VADDIO™ ZOOMSHOT™ 20 QDVI SYSTEM

High Definition Camera System with 20X Optical Zoom featuring the Quick-Connect DVI/HDMI-SR Interface

Model Number 999-6920-200 (North America)
Model Number 999-6920-201 (International)

Quick-Connect DVI/HDMI-SR System Interface

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OVERVIEW:

The Vaddio ZoomSHOT 20 QUSB camera system produces amazing results for small, medium and large room applications. Anywhere that a Point-of-View or stationary camera can be used alone or in conjunction with a Vaddio PTZ camera, to simplify camera coverage and preset positioning, the ZoomSHOT 20 is the answer.

Essentially, the ZoomSHOT 20 camera is a low cost pan/tilt/zoom camera, where the pan and tilt are adjusted manually. However, unlike fixed-lens stationary cameras, the ZoomSHOT 20 is equipped with a 20X optical power zoom lens that produces a horizontal field of view ranging from 63º on the wide end to 3.47º on the tele end in a HD 16:9 format.

ZoomSHOT 20 was designed from the ground up and uses the Vaddio EZCamera™ Cat-5 wiring standard for video, power and control. The ZoomSHOT 20 supports a wide range of HD video resolutions that are selectable on the rear panel up to the native 1080p/60 resolution. This camera can deliver HD video signals, power and control up to 150' (45.72m) on Cat-5 cable.

This system features the Quick-Connect DVI/HDMI-SR Interface, which uses the Vaddio EZCamera™ Cat-5 Cable System to transport HSDS™ (differential video), power and control to and from the camera over Cat-5 cables. The EZ-POWER VIDEO jack, color coded orange, carries power to the camera and returns differential HD video over the same Cat-5/5e/6 cable. The video output of the Quick-Connect DVI/HDMI-SR is clean and simultaneous HDMI or DVI-D and YPbPr analog component. The RS-232 jack, color coded blue, provides bi-directional control and IR Forwarding to and from the camera.

Choose between three (3) IR frequencies for the Vaddio IR SHOT Commander to allow multiple cameras to be locally IR controlled with a single remote control. And like all Vaddio camera packages, the thin profile wall mount is included.

Image: ZoomSHOT 20 HD Camera (above) and Rear Panel (below)

Image: Quick-Connect DVI/HDMI-SR Interface

Intended Use:

Before operating the device, please read the entire manual thoroughly. The system was designed, built and tested for use indoors with the power supply provided. Outdoor operation or use of a different power supply has not been tested and could damage the device and/or create a potentially unsafe operating condition.

Important Safeguards:

Read and understand all instructions before using. Do not operate any device if it has been dropped or damaged. In this case, a Vaddio technician must examine the product before operating. To reduce the risk of electric shock, do not immerse in water or other liquids and avoid extremely humid conditions.

Use only the power supply provided with the system. Use of any unauthorized power supply will void any and all warranties.

Please do not use "pass-thru" type RJ-45 connectors. These pass-thru type connectors do not work well for professional installations and can be the cause of intermittent connections which can result in the RS-232 control line failing and locking up, and/or compromising the HSDS (high speed differential) signals. For best results please use standard RJ-45 connectors and test all cables for proper pin-outs prior to connection to Vaddio product.

Save These Instructions:

The information contained in this manual will help you install and operate your product. If these instructions are misplaced, Vaddio keeps copies of Specifications, Installation and User Guides and most pertinent product drawings for the Vaddio product line on the Vaddio website. These documents can be downloaded from www.vaddio.com free of charge.

UNPACKING:

Carefully remove the product and all of the included parts from the packaging.

ZoomSHOT 20 QDVI Camera System (North America):
Part Number: 999-6920-200

- One (1) ZoomSHOT 20, HD Camera (998-6920-000)
- One (1) Vaddio IR Shot Commander Remote
- One (1) Quick-Connect DVI/HDMI-SR Interface (998-1105-018)
- One (1) 24 VDC, 2.0 A Power Supply with Power Cord for North America
- One (1) Thin Profile Wall Mount with Mounting Hardware
- One (1) EZCamera Cat-5 Control Adapter (RJ-45-F to DB-9-F)
- Quick-Start Guide

NOTE: Full manuals are downloaded from support.vaddio.com

ZoomSHOT 20 QDVI Camera System (International):
Part Number: 999-6920-201

- One (1) ZoomSHOT 20, HD Camera (998-6920-000)
- One (1) Vaddio IR Shot Commander Remote
- One (1) Quick-Connect DVI/HDMI-SR Interface (998-1105-018)
- One (1) 24 VDC, 2.0 A Power Supply
- One (1) Euro Power Cable
- One (1) UK Power Cable
- One (1) Thin Profile Wall Mount with Mounting Hardware
- One (1) EZCamera Control Adapter (RJ-45-F to DB-9-F)
- Quick Start Guide

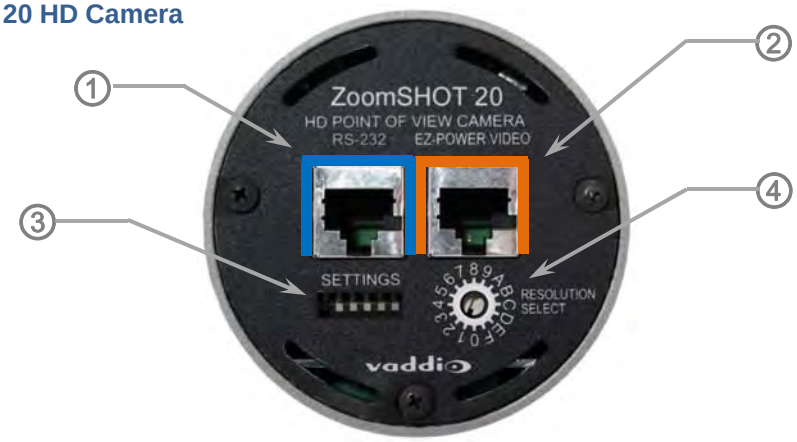
NOTE: Full manuals are downloaded from support.vaddio.com

ZoomSHOT 20 Front View with Feature Call-outs
Image: ZoomSHOT 20 HD PTZ Camera

1) **Lens:** 20X Optical Zoom Lens
2) **IR Sensor and Power/Tally LED:** The IR sensor for the IR SHOT Commander Remote is located here. In a separate opening, a blue LED power light and a red LED tally resides (it turns purple on boot up too).
3) **The Yoke:** For manual pan and tilt. Tilt range is ± 30° and Pan is limited to the service loop of the cabling.
4) **The Aluminum Base and Steel Cylindrical Body:** Please don't drop it on your foot, it's fairly substantial.
5) **Logo:** Really Cool Logo Badge (RCLB). The RCLB is affixed to the base in a recessed ovoid area.

