

EtherCAT®

WMX3 & TPC-7200-BEW

| SIMPLE | FLEXIBLE | PERFORMANCE |

WMX3

Soft Motion



 **SOFTSERVO**



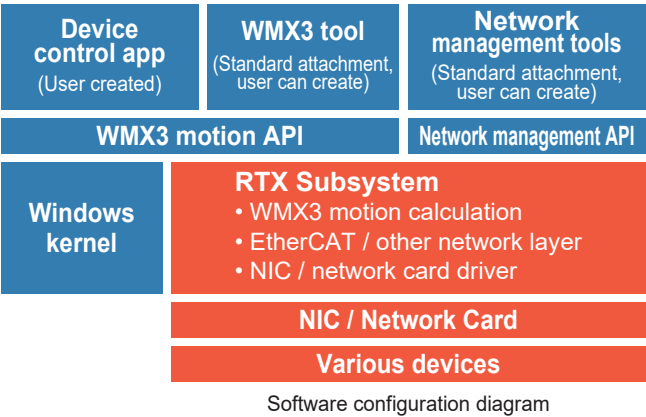
Taiwan Pulse Motion
Inspire New Automation
www.tpm-pac.com



Accelerated evolution of multi-axis motion control

The latest version of the software motion controller "WMX3" that combines Soft Motion technology and EtherCAT soft master technology that we have developed for many years.

By making the most of the ultra-high-speed computing capability of PC CPUs, which have become increasingly sophisticated year by year, we have achieved control performance impossible with conventional motion controllers.



1 Just need a Windows computer.

No special hardware required, such as NC board, to maximize the use of computer CPU performance.

2 Outstanding valued-added performance

Wire-saving feature significantly reduces costs and improves control performance.

3 Easily create complex control programming

Create your own application with Microsoft Visual Studio.

4 Wide application, stable operation and high reliability

Widely used by semiconductor manufacturing equipment and 3C / FPD worldwide equipment manufacturers.

5 Ideal for IoT and Industry 4.0

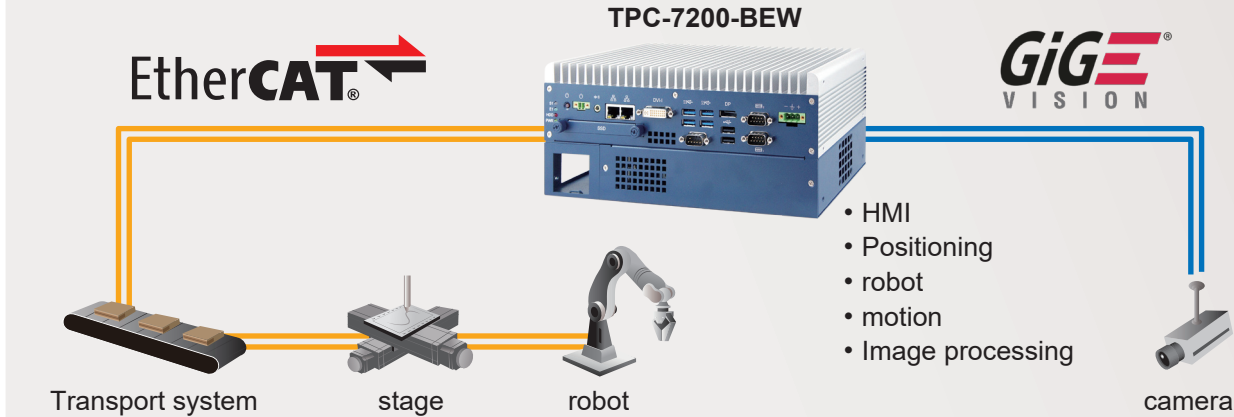
Devices, sensors, motors and the host network are directly connected in real time.

6 Independently developed EtherCAT master station

Complete software implementation by using standard LAN port of PC.

