

SIEMENS

**MICROMASTER 420 Inverters
0.12 kW to 11 kW**

Catalog DA 51.2 · 2000



STANDARD DRIVES

MICROMASTER 420 Inverters

DA 51.2



Order No.:

German: E86060-K5151-A121-A1

English: E86060-K5151-A121-A1-7600

**MICROMASTER, MICROMASTER Vector
MIDIMASTER Vector, COMBIMASTER**

DA 64



Order No.:

German: E20002-K4064-A101-A2

English: E20002-K4064-A101-A2-7600

**Wechsel- und Drehstromsteller
SIVOLT A/V**

(available only in German)

DA 68



Order No.:

German: E20002-K4068-A101-A1

Kommutierungsdrosseln

(available only in German)

DA 93.1



Order No.:

German: E20002-K4093-A111-A3

Glättungsdrosseln

(available only in German)

DA 93.2



Order No.:

German: E20002-K4093-A121-A2

Dreiphasen-Netzdrosseln

(available only in German)

DA 93.3



Order No.:

German: E20002-K4093-A131-A1

Semiconductor-Protection Fuses SITOR

DA 94.1



Order No.:

German: E20002-K4094-A111-A3

English: E20002-K4094-A111-A2-7600

Low-Voltage Motors

M 11



Order No.:

German: E86060-K1711-A101-A1

English: E86060-K1711-A101-A1-7600

**Components for
Automation**

CA 01



Order No.:

German: E86060-D4001-A100-B4

English: E86060-D4001-A110-B3-7600

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MICROMASTER 420 Inverters

0.12 kW to 11 kW

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The products contained in this catalog are also included in the CD-ROM catalog CA 01

Order No.:
E86060-D4001-A110-B4-7600

To order, please contact your local Siemens office.

The products and systems referred to in this catalog are manufactured with a DQS-certified quality-management system in accordance with DIN EN ISO 9001 (certificate registration number: FM 25845). The DQS certificate is recognized in all EQ Net countries (reg. number: FM 25845)



		Page
Description	Applications, Design, Main Characteristics, Options, International Standards, Specific Features	2
Circuit Diagrams	Block Diagram, Control Terminal Diagram	5
Technical Data	Electrical/Mechanical Data, Derating Diagrams	7
Selection and Ordering Data	MICROMASTER 420, Options, Documentation	9
Dimension Drawings	MICROMASTER 420, Options	14
Appendix	Environment, Certificates, Standards, Conditions of Sale and Delivery	16

MICROMASTER 420

Description



Applications

The MICROMASTER 420 inverter is suitable for a variety of variable-speed drive applications.

It is especially suitable for applications for pumps, fans and conveyor systems.

It is especially characterized by its customer-oriented performance and ease of use. Its large supply-voltage range enables it to be used all over the world.

Design

The MICROMASTER 420 has a modular design. The operator panels and the PROFIBUS module can be fitted by hand.

Main Characteristics

- Simple commissioning
- Modular construction allows maximum configuration flexibility
- Three fully programmable isolated digital inputs
- One scalable analog input (0 V to 10 V) can also be used as a 4th digital input
- One programmable analog output (0 mA to 20 mA)
- One fully programmable relay output (30 V DC/5 A, resistive 250 V AC/2 A, inductive)
- Silent motor operation is possible when using high switching frequencies
- Complete inverter and motor protection

Options (Overview)

- EMC filters Class A/B
- Line commutating chokes
- Output chokes
- Gland plates
- BOP basic operator panel for parameterizing an inverter
- AOP advanced operator panel with plain-text and multilingual display
- PROFIBUS-DP communications module
- PC connection kits
- Assembly kits for mounting the operator panels in the control cabinet doors
- PC commissioning tool, runs under Windows 95/NT

International

- MICROMASTER 420 carries the **CE** mark for both EMC conformity and conformity to the low voltage directive
- ® and c® listed
- c-tick 

Mechanical Features

- Modular design
- Operating temperature: -10 °C to +50 °C
- Side by side mounting is possible, reducing the amount of space required within cabinets.
- Easy cable connection, mains and motor connections are separated for optimum electromagnetic compatibility
- Detachable operator panels
- Screwless control terminals

Performance Features

- Latest IGBT technology
- Digital microprocessor control
- Flux current control (FCC) for improved dynamic response and optimized motor control
- Linear V/f control
- Quadratic V/f control
- Programmable V/f characteristic
- Flying restart
- Slip compensation
- Automatic restart facility following power failure or fault
- PI feedback for simple process control
- Programmable acceleration/ deceleration, 0 s to 650 s
- Ramp smoothing
- Fast current limit (FCL) for trip free operation
- Fast, repeatable digital input response time

Protection Features

- Fine speed adjustment using a high resolution 10-bit analog input
- Compound braking for rapid controlled braking
- Four skip frequencies
- Removable “Y” capacitor for use on IT mains supplies
- Overload capability 150 % of rated load current for a period of 60 s within 5 min
- Overvoltage/undervoltage protection
- Inverter overtemperature protection
- Motor protection using PTC via digital input
- Earth fault protection
- Short circuit protection
- I^2t motor thermal protection
- Locked motor protection
- Stall prevention
- Parameter interlock, using PIN number

Description

Variant Dependent Options

EMC filter, Class A

Filter for inverters without an internal filter, for

- 200 V to 240 V 3 AC, sizes A and B
- 380 V to 480 V 3 AC, size A.

All other inverters can be supplied with an internal Class A filter.

Low leakage Class B filter

Filter for inverters without an internal filter, for

- 200 V to 240 V 3 AC, sizes A and B
- 380 V to 480 V 3 AC, size A.

With this filter, the inverter complies with the emission standard EN 55 011, Class B.

Additional EMC filter, Class B

Obtainable for inverters with an internal Class A EMC filter.

With this filter, the inverter complies with the emission standard EN 55 011, Class B.

Class B filter with low discharge currents

EMC filter for 200 V to 240 V 1 AC inverters, sizes A and B, without an internal (Class A) EMC filter.

With this filter, the inverter complies with the emission standard EN 55 011, Class B.

The earth-fault currents are reduced to < 3.5 mA.

In plug-in systems, the maximum permissible leakage current is 3.5 mA.

In the case of permanently wired installations, higher leakage currents are permissible. The limitation for operation in conjunction with residual-current-operated circuit-breakers is then applicable. Devices with standard filters can be used with 30 mA residual-current-operated circuit-breakers. If several drives are to be connected with a single residual-current-operated circuit-breaker, Class B filters with low discharge currents may be necessary.

Line commutating choke

Line commutating chokes are used to smooth voltage peaks or to bridge commutating dips. In addition, line commutating chokes reduce the effects of harmonics on the inverter and

the power supply. If the line impedance is < 1 %, a line commutating choke is recommended in order to reduce the current peaks.

Output choke

Output chokes can be supplied for reducing the capacitive currents and dV/df in the case of motor cables > 50 m (shielded) or > 100 m (unshielded).

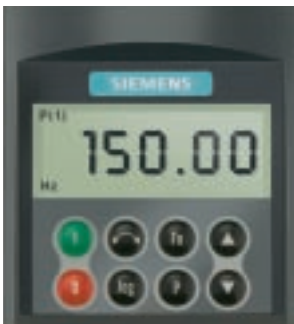
Gland plate

The gland plate enables shielded connection of the power and control cables, ensuring optimum EMC performance. This action ensures compliance with the NEMA directive.

Variant Independent Options

Basic Operator Panel (BOP)

With the BOP, individual parameter settings can be made. Values and units are shown on a 5-digit display.



Basic Operator Panel (BOP)

A BOP can be used for several inverters. It can be directly mounted on the inverter or in a control-cabinet door using a mounting kit.

Advanced Operator Panel (AOP)

The AOP enables parameter sets to be read out of the inverter or to be written into the inverter (upload/download). Up to 10 different parameter sets can be stored in the AOP. It has a plain-text display with the possibility of switching between several languages.



