ONExia

AUTOMATION RESOURCE GUIDE

UNIVERSAL ROBOTS | Introducing the e-Series

OMRON SYSMAC | Machine automation software

CUSTOM MACHINES | Complete turn-key systems

INDUSTRIAL DISTRIBUTOR | SYSTEMS INTEGRATOR | OEM MANUFACTURER

ABOUT US

onexia.com

Based in Exton, PA ONExia Inc. is an industrial distributor, systems integrator, and OEM manufacturer.

Our partnership with world class vendors gives us the ability to provide our customers with the best solution to their application at any level of involvement.

ONExia is a regional distributor serving Delaware, Maryland, New Jersey, Pennsylvania, Virginia, and Washington, D.C.

ONExia Inc

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MOTION CONTROLLERS

onexia.com/motion-controllers

With over 30 years of experience in motion control for industrial automation, we provide a complete line of controllers for single and multi-axis applications.

Machine Controllers for High-end, Multi-axis Applications

onexia.com/delta-tau

Delta Tau is the leading developer and manufacturer of innovative, high-performance machine and motion controllers that offer up to 256 axes and up to 1024 I/O points.

DELTA MOTION MACHINE PC

- Three display ports
- 120Gb solid state drive
- Two ports dedicated to Windows/ Linux LAN
- Two Mini PCIe Slots

OMRON | DELTA TAU

DELTA TAU POWER PMAC

- Up to 256 axes of coordinated or independent motion
- Up to 128 independent coordinate systems / up to 32 independent axes
- Dynamic axes transformations

OMRON | DELTA TAU

OMRON | DELTA TAU

Maximum Machine Performance

onexia.com/omron

A modular motion controller that packs PMAC's motion control capability, multi-vendor connectivity, and flexible development into its compact design.

CK3M MULTI-AXIS CONTROLLER

- Local axes for nanoscale precision
- Ultra high-speed synchronous control (50µs/5 axes)
- Flexibility on using multi-vendor actuators and encoders
- Programming in G-code, ANSI C or original programming language
- EtherCAT for flexible configuration

Modular Controller for OEMs

onexia.com/parker

Powerful, integrated and designed for the global machine market, the Parker Automation Controller (PAC) provides OEMs with a standards-based automation solution designed to tackle the most demanding applications.

PARKER PAC

- PLCopen motion control (Parts I & II)
- CNC programming/editor conforming to DIN66025
- OPC server, Modbus TCP, EtherCAT, and Dual LANs as standard
- Ethernet/IP, Profinet, and Profibus options

MOTION CONTROLLERS

Motion controllers control a specific point of motion within the project. Most frequently motion controllers are implemented using digital computers, but motion controllers can have only analog components as well.

MACHINE CONTROLLERS

Single and multi-axis controls that can drive entire machines without the need for additional controls.

PROGRAMMABLE LOGIC CONTROLLERS

onexia.com/plc

Programmable logic controllers (PLC) is the simple solution for automating electromechanical processes.

Scalable, Micro PLC Solutions

onexia.com/omron

The CP1 family is scalable; this means that you can choose the products with the right level of sophistication to meet your automation needs in terms of functionality, flexibility and pricing. Each of the CP1 family models, the CP1E, CP1L and CP1H, offers the functionality required for complete machine control.

PC1H - HIGH PERFORMANCE

- CP1H-X - standard units with 4 axes 100kHz pulse output and counters
- CP1H-Y - high-speed positioning units with 1MHz pulse output and counters
- CP1H-XA - built-in analog I/O units with standard pulse output and counters

CP1L/CP1L-E - STANDARD

Maximum cost effectiveness within a minimal product footprint. CPUs are selectable from 10 I/O to 60 I/O with select models featuring built-in Ethernet and analog inputs. Additional expansion is also available.

CP1E - ECONOMY CLASS

Satisfying entry-level requirements for basic applications. Select CPUs from 10 I/O to 60 I/O with basic expandability.

MACHINE CONTROLLERS

onexia.com/machine-controllers

Machine controllers offer a complete machine control solution that incorporates all parts of the machine into a dedicated system.

Machine Controllers for any Application

onexia.com/omron

Omron offers multiple families of machine controllers that are designed to simplify machine building. They offer one CPU for logic, motion, vision, safety, robot, database connectivity, and semiconductor communication.

OMRON NX/NJ-SERIES FEATURES

- Scalable motion control: up to 256 axes
- One event log for controller, field devices, and network
- Selectable cycle times: .125/.25/.5/1/2/4/8 ms
- EtherCAT and EtherNet/IP ports embedded
- Project encryption to serial number
- Scalable application size: CPUs for 64, 192, or 512
- EtherCAT nodes

PROGRAMMABLE LOGIC CONTROLLER

A programmable logic controller (PLC) or programmable controller is a digital computer used for automation industrial electromechanical processes.

MOTORS & AMPLIFIERS

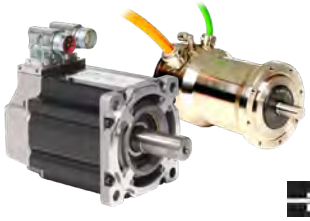
onexia.com/motors-amplifiers

A diverse array of motors and amplifiers that are not only the best fit for your application, but also cost effective.

Motors to Meet the Needs of the Most Demanding Applications

onexia.com/parker

Parker motor technologies provide high power density and better inertia matching. Their motors also feature rapid acceleration or zero cogging making them the most competitive solution for high-volume, OEM opportunities. All of their high performance brushless servo motors offer a wide range of power starting at 50 watts, going all the way up to 22 KW.



PARKER MPP/MPJ/MPW

- 10 models covering three frame sizes
- High torque density packaging
- Cable options available to plug and play with competitor drives
- IP69K options available

PARKER MPR

- An integrated direct drive servo motor
- Two form factors (mPR 80 - 80 mm wide x 75 mm tall, and mPR 100 - 104 mm wide x 90 mm tall)
- Continuous 360 degree operation

PARKER P-SERIES

- 40, 60, 80 mm frame sizes
- 0.2 to 3 Nm continuous stall torque
- 0.5 to 10 Nm (4 to 85 in-lb) peak torque
- Allowable load inertia up to 30 x rotor
- 3000 rpm rated, 5000 rpm max speed

Highly Programmable, Integrated Servo Motor System

onexia.com/animatics

The Animatics SmartMotor is a highly programmable, servo motor system that is integrated with a motor, encoder, amplifier, controller, RS232/RS485 communication, and IOs.

CLASS 5 SMARTMOTOR

- Dual trajectory path generators
- Velocity mode and electronic gearing summed together
- Dedicated firmware command set of traverse and take up winders

IP-65 SMARTMOTOR

- Mil-style connectors
- IP65 rating (with optional IP67)
- 10 points of 24V I/O
- Programmable limits
- Able to withstand humidity, water, oil

CLASS 6 SMARTMOTOR

- Simplified wiring - reduce cost through the on board dual-port Ethernet switch
- Fieldbus communication through EtherCAT, PROFINET or EtherNet/IP

AC DRIVES

An AC drive is a device that is used to control the speed of an electrical motor. The speed is controlled by changing the frequency of the electrical supply to the motor.

POWER SUPPLIES

A power supply is a hardware component that supplies components in a computer with power. It is designed to convert volt alternating current (AC) into a steady low-voltage direct current (DC) usable by the component.

Accurate Motion Control in a Compact Servo Drive

onexia.com/omron

Omron Accurax G5 gives you that extra edge to build faster, accurate, smaller and safer machines. You will gain almost 25% in motor weight reduction and 50% cabinet space saving. You will achieve sub micron precision and micro-second settling time.

- EtherCAT, MECHATROLINK-II and Analogue/Pulse drive models
- Frequency response of 2kHz
- High accuracy provided by 20 bit encoder
- Full closed loop encoder built-in

ACCURAX G5 SERVOMOTORS

- Sizes from 50W to 15 kW
- Rated speeds of 1000 rpm, 1500 rpm, 2000 rpm and 3000 rpm
- Peak torque 300% of continuous torque
- Low speed ripple and low torque ripple due to low torque cogging

AC DRIVES

onexia.com/ac-drives

Omron MX2-V1

onexia.com/omron

The Omron MX2 was developed to harmonize advanced motor and machine control applications.

