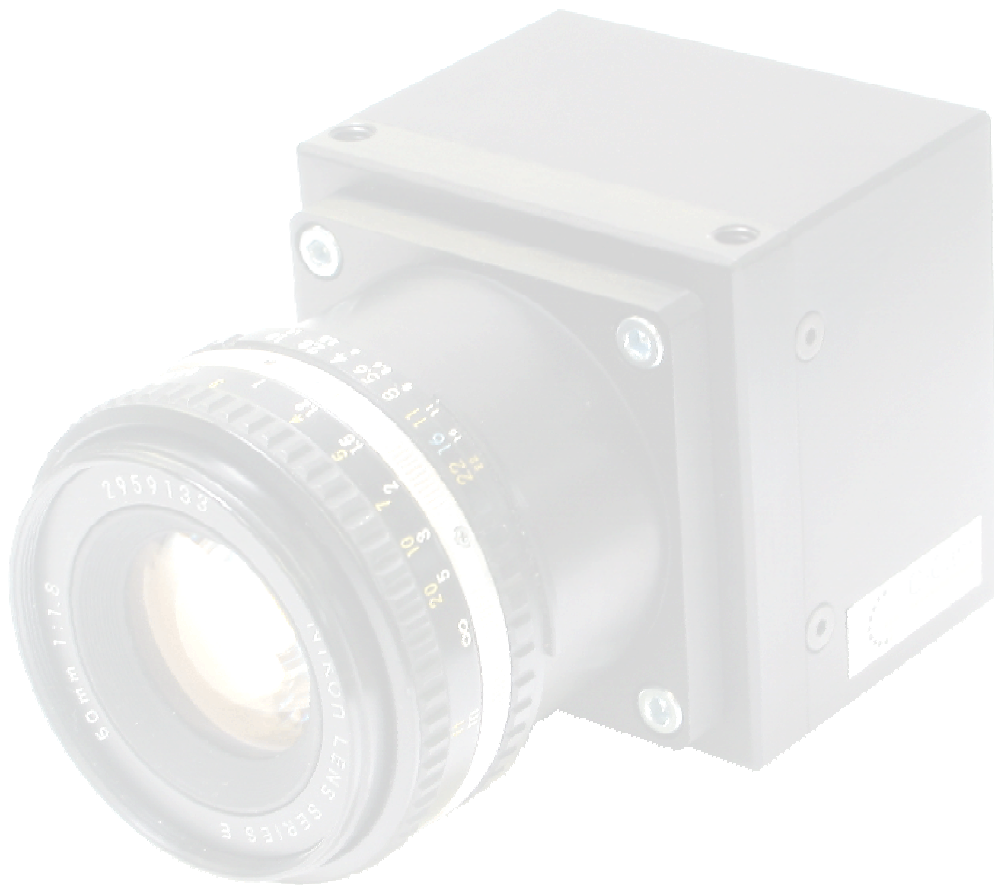




FCi4 Control

FCi4-14000 Camera Configuration Tool



**A utility for the configuration and
maintenance of
C-Cam Technologies' C-MOS
FCi4-14000 cameras with
USB and CameraLink Interface**

file: FCiControl.doc
Version 1.1
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Introduction

The FCi4-14000 high resolution camera has an in-camera control processor and flash memory for the storage of logic configuration files, image correction files and command files

