

# micromaster COMBIMASTER

MICROMASTER 411 Inverters  
COMBIMASTER 411 Distributed Drive Solutions  
0.37 kW to 3 kW

**SIEMENS**

## Related Catalogs

### MICROMASTER 410/420/430/440 Inverters DA 51.2

Order No.:  
German E86060-K5151-A121-A3  
English E86060-K5151-A121-A3-7600



### MICROMASTER 411/COMBIMASTER 411 DA 51.3

Order No.:  
German E86060-K5251-A131-A1  
English E86060-K5251-A131-A1-7600



### MICROMASTER, MICROMASTER Vector MIDIMASTER Vector, COMBIMASTER DA 64

You can download the catalog  
in the Internet under the following address:  
<http://www.siemens.com/micromaster>



### Wechsel- und Drehstromsteller SIVOLT A/V DA 68

Order No.:  
German E20002-K4068-A101-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



### Getriebemotoren 2KG1 M 15

Order No.:  
German E86060-K1715-A101-A2



### Automation and Drives CA 01

Order No.:  
German E86060-D4001-A100-B7  
English E86060-D4001-A110-B6-7600



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# SIEMENS

## MICROMASTER 411 COMBIMASTER 411

0.37 kW to 3 kW

Catalog DA 51.3 · 2002

The products and systems described in this catalog are sold under application of a quality management system certified by DQS. The DQS Certificate is recognized in all IQ Net countries.



Management system

DQS-certified acc. to  
DIN EN ISO 9001 Reg. No 357-05  
DIN EN ISO 14001 Reg. No. 81342-01



BSI-certified acc. to  
BS EN ISO 9001 Reg. No. FM 25845

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# MICROMASTER 411/COMBIMASTER 411

## Description



MICROMASTER 411



COMBIMASTER 411

### Applications

The MICROMASTER 411/COMBIMASTER 411 products are ideally suited to decentralized drive applications which have the requirement for high IP protection rating. It has been designed for use in a broad range of drive applications from simple individual pump or fan applications up to multiple drive conveyor applications incorporating networked control systems.

The products have been based on the MICROMASTER 420 general purpose drive product range.

The products are characterized by their customer oriented performance and ease of use.

### Design

The modular design construction of the MICROMASTER 411/COMBIMASTER 411 products allow the user to select the product components individually, including for example electromechanical brake module or communications options.

### Main Characteristics

- MICROMASTER 411/COMBIMASTER 411 developed to be the replacement for the MICROMASTER integrated/COMBIMASTER (2<sup>nd</sup> Generation) products respectively
- IP 66 protection rating (MICROMASTER 411), selfcooled and suited for use in a broad variety of applications
- Electronics separated from connection terminals
- Updated, SIEMENS-DRIVES compatible parameter set for reduced commissioning time and cost
- Modular construction with many options
- Operation possible without the need for an operator panel (using jumpers/control potentiometer)
- Integrated, externally accessible control potentiometer.

### Options (overview)

- BOP basic operator panel for parameterising an inverter
- AOP advanced operator panel with plain-text and multilingual display
- PROFIBUS module
- Electromechanical brake control module
- PC connection kit
- Operator panel mounting kit
- PC commissioning tool.

# MICROMASTER 411/COMBIMASTER 411

## Description

### Mechanical Features

- IP 66 protection (MICROMASTER 411), suited to harsh industrial environments
- Thermally efficient heatsink design to allow mounting of inverter in all orientations (except heatsink upside down)
- Modular construction
- Separate termination compartment for ease of power supply and motor cable connection
- Operating temperature -10 °C to +40 °C
- Screwless I/O terminals.

### Operating Data

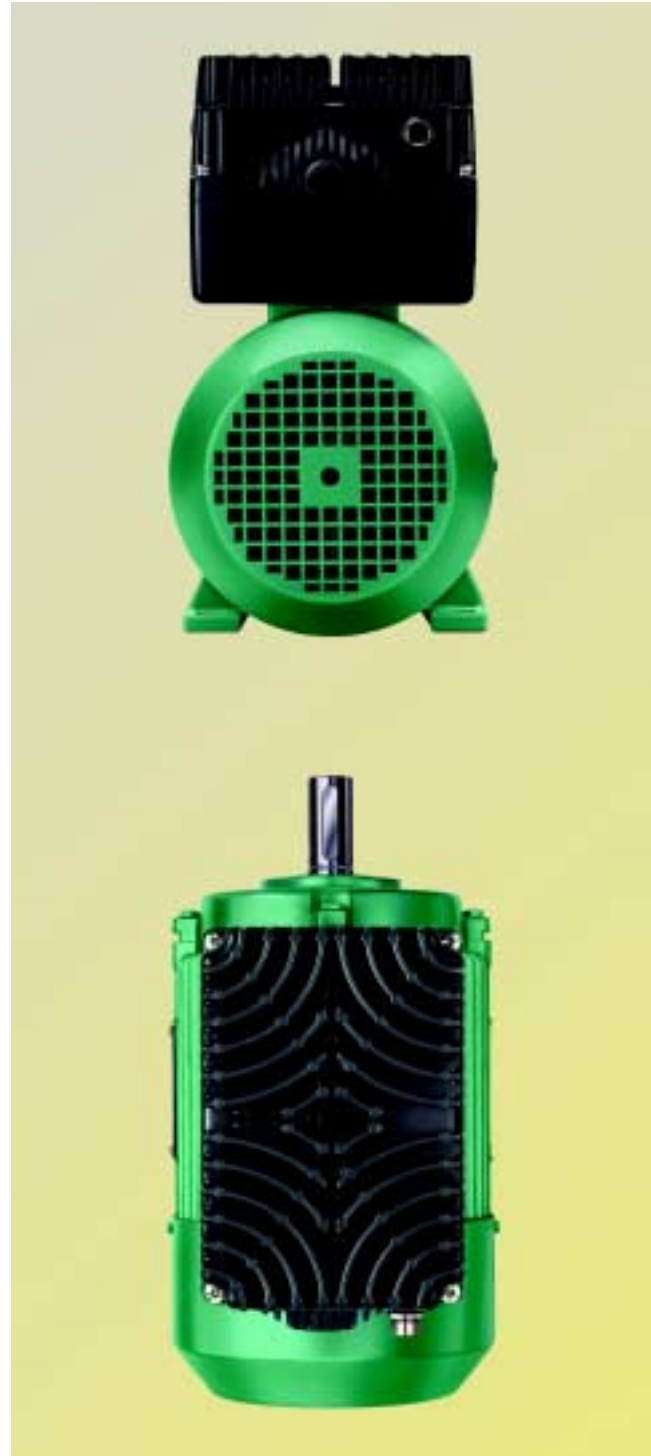
- For basic mode of operation, inverter can be operated using integrated externally mounted potentiometer to set frequency setpoint
- Ramp time settings can be fixed using jumpers (1 – 240 second ramps)
- Switchover to fan/pump (quadratic  $V/f$  control) using jumper
- Switchover to DC braking mode on OFF command using jumper
- Compatible with MICROMASTER 4 operator panel accessories.

### Performance Features

- Latest IGBT technology
- Digital microprocessor control
- Flux current control (FCC) for improved dynamic response and optimised motor control
- Linear  $V/f$  control
- Quadratic  $V/f$  control
- Multipoint  $V/f$  characteristic
- Flying restart
- Slip compensation
- Automatic restart facility following power failure or fault
- PI feedback for simple process control
- Programmable acceleration/deceleration
- Ramp smoothing
- Fast current limit (FCL) for trip free operation
- Fast, repeatable digital input response time
- Fine speed adjustment using a high resolution 10-bit analog input
- Compound braking for rapid controlled braking
- Four skip frequencies.

### Protection Features

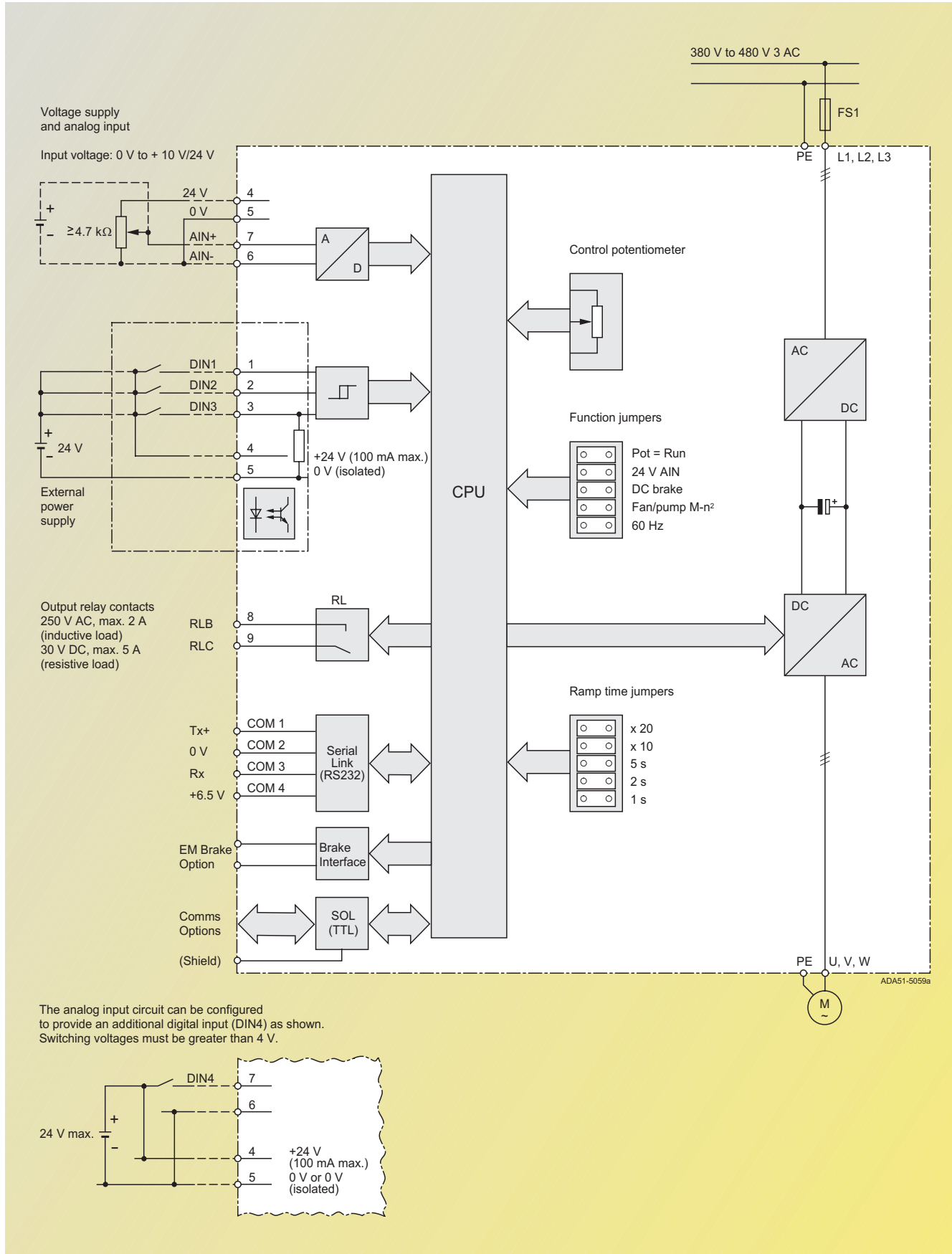
- 50 % overload capability for a period of 60 s within 5 min in relation to the rated output current
- Overvoltage/undervoltage protection
- Inverter overtemperature protection
- Motor protection using PTC via digital input
- Short circuit protection
- $I^2t$  motor thermal protection
- Stall prevention
- Parameter interlock, using PIN number.



