Bulletin 1404 Ethernet Communication Port CIP Communications

Introduction

Read this document before using the Powermonitor 3000. Keep this document with the other Bulletin 1404 publications:

- 1404-IN001A-US-P - Master Module and Display Module
- 1404-IN006A-EN-P - Ethernet® Communication Port
- 1404-RN001A-EN-P - Bulletin 1404-M6 Functionality

All publications listed can be found at:

http://www.theautomationbookstore.com.

This release note contains information about communications using the new Powermonitor 3000 CIP functionality.

Applicability

This Release Note applies only to the following Powermonitor 3000 products with optional Ethernet communications:

- 1404-M405A-ENT
- 1404-M505A-ENT
- 1404-M605A-ENT
- 1404-M405B-ENT
- 1404-M505B-ENT
- 1404-M605B-ENT

Required firmware version numbers:

- Powermonitor 1404: FRN 1.12 or later
- Powermonitor 1404 Ethernet comms card FRN: 2.01 or later

Configuration Changes

There is an additional configuration parameter that controls whether the Powermonitor 3000 responds to requests on port 2222 (CSP), port 44818 (CIP/EPIC), or both.

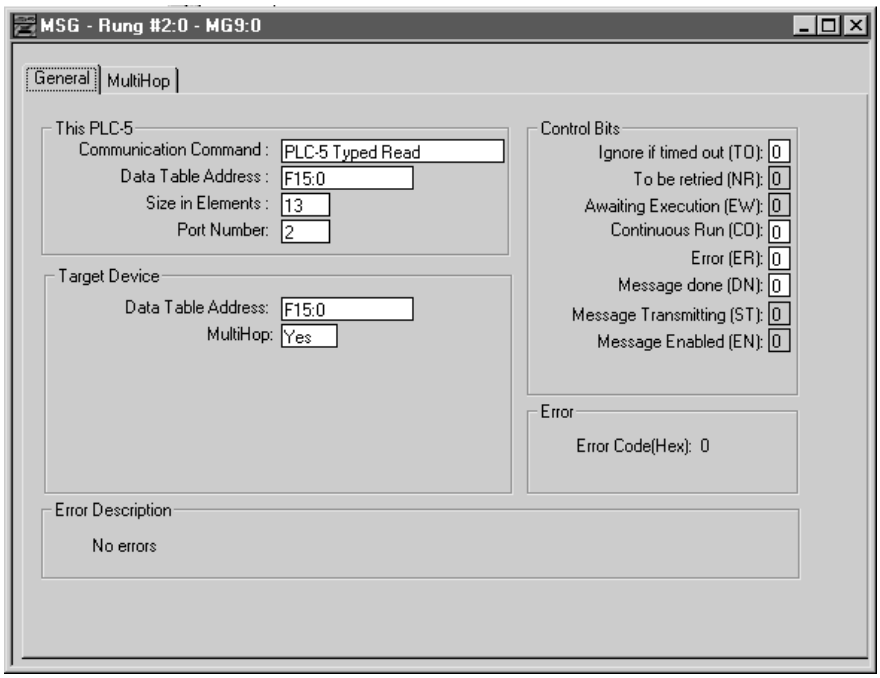
RSLinx to Powermonitor 3000

No changes are required to use RSLinx to communicate using CIP. The standard Ethernet driver 'AB_ETH' will first attempt to use CSP (on port 2222) and if that fails will attempt to use CIP/EPIC (on port 44818) to communicate.

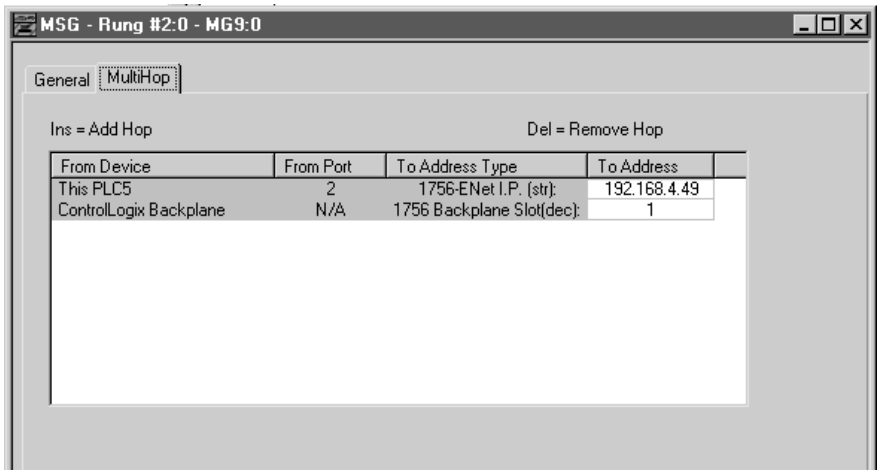
PLC-5/E to Powermonitor 3000

The PLC-5 only knows how to use CIP to communicate to or through a ControlLogix. A ControlLogix always uses a MultiHop path since there can be multiple controllers in a single chassis. To communicate with the Powermonitor 3000, set up a MultiHop message as if the remote device was a ControlLogix. The Powermonitor 3000 ignores the second element of the message path. This example copies the Voltage, Current and Frequency Table 'F15' from the Powermonitor 3000 to a local table of the same name.

Figure 1 PLC-5/E Message Configuration Dialog



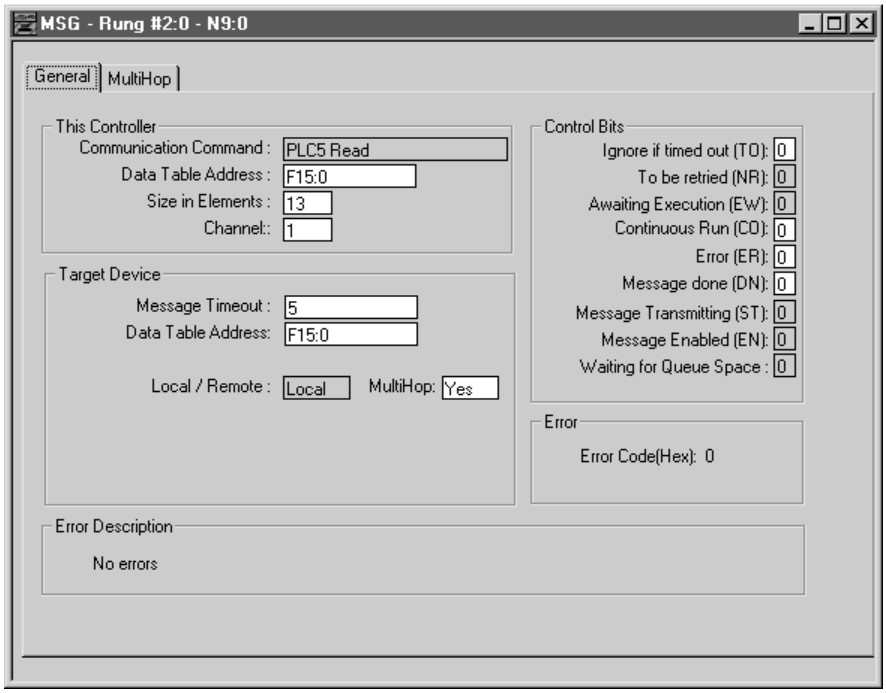
PLC-5/E Message MultiHop Configuration tab. Enter the IP address of the Powermonitor 3000 (192.168.4.49 is used here as an example). The "1756 Backplane Slot" entry is ignored and may be any integer.



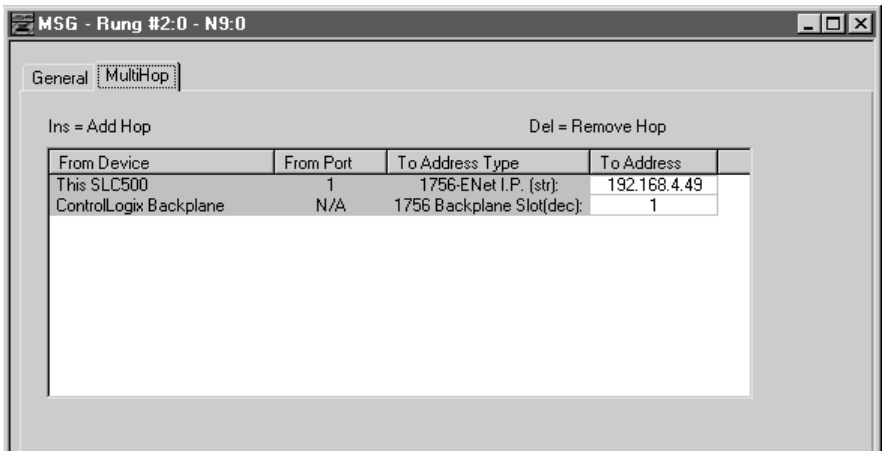
SLC 5/05 to Powermonitor 3000

Like the PLC-5/E, The SLC 5/05 only knows how to use CIP to communicate to or through a ControlLogix. A ControlLogix always uses a MultiHop path since there can be multiple controllers in a single chassis. To communicate with the Powermonitor 3000, set up a MultiHop message as if the remote device was a ControlLogix. The Powermonitor 3000 ignores the second element of the message path. This example copies the Voltage Current Table 'F15' from the Powermonitor 3000 to a local table of the same name.