Device configuration

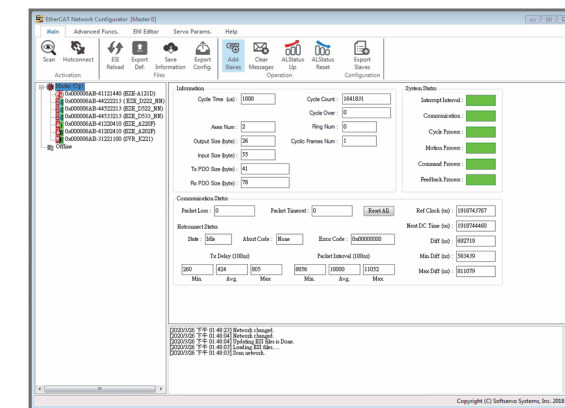
PC based SoftMotion Configuration



Tools Various tools to easily set up, adjust, and manage control systems and networks

EcConfigurator

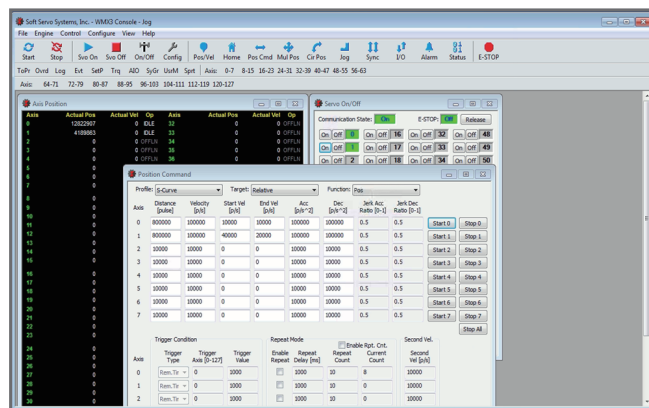
- Communication setting, status monitor tool
- Parameter upload / download via network
- Network diagnosis function, network topology display function



EcConfigurator

Profile Analyzer

- Tool to display multi-axis motion in real time or record and display graph
- Timing control by trigger setting
- Ability to analyze trajectory during multi-axis interpolation



Profile Analyzer

WMX3 Console

- WMX3 function check tool
- Parameter setting / management
- HMI development assistance

General Operator

- Confirmation of basic motion command and status, I / O input / output operation
- Motion parameters can be set freely with intuitive and easy operation
- I / O output setting file can be loaded and reflected in output
- Tools that narrow down the functions necessary for starting up the device

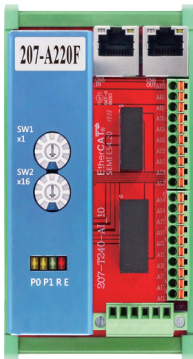
WMX3 Manager

- Device (user application and its thread) management tool
- Current device management and connection status monitoring and log output

EtherCAT® Analog Slave

EtherCAT® 8-Ch.AI

207-A220F



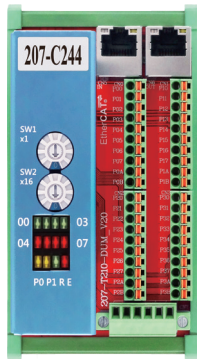
Features

- 8-Ch. 16-bit Analog input (AI) w. $\pm 10V$
- DIN rail mounting (L-122 x W-65 x H-104 mm)

EtherCAT® Motion Slave

EtherCAT® 4-Ch.Encoder Slave

207-C244C/D



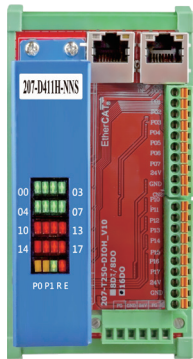
Features

- Max. 4MHz Encoder input frequency
- DIN rail mounting (L-122 x W-65 x H-104 mm)

EtherCAT® Digital Slave

EtherCAT® 16-Ch.DI/O

207-D411H-NNS/PPS



Features

- Pluggable terminal block with spring plug connectors
- DIN rail mounting (L-122 x W-65 x H-104 mm)

