

Siemens MPI Direct Cabling Addendum: Application Note: #1164

Introduction

This application note provides additional information and connection diagrams to aid in selecting hardware and connecting to Siemens PLCs. It is a supplement to the connections manuals provided from Proface. The diagrams provided in this application note are intended for connecting AGP, AST, and ST series products. This information in this document applies to both GP-Pro Ex and GP-Pro PB3 applications. For GP series 25 pin port cabling information refer to the GP-Pro PB3 Hardware Connections Manual.

Select the Proface HMI hardware and communication port:

The following suggestions consider the capabilities of both the Proface HMI communications port(s) and the PLC programming port(s). These combinations allow switching between the PLC programming software and the Proface HMI with the same settings. Unless the customer specifies a different connection and is an advanced Siemens user the following PLC series and Proface hardware combinations are the best bet:

- 1> S7-200 PLCs communicate at 9600 or 19,200 baud. They connect to a standard RS422/485 port such as AGP COM1, AST3201 COM2, ST400, ST403, and any GP/GLC COM1. *(Except AGP3302B)
- 2> S7-300 and S7-400 PLCs communicate at 187.5kbaud. They connect to MPI direct capable port such as AGP COM2, AST3211 COM2, ST402 COMX, and GP/GLC 2000 series COM1.

Advanced MPI networks may require a different combination of hardware and cabling than those suggested. Some applications may use a PLC communications module not included in this document.

Some Siemens PLCs have differences in the PPI/MPI ports. The above suggested combinations account for these differences. (Notably the low end S7-200s, high end S7-317+, and S7-400.) The above guidelines and the following connection diagrams assure a successful connection.

Select the Cable:

The following chart will help choose the correct cabling connection based on the Proface hardware selected, the communication speed, and the PLC hardware series.

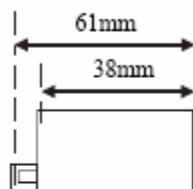
Connection notes:

- 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.

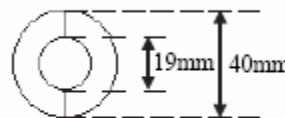
Display (Connection Port) PLC	Cable	Diagram	Remarks
AGP*1 (COM1) ST400, ST403 115Kbps max S7-200 <hr/> AGP-3200 (COM1),*2 AGP-3302 (COM2) AST3201 (COM2) 187.5Kbps max S7-200 & S7-300	Your own cable	A	The cable length must be 50m or less in one segment.
	COM port conversion adapter (for COM1) CA3-ADPCOM-01 + Connector terminal block conversion adapter CA3-ADPTRM-01 + Your own cable	B	
	MPI cable by Pro-face ST03-A2B-MPI21-PFE (3.5m)*3		
AGP*1 (COM2) S7-200 & S7-300 [not S7-318-2]	Online adapter CA4-ADPONL-01 + Your own cable	C	The cable length must be 50m or less in one segment.
	Online adapter CA4-ADPONL-01 + Connector terminal block conversion adapter CA3-ADPTRM-01 + Your own cable	D	
AGP*1 (COM2) S7-200 CPU215+ S7-300 & S7-400	MPI cable by Pro-face GP3000-MPI21-PFE (3.5m)*4 *5		Refer to GP-Pro EX Connections Manual
	Siemens COM conversion adapter by Pro-face CA3-ADPSEL-01 + PROFIBUS cable*6	E	The cable length must be 50m or less in one segment.
PROFIBUS cable			

*1 All GP models except AGP-3302B

*2 When use AGP-3302B, please install a ferrite core.



Recommended ferrite core: E04SR401938 (Seiwa Electric Mfg Co., Ltd.)



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If size is the same, you can use a ferrite core made by other companies.

*3 There are Display side connector and the External Device side connector on the MPI cable. Check the Display side and the External Device side, and please connect correctly.

