

ASCO® 5100 Series, Catalog 5170  
Quad-Ethernet Module

Accessory 72EE2 for ASCO 4000 & 7000 Series Transfer Switches  
(Group 5 controller) & 5200 Series Power Metering



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## Introduction

The ASCO Catalog 5170 Quad-Ethernet Module (QEM) is a stand-alone Ethernet switch and data concentrator. It allows users to communicate with the new family of devices made by ASCO Power Technologies over a local area network (LAN) or over a secure Internet connection. If the 5170 QEM is provided on an ASCO 4000 or 7000 Series Transfer Switch, it is designated as Accessory 72EE2.

## Purpose of this Manual

This manual should be used to assist individuals who:

- will install and configure the 5170 QEM
- will monitor / control devices made by ASCO Power Technologies by using the 5170 QEM's built-in web pages
- will communicate with ASCO Power Technologies products through the 5170 QEM by using a Modbus TCP-based monitoring system (BMS or SCADA)
- will capture / read data from the 5170 QEM by using SNMP

For specific LAN details contact the LAN administrator or IT specialist.

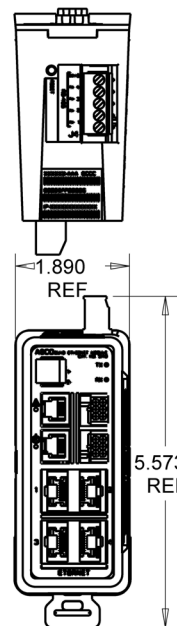
If the 5170 QEM is provided as Acc. 72EE2 on an ASCO 4000 or 7000 Series transfer switch, refer to the transfer switch installation manual, Group 5 controller user's guide, and wiring diagram.

## General Specifications

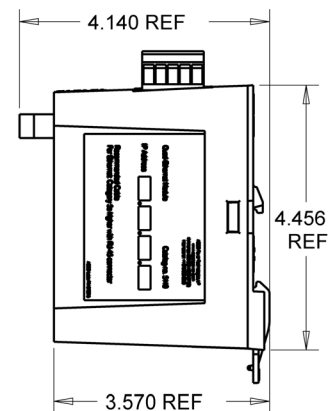
Voltage:	24 V dc
Power Requirements:	1.7 W
Mounting:	DIN mount vertical
Dimensions (L,H,W):	4" x 5" x 2" (4 cm, 11 cm, 10 cm)
Ambient Temperature:	-4° F to 158° F (-20° C to +70° C)
Ports:	2 (yellow stripe) for ASCO devices (APAC-future)
	2 (purple stripe) for ASCO devices (TTL)
	4 (blue stripe) for Ethernet
	J4 (green stripe on the top) for RS485

## Installation

The 5170 QEM mounts on a standard 35 mm DIN rail (not supplied). To release it from the DIN rail, pull down on the handle at the bottom. A power terminal plug is provided. Connect the device(s) from ASCO Power Technologies to the upper ports (purple stripe). Connect the Ethernet network to the lower ports (blue ports). Use Category 5e or higher cable with RJ-45 connectors.



## OUTLINE DRAWING



**Tip** Communication Address form is included at the back to help you fill in needed information on your QEM.

The 5170 Quad-Ethernet Module provides Ethernet-access that allows users to view data from 4000 or 7000 Series automatic transfer switches and 5200 Series Power Metering. All users must follow these precautions:



To avoid possible shock, burns, or death, de-energize all electrical sources to the Transfer Switch before installing the 5170 Quad-Ethernet Module.



**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.*

Access Levels and Passwords

The 5170 QEM has three different levels of web page user access. The importance of these levels varies based on the interface method that is selected. The 5170 QEM is shipped with three preset usernames and default passwords. The three usernames cannot be changed. The passwords can be changed by the **admin** level user.

During the initial on-site configuration the passwords should be changed as follows to increase security.

Username (lower case) cannot be changed	Access Level	Default Password (upper case)	Write down the new Password here ↓ 15 characters maximum
monitor	View access: can view status and webpages, cannot transfer or retransfer load, or make setting changes. Can change monitor password.	ASCO	
control	Control access: can transfer and retransfer load (ATS), cannot change any configuration settings. Can change control password.	ASCO	
admin	Full access: can set passwords and change all configuration settings of the 5170 QEM.	ASCO	

NOTICE

Be sure that users to whom you give control access are those persons that you want to be able to control the electrical system.

