

## Application Note #1183: Rockwell Automation PLC Cabling Addendum

### Introduction

This application note is a supplement to the Pro-face Device/PLC Connections Manuals. It provides additional connection diagrams and information about connecting Pro-face hardware to Allen Bradley PLCs. The diagrams provided in this application note are intended for Pro-face AGP, AST, and ST series displays. The information in this document applies to both GP-Pro EX and GP-Pro PB3 applications. For GP series 25 pin cabling refer to the GP-Pro PB3 Hardware Connections Manual.

Note on DH485: Allen Bradley DH485 is an industrial area network. The term also applies to the network communications protocol. The DH485 communications protocol can be used on either RS232 or RS485 connections. When Pro-face documentation refers to DH485 it is in reference to the communications protocol. The physical connection may be either RS232 or RS485. Allen Bradley DH485 industrial area networks are RS485 2 wire cabling. Pro-face documentation simply refers to these DH485 industrial networks as RS485 connections.

### Select the Cable

The following charts will help you choose the correct cabling based on the Pro-face hardware selected and the PLC hardware series. The cable part numbers in bold text are suggested for new installations and are off-the-shelf solutions offered by Pro-face America. The connection diagrams included in this document are in addition to the diagrams in the GP-Pro EX Device/PLC Connections Manual. The letters in the Diagram column of the table below only refer to the connection diagrams included in this document. Where a note in the Reference column suggests, please refer to the GP-Pro EX Device/PLC Connections Manual for the connection diagram.

#### Retrofitting older installations:

Existing Proface GP, Quick Panel, and Panel Stations installations connected to a PLC via an RS232 interface only require a commercially available 25 to 9 pin adapter be added to the existing cable.

Existing RS422 connections via a HMI-CAB-C83 cable can be modified by adding adapters from Proface to the existing cable. If you have an existing HMI-CAB-C84 cable, a portion of it can be used to build a replacement cable. Cut off the 25 pin connector and discard it. Use the remaining length of cable with the modular connector to build your own cable. Select the appropriate cable diagram (E or H) from Table 2 below to build the cable. *(Some legacy projects using a HMI-CAB-C84 cable may have been be configured as RS232. After this modification the connection is RS485/2-wire)*

#### 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 an isolation unit, when communication is not stabilized under the influence of noise etc.

**Table 1 -- RS232 Serial Connections:** (DH485 and DF1 protocols)

Display (Connection Port)	PLC (Connection Port)	Cable	Diagram	Remarks
AGP (COM1) AST (COM1) ST401, ST403  SIO Type RS232	SLC5/03, SLC5/04 SLC5/05 (CH0 - DB9)	<b>HMI-CAB-ST52 or HMI-CAB-ST52-30x or HMI-CAB-ST52-50x</b>	A	
		Your Own Cable		Refer to the GP-Pro EX Device/PLC Connection Manual
		<b>CA3-CBL232/5M-01</b> + 9-25 pin adapter		
	MicroLogix 1500 1764-LRP (CH1 - DB9)	Existing HMI-CAB-C52 + 9-25 pin adapter <sup>2</sup>		Retrofit Existing GP or Panel Station Cable
		ControlLogix CompactLogix (DB9 port)	<b>CA3-CBL232/5M-01</b>	
	Your Own Cable			
	Existing HMI-CAB-C53 + 9-25 pin adapter <sup>2</sup>			Retrofit Existing GP or Panel Station Cable
	PLC5 (CH0 -DB25)	Rockwell 1761-CBL-PM02 + Your Own Cable		Refer to the GP-Pro EX Device/PLC Connection Manual
		Rockwell 1761-CBL-PM02 + <b>CA0-CBLRXTX-PFA01</b>	B	
		Rockwell 1761-CBL-PM02 (NOT FOR Micrologix 1000)	C	<b>DF1 Only</b> Refer to APNT1212 for PLC Settings
		Existing HMI-CAB-C106 + 9-25 pin adapter <sup>2</sup>		Retrofit Existing GP or Panel Station Cable
		MicroLogix 1000 MicroLogix 1100 MicroLogix 1200 MicroLogix 1400 MicroLogix 1500 (CH0 - DIN)		

\*1 All GP models except AGP-3302B

\*2 Commercially available standard 25 to 9 pin RS232 serial port adapter or Pro-face CA3-CBLCBT232-01.

