



Palladyne™ IQ

Unlocking new frontiers for robotic performance.



PALLADYNE AI

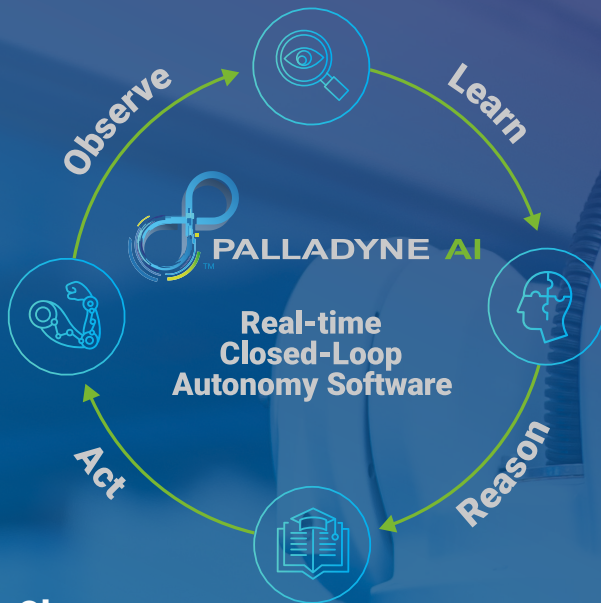
Palladyne™ IQ is a closed-loop autonomy software that uses artificial intelligence (AI) and machine learning (ML) technologies to provide human-like reasoning capabilities for industrial robots and collaborative robots (cobots). By enabling robots to perceive variations or changes in the real-world environment and adapt to them dynamically, Palladyne IQ helps make robots smarter today and ready to handle jobs that have historically been too complex to automate.

Helping organizations realize a future where machines can excel in tasks that were once considered beyond their reach.

Most industrial robots are rigidly pre-programmed for repetitive tasks in controlled settings and are often time-consuming and costly to implement. They can't handle variations in tasks, objects, or surroundings, making them ineffective for complex and dynamic applications like agile manufacturing, field repair, assembly line quality inspection, and surface preparation. Palladyne IQ software is designed to enable low code/no code training for robotic systems, supporting faster deployment without the costly programming resources needed by traditional automated systems. Palladyne IQ also enables robots to apply AI-based reasoning to determine the best course of action needed to complete tasks in the face of variability. It empowers robots with human-like intelligence that enables them to quickly adapt to change in a more autonomous way – enabling companies to deploy automated systems for tasks that are often too difficult to automate.

That's where Palladyne IQ comes in -

Palladyne IQ changes the game by making robots smarter so they can do the jobs that have historically been too complex to automate. Backed by 30+ years of experience in robotics, and a legacy of leadership in dexterous mobile robot technology across aviation, construction, energy, and defense sectors, our intelligent robotics software enables robots to quickly learn, adapt, and adjust in real-time - no massive datasets required. We empower your workforce by providing flexible, cost-effective automation that works at the edge, self-adjusts to changes, and can be rapidly trained. This means faster deployment, greater agility, and drastically reduced need for human intervention, so your robots finally work where traditional systems fall short.



Observe

Advanced perception & observation to improve situational awareness

- Perceives environment using a mix of sensor inputs, e.g., vision, LiDAR, radar, acoustic, etc.
- Utilizes Multi-Modal Sensor Fusion to make perception more robust to sensor occlusion and noise

Learn

Intelligent machine learning to accelerate onboarding for new & complex tasks

- Robots learn novel or complex combination of tasks via flexible modes of task model training
- Learning occurs with minimal demonstrations (1-5)¹
- Learning model adapts to environments

Reason

Human-like, AI-based reasoning to determine best course of action without human intervention

- Enables robots to adapt to unexpected events in real-time
- Generates real-time motion plans based on situational awareness at the edge

Act

Precise robotic control & completion of tasks

- Completes the task by accurately controlling the robot and end effector
- Achieves complex combination of tasks over extended periods of time in a stable, safe, and precise manner

Real-time Closed-loop Autonomy

To enable powerful and adaptive robotic solutions to solve problems in real-time and operate autonomously at the edge, our AI/ML software platform integrates key aspects of robotic intelligence. This allows robots to observe, learn, reason and act in a way similar to human behavior.

Palladyne™ IQ Closed-loop Autonomy Software.

Beyond software, beyond AI - it's dynamic thinking for adaptive robotics, and it's ready to help redefine the way work gets done. Contact us today and find out how Palladyne IQ is changing the landscape of robotics operations.

