ANT-2.4-WRT-MON-xxx

Data Sheet

Product Description

The WRT-MON Series monopole antenna is compact and tamper-resistant. It's great for applications like wireless vending machines, traffic equipment and power equipment where space is limited and security is important.

Unlike the WRT Series dipole antenna, the WRT-MON Series monopole antenna requires a proximity ground plane, which dramatically reduces the space required inside the product. The antenna is designed to be installed onto a conductive surface with the metal base and nut electrically connected to the surface serving as the counterpoise. The antenna installs through a small hole on the product and is anchored by a threaded metal base connected to the coax cable shield. An adhesive foam compression ring resists the elements.

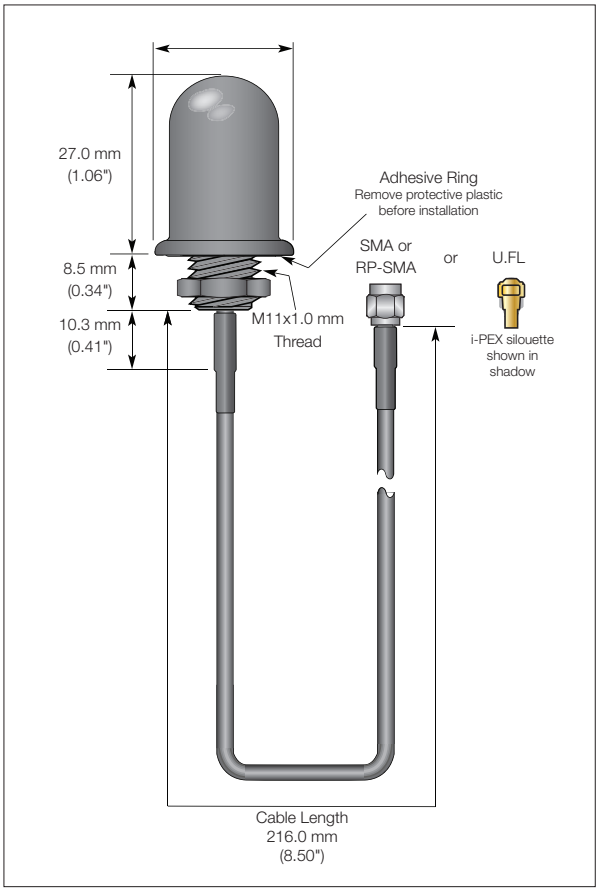
The WRT-MON Series antenna is available in 2.45GHz. It's attached to a 216.0 mm (8.5") long coax cable with an RP-SMA, SMA or U.FL/MHF-compatible connector on the other end. The RP-SMA and SMA connectors use an RG-174 coax. The U.FL/MHF connector uses a 1.32 mm micro-coax. More connectors, colors and coax length options are available for OEM customers.

Features

- Compact
- Tamper resistant
- Low cost
- Indoor / outdoor

Ordering Information

ANT-2.4-WRT-MON-RPS (with RP-SMA connector)
ANT-2.4-WRT-MON-SMA (with SMA connector)
ANT-2.4-WRT-MON-UFL (with U.FL / MHF compatible connector)



Electrical Specifications

Center Frequency:	2.45GHz
Recom. Freq. Range:	2.4–2.5GHz
Wavelength:	¼-wave
VSWR:	≤ 1.9 typical at center
Peak Gain:	0.8dBi
Impedance:	50-ohms
Connector:	RP-SMA, SMA or U.FL / MHF
Cable:	RG-174, RP-SMA & SMA 1.32 mm U.FL
Oper. Temp. Range:	–30°C to +80°C
Max. Recom. Torque:	4.0 kgf-cm

Electrical specifications and plots measured on 10.16 cm x 10.16 cm (4.00" x 4.00") reference ground plane

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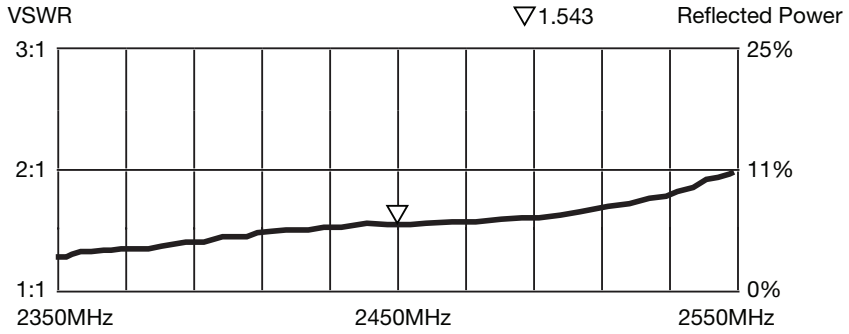
Counterpoise

Quarter-wave or monopole antennas require an associated ground plane counterpoise for proper operation. The size and location of the ground plane relative to the antenna will affect the overall performance of the antenna in the final design. When used in conjunction with a ground plane smaller than that used to tune the antenna, the center frequency typically will shift higher in frequency and the bandwidth will decrease. The proximity of other circuit elements and packaging near the antenna will also affect the final performance. For further discussion and guidance on the importance of the ground plane counterpoise, please refer to Linx Application Note AN-00501: Understanding Antenna Specifications and Operation.

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 will have 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 will be 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.

Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001
Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

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Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:
moschip.ru
moschip.ru_4
moschip.ru_6
moschip.ru_9