

# Industrial 3D Sensors

## VRmLS1-GEV LineScan3D

3D Laser Line Scanner

- GigE Vision compliant (CVB GigEVision Server by Stemmer Imaging)
- 1000 Hz @ 360 lines scan rate, 2,048 points per profile
- On-board laser line extraction using the FPGA based configurable VRmLineExtraction algorithm
- Optional intensity image
- 24 V power supply, Gigabit Ethernet and RS485 IOs on industry-standard M12 connectors
- Rugged IP65/67 aluminum housing
- Dedicated redundant laser interlock circuit
- License for Stemmer Imaging CVB Camera Suite included



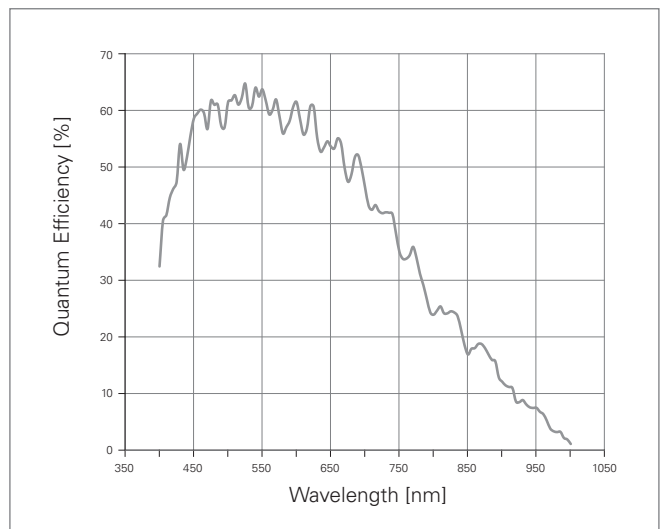
### Physical Characteristics

Dimensions (WxHxD)	240 x 120 x 50 mm
Power/Laser Interlock Connector	M12, 8-pin A-coded male
Ethernet Connector	M12, 8-pin X-coded female
Trigger In Connector	M12, 12-pin A-coded male
Trigger Out Connector	M12, 12-pin A-coded female
Certification	CE, FCC
IP Rating	IP65/IP67

### Sensor Characteristics

Sensor type	CMOSIS CMV2000
Technology	CMOS, global shutter
Chromaticity	monochrome
Sensor Size	2/3"
Resolution	2048 x 1088 px
Pipelined trigger	yes
Pixel Size	5.5 x 5.5 $\mu\text{m}$
Max. Frame Rate*	338 Hz

