



Unified locating as a key to “Physical AI”:

AIM-D, omlox, and the OPC Foundation create the foundation for a spatially networked industrial systems with a new OPC UA specification

Lampertheim, 03. November 2026

Industrial automation is facing a paradigm shift: machines, robots, and mobile systems are learning to “understand” space. With the new OPC UA Companion Specification for Identification and Locating, AIM-D e.V., PROFIBUS & PROFINET International (PI) with the open locating standard omlox, and the OPC Foundation are establishing the foundation for a common language of “spatial intelligence.”

Physical AI – that is, AI that actively perceives physical space and acts contextually – requires a unified understanding of positions, movements, and identities in space. This is precisely where the new Companion Specification comes in: it harmonizes the spatial data model for absolute positions within the OPC Foundation and allows for a unified global positioning of assets in the physical and digital world.

This enables a seamless integration of spatial data into industrial IT and OT systems – a prerequisite for autonomous mobile robots, intelligent assistance systems, and self-organizing production environments.

The new specification is now freely available on the OPC Foundation’s website and is considered a milestone for the next evolutionary stage of industrial intelligence.

“Machines need a unified understanding of their position in space for coordinated interaction between stationary equipment and mobile robots in the flexible production of tomorrow,” explains Dr. Matthias Jöst, Committee Leader omlox at PI. *“With the now available OPC UA Companion Spec, OPC Foundation, AIM-D, and PI jointly create the basis for a new generation of spatially networked and AI-enabled systems.”*

“AIM particularly benefits from the connection between AutoID and locating technologies,” adds Peter Altes, Managing Director of AIM-D e.V. *“The unified data model strengthens interoperability – a decisive prerequisite for digitally connected logistics and industry.”*

Stefan Hoppe, President and Executive Director of the OPC Foundation, emphasizes: *“OPC UA connects worlds – from identification to locating to control. This new specification*

demonstrates how open standards together create true interoperability – making the industrial Internet of Things scalable and future-proof.”

The collaboration between AIM-D, omlox / PI, and the OPC Foundation brings together the disciplines of identification, locating, and communication in a common spatial context. This creates a decisive foundation to equip robots, vehicles, and machines with a shared spatial understanding – the key to Physical AI, resilient supply chains, and autonomous industrial ecosystems.

About AIM

AIM-D e.V. (or AIM for short), situated in Lampertheim, South Hesse, is the leading industry association for automatic data collection, identification (AutoID) and mobile IT systems. The association promotes the use and standardization of AutoID technologies and processes. Technologies such as RFID, NFC, barcodes, two-dimensional codes, industrial sensors and RTLS (real-time locating systems) are promoted in equal measure. AIM represents around 120 members in Germany, Austria and Switzerland. AIM members include companies of every size offering AutoID technologies and products, systems and services. This includes a host of university and research institutions, as well as other associations. Under the umbrella of AIM Global and AIM Europe, AIM supports the global competitiveness of its members.

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About the OPC Foundation

Since 1996, the OPC Foundation has facilitated the development and adoption of the OPC information exchange standards. As both advocate and custodian of these specifications, the Foundation's mission is to help industry vendors, end-users, and software developers maintain interoperability in their manufacturing and automation assets. The OPC Foundation is dedicated to providing the best specifications, technology, process, and certification to achieve multivendor, multiplatform, secure, reliable, interoperability for moving data and information from the embedded world to the enterprise cloud. The Foundation serves over 1000 members worldwide in the Industrial Automation, IT, IoT, IIoT, M2M, Industrie 4.0, Building Automation, machine tools, pharmaceutical, petrochemical, and Smart Energy sectors. For more information about the OPC Foundation, please visit www.opcfoundation.org.

