

Configuration

Typical slip values for standard asynchronous motors
(induction motors)

Motor output	Slip values	Notes
< 1 kW (1.34 HP)	6 % of n_{rated} e.g. motor with 1500 rpm: 90 rpm	The slip values of 1PH asynchronous motors are very similar to those of standard motors
< 10 kW (13.4 HP)	3 % of n_{rated} e.g. motor with 1500 rpm: 45 rpm	
< 30 kW (40.2 HP)	2 % of n_{rated} e.g. motor with 1500 rpm: 30 rpm	
< 100 kW (134 HP)	1 % of n_{rated} e.g. motor with 1500 rpm: 15 rpm	
> 500 kW (671 HP)	0.5 % of n_{rated} e.g. motor with 1500 rpm: 7.5 rpm	

**Performance of integrated closed-loop drive control with SIMOTION D4x5/CX32
(closed-loop drive control based on firmware version 2.x)**

The degree to which the capacity of the closed-loop drive control with SIMOTION D4x5/CX32 is utilized depends on requirements in terms of number of axes, functional scope and control dynamic response.

When additional software functions (DCC, Safety, etc.) are activated and other components (Terminal Modules, CX32, ...) are employed, fewer axes can be computed by the integrated closed-loop drive control. With the SIZER configuration tool, it is

easy to configure the SINAMICS S120 drive family including SIMOTION D. It can also be used to determine the possible number of axes and the resulting load according to performance requirements.

The following table provides a rough overview of computing performance as a function of current controller clock cycle (dynamic response) and number of axes with basic scope of functions (factory setting).

	Dynamic response (current controller clock cycle)	Number of axes	Note
Servo Control	125 µs	6	Including one infeed (Basic Line Module, Smart Line Module, Active Line Module). Number of axes applies only to basic functionality. Without expanded setpoint channel. Note power unit derating where applicable.
	250 µs	6	
Vector Control	250 µs	2	Including one infeed (Basic Line Module, Smart Line Module, Active Line Module). Number of axes applies only to basic functionality. Expanded setpoint channel included as standard. Note power unit derating where applicable.
	500 µs	4	
V/f Control	250 µs	4	Including one infeed (Basic Line Module, Smart Line Module, Active Line Module). Number of axes applies only to basic functionality. Expanded setpoint channel included as standard.
	400 µs	6	
	500 µs	8	

Mixed operation

Servo Control plus V/f Control	125 µs + 250 µs/500 µs	5	Including one infeed (Basic Line Module, Smart Line Module, Active Line Module). Maximum 2 V/f axes with 250 µs current controller clock cycle, otherwise divide as required.
Vector Control plus V/f Control	250 µs/500 µs	2/4	Including one infeed (Basic Line Module, Smart Line Module, Active Line Module). In mixed operation Vector with V/f no difference to pure Vector operation.