- Up to 15 kW
- 200% starting torque
- Torque control in open loop
- Built-in logic programming
- Positioning functionality

Omron RX

onexia.com/omron

The Omron RX give you the ability to easily and quickly customize to your application.

- Up to 132 kW
- High starting torque in open loop: 200% at 0.3 Hz
- Full torque at 0 Hz in closed loop
- Sensorless and vector closed-loop control

POWER SUPPLIES

onexia.com/power-supply

Omron S8VK-S

onexia.com/omron

The Omron S8VK-s power supply is the perfect fit for small control panels.

- Operation possible at ambient temperatures from −40 to 70°C
- DC input supported (90 to 350 VDC)
- Power boost function at 120%
- Horizontal side-by-side mounting

Omron S8VK-C

onexia.com/omron

The S8VK-C Lite family is an ideal choice for cost-sensitive applications.

- Operating temperature range of -25° to +60°C
- Double set of DC output terminals provide easy wiring
- Universal input capability, 100 to 240 VAC and 90 to 350 VDC

SERVO MOTOR SYSTEM

A system comprised of closed-loop electric motors and amplifiers which make speed and position corrections based upon feedback.

STEPPER MOTOR SYSTEM

Open-loop motor and drive system that accepts digital commands and responds to digital step and direction inputs.

PRECISION POSITIONERS

onexia.com/precision-positioners

We provide various positioning systems and components that can be utilized in a range of processes including manufacturing, transferring and testing. Our skilled engineers can assist help you to decide which solution is perfect for your application.

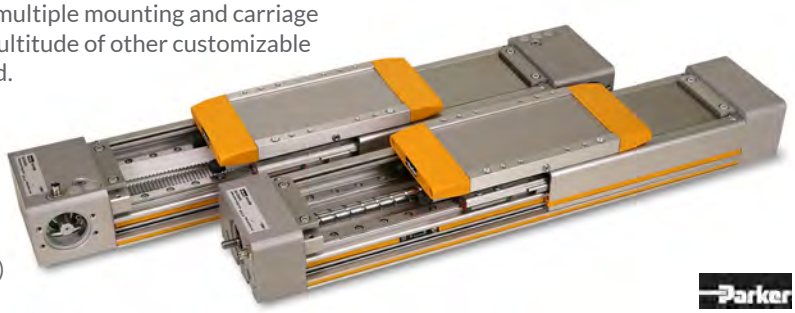
One of the Most User Friendly Actuators on the Market

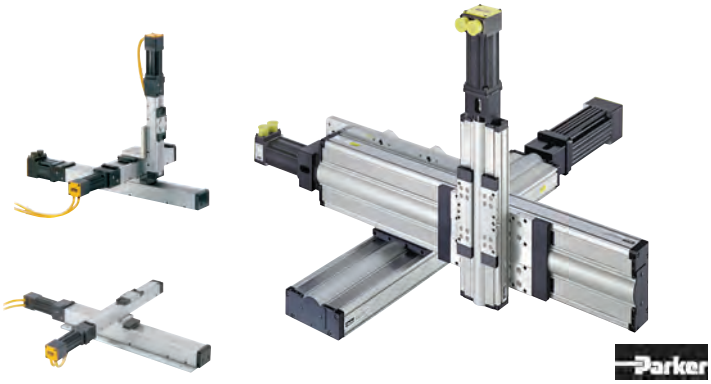
onexia.com/parker

With 5 different frame sizes, 2 different drive train options, multiple mounting and carriage options, and an IP54 protective cover option, along with a multitude of other customizable features. The HMR was truly designed with flexibility in mind.

PARKER HMR

- 5 profile sizes - 085, 110, 150, 180 and 240 mm
- Dual drive train - ball screw or timing belt
- Load capacity up to 26,600 N
- Max thrust to 5,560N (screw) and 4,000N (belt)
- Standard strokes up to 4000 mm (screw) and 6000mm (belt)
- Max speed to 1.6 m/s (screw) and 5 m/s (belt)





Building Blocks for Multi-Axis Systems

onexia.com/parker

The Parker “400XR” linear positioners are designed for building XY and XYZ table combinations. The modular compatibility and quick delivery make them the perfect cost-effective solution to your multi-axis systems.

PARKER 400XR

- 24/7 operation at 100% duty
- IP30 rated protective strip seals
- Travels up to 2 meters
- Full range of sizes from 90 mm to 285 mm wide

Energy Saving Linear Motor for OEM’s

onexia.com/parker

The Parker ETT series, tubular style linear motor is a high speed, high acceleration dynamic positioner with a lower cost of ownership when compared to typical pneumatic positioners.

The linear motor technology eliminates the need for an additional belt/screw, gearhead, and motor creating greater performance in a smaller overall package.

ACTUATORS

Actuators convert the rotary motion of an electric motor into linear motion. Types include rod and rodless, with either stepping or brushless servo motors.

GEARBOXES

Gearboxes provide speed reduction, increased applied torque, and reduce the load inertia that is reflected back to the motor. Technologies include spur gear and planetary gear models, both in-line and right angle.

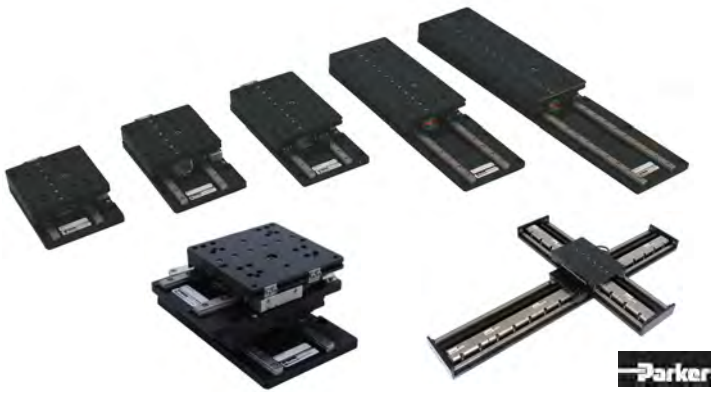
Flexible, Repeatable Miniature Stages

onexia.com/parker

The mSR series of miniature, dual square rail guided, linear motor positioners have been engineered to deliver a combination of modularity, flexibility, and performance in an extremely compact package.

PARKER MSR

- Two form factors (mSR 80 - 80 mm wide x 25 mm tall, and mSR 100 - 100 mm wide x 25 mm tall)
- Standard strokes ranging from 25 mm to 500 mm
- Two center driven linear motor technologies (mSR 80 - ironcore, mSR 100 - ironless)
- Six different encoder options



Universally Mountable Gearheads

onexia.com/parker

Parker Stealth II Gearheads are designed simply and have universal mounting kits for quick delivery and short installation times.

- In-line & right angle models
- Low-cost model options
- Increased service life

Plug & Play Linear Servo Motor Tables

onexia.com/parker

The Parker 400LXR table series features slotless linear motor technology with performance matched mechanical elements.

- Certified accuracy & repeatability
- Long life cable management
- Quick delivery

Top of the Line Precision Positioning Products

onexia.com/nsk

NSK is an industry leader in precision machine components including ball screws, linear guides, monocarriers and direct drive motors designed for the toughest applications.

BALL SCREWS

NSK offers a large selection of miniature to ultra-large screws for machine tools, general machinery as well as for use under special environments.

LINEAR GUIDES

NSK has a diverse series of linear guides with special coatings, lubricants, accuracies, and custom designs available.

MONOCARRIERS

NSK monocarriers feature a single-axis design that includes ball screws, linear guides, and support bearings.

Smallest Linear Servo Driven Positioner

onexia.com/parker

The Parker MX80L is a high-performance linear servo motor stage designed to meet today's 24/7 production demands requiring rapid fire precision.

PARKER MX80L

- 25 mm high x 80 mm wide
- Linear servo-motor drive
- 5G acceleration
- High velocity (2 m/sec.)
- Submicron precision
- Multi-axis platform
- Selectable travels:25,50,100,150 mm

Industrial Rotary Tables

onexia.com/parker

The Rotary Stage Series offers an unparalleled combination of high accuracy and high load capacity. These rotary stages utilize a precision worm gear with the worm "flexed" against the gear to ensure a proper mesh.

PARKER MX80L

- Solid or thru bore construction
- Robust bearing design
- Built-in limit switches
- Aluminum with top steel plate

GUIDES, SCREWS, AND MONOCARRIERS

Precision mechanical components that convert rotary to linear motion. Available in a wide-range of sizes and used to provide and support linear motion in machines.

