



Software Installation Guide

HAMILTON-T1

Software version 2.2.0
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1 SW upgrade from version 1.x.x to 2.2.x

CAUTION

- After performing a software update/ upgrade, **DO NOT TURN OFF** the device during the very first startup!
- During the first startup, the buzzer will sound for several minutes!
- Turning off the device during this time will irreversibly corrupt the system!

NOTICE

- Configuration settings generated with SW 1.x.x and with SW 2.1.x cannot be imported into SW 2.2.x.
- Make a note of the ventilator settings for later use. Refer to the Configuration appendix in the ventilator *Operator's Manual*.
- The SW upgrade to SW 2.2.0 will set default configuration settings.
- A downgrade to a lower SW version is not possible!

To upgrade from software version 1.x.x to 2.x.x

The following files are required for the installation:

Table 1. Files required for the software upgrade

File name	Description
T1_V2.1.1-Migration.tar	This is required as migration step from 1.x.x to 2.1.1 since the software structure has been changed.

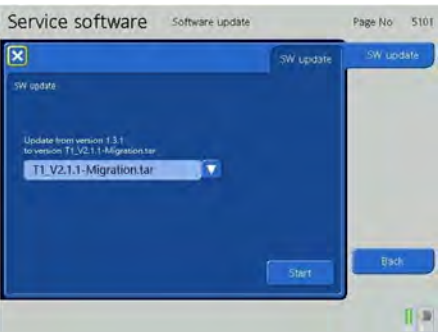
File name	Description
T1_EM01A_V2.2.0.tar	This is the final SW to be installed from 2.1.1 to 2.2.0 after the migration SW

1. To upgrade the HAMILTON-T1 < SN3000 from SW version 1.x.x to SW version 2.2.x, a migration step is necessary.
2. Touch the **SW update** button to access the update page.
3. Insert the USB memory stick containing the migration and upgrade versions as listed in the previous table.

If a correct file is available on the USB memory stick, a message indicating the update version appears; otherwise, the message **No Update Tarball File is available...** is displayed.

If more than one SW update is stored on the USB memory stick, be sure to choose the correct version.

Figure 1. SW update migration (Page No 5101)



4. Select the SW file to be installed (T1_V2.1.1-Migration.tar).

5. Touch the **Start** button to start the SW update. This comprises extracting, verifying, and installing the new software.

A progress bar indicates the current status of the SW update. The update is complete when **Done** is displayed.

6. Restart the HAMILTON-T1. It will automatically start up in the Service software.

7. Touch the **SW update** button to access the update page 5101 again.

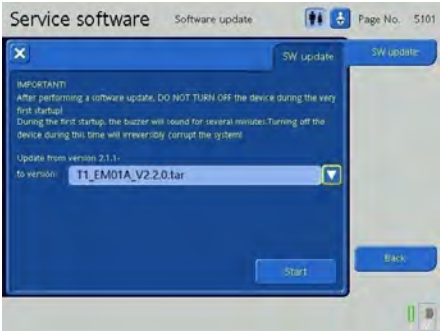
8. Insert the USB memory stick containing the migration and upgrade version as listed in the previous table.

If a correct file is available on the USB memory stick, the message appears indicating the update version; otherwise, the message **No Update Tarball File is available...** is displayed.

If more than one SW update is stored on the USB memory stick, be sure to choose the correct version.

9. Select the SW file to be installed (T1_EM01A_V2.2.0.tar or higher version).

Figure 2. SW update after migration (Page No 5101)



10. Touch the **Start** button to start the SW update. This comprises extracting, verifying, and installing the new software.

A progress bar indicates the current status of the SW update. The update is complete when **Done** is displayed.

11. Restart the HAMILTON-T1.

The firmware is updated, which takes approximately 3 minutes. The buzzer sounds for approximately 2 minutes and cannot be silenced during this time.

Table 2. Firmware update procedure steps

Approx. time elapsed after restart (Min:Sec)	Procedure description
0:00	<ul style="list-style-type: none">• Loading OS• Updating boot logo• Updating FPGA• Updating boot loader
0:35	Automatically restart after firmware update. The buzzer sounds for a short time.
1:00	Start of the extracting the files (VXE and bitmaps). The buzzer sounds permanently.
2:45	Files are extracted and the buzzer stops sounding. Normal restart.
3:00	Startup completed.

12. Restart the HAMILTON-T1 in the Service software.

13. Verify that the software version is now 2.2.0.

14. Perform all calibration and tests as described in the Service software.

15. Check the configuration settings and if necessary reset.

2 SW update from version 2.1.x to 2.2.x

CAUTION

- After performing a software update/upgrade, **DO NOT TURN OFF** the device during the very first startup!
- During the first startup, the buzzer will sound for several minutes!
- Turning off the device during this time will irreversibly corrupt the system!

NOTICE

- Configuration settings generated with SW 1.x.x and with SW 2.1.x cannot be imported into SW 2.2.x.
- Make a note of the ventilator settings for later use. Refer to the Configuration appendix in the ventilator *Operator's Manual*.
- Configuration settings generated with SW 2.2.x are compatible with SW 2.2.x and can be imported.
- The SW upgrade to SW 2.2.0 will set default configuration settings.
- A downgrade to a lower SW version is not possible!

