



## **Wireless - The Basics**

### **Wireless Applications**

- KBC products provide users with reliable solutions in many different types of applications.
- Security & Surveillance - monitor remote areas of buildings or campuses, housing developments, correctional institutions & parking facilities
- Intelligent Traffic Control Systems - manage vehicle data, traffic flow & construction zones
- Homeland Security - secure airports, borders & ports
- Remote Equipment Control - Reduce risk to human machine operators in hostile environments, explosion proof capabilities
- Harbor and Maritime - provide safety and vessel traffic information across the sea
- Utility Company System Monitoring - energy production, pipeline status, mining, oil & gas exploration
- Government Agency and Military - covert, mobile and convenient deployment
- Telemetry Systems Monitoring - evaluate systems status to ensure proper operation
- Video Conferencing - bi-directional video & audio communication

### **Considerations when selecting a Wireless System**

Several factors should be considered when installing a wireless video, audio and/or data transmission system. This section will help you determine which products you need and what to watch for at the installation location.

## **Distance Requirements**

It is important to know the distance you will be transmitting the video/audio and/or data signal. Refer to the following guidelines to select the appropriate KBC product.

## **Line of Sight Requirements**

Specified KBC system ranges assume wide-open line of sight between the transmit and receive locations. In some cases, KBC wireless systems can penetrate wood, wallboard, glass and other similar materials without major signal deterioration; however, the effective transmission range will be reduced. In some cases KBC wireless systems can also penetrate light vegetation, but again, the effective transmission range will be reduced. An extremely effective way to know if a system will work in an application with insufficient line of sight is to test it. KBC offers a thirty-day demo policy, please contact your local representative or the factory for details. Degradation in signal quality and range will result if attempting to transmit through steel, water, concrete or other high-density materials. If there is a significant amount of metal around the transmit antenna (such as a metal building), signal reflection may degrade the quality and transmission range of the system. In addition, if the system is installed in the fall or winter months and in an area where trees drop leaves, choose a signal path where there is likely to be the least amount of vegetation. Any vegetation will cause the effective transmission range to be reduced.

It is also important to consider the height at which the antennas are installed. Make sure that pedestrians, vehicles or any other type of traffic will not interfere with the line of sight between the transmit and receive antennas. It is always best to test the system in the environment where it will be permanently installed before actually installing it.

Please keep in mind that because of varying conditions, system performance cannot be guaranteed.

## **Signal Interference**

It is important to determine if there is RF interference at the install site. Interference is more prevalent in highly populated areas, around airports and near large industrial facilities. Perform a visual inspection of the site to determine if there are other

transmitters present. The most common types of interference in the 5.8 GHz band are cordless phones, wireless 802.11a LAN/WANs and radar technology. If 5.8 GHz interference is present (or possible), use the KBC Wireless Ethernet System as its transmission technology makes it more apt for RF harsh environments. If a spread spectrum analyzer is available, conduct a frequency analysis of the transmit and receive sites to determine the presence of possible interfering sources. One fail-safe way to make sure you will not experience signal interference is to do a live test at the site.

### **Number of Cameras**

It is important to know how many cameras will be installed utilizing a wireless system. In most cases, a transmitter and receiver pair is required for each camera, however, other configurations are possible and can be more cost-effective. Contact a KBC sales representative for more details.

### **Type of Cameras to be Enabled**

KBC recommends the Wireless Ethernet System (WES) for Pan/Tilt/Zoom wireless applications due to the ability to transmit both video and data over one wireless Ethernet link. Some major camera manufacturers use data protocols that are specific to their equipment only. From a wireless standpoint, data protocols will have no impact on the Wireless Ethernet System used to transmit and receive. However, protocol may determine the type of encoder/decoder that must be used for analog setups. The KBC Encoder and Decoder systems are compatible with most major manufacturer PTZ systems on the market.

The KBC WES is also ideal for fixed analog camera wireless solutions when using an encoder and decoder. The wide bandwidth capability of the WES allows multiple cameras to be sent along the same wireless transmission in varying configurations and ranges. Analog 5.8 GHz wireless systems are available in multiple ranges as well. Contact a KBC sales representative for more details.

IP cameras must be connected to a Wireless Ethernet System if being sent wirelessly whether they are stationary cameras or PTZ domes.

### **Controlling Third Party PTZ Equipment**

KBC's KBC Encoders and Decoders are designed to work with most major manufacturer's PTZ and control systems. Any system that communicates using standard RS232, 485 or 422 protocols should be compatible with the KBC Encoder and Decoder. For further assistance with third party PTZ equipment please contact a KBC representative.

THE INFORMATION CONTAINED IN THIS PAGE IS INTENDED TO HELP THE USER IN ANSWERING QUESTIONS RELATED TO WIRELESS VIDEO, AUDIO AND DATA TRANSMISSION SYSTEMS. KBC ASSUMES NO RESPONSIBILITY FOR THE USE OF INFORMATION AND/OR INTERPRETATIONS MADE FROM THIS PAGE.