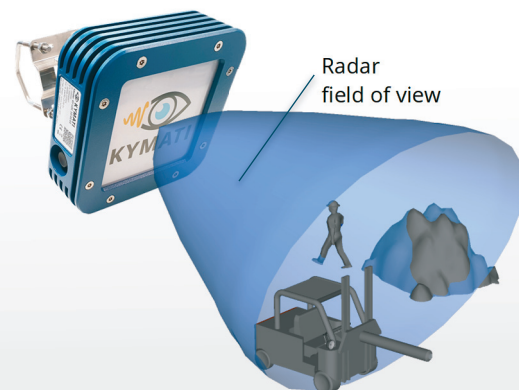


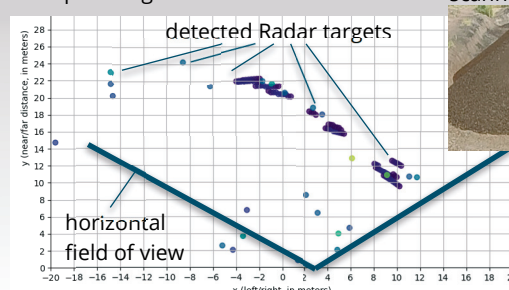
DATA SHEET

KY-RAY 3D.03.01



- High resolution primary 3D Radar sensor to detect multiple targets simultaneously.
- Maintenance-free indoor and outdoor operation.
- High frequency radio based, no interference with WiFi and mobile communication.

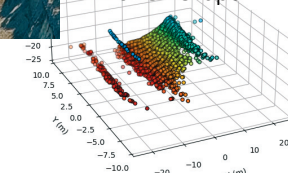
Example - single scan frame from above:



scanned stockpile



multiple linear scan results for full 3D shape



3D RADAR TARGET ACQUISITION SENSOR

The KY-RAY 3D.03.01 Radar is designed to detect Radar targets in the 3D field of view. The detection range is depending on the Radar Cross Section (RCS) of the targets within reach. The table below provides a basic indication.

For each detected target, the individual speed, heading, and 3D position in the field of view is provided in the data set of every scanned frame. No object clustering or postprocessing takes place. The sensor provides raw target data at the interface. A commissioning software provided with the sensor allows setting of parameters, such as Radar sensitivity or target speed, to filter raw targets as required for the respective application.

KY-RAY 3D.03.01 does not require/allocate any WiFi or mobile communication frequencies and is also not affected by such radio signals.

TECHNICAL DATA: KY-RAY 3D.03.01

Measurement range ¹⁾ , depending on RCS	2 m ≤ x ≤ 150 m (truck); ≤ 50 m (person)
Field of view (3 dB line)	horizontal ± 45°, vertical ± 15°
Repeat distance accuracy ¹⁾	up to 15 mm on defined surface/object
Absolute distance accuracy ¹⁾	± 50 mm (between 2 and 50 m range)
Range resolution	0,3 m (between 2 and 50 m range)
Update rate	up to 15 Hz
Protection	IP 66, IP66k and IP68 (cntd. plugs, 24h@1 m)
Operating temperature	-30 ... +75 °C; -22 ... 167 F
Weight, dimensions LxWxD	1060 g; 138x138x43 mm (without support)
Voltage, power consumption (M12, 5 pin, male, A-coded)	9 ... 36 V DC or PoE (802.3af), 5 W
Frequency	61 GHz (ISM band)
Interface (M12, 8 pin, female, X-coded)	Ethernet (100Base-Tx), PoE (802.3af)

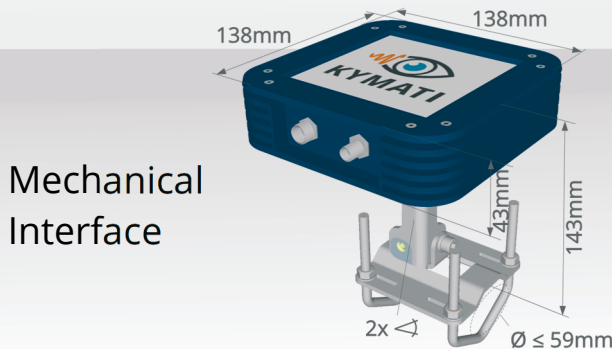
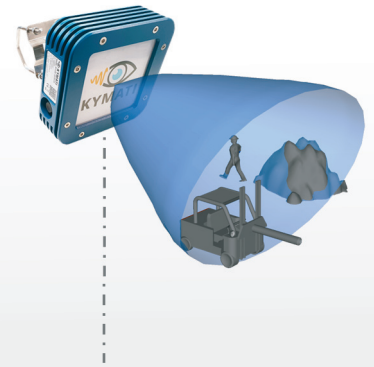
¹⁾ Values may vary with radio regulations applicable

KY-RAY 3D.03.01- Quick Facts

- 3D Radar sensor to detect absence, presence, speed, heading of targets.
- Open interface for radar target data – evaluation independently by OEM.
- Easy to install, adjustable mounting bracket included.
- Commissioning software included to set parameters and monitor target detection.
- Can detect moving and static targets.
- No interference with WiFi or mobile communication.
- Multiple KY-RAY units can operate in parallel using different trigger signals.
- Operates maintenance-free under all weather conditions and in complete darkness.

