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Find the *OMRON Trajexia* at our website: ***Click HERE***

TRAJEXIA

Total Freedom in Motion Control

CHOOSE

CONTROL

PERFORM

DESIGN

CREATE



trajexia

You decide

Advanced Industrial Automation

OMRON

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The advanced motion controller that puts you in control

Trajexia is Omron's new motion platform that offers you the performance of a dedicated motion system, the ease of use you get from an automation specialist and the peace of mind you get from a global player. Trajexia puts you in full control to create the best machines today and... tomorrow.

Freedom to communicate

Besides a built-in Ethernet port that provides connectivity meeting today's and foreseeable future communication standards, Trajexia also includes interfaces to popular field buses such as Profibus-DP and DeviceNet.

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OPENESS
Flexibility
Excellence
Quality

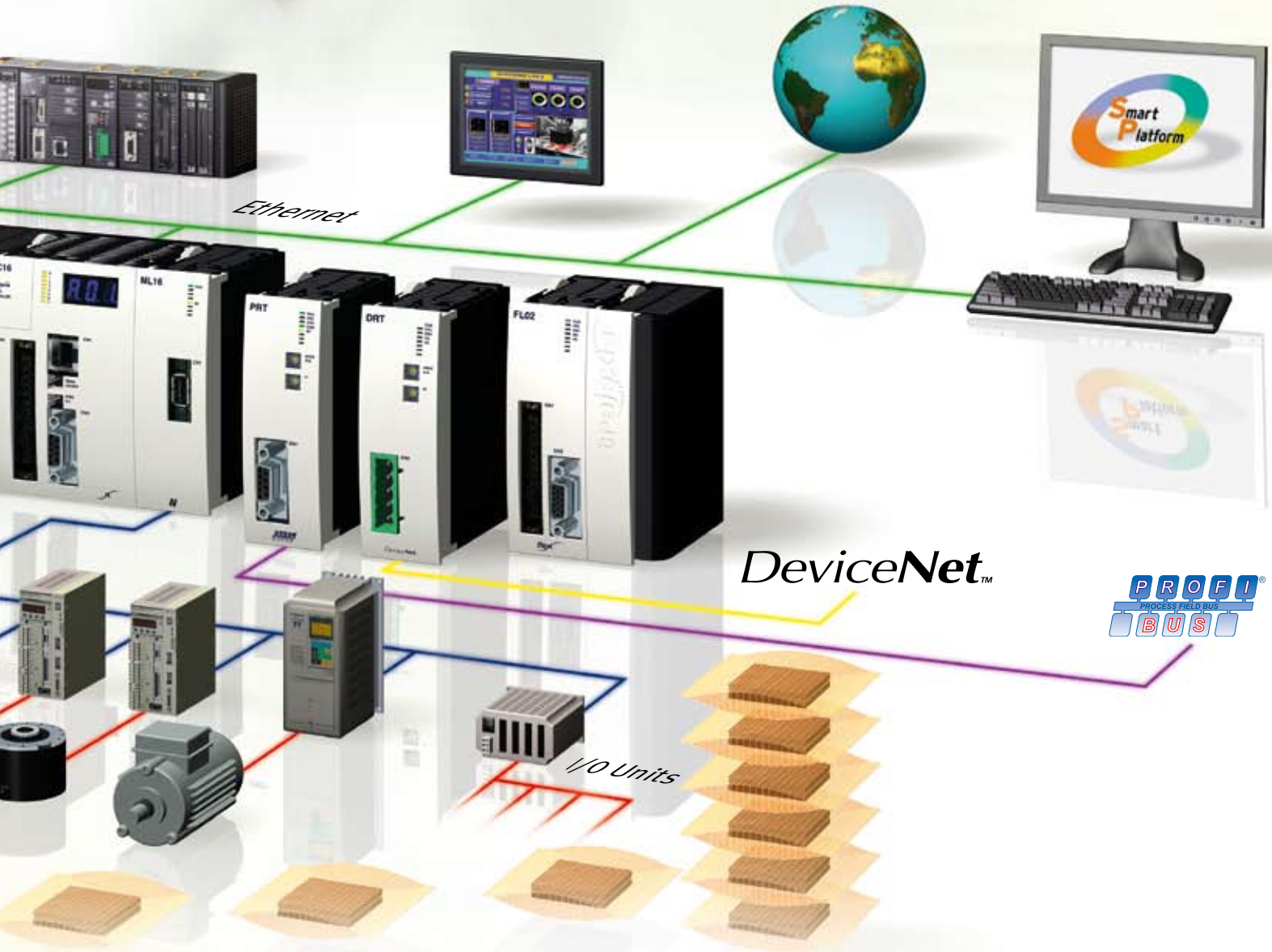
» Freedom to design

Freedom to control

Trajexia offers perfect control of up to 16 axes over a MECHATROLINK-II motion bus with independent position, speed or torque control for every axis. And its powerful motion instruction set makes programming intuitive and easy.

Freedom to build

You can select from a wide choice of best-in-class rotary, linear and direct-drive servos as well as inverters. And the system is scalable from 2 axes up to 16 axes and 8 inverters & I/O modules.