Advanced Operator Panel (AOP)

Up to 31 inverters can be controlled from an AOP via USS protocol. It can be directly plugged into the inverter or built into the control-cabinet door using a mounting kit.

PROFIBUS module

Observation on technical content – PROFIBUS controlled operation is possible up to 12 MBaud/s. The AOP or BOP can be plugged into the PROFIBUS module giving an operation display. The PROFIBUS module can be powered from an external 24 V supply so that the bus is active when power is removed from the inverter.

Connection by means of a 9-pin SUB-D connector (available as an accessory).

PC to inverter connection kit

For controlling an inverter directly from a PC if the appropriate software has been installed (e.g. DriveMonitor) in the PC. Isolated RS 232 adapter board for reliable point-to-point connection to a PC. Includes a Sub-D connector and an RS 232 standard cable (3 m).

PC to AOP connection kit

For connecting a PC to an AOP. Offline programming of inverters and archiving of parameter sets possible. Includes a desktop attachment kit for an AOP, an RS 232 standard cable (3 m) with Sub-D connectors and a universal power supply unit.

BOP/AOP door mounting kit for single converter control

For mounting an operator panel in a control cabinet door. Degree of protection is IP 56. Contains a cable adapter board with screwless terminals for use with the user's own cables.

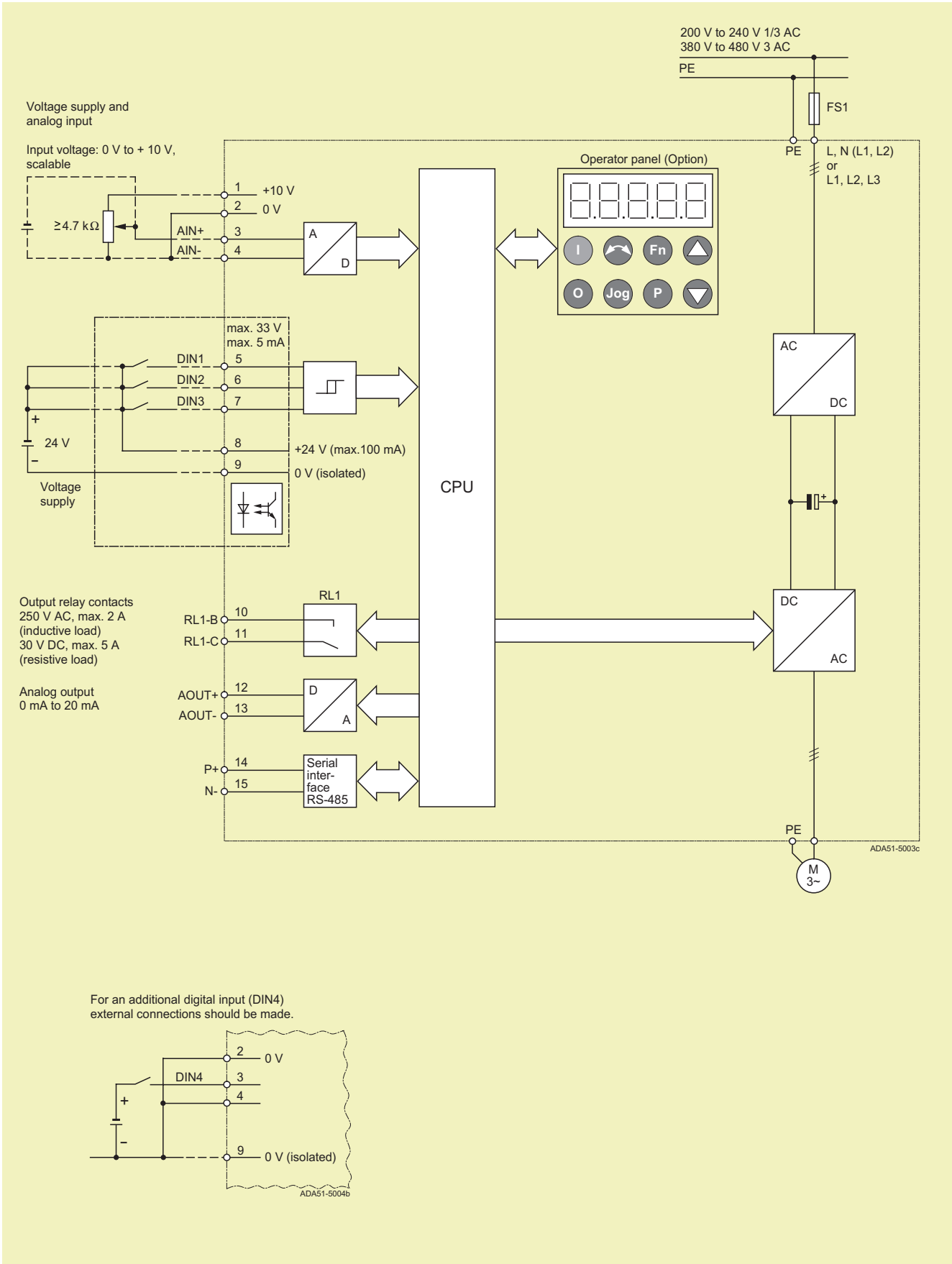
AOP door mounting kit for multiple inverter control

For mounting an AOP in a control cabinet door. Degree of protection IP 56. The AOP can communicate with several inverters by means of the RS 485 USS protocol. The 4-pin connecting cable from the AOP to the RS 485 terminals of the inverter and to the 24 V user terminal strip is not included.

The "DriveMonitor" commissioning tool

DriveMonitor is start-up software for MICROMASTER and MASTERDRIVES inverters under Windows 95/NT. Parameter lists can be read out, altered, stored, entered and printed.

