



***DMR Repeater
Upgrade Guide***



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Documentation Information

This section describes the conventions and revision history of this document.

Documentation Conventions

Instructional Icons

Icon	Description
 Tip	Indicates information that can help you make better use of your product.
 Note	Indicates references that can further describe the related topics.
 Caution	Indicates situations that could cause data loss or equipment damage.
 Warning	Indicates situations that could cause minor personal injury.
 Danger	Indicates situations that could cause major personal injury or even death.

Notational Conventions

Item	Description
Bold	The text in boldface denotes the name of a hardware button or a software interface element. For example, press the PTT key.
->	The symbol directs you to access a multi-level menu. For example, to select “New” from the “File” menu, we will describe it as follows: File -> New.

Revision History

Version	Date	Description
R8.5	07-2015	Twelfth release, instructing you to upgrade the firmware to R8.5 (A8.05.07.001/N8.05.07.001/S8.05.07.001/C8.05.07.001)
R8.1	03-2017	Eleventh release, instructing you to upgrade the firmware to R8.1 (A8.01.04.004/S8.01.04.004/N8.01.04.004/C8.01.04.004)
R8.0	11-2016	Tenth release, instructing you to upgrade the firmware to R8.0 (A8.00.09.001/ S8.00.09.001/ N 8.00.09.001/ C 8.00.09.001)
R7.6	01-2016	Ninth release, instructing you to upgrade the firmware to R7.6 (A7.06.04.000, S7.06.04.000, N7.06.04.000 or C7.06.04.000).

Version	Date	Description
R7.0	02-2015	Eighth release, instructing you to upgrade the firmware to R7.0 (A7.00.09.003 or S7.00.09.003).
R6.5	09-2014	Seventh release, instructing you to upgrade the firmware to R6.5 (A7.00.08.003 or S7.00.08.003).
R6.0	02-2014	Sixth release, instructing you to upgrade the firmware to R6.0 (A6.00.05.004 or S6.00.05.004).
R5.5	08-2013	Fifth release, instructing you to upgrade the firmware to R5.5 (A5.05.10.003 or S5.05.10.003).
R5.1	03-2013	Fourth release, instructing you to upgrade the firmware to R5.1 (A5.01.03.002 or S5.01.03.002).
R5.0	11-2012	<ul style="list-style-type: none">● Third release, instructing you to upgrade the firmware to R5.0 (A5.00.10.005 or S5.00.10.005).● It is applicable to RD96X upgrade.
R4.5	06-2012	Second release, instructing you to upgrade the firmware to R4.5 (A4.05.13.003 or S4.05.13.003).
R3.5	05-2011	Initial release, instructing you to upgrade the firmware to R3.5 (A3.05.10.001).

1. Before You Start

1.1 Important Tips

To achieve a successful upgrade, please carefully read the instructions below before operation:

- This document instructs you to upgrade the repeater firmware (R5.0 or above) to **A8.05.07.001**, **N8.05.07.001**, **S8.05.07.001** or **C8.05.07.001**. For the firmware version below R5.0, please first upgrade the firmware to R5.0 or above first by using the upgrade kit of R7.0 or below.
- This document introduces the operations of local upgrade. For remote upgrade, refer to *DMR Conventional Series_Remote Upgrade_Application Notes*.
- Do not disconnect the repeater and the PC during upgrade; otherwise, data loss or repeater damage may occur.
- The RCDB data may be abnormal during upgrade due to unexpected reasons such as power-cut. Before upgrade, you can read the radio through CPS and select “File -> Save As” on CPS menu bar to backup the RCBD data. For RCBD data restore, see [Step 4 in 2.2 Starting Upgrade](#).
- Do not run other Hytera applications during upgrade. If the upgrade is interrupted by another application, please try the upgrade again by restarting the repeater and entering the download mode.
- Do not disconnect the power of repeater during upgrade. However, if the power is disconnected or error occurs during upgrade, restart the repeater for another try.
- If the repeater is powered on abnormally or cannot be powered on after upgrade, please try the upgrade again by restarting the repeater and entering the download mode.
- If the repeater is abnormally in upgrade processing, please try the upgrade again by restarting the repeater and entering the download mode.
- After successful upgrade, re-program the repeater with CPS **V8.05.06.005** or above.

