



SINAMICS Drives

SINAMICS G150 NEMA

Type C enclosed chassis 150 – 800 HP

Introduction

This specification sheet provides a short overview of the most important characteristics of the NEMA version of SINAMICS G150 type C. For more comprehensive information about the drive and options, as well as more detailed technical data, refer to the SINAMICS G150 NEMA catalog D11.7.

The SINAMICS G150 type C enclosed chassis is a stand-alone variable speed enclosed drive ideal for all applications that involve moving, conveying, pumping or compressing solids, liquids or gases. In particular, this includes variable torque applications such as pumps, fans, blowers, and compressors, as well as constant torque applications such as mixers, extruders and mills that do not require regeneration.

This compact and quiet drive uses IGBT power semi-conductors and an innovative cooling concept. The control can be operated in either Volts/Hertz, sensorless vector or closed loop vector (with speed feedback encoder) control modes.

Standard features

The G150 type C enclosed chassis is a drive in a very compact enclosure, for use with external disconnect and circuit protection (for example in an existing MCC). It is offered with a limited range of standard options, such as enclosure type, input line reactor or speed encoder feedback module.

SINAMICS G150 type C is delivered with the following standard features:

- Basic NEMA 1 enclosure
- Controller CU320-2 DP with integral PROFIBUS DP communications port and Ethernet programming port
- Input/output module TM31, with digital and analog I/O
- Advanced Operator Panel AOP30 for easy start-up and operation
- Windows-based start-up STARTER software – common to all models of the SINAMICS drives family
- CE mark

June 2014

Product Specifications

Light Overload			High Overload			Rated Output current I_N^1 A	Rated input current ²	SINAMICS G150 NEMA Type C Enclosed Chassis Order No.
Output 460V, or 575V, 60 Hz) HP	(at 400V or 500V 50Hz) kW	Base load current I_L^1 A	Output (at 460V or 575V, 60 Hz HP	(at 400V or 500V, 50Hz) kWA	Base load current I_H^1 A			
Supply voltage 380 V to 480 V 3 ph. AC								
150	110	205	125	90	178	210	229	6SL3710-1GE32-1CU3
200	132	250	150	110	233	260	284	6SL3710-1GE32-6CU3
250	160	302	200	132	277	310	338	6SL3710-1GE33-1CU3
300	200	370	250	160	340	380	395	6SL3710-1GE33-8CU3
400	250	477	350	200	438	490	509	6SL3710-1GE35-0CU3
500	315	590	400	250	460	605	629	6SL3710-1GE36-1CU3
600	400	725	500	315	570	745	775	6SL3710-1GE37-5CU3
700	450	820	600	400	700	840	873	6SL3710-1GE38-4CU3
800	560	960	700	450	860	985	1024	6SL3710-1GE41-0CU3
Supply voltage 500 V to 600 V 3 ph. AC								
150	110	171	150	90	157	175	191	6SL3710-1GF31-8CU3
200	132	208	200	110	192	215	224	6SL3710-1GF32-2CU3
250	160	250	250	132	233	260	270	6SL3710-1GF32-6CU3
300	200	320	300	160	280	330	343	6SL3710-1GF33-3CU3
400	250	400	350	200	367	410	426	6SL3710-1GF34-1CU3
450	315	452	450	250	416	465	483	6SL3710-1GF34-7CU3
600	400	560	500	315	514	575	598	6SL3710-1GF35-8CU3
700	500	710	600	450	657	735	764	6SL3710-1GF37-4CU3
800	560	790	700	500	724	810	842	6SL3710-1GF38-1CU3

¹ For a NEMA 12 (ventilated) enclosure (option M54), current values must be reduced to 95% of the values in this table.

² The input current is based on the rated output current.

Note: HP ratings are based on rated current, and provided as a guide only, for standard 2, 4 or 6 pole motors. Select drive based on motor FLA and overloads.