# MICROMASTER 411/COMBIMASTER 411

## Circuit Diagram

### General Circuit Diagram



# MICROMASTER 411/COMBIMASTER 411

## Technical Data

### Shared Data

Line voltage	380 V to 480 V 3 AC $\pm$ 10%	
Power range	0.37 kW to 3.0 kW	
Case sizes and frame sizes	Case size (inverter) CS B: 0.37 kW to 1.5 kW CS C: 2.2 kW/3.0 kW	Frame size (motor) 71 to 90 90/100
Input frequency	47 Hz to 63 Hz	
Output frequency	0 Hz to 650 Hz (default)	
cos phi	$\geq$ 0.95	
Inverter efficiency	94% to 97% at maximum power	
Overload capability	50% overload capability for a period of 60 s within 5 min in relation to the rated output current	
Inrush current	less than 4 A for CS B and 7.7 A for CS C	
Control method	linear $V/f$ ; quadratic $V/f$ ; multipoint $V/f$ ; flux current control (FCC)	
Pulse frequency	4 kHz default (2 kHz to 16 kHz – in 2 kHz steps – with derating)	
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	
Analog input	1 for setpoint or PI input (0 to 10 V/24 V), scalable or for use as 4 <sup>th</sup> digital input	
Relay output	1 programmable 30 V DC/5 A (resistive load), 250 V AC/2 A (inductive load)	
Serial interface	RS-232	
Electromagnetic compatibility	Optional EMC filter to EN 55 011 Class B (radiated emissions : Class A)	
Braking	DC Braking, Compound Braking; electromechanical brake control module as option	
Degree of protection	MICROMASTER 411 : IP 66 COMBIMASTER 411 : IP 55	
Operating temperature	–10 °C to +40 °C	
Storage temperature	–40 °C to +70 °C	
Relative humidity	99 % (non condensing)	
Paint finish (motor)	Special paintwork in RAL 7030 stone grey	
Installation altitude	up to 1000 m above sea level without derating	
Protection features	<ul style="list-style-type: none"> <li>• undervoltage</li> <li>• overvoltage</li> <li>• overload</li> <li>• short circuit</li> <li>• stall prevention</li> <li>• motor overtemperature <math>I^2t</math>, PTC</li> <li>• inverter overtemperature</li> <li>• parameter PIN protection</li> </ul>	
Standards	CE	
CE-labeled	Complies with the European low-voltage directive 73/23/EEC and the electromagnetic compatibility directive 89/336/EEC	
Dimensions (MICROMASTER 411 inverters only)	Case size (CS)	L x H x W (mm)
	B	222 x 135 x 154
	C	255 x 168 x 177

# MICROMASTER 411/COMBIMASTER 411

## Technical Data

### Motor Data

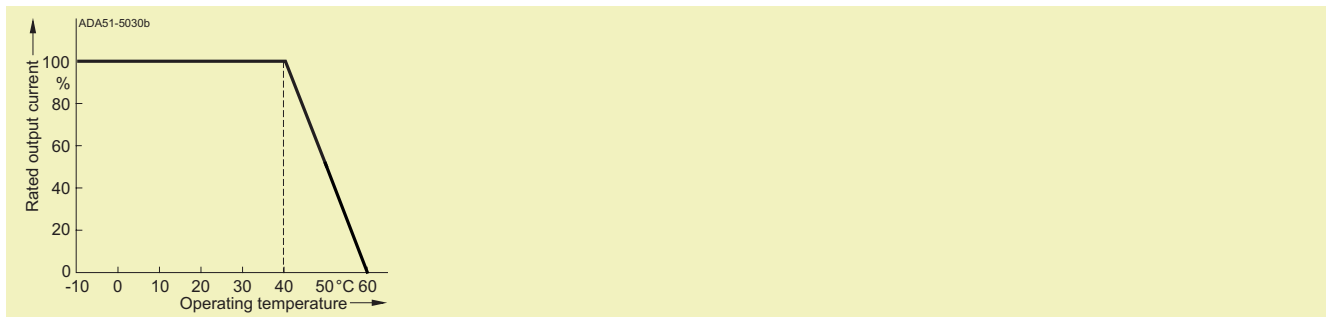
Rated output kW	Speed		Torque		Frame size	
	2-pole rpm	4-pole rpm	2-pole Nm	4-pole Nm	2-pole	4-pole
380 V to 480 V 3 AC						
0.37	2750	1375	1.3	2.6	71	71
0.55	2790	1395	1.9	3.7	71	80
0.75	2850	1395	2.5	5.1	80	80
1.1	2835	1410	3.7	7.5	80	90 S
1.5	2860	1410	5.0	10	90 S	90 L
2.2	2850	1420	7.3	15	90 L	100 L
3.0	2895	1430	9.8	20	100 L	100 L

### Derating-Data

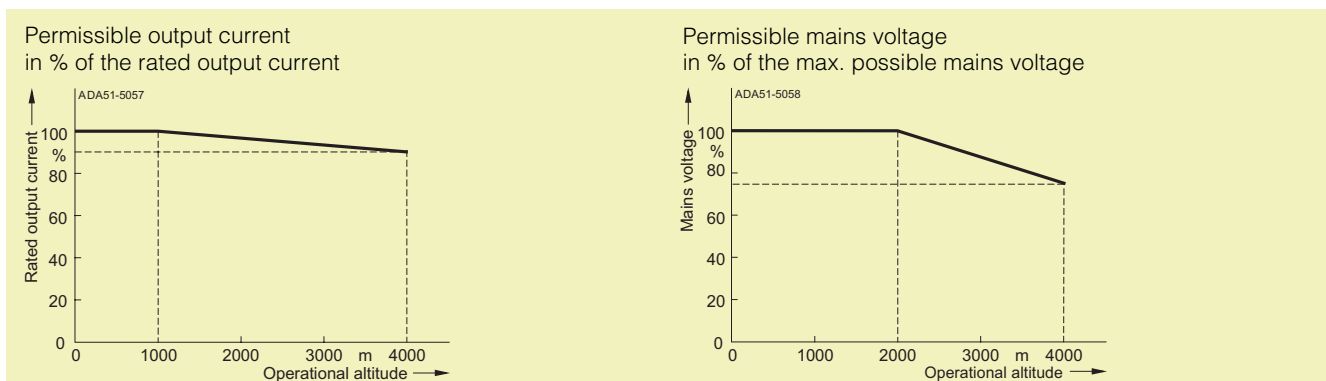
#### Pulse frequency

Rated output (for 400 V 3 AC) kW	Rated output current in A for a pulse frequency of						
	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
0.55	1.6	1.6	1.6	1.6	1.6	1.6	1.2
0.75	2.1	2.1	2.1	2.1	1.8	1.8	1.2
1.1	3.0	3.0	2.7	2.7	1.8	1.8	1.2
1.5	4.0	4.0	2.7	2.7	1.8	1.8	1.2
2.2	5.9	5.9	5.1	5.1	3.5	3.5	2.3
3.0	7.7	7.7	5.1	5.1	3.5	3.5	2.3

#### Operating temperature



#### Operational altitude





# MICROMASTER 411/COMBIMASTER 411

## Selection and Ordering Data

### MICROMASTER 411

MICROMASTER 411 inverters can be ordered individually.

They can be adapted to many different types of motor.

For the MICROMASTER 411 and the COMBIMASTER 411

the same options can be ordered (see page 10).



Rated output kW	Case size (inverter)	Order No.	
		MICROMASTER 411 without filter	MICROMASTER 411 with Class B filter
0.37	B	6SE6411-6UD13-7BA1	6SE6411-6BD13-7BA1
0.55	B	6SE6411-6UD15-5BA1	6SE6411-6BD15-5BA1
0.75	B	6SE6411-6UD17-5BA1	6SE6411-6BD17-5BA1
1.1	B	6SE6411-6UD21-1BA1	6SE6411-6BD21-1BA1
1.5	B	6SE6411-6UD21-5BA1	6SE6411-6BD21-5BA1
2.2	C	6SE6411-6UD22-2CA1	6SE6411-6BD22-2CA1
3.0	C	6SE6411-6UD23-0CA1	6SE6411-6BD23-0CA1

### COMBIMASTER 411 Using Energy-saving Motors with Efficiency Classification

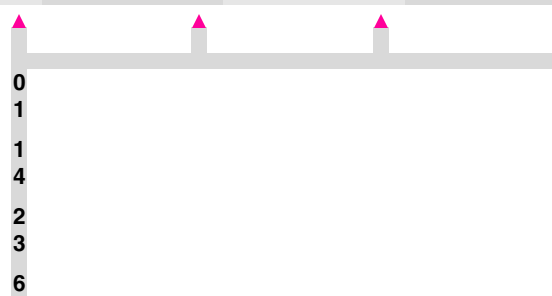
#### Basic type Motor 1LA7



Rated output kW	Case size (inverter)	Order No.			
		COMBIMASTER 411 without filter		COMBIMASTER 411 with Class B filter	
Mains operating voltage 400 V 3 AC					
		2-pole	4-pole	2-pole	4-pole
0.37	B	1UA1070-2AU2□	1UA1073-4AU2□	1UA1070-2AB2□	1UA1073-4AB2□
0.55	B	1UA1073-2AU2□	1UA1080-4AU2□	1UA1073-2AB2□	1UA1080-4AB2□
0.75	B	1UA1080-2AU2□	1UA1083-4AU2□	1UA1080-2AB2□	1UA1083-4AB2□
1.1	B	1UA1083-2AU2□	1UA1090-4AU2□	1UA1083-2AB2□	1UA1090-4AB2□
1.5	B	1UA1090-2AU2□	1UA1096-4AU2□	1UA1090-2AB2□	1UA1096-4AB2□
2.2	C	1UA1096-2AU2□	1UA1106-4AU2□	1UA1096-2AB2□	1UA1106-4AB2□
3.0	C	1UA1106-2AU2□	1UA1107-4AU2□	1UA1106-2AB2□	1UA1107-4AB2□

#### Type of Construction:

- IM B 3
- IM B 5
- IM V 1 (without canopy)
- IM V 1 (with canopy)
- IM B 14 (with standard flange)
- IM B 14 (with custom flange)
- IM B 35



For further information on the motors, their types of construction and order codes for special motor designs, see page 8 and Catalog M 11.

