EPC Dual-Band Reader
Model MTM6100

Quick Start Guide

0840812ena
09-02

ThingMagic/Markem 6100
EPC RFID Reader
User Manual Supplement

For Users in the United States

Place this supplement in the User Manual

Federal Communications Commission Compliance

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Antenna Installation

It is required that the antenna assembly of this device be installed in accordance with the installation procedures in the manual, in order to comply with the regulations below.

Installation Warning

FCC regulations limit exposure to radio frequency (RF) radiation. To comply with these regulations, this device must be installed in such a way that the installers of this device will not be closer to 20cm from the cover of the UHF antennas under normal installation conditions. **While the device is operating the installer's body and parts of the installer's body such as eyes, hands, or head must be 20cm or farther from the cover of the UHF antennas.**

Operator Warning

FCC regulations limit exposure to radio frequency (RF) radiation. To comply with these regulations, this device must be installed in such a way that the operators of this device will not be closer to 20cm from the cover of the UHF antennas under normal operating conditions. **While the device is operating the operator's body and parts of the operator's body such as eyes, hands, or head must be 20cm or farther from the cover of the UHF antennas.**

Unaware Persons Warning

FCC regulations limit exposure to radio frequency (RF) radiation. To comply with these regulations, this device must be installed in such a way that unaware persons will not be closer to 20cm from the cover of the UHF antennas under normal operating conditions. **While the device is operating unaware persons and parts of the unaware person's body such as eyes, hands, or head must be 20cm or farther from the cover of the UHF antennas.**

Caution

Changes or modifications to the device or installation not expressly approved by Markem Corporation could void the user's authority to operate this device.

EPC Dual-Band Reader Model MTM6100

Please read this document in its entirety before attempting installation of the MTM6100. It is important that you fully understand the installation procedure before powering up the MTM6100.

WARNING

DO NOT POWER UP THE MTM6100 IF ANY ANTENNA PORTS ARE UNCONNECTED. BOTH HF ANTENNA PORTS SHOULD HAVE TERMINATORS CONNECTED TO THEM AND BOTH UHF PORTS SHOULD HAVE EITHER ANTENNAS OR TERMINATORS CONNECTED TO THEM.

MAKE SURE THAT ANTENNA CONNECTORS AND THE TERMINATORS ARE FIRMLY ATTACHED.

FAILURE TO FOLLOW BOTH THESE WARNINGS WILL CAUSE IRREPARABLE DAMAGE TO THE MTM6100.

1. Packing List

Please check the package to make sure it includes the following items:

- EPC Dual-Band Reader model MTM6100
- 15 V DC 3A power adapter
- 2 HF terminators (attached to the HF ports on the connector panel)
- 2 UHF terminators (attached to the UHF ports on the connector panel)
- Quick Reference Guide (this document)
- FCC Manual Supplement (please read this carefully)

Visually inspect the items. If any items are incorrect, missing, or appear to be damaged, please contact the MARKEM representative listed at the end of this document. Please retain all packing material in case you need to return the MTM6100.

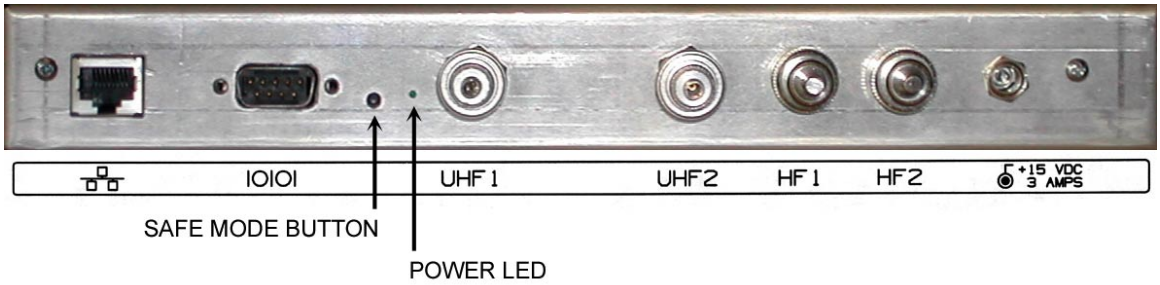
Required components which are *not included* in the package:

- Cushcraft UHF patch antenna model numbers S9028P or S9028PC with a 12 foot custom RF cable and a reverse polarity TNC connector. (Use *only* these antennas with the MTM6100)

FCC regulations require that care be taken to limit exposure to radio frequency radiation. Please consult the FCC Manual Supplement for important safety and compliance information.

2. Connector Panel

The only external interface of the MTM6100 is the connector panel pictured below. There are no user serviceable parts inside.