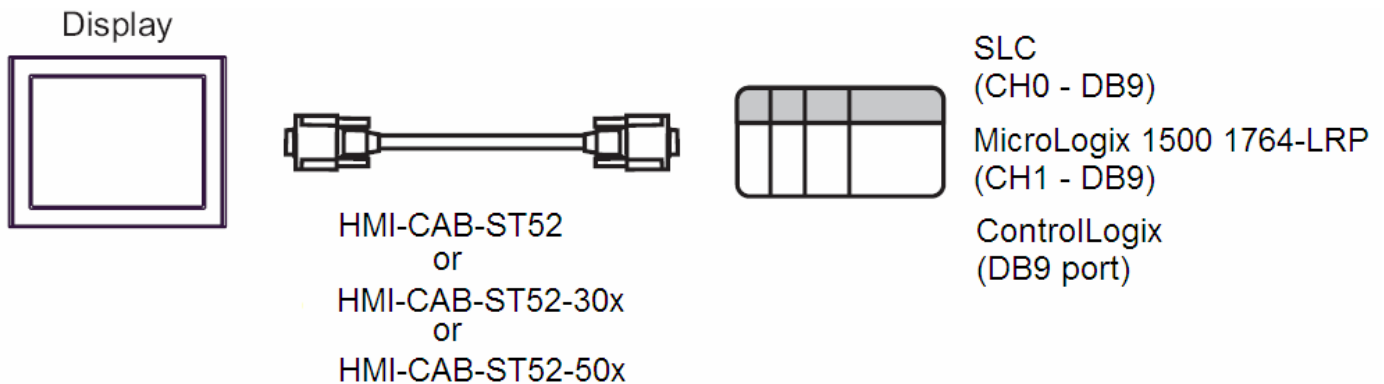
**Table 2 -- RS485 Serial DH485 Connections:**

Display (Connection Port)	PLC (Connection Port)	Cable	Diagram	Remarks
AGP (COM1) <sup>1</sup> AGP3302B (COM2) AST (COM2) ST400, ST403  SIO Type RS485 2-wire	SLC5/01 SLC5/02 SLC5/03 (CH1 - RJ45)	<b>HMI-CAB-C83</b> + <b>CA3-CBLCBT422-01</b> <b>adapter</b> + <b>CA3-ADPCOM-01</b>	D	
		Your Own Cable	E	
	1761-NET-AIC <sup>3</sup> Port 3 – Phoenix Plug	Your Own Cable	F	
AGP (COM2) <sup>1</sup>  SIO Type RS485 2-wire	SLC5/01 SLC5/02 SLC5/03 (CH1 - RJ45)	<b>HMI-CAB-C83</b> + <b>CA3-CBLCBT422-01</b> <b>adapter</b> + <b>CA4-ADPONL-01</b>	G	
		Your Own Cable	H	
	1761-NET-AIC <sup>3</sup> Port 3 – Phoenix Plug	Your Own Cable	I	

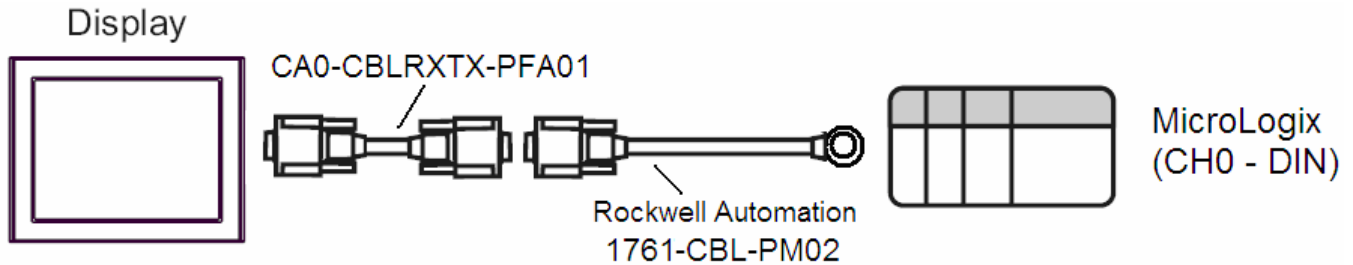
\*3 For DH-485 Device Driver connections only.

