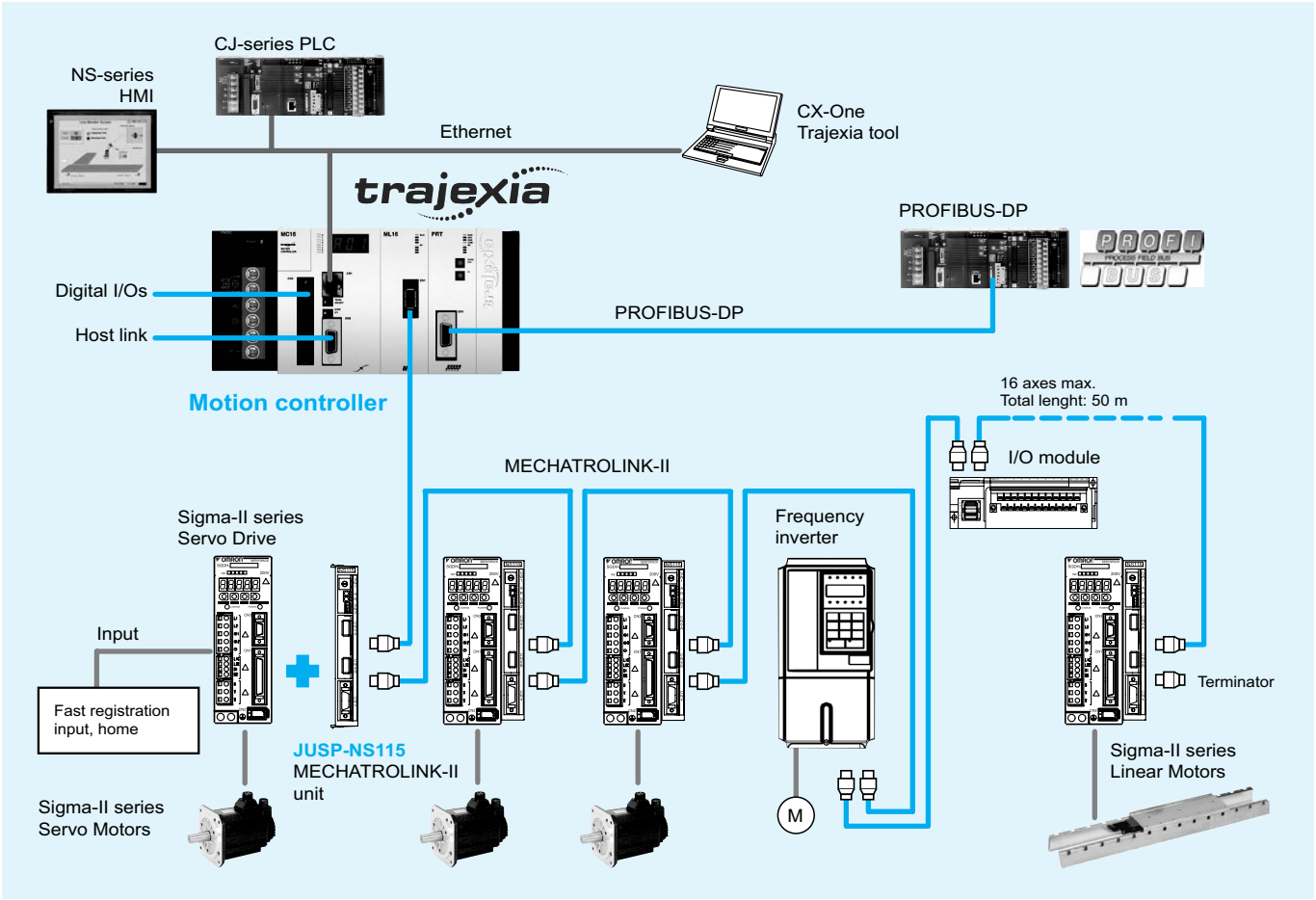
TJ1-

Trajexia motion controller

Stand-alone advanced motion controller using MECHATROLINK-II motion bus

- 16 axes advanced motion controller 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