#### Example

A variable-speed drive is required, 750 W, 400 V 3 AC, 4-pole Class B filter, IM B 3 type of construction, with electro-mechanical brake control module (for option, see pages 8 to 10).

The Order No. is:  
**1UA1083-4AB20-Z  
M55**

# MICROMASTER 411/COMBIMASTER 411

## Selection and Ordering Data

### Order Codes for Special Designs

Additional Order No. suffix <b>-Z</b> with Order code	Special designs	Motor type – frame size			
		71	80	90	100

#### Paint finish (motor)

<b>M16</b>	Special paintwork in RAL 1002 sand yellow	●	●	●	●
<b>M17</b>	Special paintwork in RAL 1013 pearl white	●	●	●	●
<b>M18</b>	Special paintwork in RAL 3000 flame red	●	●	●	●
<b>K27</b>	Special paintwork in RAL 6011 mignorette green	●	●	●	●
<b>M19</b>	Special paintwork in RAL 6021 pale green	●	●	●	●
<b>M20</b>	Special paintwork in RAL 7001 silver gray	●	●	●	●
<b>K28</b>	Special paintwork in RAL 7031 bluish grey	●	●	●	●
<b>L42</b>	Special paintwork in RAL 7032 pebble grey	●	●	●	●
<b>M21</b>	Special paintwork in RAL 7035 light grey	●	●	●	●
<b>M22</b>	Special paintwork in RAL 9001 cream	●	●	●	●
<b>M23</b>	Special paintwork in RAL 9002 grey white	●	●	●	●
<b>L43</b>	Special paintwork in RAL 9005 jet black	●	●	●	●
<b>Y54</b> and special paintwork RAL .... (additional plain text is required)	Special paintwork in other colors: RAL 1015, 1019, 2003, 2004, 3007, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6019, 7000, 7011, 7016, 7022, 7033	●	●	●	●
<b>K23</b>	Unpainted (only cast iron parts primed)	●	●	●	●
<b>K24</b>	Unpainted, only primed	●	●	●	●

#### Modular technology/mounting

<b>G26</b>	Mounting of 2LM8 brake	●	●	●	●
<b>H62</b>	Mounting of 2LM8 brake and pulse generator 1XP8 001-1	-	-	-	●
<b>H63</b>	Mounting of 2LM8 brake and separately driven fan 2CW2	-	-	-	●
<b>H64</b>	Mounting of 2LM8 brake, separately driven fan 2CW2 and pulse generator 1XP8 001-1	-	-	-	●

#### Mechanical features

<b>A11</b>	Motor protection via PTC thermistors (embedded in motor windings)	●	●	●	●
<b>L13</b>	External earthing	●	●	●	●
<b>K31</b>	Extra rating plate, loose	●	●	●	●
<b>Y82</b> (additional plain text is required)	Extra rating plate for purchasers' data	●	●	●	●
<b>L99</b>	Wire-lattice pallet	●	●	●	●

#### Communication/mechanical features

<b>M54</b>	PROFIBUS module	●	●	●	●
<b>M55</b>	Electromechanical brake control module	●	●	●	●

● possible  
- not possible

# MICROMASTER 411/COMBIMASTER 411

## Options

### 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 is mounted in the operator panel mounting kit, for connection to the external communication interface of the inverter.

#### Advanced Operator Panel (AOP) for MICROMASTER 411/COMBIMASTER 411

This AOP is used specifically for the MICROMASTER 411/COMBIMASTER 411 products.

The AOP enables parameter sets to be read out of the inverter or to be written into the inverter (upload/download). Several 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)

It is mounted in the operator panel mounting kit, for connection to the external communication interface of the inverter.

#### PROFIBUS Module

PROFIBUS controlled operation is possible up to 12 Mbaud/s. The PROFIBUS module can be powered from an external 24 V supply so that the bus is active when the power is removed from the inverter. The PROFIBUS module uses an external options housing.

#### Electromechanical Brake Control Module

This module allows the inverter to control an electromechanical brake mounted on the motor. The EM Brake control module uses an external options housing.

#### Operator Panel Mounting Kit

The mounting kit is used to mount the operator panel eg. BOP/AOP for connection to the inverter.

#### PC – Inverter Connection Kit

This kit allows the inverter to be controlled directly from a PC with installed software (eg. STARTER). Isolated RS232 adapter boards is recommended for reliable point-to-point connection to a PC. It is used in conjunction with an operator panel mounting kit.

#### PC – AOP Connection Kit

This kit allows a PC to be connected to an AOP. Offline programming of inverters and archiving of parameter sets possible. Includes a desktop attachment kit for an AOP, an RS232 standard cable (3 m) with Sub-D connectors and a universal power supply unit.

#### Commissioning Tools

- STARTER is start-up software for guided commissioning for MICROMASTER frequency inverters under Windows NT/2000. Parameter lists can be read out, altered, stored, entered and printed.
- DriveMonitor also for Windows 95/98.

### Key to Programming Options

	Operator Panel Programming	PC Programming	PC Programming (with Isolation)	Desk Programming of AOP for Inverter Programming	Door Mounted Operator Panel
Operator Panel Mounting Kit (includes: Desktop Frame + Interface Link Cable)	●		●		
Interface Link Cable		●		●	
PC – Inverter Connection Kit			●		
PC – AOP Connection Kit				●	
Operator Panel Door Mounting Kit					●
BOP	● <sup>1)</sup>				● <sup>1)</sup>
AOP for MICROMASTER 411/COMBIMASTER 411	● <sup>1)</sup>			●	● <sup>1)</sup>
5 m Cable Assembly (M 12)					●

1) Either BOP or AOP required.

# MICROMASTER 411/COMBIMASTER 411

## Options

### Ordering Data for Variant Independent Options

Option	Order No.	Order Code (- Z Option)
Basic Operator Panel (BOP)	<b>6SE6400-0BP00-0AA0</b>	–
Advanced Operator Panel (AOP) for MICROMASTER 411/COMBIMASTER 411	<b>6SE6400-0AC00-0AA0</b>	–
PROFIBUS Module	<b>6SE6401-1PB00-0AA0</b>	<b>M54</b>
Electromechanical Brake Control Module	<b>6SE6401-1EM00-0AA0</b>	<b>M55</b>
Operator Panel Mounting Kit	<b>6SE6401-1DF00-0AA0</b>	–
Interface Link Cable	<b>6SE6401-1BL00-0AA0</b>	–
PC - Inverter Connection Kit	<b>6SE6400-1PC00-0AA0</b>	–
PC - AOP Connection Kit	<b>6SE6400-0PA00-0AA0</b>	–
Operator Panel Door Mounting Kit for Single Inverter Control	<b>6SE6400-0PM00-0AA0</b>	–
5 m Cable Assembly for Door Mount Kit	<b>6SE6401-1CA00-0AA0</b>	–
Wall Mounting Kit	<b>6SE6401-0WM00-0AA0</b>	–

### Ordering Data for Variant Dependent Options

The options listed here:

- Fuses
- Circuit breakers

are inverter specific.

	Rated output kW	Case size (inverter)	Order No. of the options <b>Fuse</b> (see Catalog NS K)	<b>Circuit breaker</b> (see Catalog NS K)
<b>Mains operating voltage 380 V to 480 V 3 AC</b>				
<b>MICROMASTER 411/COMBIMASTER 411 without filter</b>	0.37	B	<b>3NA3803</b>	<b>3RV1021-1CA10</b>
	0.55	B		<b>3RV1021-1DA10</b>
	0.75	B		<b>3RV1021-1EA10</b>
	1.1	B		<b>3RV1021-1GA10</b>
	1.5	B		<b>3RV1021-1HA10</b>
	2.2	C		<b>3NA3805</b>
3.0	C	<b>3RV1021-1KA10</b>		
<b>MICROMASTER 411/COMBIMASTER 411 with Class B filter</b>	0.37	B	<b>3NA3803</b>	<b>3RV1021-1CA10</b>
	0.55	B		<b>3RV1021-1DA10</b>
	0.75	B		<b>3RV1021-1EA10</b>
	1.1	B		<b>3RV1021-1GA10</b>
	1.5	B		<b>3RV1021-1HA10</b>
	2.2	C		<b>3NA3805</b>
3.0	C	<b>3RV1021-1KA10</b>		

### Documentation

Type of documentation	Language	Order No.
<b>Docu-Pack</b> , supplied with each MICROMASTER 411/ COMBIMASTER 411, containing CD-ROM <sup>1)</sup> and Getting-Started-Guide <sup>2)</sup> (paper version)	Multilanguage	<b>6SE6400-5FC00-1AP0</b>
<b>Operating instructions<sup>2)</sup></b> (paper version)	German	<b>6SE6400-5CA00-0AP0</b>
	English	<b>6SE6400-5CA00-0BP0</b>
	French	<b>6SE6400-5CA00-0DP0</b>
	Italian	<b>6SE6400-5CA00-0CP0</b>
	Spanish	<b>6SE6400-5CA00-0EP0</b>
<b>Parameter list<sup>2)</sup></b>	German	<b>6SE6400-5CE00-0AP0</b>
	English	<b>6SE6400-5CE00-0BP0</b>
	French	<b>6SE6400-5CE00-0DP0</b>
	Italian	<b>6SE6400-5CE00-0CP0</b>
	Spanish	<b>6SE6400-5CE00-0EP0</b>

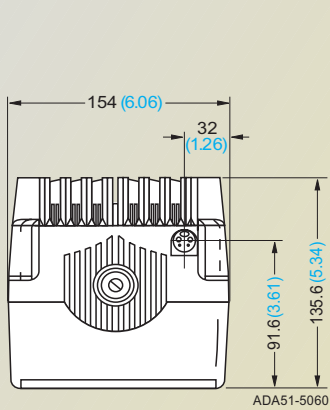
1) The CD-ROM contains operating instructions parameter list, commissioning tool STARTER (DriveMonitor), multilanguage

2) Available on Internet at  
<http://www.siemens.com/micromaster>

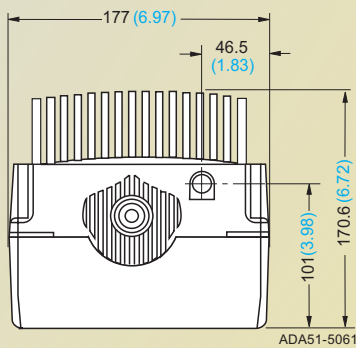
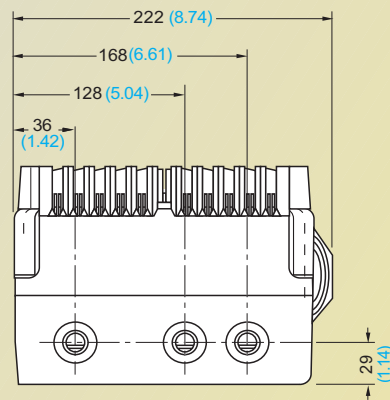
# MICROMASTER 411/COMBIMASTER 411

