



Firmware for Ethernet Interface Module

Catalog Number 1785-ENET, Series C, Revision B

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About This Publication

Use this document along with your PLC-5 Ethernet Interface Module Installation Instructions, publication 1785-IN019.

Channel 2 Default

The module's channel 3A default is Autonegotiate 10/100 Mbps half duplex.

Enhancement

The module is capable of managing a sustained Ethernet traffic rate of 45 frames per 10 ms interval. In the rare cases when traffic exceeds that, the module will activate a storm handling mechanism. When this occurs, the module may drop some received frames to prevent it from locking up. The module increments the storm counter once during this interval. TCP (Transmission Control Protocol) frames that were dropped during the storm will be retransmitted by the source. To minimize the chances of storms occurring, use Ethernet switches instead of Ethernet hubs.

Corrected Anomalies

This revision of the module's firmware includes these corrected anomalies:

Anomaly	Description
When performing edits to the controller using CIP protocol, inadvertent protection violations can appear in the programming software.	The CIP protocol is used when you select an EtherNet/IP driver in RSLinx software. Performing an edit includes modifying the ladder logic, creating data tables, uploading the project, modifying forces, and changing the controller's mode. This anomaly has been corrected so that you no longer encounter protection violations when you edit the controller.
Manual configuration of the email relay server, when dynamic configuration was checked, was not possible.	It is now possible to manually enter configuration of the email relay server IP address and authentication when the dynamic configuration is checked. The lets you set the email server IP address if the BOOTP/DHCP server does not reply with an email server IP address.

Known Anomaly

Port status information may not be correct unless you are using the latest release of PLC-5 programmable controllers:

Cat. No.	Series B	Series C	Series D	Series E	Series F
Enhanced	Revision	Revision	Revision	Revision	Revision
1785-L11B		U	L	K	
1785-L20B		U	L	K	
1785-L30B		U	L	K	
1785-L40B	S	U	L	K	
1785-L40L	S	U	L	K	
1785-L60B	S	U	L	K	
1785-L60L	S	U	L	K	
1785-L80B		U	L	K	
Protected	Revision	Revision	Revision	Revision	Revision
1785-L26B		U	L	K	
1785-L46B	S	U	L	K	
1785-L46L	S	U			
1785-L86B		U	L	K	
Ethernet	Revision	Revision	Revision	Revision	Revision
1785-L20E		U	L	K	
1785-L40E		U	L	K	
1785-L80E		U	L	K	
ControlNet	Revision	Revision	Revision	Revision	Revision
1785-L20C15		U	L	K	E
1785-L40C15		U	L	K	E
1785-L46C15					E
1785-L60C15			L		
1785-L80C15			L	K	E

If you do not have these releases, use the Ethernet Configuration Status Web page for port status.

Enhancements to Series C, Revision A

The series C, revision A version of the module's firmware included these enhancements:

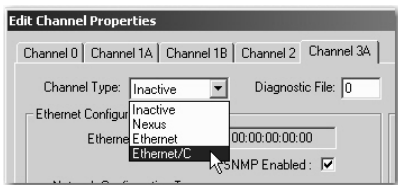
- BOOTP, DHCP, or Static entry of IP address
- Auto Negotiate speed selection

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- Full/Half Duplex port setting
- 10/100 speed selection
- Email client functionality
- Enable/Disable HTTP Web Server
- Enable/Disable SNMP functionality

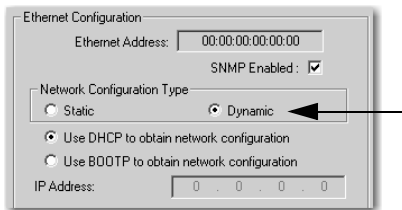
To see or activate the new configuration and status features:

1. Open or create a project in RSLogix 5 software, version 7.1 or later.
2. Click on the Channel Configuration menu.
You see the Edit Channel Properties screen.
3. Click on the Channel 3A tab.
4. In the Channel Type pull down, select Ethernet/C.



BOOTP, DHCP, or Static Entry of IP Address

As shown in the following dialog box, you can select between a static or dynamic network configuration.



- The default is Dynamic Network Configuration Type and Use BOOTP to obtain network configuration.
- If you choose a dynamic network configuration, you can change the default BOOTP to DHCP.
- If you choose a static network configuration type, you must enter the IP address.

Similarly, if you have a dynamic network configuration, DHCP or BOOTP assigns the controller's hostname. With a static configuration, you assign the hostname.

The image shows a screenshot of a configuration window titled "Advanced Functions". It contains several input fields for network configuration:

Subnet Mask:	0 . 0 . 0 . 0
Gateway Address:	0 . 0 . 0 . 0
Default Domain Name:	
Hostname:	
Primary Name Server:	0 . 0 . 0 . 0
Secondary Name:	0 . 0 . 0 . 0

When you create a hostname, consider these naming conventions.

