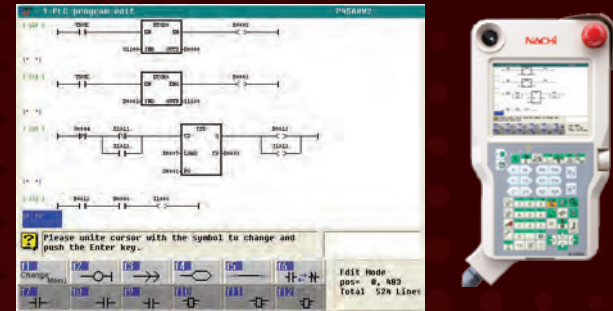


User-Friendly Software and Hardware Solutions

Software PLC (Standard)

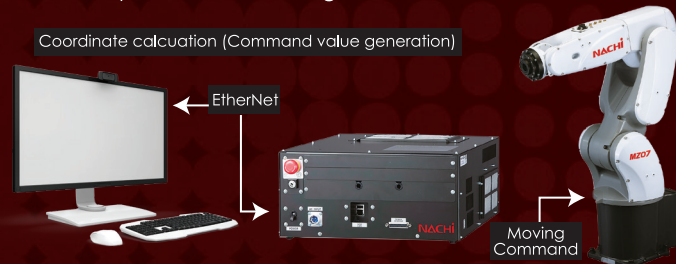
• Built-in software PLC is fully programmable to communicate with other robots, machines and peripheral equipment, as well as manage internal robot operations.

• Multiple built in functions included allows the Nachi software PLC to perform complex tasks. The Software PLC can replace an external PLC and control the entire work cell through Nachi network and discrete I/O.



OpenNR-IF (Optional)

OpenNR is a C++ library which allows external PC based control of a Nachi robot. This allows a user to easily interface Nachi FD or CFD robot controllers to devices, such as: industrial control software, cameras, joysticks and sensors for custom manufacturing solutions. Additional functionality includes: robot operation and monitoring via PC, remote monitoring and traceability, and real-time production tracking.



FD on Desk Robot Simulator (Optional)

• Nachi's proprietary robot simulation software tool, which can run on a laptop or desktop computers.

• It simulates all critical components of the Nachi FD robot control platform and provides a 3D environment for creating accurate and realistic-looking work cells.

• There's a wide variety of uses, including: offline programming, application setup, personnel training, problem diagnosis and engineering (reach and CycleTime verification).

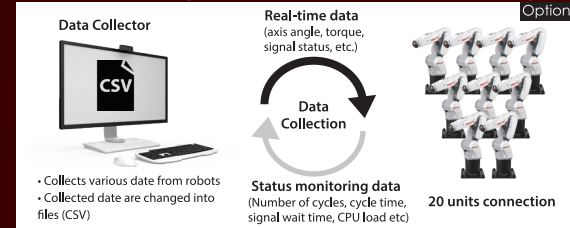
• Use CAD drawings to simplify creation of complex paths with CAD-to-Path utility.



NR: connect

Software that provides collection of data such as robot operations, error status and maintenance requirements to allow for maintainability improvements.

Data Collector (Robot data collection software)



- Constantly monitor the error status of robot controller and automatically save the status when an error occurs
- The output data can be imported to the customer's core system, etc.

Smart Monitor (robot data monitoring software)



- Display the data collected by Data Collector clearly on a screen
- Intuitive GUI gives you easy access to the information you need so that robot operation status can be checked in real-time.
- When an error occurs, the operating status before and after the error is displayed graphically and makes it easy to understand the situation before and after the error.

Collaborative Robot Technologies (Optional)

• Mode #1: Safety-Rated Monitored Stop - The robot can be stopped in a safe position allowing the operator to load, unload or add parts, as well as perform other tasks without shutting off robot motor power.

• Mode #2: Direct Teach – Allows user to "hand guide" robot for programming and to modify taught points.