How to change a password

Click the **Configuration** tab, click **Ethernet Module**, then **Edit**. Login again, click the **Advanced** tab, then **Change User Password**. In the *Change User Password* window, type the *Username* (admin), the *Old password*, the *New password*, and *Confirm new password*. Then click **Save**, and a message should indicate that the password was changed.

CHANGE USER PASSWORD

Username

Username

Old Password

Password

New Password

Password

Confirm New Password

Password

Save

Cancel

Type **monitor**, **control**, or **admin** (lower case).

Figure 2-1. Change password screen.

Addresses

The MAC address and the default IP address are located on the outside of the 5170 QEM. Refer to the **About** webpage for determining the IP address and MAC address.

Address	Default Address	New Address
IP Address	169.254.001.001	
MAC Address	00:0C:99:____:____:____.	The MAC Address cannot be changed by the user

Webpage Interface

The 5170 QEM has built-in web pages that allow the user to monitor and control the downstream capable devices made by ASCO Power Technologies. A computer (or any web-enabled product, including smart phones and tablets) and a connection to the 5170 QEM over Ethernet will give the user access to data.

User Requirements

- The user has a computer or web-enabled device that has been configured to communicate over a network to the 5170 QEM. The most common web-enabled device would be a computer and the most common network connection would be over a LAN (local area network). The setup and testing of this network can be viewed in the Configuration area of this manual.
- The user has been provided the IP address of the 5170 QEM as well as a User Name and Password for access. It is possible that the information is still the default settings but may have been changed during setup.
- The user’s web browser needs to be one supported by the 5170 QEM. The 5170 QEM supports most web browsers but was designed for *Internet Explorer 9.0* or higher.

Getting Connected to the 5170 QEM over the Ethernet

Open the web browser of the web-enabled device that will be used to view the 5170 QEM web pages. The default IP address is 169.254.1.1. Type the correct IP address in the address bar and press *Enter*. See Figure 3-1.

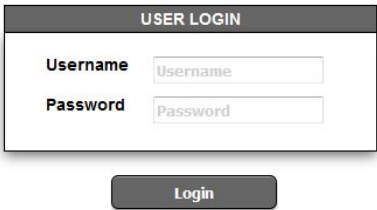


Figure 3-1. Login screen.

The webpage should show a **Login** page. If the webpage appears it indicates that all of the network configurations were done correctly. If the Login page is not displayed, the setup needs to be reviewed. Common causes for not being able to connect to the 5170 QEM could be: It is not powered on, duplicate IP address, cables not connected, or gateway address/network settings. Also refer to the troubleshooting section.

Type the *User ID* and *Password* and click **Login**. Refer to page 2-1. When a correct username and password is entered the dashboard page should appear.

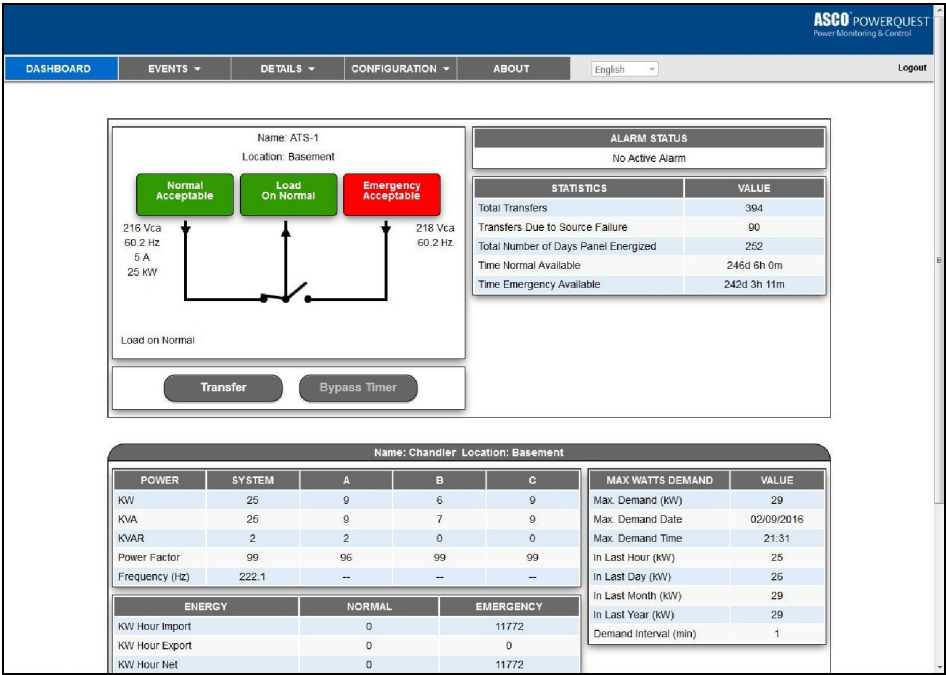


Figure 3-2. Dashboard page (typical for 4000 & 7000 Series Transfer Switch with Acc. 72EE2)