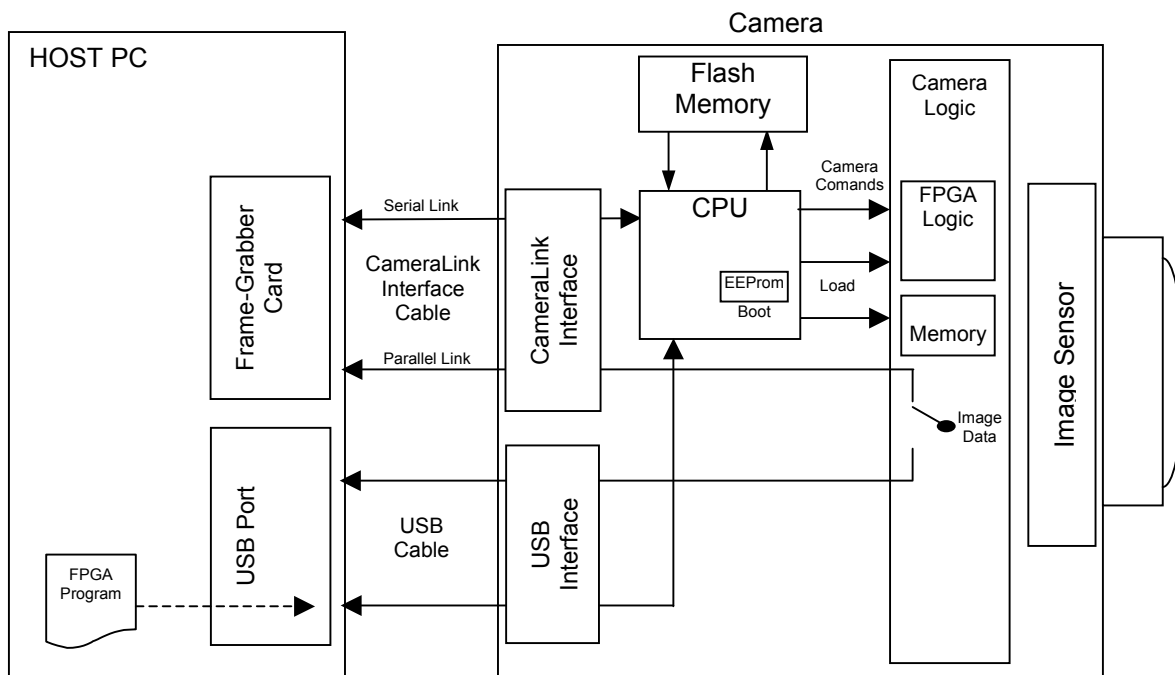
To save having to download this data each time the camera is used, the configuration file is held in this non-volatile SDF ('Flash') memory buffer in the camera and is transferred to the FPGA locally during the camera's power-up sequence.

The FCiControl Camera Control utility allows the user to communicate directly with the camera electronics and download a pre-compiled FPGA program, and other parameters, in preparation for use.

Terminology

uC of CPU	The heart of the BC electronics.
SDF	Serial Data Flash memory
FPGA	Field-Programmable Gate-Array in the camera logic.
Records	(also referred to as "pages") Blocks of data sent to SDF memory

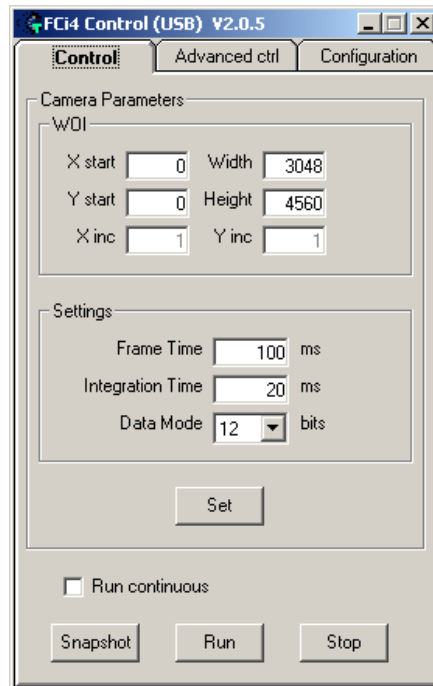
Block Diagram





The Configuration Tool

The GUI communicates with a camera via the USB interface. This communication channel requires some preparation before starting work.



Set applies any changes made to the Camera Parameters.

Snapshot commands the camera to transmit one image frame.

Run commands the camera to transmit image frames continually at the rate given in Frame Time.

