

# Industrial Automation Guide 2016



Industrial Products & Systems

# Targeted Technologies

## Creating maximum output with minimum input

By identifying the many ways of innovation in specific industries we developed the 'targeted technologies' concept. It's a way of thinking about technology in a prioritized format. Prioritized according to our customers' most pressing needs. The result? A set of solutions that make immediate impact on the core of our customers' businesses. A set of solutions that hit the target every time. Take a look at the examples on our website.

[industrial.omron.eu/technologies](https://industrial.omron.eu/technologies)







# Welcome to our world

## Our best-in-class devices for your automation system

Welcome to Omron's world of advanced industrial automation. The INDUSTRIAL AUTOMATION GUIDE is your essential tool to select best-in-class devices for your automation system. It highlights our core competences in sensing, control, visualisation, motion and panel components.

Of course, Omron offers a much larger range of products than you can find on the attached DVD. For more information on services and company competence visit our website.

Here you will find:

- Latest product news
- Technical product specifications
- 2D / 3D CAD Library
- Customer references
- Technology concepts
- Supporting product documentation
- Knowledge Base - "myOmron"
- Events Calendar
- Contact information

## Find information fast!

Quick Links shortens your search. Quick Links are unique codes assigned to Omron products listed in this guide. Enter Quick Link codes in the search box on [industrial.omron.eu](http://industrial.omron.eu) to access detailed information on products in this guide.



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“To the machine the work of the machine,  
to man the thrill of further creation.”

Kazuma Tateisi, founder of Omron

# Omron at a glance

200.000 products ranging  
input, logic and output

Sensing, Control Systems, Visualization, Drives, Robots, Safety,  
Quality Control & Inspection, Control and Switching Components

7%

Investment in Research & Development

Innovation track  
record of 80 years

Top 150 global patent assignee

1.200 employees dedicated to R&D

11.000 + issued and pending patents

37.000

Employees worldwide

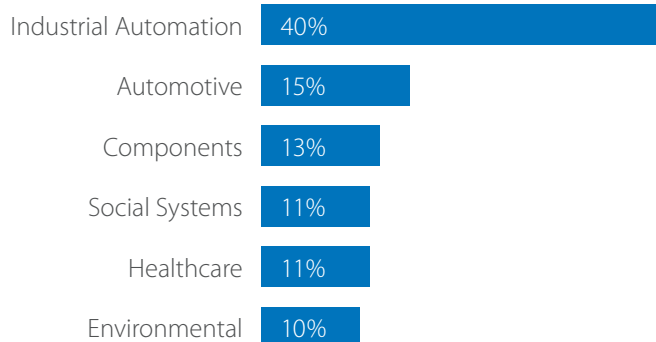
210

Locations worldwide

22

Countries in EMEA

Working for the  
benefit of society



## Close to your needs

Technical training & seminars, technical support, Automation Technology Centers, online community (MyOmron), online catalogues and technical documentation, customer service & sales support, inter-operability labs (Tsunagi), safety services, repairs.

# Your needs, our focus

## Solutions perfectly matching your needs

We asked ourselves: 'What do you need in sensors and components?' Well, first you need reliability. Then a variety and choice of performance levels. You may also want advanced functionality, with special features defined by you – or you may want standardized solutions, with highly competitive prices.

Whatever it is, it can all add up to a wish list that is difficult to fulfil. Until now. That's because our new 361° Approach not only provides a complete all-round offer without gaps, it also puts you at the very centre of the product selection process. It's an approach that leads to a Perfect Match – one with the extra degree of confidence that comes from choosing Omron.

### 361° in one view



Quality



Line-up



Application



Customization



Global availability



Specs

	Quality	Line-up	Application	Customization	Global availability	Specs
<b>PRO<sup>plus</sup></b>	Premium	Tailored	Special	Yes	Yes	Application oriented
<b>PRO</b>	Premium	Complete	Advanced	Yes	Yes	Above Standard
<b>LITE</b>	Premium	Standard	Basic	No	No	Basic
	'Quality' refers to the standard of manufacturing and the materials used – this translates into reliability	'Line-up' refers to the number of model types	'Application' indicates the complexity of the automation	'Customization' is the possibility to modify the product		'Specs' refers to the choice of performance levels



# The extra degree of advantage

## Three distinct lines of sensors and components

### Three distinct lines

361° Approach offers three distinct lines within each sensor or component product category. LITE products are cost-effective without any compromise in quality. PRO products represent the “install & forget” option, offering longer lifetime, higher protection, and more features. While PROplus products are designed for specific applications or customer demands.

### Optimized reliability

All three lines are backed by the Omron commitment to quality, so even when you need a price-competitive advantage, you can be confident that they will never let you down.

### Solutions that perfectly match your needs

The 361° Approach ensures that you can quickly and easily identify the perfect match solution to your needs – nothing more, nothing less.

### Optimized costs

Your sensor and component costs are also minimized – because it eliminates over-specification.

### Why an extra 1°?

The extra degree is what you get when you do business with Omron, and that means different things to different customers – all depending on their needs. For example, if you need specification advice, the extra degree is ‘service’. But ultimately, to everyone it means “an extra degree of confidence in the perfect match”.



# Sysmac: A fully integrated platform

## Integration and Functionality

Sysmac is an integrated automation platform dedicated to providing complete control and management of your automation plant. At the core of this platform, the Machine Controller series offers synchronous control of all machine devices and advanced functionality such as motion, robotics and database connectivity. This multidisciplinary concept allows you to simplify solution architecture, reduce programming and optimize productivity.

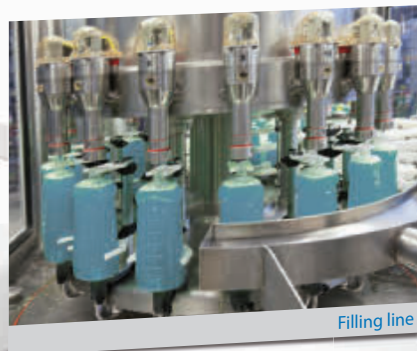


Machine Automation Controller

FACTORY  
AUTOMATION

MACHINE  
CONTROL

## Motion



Filling line

- Motion Control: Integrated within the IDE, and operating in real-time
- Standard PLCopen Function Blocks plus Omron generated motion FB's
- Direct Synchronous control for Position, Speed and Torque

## Safety



Assembly

- All safety related data is synchronized with the whole network
- Safety functions such as muting, guard locking, EDM and valve monitoring are simple to manage

- ✓ **One Integrated Development Environment software** for Configuration, Programming, Simulation and Monitoring



## Information



Pills blister packing

- Sysmac communicates in real-time with Databases such as SQL
- Secure Data: In the event of a server going down or losing communications, data is automatically stored in internal memory
- Sysmac operates with Databases at high speed [1000 table element/ 100 ms] ensuring realistic Big Data Processing to improve productivity and aid predictive maintenance etc.

### ✓ Integrated Automation Control:

The Sysmac platform is scalable and provides the performance and functionality for a wide range of solutions from simple machines through to manufacturing cells

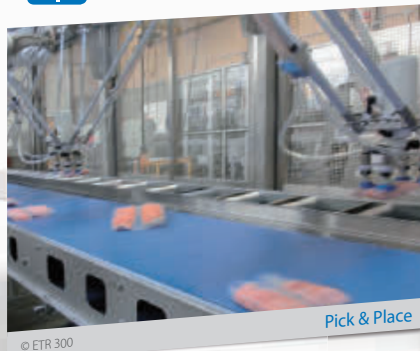
## Vision



Quality inspection

- Higher resolution images available without increasing the vision processing time
- Shape search technology: Provides more stable and accurate object detection for Pick & Place projects

## Robotics



Pick & Place

- Up to 8 Delta robots with one controller
- Time-based Robotic Function Blocks make programming easier

## Sensing



Presence detection of the rubber seal

- Full control of the process parameter setting and predictive maintenance functions
- High precision detection and positioning data synchronized on the network

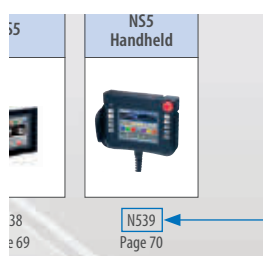
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Safety				
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Switching components				
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Software				

