



V3DR3-80CT31111

Ranger3

3D MACHINE VISION

SICK
Sensor Intelligence.



Ordering information

Type	Part no.
V3DR3-80CT31111	1141150

Other models and accessories → www.sick.com/Ranger3



GEN<i>CAM

Detailed technical data

Features

Technology	3D triangulation, 2D line scanning, color
Product category	Streaming, flexible
Shutter technology	Global-Shutter
Example field of view	Free of choice by lens selection
Exposure mode	Linear HDR
Illumination	To be ordered separately as accessories
Data synchronization	Free running, encoder triggered, external triggering
3D measurement	✓
Scatter measurement	✓
Reflectance measurement	✓
Spectral range	400 nm ... 950 nm
Lens	C-mount
Optical format	1"
Note	To be ordered separately as accessories
Task	Detecting - Standard objects Measuring - Dimension, contour and volume Monitoring and controlling - Quality Determining position - 3D position determination

Mechanics/electronics

Connection type	Voltage – I/O: M12, 17-pin male connector Gigabit Ethernet: M12, 8-pin socket, X-coded
Connector material	M12: Nickel-coated brass
Supply voltage	24 V DC, ± 20 %
Power consumption	12 W
Current consumption	≤ 1.5 A
Enclosure rating	IP20

	IP65, by ProFlex protection hood IP67, by ProFlex protection hood
Housing material	Aluminum
Housing color	Blue, powder-coated
Weight	330 g
Dimensions (L x W x H)	77 mm x 55 mm x 55 mm

Performance

Image sensor	CMOS sensor from SICK with ROCC technology, M30
Sensor resolution	2,560 px x 832 px
Scan/frame rate	69,000 3D profiles/s, in AOI 7,000 3D profiles/s, full format
Maximum Hi-Res color rate	15,000 RGB lines/s
Maximum hi-res grayscale frequency	≤ 30,000 Lines/s
Color resolution	5,120 px
Pixel size	6 μm x 6 μm (3D) 3 μm x 6.4 μm (High Resolution)
Maximum 3D height resolution	16 bits, 1/16 subpixel
Gray-scale resolution	5,120 px

Interfaces

Ethernet	✓, UDP/IP
Data transmission rate	2.5 Gbit/s
Configuration software	Stream Setup
Operating system	Windows 7, Windows 10
Application programming interface (API)	Proprietary SICK GenIStream
Digital input	4 x HIGH = 10 V ... 28.8 V
Digital output	2 x TTL
Encoder interface	RS-422

Ambient data

Shock load	15 g, 3 x 6 directions
Vibration load	5 g, 58 Hz ... 150 Hz
Ambient operating temperature	0 °C ... +45 °C ¹⁾ ²⁾
Storage temperature	-20 °C ... +70 °C ¹⁾

¹⁾ Non-condensing.