Features

Task Model Training

Palladyne IQ software framework enables flexible modes of robot task training, including:

- Unique demonstration-based training functionality designed to simplify and reduce the time it takes to teach robots novel or complex tasks; robot learning occurs with minimal demonstrations (i.e., 1 ~ 5 demos)¹
- Localizing objects in 3D scene (Point Cloud) to optimize manipulator grasping points

Compatible with Most Industrial Robots and Cobots

Palladyne IQ software is designed for commercial scale and is compatible with most industrial robots and cobots being sold today.²

Benefits

Robots Can Be More Flexible, Adaptive, and Autonomous

- Enable your robots to quickly achieve autonomous capabilities, even for variable, complex tasks in dynamic environments

- › Increase your robot's uptime and minimize human intervention costs by enabling robots to adapt to situational changes and overcome obstacles on-the-fly

Task Training and Deployment Efforts are Streamlined

- › Simplify your training and deployment process for new and existing robotic systems through flexible task model training options
- › Quickly train/retrain robots by using our low-code/no-code demonstration-based training package

Maximize Your Return on Investment (ROI)

- › Bolster your bottom line by automating difficult-to-automate processes
- › Maximize your ROI by repurposing existing robots to perform new tasks or handle new parts and materials
- › Minimize production downtime for new task training and improve parts/order traceability
- › Lower or even eliminate operational cloud-computing costs

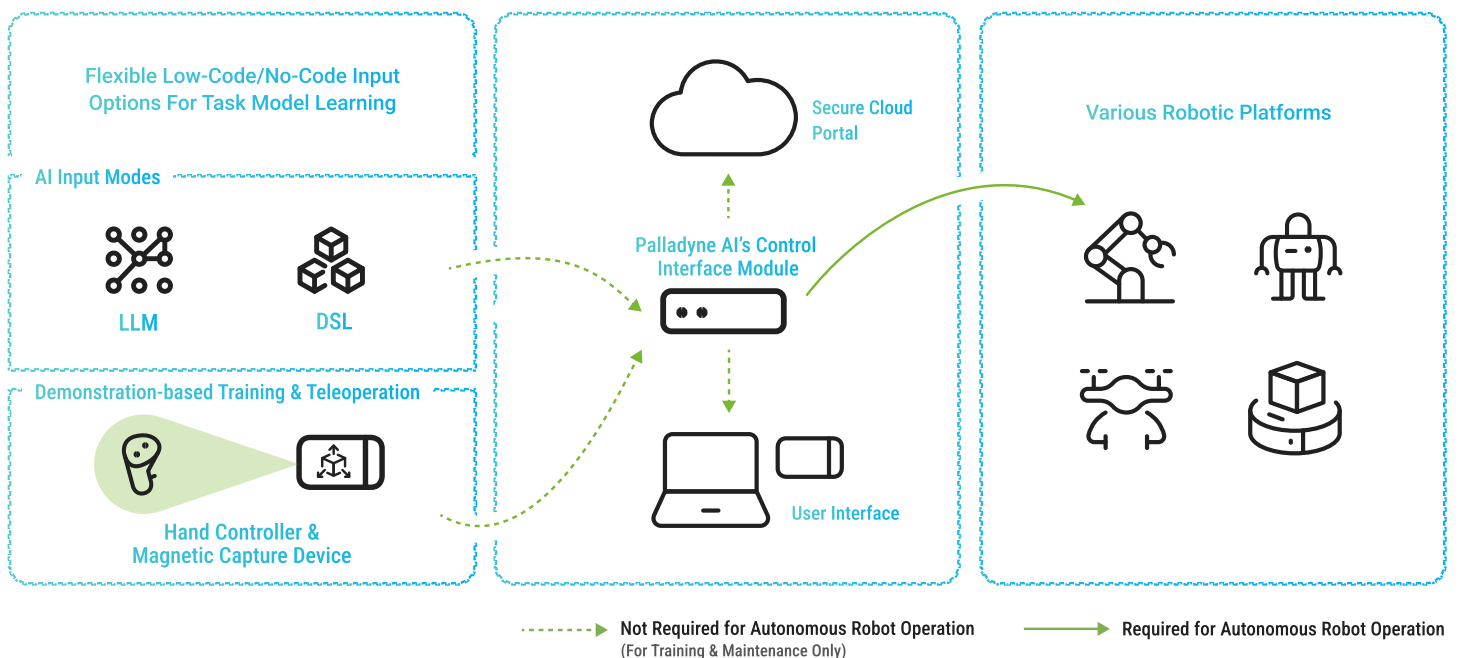
Applications

- › Sub-assembly
- › Pick & place (sorting, kitting, parts sequencing)
- › Assembly line quality inspections
- › Detailed component cleaning for maintenance, repair, operations (MRO)
- › Media blasting for surface preparation

