ANT-2.4-ID

Data Sheet

Product Description

The ID Series, ½-wave center-fed Industrial Dipole antenna is a weatherized design with industrial and outdoor applications in mind, such as outdoor meters, solar panel controls and other sensor monitoring and control systems requiring a low cost - but rugged - solution. The plastic and cable are rated for a wide temperature range and UV exposure for long term reliability.

Two standard cable lengths of 1m and 2m allow the antenna to be remote mounted in a position to achieve the best RF performance. An integrated flange makes mounting the antenna simple.

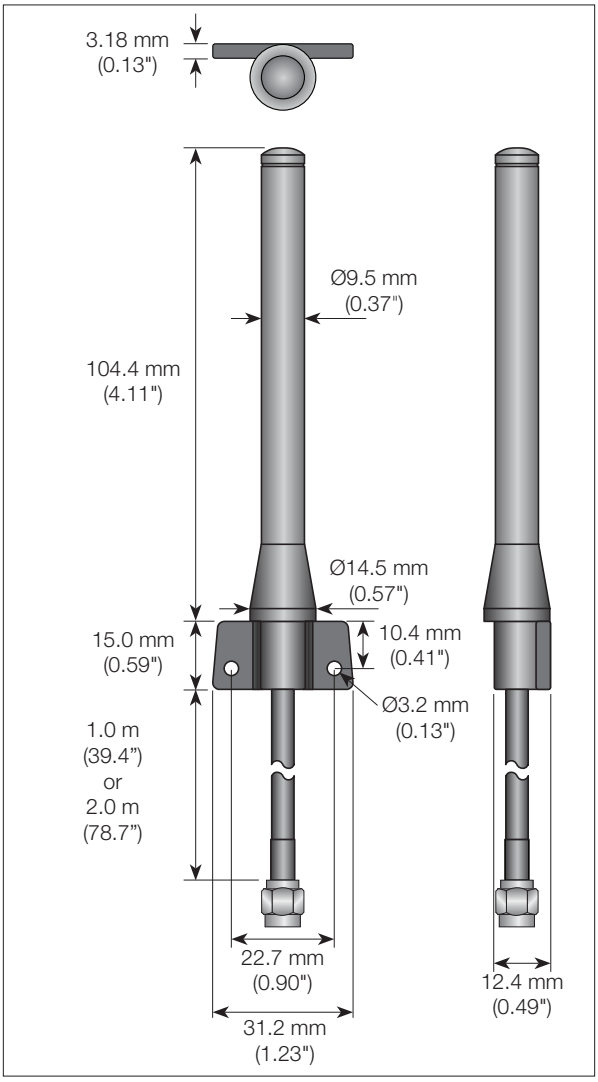
ID Series antennas attach via a standard SMA or Part 15 compliant RP-SMA connector. Custom colors, cable lengths and connectors are available for volume OEM customers.

Features

- Weatherized assembly for outdoor installation
- UV protection
- IP-67 rating*
- Wide temperature range
- Small size
- Outstanding VSWR
- Integrated mounting flange
- Standard SMA or Part 15 compliant RP-SMA connector

Electrical Specifications

Center Frequency:	2.4GHz
Recom. Freq. Range:	2.35–2.60GHz
Bandwidth:	250MHz
Wavelength:	½-wave
VSWR:	≤ 1.9 typical
Peak Gain:	3.0dBi max
Impedance:	50-ohms
Cable:	1 or 2m of RG-58/U
Connection:	RP-SMA or SMA
Oper. Temp. Range:	–40°C to +80°C
UV Resistance:	UL 2556 section 4.2.8.5 or equivalent



Ordering Information

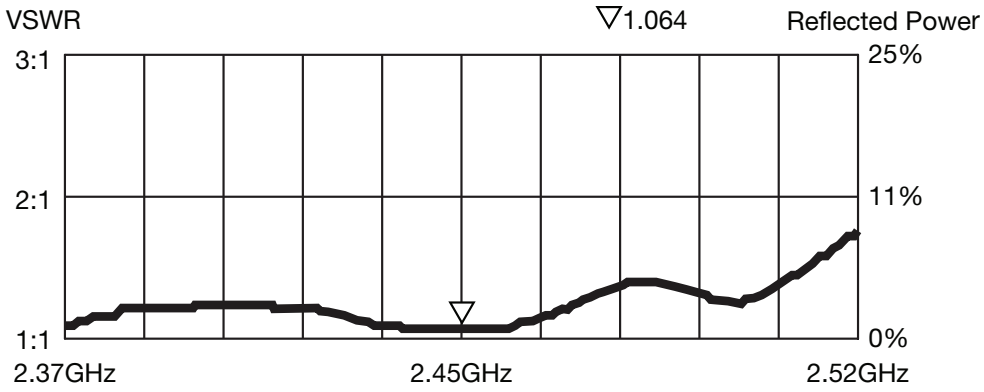
ANT-2.4-ID-1000-RPS (1m with RP-SMA connector)
ANT-2.4-ID-1000-SMA (1m with SMA connector)
ANT-2.4-ID-2000-RPS (2m with RP-SMA connector)
ANT-2.4-ID-2000-SMA (2m with SMA connector)
MEC-PSA-ID (Optional PSA adhesive patch)

Contact Linx for custom cable lengths.

*The IP rating applies to the antenna body only. IP ratings on the product's enclosure depend on how the mating connector is implemented.