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About PI

Over 30 years ago, the PROFIBUS Nutzerorganisation e.V. (PNO) initiated the foundation of a large, global community which has come together under the PROFIBUS & PROFINET International (PI) umbrella organization. With 25 regional user organizations in every international market, around 1,700 member companies and many thousands of different products, PI is the largest interest group for industrial automation technology. Its global network includes most manufacturers and users from every industry. The technologies cover every key market of industrial automation, from production automation to process automation to motion control and safety applications. PROFIBUS, the leading fieldbus – PROFINET, the leading Ethernet standard – IO-Link, the leading sensor/actuator communication system – and omron, the open and interoperable standard for real-time locating – are available automation technologies with future potential enabling production in the "Industry 4.0" generation.

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About omlox

omlox®, the world's first open location standard for industry, unifies location data from all location technologies in a central middleware and enables technology and vendor independent location of all moving objects. In addition, it defines an interoperable Ultra-Wideband positioning system that allows real-time positioning in complex production environments.

Medien





Einheitliche Ortung als Schlüssel für „Physical AI“: *AIM-D, omlox und OPC Foundation schaffen mit neuer OPC UA Spezifikation die Basis für räumlich vernetzte Industrie 4.0 Systeme*

Lampertheim, 03. November 2025

Die industrielle Automatisierung steht vor einem Paradigmenwechsel: Maschinen, Roboter und mobile Systeme lernen, den Raum zu „verstehen“. Mit der neuen OPC UA Companion Specification für Identifikation und Ortung schaffen AIM-D e.V., PROFIBUS & PROFINET International (PI) mit dem offenen Ortungsstandard omlox, sowie die OPC Foundation die Grundlage für eine gemeinsame Sprache der „räumlichen Intelligenz“.

Physical AI – also KI, die den physischen Raum aktiv wahrnimmt und kontextbezogen handelt – erfordert ein einheitliches Verständnis von Positionen, Bewegungen und Identitäten im Raum. Genau hier setzt die neue Companion Spezifikation an: Sie vereinheitlicht das räumliche Datenmodell für absolute Koordinaten innerhalb der OPC Foundation und erlaubt eine global durchgängige Verortung von Assets in der digitalen und physikalischen Welt.

Damit wird eine nahtlose Integration räumlicher Daten in industrielle IT- und OT-Systeme möglich – die Voraussetzung für autonome mobile Roboter, intelligente Assistenzsysteme und selbstorganisierte Produktionsumgebungen.

Die neue Spezifikation steht ab sofort kostenfrei auf den Webseiten der OPC Foundation zur Verfügung und gilt als Meilenstein für die nächste Evolutionsstufe der industriellen Intelligenz.

„Maschinen benötigen ein einheitliches Verständnis ihrer Position im Raum, für ein koordiniertes Zusammenspiel zwischen stationären Anlagen und mobilen Robotern in der flexiblen Produktion von morgen“, erklärt Dr. Matthias Jöst, Komitee-Leiter omlox bei PI. „Mit der nun verfügbaren OPC UA Companion Spec schaffen OPC Foundation, AIM-D und PI gemeinsam die Basis für eine neue Generation räumlich vernetzter und KI-fähiger Systeme.“

„AIM profitiert besonders durch die Verbindung von AutoID und Ortungstechnologien“, ergänzt Peter Altes, Geschäftsführer AIM-D e.V. „Das einheitliche Datenmodell stärkt die Interoperabilität – eine entscheidende Voraussetzung für die digital vernetzte Logistik und Industrie.“

Stefan Hoppe, Präsident und Executive Director der OPC Foundation, betont: „OPC UA verbindet Welten – von der Identifikation über die Ortung bis zur Steuerung. Diese neue Spezifikation zeigt, wie offene Standards gemeinsam echte Interoperabilität schaffen – und macht das industrielle Internet der Dinge skalierbar und zukunftssicher.“

Die Kooperation von AIM-D, omlox / PI und der OPC Foundation bringt die Disziplinen Identifikation, Ortung und Kommunikation in einem gemeinsamen räumlichen Kontext

zusammen. Damit entsteht eine entscheidende Grundlage, um Roboter, Fahrzeuge und Maschinen mit einem gemeinsamen Raumverständnis auszustatten – der Schlüssel zu Physical AI, resilienten Lieferketten und autonomen industriellen Ökosystemen.