Ritron Model(s):	LM-700DMR and RIB-700DMR
Current Firmware Revision:	**47.24**
Revision Update:	Jul 17, 2025

LM-700DMR and RIB-700DMR Firmware Revision and Update History

47.24 released: 9S1N4724.hex 07/17/2025

To update firmware to V24, RITRON LM DMR Series Programmer_1.0.2 or later version is required.

1) Fixed a bug that introduced in V23. The bug symptom is that when LM/RIB enabled Record and Play mode, someone makes the first call (with matched address) and doesn't wait then immediately a second Tx call with an address that doesn't match is received, the audio of the first call will not be played (it is supposed to play the first call's audio even after the second call is received). This problem is fixed in V24.

47.23 released: 9S1N4723.hex 07/10/2025

To update firmware to V23 or newer, RITRON LM DMR Series Programmer_1.0.2 or later version is required.

1) Fixed CSBK triggering pre announce tone in simplex mode.
2) Fixed lock-up problem in repeater 2-time slot mode.
3) Fixed random missing pre announce tone in repeater 2-time slot mode.
4) Improved firmware reliability. Reset if a packet has maximum allowable errors.
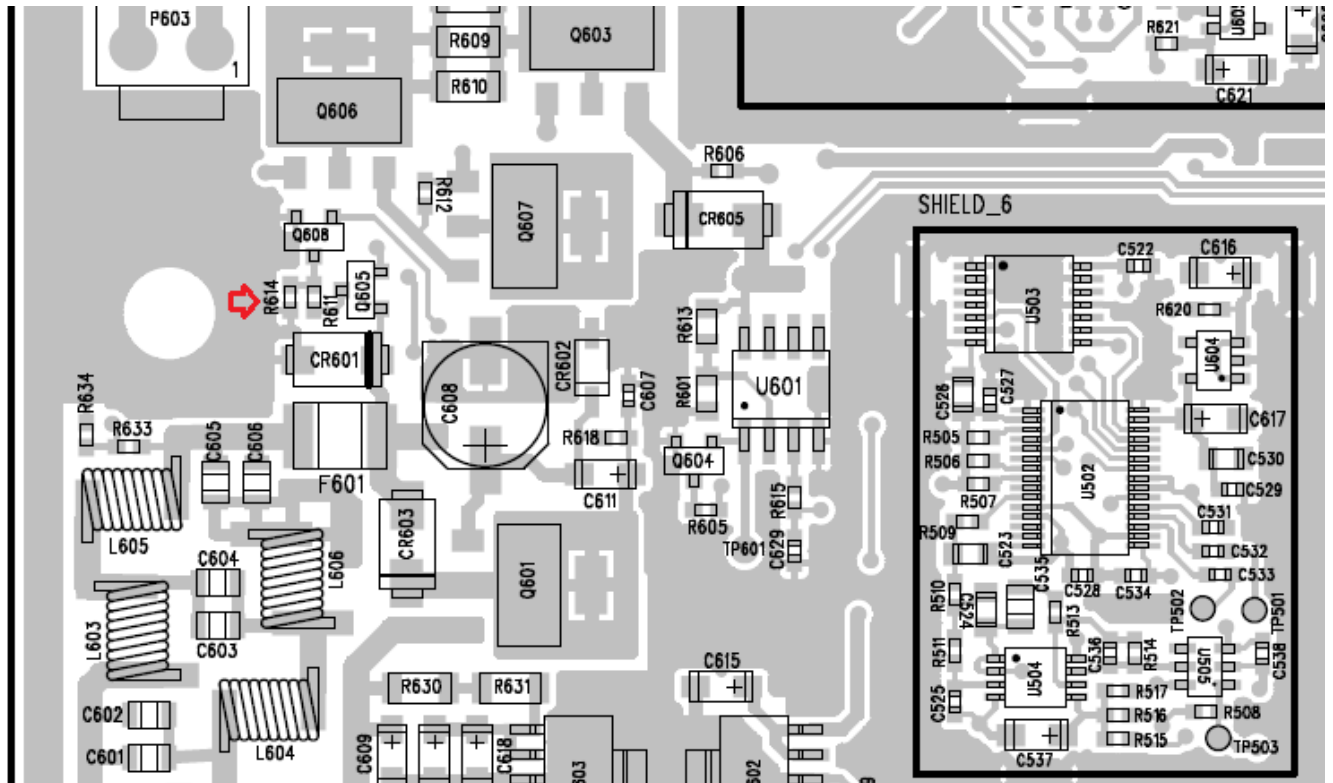5) Ignore addressing packets with a bad CRC. A bad CRC causes an unwanted address match.