## Cable Diagrams

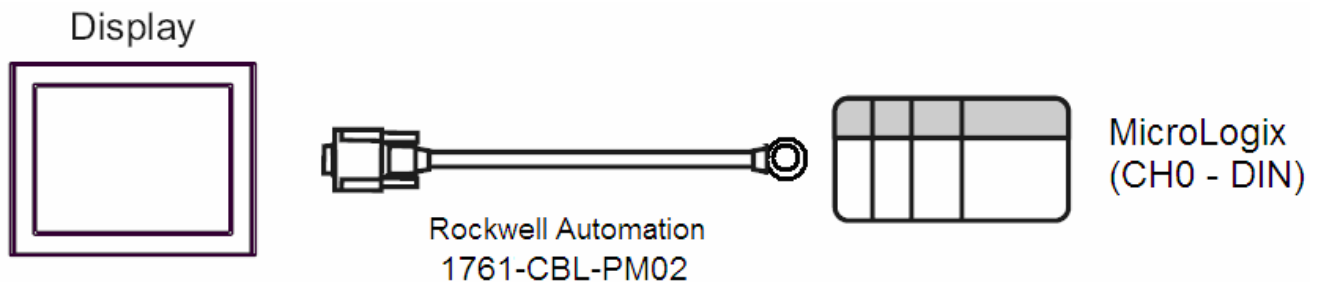
A) When using the RS232 cable (HMI-CAB-ST52) by Proface America



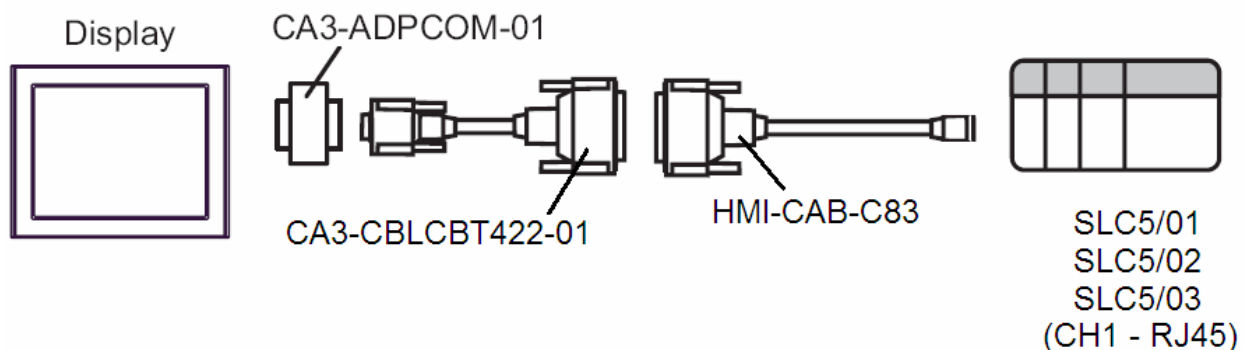
- B) When using the Rockwell Automation programming cable and the Pro-face CA0-CBLRXTX-PFA01 adapter. For all Micrologix PLCs including MicroLogix 1000.)



- C) When using the Rockwell Automation programming cable connected directly to the display change the RS Logix /Channel Configuration/Control Line setting to "Full Duplex Modem". DF1 protocol only. For details refer to Pro-face America APNT1212. (Not for MicroLogix 1000. Not for DH485.)



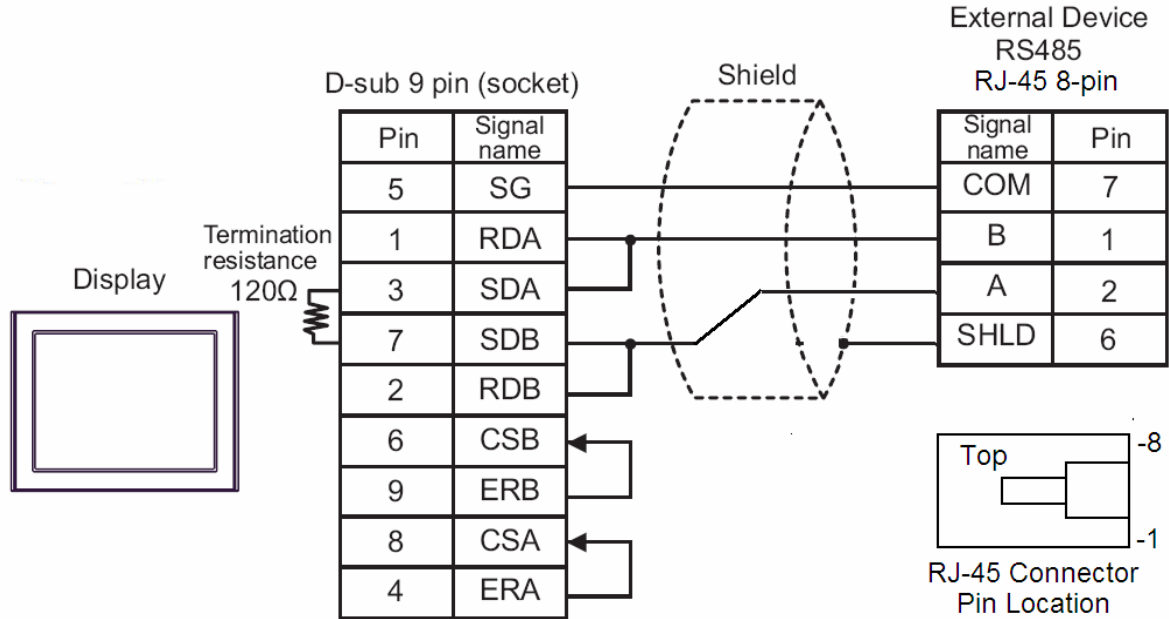
- D) When using the RS422 cable (HMI-CAB-C83) by Proface America to AGP (COM1)<sup>1</sup>, AGP3302B or AST (COM2), ST400, ST403.