*4 All GP models except AGP-3200 series and AGP-3302B

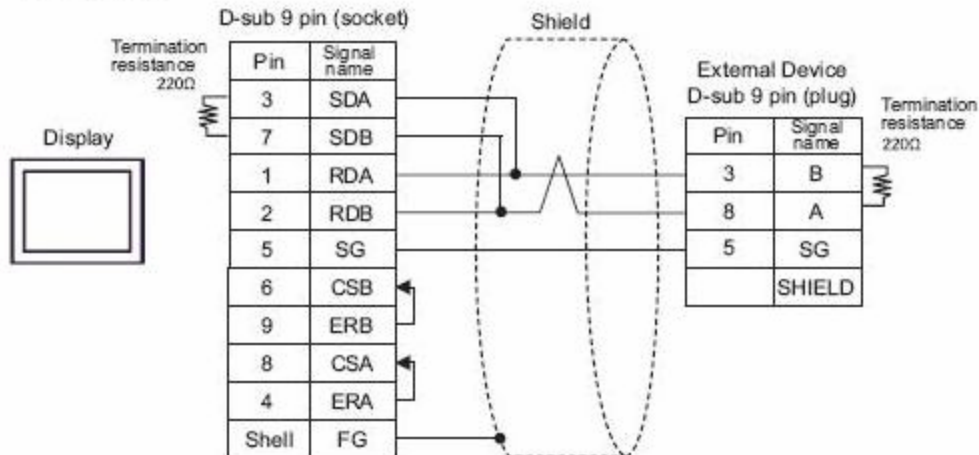
*5 The online adapter CA4-ADPONL-01 is supplied with the MPI cable (GP3000-MPI21-PFE).

*6 When using GP-3400/3500/3600 series, please use the PROFIBUS 30° or straight type connector.

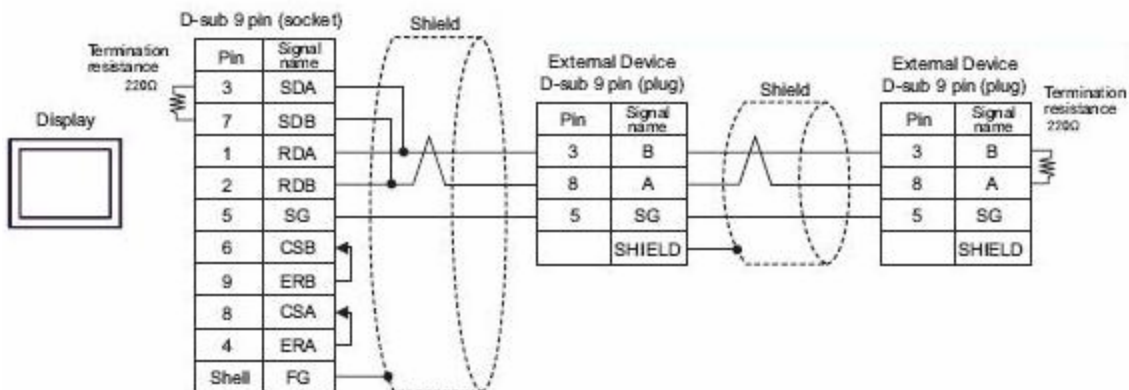
A) When using your own cable **AGP COM1 Only AGP3302 COM 2 only.**

WARNING Do not make these connections to AGP COM2 (except for AGP3302)

