Application Note #1188: AGP to Allen Bradley DH+ via Gateway

Overview

This document describes how to connect a Pro-face AGP/AST display via a Pro-face CA9-DH3000- PFA01 gateway to one or more Allen Bradley PLCs on a Data Highway Plus (DH+) network. The Pro-face display communicates using the standard GP-Pro EX Rockwell Automation DF1 serial driver through the gateway residing on the DH+ network. Apply the Pro-face Multilink feature and multiple displays can access multiple PLCs through a single gateway on the DH+ network.

This application note is an addendum to the Pro-face PLC/Device connection manual "Rockwell Automation DF1 Driver". The sections in this guide supplement those in the manual. Refer to both documents to configure the gateway and DH+ application.

It is possible you do not need a gateway. An AGP/AST display can be connected without a gateway to multiple PLCs via DH+ using the SLC5/04 pass-through feature. Include the Pro-face Multilink feature and multiple displays can access multiple PLCs on the DH+ network. For more information about this solution see Application Note 1180 "AGP on Allen Bradley DH+ via SLC504 PassThru".

1 System Configuration

The system configuration in the case when the External Device of Rockwell Automation PLC(s) and the Display are connected is shown. Multiple PLC-5 and SLC504 PLCs on the same DH+ network can be connected via a single gateway to the same AGP/AST.

Series	CPU Module	Link I/F	SIO Type	Setting Example	Cable Diagram
SLC500	SLC 5/04	CA9-DH3000-PFA01 Pro-face Gateway	RS232C	Setting Example 1	Cable Diagram 1
PLC-5	PLC-5/11 PLC-5/20 PLC-5/30 PLC-5/40 PLC-5/40L PLC-5/60 PLC-5/60L		RS422/485 (4wire)	Setting Example 2	Cable Diagram 2

2 Selection of External Device

Refer to the Pro-face PLC/Device connection manual "Rockwell Automation DF1 Driver "Section 2 Selection of External Device for a full explanation. To connect to the DH+ network use these settings to select the Device/PLC:

Manufacturer: Rockwell Automation, Inc.
Series: DF1

Pro-face America
750 North Maple Rd
Saline, MI 48176-1292
www.profaceamerica.com
Email: customercare@profaceamerica.com
Phone: 734-944-0482