PRECISION POSITIONERS

Linear tables designed to move and position loads, with either linear or rotary motion. Usually powered by a stepping or brushless servo motor which can be either rotary or linear and with sub-micron repeatability options.

MACHINE VISION

onexia.com/machine-vision

We offer hardware platforms that allow our customers to expand their range of machine vision applications. From the simplest cameras to the highest performance embedded processors, we can deliver a vision system optimized for your inspection needs.

Industrial Ethernet Smart Camera

onexia.com/microscan

The Microscan MV-40 redefines the imaging market as the smallest IP65/67-rated, true industrial Ethernet smart camera. With the library of Omron Microscan's machine vision tools on board in a rugged, ultra-compact case, the MV-40 is the complete package for solving any vision inspection challenge under any condition.

Combining unprecedented ease-of-use, high-speed communication, optional liquid lens auto focus, and ultra-small form factor, the MV-40 sets the benchmark as the ultimate compact machine vision system in the industry.

FEATURES

- IP65/67
- EtherNet/IP
- Ehternet TCP/IP
- PROFINET
- Autofocus
- Passive PoE

SOFTWARE OPTIONS

- AutoVISION® Software provides a simple setup & runtime interface for solving basic to mid-range vision and auto ID applications. Scalable to Visionscape Software.
- Visionscape® Software provides a professional setup & runtime interface with access to Omron Microscan's full auto ID, verification, and machine vision tools.

MICROSCAN

Easy-to-Use Smart Camera

onexia.com/microscan

The HAWK MV-4000's image-centric user interface with drag-and-drop programming makes it simple to set up.

HAWK MV-4000

- Full industrial connectivity
- Powerful and flexible
- High frame rate sensors
- Complete vision, code reading and code verification tool set
- Near PC processing speeds
- Fully accessorized

MICROSCAN

Ultra-Rugged Handheld Imager

onexia.com/microscan

Omron Microscan's newest generation of industrial Direct Part Mark (DPM) handheld imagers, purpose built from the ground up to set new standards for durability and performance.

HS-360X

- Ultra-rugged - withstands multiple drops from 8' and 5,000 tumbles
- X-Mode decode algorithms
- Multiple performance indicators including beeps, visuals, and vibrations

MICROSCAN

INDUSTRIAL CAMERAS / PROCESSORS

Industrial cameras and processors are highly programmable and can include multiple cameras, barcode readers, and sensors in one system for very intense vision applications.

LASER MARKERS

Laser marking delivers an economical and effective solution for permanent labeling and individualization of every type of surface. It also withstands the most rugged conditions, guarantees backtracking over the entire product life cycle and assists in quality assurance and counterfeiting.

SENSORS

onexia.com/sensors

Our offering of sensors range from simple, cost-effective options to rugged and resistant styles for harsh applications.

General Purpose Sensor

onexia.com/omron

The Omron E3Z photoelectric sensors come in a compact and high-powered LED for excellent performance-size ratio.

They also offer the best value-performance ratio for standard applications.

OMRON EZ3 SENSOR

- Minimal optical axis deviation for easy alignment
- IP67 and IP69K for highest water resistance
- Intensive shielding for highest noise immunity (EMC)
- Multiple molding housing for high mechanical resistance

OMRON

Long-range Sensing

onexia.com/omron

Omron proximity sensors are designed and tested to ensure a long service life and achieve maximum machine availability even in the harshest environments.

OMRON E2A SENSORS

- DC 3-Wire, DC 4-Wire (NO+NC)
- Extended (double) sensing distance
- IP67 and IP69K for wash down resistance
- Standard or long body length

OMRON E2E SENSORS

- DC 2-wire, DC 3-wire, AC/DC 2-wire, and AC 2-wire versions available
- IP67 and IP69K rated
- Flush mountable shielded versions

OMRON

LASER MARKING

onexia.com/laser-marking

Our laser marking solutions give you the ability to choose the solution that best fits your application based on performance and price.

The Perfect Solution for Medium Speed Applications

onexia.com/omron

The Omron MX-Z series of laser markers meet industry demands and provides high quality, permanent identification with scaling capabilities to add functionality to the process.

The MX-Z offers great flexibility in terms of marking, connectivity and easy integration to other systems or controls.

OMRON MX-Z

- Communications and control via EtherNet I/P, RS-232
- Color marking on stainless steel
- High resolution of 2µm gives the ability to mark characters as small as 0.1mm
- Imports and laser marks drawings (DXF) or JPG, BMP, PNG images

MATERIALS

- Metals: stainless steel, iron, aluminum, copper, gold, silver
- Synthetic materials: ABS, PBT, POM, PC, PP, PVC

OMRON

SMART CAMERAS

Programmable vision systems that provide high-resolution and high-performance for part inspection, quality verification, robot guidance, part presence verification, part position, and part orientation.

SENSORS

Used to detect presence, level, dimensions, or other characteristics of an object. Types are available to sense metallic and non-metallic objects and can interface to PLCs, computers, and other devices.

ROBOTICS

onexia.com/robotics

Our diverse offering of robots provides our customers with the technology needed to automate their processes efficiently. We offer complete integration and training services with every robot to ensure the project is a total success.

An Intelligent Robot for Every Application

onexia.com/adept

Omron Adept's unique combination of software and control architecture addresses factory automation challenges.

VIPER (ARTICULATED ARM)

The speed an precision of the Adept Viper six-axis robots make them ideal for operations requiring fast and precise automation.

SYSMAC (DELTA ROBOT)

The Sysmac Delta can achieve up to 200 cycles per minute and can be synchronized with conveyors for pick and place applications.

ECOBRA (SCARA)

The eCobra Series offers a compact system footprint, saving valuable space while minimizing installation costs and complexity.

Fast, Repeatable & Accurate Robots with Payloads from 6 kg to 650 kg

onexia.com/comau

Technologically advanced, reliable, and flexible, Comau guarantees optimal performance across the entire robot range. Their robotic arms are perfect solutions for robotized cells and process integrated solutions. Comau offers a variety of innovative, articulated and SCARA robots covering a large number of models.

ARTICULATED ROBOTS (6 AXIS ROBOTS)

Articulated Robots are 6 axis robot arms that offer high-speed precision. Available in varying sizes, these versatile robots are designed for applications where precision is essential and where a high payload is needed.

AUTONOMOUS MOBILE ROBOTS

Autonomous robots are intelligent machines capable of performing tasks in the world by themselves without explicit human control.

Self-navigating Autonomous Intelligent Vehicle (AIV)

onexia.com/omron

The Omron LD Mobile Robot is a self navigating Autonomous Intelligent Vehicle (AIV) designed for dynamically moving material in challenging environments that may include confined passageways as well as dynamic and peopled locations.

Unlike traditional autonomously guided vehicles (AGVs), Omron Mobile Robots require no facility modifications, such as floor magnets or navigational beacons, saving users up to 15% in deployment costs.

- Self-navigation software safely avoids people and obstacles
- Reliable drive system optimized for self-navigation
- Structural support of payloads up to 130 kg on level surfaces

OMRON | adept

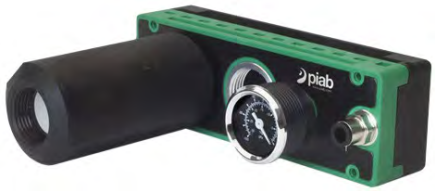
Vacuum Technology for Robotic Grippers

onexia.com/piab

Piab vacuum technology features an almost infinite selection of vacuum cups, generators, and pumps that can be easily configured to fit any application. Their cups and generators can be easily mounted to aluminum extrusion making Piab a cost-effective solution for flexible, end of arm tooling.

piab

piab



piab

SUCTION CUPS

A modular suction cup that fits most machines and that can be optimized for handling almost all materials. piGRIP's different lip types, optimized for various products to lift, ensure the right hardness/softness and sealing capability for your material.

VACUUM GRIPPER SYSTEM – VGS

Piab's decentralized Vacuum Gripper system, VGS, is a product solution integrating high quality suction cups with COAX cartridges. The VGS system removes complexity and increases cycle time.

VACUUM PUMPS

A vacuum system based on COAX technology can provide you with three times more vacuum flow than conventional systems, allowing you to increase speed with high reliability, while reducing energy consumption.