## Webpage Design and Navigation

The web pages provide easy movement between pages. Tabs with drop-down boxes at the top allow navigation between pages. Navigation is typically one-level deep. Figure 3-3 shows the navigation bar and drop-down boxes.

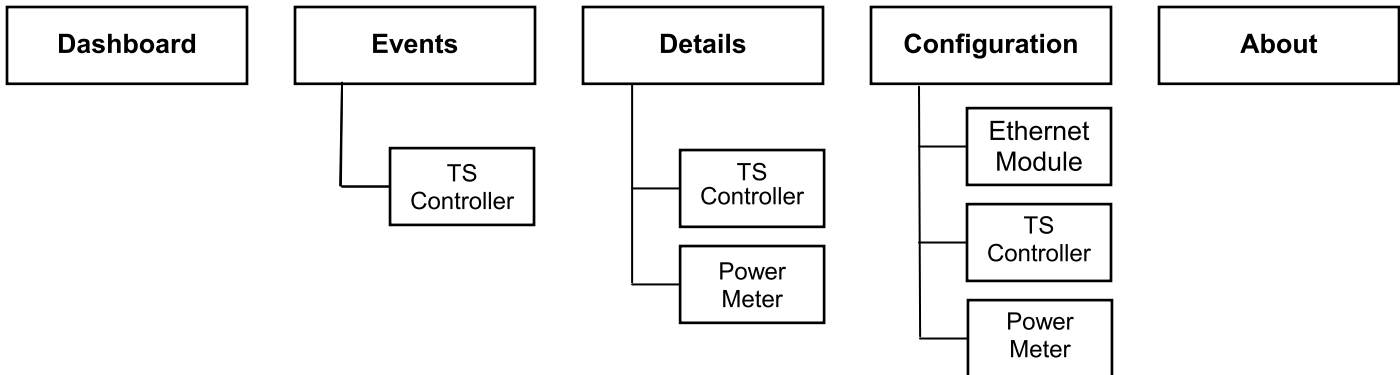


Figure 3-3. Navigation bar and drop-down boxes.

- The **Dashboard** page displays dynamic data for each device; they update every second.

**Transfer Switch (TS)** If the 5170 QEM is an Acc. 72EE2 on a 4000 or 7000 Series Transfer Switch, the device is **Transfer Switch**. Click **Dashboard** to display the transfer switch status, voltage and frequency, activity, statistics, alerts, time delays, and identification. The load can be transferred or retransferred via the *Controls* area of the page (requires *control* or *admin* access level).

**NOTE** The remote transfer feature must be enabled in configuration/Ethernet module configuration page.

**Power Meter** If the 5170 QEM is used with a 5210 Digital Power Meter or 5220 Power Manager, the device is **Power Meter**. (Normal, Emergency, Load on a transfer switch or Other for stand-alone applications) Click **Power Meter** to display the source status, voltage and frequency, activity, statistics, alerts, time delays, and identification.

**NOTE** To display connected meter data, the number of Power Meters has to be selected in Configuration/Ethernet Module, TCP/IP MODBUS PARAMETERS, Meter Connected

- The **Events** page shows event information captured from the ASCO devices (transfer switch controller), if supported. It shows in log number order, the date and time, type, and cause of each event.

- The **Details** pages generally show data or settings information for each device.

**Transfer Switch Controller** If the 5170 QEM is an Acc. 72EE2 on a 4000 or 7000 Series Transfer Switch, the device is a **Transfer Switch**.

Click **Transfer Switch Controller** to display a page similar to the *Dashboard* page. It has additional data.

**Power Meter** If the device is a **Digital Power Meter** or **Power Manager** (Norm, Emer, Load), click **Power Meter** to display a page similar to the *Dashboard* page. It has additional data.

- The **Configuration** pages are of three types: Ethernet settings, Transfer Switch Controller, Metering Device Settings, and the users can upgrade the 5170 QEM firmware.

- The **About** page shows all of the devices possible and displays detailed device identification.