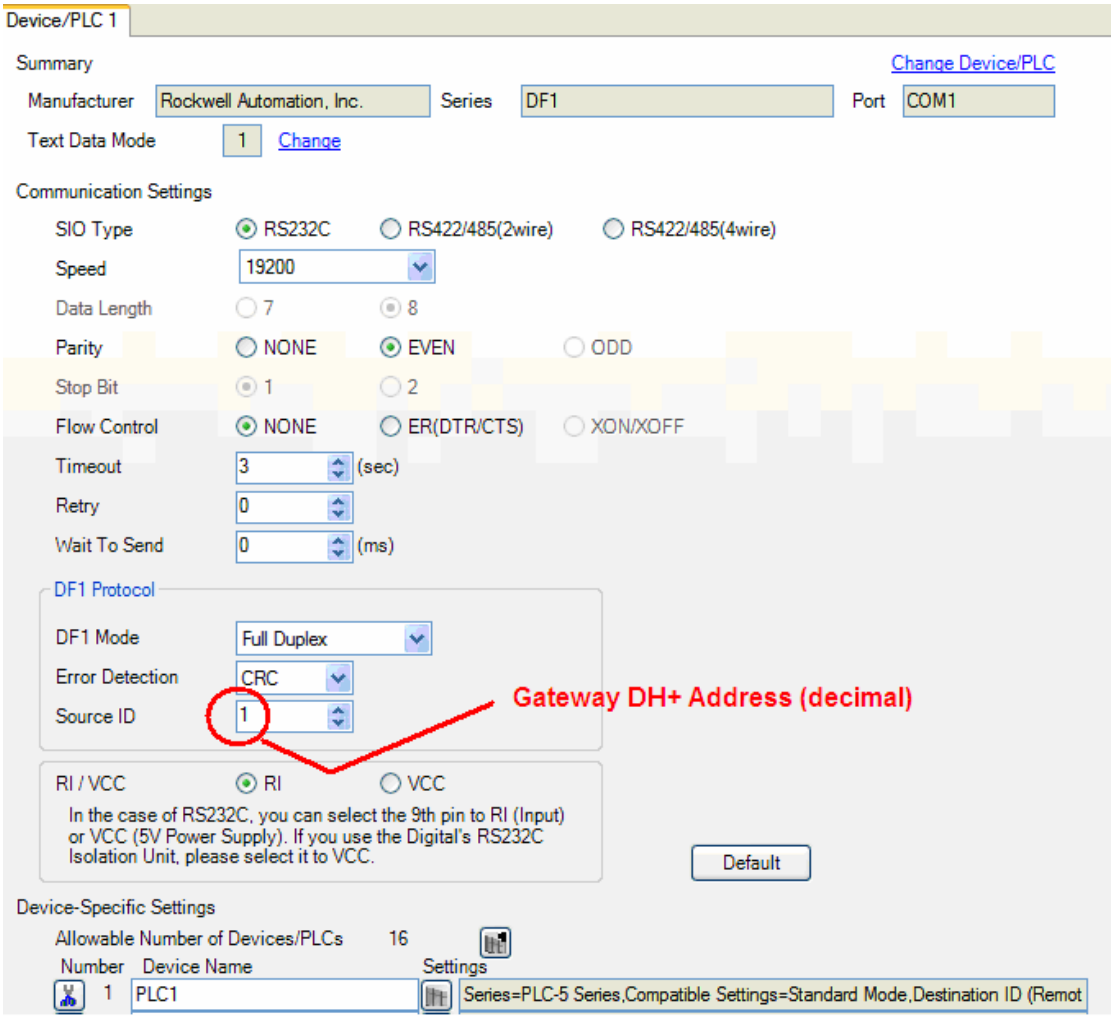
3 Example of Communication Setting

3.a Setting Example 1

Settings of GP-Pro EX

Communications Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace. The communication settings of the PLC(s) are not considered. The communication settings should match the settings of the CA9-DH3000-PFA01 gateway. The Source ID should be the gateway DH+ decimal network address.



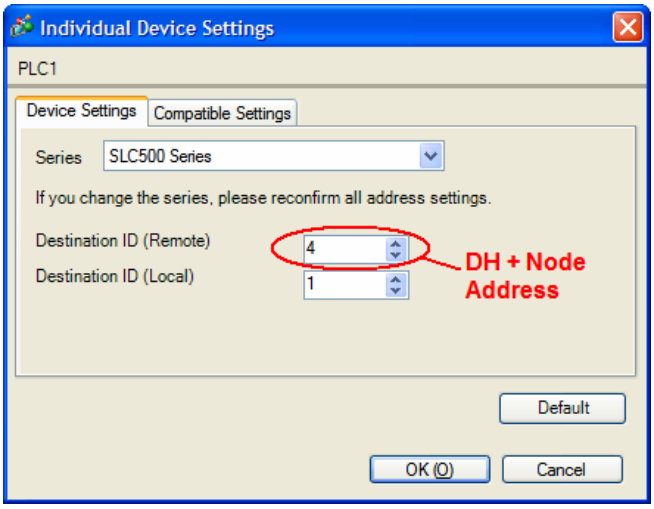
Pro-face America
750 North Maple Rd
Saline, MI 48176-1292
www.profaceamerica.com
Email: customercare@profaceamerica.com
Phone: 734-944-0482

Device Setting

The device settings should match those configured in the individual PLC on the DH+ network. A separate device should be configured for each PLC on the DH+ network to be accessed by the GP-Pro EX project.

To display the setting screen, click the Settings icon of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings]. The Destination ID (Remote) is the Data highway Plus (DH+) Node Address of the PLC.

Series: SLC500 or PLC5
Destination ID (Remote): DH+ Node Address of the PLC (decimal)
Destination ID (Local): Not used
Compatible Settings Tab: Standard Mode (default)



Note: For Full Duplex, "Destination ID (Local)" is not used.