Vacuum Solution for Large Products

onexia.com/piab

Piab's Kenos gripper is a flexible solution for the handling manipulation of several products with different shapes, dimensions and compactness. Kenos grippers are available in multiple sizes.

KENOS APPLICATIONS

- Various sacked products (ie. cement mix)
- Canned products (multiple per pick)
- Heavy stone & wood surfaces
- Food grade bagged products
- Flow pack operations

piab

Vibration Feeders for Small Bulk Parts

onexia.com/asyril

Asyril's award-winning series of Asycube flexible feeders offer high performance part feeding, pre-orientation and optimal surface distribution of bulk parts and components.

ASYRIL ASYCUBE

- Compatible with all part geometries
- Extremely gentle part handling
- Precise part detection
- Systematic part orientation
- Easy Configuration

asyril

DELTA ROBOTS (PARALLEL ROBOT)

Delta robots are ceiling mounted and consist of three joint arms that connect at the tooling center point. These robots are often used in very high speed pick and place applications.

SCARA ROBOTS

A SCARA robot (selective compliance assembly robot arm) is slightly compliant in the X-Y direction but rigid in the 'Z' direction, hence the term: selective compliant.

MOTION CONTROLLERS
onexia.com/motion-controllers

OMRON | DELTA TAU | Parker

MOTORS & AMPLIFIERS
onexia.com/motors-amplifiers

Parker | MOOG ANIMATICS | OMRON

MACHINE CONTROLLERS
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MACHINE VISION
onexia.com/machine-vision

MICROSCAN

PLC'S
onexia.com/plc

OMRON

ALUMINUM FRAMING
onexia.com/aluminum-framing

Parker | Swivellink® INTELLIGENTLY DESIGNED

INDUSTRIAL NETWORKING
onexia.com/industrial-networking

OMRON | ADVANTECH

SENSORS
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OMRON

PRECISION POSITIONERS
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Parker NSK
CARSON MANUFACTURING BISHOPWISECARVER Quickdraw CONVEYOR SYSTEMS

ROBOTICS
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asyril piab COMAU

HMI'S
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Parker OMRON

COLLABORATIVE ROBOTS
onexia.com/collaborative-robots

UNIVERSAL ROBOTS
ROBOTIQ VENTION Pickit

MACHINE SAFETY
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OMRON | STI SAFETY, TECHNOLOGY & INNOVATION

LASER MARKING
onexia.com/laser-marking

OMRON

AC DRIVES
onexia.com/ac-drives

OMRON

POWER SUPPLIES
onexia.com/power-supply

OMRON

UNIVERSAL ROBOTS

onexia.com/universal-robots

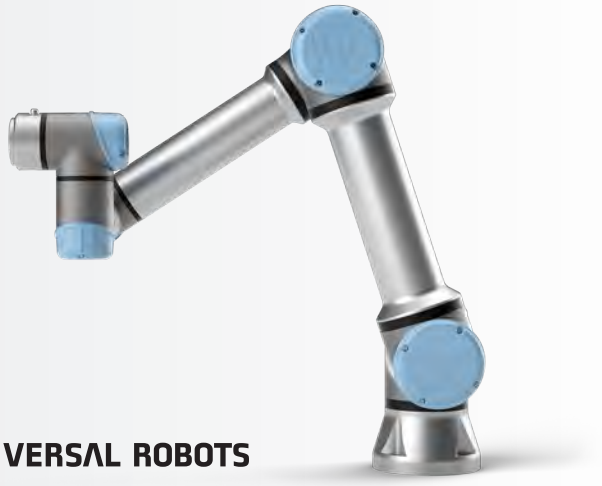
Cost-effective, flexible, safe, and easy-to-use collaborative robots (cobots) are designed to give your business greater control. You don't have to worry about a cobot calling in sick or quitting without notice, getting bored or injured, or taking too long to learn a new process.

Collaborative Robots

Collaborative robots work in close proximity to humans, often without the need for additional safety fencing or shielding. Additionally, collaborative robots require no programming.

End-users teach the robot a task by moving it from waypoint to waypoint and adding actions on the teach pendant.

Universal Robots' collaborative robots are easily integrated into existing production environments. The robot arms are designed to mimic the range of motion of a human arm.



Universal Robots e-Series

The Universal Robots e-Series is the next generation of collaborative robots. The e-Series family has 3 members: the UR3e, UR5e and UR10e. Each cobot has a different reach and payload, but they share the same precision, accuracy and dependability that make them a valuable addition to any production facility.

UR3e ROBOT ARM

- Reach: 500mm / 19.7 ins
- Payload: 3 kg / 6.6 lbs
- Weight: 11.2 kg / 24.7 lbs
- Footprint: 128 mm / 4.6 ins

UR5e ROBOT ARM

- Radius: 850mm / 33.5 ins
- Payload: 5 kg / 11 lbs
- Weight: 20.6 kg / 45.4 lbs
- Footprint: 149 mm / 5.9 ins

UR10e ROBOT ARM

- Radius: 1300mm / 51.2 ins
- Payload: 10 kg / 22 lbs
- Weight: 33.5 kg / 73.9 lbs
- Footprint: 190 mm / 7.5 ins

EASY PROGRAMMING

Patented technology lets operators with no programming experience quickly set up and operate our robots with intuitive, 3D visualization.

FAST SET UP

Universal Robots has revolutionized robot set-up, reducing typical robotic deployment measured in weeks to a matter of hours.

Universal Robots Applications

Maximize efficiency. Increase quality. Optimize production. Improve performance. Reduce costs.

Automate virtually anything with a collaborative robot arm from Universal Robots. From gluing and mounting to pick and place, and packaging, a robotic arm can streamline and optimize processes across your production operation.

- Pick and place
- Injection molding
- Packaging & palletizing
- CNC
- Quality inspection
- Assembly
- Polishing
- Machine tending
- Screw driving
- Lab analysis & testing
- Glue dispensing
- Welding

Exclusive Services Provided by ONExia

ONExia offers support on all levels to help our customers implement collaborative robots into their production lines and factory floors.

PRESALE SUPPORT

- Proof of concept where we take actual parts and provide a video for the customer to review
- Detailed quotation of all the accessories needed

AFTER SALE SUPPORT

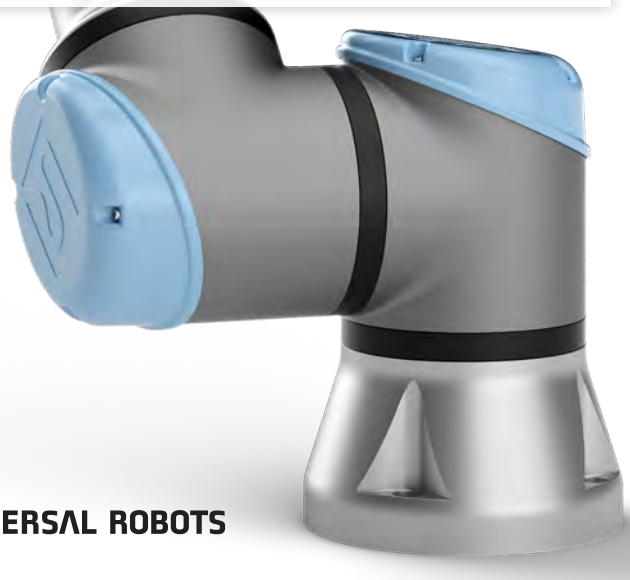
- Initial setup of the robot with our Application Engineers
- Warranty, troubleshooting, and repairs at your facility
- Additional accessories and services to ensure the best throughput of the robot

Enhancements with e-Series

The e-Series includes all the features of the cb3 with many enhancements to both the hardware and the software.

- Built in force-torque sensor
- Polyscope 5.0
- Light and responsive teach pendant
- Easy, replaceable joints
- Enhanced safety compliance & function

For a complete comparison of the cb3 and e-Series robots visit onexia.com/universal-robots for our e-Series explained chart.



UNIVERSAL ROBOTS

FLEXIBLE DEPLOYMENT

Moving the robot to new processes is fast and easy, giving you the agility to automate almost any manual task, including those with small batches or fast change-overs.

FASTEST PAYBACK IN THE INDUSTRY

Universal Robots gives you all the advantages of advanced robotic automation, with none of the traditional added costs associated with robot programming, set-up, and dedicated, shielded work cells.