• Mode #3: Speed and Separation Monitoring - Safety-rated sensors detect human presence; speed of robot is limited proportionally to the distance between robot and human.

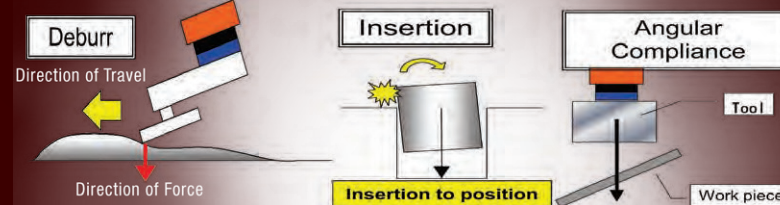
• Mode #4: Force and Torque Limiting – Performing a risk assessment and limiting robot force enables humans to work side-by-side with robots without fear of harm. If robot contacts a human or other object, it will stop upon contact, without causing injury or damage.



Advanced Process Technologies

Force Control Functions (Optional)

- Allows Nachi robots to apply constant force along a contoured path.
- Uses "feel" to insert parts with tight tolerances.
- Trace or match angled surfaces for assembly.



Integrated Vision (Optional)

*(Maximize efficiency and control of your process with Nachi Vision Technologies.)**

NV-PRO VISION SYSTEM

- Supports 2D, 3D and laser vision technologies, while offering high-speed image acquisition and measurements.

• Expandable up to four cameras on a single system for maximum flexibility.

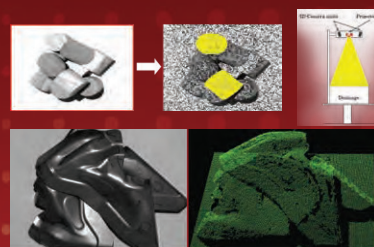
• Supports conveyor synchronization (line tracking) technology for on-the-fly handling capability.

• A fully integrated vision solution with image display on teach pendant for simplified setup and operation. *Ethernet socket communication and user-task functions allow Nachi robots to also communicate with third-party vision systems.

NV-PRO EX — 3D SURFACE MATCHING VISION SYSTEM

• Uses advanced dot cloud projection technology to match surface contour images to known CAD or library image part geometry.

• Using Nachi NV-Pro EX dot cloud vision technology, components lacking easily identifiable features, such as holes or defined edges, can be selected based upon surface contour and picked from bins of randomly arranged parts. This technology saves cycle time, as multiple parts queue from single image process sequence.



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NACHI

ROBOTIC SYSTEMS, INC.



CZ10

- More than 30 Years in North America
- 24-Hour Service and Support
- Comprehensive Training
- Applications and Engineering Services
- Locally Stocked Spare Parts
- Easy Integration with Sensor Technology
 - Vision Systems
 - Laser Scanner
 - Safety
 - Force Feedback
 - Conveyor Synchronization



SRA Series SRA Compact

	SRA100B	SRA100J
Reach (mm):	2071	1634
Payload:	100kg	100kg
Axes:	6	6
Repeatability:	±0.1mm	±0.1mm

SRA Standard Reach

	SRA100	SRA166	SRA210(D)(V)*
Reach (mm):	2654	2654	2674
Payload:	100kg	166kg	210kg
Axes:	6	6	6
Repeatability:	±0.1mm	±0.1mm	±0.15mm

*[D] – Foundry
*[V] – Ceiling Mount

	SRA240	SRA250
Reach (mm):	2674	2792
Payload:	240kg	250kg
Axes:	6	6
Repeatability:	±0.2mm	±0.2mm

SRA Long Reach

	SRA120EL	SRA133L
Reach (mm):	3099	2951
Payload:	120kg	133kg
Axes:	6	6
Repeatability:	±0.15mm	±0.15mm