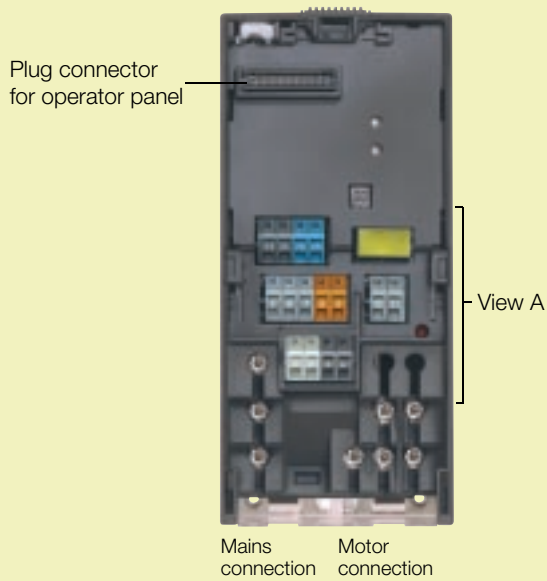
General Circuit Diagram



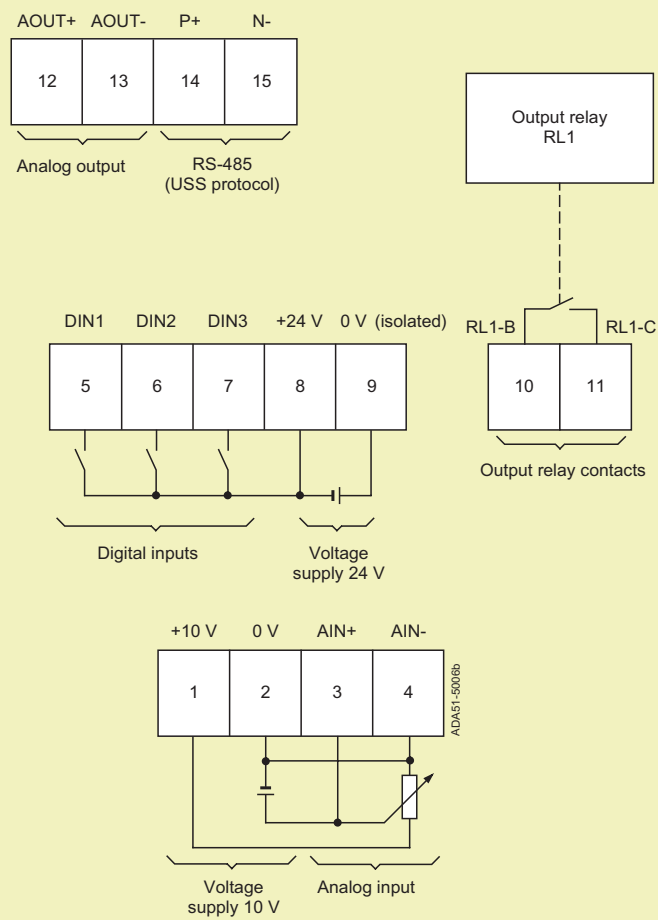
MICROMASTER 420

Circuit Diagrams





Terminal Connection Diagram



View A



MICROMASTER 420

Input voltage and power ranges	200 V to 240 V 1 AC ± 10 % 200 V to 240 V 3 AC ± 10 % 380 V to 480 V 3 AC ± 10 %	0.12 kW to 3 kW 0.12 kW to 5.5 kW 0.37 kW to 11 kW
Input frequency	47 Hz to 63 Hz	
Output frequency	0 Hz to 650 Hz	
Power factor	≥ 0.7	
Inverter efficiency	96 % to 97 %	
Overload capability	1.5 x rated output current for 60 s (every 300 s)	
Inrush current	less than rated input current	
Control method	linear V/f; quadratic V/f (fan curve); programmable V/f; flux current control (FCC)	
PWM frequency	2 kHz to 16 kHz (in 2 kHz steps)	
Fixed frequencies	7, programmable	
Skip frequency bands	4, programmable	
Setpoint resolution	0.01 Hz digital 0.01 Hz serial 10 bit analog	
Digital inputs	3 fully programmable isolated digital inputs; switchable PNP/NPN	
Analog input	1 for setpoint or PI input (0 to 10 V), scalable or for use as 4th digital input)	
Relay output	1 configurable 30 V DC/5 A (resistive), 250 V AC/2 A (inductive)	
Analog output	1, programmable (0 mA to 20 mA)	
Serial interfaces	RS-232, RS-485	
Electromagnetic compatibility	Optional EMC filters to EN 55 011 Class A or Class B	
Braking	DC Braking, Compound Braking	
Protection level	IP 20	
Temperature range	-10°C to +50°C	
Storage temperature	-40°C to +70°C	
Humidity	95% RH – non-condensing	
Operational altitudes	up to 1000 m above sea level without derating	
Protection features	<ul style="list-style-type: none"> • under-voltage • over-voltage • overload • earth faults • short circuits • stall prevention • locked motor • motor over-temperature I^2t, PTC • inverter over-temperature • parameter PIN protection 	
Standards	   	
CE mark	Conformity with EC low voltage directive 73/23/EEC and the electromagnetic compability directive 89/336/EEC	
Dimensions and weights (without gland plate)	Frame size	W x H x D (mm) Weight (kg)
	A:	73 x 173 x 149 1.0
	B:	149 x 202 x 172 3.3
	C:	185 x 245 x 195 5.0

MICROMASTER 420

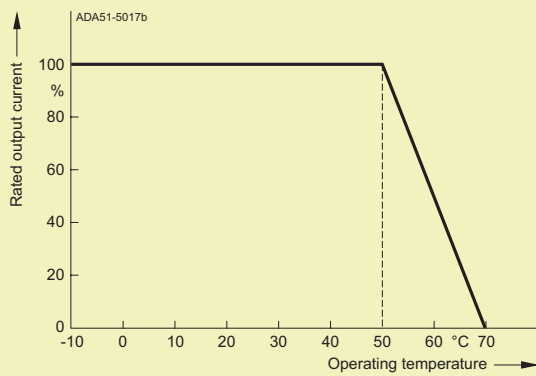
Technical Data

Derating Data

Pulse frequency

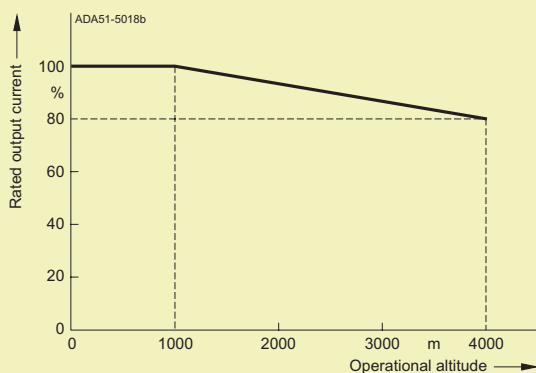
Power ranges (for 400 V 3 AC) kW	Max. continuous output current in A for a pulse frequency of							
	2 kHz	4 kHz	6 kHz	8 kHz	10 kHz	12 kHz	14 kHz	16 kHz
0.37	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1
0.55	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.1
0.75	2.1	2.1	2.1	2.1	2.1	1.6	1.6	1.1
1.1	3.0	3.0	3.0	2.7	2.7	1.6	1.6	1.1
1.5	4.0	4.0	4.0	2.7	2.7	1.6	1.6	1.1
2.2	5.9	5.9	5.9	5.1	5.1	3.6	3.6	2.6
3.0	7.7	7.7	7.7	5.1	5.1	3.6	3.6	2.6
4.0	10.2	10.2	10.2	6.7	6.7	4.8	4.8	3.6
5.5	13.2	13.2	13.2	13.2	13.2	9.6	9.6	7.5
7.5	18.4	18.4	18.4	13.2	13.2	9.6	9.6	7.5
11	26.0	26.0	26.0	17.9	17.9	13.5	13.5	10.4