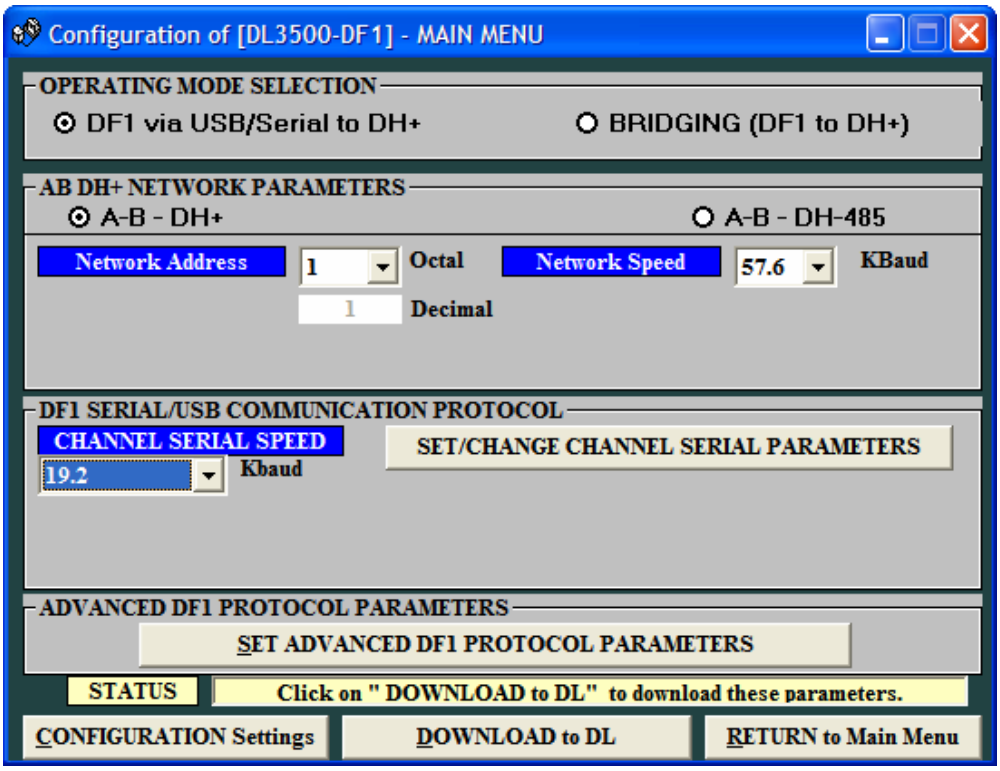
Settings of External DH+ Gateway Device

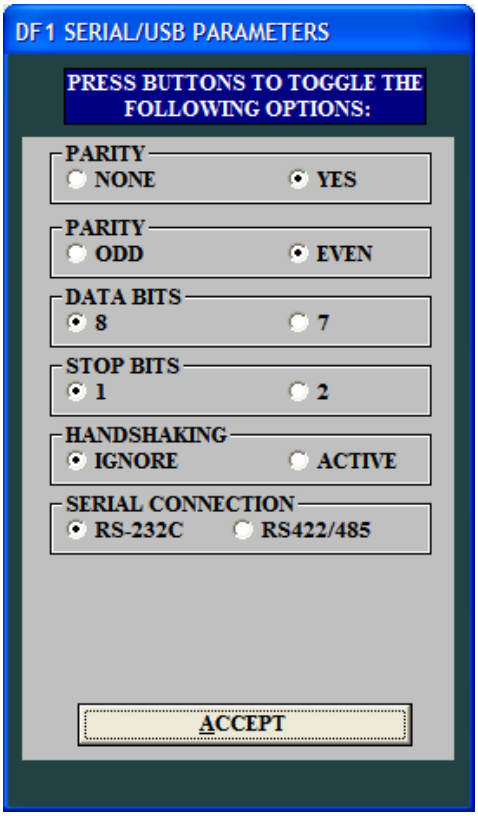
Install the Equustek DL32 configuration software provided with the gateway. Use it to configure the gateway communication settings. Connect your computer to the CA9-DH3000-PFA01 gateway using a USB cable or serial cable. On the "Welcome to DL32" screen click on DL3500 models. Click [yes]. Click on [DF1 to DH+/DH485]. Select the COM PORT the PC is using to communicate with the gateway . If you are using a USB cable check in Windows Control Panel under Device Manager for "USB serial port (com_)" to find the assigned COM port number.

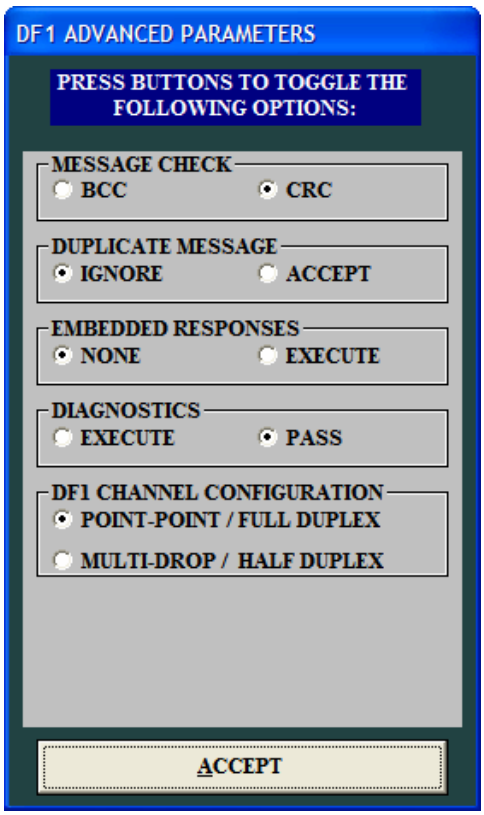
The settings should match those of the DH+ network and the connected Pro-face display. Select an available DH+ network address. The DF1 parameters should match the configuration of the connected Pro-face display. Other DF1 configuration settings:

Duplicate Message = Ignore.
Embedded Responses = None
DF1 Channel configuration = Point-Point / Full Duplex

Pro-face America
750 North Maple Rd
Saline, MI 48176-1292
www.profaceamerica.com
Email: customercare@profaceamerica.com
Phone: 734-944-0482