DATA SHEET

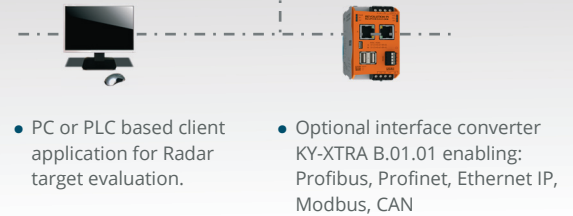
KY-RAY 3D.03.01



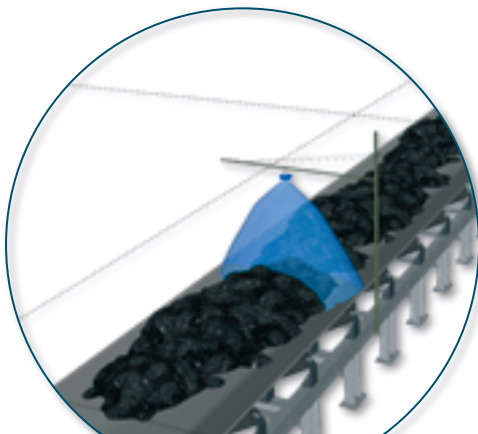
Mechanical Interface

Electrical Interface

- Data interface: Ethernet
- Power: separate power supply or PoE

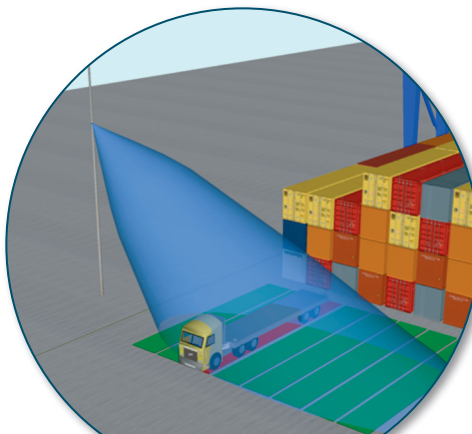


APPLICATION EXAMPLES



BULK MATERIAL

- Stockpile volume
- Belt conveyor flow volume
- Belt conveyor speed



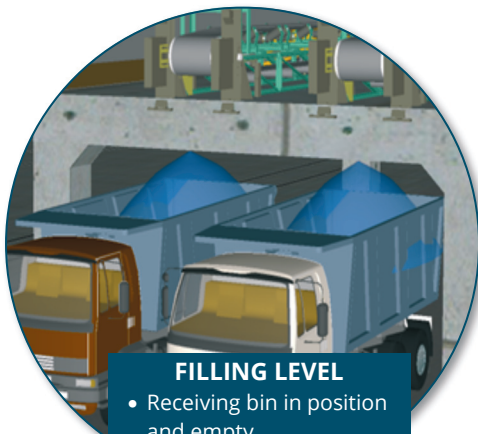
ABSENCE/PRESENCE

- Check for expected or unexpected targets
- Determine adjusted position of targets



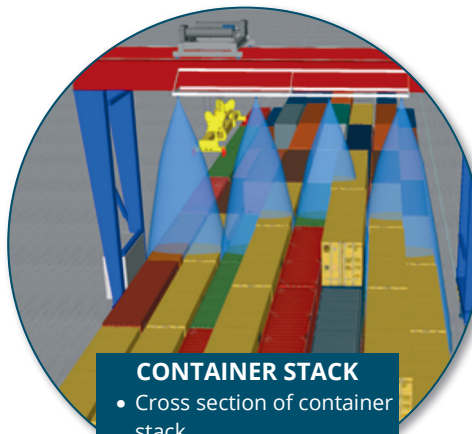
COLLISION AVOIDANCE

- Machine shall not collide with environment
- Assists in blind spot situations



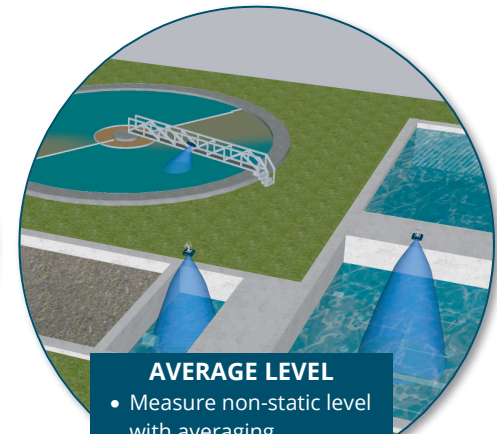
FILLING LEVEL

- Receiving bin in position and empty
- Receiving bin filling status
- No receiving bin present



CONTAINER STACK

- Cross section of container stack
- Few radar sensors create reliable height profile



AVERAGE LEVEL

- Measure non-static level with averaging
- Maintenance-free in outdoor use