Operating temperature

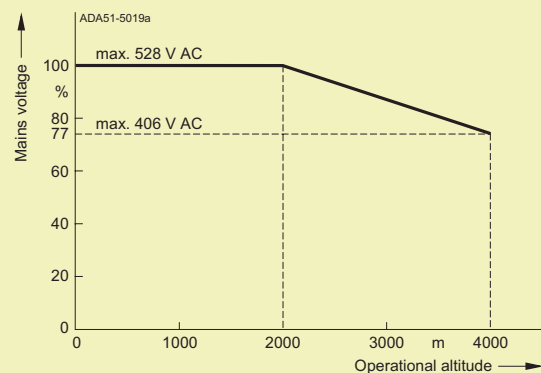


Operational altitude

Permissible output current
in % of the rated output current



Permissible mains voltage
in % of the max. possible mains voltage



MICROMASTER 420 Inverter

Power ranges		Input current	Max. output current (no derating)	Frame size	Order No.	
kW	hp	A	A		Without filter	With Class A filter
Mains operating voltage 200 V to 240 V 1 AC						
0.12	0.16	2.0	0.9	A	6SE6420-2UC11-2AA0	6SE6420-2AB11-2AA0
0.25	0.33	4.0	1.7	A	6SE6420-2UC12-5AA0	6SE6420-2AB12-5AA0
0.37	0.50	5.5	2.3	A	6SE6420-2UC13-7AA0	6SE6420-2AB13-7AA0
0.55	0.75	7.5	3.0	A	6SE6420-2UC15-5AA0	6SE6420-2AB15-5AA0
0.75	1.0	9.9	3.9	A	6SE6420-2UC17-5AA0	6SE6420-2AB17-5AA0
1.1	1.5	14.4	5.5	B	6SE6420-2UC21-1BA0	6SE6420-2AB21-1BA0
1.5	2.0	19.6	7.4	B	6SE6420-2UC21-5BA0	6SE6420-2AB21-5BA0
2.2	3.0	26.4	10.4	B	6SE6420-2UC22-2BA0	6SE6420-2AB22-2BA0
3.0	4.0	35.5	13.6	C	6SE6420-2UC23-0CA0	6SE6420-2AB23-0CA0
Mains operating voltage 200 V to 240 V 3 AC						
0.12	0.16	0.7	0.9	A	6SE6420-2UC11-2AA0	–
0.25	0.33	1.7	1.7	A	6SE6420-2UC12-5AA0	–
0.37	0.50	2.4	2.3	A	6SE6420-2UC13-7AA0	–
0.55	0.75	3.1	3.0	A	6SE6420-2UC15-5AA0	–
0.75	1.0	4.3	3.9	A	6SE6420-2UC17-5AA0	–
1.1	1.5	6.2	5.5	B	6SE6420-2UC21-1BA0	–
1.5	2.0	8.3	7.4	B	6SE6420-2UC21-5BA0	–
2.2	3.0	11.3	10.4	B	6SE6420-2UC22-2BA0	–
3.0	4.0	15.6	13.6	C	6SE6420-2UC23-0CA0	6SE6420-2AC23-0CA0
4.0	5.0	19.7	17.5	C	6SE6420-2UC24-0CA0	6SE6420-2AC24-0CA0
5.5	7.5	26.3	22.0	C	6SE6420-2UC25-5CA0	6SE6420-2AC25-5CA0
Mains operating voltage 380 V to 480 V 3 AC						
0.37	0.50	1.6	1.2	A	6SE6420-2UD13-7AA0	–
0.55	0.75	2.1	1.6	A	6SE6420-2UD15-5AA0	–
0.75	1.0	2.8	2.1	A	6SE6420-2UD17-5AA0	–
1.1	1.5	4.2	3.0	A	6SE6420-2UD21-1AA0	–
1.5	2.0	5.8	4.0	A	6SE6420-2UD21-5AA0	–
2.2	3.0	7.5	5.9	B	6SE6420-2UD22-2BA0	6SE6420-2AD22-2BA0
3.0	4.0	10.0	7.7	B	6SE6420-2UD23-0BA0	6SE6420-2AD23-0BA0
4.0	5.0	12.8	10.2	B	6SE6420-2UD24-0BA0	6SE6420-2AD24-0BA0
5.5	7.5	17.3	13.2	C	6SE6420-2UD25-5CA0	6SE6420-2AD25-5CA0
7.5	10.0	23.1	18.4	C	6SE6420-2UD27-5CA0	6SE6420-2AD27-5CA0
11	15.0	33.8	26.0	C	6SE6420-2UD31-1CA0	6SE6420-2AD31-1CA0

Motors for MICROMASTER 420

Catalog M 11 contains selection and ordering data for motors which are particularly suitable for operation with the MICROMASTER 420 inverters.

MICROMASTER 420

Selection and Ordering Data

Variant Dependent Options

The options listed here

- Filters
- Chokes
- Fuses

- Circuit breakers
 - Gland plates
- are inverter specific.

The inverter and the associated options have the same voltage ratings.

All options are certified to [®].

	Power ranges kW	Inverter	Order No. of the options		
			EMC filter Class A	EMC filter Class B	Supplemental EMC filter Class B
Mains operating voltage 200 V to 240 V 1 AC					
Inverter without internal filter Class A	0.12	6SE6420-2UC11-2AA0	–	–	–
	0.25	6SE6420-2UC12-5AA0	–	–	–
	0.37	6SE6420-2UC13-7AA0	–	–	–
	0.55	6SE6420-2UC15-5AA0	–	–	–
	0.75	6SE6420-2UC17-5AA0	–	–	–
	1.1	6SE6420-2UC21-1BA0	–	–	–
	1.5	6SE6420-2UC21-5BA0	–	–	–
	2.2	6SE6420-2UC22-2BA0	–	–	–
	3.0	6SE6420-2UC23-0CA0	–	–	–
Inverter with internal filter Class A	0.12	6SE6420-2AB11-2AA0	–	–	6SE6400-2FS01-0AB0
	0.25	6SE6420-2AB12-5AA0	–	–	
	0.37	6SE6420-2AB13-7AA0	–	–	
	0.55	6SE6420-2AB15-5AA0	–	–	
	0.75	6SE6420-2AB17-5AA0	–	–	
	1.1	6SE6420-2AB21-1BA0	–	–	6SE6400-2FS02-6BB0
	1.5	6SE6420-2AB21-5BA0	–	–	
	2.2	6SE6420-2AB22-2BA0	–	–	
	3.0	6SE6420-2AB23-0CA0	–	–	6SE6400-2FS03-5CB0
Mains operating voltage 200 V to 240 V 3 AC					
Inverter without internal filter	0.12	6SE6420-2UC11-2AA0	6SE6400-2FA00-6AD0	6SE6400-2FB00-6AD0	–
	0.25	6SE6420-2UC12-5AA0			–
	0.37	6SE6420-2UC13-7AA0			–
	0.55	6SE6420-2UC15-5AA0			–
	0.75	6SE6420-2UC17-5AA0			–
	1.1	6SE6420-2UC21-1BA0	6SE6400-2FA01-4BC0	6SE6400-2FB01-4BC0	–
	1.5	6SE6420-2UC21-5BA0			–
	2.2	6SE6420-2UC22-2BA0			–
	3.0	6SE6420-2UC23-0CA0	–	–	–
	4.0	6SE6420-2UC24-0CA0	–	–	–
Inverter with internal filter Class A	3.0	6SE6420-2AC23-0CA0	–	–	6SE6400-2FS03-8CD0
	4.0	6SE6420-2AC24-0CA0	–	–	
	5.5	6SE6420-2AC25-5CA0	–	–	
Mains operating voltage 380 V to 480 V 3 AC					
Inverter without internal filter	0.37	6SE6420-2UD13-7AA0	6SE6400-2FA00-6AD0	6SE6400-2FB00-6AD0	–
	0.55	6SE6420-2UD15-5AA0			–
	0.75	6SE6420-2UD17-5AA0			–
	1.1	6SE6420-2UD21-1AA0			–
	1.5	6SE6420-2UD21-5AA0			–
	2.2	6SE6420-2UD22-2BA0	–	–	–
	3.0	6SE6420-2UD23-0BA0	–	–	–
	4.0	6SE6420-2UD24-0BA0	–	–	–
	5.5	6SE6420-2UD25-5CA0	–	–	–
	7.5	6SE6420-2UD27-5CA0	–	–	–
	11	6SE6420-2UD31-1CA0	–	–	–
Inverter with internal filter Class A	2.2	6SE6420-2AD22-2BA0	–	–	6SE6400-2FS01-6BD0
	3.0	6SE6420-2AD23-0BA0	–	–	
	4.0	6SE6420-2AD24-0BA0	–	–	
	5.5	6SE6420-2AD25-5CA0	–	–	6SE6400-2FS03-8CD0
	7.5	6SE6420-2AD27-5CA0	–	–	
	11	6SE6420-2AD31-1CA0	–	–	

Variant Dependent Options (Continued)