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 MΩ
Dielectric strength	500 Volt
Protective structure	IP20
International standards	CE, EN 61131-2 and RO (approval pending for cULus and Lloyds)

Motion control unit

Item		Details	
Model		TJ1-MC16	
Number of axes		16	
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 tools software	
Ethernet port	Electrical characteristics	Conform to IEEE 802.3 (100BaseT)	
	Connector	RJ45 ethernet connector	
Serial port	Electrical characteristics	Conform 1 port to RS232C and 1 port to RS485/RS422A (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)	Hostlink master protocol, Hostlink slave protocol, ASCII general-purpose
	Galvanic isolation	RS422A port	
	Communication buffers	254 bytes	
	Flow control	None	
	Terminator	Yes, selectable by switch	
	Cable length	15 m for RS232 and 500 meter for RS422/485	

MECHATROLINK-II master unit

Item	Specifications
Model	TJ1-ML16
Controlled devices with MECHATROLINK-II interface	Sigma-2 and Sigma-3 servo drives, various I/O units and V7, F7 and G7 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 (only Sigma-3 servo drives)
Transmission distance	Max. 50 meters without using repeater

PROFIBUS slave unit

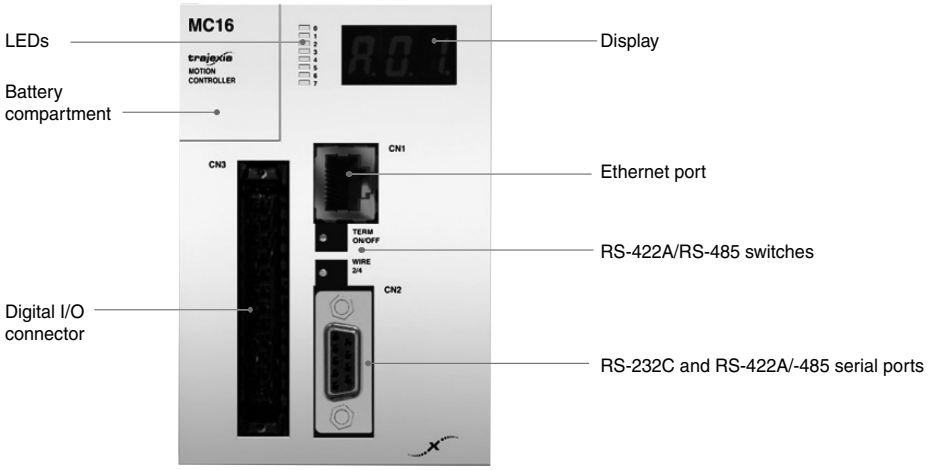
Items	Specifications
Model	TJ1-PRT
PROFIBUS standard	Conform to PROFIBUS-DP standard EN50170 (DP-V0)
Communication ports	1 PROFIBUS-DP slave
Transmission speed	9.6, 19.2, 45.45, 93.75, 187.5, 500, 1500, 3000, 6000 and 12000 kbits/s
Node numbers	0 to 99
I/O size	For both directions a configurable size of 0 to 122 words(16 bit)
Galvanic isolation	Yes

