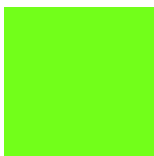


6

Services and Documentation



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SINAMICS G110/SINAMICS G120

Services and documentation

Training

Overview



Training is decisive for your success

SITRAIN- Siemens Training for Automation and Industrial Solutions – provides you with comprehensive support in solving your tasks.

Training by the market leader in automation, plant installation and plant support enables you to make your decisions with certainty and full command. Especially where the optimum and efficient use of products and plants are concerned. You can eliminate deficiencies in existing plants and exclude expensive faulty planning right from the beginning.

All in all, this represents an enormous gain for your company: Shortened startup times, optimized plant components, faster troubleshooting, reduced down times. In other words, increased profits and lower costs.

Top trainers

Our trainers know their topics in practice and possess comprehensive didactic experience. Course developers have a direct wire to product development, and directly pass on their knowledge to the trainers.

Practical experience

The practical experience of our trainers enable them to pass on theoretical matter in a plausible manner. But since it is known that all theory is drab, we attach great importance to practical exercises which can comprise up to half of of the course time. You can therefore immediately implement your new knowledge in practice. We train you on state-of-the-art methodically/didactically designed training equipment. You feel absolutely certain when trained in this manner.

Wide variety

With a total of approx. 300 local attendance courses, we train the complete range of A&D products and a large portion of the system solutions from I&S. Telecourses, teach-yourself software and seminars presented on the Web supplement our classical range of courses.

Close to our customer

We are only a short distance away. You can find us approx. 60 times in Germany, and worldwide in 62 countries. You wish to have individual training instead of one of our 300 courses? Our solution: we will provide a program tailored exactly to your personal requirements. Training can be carried out in our Training Centers or at your company.

The right mixture: blended learning

Blended learning is understood to be the combination of various training media and sequences. For example, a local attendance course in a Training Center can be optimally supplemented by a teach-yourself program as preparation or follow-up. Furthermore, SITRAIN utilizes supported online training for live instruction on the Internet at agreed times.

The right mixture is the solution. Therefore blended learning can convey complex topics well and train networked thinking. Additional effect: reduced traveling costs and periods of absence through training sequences independent of location and time.

The international training portal

Additional information is available on the Internet at:

<http://www.siemens.com/sitrain>

All training facilities at a glance: search in the worldwide range of courses at leisure, call up all course dates online, utilize the daily updated display of vacant course spaces – and register directly.

Or let us advise you personally:

Course office, Infoline Germany
Tel.: +49-(0)1805-23 56 11
Fax: +49-(0)1805-23 56 12

... and request our latest training catalog on:

	Language	Order No.
ITC Catalog (paper version)	German	E86060-K6850-A101-B7
Dates and Price List including CD-ROM	German	E86060-P6850-A101-D3
SITRAINonCD interactive course information system on CD-ROM	German/ English	E86060-D6850-A100-C5-7400

Design

Training package

The courses are modular in design and are intended for a variety of target groups as well as individual customer requirements. An overview course enables decision-makers and sales personnel to get to know the SINAMICS drive family as well as its positioning in the existing Siemens drive environment.

SITRAIN offers a compact course for users of SINAMICS G110. Due to the uniform parametrization and commissioning of MICROMASTER 4 and SINAMICS G110, both technologies can well be combined in one course.

A training course on the subject of service and commissioning provides the necessary depth of technical knowledge for SINAMICS G120 and SINAMICS G120D.

SINAMICS G120 is also covered by various courses which deal more generally with the SINAMICS drive system.

All modules contain as many practical exercises as possible in order to enable intensive and direct training on the drive system and with the tools in small groups.



Title	Target group					Duration	Course code
	Decision-makers, sales personnel	Programmers	Commissioning engineers, configurators	Service personnel	Maintenance personnel		
SINAMICS system overview	✓	–	–	–	–	2 days	DR-SN-UEB
MICROMASTER MM4/SINAMICS G110	–	–	✓	✓	✓	1 day	SD-WSMM4
SINAMICS G120 commissioning and service	✓	–	✓	✓	✓	2 days	DR-G120-EXP
SINAMICS communication	–	✓	✓	✓	–	3 days	DR-SN-COM

SINAMICS G110/SINAMICS G120

Services and documentation

Training

Function

SINAMICS system overview (2 days) *DR-SN-UEB*

Description/learning target

This course has been specially designed for sales personnel and decision-makers who wish to attain a rapid overview of the SINAMICS drive concept and its position in the existing Siemens drive environment.

The system overview is supplemented by an introduction to the fundamentals of motor and inverter technology.

