Installation Manual

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

381333-367 B

Who Should Use this Installation Manual

This 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 XP* ® and *Windows Internet Explorer 6.0* or higher (with Microsoft Virtual Machine or the latest version of the Java Runtime Environment loaded) is necessary to configure the Connectivity Module.

**Important information   To properly set up the software, you will need the nameplate data and other
that you will need**   information from all your Automatic Transfer Switches 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])
- Device Address (set in each ATS, Power Manager , or Digital Power Meter)

Product	Manuals that you may need
7000 & 4000 Series ATS & Group 5 Controller	381333-126 & appropriate ATS manual
Series 300, ASCO 940, 962, 436, 434, 447, 448 ATS	appropriate ATS manual
Power Manager Xp, Catalog 5220D, 5220T	381333-199
Digital Power Meter, Catalog 5210	381333-368
Serial Module, Catalog 5110 (Acc. 72A)	381333-240
ATS Remote Annunciator, Catalog 5310 (1 channel)	381333-316 & 381333-317
ATS Remote Annunciator, Catalog 5350 (8 channel)	381333-314 & 381333-315

ATS Remote Annunciator kits   8 channel K871966-004, 1 channel K871966-005
Kits include: ATS Remote Annunciator (RA), Connectivity Module (CM), power supply, mounting hardware, connecting cable
The CM can be configured to provide ATS data to ATS Remote Annunciators (RA) over Ethernet either on encryption disabled or enabled mode. Details on how to configure all required parameters for the two modes are in the RA manuals listed above.
Encryption disabled mode is the default operation mode for both the CM and the RA. In this mode, the TCP port and protocol assigned must be the same for both devices.
Encryption enabled mode is when both the CM and RA are configured for AES 128-bit encryption/decryption communication. In this mode, the AES mode and AES port settings in the CM are enabled and assigned a value respectively. Note that the AES port value must be different from the TCP port value (see screen on page 2-1).
Likewise, in the RA, encryption must be enabled and the TCP port is assigned with the same value as the AES port of the CM. Note that the encryption works only on RAs with software version -003 or higher (refer to Configuration, Annunciator screen).

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

The **Connectivity Module** provides Ethernet-access that allows users to view data from ASCO automatic transfer switches, Power Managers, and Digital Power Meters. All users must follow these precautions:

⚠ **DANGER**	**To avoid possible shock, burns, or death, deenergize all electrical sources to the ATS before installing the Connectivity Module.**
NOTICE	Be sure that *Users* to whom you give access are those persons that you want to view information about the electrical system.

Windows and *Internet Explorer* are registered trademarks of Microsoft Corporation.

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
AES Encryption   enable or disable

Installation Overview

1. Determine the kind of network to use to connect the various devices to the Connectivity Module.
2. If a RS485 network will be used, do not install the Connectivity Module until the DIP switches are checked and set on the bottom of the unit. See below.
3. Refer to the outline & mounting drawing (page iv) and wiring diagrams (pages v, vi).
4. Select the appropriate installation (pages 1-1, 1-2) that corresponds to the product to be connected.
5. Establish and test communications (page 1-2). Refer to Status LEDs (page vii).
6. View and change configuration pages (page 1-3).

Check the DIP Switch Settings for RS485

For RS485 networks only, before installing the Connectivity Module check the position of the DIP switch actuators on the bottom of the unit. The upper two actuators turn on a built-in termination resistor, if needed. The lower two actuators select either a 2-wire or 4-wire RS485 network. See the figure below.
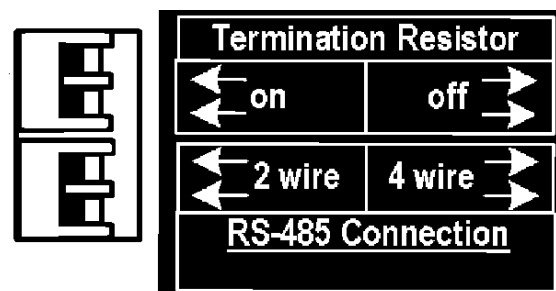
Termination Resistor, upper two actuators

On a daisy chained RS485 network the Connectivity Module termination resistor must be ON. Likewise only the farthest device from the Connectivity Module must have the termination resistor ON. All other devices must be OFF. The DIP switch upper two actuators control the built-in termination resistor:
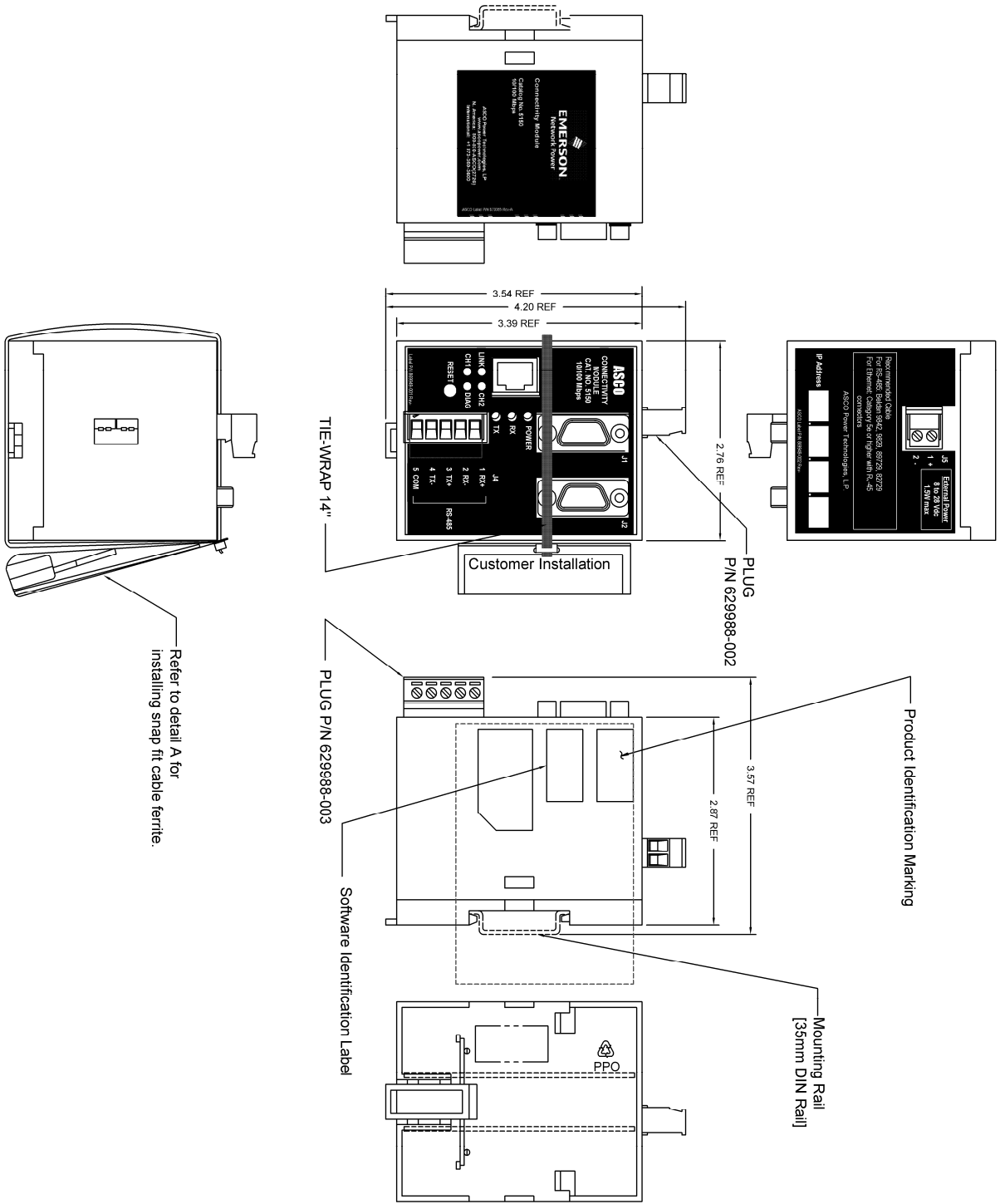ON – move to left.   OFF – move to right.

2-Wire or 4-Wire network, lower two actuators

If a 2-wire RS485 network is to be attached to the Connectivity Module, move the lower two actuators to the left. If a 4-wire RS485 network is used, move these actuators to the right.

DIP Switch on bottom of unit

Modbus is a registered trademark of Gould Inc.

