link status. Green.	Solid on indicates an active Ethernet connection
CH1, CH2	Client connection status. CH1-Green, CH2-Yellow.	Both blinks to indicate active clients
DIAG	Diagnostics. Red.	Off indicates no error. Short blinks and then off indicates clients write data to server. Solid red indicates errors.

CHANGE LETTER	ECN NO.	BY	APPD	DATE
B	207179	SRC	AS	1/06
A	200698	SRC	AS	4/03

PROJECT NAME;

INTERFACE WIRING | DIAGRAM

Connectivity Communication Module
Cat. 5150

THIRD ANGLE PROJECTION

	BY	DATE
DRAWN BY	YZ	4/03
CHECKED		
DRAFTING APPROVAL	SRC	4/03
FINAL APPROVAL	AS	4/03

MANUFACTURING TOLERANCES TO BE IN ACCORDANCE WITH ASCO PROCEDURE MP-I-003 FOR PLASTIC PARTS SEE MP-I-055

ASSEM. REF. NO.

ASCO Power Technologies,L.P. FLORHAM PARK, NJ USA 07932

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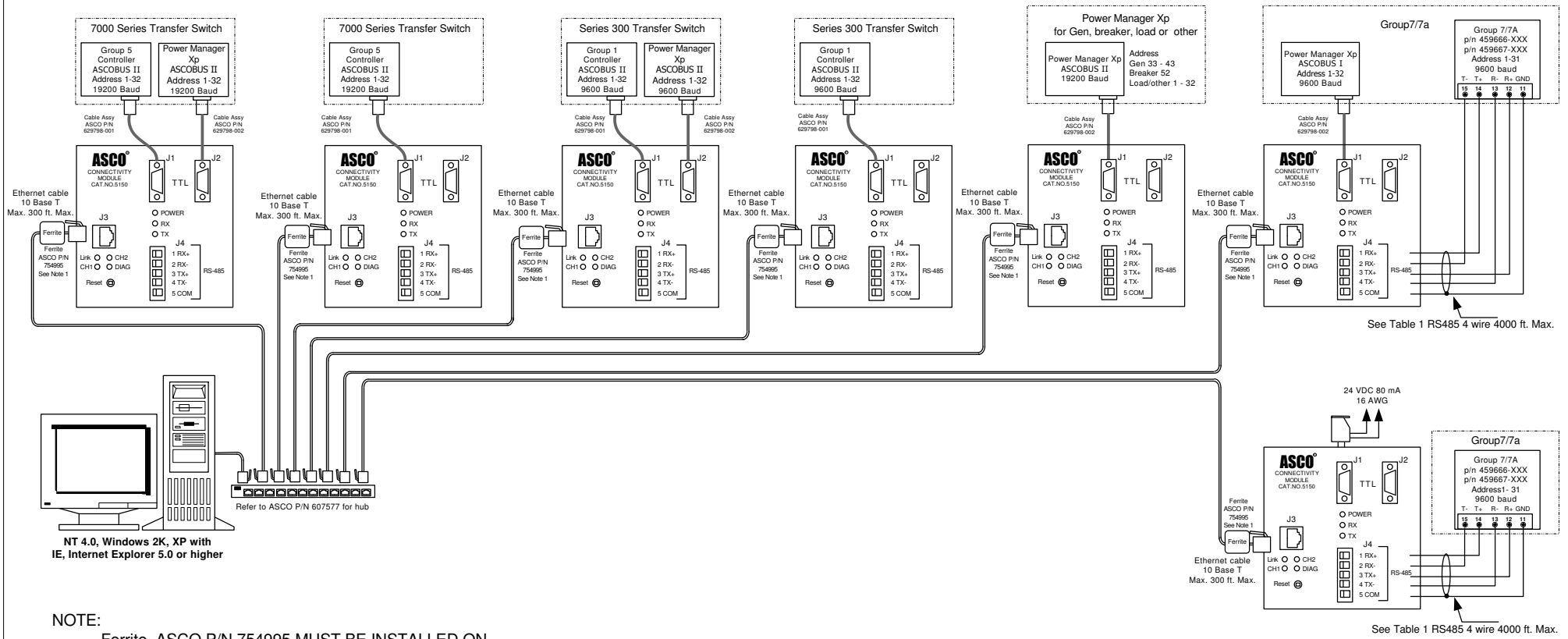
AG ☐	AP ☐	AC ☐	AS ☐	☐	☐

COMPUTER GENERATED DRAWING

SCALE	None	Visio	FILE _01
SIZE BS	DWG. NO. 629855		
CHANGE LETTER B	ECN NO. 207179	SHEET 1 of 2	



NOTE:

Ferrite, ASCO P/N 754995 MUST BE INSTALLED ON CABLE WITHIN 1" OF DEVICE BEING CONNECTED.

Ethernet Communication Cable							
Type	Known as	Max. Length of Segment	Max. Stations per Segment	Cable Type	Connectors	Cable Impedance/ Terminations	Belden P/N (reference)
10 BaseT	Twisted Pair	328ft. (100 meters)	1024	UTP CAT3, 4, 5	RJ-45		7882A

TABLE 1
Acceptable Communication Cable
Standard 80°C
Belden 9842
Belden 9829
Alpha 6202C
Alpha 6222C
Plenum Rated
Belden 89729
Belden 82729
Alpha 58902

PROJECT NAME;

INTERFACE WIRING DIAGRAM

Connectivity Communication Module Cat. 5150

THIRD ANGLE PROJECTION

	BY	DATE
DRAWN BY	YZ	2/04
CHECKED		
DRAFTING APPROVAL	SRC	4/03
FINAL APPROVAL	AS	4/03

MANUFACTURING TOLERANCES TO BE IN ACCORDANCE WITH ASCO PROCEDURE MP-I-003 FOR PLASTIC PARTS SEE MP-I-055

ASSEM. REF. NO.