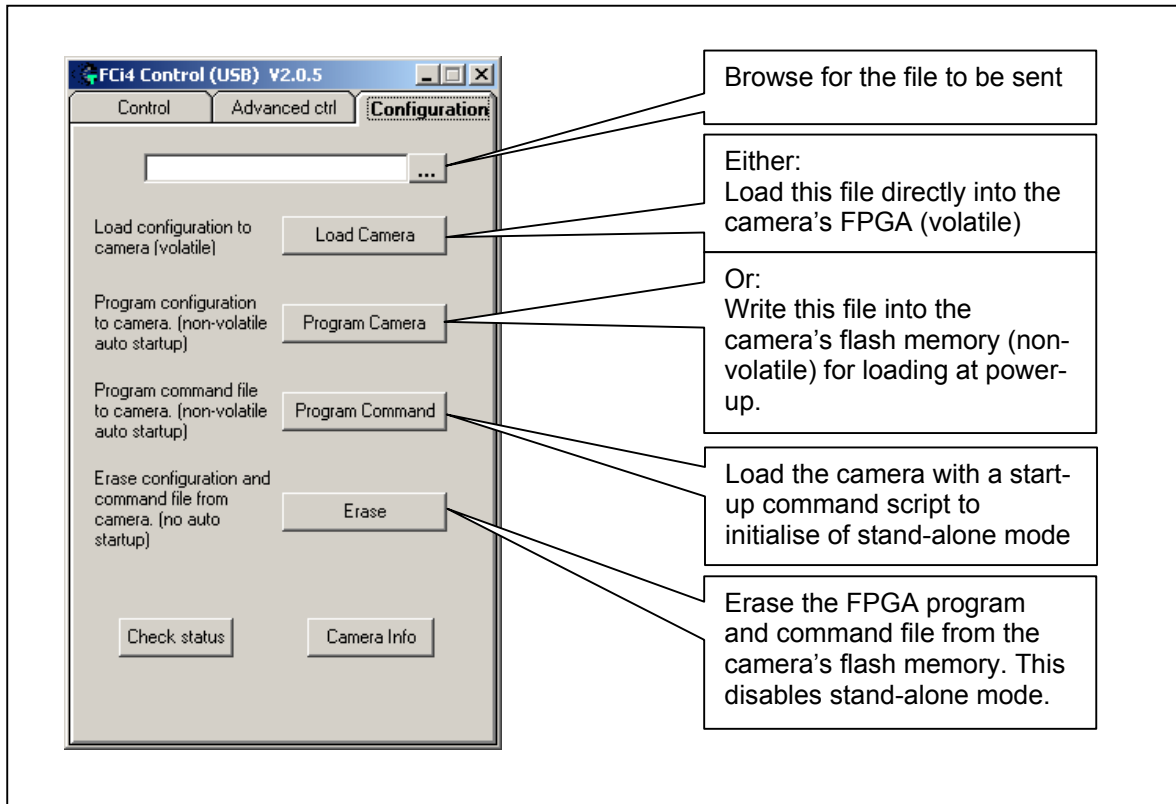
Run Continuous selects continuous rolling shutter mode. (NB. Only possible with the Camera Link interface and this mode disables the Frame Time setting)

Stop commands the camera to stop transmitting frames.

Note: Data Mode selects 12-bit or 8-bit pixel depth for the Camera Link interface. 8-bit mode selects the upper bits [11..4] of the 12-bit internal pixel data

Setting up for Auto-Start

To load a logic file into the camera or to store it in the camera's flash memory:

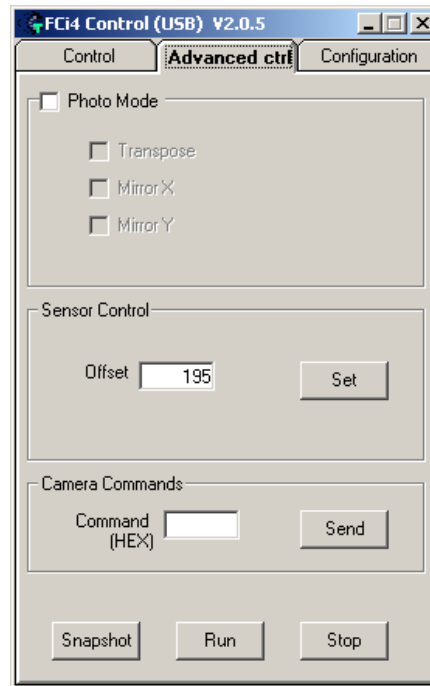


Check Status checks if the FPGA of the camera responds and returns the version number of the FPGA logic.