Rear Panel Connections with Callouts

Image: ZoomSHOT 20 HD Camera



1) RS-232 (Color Coded Blue): The RS-232 RJ-45 accepts modified VISCA protocol for camera control.

2) EZ-POWER VIDEO Port (Color Coded Orange): This RJ-45 connector is only used with the Quick-Connect SR, Quick-Connect DVI-D/HDMI SR Interface, Quick-Connect USB and USB Mini Interfaces to supply power and return HSDS (differential) video from Vaddio cameras over Cat-5/5e/6 cable up to distance of 150' (45.72m).

3) ZoomSHOT 20 DIP Switch Settings: Settings for IR remote frequency, IR receiver on/off, image flip and defaults can be configured on these switches. See the Switch Settings page for additional information. The dip switch settings are as follows:

Table: ZoomSHOT 20 DIP Switch Settings

DIP Switch	Function
1	Up = IR1, Down = IR2
2	Up = IR 1 or 2, Down = IR3
3	Up=IR ON, Down = IR OFF
4	Up = Normal Image, Down = Image Flip
5	Not Used
6	Not Used
All Down	Reset to Defaults - with power cycle

4) HD Video Select:

A rotary switch allows the user to choose the component HD output video resolution and format. After setting or changing the resolution, reboot the camera to ensure proper operation. Simply set the rotary switch to an assigned position to output video. The HD Video Select Rotary Switch Settings are as follows:

Table: ZoomSHOT 20 HD VIDEO Selections

Rotary	Resolutions	Rotary	Resolutions
0	720p/59.94	8	1080p/50
1	1080i/59.94	9	--
2	1080p/59.94	A	--
3	720p/60	B	--
4	1080i/60	C	--
5	1080p/60	D	--
6	720p/50	E	1080p/30
7	1080i/50	F	1080p/25

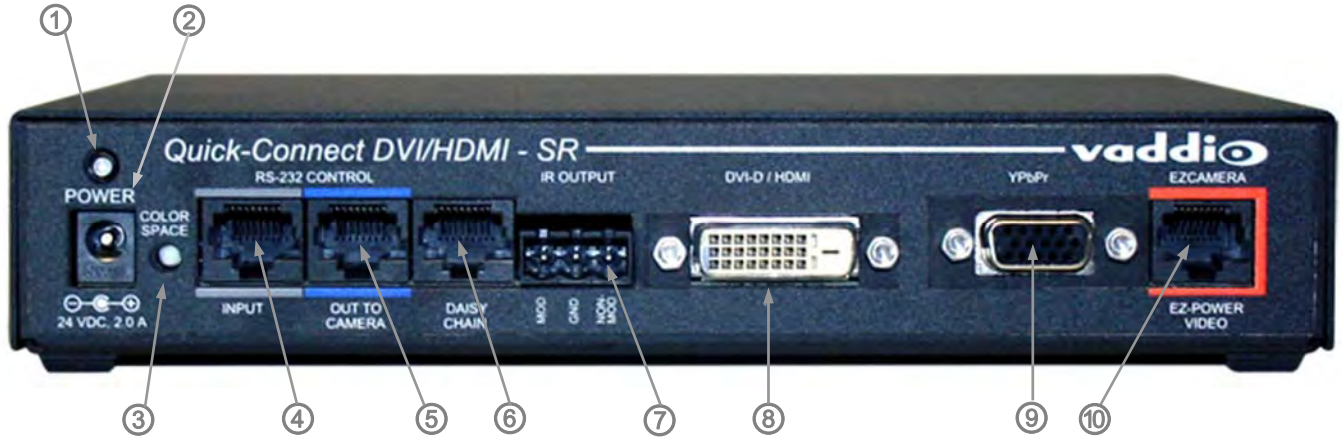
Point the notch in the switch stem to assign the rotary position

Notes:

- Set the rotary switch to an assigned position. If put on an unassigned position, then 720p/60 will be displayed.

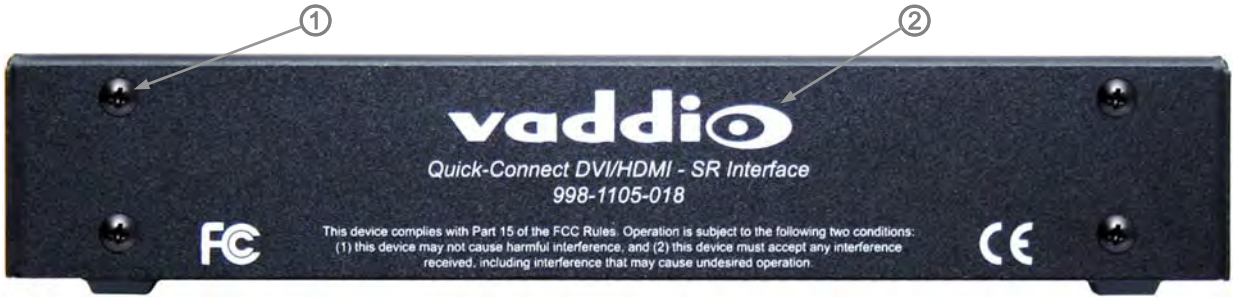
QUICK-CONNECT DVI/HDMI SR INTERFACE

Image: Rear Panel Connectors and Features



1) **Power Light:** Blue LED Power Indicator
2) **24 VDC 2.0 Amp Power Port:** Coax Power Connector, 5.5mm OD x 2.5mm ID, Positive Center.
3) **Recessed Color Space Conversion Switch:** Toggles between HDMI YCbCr and sRGB (RGBHV) color space. Change the color space to accommodate either HDMI or DVI-D monitors.
4) **RS-232 Control Input (Color Coded Grey):** From joystick controller, codec or control system.
5) **RS-232 OUT TO CAMERA (Color Coded Blue):** RS-232 Control to & from Camera and IR signals returned from the camera.
6) **Daisy Chain Control Port:** Daisy Chain Control Emulation (DCCE) output to next Quick-Connect DVI/HDMI SR Interface (does not function with the AutoTrak System).
7) **IR Output Port:** Non-modulated (for hard connections) and Modulated for use with IR emitters.
8) **DVI-D Output:** High Definition Multimedia Interface (HDMI) Transmitter, HDMI (v 1.3 with deep color) and DVI v 1.0 Compliant - use Recessed Color Space Conversion Switch ③ to toggle between HDMI YCbCr and sRGB (RGBHV) color spaces to suit your monitors
9) **YPbPr Output:** Analog Component Video Output on DE-15F (HD-15F) Connector, Resolutions up to 1080p/60 with monitor support.
10) **EZ-POWER VIDEO Port (Color Coded Orange):** Supplies power to camera and returns HD video from the camera via Cat-5e. Maximum distance on the CAT-5e cable is 100' (30.5 m).

