NerdCam3D Mk.2

Specification

Change Log

Datum	Version	Comments
2015-12-11	1.0	Initial Version
2016-01-08	1.1	Updated support for cropped Side-by-Side 3D. Added support for 3D-OSD via direct serial MSP link to flight controller. Added support for selectable stopwatch start mode.
2016-02-28	1.2	Updated weight and current consumption.

NC3D Mk.2 Preliminary Specification

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SUBJECT TO CHANGE WITHOUT NOTICE

1. Mechanical Features

Property	Value	Comment
Product name	NerdCam3D	
Model designation	Mk.2	
Size	100 mm x 26 mm	
Weight	32g	Without additional plugs/jacks.

2. Electrical Properties

Property	Value	Comment
Ingress Protection Marking	IP00	Installation of sensor into a suitable protective case or protection by heat-shrink tubing recommended
Appliance class	III	Use only with Separated/Safety Extra-Low Voltage (SELV) power sources
Power supply	+5.0V DC	+/- 5% voltage tolerance, LC-filter recommended
Current Consumption	370mA	
Sensor Technology	CMOS	Electronic Rolling Shutter
Video norm	PAL, NTSC	Selectable via DIP-switch.
PAL output	720 x 576	Selectable via DIP-switch.
NTSC output	720 x 487	
SNR	46dB	
Pixel Dynamic range	74.8dB	
Video outputs	1 x AV-3D 2 x AV-2D 1 x BT.656	2 x AV-2D = Dual channel sensor output for dual channel video transmitters. BT.656 digital port on request.
Supported 3D-formats	Squeezed Side-by-Side, Cropped Side-by-Side, Field-Sequential, Dual-channel sensor output	All formats with built-in 3D-OSD. Dual channel direct sensor output without integrated 3D-OSD.
Auto-Exposure Settings	Full-screen, Lower Half Screen	Selectable via DIP-switch.

3. Optical Properties

Property	Value	Comment
Lens mount	M12 x 0.5	
Infrared filter	Built-in	Camera lenses equipped with IR-cut filter.
Focal distance	2.2mm	Other focal distances on request.

4. Special Features

Property	Value	Comment
Integrated 3D-OSD	Via NerdSense Mk.1	Fully supported. Features: voltage, amperage, charge counter, stopwatch, RSSI.
	Via Multiwii Serial Protocol (MSP) by direct connection to Flight Controller	Current features[1]: voltage, amperage, charge counter, stopwatch, RSSI. Verified with Cleanflight/NAZE 1.11.0 on a Flip32 flight controller board. Serial Rx-port on camera is 5V-tolerant.
	DIP-switch selectable stopwatch mode: a) Autostart on power-up or b) Start upon current consumption reaches first peak over 3A.	
	3D-OSD support in all major 3D-modes: field-sequential 3D, squeezed Side-by-Side 3D, cropped Side-by-Side 3D. No OSD in dual-channel direct sensor output mode.	
Adjustment features	Sensor Vertical alignment	Necessary for optimal 3D-perception.
	OSD convergence	Adjusts virtual distance in which the built-in 3D-OSD floats in front/behind the screen.
	Cropped Side-by-Side convergence	Adjusts 3D-convergence in cropped Side-by-Side mode.
	Horizontal Adjustment	Horizontal shift (both directions) for compensation of misalignment caused by video goggle's imperfections.
	All adjustment settings are non-volatile (saved in FPGA memory).	
Remote FW update	Via USB2JTAG programmer	Sold separately. To be announced at short notice.

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1 More features (like GPS support) in development.

5. Supported Video Goggles

Manufacturer	Model	3D-mode	Remarks
Zeiss	Cinemizer, Cinemizer Plus, Cinemizer OLED	Squeezed Side-by-Side	Fully supported.
FatShark	Dominator HD V1	Squeezed Side-by-Side	Fully supported. Provisions for occasionally occurring left/right image swap of the goggle.
FatShark	Dominator HD V2	Squeezed Side-by-Side	Fully supported.
FatShark	Dominator V3	Squeezed Side-by-Side	Fully supported. Provides compensation[2] feature for horizontal offset/misalignment design glitch of the goggle.
FatShark	Attitude V3	Field-Sequential	Fully supported. Use camera's image swap feature for left/right image if necessary.
HeadPlay	HEADPLAY Personal Cinema System	Field-Sequential	Fully supported with firmware 1.20w.
Different Manufacturers	Cardboard-alike DIY goggles	Cropped Side-by-Side	Support depending on actual configuration. Contact us for details.

6. Manufacturer Information and Technical Support

TMG - Ingenieurbüro UG (haftungsbeschränkt)	Sales tax ID: DE294861035
Römerstr. 14	WEEE ID: DE55557702
89077 Ulm	Internet: www.themissinggear.eu
GERMANY	Contact: info@themissinggear.eu

Please feel free to contact us using the above mentioned e-mail address for technical assistance or other questions about the product.

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2   http://www.rcgroups.com/forums/showthread.php?t=2472675&page=141#post33357297