Figure 2 SLC 5/05 Message Configuration Dialog

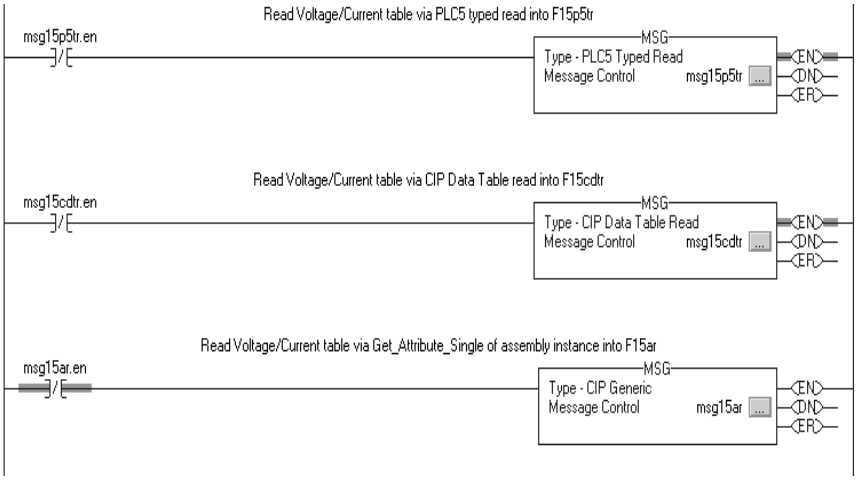


SLC 5/05 Multi-Hop Configuration Tab. Enter the IP address of the Powermonitor 3000 (192.168.4.49 is used here as an example). The "1756 Backplane Slot" entry is ignored and may be any integer.

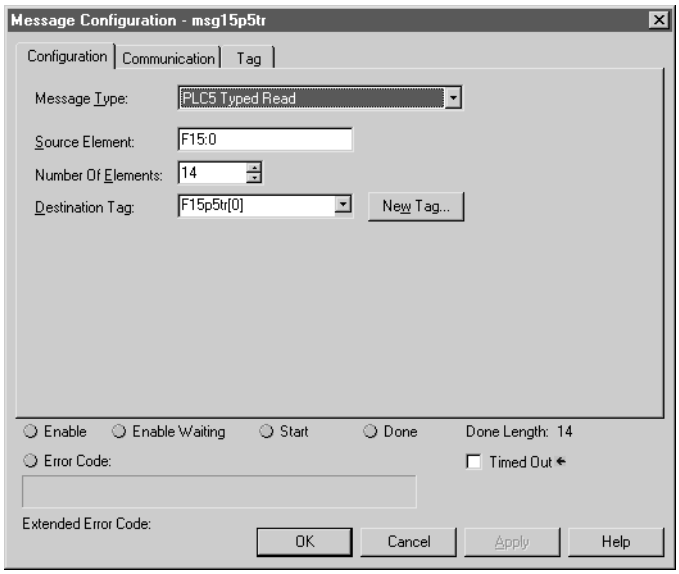


ControlLogix to Powermonitor 3000 Read Examples

This section shows 3 different types of reads from a ControlLogix 5000 controller. The first is CIP encapsulated PLC-5 typed read. The second is a 'CIP data table read' which is used for ControlLogix to ControlLogix messages. The last is a generic CIP assembly instance 'Get_Attribute_Single'

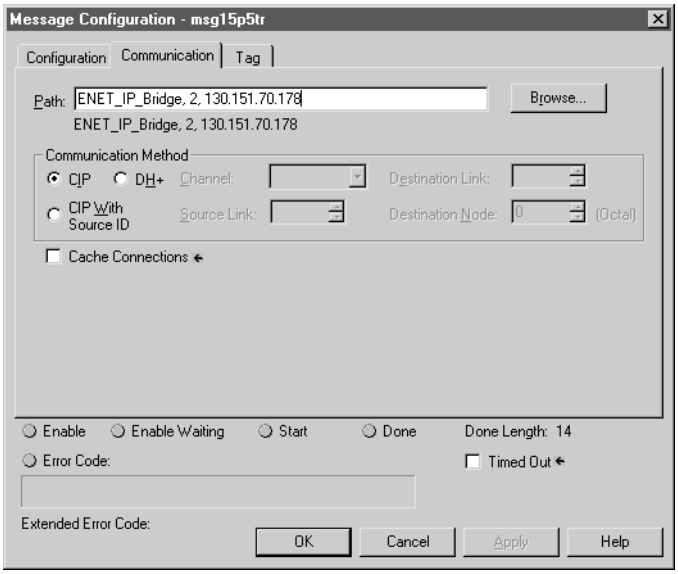


Message Configuration to Read the contents of Powermonitor 3000 Table F15 (voltage/current etc.) via PLC-5 Typed Read into ControlLogix local array F15p5tr. F15p5tr is declared as an array of 14 REAL.

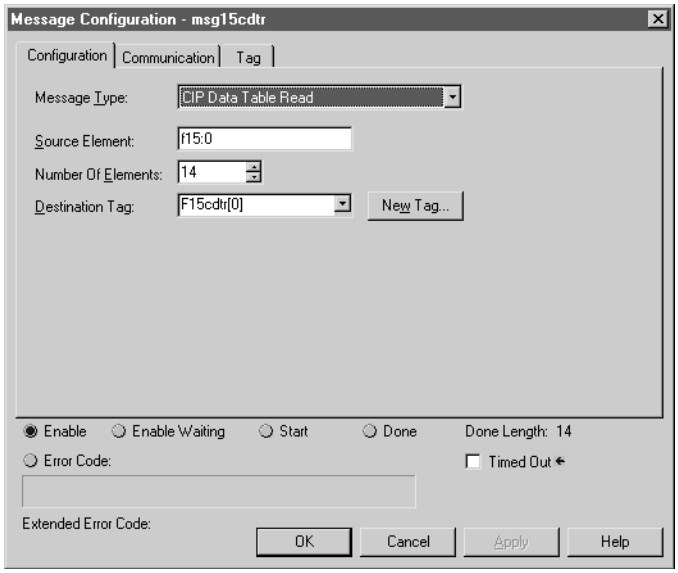


Communication tab for all ControlLogix message operations. The path made up of the Ethernet interface card desired, the front port number of the Ethernet card (always 2), and the IP address of the

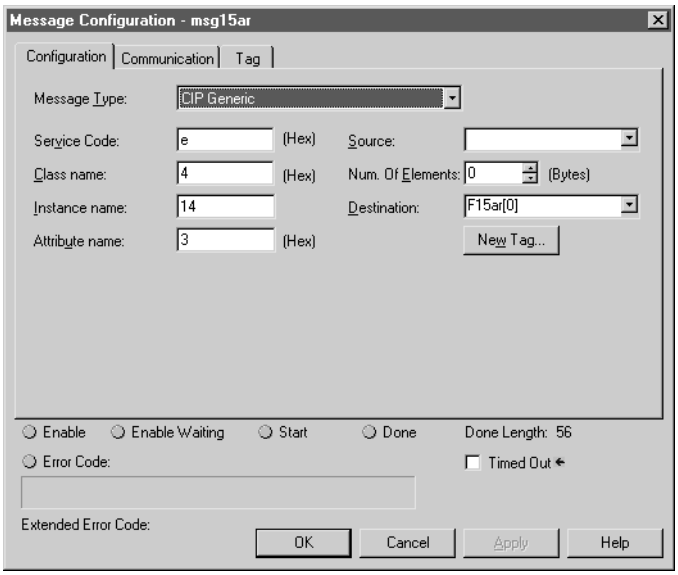
Powermonitor 3000. The example uses “ENET_IP_Bridge, 2, 130.151.70.173”.



Message Configuration to Read the contents of Powermonitor 3000 Table F15 (voltage/current etc.) via CIP Data Table Read into ControlLogix local array F15cdtr. F15cdtr is declared as an array of 14 REAL. The Powermonitor 3000 uses PLC format table addressing for remote ‘tag name’, e.g. ‘F15:0’. Communication tab is as shown above for PLC-5 typed read.



Message Configuration to Read the contents of Powermonitor 3000 Table F15 (voltage/current etc.) Generic CIP into ControlLogix local array F15ar. F15ar is declared as an array of 14 REAL.



