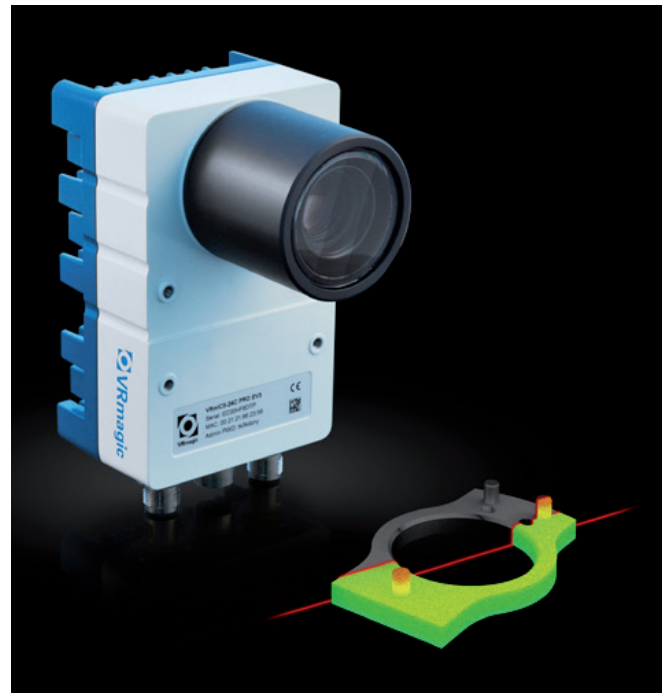


# Industrial 3D Cameras

## VRmLC1-GEV LineCam3D

3D Laser Triangulation Camera

- 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 I/Os on industry-standard M12 connectors
- Rugged IP65/67 aluminum housing with C-Mount and optional IP67 lens tube
- License for Stemmer Imaging CVB Camera Suite included
- Optional: internal 10 degree sensor tilt-shift for extended depth of field (Scheimpflug principle)



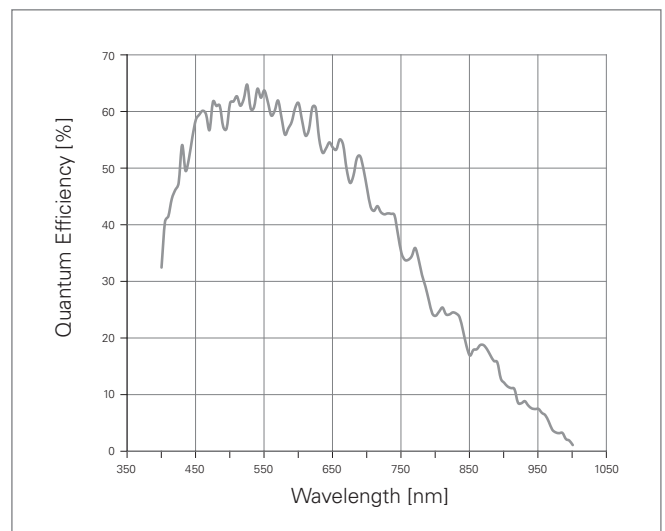
### Physical Characteristics

Dimensions (WxHxD)	135x76x60 mm
Power Connector	M12, 4-pin A-coded male
Ethernet Connector	M12, 8-pin X-coded female
I/O Connector	M12, 17-pin A-coded male
Certification	CE, FCC
IP Rating	IP65/IP67 with optional tube IP40 without optional tube