3.54 REF
4.20 REF
3.39 REF
2.76 REF

TIE-WRAP 14"

Customer Installation

PLUG P/N 629988-002

EMERSON
Network Power
Connectivity Module
Catalog No. 5150
10/100 Mbps
ASCO Power Technologies, LP
N. America   800-800-ASCO (2726)
www.asco.com   +1 972-368-3600

ASCO
CONNECTIVITY
MODULE
CAT. NO. 5150
10/100 Mbps

LINK
CH1
CH2
RX
TX
POWER
RESET
DIAG

J4
RS-485
5 COM
4 TX-
3 TX+
2 RX-
1 RX+

J1
J2

IP Address
Recommended Cable
For RS-485: Belden 9842, 9923, 89729, 8279
For Ethernet: Category 5e or higher with RJ-45 connectors

J5   External Power
1 +   8 to 28 Vdc
2 -   1.5W max

ASCO Power Technologies, LP

Refer to detail A for installing snap fit cable ferrite.

PLUG P/N 629988-003

Software Identification Label

Product Identification Marking

Mounting Rail [35mm DIN Rail]

3.57 REF
2.87 REF

PPO

Customer Installation Instructions
p/n 754440

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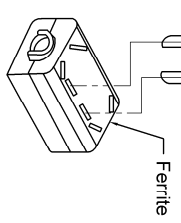Placement of Ferrite MUST BE WITHIN 1" to device being connected.
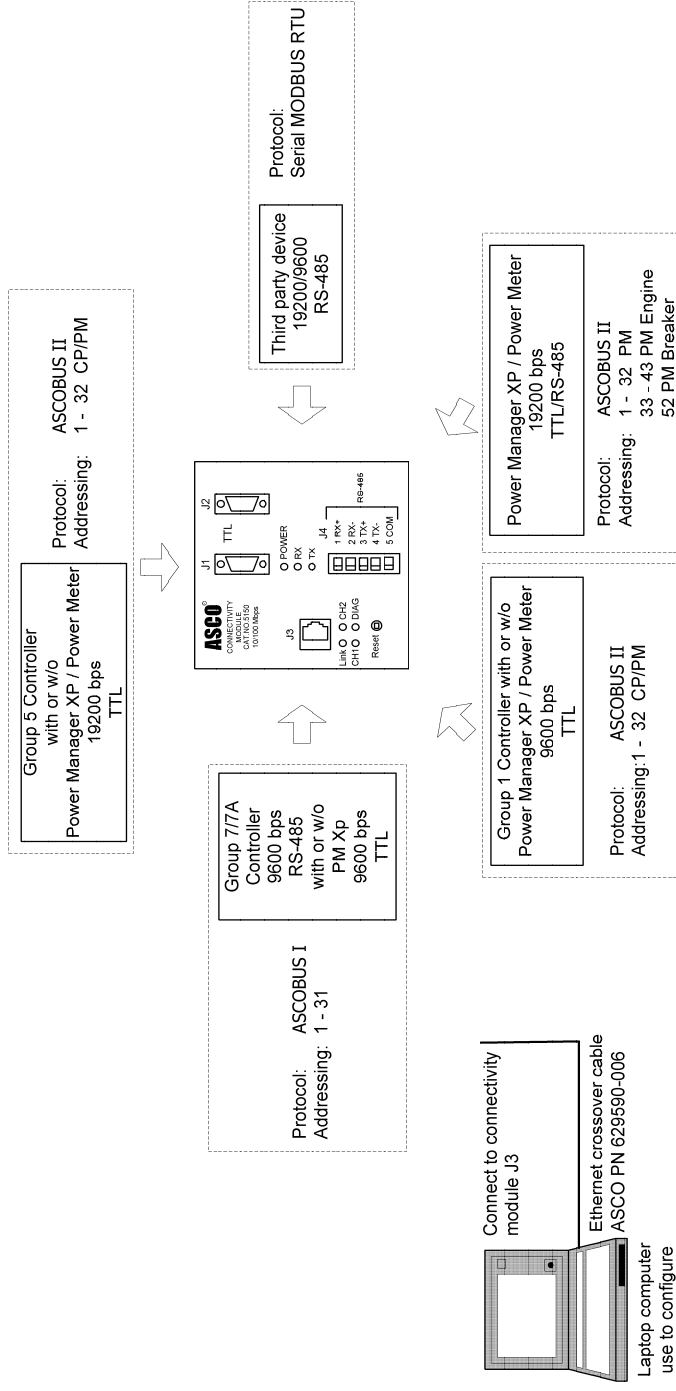Position cable into ferrite case and using only hand pressure SNAP the case closed.

Safety Key P/N 755125

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

Figure 1

DETAIL A

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.

Safety Key

Ferrite

Group 5 Controller
with or w/o
Power Manager XP / Power Meter
19200 bps
TTL

Protocol: ASCOBUS II
Addressing: 1 - 32   CP/PM

Group 7/7A
Controller
9600 bps
RS-485
with or w/o
PM Xp
9600 bps
TTL

Protocol: ASCOBUS I
Addressing: 1 - 31

Group 1 Controller with or w/o
Power Manager XP / Power Meter
9600 bps
TTL

Protocol: ASCOBUS II
Addressing:1 - 32 CP/PM

Third party device
19200/9600
RS-485

Protocol:
Serial MODBUS RTU

Power Manager XP / Power Meter
19200 bps
TTL/RS-485

Protocol: ASCOBUS II
Addressing: 1 - 32 PM
                      33 - 43 PM Engine
                      52 PM Breaker

ASCO®
CONNECTIVITY
MODULE
CAT.NO.5150
10/100 Mbps

J1 J2
TTL

O POWER
O RX
O TX

J4
1 RX+
2 RX-
3 TX+
4 TX-
5 COM
RS-485

J3
Link O O CH2
CH1 O O DIAG
Reset ⊕

Connect to connectivity
module J3

Ethernet crossover cable
ASCO PN 629590-006

Laptop computer
use to configure
Connectivity Module

Connectivity Summary Information

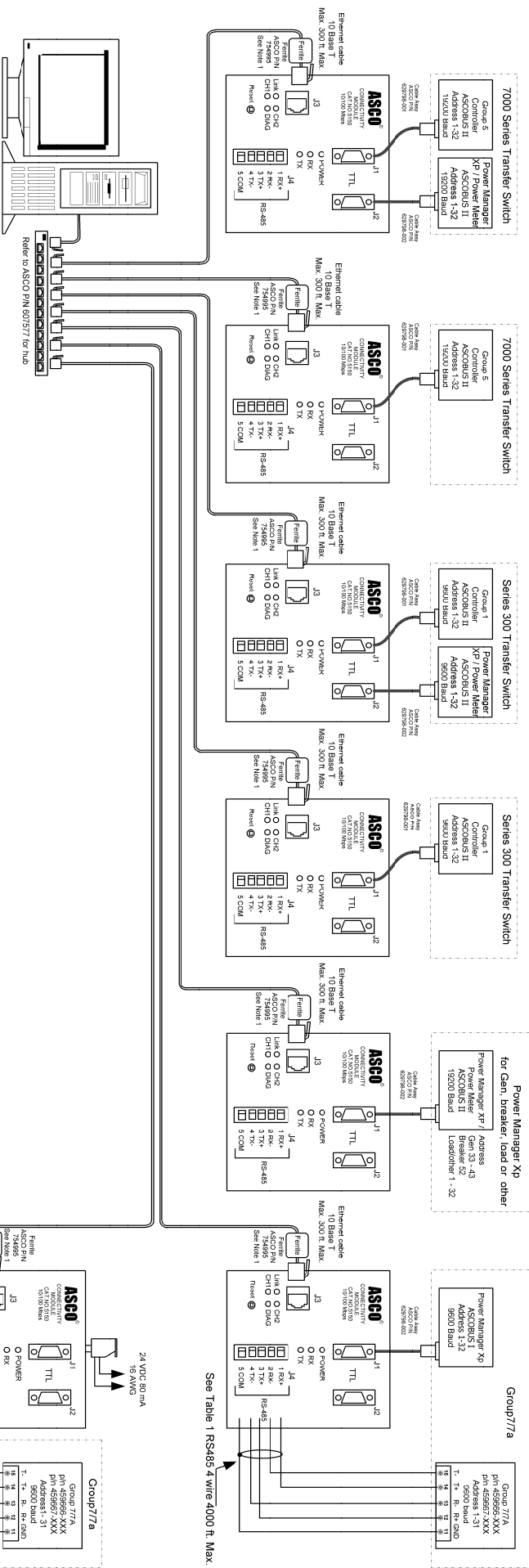| Device Connectivity to Connectivity Module	Connectivity Module J1 & J2 (TTL)	Connectivity Module J4 (RS-485)	Connectivity Module J3 (Ethernet)
7000 series ATS with or w/o Power Manager XP / Power Meter	ATS's, PM's, ASCO II Protocol, 19.2K/9600 Bps		
Series 300 ATS with or w/o Power Manager XP / Power Meter	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 / Power Meter	PM's ASCO II Protocol, 19,2K/9600 Bps	Serial Modbus RTU Protocol, 19.2K/9600 Bps	
Power Manager XP at Engines / Power Meter	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 / Power Meter	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 - Windows XP with IE, Internet Explorer 6.0 or higher, with latest SP (service pack), Microsoft Virtual Machine or latest JRE (Java runtime environment)			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

NOTES:
1. Ferrite, ASCO P/N 754995 Must be installed on
    Ethernet Cable within 1" of 72E Connectivity Module.

