



## S200 Servo Drive

# Removing the Barriers of Design, Sourcing, and Time

At Kollmorgen, we know that OEM engineers can achieve a lot more when obstacles aren't in the way. So, we clear obstacles in three important ways:

### Integrating Standard and Custom Products

The optimal solution is often not clear-cut. Our application expertise allows us to modify standard products or develop totally custom solutions across our whole product portfolio so that designs can take flight.

### Providing Motion Solutions, Not Just Components

As companies reduce their supplier base and have less engineering manpower, they need a total system supplier with a wide range of integrated solutions. Kollmorgen offers complete solutions as well as motion subsystems that combine programming software, engineering services and best-in-class motion components.

### Global Footprint

With direct sales, engineering support, manufacturing facilities, and distributors spanning the Americas, Europe, the Middle East, and Asia, we're close to OEMs worldwide. Our proximity helps speed delivery and lend support where and when they're needed.

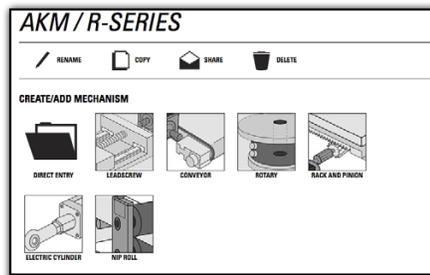
### Financial and Operational Stability

Kollmorgen is part of Altra Industrial Motion. A key driver in the growth of all Altra divisions is the Altra Business System, which relies on the principle of "kaizen" – or continuous improvement. Using world-class tools, cross-disciplinary teams of exceptional people evaluate processes and develop plans that result in superior performance.

## Kollmorgen: Your partner. In Motion.

## Self-help Tools

### Motioneering® Online



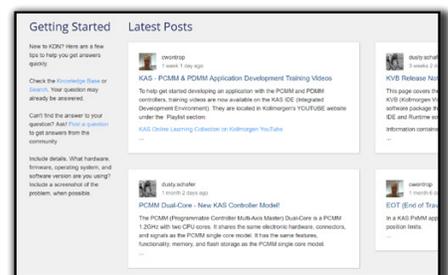
Size and select the right product for your application needs

### Drawing Generator



Provide TBM/KBM/AKM 2D and 3D drawings in many popular formats

### Kollmorgen Developer Network



Find answers to many key technical questions or start your own session

## S200 Servo Drive

### Powerful, yet Compact

Kollmorgen S200 servo drives are one of the most compact servo drives on the market. Whether you are looking for 120Vac/240Vac input or 20-90Vdc input, we can fit in your smallest machine.



#### Increased Machine Throughput and Longer Life

Servo system performance is synonymous with machine throughput. The S200 family takes servo performance to new heights.

- » Industry-leading current loop bandwidth up to 5 KHz and velocity loop bandwidth up to 800 Hz means machine throughput can be increased by as much as 2 to 3 times.
- » Robust design including full fault protection, locking connectors and optical isolation promise greater machine “up-time”.
- » Smooth motion, a benefit of sinusoidal current control and high resolution (24-bit) feedback, minimizes harsh torque disturbances that can cut short the life of mechanical components.
- » Both the AC and the DC input drives are equipped with separate control power input to speed recovery from “E-Stop” conditions.

#### Reduced Engineering and Support Time

The S200 drive family has dramatically simplified tuning, a very friendly Graphical User Interface and plug and play compatibility with Kollmorgen motors.

- » The drive automatically sets the current and velocity loop parameters, greatly reducing the need for drive tuning. The benefit is out of the box “Plug-and-Play” and auto tuning set-up.
- » Windows-based Graphical User Interface models the tree format found in Explorer so learning is quick and easy.
- » Easy to debug with full fault diagnostics reduce engineering support time.
- » SynqNet option available for seamless integration into multi axis systems.
- » Indexing option for basic point-to-point and absolute moves.

#### Other Features

UL508C recognized, CE marked, conforms to EN50178 and EN61800-3 standards, and meets SEMI F47