The SIZER configuration tool and the STARTER commissioning tool are presented and explained using short exercises.

Target group

Decision-makers and sales personnel

Content

- SINAMICS system overview
- Position with respect to existing drive systems
- Fundamentals of converter engineering and motors
- SIZER configuration tool
- STARTER commissioning tool
- Simple commissioning of a drive
- Practical exercises using the training case

MICROMASTER MM4/SINAMICS G110 compact course (1 day) *SD-WSMM4*

Description/learning target

This introductory course is designed for consultant engineers, configurators, maintenance personnel, technical sales personnel, service engineers and commissioning engineers. Previous knowledge with respect to drives is not required since basics concerning drives are taught. Standard functions of MICROMASTER 410, 420, 430, 440 as well as basic functions of the drive SINAMICS G110 are addressed.

Theoretical knowledge is already put to practice during the course and, thus, is strengthened.

We recommend the course SD-MM4-AUF to acquire advanced knowledge and to learn about controlling special functions/special applications.

Target group

Commissioning engineers, configurators, service personnel, maintenance personnel

Content

- Basics of inverter technology, difference to line-fed operation
- Product overview MICROMASTER 4, SINAMICS G110
- Commissioning with Basic Operator Panel BOP
- Commissioning with PC tool STARTER via USS interface and PROFIBUS
- Digital and analog inputs and outputs
- Control word, status word
- U/f characteristic curve and vector control
- Flexible signal interconnection with BICO technology
- Inverter functions (flying restart, braking resistor, DC brake, PID controller, etc.)

SINAMICS G120 commissioning and service (2 days) *DR-G120-EXP*

Description/learning target

This course addresses the configuration and first commissioning of the SINAMICS G120 drive system. Practical exercises with the SINAMICS G120 training case are an important component.

After finishing the course, you will be comfortable dealing with the STARTER commissioning tool. Consequently, the various inverter functions can be applied efficiently.

Target group

Decision-makers, sales personnel, commissioning engineers, configurators, servicing and maintenance personnel

Content

- Design of the SINAMICS G120 drive system
- Commissioning and parameterization with the STARTER commissioning tool
- Inverter functions (flying restart, braking, closed-loop control)
- Data storage
- Flexible signal interconnection with BICO technology
- Safety Integrated functions
- Diagnostics and troubleshooting
- Practical exercises using the training case

SINAMICS communication (3 days) *DR-SN-COM*

Description/learning target

The course is appropriate for programmers and service engineers who, as an extension to the DR-SNS-SI course, require further knowledge of the PROFIBUS and RS232 communications interfaces for STARTER and AOP30, as well as I/O terminals.

The focal point is PROFIBUS with the PROFIDrive V3 profile with routing, teleservice, and the functionalities associated with the equidistant bus cycle, isochronous mode with servo applications, and direct OP access. Also described are the libraries of DriveES SIMATIC for cyclic and acyclic data exchange.

This knowledge is expanded by practical exercises using SINAMICS and SIMATIC S7 training cases with CPU 315-2 DP.

Target group

Commissioning engineers, configurators, service engineers

Content

- PROFIBUS fundamentals
- Basic functions and drive-specific PROFIBUS data of usage
- Alignment of the SIMATIC-S7 project with the integrated STARTER project with respect to expanded standard lengths and contents of telegrams
- Isochronous mode and equidistance in the SIMATIC-S7 project
- Cyclic and acyclic data exchange with Drive ES SIMATIC components
- Operating the drive via PROFIBUS signals, speed-controlled and in positioning mode
- PROFIBUS-routing via MPI and ethernet TCP/IP
- Configuration of the PROFINET module CBE20 in the STARTER project
- Integration of the SINAMICS S120 drive into the SIMATIC-S7-PROFINET project
- Practical exercises with the training cases

SINAMICS G110/SINAMICS G120

Services and documentation

SINAMICS G110 training case

Overview



The modular SIDEMO case system for micro-systems also includes a training case for SINAMICS G110 which is designed for mobile use for sales and servicing.

The training case is equipped with an analog version of a SINAMICS G110 inverter.

The training case can be operated on its own or together with training systems such as LOGO!, SIMATIC S7-200, and SITOP DC-USV.

For this reason, a conversion guide is enclosed with the training case that enables the user to replace the inverter with a USS version (not included in the scope of supply).

The training systems are fitted in dark blue transport cases (400 x 300 x 210 mm; gross weight: 12 kg). The transport cases can be stacked.

