

FastMotion Touch

Manual
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Table of Contents

Introduction.....	2
Download and Updates.....	2
Contact Information	2
User Interface.....	3
Flash.....	3
Effects	3
Exposure Mode.....	3
Focus Range.....	4
Autofocus Type.....	4
White Balance	4
Image Controls	4
ISO Mode	5
Time-Lapse Mode	5
Settings.....	5
Recording Time-Lapse Videos	7
Focusing an Object	7
Hints for Recording Time-Lapse Videos.....	8
Creating Time-Lapse Videos on a PC	8
Frequently Asked Questions	9

Introduction

FastMotion Touch is a time-lapse recorder for Symbian^3 mobile phones. An alternative version for Symbian 5th Edition and 3rd non-touch devices is also available here:

<http://www.tequnique.com/wb/pages/products/fastmotion.php>

FastMotion allows wide configuration of camera parameters and offers different time-lapse modes. It supports export of time-lapse data to individual frames for later post-processing on a workstation, and direct recording up to Full HD mp4 video files.

Download and Updates

FastMotion can be purchased through Ovi-Store. I also accept Paypal payments if you do not have access to Ovi-Store. Further details and download links are located here:

<http://www.tequnique.com/wb/pages/products/fastmotion.php#download>

Updates of FastMotion can be downloaded from Ovi store with the following steps:

1. Uninstall FastMotion.
2. Re-download the latest version and install FastMotion with the Ovi client.
3. In case of problems (e.g. download limit reached) contact Ovi support.

Please note that FastMotion and FastMotion Touch are two different applications.

Contact Information

The fastest way to contact the author is by email or with the contact form which can be found here:

<http://www.tequnique.com/wb/pages/contact.php>

If you want to keep up-to-date please also join the FastMotion newsletter:

<http://www.tequnique.com/wb/pages/newsletter.php>

Besides this manual the FAQ section offers useful information:

<http://www.tequnique.com/wb/pages/products/fastmotion.php#faq>

User Interface

FastMotion Touch provides fast two-tap access to almost all camera features. More advanced settings, such as image resolution or general properties are located on a different settings view.



Figure 1 FastMotion Touch user interface

The five icons located on the left and right side of the screen provide access to all settings. The settings differ between phone models. For instance the Nokia N8 offers single- and continuous autofocus while the Nokia C7 has only a fixed focus.

When the icons are tapped then a popup window is opened which provides different options. The popup window can be closed either by:

- Tapping the “Close” button on the lower right, or
- Double-tapping the selected option.

⚡ Flash

This button opens a popup window with different flash options:

- No Flash
- Auto: The flash will automatically fire when required.
- Forced: The flash will always fire.
- Red Eye Reduction

🎨 Effects

This button opens a popup window with image effects which are applied in real-time to the image:

- None: No effect is applied to the image.
- Negative: The colors of the picture are inverted.
- Black&White
- Sepia: Gives the picture an old photo touch.
- Vivid: Increases saturation of colors.
- Natural

📷 Exposure Mode

This button opens a popup window with different exposure modes:

- Auto: The exposure is automatically adjusted by the camera firmware.
- Night: Long exposure for night shootings without flash.

- Backlight: For pictures where the light source is behind the object (bright background).
- Center: The (weighted) center region of the image is used to adjust exposure.
- Sport: Short exposure time for quick movements.
- Very long: Very long exposure. Please note that this mode does **not** work correctly on all phone models.

At the moment there are no means to control the exposure manually due to lack of firmware support.

Focus Range

This button opens a popup window with different focus ranges:

- Auto: Automatically selects focus range.
- Macro: For close objects where details are of interest, such as flowers, insects, etc.
- Normal: Sets the focus range to normal.
- Hyperfocal: All objects at distances from half of the hyperfocal distance out to infinity will be in focus. This gives maximum depth of field, for instance for landscape pictures.
- Infinite: Focus on distance.

^{AF} Autofocus Type

This button opens a popup window with different autofocus types:

- None: Autofocus is switched off.
- Single: This option works only in image mode. The success (green) and failure (red) are indicated by the color of the focusing rectangle.
- Continuous: The focus is continuously adjusted. This option consumes more energy than single autofocus.





