IMPRES 2 Charger Software Customer Release Notes

Representative Full-Featured IMPRES 2 Chargers

Group A 3A charging for select 3.7V or 7.4V Batteries	**Group B** 3A Charging for select 3.7V-nominal Batteries 1.5A Charging for select 7.4V-nominal Batteries	**Group C** 1.5A Charging for select 3.7V-nominal Batteries 1.5A Charging for select 7.4V-nominal Batteries	
#1 	**#4** 	**#5** 	
NNTN8845, NNTN9178, PMPN4590	NNTN8895, PMPN4095A, PMPN4340, PMPN4156A	PMPN4332	PMPN4444A
#2 			
PS000029A01 – PS000029A09, PS000337A01 – PS000337A09 PS000491A01	NNTN8895, PMPN4283, PMPN4286, PMPN4288A, PMPN4370, PMPN4380, PMPN4390, PMPN4400, PMPN4593	PMPN4523, PMPN4527, PMPN4819	PMPN4531A, PMPN4003A

#3 		**#6** 	
NNTN7624, PMPN4639	NNTN9020, NNTN9063	PMPN4350, PMPN4500	PMPN4527A

For any questions, please contact Customer Resources at 1-800-927-2744.

Enhancements

The following enhancements have been made to the software used in the charger listed in the table above.

Software V2.08 September 2023
- This release is applicable to Group A, Group B and Group C chargers.
- Improve charger algorithm to read battery data which was previously inserted to IMPRES 1 charger.
- Improve logic handling when users disable ship-store or long-term storage functions.

Software V2.06 January 2023
- This release is applicable to Group A, Group B and Group C chargers.
- Updated display message for deeply discharged battery during recovery.
- Improve SW charging parameters.

Software V2.05 October 2022
- This release is applicable to Group A, Group B and Group C chargers.
- Remove manual reconditioning feature for batteries with auto calibration feature.
- Enhance data transfer between IMPRES 2 Chargers and IMPRES 2 Batteries.
- Recover battery data in deeply discharged batteries.

Software V2.03 April 2022
- This release is applicable to Group A, Group B and Group C chargers.
- Improve efficiency to recover deeply discharged batteries.
- Enhancement on Auto calibration calculation

Software V2.02 November 2021

- This release is applicable to Group A, Group B and Group C chargers.
- Enhancement in SoC calculation.

Software V2.01 July 2021

- This release is applicable to Group A and Group B chargers only.
- Enhancement to the Ship Store boost charge to improve the battery capacity calculation.
- Enhancement to radio current load to support radio transmit operations while in the charging pocket.

Software V1.18.01 December 2020

- This release is applicable to Group A and Group B chargers.
- Enhancement to ensure charger calculates proper battery capacity in Ship Store mode after full calibration.

Software V1.18 October 2020

- This release is applicable to all IMPRES 2 chargers.
- BUCK Charger (PMPN4531A) added in Group C Chargers.
- SUC (PMPN4523A) added in Group C Chargers.
- Enhancement to ensure charger do not perform unnecessary boost charging.

Software V1.16 June 2020

- This release is applicable to all IMPRES 2 chargers.
- Improve efficiency of MUC charger when switched to higher Ship/Store percentage for non-calibrated batteries as well as handling of calibrated battery when Ship/Store feature is disabled.
- Enable MUC charger to perform boost charging automatically after completing the 1st cycle of boost charging even if the ship/store days is 0.

Software V1.15 September 2019

- Prevent from misidentifying a NNTN8359 IMPRES battery as a non-IMPRES battery
- Enhancement to ensure charger Group B remains asleep when pockets are empty
- Improved robustness of charger to battery communications to minimize the possibility of battery data corruption in the APX TIA batteries during momentary disconnect of the charger contacts

Software V1.14 July 2019

- This release is applicable to Group A MUC (class #1) and Group A SUC (class #2) chargers.
- In MUC's, Setup Mode selections will be committed after pressing "OK" to exit Setup Mode. This avoids committing selections when Setup Mode times out (10 minutes) and the charger returns to Normal Mode.
- In MUC's, after Ship/Store charging is complete and, then, after switching the charger from a Ship/Store Mode to Normal Mode, the Ship/Store Charge State Message will not be displayed in Analyzer Mode.

