

PROFIBUS COMPETENCY CENTRE, AUSTRALIA TECHNICAL SERIES		
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SUBJECT: DP SEGMENT CABLE LENGTH		

Profibus networks consist of segments, each galvanically isolated from the others and terminated at the two ends only. Each segment can have a maximum of 32 devices attached (i.e. slaves, masters, repeaters, couplers, diagnostic tools etc). Each segment must not be longer than the specified maximum, which is dependent on bit-rate.

When using best quality PROFIBUS RS485 (Type A) cable

Baud rate	Maximum segment length	
9.6 kbit/s	1 000m	Low speed
19.2 kbit/s	1 000m	
45.45 kbit/s	1 000m	
93.75 kbit/s	1 000m	
187.5 kbit/s	1 000m	
500.0 kbit/s	400m	High speed
1.5 Mbit/s	200m	
3.0 Mbit/s	100m	
6.0 Mbit/s	100m	
12.0 Mbit/s	100m	

Fig. 1 DP Segment, max. Cable lengths<sup>1</sup>

A network, consisting of many segments can cover a much longer distance than a single segment because we can use repeaters, couplers or fibre-optic links to join segments together.

References:

<sup>1</sup> CPIC Presentation L03 Verwer Training & Consultancy Ltd.  
The New and Rapid Way to PROFIBUS DP, Manfred Popp

<http://www.profibuscentre.com.au>  
<http://www.profibus.com/>

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