



# PROFILING AND HEIGHT MEASUREMENT OF VESSELS

**SICK**  
Sensor Intelligence.

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Profiling and Anti-collision

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# PROFILING & HEIGHT MEASUREMENT OF VESSELS

## COMPANY OVERVIEW



SICK – worldwide one of the leading manufacturers of sensors and sensor solutions for industrial applications

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## FIRST CONTACT WITH BRIDGE COLLISION

### ■ (Minimum) Requirements of request in 2014:

- Detection of bridges and their substructure
- Range: 120m@10%
- Scanning angle: 120... 160°
- Accuracy: +/- 50 mm
- Operating temperature -40 °C to +60 °C
- Numbers of Layers – min. 8
- Expanded penetration through fog, dust, rain etc.
- Laserclass 1



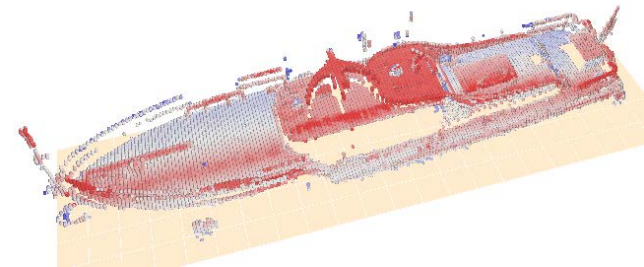
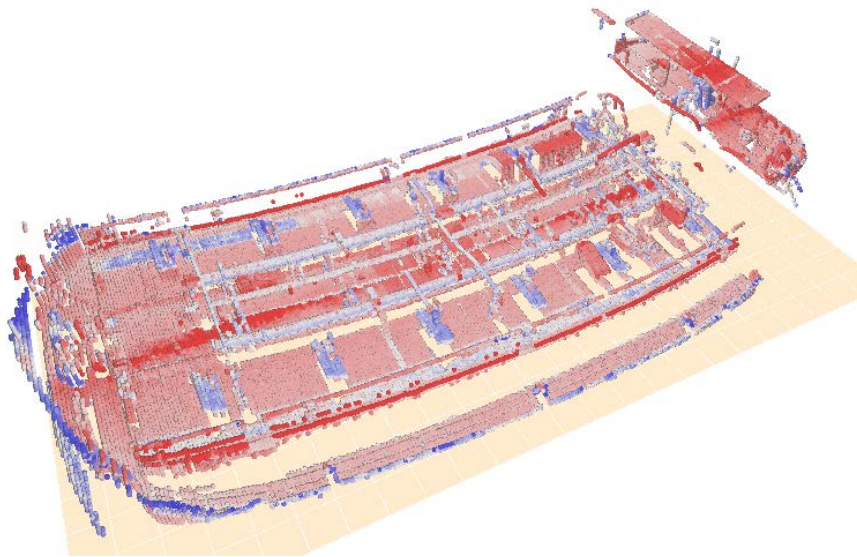
### ■ Limiting points:

- ▶ Measurement accuracy of +/-50mm in 100m distance
- ▶ Expectation of fully integrated system able to lower the wheelhouse automatically

# PROFILING & HEIGHT MEASUREMENT OF VESSELS

## SYSTEM INTRODUCTION

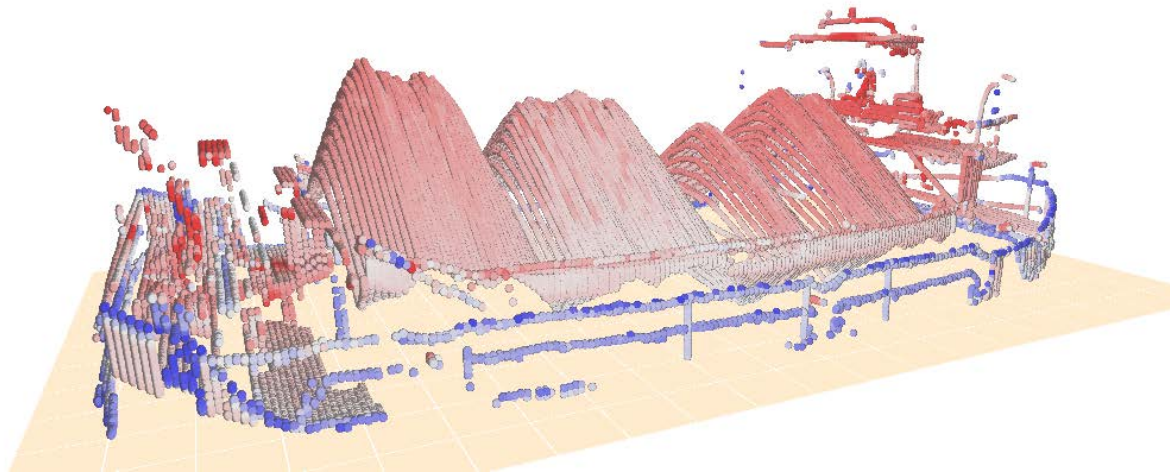
- New request (2018)
  - Profiling / classification of vessels



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## SYSTEM INTRODUCTION

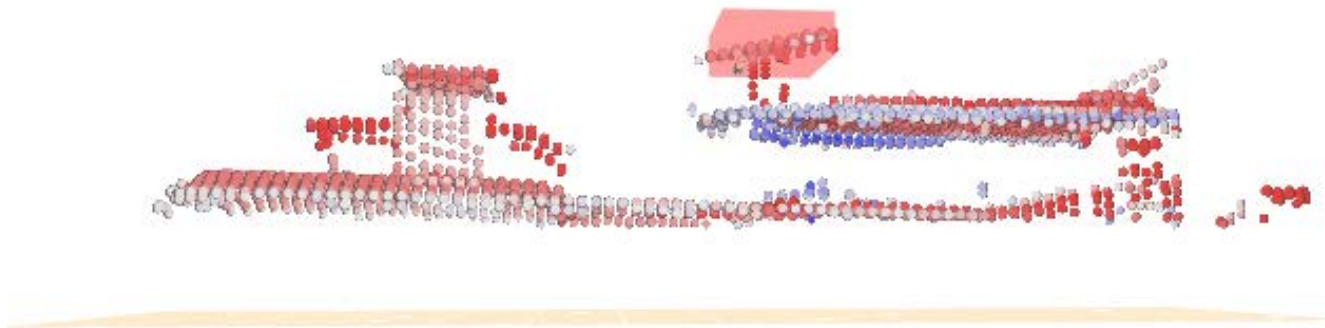
- New request
  - ▶ Profiling / classification of vessels
  - ▶ Height measurement



# PROFILING & HEIGHT MEASUREMENT OF VESSELS

## SYSTEM INTRODUCTION

- New request
  - ▶ Profiling / classification of vessels
  - ▶ Height measurement
  - ▶ Over-height detection





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## APPLICATION EXAMPLE



Installation of over-height measurement at first bridge in 7m height

→ Measured height of vessel at 1. bridge: **5.7m**

→ Allowed height at 2. bridge : 6.1m



→ Allowed height at 3. bridge: 5.4m



→ Allowed height at 4. bridge: 6.5m



→ Allowed height at 5. bridge: 5.9m



→ Possibility to lower height of vessel?

# PROFILING & HEIGHT MEASUREMENT OF VESSELS

## SUMMARY

- System overview
  - ▶ LiDAR based
  - ▶ Over-height alarm
  - ▶ Pointcloud of vessel with height information
  - ▶ Accessible information through web interface





MANY THANKS FOR YOUR ATTENTION.

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