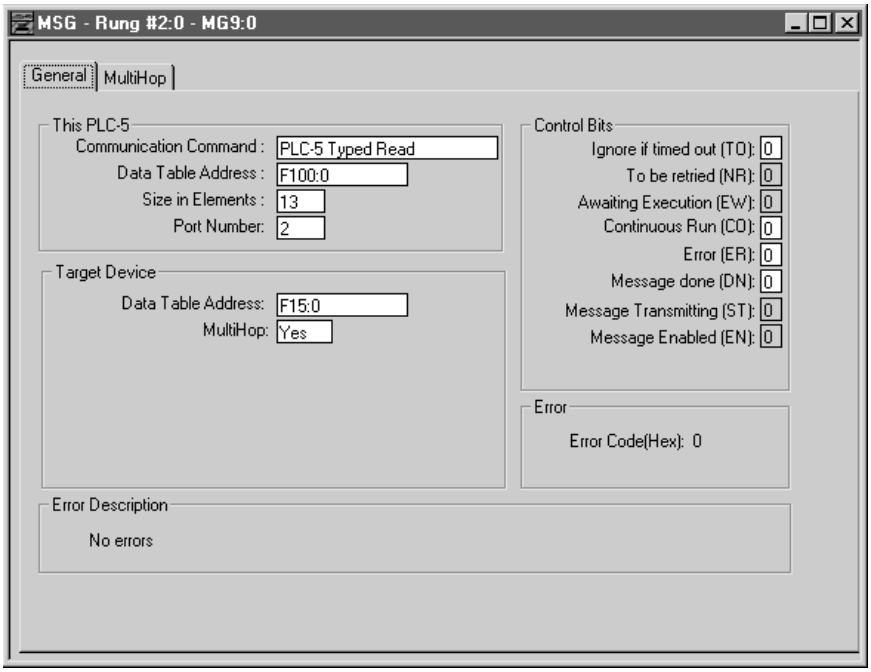
- Service Code = E (hex) ‘Get_Attribute_Single’;
- Object Type = 4 (hex) “Assembly Instance Class’;
- Object Id (instance name) = 14 from the 1404 data tables document.
- Object Attribute (attribute name) = 3 (hex) Assembly instance ‘Data’ Attribute.
- Source: leave blank.
- Number of Elements: leave at zero (0).

Communication tab is as shown above for PLC-5 typed read.

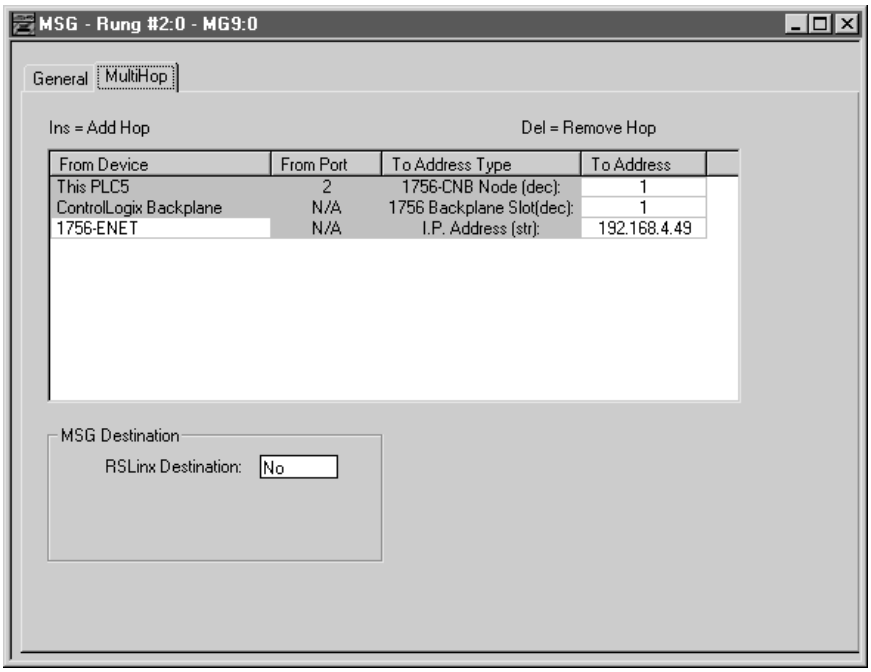
Refer to Ladder Program Description starting on page 12 for more examples of CIP messaging between a ControlLogix controller and the Powermonitor 3000.

PLC-5/C to Powermonitor 3000 via Control Logix Gateway

Read Table F15 from the Powermonitor 3000 and store in local table F100. Message is routed from a PLC-5/C through a ControlLogix Gateway to the Powermonitor 3000 on Ethernet.



MultiHop Configuration ControlNet through ControlLogix Gateway to Ethernet. One in the first line is the ControlNet Node ID of the ControlLogix 1756-CNB card. One in the second line is the 0 based slot that the 1756-ENET Ethernet card is in. The IP address in the last line belongs to the Powermonitor 3000.



Ethernet Information

The Powermonitor 3000 operates as a slave device on the Ethernet network and supports I/O messaging (Polled, Change of State and Cyclic), Explicit Server Messaging and the explicit Unconnected Message Manager (UCMM).

The following sections define the Ethernet message types, class services and objects supported by the Powermonitor 3000.

Other Related Documentation

The following documents contain general information concerning Ethernet and other relevant information. To obtain a copy, contact your local Rockwell Automation office or distributor.

Table 1 Related Documentation

For	Read This Document	Published By
Information on ControlNet over Ethernet (CIP)	ControlNet Specifications	www.ControlNet.org
An article on wire sizes and types for grounding electrical equipment	National Electrical Code	National Fire Protection Association of Boston, MA

Ethernet Message Types

The Powermonitor 3000 supports the following network requests:

Table 2 Ethernet Message Types

PLC-5 Typed Write
PLC-5 Typed Read
CIP Data Table Read (using CSP/PCC Table Name as remote tag name, e.g. “F15”)
CIP Data Table Write (using CSP/PCC Table Name as remote tag name, e.g. “F15”)
CIP Generic Assembly Object (class = 04 hex) Get/Set Attribute Single for Attribute #3 (data)
CIP Generic Assembly Object (class = 04 hex) Get Attribute Single for Attribute #4 (size)

Ethernet Object Classes

The Powermonitor 3000 device supports the following Ethernet object classes.

Table 3 Ethernet Object Classes

Class	Object
01 (hex)	Identity
04 (hex)	Assembly
06 (hex)	Connection Manager

Powermonitor 3000 Data Tables

Table 4 Summary of Powermonitor 3000 Data Tables using Ethernet Communication

Name of data table	Read/Write	CSP File # (1)	# Elements (2)	CIP Assy Inst#(3)	M 4	M 6	Refer to(4)
CIP I/O Data (User Configurable)	R		(7)	1	•	•	Table 5
CIP I/O Data	W		2	2	•	•	Table 6
Discrete Data	R	N9	6	3	•	•	Table B.3
Basic Device Configuration	R/W	F10	8/9(5)	4,5	•	•	Table B.4(5)
Date and Time	R/W	N11	8	6,7	•	•	Table B.5
Advanced Device Configuration	R/W	N12	22	8,9	•	•	Table B.6
Native Communication Configuration	R/W	N13	6	10,11	•	•	Table B.7
Ethernet Communication Configuration	R/W	N14	20	12,13	•	•	Table B.8
Metering Voltage, Current and Frequency Results	R	F15	14	14	•	•	Table B.9
Metering Sequence Voltage and Current Results	R	F16	11	15	•	•	Table B.10
Metering Power Results	R	F17	13	16	•	•	Table B.11
Metering Demand Results	R	F18	10	17	•	•	Table B.12
Metering Power Factor Results	R	F19	13	18	•	•	Table B.13
Metering Real and Apparent Energy Results	R/W	N20	23	19,20	•	•	Table B.14
Metering Reactive Energy and Amp-Hour Results	R/W	N21	23	21,22	•	•	Table B.15
Selftest/Diagnostic Results	R	N22	27	23	•	•	Table B.16
DF1 PCCC Diagnostic Status Reply	R	(6)		-	•	•	Table B.17
Setpoint Setup/Readback Select and Status	R/W	N23	16	24,25	•	•	Table B.18
Trend Log Configuration/Readback Record Select	R/W	N24	26	26,27	•	•	Table B.21
Trend Log Record (Large Read)	R	F25	22	-	•	•	Table B.22
Min/Max Log Configuration/Readback Parameter Select	R/W	N26	9	29,30	•	•	Table B.23
Min/Max Log Results	R	F27	11	31	•	•	Table B.25
Event Log Configuration/Readback Record Select	R/W	N28	5	32,33	•	•	Table B.26
Event Log Results	R	N29	14	34	•	•	Table B.27
User Configured Table Setup	R/W	N30	26	35,36	•	•	Table B.29
User-Configured Table Results	R	F31	(7)	37	•	•	Table B.30
Write Error Status	R	N32	2	38	•	•	Table B.31
Harmonic Analysis Configuration/Readback Data Select	R/W	N33	9	39,40	•	•	Table B.32
Harmonic Results; THD, Crest Factor, and more	R	F34	9/10(8)	41	•	•	Table B.33(8)

(1) SLC file numbers 1-8 are typically of a fixed data type, Powermonitor starts with file #9 to avoid any data-type incompatibility which may be enforced by some products and/or programming tools.