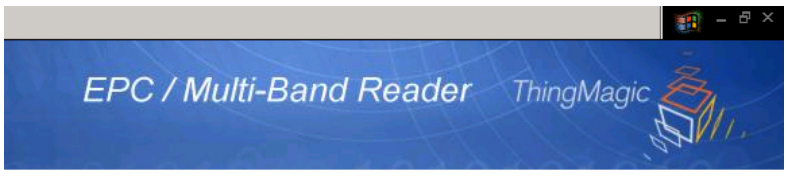
The connectors on the connector panel are designated as follows:

- ETH1 – RJ45 ethernet interface
- SER1 – RS232 serial interface
- SAFE MODE BUTTON – allows factory default booting of MTM6100 (see section 6)
- LED – illuminated when power is on
- UHF1 and UHF2 – UHF antenna ports
- HF1 and HF2 – HF antenna interface (not supported in this release)
- DC +15V 3A – DC power jack

The MTM6100 is shipped with HF1 and HF2 terminators attached. **DO NOT REMOVE THESE CONNECTORS. HF FUNCTIONALITY IS NOT SUPPORTED IN THIS PRODUCT RELEASE.**

3. Setup

- Connect one or two UHF antennas to the MTM6100. Use only patch antennas from Cushcraft models S9028P or S9028PC.
- If using one UHF antenna, be sure to attach a terminator to the unused port. Failure to do so will irreparably damage the MTM6100.
- Power the MTM6100 up using the power supply provided.
- Connect the MTM6100 to the network using an ethernet cable connecting to the ethernet port. Alternatively: Connect the MTM6100 directly to a PC using a crossover ethernet cable.
- Wait for about 60 seconds for the MTM6100 to completely boot up.
- Start a web browser from any network-enabled PC.
- Browse to “http:// 10.0.0.101” using any Java-enabled browser. This will bring up a web page titled “EPC /Multi-Band Reader”.



4. Default Network Configuration

The MTM6100 is shipped with the following default network configuration.

IP address:	10.0.0.101
Netmask:	255.0.0.0
Default Gateway:	10.0.0.1

5. Web-based Configurator and Query Interface

- **Status Page**

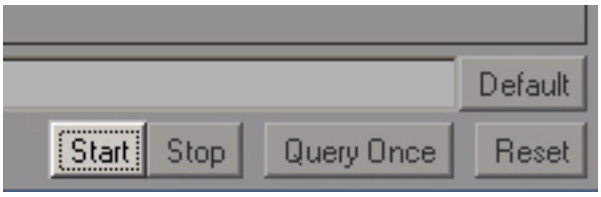
Indicates the current status and configuration of the Tag. This is a read-only page.

- **Query Page**

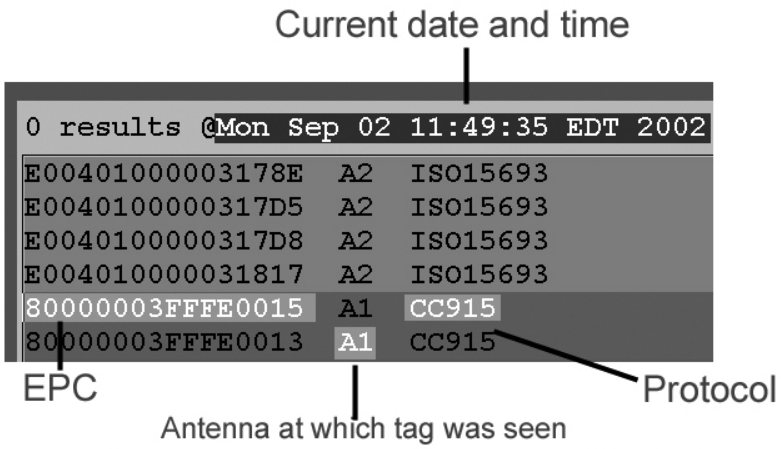
This page provides a browser-based interface to the SQL query server runnning on the MTM6100.

- Click “Query” to enter the query interface.

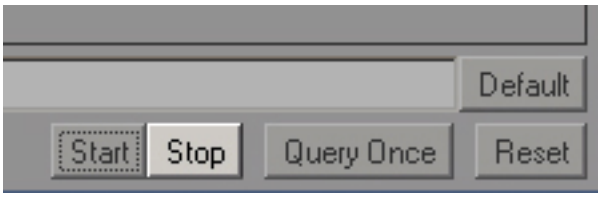
- Click the “Start” button to start interrogating EPC tags.



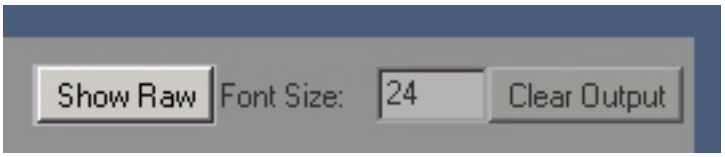
The EPC numbers of tags in the read field will appear in the main window and will remain there until the "Clear Output" button is clicked.