- The hostname can be a text string up to 24 characters.
- The hostname can contain alphanumeric (A to Z, 0 to 9) and may contain a period and minus sign.
- The first character must be an alpha character.
- The last character must not be a minus sign.
- You cannot use blank spaces or space characters.
- The hostname is not case-sensitive.

Auto Negotiate Speed and Duplex Selection

In the Edit Channel 3A properties box, you can either leave the Auto Negotiate box checked, which lets the controller negotiate a speed and duplex port setting, or you can uncheck the Auto Negotiate box, which forces the port setting to a particular speed and duplex port setting.

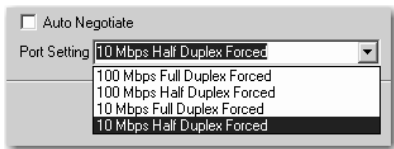
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If you uncheck Auto Negotiate, the port setting lets you select the range of speed and duplex settings that the controller negotiates. The default port setting with Auto Negotiate checked is 10/100 Mbps half duplex, which lets the controller negotiate any of its four available settings.

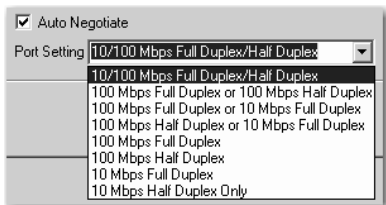
The following table lists the order the controller negotiates for each setting.

Setting	100 Mbps Full Duplex	100 Mbps Half Duplex	10 Mbps Full Duplex	10 Mbps Half Duplex
10/100 Mbps Full Duplex/Half Duplex	1st	2nd	3rd	4th
100 Mbps Full Duplex or 100 Mbps Half Duplex	1st	2nd		3rd
100 Mbps Full Duplex or 10 Mbps Full Duplex	1st		2nd	3rd
100 Mbps Half Duplex or 10 Mbps Full Duplex		1st	2nd	3rd
100 Mbps Full Duplex	1st			2nd
100 Mbps Half Duplex		1st		2nd
10 Mbps Full Duplex			1st	2nd
10 Mbps Half Duplex Only				1st

The unchecked Auto Negotiate box and corresponding port settings are shown below.



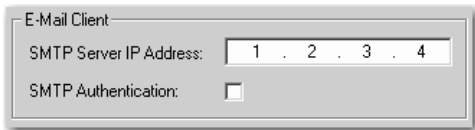
The checked Auto Negotiate box and corresponding port settings are shown below.



Email Client Functionality

The controller is an email client that sends an email triggered by a message instruction via a mail relay server. The controller uses standard SMTP protocol to forward the email to the relay server. The controller does not receive email.

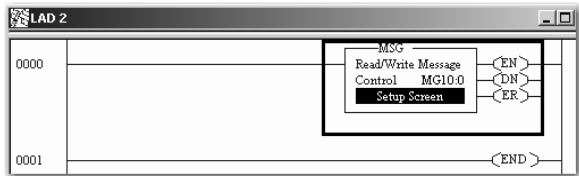
You must enter the SMTP Server's IP address into the text box as shown in the following dialog.



The controller supports login authentication. If you want the controller to authenticate to the SMTP server, check the SMTP authentication box. If you select authentication, you must also use a username and password for each email.

To create an email:

1. Create a message instruction similar to the one below.

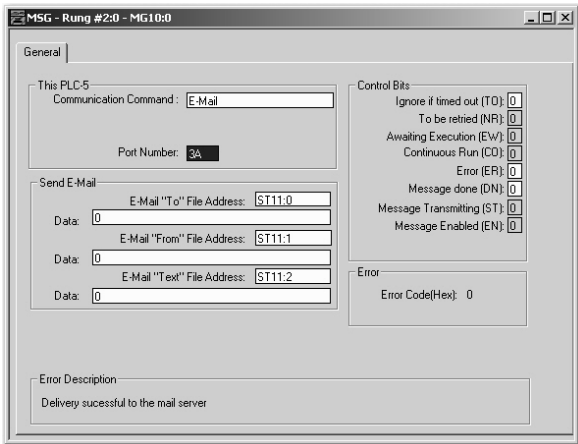


The destination (to), the reply (from), and the body (text) are stored as strings in elements of separate ASCII string files.

If you want to send an email to a specific recipient when a controller application generates an alarm or reaches a certain condition, program the controller to send the message instruction to the destination of the email.

2. Verify the rung.
3. Click on Setup Screen.

A dialog appears like the one below.



The three Data fields display the string values of the ST file element addresses.

4. To send email, enter the appropriate information into the Data fields and Username and Password, if Authentication is enabled.

Examine the Error Code (denoted in Hex) and Error Description areas within the General tab to see if the message was successfully delivered.