# Motion & Drives

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*Quick Link*



# Motion & Drives

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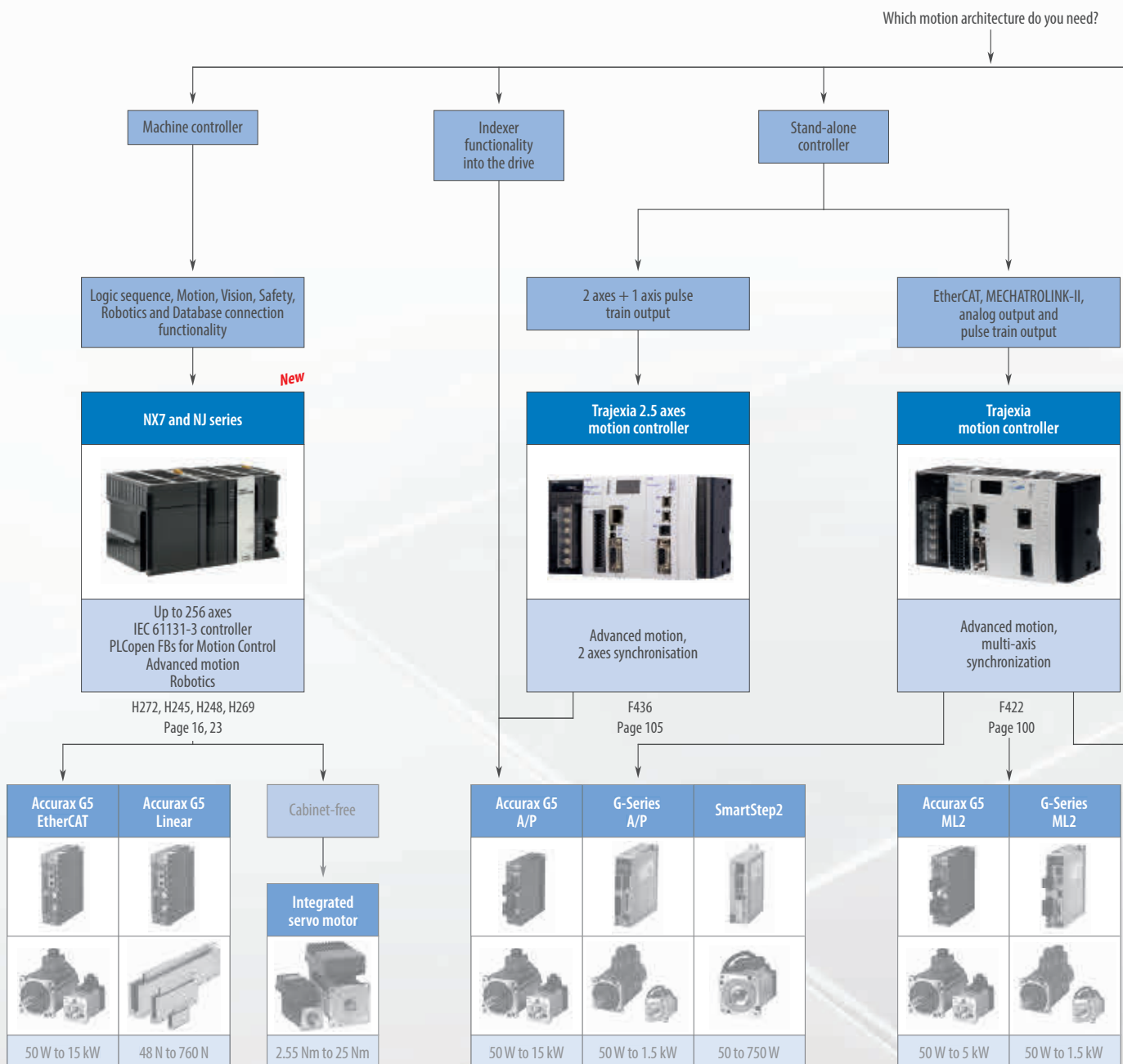
# Motion controllers

## NX7/NJ series machine controller

- Integration of logic and motion in one Intel CPU
- Scalable motion control: CPUs from 2 up to 256 axes
- Fully conforms with IEC 61131-3 standards
- PLCopen Function Blocks for Motion Control
- Advanced motion with Robotics functionality
- Built-in EtherCAT and EtherNet/IP ports



**SYNMAC**  
always in control



## Trajexia with EtherCAT

- Motion control of 64 axes
- Scalability with EtherCAT masters for 4, 16 and 64 axes
- Supports servos, inverters, vision systems and distributed I/O modules

EtherCAT®



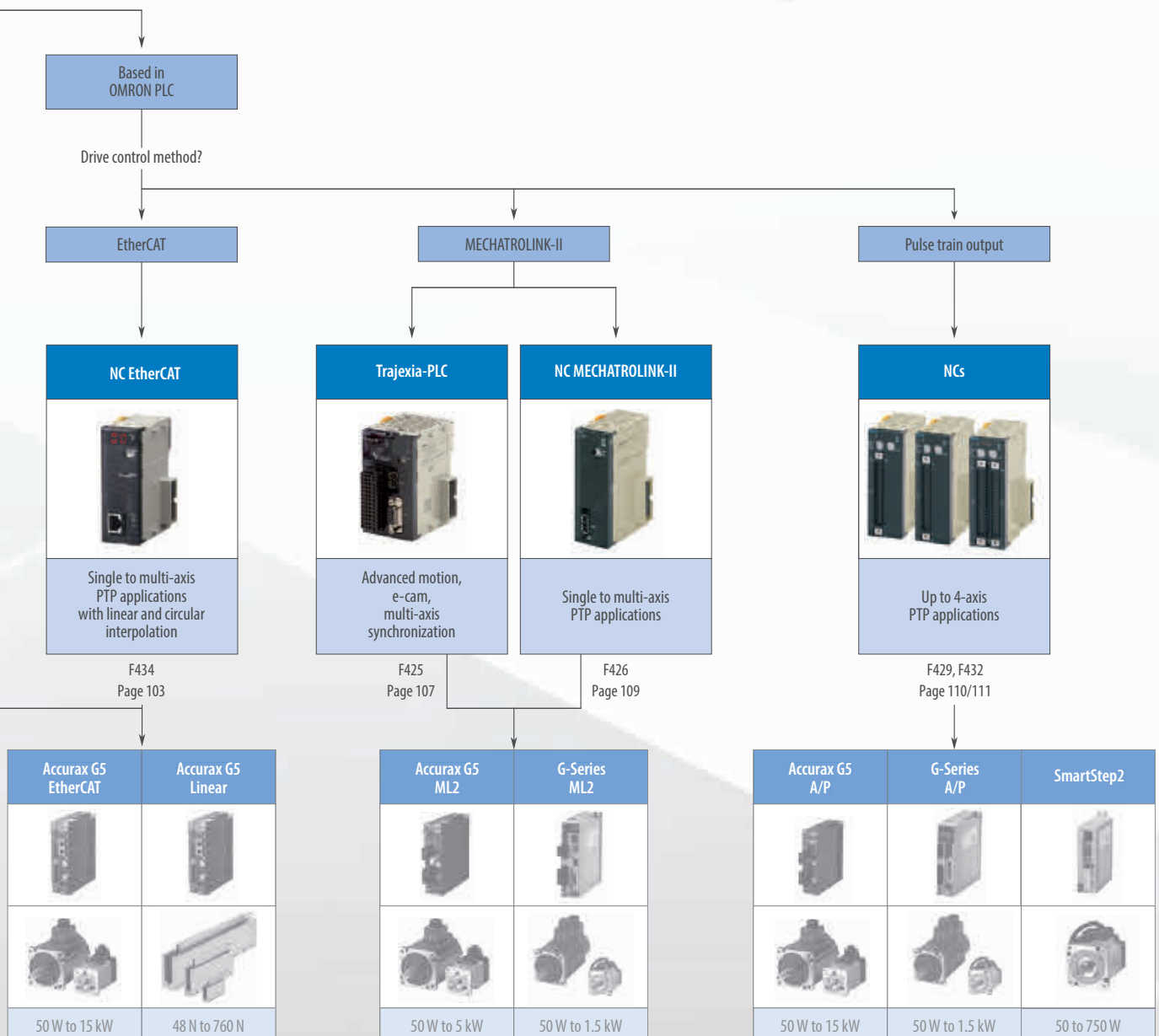
## CJ-Series PLC with EtherCAT

- Position control unit CJ1W-NC with EtherCAT
- Support for up to 16 axes and 64 inverters, vision systems and distributed I/O modules