1.2 Firmware Version Check



Caution

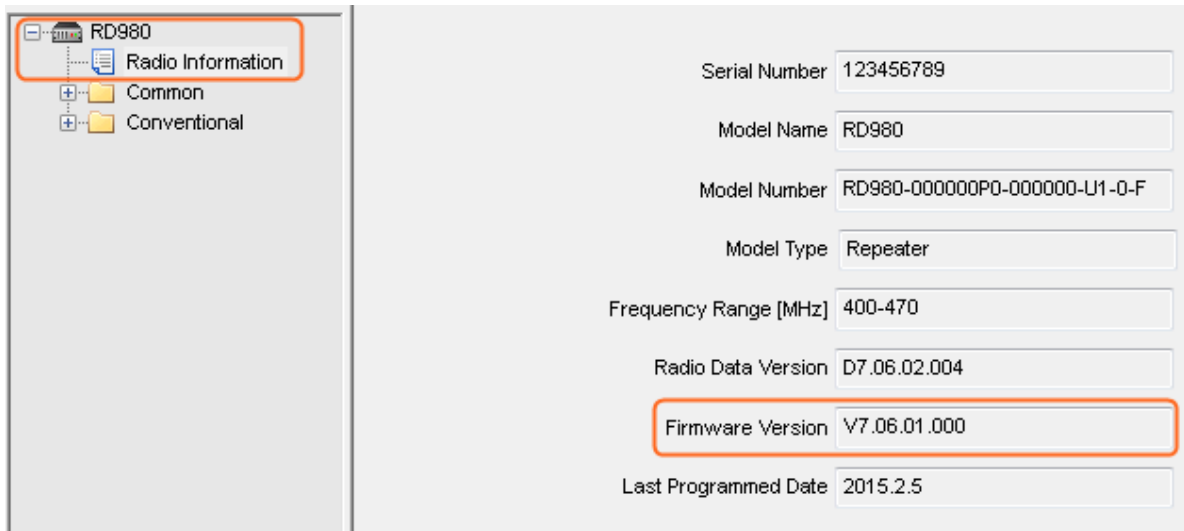
Please check whether the firmware version of the repeater satisfies the requirements before upgrade. If not applicable, please do not upgrade; otherwise the repeater may get damaged.

Step 1 Connect the repeater with the PC.

Step 2 Run the CPS to read data from the target repeater.

Step 3 Click “Radio Information” on the left of the CPS to check whether the “Firmware Version” satisfies the requirements specified in [Appendix Applicable Model and Version](#).

RD98X is taken as the example:




Serial Number	123456789
Model Name	RD980
Model Number	RD980-000000P0-000000-U1-0-F
Model Type	Repeater
Frequency Range [MHz]	400-470
Radio Data Version	D7.06.02.004
Firmware Version	V7.06.01.000
Last Programmed Date	2015.2.5



Step 4 Disconnect the CPS and repeater.

1.1 Preparations

Please prepare the following items before you start.

- PC with operating system Win 7, Win 8, Win 8.1 or Win 10 of 32/64-bit.
Win7 is taken as the example hereinafter.
- Upgrade tool (DMR Upgradakit Repeater): The upgrade software has been successfully installed on PC.
- USB Driver: Please install the latest USB driver (R5.0). Refer to *Digital USB Driver Installation Guide R5.0* for the installation.
- Repeater to be upgraded.
- Programming Cable: Programming cables for different models are listed below.

Model	Programming Cable	
RD98X/RD98XS/RD96X	PC47	

Model	Programming Cable	
	PC37	 A black programming cable with a USB-A connector on one end and a 37-pin D-sub connector on the other.
RD62X	PC75	 A black programming cable with a USB-A connector on one end and a 75-pin D-sub connector on the other. It also features a small label with text and a hook for a palm microphone.