(2) Each element in a Float (or Real) table is equivalent to two 16-bit words. Each element in an Integer table is equivalent to one16-bit word.

(3) Where two numbers are given, the lower of the two is used in write messages and the higher is used in read messages.

(4) Reference tables B.3 through B.33 may be found in publication 1404-IN006A-EN-P, Bulletin 1404 Ethernet Communication Port Installation Instructions.

(5) Basic Device Configuration data table size is 8 elements for the 1404-M4 and 9 elements for the 1404-M6. Refer to Table 4 in publication 1404-RN001A-EN-P.

(6) This is not a data table, but a reply to a PCCC diagnostic status request (Used by RSWho to display text and an icon for the product).

(7) The size of the user-configured table depends on how many parameters the user has selected, up to a maximum of 23 supported in the Powermonitor 3000 data table.

(8) Harmonic Results; THS, Crest Factor and more data table size is 9 elements for 1404-M4 and 10 elements for 1404-M6. Refer to Table 12 in publication1404-RN001A-EN-P.

TIP

Additions to Ethernet data tables:

- Table B.8 Ethernet Communications Configuration Element 14: Parameter name: Protocol select, Range 0-2, Default: 0, Description: Select the ethernet/IP protocol.
  0=CSP/CIP protocol (concurrent support for both CSP and CIP protocols)
  1=CSP protocol
  2=CIP protocol
- Table B.29 User Configured Table Setup Modify Element 1: Name: DF1 File Number/Instance to Configure Range: 1,31,37 Default: 31 Comment: Specify which of two tables to be configured: Instance 1 or 37. Instance 37 is also referred to as F31 using DF1 nomenclature.
- Table B.29 User Configured Table Setup Modify Element 2: Name: Instance 1 data type Range: 0 to 1 Default: 0 Comment: 0 = All integers for instance 1, 1 = All floats for instance 1. All elements in instance 1 will be read as single precision IEEE-754 format floating point values. If configuring instance 37 (F31) then enter 0 for this element.

Table 5 CIP I/O data provided by Powermonitor (Scanner input data; CIP Assembly instance 1) -- Default table content

Elem. #	Parameter name	Data type	Range	Default Value	Description
0	Relay output status	Int	0 to 3	-	Indicates state of the form-C relay 0=De-energized (normally open contacts are open) & not forced 1=Energized (normally open contacts are closed) & not forced 2=Force De-energized 3=Force Energized
1	Solid-state KYZ output status	Int	0 to 3	-	Indicates status of the form-C KYZ solid-state output 0=De-energized (KZ is 'open', KY is 'closed') & not forced 1=Energized (KZ is 'closed', KY is 'open') & not forced 2=Force De-energized 3=Force Energized
2	Alarm output word	Int	0 to FFFF	-	Indicates state of the 16 alarm output flags A 0 in a bit position indicates released, 1 indicates asserted. Bit 0=relay/setpoint output flag 1 Bit 1=KYZ/setpoint output flag 2 Bit 2=setpoint output flag 3 … Bit 15=setpoint output flag 16
3	Status inputs state	Int	0 to 3	-	Indicates state of the 2 status inputs Bit 0=status input #1; 0=open, 1=contact closure detected Bit 1=status input #2; 0=open, 1=contact closure detected Bits 2-15=unused (always 0)
4	Status input #1 counter	Int	0 to 32767	-	The number of times status input #1 has gone active since last reset of this counter. This count rolls over to 0 after a maximum count of 32767 is reached. This counter can be cleared to 0 (see Table 6).
5	Status input #2 counter	Int	0 to 32767	-	Same as above, except for status input #2.

Table 6 CIP I/O data accepted by Powermonitor (Scanner output data; CIP Assembly instance 2) - Table not reconfigurable.

Elem. #	Parameter name	Data type	Range	Default Value	Description
0	Relay output	Int	0 to 1	-	An external scanner device can control this output directly on I/O scans, if enabled by the 'Force relay output' parameter in Table 6. 0=De-energize (open normally-open contacts) 1=Energize (close normally-open contacts)
1	Solid-state KYZ output	Int	0 to 1	-	An external scanner device can control this output directly on I/O scans, if enabled by the 'Force relay output' parameter in Table 6. 0=De-energize ('open' normally-open KZ 'contacts') 1=Energize ('close' normally-open KZ 'contacts')

TIP

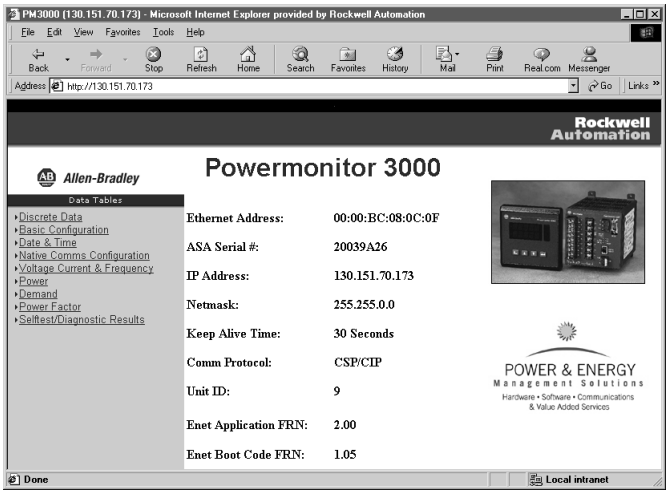
Refer to Table 3 in publication 1404-RN001A-EN-P for information on additional data tables found only in the 1404-M6.

Powermonitor 3000 Web Access Overview

The HTTP (web) interface is accessed from a web browser by entering the IP address of the Powermonitor 3000 in the address combo box (example: http://130.151.70.173).

A menu of all the available tables is presented with each table name shown as a hyperlink. Clicking on the link brings up a tabular display of the values in that table and the value descriptions.

Figure 3 Example of Web Interface



ControlLogix Ethernet Communications Sample Ladder Listing for Reading Data

The following is a ladder program designed to return real-time data from a Powermonitor 3000 to a ControlLogix controller via its Ethernet IP Bridge (1756-ENET/B). The following example and ladder listing use these settings:

- IP Address: 130.151.70.173
- Subnet mask: 255.255.0.0
- Keep Alive Time: 30 Seconds
- 50 mSec delay between data reads
- Message type: PLC-5 Typed Read, CIP Generic
- File Reads as shown in Table 7 below

Ladder Program Description

ControlLogix Ethernet/IP Operation

The ladder program is executed within a periodic task with its rate set to 50 mSec. The “Start_Read” flag enables the logic to execute by reinitializing the message index. When each message instruction either completes or errors out, the message index is incremented and the next message instruction is enabled. When the last message instruction has completed, the cycle begins again.

TIP

The message read rate may be altered by changing the execution rate of the periodic task. However, the availability of fresh data values is controlled by the Powermonitor 3000.

Table 7 ControlLogix Tags Used

Tag Name	Type	# of Elem’s	Description	Ass’y Instance (Table #)
msgPM3K_Demand	MESSAGE	N/A	Demand	17 (F18)
msgPM3K_Diag	MESSAGE	N/A	Diagnostics	23 (N22)
msgPM3K_Kvarh	MESSAGE	N/A	Reactive Energy	22 (N21)
msgPM3K_KWh	MESSAGE	N/A	Real Energy	20 (N20)
msgPM3K_PF	MESSAGE	N/A	Power Factor	18 (F19)
msgPM3K_Power	MESSAGE	N/A	Power	16 (F17)
msgPM3K_VI	MESSAGE	N/A	Voltage and Current	14 (F15)
MsgPM3K_User	MESSAGE	N/A	User-configured Table	37 (F31)

Table 7 ControlLogix Tags Used

Tag Name	Type	# of Elem's	Description	Ass'y Instance (Table #)
dataPM3K_Demand	REAL	10	Demand	
dataPM3K_Diag	INT	27	Diagnostics	
dataPM3K_Kvarh	INT	23	Reactive Energy	
dataPM3K_KWh	INT	23	Real Energy	
dataPM3K_PF	REAL	13	Power Factor	
dataPM3K_Power	REAL	13	Power	
dataPM3K_VI	REAL	14	Voltage and Current	
DataPM3K_User	REAL	23(1)	User-configured Table	
Start_Read	BOOL	1	Logic Enable Flag	
IndxPM3000	IINT	1	Message Index	

(1) Set for maximum number of elements in the user-configured table (23).

