



# KA5 Module Firmware Enhancement Series B, Revision C (1785-KA5 DH+ to DH485)

Catalog Numbers 1785-KA5, 1785-KA5P

## What This Release Note Contains

This release note documents the enhancement to the 1785-KA5 DH+™ to DH485 Communication Adapter Module Series B, Revision C. The enhancement lets devices communicating through the ControlLogix Gateway to initiate communications with SLC 500™ and MicroLogix controllers connected on a DH485 network. The KA5 bridges the DH485 network to the DH+ network to which a ControlLogix Gateway DHRIO module is connected. Use this release note with publication 1785-6.5.5 - November 1995.

## Remote Initiators and DH485 Responders

Refer to the table below to determine which devices are capable of initiating from which remote networks.

Table A

Remote Initiators	DH485 Responders	
	MicroLogix™, SLC 5/03™ (KA5 Router Mode)	Fixed SLC 500™, 5/01™, 5/02™ (KA5 Gateway Mode)
SLC 5/04™ on remote DH+	yes	yes
PLC-5® on remote DH+	yes	yes
PLC-5C15® on ControlNet	yes <sup>1-2-3</sup>	no
SLC 5/05® on Ethernet®	yes <sup>4</sup>	no
PLC-5E®/1785-ENET® on Ethernet	yes <sup>5-6</sup>	no
Logix5550 in backplane	yes	no
RSLinx™ on remote DH+	yes	yes
RSLinx on ControlNet	yes <sup>7</sup>	yes <sup>7</sup>
RSLinx on Ethernet	yes	yes <sup>7</sup>
RSLinx on DF1	yes	yes

1. For MicroLogix 1000 you must use PLC-2 type message - accesses file N7 only
2. For SLC 5/03 and MicroLogix 1500, you must use a PLC-5 (preferably) or PLC-2 type MSG
3. The PLC-5C15 processor must be Series F or higher
4. SLC 5/05 OS501, FRN 5 or higher
5. PLC-5E processor must be Series C/Rev. N, Series D/Rev. E, Series E/Rev. D or higher
6. 1785-ENET module must be Series A/Rev. D or higher
7. RSLinx version 2.1 or higher only

## Setting the Switches

SW-1	
switch 1 (B4) off	DH485 station address = 3
switch 2 (B3) off	
switch 3 (B2) off	
switch 4 (B1) on	
switch 5 (B0) on	
switch 6 on	DH485 baud rate = 19,200
switch 7 on	
switch 8 off	

SW-2	
switch 1 (B7) off	reserved
switch 2 (B6) off	auto route enable off
switch 3 (B5) off	DH+ station address = 2
switch 4 (B4) off	
switch 5 (B3) off	
switch 6 (B2) off	
switch 7 (B1) on	
switch 8 (B0) off	

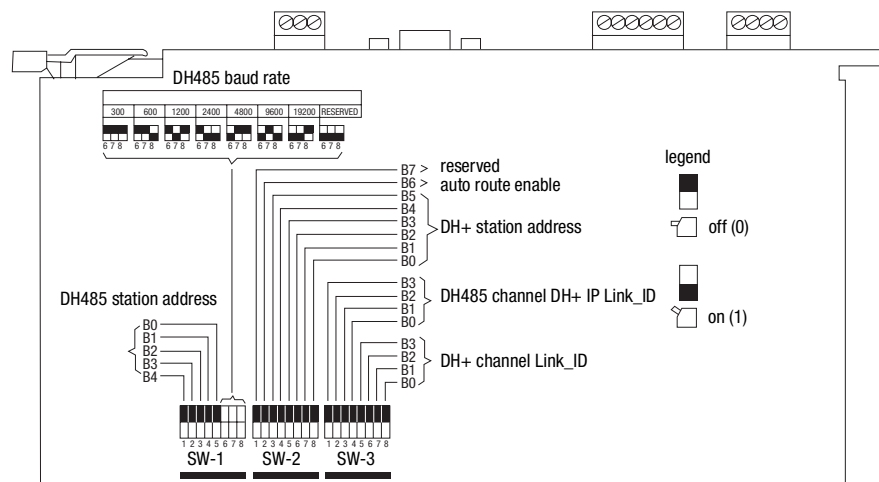
SW-3	
switch 1 (B3) on	DH485 Channel Link ID = 14 <sub>10</sub>
switch 2 (B2) on	
switch 3 (B1) on	
switch 4 (B0) off	
switch 5 (B3) on	DH+ Channel Link ID = 15 <sub>10</sub>
switch 6 (B2) on	
switch 7 (B1) on	
switch 8 (B0) on	

The 1785-KA5 module has three banks of DIP switches that let you select various communication options. The switch assemblies and their corresponding options are:

To set the	Use switch assembly
DH485 station address and baud rate	SW-1
DH+ station address and the auto route enable option	SW-2
DH485 and DH+ channel LINK_IDs	SW-3

Figure 1 shows the location of the switches on the 1785-KA5 module.

**Figure 1 1785-KA5 Communication Adapter Module Switch Assemblies**



19191-M

**Important:** The 1785-KA5 uses the following convention:

- on = binary 1
- off = binary 2

For further information refer to the Data Highway Plus/DH485 Communication Adapter Module User Manual, publication 1785-6.5.5.

## System Configuration

Figure 2 shows the system configuration for the ControlLogix Gateway Backplane, ControlNet, Ethernet, remote DH+ and DF1 networks.