47.22 released: 9S1N4722.hex 2/10/2025; Jul 8, 2025 updated

To update firmware to V22, RITRON LM DMR Series Programmer_1.0.2 or later version is required.

1) Added a feature that the unit can auto shutdown when 12V external power is lost and the battery is below 9.5V for at least 5 seconds. Before auto shutdown, the unit will beep 3 times. It is to prevent internal backup battery from over draining. To enable this feature, R614 (0 ohm) has to be removed. R614 was populated on the early units. With V22, if R614 is not removed, the unit will still work like V21, the battery dead auto shutdown just does not work. For the old version firmware, V21 and earlier, if R614 is depopulated, the battery backup function will stop working. i.e. depopulated R614 needs V22 or newer f/w to make the battery backup function work.

R614 vs. V22/V21

R614	Depopulated (new built)	Populated (old built)
F/W V22 and newer	Dead battery auto shutdown (lower than 9.5V) enabled	Dead battery auto shutdown (lower than 9.5V) is disabled, Same as V21 or older
F/W V21 and older	Battery backup function will stop working	Dead battery auto shutdown (lower than 9.5V) is disabled

Updated: Added above R614 part locator on Jul 8, 2025.

2) Fixed a bug that causes terminal mode command 'a' not working correctly.

47.21 released: 9S1N4721.hex 08/02/2024

To update firmware to V21, RITRON LM DMR Series Programmer_1.0.2 or later version is required.

2) Fixed a bug that caused a brief audio burst or relay activation when the repeater transmitted voice packets following idle packets.
3) Added "This will Erase important information: Are you sure? (yes/no)" to debug 'p' command. Next keys must be 'y' 'e' 's' before reloading factory configuration.
4) Turned off debug output.

47.20 released: 9S1N4720.hex 12/04/2023

To update firmware to V20, RITRON LM DMR Series Programmer_1.0.2 or later version is required.

V20 Fixed a bug introduced in V19, causing lower sensitivity. The bug was originally introduced in V18, which has never been released, just for customer field testing. When V19 was created, it was based on V18. The extra time-consuming code in V18 caused package drop-out. The problem code is removed in V20.

47.19 released: 9S1N4719.hex 11/10/2023

To update firmware to V19, RITRON LM DMR Series Programmer_1.0.2 or later version is required.

1) Fixed a bug when working with repeater. It randomly activates relay during the repeater hang time. This problem was caused by the firmware not recognizing the repeater idle package. V19 fixed this problem.

47.17 released: 9S1N4717.hex 9/22/2023

To update firmware to V17, RITRON LM DMR Series Programmer_1.0.2 or later version is required.

1) Fixed a bug in command A21, which is used to reset the unit to factory default configuration via the 7-segment LED display and a button on PCB.

2) Improved the bootloader. A new and better bootloader located at memory lower address is added in version 17. This new version prevents the unit from locking up under some very special conditions.

3) Added a reminder note for the 'p' command in the RITRON LM DMR Series Programmer terminal mode to avoid the user from accidentally erasing the customer configuration. A 'yes' must be entered after the note in order to process the 'p' command.

4) Added 500ms of dead time on debug UART line before commands are accepted in order to reject random interference from strong RF signals.