\* Maximum value at full AOI



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## 3D Measurement

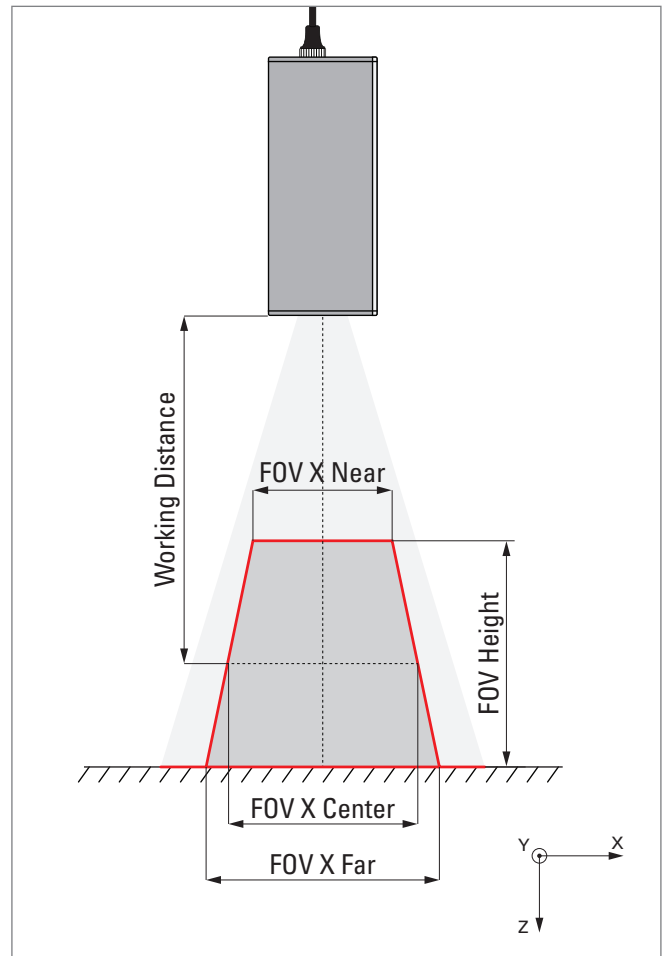
Profile Speed	1000 Hz @ 360 lines (1/3 AOI) 338 Hz @ 1088 lines (full AOI)
Profile Resolution	2,048 points per profile
X Resolution	near: 62 $\mu\text{m}$ per pixel center: 79 $\mu\text{m}$ per pixel far: 105 $\mu\text{m}$ per pixel
Z Resolution	near: 118 $\mu\text{m}$ per pixel center: 187 $\mu\text{m}$ per pixel far: 329 $\mu\text{m}$ per pixel
Z Resolution with 1/64 sub-pixel calculation	near: 1.8 $\mu\text{m}$ center: 2.9 $\mu\text{m}$ far: 5.1 $\mu\text{m}$
Output Format	16 bit profile coordinates 16 bit intensity image (optional)
Line Extraction	Integrated, robust, configurable, profile algorithm, HDR mode option, 1/64 sub-pixel calculation

## Measurement Field Recommended Value

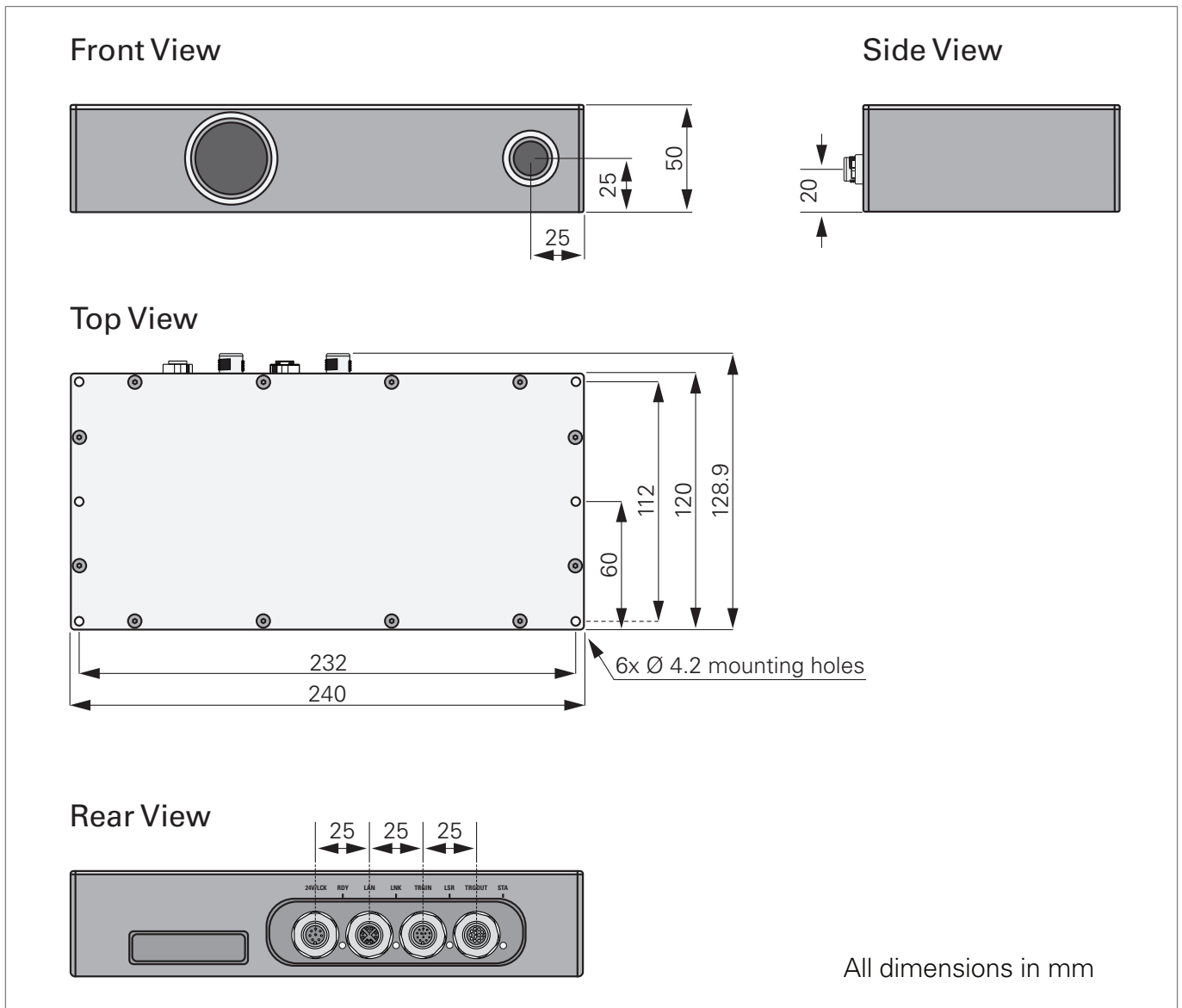
Field of View (FOV) X Center	145 mm
Field of View (FOV) X Near	115 mm
Field of View (FOV) X Far	190 mm
Field of View (FOV) Height	195 mm
Working Distance	320 mm