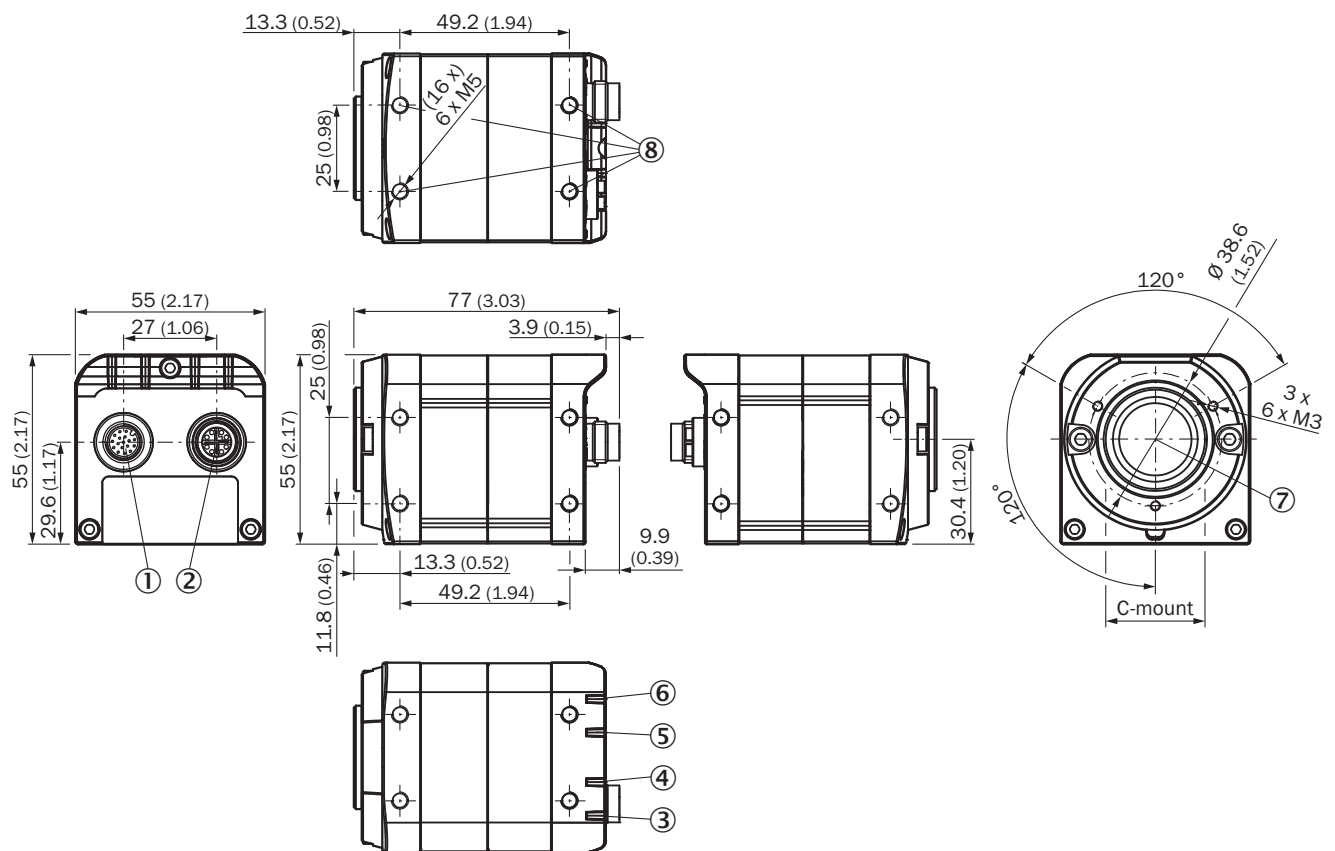
²⁾ If the ambient operating temperature will be ≥ 35 °C, ensure adequate heat dissipation when mounting the device.

Classifications

ECLASS 5.0	27310205
ECLASS 5.1.4	27310205
ECLASS 6.0	27310205
ECLASS 6.2	27310205
ECLASS 7.0	27310205
ECLASS 8.0	27310205
ECLASS 8.1	27310205

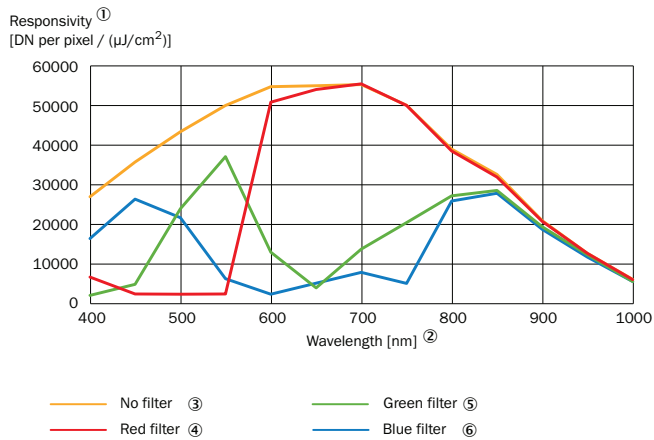
ECLASS 9.0	27310205
ECLASS 10.0	27310205
ECLASS 11.0	27310205
ECLASS 12.0	27310205
ETIM 5.0	EC001820
ETIM 6.0	EC001820
ETIM 7.0	EC001820
ETIM 8.0	EC001820
UNSPSC 16.0901	43211731

Dimensional drawing (Dimensions in mm (inch))