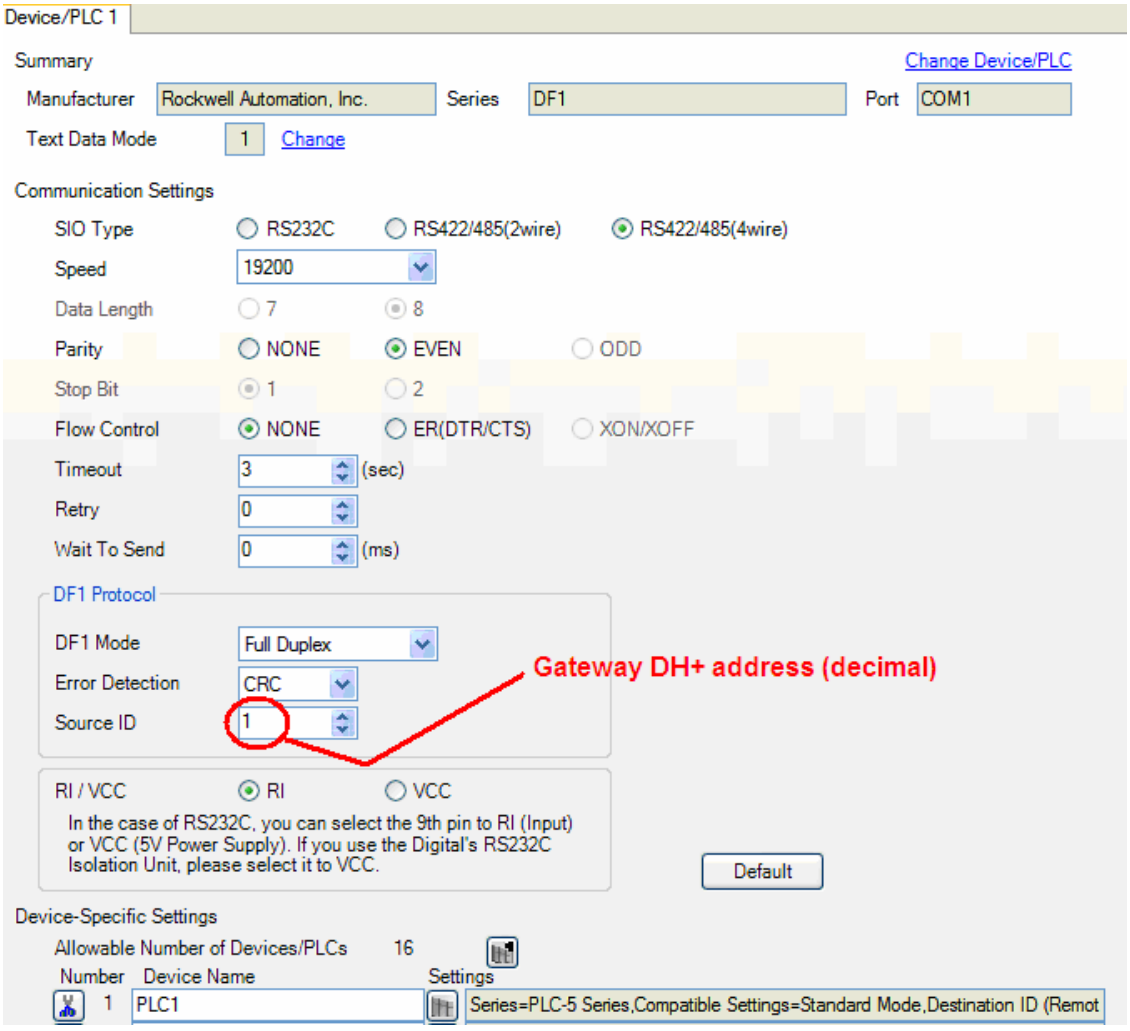
Pro-face America
750 North Maple Rd
Saline, MI 48176-1292
www.profaceamerica.com
Email: customercare@profaceamerica.com
Phone: 734-944-0482

3.b Setting Example 2

Settings of GP-Pro EX

Communications Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace. The communication settings of the PLC(s) are not considered. The communication settings should match the settings of the DL3500 gateway. The Source ID should be the gateway DH+ decimal network address.



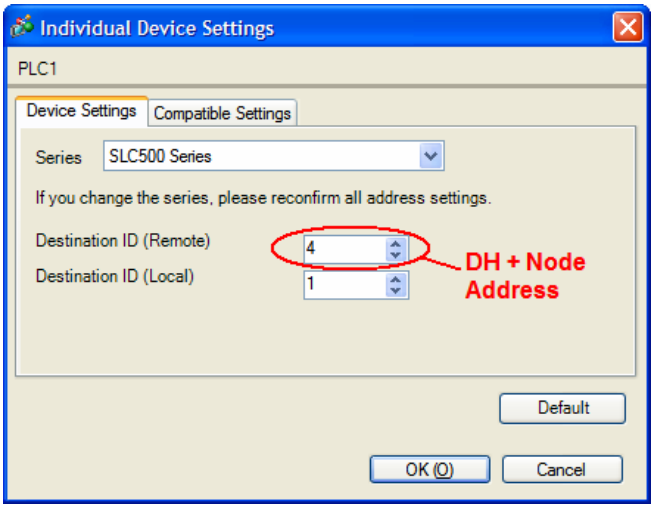
Pro-face America
750 North Maple Rd
Saline, MI 48176-1292
www.profaceamerica.com
Email: customercare@profaceamerica.com
Phone: 734-944-0482

Device Setting

The device settings should match those configured in the individual PLC on the DH+ network. A separate device should be configured for each PLC on the DH+ network to be accessed by the GP-Pro Ex project.

To display the setting screen, click the Settings icon of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings]. The Destination ID (Remote) is the Data highway Plus (DH+) Node Address of the PLC.

Series: SLC500 or PLC5
Destination ID (Remote): DH+ Node Address of the PLC
Destination ID (Local): Not used
Compatible Settings: Standard Mode (default)



Note: For Full Duplex, "Destination ID (Local)" is not used.