EtherCAT® 64-Ch.DI/O

207-D522-NNS/PPS

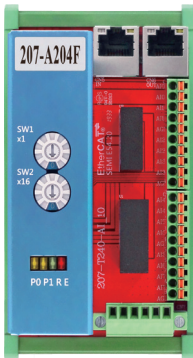


Features

- Pluggable terminal block with spring plug connectors
- DIN rail mounting (L-122 x W-105 x H-104 mm)

EtherCAT® 8-Ch.AO

207-A204F

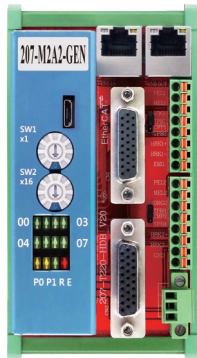


Features

- 8-Ch. 16-bit Analog output (AO)
- DIN rail mounting (L-122 x W-65 x H-104 mm)

EtherCAT® 2-Axis Motion Controller

207-M2A2-GEN

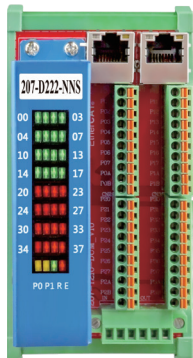


Features

- Max. 6.5MHz pulse output rate
- DIN rail mounting (L-122 x W-65 x H-104 mm)

EtherCAT® 32-Ch.DI/O

207-D222-NNS/PPS

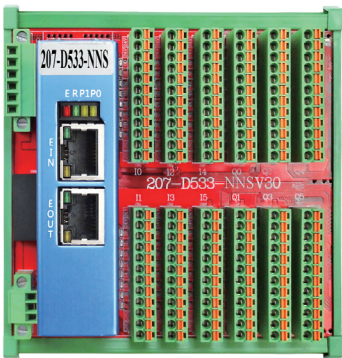


Features

- Pluggable terminal block with spring plug connectors
- DIN rail mounting (L-122 x W-65 x H-104 mm)

EtherCAT® 96-Ch.DI/O

207-D533-NNS/PPS



Features

- Pluggable terminal block with spring plug connectors
- DIN rail mounting (L-122 x W-127 x H-104 mm)

EtherCAT® Closed-Loop Drive

1-Axis Closed-Loop Drive

SVR-K111/K112

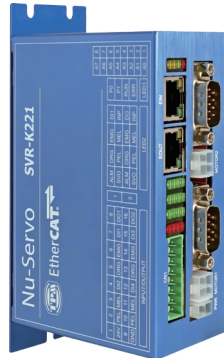


Features

- K111: Current 2.8A / K112: Current 4.2A
- Dimensions: L-74 x W-140 x H-31 mm

2-Axis Closed-Loop Drive

SVR-K221



Features

- Current 1.8A / axis
- Dimensions: L-75 x W-140 x H-47 mm

EtherCAT® Micro-Step Drive

1-Axis Micro-Step Drive

STP-K111/K112



Features

- K111: Current 2.8A / K112: Current 4.2A
- Dimensions: L-74 x W-140 x H-31 mm

2-Axis Micro-Step Drive

STP-K221



Features

- Current 1.8A / axis
- Dimensions: L-75 x W-140 x H-47 mm

TurboPAC

TPC-7200-BEW



WMX3 EtherCAT Soft Motion Controller

Features

- Robust and Flexible Fanless Embedded System
- Support Intel® Core® i7 Desktop Processor
- Support DDR4-2133 SO-DIMM, Max. 32GB
- Support storage with SSD/HDD
- Support RAID 0/1

Expansion

Mini PCIe	1 x Mini PCIe
PCI / PCIe	1 PCIe x8 and 1 PCIe x1

Mechanical

Dimension	275 x 117 x 140 mm (W x H x D)
Weight	2.7Kg
Construction	Aluminum & Steel
Mounting	Desktop or wall mounting (wall mount kit included) Side mounting (Option) DIN-rail mounting (Option)

