



EyeR Core™ VA System Specifications

System Overview

Related Standards and Documentation

Features

Performance

System Functions

System Operational Conditions

Electrical Interfaces

Electrical ICD

Mechanics

Pagoda ICD

Pagoda Shutterless ICD

Flat ICD

Video Protocol

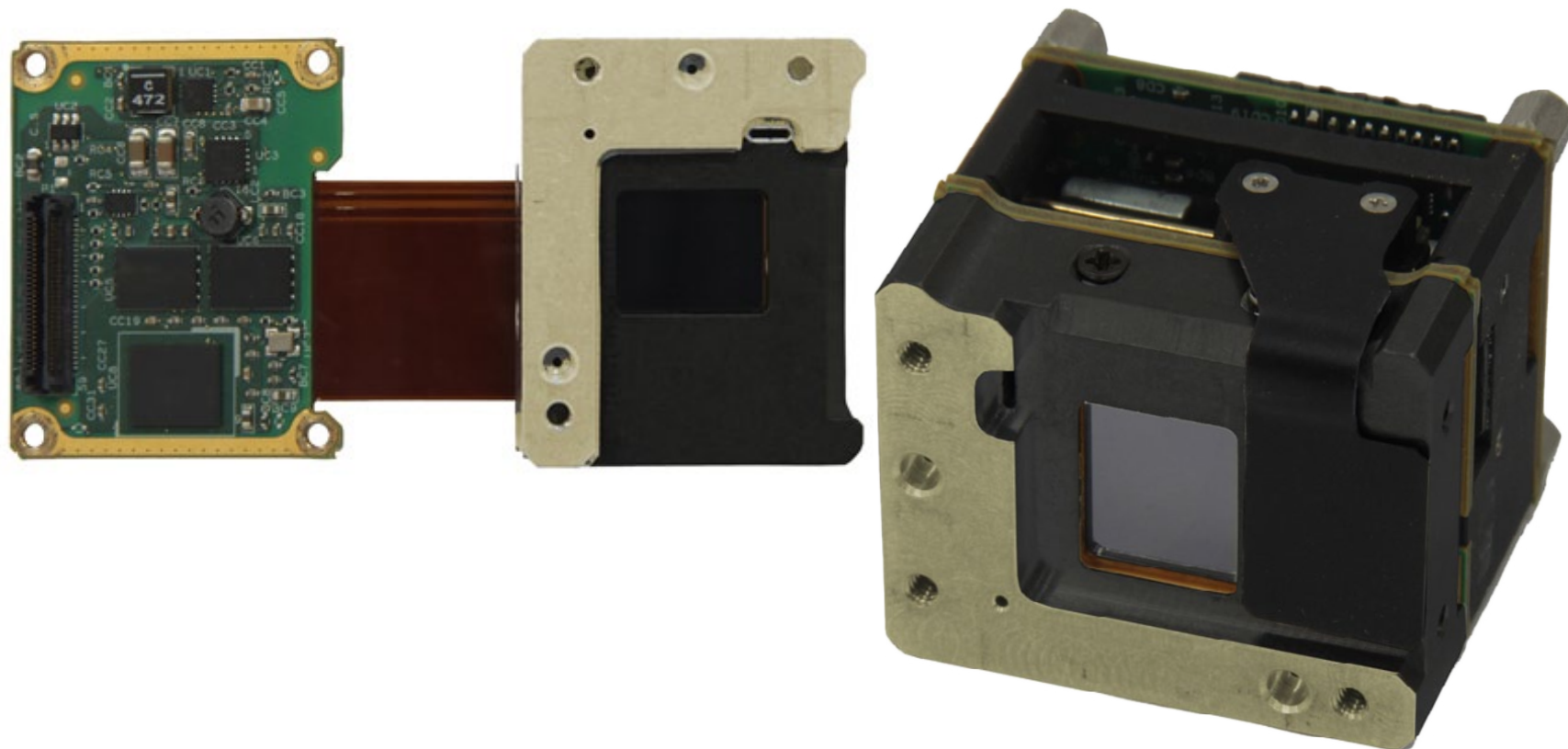
External Video Sync

Optional Accessory Kits

System Ordering Information

Optional Accessories

Contact Information:



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SYSTEM OVERVIEW

- System Overview
- Related Standards and Documentation
- Features
- Performance
- System Functions
- System Operational Conditions
- Electrical Interfaces
- Electrical ICD
- Mechanics
- Pagoda ICD
- Pagoda Shutterless ICD
- Flat ICD
- Video Protocol
- External Video Sync
- Optional Accessory Kits
- System Ordering Information
- Optional Accessories
- Contact Information:

The **EyeR Core VA** is Opgal’s state of the art thermal imaging video engine which is the heart of the **EyeR Core** platform.

The EyeR Core VA, with superior image processing capabilities due to high-end algorithms, includes TECless and shutterless operations.

The thermal imaging video engine uses a 17μ amorphous silicon detector designed for ultra low power consumption, and very low voltage input

The EyeR Core VA features rapid imaging time and built-in analog and digital video output.

The EyeR Core VA includes three optional mechanical configurations; [see Video Protocol \(page 26\)](#).

Note: *The EyeR Core is supplied as an OEM thermal core with no interface cards. An optional accessories kit is available upon request. For more details see [Optional Accessory Kits \(page 30\)](#).*

Pagoda Model	Flat Model
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APPLICATIONS

Today’s battlefield and HLS demand a micro thermal imaging solution to achieve maximum all-weather vision. The EyeR Core VA provides excellent high-end thermal imaging performance and has miniature dimensions especially designed for the following applications: portable TWS, goggles, UAV, and Unattended Ground Systems (UGS).



RELATED STANDARDS AND DOCUMENTATION

DOCUMENTATION

- EyeR Core VA operation and installation manual - OMENF17VG00
- Camera Control user manual - UMENF17VG00
- Communication protocol - COMENF17VG00
- Mechanical ICD and model (see [page 24](#))

OPGAL VIDEO OUTPUT PROTOCOL:

- PAL
- NTSC
- Camera Link
- BTU 656^(*1)
- TTL^(*1)

STANDARDS

- MIL-STD-1474D - Department of Defense design criteria standard – noise limits
- MIL-STD-810F - Department of Defense test method standard for environmental engineering considerations and laboratory tests
- IPC-A-610 - Acceptability of Electronic Assemblies

(*1) Available in EyeR Core NV

System Overview

Related Standards and Documentation

Features

Performance

System Functions

System Operational Conditions

Electrical Interfaces

Electrical ICD

Mechanics

Pagoda ICD

Pagoda Shutterless ICD

Flat ICD

Video Protocol

External Video Sync

Optional Accessory Kits

System Ordering Information

Optional Accessories

Contact Information:



FEATURES

MAIN FEATURES

- High resolution 640 x 480 pixel, 17μ pitch
- NETD < 50mK
- Wide range operation voltage (4 – 14 V)
- Time to image - < 2 seconds
- Spectral Range - 7.5-14 μm
- Opgal's shutterless algorithm operation
- Operational power consumption < 1.75 W

ENVIRONMENTAL (According to MIL STD 810F)

- Operating temperature range: -40 °C to +75 °C
- Storage temperature range: -40 °C to +85 °C
- SRS gun-fire shock resistance certified
- Vibration (endurance and performance)
- Shocks (ballistics and functional)

MECHANICAL

- Small size: 33 mm x 41 mm x 25.4 mm (Pagoda shutterless)
- Several mounting configurations
- Reduced weight: less than 48 gr. (Pagoda shutterless)

IMAGE PROCESSING AND VIDEO

- Parallel analog and digital video output
- Opgal's state of the art image processing algorithms
- Analog video protocols: NTSC, PAL
- Digital video: Camera Link, TTL^(*1) BT 656^(*1)
- Receives external video synchronization signaling
- Driving video sync to peer equipment

SYSTEM

- Built in support for motorized lens
- Modular architecture to meet customer requirements

(*1) Available in EyeR Core NV

System Overview

Related Standards and Documentation

Features

Performance

System Functions

System Operational Conditions

Electrical Interfaces

Electrical ICD

Mechanics

Pagoda ICD

Pagoda Shutterless ICD

Flat ICD

Video Protocol

External Video Sync

Optional Accessory Kits

System Ordering Information

Optional Accessories

Contact Information:



EyeR Core™ VA System Specifications

PERFORMANCE

Parameter	Min.	Typical	Max.	Conditions
NETD		50 mK		25°C, F/1 ,30Hz output
Time to image		2 sec		In NUC operational mode, ±10% , 25 °C
NTSC analog video latency		70 ms		Nominal
PAL analog video latency		90 ms		Nominal
Digital video latency		70 μs		30Hz, NUC&BPR output, from detector readout
MTBF		30,000 hours		Engine in Pagoda configuration

- System Overview
- Related Standards and Documentation
- Features
- Performance
- System Functions
- System Operational Conditions
- Electrical Interfaces
- Electrical ICD
- Mechanics
- Pagoda ICD
- Pagoda Shutterless ICD
- Flat ICD
- Video Protocol
- External Video Sync
- Optional Accessory Kits
- System Ordering Information
- Optional Accessories
- Contact Information:

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EyeR Core™ VA System Specifications

