**The future of maritime greenhouse gas reporting: SICK AG and partners unveil research project on automated and verified real-time measurement of ship emissions**

* Goal of the DIVMALDA project: digital and transparent monitoring and reporting processes for CO2-optimized ship operations and as the basis for modern emissions trading
* The Federal Ministry for Economic Affairs and Climate Action is backing the initiative

Waldkirch/Hamburg, July 11, 2024 – “Digitization and Verification of Marine Live Emission Data” or “DIVMALDA” for short: that’s the name of the research and development project officially launched by a consortium led by SICK AG on July 9, 2024, in Hamburg. For the project, which will combine sustainable technologies and digitalization to measure ship emissions, the following partners have joined forces: CPO Containerschiff-Reederei, die Flotte Hamburg, the Fraunhofer Institute for Software and Systems Engineering (Fraunhofer ISST), the Fraunhofer Center for Maritime Logistics and Services (Fraunhofer CML), the international classification institute Det Norske Veritas (DNV), and the Hamburg Port Authority (HPA), as well as SICK AG, which will provide the requisite sensor technologies. Their common goal is to develop a solution that allows ships’ emissions data to be digitally gathered in real-time and officially verified. This will allow the data to be used as a reliable basis for reporting and monitoring processes, and for emissions trading – the first solution of its kind worldwide, which will set a new standard in the reporting of maritime emissions and offer a host of benefits for ship operators, shipyards, charterers, government offices and other stakeholders.

**Transparent and reliable maritime emissions monitoring currently challenging**

Ship operators and shipyards are under pressure: today, it’s not just government offices, port authorities, etc. that expect them to deliver reliable reporting on their ships’ CO2 and/or climate-relevant gas emissions; more and more customers are following suit. These groups need data on the Scope 3 emissions produced by their supply chains for reporting purposes, and to help ensure they reach their own climate targets. But reliably determining ships’ emissions footprints isn’t yet wholly feasible: for example, most ships have multiple tanks filled with different fuels, which can lead to manual calculations and potential reporting errors. An automated reporting with verified data can substantially reduce manual effort and thereby minimize the potential for error, so as to support reliable statements on ships’ climate-relevant gas emissions.

**The goal: an automated, digital solution to verifiably gather maritime emissions data**

That’s where DIVMALDA comes in: the goal of the three-year research project is to develop a system that uses innovative sensor technologies to measure ships’ greenhouse gas emissions in real time and make that data available via a cloud solution. This verified data will then be passed on to government offices, customers and other relevant parties.

Such a system would offer clear benefits for ship operators and shipyards: it would save them a great deal of time and effort, while also offering a competitive edge by allowing them to present e.g. charterers and cargo owners with reliable and transparent emissions data. In addition, it would allow them to benefit from the incentive programs already in place for low-greenhouse gas shipping. The verified data could also contribute to CO2-optimized operations and be used as a reporting verification for emissions trading.

**Consortium of strong project partners**

To make this ambitious project a reality, several partners have pooled their resources under the leadership of SICK as a manufacturer of sensors and digital solutions for emissions monitoring: CPO Containerschiff-Reederei and die Flotte Hamburg as the operator of all state-operated ships in the Port of Hamburg, e.g. police, fire department and pilot boats, have made their ships available. In the course of the project, two container ships and a harbor ferry will be equipped with SICK AG’s newly developed measuring system for testing purposes. The Fraunhofer Institute for Software and Systems Engineering (Fraunhofer ISST) is responsible for data security and data sovereignty. The Fraunhofer Center for Maritime Logistics and Services (Fraunhofer CML) and Det Norske Veritas (DNV) as an international classification institute are responsible for verifying the data in compliance with international regulations for the reduction of greenhouse gas emissions. The Hamburg Port Authority (HPA) will receive and utilize the verified data.

In this way, the project partners will pool their resources and cover the entire process chain, from data source to data recipient. All consortium members are investing in the project independently. In addition, the project will receive backing from Germany’s Federal Ministry for Economic Affairs and Climate Action, as DIVMALDA’s objectives align with those of the Federal Government when it comes to making the maritime industry “Green & Smart”.

DIVMALDA will mark the first time the technology provided by the International Data Space Association (IDSA) is applied to maritime emissions. In the form of International Data Spaces (IDS), the IDSA offers a secure, independent and innovative system for data transfers, one in which all participants retain complete control over their data (in keeping with the principle of data sovereignty) and can use it for business processes.