Windows XP with IE,
Internet Explorer 6.0 or higher,
with latest SP (service pack),
Microsoft Virtual Machine or latest JRE (Java runtime environment)

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

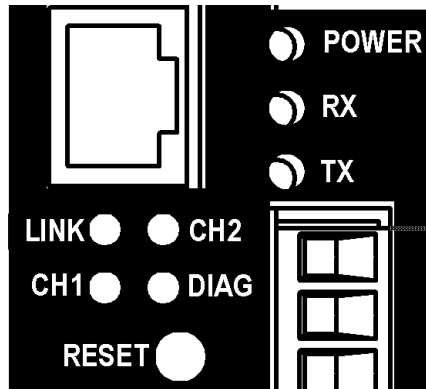| Type	Known as	Max. Length of Segment	Max. Stations per Segment	Cable Type	Connectors/ Terminations	Cable Impedance/ Terminations	Belden P/N (reference)
10 BaseT	Twisted Pair	328ft. (100 meters)	1024	UTP CAT3, 4, 5	RJ-45		7882A

Ethernet Communication Cable

See Table 1 RS485 4 wire 4000 ft. Max.

Refer to ASCO P/N 60/7577 for hub

4-WIRE FIELD WIRING

300 Series Transfer Switch

POWER MANAGER Xp
ASCOBUS II
Address 32
9600 Baud

GROUP 1 CONTROLLER
ASCOBUS II
Address 32
9600 Baud

300 Series Transfer Switch

POWER MANAGER Xp
ASCOBUS II
Address 2
9600 Baud

GROUP 1 CONTROLLER
ASCOBUS II
Address 2
9600 Baud

Power Manager XP / Power Meter
ASCOBUS II
Address 1
9600 Baud

Group 1 Controller
ASCOBUS II
Address 1
9600 Baud

Engine

Power Manager Xp Engine 11
ASCOBUS II 19.2k Baud
FMA Address 43

Engine

Power Manager Xp Engine 1
ASCOBUS II 19.2k Baud
FMA Address 33

7000 Series Transfer Switch

POWER MANAGER Xp
ASCOBUS II
Address 32
9600 Baud

GROUP 5 CONTROLLER
ASCOBUS II
Address 32
9600 Baud

7000 Series Transfer Switch

POWER MANAGER Xp
ASCOBUS II
Address 2
9600 Baud

GROUP 5 CONTROLLER
ASCOBUS II
Address 2
9600 Baud

Power Manager XP / Power Meter
ASCOBUS II
Address 1
9600 Baud

Group 5 Controller
ASCOBUS II
Address 1
9600 Baud

Series 900 Transfer Switch

POWER MANAGER Xp
ASCOBUS I
Address 1
9600 Baud

Group 7/7A
p/n 459666-XXX
p/n 459667-XXX
Address 1
9600 baud

Series 900 Transfer Switch

POWER MANAGER Xp
ASCOBUS I
Address 31
9600 Baud

Group 7/7A
p/n 459666-XXX
p/n 459667-XXX
Address 31
9600 baud

ASCO CONNECTIVITY MODULE CAT NO. 5150 10/100 Mbps

ASCO SERIAL MODULE CAT NO. 5110

ASCO II Protocol

ASCO I Protocol

POWER
RX
TX

J1 TTL
J2
J3

LINK CH2
CH1 DIAG
Reset

RS-485
1 RX+
2 RX-
3 TX+
4 TX-
5 COM
J4

Ferrite ASCO P/N 754995 See Note 1

See Table 1 RS485 4-Wire 4000 ft. Max.

Windows XP with IE, Internet Explorer 6.0 or higher, with latest SP (service pack), Microsoft Virtual Machine or latest JRE (Java runtime environment)

Refer to ASCO P/N 607577 for hub

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

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

NOTES:

1.   Ferrite, ASCO P/N 754995 Must be installed on Ethernet Cable within 1" of 72E Connectivity Module.

2-WIRE FIELD WIRING

7000 Series Transfer Switch

7000 Series Transfer Switch

300 Series Transfer Switch

See Table 1 RS485 2 wire 4000 ft. Max.

ASCO II Protocol

NOTES:
1. Ferrite, ASCO P/N 754995 Must be installed on Ethernet Cable within 1" of 72E Connectivity Module.

Windows XP with IE,
Internet Explorer 6.0 or higher,
with latest SP (service pack),
Microsoft Virtual Machine or latest JRE (Java runtime environment)

Refer to ASCO P/N 607577 for hub

Ethernet cable
10 Base T
Max. 300 ft. Max.

Ferrite
ASCO P/N
754995
See Note 1

72E Connectivity Module
Termination Resistor: ON
RS485, 2-WIRE

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

Status LEDs

LED	LED Description	LED Function / Mode of Operation
POWER	Power indication status. GREEN/AMBER	Solid GREEN – functioning as a Connectivity Module (Acc. 72E). Solid AMBER – functioning as a Serial Module (Acc. 72A).
RX	Data receiving status. GREEN	Blinking GREEN – indicates receiving data from a client.
TX	Data transmit status. GREEN	Blinking GREEN – indicates transmitting data to a client.
LINK	Link status. GREEN	Solid GREEN – indicates active Ethernet connection.
CH1	Client connection status. GREEN	Blinking GREEN – indicates active Ethernet client connection.
CH2	Additional Diagnostic LED. YELLOW	Blinking YELLOW then off – indicates server disconnection because of Ethernet client inactivity. Solid YELLOW then off – indicates server disconnection due to Ethernet client disconnection.
DIAG	Diagnostic. RED	Off – indicates no error. Short blinking RED then off – indicates active client/server write process. Long blinking light then off – indicates server is receiving unrecognized request packet from an Ethernet client. Solid RED – indicates major error.

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

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

Connectivity Module Kit K889950 for 7000 & 4000 Series and Series 300 only		Connectivity Module Kit K889950-001 for 7000 & 4000 Series and Series 300 with PM or DPM	
Connectivity Module 5150	629800-004	Connectivity Module 5150	629800-004
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 PM or DPM *	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 PM (or DPM) is present, connect the 4-foot serial cable between the PM J5 receptacle (or DPM J2 receptacle) and the Connectivity Module J2 receptacle.*

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

The Connectivity Module (CM) 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 CM to the Control Panel). Refer to installation drawings provided and follow the steps below to install the Connectivity Module.

Connectivity Module Kit K889953 for ASCO 940/962 only		Connectivity Module Kit K889953-001 for ASCO 940/962 with PM	
Connectivity Module 5150	629800-004	Connectivity Module 5150	629800-004
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 (CM). The serial cable from the PM provides the power to the CM.

⚠ 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).

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

The Connectivity Module (CM) mounts on a DIN rail near the Power Manager (PM) or Digital Power Meter (DPM). A long serial cable connects the Connectivity Module to the PM or DPM. Refer to installation drawings provided and follow the steps below to install the Connectivity Module.

Connectivity Module Kit K889958 for a stand-alone Power Manager or Digital Power Meter (not connected to an ATS)	
Connectivity Module 5150	629800-004
DIN Rail and Hardware	754610
4 ft. Serial Cable for PM or DPM	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 PM (or DPM). 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 PM or DPM.

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 receptacle (or Digital Power Meter J2 receptacle) 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 for each Connectivity Module (CM) connected to an Automatic Transfer Switch (ATS), Power Manager (PM), or Digital Power Meter (DPM). 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* and *Windows Internet Explorer 6.0 +* installed.
- Ethernet crossover network cable (part no. 629590-006).
- Connectivity Module connected to the ATS, PM, or DPM.

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, PM, or DPM enclosure door as far as possible (with the crossover cable running to the laptop computer outside the enclosure). Then energize ATS, PM, or DPM 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, PM, or DPM.

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

Type the address of the Connectivity Module and add /config.htm here.

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.

NOTE: There can only be one client who can access the configuration page at any given time.

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 or DPMs (go to the appropriate section for the specific ATS, PM, or DPM).

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
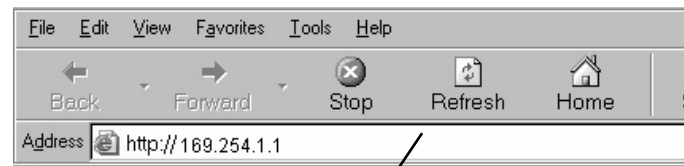
Type the address of the Connectivity Module here

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 or DPMs (go to the appropriate section for the specific ATS, PM, or DPM).

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.