**Note**

When PC37 is used, palm microphone and the hanger are also needed. Connect the palm microphone to the 10Pin port on the front panel of the repeater, and hook the palm microphone on the hanger.

2. Upgrade and Check

2.1 Entering the Download Mode

Before upgrade, please make the repeater enter the download mode first.

2.1.1 RD98X/RD98XS/RD96X

The RD98X, RD98XS and RD96X can be upgraded through PC47 or PC37 programming cable. The repeater enters the download mode differently when different programming cable is used.

Entering Download Mode via PC47

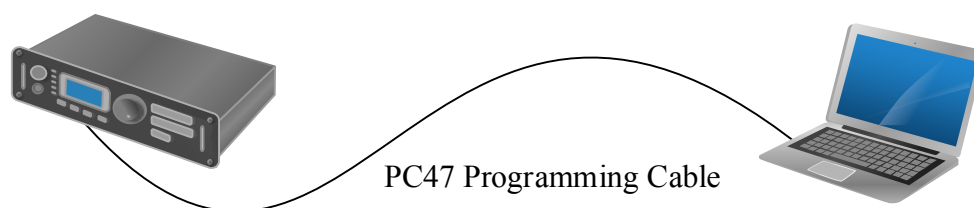
Step 1 Turn off the repeater.

Step 2 Toggle the switch on PC47 to the **DL** end

**Note**

Do not toggle to the **DL** end during programming.

Step 3 Connect the repeater to the PC via PC47.



Step 4 Turn on the repeater to enter the download mode.

If the repeater enters the download mode successfully, the LED will flash red for several seconds and then glow red solidly. Otherwise, it indicates the access fails. In this case, you need to try to enter again.

**Note**

After upgrade, please toggle the switch on PC47 to the **CPS** end and then turn off the repeater.

Entering Download Mode via PC37

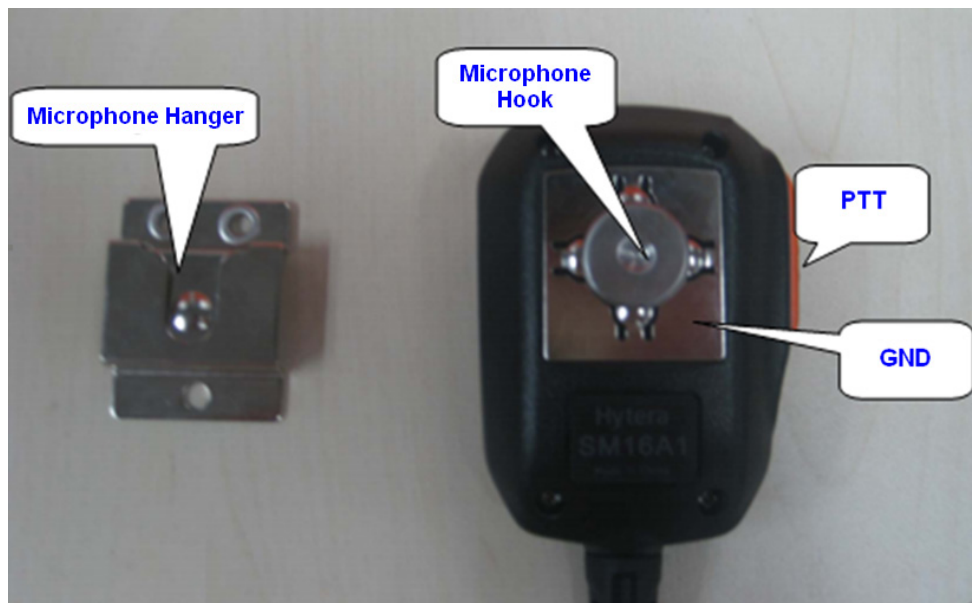
When PC37 is used, the palm microphone and its hanger are needed to make the repeater enter the download mode.

Step 1 Turn off the repeater.

Step 2 Connect the palm microphone to the 10Pin port on the front panel of the repeater, and hook the palm microphone on the hanger.