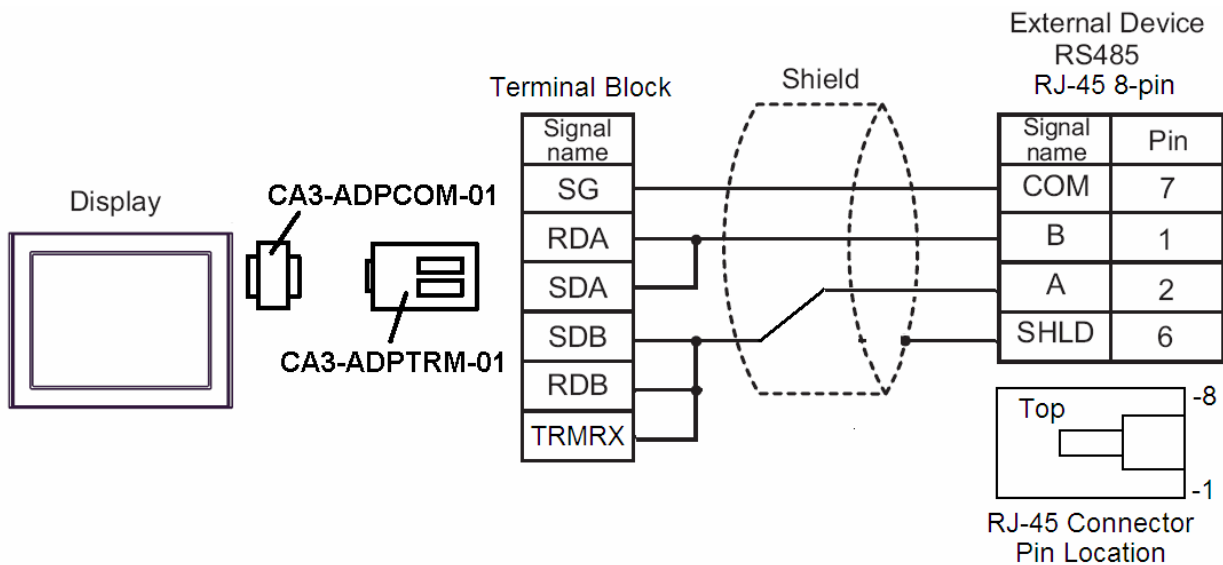
E) When using your own the RS422 cable to AGP (COM1)<sup>1</sup>, AGP3302B or AST (COM2), ST400, ST403.

*Note: > the shield should be attached at one end. If you are using the length of cable from a HMI-CAB-C83 or HMI-CAB-C84 cable, it already has the shield attached to pin 6 on the RJ-45 connector. )*

a. When using your own DB9 connector:

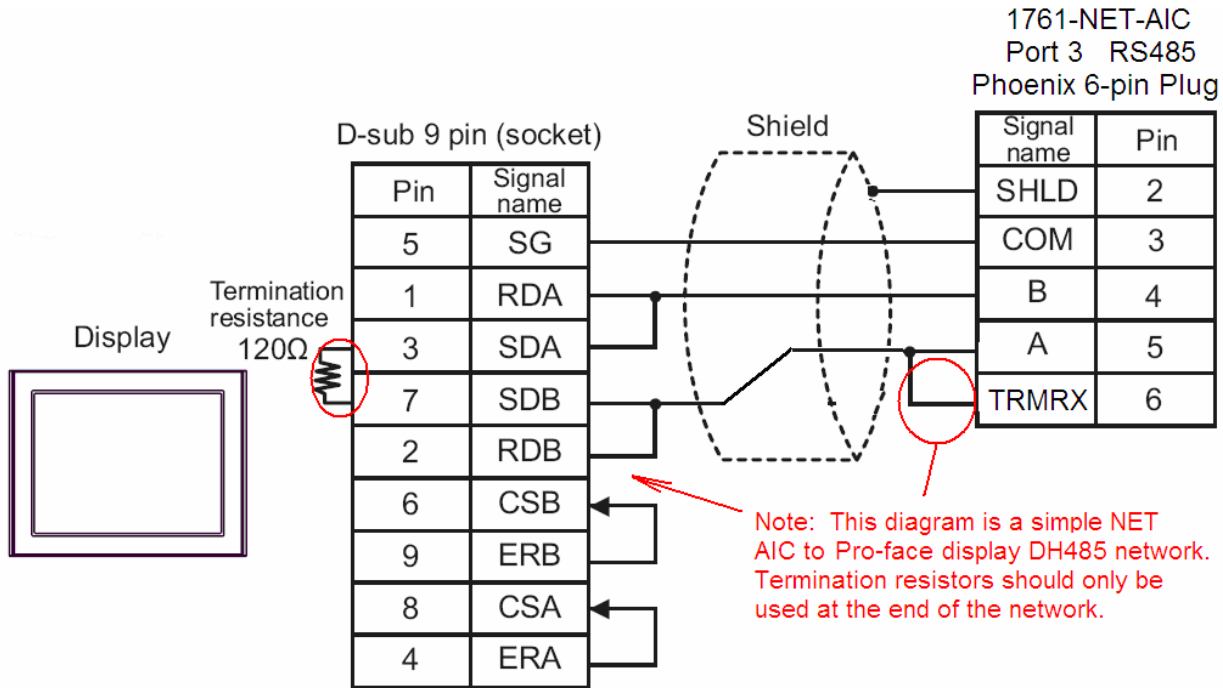


b. When using Pro-face adapters and a length of shielded cable with a RJ-45 connector.

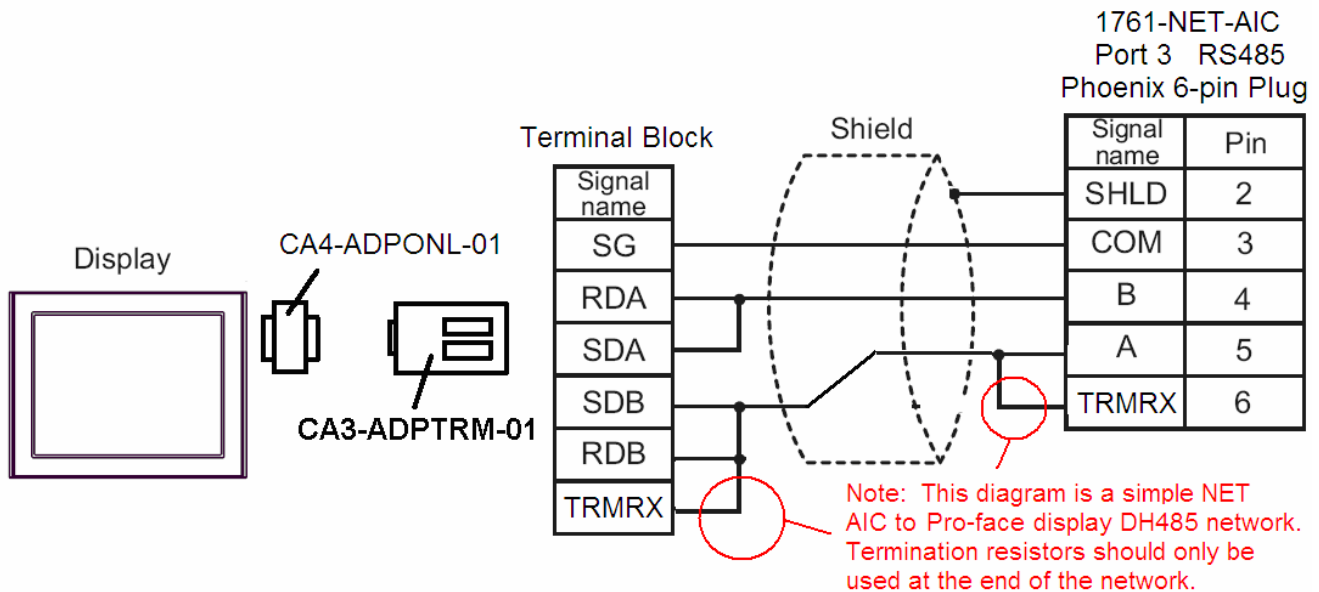


F) When using your own the RS422 cable to AGP (COM1)<sup>1</sup>, AGP3302B or AST (COM2), ST400, ST403.