	Power ranges kW	Inverter	Order No. of the options		
			Low leakage Class B	Line commutating chokes	Output chokes
Mains operating voltage 200 V to 240 V 1 AC					
<i>Inverter without internal filter</i>	0.12	6SE6420-2UC11-2AA0	6SE6400-2FL01-0AB0	6SE6400-3CC00-4AB0	6SE6400-3TC00-4AD0
	0.25	6SE6420-2UC12-5AA0		6SE6400-3CC01-0AB0	
	0.37	6SE6420-2UC13-7AA0			
	0.55	6SE6420-2UC15-5AA0			
	0.75	6SE6420-2UC17-5AA0			
	1.1	6SE6420-2UC21-1BA0	6SE6400-2FL02-6BB0	6SE6400-3CC02-6BB0	6SE6400-3TC01-0BD0
	1.5	6SE6420-2UC21-5BA0			
	2.2	6SE6420-2UC22-2BA0			
3.0	6SE6420-2UC23-0CA0	-	6SE6400-3CC03-5CB0	6SE6400-3TC03-2CD0	
<i>Inverter with internal filter Class A</i>	0.12	6SE6420-2AB11-2AA0	-	6SE6400-3CC00-4AB0	6SE6400-3TC00-4AD0
	0.25	6SE6420-2AB12-5AA0	-	6SE6400-3CC01-0AB0	
	0.37	6SE6420-2AB13-7AA0	-		
	0.55	6SE6420-2AB15-5AA0	-		
	0.75	6SE6420-2AB17-5AA0	-		
	1.1	6SE6420-2AB21-1BA0	-	6SE6400-3CC02-6BB0	6SE6400-3TC01-0BD0
	1.5	6SE6420-2AB21-5BA0	-		
	2.2	6SE6420-2AB22-2BA0	-		
3.0	6SE6420-2AB23-0CA0	-	6SE6400-3CC03-5CB0	6SE6400-3TC03-2CD0	
Mains operating voltage 200 V to 240 V 3 AC					
<i>Inverter without internal filter</i>	0.12	6SE6420-2UC11-2AA0	-	6SE6400-3CC00-3AC0	6SE6400-3TC00-4AD0
	0.25	6SE6420-2UC12-5AA0	-	6SE6400-3CC00-5AC0	
	0.37	6SE6420-2UC13-7AA0	-		
	0.55	6SE6420-2UC15-5AA0	-		
	0.75	6SE6420-2UC17-5AA0	-		
	1.1	6SE6420-2UC21-1BA0	-	6SE6400-3CC00-8BC0	6SE6400-3TC01-0BD0
	1.5	6SE6420-2UC21-5BA0	-	6SE6400-3CC01-4BD0	
	2.2	6SE6420-2UC22-2BA0	-		
	3.0	6SE6420-2UC23-0CA0	-	6SE6400-3CC01-7CC0	6SE6400-3TC03-2CD0
	4.0	6SE6420-2UC24-0CA0	-	6SE6400-3CC03-5CD0	
5.5	6SE6420-2UC25-5CA0	-			
<i>Inverter with internal filter Class A</i>	3.0	6SE6420-2AC23-0CA0	-	6SE6400-3CC01-7CC0	6SE6400-3TC03-2CD0
	4.0	6SE6420-2AC24-0CA0	-	6SE6400-3CC03-5CD0	
	5.5	6SE6420-2AC25-5CA0	-		
Mains operating voltage 380 V to 480 V 3 AC					
<i>Inverter without internal filter</i>	0.37	6SE6420-2UD13-7AA0	-	6SE6400-3CC00-2AD0	6SE6400-3TC00-4AD0
	0.55	6SE6420-2UD15-5AA0	-	6SE6400-3CC00-4AD0	
	0.75	6SE6420-2UD17-5AA0	-		
	1.1	6SE6420-2UD21-1AA0	-		
	1.5	6SE6420-2UD21-5AA0	-	6SE6400-3CC00-6AD0	
	2.2	6SE6420-2UD22-2BA0	-	6SE6400-3CC01-0BD0	6SE6400-3TC01-0BD0
	3.0	6SE6420-2UD23-0BA0	-		
	4.0	6SE6420-2UD24-0BA0	-	6SE6400-3CC01-4BD0	
	5.5	6SE6420-2UD25-5CA0	-	6SE6400-3CC02-2CD0	6SE6400-3TC03-2CD0
	7.5	6SE6420-2UD27-5CA0	-		
	11	6SE6420-2UD31-1CA0	-	6SE6400-3CC03-5CD0	
<i>Inverter with internal filter Class A</i>	2.2	6SE6420-2AD22-2BA0	-	6SE6400-3CC01-0BD0	6SE6400-3TC01-0BD0
	3.0	6SE6420-2AD23-0BA0	-	6SE6400-3CC01-4BD0	
	4.0	6SE6420-2AD24-0BA0	-		
	5.5	6SE6420-2AD25-5CA0	-		
	7.5	6SE6420-2AD27-5CA0	-	6SE6400-3CC02-2CD0	6SE6400-3TC03-2CD0
	11	6SE6420-2AD31-1CA0	-	6SE6400-3CC03-5CD0	

MICROMASTER 420

Selection and Ordering Data

Variant Dependent Options (Continued)

	Power ranges kW	Inverter	Order No. of the options		Gland plates	
			Fuses (see Catalog NS K)	Circuit breakers (see Catalog NS K)		
Mains operating voltage 200 V to 240 V 1 AC						
<i>Inverter without internal filter</i>	0.12	6SE6420-2UC11-2AA0	3NA3803	3RV1021-1CA10	6SE6400-0GP00-0AA0	
	0.25	6SE6420-2UC12-5AA0		3RV1021-1EA10		
	0.37	6SE6420-2UC13-7AA0		3RV1021-1FA10		
	0.55	6SE6420-2UC15-5AA0		3RV1021-1HA10		
	0.75	6SE6420-2UC17-5AA0	3NA3805	3RV1021-1JA10		
	1.1	6SE6420-2UC21-1BA0	3NA3807	3RV1021-1KA10		6SE6400-0GP00-0BA0
	1.5	6SE6420-2UC21-5BA0		3RV1021-4AA10		
	2.2	6SE6420-2UC22-2BA0	3NA3810	3RV1021-4CA10		
	3.0	6SE6420-2UC23-0CA0	3NA3812	3RV1021-4EA10		6SE6400-0GP00-0CA0
<i>Inverter with internal filter Class A</i>	0.12	6SE6420-2AB11-2AA0	3NA3803	3RV1021-1CA10	6SE6400-0GP00-0AA0	
	0.25	6SE6420-2AB12-5AA0		3RV1021-1EA10		
	0.37	6SE6420-2AB13-7AA0		3RV1021-1FA10		
	0.55	6SE6420-2AB15-5AA0		3RV1021-1HA10		
	0.75	6SE6420-2AB17-5AA0	3NA3805	3RV1021-1JA10		
	1.1	6SE6420-2AB21-1BA0	3NA3807	3RV1021-1KA10		6SE6400-0GP00-0BA0
	1.5	6SE6420-2AB21-5BA0		3RV1021-4AA10		
	2.2	6SE6420-2AB22-2BA0	3NA3810	3RV1021-4CA10		
	3.0	6SE6420-2AB23-0CA0	3NA3812	3RV1021-4EA10		6SE6400-0GP00-0CA0
Mains operating voltage 200 V to 240 V 3 AC						
<i>Inverter without internal filter</i>	0.12	6SE6420-2UC11-2AA0	3NA3803	3RV1021-1AA10	6SE6400-0GP00-0AA0	
	0.25	6SE6420-2UC12-5AA0		3RV1021-1CA10		
	0.37	6SE6420-2UC13-7AA0		3RV1021-1DA10		
	0.55	6SE6420-2UC15-5AA0		3RV1021-1FA10		
	0.75	6SE6420-2UC17-5AA0		3RV1021-1GA10		
	1.1	6SE6420-2UC21-1BA0	3NA3805	3RV1021-1HA10		6SE6400-0GP00-0BA0
	1.5	6SE6420-2UC21-5BA0		3RV1021-1JA10		
	2.2	6SE6420-2UC22-2BA0	3NA3807	3RV1021-1KA10		
	3.0	6SE6420-2UC23-0CA0	3NA3810	3RV1021-4BA10		6SE6400-0GP00-0CA0
	4.0	6SE6420-2UC24-0CA0	3NA3812	3RV1021-4CA10		
	5.5	6SE6420-2UC25-5CA0	3NA3814	3RV1021-4FA10		
<i>Inverter with internal filter Class A</i>	3.0	6SE6420-2AC23-0CA0	3NA3810	3RV1021-4BA10	6SE6400-0GP00-0CA0	
	4.0	6SE6420-2AC24-0CA0	3NA3812	3RV1021-4CA10		
	5.5	6SE6420-2AC25-5CA0	3NA3814	3RV1021-4FA10		
Mains operating voltage 380 V to 480 V 3 AC						
<i>Inverter without internal filter</i>	0.37	6SE6420-2UD13-7AA0	3NA3803	3RV1021-1DA10	6SE6400-0GP00-0AA0	
	0.55	6SE6420-2UD15-5AA0		3RV1021-1EA10		
	0.75	6SE6420-2UD17-5AA0		3RV1021-1FA10		
	1.1	6SE6420-2UD21-1AA0		3RV1021-1GA10		
	1.5	6SE6420-2UD21-5AA0		3RV1021-1HA10		
	2.2	6SE6420-2UD22-2BA0	3NA3805	3RV1021-1HJ10		6SE6400-0GP00-0BA0
	3.0	6SE6420-2UD23-0BA0		3RV1021-4AA10		
	4.0	6SE6420-2UD24-0BA0	3NA3807	3RV1021-4AA10		
	5.5	6SE6420-2UD25-5CA0		3RV1021-4BA10		6SE6400-0GP00-0CA0
	7.5	6SE6420-2UD27-5CA0	3NA3810	3RV1021-4DA10		
	11	6SE6420-2UD31-1CA0	3NA3814	3RV1031-4EA10		
<i>Inverter with internal filter Class A</i>	2.2	6SE6420-2AD22-2BA0	3NA3805	3RV1021-1HA10	6SE6400-0GP00-0BA0	
	3.0	6SE6420-2AD23-0BA0		3RV1021-1KA10		
	4.0	6SE6420-2AD24-0BA0	3NA3807	3RV1021-1KA10		
	5.5	6SE6420-2AD25-5CA0		3RV1021-4AA10		6SE6400-0GP00-0CA0
	7.5	6SE6420-2AD27-5CA0	3NA3810	3RV1021-4BA10		
	11	6SE6420-2AD31-1CA0	3NA3814	3RV1031-4FA10		