**Note**

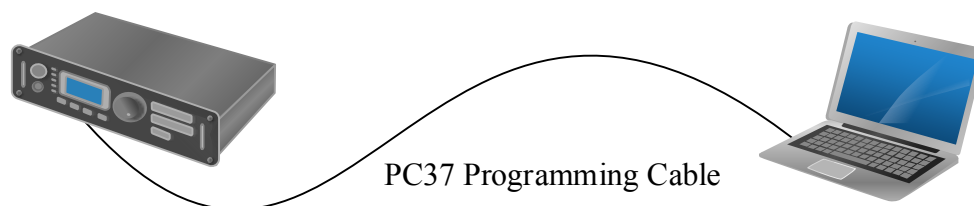
If the microphone hanger is not available, you can connect the hook to the GND using a metal conductor.



Step 3 Hold **PTT** key on the palm microphone and turn on the repeater.

When the repeater enters the download mode successfully, the LED flashes red for several seconds and then glows red solidly. Otherwise, turn off the repeater and repeat the above operations.

Step 4 Disconnect the palm microphone from the repeater, and connect the repeater to PC through PC37.



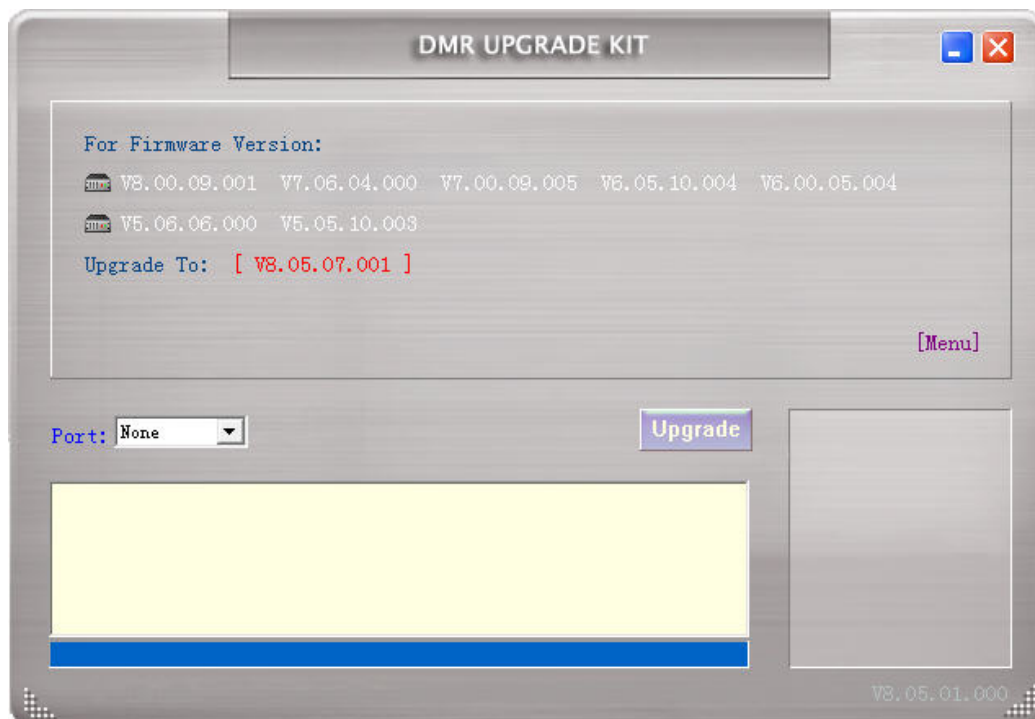
2.1.2 RD62X

The operations are the same as that in [Entering Download Mode via PC47](#) in [2.1.1 RD98X/RD98XS/RD96X](#).

2.2 Starting Upgrade

After the repeater enters the download mode, please operate as follows to upgrade the repeater.