EtherCAT®

Motion controllers





Motion controllers				
				
Model	NX and NJ series machine controller	Trajexia stand-alone	Trajexia 2.5 axes motion controller	NC EtherCAT
	Logic sequence, Motion, Robotics and Database connection functionality	The advanced stand-alone motion controller	Trajexia 2.5 axes motion controller	16-axis point-to-point positioning controller
Axes control method	EtherCAT	EtherCAT, MECHATROLINK-II, analog output and pulse-train output	2 axes for position, speed and torque control and 1 axis for pulse train output in open loop	EtherCAT
Number of axes	2, 4, 8, 16, 32, 64, 128, 256	4, 16, 64	2	2, 4, 8, 16
Applicable servo drive	Accurax G5 and Integrated servomotor	Accurax G5 and G-Series	Accurax-G5	Accurax G5
Application	Advance motion including robotics	Advanced motion, e-cam, ELS, Phase shift, Registration	Advanced motion, e-cam, ELS, Phase shift, Registration	From simple PTP to multi axis PTP with linear and circular interpolation
Servo control mode	Position, speed and torque	Position, speed and torque	Position, speed and torque	Position, speed and torque
PLC series	NX and NJ series	Stand-alone motion controller: Serial and Ethernet/IP built-in, PROFIBUS-DP, DeviceNet and CANopen communication options	Stand-alone motion controller: Serial and Ethernet/IP built-in, PROFIBUS-DP, DeviceNet and CANopen communication options	CJ
Page/Quick Link	16, 23/H269, H272, H245, H248	100/F422	105/F436	103/F434

Motion controllers				
				
Model	Trajexia-PLC	NC MECHATROLINK-II	CJ1W-NC__3	CJ1W-NC__4
	Advanced multi-axes motion controller in a PLC	16-axis point-to-point positioning controller	4-axis point-to-point positioning controller	4-axis point-to-point positioning controller with synchronization
Axes control method	MECHATROLINK-II	MECHATROLINK-II	Pulse train output	Pulse train output
Number of axes	4, 30	2, 4, 16	1, 2, 4	2, 4
Applicable servo drive	Accurax G5 and G-Series	Accurax G5 and G-Series	SmartStep 2 and Accurax G5	SmartStep 2 and Accurax G5
Application	Advanced motion, e-cam, ELS, Phase shift, Registration	From simple PTP to multi axis PTP coordinated systems	Point to point applications	Point-to-point with complex interpolations
Servo control mode	Position, speed and torque	Position, speed and torque	Open loop position with linear interpolation	Open loop position with linear and circular interpolation
PLC series	CJ	CJ and CS1	CJ an CS1	CJ
Page/Quick Link	107/F425	109/F426	110/F429	111/F432

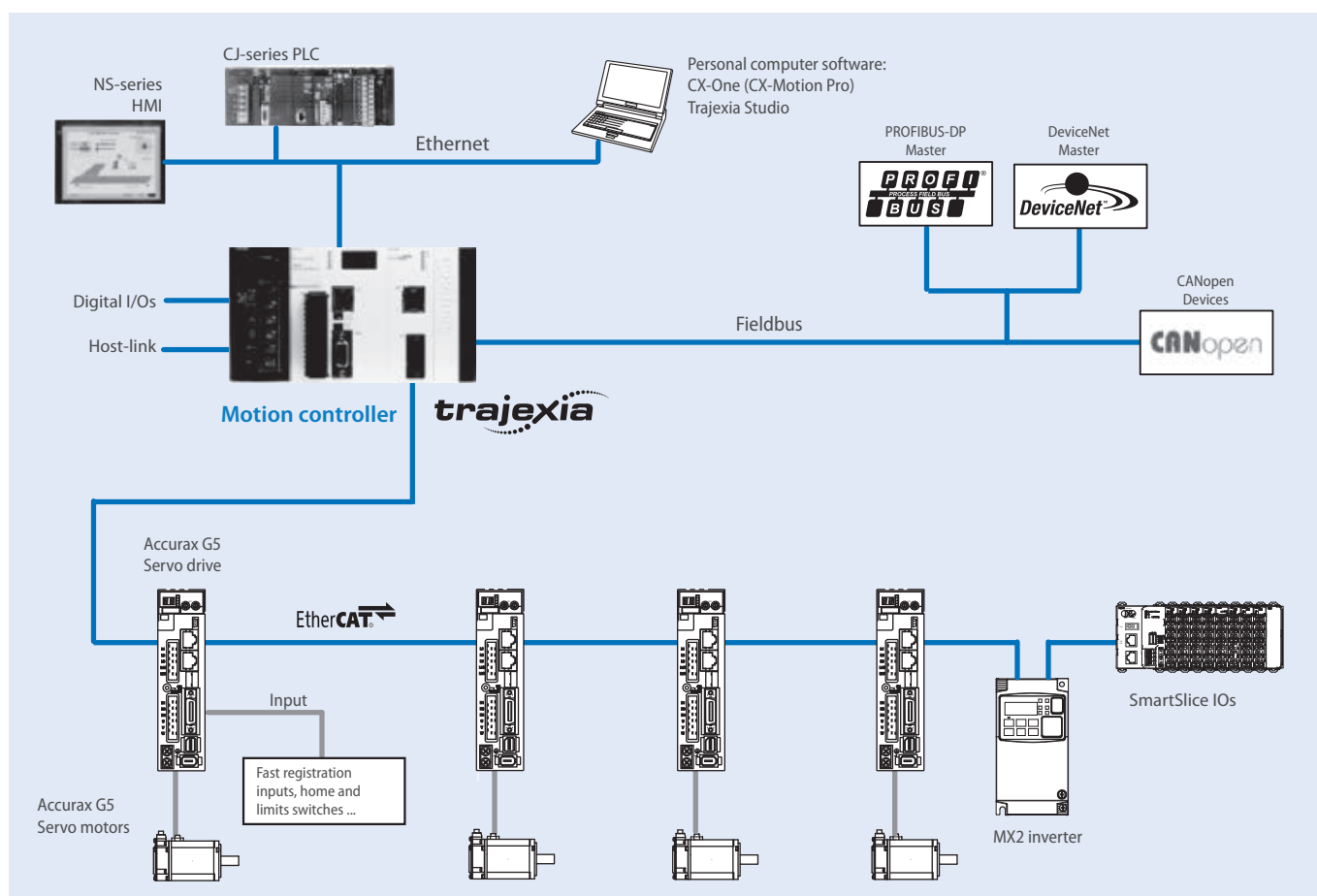




## Stand-alone advanced motion controller over EtherCAT

- Perfect motion control of up to 64 axes. Scalability with EtherCAT masters for 4, 16 and 64 axes
- Supports position, speed and torque control
- Multi-tasking controller capable of running up to 22 tasks simultaneously
- Advanced motion control such as linear, circular, helical or spherical interpolation, electronic cams and gearboxes via simple motion commands
- Control of servos, inverters, vision systems and distributed I/Os over a single EtherCAT network
- Support for EtherNet/IP communications
- Advanced debugging tools including data trace and oscilloscope functions
- Open communication: Serial and EtherNet/IP built-in, PROFIBUS-DP, DeviceNet and CANopen

## Ordering information



## Trajexia motion controller

Name	Order code
Trajexia motion controller Unit, up to 64 axes. (Trajexia end cover unit TJ1-TER is included)	TJ2-MC64
Trajexia motion controller unit, up to 16 axes. (Trajexia end cover unit TJ1-TER is included)	TJ1-MC16
Trajexia motion controller unit, up to 4 axes. (Trajexia end cover unit TJ1-TER is included)	TJ1-MC04
Power supply for Trajexia system, 100 to 240 VAC	CJ1W-PA202
Power supply for Trajexia system, 24 VDC	CJ1W-PD022

## Trajexia – axes control modules

Name	Order code
Trajexia EtherCAT master unit (up to 64 servo drives) <sup>*1</sup>	TJ2-ECT64
Trajexia EtherCAT master unit (up to 16 servo drives)	TJ2-ECT16
Trajexia EtherCAT master unit (up to 4 servo drives)	TJ2-ECT04
Trajexia MECHATROLINK-II master unit (up to 16 stations) <sup>*2</sup>	TJ1-ML16
Trajexia MECHATROLINK-II master unit (up to 4 stations) <sup>*2</sup>	TJ1-ML04
Trajexia flexible axis unit (for 2 stations)	TJ1-FL02

<sup>\*1</sup> The number of servo drives is currently limited to 32 when using TJ2-MC64 motion controller with firmware 2.0132.