## Dimension Drawings

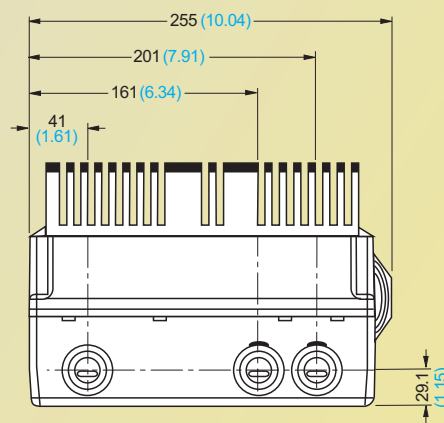
### MICROMASTER 411 Inverters



Inverter Case Size **B**



Inverter Case Size **C**

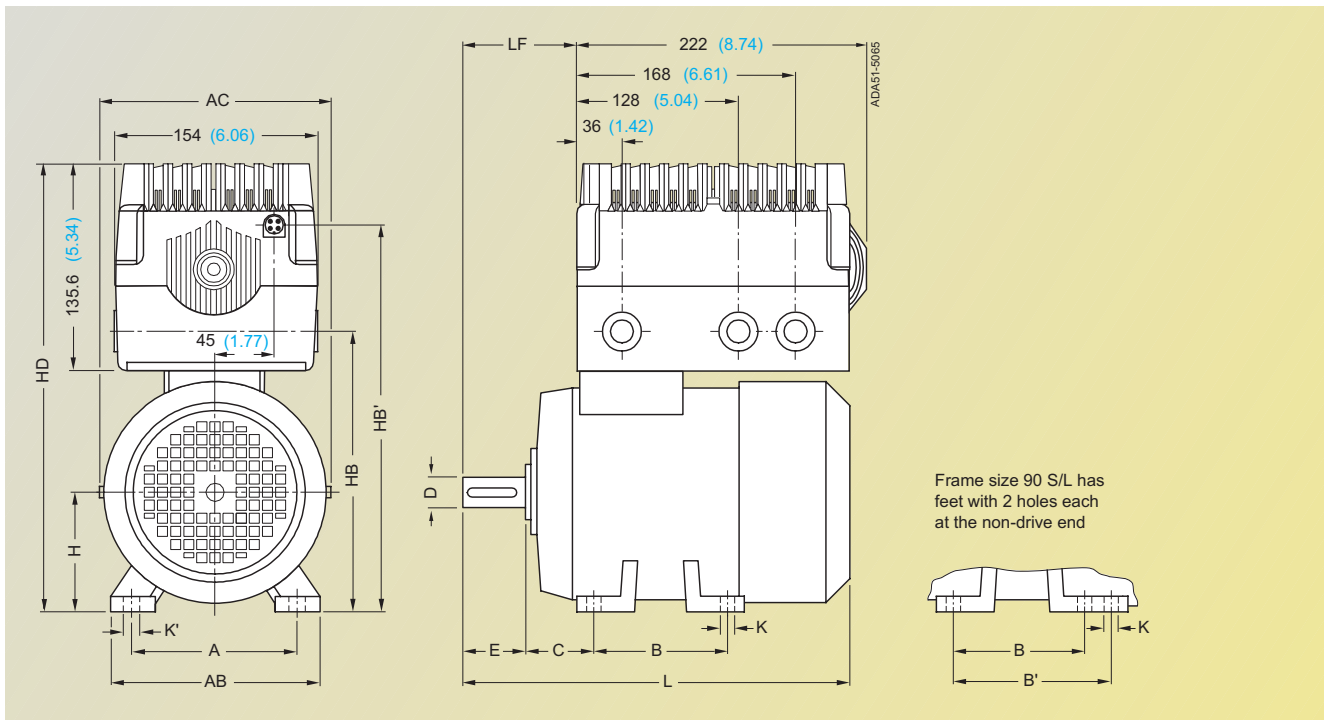


All dimensions are in mm (values in brackets are in inches)

# MICROMASTER 411/COMBIMASTER 411

## Dimension Drawings

### COMBIMASTER 411 – IM B 3 – with Inverter Case Size B



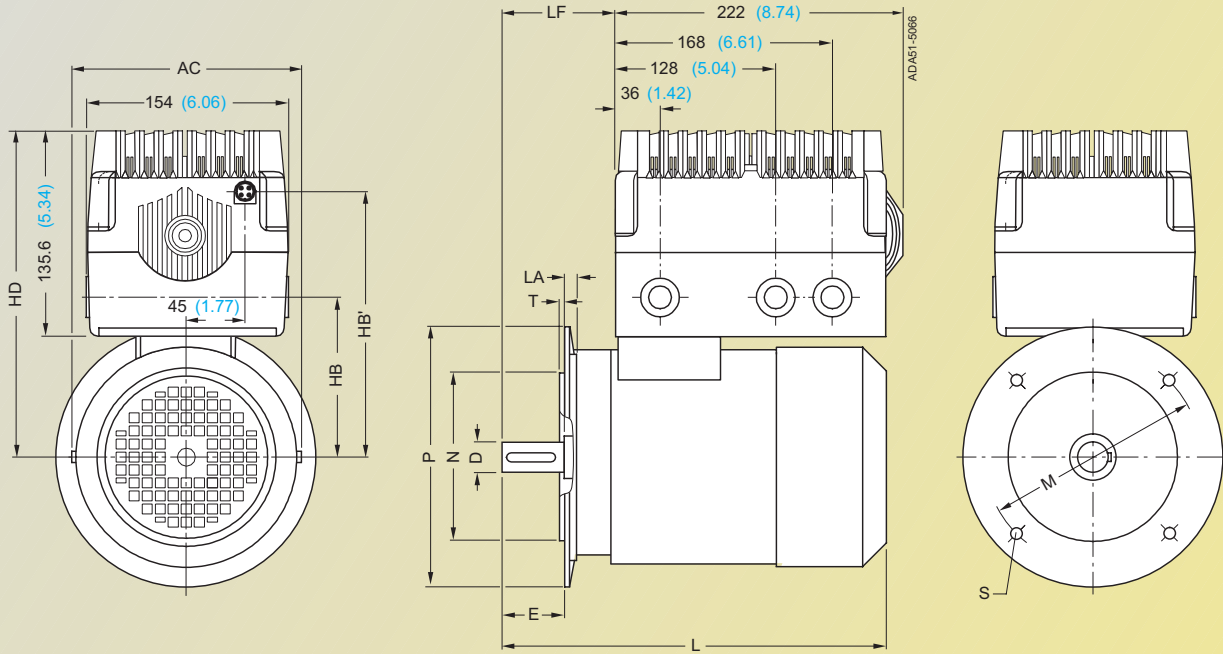
Motor	Dimension symbol to																
Frame Type	IEC A	AB	AC	B	B'	C	D	E	H	HB	HB'	HD	K	K'	L	LF	
size	DIN b	f	g	a	a'	w1	d	l	h	v	v1	p	s	s <sub>1</sub>	k	q	
71	1UA1 07.	<b>112</b>	132	145	<b>90</b>	–	<b>45</b>	<b>14</b>	<b>30</b>	<b>71</b>	172	234.6	278.6	<b>7</b>	10	240	54
		(4.41)	(5.20)	(5.71)	(3.54)	–	(1.77)	(0.55)	(1.18)	(2.80)	(6.77)	(9.24)	(10.97)	(0.28)	(0.39)	(9.45)	(2.13)
80	1UA1 08.	<b>125</b>	150	162	<b>100</b>	–	<b>50</b>	<b>19</b>	<b>40</b>	<b>80</b>	190	252.6	296.6	<b>9.5</b>	13.5	274	64
		(4.92)	(5.91)	(6.38)	(3.94)	–	(1.97)	(0.75)	(1.57)	(3.15)	(7.48)	(9.94)	(11.68)	(0.37)	(0.53)	(10.79)	(2.52)
90 S, 90 L	1UA1 090	<b>140</b>	165	181	<b>100</b>	<b>125</b>	<b>56</b>	<b>24</b>	<b>50</b>	<b>90</b>	208	270.6	314.6	<b>10</b>	14	331	89.5
		(5.51)	(6.50)	(7.13)	(3.94)	(4.92)	(2.20)	(0.94)	(1.97)	(3.54)	(8.19)	(10.65)	(12.39)	(0.39)	(0.55)	(13.03)	(3.52)

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

# MICROMASTER 411/COMBIMASTER 411

## Dimension Drawings

### COMBIMASTER 411 – IM B 5 – with Inverter Case Size B



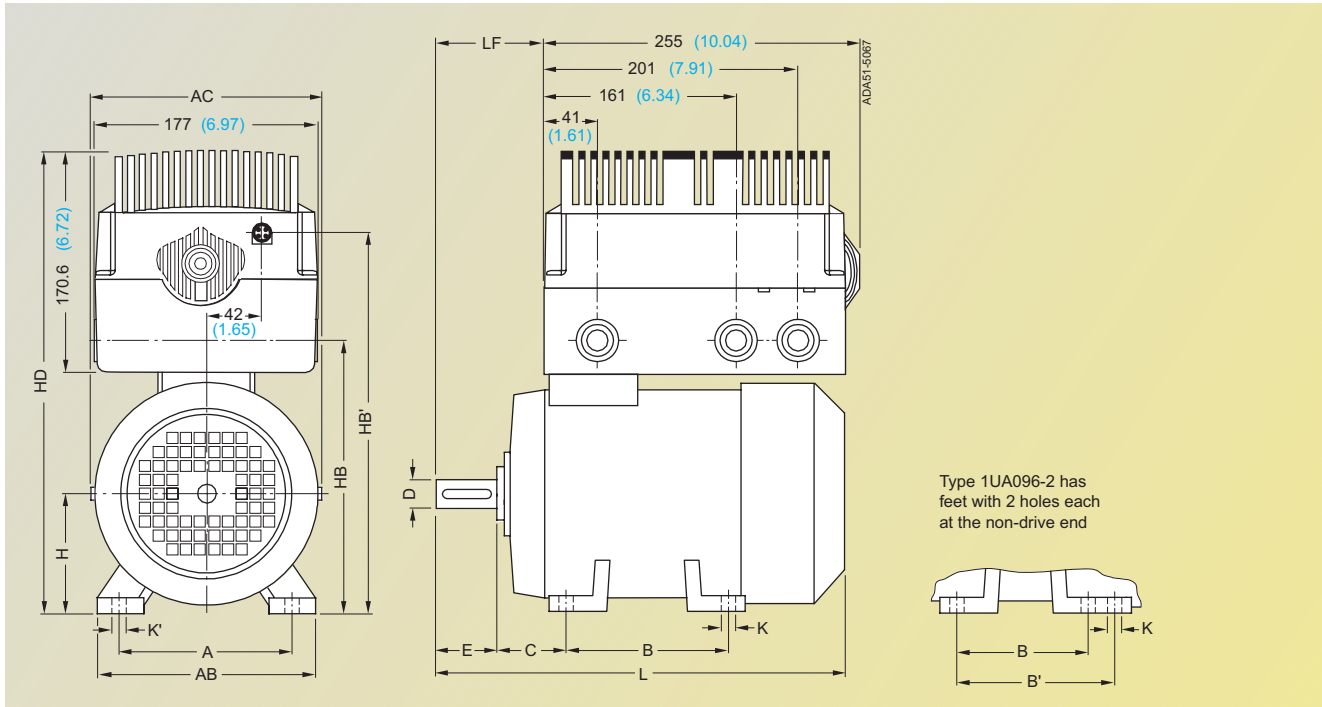
Motor Frame Type size	Dimension symbol to														
	IEC DIN	AC g	D d	E l	HB v	HB' v1	HD p	L k	LA c <sub>1</sub>	LF q	M e <sub>1</sub>	N b <sub>1</sub>	P a <sub>1</sub>	S s <sub>2</sub>	T f <sub>1</sub>
71 1UA1 07.	145 (5.71)	<b>14</b> (0.55)	<b>30</b> (1.18)	101 (3.98)	163.6 (6.44)	207.6 (8.17)	240 (9.45)	9 (0.35)	54 (2.13)	<b>130</b> (15.12)	<b>110</b> (4.33)	<b>160</b> (6.30)	<b>10</b> (0.39)	3.5 (0.14)	
80 1UA1 08.	162 (6.38)	<b>19</b> (0.75)	<b>40</b> (1.57)	110 (4.33)	172.6 (6.80)	216.6 (8.53)	274 (10.79)	10 (0.39)	64 (2.52)	<b>165</b> (6.50)	<b>130</b> (5.12)	<b>200</b> (7.87)	<b>12</b> (0.47)	3.5 (0.14)	
90 S, 1UA1 090	181 (7.13)	<b>24</b> (0.94)	<b>50</b> (1.97)	118 (4.65)	180.6 (7.11)	224.6 (8.84)	331 (13.03)	10 (0.39)	89.5 (3.52)	<b>165</b> (6.50)	<b>130</b> (5.12)	<b>200</b> (7.87)	<b>12</b> (0.47)	3.5 (0.14)	