UNIVERSAL ROBOTS+ PARTNERS

onexia.com/collaborative-robots

Universal Robots+ provides cutting edge products designed to customize a UR robot to your application requirements. All products are tested and approved to integrate with UR robots, ensuring simple set-up, smooth user experience, and reliable programming.

Robotic Vision Made Easy

onexia.com/pickit3d

Pick-it is the only plug and play 3D vision on the market that provides a user friendly and flexible system. Pick-it guides your robot to pick and place a wide range of products in different applications.

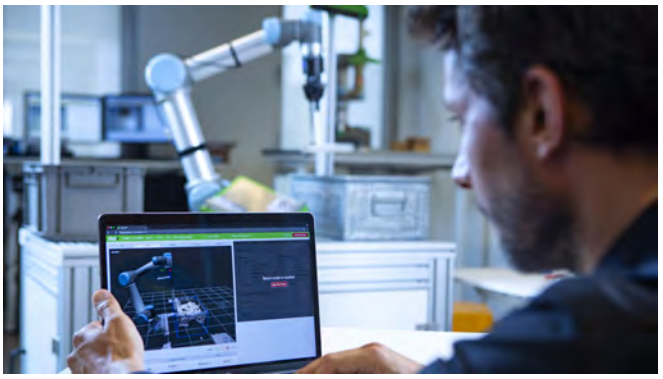
- Fast, easy setup
- Detect overlapping parts in 3D
- Detect parts in all colors
- Detect parts of most materials
- Works in changing and poor light conditions

Pick-it 3D is the ideal solution for automating big or small batches with fast changeovers.

PICK-IT 3D APPLICATIONS

- Bin picking
- Palletizing / depalletizing
- Kitting and assembly
- Pick and place

Pick-it offers three off-the-shelve products that contain all necessary tools to set up a vision guided robotic application: State of the art 3D vision software preloaded on an industrial processor and a capable 3D camera. Start picking with Pick-it in just one day!



Flexible Vacuum Gripping Solution

onexia.com/piab

piCOBOT® is a vacuum ejector unit that mounts directly on the UR robot arm. It is equipped with a plug-in software which will make it very easy to install, set up and get started.

ADJUSTABLE GRIPPER

- Adjustable and flexible grippers that can be fitted with a variety of different suction cups
- 97-142 mm wide gripper with ±15 tilt degrees of reach for positioning Piab vacuum cups

piab

Design and Build Custom Assemblies

onexia.com/vention

A single environment to design, order and assemble custom bases and frames for Universal Robots. All Vention products are built from a finite parts library allowing them to ship assembly kits next day giving flexibility in your cobot application.

Vention offers a library featuring hundreds of open-source designs for cobots. Assemblies include:

- Mobile carts
- Heavy duty pedestals
- 7th axis extended frames
- Tables and workstations

VENTION

END-EFFECTORS

All UR+ store end-effectors are easy to integrate and come with easy-to-use software. They come in a wide range of styles including pneumatic and electric with various, customizable fingertip options.

ACCESSORIES

To ensure full utilization of UR cobots, accessories may be needed. The UR+ store provides various options for cable management and protection to ensure your robot is ready to work to its full potential.

Plug and Play Grippers

onexia.com/robotiq

Robotiq Adaptive Grippers all run off of one easy-to-use software interface.

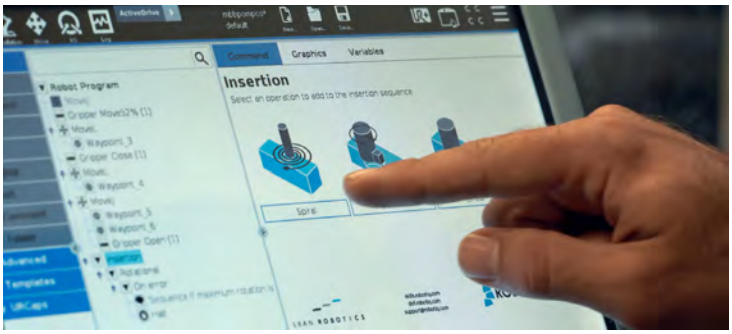
- Eliminate changeovers & reduce tooling costs
- Pick parts of different size and shapes

2F-85 AND 2F-140 GRIPPERS

- Two large stroke options: 85 mm and 140 mm
- Patented finger design enables both internal and external parallel gripping, as well as a unique encompassing grip mode.

HAND-E GRIPPER

- 50 mm stroke gripper model
- IP67 rated for machine tending applications



Maximize Your Robot's Ability

onexia.com/robotiq

Transform your production process by automating the most advanced force-sensitive applications on the market with. Force Copilot maximizes the capability of the built in force torque sensor that is built in to the new e-Series from Universal Robots. Program complex robot movements in minutes—no robotics expertise needed, resulting in a strong and flexible robot cell.

- Program complex tasks the easy way
- Unlock force-sensitive applications
- Increase robot-cell reliability and flexibility
- Unleash your force torque sensor's full potential
- Master force control in no time

Take Production to the Next Level

onexia.com/robotiq

Robotiq Insights sends you a text message when your robot is down and provides real-time data about cycles completed, efficiency, wait-time, and overall utilization for each of your robots.

MINIMIZE DOWNTIME

Get instant SMS notification for any critical event in your production

MONITOR PRODUCTION

Define your own KPIs and track them to seek trends in your production

OPTIMIZE PRODUCTION

Strive for more efficient processes to maximize your production's ROI

Wrist Mounted Vision System

onexia.com/robotiq

The Robotiq Wrist Camera is made for performing industrial applications with Universal Robots. Use it to teach new parts quickly, detect parts and features automatically, and pick parts consistently—and get to production faster.

- Locate parts automatically without jigs or fixtures
- Runs on the teach pendant
- Operate with ease, no matter your skill level

VISION

Give your robot sight! The UR+ store provides multiple solutions to add vision to applications increasing throughput and maximizing ROI.

SOFTWARE

UR+ software packages offer expanded capabilities to the included PolyScope software. By adding software more applications become possible along with the ability to monitor production analytics.

INDUSTRIAL NETWORKING

onexia.com/industrial-networking

ONExia provides comprehensive system integration, hardware, software, and customer-centric design services to connect your automation processes to the “internet of things” for increased productivity and throughput.

Open Embedded Computers

onexia.com/advantech

Advantech offers a complete range of embedded automation computers with each series coming in three sizes. All models offer flexibility using iDoor Technology which allows them to be configured specifically to the application.

Machine-to-Machine I/O Modules

onexia.com/advantech

Advantech I/O Modules provide Remote data acquisition that can build up a reliable and stable network for a variety of applications, such as industrial automation, environmental and facility management, and intelligent transportation system.

High Performance, Secure Switches

onexia.com/advantech

The Advantech EKI-2748FI and EKI-2748CI Switches support Gigabit with Ethernet and SFP/Combo ports.

To enhance reliability, it’s equipped with the Advantech owned redundant network protocol X-Ring Pro. This network provides users with an easy way to establish a redundant Ethernet system with ultra high-speed recovery time less than 20 ms.

HUMAN MACHINE INTERFACES

onexia.com/hmi

Our offering of human machine interfaces (HMIs) range from stand-alone monitors to full touchscreen PCs designed to fit your automation application.

Next Generation of HMIs

onexia.com/omron

With the ever present need for increased performance, the NA family of HMI terminals makes it fast and easy to implement dynamic intuitive user interfaces that will boost productivity and minimize downtime.

HMI’s Running Intuitive Software

onexia.com/parker

The new IX - InteractX Terminal from Parker features all new external designs and is backed by the user-friendly InteractX Software. Each model is fanless and ventless.

COMMUNICATION SWITCHES

Available in wired or wireless communication options, industrial switches can transfer large amounts of data in a secure environment.

DISTRIBUTED I/O MODULES

Machine-to-machine I/O connectivity provides the ability to monitor, track, and alter field sites remotely in a real-time environment.

Powerful & Reliable Industrial PC

onexia.com/omron

The Omron NY Industrial PC has been designed from first principles to be powerful, reliable and scalable, making it ideally suited for visualization, data handling, measuring and controlling.

The simplified design and build eliminates faults caused by complexity and, with other unique design features, to maximize uptime and reduce costs. The future will be IT driven: Omron's IPC platform will make you part of it.