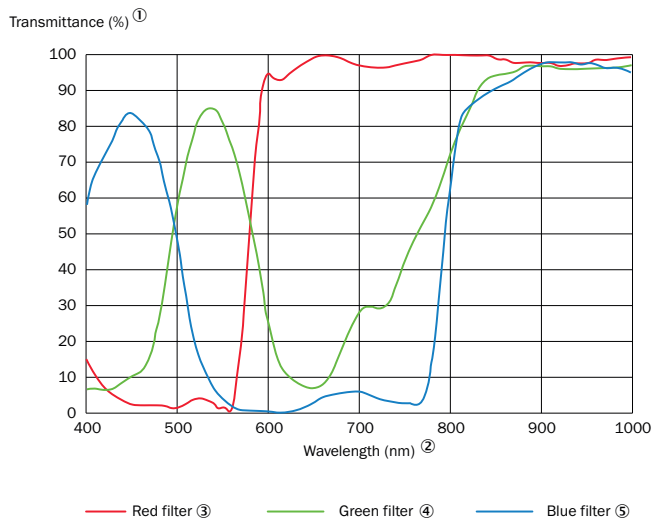
- ① Power I/O connector
- ② Gigabit Ethernet connection (GbE)
- ③ LED; On
- ④ LED; State
- ⑤ LED; Link/Data
- ⑥ LED; Laser
- ⑦ Optical axis, receiver
- ⑧ Mounting holes, 4 x M5

Characteristic curve



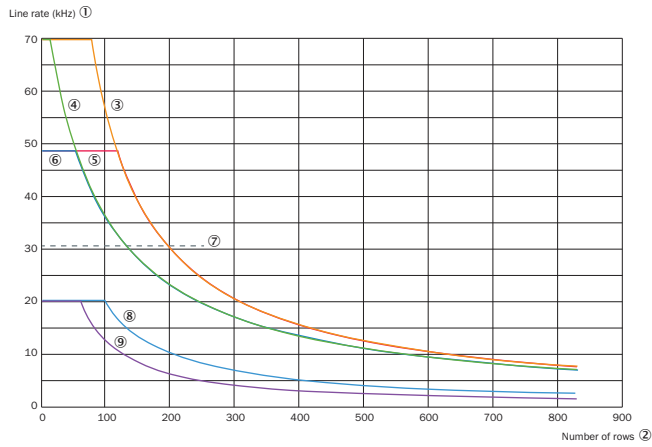
Approximate filter response for the M30 high-resolution color rows

- ① Sensitivity
- ② Wave length
- ③ No filter
- ④ Red filter
- ⑤ Green filter
- ⑥ Blue filter



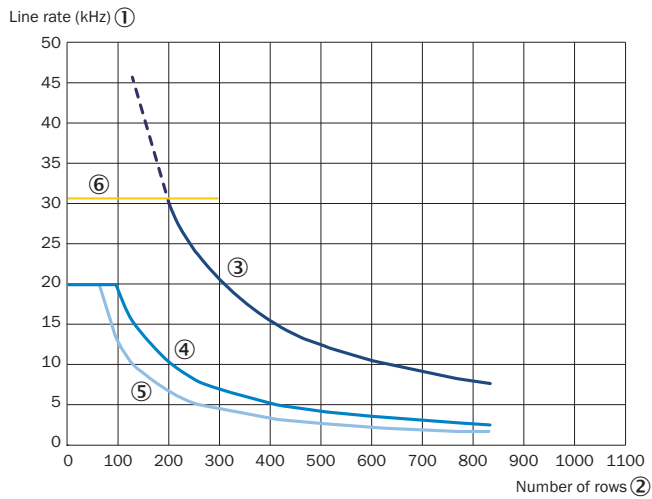
Approximate spectral transmittance for the M30 high-resolution color rows