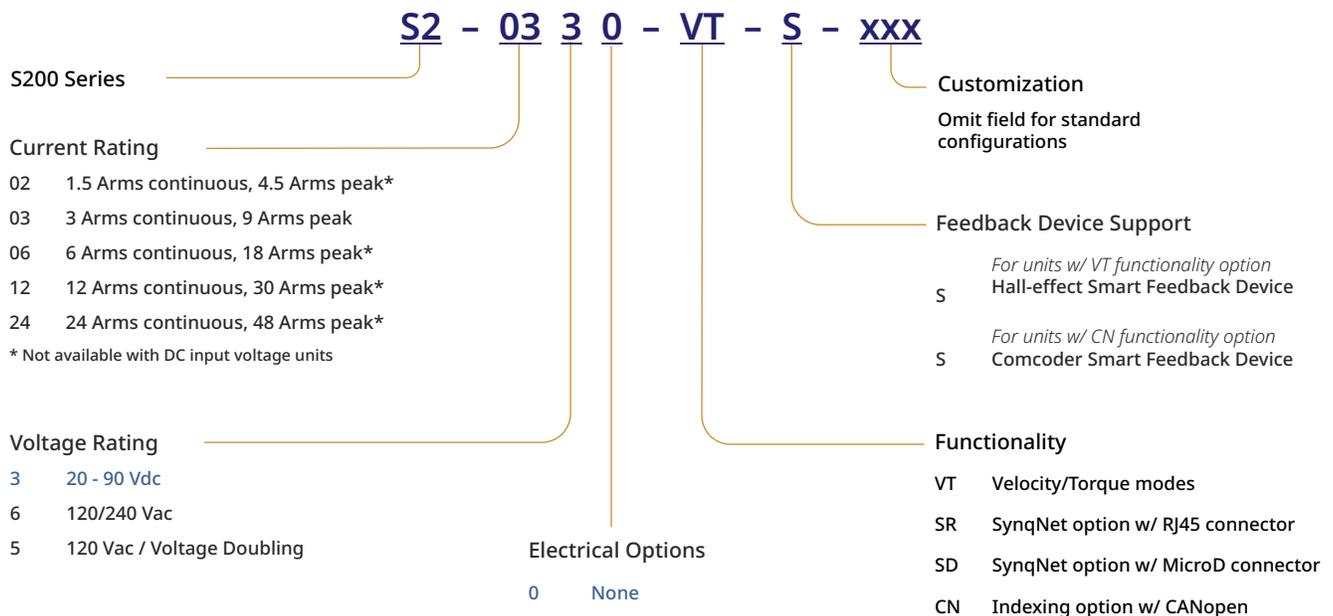
# S200 Servo Drive

## General Specifications and Model Nomenclature

### Specifications

Drive Amplifier		S20330	S20630	S20260	S20360	S20660	S21260	S22460
Input Voltage	Control Logic	10 - 90 VDC			85-265 VAC, 47 to 420 Hz, 1 phase			
	Motor Bus Voltage	20-90 VDC		90-265 VAC, 47 to 420 Hz, 1 or 3 phase		120-264 VAC, 47 to 420 Hz, 1 or 3 phase-	120-264 VAC, 47 to 420 Hz, 3 phase	
Output Current	Peak Current Time (Sec.)	3						
	Peak (A RMS)	9	18	4.5	9	18	30	48
	Continuous Current @ 40 deg. C ambient (A RMS)	3	6	1.5	3	6	12	24
	Continuous Current @ 30 deg. C ambient (A RMS)	4.5	7.5	2.3	4.5	9.0	15	30
Performance	Current Loop BW	5 kHz			3 kHz			
	Effective Carrier Frequency	31.2 kHz		20.8 kHz		16 kHz		
	Velocity Loop BW (Base drive and SynqNet option)	800Hz						
	Velocity Loop BW (Indexer Family)	400Hz						
	Update Rate	1.25 MHz						
	Analog Input Command	0 - +/- 10 Vdc 18-bit resolution						
Nominal Shaft Power at 40 deg C Ambient		125W	250W	200W	500W	1000W	4000W	8000W
Emulated Encoder Output	Max Output Line Frequency	2.5 MHz						
Feedback	SFD	Resolution/Rev		24 bits = 0.0013 arc min				

### S200 Servo Drive Nomenclature

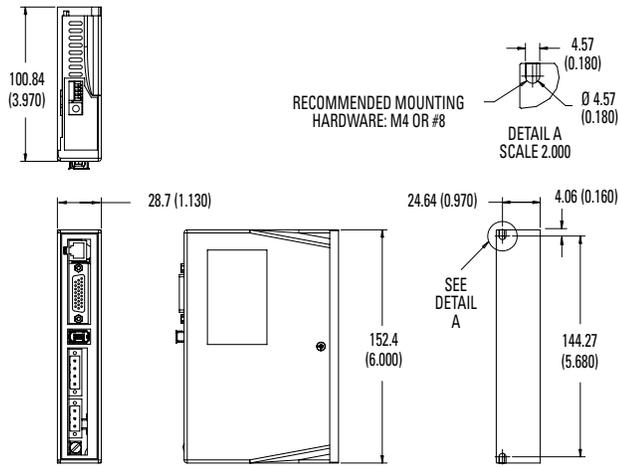


Note: Options shown in blue text are considered standard.