Software V1.12 June 2019

- This release is applicable to all Group A MUC's.
- MUC interpocket communications are improved, minimizing interference with battery communications.
- Improved detection of a hardware fault in Group A MUC's.
- Electrical contact fault detection is improved for a radio or battery when in a charger pocket.
- Corrects a bug that may fault a battery, in a MUC, for the following sequence:
  1) An IMPRES 2 or IMPRES battery successfully completes charging
  2) While the battery remains in the pocket, the user changes the charger Ship/Store mode
- Corrects a bug that may display the wrong DISCHARGE message (e.g., "SHIP LI DISCHRGE" or "STORAGE DISCHRGE" instead of "CAL DISCHARGE".
- If 75% Long-Term Storage is programmed in battery memory, then the "75% Rated Cap" Ship/Store Setup menu option is displayed once instead of twice.
- Corrects a bug that may prevent battery Ship/Store discharge even though the LED and display indicate discharge is in progress.
- Corrects a bug that may induce an unnecessary IMPRES 2 or IMPRES battery calibration, based on an assessment of clock errors within the battery.
- For larger-capacity batteries, improvements ensure that the percent of available capacity ("% PotentialCap") displayed at charge completion is 100%. Note: Charge completion occurs when charging current is turned off, a short time after the LED turns Steady Green.

Software V1.11 August/September 2018

- This release is applicable to all IMPRES 2 chargers.
- During normal operation, the user may select whether to display State of Charge percentage relative to Potential Capacity (existing capability) or Rated Capacity (new).

- Puts Sleep-Mode-equipped Batteries to sleep upon successful completion of Ship Lithium or Longterm Storage charge:

  PMNN4547A Li-Ion IMPRES Intrinsically Safe TIA4950 Div1/Div2

  NNTN8570B Li-Ion Intrinsically Safe IECEx/ATEX

- LED indications and display messages will declare an uncalibrated IMPRES 2 or IMPRES battery to be fully charged and requires Calibration (Alternating Amber/Green instead of Steady Green) in the following scenario:
  - The IMPRES 2 or IMPRES battery requires calibration
  - The battery is fully charged in an IMPRES 2 or IMPRES charger in which Calibration is disabled
  - Within approximately 30 minutes from charge completion, the battery is removed from the charger and inserted into an IMPRES 2 charger (programmed with V1.11 or later) that has Calibration enabled

  The user may toggle the battery (remove and reinsert the battery into the IMPRES 2 charger pocket within 5 seconds) to manually start Calibration Discharge.
- Verifies and updates settings within IMPRES 2 batteries to recover data when being charged after an excessive battery discharge.
- Improves detection of poor electrical connections between the charger and the radio or battery. If a poor electrical connection is detected, the battery is faulted so that the user may remove and reinsert the radio or battery into the charger pocket.
- For chargers that use an external power supply, prevents possible battery over-charging when using one of the following external power supplies. This is not an issue for MUC's.
  - an unapproved external power supply, or
  - a damaged power supply with excessive series resistance.
- Expands Analyzer Mode:
  - The Menu Display on Pocket #1 can display information from any other Multi-Unit Charge pocket.
  - For IMPRES 2 or IMPRES batteries, displays the State of Charge percentage of Potential Capacity and percentage of Rated Capacity.
  - For IMPRES 2 or IMPRES batteries, displays Calibration Status.
  - Displays Ship Lithium / Longterm Storage status.
  - Declares when data is unavailable.
- Preserves user-defined Multi-Unit Charger settings through charger reprogramming.
- For a MUC in which Power Saver mode is enabled, corrects a defect that could prevent waking up pockets when the user presses a Menu Display button.
- Corrects a defect that could generate a Flashing Amber LED indication (waiting to Rapid Charge) when no initiating condition occurred.

Software V1.09 February 2018

- Introduced the PMPN4332 / PMPN4444A Tier of IMPRES 2 chargers.

Software V1.08 December 2017

- Improved recovery of an under-voltage battery, when charging through a device or radio.

Software V1.07 August 2017

- Improved dormant IMPRES 2 or IMPRES battery handling (batteries stored for 6-8 months or more) to ensure the accuracy of the battery internal timer.