Variant Independent Options

The options listed here are suitable for all MICROMASTER 420 Inverters.

	Order No.
BOP basic operator panel	6SE6400-0BP00-0AA0
AOP advanced operator panel	6SE6400-0AP00-0AA0
PROFIBUS module	6SE6400-1PB00-0AA0
PROFIBUS cable connector	6GK1500-0FC00
PC to inverter connection kit	6SE6400-1PC00-0AA0
PC to AOP connection kit	6SE6400-0PA00-0AA0
BOP/AOP door mounting kit for single inverter control	6SE6400-0PM00-0AA0
AOP door mounting kit for multiple inverter control	6SE6400-0MD00-0AA0
Drive monitor commissioning tool is supplied on the CD	

Documentation

Type of documentation	Language	Order No. for CD-ROM	Order No. for paper version
Getting-started-guide	Multilingual	–	6SE6400-5AB00-1AP0
Operating instructions	Multilingual	6SE6400-5AF00-1AG0	–
	German		6SE6400-5AA00-0AP0
	English		6SE6400-5AA00-0BP0
	French		6SE6400-5AA00-0DP0
	Italian		6SE6400-5AA00-0CP0
	Spanish		6SE6400-5AA00-0EP0
	Other languages as of 01/2001		
Reference manual (provisionally as of 01/2001)	Multilingual	6SE6400-5AF00-1AG0	–
	German		6SE6400-5AH00-0AP0
	English		6SE6400-5AH00-0BP0
	French		6SE6400-5AH00-0DP0
	Italian		6SE6400-5AH00-0CP0
	Spanish		6SE6400-5AH00-0EP0

Each inverter is supplied with:

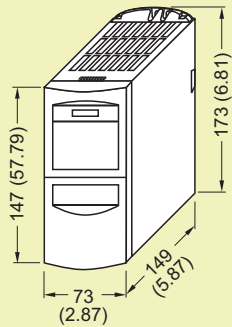
- A CD containing Operating Instructions and Reference Manual
- A multilingual Getting Started Guide booklet

MICROMASTER 420

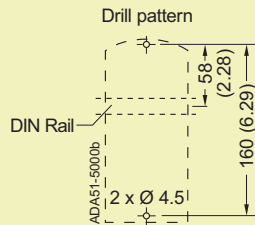
Dimension Drawings

MICROMASTER 420 Inverter

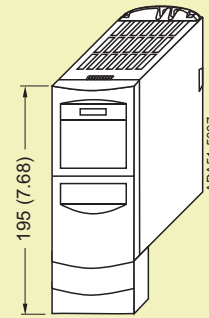
Frame size	200 V to 240 V 1/3 AC	380 V to 480 V 3 AC
A	0.12 kW to 0.75 kW	0.37 kW to 1.5 kW
B	1.1 kW to 2.2 kW	2.2 kW to 4 kW
C	3 kW to 5.5 kW	5.5 kW to 11 kW



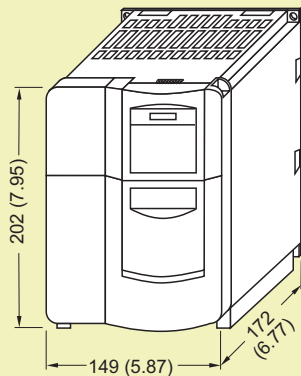
Frame size A
200 V to 240 V 1/3 AC, 0.12 kW to 0.75 kW
380 V to 480 V 3 AC, 0.37 kW to 1.5 kW



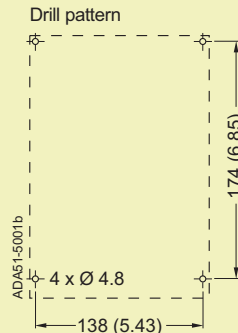
Fixing with
2 bolts M4
2 nuts M4
2 washers M4
or snap on to the DIN rail
Tightening torque with
washers fitted: 2.5 Nm



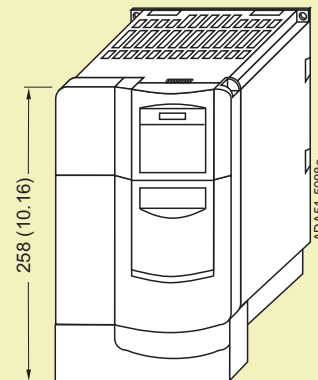
Frame size A
with gland plate



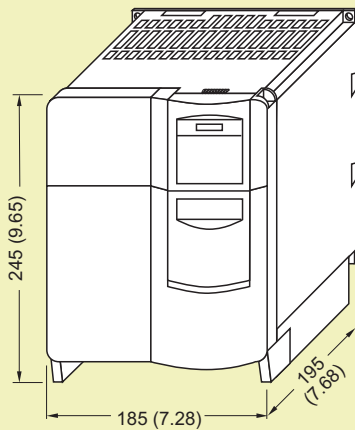
Frame size B
200 V to 240 V 1/3 AC, 1.1 kW to 2.2 kW
380 V to 480 V 3 AC, 2.2 kW to 4 kW



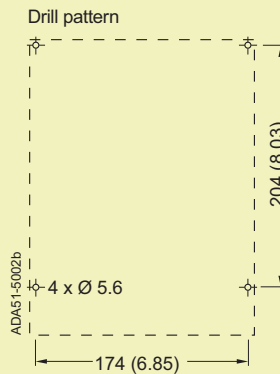
Fixing with
4 bolts M4
4 nuts M4
4 washers M4
Tightening torque with
washers fitted: 2.5 Nm



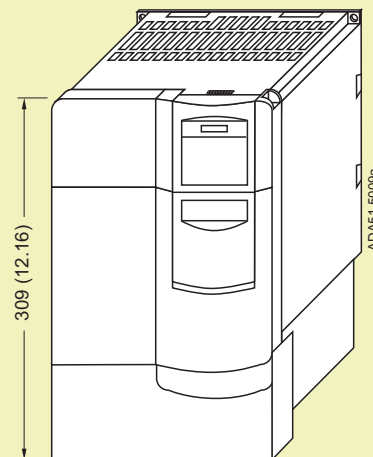
Frame size B
with gland plate



Frame size C
200 V to 240 V 1/3 AC, 3 kW to 5.5 kW
380 V to 480 V 3 AC, 5.5 kW to 11 kW