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

# MICROMASTER 411/COMBIMASTER 411

## Dimension Drawings

### COMBIMASTER 411 – IM B 3 – with Inverter Case Size C



Motor	Dimension symbol to																
Frame Type	IEC A	AB	AC	B	B'	C	D	E	H	HB	HB'	HD	K	K'	L	LF	
size	DIN b	f	g	a	a'	w1	d	l	h	v	v1	p	s	s <sub>1</sub>	k	q	
90 L	1UA1 096-2	<b>140</b>	165	181	<b>100</b>	<b>125</b>	<b>56</b>	<b>24</b>	<b>50</b>	<b>90</b>	208	280	349.5	<b>10</b>	14	332	88.5
		(5.51)	(6.50)	(7.13)	(3.94)	(4.92)	(2.20)	(0.94)	(1.97)	(3.54)	(8.19)	(11.02)	(13.76)	(0.39)	(0.55)	(13.07)	(3.48)
100 L	1UA1 106	<b>160</b>	196	202	<b>140</b>	–	<b>63</b>	<b>28</b>	<b>60</b>	<b>100</b>	225	300	370	<b>12</b>	16	373	98
		(6.30)	(7.72)	(7.95)	(5.51)	–	(2.48)	(1.10)	(2.36)	(3.94)	(8.86)	(11.81)	(14.57)	(0.47)	(0.63)	(14.69)	(3.86)

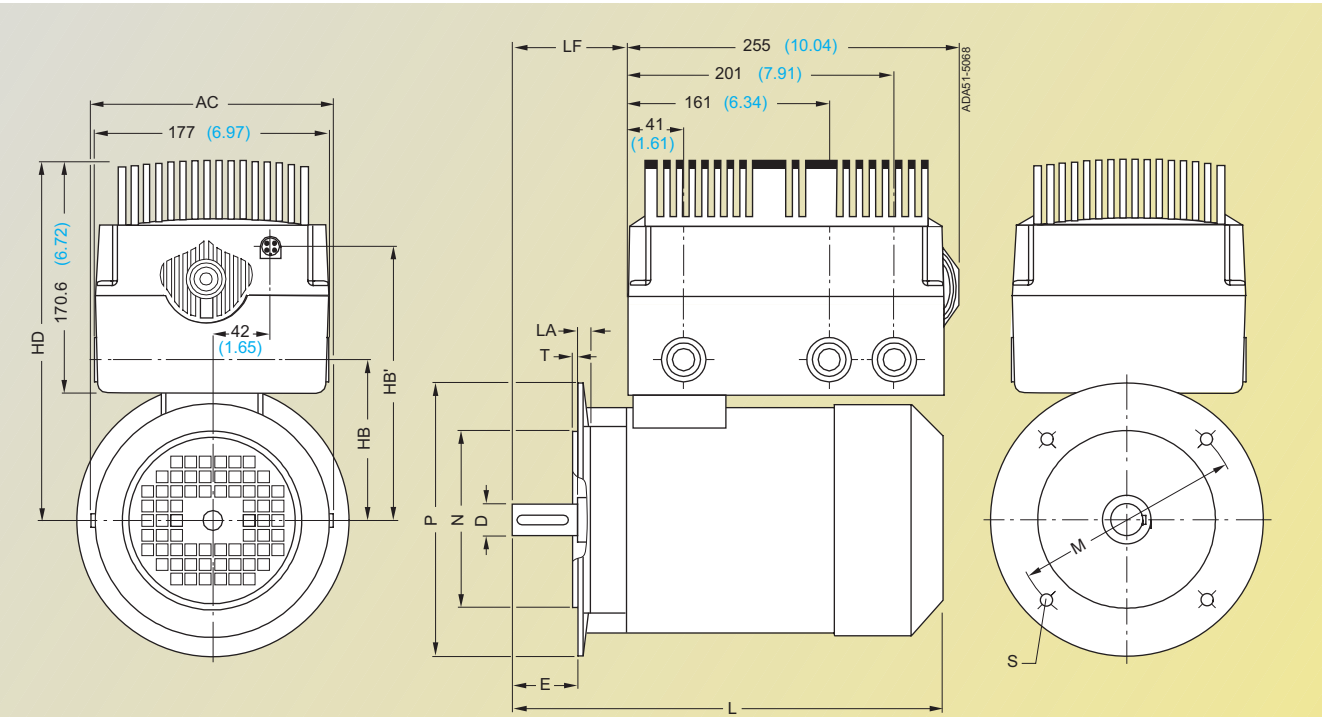
All of the dimensions are in mm (values in brackets are in inches)



# MICROMASTER 411/COMBIMASTER 411

## Dimension Drawings

### COMBIMASTER 411 – IM B 5 – with Inverter Case Size C



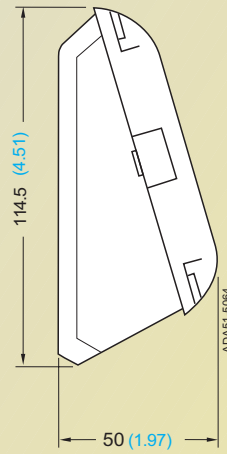
Motor	Dimension symbol to																
Frame Type	IEC AC	D	E	HB	HB'	HD	L	LA	LF	M	N	P	S	T			
size	DIN g	d	l	v	v1	p	k	c <sub>1</sub>	q	e <sub>1</sub>	b <sub>1</sub>	a <sub>1</sub>	s <sub>2</sub>	f <sub>1</sub>			
90 L	1UA1 096-2	181	<b>24</b>	<b>50</b>	118	190	259.5	332	10	88.5	<b>165</b>	<b>130</b>	<b>200</b>	<b>12</b>	3.5		
		(7.13)	<b>(0.94)</b>	<b>(1.97)</b>	(4.65)	(7.48)	(10.22)	(13.07)	(0.39)	(3.48)	<b>(6.50)</b>	<b>(5.12)</b>	<b>(7.87)</b>	<b>(0.47)</b>	(0.14)		
100 L	1UA1 106	202	<b>28</b>	<b>60</b>	125	200	270	373	11	64	<b>215</b>	<b>180</b>	<b>250</b>	<b>14.5</b>	4		
		(7.95)	<b>(1.10)</b>	<b>(2.36)</b>	(4.92)	(7.87)	(10.63)	(14.69)	(0.43)	(2.52)	<b>(8.46)</b>	<b>(7.09)</b>	<b>(9.84)</b>	<b>(0.57)</b>	(0.16)		

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

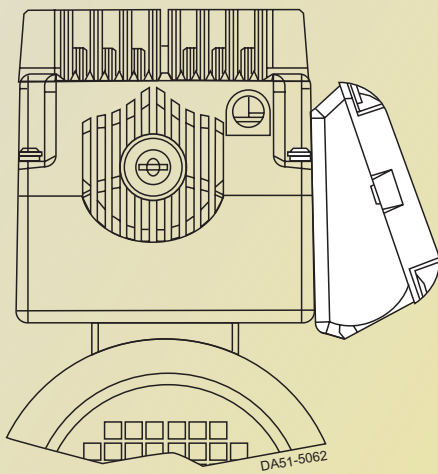
# MICROMASTER 411/COMBIMASTER 411

## Dimension Drawings

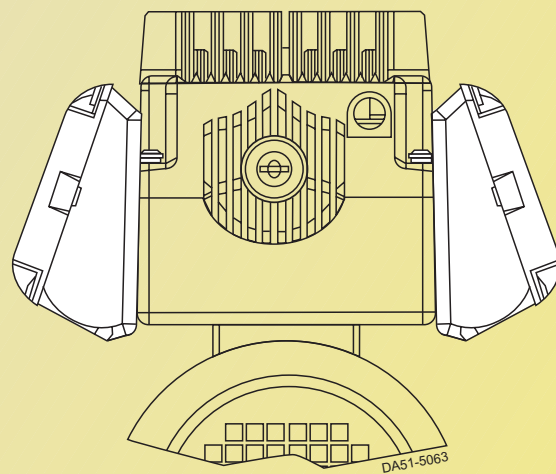
### Options



External housing for options  
PROFIBUS Module or Electromechanical Brake Control Module



Single Option on Inverter  
Example: PROFIBUS Module



Dual Option on Inverter  
Electromechanical Brake Control Module  
and PROFIBUS Module

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

# MICROMASTER 411/COMBIMASTER 411

## 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.

### Certificates ISO 9001



# MICROMASTER 411/COMBIMASTER 411

## Appendix

### Conformity with Standards

#### CE Marking



The MICROMASTER 411 inverters and the COMBIMASTER 411 distributed drive solution comply with the requirements of the low-voltage directive, 73/23/EEC and – with correct installation and selection – with the requirements of the EMC directive 89/336/EEC. A certificate can be provided on request

The inverters comply with the following standards listed in the EU gazette:

#### Low-voltage Directive

- **EN 60 204**

Safety of machinery, electrical equipment of machines

- **EN 50 178**

Electronic equipment in electrical power installations.

