

## Sigma-5 with Real-Time Ethernet Communication

### Ethernet for Control Automation Technology

The EtherCAT (CoE) Network Option Module implements the CAN open drive profile (CiA402) over EtherCAT communication protocol.

All of the features and benefits of the Sigma-5 SERVOPACK are available when used on an EtherCAT network.

#### System Performance

- 1.6kHz velocity loop bandwidth delivers increased machine throughput by slashing settling time
- Vibration suppression function minimizes machine vibration and further reduces settling time
- 20-Bit absolute serial feedback device provides extremely high resolution and limits downtime when power loss occurs by storing absolute position.

#### Ease of Use

- Adaptive Autotuning algorithm tunes the servo system on-the-fly allowing for load to rotor mismatches up to 20:1.
- Complex algorithms, built into the amp, eliminate the need for a detailed system analysis. Tuning gains are adjusted and filters are set automatically.
- Automatic motor recognition ensures proper system connection and decreases setup time.



## Sigma-5 with EtherCAT

- Wide range of product
  - 50W-15kW, 100-480V
  - Rotary, Linear, and Direct Drive servomotors
- Slash settling time with industry best 1.6kHz velocity loop bandwidth
- Eliminate vibration and noise with revolutionary vibration suppression technology
- Accommodate changes in load with adaptive autotuning algorithm
- Comply with machine safety standards (EN954-1, EN60204-1, IEC61800-5-2)
- Renowned Yaskawa Quality

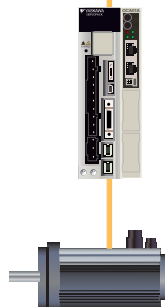


**EtherCAT**  
High Performance Ethernet-based Fieldbus Network

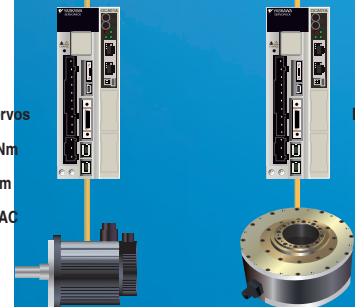
**Linear Servos**  
Peak Force:  
85 – 6,000 N  
Velocity:  
up to 5m/s  
Supply Voltage:  
240, 480 VAC



**Rotary Sigma Servos**  
Peak Torque:  
1.5 Nm to 225 Nm  
Velocity:  
up to 6,000 rpm  
Supply Voltage:  
110, 240, 480 VAC



**Direct Drive Servos**  
Peak Torque:  
6 Nm to 600 Nm  
Velocity:  
up to 500 rpm  
Supply Voltage:  
240 VAC



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### Ethernet for Control Automation Technology

#### EtherCAT Features

- Compatibility with any EtherCAT master that adheres to the CiA402 device profile specification.
- Variety of different system architectures: Cascade, Line, Star, Ring
- Access to SERVOPACK I/O through EtherCAT network (includes 3 high speed latching inputs)
- Seven different control modes available:
  - Cyclic Synchronous Position Mode
  - Cyclic Synchronous Velocity Mode
  - Cyclic Synchronous Torque Mode
  - Interpolated Position Mode
  - Profile Position Mode
  - Profile Velocity Mode
  - Profile Torque Mode
- Dynamic control mode changes
- The distributed clock allows for synchronized operation of all slave SERVOPACKs on the network.
- IEC function blocks that simplify motion control programming are available for download at [www.yaskawa.com](http://www.yaskawa.com)

#### Model Number Designation