- ① Transmission
- ② Wave length
- ③ Red filter
- ④ Green filter
- ⑤ Blue filter



The maximum line rate is based on the number of sensor lines used

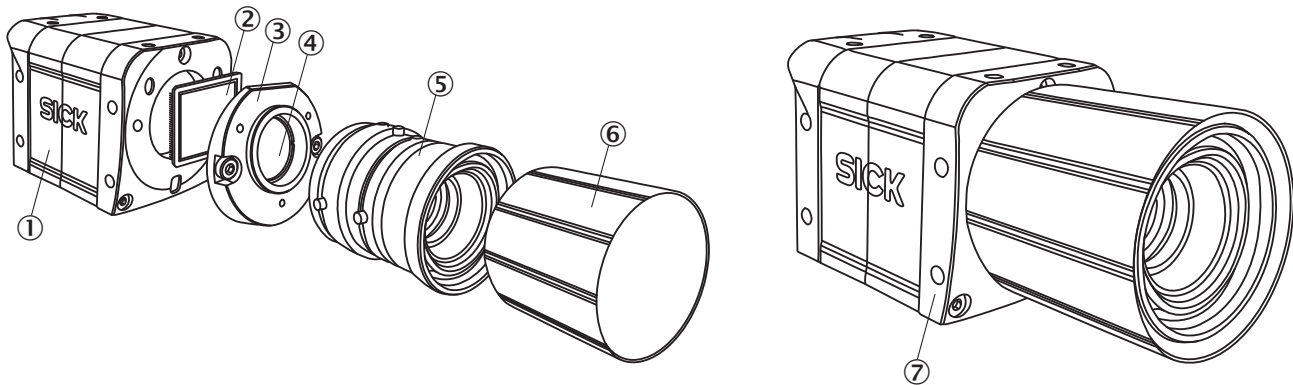
- ① Line rate (kHz)
- ② Number of lines
- ③ Ranger3-80, Linear
- ④ Ranger3-80, HDR
- ⑤ Ranger3-60, Linear
- ⑥ Ranger3-60, HDR
- ⑦ Bandwidth limitation for Ranger3-60, 2,560 columns
- ⑧ Ranger3-40
- ⑨ Ranger3-30



The maximum line rate is based on the number of sensor lines used

- ① Line rate (kHz)
- ② Number of lines
- ③ Ranger3-60, 2,560 columns
- ④ Ranger3-40, 2,560 columns
- ⑤ Ranger3-30, 1,536 columns
- ⑥ Bandwidth limitation for 2,560 columns





Exploded view




- ① Ranger3 (housing)
- ② CMOS sensor M30
- ③ Scheimpflug adapter, replaceable
- ④ Optical filter, replaceable
- ⑤ C-mount lens, replaceable
- ⑥ Protective hood, replaceable
- ⑦ Installed device with all listed parts

Recommended accessories

Other models and accessories → www.sick.com/Ranger3

	Brief description	Type	Part no.
Lenses and accessories			
	C-Mount lens 1", focal length 25 mm, lens aperture 1.4 – 16	C-mount lens	5327524
Mounting brackets and plates			
	Mounting bracket with camera adapter plate, including screws	Mounting bracket	2091431
Others			
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 17-pin, straight, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 3 m, 17-wire, PUR • Description: Sensor/actuator cable, twisted pair, shielded • Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation 	YF2A2D-030UV1XLEAX	6042772
	<ul style="list-style-type: none"> • Connection type head A: Male connector, M12, 8-pin, straight, X-coded • Connection type head B: Male connector, RJ45, 8-pin, straight • Signal type: Ethernet, Gigabit Ethernet • Cable: 2 m, 8-wire, PUR, halogen-free • Description: Ethernet, Gigabit Ethernet, shielded • Application: Zones with oils and lubricants 	YM2X18-020EG1MRJA8	2106258

	Brief description	Type	Part no.
	<ul style="list-style-type: none"> • Connection type head A: Male connector, M12, 8-pin, straight, X-coded • Connection type head B: Male connector, RJ45, 8-pin, straight • Signal type: Ethernet, Gigabit Ethernet • Cable: 3 m, 8-wire, PUR, halogen-free • Description: Ethernet, Gigabit Ethernet, shielded • Application: Zones with oils and lubricants 	YM2X18-030EG1MRJA8	2145693

Recommended services

Additional services → www.sick.com/Ranger3

	Type	Part no.
Extended warranty		
<ul style="list-style-type: none"> • Product area: Machine vision, LiDAR sensors, safety camera sensors, Safety laser scanners, Safety radar sensors, Radar sensors, Fixed mount barcode scanners, Image-based code readers, RFID, Mobile handheld scanners • Range of services: The services correspond to the scope of the statutory warranty (SICK General Terms of Delivery) • Duration: Five-year warranty from delivery date. 	Extended warranty for a total of five years from delivery date	1680671

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com