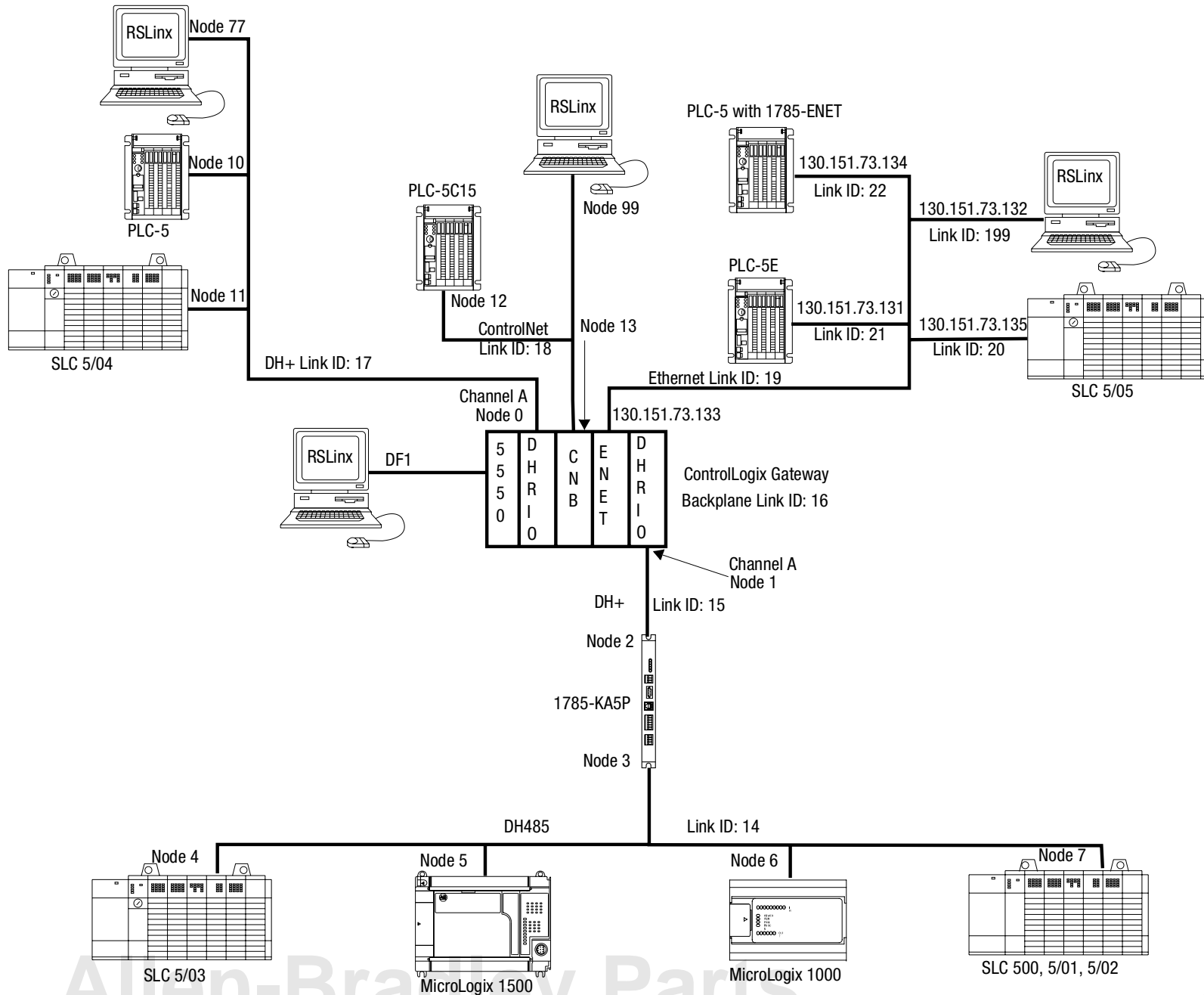


Figure 2 System Configuration



## Configuration Screens

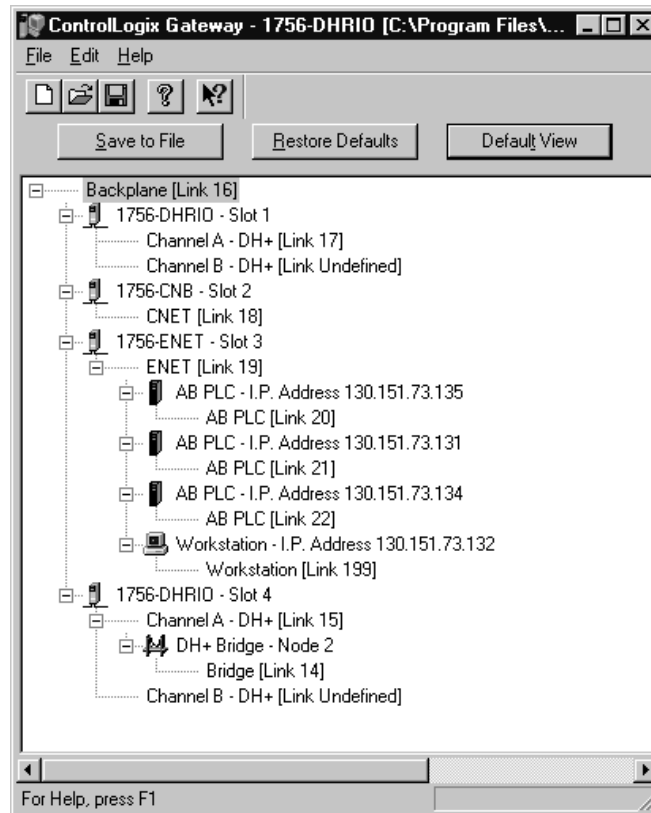
The screen captures on pages 5 through 17 document the DHRIO Routing Table configuration, as well as the various communications and/or MSG instruction configurations. These screen captures reflect the remote initiators listed in Table A and the system configuration displayed in Figure 2.

<b>Screen Example:</b>	<b>Labeled:</b>	<b>Find on:</b>
DHRIO Routing Table	Figure 3	Page 5
SLC 5/04 on remote DH+	Figures 4-6	Page 6-7
PLC-5 on remote DH+	Figures 7-9	Page 7-8
PLC-5C on ControlNet	Figures 10-14	Page 9-11
SLC 5/05 on Ethernet	Figures 15-17	Page 11-12
PLC-5E on Ethernet	Figures 18-20	Page 13-14
Logix5550 in backplane	Figures 21-22	Page 14-15
RSLink on remote DH+	Figure 23	Page 15
RSLink on ControlNet	Figure 24	Page 16
RSLink on Ethernet	Figure 25	Page 16
RSLink on DF1	Figure 26	Page 17

## DHRIO Routing Table

For detailed information on configuring this DHRIO Routing Table using ControlLogix Gateway Configuration Software, see the ControlLogix Gateway Configuration Software User Manual, publication number 1756-6.5.7.

Figure 3 DHRIO Routing Table

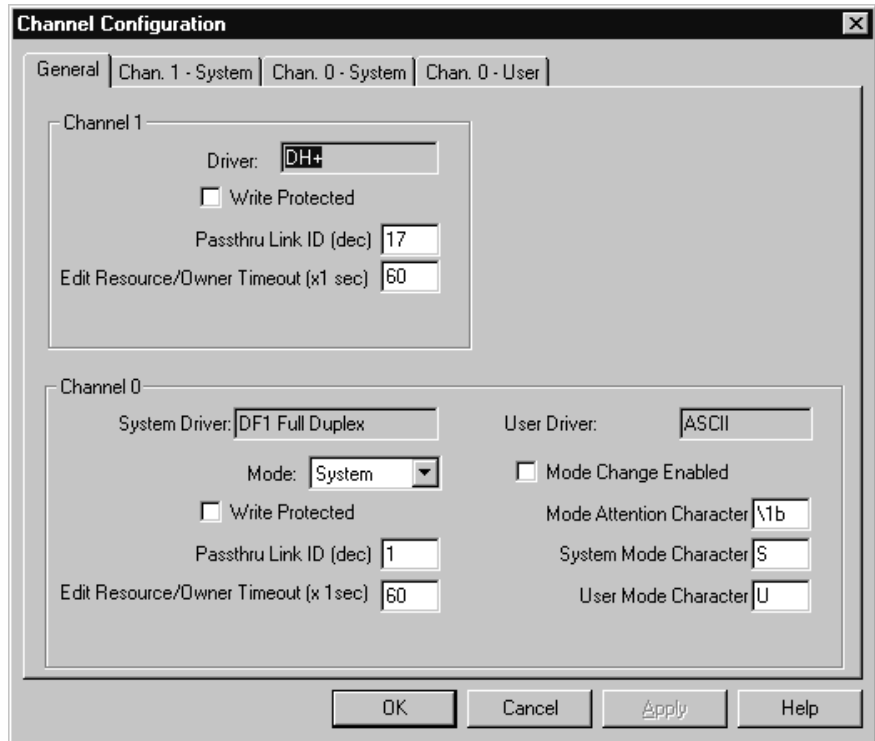


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### SLC 5/04 on Remote DH+

“Channel 1 Passthru Link ID” is set to 17.  
 For detailed information on configuring the SLC 5/04 DH+ channel or MSG instruction, see the programming software help and/or documentation.