Image: Quick-Connect DVI/HDMI SR Interface Front Panel



1) **Front Panel Screws (x 4):**
Remove and reuse these screws when mounting to the 998-6000-003 Optional 1-RU Rack Panel for Two (2) ½-Rack sized enclosures. Optional panel holds two (2) interfaces side-by-side in 1-RU space.

2) **Product Info:**
Logo, Name, Part Number FCC and CE Marks and standard FCC disclaimer language (the exciting stuff)...

Image: Basic Wiring Configuration

ZoomSHOT 20 HD POV Camera with Quick-Connect DVI/HDMI-SR Interface (color coded connectors) and ProductionVIEW Precision Camera Controller.

FIRST TIME SET-UP:

The ZoomSHOT 20 was designed to be very easy to use and operate. There is documentation at the back of this manual for pin-outs of the connectors on the Quick-Connect and camera.

Before Installing:

- Choose camera mounting location, paying close attention to camera viewing angles, lighting conditions, possible line of site obstructions, and checking for in-wall obstructions where the camera is to be mounted. Always pick a mounting location that will optimize the performance of the camera. Please locate the camera to enable easy positioning of the camera body with the ability to point down and away from the ceiling and a pile of fluorescent lighting cells. *Cameras generally don't like to be swamped with fluorescent light and nobody sits on the ceiling anyway*.
- The Thin Profile Wall Mount for the ZoomSHOT 20 can be mounted directly to a 1-gang wall box or can be mounted using only dry wall anchors.
- For Power/Video and RS-232 signals, use standard Cat-5/5e/6 cable (568B termination with real RJ-45 connectors) from the EZ-POWER VIDEO and RS-232 ports on the back of the ZoomSHOT 20 to the Quick-Connect DVI/HDMI-SR Interface. These jacks are *color coded* for ease of connection.

Step By Step Installation Instructions:

Step 1: After determining the optimum location of the camera, route, mark and test the two (2) Cat-5 cables from the camera to the Quick-Connect DVI/HDMI-SR Interface located at the head-end. The two Cat-5e cables should feed-through the hole located on the rear flange of the Thin Profile Wall Mount. If the bracket is to be mounted on a 1-gang wall box, use the screws supplied with the wall box cover plate to attach the Thin Profile Wall Mount. If mounting to the drywall with wall anchors, use two (2) quality wall anchors. The mounting holes are slotted and are 90° opposing to provide easy leveling. Level the mount and tighten the mounting screws.

Step 2:

Using the HD VIDEO SELECT rotary switch and CAMERA SETTINGS dip switches on the back of the camera, set up the camera's output resolution and functional preferences. There are tables on previous pages that identify the choices…maybe keep these tables handy for future use…or you can easily look them up on the Vaddio website (vaddio.com) when needed.

On the camera:

- Set the desired HD Resolution with the rotary selection switch.
- Set the IR frequency of the camera (if it is to respond to the IR remote control).
- Set the image orientation (normal or flipped).

Step: 3: Follow the sample wiring diagram for connecting the Cat-5 cables to the ZoomSHOT 20 and Quick-Connect DVI/HDMI-SR Interface (yep, on the previous page, but read and understand the rest of these instructions especially the next note).

NOTE: Check all Cat-5e cables for continuity in advance of the final connection. Label the Cat-5e cables. Plugging the EZ-POWER VIDEO cable into the wrong RJ-45 may cause damage to the camera system and void the warranty. For premise cabling, please use real RJ-45 connectors and crimpers. Please don't use the pull through or EZ-type RJ-45s.

Step 4: Place the camera onto the camera mount and use the provided ¼"-20 screws to secure the camera to the mount. To dress the cabling, push the extra cable back into the wall opening.

Step 5: Connect the Vaddio 24 VDC, 2.08 Amp power supply to a power outlet and to the Quick Connect DVI/HDMI-SR Interface. Power will travel down the EZ-POWER VIDEO Cat-5e cable to the camera. The camera will boot up and in a few seconds, HSDS (differential) video will travel back down the Cat-5e cable and be ready to accept control information from the IR remote control or RS-232 camera controller.

To insure proper continuity of control and operation of the cameras, the RS-232 controller (control system or joystick) should be powered on after the camera and interface.