If the 5170 QEM is an Acc. 72EE2 on a 4000 or 7000 Series Transfer Switch, one device is the transfer switch **Controller** (Group 5).

- Particular web pages, or the data of those pages, will be dependent on the devices connected to the 5170 QEM.

## Modbus (for Monitoring Systems)

The 5170 QEM can act as a Modbus master to provide data to a Modbus slave on demand. The 5170 QEM looks transparent to the Modbus client. The Modbus register in the downstream device looks like it is inside the 5170 QEM. Because the 5170 QEM acts as a data concentrator, the data from downstream devices is constantly refreshed and available in the 5170 QEM. This design results in a very fast turn-around time.

### Accessing Modbus Data

Accessing parameters by Modbus requires three components: the IP Address, the device address, and the Modbus Register number. Modbus is always enabled in the 5170 QEM.

#### IP Address

The IP Address required to allow a master the ability to communicate to the 5170 QEM is defined in the configuration pages of the 5170 QEM web server. Usually the Modbus/TCP Client is on the same network as the Modbus/TCP server (the 5170 QEM).

#### Device Address

The 5170 QEM maps the Modbus data using an *alias* table to define device addressing. This is the device address needed when configuring the Modbus client. This address can be accessed from the **Configuration → Ethernet Module** page of the 5170 QEM webpage.

In general, leave the Modbus address for Group 5 controller and 5200 Series Meter as configured in the 5170 QEM as 1 and 2 respectively.

#### Modbus Register

The Modbus register map is the same as that of the downstream device. As an example, the line-to-line voltage (A-B) of the 4000 & 7000 Transfer Switch's Group 5 Controller is at register address 40017. Reading this same register from the 5170 QEM will provide the data from the Group 5 Controller to the Modbus client.

The port setting is done on the Configuration/Edit page. The port is defaulted to 10001. For an example interface using the *Modbus Test Suite* refer to document 381339-319.

Note: The Modbus and ASCOBus II protocols use the same port address.

## ASCOBusII / TCP Interface

*ASCOBusII* is a proprietary protocol designed by ASCO Power Technologies for use with ASCO 5700 & 5900 Series CPMS systems. Accessing ASCOBusII data requires an ASCO Power Technologies technician. ASCOBus II is always enabled in the 5170 QEM.

## SNMP Interface

The Simple Network Management Protocol (SNMP) was created as a way to monitor and manage network devices and hosts. SNMP is mostly a tool for network managers. Because of its simplicity it has also been used as a way to monitor other devices (like the 5170 QEM). SNMP is defaulted to disabled and needs to be enabled to use.

A Management Information Base (MIB) file allows a SNMP client the ability to understand the structure and availability of the management data in a network device (in this case, the 5170 QEM).

### 5170 QEM Support

The 5170 QEM acts as a SNMP agent, providing data to a SNMP Manager on demand. The 5170 QEM supports the GET,

GETNEXT, GETBULK, TRAP, and RESPONSE commands

(SNMP v1 and v2). The 5170 QEM does not support the SET or INFORM commands and it does not support SNMP v3.

### SNMP Configuration and Interface

To enable SNMP functionality in the 5170 QEM, go to the **Configuration** → **Edit Mode** web page. Click the box. Configuring the SNMP master varies depending upon the client itself but needs the same base information:

- The IP address of the 5170 QEM
- The MIB file ASCO-QEM-72EE-x\_x.mib (on website)
- The registers that will be read. Because these registers will be predefined in the MIB, they can usually be dragged & dropped in the SNMP master once the MIB is imported
- Details of configuring the SNMP master are master dependent.

To configure the 5170 QEM SNMP for capturing and sending traps, go to the **Configuration** → **Edit Mode** web page. The list of alerts that the 5170 QEM monitors is listed in the **Email Alert Notification and SNMP Traps** configuration window. Note that these alerts are also used to initiate email alerts if SMTP is enabled. The alerts available are shown in Figure 5-2

On the **Configuration** web page of the 5170 QEM, type the IP address of the computer that is running the SNMP master. Both devices should be on the same subnet or the Gateway Address in the Ethernet Module window.

Details of configuring the SNMP master to view TRAPs are master dependent.

For a SNMP master configuration using an industry standard master, refer to document 381339-320.

SNMP CONFIGURATION	
SNMP IP ADDRESS1:	0.0.0.0
SNMP IP ADDRESS2:	0.0.0.0
SNMP IP ADDRESS3:	0.0.0.0
GET COMMUNITY NAME:	public
TRAP COMMUNITY NAME:	public

Figure 5-1. SNMP Configuration screen.