SYSTEM FUNCTIONS

Function	Option	Description	Notes
Video coloring	4 pallets	The engine supports four different color pallets for video coloring. The color pallets are stored in the engine's non-volatile memory.	1
Polarity	White-hot/black-hot	Shows hot spots in the image as white or black. Power up default is white hot.	1,2
Image flipping	Mirror upside down	Mirror image of the original (flipping of the image horizontally) turns the image upside down (flipping of the image vertically).	1,2
Digital zoom	to 12 in steps of 0.1	Enables zooming on a variable positions defined by X,Y coordinates. These coordinates could be center of the frame, reticle or ROI. The default X,Y coordinates are the center of the frame. Overlay position maintained across zoom.	1,2
Reticles	Up to 32	The position of each reticle is changeable and can be stored in a non-volatile memory. Reticle overlay has color space of 256 colors, while each reticle is one color. The reticle resolution is 1 pixel in the video output space (640 x 480 for NTSC, 768 x 576 for PAL). The minimum x-y pixel increment is ± 1 pixel in video space.	1,2
Graphic overlay	Text, graphics on/off/color		1,2
Image capture	Up to 100 snapshots	The engine is able to capture and store a full frame resolution processed image including all overlay graphics in non-volatile memory.	1,2
Gain and Level	Automatic/Manual		1,2
General overlay graphics	Text and reticle 256 colors	High resolution graphics (text and reticle) on all the video outputs in output format. The highest priority is text overlay. 256 selectable colors.	1,2
Region of interest (ROI)		The user determines a specific area in the video space (ROI) that is processed by the engine. The rest of the data is ignored by the image processing.	1,2
Text overlay	128 colors 30 windows TTF	Supports all standard Microsoft fonts including True Type Fonts (TTF). Text font size is selectable: 8 x 16 or 16 x 32 or 16 x16 or 32 x32 or 32x64. Text can be positioned anywhere in the frame area. Option for coloring text and background. 128 selectable colors. Up to 8 rows, 40 characters of text per row are written at one time.	1,2

System Overview

Related Standards and Documentation

Features

Performance

System Functions

System Operational Conditions

Electrical Interfaces

Electrical ICD

Mechanics

Pagoda ICD

Pagoda Shutterless ICD

Flat ICD

Video Protocol

External Video Sync

Optional Accessory Kits

System Ordering Information

Optional Accessories

Contact Information:



EyeR Core™ VA System Specifications

- System Overview
- Related Standards and Documentation
- Features
- Performance
- System Functions
- System Operational Conditions
- Electrical Interfaces
- Electrical ICD
- Mechanics
- Pagoda ICD
- Pagoda Shutterless ICD
- Flat ICD
- Video Protocol
- External Video Sync
- Optional Accessory Kits
- System Ordering Information
- Optional Accessories
- Contact Information:

Function	Option	Description	Notes
Power up logo	User-defined logo	Displays a user defined logo for configured time. The logo is loaded by communication command. The logo resolution is 1 pixel in the video output space (640 x 480 for NTSC, 768 x 576 for PAL). Color space of 256 colors for the logo display.	1
Integrated shutter		Integrated mechanical shutter for non-uniformity correction (NUC). The shutter movement time to close/open position is < 50ms. Very low acoustic noise. The shutter and its driver peak surge is less than 300mA.	1,2
Non-Uniformity Correction (NUC)		Correction time in less than 0.7 second. Correction operation: - Automatic operation – the engine operates the NUC function periodically according to predefined NUC interval. The function parameters are configurable. - Manual operation – the user operates this function using GPIO (discrete) or communication command.	1
System recovery		In case software/firmware or setup parameters change, the engine is capable of system recovery to default setup including detector calibration tables. In case of defective upgrade, the engine is automatically switched to the default revision.	1
Shutterless operation		The engine operates without an offset correction, using predefined tables.	

Notes:
1) Selectable via a communication command
2) Selectable using GPIO



EyeR Core™ VA System Specifications

SYSTEM OPERATIONAL CONDITIONS

Parameter	Minimum	Typical	Maximum	Conditions
Input voltage	4 V		14 V	
Surge current		300 mA		Duration of 50 ms
Operating temperature	– 40 °C		+75 °C	
Storage temperature	– 40 °C		+85 °C	
Altitude	-400 m		10,000 m	

Power Consumption

Model	Minimum (Digital output)	Typical (Analog output)	Maximum (Analog+ digital output)	Conditions
Pagoda	1.70 w	2.00 w	2.0 w	6 volt power supply, 25 °C
Flat	1.65 w	1.90 w	1.9 w	

SYSTEM ENVIRONMENTAL CONDITIONS

Test Type	Test Method	Notes
Random vibrations	Method :514.5, procedure I	200 shocks per axis
Mechanical shocks	Method:516.5, procedure I	Half Sine 500 g@0.5 ms
Gun fire vibration	Method: 519.5 procedure III	
Low pressure altitude	Method 500.4, procedure I & II	

- System Overview
- Related Standards and Documentation
- Features
- Performance
- System Functions
- System Operational Conditions
- Electrical Interfaces
- Electrical ICD
- Mechanics
- Pagoda ICD
- Pagoda Shutterless ICD
- Flat ICD
- Video Protocol
- External Video Sync
- Optional Accessory Kits
- System Ordering Information
- Optional Accessories
- Contact Information:

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Updated: 05.05.13



ELECTRICAL INTERFACES

The EyeR Core VA electrical interfaces use a single 60 pin connector. The system integrator has various options in design of the engine interface. Opgal offers several optional interfaces [Optional Accessory Kits \(page 30\)](#).

Notes: *For improved flexibility, the thermal imaging engine electrical interfaces do not include protection. It is the system integrators' responsibility to protect the engine from surge currents, over voltage, and other electrical distortions.*

The electrical interfaces are divided into the following interface groups:

COMMUNICATION

The EyeR Core VA has two serial interfaces.

- RS232 – for host communication
- RS422 – for motorized lens control

■ Host Communication

The HOST application controls the EyeR Core VA via UART using the RS232 interface.

Two communication protocols are supported:

OPGAL PROTOCOL

Opgal's proprietary communication protocol for the full-featured engine. This protocol is described in details in the Communication Protocol Document (P/N COMENF17VG00).

The UART port configuration for the Opgal protocol is:

- No parity bit
- 8-bit data
- 1 stop bit
- Baud rate: 115200^(*1), 57600, 19200, 9600, 4800, and 2400

(*1) Available in EyeR Core NV



System Overview

Related Standards and Documentation

Features

Performance

System Functions

System Operational Conditions

Electrical Interfaces

Electrical ICD

Mechanics

Pagoda ICD

Pagoda Shutterless ICD

Flat ICD

Video Protocol

External Video Sync

Optional Accessory Kits

System Ordering Information

Optional Accessories

Contact Information:

PELCO D

The Pelco- D protocol is typically used for PTZ and lens commands. The Communication Protocol Document includes a detailed description of the Pelco-D protocol.

The UART port configuration for the Pelco-D protocol is:

- No parity bit
- 8 bit data
- 1 stop bit
- Baud rate: 2400 only

EXTERNAL LENS CONTROL

The EyeR Core VA controls an external lens via UART using RS422 connection with the following configurations:

- No parity bit.
- 8-bit data,
- 1 stop bit,
- Baud rate: 115200^(*1), 57600, 19200, 9600, 4800, and 2400

I/O

■ JTAG

This interface is used for initial firmware burn and field technical maintenance.

■ GPIO (Discrete)

Each of the five pins operates independently. Each of the pins is configured to serve as Input or Output of the engine.

- **Output configuration** – the engine drives each of the pins to high level or low level and controls external devices such as lenses or LEDs.
- **Input configuration** – controls the functionality of the engine. Setting the interface to high level or low level by an external device, controls functionality such as Zoom, Polarity, execute NUC, and reticle position.

Function	Pin #
Polarity/Select	15
Cyclic zom/Left	17
NUC/Right	13
Digital zoom in/Up ^(*1)	19
Digital zoom out/Down ^(*1)	11

(*1) Available in EyeR Core NV

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System Overview

Related Standards and Documentation

Features

Performance

System Functions

System Operational Conditions

Electrical Interfaces

Electrical ICD

Mechanics

Pagoda ICD

Pagoda Shutterless ICD

Flat ICD

Video Protocol

External Video Sync

Optional Accessory Kits

System Ordering Information

Optional Accessories

Contact Information:

VIDEO INTERFACE

EyeR Core VA drives video data on both digital and analog interfaces. The two interfaces operate independently, although both interfaces are synchronized. The EyeR Core VA video can be synchronized with an external pin (Ext. sync) or can drive a synchronization signal on one of the five discrete pins. The synchronization reference is on vertical sync (VS). For more information on video configurations, refer to the EyeR Core VA operation and installation manual.

■ Analog Video Output

EyeR Core VA drives processed video on the analog interface and supports two analog video standards:

- PAL
- NTSC

■ Digital Video Output

The digital video output is transmitted in parallel to the processed video on the analog interface.

