WIRELESS CONNECTIVITY SOLUTIONS

Product Portfolio Overview

ADC
KRONE

Complete Wireless Coverage and Capacity Solutions

ADC Krone is a wireless market leader with more than 20,000 systems shipped to more than 130 countries. Our in-building and outdoor wireless systems enable mobile coverage and capacity in places where service providers and enterprises have difficulty delivering wireless voice and data services to their customers. These locations include urban and rural canyons, subways and stadiums, tall buildings and on campuses such as universities and enterprises, in residences and neighborhoods, on cruise ships and along coastal areas.

Our advanced outdoor wireless solution combined with innovative products and market leadership in the in-building wireless market create a leading platform for serving wireless service providers and enterprises' coverage and capacity needs. Our unified architecture for every application in the micro cellular space delivers coverage and capacity to match our customers' needs. ADC's wireless portfolio offers solutions for a broad range of industries worldwide.

Deliver Better Performance to Subscribers Anytime, Anywhere

With the increasing popularity of wireless devices, mobile operators' customers expect to have coverage anytime, anywhere. This capability requires them to increase network capacity, which is typically done by adding new cell sites. However, with urban areas becoming more congested and local government zoning regulations increasingly more stringent, obtaining permits for new wireless cell sites is becoming nearly impossible. Extending service to these hard-to-reach areas can provide challenges. ADC Krone's wireless solutions and wireless connectivity improve both coverage and capacity in high-demand and hard-to-reach locations.

ADC Krone is well positioned to meet the diverse customer and geographic needs of the constantly evolving wireless marketplace. The Company's innovative in-building solutions expand its wireless product offerings globally and create a comprehensive portfolio of market-leading solutions for wireless service providers and enterprises. This portfolio includes in-building, microcellular, and cell-site solutions.

In-Building Network Solutions

ADC Krone is the market leader for in-building wireless coverage and capacity. The InterReach® solution operates as a seamless extension of the wireless network, expanding the reach of signals throughout any size public or private facility.

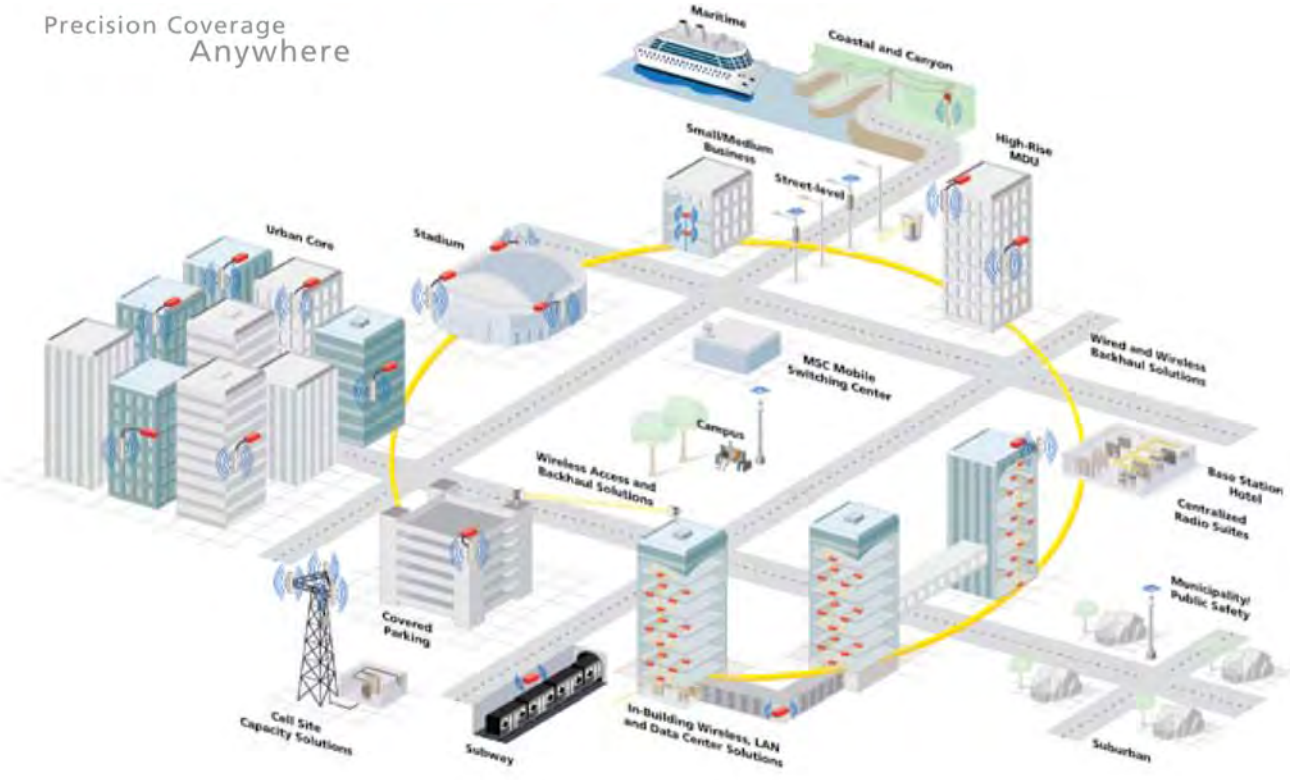
Microcellular Network Solutions

ADC Krone is changing the way people communicate through high performance and scalable solutions for wireless local loop, network extension, and hard-to-reach areas. Our solutions support the urban core, campus, stadium, coastal and roadsides, tunnels and subways, and suburban areas. We offer a complete line of cost-effective, efficient wireless solutions for service providers who are looking for next-generation mobile service delivery platforms that enable them to meet their customers increasing demands while supporting legacy service.