EMAIL ALERT NOTIFICATION AND SNMP TRAPS	
<input checked="" type="checkbox"/>	GENERATOR START SIGNAL ACTIVATED
<input checked="" type="checkbox"/>	GENERATOR START SIGNAL REMOVED
<input checked="" type="checkbox"/>	TRANSFERRED FROM NORMAL TO EMERGENCY
<input checked="" type="checkbox"/>	TRANSFERRED FROM EMERGENCY TO NORMAL
<input checked="" type="checkbox"/>	EMERGENCY ACCEPTED
<input checked="" type="checkbox"/>	EMERGENCY NOT ACCEPTED
<input checked="" type="checkbox"/>	NORMAL ACCEPTED
<input checked="" type="checkbox"/>	NORMAL NOT ACCEPTED
<input type="checkbox"/>	LOSS OF EMERGENCY WHEN ON EMERGENCY
<input type="checkbox"/>	LOAD DISCONNECTED
<input checked="" type="checkbox"/>	TRANSFER SWITCH CHANGED TO NON-AUTOMATIC MODE
<input type="checkbox"/>	TRANSFER SWITCH CHANGED TO AUTOMATIC MODE
<input type="checkbox"/>	EMERGENCY NOT ACCEPTED IN TIME
<input checked="" type="checkbox"/>	TRANSFER NOT SUCCESSFUL
<input checked="" type="checkbox"/>	TRANSFER SWITCH POSITION NOT DETERMINED

Figure 5-2. Alert Configuration screen.

ETHERNET MODULE	
DHCP MODE:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
*IP ADDRESS:	169.254.001.001
*SUBNET MASK:	255.255.0.0
*GATEWAY ADDRESS:	0.0.0.0
TCP PORT NUMBER:	10001
SMTP MODE:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
AES ENCRYPTION:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
*IP, Subnet & Gateway settings will not be affected if "DEFAULT SETTINGS" is pressed	

Figure 5-3. Ethernet Module configuration screen.



## Email (SMTP) Interface

The Simple Mail Transport Protocol (SMTP) facilitates the sending of email alerts to users when alarms occur. By using this feature users are able to have important device status *pushed* to them rather than having to constantly monitor status. SMTP operation requires that the user has the email address of the destination email as well as the *Server IP Address* of the local network. Usually the IT department needs to be contacted for this feature.

### 5170 QEM Recipient Support

The 5170 QEM can send emails to up to 5 email addresses. All the emails sent include the same text and alarm data: name, location, alarm type, and time. Emails are sent based upon alarms that are selected from a predefined list. Enabling SMTP will enable *reset alerts*, sending an email each time the QEM 5170 is reset (in addition to the alerts configured below).

### Email Configuration and Interface

To enable the email functionality in the 5170 QEM go to the **Configuration → Ethernet Module → Edit → SMTP** web page. It is enabled when a valid address is typed into one of the email ID textboxes, a valid server IP Address is entered, a valid *From email ID* is entered, and at least one alert box is checked in the *Alert Notification* configuration window. Choices are shown in Figure 6-2.

For email servers requiring password support ☒ Enable the *Server Security* and enter a valid *User Name* and *Password*.

Note that these Alerts are also used to initiate TRAP alerts if SNMP is enabled.

The default settings of the 5170 QEM include the email address of a third party email server (Host Name/IP), a known DNS server IP Address, a registered third party email server user name, and password. You can use these defaults to test email functionality quickly. You need to enable *SMTP Mode* and add the network gateway IP address (this is often a local router with an IP address of 169.254.1.1 or 192.168.1.1) under the *Quad Ethernet Module* tab. Additionally, under the *SMTP Configuration* tab, you need to enable *Server Security* and an *Email Address*. (The default port is 587, which usually works, but may need to be changed to 25).

#### NOTICE

**The use of this third party email server allows the 5170 QEM communication statistics to be viewed by ASCO Power Technologies. The data is streamed outside of the local intranet. It could also result in loss of communication if the email server stops functioning or is disabled.**

Therefore, for optimal security, once a test indicates the emails are being properly received, you should configure the 5170 QEM with the local network recommended settings.