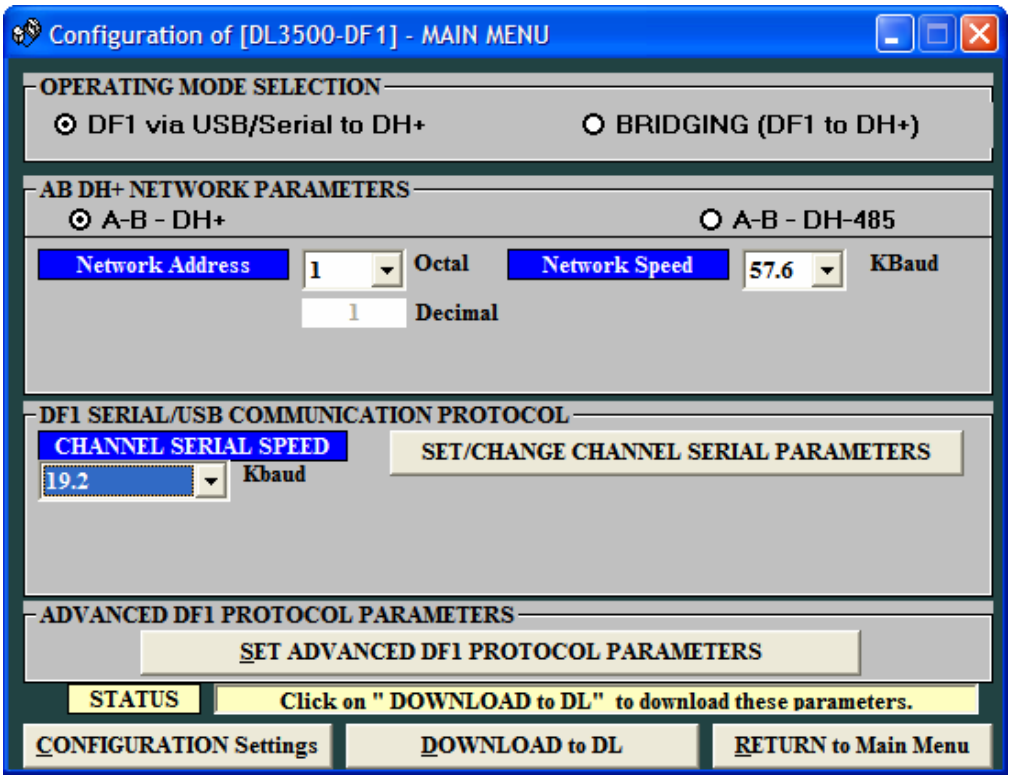
Settings of External DH+ Gateway Device

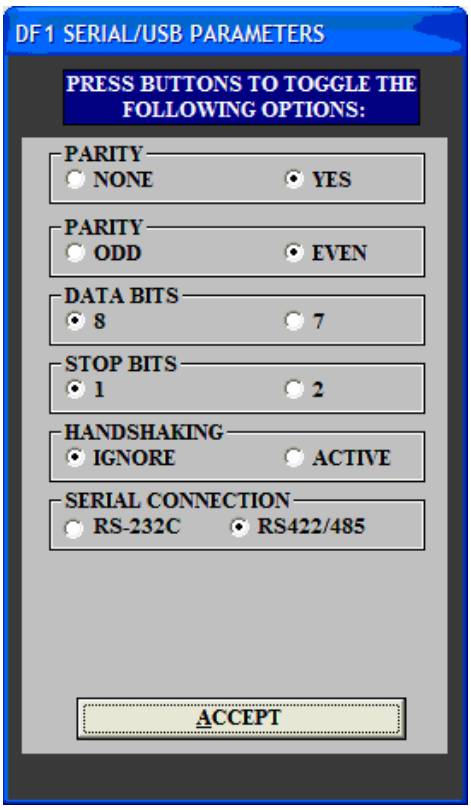
Install the Equustek DL32 configuration software provided with the gateway. Use it to configure the gateway communication settings. Connect your computer to the CA9-DH3000-PFA01 gateway using a USB cable or serial cable. On the "Welcome to DL32" screen click on DL3500 models. Click [yes]. Click on [DF1 to DH+/DH485]. Select the COM PORT the PC is using to communicate with the gateway . If you are using a USB cable check in Windows Control Panel under Device Manager for "USB serial port (com_)" to find the assigned COM port number.

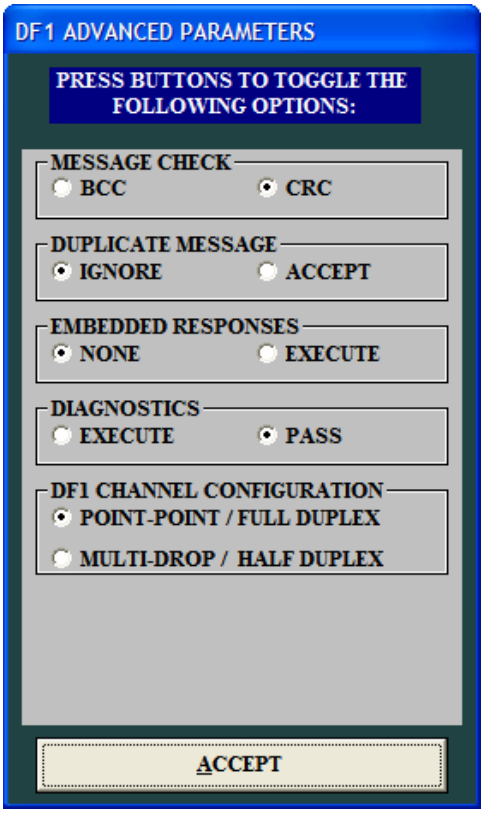
The settings should match those of the DH+ network and the connected Pro-face display. Select an available DH+ network address. The DF1 parameters should match the configuration of the connected Pro-face display. Other DF1 configuration settings:

Duplicate Message = Ignore.
Embedded Responses = None
DF1 Channel configuration = Point-Point / Full Duplex

Pro-face America
750 North Maple Rd
Saline, MI 48176-1292
www.profaceamerica.com
Email: customercare@profaceamerica.com
Phone: 734-944-0482







Pro-face America
750 North Maple Rd
Saline, MI 48176-1292
www.profaceamerica.com
Email: customercare@profaceamerica.com
Phone: 734-944-0482

4 Setup Items

Refer to the Pro-face PLC/Device connection manual “Rockwell Automation DF1 Driver “Section 4.