Flexible axis unit

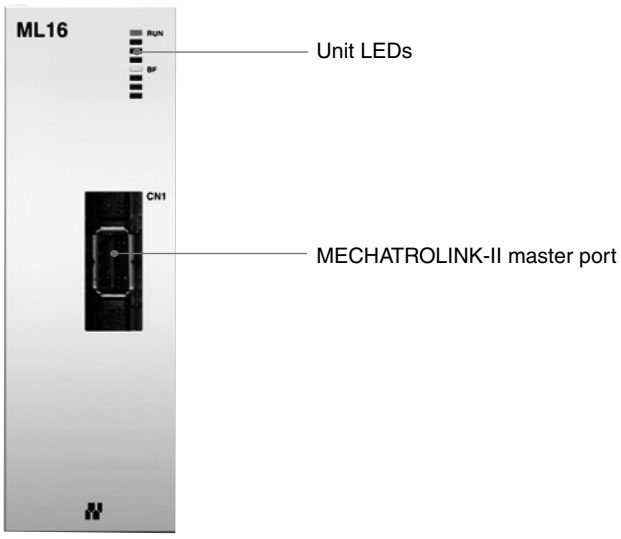
Items		Specifications
Model		TJ1-FL02
Number of axes		2
Control method		±10 V analogue output in closed loop or pulse train output in open loop
Encoder	Position/speed feedback	2 incremental and absolute encoders
	Absolute encoder standards supported	SSI, EnDat and Tamagawa
	Encoder input maximum frequency	6 MHz
	Encoder/pulse output max. frequency	2 MHz
Auxiliary I/Os		2 fast registration inputs per axis, 2 definable inputs, 1 enable output, 4 configurable outputs
Galvanic isolation		Yes

Nomenclature

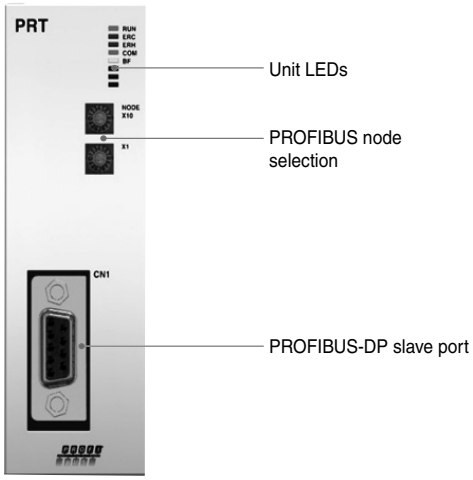
Trajexia motion controller unit - TJ1-MC16