Consult with your network administrator for these 4 settings:
 IP Address
 Subnet Mask
 Gateway Address
 TCP Port Number
  (Range of ports allowed is: 10024-65535, but do <u>not</u> use ports 14000-14009 or 30718)

Serial Port Speed   19200

Flow Control   No flow control

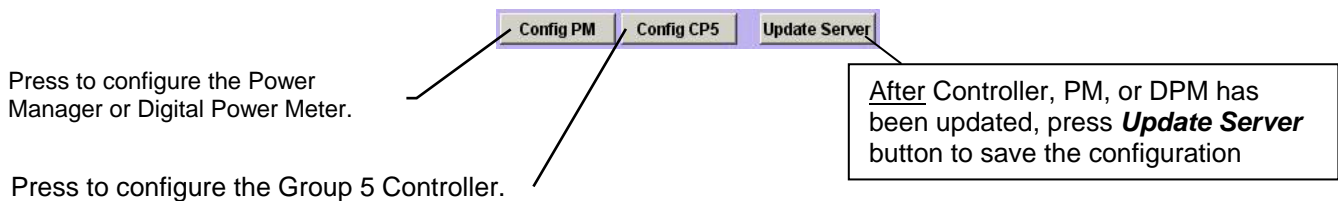**Interface Mode**   RS485-4 or 2 Wire

Encyrption   enable check box and assign an AES port (same range as TCP port but do <u>not</u> use the same port number used for TCP port.)

3rd party device running own protocols

SNMP   refer to Appendix A-5

ATS Name   ATS Location

Connectivity Module Configuration

Firmware Version 869764 - 003
MAC Address 00 20 4a d8 0e d7
IP address 155.104.006.213
Subnet Mask 255.255.000.000
Gateway Address 000.000.000.000
TCP Timeout (ms) 500   TCP Port 10001
Serial Speed 19200
Serial Flow Control No flow control
Serial IF Mode TTL/RS485-4wire(default)
Serial Timeout (ms) 300   Serial Retries 1

☐ AES Encryption Enabled   AES Port 0
☐ Pass Through Enabled   SNMP
                                          Update Server

Group5 Controller Configuration
Version 607540-051
Name FAA
Location SW LAB

Update

Press *Update* button when finished to save the configuration changes. Do this <u>before</u> you press *Update Server* button.

<u>After</u> Controller has been updated, press *Update Server* button to save the configuration changes.

Device Configurator Screen for 7000 & 4000 Series ATSs

When a Power Manager or Digital Power Meter is connected, additional buttons appear at the bottom of the Connectivity Module Device Configuration screen.

Config PM   Config CP5   Update Server

Press to configure the Power Manager or Digital Power Meter.

Press to configure the Group 5 Controller.

<u>After</u> Controller, PM, or DPM has been updated, press *Update Server* button to save the configuration

Additional Buttons on Device Configurator Screen for
7000 & 4000 Series ATSs with Power Manager or Digital Power Meter

Device Configurator Screen for *7000 & 4000 Series* ATSs with a PM or DPM

If a Power Manager (PM) or Digital Power Meter (DPM) 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** or **Power Meter Configuration** screen (right side).

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

Input Name & Output Names (Power Manager only)
For a Power Manager, 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.

PM or DPM Configuration	Input & Output Names (PM only)

Press *Config I/O Name* button to display Input & Output Names screen.

Press *To PM Config* button to return to Power Manager Configuration screen.

Power Manager

Power Manager name

Power Manager location

Press *Update* button when finished to save the configuration

Input names

Output names

Press *Update* button when finished to save the names.

Power Meter

Power Meter name

Power Meter location

Press *Update* button when finished to save the configuration

NOTE
Update the PM, DPM, or Group 5 Controller first if you need to update the server. Do not close the browser during the updating process. The PM, DPM, or CP update request will be discarded if the browser is closed.

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.

ATS one-line icon shows position & source status (green or red circle means source is acceptable, grey circle means source is not acceptable)

Active time delays ATS name ATS type ATS location Status of Normal Source

Status of Emergency Source

Active time delays

Actual voltage & frequency readings from ATS controller.

Series 7000 OTTS Status

| Emergency | Name: ATS #2 | Location: 3rd Floor Sec C | Normal |

Emergency Accepted

Time Delay to Normal 0 Sec

Gen Cooldown 0 Sec

Normal Accepted

Time Delay to Emergency 0 Sec

Voltage 112 V

Freq 60.0 Hz

	Voltage	Freq
Dropout	90 V	54.0 Hz
Pickup	108 V	57.0 Hz

Voltage 111 V

Freq 60.1 Hz

	Voltage	Freq
Dropout	102 V	54.0 Hz
Pickup	108 V	57.0 Hz

Load on Normal

Actual voltage & frequency readings from ATS controller.

Voltage & frequency settings in ATS controller.

Voltage & frequency settings in ATS controller.

ATS Events   Total: 99   Engine Start

Event Time	Event Description	Event Cause
08/21/2008 13:23:27	E not acceptable	E under Frequency
08/19/2008 11:00:01	Engine stop	
08/19/2008 11:00:01	E to N transfer	
08/19/2008 10:59:01	N to E transfer	Engine exerciser
08/19/2008 10:59:00	Engine start	Engine exerciser

Rating

Voltage	120 V
Current	30 Amp
Frequency	60 Hz

ATS events (date & time, Description, and cause)

ATS ratings

Load connected to Normal or Emergency Source

Engine start signal (red means active)

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

Same as above and adds information from the Power Manager (voltage current, power, and rating).

Series 7000 OTTS and Power Manager Status

| Emergency | Name: ATS 1 | Location: Chiller 3 | Normal |

Power Manager

ATS Event Total: 99

Voltage L-N	Voltage L-L	Current	Power
Van 116 V	Vab 199 V	Phase A 231 Amp	KiloWatts 69
Vbn 115 V	Vbc 200 V	Phase B 247 Amp	KiloVAR 0
Vcn 116 V	Vca 201 V	Phase C 122 Amp	KiloVA 69
	Average 200 V	Average 200 Amp	P.F. 1.0
Device Rating	Unbal% 1	Unbal% 3	Frequency 60.0 Hz
CT Ratio 1000:5			
PT Ratio 120:120			

9/8/2008 16:38:6
Engine start N under Volt
9/8/2008 16:38:3
N not acceptable N under Vo
9/8/2008 13:36:47
E not acceptable E under Fre
9/8/2008 13:36:43
Engine stop
9/8/2008 13:36:43
E to N transfer

ATS events on right side of screen

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

Same as above and adds information from the Power Meter (voltage current, power, and rating).

Series 7000 OTTS and Power Meter Status

| Emergency | Name: _235_501 | Location: BLDG. 1a | Normal |

Power Meter

ATS Event Total: 99

Voltage	Current	Power
116 V	19	KiloWatts -1
		KiloVAR 2
		KiloVA 2
		P.F. -0.49
Device Rating		Frequency 60.0 Hz
CT Ratio 200:5		
PT Ratio 120:120		

4/6/2011 11:3:15
Engine start Comm
4/6/2011 7:54:51
Engine stop
4/6/2011 7:49:40
E to N transfer
4/4/2011 12:17:4
N to E transfer Comm

ATS events on right side of screen

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 <u>not</u> use ports 14000-14009 or 30718)

Serial Port Speed   9600

Flow Control   No flow control

Interface Mode   RS485-4 or 2 Wire

Encyrption   enable check box and assign an AES port (same range as TCP port but do <u>not</u> use the same port number used for TCP port.)

SNMP   refer to Appendix A-5

ATS Name   ATS Location

Connectivity Module Configuration
Firmware Version 869764 - 003
MAC Address 00 20 4a d8 0e d2
IP address 155.104.006.203
Subnet Mask 255.255.000.000
Gateway Address 000.000.000.000
TCP Timeout (ms) 200   TCP Port 10001
Serial Speed 9600
Serial Flow Control No flow control
Serial IF Mode TTL/RS485-4wire(default)
Serial Timeout (ms) 100   Serial Retries 1
AES Encryption Enabled   AES Port 768
Pass Through Enabled   SNMP
Update Server

Group1 Controller Configuration
Version 473674-014
Name Group1
Location SW LAB
Nominal Voltage 480 Volts
Nominal Current 30 Amps
Update

Press *Update* button when finished to save the configuration changes. Do this <u>before</u> you press *Update Server* button.

<u>After</u> Controller or has been updated, press *Update Server* button to save the configuration changes.

Device Configurator Screen for Series 300 ATSs

When a Power Manager or Digital Power Meter is connected, additional buttons appear at the bottom of the Connectivity Module Device Configuration screen.

Config PM   Config CP1   Update Server

Press to configure the Power Manager or Digital Power Meter.

<u>After</u> Controller, PM, or DPM has been updated, press *Update Server* button to save the configuration changes.