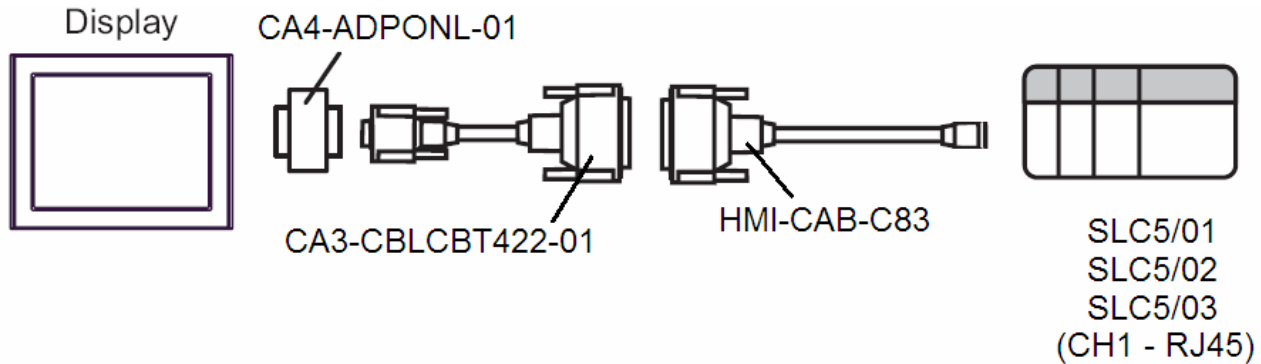
a. When using your own DB9 connector:



b. When using Pro-face adapters and a length of shielded cable with a RJ-45 connector.



G) When using the RS422 cable (HMI-CAB-C83) by Proface America to AGP (COM2) (Not for AGP3302B).



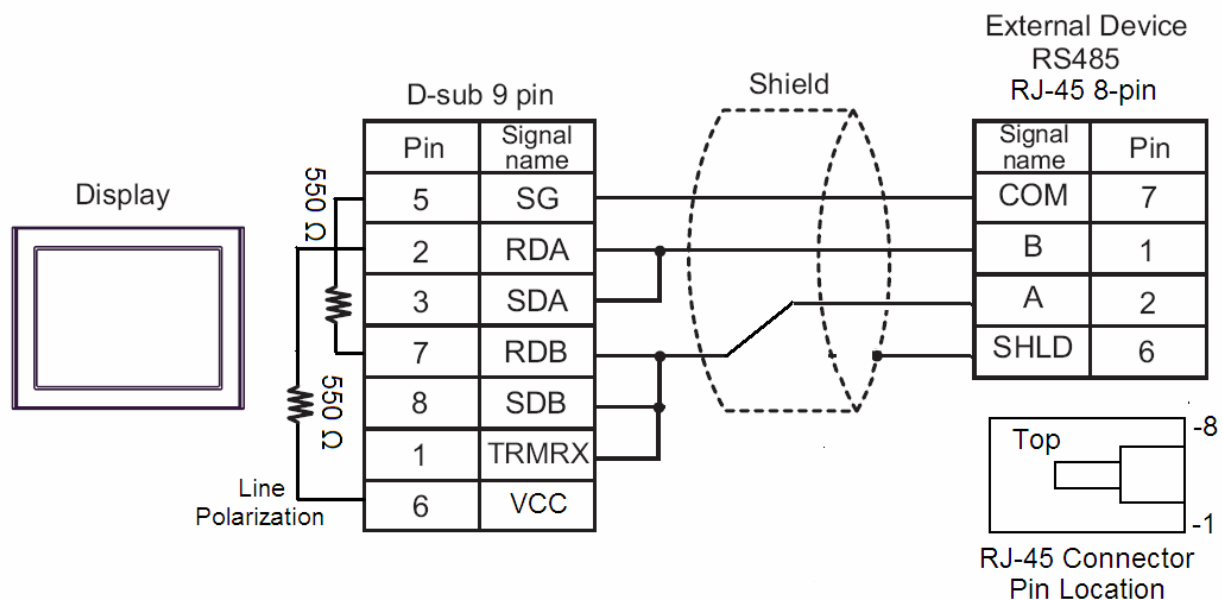
H) When using your own the RS422 cable to AGP (COM2) (Not for AGP3302B).