^{WB} White Balance

This button opens a popup window with different white balance modes:

- Auto: The white balance is set automatically.
- Daylight: Normal daylight.
- Cloudy: Overcast daylight.
- Tungsten: Tungsten filament lightning.
- Fluorescent: Fluorescent tube lightning.

Image Controls

This button opens a popup window with controls for adjusting image properties, such as:

-  Brightness
-  Contrast
-  Saturation
-  Sharpness
-  Exposure Compensation

There are **three** means to manipulate values:

1. Using the slider

2. Tapping the left icon sets the adjustment to “0”
3. Tapping the number on the right side opens a popup dialog where a value can be inserted manually.

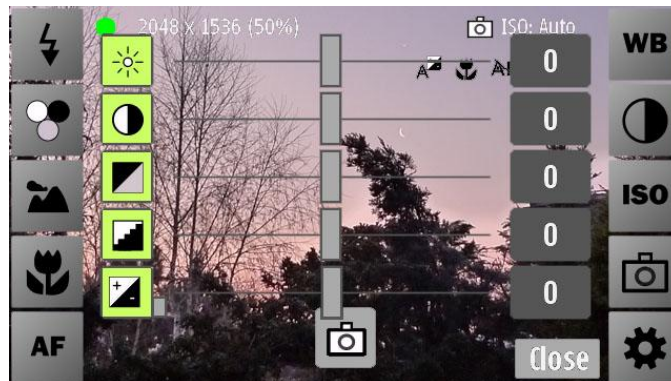


Figure 2 Controls for adjusting brightness, contrast, saturation, sharpness and exposure compensation

ISO Mode

This button opens a popup window with different ISO modes:

- Auto: Adjusts the ISO mode automatically.
- Camera dependent manual ISO modes, such as 100, 200, 400, 800.

In Auto mode the ISO rate can be higher than in manual mode due to camera firmware restrictions. For instance in auto-mode an ISO rate of 1200 is possible while in manual mode the maximum value is 800.

Time-Lapse Mode

FastMotion Touch offers four different time-lapse modes:

- **Normal:** A picture is taken in the capturing interval until capturing is stopped by the user.
- **Start at Date:** Start- and end dates for recording are prompted each time the time-lapse process is started (e.g. with the camera shutter key).
- **Picture Limit:** A picture limit has to be entered each time the time-lapse process is started. When the given number of pictures is reached then the time-lapse process is terminated.
- **Second Limit:** A recording limit in seconds has to be entered each time the time-lapse process is started. The time-lapse process automatically stops when the limit is reached.

Note: the capturing interval can be set in the global settings, as described in Section “Global Settings”.

Settings

The settings dialog provides access to

- Presets,
- Global Settings,
- Feedback, Info, and Updates.

Besides, four different graphical overlay hints for taking pictures can be enabled in the settings dialog:

- # Sparse Grid: A 2x2 sparse grid.
- # Dense Grid: A 6x6 dense grid.
- ⚓ Compass: A compass is not supported on all phones. If the phone does not support compass mode, then an error message is displayed.
- ⊗ Virtual Horizon: Overlays a virtual horizon/level meter over the camera viewfinder to align pictures with the horizon. This can be useful if the exact level is uncertain (for instance to show the steepness of a hillside during skiing or hiking).

Note: Compass and virtual horizon modes require a lot of energy.

Presets

Presets can be created, loaded, and deleted. A preset holds values for all camera settings, such as exposure, flash mode, focus range, image brightness, etc.

Creating a preset

A preset can be created with the following steps:

- Set exposure, flash, etc. settings
- Open the “Settings” popup dialog and select “Presets”
- Click on “Save” and enter a preset name

Load a preset

A preset can be loaded with the following steps:

- Open the “Settings” popup dialog and select “Presets”
- Click on “Load” and select the preset you want to load

Delete a preset

A preset can be deleted with the following steps:

- Open the “Settings” popup dialog and select “Presets”
- Click on “Delete” and select the preset you want to delete

Global Settings

This Section describes how to change global settings which are used by all time-lapse modes, such as picture quality, resolution, geo tagging, etc.