### 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

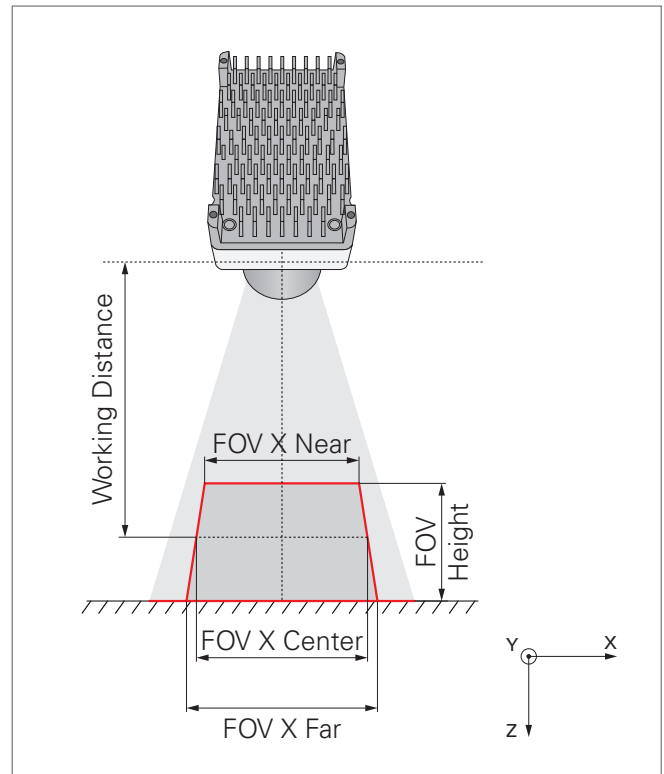
\* Maximum value at full AOI



# Industrial 3D Cameras

## 3D Measurement

Profile Speed	1000 Hz @ 360 lines (1/3 AOI) 338 Hz @ 1088 lines (full AOI)
Profile Resolution	2,048 points per profile
Output Format	16 bit profile coordinates 16 bit intensity image
Line Extraction	Integrated, robust, configurable profile algorithm HDR mode option 1/64 sub-pixel calculation