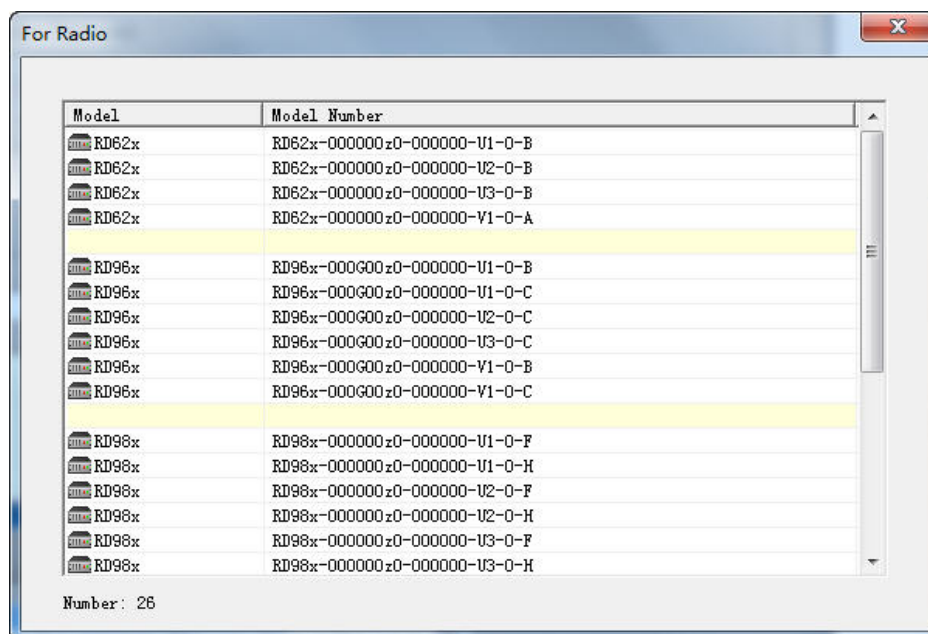
Step 1 Run the upgrade tool.

**Note**

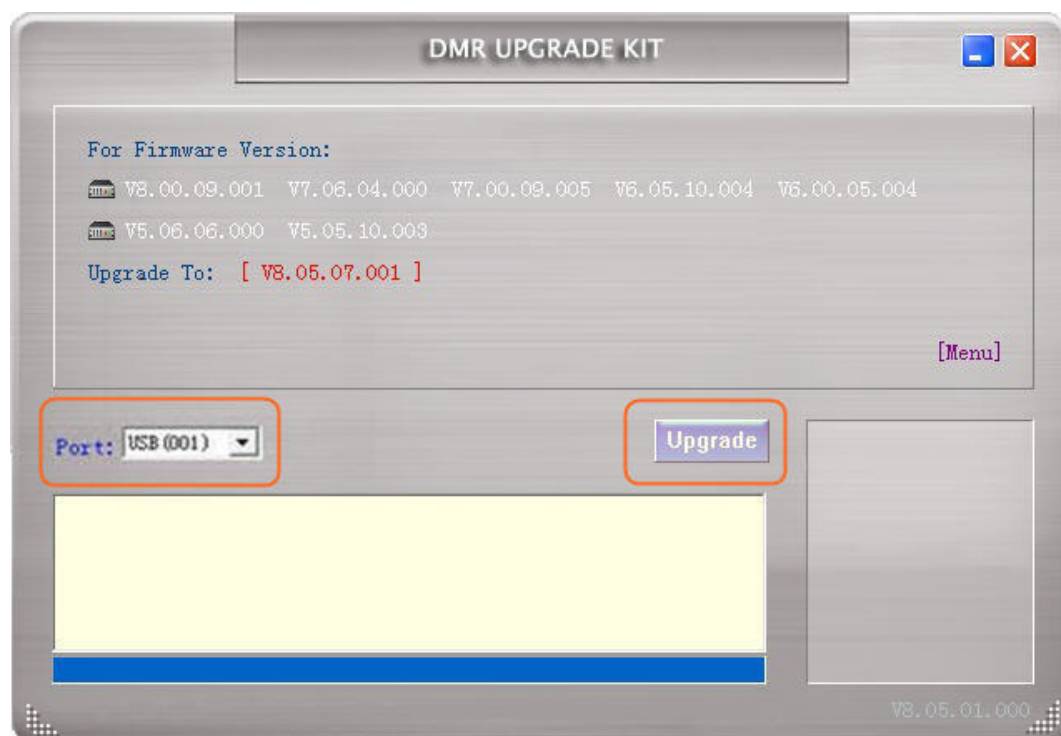
If **Restore** button is displayed on the main interface, it indicates the RCDB data is abnormal during the previous upgrade. In this case, please restore the data following [Step 4](#) below. Otherwise, the upgrade will fail.