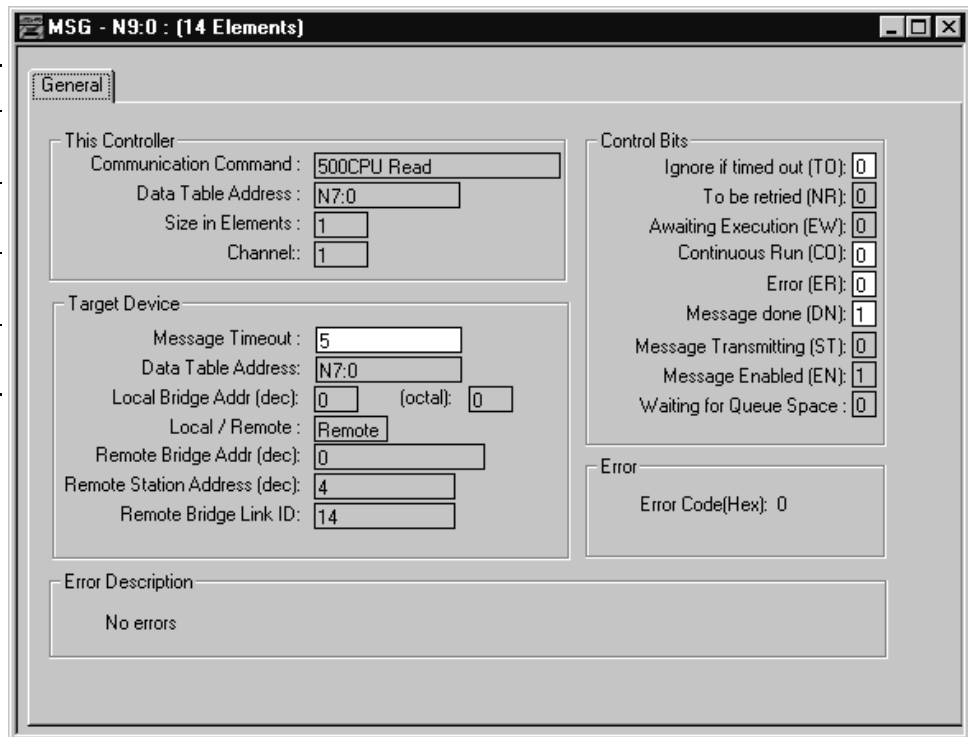
Figure 4 SLC 5/04 DH+ Channel Configuration



41908

Figure 5 SLC 5/04 Remote Message to SLC 5/03 (or MicroLogix 1000, MicroLogix 1500)

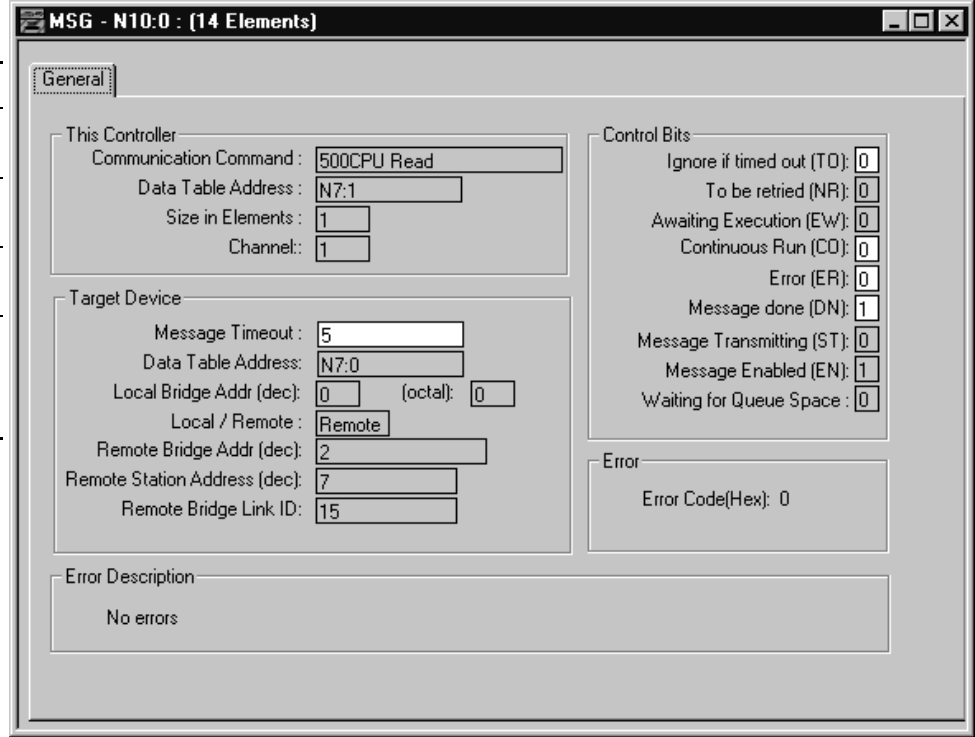
Field	Input
Local Bridge Addr	local DHRIO DH+ node address
Remote Bridge Addr	must be left at 0
Remote Station Address	SLC 5/03 DH485 node address
Remote Bridge Link ID	DH485 network Link ID



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Figure 6 SLC 5/04 Remote Message to Fixed SLC 500 (or SLC 5/01, SLC 5/02)

Field	Input
Local Bridge Addr	local DHRIO DH+ node address
Remote Bridge Addr	DH+ node address of the KA5
Remote Station Address	SLC 500 DH485 node address
Remote Bridge Link ID	DH+ Link ID of the DH+ network that the KA5 is bridging to DH485

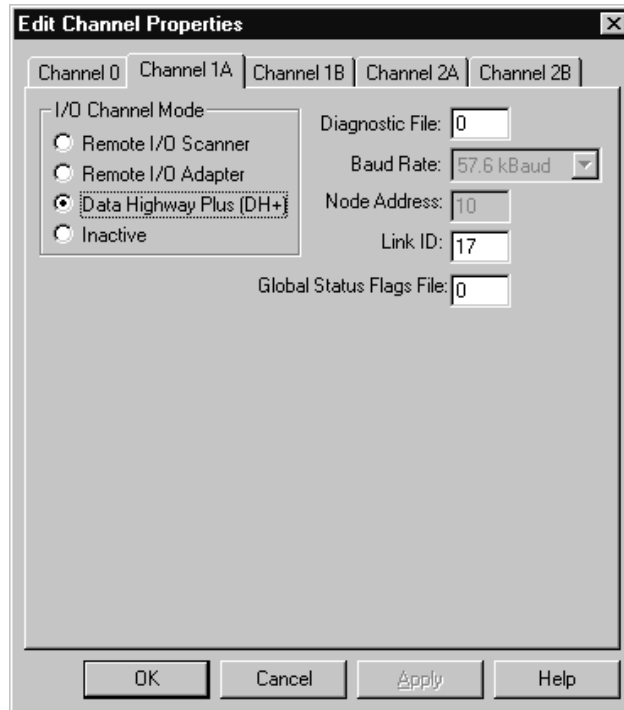


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### PLC-5 on Remote DH+

“Channel 1A Link ID” is set to 17. For detailed information on configuring the PLC-5 DH+ channel or MSG instruction, see the programming software help and/or documentation.