Camera Info generates a text file containing a report of camera settings, revision numbers, contents of the saved command file, etc.
NB. This text file should be available if technical support is required for the camera.



Advanced Camera Control



Selecting **Photo Mode** allows the camera to use internal buffering for image manipulation such as mirroring (**Mirror X** and **Mirror Y**) and rotation (**Transpose**). Photo Mode disables the 'Run Continuous' Mode.

Sensor Control provides access to internal registers of the imager.

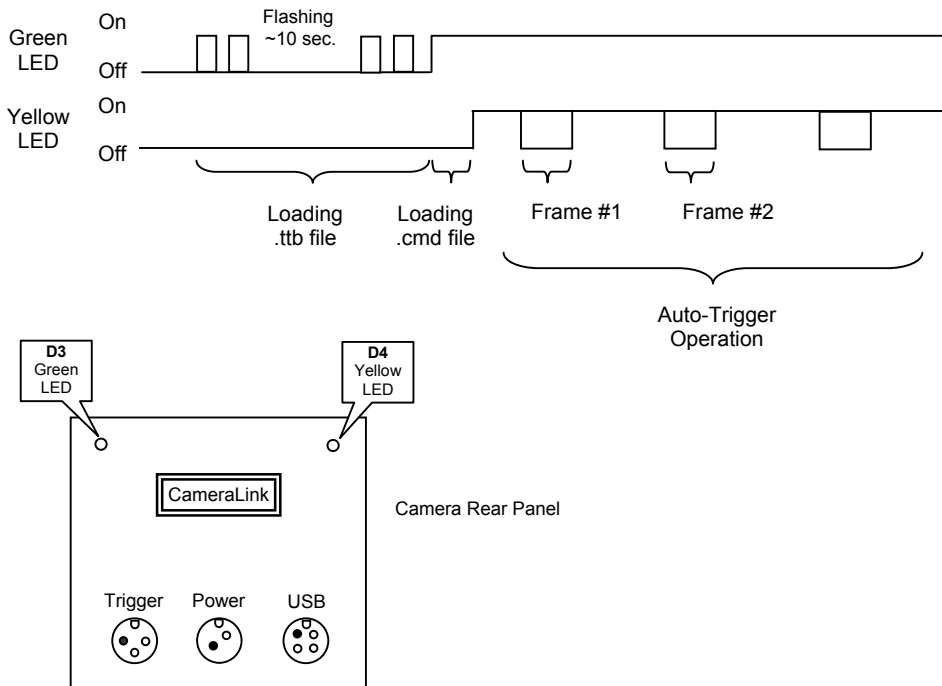
Camera Commands allows the experienced user to issue commands directly to the FPGA of the camera. (please refer to the list of commands in the FCI4-14000 user's manual)

Snapshot, **Run** and **Stop** have the same function as on the Control panel.

FCi4-14000 LED operation

Operation during the power-up sequence.

By observing the following sequence during the power-up phase you can see that the camera is correctly programmed



Possible combinations of LED states:

Green LED	Yellow LED	Status
Flashes steadily for several seconds then stays ON	Comes ON after Green LED stops flashing	Camera operation is OK FPGA logic and Command file are loaded
Flashes for several seconds then stays ON	Stays OFF	.TTB file loads OK but the command file is not present
Comes ON without flashing (or 2x fast)	Stays OFF	The .TTB file is not present in the camera's memory or can not be loaded correctly
Stays OFF	Stays OFF	Power supply or major internal fault

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