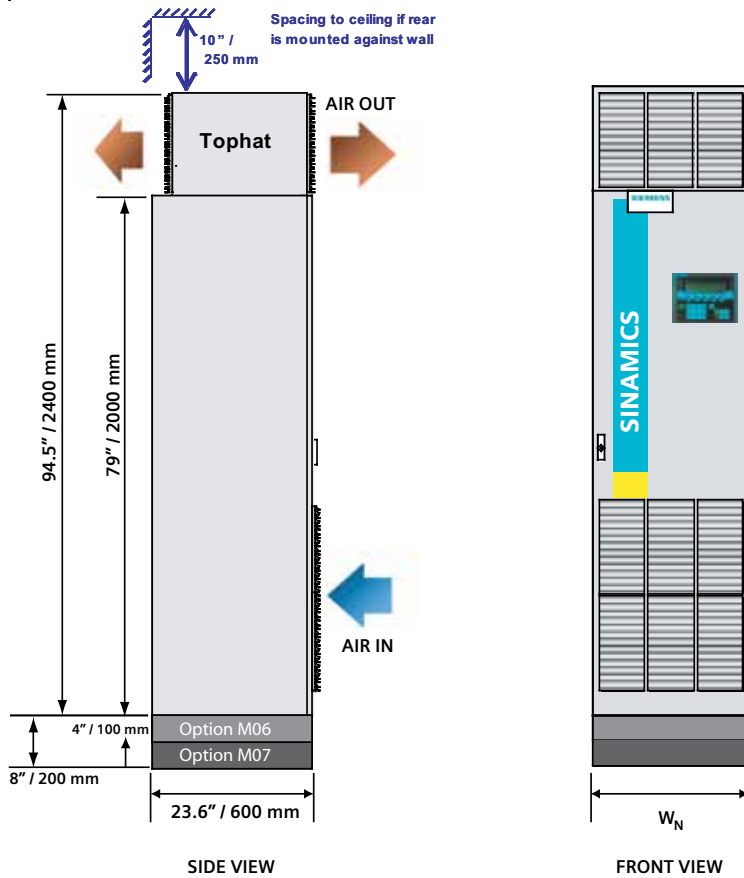
Options

Option Code	Description	Option Code	Description
Enclosure Options		Miscellaneous Options	
M06	Base (plinth) 4" (100mm)	L55	Enclosure space heater
M07	Base (plinth) 8" (200mm)	U90	UL listing per UL508A [Requires M23, M43 or M54]
M23	Enclosure NEMA 1 filtered	U91	cUL listing per UL508A [Requires M23, M43 or M54 & T58]
M43	Enclosure IP43	Documentation and Languages	
M54	Enclosure NEMA 12 (ventilated) [Requires current derate to 95%]	D02	Customer drawings in dxf format
M90	Lifting beam/eye bolts [Recommended: Required to lift the drive off pallet]	D04	Customer documentation in paper format, one set
Y09	Special enclosure paint color (specify color)	D14	Advance copy of customer documentation (pdf)
Power Options		D58	Documentation English/French
L23	Input line reactor	T58	Nameplate English/French For additional languages, please consult factory
Control Options		Testing	
G20	CBC10 communication board CANopen	F03	Visual inspection by customer
G33	CBE20 for SINAMICS link or PROFINET or EtherNet/IP	F71	Witnessed function test without motor
G51	TM150 Terminal Module for RTD monitoring	F75	Witnessed function test with test-bay motor, no load
K01*	Safety license (for 1 axis)	F77	Witnessed test incl. high-voltage and isolation test
K50	SMC30 sensor module for speed feedback	F97	Witnessed customer specific test (on request)
K95	Control unit CU320-2 PN (PROFINET)		

* Integrated Safety functionality on SINAMICS G150 type C:

- Basic and extended safety functions can be controlled only using PROFISAFE on PROFIBUS or PROFINET bus communications (fail safe inputs or outputs are not available)
- Only encoderless implementation of safety functions is possible, with associated restrictions (only with induction motors, no optimized pulse patterns, no sweep frequency generation, no fine adjustment of pulse frequency, and only for applications with low dynamic requirements i.e. acceleration or deceleration ramp time >1 second)

Design Data



G150 type C with transport eye bolts (tophat removed)

- Note:**
- The drawing shows the SINAMICS G150 type C enclosed chassis with louvers (option M23, M43 or M54).
 - For transport reasons, the tophat is delivered separately and must be fitted on site.
 - To assure proper air circulation through the drive, please allow a minimum space of 10" (250mm) between drive tophat and ceiling when mounted against a wall.
 - All dimensions are nominal for sheet steel enclosure, tolerance 0.5" (12 mm), excluding protruding components. Please refer to order drawings for exact details.

SINAMICS G150 NEMA Type C Enclosed chassis	Output (Light Overload) (at 460V, or 575, 60 Hz)	Noise level L _{pA} (1m) at 50/60 Hz	Cooling air flow demand	Heat loss	Weight approx. (standard enclosure) w/o options)		Nominal Width Drive Enclosure W _N	
					lb	kg	inch	inch
Model No.	HP	dB(A)	cfm	kW				
Supply voltage 380 V to 480 V 3 ph. AC								
6SL3710-1GE32-1CU3	150	67 / 68	360	2.9	480	220	15.8	400
6SL3710-1GE32-6CU3	200	69 / 73	487	3.8	480	220	15.8	400
6SL3710-1GE33-1CU3	250	69 / 73	763	4.4	640	290	15.8	400
6SL3710-1GE33-8CU3	300	69 / 73	763	5.3	640	290	15.8	400
6SL3710-1GE35-0CU3	400	69 / 73	763	6.4	640	290	15.8	400
6SL3710-1GE36-1CU3	500	70 / 73	1653	8.2	1400	640	23.6	600
6SL3710-1GE37-5CU3	600	70 / 73	1653	9.6	1400	640	23.6	600
6SL3710-1GE38-4CU3	700	70 / 73	1653	10.1	1400	640	23.6	600
6SL3710-1GE41-0CU3	800	72 / 75	3136	14.4	2250	1020	39.4	1000
Supply voltage 500 V to 600 V 3 ph. AC								
6SL3710-1GF31-8CU3	150	69 / 73	763	3.8	640	290	15.8	400
6SL3710-1GF32-2CU3	200	69 / 73	763	4.2	640	290	15.8	400
6SL3710-1GF32-6CU3	250	69 / 73	763	5.0	640	290	15.8	400
6SL3710-1GF33-3CU3	300	69 / 73	763	6.1	640	290	15.8	400
6SL3710-1GF34-1CU3	400	72 / 75	1653	8.1	1400	640	23.6	600
6SL3710-1GF34-7CU3	450	72 / 75	1653	7.8	1400	640	23.6	600
6SL3710-1GF35-8CU3	600	72 / 75	1653	8.7	1400	640	23.6	600
6SL3710-1GF37-4CU3	700	72 / 75	3136	12.7	2150	980	39.4	1000
6SL3710-1GF38-1CU3	800	72 / 75	3136	14.1	2250	1020	39.4	1000