Environment

Operating temperature	0°C to 60°C (14°F~140°F)* With Air flow 0°C to 50°C (14°F to 122°F) without Air flow
Storage temperature	5 ~ 90% at 45 °C (non-condensing)
Humidity	90% (non-condensing @ 60°C)

Software Supporting

- WMX3 SoftMotion ECATNavi-WMX3 Utility

Specification

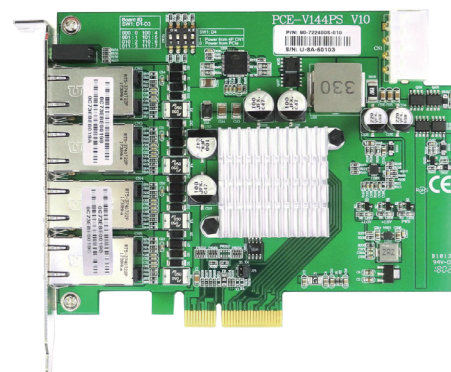
System

Operating system	Windows 10 IoT 64
CPU	7th Gen Intel® Core™ i7 Desktop Processor
Chipset	Intel® Q170
BIOS	AMI BIOS
Memory	DDR4-2133 SO-DIMM, Max. 32GB
Power mode	1 x power button; 2-pin terminal block for external power
Input voltage	24VDC input (3-pin terminal block)

I/O Interface

Display	DVI-I and DisplayPort
USB	4 x USB 3.0; 2 x USB 2.0
Serial port	1 x RS-232(DB9); 1 x RS-232/422/485(DB9); 2 x RS-232(DB15)
LAN	1 Intel® I219-LM
EtherCAT	1 Intel® I211-AT
Storage	2 x 2.5" SSD/HDD
Audio jack	1 x Line-Out