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» Freedom to choose

Perfect motion control

At the heart of Trajexia lies the new TJ1 multi-tasking motion coordinator. Powered by a 32-bit DSP, it's specifically designed to meet the most demanding motion tasks such as e-cam, e-gearbox and registration control and interpolation... with best performance and all via simple motion commands.



Power supply

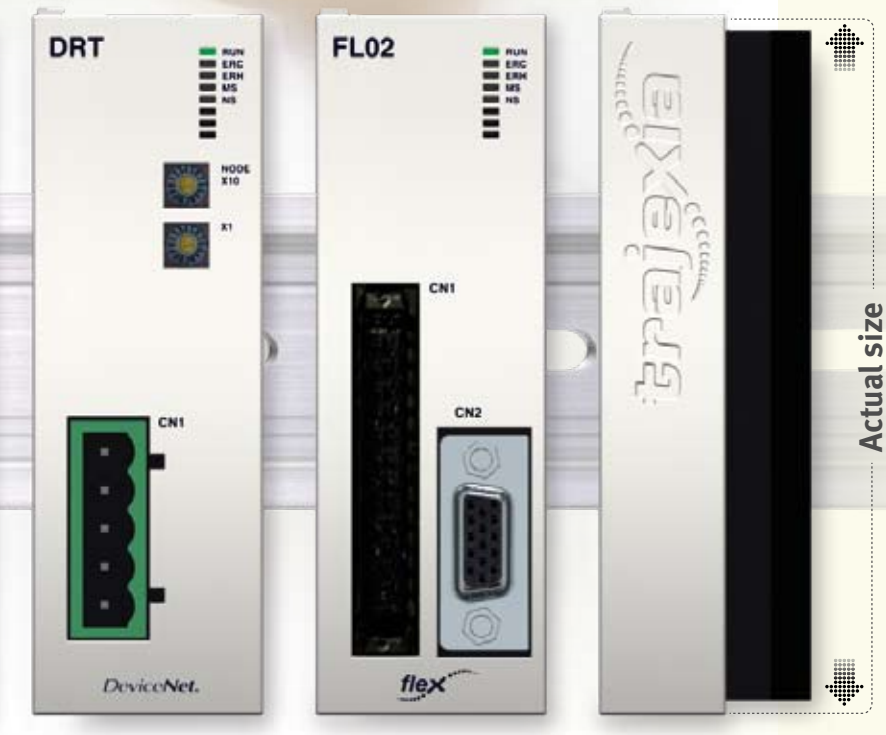
Motion controller

Ethernet

MECHATROLINK-II Master

Profibus Slave

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DeviceNet Slave

Flexible Axis module

End cover

DeviceNet™

Direct connectivity via Ethernet

Trajexia's Ethernet built-in port provides direct and fast connectivity to PLCs and HMIs while providing full access to the drives over a MECHATROLINK-II motion bus.

Serial Port

A serial port provides direct connectivity with Omron PLCs, HMIs or any other field device.

Local I/Os

Freely-configurable embedded I/Os in the controller enable you to perfectly tailor Trajexia to your machine design.

MECHATROLINK-II Master

The MECHATROLINK-II master performs perfect control of up to 16 servos, inverters or I/Os while allowing complete transparency across the whole system.

Profibus-DP and DeviceNet

Standardized on Profibus or DeviceNet? That's no problem. Trajexia offers both these interfaces on request plus many more.

Flexible Axis module

The Flexible Axis module allows full control of two actuators via an analog output or pulse train. The module supports the main absolute encoder protocols allowing the connection of an external encoder to the system.

Drives

A wide choice of best-in-class rotary, linear and direct-drive servos as well as inverters are available to fit your needs in compactness, performance and reliability.

Remote I/Os

The I/Os on the MECHATROLINK-II motion bus provides for system expansion while keeping the devices under one motion bus.

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» Freedom to create



Intuitive and powerful engineering

Trajexia's intuitive and easy programming tool, based on the Motion Basic instruction set, includes dedicated commands for linking axes, e-cams, e-gearboxes etc. What's more, multitasking capability provides total freedom in application design.

Design simplicity

Handling from 2 to 16 axes, the system's scalability provides you with a single application for several versions of your machine.

Keep your know-how safe

Trajexia's sophisticated encryption method guarantees complete protection and confidentiality for your valuable know-how.

Advanced tools

Trajexia's advanced debugging tools, including trace and oscilloscope functions, ensure efficient operation and minimum downtime.

Automatic recognition of devices

The servos, inverters and I/Os connected to the MECHATROLINK-II motion bus are automatically identified and configured, allowing you to set up your system in minutes.