Error Code (hex)	Description
0x000	Delivery successful to the mail relay server.
0x002	Resource unavailable. The email object was unable to obtain memory resources to initiate the SMTP session.
0x101	SMTP mail server IP address not configured.
0x102	To (destination) address not configured or invalid.
0x103	From (reply) address not configured or invalid.
0x104	Unable to connect to SMTP mail server.
0x105	Communication error with SMTP server.
0x106	Authentication required.
0x017	Authentication failed.

Channel 3A Status

To check the status of channel 3A:

1. In your RSLogix 5 software project, click on Channel Status.
You see the Channel Status menu.
2. Click on the Channel 3A tab.
3. Click on the Port tab.

You see the status for each port configuration.

The screenshot shows a window with four tabs: General, Commands, Replies, and Port. The Port tab is selected. The window displays the following configuration and status information:

Auto Negotiate Status:	Disabled	Link Status:	Online
Port Speed:	10 Mbps	SNMP Server:	Disabled
Port Duplex:	Half Duplex	HTTP Server:	Disabled

Enable/Disable HTTP Web Server

You can disable the HTTP Web server functionality from within the Channel 3A Configuration by unchecking the HTTP Server Enable check box shown below.

The screenshot shows the 'Edit Channel Properties' dialog box with 'Channel 3A' selected. The 'Advanced Functions' section is expanded, showing the 'HTTP Enabled' checkbox checked. An arrow points to this checkbox. Other settings include:

- Channel Type: Ethernet/C
- Diagnostic File: 20
- Ethernet Address: 00:00:00:00:00:00
- SNMP Enabled:
- Network Configuration Type: Dynamic (selected)
- Use DHCP to obtain network configuration:
- Use BOOTP to obtain network configuration:
- IP Address: 0 . 0 . 0 . 0
- Message Connect Timeout (msec): 15000
- Message Reply Timeout (msec): 3000
- Inactivity Timeout (minutes): 30
- Link ID: 0
- Auto Negotiate:
- Port Setting: 10 Mbps Half Duplex Forced
- Subnet Mask: 0 . 0 . 0 . 0
- Gateway Address: 0 . 0 . 0 . 0
- Default Domain Name:
- Hostname:
- Primary Name Server: 0 . 0 . 0 . 0
- Secondary Name: 0 . 0 . 0 . 0
- User Provided Web Pages:
 - Starting Data File Number: 0
 - Number of Data Files (Pages): 1
 - HTTP Enabled:
- E-Mail Client:
 - SMTP Server IP Address: 0 . 0 . 0 . 0
 - SMTP Authentication:

Buttons at the bottom: OK, Cancel, Apply, Help.

The default (checked box) lets you connect to the controller using a Web browser. Although this parameter can be downloaded to the controller as part of a program download or changed and applied while online with the controller, you must cycle power to the controller for the change to take affect.

Enable/Disable Simple Network Management Protocol (SNMP)

You can disable the controller's SNMP functionality from within the Channel 3A Configuration by unchecking the SNMP Server Enable check box.

The default (checked box) lets you connect to the controller using an SNMP client. Although this parameter can be downloaded to the controller as part of a program download or changed and applied while online with the controller, you must cycle power to the controller for the change to take affect.

Additional Resources

Title	Publication
PLC-5 Ethernet Interface Module Installation Instructions	1785-IN019
PLC-5 Ethernet Interface Module User Manual, Series A and Series B	1785-6.5.19
Enhanced and Ethernet PLC-5 Programmable Controllers User Manual	1785-UM012

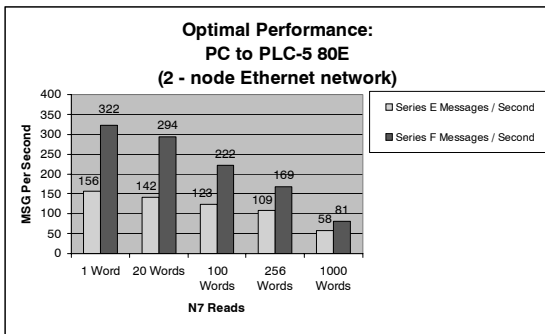
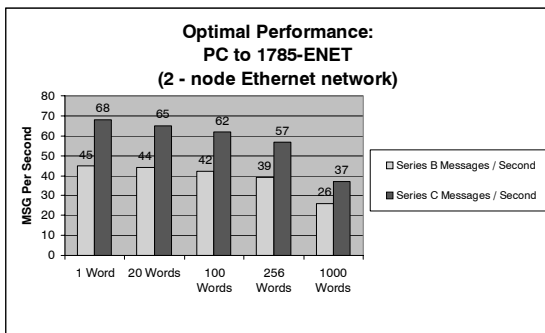
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Performance Considerations and Improvements

If you are using the module with an Ethernet PLC-5 controller, and require greater performance, we recommend using channel 2 on the controller instead of Channel 3A on the module.



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