Further information is available on the Internet at <http://www.siemens.de/sidemo>

Selection and ordering data

	Order No.
SINAMICS G110 training case (incl. BOP operator panel)	6AG1064-1AA03-0AA0
Line adapter 110 V/230 V	6AG1064-1AA02-0AA0

SINAMICS G120 training case

Application



A training case has been developed for on-site training and demonstration of the SINAMICS G120 system. It can demonstrate and increase understanding of a wide range of SINAMICS G120 functions. The case uses the CU240S DP-F as a Control Unit with which the PROFIBUS interface and safety functions can be demonstrated.

Design

- Drive system comprising:
 - CU240S DP-F Control Unit
 - Power Module PM240 frame size FSA, 0.37 kW
 - Basic operator panel (BOP)
 - Asynchronous motor 1LA7060-4AB10
 - Encoder
 - Load equipment
- Control station with toggle switches and potentiometers
- Power cable, PROFIBUS cable
- Storage and carrying case (Tanos box made of hard plastic)

The training case is supplied ready for use. As an option, the case can be supplied with a Zarges box (robust hard shell case).

Technical specifications

Input voltage	230 V 1 AC
Degree of protection to DIN VDE 0470 Part 1, EN 60529, IEC 529	IP00
Ambient temperature, perm.	
• Storage and transport	-20 ... +60 °C
• Operation	5 ... 40 °C
Dimensions	
• Width	540 mm
• Height	500 mm
• Depth	400 mm
Weight, approx.	13 kg

Selection and ordering data

	Order No.
SINAMICS G120 training case with <u>Tanos box</u>	6ZB2480-0CD00
SINAMICS G120 training case with <u>Zarges box</u>	6ZB2480-0CD00-Z A01
Line adapter 110 V/230 V	6AG1064-1AA02-0AA0

SINAMICS G110/SINAMICS G120

Services and documentation

Documentation

Übersicht

SINAMICS G110

The following manuals are available for the inverter chassis units SINAMICS G110:

	Manuals		
	Operation instructions	Parameter list	Getting started guide
Controlled Power Module			
CPM110	de, en, fr, it, es	de, en, fr, it, es	multilingual

Manuals are available in the following form:

Paper documentation

The scope of supply for each Controlled Power Module comprises a Getting started guide in hard copy form. Additionally, the Operating instructions and the Parameter list can be ordered in hard copy form.

Online version on the Internet as download

The documentation is also available on the Internet under

<http://www.siemens.com/sinamics-g110>

SINAMICS G120

SINAMICS G120 is a modular inverter system that comprises different function units – these are primarily the Control Unit and the Power Module. The documentation is also organized in a modular structure. The following manuals are available:

	Manuals			
	Installation guide	Operating instructions	List manual	Getting started
Control Unit				
CU240S	–	de, en	de, en	multilingual
Power Modules				
PM240	de, en	–	– ¹⁾	multilingual
PM250	de, en	–	– ¹⁾	multilingual
PM260	de, en	–	– ¹⁾	multilingual

Manuals are available in the following form:

Multi Language Package on CD-ROM (available soon)

A multi-language package on CD-ROM is supplied with every Control Unit which comprises all manuals in the available languages for SINAMICS G120.

Paper documentation

A Getting started guide is supplied in hard copy form with every Power Module and Control Unit.

Online version on the Internet as download

The documentation is also available on the Internet under

<http://www.siemens.com/sinamics-g120>

SINAMICS G120D

SINAMICS G120D is a modular, distributed inverter system that comprises different function units – these are primarily the Control Unit and the Power Module. The documentation is also organized in a modular structure. The following manuals are available:

	Manuals			
	Installation guide	Operating instructions	List manuals	Getting started
Control Unit				
CU250D	–	de, en	de, en	multilingual
Power Module				
PM250D	de, en	–	– ¹⁾	multilingual

The documentation is also available on the Internet under

Multi Language Package on CD-ROM

A multi-language package on CD-ROM is supplied with every Control Unit which comprises all manuals in the available languages for SINAMICS G120D.

Paper documentation

A Getting started guide is supplied in hard copy form with every Power Module and Control Unit.

Online version on the Internet as download

The documentation is also available on the Internet under

<http://www.siemens.com/sinamics-g120d>

¹⁾ The parameter settings for the Power Modules are included in the List manual for the Control Units.