ASCO Power Technologies,L.P. FLORHAM PARK, NJ USA 07932

CHANGE LETTER	ECN NO.	BY	APPD	DATE

SUBSIDIARY DISTRIBUTION

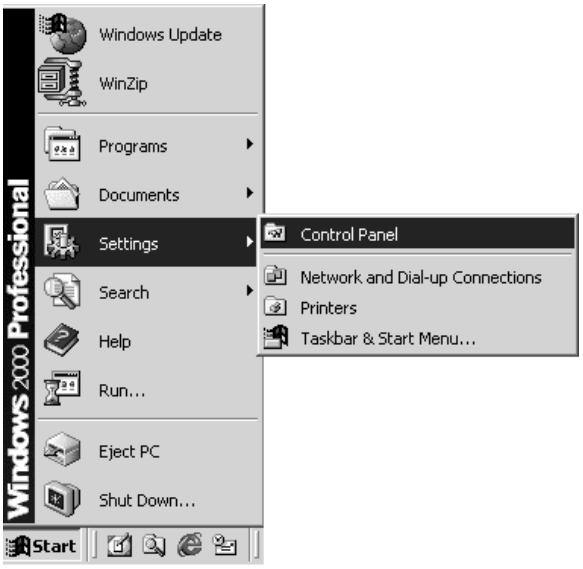
AE	AN	AM	AJ	AL		
CH	AV	AA	PS	AR		
AG	AP	AC	AS			

COMPUTER GENERATED DRAWING

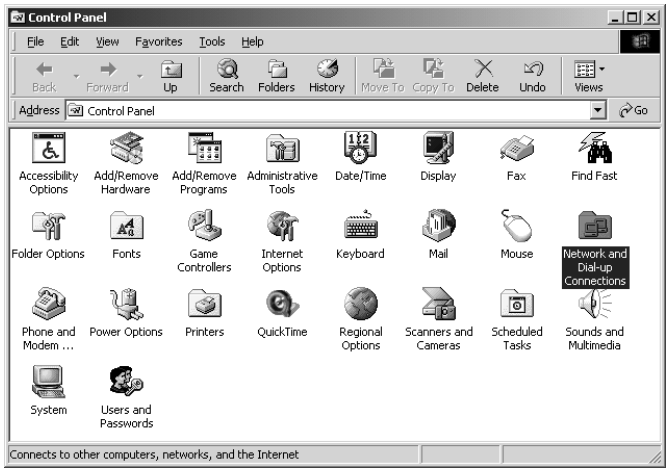
SCALE	None	Visio	FILE _01
SIZE BS	DWG. NO. 629855		
CHANGE LETTER B	ECN NO. 207179	SHEET 2 of 2	

How to Create an Ethernet TCP/IP Network Connection in *Windows 2000*

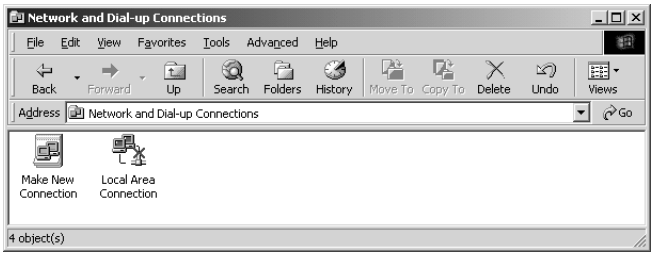
1. Start *Windows*, then click the **Start** button. Select **Settings** and **Control Panel**.



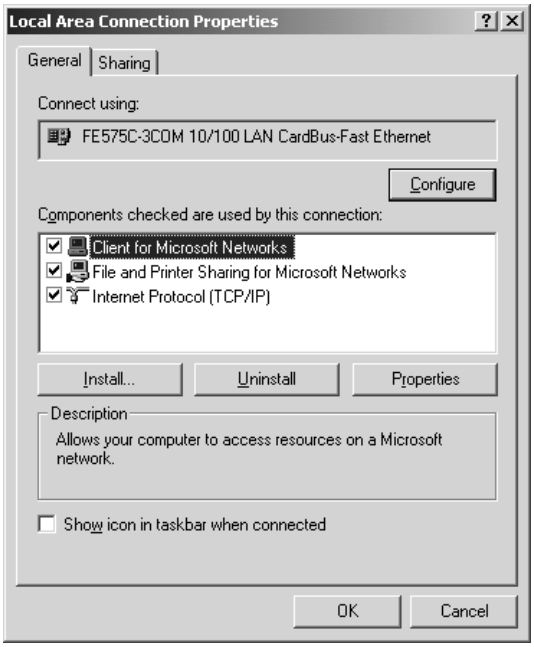
2. Click the **Network and Dial-up Connections** icon.