# S200 Servo Drive

## Base/Option Card Mounting Specifications

### S200 DC Base Mounting

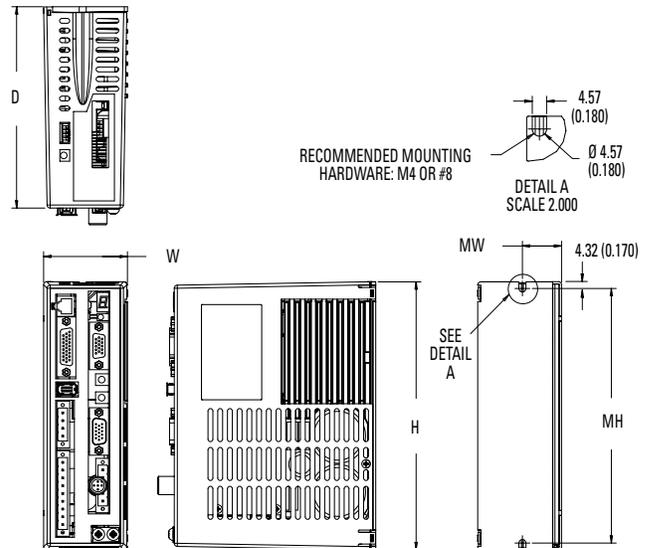


\* Option cards make drive width 48.3mm (1.90in)



### S200 AC Base/Option Card Mounting

	S200 Drive				
	S20260-XXX	S20360-XXX	S20660-XXX	S21260-XXX	S22460-XXX
H Height in (mm)	6.89 (175)	6.89 (175)	6.89 (175)	6.97 (177)	7.72 (196)
W Width in (mm)	2.16 (54.8)	2.16 (54.8)	2.16 (54.8)	2.99 (76)	3.94 (100)
D Depth in (mm)	5.18 (131.6)	5.18 (131.6)	5.18 (131.6)	5.98 (152)	7.48 (190)
MH Mounting in (mm)	6.55 (166.4)	6.55 (166.4)	6.55 (166.4)	-	-
MW Mounting in (mm)	1.01 (25.56)	1.01 (25.56)	1.01 (25.56)	-	-
Customer Cabinet Depth in	8 in	8 in	8 in	8 in	10 in
I cont Arms	1.5	3	6	12	24
I peak	4.5	9	18	30	48



\* Option card does not increase width of drive.

## S200 Servo Drive

### Benefits and Features

#### Reduced Overall Cost

The S200 design requires fewer components helping to lower the overall machine cost.

- » S200 drive family and the AKM motor family linked with Kollmorgen Value Line cables – dependable quality now at a lower price.
- » All drive software is included with every S200 Drive.
- » Single supplier of AC or DC input brushless servo drives and motors and stepper drives and motors reduce vendor list management.

#### Optimize Cabinet Space

The Kollmorgen S200 series of drives are very compact (high power density), and take up less cabinet space than most servo drives of similar power levels.

#### User Friendly

Simple Graphical User Interface is designed to expedite the set up process. The S200 high performance drive with the world class AKM motors auto tunes for most applications. If you wish to fine tune, the intuitive Windows® Explorer-like interface makes it very easy to do so.

Setup is a simple, quick, 5 step process. Smart Feedback Device with motor ID automatically sets up motor parameters

An Advanced tuning option is also available. Powerful Advance tuning is sometimes required for complex situations.

The S200 Indexer has a Digital Oscilloscope which facilitates System Tuning which facilitates System Tuning, allowing settling times down to or below 1 ms

Tuning is as easy as moving a slider bar. This works for most applications.

Click For Advanced Mode

Motor and Mechanical Setup

Motor Selection: AKM24D

Initial Ratio: 1

Motor Types:	Rotary	
Km	40,8	Wmm/Kgm
Kj	0,53	N-m/Ag
Initial	0,27	Kg-cm2
Indulgence	18,7	nH
Resistance	8,4	Ohama (line-line)
Polar Palms	3	
Iga	2,21	Amma
Ipk	8,8	Ammo
Thermal Flame	11	Min

Drive Setup

Bandwidth [Hz]: 400

Tuning Assistant

Intertia Ratio: 1

Buttons: Gentle, Medium, Stiff, Default All

#### S200 Features

- » **Functionality**
  - Base Unit – Torque, Velocity, Step and Direction Input
  - Indexer – Velocity, Step and Direction (encoder following) Input, Programmable Indexing, and Absolute or Incremental move types. Also offers CANopen fieldbus option.
- » **Interface**
  - Base Unit – Analog (+/- 10V), Step and Direction, Encoder input (pulse following)
  - Indexer – Step and Direction, Encoder input (pulse following)
  - SynqNet – SynqNet (assumes the use of a controller)
  - Power – All are 1.5 A rms cont. to 24 A rms cont. low power DC input, 115VAC or 230 VAC, high power 230 VAC input
- » **I/O**
  - Base Unit – 1 Analog in, 2 Analog out, 5 digital in, 2 digital out, encoder in and out (in for pulse following only – not for motor feedback) – All digital I/O are Optically Isolated
  - Indexer – 2 Analog out, 10 digital in, 3 digital out, encoder in and out- All digital I/O Optically Issolated
- » **Certifications** - All are UL, cUL, CSA, CE and RoHS
- » **Feedback Supported**
  - Base Unit – Hall-effect Smart Feedback Device – 24 bit resolution
  - Indexer – Hall-effect Smart Feedback Device (24 bit resolution), Comcoder
  - SynqNet – Hall-effect Smart Feedback Device (24 bit resolution), Comcoder, Industry Leading 1v Pk/Pk analog encoder, Digital EnDat 2.1