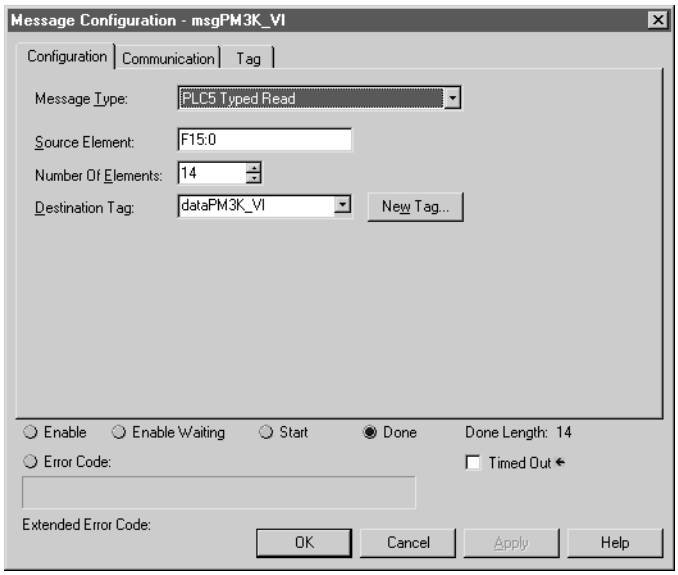
If reading of additional data tables is desired, add similar logic rungs conditioned by higher message index values. The value in the GEQ instruction in the first rung must be programmed to match the number of data tables read.

IMPORTANT Failure to coordinate the message index logic with the number of message transfers (data table reads) will result in improper operation of the ladder program. It is also imperative to match the ControlLogix data tag array length with the number of Powermonitor 3000 data table elements. Remember that a REAL (Float) data element corresponds to two data table words in the Powermonitor 3000.

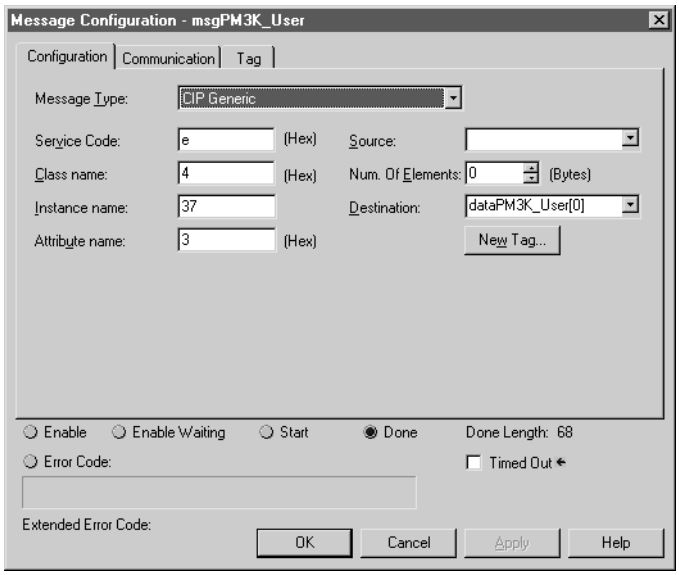
Sample Ladder Listing

This example ladder program shows a way to configure data table reads of the Powermonitor 3000 through message instructions with a ControlLogix controller on Ethernet, via the 1756-ENET/B Ethernet/IP Bridge communications module.

The message configuration below is typical for all but the user-configured table read message. Refer to Table 4 in publication 1404-IN006A-EN-P for message details for other tables not included in this example.