3. Double-click the **Local Area Connection** icon.



4. Click the **Configure** button to verify installation of the Ethernet card.

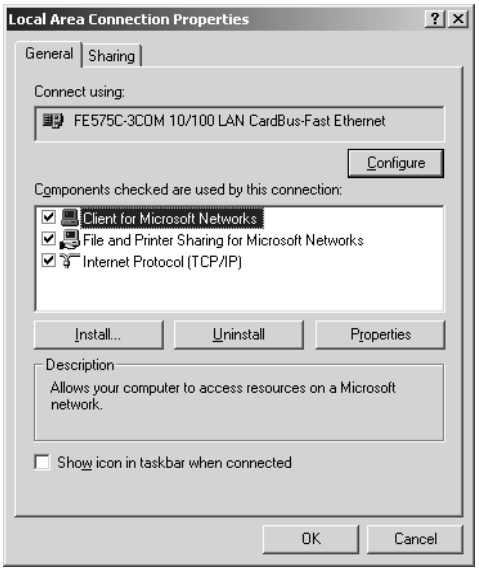


5. If the device status indicates "This device is working properly" then proceed to the next step and close this window.

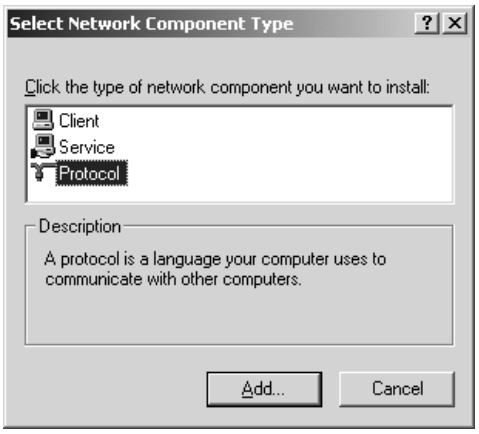
Otherwise click the **Troubleshooter** button and follow the help instructions as indicated to fix the problem.

continued on next page

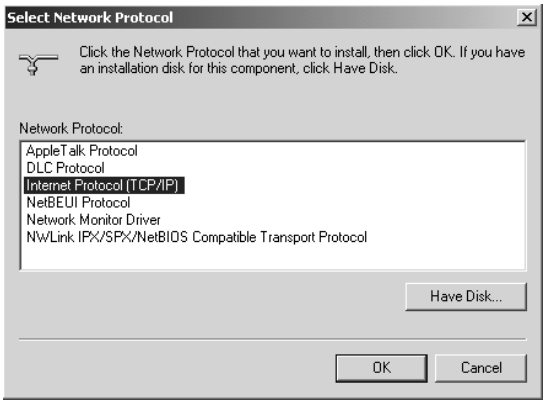
6. Install Internet Protocol by clicking the **Install** button. If the *Internet Protocol (TCP/IP)* is already installed, select it, click the **Properties** button, and proceed to step 9.



7. Select **Protocol** and then click the **Add** button.

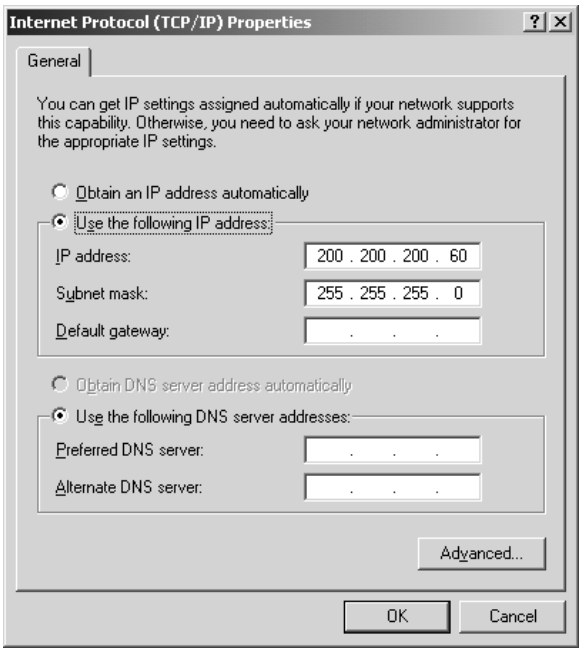


8. Select **Internet Protocol (TCP/IP)** and then click the **OK** button.



9. If the computer is on the company network contact the facilities IT personnel for appropriate settings.
   If it is a stand-alone computer, enter the IP # for this computer that is listed on the Interface Diagram. For example:

IP address:	169.254.1.2 (last digit must be different than the CM)
Subnet Mask:	255.255.0.0 (same as CM)
Gateway:	0.0.0.0 (same as CM)



10. Once the TCP/IP setup is complete at the computer, restart the computer (click the **Start** button, then click **Shut Down**).

11. Restart *Windows*, then click the **Start** button. Select **Run**, type **cmd**, and click the **OK** button.

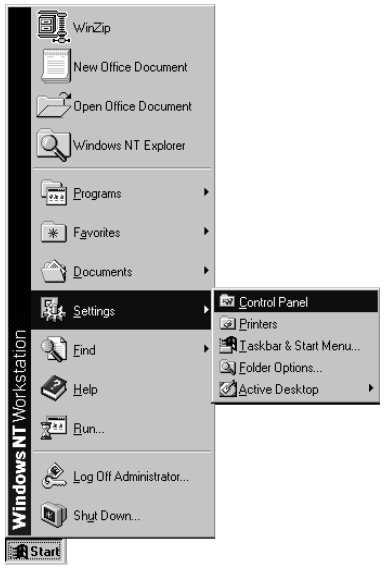
12. In the command prompt window type **ipconfig** and press **ENTER**. The settings are displayed.

13. In the command prompt window type **ping 169.254.1.1** and press **ENTER**. You should see:
    Reply from 169.254.1.1

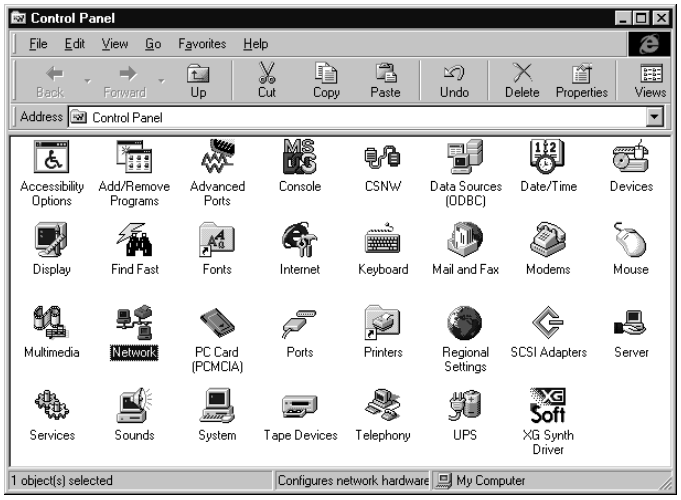
    This reply confirms communication between the computer and the CM. Close the command prompt window. Proceed to the appropriate section **How to View & Change Configuration Pages from a Connectivity Module**.