Figure 7 PLC-5 DH+ Channel Configuration



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Figure 8 PLC-5 Remote Message to SLC 5/03 (or MicroLogix 1000, MicroLogix 1500)

Field	Input
Local DH+ Node	local DHRIO DH+ node address
Remote Link Type	Data Highway
Remote Station Address	SLC 5/03 DH485 node address
Remote Bridge Link ID	DH485 network Link ID

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Figure 9 PLC-5 Remote Message to Fixed SLC 500 (or SLC 5/01, SLC 5/02)

Field	Input
Local DH+ Node	local DHRIO DH+ node address
Remote Link Type	Data Highway II
Node	DH+ node address of the KA5
User	SLC 500 DH485 node address
Remote Bridge Link ID	DH+ Link ID of the DH+ network that the KA5 is bridging to DH485

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## PLC-5C15 on ControlNet

Figure 10 PLC-5C15 Controller Properties

“PLC ControlNet Source Link ID” is set to 18. For detailed information on configuring the PLC-5C15 ControlNet channel or message instruction, see the programming software help and/or documentation.

**Controller Properties**

General Password Controller Communications

Platform: ControlNet Processor: PLC5/40C 1.5 Series: F - Hot Backup Memory: 49152

Processor Name: PLC5C Revision: A

Program Files: 3 Words: 7 Overhead: 78

Data Files: 10 Words: 454

Memory Used: 539 Words Last Edit TimeStamp: 1/14/1999 5:30:10

Free Memory: 48613 Words Program Checksum: 3fd8

Processor Mode: REMOTE PROG

RSNetwork ControlNet Project:

PLC ControlNet Node:  Browse...

PLC ControlNet Source LinkID:

OK Cancel Apply Help

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Figure 11 PLC-5C15 Multihop Message to MicroLogix 1000 General Tab

Use PLC-2 type messages so read/write access to MicroLogix 1000 data table is limited to file N7.

**MSG - MG9:0 : (1 Elements)**

General MultiHop

This PLC-5

Communication Command: PLC-2 Unprotected Read

Data Table Address: N7:0

Size in Elements: 1

Port Number: 2

Target Device

Data Table Address: 0

MultiHop: Yes

Control Bits

Ignore if timed out (TO): 0

To be retried (NR): 0

Awaiting Execution (EW): 0

Continuous Run (CR): 0

Error (ER): 0

Message done (DN): 1

Message Transmitting (ST): 0

Message Enabled (EN): 1

Error

Error Code(Hex): 0

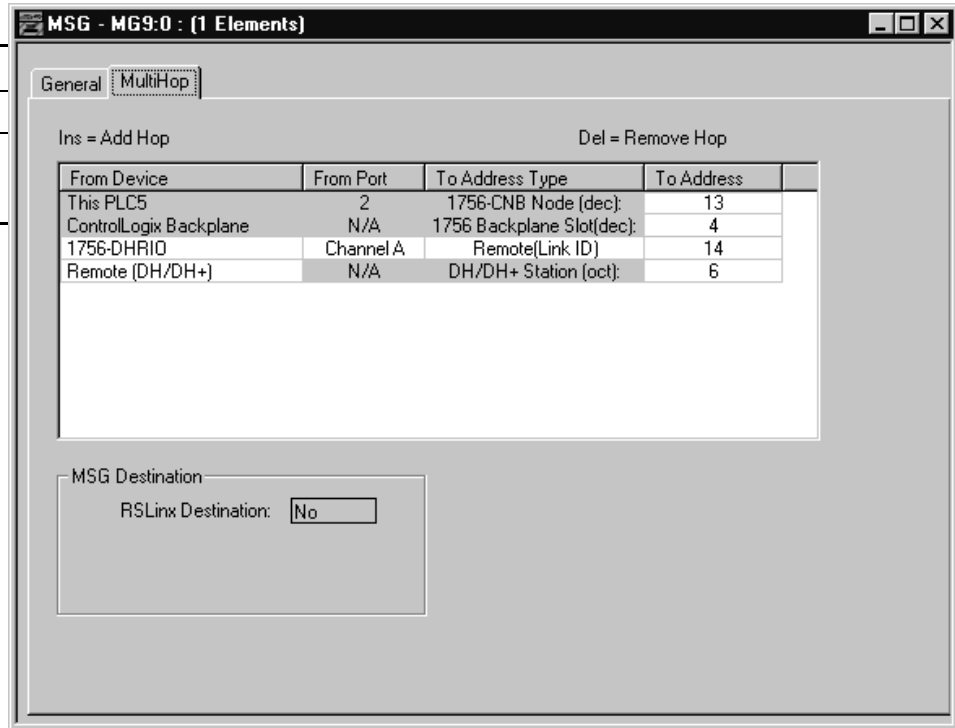
Error Description

No errors

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Figure 12 PLC-5C15 Multihop Message to MicroLogix 1000 Multihop Tab

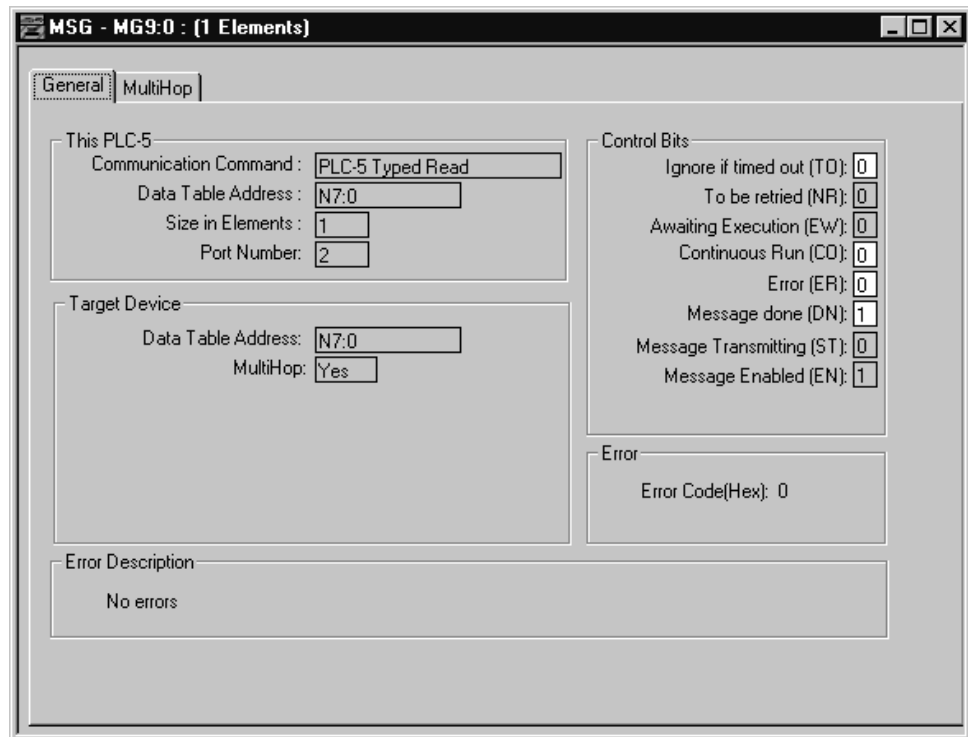
Field	Input
Remote Link ID	DH485 Link ID
DH/DH+ Station	MicroLogix 1000 DH485 node address



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Figure 13 PLC-5C15 Multihop Message to SLC 5/03 (or MicroLogix 1500) General Tab