# S200 Servo Drive

## Accessories

### Cables

Cable Part Number	Cable Type	Description
P7S2-232-9D	Standard	RS232 Serial communications cable D B9 to ModJack - 6 feet
CF-DC031N-XX-X	Performance Line	Feedback cable - Molex connector at the motor end to IEEE1394 connector at the drive end for Smart Feedback Device (SFD) support
VF-DC0411N-XX	Value Line	
CF-DA0311N-XX-X	Performance Line	Feedback Cable - Intercontec style connector at the motor end to IEEE1394 connector at the drive end for Smart Feedback Device (SFD) support
VF-DA0411N-XX	Value Line	
CP-102ACCN-XX-X	Performance Line	Power Cable - Molex connector at the motor end to S200 crimp pin pluggable connector at the drive end
VP-102BECN-XX	Value Line	
CP-102ACAN-XX-X	Performance Line	Power Cable - Intercontec style connector at the motor end to S200 crimp pin pluggable connector at the drive end
VP-102BEAN-XX	Value Line	
CC-D02C02N-XX-X	Performance Line	Hybrid Cable - Single molex connector at the motor end to IEEE1394 connector and S200 crimp pin pluggable connector at the drive end for Smart Feedback Device (SFD) and power support in a single cable
CC-D02A02N-XX-X	Performance Line	Hybrid Cable - Single Intercontec style connector at the motor end to IEEE1394 connector and S200 crimp pin pluggable connector at the drive end for Smart Feedback Device (SFD) and power support in a single cable
CP-105CCAN-XX-X	Performance Line	Power Cable - Intercontec style connector at the motor end to S21260
CP-105CDAN-XX-X	Performance Line	Power Cable with Brake - Intercontec style connector at the motor end to S21260

Note: Use XX to designate cable length in whole meters and -X to order half meter increments. – Example : “CC-D01A02N-03-5”

### Connector Kits

Kit Part Number	Description
CK-S200-MF	Motor Power and Feedback mating connectors for AC or DC units, for customers building cables
CK-S200-IP-DC	I/O and input Power mating connectors for base DC drive
CK-S200-IP-DC-TB	I/O and input Power mating connectors for base DC drive, Terminal Block adaptor supplied for I/O connector.
CK-S200-IP-AC	I/O and input Power mating connectors for S20260-VTS, S20360-VTS and S20660-VTS
CK-S200-IP-ACL	S200 Connector Kit - I/O and input power mating connectors for base S21260, S22460 and S24860
CK-S200-IP-AC-TB	I/O and input Power mating connectors for base AC drive, Terminal Block adaptor supplied for I/O connector.
CK-S200-IP-ACL-TB	Connector Kit - I/O and input power mating connectors for base AC drive & terminal block adaptor for I/O connector
CK-S200-CNDN	Index Option card and I/O mating connectors
CK-S200-CNDN-TB	Index Option card and I/O mating connectors, Terminal Block adaptors supplied for the I/O and feedback connector
CK-S200-SQ	SynqNet option card I/O, Auxiliary feedback mates
CK-S200-SQ-TB	SynqNet option card I/O, Auxiliary feedback terminal block adaptors
768-026902-01	Terminal Block adaptor for I/O connector

## More Expertise for a More Successful Machine

Our global engineering, service and support network provides deep knowledge of all the major industries that rely on advanced motion control and automation technology. We offer world-class engineering expertise, self-service design tools, personalized field service, and easy access to our design, application and manufacturing centers in strategic locations across the globe.

## About Kollmorgen

Kollmorgen has more than 100 years of motion experience, proven in the industry's highest-performing, most reliable motors, drives, linear actuators, gearheads, AGV control solutions and automation platforms. We deliver breakthrough solutions that are unmatched in performance, reliability and ease of use, giving machine builders an irrefutable marketplace advantage.

Kollmorgen is a brand of Altra Industrial Motion Corp. (NASDAQ: AIMC), a premier global designer and producer of a wide range of motion control and power transmission solutions. With engineered components and systems that provide the essential control of equipment speed, torque, positioning, and other functions, Altra products can be used in nearly any machine, process or application involving motion.

# **KOLLMORGEN**

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