How to Create an Ethernet TCP/IP Network Connection in *Windows NT*

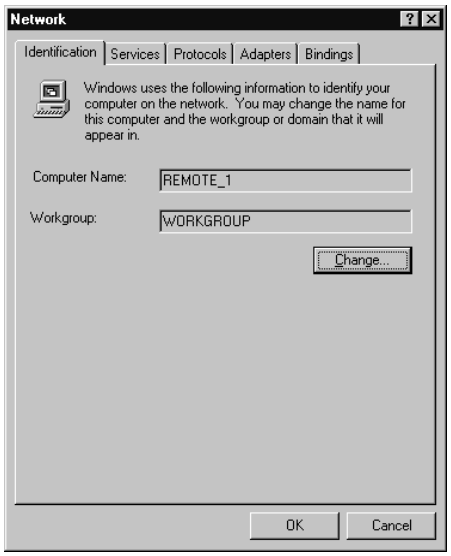
1. Start *Windows*, then click the **Start** button. Select **Settings** and **Control Panel**.



2. Double-click the **Network** icon.



3. Click the **Adapters** tab.



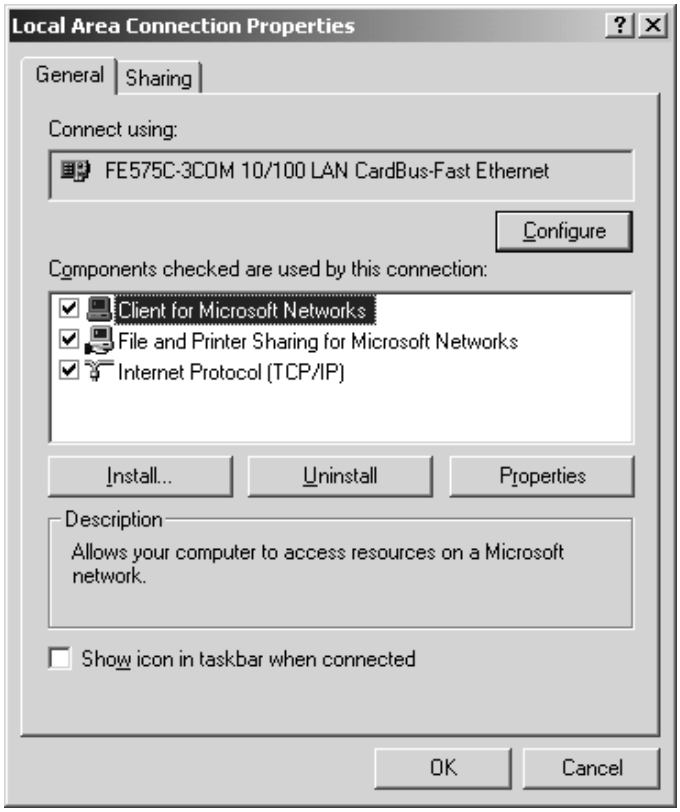
4. Click the **Properties** button to verify installation of the Ethernet card.

5. If the device status indicates "This device is working properly" then proceed to the next step and close this window.

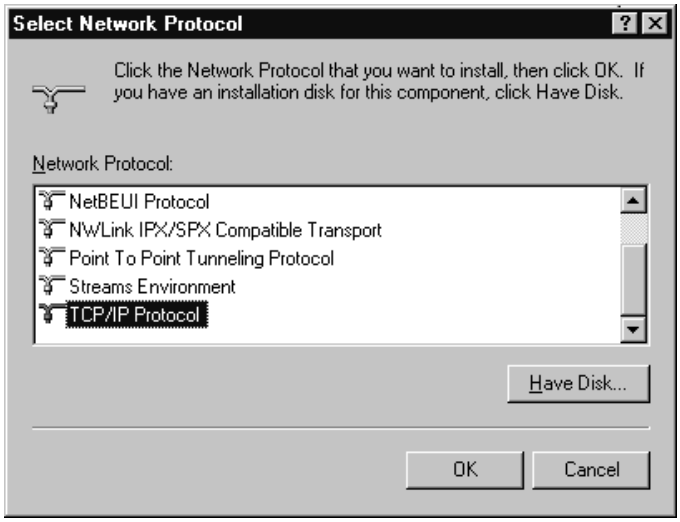
   Otherwise click the **Troubleshooter** button and follow the help instructions as indicated to fix the problem.

continued on next page

6. Install Internet Protocol by clicking the **Protocols** tab. If the *Internet Protocol (TCP/IP)* is already installed, select it, click the **Properties** button, and proceed to step 9.



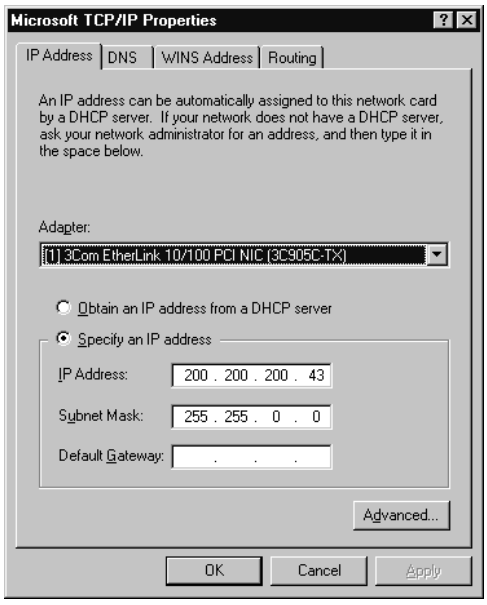
7. If TCP/IP is not installed, click the **Add** button and scroll down to **TCP/IP Protocol**..