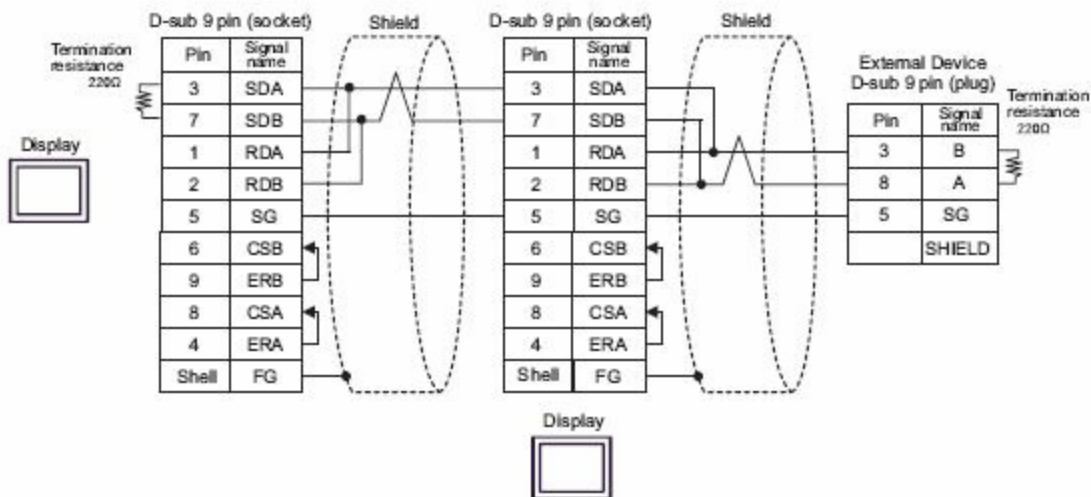
• 1:1 Connection



• 1:n Connection

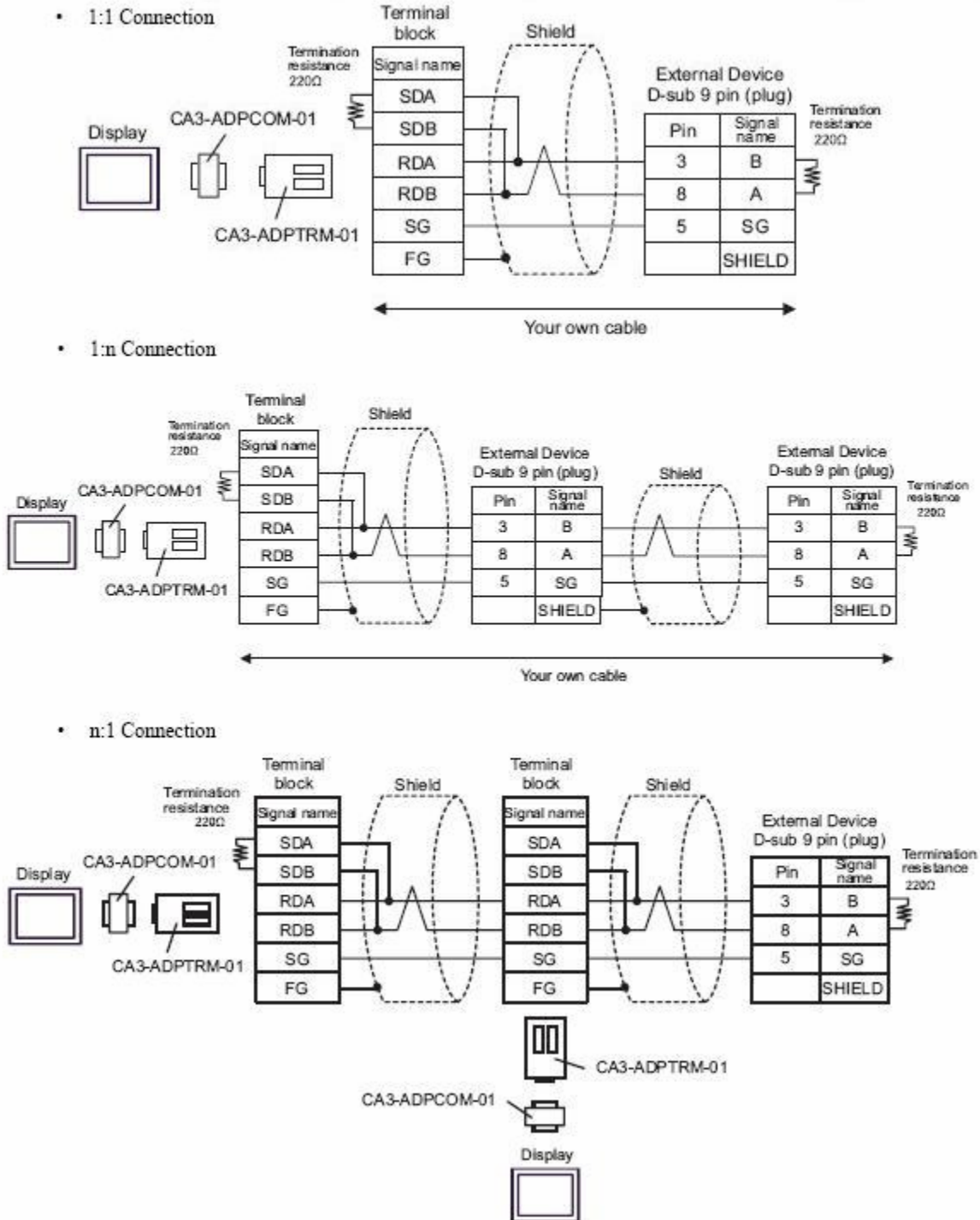


• n:1 Connection



B) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable **AGP COM1 Only AGP3302 COM 2 only.**

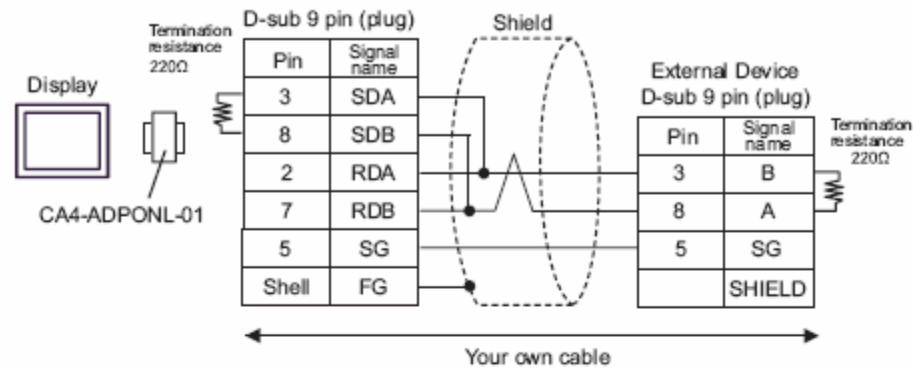
WARNING Do not make these connections to AGP COM2 (except for AGP3302)