OMRON IPC

A hybrid machine controller which combines Sysmac machine control and IT technology

- Intel Core i7 Quad-core processor
- Windows Embedded Standard 7 64-bit
- Open operating system allows running customized software and hardware
- Up to 64 synchronized axes
- Built-in EtherCAT port for up to 192 synchronized slaves

INDUSTRIAL AUTOMATION PLATFORM

onexia.com/omron-sysmac

One complete machine automation solution that integrates logic, motion, vision, safety, robotics, sensing, and enterprise all-in-one software package.

Omron Sysmac Studio

One controller through one connection and one software is how we define the Sysmac automation platform. The unique architecture drastically reduces machine tact time, and programming complexity, improving performance and speeding development.

- Complete integration of logic, motion, vision and safety
- Synchronous control of all machine network devices
- Modular systems by enabling/disabling EtherCAT nodes
- Project revision handling with roll-back/roll-forward

MOTION PROGRAMMING

- More than 50 PLCopen and Proprietary Motion FB's available in the controller
- Single and multi axis tuning, mechanical analysis, parameter handing, etc.

MULTI-USER ENVIRONMENT

- Co-develop in parallel in local or remote keeping machine versions up-to-date
- Take advantage of GIT's open source community

INTEGRATED SAFETY

- Dedicated FBD diagram and GUI interfaces to help commissioning and programming
- EtherCAT communication between the Safety System and the Standard Controller

INTEGRATED HMI

- Reduced costs and maintenance time by combining NA HMI with Sysmac Controllers
- Include videos and PDF files for improved machine operation and maintenance

INTEGRATED VISION / SIMULATION

- Commissioning and programming vision devices is as easy as dragging and dropping
- Import video from cameras to properly simulate and program applications

INTEGRATED TROUBLESHOOTING

- Troubleshooting is seamless since the Sysmac architecture integrates controllers, actuators, devices, advanced sensors, HMIs, etc all-in-one platform

EMBEDDED CONTROLLERS

Embedded controllers are industrial PCs that have full computing capabilities in a small-form factor. They are fanless and din-rail mountable making them an ideal solution when energy or space is a factor.

HUMAN MACHINE INTERFACES (HMI)

The HMI acts as a communication bridge between the machine and the user. HMIs can be a standalone monitor or a full touchscreen PC.

ALUMINUM FRAMING

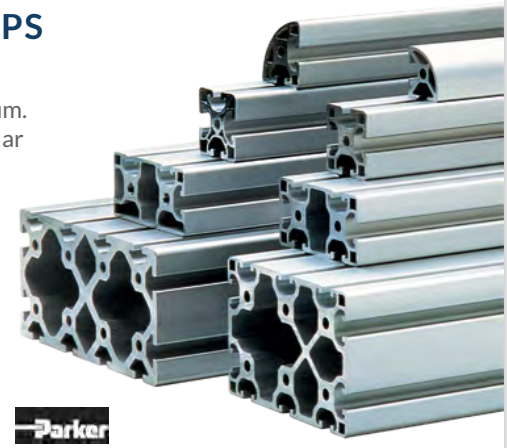
onexia.com/aluminum-framing

T-Slot aluminum framing can be used in many industrial applications where welded steel is not an option. The sleek design and simple assembly makes it the go-to solution for your application.

Save Fabrication Time & Rework Expenses with Parker IPS

onexia.com/parker

Parker IPS comes in over 100 profiles that are made of high-strength, aircraft grade aluminum. Accompanied by a complete line of fasteners and accessories, IPS is a top solution for modular frame guarding solutions.



ALUMINUM FRAMING APPLICATIONS

- Machine bases & frames
- Stands
- Guard assemblies
- Material handling fixtures
- Safe guarding
- Robot safety fencing
- Tooling supports
- Custom work stations

Parker IPS Design Center

onexia.com/parker

Parker's IPS software allows us to take your idea (at whatever level of development) and quickly create 3-D CAD drawings, full specifications and complete quotes. With our large inventory on hand, many orders can ship in as little as one day.

CONCEPT
Using Parker's IPS software we can turn your idea into a custom solution.

SPECIFICATION
We can quickly create a CAD drawing, full specifications, and complete quotes.

DONE
With our inventory on hand, many orders can ship in as little as 1 business day.

Free T-Slot Aluminum Design Architect

onexia.com/parker

Parker is making t-slot aluminum framing design easier than ever! For mechanical design engineers, lean manufacturing leaders, EHS departments, production, and maintenance, the Parker T-Slot Aluminum Design Architect software allows you to take more creative control over your assembly designs.

FEATURES

- Build 3D renderings using Parker IPS components
- Fasteners automatically placed
- Choose from inch or metric profiles
- Bill of materials updated instantly
- Completely stand alone software

Flexible Mounting Solutions

onexia.com/swivel-link

Sold in both kits and single parts, Swivellink is simple to mount and safer than hard mounting to the frame.

All connections and cables are easily run through the center of the mount, making for a clean look that also protects the device.

APPLICATIONS & FEATURES

- Applications include: vision system, HMI & E-stop mounting
- Works with all major brands: Basler, Contrinex, Cognex, Datalogic, Keyence, Omron, Piab, etc.

ALUMINUM FRAMING

High-strength aluminum framing is today's material of choice for assembling an unlimited variety of industrial structures. Products include both metric and inch profiles.

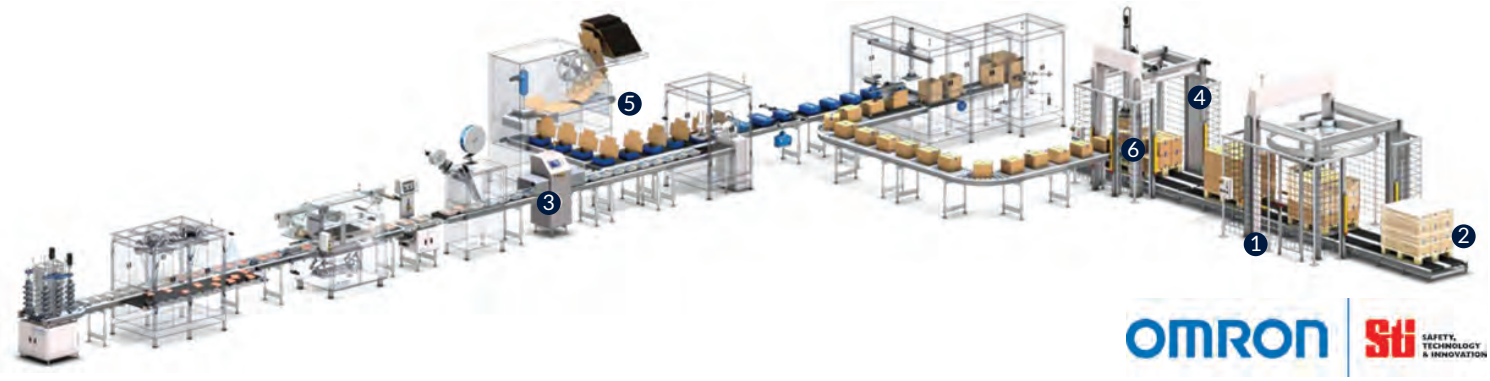
MACHINE SAFETY DEVICES

Machine safety devices help protect humans from harm within a manufacturing process. All machine safety devices are up to date with the most current safety regulations.

MACHINE SAFETY

onexia.com/machine-safety

We offer a complete line of machine safety products designed to keep your automation processes safe and up to date with the latest safety standards.



Complete Machine Safety Solutions

onexia.com/omron

The most challenging applications to ensure safety are those where personnel are required to access areas where potentially hazardous operations take place, such as machining, welding, movement of a robot arm, etc. Omron Sti safety devices offer the maximum safety with the minimum impact on machine operations at the lowest possible cost.

1. SAFETY DOOR SWITCHES

Omron D4SL-N Safety Door Switch

- Key holding force of 1,300 N.
- Slide key prevents entrapment
- Removable terminal block for easy wiring
- Metal operation head for durability

2. SAFETY SCANNERS

Omron OS32C Safety Scanner

- Type 3 Safety Laser Scanner
- Safety zone up to 4 meters
- Warning zones up to 15 meters

3. SAFETY CONTROLLERS

Omron NX Series Safety I/O System

- Directly integrates to Omron systems
- Safety over EtherCAT
- Modular system with up 256 or 1024 I/O

4. SAFETY LIGHT CURTAINS

Omron F3SG-RA Safety Light Curtains

- IP67 rated housing
- Slim profile of 35x35 mm
- Fast response time of 8ms

5. SAFETY MATS

Omron UMQ Series Safety Mats

- Fork lift traffic of 270 lbs. per square inch
- IP67 rated
- Single-piece molded construction

6. FORCE-GUIDED RELAYS

Omron G7S-E Relay Family

- Forcibly guided contacts
- Conforms to EN 50205
- Reinforced insulation between I/O

Omron Machine Safety Services

onexia.com/machine-safety

From single machine applications to entire enterprise level training, Omron offers services that will work within your budge and schedule.

