



Product Change Notification

MultiConnect[®] mDot[™] Long Range RF Modules

Date: April 15, 2016

I. Product Change Notification Number

PCN 041516-00

II. Impacted Products

Ordering Part Number	Description
MTDOT-915-X1-SMA-1	915 MHz XBee LoRa SMA (1 Pk)
MTDOT-915-X1P-SMA-1	915 MHz XBee LoRa SMA w/Programming Header (1 Pk)
MTDOT-915-X1-UFL-50	915 MHz XBee LoRa UFL (50 Pk)
MTDOT-915-X1-UFL-1	915 MHz XBee LoRa UFL (1 Pk)
MTDOT-915-M1-UFL-100	915 MHz SMT LoRa UFL (100 Pk)
MTDOT-915-M1-UFL-1	915 MHz SMT LoRa UFL (1 Pk)
MTDOT-915-M1-TRC-100	915 MHz SMT LoRa RF Pad (100 Pk)
MTDOT-915-M1-TRC-1	915 MHz SMT LoRa RF Pad (1 Pk)
MTDOT-868-X1-SMA-1	868 MHz XBee LoRa SMA (1 Pk)
MTDOT-868-X1P-SMA-1	868 MHz XBee LoRa SMA w/Programming Header (1 Pk)
MTDOT-868-X1-UFL-50	868 MHz XBee LoRa UFL (50 Pk)
MTDOT-868-X1-UFL-1	868 MHz XBee LoRa UFL (1 Pk)
MTDOT-868-M1-UFL-100	868 MHz SMT LoRa UFL (100 Pk)
MTDOT-868-M1-UFL-1	868 MHz SMT LoRa UFL (1 Pk)
MTDOT-868-M1-TRC-100	868 MHz SMT LoRa RF Pad (100 Pk)
MTDOT-868-M1-TRC-1	868 MHz SMT LoRa RF Pad (1 Pk)

III. Type of Change/Highlights

New firmware (FW) release for all MultiConnect[®] mDots and updated software libraries on mbed.org.

Highlights

- LoRa[™] Alliance Certified (868 MHz models)
 - 915 MHz models will be certified when the LoRa Alliance approves the test plan
- Enhanced sleep mode capability
 - Wake up on timer or interrupt
 - Added sleep mode (previous version only supported deep sleep)
- Added support for adaptive data rate (ADR)

- Added Dot-to-Dot (Peer-to-Peer) communication mode
 - FCC reports will be updated by early May at which time this feature could be used in a production environment.
- See updated developer guide for additional details on these and other new features.

IV. Key Date

First Date of Manufacture (DOM): April 13, 2016

All mDot models with a DOM of April 13, 2016 or later will ship from the factory with the new 1.0.8 FW installed.



V. Current and New Firmware Versions

Old FW Version: 0.1.4

New FW Version: 1.0.8

Download new FW here: <http://www.multitech.net/developer/downloads/>

Download new AT command guide here: http://www.multitech.com/manuals/s000643_1.pdf

Download new developer guide here: http://www.multitech.com/manuals/s000612_2_0_2.pdf

Release Notes

Changes

- LoRaWAN 1.0 Certified (868 MHz models)
- AT+NJM – Added join mode 3:PEER-TO-PEER
- AT+TXP is radio output power, AT+ANT is antenna gain for computing total output power for regulations
- AT+TXDR can accept values (0-15, DR0-DR15, or SF_7-SF_12) depending on AT+FREQ setting (0-6) -> (DR0-DR6), (7-12) -> (SF_7-SF12)
- AT+SLEEP – Enter sleep mode (0:deepsleep,1:sleep)

- AT+WP – Wake pin used for sleep mode (1-8) (1:DIN,DIO2-7,DI8) (default: DI8)
- AT+JD – Join Rx window delay 1st window opened at setting 2nd is 1 s after
- AT+RXD – Rx window delay 1st window opened at setting 2nd is 1 s after
- AT+PS – Preserve session over power off and reset in AUTO_OTA mode
- AT+AP – Configure app port for uplink data
- AT+ANT – Configure gain of installed antenna -127 dBi – 128 dBi, (default: 3 dBi)
- AT&K0/3 – Hardware Flow Control (AT&K0: disable, AT&K3: enable)
- AT+REP – Set number of times to repeat unconfirmed frames (0-15)
- AT+ULC – Get or set the uplink counter number (sequence number)
- AT+DLC – Get or set the downlink counter number (sequence number)
- AT+RS – Restore session info from flash
- AT+SS – Save session info to flash
- AT+TXCH – Can change channels only for EU868, error for US915
- AT&V – Update output to include new configuration options
- help – Move test commands to bottom of help output and add headers for test and debug commands in help output
- AT+TXP – Range changed to 0-20 dBm, antenna gain is applied when setting radio with this power to achieve desired output dBm
- AT+SDR – Get the data rate currently used by the mac layer
- Removed AT+SENDH – AT+TXDR can accept US(DR0-DR4) and EU(DR0-DR7) to include high-speed datarates US(DR4:SF8BW500) and EU(DR6:SF7BW250,DR7:FSK)

Bug Fixes

- AT+SMODE=1 stays awake until all buffered data is sent
- Remove 1200 as debug baud rate option
- AT+SNR – reports SNR values correctly

- RTC clock not reset over sleep
- Serial data mode can be entered from command term and escaped with +++
- Auto OTA mode for EU868 will wait for free channel before trying next join with escape possible
- Add up to 10 random seconds between join attempts

VI. libmDot Updates (mbed libraries for the mDot)

Please see mbed.org for a list of updates at the following link:

<https://developer.mbed.org/teams/MultiTech/code/libmDot/wiki/libmDot-Change-Log>

To download latest libmDot please go here: <http://www.multitech.net/developer/downloads/>

or here: <https://developer.mbed.org/platforms/MTS-mDot-F411/#mdot-library>

VII. Additional Information

If you have any questions regarding this Product Change Notification, please contact your MultiTech sales representative:

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