Custom VISCA^TM Commands for Harrier Interface Boards

Introduction

The camera may be controlled by the serial VISCA^TM commands (pins 6 and 7 on connector J3). This serial signal is routed through the interface board and on to the camera. Additionally, this serial signal is also connected to the internal processor on the interface board, and extended VISCA^TM commands (ones that the camera does not respond to) may be used to control the interface board in additional to the camera.

The VISCA^TM protocol anticipates connection of up to 8 cameras in a network, with each camera assigned a separate address. Default camera address is 1.

To differentiate interface board specific commands from camera commands, the interface board is assigned a "camera" address of 2.

Tamron cameras do not respond to interface board specific commands.

Sony EV series cameras echo the interface board specific command on the TX line, but otherwise ignore them.

For camera operation using VISCA^TM serial commands, refer to the camera's user manual.

"VISCA" is a registered trademark of Sony Corporation.

Operation with Tamron and Sony Demo Applications

Tamron provide an application which supports most, but not all, of the native camera commands via dialog boxes.

Camera commands which are not directly supported can be used by entering the required command string into the "Send data" dialog and clicking on the "Send" button.

Note that the Tamron application requires the data entered into this dialog to be comma delimited. The commas are stripped from the string before it is sent to the interface board / camera.

So, for example, to retrieve the interface board hardware health status, it is necessary to enter the string "82,09,0A,02,FF".

The Tamron application (applies to version 2.02E) does not directly support two important MP1110 camera commands as follows:

Set LVDS mode	81 01 04 24 74 00 00 FF (Single LVDS mode).
	81 01 04 24 74 00 01 FF (Dual LVDS mode).
Distortion Control	81 01 04 24 78 00 00 FF Distortion control off.
	81 01 04 24 78 00 01 FF Distortion control on (default).

If the lowest possible latency is required, distortion control on the camera can be turned off.

The Sony application has a dialog box labelled "Direct Command" which operates in a similar manner to the Tamron "Send data" dialog.

For the Sony application, command strings must be sent without commas or blank spaces between each byte.

So, for example, to retrieve the hardware health status, it is necessary to enter the string "82090A02FF".

Interface board VISCA^{TM} Commands

Successive firmware versions may add new interface board VISCA^{TM} commands, which are designed to be backward compatible with previous versions. To determine your current version, please use the "Return Interface Board Firmware Version" command, which is common to all firmware versions.

Function	Inquiry string (Hex)	Reply Packet	Description
Return Interface Board Firmware Version	82 09 0A 00 FF	90 50 r1 r2 r3 FF	r1 = Major Version r2 = Minor Version r3 = Sub Minor Version

When the firmware version has been established, find all extended VISCA commands listed for each firmware version below with the most recent listed first.

Version 2.2.0 Firmware

Function	Inquiry string (Hex)	Reply Packet	Description
Return Interface Board Firmware Version	82 09 0A 00 FF	90 50 r1 r2 r3 FF	r1 = Major Version r2 = Minor Version r3 = Sub Minor Version
Return Hardware ID / Board Rev	82 09 0A 01 FF	90 50 r1 r2 FF	r1 = Hardware ID r2 = Board ID
Return Hardware Health Status	82 09 0A 02 FF	90 50 r1 r2 FF	R1 = Status (Bit set indicates fault condition) Bit 0 = Voltage Bit 1 = Cam Clock Bit 2 = Si5317 loss of lock. Bit 3 = GV7700 loss of lock. Bits 4-7 Reserved. BB = Temperature +60 (0x3C).
Return DIP Switch Status	82 09 0A 03 FF	90 50 r1 FF	r1 = DIP Switch Setting

Function	Command string (Hex)	Reply Packet	Description
Camera hard reset (50ms)	82 01 0A 00 FF	90 40 FF	Acknowledge
Select Live / Pattern Gen Output	82 01 0A 01 xx FF Where xx is: 00 - External Control 01 - Live 02 - Pattern Gen	90 40 FF	Acknowledge
Select 4:3 / 16:9 Analogue	82 01 0A 02 xx FF Where xx is: 00 - 4:3 (Default) 01 - 16:9	90 40 FF	Acknowledge
Cross Hairs	82 01 0A 03 xx FF Where xx is: 00 – Off (Default) 01 – On	90 40 FF	Acknowledge

Sync Output	82 01 0A 04 xx FF Where xx is: 00 – Vsync (Default) 01 – Vsync# 02 – Hsync 03 – Hsync# 04 – Fsync 05 – Fsync# 06 – Logic low 07 – Logic high	90 40 FF	Acknowledge
Analog On / Off	82 01 0A 05 xx FF Where xx is: 00 – Off 01 – On (Default)	90 40 FF	Acknowledge

Analog output is supported only when the camera is operating in 720p 50/59.94/60Hz modes. It may be selectively turned off if not required to reduce energy consumption. This may be useful in battery powered applications, for example.

Version 2.0 to 2.1.1 Firmware

Function	Inquiry string (Hex)	Reply Packet	Description
Return Interface Board Firmware Version	82 09 0A 00 FF	90 50 r1 r2 r3 FF	r1 = Major Version r2 = Minor Version r3 = Sub Minor Version
Return Hardware ID / Board Rev	82 09 0A 01 FF	90 50 r1 r2 FF	r1 = Hardware ID r2 = Board ID
Return Hardware Health Status	82 09 0A 02 FF	90 50 r1 r2 FF	R1 = Status (Bit set indicates fault condition) Bit 0 = Voltage Bit 1 = Cam Clock. Bit 2 = Si5317 loss of lock. Bit 3-7 Reserved. BB = Temperature +60 (0x3C).

Function	Command string (Hex)	Reply Packet	Description
Camera hard reset (50ms)	82 01 0A 00 FF	90 40 FF	Acknowledge
Select Live / Pattern Gen Output	82 01 0A 01 xx FF Where xx is: 00 - External Control 01 - Live 02 - Pattern Gen	90 40 FF	Acknowledge
Select 4:3 / 16:9 Analog	82 01 0A 02 xx FF Where xx is: 00 - 4:3 (Default) 01 - 16:9	90 40 FF	Acknowledge
Cross Hairs	82 01 0A 03 xx FF Where xx is: 00 – Off (Default) 01 - On	90 40 FF	Acknowledge