

MICROMASTER 440

Technical data

MICROMASTER 440 inverter

Mains voltage and power ranges		1 AC 200 V to 240 V ± 10 %	CT (constant torque) 0.12 kW to 3 kW	VT (variable torque) –			
		3 AC 200 V to 240 V ± 10 %	0.12 kW to 45 kW	5.5 kW to 55 kW			
		3 AC 380 V to 480 V ± 10 %	0.37 kW to 200 kW	7.5 kW to 250 kW			
		3 AC 500 V to 600 V ± 10 %	0.75 kW to 75 kW	1.5 kW to 90 kW			
Input frequency		47 Hz to 63 Hz					
Output frequency	0.12 kW to 75 kW	0 Hz to 650 Hz (in V/f mode)		0 Hz to 200 Hz (in vector mode)			
	90 kW to 200 kW	0 Hz to 267 Hz (in V/f mode)		0 Hz to 200 Hz (in vector mode)			
Power factor		≥ 0.95					
Inverter efficiency		0.12 kW to 75 kW: 96 % to 97 %; 90 kW to 200 kW: 97 % to 98 %					
Overload capability – CT mode	0.12 kW to 75 kW	Overload current 1.5 x rated output current (i.e. 150 % overload capability) for 60 s, cycle time 300 s and 2 x rated output current (i.e. 200 % overload capability) for 3 s, cycle time 300 s					
		90 kW to 200 kW Overload current 1.36 x rated output current (i.e. 136 % overload capability) for 57 s, cycle time 300 s and 1.6 x rated output current (i.e. 160 % overload capability) for 3 s, cycle time 300 s					
	– VT mode	5.5 kW to 90 kW	Overload current 1.4 x rated output current (i.e. 140 % overload capability) for 3 s, and 1.1 x rated output current (i.e. 110 % overload capability) for 60 s, cycle time 300 s				
		110 kW to 250 kW	Overload current 1.5 x rated output current (i.e. 150 % overload capability) for 1 s, and 1.1 x rated output current (i.e. 110 % overload capability) for 59 s, cycle time 300 s				
Inrush current		not higher than rated input current					
Control method		Vector control, torque control, linear V/f characteristic; quadratic V/f characteristic; Multipoint characteristic (programmable V/f characteristic); flux current control (FCC)					
Pulse frequency	0.12 kW to 75 kW	4 kHz (standard); 16 kHz (standard with 230 V inverters 0.12 kW to 5.5 kW)					
	90 kW to 200 kW	2 kHz to 16 kHz (in 2 kHz steps) 2 kHz (standard with VT mode); 4 kHz (standard with CT mode) 2 kHz to 4 kHz (in 2 kHz steps)					
Fixed frequencies		15, programmable					
Skip frequency ranges		4, programmable					
Setpoint resolution		0.01 Hz digital 0.01 Hz serial 10 bit analog					
Digital inputs		6 fully programmable isolated digital inputs; switchable PNP/NPN					
Analog inputs		2 programmable analog inputs • 0 V to 10 V, 0 mA to 20 mA and –10 V to +10 V (AIN1) • 0 V to 10 V and 0 mA to 20 mA (AIN2) • both can be used as 7th/8th digital input					
Relay outputs		3, programmable, 30 V DC/5 A (resistive load); 250 V AC/2A (inductive load)					
Analog outputs		2, programmable (0/4 mA to 20 mA)					
Serial interfaces		RS-485, optional RS-232					
Motor cable lengths without output choke	0.12 – 75 kW 90 – 250 kW	max. 50 m (shielded), max. 100 m (unshielded)					
		max. 200 m (shielded), max. 300 m (unshielded)					
with output choke		see variant dependent options					
Electromagnetic compatibility (see Selection and Ordering Data)		EMC filter, Class A or Class B to EN 55 011 available as an option Inverter with internal filter Class A available					
Braking		Resistance braking with DC braking, compound braking, integrated brake chopper (integrated brake chopper only with 0.12 kW to 75 kW inverters)					
Degree of protection		IP20					
Operating temperature (without derating)	0.12 kW to 75 kW	CT: –10 °C to +50 °C (+14 °F to +122 °F)					
	90 kW to 200 kW	VT: –10 °C to +40 °C (+14 °F to +104 °F) 0 °C to +40 °C (+32 °F to +104 °F)					
Storage temperature		–40 °C to +70 °C (–40 °F to +158 °F)					
Relative humidity		95 % (non-condensing)					
Installation altitude	0.12 kW to 75 kW	up to 1000 m above sea level without derating					
	90 kW to 200 kW	up to 2000 m above sea level without derating					
Protection features for		Undervoltage, overvoltage, overload, earth faults, short-circuits, stall prevention, locked motor protection, motor over-temperature, inverter overtemperature, parameter change protection					
Compliance with standards		Ⓜ, cⓂ, ⒸE, c-tick Ⓢ					
CE marking		Conformity with low-voltage directive 73/23/EEC					
Cooling-air volumetric flow required, dimensions and weights (without options)	Frame size (FS)	Cooling-air volumetric flow required (l/s)/(CFM)	H	x W	x D, max. (mm)	Weight, approx. (kg)	
		A	4.8/10.2	173 x	73 x 149	1.3	
		B	24/51	202 x	149 x 172	3.4	
		C	54.9/116.3	245 x	185 x 195	5.7	
		D	2 x 54.9/2 x 116.3	520 x	275 x 245	17	
		E	2 x 54.9/2 x 116.3	650 x	275 x 245	22	
		F without filter	150/317.79	850 x	350 x 320	56	
		F with filter	150/317.79	1150 x	350 x 320	75	
		FX	225/478.13	1400 x	326 x 356	116	
		GX	440/935	1533 x	326 x 545	176	

