

M6e Module Firmware Release

Firmware Version 1.11.1 for the M6e Module Family

These release notes describe the features of M6e firmware (FW) ver. 1.11.1 for the M6e module family, relative to the previous version, 1.10.1. A new version of the API has been released at the same time to support the new features, which is version 1.11.2.

For a full description of how to interface to the M6e module, refer to the *Mercury API Programmers Guide (875-0049)*, available at <http://rfid.thingmagic.com/devkit>.

New Features in this release

With this release, the M6e module family gains the following features:

- EU regulatory compliance with EN 302 208 v. 1.4.1 (scheduled to be published in the ETSI official journal in February of 2012)
- Australian region support
- New Zealand region support (for experimental purposes only)
- IDS SL900A Sensor tag command support

Additional details about these features are provided in the following paragraphs.

Australian Region Support

An Australian region ("AU", 0xB) has been added to the firmware, supporting 10 channels in the 920 to 926 MHz band. It has been confirmed through testing that the M6e module will meet Australian regulatory requirements at full power.

New Zealand Region Support

A New Zealand region (NZ, 0xC) has been added to the firmware that supports 11 channels in

the 921.5 to 928 MHz band. It has been confirmed that operation in this region will NOT adhere to New Zealand regulatory requirements at full power.

ISO 18000-6B Performance Improvement

A modulation depth setting has been added to the ISO 18000-6B protocol so that performance can be optimized for both newer and older tags, and a delimiter option has been added to support a wider range of tags which are based on this standard, such as Transcore eGo® tags.

IDS 900A Sensor Tag Support

The IDS 900A is an EPC global Class 3 tag IC which can be operated either semi-passively or passively, with a fully integrated temperature sensor with two additional external sensor interfaces. The new commands we support for this IC are:

- Get Sensor Value
- Access Fifo
- Set Log Mode
- Initialize
- Start Log
- End Log
- Get Log State

See the Mercury API Programmers Guide for information on the use of these commands.

Support for Select and Embedded TagOps under Continuous Reading

When reading continuous (Async Reads with RF Off-time=0) you can now add Select filters and embedded Tag Operations. Selects are re-sent to the population of tags based on the value of Async On-time. The Tag Operations are performed each time any tag is read.

Bug Fixes

The following issues were addressed in version 1.11.1 of the firmware and 1.11.2 of the API

- Maximum duration of RF on is now correctly limited when a single channel is used in the EU region (EU3)
- Version 1.11.2 of the Java and .NET (C#) APIs can now reconnect to the M6e module if the USB interface to the M6e is disconnected while in continuous reading mode without resetting the module. (Refer to note about in Operation Notes if using C-API)

Operational Notes

Disconnecting USB cable when M6e is in continuous read mode

When the M6e is in continuous read mode (Asynch read plan with RF Off-time=0) and the USB interface is disconnected, the M6e will continue to attempt to read tags and forward tag information to the host. The Java and .NET (C#) APIs can re-initiate a connection to the M6e once the USB interface is re-connected, but the C-API cannot. When using the C-API, it will be necessary to reset the M6e in order to reestablish a connection to the M6e. Note that this caveat only applies to the M6e's native USB interface, not its UART TTL interface.

IDS 900A tags near the limit of their read distance

We have found that the IDS 900A tags do not alert the reader if there is insufficient power to complete an operation. They attempt to complete the operation anyway. Because of this, care must be taken to ensure the tag is well within the read range when doing any non-reversible operations, such as writing the access password. We have also found that insufficient tag power can result in incorrect temperature values being reported to the reader.

Group Code for Modules is Recognized by API

Readers which have the modules embedded in them are given a group code to identify the ThingMagic reader model to the API. Until this API release (1.11.2), the group code returned by a module alone (0xffff) was not recognized by the API and it reported an "Unknown" product code. It now recognizes this code value as indicating that the module has not been installed in a ThingMagic reader and reports it correctly (when, for example, it is in a development kit).

Selective Writing to a Field Being Written.

For most tag writing scenarios, the reader is able to verify the results after the write is complete and automatically correct any errors before returning control to the host program. The exception to this ability is when the tag is being selected using the same field which is being overwritten. This most commonly occurs when the tag is being selected by its EPC in order to change its EPC. If, during writing, the tag does not report an error, but one is later found during the verify cycle, the reader will not be able to re-select the tag to correct the error because the tag will no longer respond to the original Select criteria. In this case, it will be necessary for the application to re-Select the tag in order to correct the error.

ISO 18000-6B write

We have found that some ISO 18000-6B tags will report a write failure for successful. It is always good policy for the application to check the success of a write before attempting to

correct an error which may not be present.