GENERAL SPECIFICATIONS

ZoomSHOT 20 QSR System	
Part Numbers	ZoomSHOT 20 QDVI System 999-6920-200 (North America) ZoomSHOT 20 QDVI System 999-6920-201 (International)
ZoomSHOT 20 Camera	
Image Sensor	1/2.8-Type Exmor CMOS Image Sensor
Total/Effective Pixels	2.38 Million Total Pixels, 2.14 Million Effective pixels
Video Output Resolutions	HD: 1080/59.94/50/30/25, 1080i/59.94/50, 720p/59.94/50, 16:9 Aspect Ratio
Lens/ Focal Length	20X Optical Zoom, F=4.44mm wide end to 89mm tele end (F1.6 - F3.4), Min. Focus Distance 1.5m
Horizontal Viewing Angle	Horizontal: 63º Wide End to 3.47º Tele End, (16:9 Aspect Ratio)
Video S/N Ratio	>52 dB
Minimum Illumination	Color: 0.3 Lux (F1.6, 1/30 sec, 50 IRE), B/W: 0.03 Lux (F1.6, 1/30 sec, 50 IRE)
Serial Control Protocol	RS-232 (Modified VISCA)
Manual Pan/Tilt Range	Pan: Limited to service loop of cabling, yoke and base are mechanical only Tilt: ± 30°, Invertible for Ceiling Mount
Preset Positions	Six (6) Programmed and Recalled via IR Remote, 16 Programmed and Recalled with RS-232
Tally Light	Available through RS-232 Control
Camera Connectors	Two (2) RJ-45 Jacks: • EZ-POWER VIDEO RJ-45 Jack for use with Quick-Connect - Supplies power to the camera and returns differential HD video from the camera • RS-232 RJ-45 Jack (RS-232 Communication)
HD Video Select	16-Position Rotary Switch: Used to set the ZoomSHOT 20 HD Video Resolution Output
Camera Settings	6-Position Dip Switch: For IR Frequency, IR ON/OFF and Image Flip
Thin Profile Wall Mount	(Provided with camera) Black powder coating, Sized to fit on 1-gang wall box or drywall, mounting hardware included
User Controls	IR Shot Commander Remote with OSD for camera set-up, RS-232
Materials & Weight	Aluminum & Steel, Weight = 2.75643 lbs. (1.68kg)
Dimensions:	Tube: 3” (76.2mm) Diameter x 4.75” (120.65mm) Long Base: 5.5” (139.7mm) Diameter Overall Height: 5.5” (139.7mm) Tall
Quick-Connect DVI/HDMI-SR Interface	
Quick-Connect System	Quick-Connect DVI/HDMI-SR Interface (two Cat-5e) for distances up to 150’ (45.72m) HDMI or DVI-D and Analog Component YPbPr output with IR forwarding
Connectors	• Power Connector: 5.5mm OD, 2.5mm ID coaxial connector • RJ-45: Four (4) Control IN, Control OUT, Daisy Chain OUT, EZCamera Power Video Port • Video Output: DE-15 connector for HD Analog Component (Y,PB,PR) video only (No SD Support) • IR Output: Transmits modulated or non-modulated IR signals received from the HD-20 IR receiver • Video Outputs: DVI-D (Female - Single Link) or HDMI with adapter cable (using the Recessed Color Space Conversion Switch) , DE-15F (High Density D-Sub 15-Pin F) for HD YPbPr
Cat-5 Cable Distance	Up to 150’ (45.72m)
Power Supply	24 VDC, 2.0 Amp Switching Power Supply with AC Cord Set
Dimensions	½-Rack Size, 1.6” (40.64mm) H x 8” (203.2mm) W x 6.751” (171.45mm) D,
Weight	1.21 lbs. (0.5488468kg)
Accessory Options	1-RU Rack Mount Panel for two (2) units (side by side): P/N: 998-6000-003

VADDIO IR SHOT COMMANDER REMOTE

Spatially Efficient IR Remote Controller for ZoomSHOT™ 20 and WideSHOT™ Camera Systems

The Vaddio IR SHOT Commander was designed to work with the Vaddio ZoomSHOT and WideSHOT camera systems and is compatible with the PowerVIEW™, ClearVIEW™ cameras The Vaddio IR SHOT Commander is compatible with the following Vaddio camera packages:

- ZoomSHOT 20 and WideSHOT Camera Systems (shipped with these products)
- Vaddio ClearVIEW, HD-20SE, PowerVIEW HD-22 and HD-30

The Vaddio IR Shot Commander is also compatible with the Sony® EVI series and the BRC series PTZ cameras.

Image: Vaddio IR SHOT Commander Hand-held IR remote

(Top View)

Quick Specs	
IR Range	20’ to 30’ (6m to 9m)
Batteries	2 x AAA (Batteries not shipped with 998-2101-001)
Keys (buttons)	15 Silicone Rubber Keys
Dimensions L x W x H	4.53” (115mm) x 1.57” (40mm) x 1.1” (28mm)
LED Indicator	Red LED Illuminates when transmitting IR, Brightness indicates battery strength
Compatible Cameras	Ships with ZoomSHOT and WideSHOT. Compatible with all Vaddio ClearVIEW,, PowerVIEW cameras (limited function set) and most Sony BRC & EVI cameras.

TABLE: ZOOMSHOT 20 OSD MENU STRUCTURE

Use this OSD menu with the IR SHOT Commander to make video adjustments (AWB, COLOR, EXP, etc…) on the HD-20SE Camera.

Menu	Controls	Modes/Range	Default	Notes
SSDR	**OFF**		OFF	Dynamic Range Adjustment
	ON	SSDR 0-15	8*	*When Dynamic Range is ON
	Return			Return to Main Menu
WHITE BAL	**ATW**		ON	Auto White Balance - ON
	MANUAL>	RED 0 - 1000	560	Adjust Red Level
		BLUE 0 - 1000	480	Adjust Blue Level
		RETURN<		Return to WHITE BAL Menu
	AWC-SET			
	OUTDOOR	**Set to Outdoor when room has direct sun light and blue walls**		
	INDOOR	**Set to Indoor when fluorescent lights start to cause color variation in ATW mode**		
	MERCURY			
	SODIUM			
	RETURN<			Return to Main Menu
BACKLIGHT	**OFF**		OFF	Default BLC is off
	WDR>	LEVEL (LOW / MED / HIGH)	OFF	Wide Dynamic Range
		RETURN<		
	BLC>	LEVEL (LOW / MED / HIGH)	OFF	
		BOTTOM 1-100		
		LEFT 1-100		
		RIGHT 1-100		
		RETURN<		Return to BACKLIGHT Menu
	HLC>	LEVEL (LOW / MED / HIGH)	OFF	
		MASK TONE 1-15		
		RETURN<		Return to BACKLIGHT Menu
	RETURN<			Return to Main Menu
INTELLIGENCE	**OFF**	**Intelligence, motion detection analytics and masking are not processed or used by the camera, however the OSD menu still works.**		
FOCUS	**MODE**	AUTO / MANUAL / ONE PUSH	AUTO	
	ZOOM TRACK>	OFF / TRACK / AUTO TRACK	AUTOTRACK	
	ZOOM SPEED>	SLOW / MEDIUM / FAST		
	DIGITAL ZOOM>	OFF/ON	OFF	Default is OFF
		ON>LIMIT X2 - X16		Avoid Digital Zoom if possible
		RETURN<		Return to FOCUS Menu
	Zoom POS INIT>	OFF/AUTO		Zoom position initialization
		MANUAL>		
		POS INIT 1X - 20X	1X	Sets INIT Zoom Position
		RETURN<		Return to FOCUS Menu
	USER PRESET>	OFF/ON	OFF	
		ON > PRESET NO 1-128	1	Zoom Presets
		PRESET SAVE		
		PRESET CLEAR		
		RETURN<		Return to FOCUS Menu
	LENS INIT	MANUAL / AUTO		
	RETURN<			Return to Main Menu
EXPOSURE	**BRIGHTNESS**	0-100	50	Brightness Sets Luminance Target
	IRIS>	AUTO	AUTO	Automatic Gain Control
		MANUAL>	Closed to F28	Manual Iris
		RETURN<		Return to EXPOSURE Menu
	SHUTTER	A FLK	**Use Anti-Flicker when lighting causes color hunting**	
		ESC		
		MANUAL> 1/30 - 1/30,000 sec.		Shutter Speed
		RETURN<		Return to EXPOSURE Menu
	AGC	OFF / LOW /MED / HIGH	LOW	
		MANUAL (OFF)>		
		AGC VALUE 0 - 36dB	0 dB	Automatic Gain Control
		RETURN<		
	SSNR	OFF / LOW /MED / HIGH	LOW	Noise Reduction - Don't use above Low
	SENS-UP	OFF	OFF	**OFF - Do not Use**
	RETURN<			Return to Main Menu