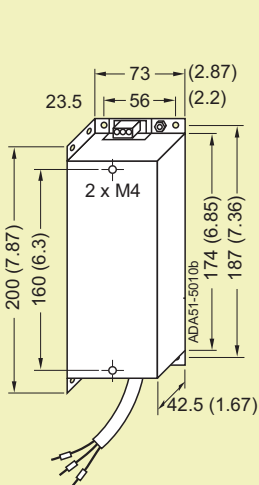
Fixing with
4 bolts M5
4 nuts M5
4 washers M5
Tightening torque with
washers fitted: 3.0 Nm



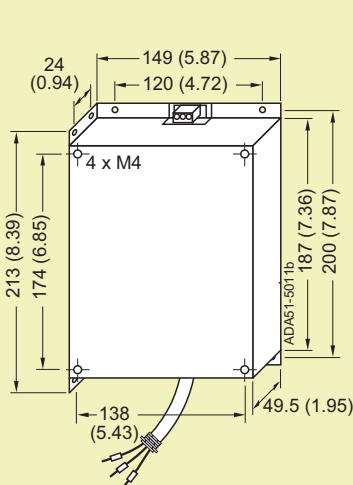
Frame size C
with gland plate

All dimensions are in mm (values in brackets are in inches)

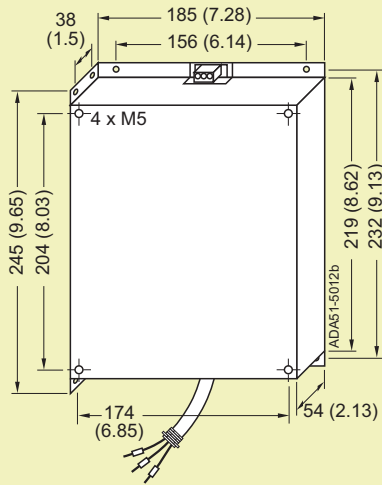
Filters and Chokes



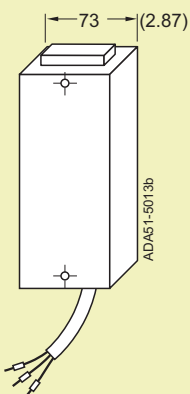
Filter for frame size A



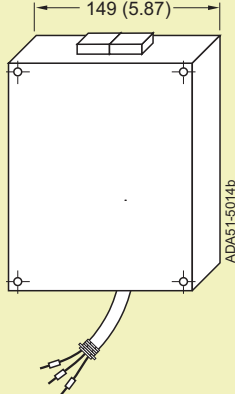
for frame size B



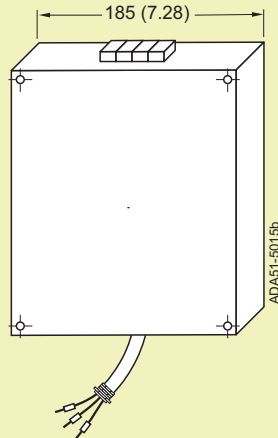
for frame size C



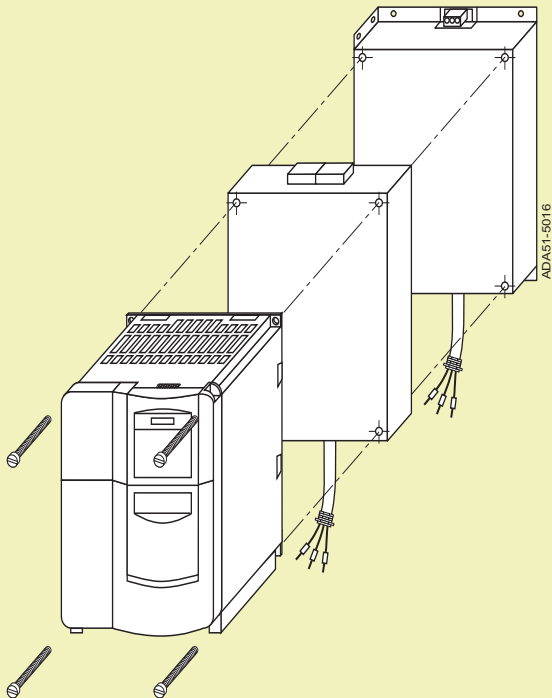
Choke for frame size A



for frame size B



for frame size C



Example:
Assembly of inverter,
choke and filter

If additional accessories are
required, they must be mounted
at the side.

All dimensions are in mm
(the values in brackets are in inches)

MICROMASTER 420

Appendix

Environment, Resources and Recycling

Siemens AG feels a responsibility to play a role in protecting our environment and saving our valuable natural resources. This is true for both our production and our products.

Even during development, we consider any possible environment impact of future products/systems. Our aim is to prevent harmful environment effects, or at least to reduce them to an absolute minimum – beyond present regulations and legislation.

The most important activities for protecting our environment are as follows:

- We are constantly endeavouring to reduce the environmental impact of our products, as well as their consumption of energy and resources, over and above the statutory environmental protection regulations.
- We take every possible step to prevent damage to the environment.
- Environmental impact is assessed and considered at the earliest possible stage of product and process planning.
- Our optimized environmental management strategy ensures that our environment policy is put into practice effectively. The necessary technical and organizational procedures are reviewed at regular intervals and continuously updated.
- An awareness for environmental problems is expected of all our employees. Establishing and furthering a sense of responsibility for the environment on all levels represents a permanent challenge for the corporate management.

- We urge our business partners to act according to the same environmental principles as ourselves. We cooperate with the responsible public authorities.
- We inform interested members of the public about the consequences of our corporate policies for the environment as well as our achievements to the benefit of the environment.
- Our complete documentation is printed on chlorine-free bleached paper.

Certificate ISO 9001



Standards

CE Mark



EUROPEAN LOW-VOLTAGE DIRECTIVE EMC DIRECTIVE

The MICROMASTER 420 inverters comply with the requirements of the low-voltage directive, 73/23/EEC. The **CE** mark on the units demonstrates this conformity. A declaration of conformity can be issued. The units are certified to comply with the following standards:

Low-voltage directive

- **EN 60 146-1-1**
General requirements for semiconductor converters and line commutated converters
- **EN 60 204**
Safety of machinery, electrical equipment or machines
- **EN 50 178**
Ausrüstung von Starkstromanlagen mit elektronischen Betriebsmitteln

EMC Directive

- **EN 61 800-3**
Adjustable speed electrical power drive systems
Part 3: EMC product standard with testing instructions

Electromagnetic Compatibility

The MICROMASTER 420 inverters will, when correctly installed and put to their intended use, satisfy the requirements of the EEC directive 89/336/EEC concerning electromagnetic compatibility. If the guidelines on installation to reduce the effects of electromagnetic interference are followed, the devices are suitable for installation in machines. According to the machinery directive, these machines must be separately certified.

The table below lists the measured results for emissions of and immunity to interference for MICROMASTER 420 inverters. The inverters were installed according to the guidelines with shielded motor cables and shielded control cables.

Test/Standard	Measurement	Test value	Limit value
RFI emissions EN 55 011	Conducted via mains cable	150 kHz to 30 MHz	Unfiltered – not tested Internal/external filter – Class A – Class B (dependent on filter type)
	Emitted by the drive	30 MHz to 1 GHz	All devices – Class A
ESD immunity IEC 61 000-4-2	ESD through air	Level 3	8 kV
	ESD through direct contact	Level 3	6 kV
Electrical fields immunity IEC 61 000-4-3	Electrical field applied to unit	Level 4 26 MHz to 1 GHz	10 V/m
Burst interference immunity IEC 61 000-4-4	Applied to all cable terminations	Level 4	4 kV
Surge immunity IEC 61 000-4-5	Applied to all mains cables	Level 3	2 kV
Immunity to RFI emissions, conducted IEC 61 000-4-6	Applied to mains, motor and control cables	Level 4 0.15 MHz to 80 MHz 80% AM (1 kHz)	10 V

UL Listing



UL and cUL listed power conversion equipment type 5B33 in accordance with UL508C.