<sup>\*2</sup> The TJ1-ML04 and TJ1-ML16 supported by the TJ2-MC64 motion controller are V2 (Version 2) and lot number equal or above Lot. No.091019 (YYMMDD).

## Trajexia – communication modules

Name	Order code
Trajexia DeviceNet slave unit	TJ1-DRT
Trajexia PROFIBUS-DP slave unit	TJ1-PRT
Trajexia CANopen unit	TJ1-CORT

## EtherCAT – related devices

## Servo system and frequency inverters

Name	Order code
Accurax G5 servo drive EtherCAT built-in	R88D-KN____-ECT
MX2 inverter with EtherCAT option board	Frequency inverter 3G3MX2-A_
	EtherCAT option board 3G3AX-MX2-ECT

**Note:** Refer to servo systems and frequency inverter sections for detailed specs and ordering information

## SmartSlice IOs system

Function	Specification	Order code
SmartSlice Interface unit	SmartSlice EtherCAT interface unit	GRT1-ECT
End plate, one unit required per bus interface		GRT1-END
4 NPN inputs	24 VDC, 6 mA, 3-wire connection	GRT1-ID4
4 PNP inputs	24 VDC, 6 mA, 3-wire connection	GRT1-ID4-1
8 NPN inputs	24 VDC, 4 mA, 1-wire connection + 4xG	GRT1-ID8
8 PNP inputs	24 VDC, 4 mA, 1-wire connection + 4xV	GRT1-ID8-1
4 AC inputs	110 VAC, 2-wire connection	GRT1-IA4-1
4 AC inputs	230 VAC, 2-wire connection	GRT1-IA4-2
4 NPN outputs	24 VDC, 500 mA, 2-wire connection	GRT1-OD4
4 PNP outputs	24 VDC, 500 mA, 2-wire connection	GRT1-OD4-1
4 PNP outputs with short-circuit protection	24 VDC, 500 mA, 3-wire connection	GRT1-OD4G-1
4 PNP outputs with short-circuit protection	24 VDC, 2 A, 2-wire connection	GRT1-OD4G-3
8 NPN outputs	24 VDC, 500 mA, 1-wire connection + 4xV	GRT1-OD8
8 PNP outputs	24 VDC, 500 mA, 1-wire connection + 4xG	GRT1-OD8-1
8 PNP outputs with short-circuit protection	24 VDC, 500 mA, 1-wire connection + 4xG	GRT1-OD8G-1
2 relay outputs	240 VAC, 2 A, normally-open contacts	GRT1-ROS2
2 analog inputs, current/voltage	±10 V, 0 to 10 V, 0 to 5 V, 1 to 5 V, 0 to 20 mA, 4 to 20 mA	GRT1-AD2
2 analog outputs, voltage	±10 V, 0 to 10 V, 0 to 5 V, 1 to 5 V	GRT1-DA2V
2 analog outputs, current	0 to 20 mA, 4 to 20 mA	GRT1-DA2C
2 Pt100 inputs	Pt100, 2-wire or 3-wire connection	GRT1-TS2P
2 Pt1000 inputs	Pt1000, 2-wire or 3-wire connection	GRT1-TS2K
2 Thermocouple inputs	Types B, E, J, K, N, R, S, T, U, W, PL2, with cold junction compensation	GRT1-TS2T

**Note:** Refer to Automation systems catalogue for detailed specs and accessories information

## GX-Series I/O Blocks

Name	Order code
16 NPN inputs	24 VDC, 6 mA, 1-wire connection, expandable GX-ID1611
16 PNP inputs	24 VDC, 6 mA, 1-wire connection, expandable GX-ID1621
16 NPN outputs	24 VDC, 500 mA, 1-wire connection, expandable GX-OD1611
16 PNP outputs	24 VDC, 500 mA, 1-wire connection, expandable GX-OD1621
8 inputs and 8 outputs, NPN	24 VDC, 6 mA input, 500 mA output, 1-wire connection GX-MD1611
8 inputs and 8 outputs, PNP	24 VDC, 6 mA input, 500 mA output, 1-wire connection GX-MD1621
16 NPN inputs	24 VDC, 6 mA, 3-wire connection GX-ID1612
16 PNP inputs	24 VDC, 6 mA, 3-wire connection GX-ID1622
16 NPN outputs	24 VDC, 500 mA, 3-wire connection GX-OD1612
16 PNP outputs	24 VDC, 500 mA, 3-wire connection GX-OD1622
8 inputs and 8 outputs, NPN	24 VDC, 6 mA input, 500 mA output, 3-wire connection GX-MD1612
8 inputs and 8 outputs, PNP	24 VDC, 6 mA input, 500 mA output, 3-wire connection GX-MD1622
16 relay outputs	250 VAC, 2 A, 1-wire connection, expandable GX-OC1601
4 analog inputs, current/voltage	±10 V, 0 to 10 V, 0 to 5 V, 1 to 5 V, 4 to 20 mA GX-AD0471
2 analog outputs, current/voltage	±10 V, 0 to 10 V, 0 to 5 V, 1 to 5 V, 4 to 20 mA GX-DA0271
2 encoder open collector inputs	500 kHz Open collector input GX-EC0211
2 encoder line-driver inputs	4 MHz Line driver input GX-EC0241

**Note:** The GX-Series I/O blocks are only supported by the T2-MC64 motion controller and with official firmware release above 2.0132.

## Vision system

Name	Specification	Order code
Vision system with EtherCAT interface	NPN	FZM1-350-ECT
	PNP	FZM1-355-ECT
Smart camera with EtherCAT interface	NPN/Color camera	FQ-MS120-ECT
	NPN/Monochrome camera	FQ-MS120-M-ECT
	PNP/Color camera	FQ-MS125-ECT
	PNP/Monochrome camera	FQ-MS125-M-ECT

**Note:** The vision systems are only supported by the T2-MC64 motion controller and with official firmware release above 2.0132.

## MECHATROLINK-II – related devices

### Servo system and frequency inverters

Name	Order code
Accurax G5 servo drive ML-II built-in	R88D-KN___-ML2
G-Series servo drive ML-II built-in	R88D-GN___H-ML2
MX2 inverter with MECHATROLINK-II option board	Frequency inverter 3G3MX2-A_
ML2 option board	3G3AX-MX2-MRT

**Note:** Refer to servo systems and frequency inverter sections for detailed specs and ordering information

### SmartSlice IOs system

Function	Specification	Order code
SmartSlice Interface unit	SmartSlice MECHATROLINK-II interface unit	GRT1-ML2 <sup>*1</sup>
End plate, one unit required per bus interface		GRT1-END
4 NPN inputs	24 VDC, 6 mA, 3-wire connection	GRT1-ID4
4 PNP inputs	24 VDC, 6 mA, 3-wire connection	GRT1-ID4-1
8 NPN inputs	24 VDC, 4 mA, 1-wire connection + 4xG	GRT1-ID8
8 PNP inputs	24 VDC, 4 mA, 1-wire connection + 4xV	GRT1-ID8-1
4 AC inputs	110 VAC, 2-wire connection	GRT1-IA4-1
4 AC inputs	230 VAC, 2-wire connection	GRT1-IA4-2
4 NPN outputs	24 VDC, 500 mA, 2-wire connection	GRT1-OD4
4 PNP outputs	24 VDC, 500 mA, 2-wire connection	GRT1-OD4-1
4 PNP outputs with short-circuit protection	24 VDC, 500 mA, 3-wire connection	GRT1-OD4G-1
4 PNP outputs with short-circuit protection	24 VDC, 2 A, 2-wire connection	GRT1-OD4G-3
8 NPN outputs	24 VDC, 500 mA, 1-wire connection + 4xV	GRT1-OD8
8 PNP outputs	24 VDC, 500 mA, 1-wire connection + 4xG	GRT1-OD8-1
8 PNP outputs with short-circuit protection	24 VDC, 500 mA, 1-wire connection + 4xG	GRT1-OD8G-1
2 relay outputs	240 VAC, 2 A, normally-open contacts	GRT1-ROS2
2 analog inputs, current/voltage	±10 V, 0 to 10 V, 0 to 5 V, 1 to 5 V, 0 to 20 mA, 4 to 20 mA	GRT1-AD2
2 analog outputs, voltage	±10 V, 0 to 10 V, 0 to 5 V, 1 to 5 V	GRT1-DA2V
2 analog outputs, current	0 to 20 mA, 4 to 20 mA	GRT1-DA2C
2 Pt100 inputs	Pt100, 2-wire or 3-wire connection	GRT1-TS2P
2 Pt1000 inputs	Pt1000, 2-wire or 3-wire connection	GRT1-TS2K
2 Thermocouple inputs	Types B, E, J, K, N, R, S, T, U, W, PL2, with cold junction compensation	GRT1-TS2T

<sup>\*1</sup> The GRT1-ML2 supports the GRT1-IA4-1, GRT1-IA4-2, GRT1-OD4G-3, GRT1-TS2P, GRT1-TS2K and GRT1-TS2T slice units only in combination with TJ2-MC64 motion controller. They are not supported in combination with TJ1-MC16/04.