Press to configure the Group 1 Controller.
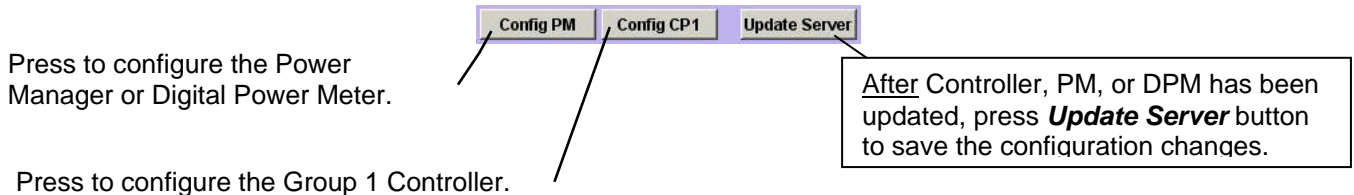
Additional Buttons on Device Configurator Screen for
Series 300 ATSs with Power Manager or Digital Power Meter

Device Configurator Screen for *Series 300* ATSs with a PM or DPM

If a Power Manager (PM) or a Digital Power Meter (DPM) 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** or **Power Meter Configuration** screen (right side).

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

Input Name & Output Names (Power Manager only)
For a Power Manager, 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.

PM or DPM Configuration	Input & Output Names (PM only)

Press ***Config I/O Name*** button to display Input & Output Names screen.

Press ***To PM Config*** button to return to Power Manager Configuration screen.

Power Manager

Power Manager name

Power Manager location

Power Manager Configuration
Software Version 629262-020

Name `Chiller 1`
Location `7th Floor`

Config I/O Name

SCI: 485:
Protocol `ASCObusII`   Protocol `ASCObusII`
Baud Rate `9600`   Baud Rate `9600`
Address `1`   Address `1`
System `3Ph-4Wire Wy`
Source `Emergency`
PT Ratio `120`   :120
CT Ratio `1000`   :5
CT4 Ratio `1000`   :5   Update

Input Name
1 `Status Input 1`   To PM Config
2 `Status Input 2`
3 `Status Input 3`
4 `Status Input 4`
5 `Status Input 5`   Input names
6 `Status Input 6`
7 `Status Input 7`   Output names
8 `Status Input 8`

Output Name
1 `Relay Output 1`
2 `Relay Output 2`
3 `Relay Output 3`
4 `Relay Output 4`   Update

Press ***Update*** button when finished to save the configuration changes.

Press ***Update*** button when finished to save the names.

Power Meter

Power Meter name

Power Meter location

Power Meter Configuration
Software Version 843086-001

Name `ASCO_PM`
Location `ASCO`

Config I/O Name

SCI: 485:
Protocol `ASCObusII`   Protocol `ASCObusII`
Baud Rate `19200`   Baud Rate `9600`
Address `1`   Address `1`
System `1Ph-2Wire`
Source `Load`
PT Ratio `220`   :120
CT Ratio `200`   :5
CT4 Ratio `0`   :5   Update

Press ***Update*** button when finished to save the configuration changes.

NOTE
Update the PM, DPM, or Group 1 Controller <u>first</u> if you need to update the server. Do not close the browser during the updating process. The PM, DPM, or CP update request will be discarded if the browser is closed.

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.

ATS one-line icon shows position & source status (green or red circle means source is acceptable, grey circle means source is not acceptable)

Status of Emergency Source

ATS name

ATS type

ATS location

Status of Normal Source

Actual voltage & frequency readings from ATS controller.

Voltage & frequency settings in ATS controller.

Engine start signal (red means active)

Active time delays

Actual voltage reading from ATS controller.

Voltage & frequency settings in ATS controller.

Active time delays

Load connected to Normal or Emergency Source

Series 300 OTTS Status

Emergency | Name: ATs #3 | Location: 10th Foor | Normal

Emergency Accepted

Voltage 200 V
Freq 60.0 Hz

	Voltage	Freq
Dropout	75%	85%
Pickup	90%	95%

Engine Start

Time Delay to Normal
0

Gen Cooldown
0

E   L   N

Normal Accepted

Time Delay to Emergency
0

Load on Normal

Voltage 200 V
Freq 60.0 Hz

	Voltage
Dropout	85%
Pickup	90%

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

The **Detail Screen** for *Series 300* ATSs with a Power Manager is the same as above and adds information from the PM (voltage, current, power, and rating).

Series 300 OTTS and Power Manager Status

Emergency | Name: ATS #7 | Location: 7th Floor | Normal

Power Manager

Voltage L-N	Voltage L-L		Current		Power		Rating	
Van 240 V	Vab 416 V	Phase A 685 Amp		KiloWatts 424		CT Ratio 1000:5	
Vbn 240 V	Vbc 416 V	Phase B 685 Amp		KiloVAR -251		PT Ratio 240:120	
Vcn 240 V	Vca 416 V	Phase C 685 Amp		KiloVA 493		
	Average 416 V	Average 685 Amp		P.F. 0.86		
	Unbal% 74	Unbal% 33		Frequency 60.0 Hz		

Detail Screen for *Series 300* ATSs with a Digital Power Meter

The **Detail Screen** for *Series 300* ATSs with a Digital Power Meter is the same as above and adds information from the DPM (voltage, current, power, and rating).

Series 300 OTTS and Power Meter Status

Emergency | Name: Group 1 | Location: Lab | Normal

Power Meter

Voltage		Current	Power		Rating	
116 V		19Amps	KiloWatts -1		CT Ratio 200:5	
			KiloVAR 2		PT Ratio 120:120	
			KiloVA 2		
			P.F. -0.49		
			Frequency 60.0 Hz		

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.

ATS Name   Nom. Voltage

Consult with your network
administrator for these 4 settings:
  IP Address
  Subnet Mask
  Gateway Address
  TCP Port Number
   (Range of ports allowed is:
   10024-65535, but do <u>not</u> use
   ports 1400-14009 or 30718)

Serial Port Speed   9600

Flow Control   No flow control

Interface Mode RS485-4 or 2 Wire

Encyrption   enable check box and
assign an AES port (same range as
TCP port but do <u>not</u> use the same
port number used for TCP port.)

Press *Update* button
when finished to save
the configuration

Press *Update Server* button
when finished to save the
configuration changes.

Device Configurator Screen without Power Manager

ATS Name   Nom. Voltage

Consult with your network
administrator for these 4 settings:
  IP Address
  Subnet Mask
  Gateway Address
  TCP Port Number
   (Range of ports allowed is:
   10024-65535, but do <u>not</u> use
   ports 1400-14009 or 30718)

Serial Port Speed   9600

Flow Control   No flow control

Interface Mode   RS422/485-4Wire

Encyrption   enable check box and
assign an AES port (same range as
TCP port but do <u>not</u> use the same
port number used for TCP port.)

Press *Update* button
when finished to save
the configuration

Press *Update Server* button
when finished to save the
configuration changes.

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.

ATS one-line icon shows position & source status
(green or red circle means source is acceptable,
grey circle means source is not acceptable)

Status of
Emergency
Source

ATS name

Status of Normal Source

Actual voltage
reading from
ATS controller.

Actual voltage
reading from
ATS controller.

Voltage &
frequency
settings in ATS
controller.

Voltage &
frequency
settings in ATS
controller.

Time delay
settings in
ATS
controller.

Time delay
settings in
ATS
controller.

ATS ratings

Load connected to Normal or Emergency Source

Series 900 ATS Status

Emergency | ATS Name: ATS #5 | Normal

Emergency Accepted | Normal Accepted

Voltage 211 V
Voltage: Freq:
Pickup 90% 95%
Time Delay Setting:
Gen Cool Down (2E) 0 Min
Transfer to N (3A) 0 Sec

Voltage 211 V
Voltage:
Dropout 94%
Pickup 90%
Time Delay Setting:
Normal Fail (1C) 0 Sec
Transfer to E (2B) 0 Sec

Load on Normal

ATS Ratings

Nominal Voltage 220 Volts   Frequency 60 Hz   ATS Phases Single

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.

ATS one-line icon shows position & source status (green or red circle
means source is acceptable, grey circle means source is not acceptable)

Status of
Emergency
Source

ATS name

Status of Normal Source

Actual voltage
reading from
ATS controller.

Actual voltage
reading from
ATS controller.

Voltage &
frequency
settings in ATS
controller.

Voltage &
frequency
settings in ATS
controller.

Time delay
settings in
ATS
controller.

Time delay
settings in
ATS
controller.

Load connected to Normal or Emergency Source

Series 900 ATS and Power Manager Status

Emergency | ATS Name: ATS #2 | Normal

Emergency Accepted | Normal Accepted

Voltage 198 V
Voltage: Freq:
Pickup 90%
Time Delay Setting:
Gen Cool Down (2E) 10 Min
Transfer to N (3A) 4 Min

Voltage 202 V
Voltage:
Dropout 93%
Pickup 90%
Time Delay Setting:
Normal Fail (1C) 3.0 Sec
Transfer to E (2B) 2 Sec

Load on Normal

Power Manager

Rating	Voltage L-L	Current	Power
PT Ratio 120:120	Vab 118	Phase A 2	KiloWatts 0
CT Ratio 150:5	Vbc 118	Phase B 3	KiloVAR 0
	Vca 117	Phase C 2	KiloVA 1
			P.F. 0.86
			Frequency 60.0

ATS Ratings

Phase Three
Frequency 60 Hz
Voltage 208 Volt

Device Configurator Screen for Power Manager or Digital Power Meter

If a stand-alone Power Manager (PM) or Digital Power Meter (DPM) 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** or **Power Meter Configuration** screen (right side).