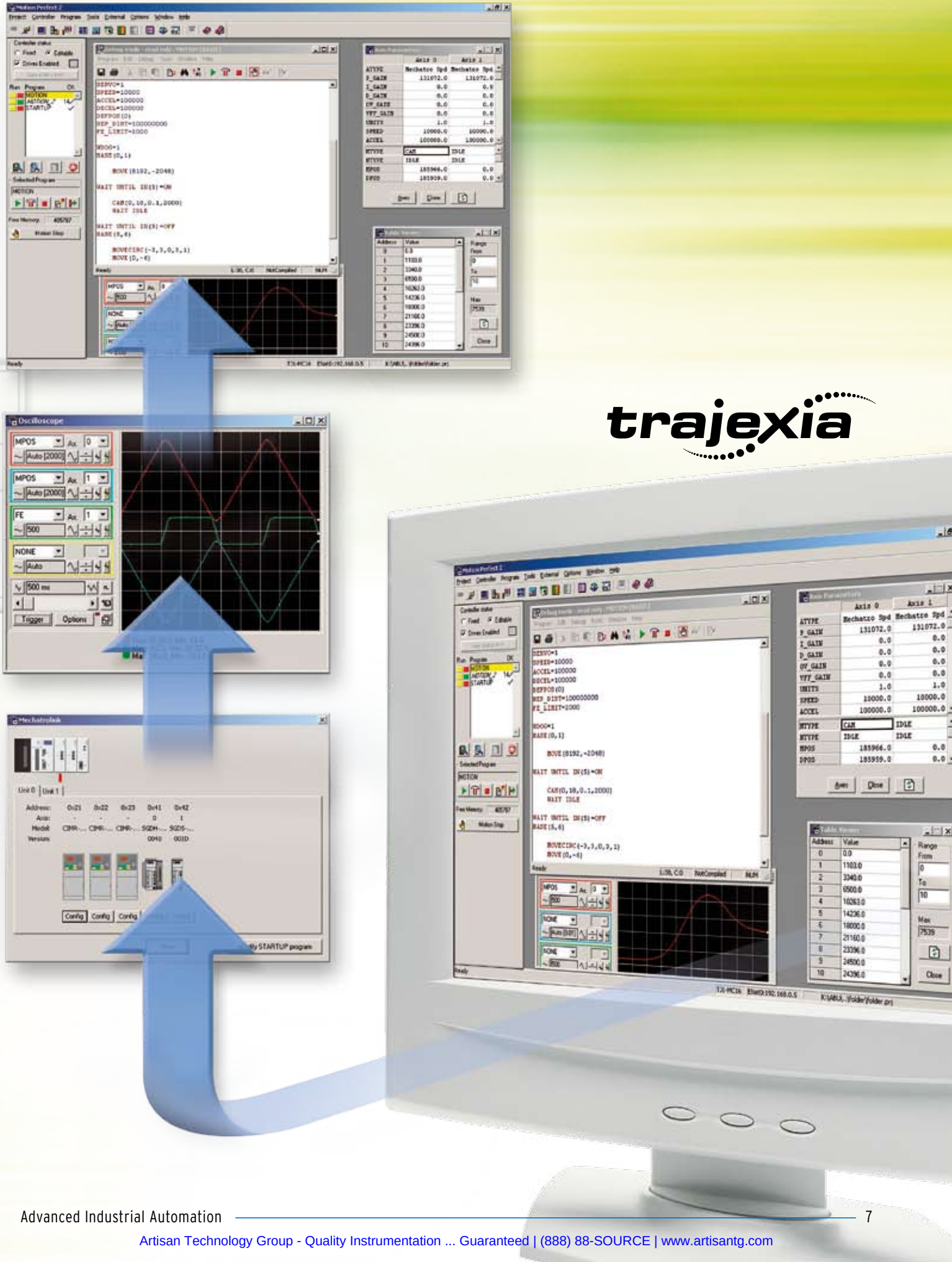
Full access to devices from one connection

The parameters and functions inside the drives on the MECHATROLINK-II are fully accessible from the Ethernet connection.