	SRA166L
Reach (mm):	2951
Payload:	166kg
Axes:	6
Repeatability:	±0.15mm

SRA Shelf Mount

	SRA100BT	SRA166HT	SRA166T	SRA166TL
Reach (mm):	2231	3041	3153	3734
Payload:	100 kg	166 kg	166kg	166kg
Axes:	6	6	6	6
Repeatability:	±0.1 mm	±0.1 mm	±0.1mm	±0.1mm

	SRA210HT	SRA210T	ST210TP
Reach (mm):	3041	3192	3025
Payload:	210 kg	210kg	80 kg
Axes:	6	6	7
Repeatability:	±0.15mm	±0.15mm	±0.3mm

EZ Series (SCARA Robots)

	EZ03(V/F)
Reach (mm):	450/550
Payload:	3kg
Axes:	4
Repeatability:	±0.014mm
Position Range (mm):	250/150

*V – Invert Mount *F – Floor Mount

EC Series (SCARA Robots)

	EC06
Reach (mm):	500/600/700mm
Payload:	6kg
Axes:	4
Repeatability:	±0.025mm

	EC10
Reach (mm):	800/1000mm
Payload:	12kg
Axes:	4
Repeatability:	±0.025mm

SRA-H Series (Hollow Arm Robots)

	SRA100H	SRA100HB	SRA100HS	SRA133H
Reach (mm):	2654	2044	1634	2654
Payload:	100kg	100kg	100kg	133 kg
Axes:	6	6	6	6
Repeatability:	±0.1mm	±0.1mm	±0.1mm	±0.1 mm

	SRA133HL	SRA166H	SRA210H
Reach (mm):	2951	2654	2654
Payload:	133kg	166 kg	210kg
Axes:	6	6	6
Repeatability:	±0.15mm	±0.1mm	±0.15mm

LP Series (Palletizing Robots)

	LP130F
Reach (mm):	3210
Payload:	130kg
Axes:	4
Repeatability:	±0.3mm

	LP180/LP210
Reach (mm):	3210
Payload:	180/210kg
Axes:	4
Repeatability:	±0.4mm

NB/NV/FD/H Series (Arc Welding Robots)

	NB4 (Through Arm)	FD-B4S	NB4L (Through Arm)	FD-B4LS	H5	NV6	FD-V6S	FD-B6
Reach (mm):	1411	1435	2008	2008	866	1402	1427	1445
Payload:	4kg	4kg	4kg	4kg	5kg	6kg	6kg	6kg
Axes:	6	7	6	7	6	6	7	6
Repeatability:	±0.08mm	±0.08mm	±0.08mm	±0.08mm	±0.05mm	±0.08mm	±0.08mm	±0.06mm

	NV6L	FD-B6L-S2	FD-V6LS	FD-V8	FD-V8L-S2	FD-V25-S2	FD-V20S
Reach (mm):	2006	2008	2006	1402	2006	2006	1710
Payload:	6kg	6kg	6kg	8kg	8kg	8kg	20kg
Axes:	6	6	7	6	6	6	7
Repeatability:	±0.08mm	±0.08mm	±0.08mm	±0.08mm	±0.08mm	±0.08mm	±0.08mm

Clean Room

	MC35C/50C/70C	ST133CF	ST166CF
Reach (mm):	2050	2654	2654
Payload:	35/50/70kg	133 kg	166 kg
Axes:	6	6	6
Repeatability:	±0.07mm	±0.2 mm	±0.2mm

	ST166LCF	ST210CF
Reach (mm):	2901.5	2674
Payload:	166 kg	210 kg
Axes:	6	6
Repeatability:	±0.2mm	±0.3mm

MC Series (Medium Payload Robots)

	MC10L	MC10S
Reach (mm):	2019	1420
Payload:	10kg	10kg
Axes:	6	6
Repeatability:	±0.06mm	±0.06mm