Power Manager or Power Meter Configuration
Enter or change the PM or DPM **Name** (8 char. max.) and **Location** (18 char. max.) Several configuration settings must be set appropriately. Press the *Update* button when finished to save the PM or DPM configuration changes.

Input Name & Output Names (Power Manager only)
For a Power Manager, 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.

PM or DPM Configuration	Input & Output Names (PM only)

Press *Config I/O Name* button to display Input & Output Names screen.

Press *To PM Config* button to return to Power Manager Configuration screen.

Power Manager

Power Manager Configuration
Software Version 629262-020

Name Chiller 2
Location basement

Config I/O Name

SCI: 485:

Protocol ASCObusII   Protocol ASCObusII
Baud Rate 19200   Baud Rate 19200
Address 2   Address 34

System 3Ph-3Wire Del
Source Normal
PT Ratio 120   :120
CT Ratio 1200   :5
CT4 Ratio 1000   :5

Update

Input Name

1 Water temp high   To PM Config
2 Low oil
3 kw high
4 Low fuel
5 kw low
6 eng. cooling
7 Status Input 7
8 Status Input 8

Output Name

1 eng. shutdown
2 Relay Output 2
3 Relay Output 3
4 Relay Output 4

Update

Power Manager name

Power Manager location

Input names

Output names

Press *Update* button when finished to save the configuration

Press *Update* button when finished to save the names.

Power Meter

Power Meter Configuration
Software Version 843086-001

Name ASCO_PM
Location ASCO

Config I/O Name

SCI: 485:

Protocol ASCObusII   Protocol ASCObusII
Baud Rate 19200   Baud Rate 19200
Address 1   Address 1

System 1Ph-2Wire
Source Load
PT Ratio 220   :120
CT Ratio 200   :5
CT4 Ratio 0   :5

Update

Power Meter name

Power Meter location

NOTE
Update the PM or DPM first if you need to update the server. Do not close the browser during the updating process. The PM or DPM update request will be discarded if the browser is closed.

Press *Update* button when finished to save the configuration

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.

Settings

PM name

Energy levels

PM location

Power Manager Status

Energy	
Normal	
KWH Import	5675968
KWH Export	5233
KWH Net	5670735
KVAR Lag	3105
KVAR Lead	3315
KVAR Net	-210
KVA Net	5677180
Show Emergency	

Settings	
Name	PM
Location	Basement1
System Type	Wye
Source Mode	Load
PT Ratio	120:120
CT Ratio	505:5
CT4 Ratio	1255:5

Discrete I/O		
No.	Input Name	Status
1	Emerg Avail	Inactive
2	BP to Normal	Inactive
3	BP to Emerg	Active
4	ISO CLOSED	Inactive
5	ISO OPEN	Inactive
6	TEST MODE	Inactive
7	NORM SRC AVAIL	Inactive
8	ENGINE START	Inactive

Power Measurements

Voltage L-N		Voltage L-L		Current		Power	
Van	118	Vab	205	Phase A	86	KiloWatts	32
Vbn	118	Vbc	206	Phase B	66	KiloVAR	0
Vcn	119	Vca	206	Phase C	120	KiloVA	32
		Average	205	Average	91	P.F.	1.0
		Unbal%	0	Unbal%	0	Frequency	60.0

No.	Output Name	Status
1	EngOff	Open
2	OUTPUT 2	Open
3	Close24v	Open
4	output4	Open

Power measurements

Discrete Input / Output name & status information

Actual voltage, current, and power readings from the PM.

Detail Screen for *Digital Power Meters* connected to a Load

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

Settings

DPM name

Energy levels

DPM location

Power Meter Status

Energy	
Normal	
KWH Import	0
KWH Export	398
KWH Net	398
KVAR Lag	0
KVAR Lead	712
KVAR Net	712
KVA Net	816
Show Emergency	

Settings	
Name	ASCO_PM
Location	ASCO
System Type	1Phase-2W
Source Mode	Load
PT Ratio	120:120
CT Ratio	200:5
CT4 Ratio	0:5

Discrete I/O

Power Measurements

| Voltage	Current	Power	
0	0	KiloWatts	-1
		KiloVAR	2
		KiloVA	2
		P.F.	-0.49
		Frequency	60.0

Power measurements

Discrete Input / Output name & status information

Actual voltage, current, and power readings from the DPM.

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.

Gen-set icon appears if Power Manager address is set to 33-43.

Settings   PM name   PM location

Engine Power Manager Status

Energy levels

Energy		
Emergency		
KWH Import	5076	
KWH Export	5039	
KWH Net	37	
KVAR Lag	2995	
KVAR Lead	2995	
KVAR Net	0	
KVA Net	36	

Settings	
Name	PM
Location	Basement1
System Type	Wye
Source Mode	Emergency
PT Ratio	120:120
CT Ratio	505:5
CT4 Ratio	1255:5

Discrete I/O		
No.	Input Name	Status
1	Emerg Avail	Inactive
2	BP to Normal	Inactive
3	BP to Emerg	Active
4	ISO CLOSED	Inactive
5	ISO OPEN	Inactive
6	TEST MODE	Inactive
7	NORM SRC AVAIL	Inactive
8	ENGINE START	Inactive

Power Measurements

Voltage L-N		Voltage L-L		Current		Power	
Van	118	Vab	204	Phase A	86	KiloWatts	32
Vbn	118	Vbc	204	Phase B	65	KiloVAR	0
Vcn	118	Vca	205	Phase C	120	KiloVA	32
		Average	204	Average	90	P.F.	1.0
		Unbal%	0	Unbal%	0	Frequency	60.0

Output Name		Status
No.	Output Name	Status
1	EngOff	Open
2	OUTPUT 2	Open
3	Close24v	Open
4	output4	Open

Power measurements

Actual voltage, current, and power readings from the PM.

Discrete Input / Output name & status information

Detail Screen for *Digital Power Meters* connected to a Generator

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

Gen-set icon appears if Digital Power Meter address is set to 33-43.

Settings   DPM name   DPM location

Engine Power Meter Status

Energy levels

Energy	
Normal	
KWH Import	0
KWH Export	398
KWH Net	398
KVAR Lag	0
KVAR Lead	712
KVAR Net	712
KVA Net	815
Show Emergency	

Settings	
Name	ASCO_PM
Location	ASCO
System Type	1Phase-2W
Source Mode	Load
PT Ratio	120:120
CT Ratio	200:5
CT4 Ratio	0:5

Discrete I/O

Power Measurements

Voltage	Current	Power	
116	19	KiloWatts	-1
		KiloVAR	2
		KiloVA	2
		P.F.	-0.49
		Frequency	60.0

Power measurements

Actual voltage, current, and power readings from the DPM.

Discrete Input / Output name & 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.

CB icon appears if Power Manager address is set to 52.

Settings   PM name   PM location

Energy levels

Power Manager Status

Energy

Emergency
KWH Import	5074
KWH Export	5039
KWH Net	35
KVAR Lag	2995
KVAR Lead	2995
KVAR Net	0
KVA Net	34

Settings

Name	PM
Location	Basement1
System Type	Wye
Source Mode	Emergency
PT Ratio	120:120
CT Ratio	505:5
CT4 Ratio	1255:5

Discrete I/O

No.	Input Name	Status
1	Emerg Avail	Inactive
2	BP to Normal	Inactive
3	BP to Emerg	Active
4	ISO CLOSED	Inactive
5	ISO OPEN	Inactive
6	TEST MODE	Inactive
7	NORM SRC AVAIL	Inactive
8	ENGINE START	Inactive

Power Measurements

Voltage L-N		Voltage L-L		Current		Power	
Van	118	Vab	204	Phase A	86	KiloWatts	32
Vbn	118	Vbc	205	Phase B	66	KiloVAR	0
Vcn	118	Vca	205	Phase C	120	KiloVA	32
		Average	204	Average	90	P.F.	1.0
		Unbal%	0	Unbal%	0	Frequency	60.0

No.	Output Name	Status
1	EngOff	Open
2	OUTPUT 2	Open
3	Close24v	Open
4	output4	Open

Power measurements

Actual voltage, current, and power readings from the PM.

Discrete Input / Output name & status information

Detail Screen for *Digital Power Meters* connected to a Circuit Breaker

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

CB icon appears if Digital Power Meter address is set to 52.