Remote access

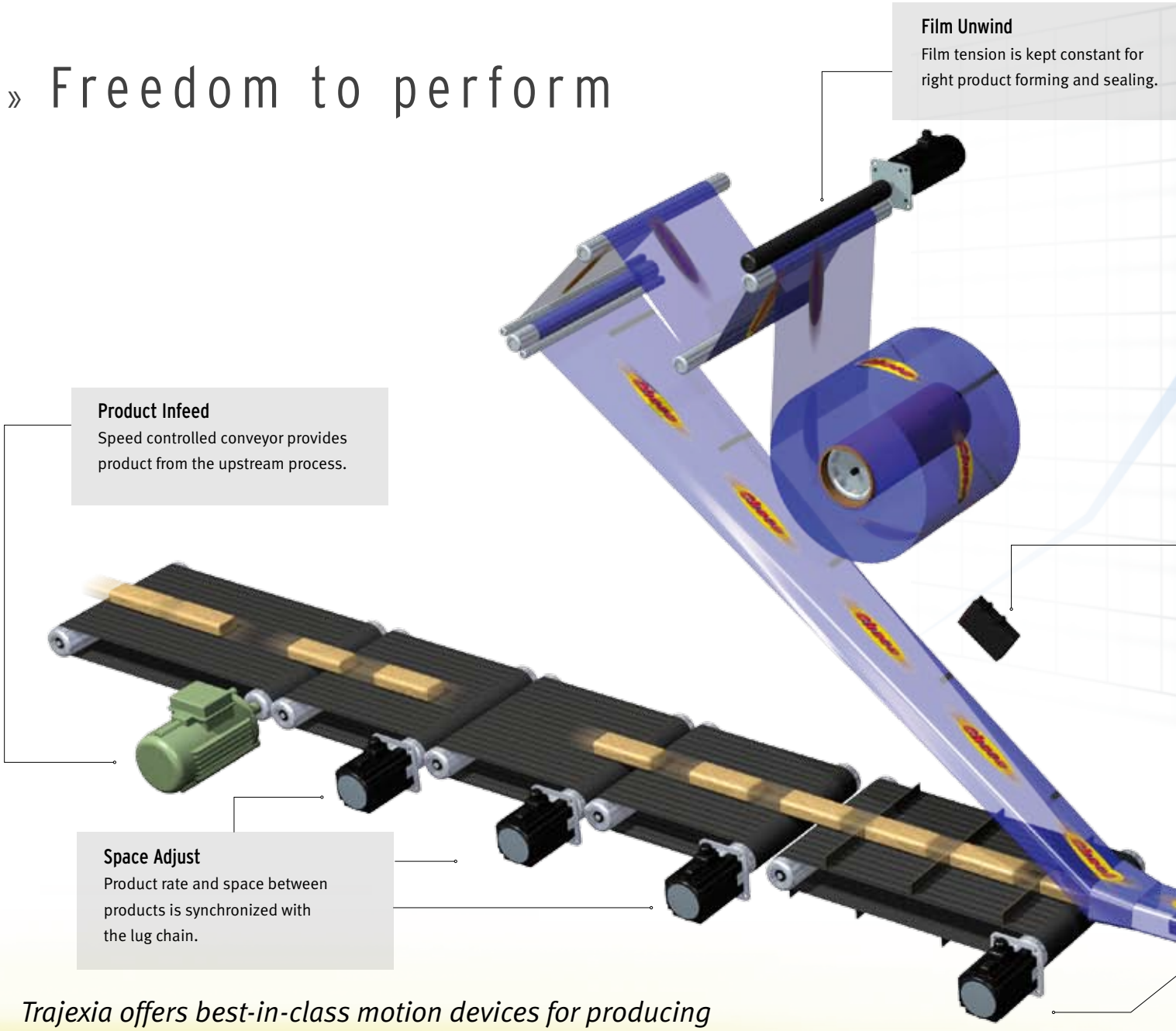
Trajexia's smart architecture allows explicit messaging over Ethernet and through MECHATROLINK-II to provide full transparency down to the actuator level, and making remote access possible.

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» Freedom to perform



Trajexia offers best-in-class motion devices for producing the best automation solutions for today and tomorrow...

Perfect control of 16 axes
Controlling all 16 axes with a total system cycle time of 1 ms, Trajexia ensures fastest operation at highest accuracy.

Real multi-tasking
Trajexia is a real multi-tasking controller capable of running up to 14 tasks simultaneously.

Robust and stable motion bus
Specifically designed for motion control, MECHATROLINK-II offers the communication speed and time accuracy essential to guarantee perfect motion control of servos.

Best-in-class servo drives
Offering a wide variety of rotary and linear servomotors, Omron's servo series is designed with NO compromise on quality, reliability and performance to guarantee best-in-class motion control.

Inverters and servos over the same bus
The inverters connected to the MECHATROLINK-II are driven at the same update cycle time as the servo drives.

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Fast registration Input

Real time position registration provides the information to correct and synchronize movements according to printed marks.

Infeed Lug Chain

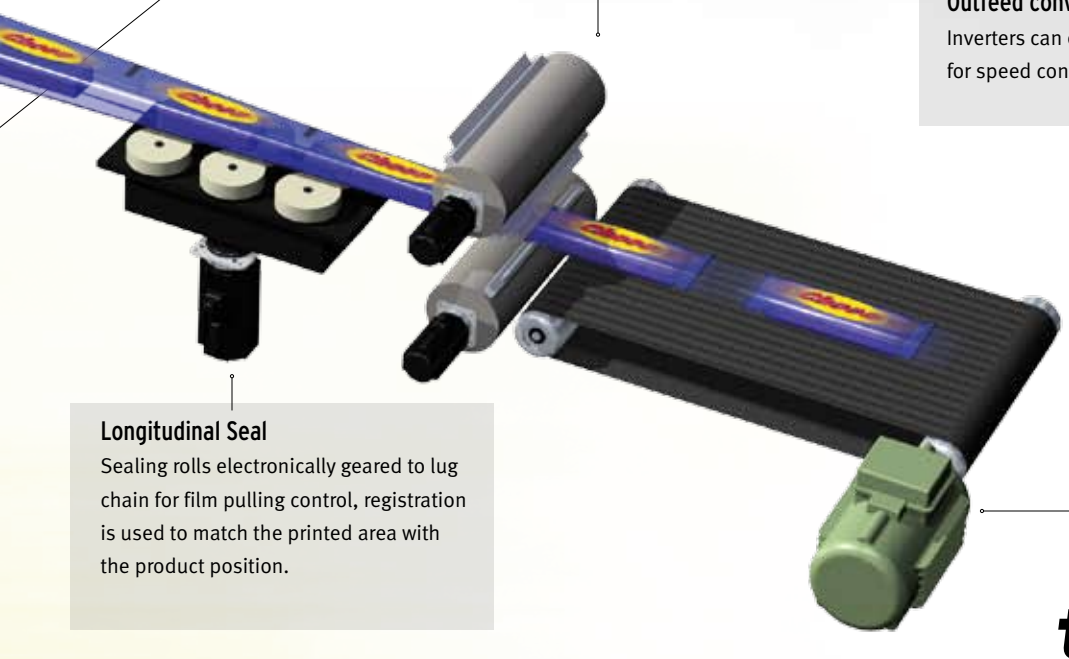
The product is placed precisely on the forming area. This axis acts as a master and is the reference for all machine movements.

