CameraPro NET Edition for Apple iOS 5 and later

Manual
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Harald Meyer
office@tequnique.com

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Introduction

CameraPro NET Edition supports remote control of camera features over WiFi and Bluetooth turning your smartphone or tablet into a powerful camera controlled from web browsers, microelectronic boards (such as Arduino), and other Bluetooth and WiFi enabled devices.

Example use cases are:

- Entry control systems triggered by external sensors, like movement, temperature, or light sensors attached to an Arduino board.
- Trigger multiple CameraPro instances on different smartphones at almost the same time.
- Trigger image capture from a remote distance (for instance a group photo where the smartphone is 10 meters away).
- …

Bluetooth Mode

The following steps are necessary to control CameraPro over Bluetooth:

1. Each Bluetooth device has to be paired with the smartphone in the smartphone Bluetooth settings. This is only required once for each Bluetooth device.
   On Symbian this setting can be found in “Settings” – “Connections” – “Bluetooth”.
2. In the CameraPro Settings turn on “Bluetooth” and select the device from which commands will be received.

Note: Bluetooth 4 (“BLE”) is required. Bluetooth 4 is only supported on iPhone 4S and iPad 2 and newer and requires iOS 7 or later.

WiFi Mode

The following steps are necessary to control CameraPro over WiFi:

1. Connect the smartphone to a WiFi network. If the smartphone can act as a WiFi access point then this works as well.
2. Enable “WiFi” mode in the CameraPro Settings. Optionally the port number can be changed.
3. Note down the IP address displayed in the CameraPro Settings. This address is used to send commands.

Sending Commands

CameraPro can be controlled by sending integer style command/value pairs over Bluetooth or WiFi. The following table shows the supported commands. The corresponding values are described later in this document.

Command name	Command integer value
CAMERAPRO_COMMAND_OK	20
CAMERAPRO_COMMAND_FAILED	21
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CAMERAPRO_WHITEBALANCE_LOCK	41

Bluetooth Mode

In Bluetooth mode each command sent to CameraPro consists of 7 bytes:

Byte	Value	Description
0	0x06	Header
1	0x85	Header
2	0-255	Payload size
3	0-255	Command
4+5	-32767 to 32767	Value of type int16
6	0-255	CRC value by XOR over the payload bytes 3-5.

CameraPro can send back status messages with the following format:

Byte	Value	Description
0	0x06	Header
1	0x85	Header
2	0-255	Payload size
3	0-255	Status / command
4	0-255	CRC value by XOR over the payload byte 3.

WiFi Mode

CameraPro is controlled by sending GET requests to the smartphone IP address:

http://<IP>:30000?k=command_value&v=value

"command_value" is an integer from the commands table and "value" is an integer representing a parameter.

For instance the following command triggers the image capturing button:

http://<IP>:30000?k=23&v=0

Hint: Some smartphones disconnect the WiFi connection after some idle time. To prevent this, regular "CAMERAPRO_COMMAND_OK" commands with an arbitrary value can be send to CameraPro.

Parameters

This Section describes supported command/value pairs.

Camera Control

Command: CAMERAPRO_CAMERA_CONTROL

Possible values:

Value	Description
0	Trigger capture button

Camera Mode

Command: CAMERAPRO_CAMERA_MODE

Possible values:

Value	Description
0	Still images
1	Video
2	Burst
3	Time-lapse
4	Self-timer
5	Anti-shake

Captured preview image (WiFi only)

Command: CAMERAPRO_GET_CAPTURED_IMAGE

This command requests the captured image (only in WiFi mode) in jpeg format. If no preview image is available then an empty message is returned.

Exposure Lock

Command: CAMERAPRO_EXPOSURE_LOCK

Possible values (device dependent):

Value	Description
0	Off
1	On

Change exposure point target position

Command: CAMERAPRO_EXPOSURE_POSITION_X

Command: CAMERAPRO_EXPOSURE_POSITION_Y

The exposure point's target position can be changed by sending two separate x/y commands where x and y hold the center position coordinates of the target focus rectangle position.

The x/y coordinates are limited to the range 0-1000, where 0 is the left/top of the viewfinder and 1000 is right/bottom of the viewfinder.

Note: Moving the exposure target position will unlock the exposure lock.

Flash Mode

Command: CAMERAPRO_FLASH_MODE

Possible values (device dependent):

Value	Description
0	Auto
1	On
2	Off
3	Torch/Videolight

Focus Lock

Command: CAMERAPRO_FOCUS_LOCK

Possible values (device dependent):

Value	Description
0	Off
1	On

Change focus rectangle position

Command: CAMERAPRO_FOCUS_POSITION_X
Command: CAMERAPRO_FOCUS_POSITION_Y

The focus rectangle (target) position can be changed by sending two separate x/y commands where x and y hold the center position coordinates of the target focus rectangle position.

The x/y coordinates are limited to the range 0-1000, where 0 is the left/top of the viewfinder and 1000 is right/bottom of the viewfinder.

Note: changing the focus target position will unlock the focus lock.

Switch between front and back camera

Command: CAMERAPRO_SWITCH_CAMERA

Possible values (device dependent):

Value	Description
0	Back camera
1	Front camera

White balance Lock

Command: CAMERAPRO_WHITEBALANCE_LOCK

Possible values (device dependent):

Value	Description
0	Off
1	On