Technical Data

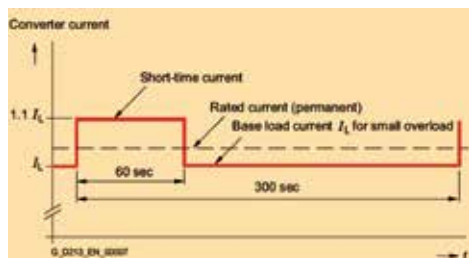
Electrical data				
Supply voltages and output ranges	380 V to 480 V 3 ph AC, $\pm 10\%$ ($-15\% < 1 \text{ min}$) 150 to 800 HP 500 V to 600 V 3 ph AC, $\pm 10\%$ ($-15\% < 1 \text{ min}$) 150 to 800 HP			
Supply systems	Grounded (TN/TT) supplies or ungrounded (IT) supplies			
Line frequency	47 Hz to 63 Hz			
Output frequency	0 Hz to 300 Hz			
Power factor fundamental / total	> 0.98 / 0.93 to 0.96			
Converter efficiency	$> 98\%$			
Short circuit current rating	SCCR per UL508A at 480V 65kA, at 600V 35kA, when used with recognized AC input line fuses as specified in the user manual and listed circuit breakers			
Control method	Vector control (sensorless and closed loop) or V/Hz control			
Fixed speeds	15 fixed speeds plus 1 minimum speed, programmable (in the default setting 3 fixed setpoints plus 1 minimum speed can be selected via digital inputs/ PROFIBUS)			
Skipped frequency ranges	4, programmable			
Mechanical data				
Type of enclosure	NEMA1 (optionally NEMA 1 filtered or NEMA12 ventilated) Color RAL 7035 light grey			
Type of cooling	Forced air ventilation			
Noise level L_{pA} (1 m)	< 75 dB at 60 Hz line frequency			
Environmental protection	Nickel plated busbars, varnish coated electronic boards			
Compliance with standards				
UL listing	Optional listing per UL508A			
Ambient conditions		Operation	Storage	Transport
Ambient temperature		32°F to 104°F (0 °C to +40 °C) Up to +122°F/+50°C with derating	-13°F (-25 °C) to 131°F (+55 °C)	-13°F (-25 °C) to 158°F (+70 °C) Above -40°F (-40 °C) for 24 hours
Relative humidity (non-condensing)		5% to 95% corresponds to 3K3 to IEC 60721-3-3	5% to 95% corresponds to 1K4 to IEC 60721-3-1	5% to 95% at 40 °C corresponds to 2K3 to IEC 60721-3-2
Installation altitude	Up to 6,600 ft (2000 m) above sea level without reduction in performance, $> 6,600$ ft see derating data			

Engineering Information

Overload ratings

The SINAMICS G150 drive may be operated with both variable torque and constant torque loads at either light or high overload duties. The criterion for overload is that the drive is operated with its base load current before and after the overload occurs.

Light overload duty is based on 110% base load current for 60 sec or 150% for 10 sec, repeated every 300 sec.



Light overload

High overload duty is based on 150% base load current for 60 sec or 160% for 10 sec, repeated every 300 sec.

Motor and drive sizing

Service Factor must be considered for motors operating at Service Factors beyond 1.0. Please consult factory for assistance sizing the drive.

For motors with ratings larger than the drive, please consult factory as nuisance tripping may occur if drive is not properly sized.

In sensorless vector control, the rated motor current (FLA) must be at least $\frac{1}{4}$ of the rated drive output current. With lower motor currents, operation is possible in Volts/Hz control mode only.

Advanced operator panel (AOP30)



The easy-to-use advanced operator panel is common to all SINAMICS enclosed drives. The AOP30 is mounted in the enclosure door of the G150 drive, and is used for start-up/commissioning or operation and troubleshooting of the drive.

During the first start-up of the drive, the user will automatically be guided through the initial start-up procedure that allows a very simple and quick commissioning process. Parameters are arranged according to function groups which makes it easy to find and select them.

The AOP30 features a graphical LCD with backlighting for plain text and bar graph display of process variables:

- LEDs for display of operational status
- Numeric keypad and drive specific hard and soft function keys
- Access control to inhibit changing of parameters
- Help functions with description of causes and remedies for faults and alarms
- Alarm and fault status in plain text
- Configurable operating display allows up to 3 variables displayed in bar graph format, with associated numerical values

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