



Antenna and Data Rate Considerations

Antenna Choice

Antenna choice is based on the layout and connection needs of your network, and the distances to be covered between nodes.

Distances specified may be affected by natural or man-made obstacles, or even vary seasonally due to foliage coverage.

Directional antennas must be aimed for proper performance.

Multiple antennas installed on one hyMesh™ node will reduce the maximum connectivity range for each antenna on the node. For example, each antenna on a four antenna node will have ½ the range of the one antenna node.

Longer distances than stated may be achievable, but data rate may be impacted.

Data Rate

The biggest factor limiting the available data rate is the rate from your Internet Service Provider (ISP).

The hyMesh™ products are capable of providing 50-70Mbps, which is significantly higher than data rates allocated per customer by most ISPs.

The hyMesh™ rate will be reduced by three factors: the antenna type, antenna spacing, and the number of wireless hyMesh™ hops the data has travelled.

Each wireless hop, up to a maximum of 5, will reduce the hyMesh™ data rate, after which there is no further reduction.

Minimum Data Rate = hyMesh™ data rate (D) / number of hops (n) D/n $n \leq 5$

If the supplied ISP data rate is lower than the lowest hyMesh™ rate after five or more hops, the ISP rate will still be the rate available everywhere.

Products that are directly connected through Ethernet do not have their data rate reduced by the “hop effect”.

For instance, back-to-back Ethernet-connected Data Pipeline Air Grid units have no data rate loss even through multiple stages, uniquely situating them for ultra high performance data transfer applications.

