Gener8, LLC
500 Mercury Dr
Sunnyvale CA 94085

Phone (650) 940-9898
Fax (650) 618-1878
sales@gener8.net

User Manual Rev. B

Maxx
Monstar

Revision History		
Date	Who	Description
6/13/18	G. Cardell	Corrected part numbers Added table for expansion connector pinout

Warnings

The installation and connection must comply with the applicable national and international standards. Responsibility lies with the person installing the device.

There are no serviceable parts in this products. If damage is noticed, in particular related to the laser emitter or the dark plastic window over the emitter, please contact Gener8, Inc. for return instructions.

These products are intended for used in controlled environments and are not waterproof, dustproof, or suitable for used in uncontrolled temperature environments. The “outdoor” name on some products refers to its improved performance in high-sunlight environments compared to the non-outdoor products.

Based on the assessment of IEC 60825-1 2nd Edition (2007) and IEC 60825-1 3rd Edition (2014) this produced does not exceed the AEL of a Class 1 laser product. Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007

Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure

Caution: Class I invisible laser radiation present.
Highly divergent laser radiation - Do not stare into the beam.
Do not attach any optics to the device! Do not open the enclosure

Attention: warning of hot surfaces.
During operation do not touch the device directly.

Standard Models

Maxx

Table 1: Standard Maxx models

Model	Name	Field of View	Wavelength
GN8-1XGAA1	Maxx 105	100 x 85 deg	850 nm
GN8-1XMAA1	Maxx 80	80 x 60 deg	850 nm
GN8-1XNAA1	Maxx 60	60 x 45 deg	850 nm
GN8-1XGBA1	Maxx 105 outdoor	100 x 85 deg	945 nm
GN8-1XMBA1	Maxx 80 outdoor	80 x 60 deg	945 nm
GN8-1XNBA1	Maxx 60 outdoor	60 x 45 deg	945 nm

Monstar

Table 2: Standard Monstar models

Model	Name	Field of View	Wavelength
GN8-1MGAA1	Monstar 105	100 x 85 deg	850 nm
GN8-1MMAA1	Monstar 80	80 x 60 deg	850 nm
GN8-1MNAA1	Monstar 60	60 x 45 deg	850 nm
GN8-1MGBA1	Monstar 105 outdoor	100 x 85 deg	945 nm
GN8-1MMBA1	Monstar 80 outdoor	80 x 60 deg	945 nm
GN8-1MNBA1	Monstar 60 outdoor	60 x 45 deg	945 nm

Specifications – Maxx

The Maxx is a platform design providing a low-cost solution enabling quick development of depth-sensing modules. It is a functional platform which contains all core elements for providing short-range 3D imaging. The form factor and power consumption enable immediate integration of 3D capabilities into new platforms such as AR/VR headsets, robots, or game consoles.

Table 3: Maxx basic specifications

Parameter	**Maxx**
Dimensions	68 mm x 20.5 mm x 21.5 mm
ToF Sensor	Infineon IRS1125C
X-Y Resolution	352 x 287 pixels
Viewing Angle Options	60 x 45 deg 80 x 60 deg 100 x 85 deg
Measurement Range	0.2 to 4 m
Depth Resolution	< 1 % distance (0.5 to 4 m) < 2 % distance (0.3 to 0.5 m)
Frame Rate	Programmable 5 – 60 fps
Power Consumption	< 0.9 A @ 5 V (4.5 W)
Illumination Source Options	850 nm, Single 2W VCSEL 945 nm, Single 2W VCSEL
Interface Options	USB 3.0
Software	C/C++ SDK
Operating Systems Supported	Win 7/8, Ubuntu 14.04, MacOS (> 10.9.2)
Operating Temperature	5 to 40 C
Storage Temperature	-40 to 80 C

Specifications – Monstar

Like the Maxx, the Monstar is also a platform design enabling rapid development of 3D imaging capabilities, but providing a greater range than the Maxx. The Monstar provides this extra range by incorporating four VCSELs (compared to the Maxx's one.) The added range expands the possible applications for the Monstar beyond AR/VR, robots, and games, e.g., for indoor and outdoor surveillance, facility monitoring, and industrial automation.