**Note:** Refer to Automation systems catalogue for detailed specs and accessories information

### MECHATROLINK-II cables

Name	Remarks	Order code
MECHATROLINK-II cables	0.5 meter	JEPMC-W6003-A5
	1 meter	JEPMC-W6003-01
	3 meters	JEPMC-W6003-03
	5 meters	JEPMC-W6003-05
	10 meters	JEPMC-W6003-10
	20 meters	JEPMC-W6003-20
	30 meters	JEPMC-W6003-30
MECHATROLINK-II terminator	Terminating resistor	JEPMC-W6022
MECHATROLINK-II repeater	Network repeater	JEPMC-REP2000

### Computer software

Specifications	Order code
CX-Motion Pro V1.3.3 or higher	CX-One
Trajexia Studio <sup>*1</sup> V1.3.3 or higher	TJ1-Studio

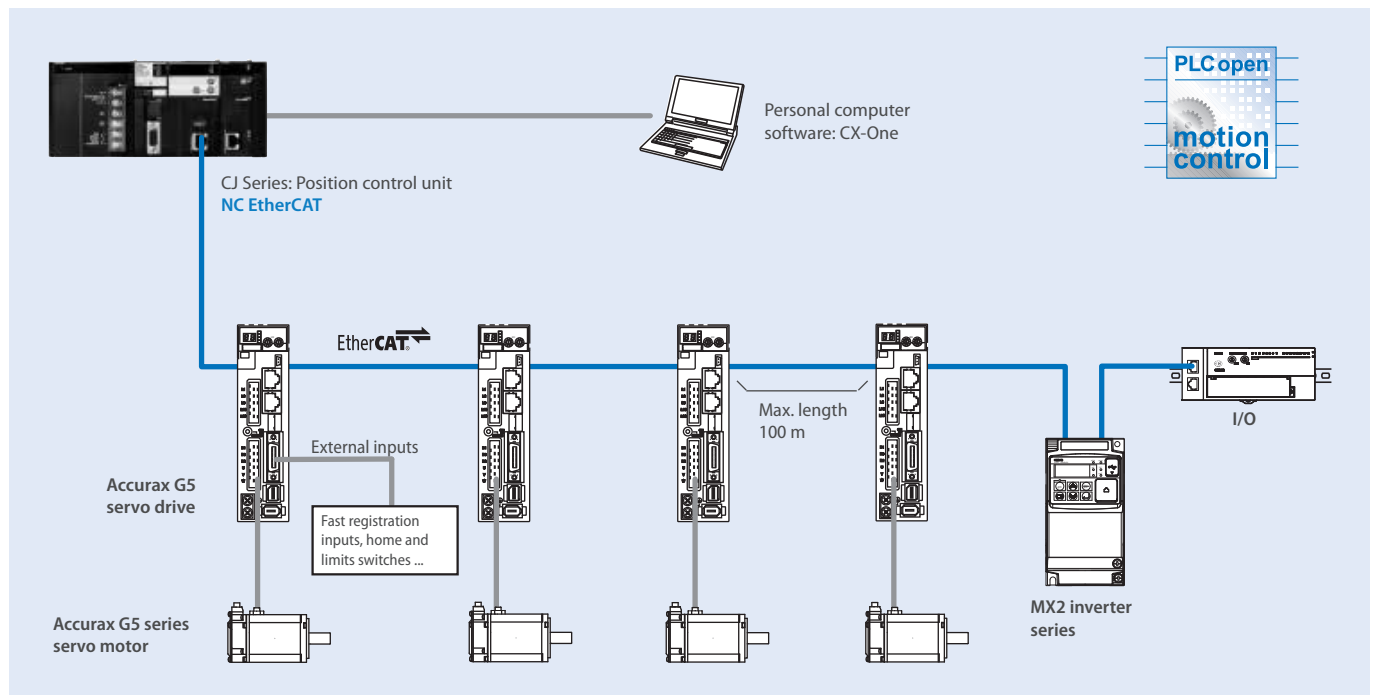
<sup>\*1</sup> When the Trajexia Studio software is included in CX-One, then it is called CX-Motion Pro.



### Multi-axis point-to-point positioning controller over EtherCAT

- Position control units with 2, 4, 8 or 16 axes
- NC\_82 models support up to 64 additional nodes: inverters, vision systems and distributed I/Os
- Linear and circular interpolation
- Linear and infinite axes management
- Programming languages: ladder and function blocks. Certified PLCopen motion control function blocks
- The unit can perform various operation sequences in the memory operation data.
- CX-Programmer software for unit setup, EtherCAT network configuration and PLC programming

### Ordering information



#### Position controller unit

Name	Order code
Position controller unit - EtherCAT – 16 axes + 64 nodes for remote I/O	CJ1W-NCF82
Position controller unit - EtherCAT – 8 axes + 64 nodes for remote I/O	CJ1W-NC882
Position controller unit - EtherCAT – 4 axes + 64 nodes for remote I/O	CJ1W-NC482
Position controller unit - EtherCAT – 16 axes	CJ1W-NCF81
Position controller unit - EtherCAT – 8 axes	CJ1W-NC881
Position controller unit - EtherCAT – 4 axes	CJ1W-NC481
Position controller unit - EtherCAT – 2 axes	CJ1W-NC281

#### EtherCAT related devices

##### Servo system and frequency inverter

Name	Order code
Accurax G5 servo drive EtherCAT built-in	R88D-KN_ _ _ -ECT
MX2 inverter with EtherCAT option board	Frequency inverter 3G3MX2-A_
	EtherCAT option board 3G3AX-MX2-ECT

**Note:** Refer to servo system and frequency inverter sections for detailed specs and ordering information.

##### GX-Series I/O Blocks

Name	Order code
16 NPN inputs	24 VDC, 6 mA, 1-wire connection, expandable GX-ID1611
16 PNP inputs	24 VDC, 6 mA, 1-wire connection, expandable GX-ID1621
16 NPN outputs	24 VDC, 500 mA, 1-wire connection, expandable GX-OD1611
16 PNP outputs	24 VDC, 500 mA, 1-wire connection, expandable GX-OD1621
8 inputs and 8 outputs, NPN	24 VDC, 6 mA input, 500 mA output, 1-wire connection GX-MD1611
8 inputs and 8 outputs, PNP	24 VDC, 6 mA input, 500 mA output, 1-wire connection GX-MD1621

Name		Order code
16 NPN inputs	24 VDC, 6 mA, 3-wire connection	GX-ID1612
16 PNP inputs	24 VDC, 6 mA, 3-wire connection	GX-ID1622
16 NPN outputs	24 VDC, 500 mA, 3-wire connection	GX-OD1612
16 PNP outputs	24 VDC, 500 mA, 3-wire connection	GX-OD1622
8 inputs and 8 outputs, NPN	24 VDC, 6 mA input, 500 mA output, 3-wire connection	GX-MD1612
8 inputs and 8 outputs, PNP	24 VDC, 6 mA input, 500 mA output, 3-wire connection	GX-MD1622
16 relay outputs	250 VAC, 2 A, 1-wire connection, expandable	GX-OC1601
4 analog inputs, current/voltage	±10 V, 0 to 10 V, 0 to 5 V, 1 to 5 V, 4 to 20 mA	GX-AD0471
2 analog outputs, current/voltage	±10 V, 0 to 10 V, 0 to 5 V, 1 to 5 V, 4 to 20 mA	GX-DA0271
2 encoder open collector inputs	500 kHz Open collector input	GX-EC0211
2 encoder line-driver inputs	4 MHz Line driver input	GX-EC0241