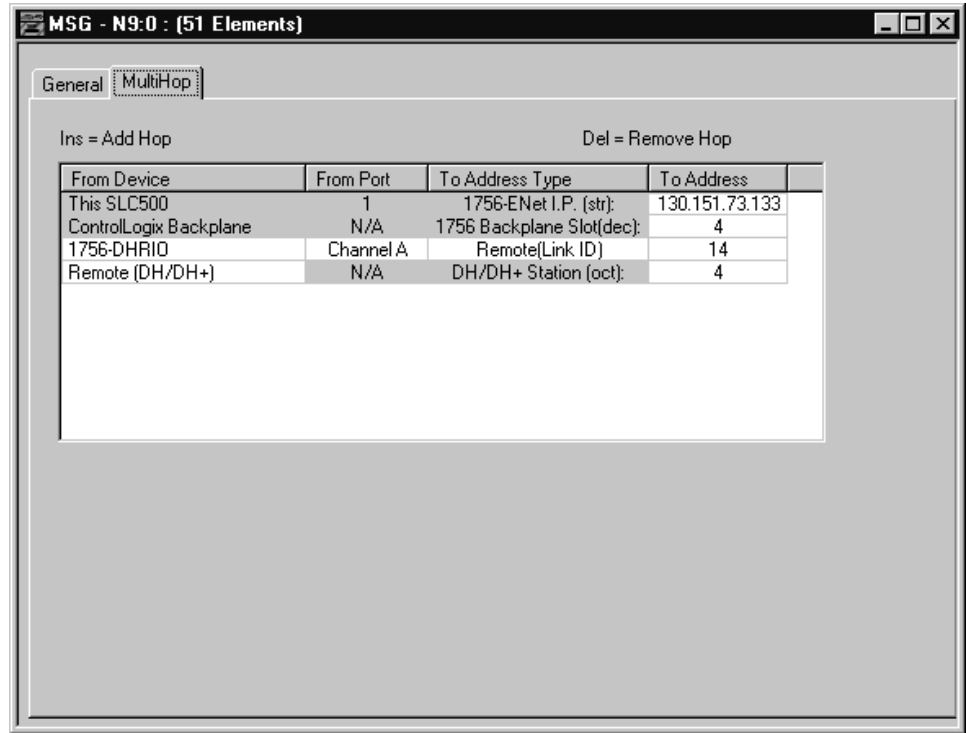
Use either PLC-5 type (preferable) or PLC-2 type messages.



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**Figure 14 PLC-5C15 Multihop Message to SLC 5/03 (or MicroLogix 1500) MultiHop Tab**

Field	Input
Remote (Link ID)	DH485 network Link ID
DH/DH+ Station	SLC 5/03 DH485 node address

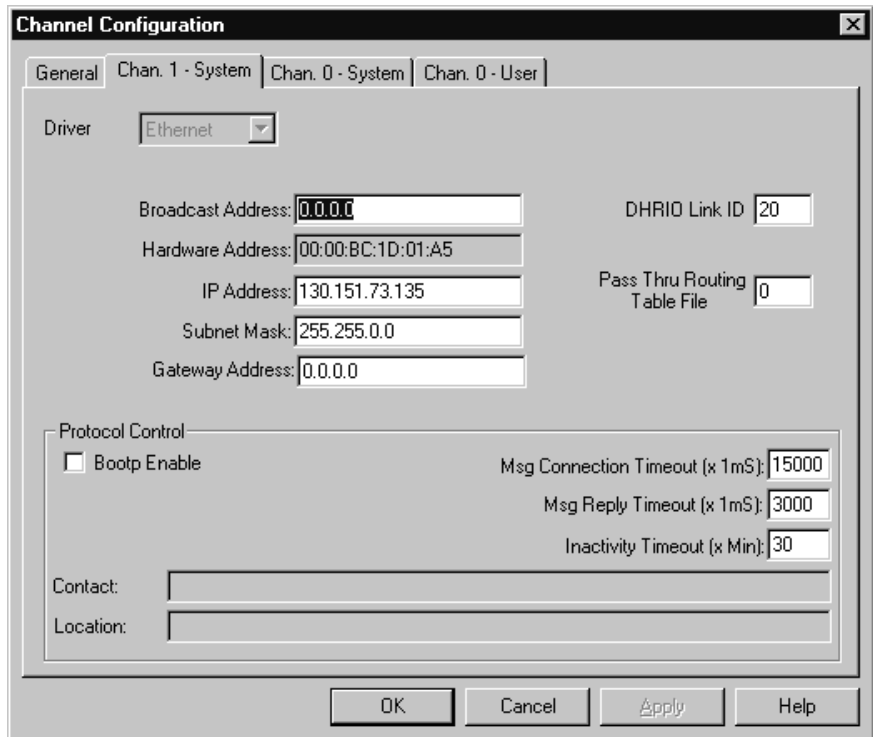


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### SLC 5/05 on Ethernet

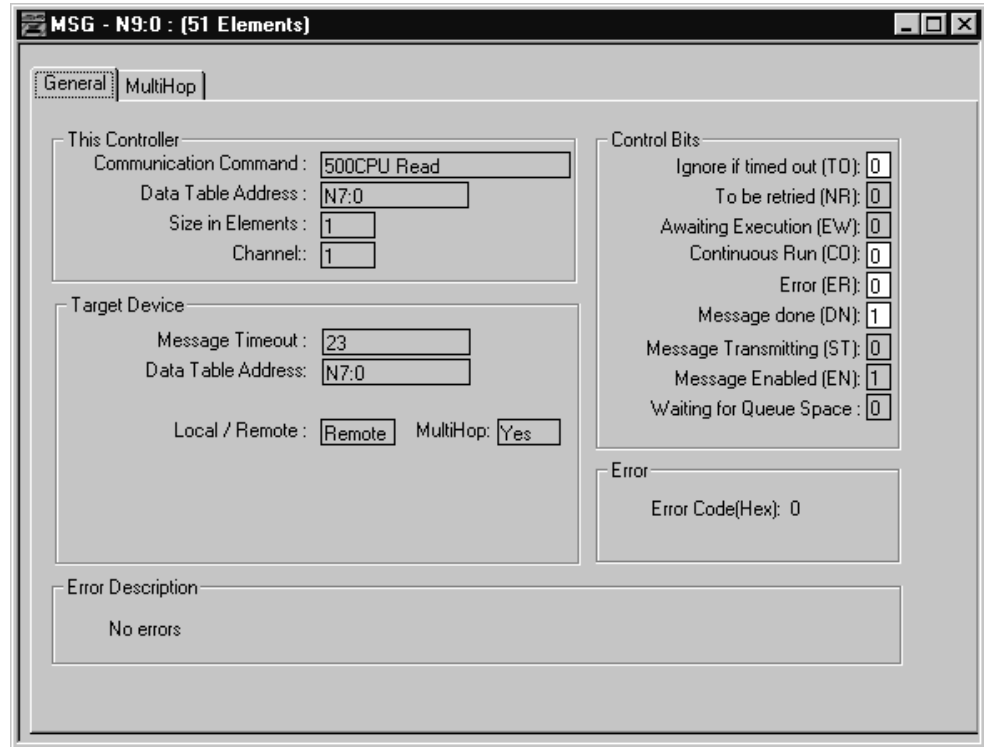
“DHRIO Link ID” is set to 20. For detailed information on configuring the SLC 5/05 Ethernet channel or message instruction, see the programming software help and/or documentation.