Their unique combination of safety and control expertise allows them to offer comprehensive risk assessments and training.

Contact us today to schedule your risk assessment evaluation or machine safety training.

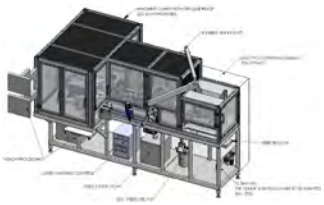
CUSTOM MACHINE INTEGRATOR

onexia.com/custommachines

With over 30 years of experience in machine design, ONExia has the knowledge and engineering staff to design and build your next custom machine system for your application.

Complete Custom Machine Services

Every day we assist companies like yours in developing a concept, writing specifications and implementing new technologies into their facilities.



CUSTOM SOLUTIONS PROVIDED

- Complete turn-key solutions
- Engineering services
- PC based solutions
- Custom assemblies
- Inspection automation
- Motion control technology
- Database interaction
- Circuit board design
- Motor sizing
- Mechanical design
- Vision inspection
- Motion & PLC programming
- Visual basic programming
- HMI programming

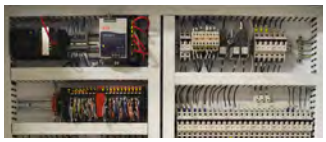
Contract Manufacturing with ONExia

Our project engineers provide unparalleled expertise assisting our OEM customers develop and implement new technologies in their machinery.

We can collaborate on a revision to your existing design, or provide complete design and fabrication services.

SERVICES PROVIDED

- 3D modeling & design
- Custom circuit board design
- Custom enclosure design
- Custom cables
- Aluminum framing kits
- Motor/gearbox assembly
- Multi-axis positioning
- Build to print assembly
- Custom software



Machine Design Process

Our process ensures success by working directly with the customer through the entire build.

1. INITIAL CONCEPT/BUDGET

We work closely with the customer prior to their developing a specification and/or RFQ.

Specification Development
Determine the requirements and sequence of an assembly process.

Proposal Development
Answer the specification by providing a statement of work and formal request for quote piece by piece.

ORDER RECEIVED

2. KICK-OFF MEETING

Introduction
Introduce the ONExia project team to the customer's team.

Review
Review the proposal, concept, and customer's statement of work.

Inspection
Site inspection of the machine's final location to determine special limitations.

Schedule
A formal project schedule is presented to and reviewed with the customer.

Acceptance Criteria
An initial criteria based on project statement is given to show expectations are met.

Technical Review
Identify areas of technical concern for possible prototyping.

Samples
Parts for design, prototyping feeder selection and machine programming.

DESIGN BEGINS

3. DESIGN

ONExia's project team of engineers begins design of the machine starting with prototyping.

Prototyping
If any phases or aspects of the machine were deemed necessary for early phase prototyping, they are reviewed.

Preliminary Design Reviews
Any interim design phases that may require customer review are scheduled.

DESIGN COMPLETION

4. DESIGN REVIEW

- 3D Model of the machine
- Machine sequence
- Software screenshots
- Technical aspects, tooling
- Safety review
- Final acceptance criteria

5. MACHINE ASSEMBLY

- Fabrication drawings
- Panel layout & wiring schematics
- Part fabrication
- Machine assembly & wiring
- Software development

6. MACHINE TESTING

- Machine debug
- Pre-FAT testing
- Acceptance testing
- As-built drawings

SHIPMENT

ABOVE & BEYOND OTHER INTEGRATORS

We distribute what we use in our machines, giving us reduced risk and eliminating a learning curve. We also have over 30 years experience on designing custom machines.

EXPECT THE BEST

Our success is based off of your success. We work with your team to define what the acceptance criteria will be so we understand your expectations.

Palletizing Gantry Using a Kenos Gripper

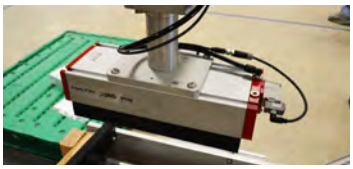
Using the products we distribute, our Custom Machine Integration engineers built a custom gantry using the new Kenos Gripper from Piab for an overhead gantry palletizer.

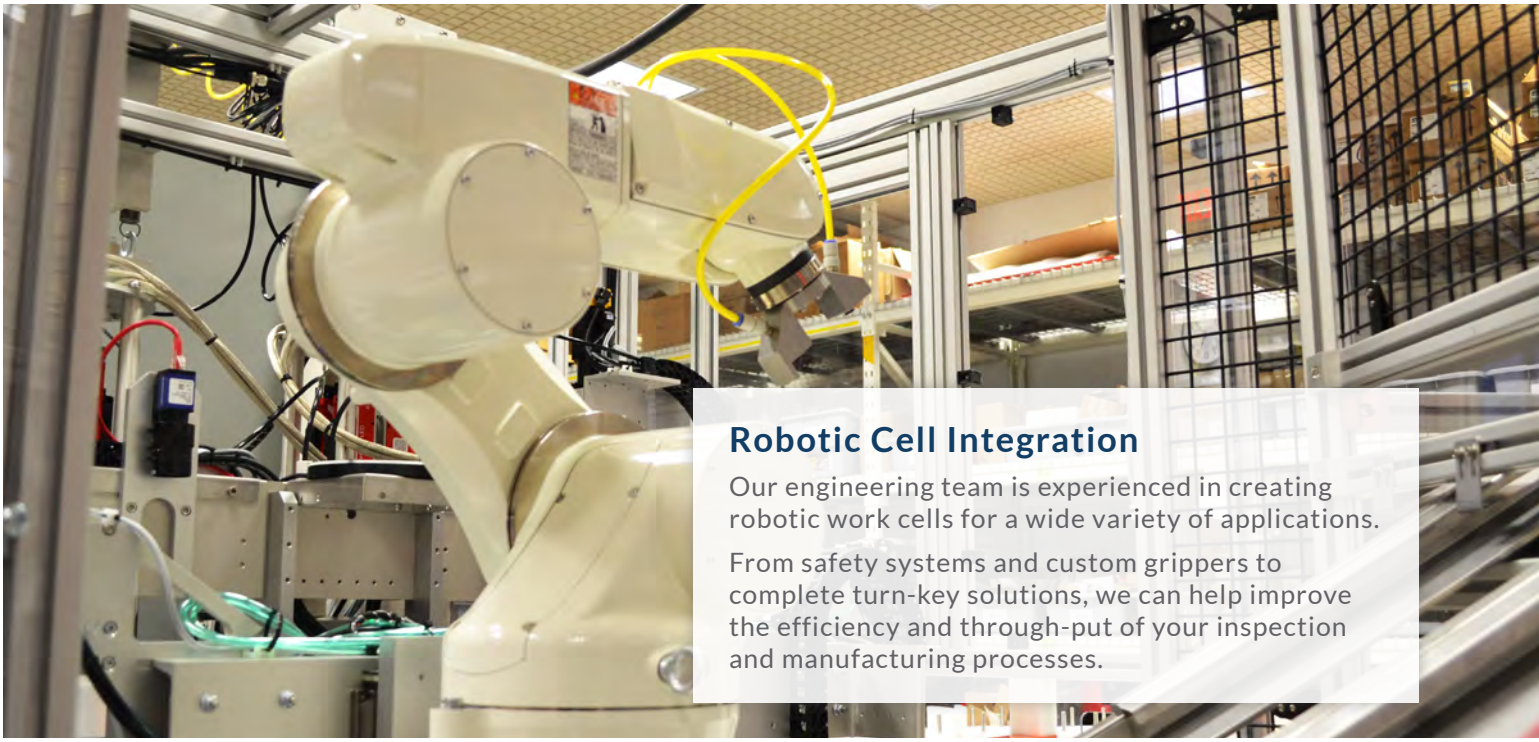
The overhead gantry was tested at our facility where it was broken down and delivered to the customer.