**Note:** Refer to Automation systems catalogue for detailed specs and ordering information.

#### Vision system

Name	Specification	Order code
Vision system with EtherCAT interface	NPN	FZM1-350-ECT
	PNP	FZM1-355-ECT

**Note:** Refer to vision system documentation for detailed specs and ordering information.

#### Computer software

Specifications	Order code
CX-One version 4 or higher	CX-One
CX-Programmer version 9.12 or higher	CX-Programmer



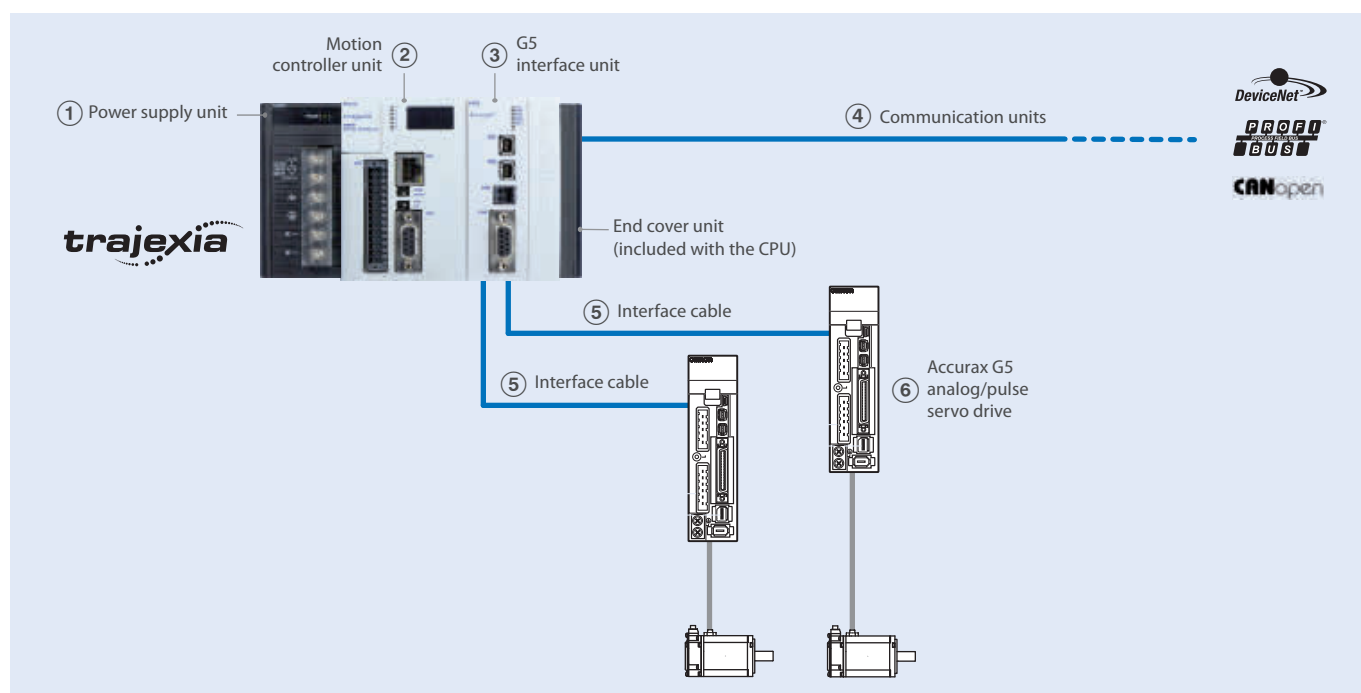


**trajexia**

## Stand-alone motion controller for compact and simple machines

- Perfect motion control of 2 axes
- Supports position, speed and torque control
- Serial port for master encoder axis
- Multi-tasking controller capable of running up to 22 tasks simultaneously
- 2 fast-registration inputs
- Single axis moves and axes interpolation
- Electronic cams and gearboxes
- Motion basic programming and dedicated motion commands
- Open communication: Serial and EtherNet/IP built-in, PROFIBUS-DP, DeviceNet and CANopen options

## Ordering information



## Trajexia system

### Power supply unit

Symbol	Specifications	Order code
①	Power supply unit for Trajexia system (100 to 240 VAC)	CJ1W-PA202
	Power supply unit for Trajexia system (24 VDC)	CJ1W-PD025

### Motion controller unit

Symbol	Specifications	Order code
②	Trajexia motion controller unit, up to 64 axes (Trajexia end cover unit TJ1-TER is included)	TJ2-MC64
	Trajexia motion controller unit, up to 2 axes (Trajexia end cover unit TJ1-TER is included)	TJ2-MC02

### G5 interface unit

Symbol	Specifications	Order code
③	G5 interface unit	TJ2-KS02

### Communication unit

Symbol	Specifications	Order code
④	Trajexia DeviceNet slave unit	TJ1-DRT
	Trajexia PROFIBUS-DP slave unit	TJ1-PRT
	Trajexia CANopen unit	TJ1-CORT

**Note:** The TJ2-MC02 supports a maximum of one TJ1-CORT unit.  
The TJ2-MC02 supports a maximum of one TJ1-PRT or TJ1-DRT unit. No both at the same time.

### Accessories

Symbol	Specifications	Order code
⑤	Interface cable	1 m TJ2-KC01M
		3 m TJ2-KC03M

### Servo drive related device

Symbol	Specifications	Order code
⑥	Accurax G5 Analog/pulse servo drive (100 W to 15 kW)	R88D-KT_

### Computer software

Specifications	Order code
CX-Motion Pro (version 1.4.2 or higher)	CX-One
Trajexia Studio <sup>*1</sup> (version 1.4.2 or higher)	TJ1-Studio

<sup>\*1</sup> When the Trajexia Studio software is included in CX-One, then it is called CX-Motion Pro.