47.16 released: 9S1N4716.update.hex 9/01/2022

Fixed a debug serial interface issue that can cause the radio's configuration to be erased. The debug interface uses single character commands from the host computer. Leakage from the debug TXD to RXD pins on the debug serial interface can cause output characters on the TXD pin to be interpreted as commands on the RXD input. Among the characters, one character is a command that erases the configuration. If that character in the TX stream, it could be seen by the input and erase the configuration. Also, RF coupling to the debug RXD pin can also create that character command and cause the same problem. This issue has been resolved with this firmware revision.

47.15 released: 9S1N4715.hex 7/26/2022

Fixed a bootloader problem introduced by revision 14. Revision 14 was never actually shipped. Note that the bootloader doesn't get changed by a firmware update, it stays the same as was loaded from the factory i.e. since revision 14 boot loader was never actually shipped, the customers will never see this issue.

47.14 released: 9S1N4714.hex 7/19/2022

1) Fixed compatibility issue of DMR "over-the-air alias". Originally it was found in "Record and Play" mode and it played back choppy voice. This problem normally doesn't show up, unless you turn on "Over-The-Air Alias" in some of the portable radios, such as Kenwood and Hytera. Later we found this choppy audio may also show up in normal live mode. V14 fixed this problem.

2) Fixed a test tone dropout (1031Hz or 2880Hz) problem and improved bit error rate (BER) performance by fine-tuning AGC configuration. Customer may not see any difference from this fix unless the unit is tested with professional test equipment, especially at weak signal level. V14 fixed this problem.

47.12released: 9S1N4712.hex 2/2/2022

1) Fixed LED segment b and f display problem introduced in Ver 11.
2) Revert LED Segment b and f indicator, for RF carrier and decoded status, back to Ver 10, i.e. when field programming is disabled, segment b and f will NOT display carrier and decode status, same as Ver 10 for this item. The display issue when field programming is disabled will be fixed in a later revision due to the complexity of the firmware necessary for this change.

47.11   released: 9S1N4711.hex 1/24/2022

1)   Fixed a hang situation. During continues receiving, if the transmitter changed the destination ID and changed it back, the firmware will run into an endless loop and the unit will hang until reboot.
2)   The LED Segment b and f will display RF/Signal decoded status even when field programming is disabled.

47.10   released: 9S1N4710.hex 9/30/2021

Fixed a problem when a valid data stream is interrupted (such as blocked by another strong signal randomly), the unit may unexpectedly activate relay for a short time and then enter the "record and play" mode, starts to record live message into buffer and play it. The reason is that the interrupted data package caused a pointer pointing to an invalid state. This is fixed in Ver **9S1N4710**.
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47.09   released: 9S1N4709.hex 8/18/2021

Fixed 1030Hz test tone drop out.

47.08   released: 9S1N4708.hex 10/23/2020

Fixed a short pause problem in append mode when works with DMR repeater.

If in append mode and receiving through a DMR repeater, the playback will pause for short time, during the pause the LM/RIB-700DMR enters record mode due to the repeater sends some packets to indicate that the repeater is shutting down. This fix will only allow voice packets with a link control opcode of 0, 3 (Group & Individual), 4-7 (alias) and 8 (GPS) go through and filters out the non-voice packages.

47.07   released: 9S1N4707.hex 6/1/2020

Fixed a problem that after a message is played, record and play function stops working.

The problem was caused by codec was accidentally shutdown after a message playback. It is fixed in this version.

47.06   released: 9S1N4706.hex 1/16/2020

Fix a problem that voice is interrupted by non-voice package

Changed firmware variables to agree with the check box labels on the Global Options Tab in the RITRON LM-DMR-PCPS program.

47.05   released: 9S1N4706.hex 10/23/2019

Fix a problem that only 500 Hz pre-tone works in switch messages.

Reversed Interrupt mode Enable Logic, polarity was backwards in firmware implementation.

47.04   released: 9S1N4704.hex 9/11/2019

 Add a protection to avoid programming process is interrupted by live signal.

 When sending message from programmer, disable CMX interrupts so no live signal can interfere. Re-enable when 'Playback Finished' sent.