8. Select **TCP/IP Protocol** and then click the **OK** button.

9. If the computer is on the company network contact the facilities IT personnel for appropriate settings.
   If it is a stand-alone computer, enter the IP # for this computer that is listed on the Interface Diagram. For example:

IP address:	169.254.1.2 (last digit must be different than the CM)
Subnet Mask:	255.255.0.0 (same as CM)
Gateway:	0.0.0.0 (same as CM)



10. Once the TCP/IP setup is complete at the computer, restart the computer (click the **Start** button, then click **Shut Down**).

11. Restart *Windows*, then click the **Start** button. Select **Run**, type **cmd**, and click the **OK** button.

12. In the command prompt window type **ipconfig** and press **ENTER**. The settings are displayed.

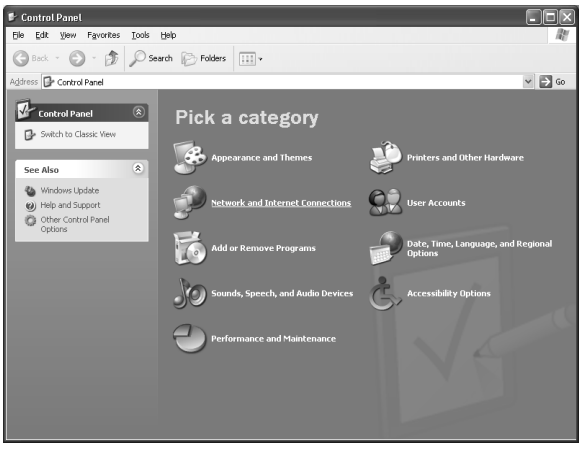
13. In the command prompt window type **ping 169.254.1.1** and press **ENTER**. You should see:
    Reply from 169.254.1.1

    This reply confirms communication between the computer and the CM. Close the command prompt window. Proceed to the appropriate section **How to View & Change Configuration Pages from a Connectivity Module**.

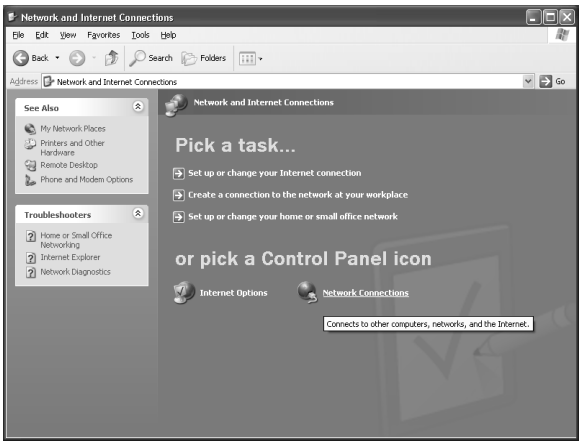
How to Create an Ethernet TCP/IP Network Connection in *Windows XP*

1. Start *Windows*, then click the **Start** button. Select **Settings** and **Control Panel**.

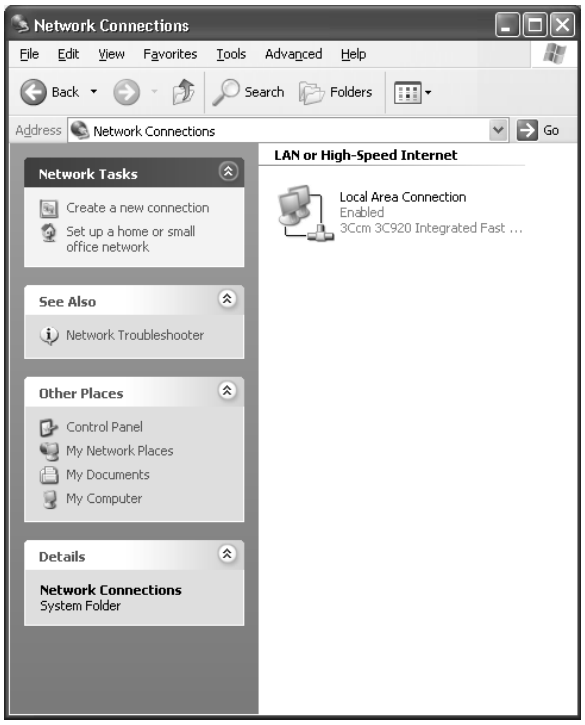
2. Click the **Network and Internet Connections** icon.



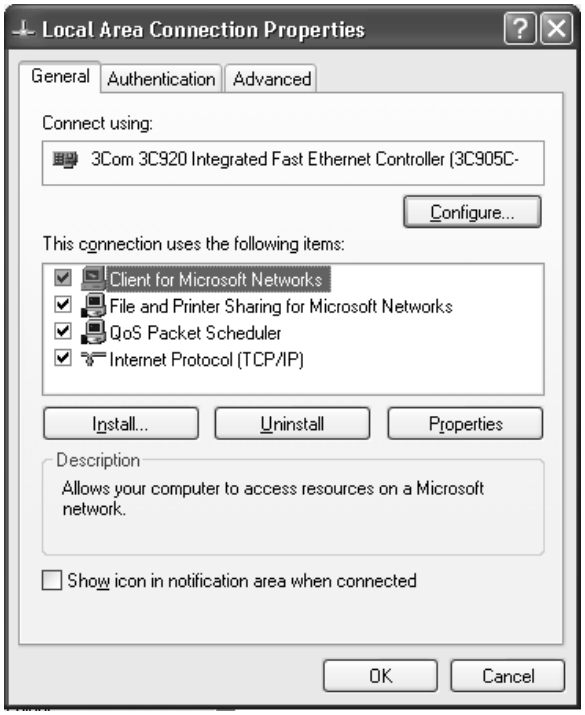
3. Click the **Network Connections** icon.



