

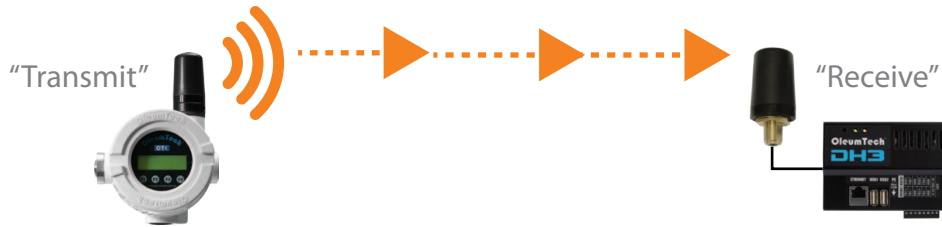
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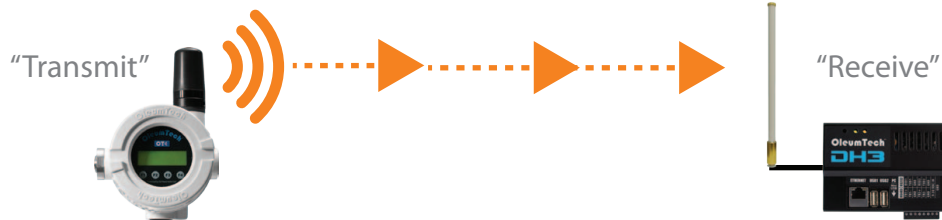
1. MAXIMUM RF RANGE


Transmitter to Gateway

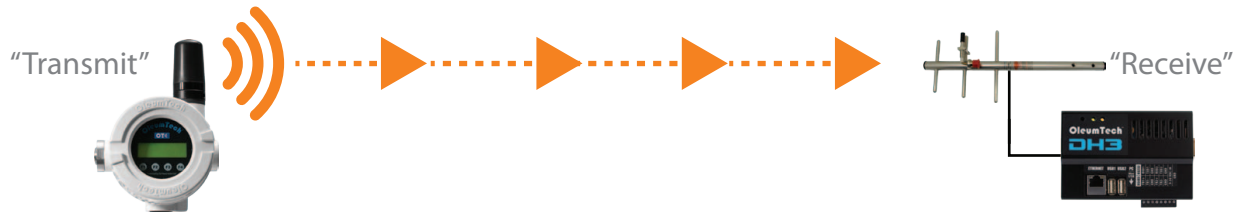
900 MHz @ 9600 bit RATE




| BULKHEAD ANTENNA, 3 dBi | TRANSMITTER TX POWER | GATEWAY TX POWER | RF RANGE* |
|--|----------------------|---|----------------------------------|
|  <p>3 dBi</p> <p>SA1000-AK2 or SA1000-AK5 Kit</p> | 10 mW | Gateway Tx power level has no impact on RF range. | 5000 ft / 0.95 mi / 1.5 km |



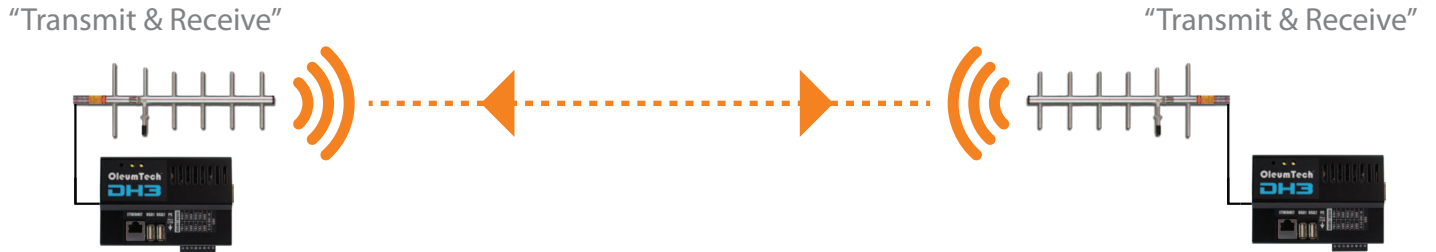
| OMNI ANTENNA, 3 dBi | TRANSMITTER TX POWER | GATEWAY TX POWER | RF RANGE* |
|--|----------------------|---|----------------------------------|
|  <p>3 dBi</p> <p>SA1000-AK1 or SA1000-AK4 Kit</p> | 10 mW | Gateway Tx power level has no impact on RF range. | 5000 ft / 0.95 mi / 1.5 km |



| YAGI ANTENNA, 6dBi | TRANSMITTER TX POWER | GATEWAY TX POWER | RF RANGE* |
|---|----------------------|---|---------------------------------|
|  <p>6 dBi</p> <p>SA1000-AK3 or SA1000-AK6 Kit</p> | 10 mW | Gateway Tx power level has no impact on RF range. | 7500 ft / 1.4 mi / 2.3 km |