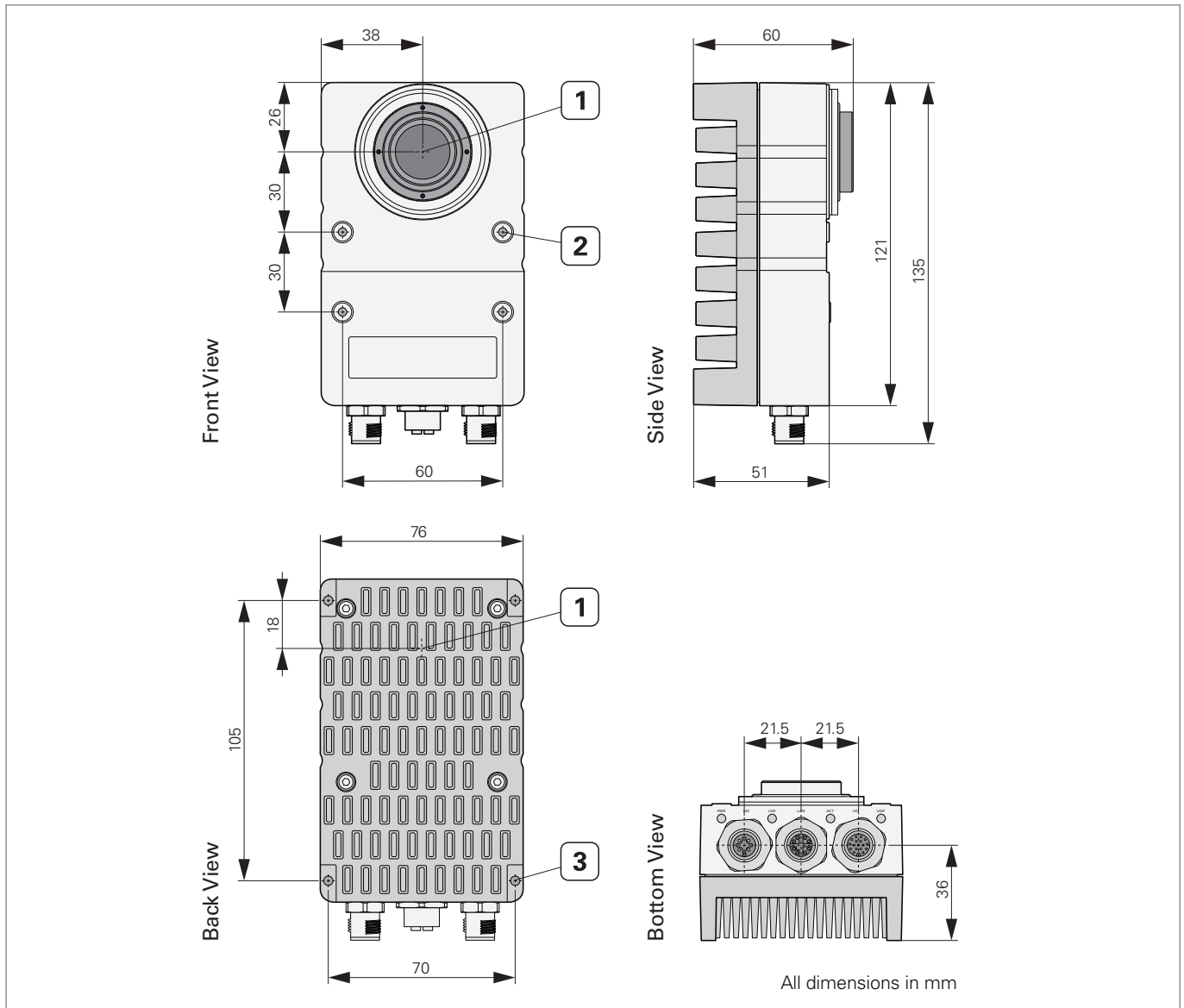


Measurement Fields*	Small	Medium	Large
Field of View (FOV) X Center	57 mm	171 mm	1048 mm
Field of View (FOV) X Near	41 mm	130 mm	800 mm
Field of View (FOV) X Far	63 mm	249 mm	1524 mm
Field of View (FOV) Height	40 mm	282 mm	1200 mm
Working Distance	100 mm	380 mm	1290 mm
Lens Focal Length	25 mm	25 mm	16 mm
Tilt-Shift Adapter	10°	10°	0°
X Resolution Center	28 $\mu\text{m}/\text{px}$	84 $\mu\text{m}/\text{px}$	512 $\mu\text{m}/\text{px}$
X Resolution Near	25 $\mu\text{m}/\text{px}$	64 $\mu\text{m}/\text{px}$	391 $\mu\text{m}/\text{px}$
X Resolution Far	31 $\mu\text{m}/\text{px}$	121 $\mu\text{m}/\text{px}$	744 $\mu\text{m}/\text{px}$
Z Resolution Center	37 $\mu\text{m}/\text{px}$	240 $\mu\text{m}/\text{px}$	994 $\mu\text{m}/\text{px}$
Z Resolution Center, 1/64 sub-pixel calculation	0.6 $\mu\text{m}/\text{px}$	3.7 $\mu\text{m}/\text{px}$	15.5 $\mu\text{m}/\text{px}$
Z Resolution Near	30 $\mu\text{m}/\text{px}$	134 $\mu\text{m}/\text{px}$	758 $\mu\text{m}/\text{px}$
Z Resolution Near, 1/64 sub-pixel calculation	0.5 $\mu\text{m}/\text{px}$	2.1 $\mu\text{m}/\text{px}$	11.9 $\mu\text{m}/\text{px}$
Z Resolution Far	45 $\mu\text{m}/\text{px}$	496 $\mu\text{m}/\text{px}$	1435 $\mu\text{m}/\text{px}$
Z Resolution Far, 1/64 sub-pixel calculation	0.7 $\mu\text{m}/\text{px}$	7.7 $\mu\text{m}/\text{px}$	22.4 $\mu\text{m}/\text{px}$

\* The measurement fields are examples. The actual size depends on the measurement setup (e.g. used lens and triangulation angle).

# Industrial 3D Cameras

## VRmLC1-GEV Camera C-Mount



- 1 Optical center of image sensor
- 2 4 mounting holes on front side (M4 threads)
- 3 4 mounting holes on back side (M4 threads)

### Interfaces

Ethernet	1000 Mbit Ethernet
I/O	6 digital outputs (1 laser, 5 GPOs), 24 V push-pull I/O 4 digital inputs (ABZ-encoder, trigger/gate), TTL input, 24 V tolerant
Power	24 V DC +/- 10% Typical power consumption 9 W

# Industrial 3D Cameras

## Ordering Options

The **VRmLC1-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.

VRmLC1-GEV Variants	Product Codes
VRmLC1-GEV LineCam3D with built-in 10 degree sensor tilt-shift (Scheimpflug principle)	VRmLC1-GEV#TS100
VRmLC1-GEV LineCam3D (no tilt-shift)	VRmLC1-GEV#TS000

Image Acquisition Software Package
VRmagic GigE Vision Suite
CVB CameraSuite 2016 by Stemmer Imaging
Demo Applications

Accessories	VRmagic Part Numbers
DIN rail power supply 40.8 W, 24 V DC, 1.7 A	VRM_DINSUP_24V_1.7A
AC power lead	VRM_PWR_OE_EU
Camera power cable, 5 m M12 female, open ended	VRM_CAB_PWR_0001
Cat6A Ethernet cable, 5 m, M12 male to RJ45	VRM_CAB_ETH_0001
I/O cable, 5m M17 female, open ended	VRM_CAB_IO_0005
IP67 tube	VRM_IP_TUBE_0001
IP67 tube extension	VRM_IP_TUBE_EXT_0001
90 degree mount (including screws)	VRM_MOUNT_90_0001
Flat mounting plate (including screws)	VRM_MOUNT_FLAT_0001
Sealing Cap Power/IO- Connector	VRM_M12_CAP_M
Sealing Cap Ethernet- Connector	VRM_M12_CAP_F