



Control Network Solutions

OPENING NETWORK FRONTIERS

Typical Optical Power Margins plus typical cable lengths with common multimode fibre cables:

880nm Typical Performance (25C)	100/140 micron	62.5 /125 micron	50 /125 micron
For DFOM, DFOC, Router, FPOD, D4S10, MFIO, AMC, DFDAU, DCM, DSM, ACM, etc			
Coupled power into fibre	-8 to -10 dBm	-10 to -12 dBm	-12 to -14 dBm
Receiver sensitivity	-26	-26	-26
Resulting link budget (dBm), not including cable, connector or other losses	16	14	12
Typical cable length (Km) using multimode fibre (3.2 dB/Km typ) with goal of 3 dB margin and 0.6 dB allotment for 2 connectors (typ)	3.9	3.3	2.6
1320nm Typical Performance (25C)	100/140	62.5/125	50/125
For DFOM, DFOC, Router, FPOD, etc			
Coupled power into fibre	-10 to -12 dBm	-12 to -14.5 dBm	-14 to -16.5 dBm
Receiver sensitivity	-28 dBm	-28 dBm	-28 dBm
Resulting link budget (dBm), not including cable, connector or other losses	16	13.5	11.5
Typical cable length (Km) using multimode fibre (0.45 dB/Km typ) with goal of 3dB margin and 0.6 dB allotment for 2 connectors (typ)	27.6	22.0	17.6

Actual performance will depend upon your calculated loss budget, which is typically different for every application. To determine your link margin, start with the link budget for the desired cable type and wavelength. Add together all of the losses you expect to insert into the system; this may include allowances for connectors, cable attenuation in dB/Km, splices, patch panels (if used), and other anticipated losses. Subtract this number in dB from the link budget to calculate your remaining link margin.

$$\text{Link Budget} - (\text{total of link losses}) = \text{Link Margin}$$

Your worst-case Link Margin should be greater than your design goal (typically users will guard-band the worst-case calculations to retain a design goal of some amount, such as 3 dB).