Sealing knife

Electronic CAM ensures film cutting according to printed mark position. It easily adapts to different product sizes without any mechanical change.

Outfeed conveyor

Inverters can easily be integrated for speed controlled axes.



Longitudinal Seal

Sealing rolls electronically geared to lug chain for film pulling control, registration is used to match the printed area with the product position.

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OMRON

TJ1-

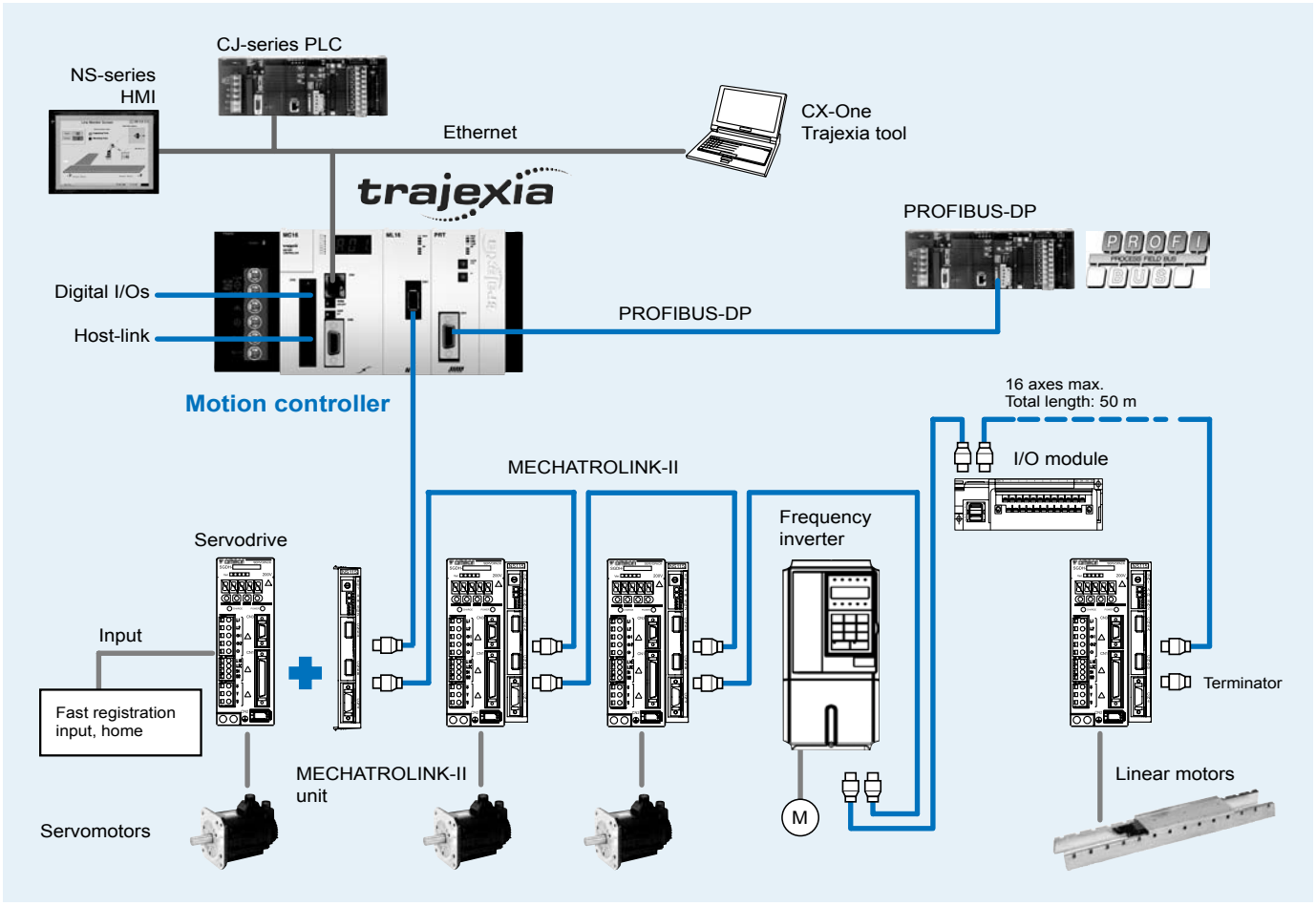
Trajexia Motion Controller



Stand-Alone Advanced Motion Controller Using Mechatrolink-II Motion Bus

- 16 axes advanced motion coordination over a robust and fast motion link MECHATROLINK-II
- Supports position, speed and torque control
- Each axis can run complex interpolation moves, e-cams and e-gearboxes
- Advanced debugging tools including trace and oscilloscope functions
- Hardware registration input for each servo axis
- Control of servos, inverters and I/Os over a single motion network
- Multi-tasking controller capable of running up to 14 tasks simultaneously
- Open communication - Ethernet built-in, PROFIBUS-DP and DeviceNet as options

