

## June 2006 ModHopper Firmware changes.

Firmware updates for the ModHopper have a number of substantial changes. Users should be aware of these changes and how these may impact any custom applications that may have been developed. Although great care has been taken to maintain the previous feature set, users should test the firmware update prior to deploying this firmware on production equipment.

The firmware update will be provided at no cost.

Firmware release for version v1.17b For use with R9120 rev A boards only

### Overview of changes:

This firmware update includes a number of enhancements to improve mesh routing.

#### Version v1.17b Released 2006-06-04:

- Added read/write functions to support new features for clear stats, get/set modbus master mode, and report baud rate selection.
- Added global option for Modbus master mode option.
- Added feature to count 485 timeouts for known devices.
- Added force master/slave mode option.
- Added i2c stop on shutdown IRQ.

#### Version v1.16b Released 2006-03-24:

- Included a patch to route table to extend the device polling procedure to increase the polling period by the amount of time specified by the 485 timeout feature. This allows for the polling feature to work properly when the 485 timeout is set to multiple seconds.
- Include patch for preserving routes when the link quality is all over the place. This is the main fix that helps with large numbers of ModHoppers in proximity of cellular transmitters.
- Added delay to 485 ping cycle time to increase ping interval by the 485 timeout delay amount.
- Added change to not delete routes prematurely in heavy traffic environments.
- Limited max local radio count to 32 in interval calculations to speed up ping processing.

#### Version v1.16 Released 2005-06-07:

- Fixed a few error messages, don't clear the packet buffer until after we use the source/destination address in the error message.
- Major changes to packet timeouts for both low and high power radios. Based values on sampled data.
- Changed resend procedure to delete aged packets after timeout rather than when resent. Changed resend procedure to skip resend on REQ ping packets.
- Changed ping procedure to add more random delay between pings. Added code to silence pings while modbus packets are in transit.
- Added code to set ATSY=0 for radio, this sets modem to sync-hopping every transmission, which should be the default anyway.
- Added code to handle GE kV2c meter that returns exception responses without a CRC. Add the CRC and process normally.
- Put the silent time and 485 receive timeout back to 16 ms each. All AcquiSuite queries pass tests for short circuit timeout processing so this shouldn't affect speed much for most queries.
- Fixed transmitter timeout that affected local requests to a device with the new Modbus receive short-timeout feature.



- Changes for RS485 receive / transmit silent time. decreased value from 16ms to 8ms.
- Added test for short circuiting some Modbus silent time requirements on queries.
- put node bitmap bytes in the correct order.
- Minor adjustment to the RSSI bargraph printing to make it look better.
- Added test to verify remote link quality from a single hop is 100%
- Added default value of Link Quality counter for new packets. This is used for the default of non-hopped packets sent to another node.
- Started changeover on local link quality management to track both sent and received packets rather than just % packet rate. Not complete yet.
- Added a few more changes to the RSSI feature.

Version v1.15b Released 2005-03-29:

- Changed ping delay interval to take into account the total device count of the system.
- Changed routing to discard Modbus queries if the destination is not known.
- Updated RSSI feature to make it more responsive.
- Added feature to save peer node of alarm message in alarm history.
- Added feature to provide alarm history via Modbus registers for the last 64 alarm codes.

Note: Revised Sep 16, 2010 with new company street address.



3300 N.W. 211<sup>th</sup> Terrace, Hillsboro, OR 97124  
 Ph: +1-503-601-2099 Fax: +1-503-601-6878  
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Revised June 8, 2006  
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