#### Machine Directive

The inverters are suitable for installation in machines. Compliance with the machine directive 89/39/EEC requires a separate certificate of conformity. This must be furnished by the plant constructor or the installer of the machine.

#### EMV-Richtlinie

- **EN 61 800-3**

Variable-speed electric drives Part 3: EMC product standard including special test procedure.

The modified EMC product standard EN 61 800-3/A11 for electrical drive systems is valid since 01.01.2002. The following comments apply to the series 6SE6 frequency inverters from Siemens:

- The EMC product standard EN 61 800-3/A11 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.
- A frequency inverter must therefore only be considered as a component which, on its own, is not subject to the EMC product standard EN 61 800-3/A11. However, the inverter's Instruction Manual specifies the conditions on how the product standard can be complied with if the frequency inverter is completed into a PDS. The EMC directive in the EU is complied with for a PDS by observance of the product standard EN 61 800-3/A11 for PDS. The frequency inverters on their own do not generally require identification according to the EMC directive.
- The frequency inverters as components on their own are only classified as "Limited availability" for persons and users with the necessary EMC knowledge. They are not envisaged for unlimited sale or as "General availability" for users. At this point it is necessary to exactly differentiate between the frequency inverter and the PDS. A PDS can certainly be envisaged by the vendor for general availability, and the standard must be applied accordingly. On the other hand, the components used in the PDS may possibly not be for "General availability".

- Since 01.01.2002, the EMC product standard EN 61 800-3/A11 also defines, for the first time, limits for conducted interference and radiated interference for the so-called "Second environment" (= industrial power supply systems which do not supply households). Although these limits lie below those of filter Class A according to EN 55 011, a PDS with an unfiltered frequency inverter of series 6SE6 nevertheless does not comply with these values, and therefore does not meet the standard EN 61 800-3/A11.
- Using internal filters and the installation instructions included in the documentation, the PDS designed using the frequency inverters complies with the product standard EN 61 800-3/A11:
  - Unlimited sale with filters of Class B to EN 55 011 in the first environment (living accommodation and industrial areas)
  - Limited sale and installation by EMC experts with filters of Class A to EN 55 011 in the first environment plus warning information.
  - With filters of Class A to EN 55 011 in the second environment (industrial areas), where these filters even significantly exceed the requirements of EN 61 800-3/A11.

- A differentiation must be made between the product standards for electrical drive systems (PDS) of the range of standards EN 61 800-3/A11 (of which Part 3/A11 covers EMC topics) and the product standards for the devices/systems/machines etc. No changes will probably result in the practical use of frequency inverters. Since frequency inverters are always part of a PDS, and these are part of a machine the machine vendor must observe various standards depending on the type and environment, e.g. EN 61 000-3-2 for power supply harmonics and EN 55 011 for radio interferences. The product standard for PDS on its own is therefore either insufficient there or irrelevant.

With respect to the compliance of limits for power supply harmonics, the EMC product standard EN 61 800-3/A11 for PDS refers to compliance with the EN 61 000-3-2 and EN 61 000-3-12 standards.

# MICROMASTER 411/COMBIMASTER 411

## Electromagnetic Compatibility

The MICROMASTER 411/COMBIMASTER 411 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 411/COMBIMASTER 411.

The inverters were installed according to the guidelines detailed within the Operating Instructions for the MICROMASTER 411/COMBIMASTER 411.

EMV-phenomenon Standard/test		Relevant criterion	Limit value
Emitted interference EN 61 800-3	Conducted via mains cable	150 kHz to 30 MHz	Unfiltered – not tested Internal filter Class B
	Emitted by the drive	30 MHz bis 1 GHz	All devices – Class A
ESD immunity EN 61 000-4-2 ESD through air discharge ESD through contact discharge		Level 3	8 kV
		Level 3	6 kV
Electrical fields immunity EN 61 000-4-3 Electrical field applied to unit		Level 3 26 MHz to 1 GHz	10 V/m
Bust interference immunity EN 61 000-4-4 Applied to mains cable terminations		Level 4	4 kV
Surge immunity EN 61 000-4-5 Applied to mains cables		Level 3	2 kV
Immunity to RFI emissions, conducted EN 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

# MICROMASTER 411/COMBIMASTER 411

## Appendix

### Siemens European Companies and Representatives

#### Albania

BINDI sh. p. k.  
**Tirana**

#### Armenia

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**Yerevan**

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**Bregenz**  
**Deutschlandsberg**  
**Eisenstadt**  
**Graz**  
**Innsbruck**  
**Klagenfurt**  
**Klosterneuburg**  
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**Antwerpen**  
**Bousu**  
**Colfontaine**  
**Dilsen-Stokkem**  
**Gent**  
**Haasrode**  
**Herentals**  
**Huizingen**  
**Liège**  
**Namur**  
**Oostkamp**  
**Zaventem**

#### Bosnia-Herzegovina

Siemens d.o.o.  
**Sarajevo**

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**Zagreb**

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GEVO Ltd.  
**Nicosia**

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**Ballerup**  
**Alborg**  
**Brønshøj**  
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**Højbjerg**  
**Odense**  
**Skensved**  
**Tåstrup**  
**Vejle**

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**Dublin**

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AS Siemens  
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**Osakeyhtiö**  
**Espoo**  
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**Bihorel**  
**Caluire-et-Cuire**  
**Cesson Sévigné**  
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**Haguenau**  
**La Garenne Colombes**  
**La-Suze-sur-Sarthe**  
**Lesquin**  
**Les Ulis**  
**Lissess**  
**Lormont**  
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**Metz**  
**Montrouge**  
**Molsheim**  
**Nanterre**  
**Nantes**  
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**Belfast**  
**Bellshill**  
**Birmingham**  
**Bristol**  
**Camberley**  
**Cambridge**  
**Chessington**  
**Christchurch**  
**Clevedon**  
**Corby**  
**Congleton**  
**Crawley**  
**Cumbernauld**  
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**Hounslow**  
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**Acharnes**  
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Smith & Nordland HF  
**Reykjavik**

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**Riga**

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**Vilnius**  
**Klaipeda**

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**Luxembourg-Hamm**

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**Skopje**

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**Harun**

#### Moldavia

Siemens s.r.l.  
**Chisinau**

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**Den Haag**  
**Alphen a/d Rijn**  
**Zoetermeer**

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**Kratów**  
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**Wrocław**

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**Albufeira**  
**Carnaxide**  
**Coimbra**  
**Evora**  
**Loures**  
**Matosinhos Codex**  
**Mem Martins**  
**Seixal**

#### Romania

Siemens birou de consultații tehnice  
**Bucharest**  
**Slatina**

#### Russia

Siemens GmbH Moskau  
**Moscow**  
**Barnaul**  
**Jakutsk**  
**Yekaterinburg**  
**Irkutsk**  
**Yshewsk**  
**Kaluga**  
**Krasnodar**  
**Novosibirsk**  
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**Tjumen**  
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**Michalovce**  
**Nitra**  
**Nové Zámky**  
**Trnava**

#### Slowenia

Siemens d.o.o.  
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**Kranj**  
**Maribor**

#### Spain

Siemens S. A.  
**Bilbao**  
**Cornellá de Llobregat**  
**Gijón**  
**La Coruña**  
**Las Palmas de Gran Canaria**  
**León**  
**Málaga**  
**Murcia**  
**Palma de Mallorca**  
**Santa Cruz de Tenerife**  
**Sevilla**  
**Tres Cantos (Madrid)**  
**Valencia**  
**Valladolid**  
**Vigo**  
**Zaragoza**

#### Sweden

Siemens AB  
**Upplands Väsby**  
**Göteborg**  
**Haninge**  
**Jönköping**  
**Kista**  
**Malmö**  
**Solna**  
**Sundsvall**

#### Switzerland

Siemens Schweiz AG  
**Zürich**  
**Adliswil**  
**Basel**  
**Bioggio**  
**Bronschhofen**  
**Dietikon-Fahrweid**  
**Fahrweid**  
**Winterthur-Töss**

#### Turkey

SIMKO Ticaret ve Sanayi A.S.  
**Findikli Istanbul**  
**Adana**  
**Alsancak-Izmir**  
**Ayazag-Istanbul**  
**Beşiktaş-Istanbul**  
**Bursa**  
**Cerkezköy-Tekirdag**  
**Kartal-Istanbul**  
**Kavaklıdere-Ankara**  
**Mecidiyeköy-Istanbul**  
**Mudanya**  
**Samsun**

#### Ukraine

Representative of Siemens AG  
**Kiev**  
**Charkiw**  
**Odessa**  
**Wischgorod**

#### Yugoslavia

Siemens d.o.o.  
**Beograd**

# MICROMASTER 411/COMBIMASTER 411

## Appendix

### Siemens Companies and Representatives Worldwide

#### Africa

##### Algeria

Siemens Bureau d'Alger  
**Hydra**

##### Angola

Escritório de Representação da Siemens em Angola  
**Luanda**

##### Botswana

Siemens (Pty) Ltd.  
**Gaborone**  
**Iwaneng**

##### Congo

SOFAMATEL S.P.R.L.  
**Kinshasa**

##### Côte d'Ivoire

Siemens AG  
S.A.R.L.  
**Abidjan**

##### Egypt

Siemens Limited  
**Cairo-Mohandessin**  
**Smouha Alexandria**  
Centech  
**Cairo-Zamalek**

##### Ethiopia

Siemens (Pvt)  
**Addis Abeba**

##### Ghana

Impromex ACCRA  
**Accra**

##### Guinea

André & Cie. S. A.  
**Lausanne**

##### Kenya

Siemens Communications Ltd.  
**Nairobi**

##### Lesotho

Range Telecommunication Systems (Pty) Ltd  
**Maseru**

##### Libya

Siemens A. G. Branch Libya  
**Tripoli**

##### Malawi

Ecoelectric Ltd.  
**Blantyre**

##### Mauritius

Ireland Blyth Ltd  
**Port Louis**

##### Morocco

SETEL  
Société Electrotechnique et de Télécommunication S. A.  
**Casablanca**

##### Mosambique

Siemens Limitada  
**Maputo**

##### Namibia

Siemens (Pty.) Ltd.  
**Windhoek**

#### Nigeria

Siemens Limited  
**Lagos**  
**Abuja**  
**Kaduna**

#### Republic of South Africa

Siemens Ltd.  
**Halfway House**  
**Centurion**  
**Isando**  
**Pretoria**  
**Springs**  
**Woodmead**

#### Sudan

National Electrical  
**Commercial Co.**  
**Khartoum**

#### Swaziland

Siemens (Pty) Ltd  
**Matsapha**

#### Tanzania

Tanzania Electrical Services Ltd.  
**Dar-es-Salaam**

#### Tunesia

Siemens Bureau de Liaison  
**Tunis**

#### Zambia

Siemens (Z) Ltd.  
**Kitwe**  
**Lusaka**

#### Zimbabwe

Siemens (Pvt.) Ltd.  
**Harare**  
**Alexandra Park**

#### America

##### Argentina

Siemens S. A.  
**Buenos Aires**  
**San Martín**  
**Bahía Blanca**  
**Córdoba**  
**Las Heras**  
**Mar del Plata**  
**Rosario**  
**Boulogne sur Mer**