Step 2 (Optional) Select “Menu -> For Radio”.

The “For Radio” window appears. You can check in this window whether the repeater to be upgraded is included. See the figure below.



Step 3 Select corresponding USB port of the repeater and click **Upgrade**.

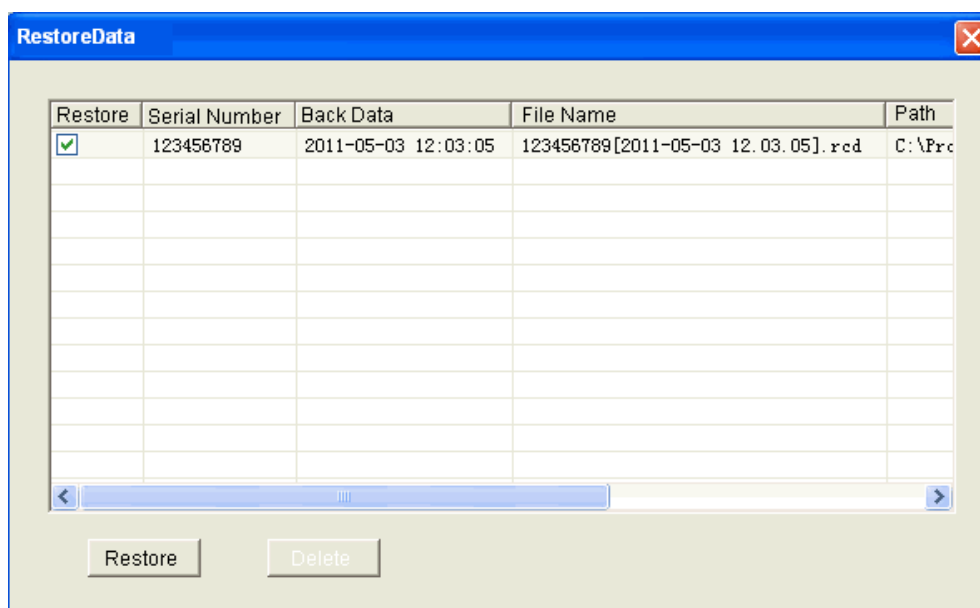


During the upgrade process,

- If the prompt “Open USB failed” appears, check whether the cable is properly connected to the repeater, and whether the USB interface is occupied by other software.
- The prompt “The firmware version [xx.x.xx.xxx] is beyond the upgrade software!” indicates the upgrade package is not compatible with the current firmware. Please stop upgrading right away.
- “Reading data error!” or “Writing data error!” or alerts alike indicates the USB connection has timed out. Click **OK**, restart the repeater and retry.
- The prompt “Writing data error! RCDB data is already saved to file, from which you can restore your data when necessary.” indicates the RCDB data is abnormal during upgrade. Click **OK** and **Restore** button appears in the main interface.

Step 4 (Optional) Restore the RCDB data.

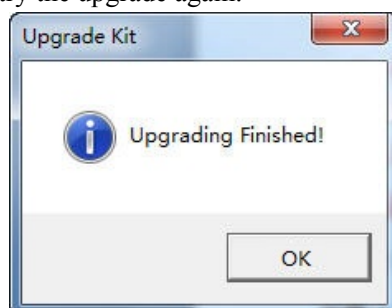
1. Click Restore to access RestoreData window.