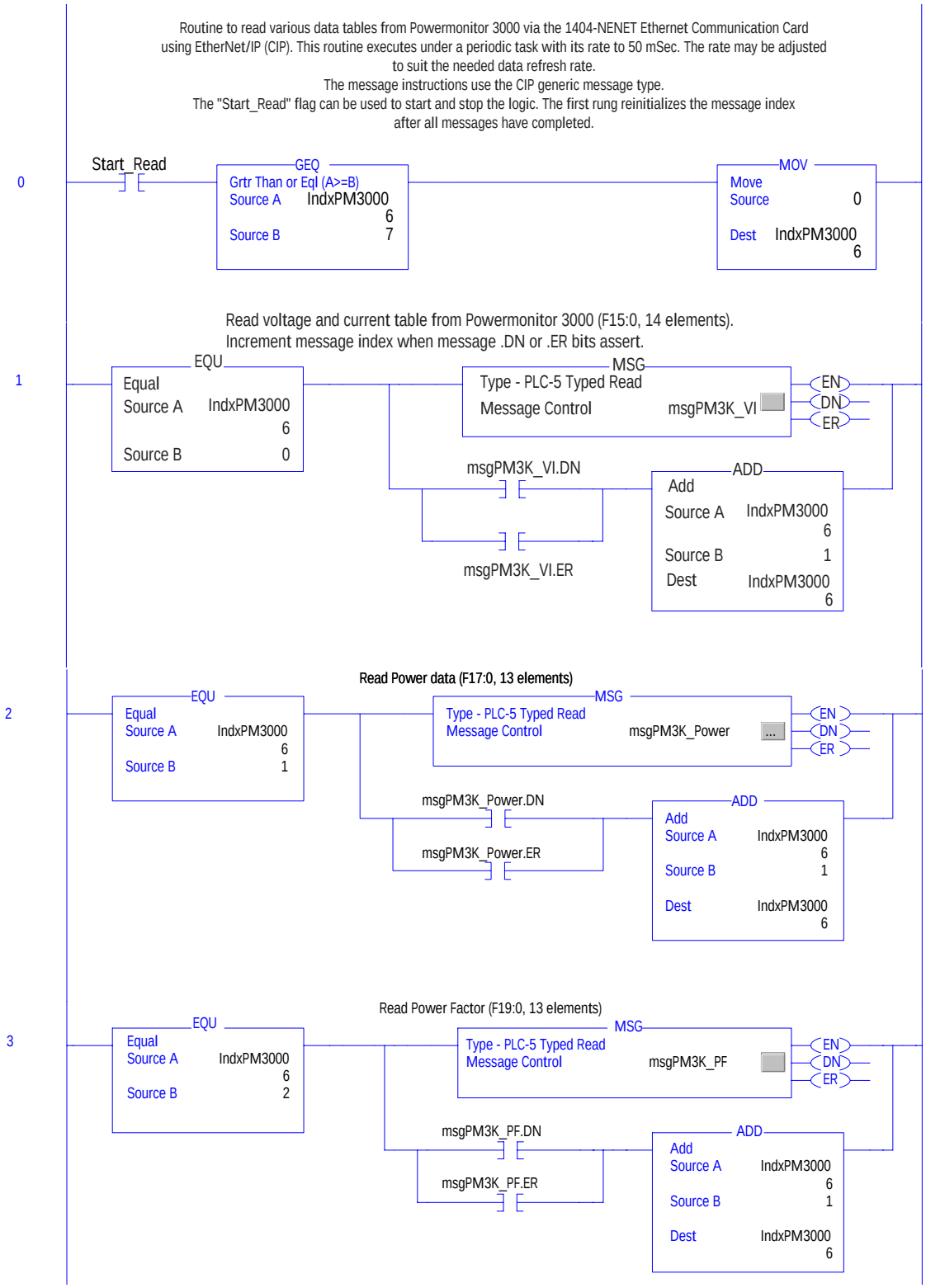


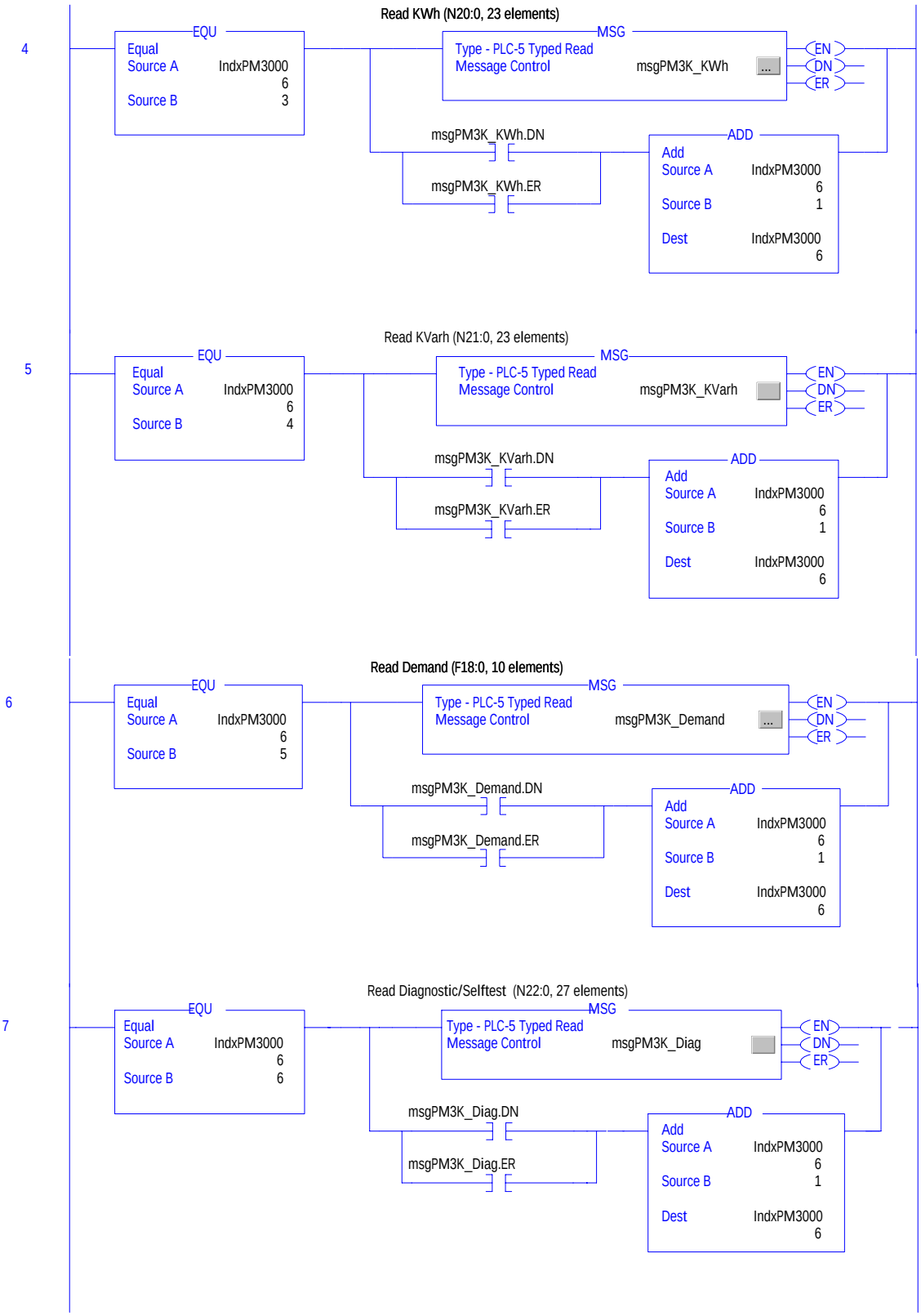
This example ladder program uses PLC-5 Typed Reads for most messages, however, a CIP Generic message reads the user-configured table. The CIP Generic message determines the number of elements in the user configured table and reads only those elements. The destination tag should be sized to accept the maximum table size of 23 REAL (floating-point) elements. Note in the message configuration screen below that the Done Length is 68 bytes, corresponding to the default user-configured table length of 17 REAL elements of 4 bytes (two words) each.

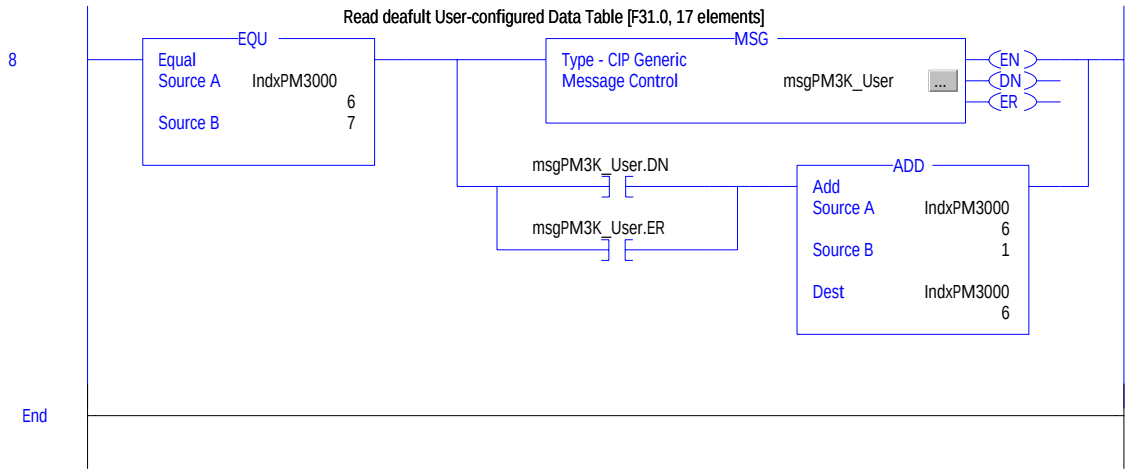


ATTENTION

Proper operation of the ladder program is the responsibility of the user. No warranty is expressed or implied by using these ladder configurations. This ladder is subject to change.


Routine to read various data tables from Powermonitor 3000 via the 1404-NENET Ethernet Communication Card using EtherNet/IP (CIP). This routine executes under a periodic task with its rate to 50 mSec. The rate may be adjusted to suit the needed data refresh rate.
The message instructions use the CIP generic message type.
The "Start_Read" flag can be used to start and stop the logic. The first rung reinitializes the message index after all messages have completed.
0
Start_Read
GEQ
Grtr Than or Eql (A>=B)
Source A IndxPM3000 6
Source B 7
MOV
Move
Source 0
Dest IndxPM3000 6
Read voltage and current table from Powermonitor 3000 (F15:0, 14 elements).
Increment message index when message .DN or .ER bits assert.
1
EQU
Equal
Source A IndxPM3000 6
Source B 0
MSG
Type - PLC-5 Typed Read
Message Control msgPM3K_VI
EN
DN
ER
msgPM3K_VI.DN
msgPM3K_VI.ER
ADD
Add
Source A IndxPM3000 6
Source B 1
Dest IndxPM3000 6
Read Power data (F17:0, 13 elements)
2
EQU
Equal
Source A IndxPM3000 6
Source B 1
MSG
Type - PLC-5 Typed Read
Message Control msgPM3K_Power
EN
DN
ER
msgPM3K_Power.DN
msgPM3K_Power.ER
ADD
Add
Source A IndxPM3000 6
Source B 1
Dest IndxPM3000 6
Read Power Factor (F19:0, 13 elements)
3
EQU
Equal
Source A IndxPM3000 6
Source B 2
MSG
Type - PLC-5 Typed Read
Message Control msgPM3K_PF
EN
DN
ER
msgPM3K_PF.DN
msgPM3K_PF.ER
ADD
Add
Source A IndxPM3000 6
Source B 1
Dest IndxPM3000 6


Read KWh (N20:0, 23 elements)
4
EQU
Equal
Source A IndxPM3000 6
Source B 3
MSG
Type - PLC-5 Typed Read
Message Control msgPM3K_KWh
EN
DN
ER
msgPM3K_KWh.DN
msgPM3K_KWh.ER
ADD
Add
Source A IndxPM3000 6
Source B 1
Dest IndxPM3000 6
Read KVarh (N21:0, 23 elements)
5
EQU
Equal
Source A IndxPM3000 6
Source B 4
MSG
Type - PLC-5 Typed Read
Message Control msgPM3K_KVarh
EN
DN
ER
msgPM3K_KVarh.DN
msgPM3K_KVarh.ER
ADD
Add
Source A IndxPM3000 6
Source B 1
Dest IndxPM3000 6
Read Demand (F18:0, 10 elements)
6
EQU
Equal
Source A IndxPM3000 6
Source B 5
MSG
Type - PLC-5 Typed Read
Message Control msgPM3K_Demand
EN
DN
ER
msgPM3K_Demand.DN
msgPM3K_Demand.ER
ADD
Add
Source A IndxPM3000 6
Source B 1
Dest IndxPM3000 6
Read Diagnostic/Selftest (N22:0, 27 elements)
7
EQU
Equal
Source A IndxPM3000 6
Source B 6
MSG
Type - PLC-5 Typed Read
Message Control msgPM3K_Diag
EN
DN
ER
msgPM3K_Diag.DN
msgPM3K_Diag.ER
ADD
Add
Source A IndxPM3000 6
Source B 1
Dest IndxPM3000 6



ControlLogix Ethernet Communications Sample Ladder Listing for Customizing a User Defined Data Table

The following is a ladder program designed to customize the User Configured Data Table in a Powermonitor 3000 using a ControlLogix controller via its Ethernet IP Bridge (1756-ENET/B). The following example and ladder listing use these settings:

- IP Address: 130.151.70.173
- Subnet mask: 255.255.0.0
- Gateway IP Address: Not Set
- Keep Alive Time: 30 Seconds
- Message type: PLC-5 Typed Read

Ladder Program Description

ControlLogix EtherNet/IP Operation

The ladder program is executed within a continuous task. This sample logic reads and saves the existing User Configured Data Table setup file from the Powermonitor 3000 to permit an “Undo” operation. The user must create tags listed in Table 8 below and enter data correctly to configure the Powermonitor 3000 User Configurable Data Table successfully.