	MC12S	MC20
Reach (mm):	1400	1722
Payload:	12kg	20kg
Axes:	6	6
Repeatability:	±0.06mm	±0.06mm

MC Series (Heavy Payload Robots)

	MC280L	MC350	MC400L	MC470P*	MC500P*
Reach (mm):	3101	2771	3756	2771	3756
Payload:	280kg	350kg	400kg	470kg	500kg
Axes:	6	6	6	6	5
Repeatability:	±0.2mm	±0.2mm	±0.3mm	±0.2mm	±0.3 mm

	MC600	MC700	MC1000DL	SC700DL
Reach (mm):	2890	2890	3972	3972
Payload:	600kg	700 kg	1000 kg	700 kg
Axes:	6	6	6	6
Repeatability:	±0.3mm	±0.3 mm	±0.3 mm	±0.5 mm

*P – Palletizing

MR Series (Flexible 7-Axis Robots)

	MR20/MR20L
Reach (mm):	1260/1398
Payload:	20kg
Axes:	7
Repeatability:	±0.06mm

	MR35/MR50
Reach (mm):	2050
Payload:	35/50kg
Axes:	7
Repeatability:	±0.07mm

CZ Series (Collaborative)

	CZ10
Reach (mm):	1300
Payload:	10kg
Axes:	6
Repeatability:	±0.1mm

CMZ Series (Collaborative)

	CMZ05
Reach (mm):	927
Payload:	5kg
Axes:	6
Repeatability:	±0.020mm

MZ Series (Ultra High-Speed Robots)

	MZ01	MZ03EL	MZ04(E)(D)(DE)*	MZ07/MZ07L(P)*	MZ07F/MZ07LF(P)*
Reach (mm):	350	1102	541	MZ07 : 723 MZ07L: 912	MZ07F : 723 MZ07LF: 912
Payload:	1kg	3.5kg	4kg	7kg	7kg
Axes:	6	6	6	6/(5)	6/(5)
Repeatability:	±0.02mm	±0.03mm	±0.02mm	MZ07: ±0.02 MZ07L: ±0.03	MZ07F: ±0.015 MZ07LF: ±0.020

	MZ10	MZ10LF	MZ12/MZ12H	MZ25	MZ35F	MZ50F/LF	MZ70F
Reach (mm):	723	1202	1454	1882	2102	2102/2502	2102
Payload:	10kg	10kg	12kg	25kg	35kg	50kg	70kg
Axes:	6	6	6	6	6	6	6
Repeatability:	±0.03mm	±0.020mm	±0.04mm	±0.05mm	±0.06mm	±0.06mm	±0.06mm

*[D] – IP67 *[DE] – IP67 Collaborative *[E] – Safe Robot *(P) – 5 Axes: Palletizing

Robot Controller Models

Model	Specifications
FD11 Controller	AC 200/220/380/400/420/440/460/480/580/600 +/-10% 3-Phase 50/60Hz Dimensions(mm): 580W x 542D x 1240H
FD18 Controller	3φ 200-230VAC, 50/60Hz, D grounding, breaker 40A, max. leakage 100mA Dimensions(mm): 300W x 600D x 530H
CFD Controller	AC200-230V +/-10% 2-Phase or 3-Phase 50/60Hz Dimensions(mm): 369W x 490D x 173H
CFDS Controller	AC200V – 230V +/- 10%, 50/60Hz, D grounding Dimensions(mm): 310W x 250D x 160H
CCZ Controller	AC200-230V +/- 10% Single Phase 50/60Hz Dimensions (mm): 380W x 460D x 260H
CFDQ Controller	AC200V – 230V +/- 10%, 50/60Hz, D grounding Dimensions (mm): 270W x 270D x 82.9H

FD Smart Teach Pendant

Full Color Touch Screen
Programmable / Customizable Interface
Full Manual Set Included / User Help Functions

Please Note: Robot specifications are subject to change without notice, contact NRS to verify current specifications.