5 Cable Diagrams

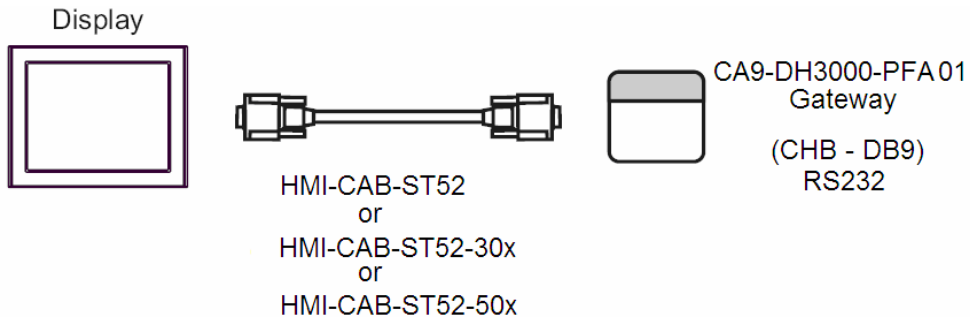
Connection notes:

- The FG pin of the External Device body must be D-class grounded. Please refer to the manual of the External Device for more details.
- SG and FG are connected inside the display. When connecting SG to the External Device, design the system to not form short-circuit loop.
- Connect the isolation unit, when communication is not stabilized under the influence of noise etc.

Cable Diagram 1

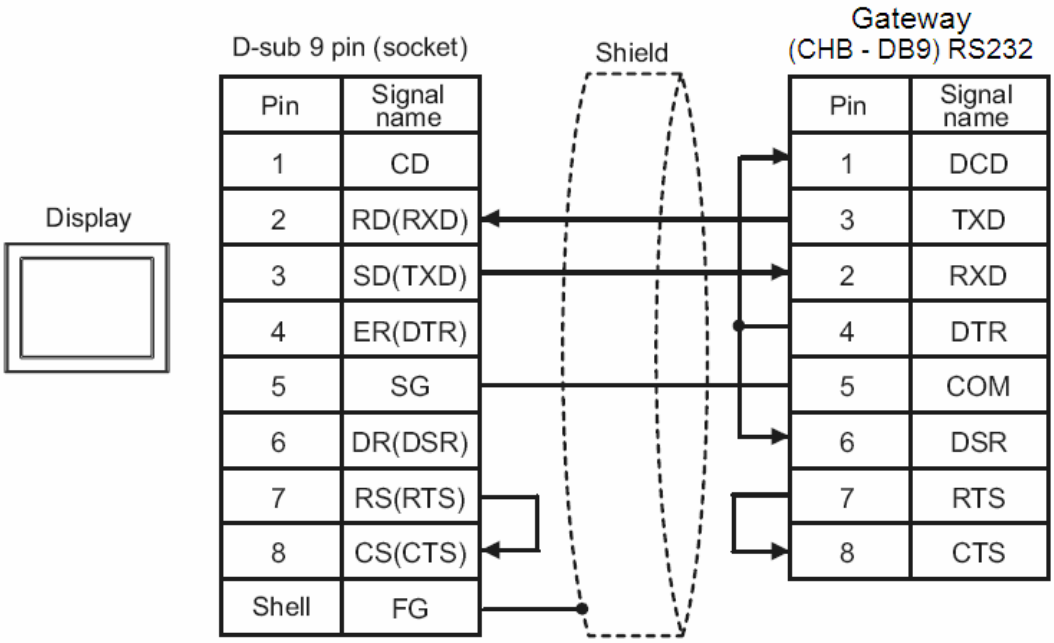
Display (Connection Port)	PLC (Connection Port)	Cable	Diagram	Remarks
AGP (COM1) AST (COM1) SIO Type RS232	CA9-DH3000-PFA01 Pro-face Gateway * CHB RS232	HMI-CAB-ST52 or HMI-CAB-ST52-30x or HMI-CAB-ST52-50x	A	
		Your own cable	B	

A) When using the RS232 cable (HMI-CAB-ST52) by Proface America



Pro-face America
750 North Maple Rd
Saline, MI 48176-1292
www.profaceamerica.com
Email: customercare@profaceamerica.com
Phone: 734-944-0482