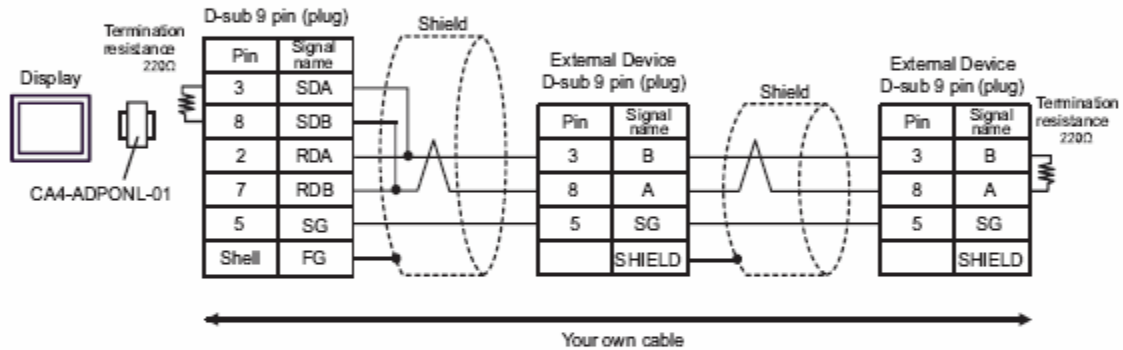
C) When using the online adapter (CA4-ADPONL-01) by Pro-face and your own cable

AGP COM2 only (not for AGP3302B)