##### Bolivia

Sociedad Comercial é Industrial Hansa Ltda.  
**La Paz**

##### Brazil

Siemens Ltda.  
**Sao Paulo**  
**Belo Horizonte**  
**Brasília**  
**Campinas**  
**Curitiba**  
**Florianópolis**  
**Fortaleza**  
**Fravatai**  
**Jaboatao dos Guararapes**  
**Jundiai**  
**Manaus**  
**Pôrto Alegre**  
**Ribeirao Preto**  
**Rio de Janeiro**  
**Salto**  
**Salvador**  
**S. Bernado do Campo**  
**Vila Sao Joao**

#### Canada

Siemens Canada Limited  
**Mississauga**  
**Ajax**  
**Brampton**  
**Burnaby**  
**Calgary**  
**Cambridge**  
**Clatham**  
**Dartmouth**  
**Drummondville**  
**Edmonton**  
**Kanata**  
**London**  
**Moncton**  
**Montreal**  
**Mount Pearl**  
**Ottawa**  
**Pointe Claire**  
**Sackatoon**  
**Sherbrooke**  
**Tilbury**  
**Vanier**  
**Windsor**  
**Winnipeg**

#### Chile

Siemens S.A.  
**Santiago de Chile**

#### Colombia

Siemens S. A.  
**Santafé de Bogotá**  
**Barranquilla**  
**Cali-Occidente**  
**Medellin**

#### Costa Rica

Siemens S. A.  
**San José**

#### Cuba

EUMEDA  
Representación Consultiva de Siemens  
Electromedicina  
**Ciudad de la Habana**

#### Curaçao

SANTRACO N. V.  
**Willemstad**

#### Dominican Republic

Electromédica S. A.  
**Santo Domingo**

#### Ecuador

Siemens S. A.  
**Quito**  
**Guayaquil**

#### El Salvador

Siemens S. A.  
**San Salvador**

#### Guatemala

Siemens S. A.  
**Ciudad de Guatemala**

#### Honduras

Representaciones Electroindustriales S. de R.L.  
**San Pedro Sula**  
**Tegucigalpa**

#### Jamaica

Meditron Ltd.  
**Kingston**

#### Martinique

Périé Medical  
**Fort-de-France**

#### Mexico

Siemens S A de CV  
**México, D.F.**  
**Agua Calientes**  
**Apodaca**  
**Chihuahua**  
**Cd. Juárez**  
**Culiacán**  
**Gómez Palacio**  
**Hermosillo**  
**León**  
**Mérida**  
**Puebla**  
**San Juan Cuautlancingo**  
**Tijuana**  
**Tlajomulco de Zuniga**  
**Veracruz**  
**Villa Corregidora**

#### Nicaragua

Siemens S. A.  
**Managua**

#### Panama

Siemens S. A.  
**Panama**

#### Paraguay

Rieder & Cia. S. A. C. I.  
**Asunción**

#### Peru

Siemens S. A.  
**Lima**

#### Trinidad and Tobago

Biomedical Technologies Ltd.  
**St. Augustin**

#### United States of America

Siemens Corporation  
**New York**  
**Allentown**  
**Alpharetta**  
**Arlington**  
**Atlanta**  
**Auburn Hills**  
**Boca Raton**  
**Bridgewater**  
**Brooklyn Park**  
**Camarillo**  
**Charlotte**  
**Columbus**  
**Concord**  
**Cupertino**  
**Danvers**  
**Duluth**  
**Fountain Inn**  
**Gainsville**  
**Hickory**  
**Hoffman Estates**  
**Issaquah**  
**Iselin**  
**Johnson City**  
**Lake Oswego**  
**Lima**  
**Milwaukee**  
**Newport News**  
**Norcross**  
**Oklahoma City**  
**Palo Alto**  
**Piscataway**  
**Princeton**  
**Richardson**  
**Richland**  
**Sacramento**  
**Santa Clara**  
**Santa Fe Springs**  
**San Jose**  
**Sunnyvale**  
**Totawa**  
**Washington**  
**Wendell**

#### Uruguay

Conatel S.A.  
**Montevideo**

#### Venezuela

Siemens S. A.  
**Caracas**  
**Barcelona**  
**Maracaibo**  
**Perto Ordaz**  
**Valencia**

# MICROMASTER 411/COMBIMASTER 411

## Appendix

### Siemens Companies and Representatives Worldwide

#### Asia

##### Bahrain

Siemens AG Service Center  
Transitec Gulf  
**Manama**

##### Bangladesh

Siemens Bangladesh Ltd.  
**Dhaka**  
**Khulna**

##### Brunei

AMS Technologies  
**Sdn Bhd**  
**Negara**  
**Brunei**  
**Darussalam**

##### India

Siemens Ltd.  
**Ahmedabad**  
**Bangalore**  
**Calcutta**  
**Chandigarh**  
**Chennai**  
**Coimbatore**  
**Gurgaon**  
**Kaloor**  
**Mumbai**  
**Nashik**  
**Navi Mumbai**  
**New Delhi**  
**Pune**  
**Secunderabad**  
**Vadodara**

##### Indonesia

Representative Office Siemens AG  
**Jakarta**  
**Batam**  
**Cilegon**  
**Surabaya**

##### Iraq

Siemens AG  
**Baghdad**

##### Iran

Siemens S.S.K.  
**Teheran**

##### Israel

Siemens Ltd.  
**Tel Aviv**  
**Holon**  
**Herzeliya**  
**Ramat Hakhaiyal**

##### Japan

Siemens K. K.  
**Tokyo**  
**Kobe**  
**Fukuoka**  
**Hiroshima**  
**Ishikawa**  
**Kanagawa**  
**Nagoya**  
**Osaka**  
**Sapporo**  
**Sendai**  
**Yokohama**

##### Jordan

Siemens AG  
**Jordan Branch**  
**Shmeisani-Amman**  
**Amman**

##### Kazakhstan

Representative of Siemens AG  
**Almaty**

##### Kirghizstan

Representative of Siemens AG  
**Bischkek**

##### Korea (Republic)

Siemens Ltd.  
**Seoul**  
**Changwon**  
**Kyungki-Do**

##### Kuwait

National & German Electrical and  
Electronic Services Co.  
(NGEECO)  
**Kuwait**

##### Lebanon

Siemens AG Lebanon Branch  
**Beyrouth**

##### Malaysia

Siemens Electrical  
Engineering Sdn. Bhd.  
**Petaling Jaya**  
**Kuala Lumpur**  
**Kajang**

##### Myanmar

Siemens Ltd.  
**Yangon**

##### Nepal

Amatya Enterprises (Pvt.) Ltd.  
**Kathmandu**

##### Oman

Siemens AG  
**Muscat Branch**  
**Ruwi**  
**Muscat**

##### Pakistan

Siemens Pakistan  
Engineering Co. Ltd.  
**Karachi**  
**Faisalabad**  
**Islamabad**  
**Lahore**  
**Peshawar**  
**Quetta**

##### People's Republic of China

Siemens Ltd., China  
**Beijing**  
**Changchun**  
**Chengdu**  
**Chongqing**  
**Chuzhou**  
**Dalian**  
**Fuqing**  
**Fuzhou**  
**Guangzhou**  
**Hangzhou**  
**Jilin**  
**Jinan**  
**Nanghai**  
**Nanjing**  
**Panyu**  
**Rizhao**  
**Shanghai**  
**Shenyang**  
**Shenzhen**  
**Suzhou**  
**Tianjin**  
**Wuhan**  
**Wuxi**  
**Xi'an**  
**Xiaogan City**  
**Zibo**

##### Philippines

Siemens Inc.  
**Makati City**  
**Pasig City**  
**Cebu**  
**Davao City**

##### Qatar

Arabian Construction  
Engineering Company  
**Doha**

##### Saudi Arabia

Arabia Electric Ltd. (Equipment)  
**Jeddah**  
**Al Khobar**  
**Riyadh**

##### Singapore

Siemens Advanced Engineering (Pte.) Ltd.  
**Singapore**

##### Sri Lanka

Dimo Limited  
**Colombo**

##### Syria

Siemens AG  
**Damascus Branch**  
**Dasmascus**

##### Taiwan

Siemens Ltd.  
**Taipei**  
**Taichung**  
**Kaohsiung**  
**Taoyuan Hsien**

##### Thailand

Siemens Limited  
**Bangkok**  
**Rayong**

##### Turkmenistan

Representative of Siemens AG  
**Aschgabad**

##### Uzbekistan

Representative of Siemens AG  
**Taschkent**

##### United Arab Emirates

Siemens Resident Engineers  
**Dubai**  
**Abu Dhabi**

##### Vietnam

Siemens AG Representation  
**Hanoi**  
**Ho Chi Minh City**

##### Yemen

Tihama Tractors & Engineering Co. Ltd.  
**Sanaa**  
**Aden**

##### Australia

Siemens Ltd.  
**Melbourne**  
**Adelaide**  
**Bayswater**  
**Brisbane**  
**Gladesville**  
**Milton**  
**Pennant Hills**  
**Perth**  
**Silverwater**  
**St. Leonards**  
**Sydney**

##### New Zealand

Siemens (NZ) Limited  
**Auckland**  
**Wellington**



# MICROMASTER 411/COMBIMASTER 411

## A&D in the WWW



A detailed knowledge of the range of products and services available is essential when planning and configuring automation systems. It goes without saying that this information must always be fully up-to-date.

The Siemens Automation and Drives Group (A&D) has therefore built up a comprehensive range of information in the World Wide Web, which offers quick and easy access to all data required.

Under the address

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

you will find everything you need to know about products, systems and services.

## Product Selection Using the Interactive Catalogs



Detailed information together with convenient interactive functions:

The interactive catalogs CA 01 and ET 01 cover more than 80,000 products and thus provide a full summary of the Siemens Automation and Drives product base.

Here you will find everything that you need to solve tasks in the fields of automation, switchgear, installation and drives.

All information is linked into a user interface which is easy to work with and intuitive.

After selecting the product of your choice you can order at the press of a button, by fax or by online link.

Information on the interactive catalogs can be found in the Internet under

<http://www.siemens.com/automation/ca01>

or on CD-ROM.

Automation and Drives, CA 01  
Order No.:  
E86060-D4001-A110-B6-7600

Electrical installation technology, ET 01  
Order No.:  
E86060-D8200-A107-A2-7600

## Easy Shopping with the Siemens Mall



The Siemens Mall is the virtual department store of Siemens AG in the Internet. Here you have access to a huge range of products presented in an informative and attractive way.

Data transfer via EDIFACT allows the whole procedure from selection through ordering to tracking of the order to be carried out online via the Internet.

Numerous functions are available to support you.

For example, powerful search functions make it easy to find the required products, which can be immediately checked for availability. Customer-specific discounts and preparation of quotes can be carried out online as well as order tracking and tracing.

