

March 2004

Chapter 2 — Profibus DP Option Board Technical Data

General

Table 2-1: Profibus Technical Data

Description	Specification
Profibus DP Connections	
Interface	OPTC3: Pluggable connector (5.08 mm) OPTC5: 9-pin DSUB connector (female)
Data transfer method	RS-485, half-duplex
Transfer cable	Twisted pair (1 pair and shield)
Electrical isolation	500V DC
Communications	
Profibus DP	As described in document "Profibus Profile for variable speed drives, Profidrive"
PPO types	1, 2, 3, 4, 5
Baud rate	9.6 kbaud to 12 Mbaud
Addresses	2 to 126
Environment	
Ambient operating temperature	-10°C – 55°C
Storing temperature	-40°C – 60°C
Humidity	<95%, no condensation allowed
Altitude	Max. 1000m
Vibration	0.5G at 9 – 200 Hz
Safety	Fulfils EN 50178 standard

Profibus Cable

Profibus devices are connected in a bus structure. Up to 32 stations (master or slaves) can be connected in one segment. The bus is terminated by an active bus terminator at the beginning and end of each segment (see **Figure 2-1**). To ensure error-free operation, both bus terminations must always be powered. When more than 32 stations are used, repeaters (line amplifiers) must be used to connect the individual bus segments.

The maximum cable length depends on the transmission speed and cable type (see **Table 2-3**). The specified cable length can be increased using the repeaters. The use of more than three repeaters in series is not recommended.

Table 2-2: Line Parameters

Parameter	Line A	Line B
Impedance	135 – 165Ω (3 to 20 MHz)	100 – 130Ω (f > 100 kHz)
Capacity	< 30 pF/m	< 60 pF/m
Resistance	< 110Ω / km	—
Wire gauge	> 0.64 mm	> 0.53 mm
Conductor area	> 0.34 mm ²	> 0.22 mm ²

Table 2-3: Line Length for Different Transmission Speeds

Line	Length for Baud Rate (kbit/S)						
	9.6	19.2	93.75	187.5	500	1500	3000 – 12000
Line A in ft. (m)	3940 (1200)	3940 (1200)	3940 (1200)	3280 (1000)	1310 (400)	660 (200)	330 (100)
Line B in ft. (m)	3940 (1200)	3940 (1200)	3940 (1200)	1970 (600)	660 (200)	—	—

E.g. following cables can be used:

- Belden** Profibus Data Cable 3079A
- Olflex** Profibus Cable 21702xx
- Siemens** SINEC L2 LAN cable for Profibus 6XV1 830-0AH10

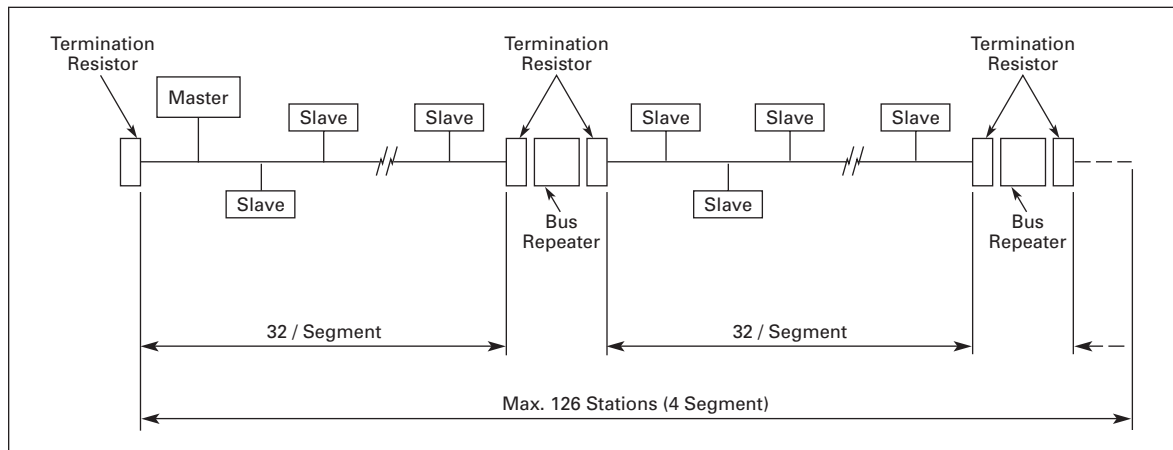


Figure 2-1: Cabling and Bus Termination