System Configuration



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Specifications

General Specifications

Item	Details
Model	TJ1-☐
Ambient operating temperature	0 to 55° C
Ambient operating humidity	10 to 90% RH
Ambient storage temperature	-20 to 70° C
Ambient storage humidity	90% max. (with no condensation)
Atmosphere	No corrosive gases
Vibration resistance	10 to 57 Hz: (0.075 mm amplitude) 57 to 100 Hz Acceleration: 9,8 m/s^2, in X, Y and Z directions for 80 minutes.
Shock resistance	143 m/s^2, 3 times each X, Y and Z directions.
Insulation resistance	20 MOhm
Dielectric strength	500 Volt
Protective structure	IP20
International standards	CE, cULus, EN 61131-2 and RoHS

Motion Control Unit

Item		Specifications	
Model		TJ1-MC16	TJ1-MC04
Number of axes		16	4
Number of inverters and I/O modules		8 maximum	
Number of Mechatrolink-II master units		Up to 4 Mechatrolink-II master units (TJ1-ML16, see below) can be connected	
Cycle time		Selectable 0.5 ms, 1 ms or 2 ms	
Programming language		BASIC-like Motion language	
Multi-tasking		Up to 14 tasks running simultaneously	
Digital I/O		16 Inputs and 8 Outputs freely configurable	
Measurement units		User definable	
Available memory for user programs		500 kb	
Data storage capacity		Up to 2 MB flash data storage	
Saving program data, motion controller		SRAM with battery backup and Flash-ROM	
Saving program data, personal computer		Trajexia Motion Perfect software manages a backup on the hard disk of the personal computer.	
Communication ports		1 Ethernet port and 2 serial ports	
Firmware update		Via Trajexia software tool	
Ethernet port	Electrical characteristics	Conform to IEEE 802.3 (100BaseT)	
	Connector	RJ45 Ethernet connector	
Serial port	Electrical characteristics	Conform 1 port to RS-232C and 1 port to RS-485/RS-422A (selectable by switch)	
	Connector	SUB-D9 connector (Counterpart included in the package)	
	Synchronization	Start-stop synchronization (asynchronous)	
	Baud rate	1200 / 2400 / 4800 / 9600 / 19200 / 38400 bps	
	Transmission format	Databit Length	7 or 8 bit
		Stop Bit	1 or 2 bit
		Parity Bit	Even/Odd/None
	Transmission mode	Point-to-multipoint (1:N)	
	Transmission protocol	RS-232C (1:1)	Host Link master protocol, Host Link slave protocol, ASCII general-purpose
		RS-422A (1:N)	Host Link master protocol, Host Link slave protocol, ASCII general-purpose
		RS-485 (1:N)	ASCII general-purpose
	Galvanic isolation	RS-422A port	
	Communication buffers	254 bytes	
	Flow control	None	
	Terminator	Yes, selectable by switch	
	Cable length	15 m for RS-232 and 500 m for RS-422/485	

Mechatrolink-II Master Unit

Item	Specifications
Model	TJ1-ML16
Controlled devices with Mechatrolink-II interface	Servo drives, various I/O units and Frequency inverters
Electrical characteristics	Conform to MECHATROLINK standard
Communication ports	1 MECHATROLINK-II master
Transmission speed	10 Mbps
Communication cycle	0.5 ms, 1 ms or 2 ms
Stations slave types	Axes or Servo drives
	Frequency inverters
	I/O Modules
Number of stations per master / Cycle time	Max. 16 Stations / 2 ms
	Max. 8 Stations / 1 ms
	Max. 4 Stations / 0.5 ms
Transmission distance	Max. 50 meters without using repeater

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DeviceNet Slave Unit

Items	Specifications
Model	TJ1-DRT
DeviceNet standard	Conforms to DeviceNet standard of CIP edition 1
Communication ports	1 DeviceNet slave connector
Transmission speed	125, 250 and 500 Kbps, auto-detected
Node numbers	0 to 63
I/O size	0 to 32 words (16-bit), configurable, for both directions
Galvanic isolation	Yes

Profibus Slave Unit

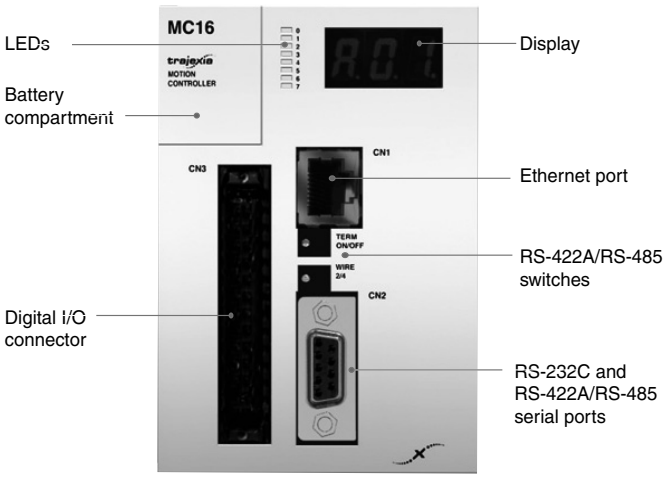
Items	Specifications
Model	TJ1-PRT
PROFIBUS standard	Conform to PROFIBUS-DP standard EN50170 (DP-V0)
Communication ports	1 PROFIBUS-DP Slave
Transmission speed	9.6, 19.2, 45.45, 93.75, 187.5, 500, 1500, 3000, 6000 and 12000 kbits/s
Node numbers	0 to 99
I/O size	For both directions a configurable size of 0 to 122 words C
Galvanic isolation	Yes