The “Start” flag begins the logic execution. The “Select” tag’s value determines which configuration is written to the Powermonitor 3000.

- 0 - Default table setup
- 1 - Custom table setup
- 2 - Undo the last write

First, the logic reads the existing setup table from the Powermonitor 3000 and saves it in the “Old” tag. After a brief delay, it writes the selected setup table. If the length of the User Configured Data Table changes, the Powermonitor 3000 resets. After another delay, the write status table is read and if it indicates a successful write, the “Success” flag is set.

The message configuration for writing the new configuration table to the Powermonitor 3000 is shown below. Note the instance name is the lower of the two values given in Table 4 of publication 1404-IN006A-EN-P. Service code 10 (hex) is for a write “Set_attribute_single”.

Table 8 ControlLogix Tags Used

Tag Name	Type	# of Elems	Description	Table #
msgReadOld	MESSAGE	N/A	Read Existing Config	N30
msgWriteNew	MESSAGE	N/A	Write New Config.	N30
msgGetStatus	MESSAGE	N/A	Write Status	N32
Start	BOOL	1	Start Operation	
Failed	BOOL	1	Failure Flag	
Success	BOOL	1	Success Flag	
Oneshot_1	BOOL	1	One shot	
Oneshot_2	BOOL	1	One shot	
Timer1	TIMER	1	Inter-message Delay	
Timer2	TIMER	1	PM3000 Reset Time	
Counter1	COUNTER	1	Message Retry	
Default	INT	26	Default Configuration	
Custom	INT	26	Custom Configuration	
Old	INT	26	Previous Config	
Download	INT	26	New Config to Write	
Pwd	INT	1	PM3000 Password	
Status	INT	2	Write Status	
Select	INT	1	User Selection	

The user must enter data into the “Default” and “Custom” tags. Please refer to Table 32 in publication 1404-IN006A-EN-P for the structure and rules for the User Configured Table Setup data table and its default settings. Refer to Table 37 in publication 1404-IN006A-EN-P for parameters which may be included in the User Configured Table Setup.

IMPORTANT Words 0 through 3 of the User Configurable Table Setup array must have specific values.

- Word 0: Powermonitor 3000 password (default = 0)
- Word 1 must be one of the following decimal values:
  - 31, for CSP/PCCC Typed Write
  - 1 or 37 for CIP Set Attr Single
- Word 2: zero (0) for writes to table 31 (37). For configuring instance 1: 0 = all integer table (instance 1) data type, 1 = all float table (instance 1) data type.
- Word 3: between 1 and 295 incl.

IMPORTANT The user must coordinate the length of the destination tag array with the length of the User Configured Table in any Read message instruction or message errors may result.

Sample Ladder Listing

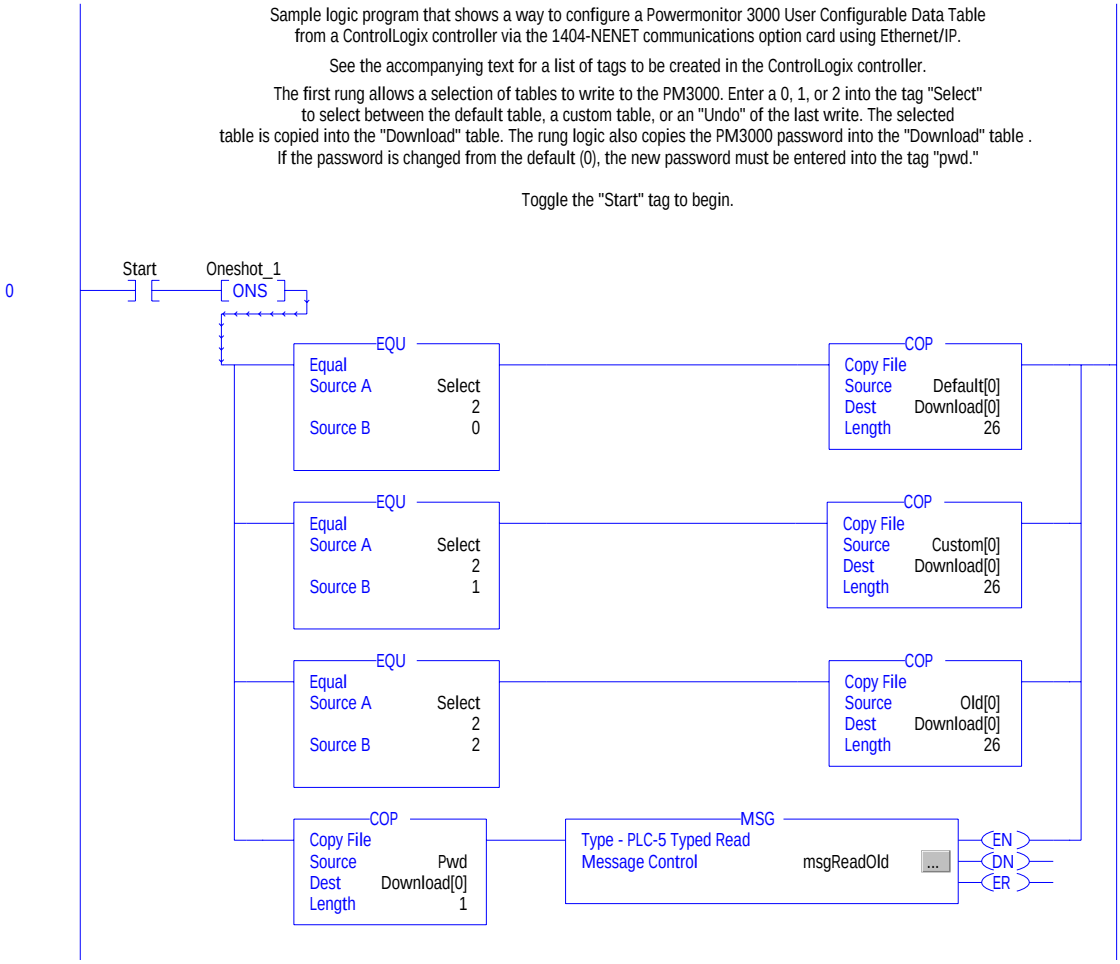
This example ladder program shows a way to customize the User Configured Data Table in a Powermonitor 3000 using a ControlLogix controller on Ethernet, via its 1756-ENET/B Ethernet/IP Bridge communications module.

This example uses PLC-5 Typed Read and PLC-5 Typed Write messaging. However, CIP Data table Read/Write messages or CIP Generic messages may also be programmed.