ZoomSHOT 20 OSD Menu Structure (continued)

Menu	Controls	Range/Modes	Default	Notes
SPECIAL	**DAY/NIGHT>**	COLOR / B/W / AUTO	COLOR	**Do not use**
	DIS>	OFF / ON	OFF	Digital Image Stabilization - leave off
	DEFOG	OFF / ON / MANUAL/AUTO	OFF	**Do not use**
	COMM ADJUST>	**BAUD RATE**	**NEVER CHANGE THE BAUD RATE OR THE UART SETTINGS - Control is lost if these are changed. Factory default reboot will be required.** 	
		UART		
		RETURN<		Return to SPECIAL Menu
	IMAGE ADJUST>	H-REV ON / OFF	OFF	Use Dip Switch on Camera to Flip Image
		V-REV ON / OFF	OFF	Use Dip Switch on Camera to Flip Image
		SHARPNESS ON/OFF	ON	Picture Detail
		ON> 0-30	15	
		RETURN<		Return to IMAGE ADJUST Menu
		MONITOR LCD>		
		GAMMA .0 -1.0	0.50	
		COLOR LEVEL 0-100	50	
		RETURN<		Return to IMAGE ADJUST Menu
		USER>		
		GAMMA .0 - 1.0	0.50	
		COLOR LEVEL 0-100	50	
		RETURN<		Return to IMAGE ADJUST Menu
		RETURN<		Return to Main Menu
	DISPLAY	CAM TITLE ON / OFF	OFF	
		ON> A-Z, 1-9		
		RETURN<		Return to DISPLAY Menu
		CAM ID ON / OFF	OFF	
		CAM INFO ON / OFF	OFF	
		ZOOM MAG ON/OFF	OFF	
		OSD COLOR	WHITE	WHITE/YELLOW/GREEN/RED/BLUE
		LANGUAGE SET LANGUAGE	ENGLISH	(ENG, FR, KOR, SP, CHIN, JAP, PORT, RUS, DUT, ITAL)
		RETURN<		Return to Main Menu
	VIDEO OUT FORM	COMPONENT ON / OFF	ON	**Do not change this parameter**
		RETURN<		Do not change resolutions here - Use the Rotary Switch on the back of the camera
RESET				
EXIT				

COMPLIANCE AND CE DECLARATION OF CONFORMITY - ZOOMSHOT 20

Compliance testing was performed to the following regulations:

- **FCC Part 15** (15.107, 15.109)**, Subpart B** — Class A
- **ICES-003, Issue 4: 2004** — Class A
- **EN 55022:2010** — Class A
- **KN22 2008 (CISPR 22: 2006)** — Class A
- **KN24 2008 (CISPR 24: 1997 + A1: 2000 + A2: 2002)** — Class A
- **EMC Directive 2004/108/EC** — Class A
- **EN 55024: A2: 2003** — Class A

FCC Part 15 Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15, Subpart B, of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference including interference that may cause undesired operation of the device.
Changes or modifications not expressly approved by Vaddio can affect emission compliance and could void the user's authority to operate this equipment.

ICES-003 Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.
Le présent appareil numérique n'emet pas de bruits radioélectriques dépassant les limites applicables aux appareils numeriques de la classe A préscrites dans le Règlement sur le brouillage radioélectrique édicte par le ministère des Communications du Canada.

European Compliance

This product has been evaluated for Electromagnetic Compatibility *under the EMC Directive for Emissions and Immunity and meets the requirements for a Class A digital device. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.*

Standard(s) To Which Conformity Is Declared:

EMC Directive 2004/108/EC	
EN 55022:2010	*Class A*
EN 55024: A2: 2003	*Immunity*
• *EN 61000-4-2: 1995 + Amendments A1: 1998 + A2: 2001*	*Electrostatic Discharge*
• *EN 61000-4-3: 2006 + A1: 2008*	*Radiated Immunity*
• *EN 61000-4-4: 2004 + Corrigendum 2006*	*Electrical Fast Transients*
• *EN 61000-4-5: 2006*	*Surge Immunity*
• *EN 61000-4-6: 2009*	*Conducted Immunity*
• *EN 61000-4-8: 2010*	*Power Frequency Magnetic Field*
• *EN 61000-4-11: 2004*	*Voltage Dips, Interrupts and Fluctuations*
KN24 2008 (CISPR 24: 1997 + A1: 2000 + A2: 2002)	*IT Immunity Characteristics*
• *EN 61000-4-2*	*Electrostatic Discharge*
• *EN 61000-4-3*	*Radiated Immunity*
• EN 61000-4-4	Electrical Fast Transients
• EN 61000-4-5	Surge Immunity
• EN 61000-4-6	Conducted Immunity
• EN 61000-4-8	Power Frequency Magnetic Field
• EN 61000-4-11	Voltage Dips, Interrupts and Fluctuations
IEC 60950-1:2005 (2nd Edition); Am 1:2009	Safety
EN 60950-1:2006+A11:2009+A1:2010+A12:2011	Safety

COMPLIANCE AND CE DECLARATION OF CONFORMITY - QUICK-CONNECT DVI/HDMI-SR INTERFACE

Compliance testing was performed to the following regulations:

- **FCC Part 15, Subpart B** Class A
- **ICES-003, Issue 4: 2004** Class A
- **European Standard EN 55022 A: 2006 + A1: 2007(CISPR 22:2005/A1:2005)** Class A
- **EMC Directive 2004/108/EC** Class A

FCC Part 15 Compliance

- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15, Subpart B, of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.
- Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference including interference that may cause undesired operation of the device.
- Changes or modifications not expressly approved by Vaddio can affect emission compliance and could void the user's authority to operate this equipment.