Industries

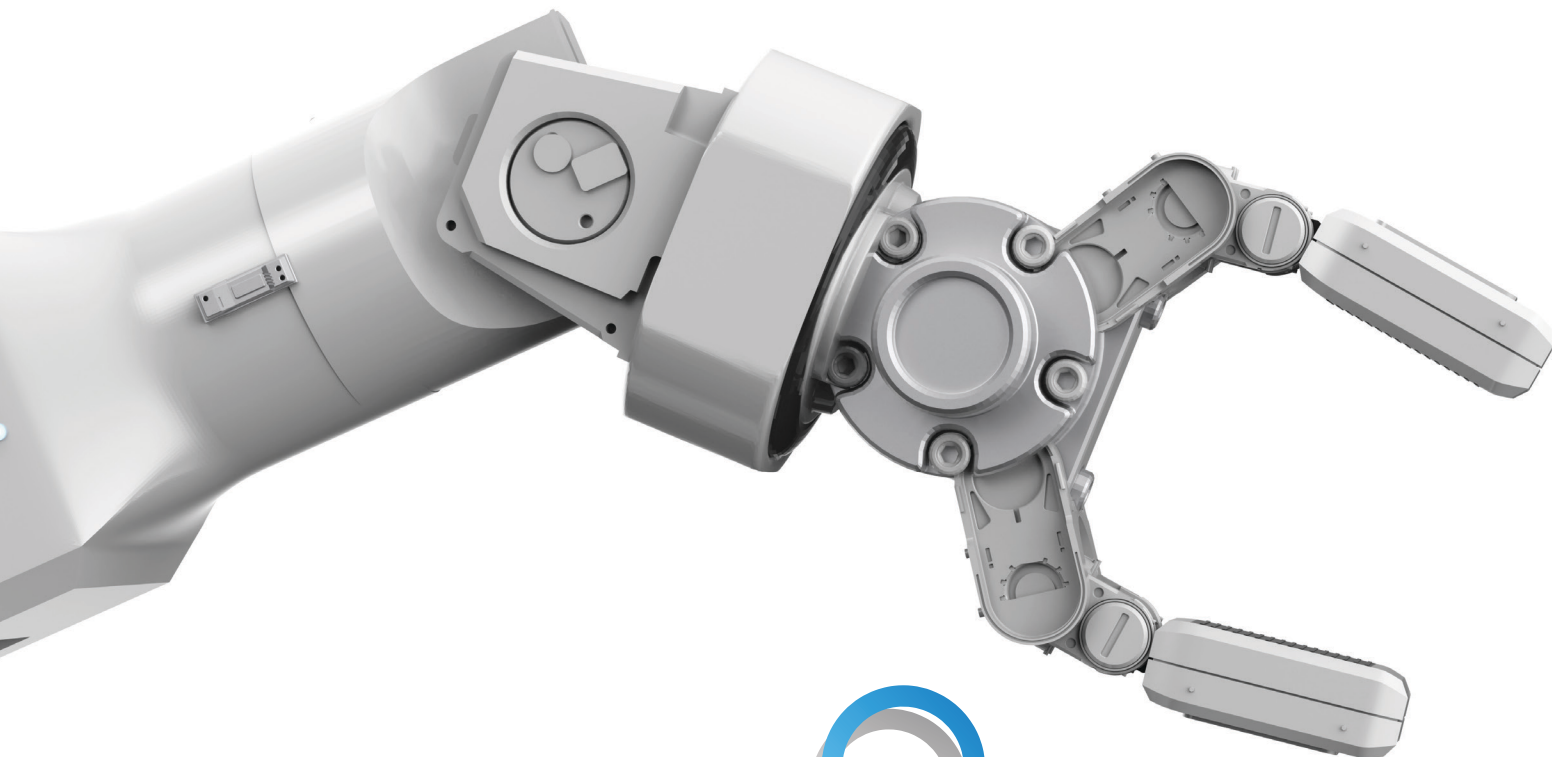
- › Industrial manufacturing
- › Defense
- › Automotive
- › Aerospace & aviation
- › Construction
- › Infrastructure maintenance & repair
- › Energy

Palladyne IQ Architecture



1. 1 ~ 5 demos based on internal testing; actual figures will vary depending on complexity of the task.

2. Integration support for specific types of commercially available robots is also possible with additional development and the necessary application programming interface (APIs); please contact our Customer Support team for specific inquiries.



PALLADYNE AI

**See how Palladyne AI can help you unlock
the final frontier of industrial robotics automation.**

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