**Shaping the future of maritime emissions monitoring and reporting**

The DIVMALDA project has the potential to shape the future of maritime emissions monitoring and reporting. This will be done with a view to the increasingly stringent regulations around the globe on the sustainability of maritime shipping, and to the potential held by emissions trading in the maritime sector, which to date has largely been based on manual processes due to the lack of robust data. In the next step, SICK AG plans to use the insights gained from the research project to develop a cost-effective solution for verifying emissions monitoring for ship operators and shipyards. These groups have already expressed great interest in such an application.

**Quotes:**

Dr. Niels Syassen, Member of the Executive Board responsible for Technology and Digitalization at SICK AG: *“On the path to decarbonization, we need to use innovative automation technologies to transparently measure current greenhouse gas emissions, promoting their reduction in the process. We look forward to working with our committed partners to set a new standard for robust emissions data on the high seas. Applying sensor technologies and automation to help preserve the environment and protect human health is a core component of our self-image.”*

Hinrich Brumm, Head of Industry Group Mobility & Outdoor Automation at SICK AG:

*“Developing a solution of this complexity can only succeed when the representatives of all stakeholders involved in the process join forces. This alliance of shipyards and ship operators, verification institutes, Fraunhofer Institutes and port authorities is what makes the research project DIVMALDA so unique. Our common goal is to develop a solution for the automated reporting of ship emissions, one that could be used as a blueprint for the entire industry.”*

Manfred Constapel, Team Leader Maritime Informatics Fraunhofer Center for Maritime Logistics and Services CML, and Dr. Jürgen Schmelting, Head of Department Industrial Manufacturing Fraunhofer Institute for Software and Systems Engineering ISST:
*"We are delighted about the launch of DIVMALDA! The research project makes it possible for the first time to automate robust and reliable emission measurements on ships and to process and digitize them for use on land. We at Fraunhofer are looking forward to researching this innovative project together with the project partners and thus paving the way for automated emissions reporting while maintaining the sovereignty of all parties involved."*

Benjamin Witt, Principal Environmental Compliance Director at DNV:

*“Transparent and trustable information for all stakeholders along the chain in a more frequent and digital way should be key. New fuel types and a well-to-wake GHG emission approach will make the emission calculation methods more complex due to additional factors applied. Therefore, it will be the logical consequence to develop a verified direct measurement solution from aboard the vessel, which will be done with DIVMALDA.”*

Christoph Gessner, Chief Operating Officer of the Offen Group:

*"The measuring equipment installed by SICK on our ships has proven its reliability in recent years. We are confident that with this research and development project, together with our competent partners, we will develop an innovative solution that will significantly simplify emissions monitoring for shipping companies."*

Karsten Schönewald, Chief Executive Office of FLOTTE HAMBURG:

*"The DIVMALDA project fits perfectly into our Zero Emission Strategy. As a driver of innovation in the Port of Hamburg, we are very interested in certified digital real-time recording of emissions from our 45 port vessels. I see great opportunities for scalability to the entire shipping industry."*

Constantin Schwarze, Manager Environmental & Climate Port Strategy at the Hamburg Port Authority (HPA):

*"In order to drive forward decarbonization in the Port of Hamburg, it is essential to record greenhouse gas emissions transparently using innovative technology and automation. The DIVMALDA project represents a significant step towards improved emissions monitoring. Through verified real-time measurements of maritime emissions data, we as the HPA can increase data transparency and understand the effects of port operations on the climate and environment more efficiently. The cooperation with SICK and the other partners enables us to combine state-of-the-art technology and comprehensive expertise to jointly pave the way for a more climate-friendly future."*



Image: Group Picture\_Start DIVMALDA Research Project\_SICK\_July 2024.JPG (© SICK AG)

Caption: A consortium of strong project partners plans to shape the future of maritime emissions monitoring and reporting. From left to right: Christoph Gessner (Offen Group), Benjamin Witt (DNV), Constantin Schwarze (Hamburg Port Authority), Hinrich Brumm (SICK AG), Jürgen Schmelting (Fraunhofer ISST), Manfred Constapel (Fraunhofer CML), Karsten Schönewald (Flotte Hamburg).

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SICK is one of the world’s leading solutions providers for sensor-based applications in the industrial sector. Founded in 1946 by Dr.-Ing. e. h. Erwin Sick, the company with headquarters in Waldkirch im Breisgau near Freiburg ranks among the technological market leaders. With 60 subsidiaries and equity investments as well as numerous agencies, SICK maintains a presence around the globe. SICK has more than 12,000 employees worldwide and generated a group revenue of EUR 2.3 billion in the 2023 fiscal year. Additional information about SICK is available at www.sick.com