Table 4: Monstar basic specifications

Parameter	**Monstar**
Dimensions	68 mm x 66 mm x 29 mm
ToF Sensor	Infineon IRS1125C
X-Y Resolution	352 x 287 pixels
Viewing Angle Options	60 x 45 deg 80 x 60 deg 100 x 85 deg
Measurement Range	0.2 to 6 m
Depth Resolution	< 1 % distance (0.5 to 6 m) < 2 % distance (0.5 to 2 m)
Frame Rate	Programmable 5 – 60 fps
Power Consumption	< 0.9 A @ 5 V (4.5 W)
Illumination Source Options	850 nm, Quad 2W VCSEL 945 nm, Quad 2W VCSEL
Interface Options	USB 3.0
Software	C/C++ SDK
Operating Systems Supported	Win 7/8, Unbuntu 14.04, MacOS (> 10.9.2)
Operating Temperature	5 to 40 C
Storage Temperature	-40 to 80 C

Outline Drawings

Maxx

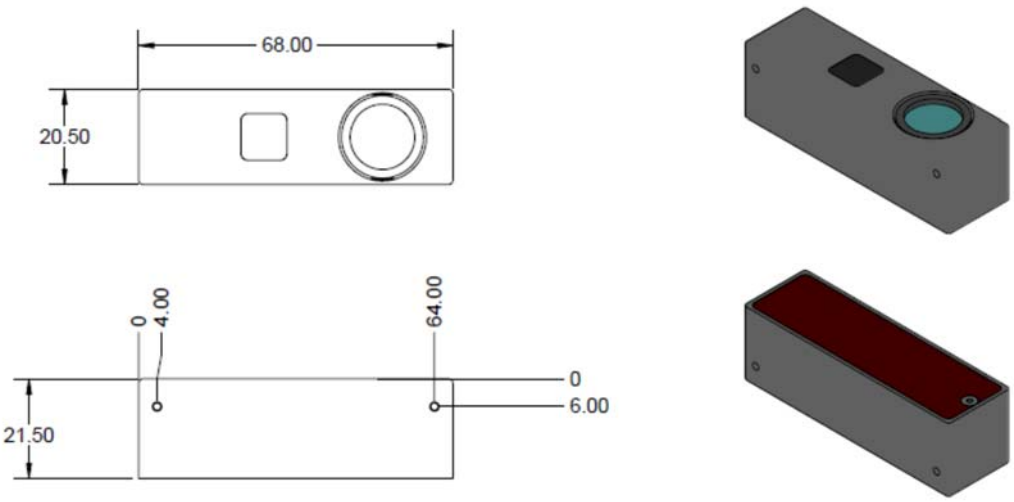

Figure 1: Maxx basic dimensional drawing

Monstar

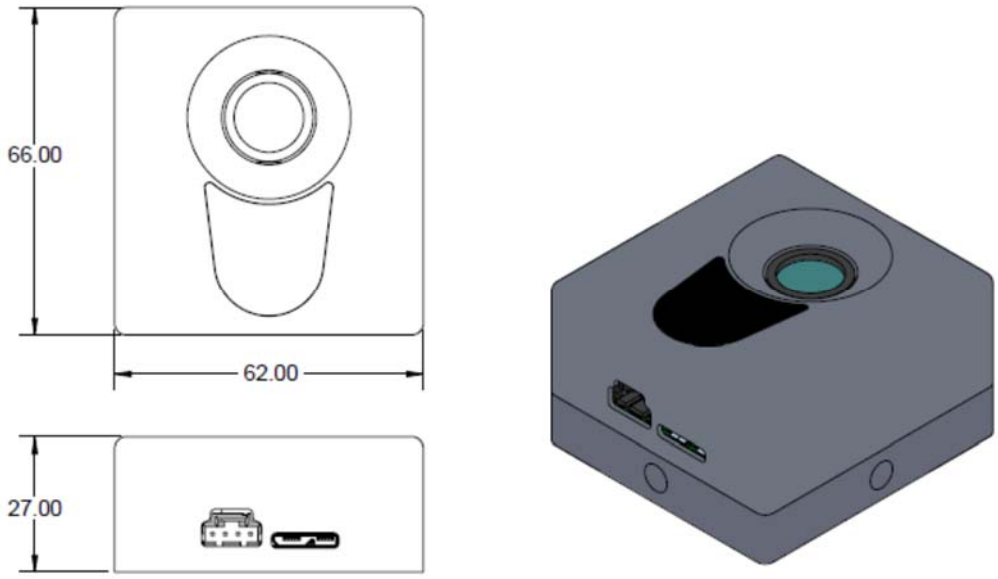

Figure 2: Monstar basic dimensional drawing

Sync Connector

The Maxx and Monstar both have a four-pin connector intended for external power or for triggering and synchronization between cameras.

> *This is an advanced feature of the device and users should contact Gener8 for detailed instructions prior to use or damage may result to the device.*

The pinout for these cables are the same for both Maxx and Monstar and are

Table 5: Sync connector pin assignments

Pin	Function
1	Optional external 5 V supply
2	Sync In
3	Sync Out
4	Ground

The connectors are

Table 6: Sync connector and mating connector part numbers

	Maxx	**Monstar**
Mfg of Connector	JST	TE Connectivity
Connector on Module	SM04B-GHS-TB(LF)(SN)	5-103635-3
