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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 amplifier are available when used on an EtherCAT network.

System Performance

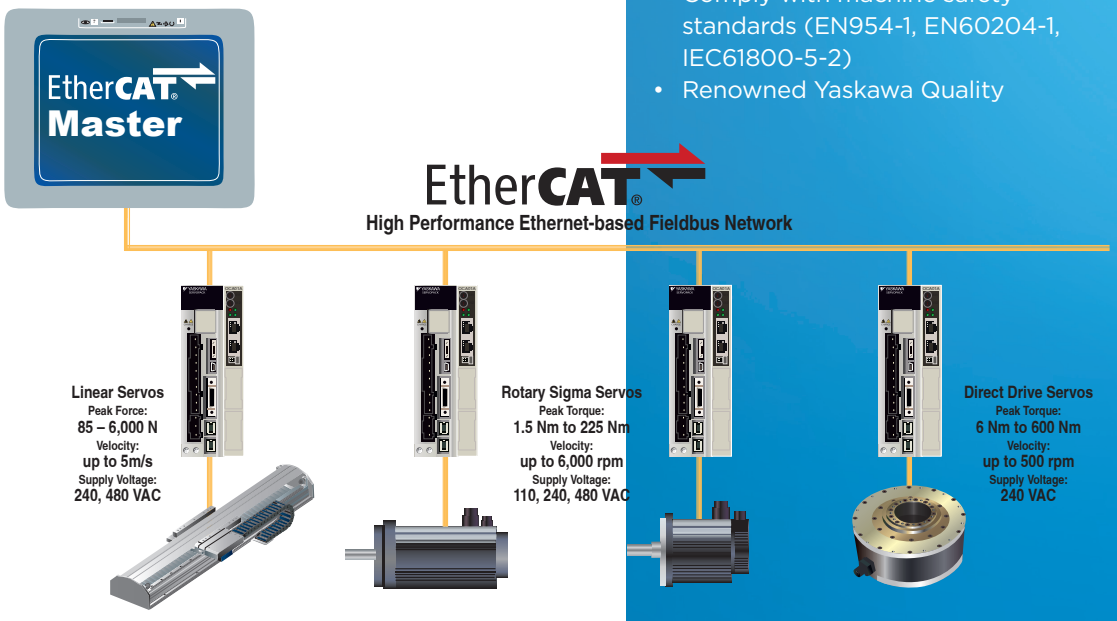
- 1.6kHz velocity loop bandwidth delivers increased machine throughput by slashing settling time
- Vibration suppression function minimizes machine vibration and further reduces settling time
- 20-Bit absolute serial feedback device provides extremely high resolution and limits downtime when power loss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



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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 servo amplifier 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 amplifiers on the network.
- IEC function blocks that simplify motion control programming are available for download at www.yaskawa.com

Model Number Designation

SGDV R70 A 0 1 A 000 00 0 200

Σ-V Series SERVOPACK

Current

Voltage	Code	Applicable Servomotor Max. Capacity kW
100 V	R70	0.05
	R90	0.1
	2R1	0.2
	2R8	0.4
200 V	R70 *	0.05
	R90 *	0.1
	1R6 *	0.2
	2R8 *	0.4
	3R8	0.5
	5R5 *	0.75
	7R6	1.0
	120**	1.5
	180	2.0
	200	3.0
	330	5.0
	470	6.0
	550	7.5
	590	11
	780	15
400V	1R9	0.5
	3R5	1.0
	5R4	1.5
	8R4	2.0
	120	3.0
	170	5.0
	210	6.0
	260	7.5
	280	11
	370	15

Voltage

Code	Specifications
F	100 VAC
A	200 VAC
D	400 VAC

Interface Options

Code	Specifications
E	Optional communication reference types

Motor Type

Code	Specifications
1	Rotary Servomotors
5	Linear Servomotors

Design Revision Order

Options (hardware)

Code	Specifications
000	Base-mounted (standard)

Options (software)

Code	Specifications
00	standard

Options (parameter)

Code	Specifications
0	standard

Option Module

Code	Specifications
200	**EtherCAT (CoE) communications reference**
201	**EtherCAT (CoE) communications reference and Fully-closed loop control**

* These amplifiers can be powered with single or three-phase.

** SGDV-120A□□ A008000□□□, a special version of the 1.5kW amplifier can be used for single-phase operation.

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