PRODUCTS USED

- Piab Kenos Gripper
- Parker actuators
- Parker servo motors
- Barcode readers
- Omron Sti Safety Scanners
- Parker IPS Framing

Videos available at onexia.com





Robotic Cell Integration

Our engineering team is experienced in creating robotic work cells for a wide variety of applications.

From safety systems and custom grippers to complete turn-key solutions, we can help improve the efficiency and through-put of your inspection and manufacturing processes.

Build-to-Print Services

Our team of engineers and skilled technicians are the solution to your in-house custom machine project.

We will take your completed machine design and build the finished product to your specification while working directly with you and your team throughout entire assembly and testing processes.

EXTENSION OF YOUR ENGINEERING STAFF

We give your company the ability to have custom machines built by taking advantage of our engineering staff.

GOING THE EXTRA STEP

We take pride in our builds and have the internal design, fabrication, and powder coat capabilities to ensure a timely finish. All of our machines are labeled in detail and come with complete documentation upon acceptance and delivery.

ENGINEERING RESOURCES

Diagrams and articles to assist you with choosing the correct component for your application. If you are still unsure, let our engineers do the work for you. Contact us today for sizing, quotes, and integration services.

Single Axis Control

Multi-Axis Control

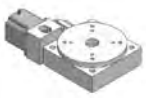
HMI/Panel PC

Controller

Amplifier

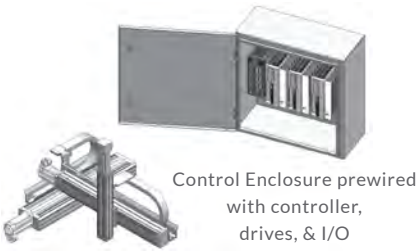
Stepper Drive

Actuator



Rotary Table

Multi-Axis Control System



Control Enclosure prewired with controller, drives, & I/O

Multi-Axis Control System

Encoder

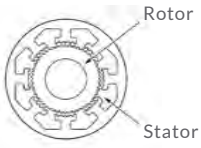
Actuator

Controller & Drive

Stepper Vs. Servo

STEPPER MOTORS

Steppers have the inherent ability to divide a revolution into discrete steps and to hold position.



COMMON APPLICATIONS

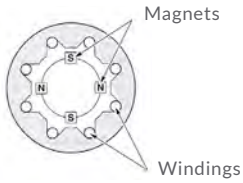
- Point to point moves
- Precision positioning

ADVANTAGES

- High acceleration
- High torque
- Stable at rest
- Lower cost than brushless servo
- Excellent repeatability

BRUSHLESS SERVO MOTORS

Constructed with windings in outer portion of motor and magnets attached to rotor.



COMMON APPLICATIONS

- High speeds, acceleration
- Changing loads
- Clamping, pressing

ADVANTAGES

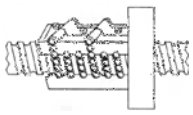
- Closed loop control
- Highest torque at high speed

Rotary to Linear Conversion

Linear motion systems driven by rotating electric motors commonly employ one of three rotary-to-linear conversion systems: ballscrew, acme screw or belt drive.

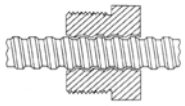
LEAD SCREW

Screw-drive mechanisms, whether acme screw or ballscrew, provide high thrust (to thousands of pounds) but are often limited by critical speed, maximum recirculation speed of ball nut circuits, or sliding friction of acme nut systems.



BALL SCREW

- High efficiency, low friction
- High duty cycle (less than 50%)
- Long life, low wear



ACME SCREW

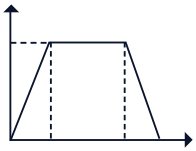
- The ability to hold position while motor is off
- Low speeds
- Low duty cycles

Motion Control Calculations

Two common motion profiles that relate velocity to time are the trapezoidal and triangular motion profiles. They serve as good starting points for calculating motion parameters and thrusts. Determine the required velocities and accelerations for the application.

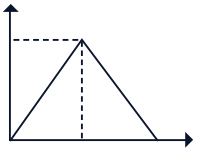
TRAPEZOIDAL MOTION PROFILE

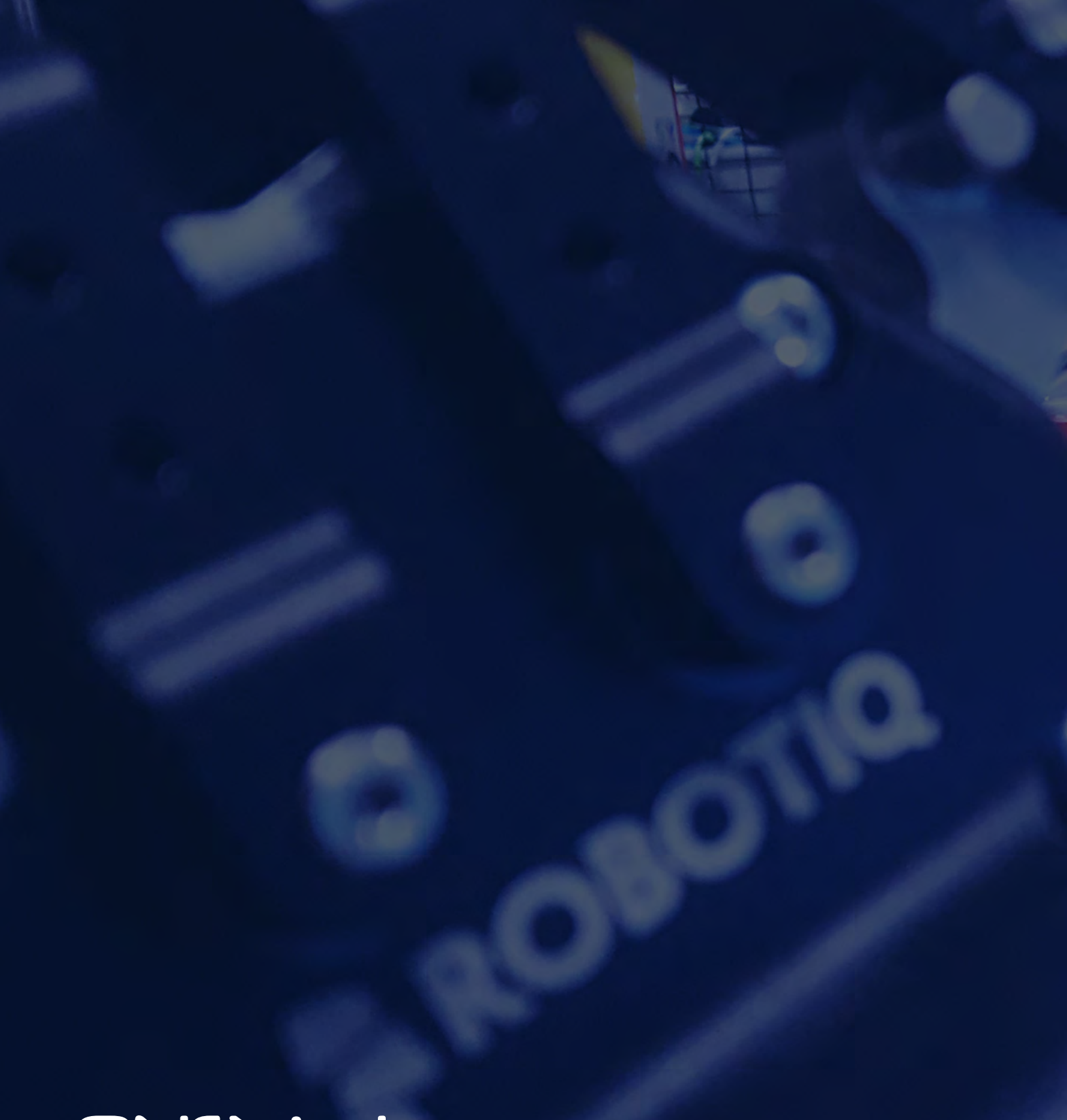
Velocity=(1.5 x Distance)/Time
Acceleration=(4.5 x Distance/Time²



TRIANGULAR MOTION PROFILE

Velocity=(2 x Distance)/Time
Acceleration=(4 x Distance/Time²





ONExia Inc

PH: 800.242.3332
610.431.7271

FX: 610.344.7472

750 Springdale Dr. Exton, PA 19341

onexia.com

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