CFM: Cubic Feet per Minute

Derating data

Pulse frequency

Output 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
Mains voltage 1/3 AC 200 V							
0.12 to 5.5	Values correspond to the 4 kHz standard values. No derating, since 16 kHz standard.						
7.5	28.0	26.6	25.2	22.4	19.6	16.8	14.0
11	42.0	37.8	33.6	29.4	25.2	21.0	16.8
15	54.0	48.6	43.2	37.8	32.4	27.0	21.6
18.5	68.0	64.6	61.2	54.4	47.6	40.8	34.0
22	80.0	72.0	64.0	56.0	48.0	40.0	32.0
30	104.0	91.0	78.0	70.2	62.4	57.2	52.0
37	130.0	113.8	97.5	87.8	78.0	71.5	65.0
45	154.0	134.8	115.5	104.0	92.4	84.7	77.0
Mains operating voltage 3 AC 400 V							
0.37	1.3	1.3	1.3	1.3	1.3	1.2	1.0
0.55	1.7	1.7	1.7	1.6	1.5	1.4	1.2
0.75	2.2	2.2	2.2	2.0	1.8	1.5	1.3
1.1	3.1	2.9	2.8	2.5	2.2	1.9	1.6
1.5	4.1	3.7	3.3	2.9	2.5	2.1	1.6
2.2	5.9	5.6	5.3	4.7	4.1	3.5	3.0
3.0	7.7	6.9	6.2	5.4	4.6	3.9	3.1
4.0	10.2	9.2	8.2	7.1	6.1	5.1	4.1
5.5	13.2	11.9	10.6	9.2	7.9	6.6	5.3
7.5	19.0	18.1	17.1	15.2	13.3	11.4	9.5
11.0	26.0	23.4	20.8	18.2	15.6	13.0	10.4
15.0	32.0	30.4	28.8	25.6	22.4	19.2	16.0
18.5	38.0	34.2	30.4	26.6	22.8	19.0	15.2
22	45.0	40.5	36.0	31.5	27.0	22.5	18.0
30	62.0	58.9	55.8	49.6	43.4	37.2	31.0
37	75.0	67.5	60.0	52.5	45.0	37.5	30.0
45	90.0	76.5	63.0	51.8	40.5	33.8	27.0
55	110.0	93.5	77.0	63.3	49.5	41.3	33.0
75	145.0	112.4	79.8	68.9	58.0	50.8	43.5
90	178.0	–	–	–	–	–	–
110	205.0	–	–	–	–	–	–
132	250.0	–	–	–	–	–	–
160	302.0	–	–	–	–	–	–
200	370.0	–	–	–	–	–	–
Mains operating voltage 3 AC 500 V							
0.75	1.4	1.2	1.0	0.8	0.7	0.6	0.6
1.5	2.7	2.2	1.6	1.4	1.1	0.9	0.8
2.2	3.9	2.9	2.0	1.6	1.2	1.0	0.8
4.0	6.1	4.6	3.1	2.4	1.8	1.5	1.2
5.5	9.0	6.8	4.5	3.6	2.7	2.3	1.8
7.5	11.0	8.8	6.6	5.5	4.4	3.9	3.3
11.0	17.0	12.8	8.5	6.8	5.1	4.3	3.4
15.0	22.0	17.6	13.2	11.0	8.8	7.7	6.6
18.5	27.0	20.3	13.5	10.8	8.1	6.8	5.4
22	32.0	24.0	16.0	12.8	9.6	8.0	6.4
30	41.0	32.8	24.6	20.5	16.4	14.4	12.3
37	52.0	39.0	26.0	20.8	15.6	13.0	10.4
45	62.0	52.7	43.4	40.3	37.2	32.6	27.9
55	77.0	67.4	57.8	52.0	46.2	42.4	38.5
75	99.0	84.2	69.3	64.4	59.4	52.0	44.6