Settings   DPM name   DPM location

Energy levels

Power Meter Status

Energy

Normal
KWH Import	0
KWH Export	398
KWH Net	398
KVAR Lag	0
KVAR Lead	712
KVAR Net	712
KVA Net	815
Show Emergency	

Settings

Name	ASCO_PM
Location	ASCO
System Type	1Phase-2W
Source Mode	Load
PT Ratio	120:120
CT Ratio	200:5
CT4 Ratio	0:5

Discrete I/O

Power Measurements

Voltage	Current	Power	
115	19	KiloWatts	-1
		KiloVAR	2
		KiloVA	2
		P.F.	-0.49
		Frequency	60.0

Power measurements

Actual voltage, current, and power readings from the DPM.

Discrete Input / Output name & status information

How to Create an Ethernet TCP/IP Network Connection in *Windows XP* & 7

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

2. Select **Network Connections** (*Windows XP*) or **Network and Internet** and/or **Network and Sharing Center** (*Windows 7*).

3. *Windows XP*)
   Double click **Local Area Connection** to display the properties screen**.**

Windows 7
Select **Local Area Connection** then click the **Properties** button.
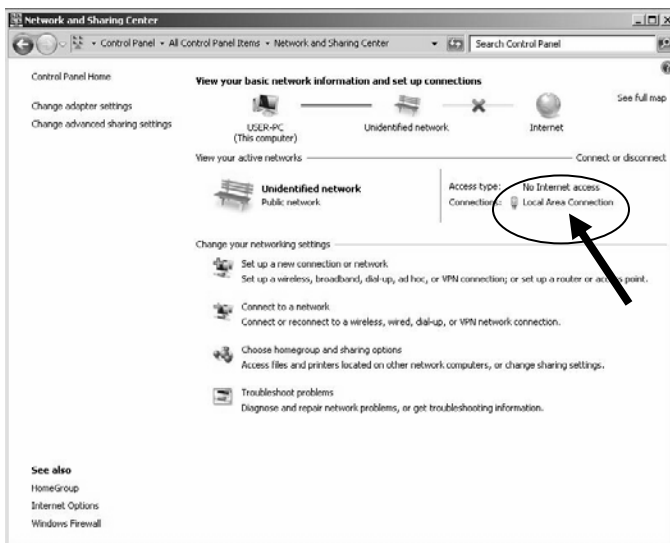
4. On **Local Area Connection Status** screen click the **Properties** button.

5. On **Local Area Connection Properties** screen:

   Windows XP   Scroll to verify that
   ☑ *Internet Protocol (TCP/IP)* is selected and highlighted, then click the **Properties** button.
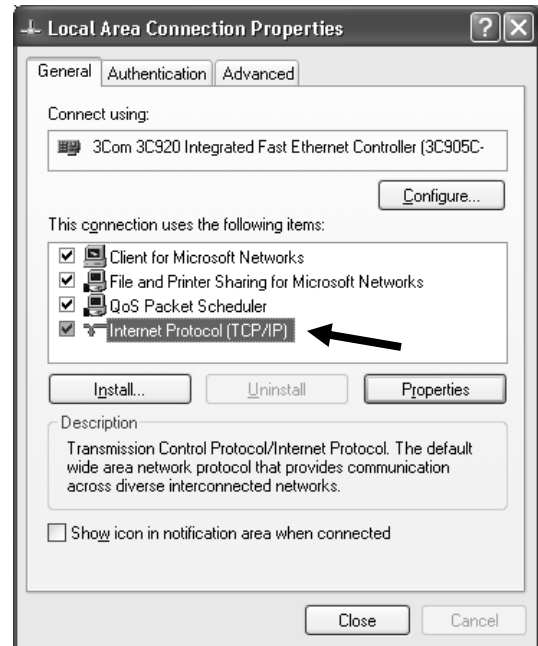
   Windows 7   Scroll to verify that
   ☐ *Internet Protocol Version 6 (TCP/IPv6) is* deselected
   ☑ *Internet Protocol Version 4 (TCP/IPv4)* is selected and highlighted, then click the **Properties** button.
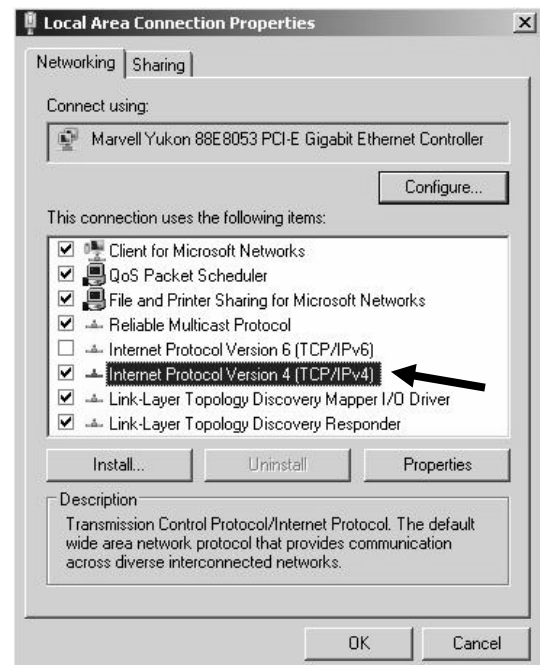
6. If the computer is on the company network contact the facilities IT personnel for appropriate settings.
    If it is a stand-alone computer, enter the IP # for this computer that is listed on the Interface Diagram. For example:

    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)

Windows XP
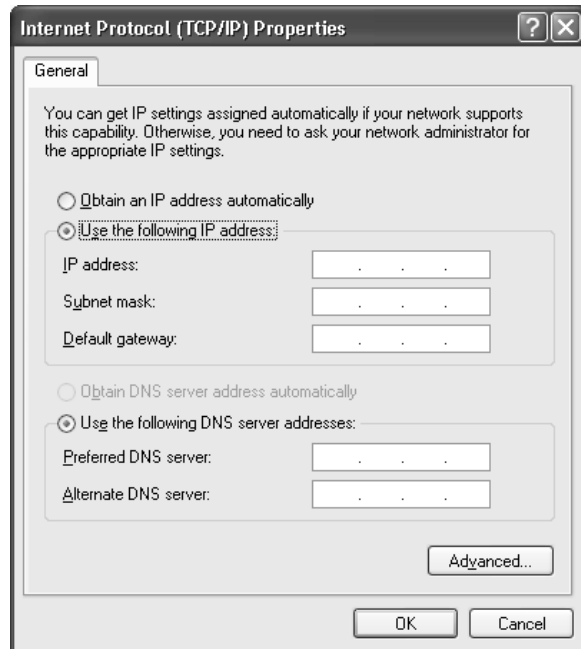
Windows 7
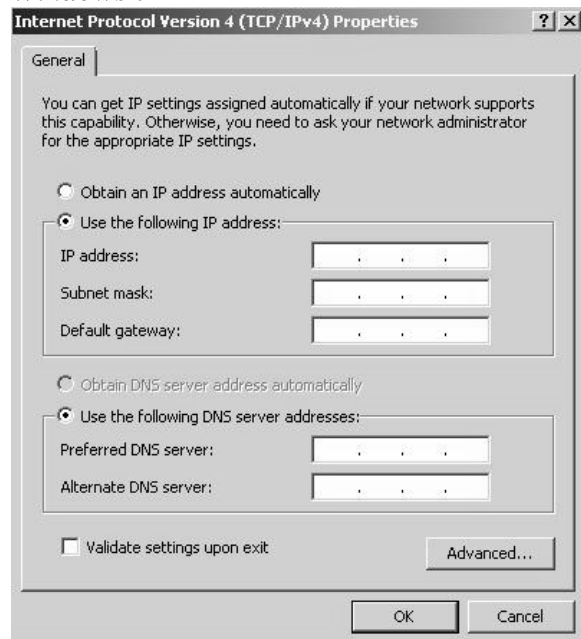
7. Once the TCP/IP setup is complete at the computer, restart the computer (click the **Start** button, then click **Shut Down**).

8. Restart *Windows*, then click the **Start** button.

    Windows XP
    Select **All Programs > Accessories > Command Prompt**.

    Windows 7
    In the *Command Prompt* window:
    type   cmd   and press **ENTER**.

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

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

Problem	Cause	Solution
DIAG red light blinks rapidly then stays on when the CM is first powered up.	Duplicate IP address. The IP address of one or more CMs on the same network is set as same.	Unplug the Ethernet cable from all CMs. Follow the instructions from the appropriate configuration section to change to a proper IP address. Reconnect this CM to the network. The red *DIAG* light should blink then go off. Repeat this procedure for all other CMs one by one.
DIAG red light blinks slowly or stays on after the CM is properly configured.	Major software or communication failure.	Press *Reset* button on CM. If condition still exists, call your local ASI representative.
Message: *Page not found.*	Wrong or improper IP address and subnet. Problem with connections between CM, ATS Controller, PM, and/or DPM. 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 CM Module, ATS Controller, PM, and/or DPM.	Check wiring then press *Reset* button on CM.
Message: *72E baud rate and at least another device baud rate are mismatched* (or similar message).	Baud rates of CM, ATS Controller, PM, and/or DPM 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.