Industry Canada Industrie Canada

ICES-003 Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'emet pas de bruits radioélectriques dépassant les limites applicables aux appareils numeriques de la classe A préscrites dans le Règlement sur le brouillage radioélectrique édicte par le ministère des Communications du Canada.

European Compliance

This product has been evaluated for Electromagnetic Compatibility under the EMC Directive for Emissions and Immunity and meets the requirements for a Class A digital device. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Ferrite cylinders are included in order to the Quick-Connect DVI/HDMI SR Interface to strictly comply with the European Community EMC Directives compliance. Use these ferrites to ensure the elimination of possible EMI interference from cell phones and AC motors.

Standard(s) To Which Conformity Is Declared:

EMC Directive 2004/108/EC

EN 55022 A: 2006 + A1 2007 (CISPR 22:2005/A1:2005) Conducted and Radiated Emissions

EN 55024: 1998 + Amendments A1: 2001 + A2: 2003 - Electromagnetic Compatibility - Immunity

EN 61000-4-2 Electrostatic Discharge

EN 61000-4-3 Radiated Immunity

EN 61000-4-4 Electrical Fast Transients

EN 61000-4-5 Surge Immunity

EN 61000-4-6 Conducted Immunity

EN 61000-4-8 Power Frequency Magnetic Field

EN 61000-4-11 Voltage Dips, Interrupts and Fluctuations

WARRANTY INFORMATION

(See Vaddio Warranty, Service and Return Policies posted on vaddio.com for complete details):

Hardware* Warranty: Two (2) year limited warranty on all parts and labor for Vaddio manufactured products. Vaddio warrants its manufactured products against defects in materials and workmanship for a period of two years from the day of purchase, to the original purchaser, if Vaddio receives notice of such defects during the warranty. Vaddio, at its option, will repair or replace products that prove to be defective. Vaddio manufactures its hardware products from parts and components that are new or equivalent to new in accordance with industry standard practices.

Exclusions: The above warranty shall not apply to defects resulting from improper or inadequate maintenance by the customer, customers applied software or interfacing, unauthorized modifications or misuse, mishandling, operation outside the normal environmental specifications for the product, use of the incorrect power supply, modified power supply or improper site operation and maintenance. OEM products and products manufactured by other companies are excluded and are covered by the manufacturer's warranty.

Vaddio Customer Service: Vaddio will test, repair, or replace the product or products without charge if the unit is under warranty. If the product is out of warranty, Vaddio will test then repair the product or products. The cost of parts and labor charge will be estimated by a technician and confirmed by the customer prior to repair. All components must be returned for testing as a complete unit. Vaddio will not accept responsibility for shipment after it has left the premises.

Vaddio Technical Support: Vaddio technicians will determine and discuss with the customer the criteria for repair costs and/or replacement. Vaddio Technical Support can be contacted through one of the following resources: e-mail support at support@vaddio.com or online at vaddio.com.

Return Material Authorization (RMA) Number: Before returning a product for repair or replacement request an RMA from Vaddio's technical support. Provide the technician with a return phone number, e-mail address, shipping address, product serial numbers and original purchase order number. Describe the reason for repairs or returns as well as the date of purchase. See the General RMA Terms and Procedures section for more information. RMA's are valid for 30 days and will be issued to Vaddio dealers only. End users must return products through Vaddio dealers. Include the assigned RMA number in all correspondence with Vaddio. Write the assigned RMA number clearly on the shipping label of the box when returning the product. All products returned for credit are subject to a restocking charge without exception.

Voided Warranty: The warranty does not apply if the original serial number has been removed or if the product has been disassembled or damaged through misuse, accident, modifications, use of incorrect power supply, use of a modified power supply or unauthorized repair.

Shipping and Handling: Vaddio will not pay for inbound shipping transportation or insurance charges or accept any responsibility for laws and ordinances from inbound transit. Vaddio will pay for outbound shipping, transportation, and insurance charges for all items under warranty but will not assume responsibility for loss and/or damage by the outbound freight carrier. If the return shipment appears damaged, retain the original boxes and packing material for inspection by the carrier. *Contact your carrier immediately***.**

Products not under Warranty: Payment arrangements are required before outbound shipment for all out of warranty products.

Other General Information:

Care and Cleaning

Do not attempt to take this product apart at any time. There are no user-serviceable components inside.

- Do not spill liquids in the product
- Keep this device away from food and liquid
- For smears or smudges on the product, wipe with a clean, soft cloth
- Use a lens cleaner on the lens - really, only use a lens cleaner
- Do not use any abrasive chemicals.

Operating and Storage Conditions:

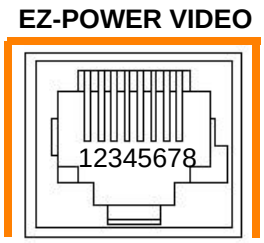
Do not store or operate the device under the following conditions:

- Temperatures above 40°C (104°F) or temperatures below 0°C (32°F)
- High humidity, condensing or wet environments
- In inclement weather
- In swimming pools or salmon farms
- Dry environments with an excess of static discharge
- In outer space (mostly gamma ray issues)
- Under severe vibration

APPENDIX 1: PIN-OUTS FOR ZOOMSHOT 20 CAMERA AND QUICK-CONNECT DVI/HDMI-SR

Table: EZ-POWER VIDEO RJ-45 Connector Pin-outs

Pin	Signal
1	Power+
2	Power-
3	Y+
4	PB+
5	PB -
6	Y -
7	PR+
8	PR-



Important Note: The EZ-POWER VIDEO RJ-45 Connector on a Vaddio CAT-5 system camera is for use with the Quick-Connect SR, Quick-Connect DVI/HDMI SR, Quick-Connect USB and USB Mini Interfaces ONLY (568B Wiring Standard). The video signals are differential (HSDS) and can only be processed by the interfaces above.