- **Storage location:** Here a storage location can be selected. If a drive, such as c: or e: is selected then images and videos (!) are stored in the default image folders, which are usually “c:\data\Images” or “e:\Images”. “Custom location” can be used to store files in a different directory. For each time-lapse recording a sub-directory “fm_” with a running number is created.
- **File prefix:** The file prefix is used for the image and video filename pattern. The form of all video/image files is CUSTOM_FILE_PREFIX + fm_ + RUNNING_INDEX + . + FILEEXTENSION.
- **Capture interval:** The capture interval in seconds for taking pictures. For instance, if this setting is “10” then every 10 seconds a picture is taken.
- **Save static frames:** If true, then pictures are stored in the storage location. Else individual pictures are not stored.

- **Static frame format:** The possible formats are jpg, png, and bmp. It is **highly recommended** to use **jpg** due to performance reasons. This option has only an effect if “Save static frames” is true.
- **Image size:** A list of all possible still picture resolutions. The dimension should be close to the video dimensions (e.g. for Full HD the size should be close to 1920x1080 pixels).
- **JPEG image quality:** The jpeg picture quality between 1 to 100 percent. The recommended setting is 90.
- **Save movie:** If true, then a time-lapse video file is created. See also Section “Creating Time-Lapse Videos on a PC” for details how to create a video offline on a workstation.
- **Movie format:** The only supported format at the moment is mp4. This option applies only if “Save movie” is true.
- **Movie frame rate:** The frame rate of the final time lapse video. This option applies only if “Save movie” is true.
- **Movie frame dimensions:** The dimension of the movie file. If “Custom” is selected, then the custom width and high are used instead. This option applies only if “Save movie” is true.
- **Custom movie width/height:** A custom width and height value for the time-lapse movie. The custom size is only used if the “Movie frame dimensions” setting is set to “Custom”. This option applies only if “Save movie” is true.
- **Keep display active:** If enabled, then the display stays active all the time.
- **Sleep between shots:** If the “Capture interval” is greater than 60 seconds then enabling this option enables the sleep mode. In sleep mode the camera and sensors are shut-down during waiting time to save energy.
- **Stop on low battery:** When the battery level goes below this value, then the time-lapse process is automatically shut-down. To disable this feature set the value to “0”.
- **Geotag (GPS):** This option allows to geo-tag jpeg (jpg) pictures with the current GPS position.
- **Play sounds:** Unused at the moment.
- **One tap selection:** If enabled, then a single tap on a setting selects the setting and closes the popup dialog.
- **Autofocus light:** If the phone has an autofocus light, then the behavior can be set here. Possible options are “On”, “Off”, and “Auto”.
- **Show on-screen info:** If enabled, then information such as current image resolution, or currently selected settings are displayed on top of the viewfinder.

Recording Time-Lapse Videos

Depending on the phone model there are three means for starting and stopping the time-lapse recording process:

- By pressing the hardware camera shutter key.
- By tapping the touch screen camera button.
- By pressing the hardware “Ok”/“Enter” key.

Focusing an Object

If your phone model supports autofocus an object can be focused either

- By slightly pressing down the hardware camera shutter key, or
- By tapping on “Single focus” in the autofocus popup menu.

The success or failure of the focus operation is visualized by a red/green rectangle.

Hints for Recording Time-Lapse Videos

Of course, settings significantly depend on the envisioned scene and effects to be achieved. But there are some common hints which help to improve the quality of time-lapse videos:

- **Focus once.** It is recommended to turn off continuous autofocus and to do a single focus when starting the time-lapse process. Please note that the focus is reset when FastMotion awakes from sleeping mode.
- **Use manual settings.** Due to firmware restrictions it is currently not possible to manually lock settings. Thus, even when, for instance, a manual exposure mode is set, the exposure still adapts automatically. But in general, try to turn off as much automatic settings as possible.
- **Manually set flash.** Make sure that the flash setting stays constant over multiple pictures. E.g. set the flash mode either to "force" or "off".
- **Encode video on a workstation.** Encoding video on the mobile phone involves several preprocessing steps which require additional energy, memory, and time.
- **Use the lowest possible image/video resolution if recording video.** Higher resolutions lead to higher processing times which can result in dropped frames.
- **Storage space.** Make sure that enough free storage space is left on your mobile device.