**Figure 15 SLC 5/05 Channel Configuration**



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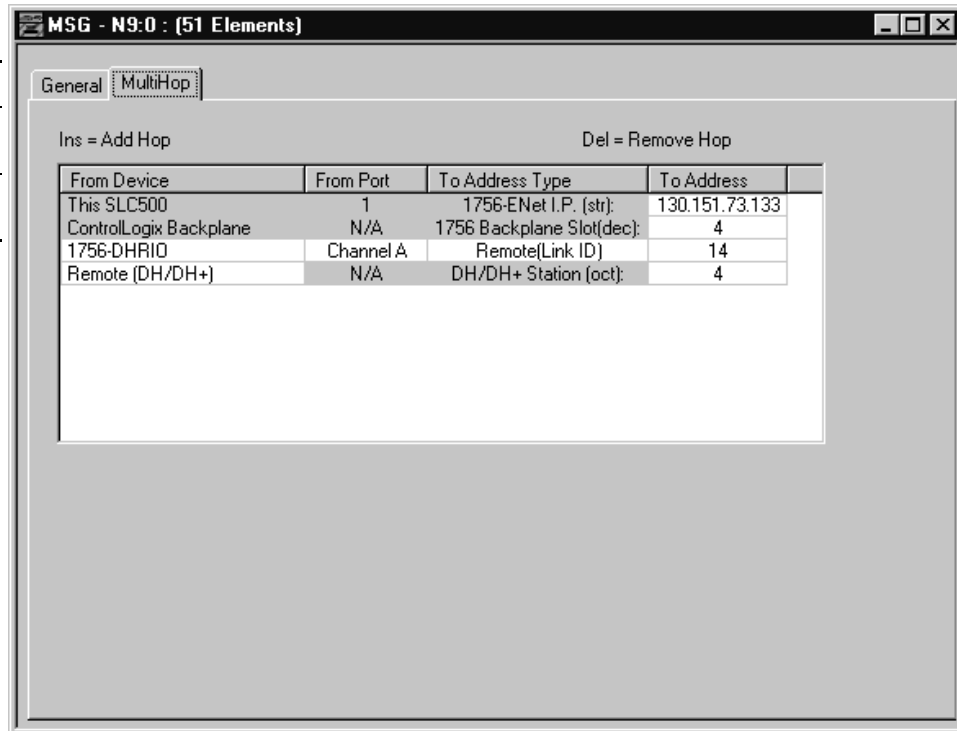
**Figure 16 SLC 5/05 Multihop Message to SLC 5/03 (or MicroLogix 1000, MicroLogix 1500) General Tab**



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**Figure 17 SLC 5/05 Multihop Message to SLC 5/03 (or MicroLogix 1000, MicroLogix 1500) MultiHop Tab**

Field	Input
Remote (Link ID)	DH485 network Link ID
DH/DH+ Station	SLC 5/03 DH485 node address



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## PLC-5E on Ethernet

“Link ID” is set to 21. For detailed information on configuring the PLC-5E Ethernet channel or message instruction, see the programming software help and/or documentation.

Figure 18 PLC-5E Channel Configuration

**Edit Channel Properties**

Channel 0 | Channel 1A | Channel 1B | Channel 2

Diagnostic File: 0

**Ethernet Configuration**

Ethernet Address: 00:00:BC:1C:50:27

BOOTP Enabled

IP Address: 130 . 151 . 73 . 131

Message Connect Timeout (msec): 15000

Message Reply Timeout (msec): 3000

Inactivity Timeout (minutes): 30

Link ID: 21

**Advanced Functions**

Broadcast Address: 0 . 0 . 0 . 0

Subnet Mask: 255 . 255 . 0 . 0

Gateway Address: 0 . 0 . 0 . 0

OK Cancel Apply Help

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Figure 19 PLC-5E MultiHop Message to SLC 5/03 (or MicroLogix 1000, MicroLogix 1500) General Tab

**MSG - MG9:0 : [2 Elements]**

General | MultiHop

**This PLC-5**

Communication Command: SLC Typed Logical Read

Data Table Address: N7:0

Size in Elements: 1

Port Number: 2

**Target Device**

Data Table Address: N7:0

MultiHop: Yes

**Control Bits**

Ignore if timed out (TO): 0

To be retired (NR): 0

Awaiting Execution (EW): 0

Continuous Run (CO): 0

Error (ER): 0

Message done (DN): 1

Message Transmitting (ST): 0

Message Enabled (EN): 1

**Error**

Error Code(Hex): 0

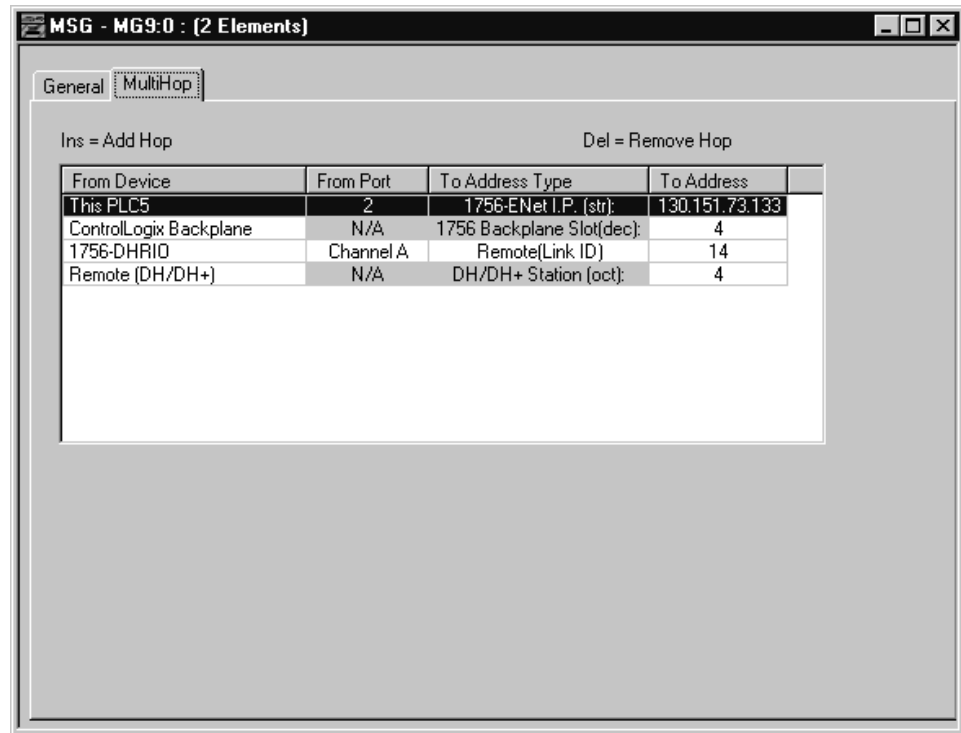
**Error Description**

No errors

41922

**Figure 20 PLC-5E Multihop Message to SLC 5/03 (or MicroLogix 1000, MicroLogix 1500) MultiHop Tab**

Field	Input
Remote (Link ID)	DH485 network Link ID
DH/DH+ Station	SLC 5/03 DH485 node address