4. Right click the **Local Area Connection** icon.

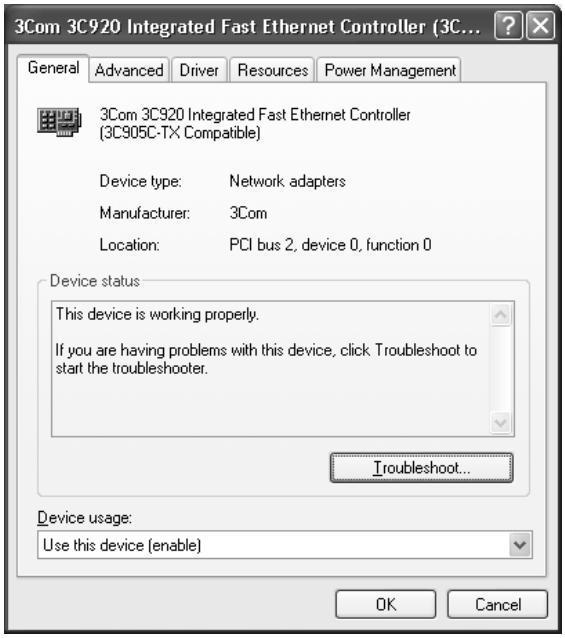


5. Click the **Configure…** button to verify installation of the Ethernet card.



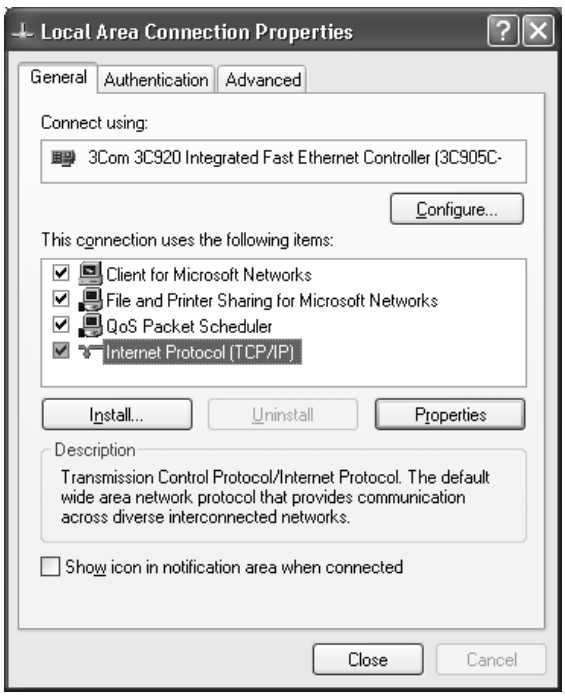
continued on next page

6. If the device status indicates "This device is working properly" then proceed to the next step and close this window.



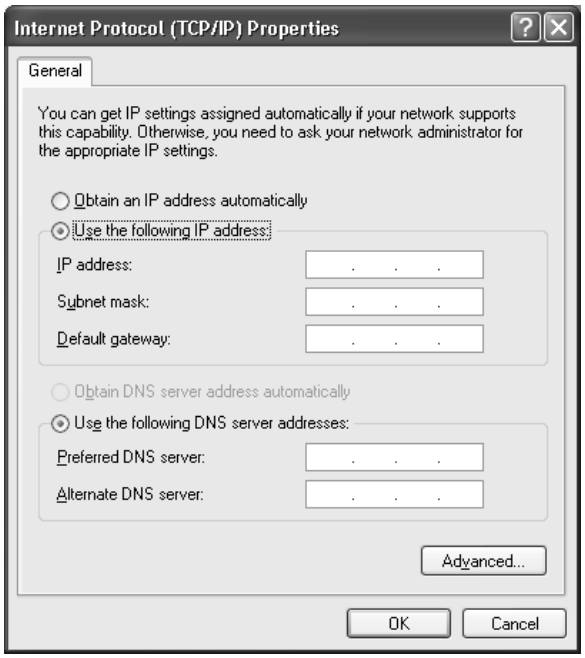
Otherwise click the **Troubleshoot…** button and follow the help instructions as indicated to fix the problem.

7. Install Internet Protocol by clicking the **Install…** button. If the *Internet Protocol (TCP/IP)* is already installed, select it, click the **Properties** button.



8. If the computer is on the company network contact the facilities IT personnel for appropriate settings.
   If it is a stand-alone computer, enter the IP # for this computer that is listed on the Interface Diagram. For example:

IP address:	169.254.1.2 (last digit must be different than the CM)
Subnet Mask:	255.255.0.0 (same as CM)
Gateway:	0.0.0.0 (same as CM)



9. Once the TCP/IP setup is complete at the computer, restart the computer (click the **Start** button, then click **Shut Down**).

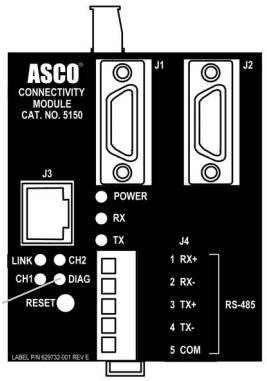
10. Restart *Windows*, then click the **Start** button. Select **All Programs > Accessories > Command Prompt**.

11. In the command prompt window type **ipconfig** and press **ENTER**. The settings are displayed.

12. In the command prompt window type **ping 169.254.1.1** and press **ENTER**. You should see:
    Reply from 169.254.1.1
    This reply confirms communication between the computer and the CM. Close the command prompt window. Proceed to the appropriate section **How to View & Change Configuration Pages from a Connectivity Module**.

Troubleshooting the Connectivity Module

DIAG light



Listed below are possible problems, their causes, and possible solutions.