Trajexia MECHATROLINK-II master unit - TJ1-ML16

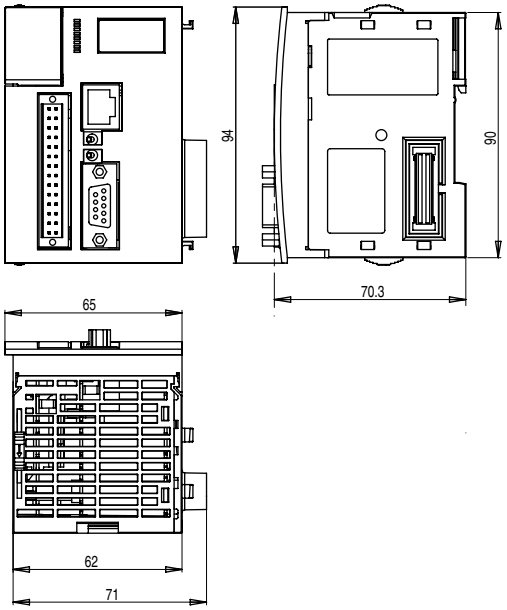


Trajexia PROFIBUS-DP slave unit - TJ1-PRT

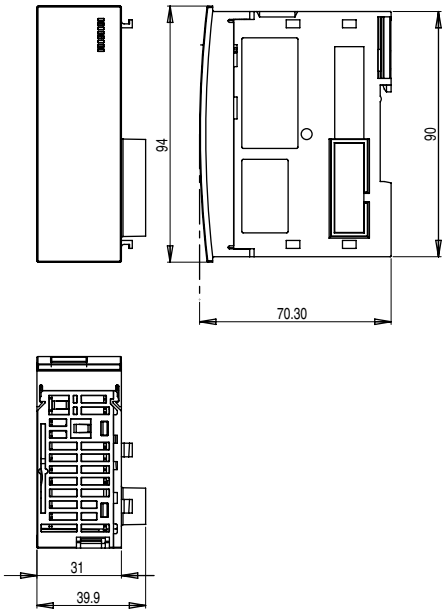


Dimensions

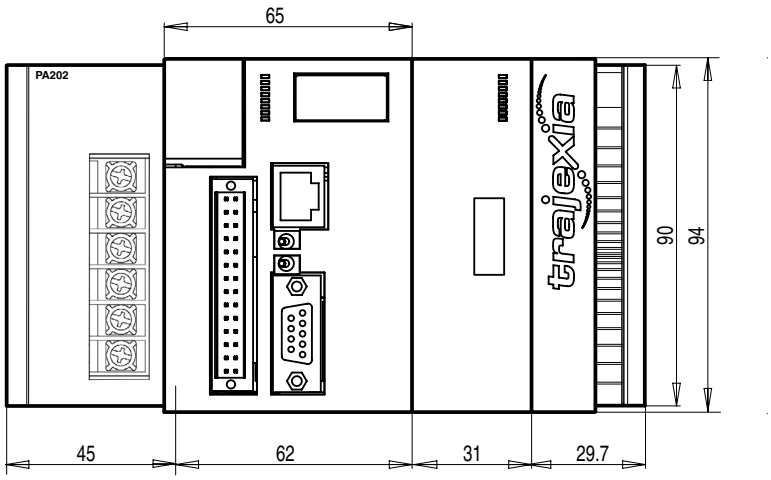
Trajexia motion controller - TJ1-MC16



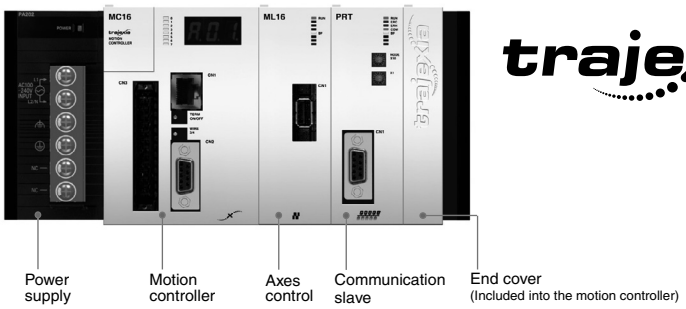
Trajexia modules - TJ1-ML16, TJ1-PRT, TJ1-FL02



Trajexia system - CJ1W-PA202 + TJ1-MC16 + one module + TJ1-TER



Ordering information



Trajexia motion controller

Name	Model
Trajexia motion controller unit. (Trajexia end cover unit TJ1-TER is included)	TJ1-MC16
Power supply for Trajexia system, 100-240 VAC	CJ1W-PA202
Power supply for Trajexia system, 24 VDC	CJ1W-PD022

Trajexia - axes control modules

Name	Model
Trajexia MECHATROLINK-II master unit (up to 16 axes)	TJ1-ML16
Trajexia flexible axis unit (for 2 axes)	TJ1-FL02

Trajexia - communication modules

Name	Model
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 digital output (24 VDC)	JEPMC-IO2310
	Analogue input: -10 V to +10 V, 4 channels	JEPMC-AN2900
	Analogue output: -10 V to +10 V, 2 channels	JEPMC-AN2910
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 interface unit	For Sigma-II series servo drives. (Firmware version 39 or later)	JUSP-NS115
	For Varispeed V7 inverter (for inverter's version supported contact your OMRON sales office)	SI-T/V7
	For Varispeed F7, G7 inverter (for inverter's version supported contact your OMRON sales office)	SI-T

I/O cables

	Remarks	Lenght m	Model
I/O cable for JEPMC-IO2310	With connector on the IO2310 side	0.5	JEPMC-W5410-05
		1.0	JEPMC-W5410-10
		3.0	JEPMC-W5410-30

Servo system & frequency inverters

Note: Refer to motion & drives catalogue for detailed specs and ordering information

Computer software

Specifications	Model
Trajexia motion perfect and CX-drive V1.2 or higher	TJ1-tools

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. I53E-EN-01A