Revised 8/31/2017

VSWR Graph



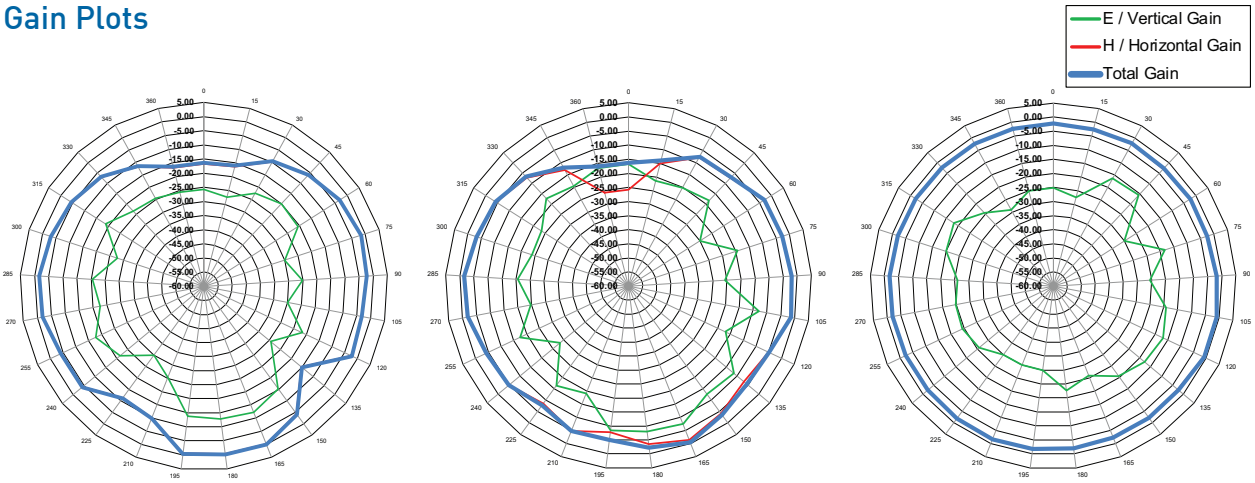
What is VSWR?

The Voltage Standing Wave Ratio (VSWR) is a measurement of how well an antenna is matched to a source impedance, typically 50-ohms. It is calculated by measuring the voltage wave that is headed toward the load versus the voltage wave that is reflected back from the load. A perfect match has a VSWR of 1:1. The higher the first number, the worse the match, and the more inefficient the system. Since a perfect match cannot ever be obtained, some benchmark for performance needs to be set. In the case of antenna VSWR, this is usually 2:1. At this point, 88.9% of the energy sent to the antenna by the transmitter is radiated into free space and 11.1% is either reflected back into the source or lost as heat on the structure of the antenna. In the other direction, 88.9% of the energy recovered by the antenna is transferred into the receiver. As a side note, since the ":1" is always implied, many data sheets will remove it and just display the first number.

How to Read a VSWR Graph

VSWR is usually displayed graphically versus frequency. The lowest point on the graph is the antenna's operational center frequency. In most cases, this is different than the designed center frequency due to fabrication tolerances. The VSWR at that point denotes how close to 50-ohms the antenna gets. Linx specifies the recommended bandwidth as the range where the typical antenna VSWR is less than 2:1.

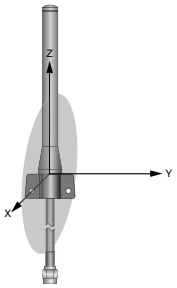
Gain Plots

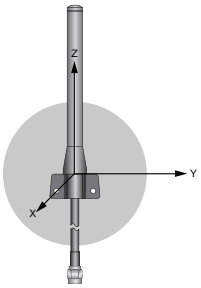


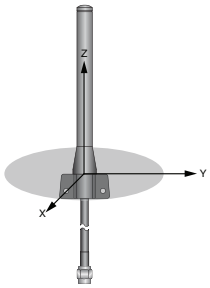
XZ-Plane Gain

YZ-Plane Gain

XY-Plane Gain





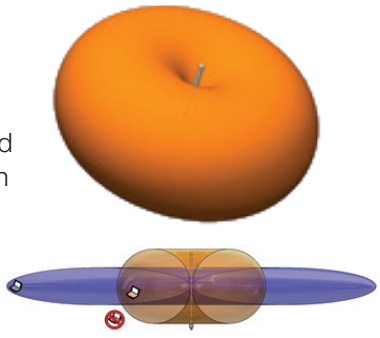


About Gain Plots

The true measure of the effectiveness of an antenna in any given application is determined by the gain and radiation pattern measurement. For antennas gain is typically measured relative to a perfect (isotropic) radiator having the same source power as the antenna under test, the units of gain in this case will be decibels isotropic (dBi). The radiation pattern is a graphical representation of signal strength measured at fixed distance from the antenna.

Gain when applied to antennas is a measure of how the antenna radiates and focuses energy into free space. Much like a flashlight focuses light from a bulb in a specific direction, antennas focus RF energy into specific directions. Gain in this sense refers to an increase in energy in one direction over others.

It should also be understood that gain is not “free”, gain above 0dBi in one direction means that there must be less gain in another direction. Pictorially this can be pictured as shown in the figures to the right. The orange pattern represents the radiation pattern for a perfect dipole antenna, which is shaped like a donut. The pattern for an omnidirectional antenna with gain is shown in blue. The gain antenna is able to work with a device located further from the center along the axis of the pattern, but not with devices closer to the center when they are off the axis – the donut has been squished.



Gain is also related to the overall physical size of the antenna, as well as surrounding materials. As the geometry of the antenna is reduced below the effective wavelength (considered an electrically small antenna) the gain decreases. Also, the relative distance between an electrically small antenna and its associated ground impacts antenna gain.

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