SMTP CONFIGURATION FOR EMAIL NOTIFICATION	
SMTP Mode:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Authentication:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Username:	powerquest@emerson.com
Password:	Password
SMTP Port Number:	25
DNS Server IP Address:	8.8.8.8
Host Name/IP Address:	SMTP.SENDGRID.net
From Email Address:	Q91@emerson.com
To Email Address 1:	Joseph.Blackman@Emerson.com
To Email Address 2:	vinodhkumar.selvakumar@emerson.com
To Email Address 3:	default4@to.com
To Email Address 4:	adrian.ramkelawan@emerson.com
To Email Address 5:	vinodhkumar.selvakumar@emerson.com

Figure 6-1. SMTP Configuration screen.

EMAIL ALERT NOTIFICATION AND SNMP TRAPS	
<input checked="" type="checkbox"/>	Generator Start Signal Activated
<input checked="" type="checkbox"/>	Generator Start Signal Removed
<input checked="" type="checkbox"/>	Transferred from Normal to Emergency
<input checked="" type="checkbox"/>	Transferred from Emergency to Normal
<input checked="" type="checkbox"/>	Emergency Accepted
<input checked="" type="checkbox"/>	Emergency not Accepted
<input checked="" type="checkbox"/>	Normal Accepted
<input checked="" type="checkbox"/>	Normal not Accepted
<input type="checkbox"/>	Loss of Emergency When on Emergency
<input type="checkbox"/>	Load Disconnected
<input type="checkbox"/>	TS Changed to Non-Automatic Mode
<input type="checkbox"/>	TS Changed to Automatic Mode
<input type="checkbox"/>	Emergency not Accepted in Time
<input type="checkbox"/>	Transfer not Successful
<input type="checkbox"/>	Transfer Position not Determined
<input checked="" type="checkbox"/>	TS Locked out
<input checked="" type="checkbox"/>	CTTS Extended Parallel Alarm
<input checked="" type="checkbox"/>	CTTS Failure to Synchronize
<input checked="" type="checkbox"/>	Normal Breaker Tripped
<input checked="" type="checkbox"/>	Emergency Breaker Tripped
<input checked="" type="checkbox"/>	Y-Y Primary Fail is Active

Figure 6-2. Alerts Configuration screen.

## 5170 QEM Configuration Details

The 5170 QEM requires minimal configuration for most applications. Webpages allow the user to change how the 5170 QEM functions.

### Configuration → Ethernet Module Configuration

The *view* webpage displays general IP address related settings, SNMP and email configuration, encryption support (if offered), and network settings. To change a setting, click the **Edit** button. Settings are divided into 7 windows:

- The **SNMP Configuration** setup is discussed in the SNMP section.
- The **SMTP Configuration for Email Notification** setup is discussed in the email section.
- The **Email Alert Notification & SNMP Traps** window presents a list of alarms that can be activated. Enabling these alarms affects both the email data sent as part of SMTP functionality as well as the TRAP use in the SNMP configuration if either of these protocols is enabled. See the SNMP and/or email sections, if applicable.
- The **Ethernet TCP/IPv4** window includes these sub areas:

The **AES Mode** encryption port and the ability to enable AES Encryption is used in conjunction with an ASCO Power Technologies monitoring solution, BMS, or SCADA system to add additional security. Both the 5170 QEM and the Ethernet master must use the same 128 bit encryption and communicate using the same port. Usually, particularly on LANs, this feature is not used. On some international non-encrypted versions these settings will not be available.

Enabling **DHCP Mode** (Dynamic Host Configuration Protocol) mode allows the IP address of the 5170 QEM to be set by a DHCP server – usually as part of an IT administered network. This is rarely used due to the need for a network to be well defined, usually done using static IP addresses.

The **IP Address**, **Subnet Address** mask, and **Gateway Address** are network settings that will often be provided by the network manager. The default settings are 169.254.1.1, 255.255.0.0 and 0.0.0.0, respectively. Further information on changes to these settings should be addressed by the network manager.

The **TCP** port number might need to be changed if a BMS or SCADA system will be interfacing to the 5170 QEM. This setting will usually only be changed by an ASI technician. This port number applies to both Modbus/TCP and ASCOBusII/TCP.

**NOTES:** Leave settings as default when possible. Usually the changing of the IP Address is all that is required.

After any changes are made to the configuration page, click the **SAVE** button. These changes will be saved and the webpage will revert back to the *view* page. If no changes are made the edit page will time out after three minutes.

**Note:** Changing the Ethernet or SNMP Configuration will reset the 5170 QEM; a message appears that the 5170 QEM is reset. In a web browser, pop-up messages should be allowed. Otherwise, the 5170 QEM will not reset, and its webpage will display the older configuration. Click the **OK** button and close the pop-up window.