Recommended Mating Housing	GHR-04V-S	104257-3
Recommended Mating Terminal	SSHL-002T-P0.2	1-104480-7

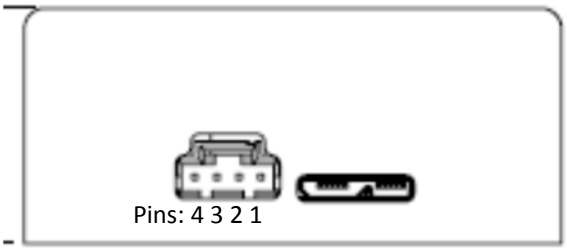

Figure 3: Sync connector pins (Monstar shown, the Maxx connector is identical.)

Expansion Connector

The Monstar comes with an expansion port under its rear cover. The connector is a Samtec QSH-020-01-F-D-DP and the reader is referred to the Samtec website for suitable mating connectors.

This is an advanced feature of the device and users should contact Gener8 for detailed instructions prior to use or damage may result to the device.

The pinout for the header is (note: GND1—GND3 are solder pads that run along the axis of the connector, and the pin arrangement shown in the table corresponds to the organization of the signal connections as viewed from the connector top):

Table 7: Expansion connector pinout

Monstar Expansion Connector		**Samtec QSH-020-01-F-D-DP**	
Pin	**Signal**	**Pin**	**Signal**
40	DATA0	39	PIX_CLK
38	DATA1	37	VSYNC
36	DATA2	35	HSYNC
34	DATA3	33	MOD_FAULT
32	DATA4	31	GPIO1
30	DATA5	29	GPIO2
28	DATA6	27	I2C_SCL
26	DATA7	25	I2C_SDA
24	DATA8	23	SPI_SSN
22	DATA9	21	SPI_SCK
20	DATA10	19	SPI_MOSI
18	DATA11	17	SPI_MISO
16	CSI_DATA0_P	15	TRIGGER_IN
14	CSI_DATA0_N	13	TRIGGER_OUT
12	CSI_CLK_N	11	SENSOR_READY
10	CSI_CLK_P	9	SENSOR_GPIO
8	CSI_DATA1_P	7	SENSOR_RESET_N
6	CSI_DATA1_N	5	CX3_RESET_N
4	External Power	3	External Power
2	External Power	1	External Power
GND1	Power Return	GND3	Power Return
GND2	Power Return	GND4	Power Return