DANGER

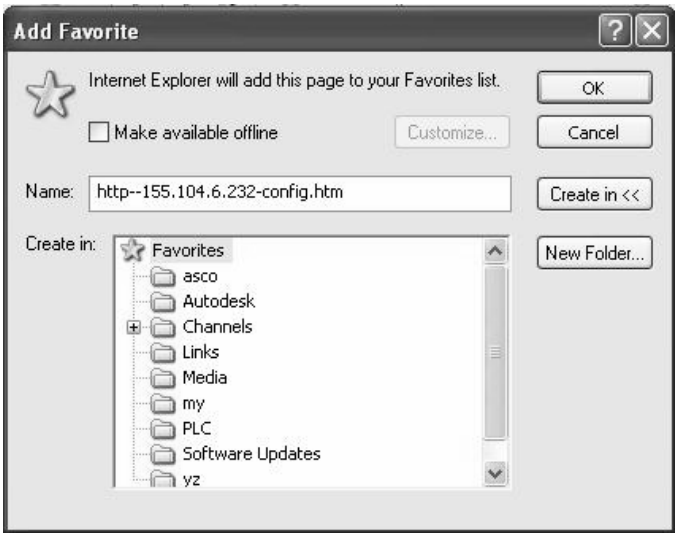
To avoid possible shock, burns, or death, deenergize all electrical sources to the Automatic Transfer Switch, Power Manager, and Connectivity Module before working on it.

Problem	Cause	Solution
DIAG red light blinks rapidly then stays on when the Connectivity Module is first powered up.	Duplicate IP address. The IP address of one or more Connectivity Modules on the same network is set as same.	Unplug the Ethernet cable from all Connectivity Modules. Follow the instructions from the appropriate Configuration section to change to a proper IP address. Reconnect this Connectivity Module to the network. The red ***DIAG*** light should blink then go off. Repeat this procedure for all other Connectivity Modules one by one.
DIAG red light blinks slowly or stays on after the Connectivity Module is properly configured.	Major software or communication failure.	Press ***Reset*** button on Connectivity Module. If condition still exists, call your local ASI representative.
Message: *Page not found.*	Wrong or improper IP address and subnet. Problem with connections between Connectivity Module and ATS Controller or Power Manager. Wrong configuration.	Try to refresh the page again. If you get the same results, verify the IP address and wiring by pinging the device.
Message: *No controller or power manager has been found*.	Problem with connections between Connectivity Module and ATS Controller or Power Manager.	Check wiring then press ***Reset*** button on Connectivity Module.
Message: *72E baud rate and at least another device baud rate are mismatched* (or similar message).	Baud rates of connectivity module and ATS Controller or Power Manager are different.	If 7000 or 4000 Series ATS, set baud rate of all the devices to 19200. If Series 300 or ASCO 940/962, set baud rate of all the devices to 9600.
Message: *Communication error* stays on. (***RX*** light is blinking & ***TX*** light is off).	Lost connections.	Check connections
Message: Communication error comes on then goes off by itself.	Busy network or lost connections	Increase reply time out.
LINK light is off	Invalid network	Check if it is a proper IP address. Check the Ethernet cable and connections.
Forgotten IP configuration password.		Call your local ASI representative.

How to create a *Favorites* folder for ASCO device pages and copy it to another computer

To create a *favorites* folder and copy it to another user's computer, the administrator should follow these steps:

1. Open the first page and then pull down the *Favorites* manual and select *Add to Favorites* … This window will appear:



2. Click the *New Folder* button, type the new folder name as **asco**, then click the *OK* button.

3. Click folder **asco** and click *OK*.

4. Open the other pages one by one and click *Add to Favorite*, click folder **asco**, then click OK.

5. Once the administrator is done with saving all the pages, the following steps describe how to copy the **asco** folder from the administrator's computer to another user's computer.

a. For *Windows NT/2000*, find the **asco** folder from directory 'c:\winnt\profiles\'user name'\favorites'.

b. For *Windows XP*, find the **asco** folder from directory 'c:documentd and settings\'user name'\favorites'.

c. Copy the **asco** folder into the corresponding path above.

d. Open browser and select address or name from favorite **asco** folder to view the device pages.

Third Party Modbus Device Configuration

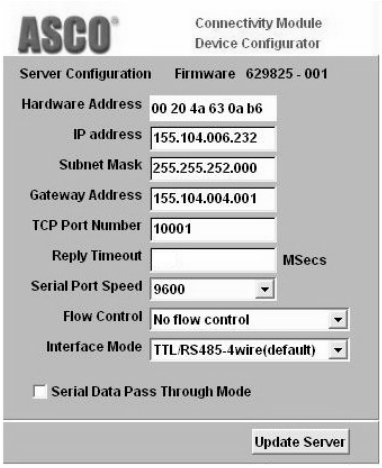
The Connectivity Module supports the Modbus devices with Modbus/TCP portocol. The transmit and receiving data format are as follows:

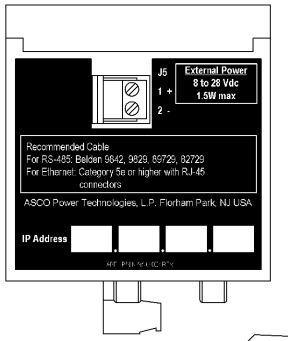
Read:
Requests:
Bytes 0, 1 Transaction ID.
Usually zero when making a request, the server will copy them into the response.
Bytes 2, 3 Protocol number. It must be zero.
Byte 4 length (high byte) its always zero.
Byte 5 length (low byte) of the following total bytes
Byte 6 device address
Byte 7 function code
Bytes 8, 9 Modbus address of the starting transfer.
Bytes 10, 11 number of word to transfer
Response:
Bytes 0, 1 Transaction ID. Its faithfully copied from the request
Bytes 2, 3 Protocol number. It always is zero.
Byte 4 length (high byte) its always zero
Byte 5 length (low byte) of the following total bytes
Byte 6 device address
Byte 7 function code
Bytes 8 byte count of Modbus data.
Bytes rest data values

