Operations Manual

MEPS RFID SYSTEM

Model Number 020 0001

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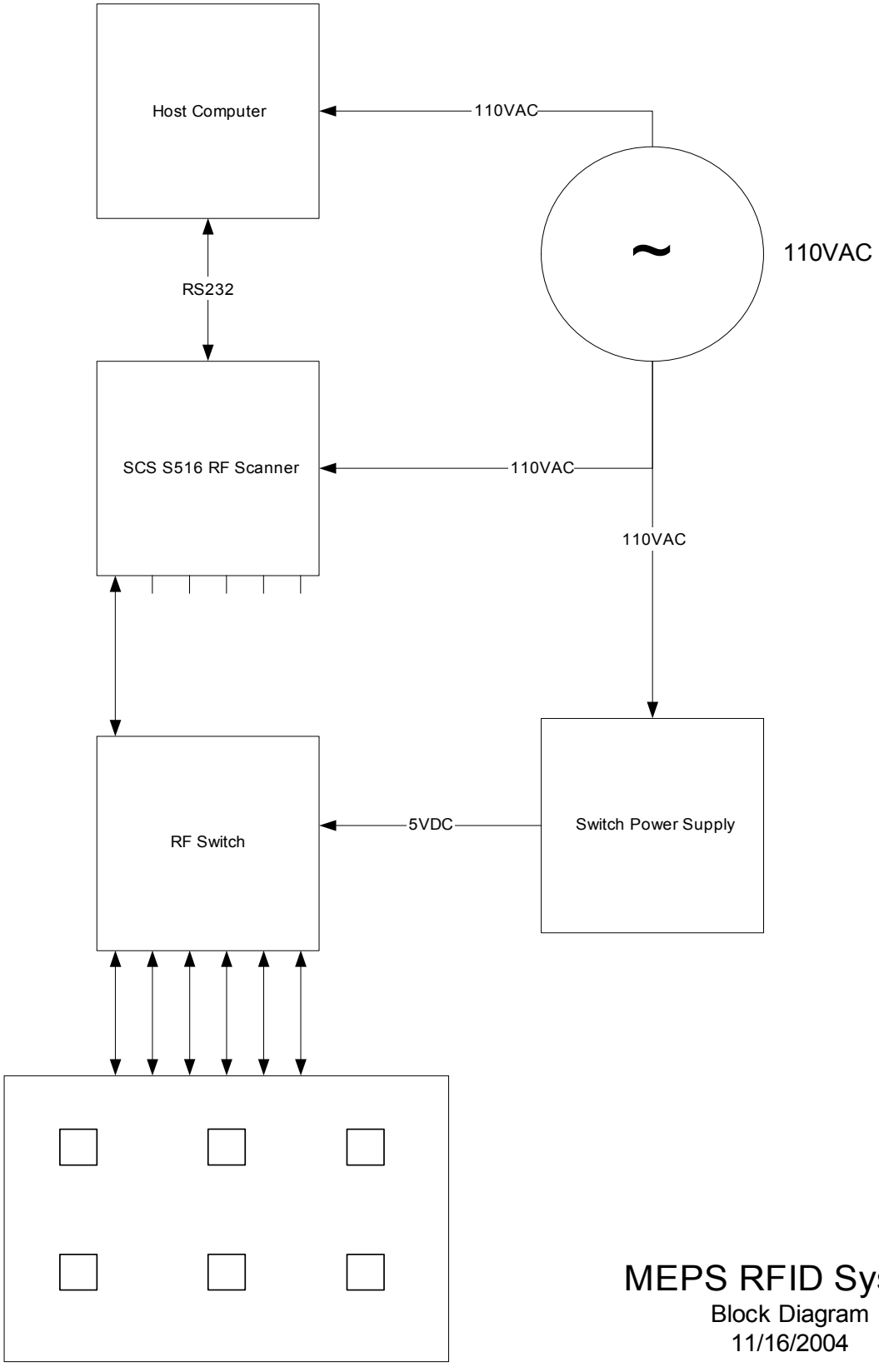
Table of Contents

Product Overview

The MEPS Real-Time™, Inc.'s RFID system is a Radio Frequency Identification based technology that will allow for the real time tracking of items. The system has been customized to track specific items for inventory tracking. The MEPS RFID system has been adapted to allow for controlled access, inventory tracking from receipt of product from a manufacturer or third party warehouse to internal product dispensing and transfer between departments. The system would be integrated in various end use configurations (i.e. cabinet, shelving, refridgerator or other storage containers) only by MEPS Real-Time. This is accomplished by the integration of the system and all cables between all components into a cabinet or other containment that prevents physical access to the scanner, antenna board, cables and RF switch. Refer to Fig. 1 for the block diagram of the system. At no time during normal operation, can a user have access to the scanner, antenna board, RF cables or RF switch while operating. The antenna area is closed off from user access while on (note: normal RF is not on greater than 9 sec after door closure). This is accomplished by an interlock sytem built into the door close relay.