Flexible Axis Unit

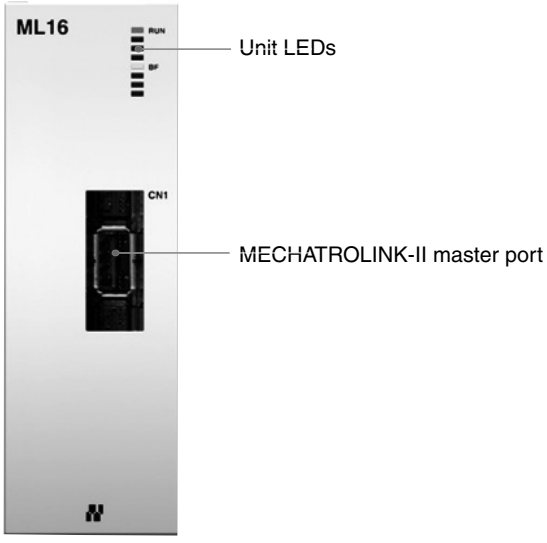
Items		Specifications
Model		TJ1-FL02
Number of axes		2
Control method		±10V Analog Output in closed loop or pulse train output in open loop
Encoder	Position/speed Feedback	2 Incremental and Absolute encoders
	Absolute encoder standards supported	SSI, EnDat and Tamagawa
	Encoder Input maximum frequency	6 MHz
	Encoder/Pulse Output max. frequency	2 MHz
Auxiliary I/Os		2 Fast registration Inputs, 2 definable inputs, 2 Enable output, 4 position switch outputs or axes reset
Galvanic isolation		Yes

Nomenclature

Trajexia Motion Controller Unit - TJ1-MC16, TJ1-MC04

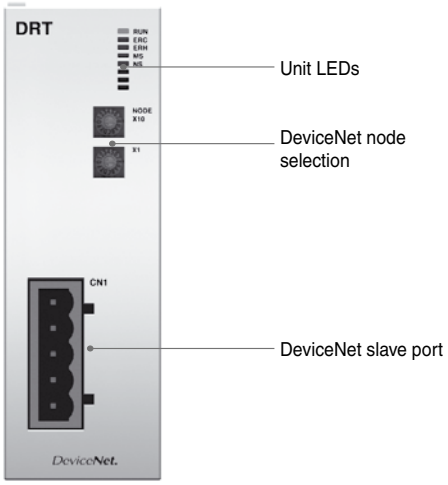


Trajexia Mechatrolink-II Master Unit - TJ1-ML16, TJ1-ML04

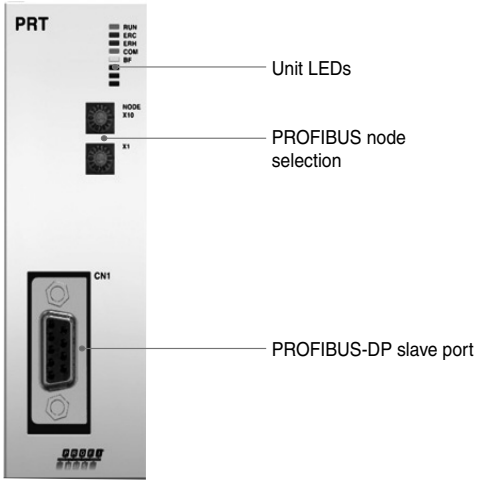


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Trajexia DeviceNet Slave Unit - TJ1-DRT

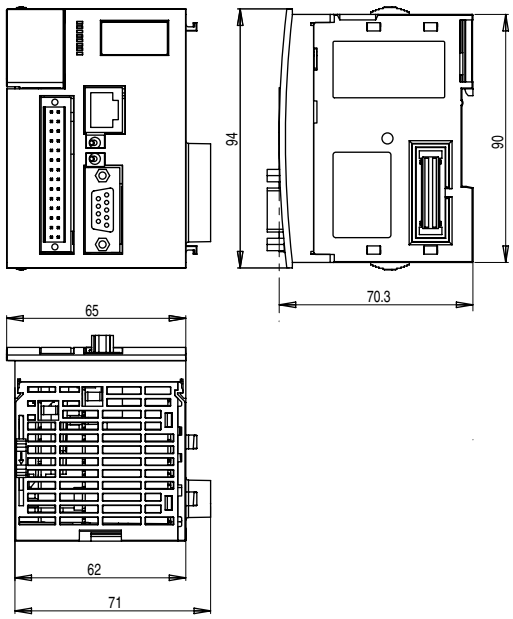


Trajexia PROFIBUS-DP Slave Unit - TJ1-PRT

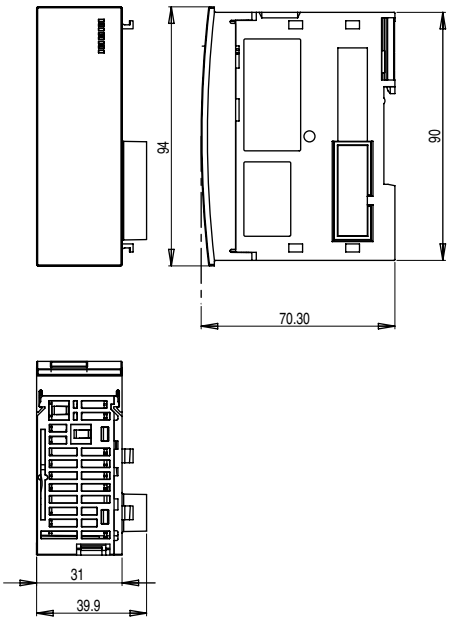


Dimensions (Unit: mm)