Click "Stop" to stop the tag search.

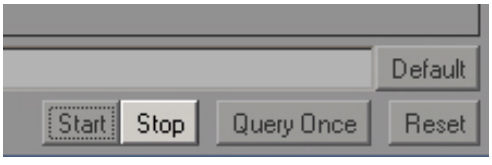


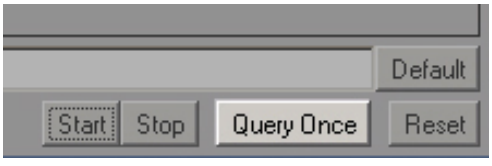
Click “Show Raw” to see the raw search output. This mode makes it easier to see when tags are being detected.



Click "Hide Raw" (same button as “Show Raw”) to switch back to the original mode

To run a single search cycle, make sure that a tag search is not currently running. This can be done by clicking “Stop”. Then, click "Query Once" or press “Enter” with the cursor in the "Query" field.

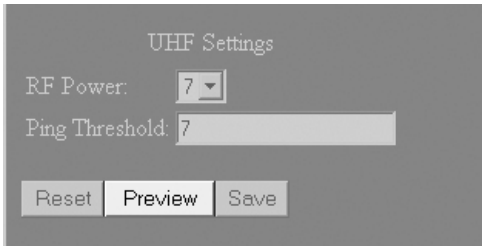




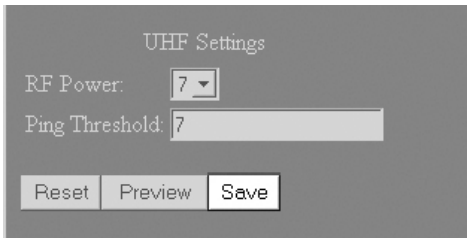
- **Settings Page**

This page displays MTM6100 settings and allows the user to review and edit them.

Click “Preview” to try out new settings without saving them.



Click “Save” to make the settings permanent. Do not exit the page until you see a confirmation message “New settings saved”. Changes are not permanent unless you see this message.



- **Network Page**

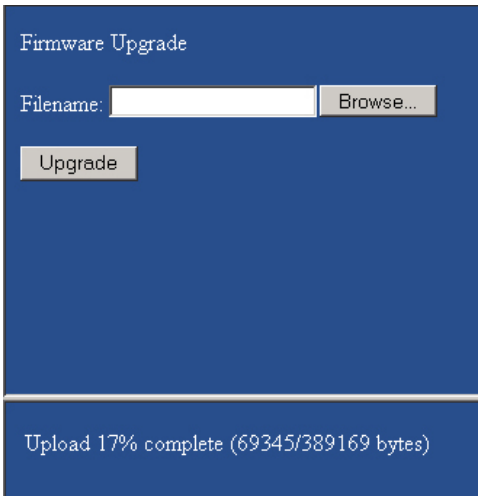
This page indicates the network setting and allows the users review and edit IP address, netmask, and default gateway.

After changing the network configuration the MTM6100 needs to be software reset for the changes to take effect. See “Reset” section below for details on how to accomplish this.

-

Firmware Page

This page allows the user to rewrite the firmware on the MTM6100. Browse your computer for the new firmware and click “Enter”.

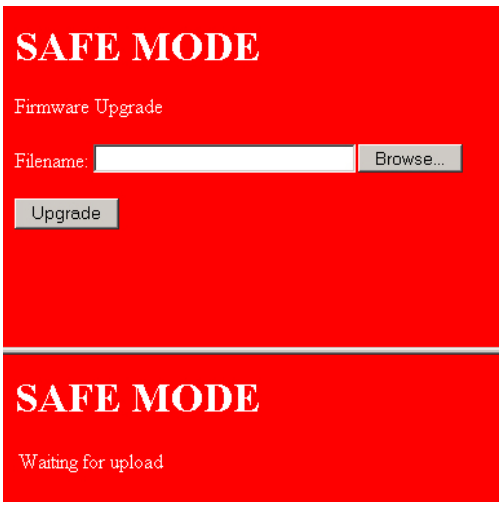


- **Reset Page**

Clicking the “Reset” button resets the system and causes saved changes to take effect.

6. Safe mode button

The “safe mode button” on the connector panel allows the user to recover from any errors that occur during a firmware upgrade. If an error occurs that renders the MTM6100 inoperable, power down the MTM6100. Press and hold the safe mode button with a paperclip or small screwdriver and power up the MTM6100. Continue to hold the safe mode button for 60 seconds after connecting power to allow the MTM6100 to boot completely. This will temporarily load factory-default settings and allow you to attempt a firmware modification again.



In safe mode, all web page backgrounds will be red and will include the words “Safe Mode”.

7. **Support**

Markem Corporation
150 Congress Street
Keene, NH 03431
Tel: 1-800-462-7536 (in USA)
www.MARKEM.com