## Laser

Wavelength	660 nm
Laser Class	2M, 3R option planned
Laser Dimmable	yes
Interlock	Dedicated redundant laser interlock circuit



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## Interfaces

Ethernet	1000 Mbit Ethernet
Trigger input	RS485 2 ABZ encoder inputs 1 gate/trigger input
Trigger output	Reserved for future use
Power	24 V DC +/- 10% Typical power consumption 11 W

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## Ordering Options

The **VRmLS1-GEV** is available in the two variants below. Each variant comes with an image acquisition software package including a license key for CVB Camera Suite by Stemmer Imaging. The VRmagic GigE Vision Suite and demo applications as well as product documentation can be downloaded from [www.vrmagic-imaging.com](http://www.vrmagic-imaging.com) or ordered on a USB flash drive. Additionally, the following accessories are available.

VRmLS1-GEV Variants	Product Codes
VRmLS1-GEV LineScan3D uncalibrated, max. measuring field X near < 128 mm, Laser Class 2M @ 600 nm	VRmLS1-GEV#128#018-660#U
VRmLS1-GEV LineScan3D uncalibrated, max. measuring field X near < 128 mm, Laser Class 3R @ 600 nm	VRmLS1-GEV#128#100-660#U

Image Acquisition Software Package	Accessories	VRmagic Part Numbers
VRmagic GigE Vision Suite	DIN rail power supply 40.8 W, 24 V DC, 1.7 A	VRM_DINSUP_24V_1.7A
CVB CameraSuite 2016 by Stemmer Imaging	M12 Ethernet cable, 5 m, with RJ45	VRM_CAB_ETH_0001
Demo Applications	M12 buddy cable, 3 m, male to female	VRM_CAB_IO_0006
	M12 trigger input cable, 5 m, open ended	VRM_CAB_IO_0007
	M12 power/interlock cable, 5 m, open ended	VRM_CAB_IO_0008
	AC power lead	VRM_PWR_OE_EU
	Sealing Cap Power/ Trigger In Connector	VRM_M12_CAP_M
	Sealing Cap Ethernet/ Trigger Out Connector	VRM_M12_CAP_F