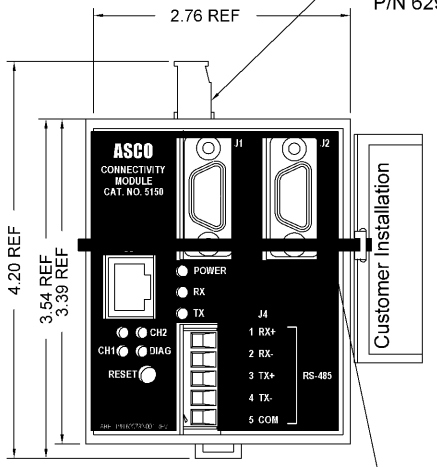
Configure the Connectivity Module to properly communicate with the other devices. The following items should be ready before you start to configure it:

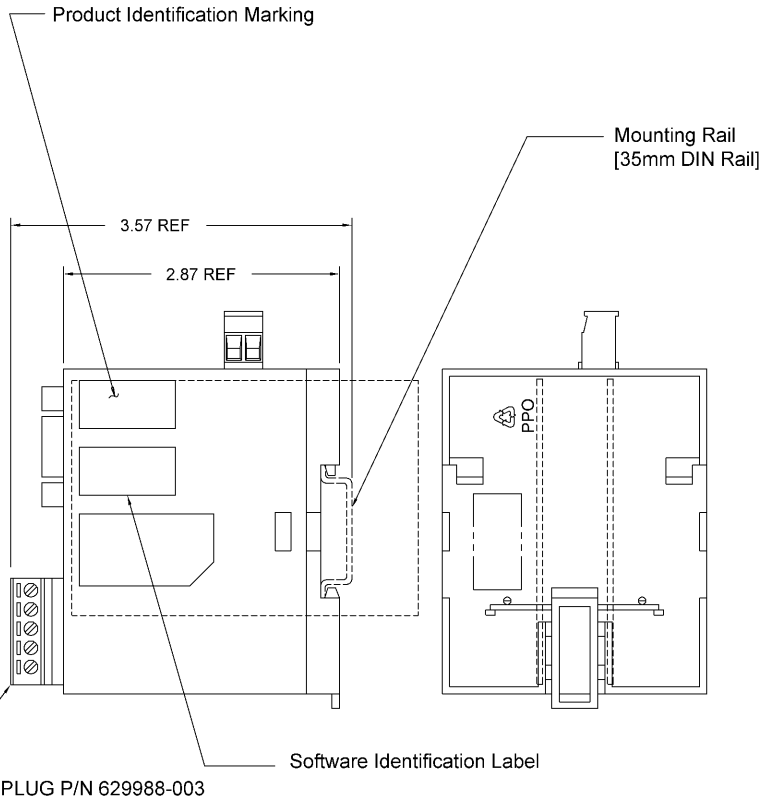
1. Ethernet crossover cable.
2. Laptop with proper Ethernet connect ability.
3. Start Internet browser and type 'IP address\config.htm' on the browser address field.
4. This page should appear:

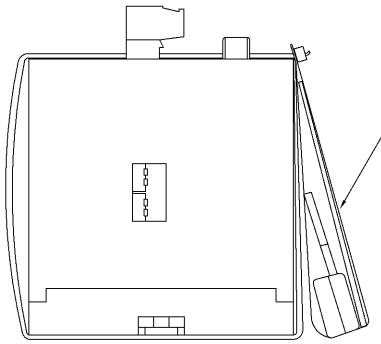
From this page, configure all the parameters except reply timeout which needs to configured from client device.











CONNECTIVITY MODULE OUTLINE

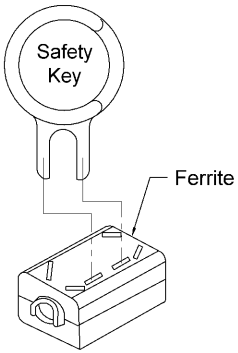
Customer Installation Instructions p/n 754440

insert the Safety Key into the ferrite case slots provided to open the case. See Figure 1 *Placement of Ferrite MUST BE WITHIN 1" to device being connected.* Position cable into ferrite case and using only hand pressure SNAP the case closed.

Safety Key P/N 755125

Cable, Catagory 5
Min. Dia. .17/Max. Dia .24

Figure 1



Notes:
1. Remove Tie-wrap and plastic bag containing Ferrite *ONLY PRIOR TO CONNECTING COMMUNICATION CABLE TO UNIT.*
2. Follow customer installation instruction for Ferrite placement.

DETAIL A

CHANGE LETTER	ECN NO.	BY	APP.	DATE
B	207021	SRC	AS	12/22/05
	Update label information			
A	206873	SRC	AS	12/05
	Update Logo's			
—	200697	YZ	AS	04/04
	New Issue			

SUBSIDIARY DISTRIBUTION

AE AN AM AJ AL
CH AV AA PS AR
AC AP AC AS

PROJECT NAME:

OUTLINE INSTALLATION
CONNECTIVITY MODULE
CAT. NO. 5150

THIRD ANGLE PROJECTION

	BY	DATE
DRAWN BY	YZ	04/04
CHECKED		
DRAFTING APPROVAL	SRC	04/04
FINAL APPROVAL	AS	04/04

MANUFACTURING TOLERANCES TO BE IN ACCORDANCE WITH ASCO PROCEDURE MP-I-003. FOR PLASTIC PARTS SEE MP-I-055

ASSEM. REF. NO.

ASCO® ASCO Power Technologies, L.P.
FLORHAM PARK, NEW JERSEY 07932 U.S.A.

COMPUTER GENERATED DRAWING

SCALE 1:1 | ACAD | FILE 02

SIZE CS | DWG. NO. 757085

CHANGE LETTER B | ECN NO. 207021 | SHEET 1 OF 1

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