SINAMICS G110/SINAMICS G120

Services and documentation

Documentation

Selection and ordering data

Type of documentation	Language	Order No.
SINAMICS G110 Operating instructions (Paper version)	de	6SL3298-0AA11-0AP0
	en	6SL3298-0AA11-0BP0
	fr	6SL3298-0AA11-0DP0
	it	6SL3298-0AA11-0CP0
	es	6SL3298-0AA11-0EP0
SINAMICS G110 Parameter list (Paper version)	de	6SL3298-0BA11-0AP0
	en	6SL3298-0BA11-0BP0
	fr	6SL3298-0BA11-0DP0
	it	6SL3298-0BA11-0CP0
	es	6SL3298-0BA11-0EP0

Further information

Language	Manual in language
de	German
en	English
fr	French
it	Italian
es	Spanish
multilingual	de, en, fr, it, es

Installation manual

The Installation manual describes the actions that have to be carried out once with or on the product in order to use the product in the desired place in the desired way. The Installation manual contains all relevant information for setting up, assembling and wiring as well as the required dimension drawings and circuit diagrams.

Usage phases: Installation and commissioning phase

Operating instructions

Operating instructions are a comprehensive collection of all information necessary for the normal and safe operation of products, process cells and complete plants (EN 62079).

Usage phases: Planning and configuration phase, implementation phase, setup and commissioning phase, application phase, maintenance and service phase.

List manual/Parameter list

The List manual and/or the Parameter list describe all parameters, function charts and faults/warning for the product/system as well as their meanings and setting options. It contains parameter data and fault/warning descriptions with functional correlations.

Usage phases: Commissioning of components that have already been connected, configuration of system functions and fault cause/diagnostics.

Getting started/Getting started guide

The Getting started and the Getting started guide provide information about getting started for the first-time user as well as references to additional information. It contains information about basic steps to be taken during commissioning. Descriptions of more advanced procedures can be found in the other documentation.

Usage phases: Commissioning of components that have already been connected.

SINAMICS G120

Services and documentation

Replacement fans for SINAMICS G120

Overview

The Power Module fans are designed for extra long service life. Replacement fans can be ordered for special applications.

Selection and ordering data

Rated output		SINAMICS G120 Power Module PM240		Replacement fan
kW	hp	Typ 6SL3224-...	Frame size and number of fans	Order No.
380 ... 480 V 3 AC				
0.37	0.50	0BE13-7UA0	FSA, 1 fan	6SL3200-0SF01-0AA0 (includes 1 replacement fan)
0.55	0.75	0BE15-5UA0		
0.75	1.0	0BE17-5UA0		
1.1	1.5	0BE21-1UA0		
1.5	2	0BE21-5UA0		
2.2	3	0BE22-2 . A0	FSB, 2 fans ¹⁾	
3.0	4	0BE23-0 . A0		6SL3200-0SF03-0AA0 (includes 1 replacement fan)
4.0	5	0BE24-0 . A0		
7.5	10	0BE25-5 . A0	FSC, 2 fans ¹⁾	
11.0	15	0BE27-5 . A0		6SL3200-0SF04-0AA0 (includes 2 replacement fans)
15.0	20	0BE31-1 . A0		
18.5	25	0BE31-5 . A0	FSD, 2 fans	6SL3200-0SF05-0AA0 (includes 2 replacement fans)
22	30	0BE31-8 . A0		
30	40	0BE32-2 . A0		6SL3200-0SF04-0AA0 (includes 2 replacement fans)
37	50	0BE33-0 . A0	FSE, 2 fans	
45	60	0BE33-7 . A0		6SL3200-0SF05-0AA0 (includes 2 replacement fans)
55	75	0BE34-5 . A0	FSF, 2 fans	
75	100	0BE35-5 . A0		6SL3200-0SF06-0AA0 (includes 2 replacement fans)
90	125	0BE37-5 . A0		
				6SL3200-0SF07-0AA0 (includes 2 replacement fans)

¹⁾ Recommendation: Even if only one fan on the Power Module is defective, it is advisable to replace both. In this case, the order quantity must be doubled.

SINAMICS G120

Services and documentation

Replacement fans for SINAMICS G120

Selection and ordering data (continued)

Rated output		SINAMICS G120 Power Module PM250		Replacement fan
kW	hp	Type 6SL3225-...	Frame size and number of fans	Order No.
380 ... 480 V 3 AC				
7.5	10	0BE25-5AA0	FSC, 2 fans ¹⁾	6SL3200-0SF03-0AA0 (includes 1 replacement fan)
11.0	15	0BE27-5AA0		
15.0	20	0BE31-1AA0		
18.5	25	0BE31-5AA0	FSD, 2 fans	6SL3200-0SF04-0AA0 (includes 2 replacement fans)
22	30	0BE31-8AA0		
30	40	0BE32-2AA0		6SL3200-0SF05-0AA0 (includes 2 replacement fans)
37	50	0BE33-0AA0	FSE, 2 fans	6SL3200-0SF04-0AA0 (includes 2 replacement fans)
45	60	0BE33-7AA0		6SL3200-0SF05-0AA0 (includes 2 replacement fans)
55	75	0BE34-5AA0	FSF, 2 fans	6SL3200-0SF06-0AA0 (includes 2 replacement fans)
75	100	0BE35-5AA0		
90	125	0BE37-5AA0		6SL3200-0SF08-0AA0 (includes 2 replacement fans)