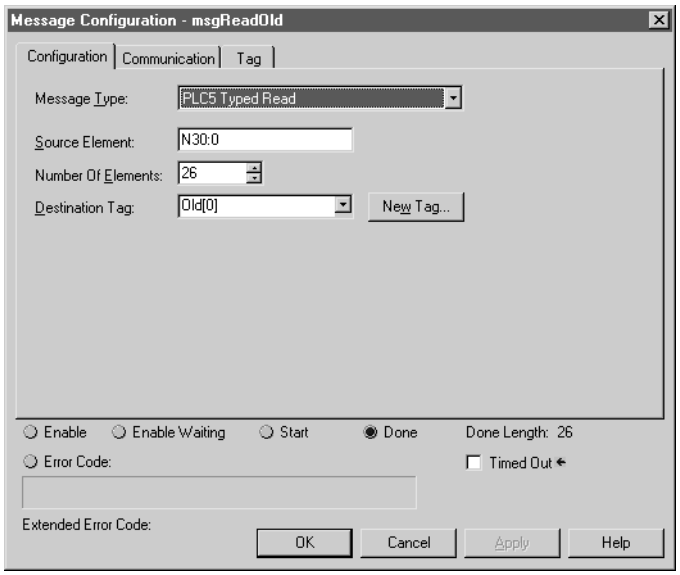
ATTENTION

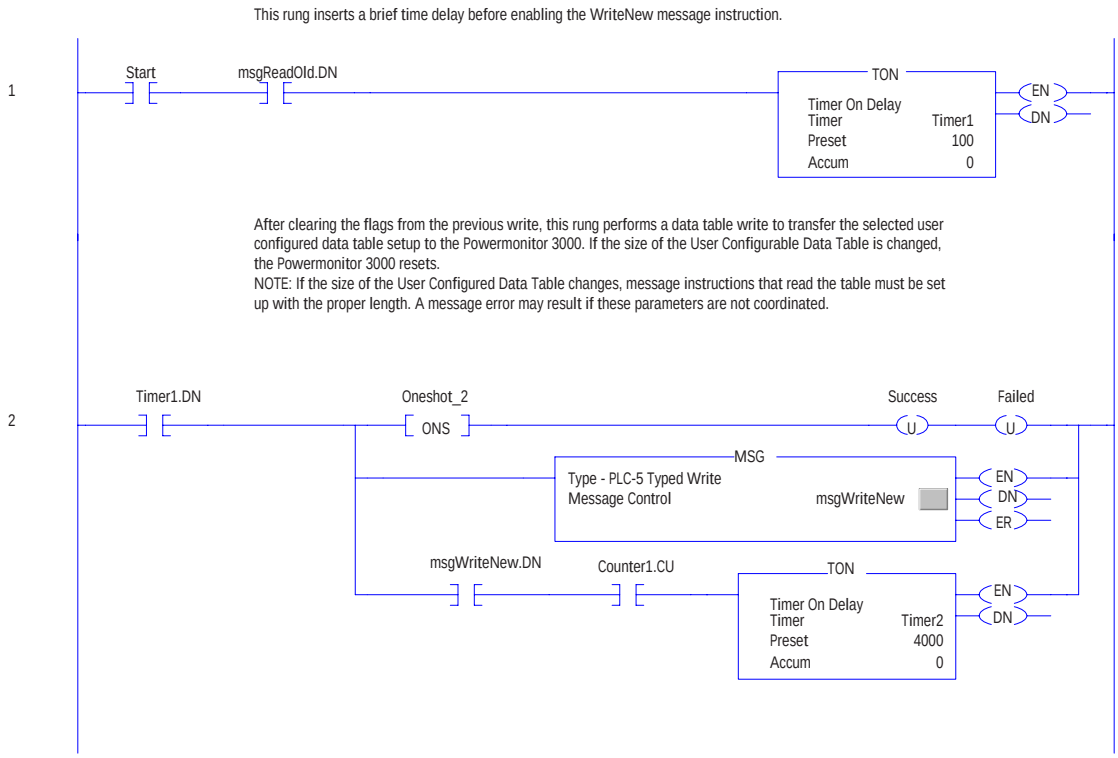
Proper operation of the ladder program is the responsibility of the user. No warranty is expressed or implied by using these ladder configurations

This ladder is subject to change.

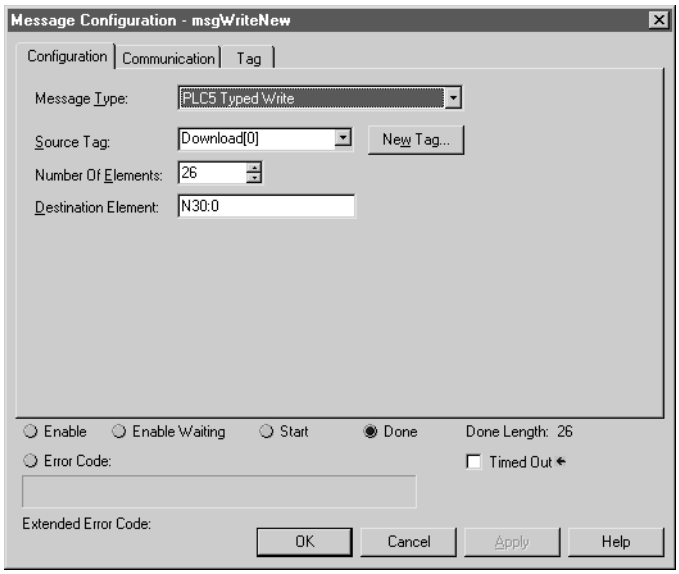


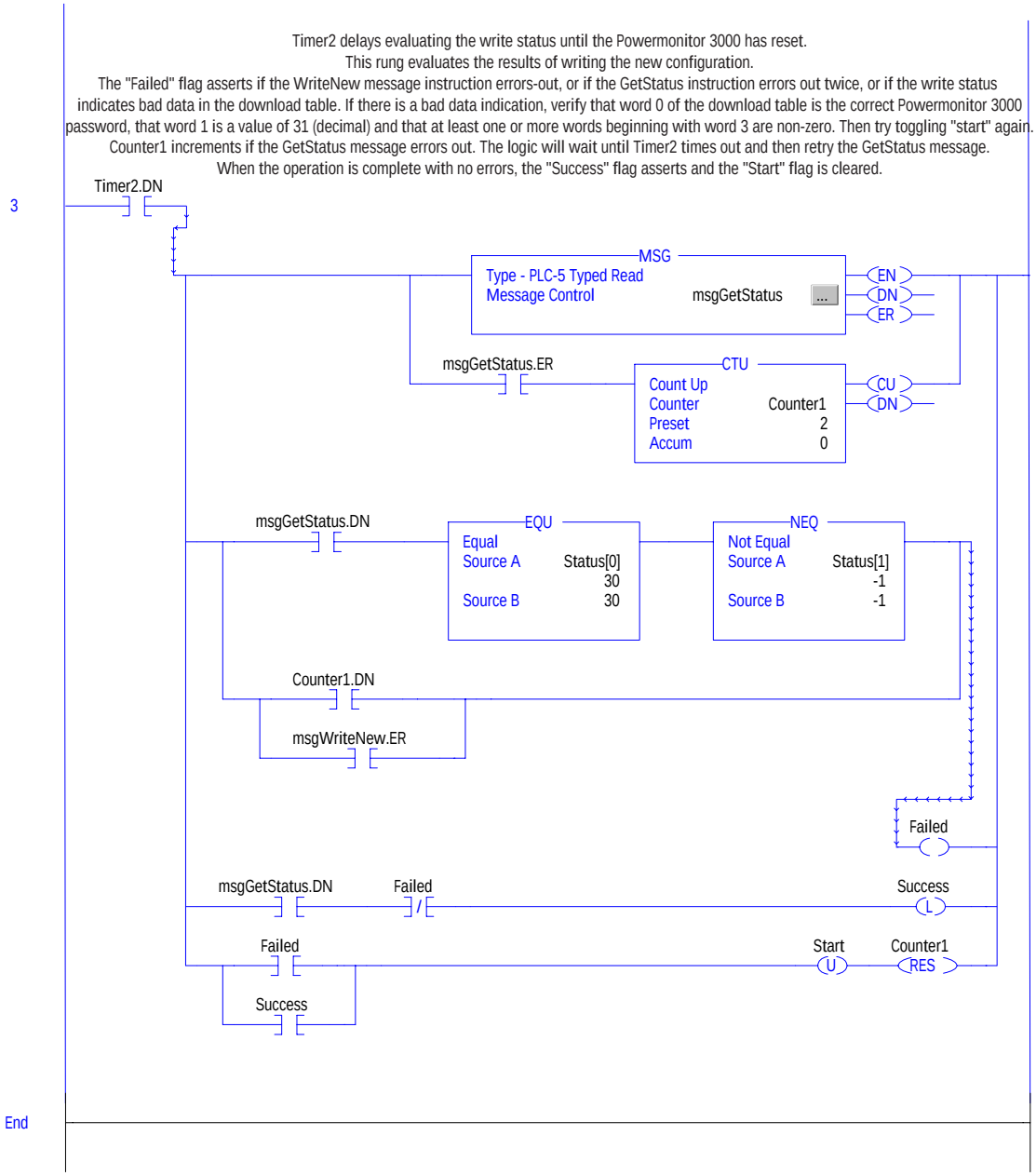
The message configuration for the ReadOld message is shown below.



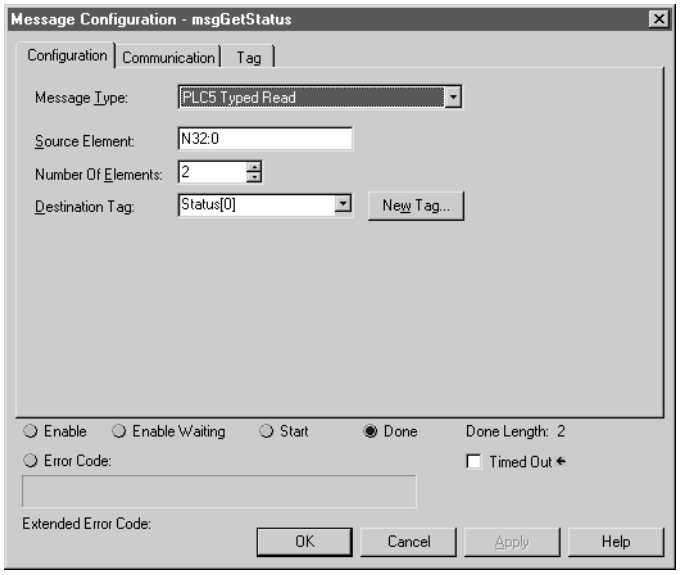


The message configuration for writing the new configuration table to the Powermonitor 3000 is shown below.





The message configuration for the GetStatus message is shown below.



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