4-wire / 2-wire Modbus communication problem	- ATS or PM are not configured for Modbus protocol
	
	- ATS or PM are not configured with the same baud rate as the CM
	- ATS or PM are configured with the same serial address
	
	- For 4-wire communication, ATS was not configured for 4-wire mode
	- For 2-wire communication, ATS was not configured for 2-wire mode
	- For 2-wire communication, CM 2-wire DIP switch was not enabled
	- For 2-wire communication, 2-wire mode was not enabled at the CM configuration page
	- Modbus master is not requesting the correct set of holding registers
	- Modbus master requesting more holding registers than the CM can handle
	- Modbus master reply timeout may be too short
	
	- Modbus master using incorrect CM IP address or TCP port
		- Make sure ATS and PM are configured with: Modbus protocol
		   the same baud rate as CM
		   the correct serial I/F setting (4-wire/2-wire)
		   unique serial addresss
		- For 2-wire communication, make sure to configure the CM serial I/F setting for 2-wire mode at the configuration page; and to enable its 2-wire DIP switch
		- Modbus master should refer to doc. 381339-221 for the ATS and PM holding registers.
		- Modbus master must use appropriate relay timeout (usually starting with 1000 ms) and to consider using retries (3 recommended) before calling for communication error.
		- Modbus master must request a maximum of 12 holding registers from the ATS controller & 24 from the PM
		- Modbus master connect to the same IP address and TCP port assigned to CM
		- Check serial wiring connection between ATS/PM and the CM

Intermittent loss of communication / connection	CM disconnects the client because client was inactive / idle (stops sending requests longer than 10 seconds)	When client connects to the CM, it should never stop communicating (sending request) at all times. When CM detects inactivity from the connected client (from its last request) longer than 10 seconds, the CM will automatically disconnect it. That client must then reconnect to resume communication.

AES enable client getting incorrect response or no response from the CM.	Incorrect CM configuration settings:
	   - AES is not enabled
	   - Incorrect AES port
		Provide correct CM AES configuration settings

ATS = automatic transfer switch, CM = Connectivity Module, DPM = Digital Power Meter, PM = Power Manager

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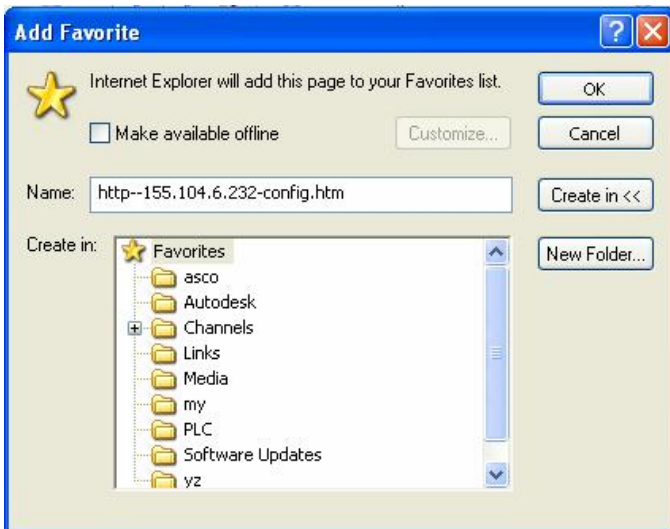
2. Click the *New Folder* button, type the new folder name as **asco**, then click the *OK* button.

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

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

c. 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.

How to set SNMP (Simple Network Management Protocol) Configuration

Firmware 869764-003 and higher provides SNMP configuration.

1. On the **Device Configuration** screen (page 2-1 or 3-1) click the **SNMP** button at the bottom.

2. On the **SNMP Configuration** screen click the check box ☑ **SNMP Enabled** (to enable it).

3. Assign the **Community name for READ** and **Community name for WRITE.**

4. Assign the **SNMP Manager IP Addresses.** Start with the 1 IP address and be sure the addresses have 4 octets where each octet has 3 digits in it. Click the **Close** button. xxx.xxx.xxx.xxx

5. Review all settings, then click *Update Server* button to save the configuration settings.

SNMP TRAP messages

With SNMP enabled the CM can notify changes on ATS status and power metering conditions by sending TRAP messages. The changes listed below are regarded as alarms and are strictly monitored during runtime.
 1. ATS transfer to emergency source
 2. ATS retransfer to normal source
 3. Engine running
 4. Normal source unavailable
 5. Emergency source unavailable
 6. Power manager digital inputs 1 to 8 activation.
 7. Power manager digital outputs 1 to 4 activation

Device Configuration Screen (see page 2-1 or 3-1)
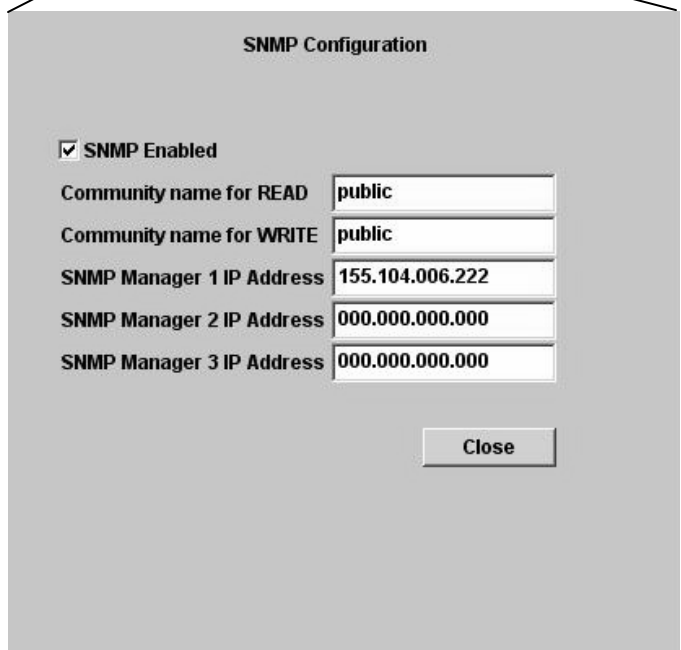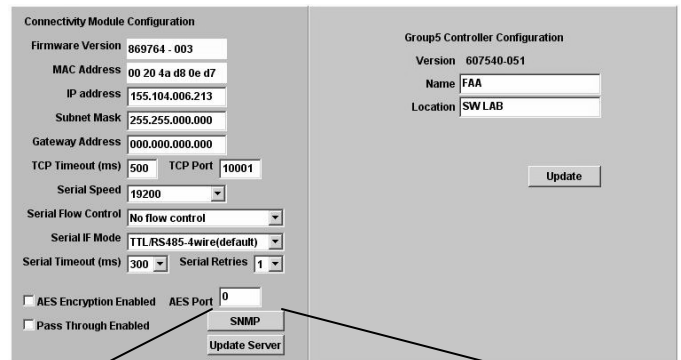
SNMP Configuration Screen
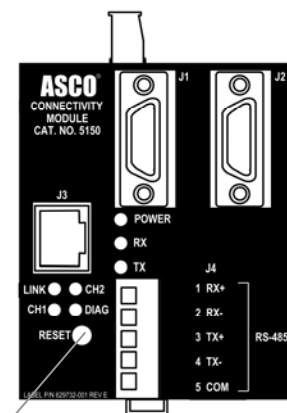
RESET button

RESET button on CM

Recommended ASCO SNMP MIB file

A file containing 934904-xxx.mib can be downloaded from the location shown below.

> http://www.emersonnetworkpower.com/
> en-US/Products/PowerSwitchingandControls/MonitoringandControl/Pages/
> ASCO5150ConnectivityModuleAcc72E.aspx

The 934904-xxx.mib file is written in the MIB module definition language based on the SMI specifications. This protocol file contains a structure block of information pertaining to ATS status and analog data. When SNMP is enabled, the CM polls for the information and shares it with requesting SNMP manager(s). The SNMP manager must use the file as a reference in sending SNMP requests for ATS information.

Troubleshooting SNMP Configuration

Problem	Cause	Solution
SNMP Manager cannot communicate with the Connectivity Module; do not get trap message after alarms occur.	- Host running SNMP Manager is not in the same network or Connectivity Module - SNMP is not enabled. - Incorrect SNMP IP Manager IP addresses - Incorrect SNMP community setting.	- Check SNMP configuration at Connectivity Module configuration page. - Hook up a laptop to the same network and ping the Connectivity Module and SNMP Manager(s).

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 or DPM**

Instructions: Fill in the information for each Connectivity Module (CM) with an ATS, Power Manager (PM), and/or Digital Power Meter (DPM).

* 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.** For Digital Power Meter refer to **Operator's Manual 381333-368.**
For Serial Module Catalog 5110 (Accessory 72A) refer to **Installation Manual 381333-240.**

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