2. Select the serial number of the repeater to be restored, and click **Restore**.
If the serial number is not available, do not click **Restore**.
3. After the RCDB data is restored, please try the upgrade again.

Step 5 A prompt box as shown below appears upon successful upgrade.

If no prompt appears, please try the upgrade again.



Step 6 Click **OK** and turn off the repeater.

2.3 After-upgrade Check

After upgrade, you can check the repeater firmware in “Radio Information” via CPS **V8.05.06.005** or above.

For the repeater with display, you can check the repeater firmware through radio menu. Operate as follows.

Step 1 Turn on the repeater.

Step 2 Press the **Navigation Knob** to enter the main menu.

Step 3 Rotate the **Navigation Knob** to select **Radio Info.**

Step 4 Press the **Navigation Knob** again to enter the **Radio Info** interface to check the repeater information.

The upgrade is successful if the firmware version is **A8.05.07.001**, **N8.05.07.001**, **S8.05.07.001** or **C8.05.07.001**.

If not, please check whether the firmware version is satisfied the update requirements, and if yes, please make the repeater enter the loading mode and try again.

Applicable Model and Version

Model	Firmware Version
RD98X	A8.01.03.001, S8.01.03.001, N8.01.03.001, C8.01.03.001
	A8.01.04.004, S8.01.04.004, N8.01.04.004, C8.01.04.004
	A8.00.09.001, S8.00.09.001, N8.00.09.001, C8.00.09.001
	A7.06.04.000, N7.06.04.000, S7.06.04.000, C7.06.04.000
	A7.05.10.003, N7.05.10.003, S7.05.10.003
	A7.00.09.005, N7.00.09.005, S7.00.09.005
	A6.05.10.004, S6.05.10.004,
	A6.00.05.004, S6.00.05.004
	A5.05.10.007, S5.05.10.007
	A5.01.03.002, S5.01.03.002
	A5.00.10.005, S5.00.10.005
RD98XS	A8.01.03.001, S8.01.03.001, N8.01.03.001, C8.01.03.001
	A8.01.04.004, S8.01.04.004, N8.01.04.004, C8.01.04.004
	A8.00.09.001, S8.00.09.001, N8.00.09.001, C8.00.09.001
	A7.07.03.000, N7.07.03.000, S7.07.03.000, C7.07.03.000
	A7.06.04.000, N7.06.04.000, S7.06.04.000, C7.06.04.000
	A7.05.10.003, N7.05.10.003, S7.05.10.003
	A7.00.09.005, N7.00.09.005, S7.00.09.005
	A6.05.10.004, S6.05.10.004,
	A6.00.05.004, S6.00.05.004
	A5.06.06.000, S5.06.06.000
	A5.05.10.007, S5.05.10.007
RD62X	A8.01.03.001, S8.01.03.001, N8.01.03.001, C8.01.03.001
	A8.01.04.004, S8.01.04.004, N8.01.04.004, C8.01.04.004

Model	Firmware Version
	A8.00.09.001, S8.00.09.001, N8.00.09.001, C8.00.09.001
	A7.06.04.000, N7.06.04.000, S7.06.04.000, C7.06.04.000
	A7.05.10.003, N7.05.10.003, S7.05.10.003
	A7.00.09.005, N7.00.09.005, S7.00.09.005
	A6.05.10.004, S6.05.10.004
	A6.00.05.004, S6.00.05.004
	A5.06.06.000, S5.06.06.000
RD96X	A8.01.03.001, S8.01.03.001, N8.01.03.001, C8.01.03.001
	A8.01.04.004, S8.01.04.004, N8.01.04.004, C8.01.04.004
	A8.00.09.001, S8.00.09.001, N8.00.09.001, C8.00.09.001
	A7.06.04.000, N7.06.04.000, S7.06.04.000, C7.06.04.000
	A7.05.10.003, N7.05.10.003, S7.05.10.003
	A7.00.09.005, N7.00.09.005, S7.00.09.005
	A6.05.10.004, S6.05.10.004,
	A6.00.05.004, S6.00.05.004
	A5.05.10.007, S5.05.10.007



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