Software V1.05 July 2017

- Introduced the NNTN8897 / NNTN8910 / NNTN8895 Tier of IMPRES 2 chargers.
- Introduced the PMPN4321A-type Maintenance MUC.
    - Ship Lithium or Longterm Storage charging only
    - Preserves new IMPRES 2 or IMPRES batteries as new, for later sale and shipment to the end customer
- New feature: Analyzer Mode extended to all display-equipped MUC pockets.
- Enhanced charge current regulation to minimize battery or charger heating:
    - Reduce charging current when the battery temperature or the charger internal temperature is getting too high
    - New “HOT CHARGER” LCD message, displayed when the MUC internal temperature is too high.
- Enhanced Opportunistic Calibration for fully-discharged IMPRES 2 or IMPRES batteries. Fully charging the battery (to the Steady Green LED) will calibrate the battery.
- Improved information displayed in Ship Lithium and Longterm Storage modes:
    - State of Charge percentage is displayed relative to Rated Capacity
    - New “SHIP INCOMPLETE” or “STORE INCOMPLETE” LCD message is displayed when Ship Lithium or Longterm Storage cannot be completed. This is also indicated by the Flashing Red pocket LED.
    - New LCD messages declaring when the battery is not compatible with Ship Lithium or Longterm Storage. This is also indicated by the Flashing Red pocket LED.
- Ensured optimum charging or ensured IMPRES 2 or IMPRES battery calibration by adjusting battery communications speed for battery identification.
- Ensured proper State of Charge assessment (for previous NiMH batteries or previous non-IMPRES batteries) by improving battery voltage measurement at battery insertion.
- Ensured that the Alternating Red/Green End-of-Service LED Indication is disabled when "Disabled" is selected in MUC Setup.

Software V1.04 February 2017

- Corrected the end-of-calibration LED indication for IMPRES 2 or IMPRES batteries in a MUC which has Calibration disabled:
  - Illuminate Steady Green instead of Flashing Yellow/Green
  - Calibration in the MUC was disabled and, then, the user pressed OK to permit that battery to be calibrated
- Enhanced MUC behavior when the user changes SHIP / STORAGE settings while a battery is in the pocket:
  - After successfully completing Ship Lithium or Longterm Storage charge, when the user selects "Disabled" for SHIP / STORAGE in MUC Setup, the charger will continue charging the battery
  - During normal battery charging, when the user selects "Enabled" for SHIP / STORAGE in MUC Setup, the charger will transition into the selected Ship Lithium or Longterm Storage mode, if the battery is compatible with the selected mode
- For MSI Lithium non-IMPRES batteries, when charged in Ship Lithium mode, prevent a false Fault indication. Note: the false indication did not prevent successful Ship Lithium charge.
- Improved IMPRES 2 battery charging for longer cycle life.
- Improved distribution of MUC Setting changes to MUC pockets, ensuring that user selections are implemented in all MUC pockets.

Software V1.03 January 2017

- Faster MUC reprogramming.
- In Analyzer Mode, corrected the value displayed for Initial Battery Capacity. This applies only to IMPRES 2 or IMPRES batteries.

Software V1.02 August 2016

- New feature: 3.7V-nominal Lithium battery charging.
- New feature: User-selectable Entry Time setting for MUC's. Entry Time is used to adjust the amount of time necessary to hold down MUC Menu Buttons when choosing to enter Setup Mode or Analyzer Mode.
- New feature: Detection of a poor electrical connection between the MUC and a MUC pocket.
- New feature: Pass-through-the-device battery charging. There is no direct electrical connection between the IMPRES 2 charger and the battery. Charging current passes through the device or radio to reach its attached battery.

Software V1.01 July 2016

- “MOTOROLA” changed to “MOTOROLA SOLUTNS” in LCD display messages.
- "Disabled" is the default Power Saver mode selection.
- Ensured that all MUC pockets have the same settings, even if Power Saver mode is enabled.
- Ensured that undervoltage IMPRES 2 or IMPRES batteries will start Calibration, if the battery is due for Calibration.

  Note: The internal protection circuitry of an undervoltage battery is opened to prevent further discharge.
- Extra time is allowed for a Personal Computer (PC) to recognize the IMPRES 2 charger USB Communications Module and to start USB communications.

Software V1.00 April 2016

- Initial release.