a. When using your own DB9 connector:

Notes:

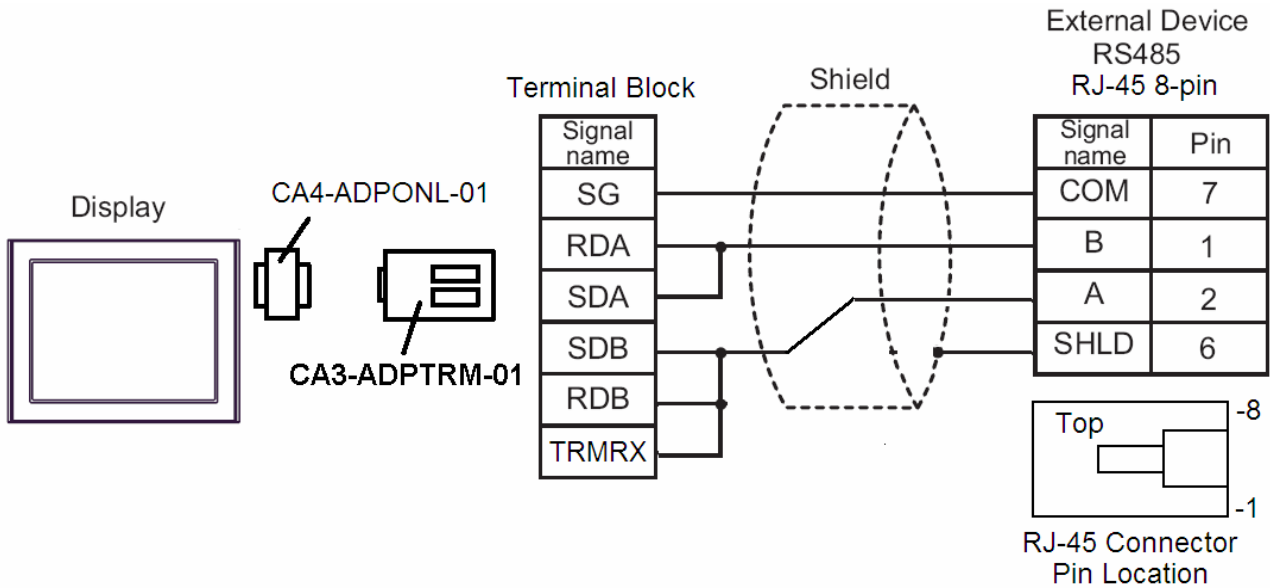
1> a Pro-face CA4-ADPONL-01 adapter can be used instead of the 550 ohm polarization resistors.

2> the shield should be attached at one end. If you are using the length of cable from a HMI-CAB-C83 or HMI-CAB-C84 cable, it already has the shield attached to pin 6 on the RJ-45 connector.



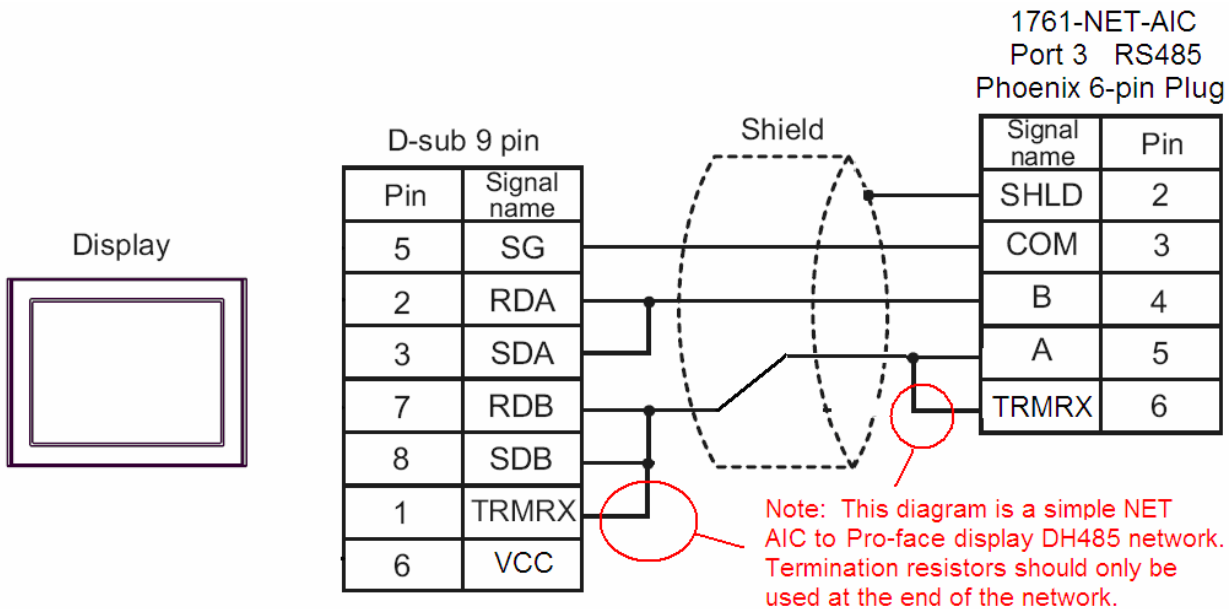
- b. When using Pro-face adapters and a length of shielded cable with a RJ-45 connector.