To update from software version 2.1.x to 2.2.x

The following files are required for the installation:

Table 3. Files required for the software upgrade

Ventilator	Installation file
HAMILTON-T1 < SN3000	T1_EM01A_V2.2.0.tar or higher version
HAMILTON-T1 ≥ SN3000	T1_EM10A_V2.2.0.tar or higher version

1. Touch the **SW update** button to access the update page.
2. Insert the USB memory stick containing the migration and upgrade versions as listed in the previous table.

If a correct file is available on the USB memory stick, the message appears indicating the update version; otherwise, the message **No Update Tarball File is available...** is displayed.

If more than one SW update is stored on the USB memory stick, be sure to choose the correct version.

Figure 3. SW update 2.1.x to 2.2.0 (Page No 5101)



3. Select the SW file to be installed as listed in the previous table.

4. Touch the **Start** button to start the SW update. This comprises extracting, verifying and installing the new software.

A progress bar shown indicates the current status of the SW update. When complete, the device shows **Done**.

5. Restart the HAMILTON-T1.

HAMILTON-T1 < SN3000

After restart, the firmware is updated, which takes approximately 3 minutes. Do not turn off the HAMILTON-T1 during this update.

The buzzer sounds for approximately 2 minutes and cannot be silenced during this time.

Table 4. Firmware update procedure steps (HAMILTON-T1 < SN3000)

Approx. time elapsed after restart (Min:Sec)	Procedure description
0:00	<ul style="list-style-type: none">• Loading OS• Updating boot logo• Updating FPGA• Updating boot loader
0:35	Automatically restart after firmware update. The buzzer sounds for a short time.
1:00	Start of the extracting the files (VXE and bitmaps). The buzzer sounds permanently.
2:45	Files are extracted and the buzzer stops sounding. Normal restart.

Approx. time elapsed after restart (Min:Sec)	Procedure description
3:00	Startup completed.

6. Restart the HAMILTON-T1 in the Service software.

7. Perform all calibration and tests as described in the Service software.

8. Check the configuration settings and if necessary reset or import (see the Operator’s Manual, Section I).

HAMILTON-T1 ≥ SN3000

After restart, the firmware is updated, which takes approximately 1 minute. The buzzer sounds for a short time.

6. Restart the HAMILTON-T1 in the Service software.

7. Perform all calibration and tests as described in the Service software.

8. Check the configuration settings and if necessary reset or import (see the Operator’s Manual, Section I).

3 Configure the ventilator

CAUTION

The following functions may not be approved in all countries. It is your responsibility to verify that the functions, which you will activate with the key below, are approved in your country. Make sure that these functions are fully described in the operator's manual and will be provided to the customer. Activating the function constitutes your acceptance of our terms and conditions.

Activation and deactivation keys

Suctioning Tool

Ask the clinicians whether they are using open suctioning or closed suctioning systems. In case the hospital is using open suctioning systems and would like to benefit from the suctioning tool enable it by entering the Configuration menu (access code 7132) and entering the corresponding code under the menu Options.

ON : 65DD2FEA1F98DA

OFF : D2E36F2DEF55D2

PSync-PSIMV

The PSIMV+ IntelliSync is per default disabled after upgrade / update. To enable the functionality enter the Configuration menu (access code 7132) and enter the corresponding code under the menu Options.

ON : 4336568F45E787

OFF : 3792A8D526FD50

Activation and deactivation keys

Default I:E Ratio 1:2

The ventilator is preconfigured with an I:E ratio of 1:4 for adult/pediatric. To change the I:E ratio enter the Configuration menu (access code 7132) and enter the corresponding code under the menu Options.

ON : EE19AC76C97BAC

OFF : 5F7841CF79C4B5

O2 consumption

The O2 consumption display is per default disabled after upgrade / update. To enable the functionality enter the Configuration menu (access code 7132) and enter the corresponding code under the menu Options.

ON : D31AE249406F78

OFF : 383590FBCEA740

ASV 1.1

The ASV 1.1 is per default disabled after upgrade / update. To enable the functionality enter the Configuration menu (access code 7132) and enter the corresponding code under the menu Options.

ON : 5884DA444B4ED5

OFF : 92DB94E3730E8D

Adjustable HPO Alarm limit

Option to manually adjust O2 alarm limits when using HPO. To enable the functionality enter the Configuration menu (access code 7132) and enter the corresponding code under the menu Options.

ON : A747A44F0E05A5

OFF : 6264FCF185EF43

Note that when activating this option , you must also activate the Extended O2 calibration text option.

Activation and deactivation keys

Extended O2 calibration text

The informational message regarding O2 cell calibration is per default disabled after upgrade / update. To enable the functionality enter the Configuration menu (access code 7132) and enter the corresponding code under the menu Options.

ON : 02F159E368AB2F

OFF : F86FA1A15539C4

Vt/IBW monitoring

It is well established that you must closely monitor the tidal volume per weight, especially for ARDS patients. The HAMILTON-C1 now offers direct monitoring of the tidal volume per IBW (adult/pediatric) or tidal volume per weight (neonatal). To enable the functionality enter the Configuration menu (access code 7132) and enter the corresponding code under the menu Options.

ON : 69D96CEE8D3F05

OFF : 0C94A873583846



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