B) When using your own cable

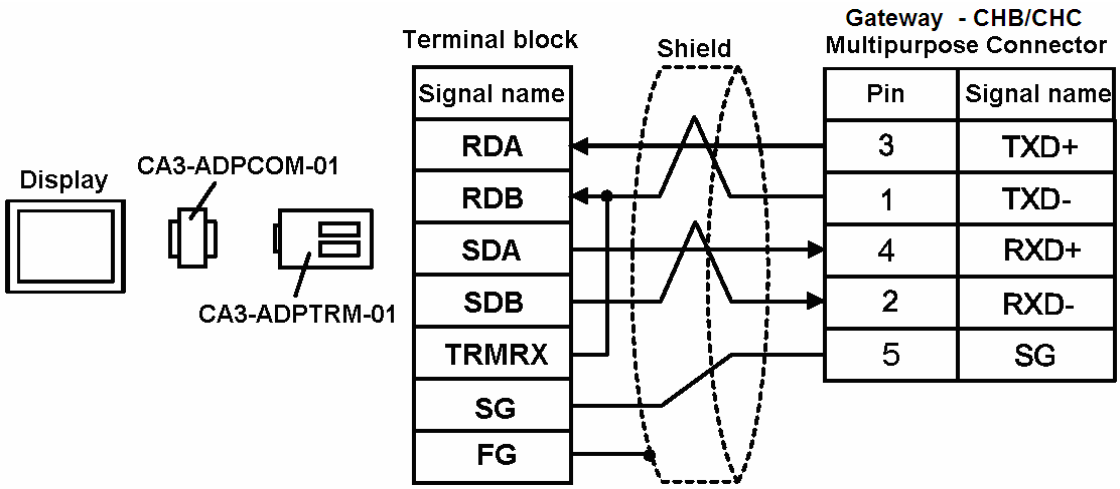


Pro-face America
750 North Maple Rd
Saline, MI 48176-1292
www.profaceamerica.com
Email: customercare@profaceamerica.com
Phone: 734-944-0482

Cable Diagram 2

Display (Connection Port)	PLC (Connection Port)	Cable	Diagram	Remarks
AGP (COM1)[1] AGP3302B (COM2) AST (COM2)[2] SIO Type RS422 4-wire	CA9-DH3000-PFA01 Pro-face Gateway * CHB/CHC Multipurpose Port	COM port conversion adapter CA3-ADPCOM-01 + Terminal block conversion adapter CA3-ADPTERM-01 + Your own cable	C	
		Your own cable	D	
AGP (COM2)[1] SIO Type RS422 4-wire	CA9-DH3000-PFA01 Pro-face Gateway * CHB/CHC Multipurpose Port	Terminal block conversion adapter CA3-ADPTERM-01 + Your own cable	E	
		Your own cable	F	

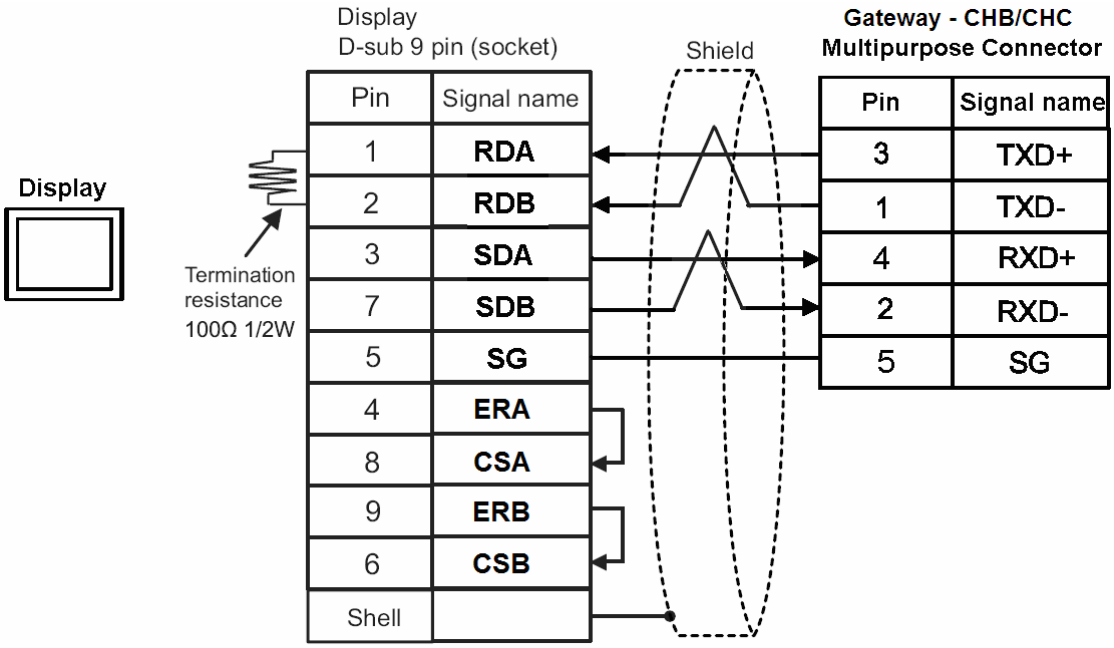
C) When using the terminal adapter and your own the RS422 cable to AGP (COM1)[1], AGP3302B (COM2), or AST (COM2) [2].