The EyeR Core VA supports one of the following digital video standard formats:

- Camera link
- TTL^(*1)
- BT 656^(*1)

The EyeR Core VA drives on the digital interface, one of the following data types:

- Processed colored video (8 bits, 25/30 Hz)
- NUC & BPR (14 bit, 25/30 Hz or 50/60 Hz full frame, 100/120 Hz half frame, 200/240 Hz quarter frame)
- Detector raw data (14 bit, 25/30 Hz or 50/60 Hz full frame, 100/120 Hz half frame, 200/240 Hz quarter frame)

(*1) Available in EyeR Core NV



ELECTRICAL ICD

CONNECTOR TYPE

All EyeR Core VA interfaces are connected via Samtec LSHM-130-02.5-L-DV-A-N-K-TR connector which is mounted on the digital board. The same connector is used for facing cards:

PIN ASSIGNMENT

Pin	Signal Name	Interface	I/O	Signal Type	Notes	Camera Link	BTU656	TTL
1.	DGND	Power	In	Power/2A				
2.	Vin	Power	In	Power /2A				
3.	DGND	Power	In	Power/2A				
4.	Vin	Power	In	Power/2A				
5.	1_8OUT	Power		Power/2A	Output 1.8 Volt digital for JTAG or discrete only!			
6.	DGND	Power	Out	Power/2A	Output digital ground for communication			
7.	Ext. Sinc	Video Interface (page 11)	In	TTL 3.3V				
8.	Rx_in	Communication (page 9)	In	±6V	RS232			
9.	N/A		In	TTL 3.3V	N.A.			
10.	Tx_out	Communication (page 9)	Out	±6V	RS232			
11.	DISCRETE5	GPIO (Discrete) (page 10)	In	TTL 3.3V				
12.	RS422_Rx_P	Communication (page 9)	In	0-5V	For smart, motorized lens			
13.	DISCRETE4	GPIO (Discrete) (page 10)	In	TTL 3.3V				
14.	RS422_Tx_N	Communication (page 9)	Out	0-5V	For smart motorized lens			

- System Overview
- Related Standards and Documentation
- Features
- Performance
- System Functions
- System Operational Conditions
- Electrical Interfaces
- Electrical ICD
- Mechanics
- Pagoda ICD
- Pagoda Shutterless ICD
- Flat ICD
- Video Protocol
- External Video Sync
- Optional Accessory Kits
- System Ordering Information
- Optional Accessories
- Contact Information:



EyeR Core™ VA System Specifications

- System Overview
- Related Standards and Documentation
- Features
- Performance
- System Functions
- System Operational Conditions
- Electrical Interfaces
- Electrical ICD
- Mechanics
- Pagoda ICD
- Pagoda Shutterless ICD
- Flat ICD
- Video Protocol
- External Video Sync
- Optional Accessory Kits
- System Ordering Information
- Optional Accessories
- Contact Information:

Pin	Signal Name	Interface	I/O	Signal Type	Notes	Camera Link	BTU656	TTL
15.	DISCRETE3	GPIO (Discrete) (page 10)	In	TTL 3.3V				
16.	RS422_Rx_N	Communication (page 9)	In	0-5V	For smart motorized lens			
17.	DISCRETE 2	GPIO (Discrete) (page 10)	In	TTL 3.3V				
18.	RS422_Tx_P	Communication (page 9)	Out	0-5 v	For smart motorized lens			
19.	DISCRETE 1	GPIO (Discrete) (page 10)	In	TTL 3.3V				
20.	DGND	Power	In	Power				
21.	DGND	Power	In	Power	GND for Discrete			
22.	SCL_D	I2C		TTL 3.3V				
23.	SDA_D	I2C		TTL 3.3V				
24.	DGND	Power	In	Power				
25.	DGND	Power	In	Power				
26.	VideoD0n	Digital Video Output (page 11)	Out	LVDS 2.5V		D0_n LVDS 2.5V	D1 LVDS 2.5V	D1 TTL 2.5V
27.	DGND	Power	In	Power				
28.	VideoD0p	Digital Video Output (page 11)	Out	LVDS 2.5V		D0_p LVDS 2.5V	D5 LVDS 2.5V	D5 TTL 2.5V
29.	VideoD6n	Digital Video Output (page 11)	Out	LVDS 2.5V				CLK_EN TTL 2.5V
30.	VideoD1n	Digital Video Output (page 11)	Out	LVDS 2.5V		D1_n LVDS 2.5V	D2 LVDS 2.5V	D2 TTL 2.5V
31.	VideoD6p	Digital Video Output (page 11)	Out	LVDS 2.5V				D10 TTL 2.5V
32.	VideoD1p	Digital Video Output (page 11)	Out	LVDS 2.5V		D1_p LVDS 2.5V	D6 LVDS 2.5V	D6 TTL 2.5V
33.	DGND	Power	In	Power				
34.	VideoD2n	Digital Video Output (page 11)	Out	LVDS 2.5V		D2_n LVDS 2.5V	D3 LVDS 2.5V	D3 TTL 2.5V
35.	VideoD5n	Digital Video Output (page 11)	Out	LVDS 2.5V				D14 TTL 2.5V



EyeR Core™ VA System Specifications

- System Overview
- Related Standards and Documentation
- Features
- Performance
- System Functions
- System Operational Conditions
- Electrical Interfaces
- Electrical ICD
- Mechanics
- Pagoda ICD
- Pagoda Shutterless ICD
- Flat ICD
- Video Protocol
- External Video Sync
- Optional Accessory Kits
- System Ordering Information
- Optional Accessories
- Contact Information:

Pin	Signal Name	Interface	I/O	Signal Type	Notes	Camera Link	BTU656	TTL
36.	VideoD2p	Digital Video Output (page 11)	Out	LVDS 2.5V		D2_p LVDS 2.5V	D7 LVDS 2.5V	D7 TTL 2.5V
37.	VideoD5p	Digital Video Output (page 11)	Out	LVDS 2.5V				D10 TTL 2.5V
38.	VideoD3n	Digital Video Output (page 11)	Out	LVDS 2.5V		D3_n LVDS 2.5V	D4 LVDS 2.5V	D4 TTL 2.5V
39.	DGND	Power	In	Power				
40.	VideoD3p	Digital Video Output (page 11)	Out	LVDS 2.5V		D3_p LVDS 2.5V	D8 LVDS 2.5V	D8 TTL 2.5V
41.	VideoD4n	Digital Video Output (page 11)	Out	LVDS 2.5V				D13 TTL 2.5V
42.	VideoCLK_n	Digital Video Output (page 11) clkn	Out	LVDS 2.5V		Clk_n LVDS 2.5V	Clk_27 LVDS 2.5V	CLK_27 TTL 2.5V
43.	VideoD4p	Digital Video Output (page 11)	Out	LVDS 2.5V				D9 TTL 2.5V
44.	VideoCLK_p	Digital Video Output (page 11) clkp	Out	LVDS 2.5V		Clk_p LVDS 2.5V		VD TTL 2.5V
45.	VideoD7n	Digital Video Output (page 11)	Out	LVDS 2.5V				HD TTL 2.5V
46.	VideoD8n	Digital Video Output (page 11)	Out	LVDS 2.5V				
47.	VideoD7p	Digital Video Output (page 11)	Out	LVDS 2.5V				D11 TTL 2.5V
48.	VideoD8p	Digital Video Output (page 11)	Out	LVDS 2.5V				D12 TTL 2.5V
49.	DGND	Power	In	Power				
50.	DGND	Power	In	Power				
51.	TDI	JTAG (page 10)	Out	TTL 3.3V				
52.	N.A.		In	TTL 3.3V	N.A.			
53.	TCK	JTAG (page 10)	Out	TTL 3.3V				
54.	Video RTN / DGND	Analog Video Output (page 11)	In					
55.	TDO	JTAG (page 10)	In	TTL 3.3V				

All specifications are subject to change without notice
Updated: 05.05.13



EyeR Core™ VA System Specifications

- System Overview
- Related Standards and Documentation
- Features
- Performance
- System Functions
- System Operational Conditions
- Electrical Interfaces
- Electrical ICD
- Mechanics
- Pagoda ICD
- Pagoda Shutterless ICD
- Flat ICD
- Video Protocol
- External Video Sync
- Optional Accessory Kits
- System Ordering Information
- Optional Accessories
- Contact Information:

Pin	Signal Name	Interface	I/O	Signal Type	Notes	Camera Link	BTU656	TTL
56.	Video Com- posite	Analog Video Output (page 11)	Out					
57.	TMS	JTAG (page 10)	Out	TTL 3.3V				
58.	DGND	Power	In	Power				
59.	SHIELD			Power				
60.	SHIELD			Power				



MECHANICS

EyeR Core VA includes four optional configurations:

- Two optional detector holders:
 - Small shaped (EyeR Core VA type)
 - Backwards compatibility shape with Opgal's previous engines
- Three optional engine structures:
 - Pagoda
 - Flat
 - Shutterless^(*1)

For more details [see Video Protocol \(page 26\)](#).