Table: ZoomSHOT 20 Camera RS-232 Port

Pin #	Function
Pin - 1	N/A
Pin - 2	N/A
Pin - 3	N/A
Pin - 4	Not Used with QC-USB
Pin - 5	Not Used with QC-USB
Pin - 6	Digital GND
Pin - 7	RXD (from TXD of control source)
Pin - 8	TXD (to RXD of control source)

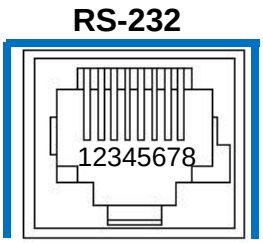
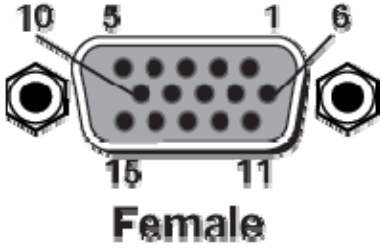


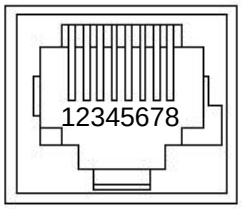
Table: Quick-Connect DVI/HDMI-SR DE-15 Pin-Output (Analog Component YPbPr)

Pin	YPbPr
1	Pr
2	Y
3	Pb
4	-
5	-
6	Pr GND
7	Y GND
8	Pb GND
9	-
10	GND
11	-
12	-
13	-
14	-
15	-



COMMUNICATION SPECIFICATION

Communication Speed: 9600 bps (default)
Start bit: 1
Stop bit: 1
Data bits: 8
Parity: None
No Flow control



Pin #	RJ-45 RS-232 and IR Out Pins
1)	Unused
2)	Unused
3)	Unused
4)	IR Output (Diff Signal to Quick-Connect SR)
5)	IR Ground (Diff Signal to Quick-Connect SR)
6)	GND (GND of IR Short Range - Pin 3)
7)	RXD (from TXD of control source)
8)	TXD (to RXD of control source)

NOTE: The Vaddio ZoomSHOT 20 Control Protocol is similar, but not identical to, the Sony® VISCA™ command set in order to be compatible with several popular control devices. Not all VISCA commands are supported and there are many HD-Series specific commands in the following Command and Inquiry Lists.

ZoomSHOT 20 Command List (1/2)

Command Set	Command	Command Packet	Comments
Address Set	Broadcast	88 30 01 FF	Address Set (Daisy chain)
IF_Clear	Broadcast	88 01 00 01 FF	IF Clear
Command Cancel		8x 2p FF	p:socket number(1,2)
CAM_Power	On Off(Standby)	8x 01 04 00 02 FF 8x 01 04 00 03 FF	Power On/Off
CAM_Zoom	Stop Tele(Standard) Wide(Standard) Tele(Variable) Wide(Variable) Direct Direct(Variable)	8x 01 04 07 00 FF 8x 01 04 07 02 FF 8x 01 04 07 03 FF 8x 01 04 07 2p FF 8x 01 04 07 3p FF 8x 01 04 47 0p 0q 0r 0s FF 8x 01 7E 01 4A 0v 0p 0q 0r 0s FF	 pqrs: Zoom Position* v:(Speed) 0-7
CAM_Focus	Stop Far(Standard) Near(Standard) Far(Variable) Near(Variable) AutoFocus ManualFocus Auto/Manual Direct	8x 01 04 08 00 FF 8x 01 04 08 02 FF 8x 01 04 08 03 FF 8x 01 04 08 2p FF 8x 01 04 08 3p FF 8x 01 04 38 02 FF 8x 01 04 38 03 FF 8x 01 04 38 10 FF 8x 01 04 48 0p 0q 0r 0s FF	 pqrs: Focus position*
CAM_WB	Auto Manual Indoor Outdoor One Push WB	8x 01 04 35 00 FF 8x 01 04 35 05 FF 8x 01 04 35 01 FF 8x 01 04 35 02 FF 8x 01 04 35 03 FF	
CAM_RGain	Reset Up Down Direct	8x 01 04 03 00 FF 8x 01 04 03 02 FF 8x 01 04 03 03 FF 8x 01 04 43 0p 0q 0r 0s FF	 pqrs:00-0xffff
CAM_BGain	Reset Up Down Direct	8x 01 04 04 00 FF 8x 01 04 04 02 FF 8x 01 04 04 03 FF 8x 01 04 44 43 0p 0q 0r 0s FF	 pqrs:00-0xffff
CAM_AE	Full Auto Manual Shutter Priority Iris Priority	8x 01 04 39 00 FF 8x 01 04 39 03 FF 8x 01 04 39 0A FF 8x 01 04 39 0B FF	Auto Exposure Mode Manual Control Mode Shutter Priority Mode Exposure Priority Mode (default)
CAM_Iris	Reset Up Down Direct	8x 01 04 0B 00 FF 8x 01 04 0B 02 FF 8x 01 04 0B 03 FF 8x 01 04 4B 00 00 0p 0q FF	 pq(0x00-0x08)
CAM_Gain	Reset Up Down Direct	8x 01 04 0C 00 FF 8x 01 04 0C 02 FF 8x 01 04 0C 03 FF 8x 01 04 4C 00 00 0p 0q FF	 pq(0x00-0x2A)
CAM_Bright	Reset Up Down Direct	8x 01 04 0D 00 FF 8x 01 04 0D 02 FF 8x 01 04 0D 03 FF 8x 01 04 4D 00 00 0p 0q FF	 pq(0x01-0x64)

ZoomSHOT 20 Command List (2/2)