Cell-Site Solutions

ADC Krone's cell-site solutions improve existing network performance, allowing mobile subscribers to place clear calls and improve data usage, resulting in increased revenue for service providers.

Wireless Solutions for Multiple Applications



THE ADC KRONE ADVANTAGE

World Class Automated Manufacturing:

The biggest challenge in the manufacturing of high frequency RF cable assemblies is in the precise and accurate stripping, cutting and soldering of the cable. Most small time manufacturers make use of manual labour and tools to perform this exercise. Jumpers manufactured by such processes have some inherent faults

RF jumpers are part of a transmission system and serve as a waveguide. The connector housing, dielectric, and center contact geometry is proliferated across all configurations of the portfolio.

In RF signal transmission, the voltage standing wave ratio (VSWR) is a leading indicator of interconnect system performance. Also, the insertion loss (IL) is defined as the ratio between transmitted and incident voltages which is a primary measurement of RF cable assemblies:

$$VSWR = \frac{V_{\max}}{V_{\min}} \qquad IL\ (dB) = -20\log\left|\frac{V_{trans}}{V_{inc}}\right|$$

The performance and losses experience are heavily dependent on the quality of termination of the RF cable. This is because any deviation in the geometry of the jumper cable however slight results in signals being reflected back increasing return loss. Such a product will exhibit very poor transmission parameters.

ADC Krone jumpers exhibit superior performance based on some key manufacturing checkpoints

1) Cutting and stripping of cable:

In manual systems the cutting and stripping of cable is inaccurate. Small faults ,dents and burrs always develop. This is because this is highly dependent on the skill, expertise and experience of the person. It is impossible to regulate the quality of such terminations since they are neither continuously monitored nor is the cutting and stripping operation controlled. At ADC Krone this operation is performed by high precision machines that cut and strip to a high level of accuracy with minimal deviation on the 3D geometry of the cut ends of the cable from the ideal model

2) Soldering Process:

ADC Krone uses automated connector soldering process. The temperature can be monitored and controlled by machines. This ensures the solder is of the highest quality, reliability and durability. This is in sharp contrast to manual soldering where little control is possible and consistency very difficult to achieve

3) Automation:

The automation of all the manufacturing stages ensures consistent products. The entire process is closely controlled and monitored. Products manufactured on our lines will exhibit performance and consistency of performance irrespective of the skill of the operators or the time or day of manufacture

100% High Level Testing

To validate that we have achieved an optimized design state for RF performance, various tests and measurements are important during all phases of product development and industrialization.

ADC Krone has invested in state of the art infrastructure for testing the performance of our products. Our manufacturing facility is equipped with the latest test equipment and spectrum analyzers for measurement of IL, PIM , VSWR , etc. This equipment in integrated into our production line and thus any ADC Krone jumper will be 100% tested for all parameters as a part of the manufacturing process itself.

To give our customers a high level of confidence in our product, ADC Krone has created a comprehensive mechanical test sequence that includes multiple exposures conducted in series.

The product is subjected to different environmental test sequences. Each test sequence targets specific aspects of the overall connector design, material selection, and plating systems to insure a comprehensive evaluation. The test sequence that subjects the DUT to thermal shock (at left) and Humidity Temperature cycling validates that the connector dielectrics maintain adequate isolative properties. The test sequence

WIRELESS CONNECTIVITY PORTFOLIO

HYBRID COMBINERS

Low PIM, high power, low cost, Hybrid Couplers/ Combiners in 2x2 and 4x4 configurations for combining multiple RF signal sources in same frequency band onto common path for effective antenna sharing applications, TX/RX applications and Repeater applications.

CAVITY FILTERS

High-Q , high isolation and low PIM Cavity Filters in the form of 'Diplexers' and 'Triplexers' with various design configurations covering CDMA, GSM900, GSM1800 and 3G/UMTS communication bands.

JUMPER CABLES, CONNECTORS & ADAPTORS

RF jumpers from ADC Krone are available for 1/2" and 1/4" Super-flex cables in various connector configurations like 7/16 and N-type for applications like BTS jumpers, cabinet jumpers, antenna feeds that ensure excellent quality and reliability. Our wide variety of RF Connectors and Adaptors ranging from SMA, N-type and DIN-type, etc that have superior construction and excellent performance characteristics like Low VSWR and Low PIM with long shelf life.

SPLITTERS, DIRECTIONAL COUPLERS, ATTENUATORS & TERMINATORS

Low Loss, cost effective solutions like Splitters, Directional couplers, attenuators and terminations that cover entire communication frequency bands like CDMA, GSM900, GSM1800 and 3G/UMTS for In-door Distributed Antenna System (DAS) Solutions.

POI

A low cost passive combiner platform that allows multiple operators at different frequency bands to share common antenna system effectively and efficiently. These POI's are designed using HIgh quality combiners and filters that ensure low loss, high isolation, low PIM and for high power combining applications which are generally deployed in In-Building Solutions (IBS) like Malls, enterprise buildings, etc.

ANTENNAE

Wide variety of In-Building antennae solutions like Omni antenna – Ceiling mount type, Directional antenna and Panel antenna with excellent performance features covering CDMA, GSM900, GSM1800 and 3G/UMTS communication bands

ADC KRONE

www.adckrone.com/in
10C, II Phase Peenya Industrial Area
Bangalore 560 058
Sales Support: 1800 425 8232

ADC Telecommunications, Inc., P.O. Box 1101, Minneapolis, Minnesota USA 55440-1101