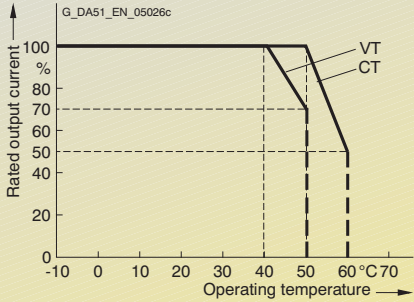
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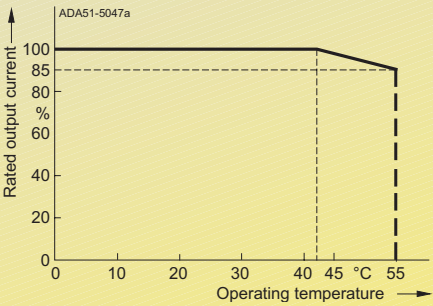
Derating data (continued)

Operating temperature

Inverter 0.12 kW to 75 kW



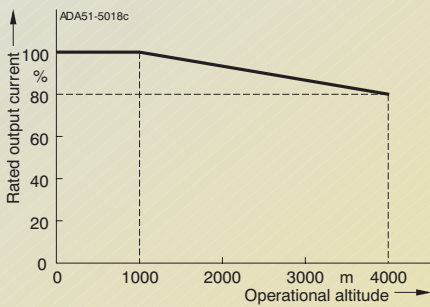
Inverter 90 kW to 200 kW



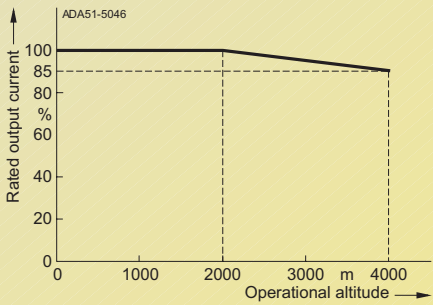
Installation height above sea level

Permissible output current
in % of the rated output current

Inverter 0.12 kW to 75 kW

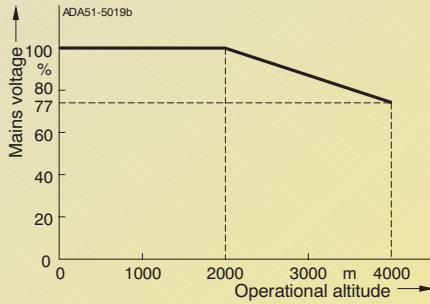


Inverter 90 kW to 200 kW



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

Inverter 0.12 kW to 75 kW



Inverter 90 kW to 200 kW