Command Set	Command	Command Packet	Comments
CAM_Backlight	On Off	8x 01 04 33 02 FF 8x 01 04 33 03 FF	
CAM_Aperture	Reset Up Down Direct	8x 01 04 02 00 FF 8x 01 04 02 02 FF 8x 01 04 02 03 FF 8x 01 04 42 00 00 0p 0q FF	 pq(0x00-0x1F)
CAM_Memory	Reset Set Recall	8x 01 04 3F 00 0p FF 8x 01 04 3F 01 0p FF 8x01 04 3F 02 0p FF	 p:Memory No(=0-0xF)
CAM_IDWrite		8x 01 04 22 0p 0q 0r 0s FF	pqrs:0x0000 – 0xFFFF
CAM_LR_Reverse On	On Off	8x 01 04 61 02 FF 8x 01 04 61 03 FF	Mirror (Horizontal) on Mirror (Horizontal) off
IR_Receive##	On Off On/Off	8x 01 06 08 02 FF 8x 01 06 08 03 FF 8x 01 06 08 10 FF	 IR forwarding/Local IR
Tally	On Off	8x 01 7E 01 0A 00 02 FF 8x 01 7E 01 0A 00 03 FF	
BLK.Enhance	Pedestal	No Support	No Support
GMA.Enhance	Gamma	8x 01 7E 54 00 00 0p 0q FF	pq: Gamma (0x00-0x10)
CRM.Enhance	Chroma	8x 01 7E 55 00 00 0p 0q FF	pq: Chroma (0x00-0x64)
KNE.Enhance	Knee	No Support	No Support
DIS.Enhance	Digital Image Stabilizer	8x 01 7E 57 02 FF 8x 01 7E 57 03 FF	On Off
SNR.Enhance	Super Noise Reduction	8x 01 7E 58 02 FF 8x 01 7E 58 03 FF	On Off
AGC.Enhance	AGC Mode	8x 01 7E 59 00 FF 8x 01 7E 59 01 FF 8x 01 7E 59 02 FF 8x 01 7E 59 03 FF	Off Low Medium High
CAM_Shutter	Reset Up Down Direct	8x 01 04 0A 00 FF 8x 01 04 0A 02 FF 8x 01 04 0A 03 FF 8x 01 04 4A 00 00 0p 0q FF	 pq(0x00-0x1C)
CAM_ExpComp	On Off Reset Up Down Direct	8x 01 04 3E 02 FF 8x 01 04 3E 03 FF 8x 01 04 0E 00 FF 8x 01 04 0E 02 FF 8x 01 04 0E 03 FF 8x 01 04 4E 00 00 0p 0q FF	AutoExposure Off AutoExpouse On Pq: 0x00-0x2A
CAM_ICR Cut Filter	ICR On ICR Off	8x 01 04 01 02 FF 8x 01 04 01 03 FF	ICR On - Cut Filter Out ICR Off - Cut Filter In

*__Zoom and Focus Data:__

CAM_Zoom: Range(0x000–0x071A)

CAM_Focus: Range (0x0ed-0x0944) dependent on Zoom Position

ZoomSHOT 20 Inquiry List (1/1)

Inquiry Command	Command	Response Packet	Comments
CAM_PowerInq	8x 09 04 00 FF	y0 50 02 FF y0 50 03 FF	On Off(Standby)
CAM_ZoomPosInq	8x 09 04 47 FF	y0 50 0p 0q 0r 0s FF	pqr: 0-0x071A
CAM_FocusPosInq	8x 09 04 48 FF	y0 50 0p 0q 0r 0s FF	pqrs: Focus Position
CAM_WBModeInq	8x 09 04 35 FF	y0 50 00 FF y0 50 05 FF y0 50 01 FF y0 50 02 FF y0 50 03 FF	Auto Manual Indoor Outdoor One Push WB
CAM_RGain	8x 09 04 43 FF	y0 50 0p 0q 0r 0s FF	pqrs: 000-0xffff
CAM_BGain	8x 09 04 44 FF	y0 50 0p 0q 0r 0s FF	pqrs: 000-0xffff
CAM_Iris	8x 09 04 4B FF	y0 50 00 00 0p 0q FF	pq(0x00-0x08)
CAM_Gain	8x 09 04 4C FF	y0 50 00 00 0p 0q FF	pq(0x00-0x2A)
CAM_Bright	8x 01 04 4D FF	y0 50 00 00 0p 0q FF	pq(0x01-0x64)
CAM_BacklightModeInq	8x 09 04 33 FF	y0 50 02 FF y0 50 03 FF	On Off
CAM_ApertureInq	8x 09 04 42 FF	y0 50 00 00 0p 0q FF	Pq:x00-0x1F
CAM_MemoryInq	8x 09 04 3F FF	y0 50 0p FF	p:Preset 0-0xf
CAM_IDInq	8x 09 04 3F FF	y0 50 0p 0q 0r 0s FF	pqrs:0x0000 – 0xFFFF
CAM_ReceiveInq	8x 09 06 08 FF	y0 50 02 FF y0 50 03 FF	On Off
CAM_LR_Reverse	8x 09 04 61 FF	y0 50 02 FF y0 50 03 FF	On Off
TallyInq	8x 09 7E 01 0A FF	y0 50 02 FF y0 50 03 FF	On Off
BLK.Enhance	No support	No Support	Pedestal
GMA.Enhance	8x 09 7E 54 FF	y0 50 00 00 0p 0q FF	pq: Gamma (0x00-0x10)
CRM.Enhance	8x 09 7E 55 FF	y0 50 00 00 0p 0q FF	pq: Chroma (0x00-0x64)
KNE.Enhance	No support	No Support	Knee
DIS.Enhance	8x 09 7E 57 FF	y0 50 02 FF y0 50 03 FF	On Off
SNR.Enhance	8x 09 7E 58 FF	y0 50 02 FF y0 50 03 FF	On Off
AGC.Enhance	8x 09 7e 59 FF	y0 50 00 FF y0 50 01 FF y0 50 02 FF y0 50 03 FF y0 50 04 FF	Off Low Medium High Manual AGC
CAM_AEModeInq	8x 09 04 39 FF	y0 50 00 FF y0 50 03 FF y0 50 0A FF y0 50 0B FF	Auto Exposure Mode Manual Control Mode Shutter Priority Mode Exposure Priority Mode
CAM_ShutterPosInq	8x 09 04 4A FF	y0 50 00 00 0p 0q FF	pq: 0x0-0x1C
CAM_ExpCompModeInq	8x 09 04 3E FF	y0 50 02 FF y0 50 03 FF	On - AE Mode Off Off – AE Mode On
CAM_ExpCompPosInq	8x 09 04 4E FF	y0 50 00 00 0p 0q FF	pq: ExpComp Pos
CAM_ICRModeInq	8x 09 04 01 FF	y0 50 02 FF y0 50 03 FF	On - ICR filter Out Off – ICR filter In

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