QEM Configuration Details (continued)

- The **TCP/IP Modbus Parameters** allows the user to configure the server Modbus addresses.
- The **APAC Configuration** bus termination enable works with internal network used with APAC-based ASCO products. This setting is enabled by default; leave it enabled.

NOTICE

This configuration is not used with the 5170 QEM.

- The **Advanced Factory Settings** shows whether the remote transfer capability was enabled on the edit page.

**Upgrade Firmware** The 5170 QEM firmware can be upgraded over the Ethernet. You need a computer connected to the 5170 QEM over the Ethernet, an ASCO Power Technologies approved .bin file, and the correct password privileges.

Firmware upgrade capability is accessed on the **Configuration Ethernet Module → Edit → Advanced Factory Settings** page.

TCP/IP MODBUS PARAMETERS

Controller Address: 1

Power Meter Address: 2

Save Cancel

ADVANCED FACTORY SETTINGS

Remote Transfer: ☒ Enable ☐ Disable

Save Cancel

Change User Password

Soft Reset QEM

Set to Factory Default

Upgrade Firmware

Modbus Control Password

1. To start a firmware upgrade, click the **Upgrade Firmware** button.
2. A pop-up window appears. Click the **Continue** button, then close the pop-up window.
3. Close the browser window. Then open the browser again. Enter the IP address of the 5170 QEM (page 2-1).
4. Point to and install the .bin file. The install should take less than 10 seconds.
5. After a successful upgrade, a message *FIRMWARE UPGRADE COMPLETED* appears. Click **Reset** button.
6. Close, then reopen the browser window again. Enter the IP address of the QEM (page 2-1) to view webpages.

## Troubleshooting



To avoid possible shock, burns, or death, deenergize all electrical sources to the transfer switch before working on the 5170 QEM.

### Status Lights (LEDs)

#### Power light

This light should be on under normal operating conditions

LED Name	Color	Status	Description
Power	Green	off	5170 QEM is not energized, it is turned off
		on	5170 QEM is energized, it is turned on and working

#### Ethernet Connection Lights

These lights should be blinking under normal operating conditions

LED Name	Color	Status	Description
Activity	Green	off	There is no activity on the link
		on	Flashing indicates activity on the link
Link Speed	Yellow	off	There is no link connection
		on	There is a link connection
TX Transmit		off/on	Off - no transmitting / On - transmitting
RX Receive		off/on	Off - no receiving / On - receiving

#### Diagnostic Light

This light should be off under normal operating conditions

LED Name	Color	Status	Description
Diagnostic	Red	Solid on	5170 QEM in boot loader (starting up)
		off	5170 QEM in normal operating condition
		1 blink	RAM checksum error
		4 blinks	Duplicate IP address on the network

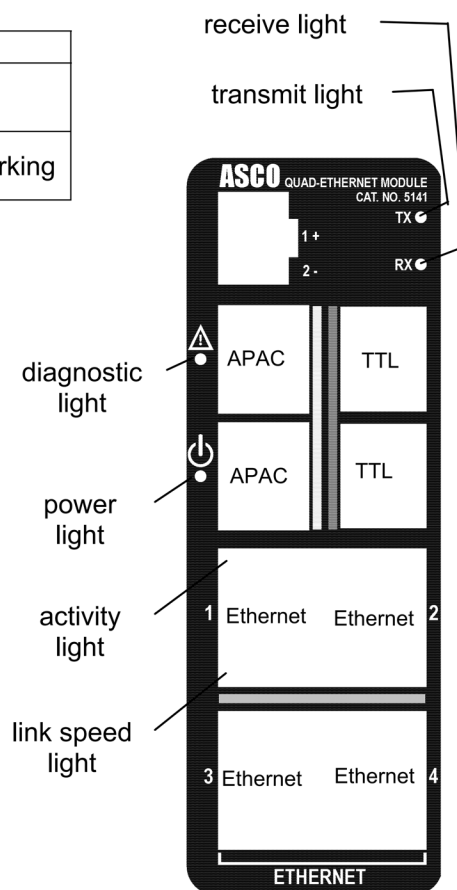
### Reset Button

A reset button (hole in the top) is provided to reset the 5170 QEM to original default settings. These settings are: IP address, subnet mask, gateway address, TCP port number, and reply timeout. The reset button should only be used if you forget the IP address. (see page 2-1).