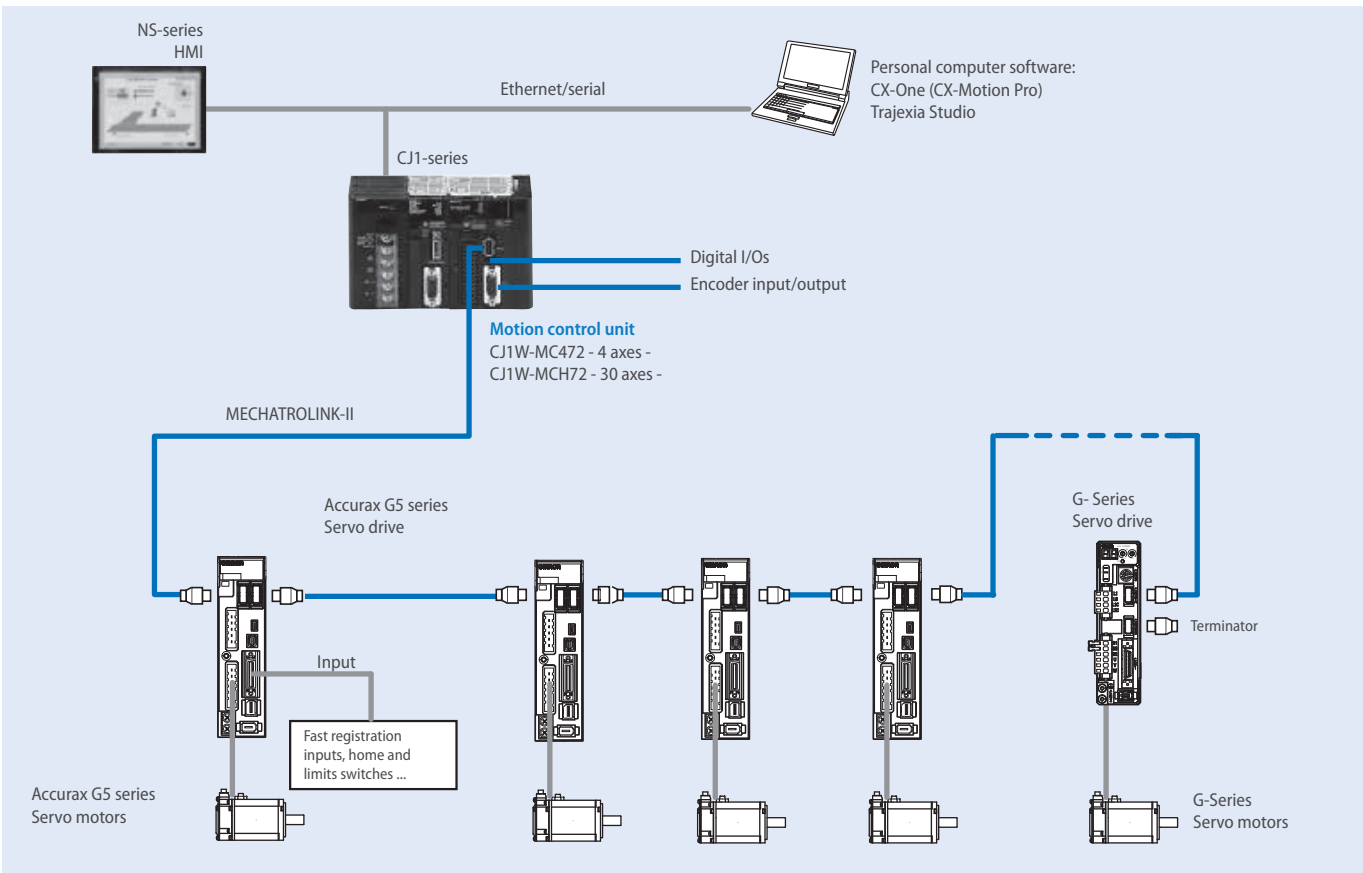


Trajexia motion controller integrated with your PLC

Trajexia, the family of advanced motion controllers that put you in control, now has a compact and integrated version. Meet Trajexia-PLC, the motion controller that has all the flexibility and modularity of Omron PLCs, plus the outstanding motion-control features of the Trajexia platform.

- Control of up to 30 physical axes
- Control of servos and inverters over a single motion network
- Advanced motion control such as CAM control, registration control, interpolation and axes synchronization via simple motion commands
- Serial port for external encoder
- Embedded digital I/Os
- I/O data exchange with the PLC CPU

Ordering information



Motion controller

Name	Order code
Trajexia motion control unit, up to 30 MECHATROLINK-II axes	CJ1W-MCH72
Trajexia motion control unit, up to 4 MECHATROLINK-II axes	CJ1W-MC472

MECHATROLINK-II – related devices

Servo system

Name	Order code
Accurax G5 servo drive ML-II built-in	R88D-KN____-ML2
G-Series servo drive ML-II built-in	R88D-GN__H-ML2
MX2 inverter with MECHATROLINK-II option board	Frequency inverter 3G3MX2-A_
	MECHATROLINK-II option board 3G3AX-MX2-MRT

Note: Refer to servo systems and frequency inverter sections for detailed specs and ordering information

**MECHATROLINK-II cables**

Name	Remarks	Order code
MECHATROLINK-II cables	0.5 meter	JEPMC-W6003-A5
	1 meter	JEPMC-W6003-01
	3 meters	JEPMC-W6003-03
	5 meters	JEPMC-W6003-05
	10 meters	JEPMC-W6003-10
	20 meters	JEPMC-W6003-20
	30 meters	JEPMC-W6003-30
MECHATROLINK-II terminator	Terminating resistor	JEPMC-W6022
MECHATROLINK-II repeater	Network repeater	JEPMC-REP2000

**Computer software**

Specifications	Order code
CX-Motion Pro V1.3.3 or higher	CX-One
Trajexia Studio <sup>*1</sup> V1.3.3 or higher	TJ1-Studio

<sup>\*1</sup> When the Trajexia Studio software is included in CX-One, then it is called CX-Motion Pro.

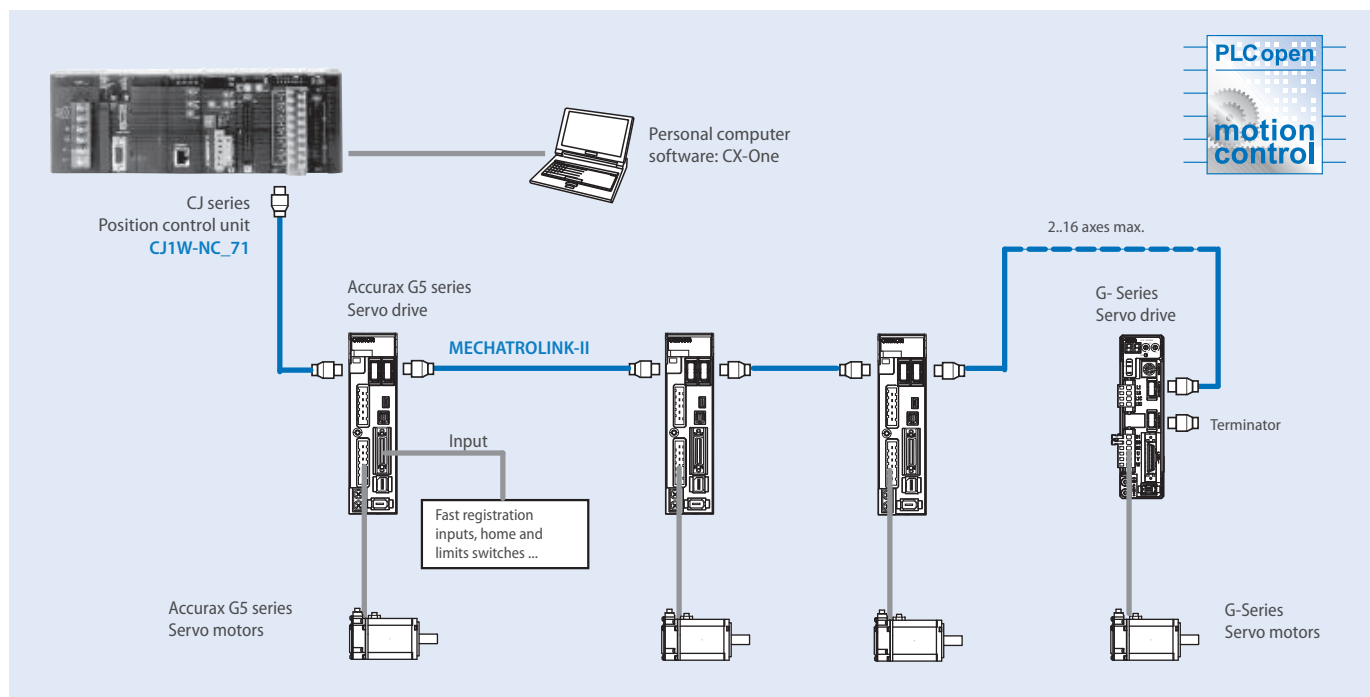


## 2, 4 and 16-axis point-to-point positioning controller over MECHATROLINK-II

NC\_71 is a powerful controller for point-to-point applications. It is based on MECHATROLINK-II motion bus, which reduces programming and development and maintenance costs. Supports PLC open function blocks.

- Supports position, speed and torque control.
- Programming languages: ladder, function blocks. Supports PLC Open Function Blocks.
- Smart active parts for Omron HMI terminals reduce engineering time.
- Access to the complete system from one point. Network setup, servo drives configuring and monitoring, and PLC programming.