Please visit the Siemens Mall on the Internet under:

<http://www.siemens.com/automation/mall>

# MICROMASTER 411/COMBIMASTER 411

## Appendix

### Customer Support Automation and Drives



Whether you require a service specialist or a spare part, whether you need a product consultant or simply have a question, just contact Customer Support – your team for success.

### Helpline for Service and Support



You require help but are not sure who to talk to. We make sure you get help quickly.

Our helplines can put you in touch with a specialist near you to help you with your problem. The helpline for Germany, for example, is there for you 365 days a year, 24 hours a day, in both German and English.

In Germany, call:  
**Tel.: +49 (0) 180 50 50 111<sup>1)</sup>**  
In the United States, call:  
**Tel.: +1 800 333 7421**  
In Canada, call:  
**Tel.: +1 888 303 3353**

### Online Support



Our online support is fast and effective – around the clock, worldwide, in five languages.

Online support provides a wide range of technical information:

- FAQs, tips and tricks, downloads, news
- Free manuals
- Helpful programs and software products

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

### Field Service



Your system is down and you need on-site help fast. We have local specialists with the necessary know-how, wherever you are in the world. Thanks to our dense service network, we can be there

quickly - competent, fast, and reliable.

In Germany, specialists are available around the clock, 365 days a year.

In Germany, call:  
**Tel.: +49 (0) 180 50 50 444<sup>1)</sup>**  
In the United States, call toll-free:  
**Tel.: +1 800 333 7421**  
In Canada, call:  
**Tel.: +1 888 303 3353**

### Spare Parts and Repairs



Our worldwide network of regional spare parts warehouses and repair centers responds quickly and reliably with state-of-the-art logistics.

Simply request spare parts or repairs using the following phone numbers:

In Germany, call:  
**Tel.: +49 (0) 180 50 50 446<sup>1)</sup>**  
**Fax: +49 (0) 180 50 50 447**  
In the United States, call:  
**Tel.: +1 800 333 7421**  
In Canada, call:  
**Tel.: +1 888 303 3353**

### Technical Support



Technical support for Automation & Drives products, systems, and solutions is available in German and English. Qualified, trained, and experienced specialists can also offer teleservice and video conferencing for special problems.

FreeContact – the path towards technical support free-of-charge

• In Europe (headquarters)  
**Tel.: +49 (0) 180 50 50 222**  
**Fax: +49 (0) 180 50 50 223**  
**E-mail: techsupport@ad.siemens.de**  
In the United States, call toll-free:

**Tel.: +1 800 333 7421**  
**E-mail: drives.support@sea.siemens.com**  
In Canada, call toll-free:  
**Tel.: +1 888 303 3353**  
In Asia, call:  
**Tel.: +65 740 7000**  
**Fax: +65 740 7001**  
**E-mail: drives.support@sae.siemens.com.sg**

<sup>1)</sup> For Germany only; you can find country-specific telephone numbers at <http://www.siemens.com/automation/service&support>

# MICROMASTER 411/COMBIMASTER 411

Appendix

# MICROMASTER 411/COMBIMASTER 411

Appendix

### Export regulations

The products listed in this catalog/price list may be subject to European/German and/or US export provisions.

Any export requiring approval is therefore subject to authorization by the relevant authorities.

For the products listed in this catalog/price list, the following export regulations must be adhered to in accordance with currently valid regulations.

---

#### AL Number of the German export list

Products with a code other than "N" must be approved for export.

The export codes of the respective data medium must also be adhered to for software products.

Goods labeled with "AL not equal to N" are subject to European or German export authorization when being exported out of the EU.

---

#### ECCN Number of US export list (Export Control Classification Number)

Products with a code other than "N" require approval for re-export to certain countries.

The export codes of the respective data medium must also be adhered to for software products.

Goods labeled with "ECCN not equal to N" are subject to US reexport authorization.

---

Even without a label, or with label "AL: N" or "ECCN: N", authorization may be required due to the final whereabouts and purpose for which the goods are to be used.

The AL and ECCN export codes specified in our confirmations, delivery notes and invoices apply.

Subject to change without prior notice.

# MICROMASTER 411/COMBIMASTER 411

## Appendix

### Conditions of sale and delivery

#### In Germany

Subject to the General Conditions of Sale as well as the General Conditions of Supply and Delivery for Products and Services of the Electrical and Electronics Industry.

#### For Export

Subject to the General Conditions of Supply and Delivery for Products and Services of the Electrical and Electronics Industry and to any other conditions agreed upon with the recipients of catalogs/price lists.

■ Software products are subject to the General Licence Conditions for Software Products for Automation and Drives.

Prices are listed in € (Euro) ex delivery point, excluding packaging.

Turnover tax (VAT) is not included in the prices. It will be added according to legal provisions at the applicable rate.

We reserve the right to adjust prices and shall charge the prices applying on the date of delivery.

All dimensions in this catalog/price list are in mm. The illustrations are for reference only.

We reserve the right to make changes, in particular to the specified values, dimensions and weights, unless specified otherwise on the individual pages of this catalog/price list.

Responsible for

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Siemens AG, A&D SD SM,  
Erlangen, Germany

General editing:  
Siemens AG, A&D PT 5,  
Erlangen, Germany

Siemens AG  
Automation & Drives  
Standard Drives  
Postfach 32 69  
D-91050 Erlangen  
Germany

Order No.: **E86060-K5251-A131-A1-7600**

Printed in Germany  
KG K 0602 15.0 BD 28 En/222255

# Catalogs of the Automation and Drives Group (A&D)

Further information can be obtained from our branch offices listed in the appendix of this catalog

<b>Automation &amp; Drives</b>		<i>Catalog</i>
Interactive catalogs on CD-ROM		
• Components for Automation & Drives	CA 01	
• Electrical Installation Technology	ET 01	
<b>Analysis Systems</b>		
Gas Analysis Equipment for the Process Industry	PA 10	
<i>PDF: Process Analytics, Components for Sample Preparation</i>	PA 11	
SIPAN Liquid Analysis	PA 20	
<b>Automation Systems for Machine Tools</b>		
SINUMERIK & SIMODRIVE	NC 60	
Cables, Connectors and System Components	NC Z	
<b>Drive Systems</b>		
<u>Variable-Speed Drives</u>		
DC Motors	DA 12	
DC Drives Preferred Series up to 500 kW	DA 12.1	
DC Drives Preferred Series 215 kW to 1500 kW	DA 12.2	
SIMOREG DC MASTER 6RA70 Digital Chassis Converters	DA 21.1	
SIMOREG K 6RA22 Analog Chassis Converters	DA 21.2	
SIMOREG DC MASTER 6RM70 Digital Converter Cabinet Units	DA 22	
SIMOVERT PM Modular Converter Systems	DA 45	
SIEMOSYN Motors	DA 48	
MICROMASTER 410/420/430/440 Inverters	DA 51.2	
MICROMASTER 411/COMBIMASTER 411	DA 51.3	
SIMOVERT A Current-Source DC Link Converters	DA 62	
SIMOVERT MV Medium-Voltage Drives	DA 63	
Low-Voltage Motors for Variable-Speed Drives	DA 65.3	
SIMODRIVE 611 universal and POSMO	DA 65.4	
SIMOVERT MASTERDRIVES Vector Control	DA 65.10	
SIMOVERT MASTERDRIVES Motion Control	DA 65.11	
SIMADYN D Control System	DA 99	
<u>Automation Systems for Machine Tools SIMODRIVE</u>	NC 60	
• AC Main Spindle Motors 1PM, 1FE, 1PH		
• AC Servomotors 1FT, 1FK		
• AC Linear motors 1FN		
• Converter System SIMODRIVE 611		
• Converter Systems SIMODRIVE POSMO A/CD/CA/SI		
<u>Low-Voltage Three-Phase-Motors</u>		
Project Manual	M 10	
Squirrel-Cage Motors, Totally Enclosed, Fan-Cooled	M 11	
<u>Drive and Control Components for Hoisting Equipment</u>	HE 1	
<b>Electrical Installation Technology</b>		
Circuit-Breaker Systems	I 2.1	
Fuse Systems		
Distribution Board Systems		
Building Management Systems with <i>instabus EIB</i>		
Program Overview Modular Devices	I 2.11	
STAB Wall-Mounting Distribution Boards	I 2.31	
SIKUS Floor-Mounting Distribution Boards	I 2.32	
8PU Busway System	I 2.36	
<b>Human Machine Interface Systems SIMATIC HMI</b>		ST 80
<b>Industrial Communication and Field Devices</b>		IK PI
<b>Low-Voltage Controls and Distribution</b>		<i>Catalog</i>
<u>Low-Voltage Controlgear, Switchgear and Systems</u>		
Communication-Capable Controlgear, Controlgear with SIRIUS, SIGUARD Safety Systems, Control and Signalling Devices, Switchgear, Transformers and DC Power Supplies, Main- and EMERGENCY-STOP Switches, Control Switches, Terminal Blocks		NS K
BERO - Sensors for Automation Products and Systems for Low-Voltage Power Distribution		NS BERO NS PS
SENTRON WL		NS WL
<b>Motion Control System SIMOTION</b>		PM 10
<b>Process Engineering</b>		
Field Instruments for Process Automation		FI 01
Measuring Instruments for Pressure, Differential Pressure, Flow, Level and Temperature, Positioners and Liquid Meters		
SIWAREX Weighing Systems		WT 01
Process Recorders and Accessories		MP 20
SIPART, Controllers and Software		MP 31
<b>SIMATIC Industrial Automation Systems</b>		
SIMATIC PCS Process Control System		ST 45
<i>PDF: SIMATIC S5/PC/505 Automation Systems</i>		ST 50
Components for Totally Integrated Automation		ST 70
SIMATIC PCS 7 Process Control System		ST PCS 7
Add-ons for the SIMATIC PCS 7 Process Control System		ST PCS 7.A
<b>SIPOS Electric Actuators</b>		
Electric Rotary, Linear and Part-turn Actuators		MP 35
Electric Rotary Actuators for Nuclear Plants		MP 35.1/2
<b>Systems Engineering</b>		
Power supplies SITOP power		KT 10.1
System cabling SIMATIC TOP connect		KT 10.2
MOBY Identification Systems		KT 21
Industrial Microcomputers SICOMP		KT 51
<b>System Solutions</b>		
Applications, Products and Services for Industry		SL 01
Automation Solutions in the Plastic Industry with SIMATIC S7		SL 10
<b>TELEPERM M Process Control System</b>		
AS 235, AS 235H and AS 235K automation systems		PLT 111
AS 388/TM and AS 488/TM automation systems		PLT 112
OS 525 operating and monitoring system		PLT 122
Operating and monitoring with WinCC/TM		PLT 123
CS 275 bus system		PLT 130



**Siemens AG**

Automation and Drives

Standard Drives

Postfach 32 69, D-91050 Erlangen

Germany

[www.siemens.com/micromaster](http://www.siemens.com/micromaster)

Order No. E86060-K5251-A131-A1-7600