(*1) Available in EyeR Core NV

System Overview

Related Standards and Documentation

Features

Performance

System Functions

System Operational Conditions

Electrical Interfaces

Electrical ICD

Mechanics

Pagoda ICD

Pagoda Shutterless ICD

Flat ICD

Video Protocol

External Video Sync

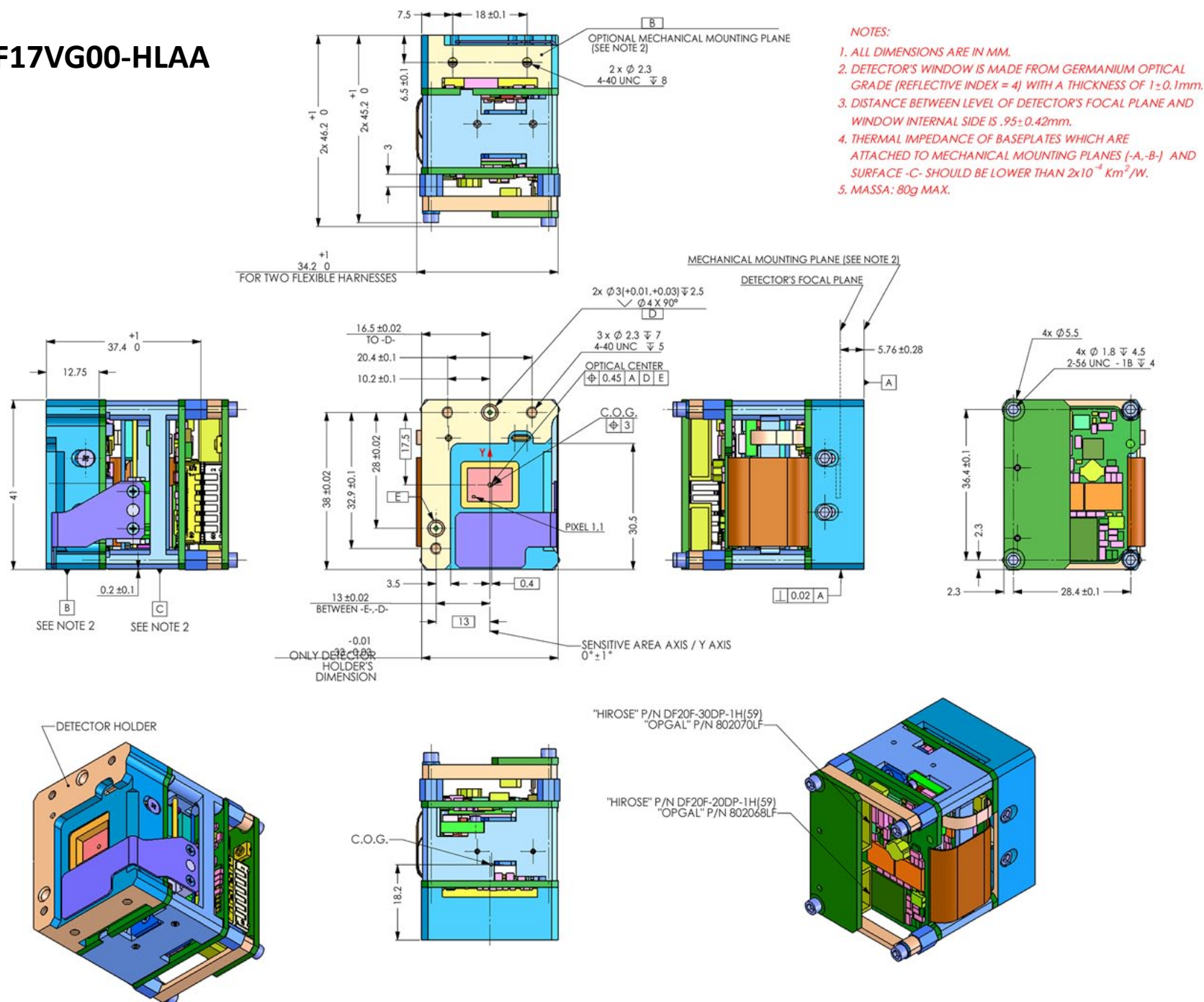
Optional Accessory Kits

System Ordering Information

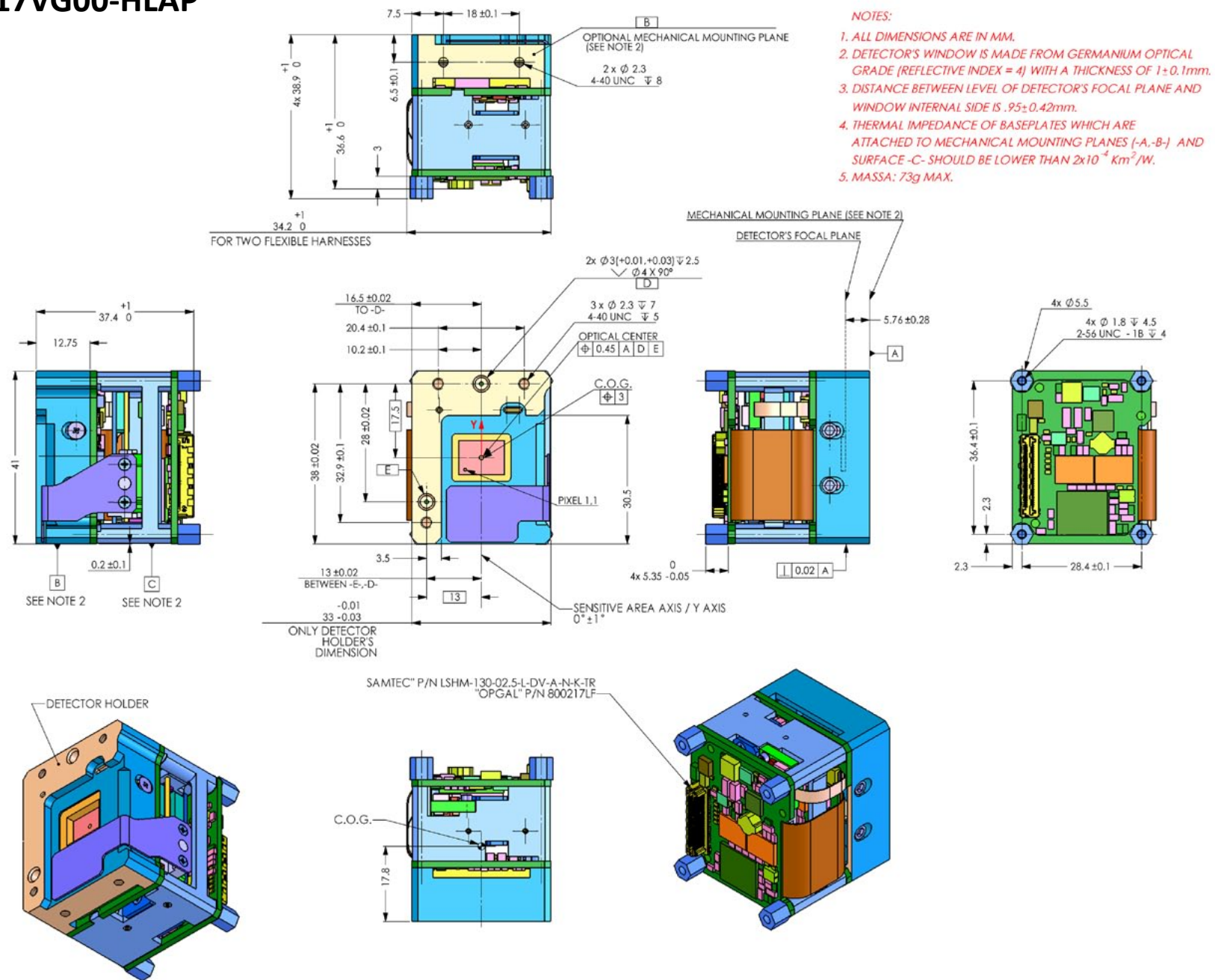
Optional Accessories

Contact Information:

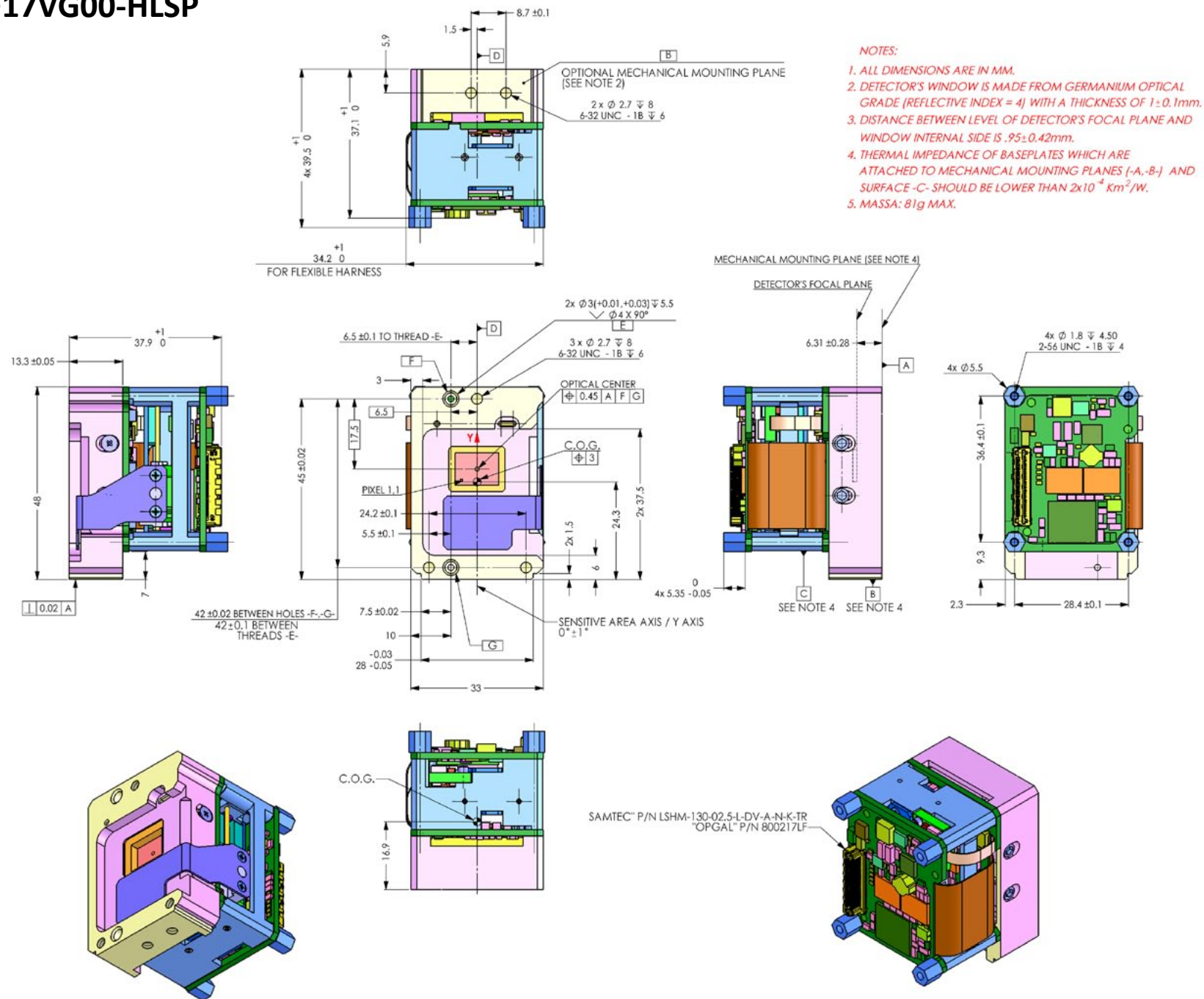
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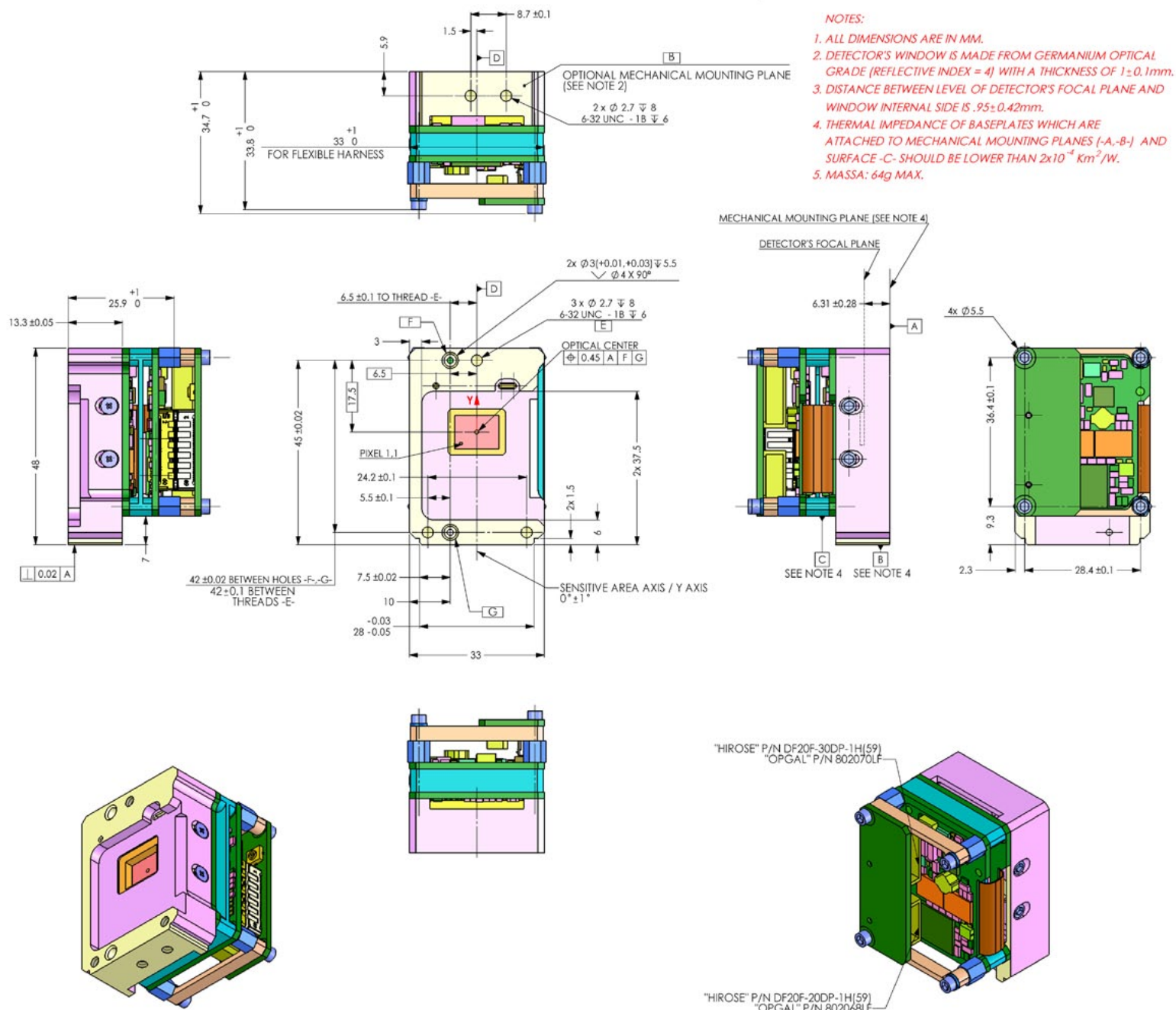
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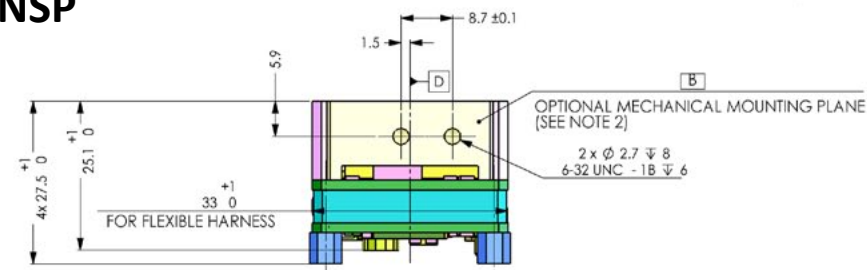
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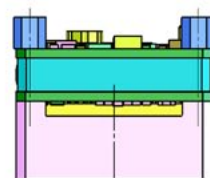
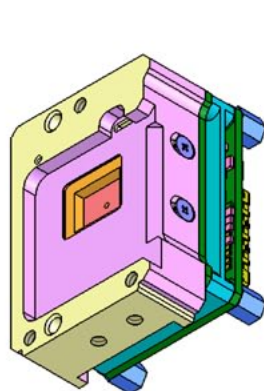
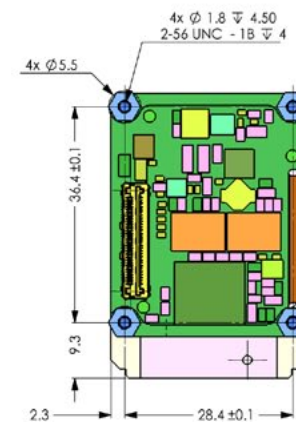
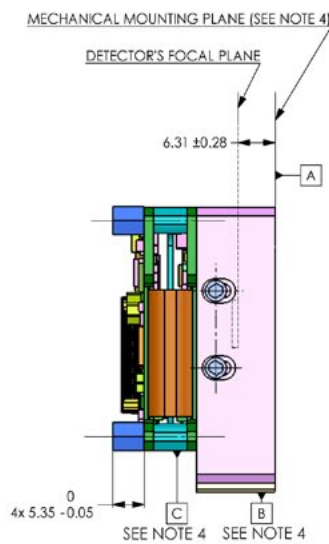
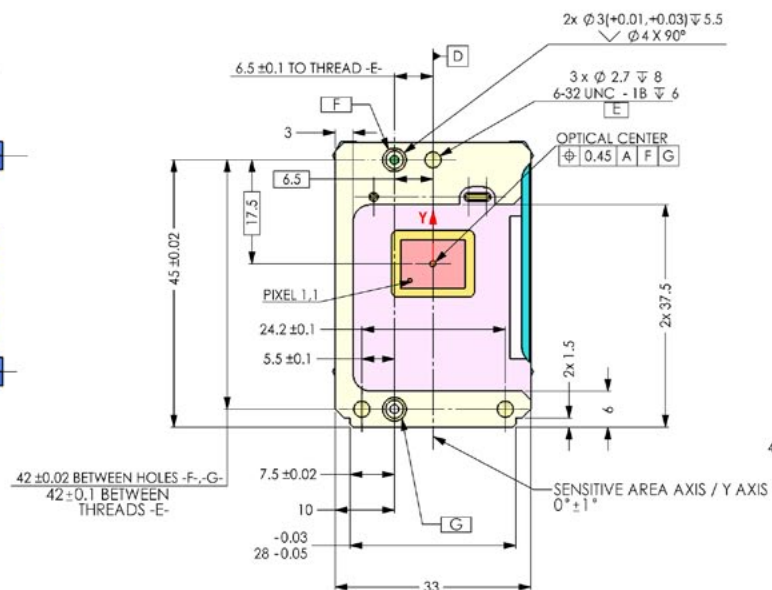
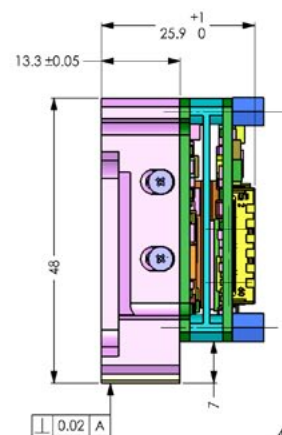
MODEL P/N ENF17VG00-HNSA



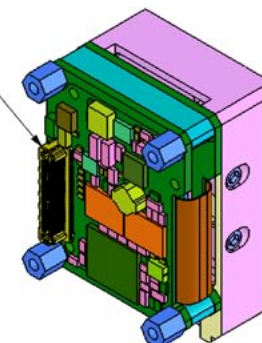
All specifications are subject to
change without notice
Updated: 05.05.13