For use in pollution degree 2 environment.

Appendix

Siemens European Companies and Representatives

Albania

BINDI sh. p. k.
Tirana

Armenia

Representative of Siemens AG
Yerevan

Austria

Siemens AG Österreich
Vienna
Bregenz
Deutschlandsberg
Eisenstadt
Graz
Innsbruck
Klagenfurt
Klosterneuburg
Linz
Salzburg
St. Pölten
Villach

Azerbaijan

Representative of SIMKO AS
Baku

Belarus

Representative of Siemens AG
Minsk

Belgium

Siemens S. A.
Brussels
Antwerpen
Boussu
Coffontaine
Dilsen-Stokkem
Gent
Haasrode
Herentals
Huizingen
Liège
Namur
Oostkamp
Zaventem

Bulgaria

Siemens AG Representative in Bulgaria
Sofia

Croatia

Siemens d.d.
Zagreb

Cyprus

GEVO Ltd.
Nicosia

Czech Republic

Siemens s.r.o.
Prague
Brno
Děčín
Stříbro
Trutnov

Denmark

Siemens A/S
Ballerup
Alborg
Bronshøj
Esbjerg
Hedensted
Højbjerg
Odense
Skensved
Tåstrup
Vejle

Eire (Ireland)

Siemens Ltd.
Dublin

Estonia

AS Siemens
Tallinn

Finland

Siemens
Osakeyhtiö
Espoo
Helsinki

France

Siemens S. A. S.
Saint-Denis
Bihorel
Caluire-et-Cuire
Cesson Sévigné
Dijon
Haguenau
La Garenne Colombes
La-Suze-sur-Sarthe
Lesquin
Les Ulis
Lissess
Lormont
Marseille
Mérignac
Metz
Montrouge
Molsheim
Nanterre
Nantes
Nice
Pantin
Paris La Défense
Reims
Saint-Denis
Saint-Quentin
Strasbourg
Toulouse

Georgia

Representative of Siemens AG
Tbilisi

Great Britain

Siemens plc
Bracknell
Beeston
Belfast
Bellshill
Birmingham
Bristol
Camberley
Cambridge
Chessington
Christchurch
Clevedon
Corby
Congleton
Crawley
Cumbernauld
East Kilbride
Fareham
Glasgow
Hemel Hempstead
Hounslow
Ilford
Isle of Wight
London
Luton
Manchester
Milton Keynes
Newcastle-upon-Tyne
Oldham
Oxford
Poole
Purley
Romsey
Telford
Wellingborough
Wembley

Greece

Siemens A. E.
Athen, Amaroussio
Acharnes
Thessaloniki
Vassiliko Evias

Hungary

Siemens Rt.
Budapest
Bicske
Cegled
Szombathely

Iceland

Smith & Nordland HF
Reykjavik

Italy

Siemens S. p. A.
Milano
Bari
Bologna
Brescia
Cagliari
Casoria
Cassina de Pecchi
Fanglia
Firenze
Genova
Napoli
Padova
Palermo
Pescara
Roma
Torino
Verona

Latvia

Siemens S/A
Riga

Lithuania

Lietuvos ELTIKA
Vilnius
Klaipeda

Luxembourg

Siemens S. A.
Luxembourg-Hamm

Macedonia

SITAI d.o.o.
Skopje

Malta

J.R.D. SYSTEMS Ltd.
Harun

Moldavia

Siemens s.r.l.
Chisinau

Netherlands

Siemens Nederland N. V.
Den Haag
Alphen a/d Rijn
Zoetermeer

Norway

Siemens A/S
Oslo
Fyllingsdalen
Trondheim

Poland

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Katowice
Kratów
Poznań
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Mem Martins
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Romania

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Moscow
Barnaul
Jakutsk
Yekaterinburg
Irkutsk
Yshewsk
Kaluga
Krasnodar
Novosibirsk
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Subject index

	Page
AOP	4, 13
Applications	2
BOP	4, 13
Certificate	16
Chokes (options)	11
Circuit-breakers (options)	12
Circuit diagrams	5, 6
Conditions of sale and delivery	24
Derating data	8
Description	2
Design	2
Dimension drawings	14
Documentation	13
EMC filters (options)	10
Environment, resources and recycling	16
Features	3
Filters (options)	10
Fuses (options)	12
General circuit diagram	5
Gland plates	12
Internet	23
Line commutating chokes (option)	11
Main characteristics	2
Options	
• Selection and ordering data	10
• Description	4
Output chokes (options)	11
PROFIBUS board (options)	4, 13
Sales regions in Germany	18
Selection and ordering data (inverters)	9
Standards	17
Technical data	7
Terminal diagram	6
Variant dependent options	4, 10
Variant independent options	4, 13

Index of order numbers

	Page
3NA38 ..	12
3RV10 ..	12
6SE6400-0AP00-0AA0	13
6SE6400-0BP00-0AA0	13
6SE6400-0GP00-0.A0	12
6SE6400-0MD00-0AA0	13
6SE6400-0P.00-0AA0	13
6SE6400-1P.00-0AA0	13
6SE6400-2FA ..	10
6SE6400-2FB ..	10
6SE6400-2FL ..	11
6SE6400-2FS ..	10
6SE6400-3CC ..	11
6SE6400-3TC ..	11
6SE6400-5	13
6SE6420-2AB ..	9
6SE6420-2AC ..	9
6SE6420-2AD ..	9
6SE6420-2UC ..	9
6SE6420-2UD ..	9

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DC Drives Preferred Series up to 500 kW	DA 12.1		
DC Drives Preferred Series 215 kW to 1500 kW	DA 12.2		
SIMOREG Chassis Converters	DA 21		
SIMOREG Converter Cabinet Units	DA 22		
SIMOVERT PM Modular Converter Systems	DA 45		
SIEMOSYN Motors	DA 48		
MICROMASTER 420 Inverters	DA 51.2		
SIMOVERT A Current-Source DC Link Converters	DA 62		
SIMOVERT MV Medium-Voltage Drives	DA 63		
MICROMASTER, MIDIMASTER	DA 64		
Low-Voltage Motors for Variable-Speed Drives	DA 65.3		
SIMOVERT MASTERDRIVES Vector Control	DA 65.10		
SIMOVERT MASTERDRIVES Motion Control	DA 65.11		
SIMADYN D Control System	DA 99		
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• AC Main Spindle Motors 1PH2, 1PH3, 1PH4, 1PH7			
• AC Servomotors 1FK6, 1FN1, 1FS5, 1FT5, 1FT6			
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• Cables, Connectors and System Components	NC Z		
Human Machine Interface Products/Systems SIMATIC HMI	ST 80		
SIMATIC Industrial Automation Systems			
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SIMATIC S5/PC/505 Automation Systems	ST 50		
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Supplementary Components	ST 71		
SIMATIC PCS 7 Process Control System	ST PCS 7		
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STAB Wall-Mounting Distribution Boards	I 2.31		
SIKUS Floor-Mounting Distribution Boards	I 2.32		
8PU Busway System	I 2.36		
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System cables SIMATIC TOP connect	KT 10.2		
MOBY Identification Systems	KT 21		
Industrial Microcomputers SICOMP	KT 51		
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Cabinet Packaging System for SIMATIC PCS 7	KT 71		
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Products and Systems for Low-Voltage Power Distribution	NS PS		
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AS 388/TM and AS 488/TM automation systems	PLT 112		
OS 525 operating and monitoring system	PLT 122		
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CS 275 bus system	PLT 130		
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SITRANS LR	FI 01		
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Pumps			
Vacuum Pumps and Compressors, System ELMO-F	Cat. Sheets PF		
Vacuum Pumps and Compressors, System ELMO-G	Cat. Sheets PG		
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Applications, Products and Services for Industry	SL 01		
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• with SIMATIC S7	SL 10		
• with SIMATIC S5	ST 58		

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