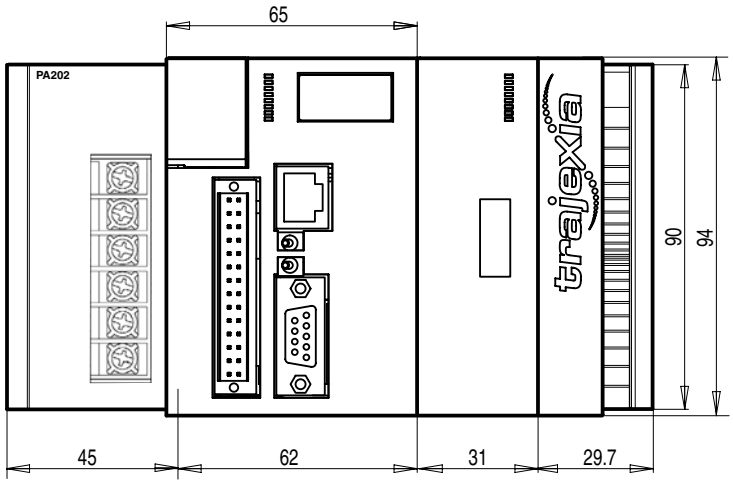
Trajexia Motion Controller - TJ1-MC16



Trajexia Modules - TJ1-ML16, TJ1-ML04, TJ1-DRT, TJ1-PRT, TJ1-FL02

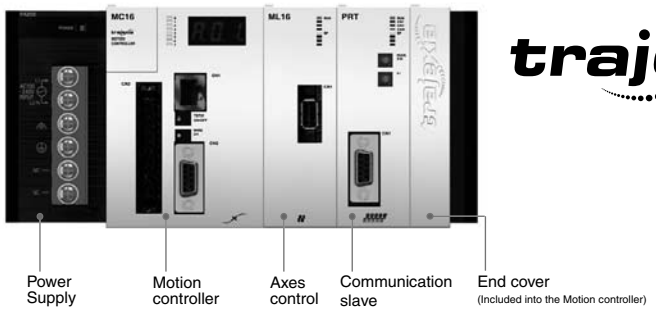


Trajexia System - CJ1W-PA202 + TJ1-MC16 + One Module + TJ1-TER



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Ordering Information



Trajexia motion controller

Name	Model
Trajexia Motion Controller Unit, 16 axes (Trajexia end cover unit TJ1-TER is included)	TJ1-MC16
Trajexia Motion Controller Unit, 4 axes (Trajexia end cover unit TJ1-TER is included)	TJ1-MC04
Power Supply for Trajexia system, 100-240V AC	CJ1W-PA202
Power Supply for Trajexia system, 24V DC	CJ1W-PD022

Trajexia - Axes control modules

Name	Model
Trajexia MECHATROLINK-II Master Unit (up to 16 Axes)	TJ1-ML16
Trajexia MECHATROLINK-II Master Unit (up to 4 Axes)	TJ1-ML04
Trajexia Flexible Axis Unit (for 2 Axes)	TJ1-FL02

Trajexia - Communication modules

Name	Model
Trajexia DeviceNet Slave Unit	TJ1-DRT
Trajexia PROFIBUS-DP Slave Unit	TJ1-PRT

Mechatrolink-II - Related devices

Name	Remarks	Model
Distributed I/O modules	64-point digital input and 64-point dididtal output (24 VDC)	FNY-IO2310
	Analogue input: -10V to +10V, 4 channels	FNY-AN2900
	Analogue output: -10V to +10V, 2 channels	FNY-AN2910
Mechatrolink-II cables	0.5 meter	FNY-W6003-A5
	1 meter	FNY-W6003-01
	3 meters	FNY-W6003-03
	5 meters	FNY-W6003-05
	10 meters	FNY-W6003-10
	20 meters	FNY-W6003-20
	30 meters	FNY-W6003-30
Mechatrolink-II terminator	Terminating resistor	FNY-W6022
Mechatrolink-II interface unit	For W series Servo drives. (Firmware version 39 or later)	FNY-NS115
	For Varispeed 3G3MV Inverter (For Inverter's version supported contact your Omron sales office)	SI-T/V7
	For Varispeed RV Inverter (For Inverter's version supported contact your Omron sales office)	SI-T

I/O Cables

Name	Remarks	Length	Model
I/O Cable for FNY-IO2310	With connector on the Distributed I/O module side (FNY-IO2310)	0.5	FNY-W5410-05
		1.0	FNY-W5410-10
		3.0	FNY-W5410-30

Servo System & Frequency Inverters

Note: Contact your Omron sales office for detailed specs and ordering information

Computer Software

Specifications	Model
Trajexia Motion Perfect and CX-Drive V1.2 or higher	TJ1-Tools

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To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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