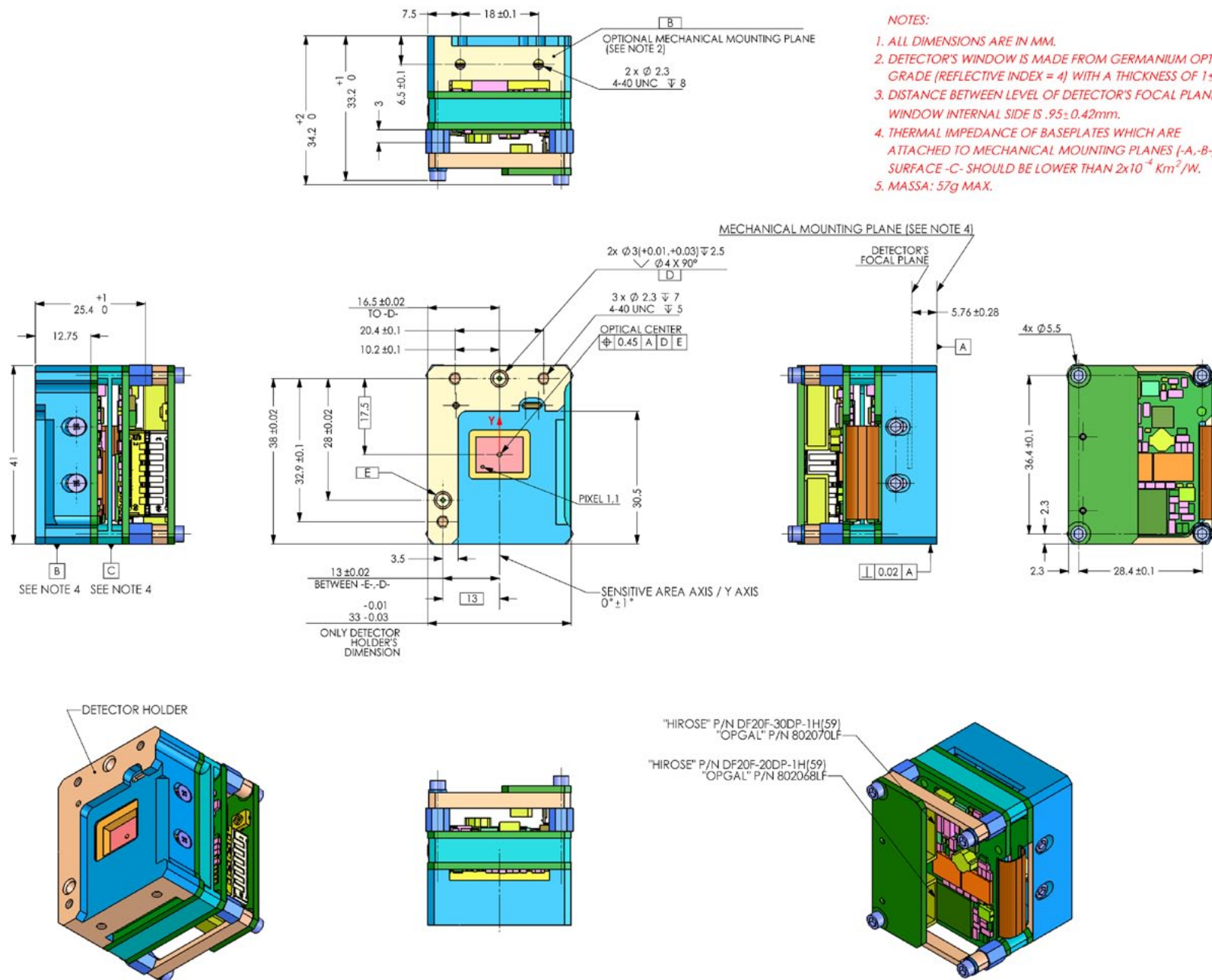
- NOTES:**
1. ALL DIMENSIONS ARE IN MM.
 2. DETECTOR'S WINDOW IS MADE FROM GERMANIUM OPTICAL GRADE (REFLECTIVE INDEX = 4) WITH A THICKNESS OF 1 ± 0.1 mm.
 3. DISTANCE BETWEEN LEVEL OF DETECTOR'S FOCAL PLANE AND WINDOW INTERNAL SIDE IS $.95 \pm 0.42$ mm.
 4. THERMAL IMPEDANCE OF BASEPLATES WHICH ARE ATTACHED TO MECHANICAL MOUNTING PLANES (A, B) AND SURFACE -C- SHOULD BE LOWER THAN 2×10^{-4} Km²/W.
 5. MASSA: 57g MAX.



SAMTEC" P/N LSHM-130-02.5-L-DV-A-N-K-TR
"OPGAL" P/N 800217LF-



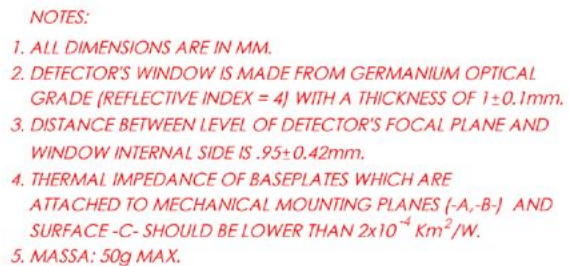
MODEL P/N ENF17VG00-HNAA



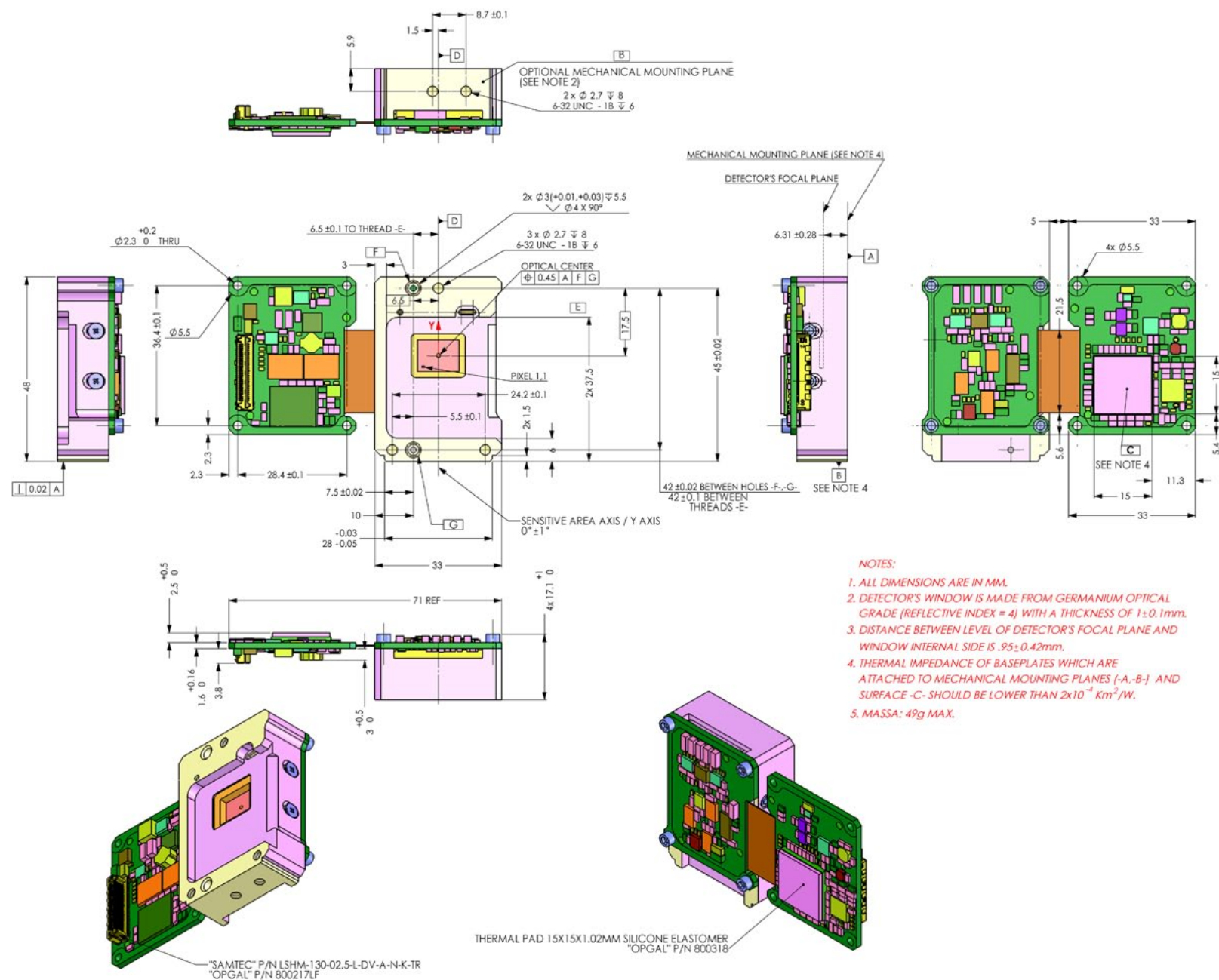
NOTES:

1. ALL DIMENSIONS ARE IN MM.
2. DETECTOR'S WINDOW IS MADE FROM GERMANIUM OPTICAL GRADE [REFLECTIVE INDEX = 4] WITH A THICKNESS OF 1 ± 0.1 mm.
3. DISTANCE BETWEEN LEVEL OF DETECTOR'S FOCAL PLANE AND WINDOW INTERNAL SIDE IS $.95 \pm 0.42$ mm.
4. THERMAL IMPEDANCE OF BASEPLATES WHICH ARE ATTACHED TO MECHANICAL MOUNTING PLANES (-A,-B-) AND SURFACE -C- SHOULD BE LOWER THAN 2×10^{-4} Km²/W.
5. MASSA: 57g MAX.