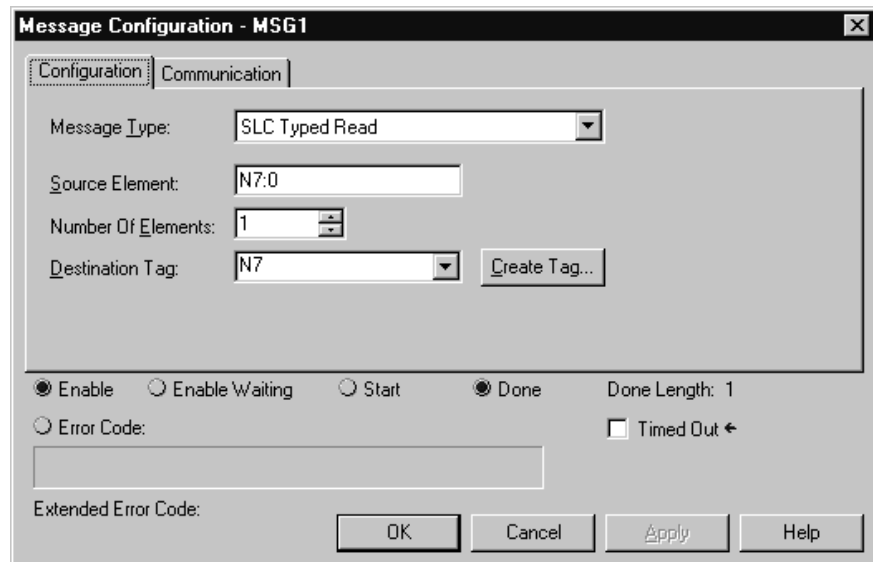


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### Logix5550 in ControlLogix Backplane

For detailed information on configuring the Logix5550 MSG instruction, see the programming software help and/or documentation.

**Figure 21 Logix5550 Message to SLC 5/03 (or MicroLogix 1000, MicroLogix 1500) Configuration Tab**



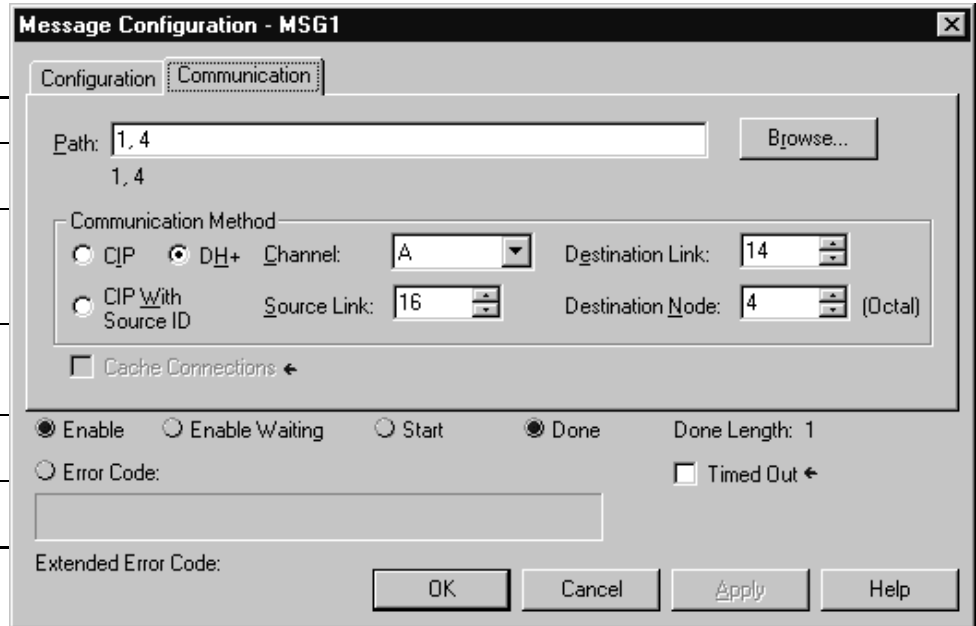
41924

**Figure 22 Logix5550 Message to SLC 5/03 (or MicroLogix 1000, MicroLogix 1500) Communication Tab**

The "Path" is across the backplane to the DHRIO slot number.

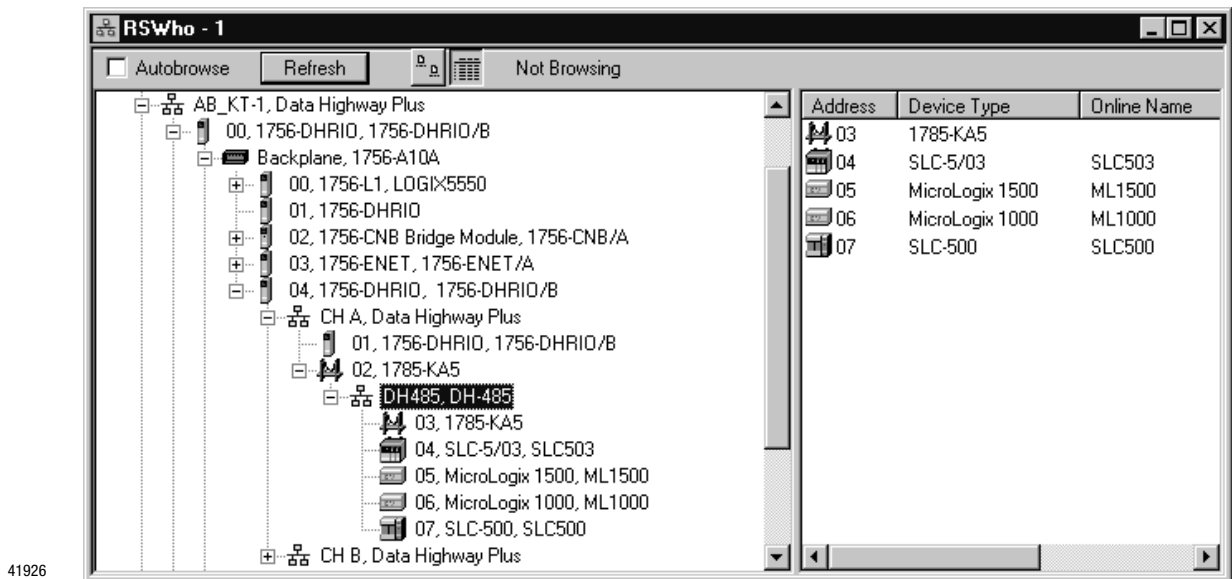
Field	Input
Communication Method	DH+
Channel	DHRIO channel of DH+ network that KA5 is connected to
Source Link	configured ControlLogix backplane Link ID
Destination Link	DH485 network Link ID
Destination Node	SLC 5/03 DH485 node address