Note: > the shield should be attached at one end. If you are using the length of cable from a HMI-CAB-C83 or HMI-CAB-C84 cable, it already has the shield attached to pin 6 on the RJ-45 connector. )



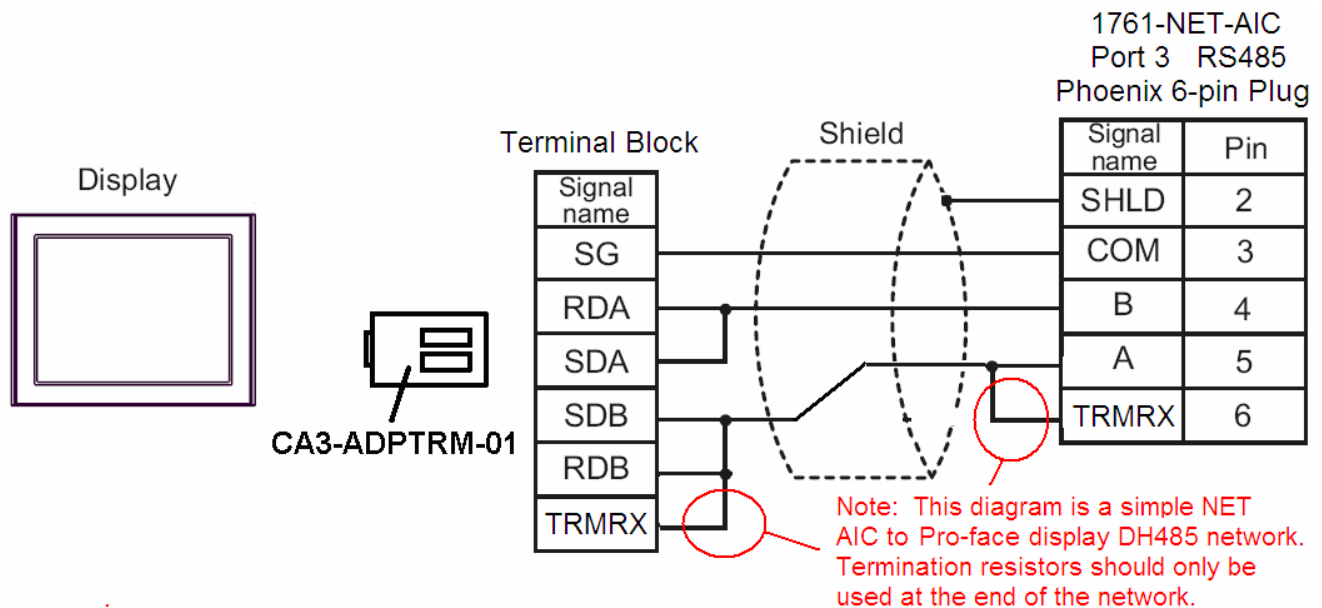
- l) When using your own the RS422 cable to AGP (COM2) (Not for AGP3302B).

- a. When using your own DB9 connector:



- b. When using Pro-face adapters and a length of shielded cable with a RJ-45 connector.

*Note: The Pro-face CA3\_ADPTRM-01 has 2 sets of terminals making it easy to continue DH485 network cabling on to the next node when the display is not at the end of the network..*



For more information on Pro-face and our full line of HMI, Operator Interface and Industrial PC products please visit our web site at [www.profaceamerica.com](http://www.profaceamerica.com).

For technical support email: [support@profaceamerica.com](mailto:support@profaceamerica.com) or call: 734-944-0482.

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