*Field tested with clear line of sight with antennas raised to 9 to 15 ft above ground at sea level (tested for point-to-point values only). Actual wireless RF range may vary depending on location, antenna and cable setup, and line of sight. Graphs not to scale. Use lower Tx Power Settings when possible to conserve power.

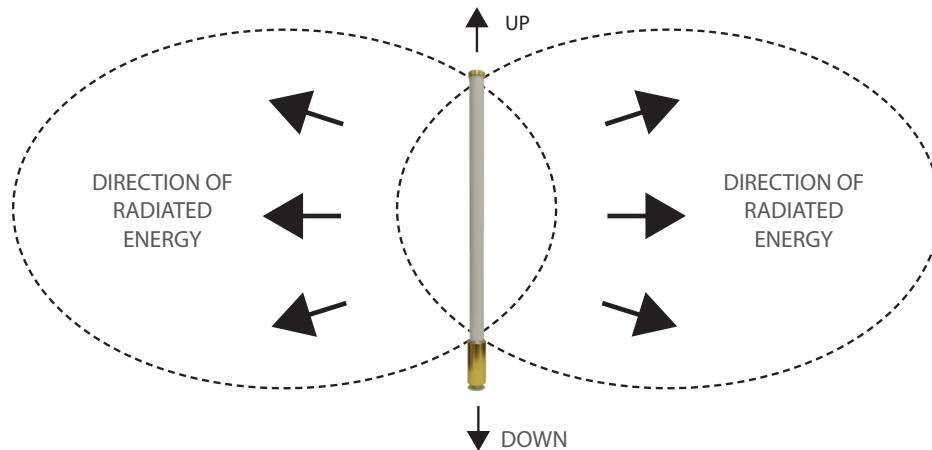
900 MHz @ 9600 bit RATE



| GATEWAY A TX POWER | GATEWAY B TX POWER | RF RANGE* |
|--------------------|--------------------|----------------------|
| 1000 mW | 1000 mW | 40 miles/ 64.4 km |

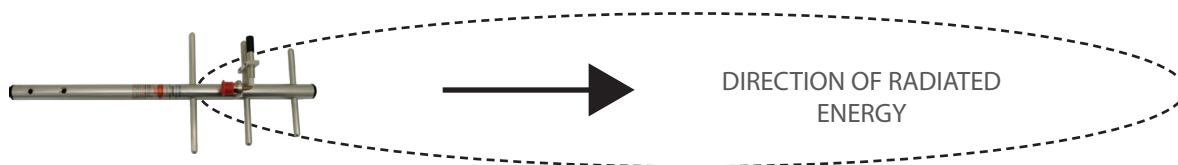
*Actual wireless RF range may vary depending on location, antenna setup, and line of sight.

OMNI DIRECTIONAL ANTENNA



An omni directional antenna focus its energy equally in all directions. It typically has lesser range than a yagi antenna of similar gain. Omni antennas are used in point-to-multipoint applications. Because it distributes its energy in more of a radial shape, be sure you have the main part is oriented straight up and down (perpendicular to the ground), with the feed line pointed towards the ground.

DIRECTIONAL YAGI ANTENNA



A yagi directional antenna focuses its energy to one particular direction. In a point-to-point application, it is ideal to use Yagi antennas at both locations for extended range and better signal strength. A yagi antenna must be properly set up so that its radiated signal can be targeted toward the desired direction of RF communication.

ANTENNA INSTALLATION BEST PRACTICES

- Use high quality antenna cables.
- Always weather-proof the cable connection.
- When possible, have at least 10 ft of ground clearance for optimal RF performance.
- Have at least 10 ft of vertical separation with other antennas.
- If using a NEMA-X enclosure the hole for the antenna wire or antenna should be made at the bottom of the enclosure to prevent from water ingress.