Rated output		SINAMICS G120 Power Module PM260		Replacement fan
kW	hp	Type 6SL3225-...	Frame size and number of fans	Order No.
660 ... 690 V 3 AC				
11,0	15	0BH27-5 . A0	FSD, 2 fans	6SL3200-0SF05-0AA0 (includes 2 replacement fans)
15,0	20	0BH31-1 . A0		
18,5	25	0BH31-5 . A0		
30	40	0BH32-2 . A0	FSF, 2 fans	6SL3200-0SF07-0AA0 (includes 2 replacement fans)
37	50	0BH33-0 . A0		
55	75	0BH33-7 . A0		

Replacement fan for SINAMICS G120D

Selection and ordering data

Rated output		SINAMICS G120D Power Module PM250D		Replacement fan
kW	hp	Type 6SL3525-...	Frame size	Order No.
660 V ... 690 V 3 AC				
4.0	5.0	OPE24-0AA0	FSC	6SL3500-0SF01-0AA0 (preassembled unit with cover, fan and screws)
5.5	7.5	OPE25-5AA0		
7.5	10	OPE27-5AA0		

¹⁾ Recommendation: Even if only one fan on the Power Module is defective, it is advisable to replace both. In this case, the order quantity must be doubled.

SINAMICS G110/SINAMICS G120

Appendix

Customer Support Our Services for Every Phase of Your Project

Overview



In the face of harsh competition you need optimum conditions to keep ahead all the time: a strong starting position, a sophisticated strategy and team for the necessary support – in every phase.

Service & Support from Siemens provides this support with a complete range of different services for automation and drives.

In every phase: from planning and commissioning to maintenance and upgrading.

Our specialists know when and where to act to keep the productivity and cost-effectiveness of your system running in top form.

Online support



The comprehensive information system available round the clock via Internet ranging from Product Support and Service & Support services to Support Tools in the Shop.

<http://www.siemens.com/automation/service&support>

Technical support



Competent consulting in technical questions covering a wide range of customer-oriented services for all our products and systems.

Phone: +49 (0)180 50 50 222
Fax: +49 (0)180 50 50 223

E-Mail: adsupport@siemens.com

In the United States, call toll-free:

Phone: +1 800 333 7421
Fax: +1 423 262 2200

E-Mail: solutions.support@sea.siemens.com

In Canada, call:

Phone: +1 888 303 3353
E-Mail: cic@siemens.ca

In Asia:

Phone: +86 10 6475 7575
Fax: +86 10 6474 7474

E-Mail: adsupport.asia@siemens.com

Technical consulting

Support in the planning and designing of your project from detailed actual-state analysis, target definition and consulting on product and system questions right to the creation of the automation solution. ¹⁾

Configuration and software engineering

Support in configuring and developing with customer-oriented services from actual configuration to implementation of the automation project. ¹⁾

Service on site



With service on site we offer services for startup and maintenance, essential for ensuring system availability.

In Germany
Phone: +49 (0)180 50 50 444 ¹⁾

In the United States, call toll-free:

Phone: +1 800 333 7421

In Canada, call:

Phone: +1 888 303 3353

Repairs and spare parts



In the operating phase of a machine or automation system we provide a comprehensive repair and spare parts service ensuring the highest degree of operating safety and reliability.

In Germany
Phone: +49 (0)180 50 50 448 ¹⁾

In the United States, call toll-free:

Phone: +1 800 241 4453

In Canada, call:

Phone: +1 888 303 3353

Optimization and upgrading



To enhance productivity and save costs in your project we offer high-quality services in optimization and upgrading. ¹⁾

SPARESonWeb – online spare parts catalog



SPARESonWeb is a web-based tool for selecting the spare parts available for the SINAMICS system. After you have registered and entered the serial number and order number, the spare parts available for the relevant unit are displayed.

The delivery state for specific orders can be displayed for all shipped SINAMICS products.
<http://workplace.automation.siemens.com/sparesonweb>

¹⁾ For country-specific telephone numbers go to our Internet site at: <http://www.siemens.com/automation/service&support>