Typical 6-Antenna
Array PCB Module

MEPS RFID System

Block Diagram
11/16/2004

System Components

Host PC

An IBM compatible computer running Microsoft Windows 9x or higher with 32MB of RAM, PII or higher, 2GB Hard Drive or higher, 4 MB of Video Memory, 10/100 Ethernet, and an available RS232 9-pin port.

RF Scanner

A six port 2.45Ghz RF Scanner with SMA connectors for RF output and an RS232 9-pin connector for connection to a host PC. The scanner also has a 25-pin DB connector for control input/output/power to the RF switch.

RF Switch

A six way RF switch is intended to take the RF output signal from the RF Scanner and distribute it to a 6-antenna array PCB Module. An external 5VDC power supply provides control power to the RF switch via a 15-pin DB connector.

System Power

110VAC power input is required to run the Host PC, RF Scanner and RF switch power supply.

Antenna PCB Module

A six-antenna array PCB Module is used to create an RF field. Each antenna on the PCB is connected to a port on the RF switch. (Note: Only one antenna is radiating RF at a given time)

Systems Operation

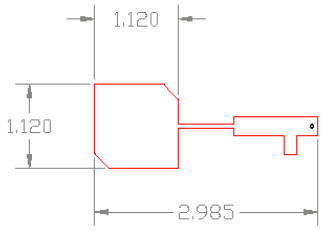
To operate this system, follow the steps listed below:

- Turn AC 110V power on to the system. Verify power indicator light is on.
- The system will power on and the Host PC will boot into a Windows desktop.
- Launch the MEPS control program by clicking on the MEPS icon.
- A main menu will appear. (Note: main menu is customized to a specific application)
- Load the objects to be scanned into the appropriate drawer. Close the drawer and close the door.
- Closing the door initiates the RF scan.
- RF Readings will terminate automatically after 9 seconds.
- A display will indicate number of items read in the “items read” field.
- Reading consists of identifying the serial number of each item. At this point the serial number is associated with a Database in the MEPS Software System containing pertinent information about that item. (Note: some manual input of data may be required)

System Settings

The system is factory set to fixed parameters and no further adjustments are required once installed at a customer location.

Antenna Specifications



Antenna Drawing

2.4 GHz Patch Antenna for ISM Band

Features

- Optimized for RFID
- Flat Configuration
- Low VSWR
- Circular Polarization Minimizes Tag Orientation Effects
- Standard SMA Connector
- Etched on Standard Low Cost FR4

Specifications

- Frequency Range 2401-2475 MHz
- Peak Gain +2.5dBic Min
- Polarization Right Hand Circular
- Nominal Impedance 50 Ohms
- VSWR 1.28:1
- R. F. Power Handling 1 W Avg. Max
- 3 W Peak Max
- Connector Type SMA Female

- Dielectric Material 0.125” FR4
- Copper Weight For A/B side 0.5 oz

Troubleshooting

Problem	Solution
Power Light not on	Verify 110VAC power cord is connected
PC Desktop does not appear	Check VGA cable connection Check monitor power cord is connected
Application does not launch	Check Cat 5 Cable is connected properly
Items not read	Verify items are not in close contact with each other Verify there are no more than 30 items in the RF Field Verify items contain a MEPS RFID Tag Insure minimum of 1 minute delay between reads
Support If a problem cannot be resolved:	Contact MEPS Customer Support (760) 918-9908

Limited Warranty

MEPS warrants the system be free from defects in workmanship and materials, under normal use and service, for a period of 1 year from the receipt of the product. If the product does not operate during its applicable warranty period, MEPS shall, at its option, repair the defective product or deliver to customer an equivalent product to replace the defective product. Replacement products may be new or reconditioned. MEPS reserves the right to refuse to warranty repairs any product that has been subjected to any abnormal electrical mechanical or environmental abuse. Any tampering with the equipment configuration will void the compliance to FCC. This will void the user's authority to operate the equipment.

FCC Part 15 compliance (Information to User)

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

This equipment has been tested and found to comply with the limits for Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Radio Frequency (RF) disclosure limits for the operators of this device

As the RF energy is shielded by metal enclosures and safeguarded by relay interlocks, no particular requirements for end users are required.

Disclaimer

Operations of any radio transmitting equipment, including the scanner, may interfere with the functionality of inadequately protected medical devices. Consult a physician or the manufacturer of the medical device if you have any questions. Other electronic equipment may also be subject to interference.