### Ordering information



#### Position controller unit

Name	Order code
MECHATROLINK-II position controller unit – 16 axes	CJ1W-NCF71
MECHATROLINK-II position controller unit – 4 axes	CJ1W-NC471
MECHATROLINK-II position controller unit – 2 axes	CJ1W-NC271

#### Computer software

Specifications	Order code
CX-One version 2.0 (CX-Motion NCF 1.70 or higher)	CX-One
CX-One version 3.0 (CX-Motion NCF 1.90 or higher)	
CX-One version 4.0 or higher	

#### MECHATROLINK-II related devices

##### Servo system

Name	Order code
Accurax G5 servo drive ML-II built-in	R88D-KN___-ML2
G-Series servo drive ML-II built-in	R88D-GN___H-ML2

**Note:** Refer to servo systems section for detailed specs and ordering information

##### MECHATROLINK-II cables

Name	Remarks	Order code
MECHATROLINK-II terminator	Terminating resistor	JEPMC-W6022
MECHATROLINK-II cables	0.5 meter	JEPMC-W6003-A5
	1 meter	JEPMC-W6003-01
	3 meters	JEPMC-W6003-03
	5 meters	JEPMC-W6003-05
	10 meters	JEPMC-W6003-10
	20 meters	JEPMC-W6003-20
	30 meters	JEPMC-W6003-30



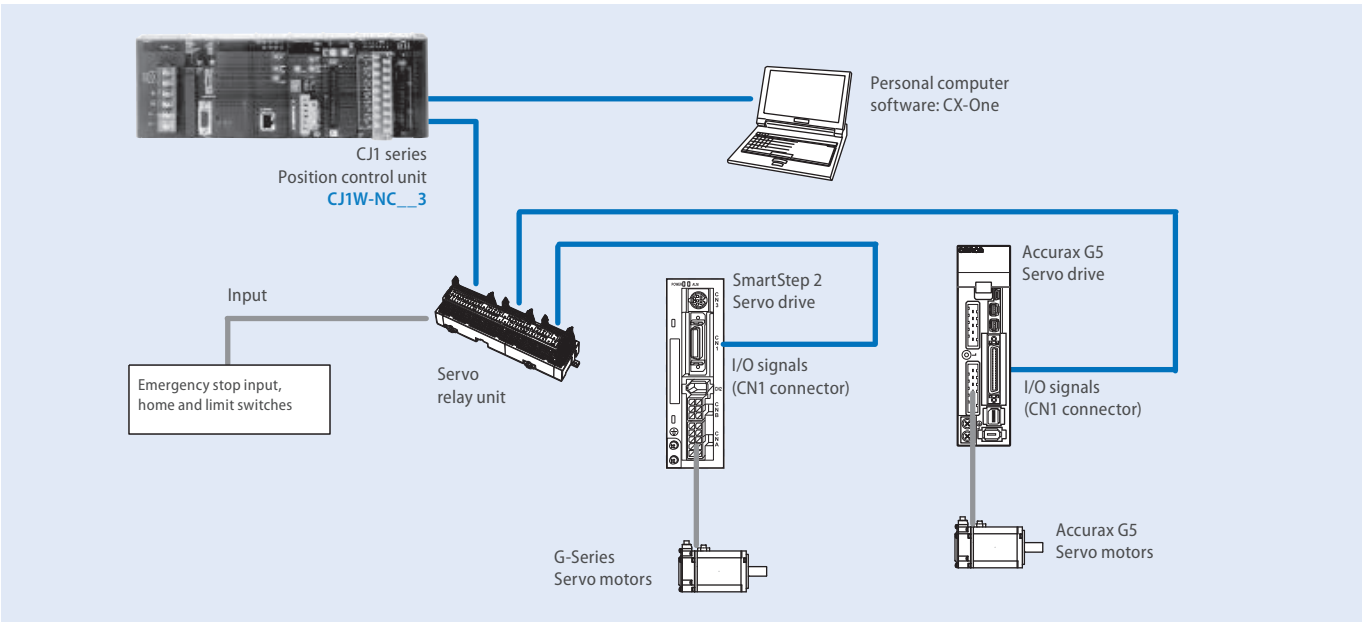


1, 2 or 4-axis point-to-point positioning controller with pulse train output

The NC motion controllers support positioning control via pulse-train outputs. Positioning is performed using trapezoidal or S-curve acceleration and deceleration. Ideal for controlling simple positioning in stepper motors and servos with pulse-train input.

- Positioning can be done by direct ladder commands
- Position and speed control
- Linear interpolation
- Interrupt feeding function
- Positioning of 100 points done from memory
- Positioning data is saved in internal flash memory, eliminating the need to maintain a backup battery.

Ordering information



Position control unit

Name	Order code
1 axis position control unit. Open-collector output.	CJ1W-NC113
2 axes position control unit. Open-collector output.	CJ1W-NC213
4 axes position control unit. Open-collector output.	CJ1W-NC413
1 axis position control unit. Line-driver output.	CJ1W-NC133
2 axes position control unit. Line-driver output.	CJ1W-NC233
4 axes position control unit. Line-driver output.	CJ1W-NC433

Servo drive cables

Note: Refer the selected servo systems section for cable and servo relay units information.

Computer software

Specifications	Order code
CX-One	CX-One

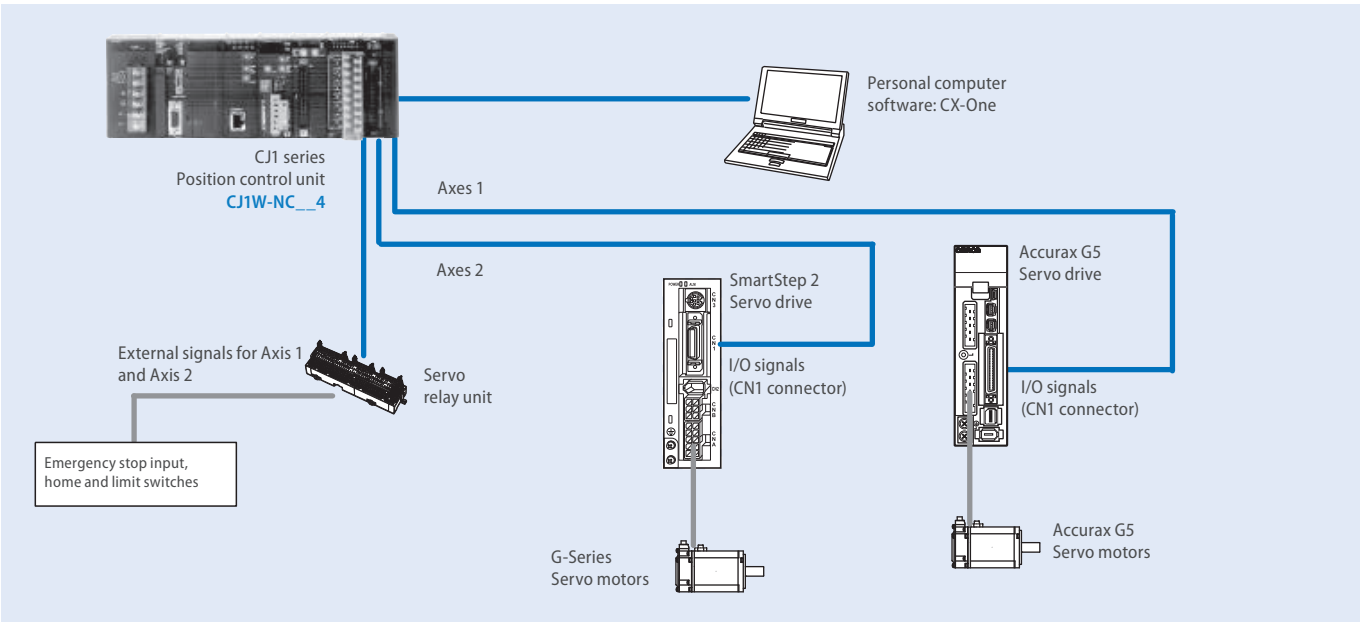


2 or 4-axis point-to-point positioning controller with pulse train output and motion control unit functionality

The NC motion controllers support positioning control via pulse-train outputs. Positioning is performed using trapezoidal or S-curve acceleration and deceleration. Ideal for controlling simple positioning in stepper motors and servos with pulse-train input. When the CJ1W-NC\_\_4 unit is used in a CJ2 CPU, it can perform also synchronous operation by use of electronic CAMs and other function blocks.

- Position and speed control
- Linear interpolation and feeder control function
- Electronic CAM profiles and axes synchronization
- Positioning of 500 points done from memory
- Programming languages: ladder, function blocks.

Ordering information



Position control unit

Name	Order code
2 axes position control unit. Open-collector output.	CJ1W-NC214
4 axes position control unit. Open-collector output.	CJ1W-NC414
2 axes position control unit. Line-driver output.	CJ1W-NC234
4 axes position control unit. Line-driver output.	CJ1W-NC434

Servo drive cables

Note: Refer to selected servo systems section for cable and servo relay units information.

Computer software

Specifications	Order code
CX-One	CX-One