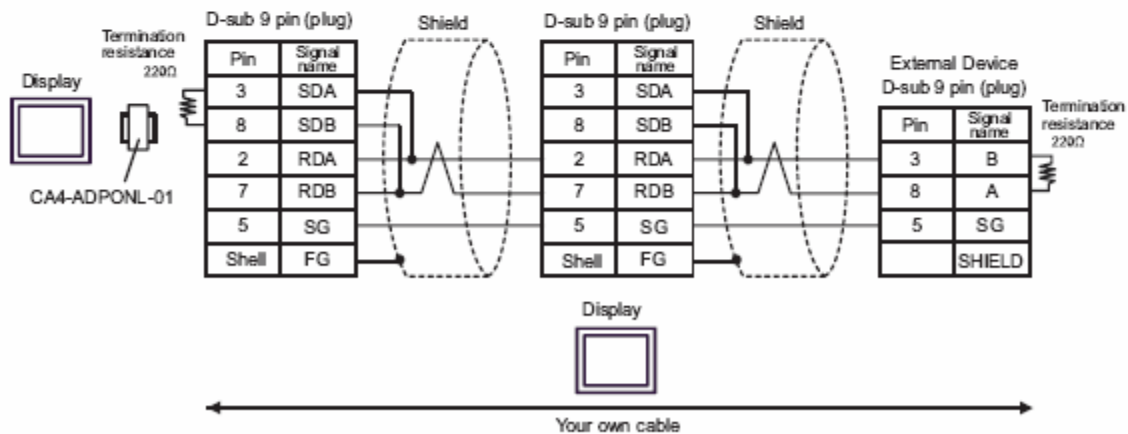
- 1:1 Connection



- 1:n Connection



- n:1 Connection

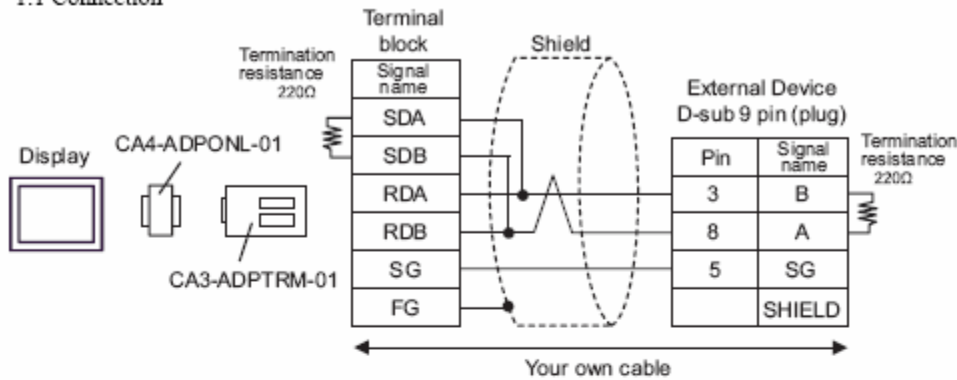


IMPORTANT

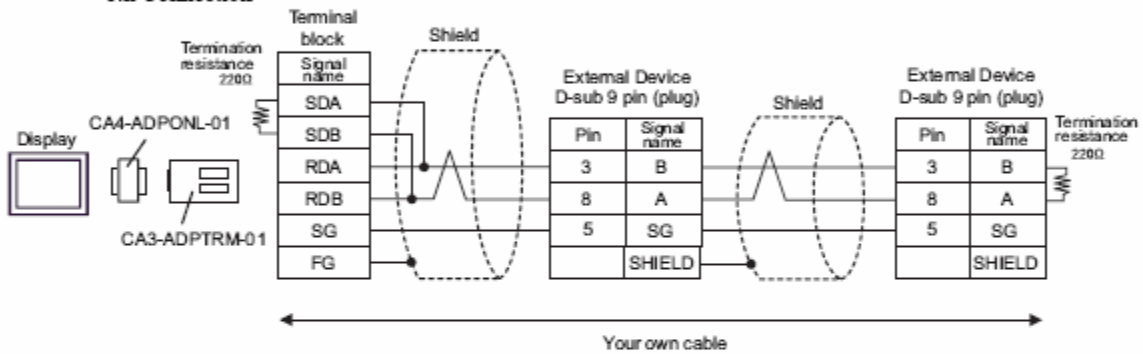
- Wrong connection could lead to malfunction or breakdown of the CPU. Please ensure that the side (Display Device / PLC) of the cable matches the port of connected device.
- When connecting more than 1 Display, use the online adapter for only one Display.

D) When using the online adapter (CA4-ADPONL-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable **AGP COM2 only (not for AGP3302B)**

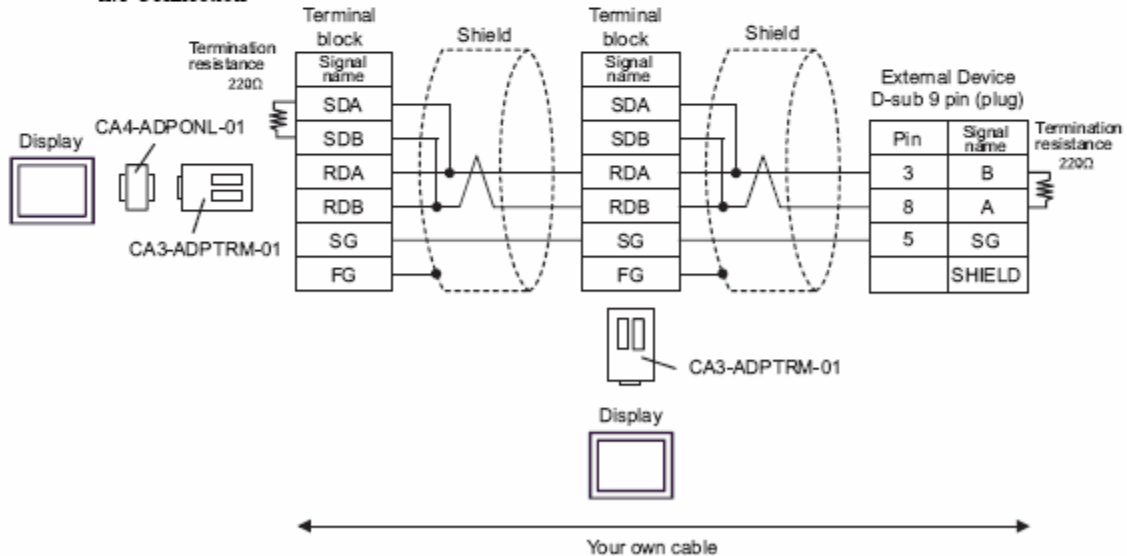
• 1:1 Connection



• 1:n Connection



• n:1 Connection



IMPORTANT

- Wrong connection could lead to malfunction or breakdown of the CPU. Please ensure that the side (Display Device / PLC) of the cable matches the port of connected device.
- When connecting more than 1 Display, use the online adapter for only one Display.

E) When using the Siemens COM port conversion adapter by Pro-face and your own cable (PROFIBUS connector by Siemens AG used)