Creating Time-Lapse Videos on a PC

If possible, it is highly recommended to record only still images with the mobile phone and perform the video encoding on a workstation because:

- It saves resources on the mobile device.
- The video-picture quality is better.
- There are more options.

In the following a short step-by-step guide is presented how to encode a video with the freeware VirtualDub which can be downloaded here:

<http://sourceforge.net/projects/virtualdub/files/virtualdub-win/1.9.10.32839/VirtualDub-1.9.10.zip/download>

1. Go to settings in FastMotion and enable to record only individual pictures, preferable in jpg format, with highest needed resolution. Make sure to turn off movie generation, as it consumes much processing time. When selecting image quality and resolution keep in mind that pictures use a lot of storage space on your memory card / mass memory.
2. After capturing transfer all pictures stored under "<drive>:\Images*fm_*\" to your local hard disk.
3. Download and start the open source freeware VirtualDub.
4. In VirtualDub select "File" - "Open video file" and select the first time lapse picture, for instance "fm000000000.jpg".
5. Select "Video" - "Filter" - "Add" and choose the "Resize" filter in VirtualDub and set the settings as shown in Figure 3 (the example shows the settings for Full HD).
6. Adjust your preferred video frame rate, compression (codec), etc. settings which can be found in the "Video" menu.

7. Save the video by selecting "Save" - "Save as AVI". The final video can be watched with a media player or uploaded to YouTube.

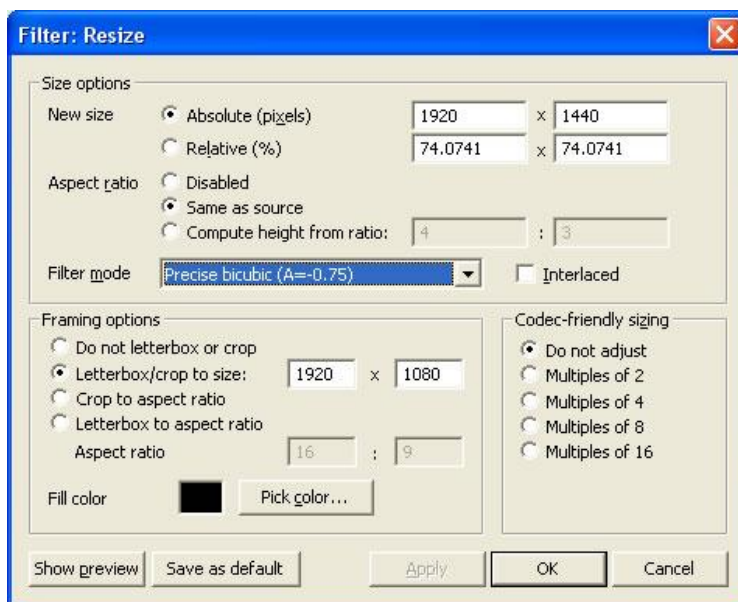


Figure 3 Creating time-lapse videos with VirtualDub

Frequently Asked Questions

Can I manually set exposure, focus range, and aperture?

At the moment it is only possible to use the presets because manual selection is not possible due to camera firmware restrictions.

How can I take pictures in 16:9 formats?

When you are in photo mode, go to "Settings" and change the image size to dimension with a 16:9 ration, e.g. "4000x2248".

What's the difference between CameraPro and FastMotion?

FastMotion is specifically optimized for time-lapse videos. The main differences are:

- More time-lapse modes.
- Energy saving options.
- Ability to record videos from time-lapse pictures.

The video is captured in X seconds interval although I set the rate to Y seconds!

Depending on the settings, your mobile phone might not be fast enough to capture videos in Y second intervals. To improve speed set the image format to "jpg", the image resolution only as high as you need it and disable video capturing (instead create the video offline as described below).

An error message similar to "assertion 'q>0. 0' failed" is shown and no video is captured!

FastMotion crashes when recording a video!

Please restart your phone. The problem is caused by an internal error.