Knogo North America
UHF Wrap Desk
Installation Procedure

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Revision: 0

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: 1) This device must not cause harmful interference; and (2) This device must accept any interference received, including interference that may cause undesired operation. This device complies with RSS-210 of Industry and Science Canada. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference, including interference that may cause undesired operation of the device.

USER NOTICE

The KNOGO system operating on your premises is registered with the FCC in compliance with Part 15 rules. The FCC identifier for this equipment can be found on a label which is affixed to the system itself. The FCC requires that the following statement be supplied to all users of registered equipment.

CAUTION

CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE OR COMPLIANCE TO THE FCC RULES COULD VOID THE USER'S AUTHORITY TO OPERATE THIS EQUIPMENT.

**1.0 System Description.**

The Ranger III Wrap Desk is an accessory normally used the Ranger III UHF EAS detection system. The Ranger III system itself provides the ability to detect small, diode-based tags in a zone extending up to 12 ft (3m) from the system. The system is normally installed concealed in a ceiling above the desired detection zone providing coverage down to the floor and up to 20 ft wide for a single system. The Wrap Desk is normally installed at the point of sale register and detects the same tags on merchandise at a much smaller range. Sales personnel can then be made aware of concealed tags on merchandise that is being rung-up at the register. This prevents embarrasing alarms on paying customers if they were to exit the store with tagged merchandise.

The transmit signal from the system is a 916MHz carrier which is switched at 4KHz rate between two ¼ wave antennas built into the unit. This modulation provides both spacial diversity to eliminate nulls, and a unique signature the receiver can use to eliminate false alarms. Transmit power is approximately 0dBm (0.001W).

The tags are optimized to produce large amounts of second harmonic re-radiated field when exposed to the 916MHz carrier from the transmitter. Tags are made up of zero-bias Schottkey diodes attached to stamped brass antennas which are mounted inside molded plastic housings.

Receive 1830MHz second harmonic from the tags is picked up via an single1830MHz quarter wave antenna encorporated onto the main PCB. After being filtered and amplified, the receive signal is fed to a diode detector to extract the 4KHz modulation. The detector output is further amplified and filtered at baseband before being fed to a 12bit analog to digital converter. The digitized baseband signal is then processed by a DSP (digital signal processor) to provide additional filtering and false alarm rejection. The output of this DSP is a signal which finally drives an integral piezo audio alarm.

## 2.0 System Installation.

### 2.1 Unpacking and Inspection.

The unit is shipped in a single box containing the following items:

- Main Chassis
- 12VAC wall transformer
- Installation Manual

### 2.2 Power Connection.

The supplied 12VAC transformer is shipped prewired to the system. Simply plug the transformer into a nearby 120V outlet. For best performance route the power cable directly away from the unit. Do not coil or bundle the power cable near the unit. If excess cable length available it may be coiled or tied near the power transformer.

### 2.3 System Placement

Proper placement of the system is important due to the effect that nearby tags and metallic objects may have on performance. Two important points govern installation: 1: Try to eliminate metallic objects under and in the immediate area surrounting the unit. 2: Tag detection below the system is equal to that above. As a general rule try to maintain at least 10" of clearance below the unit to metallic objects and approximately 5" horizontally. Small objects such as nails, screws and fittings that might be found in non-metallic counter surfaces do not present a problem and need not be considered. Sheet metallic items more than 5" on any side or in length will begin to have an effect on system operation.

Proximity of tags to the system is critical. While normal detection range is 12" to 18" vertically, under some conditions the system may see tags as much as 36" or slightly more from the unit. The bin used to hold removed tags should be as far as practical from the system. A metallic container will provide a good degree of sheilding. A foil lining on a non-metallic container is also very useful.

If any difficulty is encountered move the unit to a location well free of tags and metallic objects and retest. Be sure to hold the tag by the ends with the tips of your fingers, well away from the palm.

### 2.4 Adjustments

There are no system adjusments

## 3.0 Specifications.

Agency Approvals: FCC ID#: J3Q-UHFWRAP
Industry Canada:
ETL:
CETL:
Power Requirements: 115VAC 60Hz 0.5A max
Physical Size: Main Chassis: 10" W, 1"H, 10"D
Power Supply:
Weight: Complete System: 3lbs,
Operating Temperature Range: 0 to 50 degrees C
Tx signal: 916MHz with 4KHz Spacial Diversity Modulation
Tx Power = +0dBm (0.001W)
Tx Antennas: 2 each ¼ wave PC trace at 916MHz
Tag type: Zero bias Schottkey
Rx Antenna: single ¼ wave PC trace at 1832MHz
Indicators: Audible Piezo beeper on Tag detect, Power LED