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VIDEO PROTOCOL

ANALOG VIDEO

- PAL
- NTSC

DIGITAL VIDEO

- BT-656 or TTL (*See Digital Video Output Options: on page 27*)
- Camera link (*See Camera Link protocol on page 28*)

Electrical Pin-out

For more details, see *Pin Assignment (page 12)*.

System Overview

Related Standards and Documentation

Features

Performance

System Functions

System Operational Conditions

Electrical Interfaces

Electrical ICD

Mechanics

Pagoda ICD

Pagoda Shutterless ICD

Flat ICD

Video Protocol

External Video Sync

Optional Accessory Kits

System Ordering Information

Optional Accessories

Contact Information:



DIGITAL VIDEO OUTPUT OPTIONS:

- **RAW DATA** – detector direct output before the processing phase.
- **NUC & BPR** – output at the middle of the processing phase, after the time domain filter, non-uniformity correction, and bad pixel replacement phases.
- **PROCESSED** – output after the end of the processing phase.

25 Hz Processed TTL Digital Video Output

- The pixel clock cycle is 27 MHz.
- The VD output shows the field which consists of 480 lines during the high state.
- Each line is marked by one HD which contains 640 valid pixels.
- Each field period is 20 ms (*see Figure 1*).
- Each field interlaces to two groups of 240 lines.
- Two groups (2 x 240 lines) takes 35.45 (*see Figure 1*).
- Each line takes 64 μ s, including the 16.6 μ s gap (*see Figure 2*)

Note: For more information about Digital video output, see the EyeR Core Installation and Operation Manual (*See Related Standards and Documentation on page 3*).

Figure 1: 25 Mhz TTL Processed Digital Video Output

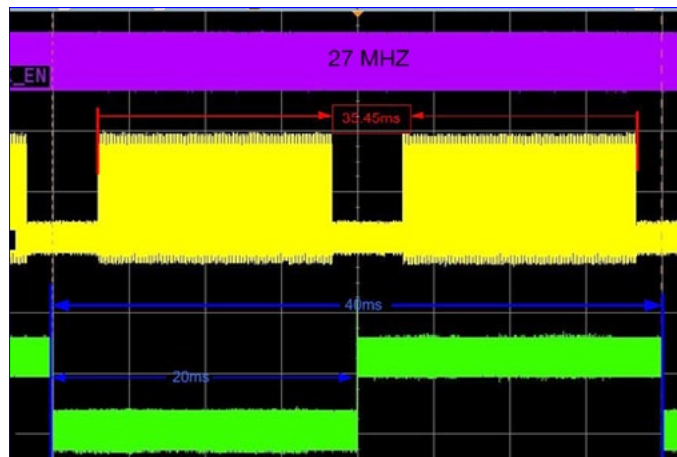
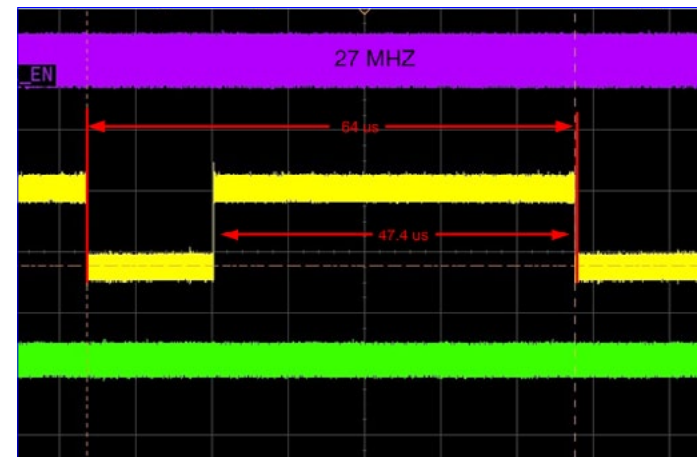


Figure 2: 25 Mhz TTL Processed Digital Video Output Zoomed In





CAMERA LINK PROTOCOL

LVDS based video data serialized protocol.

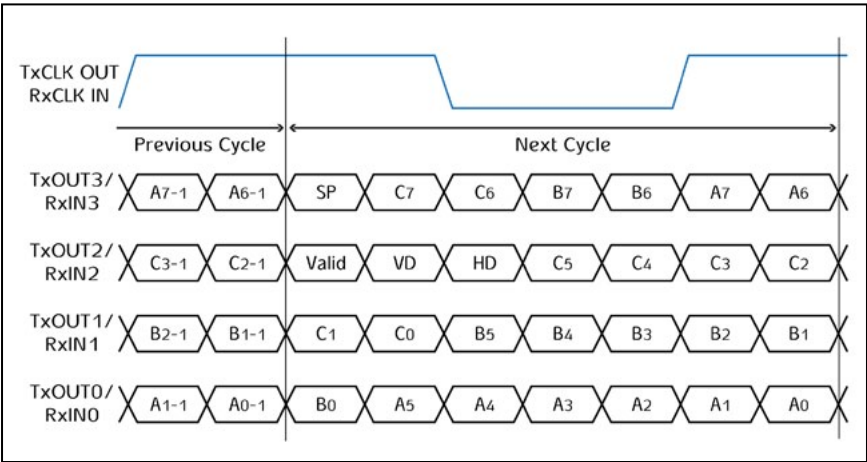
In the current work mode, it works in 23.143 MHz parallel data rate and in 162 MHz serialized data rate.

Inputs Bit Assignment

Bits B6 — C7- are not used in the current work mode.

EyeR Core digital video data structure	Camera link protocol data structure
Bit 0	A0
Bit 1	A1
Bit 2	A2
Bit 3	A3
Bit 4	A4
Bit 5	A5
Bit 6	A6
Bit 7	A7
Bit 8	B0
Bit 9	B1
Bit 10	B2
Bit 11	B3
Bit 12	B4
Bit 13	B5

Figure 3: Bit Serial Order



- System Overview
- Related Standards and Documentation
- Features
- Performance
- System Functions
- System Operational Conditions
- Electrical Interfaces
- Electrical ICD
- Mechanics
- Pagoda ICD
- Pagoda Shutterless ICD
- Flat ICD
- Video Protocol
- External Video Sync
- Optional Accessory Kits
- System Ordering Information
- Optional Accessories
- Contact Information:



EXTERNAL VIDEO SYNC

GENERAL

This section describes the electrical pulse needed for external video synchronization of the EyeR Core VA.

External synchronization is performed at the falling edge of external VD pulse.

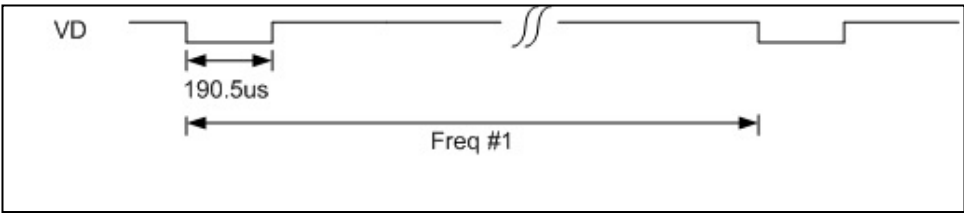
NOTE : *The sync source must be powered before the slave camera.*

EXTERNAL SYNCHRONIZATION PULSE INPUT

RS170

- The external VD (see Figure 4) is pulsed low for minimum 190.5 μ s. (3 video lines; each line takes 63.5 μ s).
- The external VD frequency (Freq. #1) is according to Table 1 for different monitors.

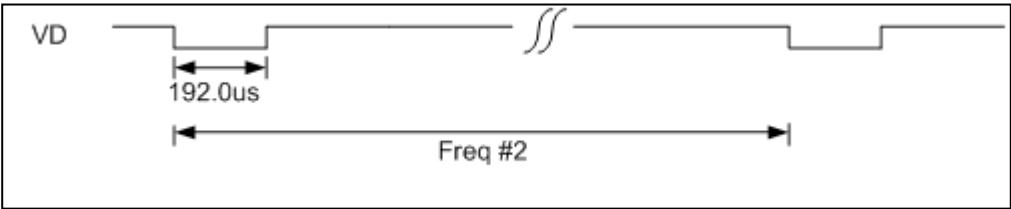
Figure 4: RS170 Synchronization – Timing diagram



CCIR

- The external VD (see Figure 5) is pulsed low for minimum 192.0 μ s. (3 video lines; each line takes 64.0 μ s).
- The external VD frequency (Freq. #2) is according to Table 1 for different monitors.