### Web Pages are not accessible

If the 5170 QEM web page is not accessible, try the following procedure:

1. Open the command prompt on the computer. Type `cmd`
2. To monitor network connectivity status, type `Ping xxx.xxx.xxx.xxx` in command prompt.
3. The default prompt of the 5170 QEM is 169.254.1.1 (see page 2-1).
4. To monitor continuous network connectivity status, type `Ping xxx.xxx.xxx.xxx -t` in command prompt.



## Types of Data/Control found on Web pages

The following types of data and control are provided on 5170 QEM web pages, depending on the connected devices.

### Dashboard web page

- Switch Status, Active Alerts, Timers
- Transfer Switch – Control Capability
- Voltage, Frequency, and Current Monitoring
- Transfer Switch / Generator Statistics

#### *If equipped with meter device*

- Energy Consumption – Net KWH, KVAR, KVA
- Transfer Switch Rated Current Utilization
- Power Measurement – KW, KVA, KVAR, PF
- Voltage (L-L and L-N), Frequency, and Current Measurement

### Transfer Switch Details web page (settings for view only)

- Pickup and Dropout Voltage Settings
- Frequency Trip Settings
- Engine Exerciser Settings
- Switch Status
- Active Alerts and Timers
- Transfer Switch and Engine Status

### Power Meter Details web page (settings are view only)

- Energy Consumption
- Switch Status, Active Alerts, & Timers
- Historic KW Demand
- Maximum Load Demand Chart
- Power Measurement – KW, KVA, KVAR, PF
- Voltage, Current, Frequency, Power, and PF Measurement
- PT and CT ratios

### Event Log page

Events page shows the controller events logged into the 5170 QEM. Data included: event type, cause, timestamp.

### Configuration web page

- There are two Ethernet Configuration pages. One is viewable only; the other allows setting changes (Admin level).
- Viewable and editable are IP, TCP, and Communication Settings as well as SNMP and email settings.
- User can also change device names & locations (these are only changes that can be made to downstream devices) from the configuration → device pages.
- The Configuration section is where a user can change the passwords (see page 2-1).
- Firmware upgrade access

### About page

- The **About** page provides firmware versions of the 5170 QEM and devices that are connected downstream.

## Glossary of Abbreviations and Terms

The following abbreviations are used in this manual.

Abbreviation	Definition and explanation
Acc. 72EE2	Accessory 72EE2, designation for 5170 QEM when provided with 4000 or 7000 Series ATS
AES	Advance Encryption Standard
APAC	ASCO Power And Control; the internal network used inside some ASCO devices
ASCO	ASCO Power Technologies, Emerson Network Power
ATS, TS	Automatic Transfer Switch
BMS	Building Management System
CMD	Command
CPMS	Critical Power Management System, ASCO 5700 or 5900 Series
DIN	35 mm standard metal rail for mounting the 5170 QEM
DPM	Digital Power Meter, ASCO 5210
Gateway	Software or a computer running software that enables two different networks to communicate
Group 5	Controller used on ASCO 4000 and 7000 Series Transfer Switches
IT	Information Technology, group that manages the computers and networks for a business
IP	Internet Protocol, provides rules for sending and receiving data packets between nodes through the Internet
LAN	Local Area Net, is a computer network limited to a small area
MAC	Media Access Control, is a hardware ID number that uniquely identifies each device on a network
MIB	Management Information Base
Modbus	A serial communications protocol
Ping	A protocol used to determine the presence of a host on the Internet
QEM	Quad Ethernet Module, ASCO Catalog 5170
RS485	Serial interface the 5170 QEM supports to third party remote monitoring systems
SCADA	Supervisory Control And Data Acquisition system
SMTP	Simple Mail Transport Protocol, used for sending e-mail over a network
SNMP	Simple Network Management Protocol, used for exchanging management information between network devices
Subnet Mask	A number that defines a range of IP addresses that can be used in a network
TCP	Transmission Control Protocol, verifies delivery of data packets
THD	Total Harmonic Distortion; used in Power Quality Meter
TRAP	SMNP notification from Agent to Manager
TTL	Internal serial connection used between 5170 QEM to a 4000 or 7000 Series transfer switch controller (Group 5) or 5200 Series power metering.

Communication Address Form for 5170 Quad-Ethernet Module (QEM)

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

Instructions

Fill in the information for each 5170 Quad-Ethernet Module (Acc. 72EE2) provided with a 4000 or 7000 Series ATS and/or 5210 Digital Power Manager.

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customercare@asco.com

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