SIEMENS

Ingenuity for life

SINAMICS V90

The performance-optimized and easy-to-use servo drive system

The servo drive system comprises the SINAMICS V90 servo drive and SIMOTICS S-1FL6 servomotor. The system features eight servo drive frame sizes and seven motor shaft heights to cover a performance range from 0.05 kW to 7.0 kW for operation in single-phase and three-phase networks. The SINAMICS V90 servo drive system enables a wide range of simple Motion Control tasks to be implemented cost-efficiently and conveniently with the focus being on dynamic motion and processing.

Pulse train version (PTI)

PROFINET version (PN)

Highlights of the SINAMICS V90 and SIMOTICS S-1FL6 servo drive system

Optimized servo performance

- Advanced one-button tuning and real-time auto tuning enables machines to achieve a high dynamic performance
- Automatic suppression of machine resonances
- 1 MHz high-frequency pulse train input
- Different encoder types to address the requirements of your applications

Easy to use

- Simple connection to a control system
- Easy, all from a single source
- Easy servo tuning and machine optimization
- Easy commissioning with SINAMICS V-ASSISTANT
- Parameter cloning
- Easy integration via PTI, PROFINET, USS, Modbus RTU

Cost effective

- Integrated control modes: Pulse train positioning, internal positioning with traversing block or Modbus, speed and torque control modes
- Integrated internal positioning function
- Integrated braking resistor in all frame sizes
- Integrated holding brake switch (for the 400 V version), no external relay necessary

Reliable operation

- High-quality motor bearings
- All motors have IP65 degree of protection and are equipped with oil seal
- Integrated Safe Torque Off (STO)

SINAMICS V90 and SIMOTICS S-1FL6

Optimized servo drive solution for motion control applications

SINAMICS V90 servo drive system 1AC/3AC 200 V... 240 V Low Inertia for high dynamic performance

SINAMICS V90 servo drive	
Line supply and power:	1AC 200 V ... 240 V (–15% / +10%), 0.05 kW ... 0.75 kW 3AC 200 V ... 240 V (–15% / +10%), 0.05 kW ... 2 kW
Pulse train (PTI) version Control mode:	Positioning with pulse train, internal positioning, speed, torque
PROFINET (PN) version Control mode:	Speed control via PROFINET with PROFIdrive profile**
Degree of protection:	IP20

SIMOTICS S-1FL6 servomotor	
4 shaft heights:	20 mm, 30 mm, 40 mm, 50 mm
Rated torque:	0.16 Nm up to 6.37 Nm
Rated/max. speed:	3000 rpm / 5000 rpm
Encoder:	Incremental encoder TTL 2500 ppr***; Absolute encoder single-turn 21-bit*
Degree of protection:	IP65, natural cooling

Additional advantages:

High dynamic performance: High acceleration for shorter cycle times as a result of the very low moment of inertia

High speed: Maximum speed up to 5000 rpm can increase machine productivity

Compact size: The reduced motor length/height compared to High Inertia variants and compact drive size can address critical mounting requirements

Application examples

Electronic assembly industry, for example	• Pick and place machine • Stencil cutting machine • PCB assembly machine • IC handling machine • Chip sorting machine • Bonding machine
Converting/printing industry, for example	• Labeling machine • Slitter machine • Laminating/coating machine • Screen printing machine
Packaging industry, for example	• Filling and sealing machine • Blister machine (pharmaceutical packaging) • Bag packing machine
Material handling machinery, for example	• Automatic palletizers

SINAMICS V90 servo drive system 3AC 380 V... 480 V High Inertia for smooth operational performance

SINAMICS V90 servo drive	
Line supply and power:	3AC 380 V ... 480 V (–15% / +10%), 0.4 kW ... 7 kW
Pulse train (PTI) version Control mode:	Positioning with pulse train, internal positioning, speed, torque
PROFINET (PN) version Control mode:	Speed control via PROFINET with PROFIdrive profile**
Degree of protection:	IP20

SIMOTICS S-1FL6 servomotor	
3 shaft heights:	45 mm, 65 mm, 95 mm
Rated torque:	1.27 Nm up to 33.40 Nm
Rated/max. speed:	2000 rpm / 3000 rpm
Encoder:	Incremental encoder TTL 2500 ppr; Absolute encoder 20-bit + 12-bit multi-turn
Degree of protection:	IP65, natural cooling

Additional advantages:

Smooth operation: Higher torque accuracy and low speed ripple as a result of the higher moment of inertia ensures a better product quality

Robust design: High-quality metal connector and standard motor oil seal can withstand harsh environment

Sufficient torque output: Wide range of rated torques up to 33.4 Nm

Application examples

Metal forming machinery, for example	• Punching machine • Engraving machine • Edging press
Converting/printing industry, for example	• Winders • Slitter machine • Laminating/coating machine • Screen printing machine • Wire drawing machine
Packaging industry, for example	• Filling machine • Blister machine (pharmaceutical packaging) • Bag packing machine
Material handling machinery, for example	• Storage and warehouse systems • Conveyor systems

* Absolute encoder single-turn 21-bit available in the 2nd half of 2016

** Position and speed control in combination with a motion function (TO axis) of SIMATIC S7-1500 T-CPU / S7-1500 / S7-1200

*** For very low speed, high accuracy or high dynamic application TTL encoder is not recommended

Published by Siemens AG 2016

Digital Factory
P.O. Box 31 80
91050 Erlangen, Germany

Article No.: E20001-A380-P670-V2-7600
Printed in Germany
Dispo 21500
SCHÖ/79811 SB 04163.