Figure 5: Raw Data Option – RS170 Format



- System Overview
- Related Standards and Documentation
- Features
- Performance
- System Functions
- System Operational Conditions
- Electrical Interfaces
- Electrical ICD
- Mechanics
- Pagoda ICD
- Pagoda Shutterless ICD
- Flat ICD
- Video Protocol
- External Video Sync
- Optional Accessory Kits
- System Ordering Information
- Optional Accessories
- Contact Information:



Table 1: External VD Synchronization Parameters

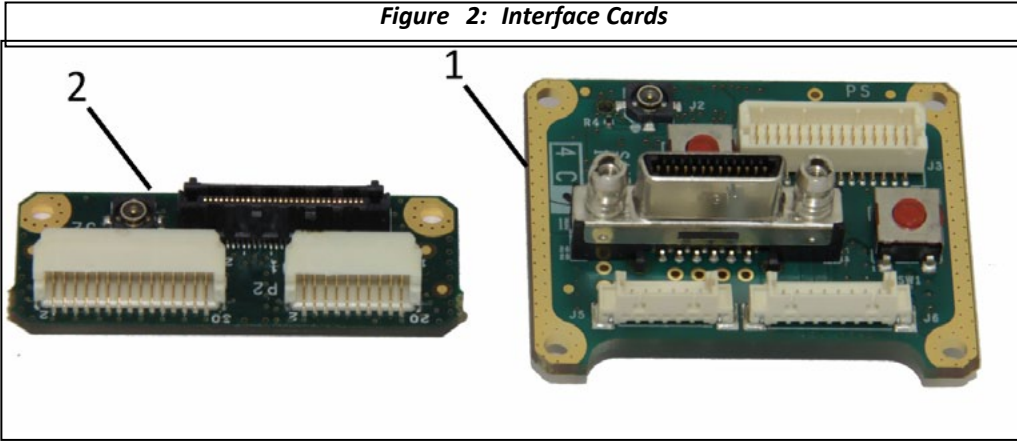
Mode	Video Monitor	RS170	CCIR
30 Hz	Ikagami M9050 (LCD)	29.969950 Hz ± 0.000015 Hz	24.999930 Hz ± 0.000015 Hz
	Sony PVM-2010QM (CCD)	29.969950 Hz ± 0.000015 Hz	24.999930 Hz ± 0.000015 Hz
60 Hz	Ikagami M9050 (LCD)	119.879674 Hz ± 0.000015 Hz	99.999740 Hz ± 0.000015 Hz
	Sony PVM-2010QM (CCD)	119.879674 Hz ± 0.000015 Hz	99.999740 Hz ± 0.000015 Hz
120 Hz	Ikagami M9050 (LCD)	119.879674 Hz ± 0.000015 Hz	99.999740 Hz ± 0.000015 Hz
	Sony PVM-2010QM (CCD)	119.879674 Hz ± 0.000015 Hz	99.999740 Hz ± 0.000015 Hz
240 Hz	Ikagami M9050 (LCD)	239.759348 Hz ± 0.000015 Hz	199.999480 Hz ± 0.000015 Hz
	Sony PVM-2010QM (CCD)	239.759348 Hz ± 0.000015 Hz	199.999480 Hz ± 0.000015 Hz

OPTIONAL ACCESSORY KITS

Note: The EyeR Core VA is supplied as an OEM thermal core with no interface cards. Optional accessories kit is available upon request. For detailed information, please refer to the EyeR Core VA Operation and Installation Manual – P/N OMENF17VG00

- Accessories kit (1) for integration/lab use of EyeR Core VA engines (P/N KIT1-ENE17VJ00)
- Accessories kit (2) for operational use of EyeR Core VA engines (P/N KIT2-ENE17VJ00)

Figure 2: Interface Cards



System Overview

Related Standards and Documentation

Features

Performance

System Functions

System Operational Conditions

Electrical Interfaces

Electrical ICD

Mechanics

Pagoda ICD

Pagoda Shutterless ICD

Flat ICD

Video Protocol

External Video Sync

Optional Accessory Kits

System Ordering Information

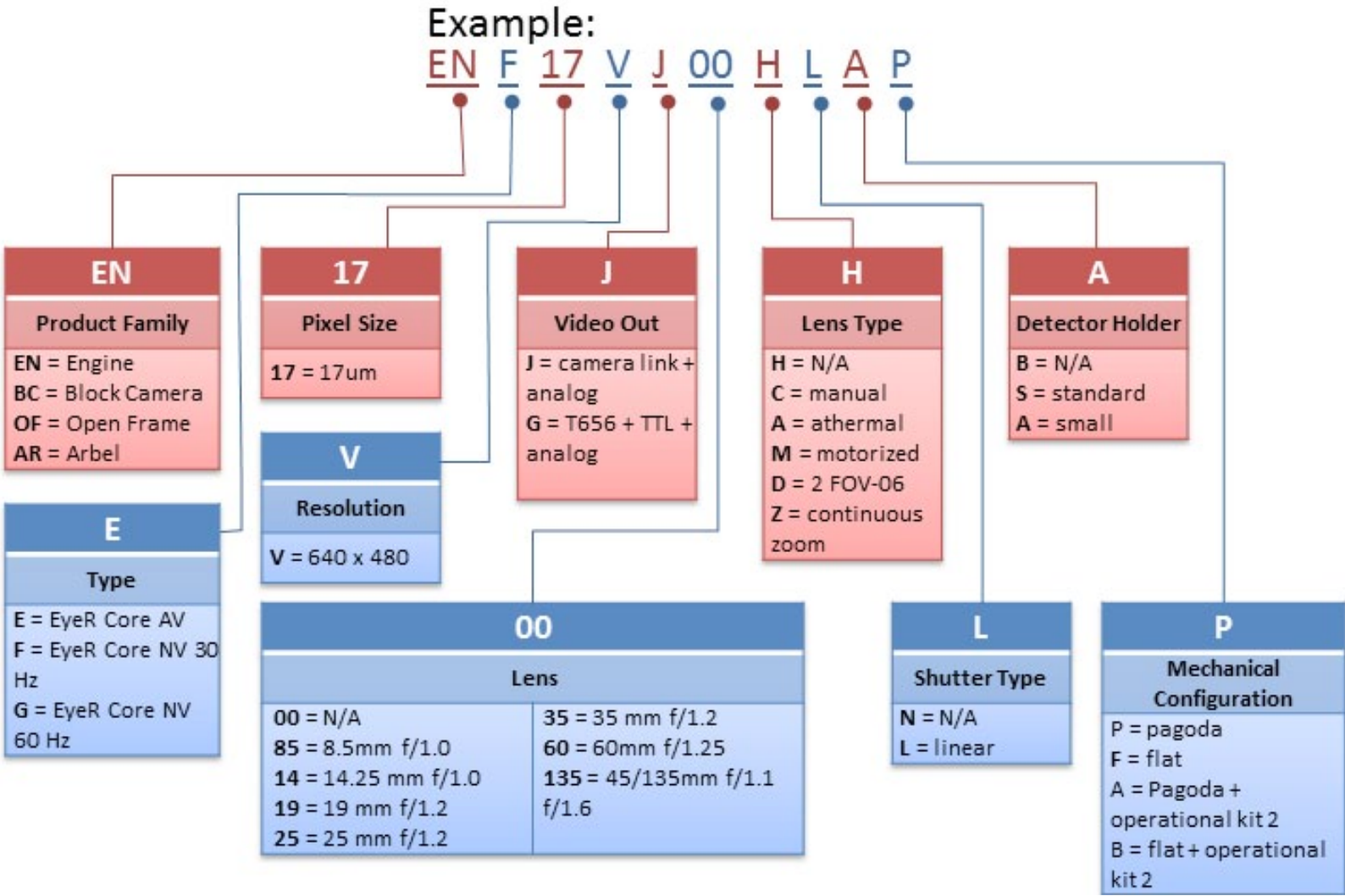
Optional Accessories

Contact Information:



SYSTEM ORDERING INFORMATION

Use the chart below to specify the part number of a required configuration:

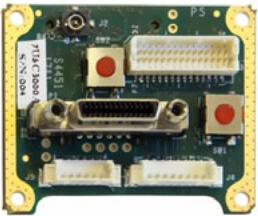


Note: Standard detector holder is compatible with Opgal's previous engine models.

Note: For proper thermal dissipation design of the flat configuration, refer to the mechanical ICD notes.



OPTIONAL ACCESSORIES

Accessory	Description	P/N
	Interface Board for integration/lab use	KIT1-ENE17VJ00
	Power supply FOR INTEGRATION 220VAC TO 12VDC 60W	1F7F0100A
	Analog Harness for integration (supplied with KIT1)	7U6H9000A
	Analog Harness with 5 switches discrete module for integration	7U6H9100A
	Interface Board for operational use	KIT2-ENE17VJ00

- System Overview
- Related Standards and Documentation
- Features
- Performance
- System Functions
- System Operational Conditions
- Electrical Interfaces
- Electrical ICD
- Mechanics
- Pagoda ICD
- Pagoda Shutterless ICD
- Flat ICD
- Video Protocol
- External Video Sync
- Optional Accessory Kits
- System Ordering Information
- Optional Accessories
- Contact Information:

All specifications are subject to change without notice
Updated: 05.05.13



EyeR Core™ VA System Specifications

- System Overview
- Related Standards and Documentation
- Features
- Performance
- System Functions
- System Operational Conditions
- Electrical Interfaces
- Electrical ICD
- Mechanics
- Pagoda ICD
- Pagoda Shutterless ICD
- Flat ICD
- Video Protocol
- External Video Sync
- Optional Accessory Kits
- System Ordering Information
- Optional Accessories
- Contact Information:

Accessory	Description	P/N
	15 cm Micro-coax cable open-ended in one end (supplied with KIT2)	801978
	25 cm 20 pin cable, digital video, open-ended in one end (supplied with KIT2)	7U6H0020A
	25 cm 30 pin cable open-ended in one end (supplied with KIT2)	1U5H0020A
	Camera Control GUI application	CCENF17VG00
	SDK library for EyeR Core	SDKENF17VG00
	Product Documentation CD	CDENF17VG00



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- www.opgal.com
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- Fax:+972-4-9953900
- Email: info@opgal.com

System Overview

Related Standards and
Documentation

Features

Performance

System Functions

System Operational
Conditions

Electrical Interfaces

Electrical ICD

Mechanics

Pagoda ICD

Pagoda Shutterless ICD

Flat ICD

Video Protocol

External Video Sync

Optional Accessory Kits

System Ordering
Information

Optional Accessories

Contact Information: