Configuration

The following electronic configuring guides and engineering tools are available for the SINAMICS G120C compact inverters:

Selection guide DT Configurator within the CA 01

The interactive catalog CA 01 – the offline mall of Siemens Industry Automation & Drive Technologies – contains over 100000 products with approximately 5 million possible drive system product variants. The DT Configurator has been developed to facilitate selection of the optimum motor and/or inverter from the wide spectrum of drives. The configurator is integrated as a "selection guide" in this catalog on the DVD-ROM with the selection and configuration tools.

Online DT Configurator

In addition, the DT Configurator can be used in the Internet without requiring any installation. The DT Configurator can be found in the Siemens Industry Mall at the following address: www.siemens.com/dt-configurator

SIZER for Siemens Drives engineering tool

The SIZER for Siemens Drives engineering tool makes it easy to engineer the SINAMICS and MICROMASTER 4 drive families. It provides support when selecting the hardware and firmware components necessary to implement a drive task. SIZER for Siemens Drives covers the full range of operations required to configure a complete drive system, from basic single drives to demanding multi-axis applications.

Additional information on the SIZER for Siemens Drives engineering tool is provided in Catalog D 31, chapter Engineering tools.

STARTER commissioning tool

The STARTER commissioning tool allows menu-prompted commissioning, optimization and diagnostics. Apart from the SINAMICS drives, STARTER is also suitable for MICROMASTER 4 devices. For SINAMICS G120D, STARTER version 4.3 and higher.

Additional information on the STARTER commissioning tool is provided in Catalog D 31, chapter Engineering tools.

Drive ES engineering system

Drive ES is the engineering system used to integrate the communication, configuration and data management functions of Siemens drive technology into the SIMATIC automation world easily, efficiently and cost-effectively. The STEP 7 Manager user interface provides the ideal basis for this. A variety of software packages are available for SINAMICS – Drive ES Basic, Drive ES SIMATIC and Drive ES PCS 7.1.

Additional information on the Drive ES engineering system is provided in Catalog D 31, chapter Engineering tools.

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Selection and ordering data

The order number is selected corresponding to
- the required motor power or the motor current required and the overload requirements of the application,
- the necessary EMC classification and
- the required integrated fieldbus interface

Rated power [1] kW	hp	Base-load current I_L [2] A	Base-load current I_H [3] A	Frame size	Version	SINAMICS G120C without filter Order No.	SINAMICS G120C with integrated filter class A Order No.
Line voltage 380 ... 480 V 3 AC							
0.55	0.75	1.7	1.3	FSA	USS/Modbus RTU	new **6SL3210-1KE11-8UB1**	new **6SL3210-1KE11-8AB1**
					PROFIBUS DP	new **6SL3210-1KE11-8UP1**	new **6SL3210-1KE11-8AP1**
					PROFINET	new **6SL3210-1KE11-8UF1**	new **6SL3210-1KE11-8AF1**
					CANopen	new **6SL3210-1KE11-8UC1**	new **6SL3210-1KE11-8AC1**
0.75	1.0	2.2	1.7	FSA	USS/Modbus RTU	new **6SL3210-1KE12-3UB1**	new **6SL3210-1KE12-3AB1**
					PROFIBUS DP	new **6SL3210-1KE12-3UP1**	new **6SL3210-1KE12-3AP1**
					PROFINET	new **6SL3210-1KE12-3UF1**	new **6SL3210-1KE12-3AF1**
					CANopen	new **6SL3210-1KE12-3UC1**	new **6SL3210-1KE12-3AC1**
1.1	1.5	3.1	2.2	FSA	USS/Modbus RTU	new **6SL3210-1KE13-2UB1**	new **6SL3210-1KE13-2AB1**
					PROFIBUS DP	new **6SL3210-1KE13-2UP1**	new **6SL3210-1KE13-2AP1**
					PROFINET	new **6SL3210-1KE13-2UF1**	new **6SL3210-1KE13-2AF1**
					CANopen	new **6SL3210-1KE13-2UC1**	new **6SL3210-1KE13-2AC1**
1.5	2.0	4.1	3.1	FSA	USS/Modbus RTU	new **6SL3210-1KE14-3UB1**	new **6SL3210-1KE14-3AB1**
					PROFIBUS DP	new **6SL3210-1KE14-3UP1**	new **6SL3210-1KE14-3AP1**
					PROFINET	new **6SL3210-1KE14-3UF1**	new **6SL3210-1KE14-3AF1**
					CANopen	new **6SL3210-1KE14-3UC1**	new **6SL3210-1KE14-3AC1**
2.2	3.0	5.6	4.1	FSA	USS/Modbus RTU	new **6SL3210-1KE15-8UB1**	new **6SL3210-1KE15-8AB1**
					PROFIBUS DP	new **6SL3210-1KE15-8UP1**	new **6SL3210-1KE15-8AP1**
					PROFINET	new **6SL3210-1KE15-8UF1**	new **6SL3210-1KE15-8AF1**
					CANopen	new **6SL3210-1KE15-8UC1**	new **6SL3210-1KE15-8AC1**
3.0	4.0	7.3	5.6	FSA	USS/Modbus RTU	new **6SL3210-1KE17-5UB1**	new **6SL3210-1KE17-5AB1**
					PROFIBUS DP	new **6SL3210-1KE17-5UP1**	new **6SL3210-1KE17-5AP1**
					PROFINET	new **6SL3210-1KE17-5UF1**	new **6SL3210-1KE17-5AF1**
					CANopen	new **6SL3210-1KE17-5UC1**	new **6SL3210-1KE17-5AC1**
4.0	5.0	8.8	7.3	FSA	USS/Modbus RTU	new **6SL3210-1KE18-8UB1**	new **6SL3210-1KE18-8AB1**
					PROFIBUS DP	new **6SL3210-1KE18-8UP1**	new **6SL3210-1KE18-8AP1**
					PROFINET	new **6SL3210-1KE18-8UF1**	new **6SL3210-1KE18-8AF1**
					CANopen	new **6SL3210-1KE18-8UC1**	new **6SL3210-1KE18-8AC1**
5.5	7.5	12.5	8.8	FSB	USS/Modbus RTU	new **6SL3210-1KE21-3UB1**	new **6SL3210-1KE21-3AB1**
					PROFIBUS DP	new **6SL3210-1KE21-3UP1**	new **6SL3210-1KE21-3AP1**
					PROFINET	new **6SL3210-1KE21-3UF1**	new **6SL3210-1KE21-3AF1**
					CANopen	new **6SL3210-1KE21-3UC1**	new **6SL3210-1KE21-3AC1**
7.5	10	16.5	12.5	FSB	USS/Modbus RTU	new **6SL3210-1KE21-7UB1**	new **6SL3210-1KE21-7AB1**
					PROFIBUS DP	new **6SL3210-1KE21-7UP1**	new **6SL3210-1KE21-7AP1**
					PROFINET	new **6SL3210-1KE21-7UF1**	new **6SL3210-1KE21-7AF1**
					CANopen	new **6SL3210-1KE21-7UC1**	new **6SL3210-1KE21-7AC1**
11	15	25	16.5	FSC	USS/Modbus RTU	new **6SL3210-1KE22-6UB1**	new **6SL3210-1KE22-6AB1**
					PROFIBUS DP	new **6SL3210-1KE22-6UP1**	new **6SL3210-1KE22-6AP1**
					PROFINET	new **6SL3210-1KE22-6UF1**	new **6SL3210-1KE22-6AF1**
					CANopen	new **6SL3210-1KE22-6UC1**	new **6SL3210-1KE22-6AC1**
15	20	31	25	FSC	USS/Modbus RTU	new **6SL3210-1KE23-2UB1**	new **6SL3210-1KE23-2AB1**
					PROFIBUS DP	new **6SL3210-1KE23-2UP1**	new **6SL3210-1KE23-2AP1**
					PROFINET	new **6SL3210-1KE23-2UF1**	new **6SL3210-1KE23-2AF1**
					CANopen	new **6SL3210-1KE23-2UC1**	new **6SL3210-1KE23-2AC1**
18.5	25	37	31	FSC	USS/Modbus RTU	new **6SL3210-1KE23-8UB1**	new **6SL3210-1KE23-8AB1**
					PROFIBUS DP	new **6SL3210-1KE23-8UP1**	new **6SL3210-1KE23-8AP1**
					PROFINET	new **6SL3210-1KE23-8UF1**	new **6SL3210-1KE23-8AF1**
					CANopen	new **6SL3210-1KE23-8UC1**	new **6SL3210-1KE23-8AC1**

[1] The rated power of the device based on the rated output current I_L and a rated input voltage of 400 V 3 AC. The rated power is specified on the device rating plate.
[2] The base-load current I_L is based on the duty cycle for low overload (LO). The current value is specified on the device rating plate.
[3] The base-load current I_H is based on the duty cycle for high overload (HO). The current value is not specified on the device rating plate.

Technical specifications

Unless explicitly specified otherwise, the following technical specifications are valid for all SINAMICS G120C compact inverters.

Mechanical specifications	
Vibratory load According to EN 60068-2-6	
• Transport in the transport packaging	5 ... 9 Hz: Constant deflection 3.1 mm 9 … 200 Hz: Constant acceleration = 9.81 m/s^2 (1 × *g*)
• Operation	2 ... 9 Hz: Constant deflection 7 mm 9 … 200 Hz: Constant acceleration = 19.62 m/s^2 (2 × *g*)
Shock load According to EN 60068-2-27	
• Transport in the transport packaging	147.15 m/s^2 (15 × *g*)/11 ms 3 shocks in each axis and direction
• Operation	147.15 m/s^2 (15 × *g*)/11 ms 3 shocks in each axis and direction
Degree of protection	IP20/ UL open type
Permissible mounting position	Horizontal panel mounting
Ambient conditions	
Protection class According to EN 61800-5-1	Class III (PELV1)
Touch protection According to EN 61800-5-1	Class I (with protective conductor system)
Humidity, max.	95 % at 40 °C (104 °F), condensation and icing not permissible
Ambient temperature	
• Storage [1] acc. to EN 60068-2-1	-40 … +70 °C (-40 ... +158 °F)
• Transport [1] acc. to EN 60068-2-1	-40 … +70 °C (-40 ... +158 °F)
• Operation acc. to EN 60068-2-2	-10 … +40 °C (14 … 104 °F) without derating >40 … 60 °C (104 … 140 °F) see derating characteristics
Environmental class in operation	
• Harmful chemical substances	Class 3C2 to EN 60721-3-3
• Organic/biological pollutants	Class 3B1 to EN 60721-3-3
• Degree of pollution	2 acc. to EN 61800
Standards	
Compliance with standards	CE, cULus, c-tick
Fail-safe certification	Function: Safe Torque Off (STO)
• According to EN 60204 (2007)	Category 3
• According to IEC 61508, Parts 1 to 7 (1998 ... 2001)	SIL 2
• According to EN ISO 13849 Part 1 (2008)	PL d
• PFH_D	5 × 10^{-8}
• T1	20 years
CE marking, according to	EMC Directive 2004/108/EC Low-Voltage Directive 2006/95/EC
EMC behavior According to EN 61800-3	The EMC product standard EN 61800-3 does not apply directly to a frequency inverter but to a PDS (Power Drive System), which comprises the complete circuitry, motor and cables in addition to the inverter.
• Frame sizes FSA to FSC with integrated line filter class A	Category C2 with max. 25 m (82 ft) shielded motor cable and conducted interference
• Frame size FSA with integrated line filter class A	Category C2 with max. 25 m (82 ft) shielded motor cable
• Frame size FSB with integrated line filter class A and non-PROFINET version	Category C2 with max. 25 m (82 ft) shielded motor cable
• Frame size FSB with integrated line filter class A and PROFINET version as well as mandatory use of a line reactor at the inverter	Category C2 with max. 25 m (82 ft) shielded motor cable
• Frame size FSB with integrated line filter class A and PROFINET version	Category C3 with max. 25 m (82 ft) shielded motor cable
• Frame size FSC with integrated line filter class A	Category C3 with max. 25 m (82 ft) shielded motor cable

[1] In transport packaging.

SINAMICS G120C compact inverters

Technical specifications

SINAMICS G120C compact inverter	USS/Modbus RTU version	PROFIBUS DP version	PROFINET version	CANopen version
	6SL3210-1KE..-..B1	6SL3210-1KE..-..P1	6SL3210-1KE..-..F1	6SL3210-1KE..-..C1
Integrated bus interface				
Protocols	USS Modbus RTU (switchable using a parameter)	PROFIdrive Profile V4.1	PROFINET IO PROFIdrive profile V4.1 PROFIsave PROFIenergy	CANopen
Hardware	Plug-in terminal, insulated, USS: max. 187.5 kbaud Modbus RTU: 19.2 kbaud, Bus terminating resistors that can be switched in	9-pin SUB-D connector, insulated, Max. 12 Mbit/s Slave address can be set using DIP switches	2 × RJ45, max. 100 Mbit/s (full duplex), device name can be stored on the device	9-pin SUB-D socket, insulated, Max. 1 Mbit/s
I/O interfaces				
Signal cable cross-section	0.15 mm^2 ... 1.5 mm^2 (AWG28 ... AWG16)			
Digital inputs – Standard	6 isolated inputs Optically isolated; Free reference potential (own potential group) NPN/PNP logic can be selected using the wiring			
• Switching level: 0 → 1	11 V			
• Switching level: 1 → 0	5 V			
• Input current, max.	15 mA			
Fail-safe input	1 safety input When using the standard digital inputs (DI4+DI5) Safety function: Safe Torque OFF (STO)			
Digital outputs	1 relay changeover contact 30 V DC, 0.5 A (ohmic load) 1 transistor 30 V DC, 0.5 A (ohmic load)			
Analog inputs	1 analog input Differential input Switchable between voltage (-10 ... +10 V) and current (0/4 ... 20 mA) using a DIP switch 10-bit resolution Can be used as additional digital input Analog inputs are protected in a voltage range of ± 30 V and have a common-mode voltage in the ± 15 V range.			
• Switching threshold: 0 → 1	4 V			
• Switching threshold: 1 → 0	1.6 V			
Analog outputs	1 analog output Non-isolated output Switchable between voltage (0 ... 10 V) and current (0/4 ... 20 mA) using a parameter Voltage mode: 10 V, min. burden 10 kΩ Current mode: 20 mA, max. burden 500 Ω The analog outputs have short circuit protection			
PTC/KTY interface	1 motor temperature sensor input Sensors that can be connected: PTC, KTY and Thermo-Click, Accuracy ±5 °C			
Voltage supply for the integrated Control Unit	24 V DC via the Power Module or by connecting to an external 20.4 ... 28.8 V DC power supply			
Tool interfaces				
Memory cards	Optional 1 SINAMICS micro memory card (MMC) or 1 SINAMICS SD card			
Operator panels	Optional Basic Operator Panel BOP-2 or Intelligent Operator Panel IOP			
PC interface	USB			