PCIe Card PCE-V144PS



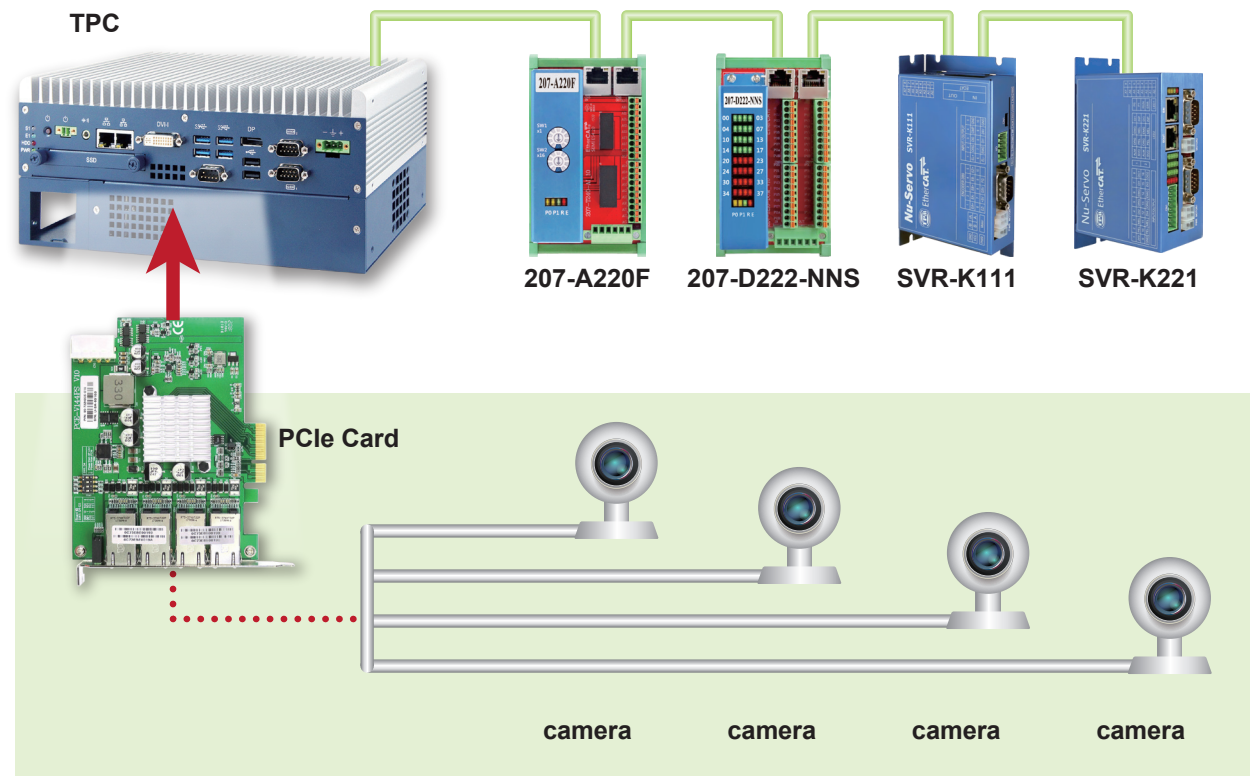
Features

- PCI Express x4 compliant
- Intel Server-grade I350 Ethernet Controller
- 4 independent Gigabit Ethernet Ports
- IEEE 802.3at Power over Ethernet standard
- Dimesions: L-150 x W-111.2 mm

Specification

PoE

Bus interface	PCI Express x4 Gen 2
Ethernet controller	Intel I350 Ethernet controller
Number of port	4
Jumbo frame	Support 9.5KB jumbo frame
Link aggregation(LAG)	Present
Connector	RJ45, CAT-5e or CAT-6 cable
PoE capability	In compliant with IEEE 802.3at. Each port up to 25.4W power
PoE standard	Powered Device(PD) Auto-detection and classification
Bus interface	Isolated protection



Specifications

Number of control axes	Up to 128 axes
I / O number	8000 bytes input, 8000 bytes output
Positioning	Up to 128 axes simultaneously, override (dynamic change of target value, etc.)
Interpolation	Straight line, arc, 3D arc, helical, PVT
Acceleration & deceleration profile	Speed curve: trapezoid, S-shaped, jerk, two stage velocity, trapezoid with specified acceleration time Acceleration curve: S-shaped, quadratic curve, Sinusoid
Return to origin	Index pulse, origin sensor, limit sensor, near limit sensor, external input signal, mechanical end, etc. Gantry axis return to origin is also possible.
Continuous trajectory	Combination of straight line and circular arc, spline interpolation, automatic look-ahead speed control, continuous linear / circular path with rotating stage
API buffer	Register the motion API in the buffer and execute it in real time. Waiting for execution and branching depending on conditions are also possible.
Events	Register the trigger (axis target value reached, I / O input, etc.) and action (axis movement start, I / O output, etc.) and perform real-time operation.
Sync	Simple synchronization, synchronization gear ratio / offset designation, synchronization deviation correction, dynamic establishment / cancellation of synchronization, multiple axis (up to 64 sets) 1-axis to multi-axis synchronization can be defined
Electronic cam	Eight cam curves can be defined, cam curves for each communication cycle, phase operation, clutch
Correction function	Backlash / pitch error correction, plane distortion (straightness) correction
EtherCAT	Class A compliant, CoE, EoE, FoE, SoE, AoE, VoE, DC / SM synchronization, hot connect, Line / star / ring topology EtherCAT command mode: position (standard), speed, torque. Dynamic command mode change is possible. * Depends on servo specifications Communication cycle: Standard 1ms, can be set from 0.125ms to 4ms by user setting

Ordering information

- **TPC-7200-i7-BEW-A4**
i7-7700T w.WMX3 EtherCAT 4-Axis SoftMotion
- **TPC-7200-i7-BEW-A8**
i7-7700T w.WMX3 EtherCAT 8-Axis SoftMotion
- **TPC-7200-i7-BEW-A16**
i7-7700T w.WMX3 EtherCAT 16-Axis SoftMotion
- **TPC-7200-i7-BEW-A32**
i7-7700T w.WMX3 EtherCAT 32-Axis SoftMotion