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**RSLinx on Remote DH+**

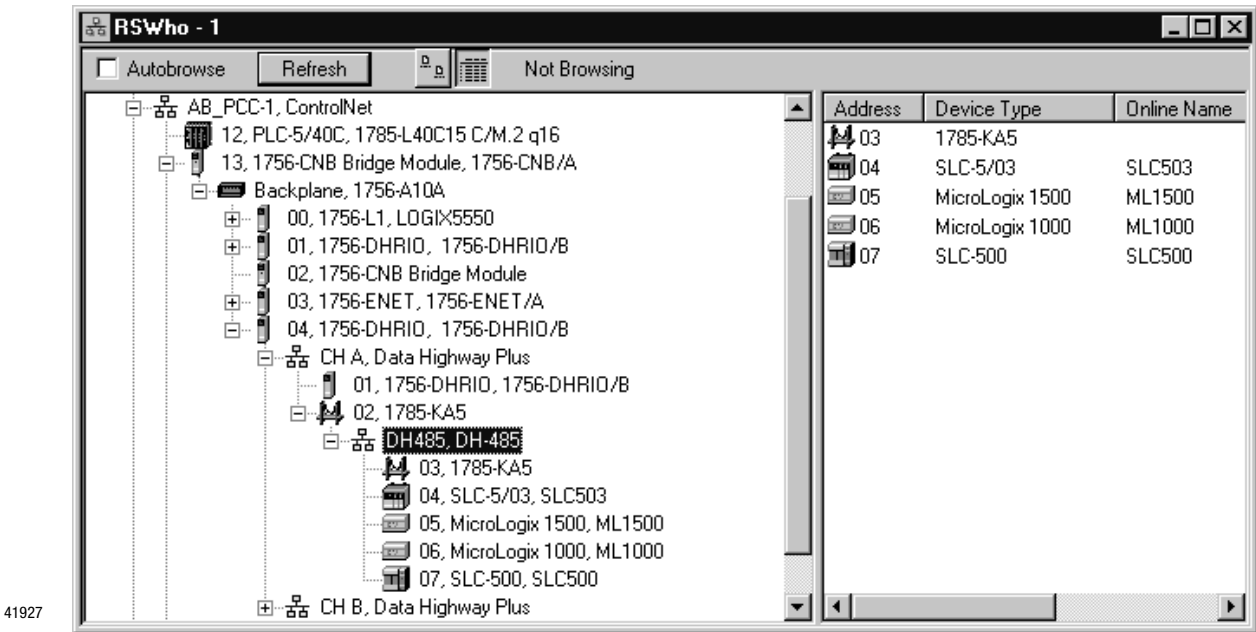
**Figure 23 RSWho Bridging From DH+ Through a ControlLogix Gateway and a 1785-KA5 Bridge Module to a Remote DH485 Network**



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**RSLinx on ControlNet**

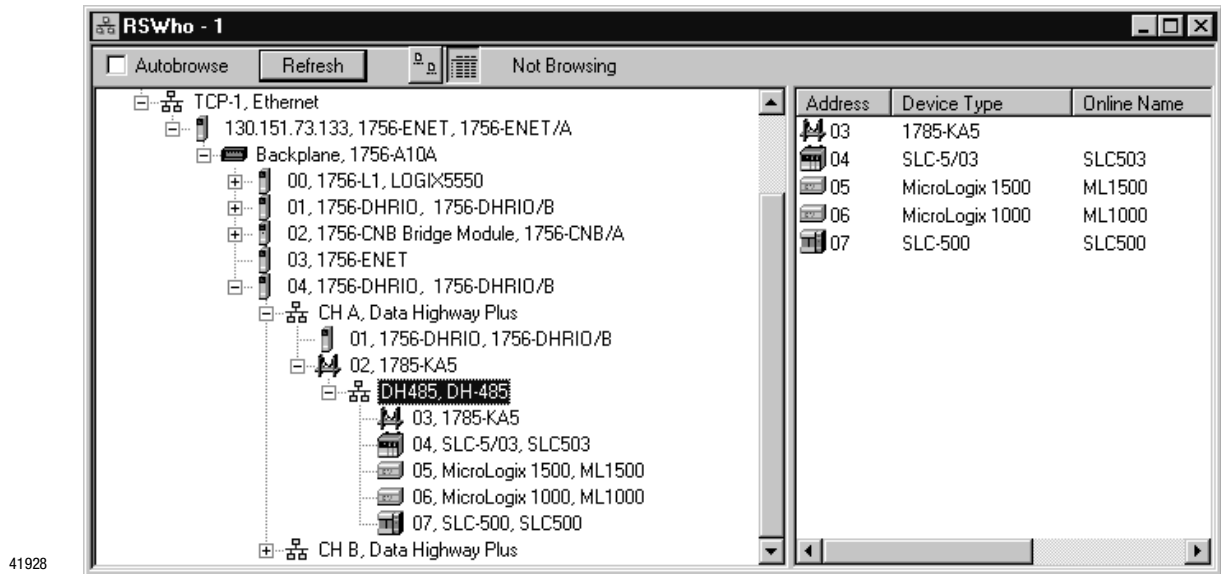
**Figure 24 RSWHo Bridging From ControlNet Through a ControlLogix Gateway and a 1785-KA5 Bridge Module to a Remote DH485 Network**



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**RSLinx on Ethernet**

**Figure 25 RSWHo Bridging From Ethernet through a ControlLogix Gateway and a 1785-KA5 Bridge Module to a Remote DH485 Network**

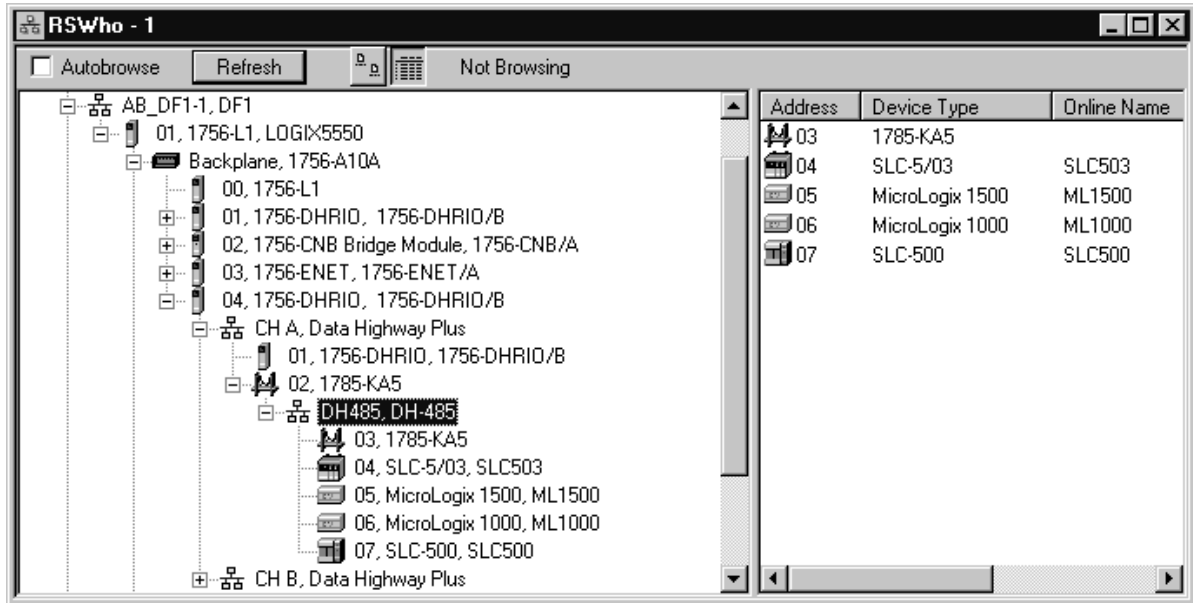


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## RSLinx on DF1

**Figure 26 RSWHo Bridging From a Logix5550 Serial Port (DF1 Protocol) Through a ControlLogix Gateway and a 1785-KA5 Bridge Module to a Remote DH485 Network**



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