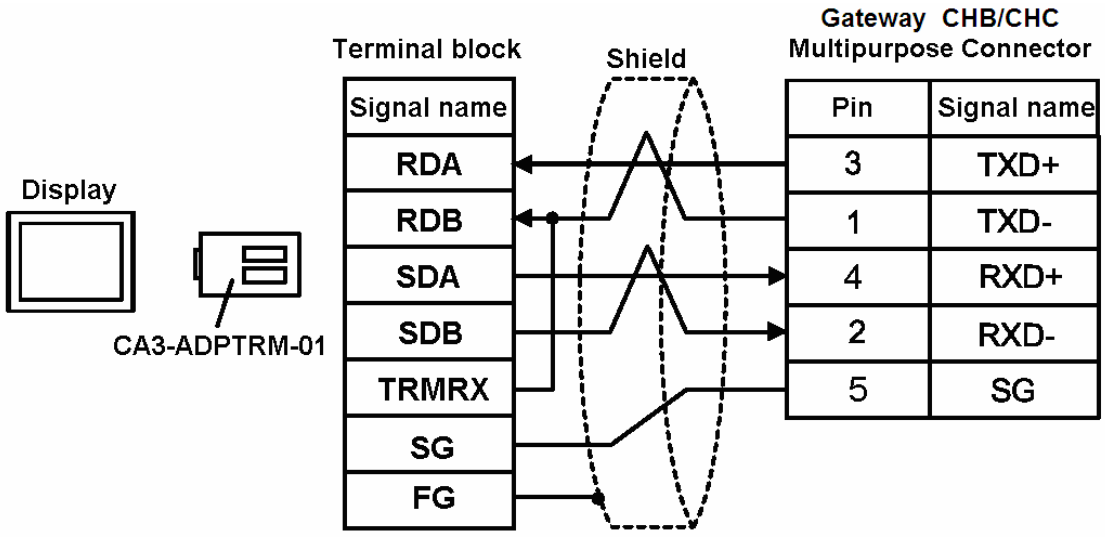
*1 All AGP models except AGP-3302B
*2 All AST models except AST-3211B

Pro-face America
750 North Maple Rd
Saline, MI 48176-1292
www.profaceamerica.com
Email: customercare@profaceamerica.com
Phone: 734-944-0482

D) When using your own the RS422 cable to AGP (COM1)[1], AGP3302B (COM2), or AST (COM2)[2].



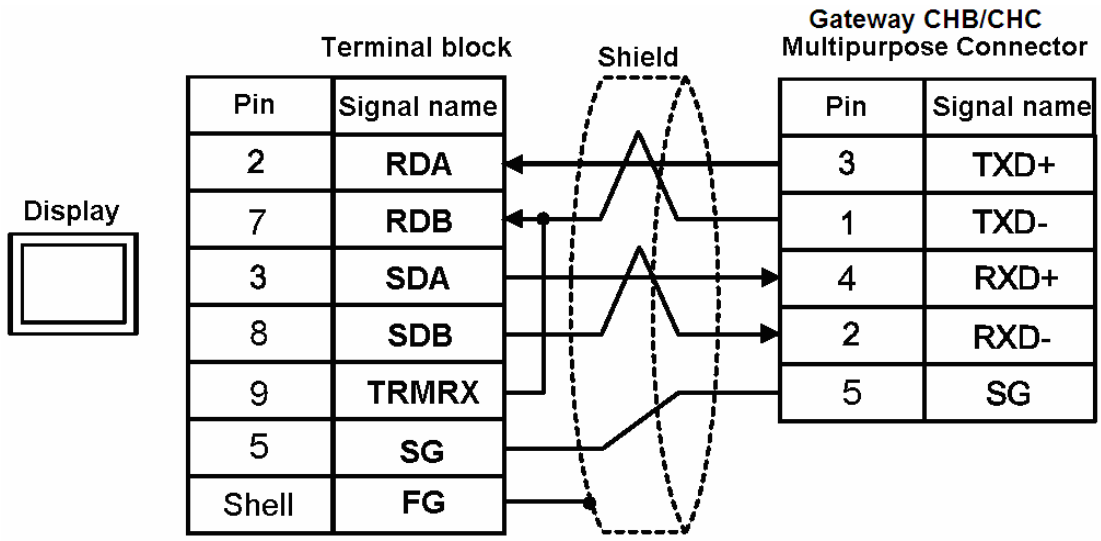
E) When using the terminal adapter and your own the RS422 cable to AGP (COM2)[1].



*1 All AGP models except AGP-3302B
*2 All AST models except AST-3211B

Pro-face America
750 North Maple Rd
Saline, MI 48176-1292
www.profaceamerica.com
Email: customercare@profaceamerica.com
Phone: 734-944-0482

F) When using your own the RS422 cable to AGP (COM2)[1].



*1 All AGP models except AGP-3302B

6 Supported Device

Refer to the Pro-face PLC/Device connection manual “Rockwell Automation DF1 Driver “Section 6

7 Device Code and Address Code

Refer to the Pro-face PLC/Device connection manual “Rockwell Automation DF1 Driver “Section 7

8 Error Messages

Refer to the Pro-face PLC/Device connection manual “Rockwell Automation DF1 Driver “Section 8

For technical support email Pro-face America at support@profacamerica.com or call 734-944-0482.

Pro-face America
750 North Maple Rd
Saline, MI 48176-1292
www.profaceamerica.com
Email: customercare@profaceamerica.com
Phone: 734-944-0482