

VAT 200

Mini AC Drive



GE Power Controls

gepowercontrols.com

GE imagination at work



VAT200 is a variable speed drive for AC standard motors, available in the following ranges:

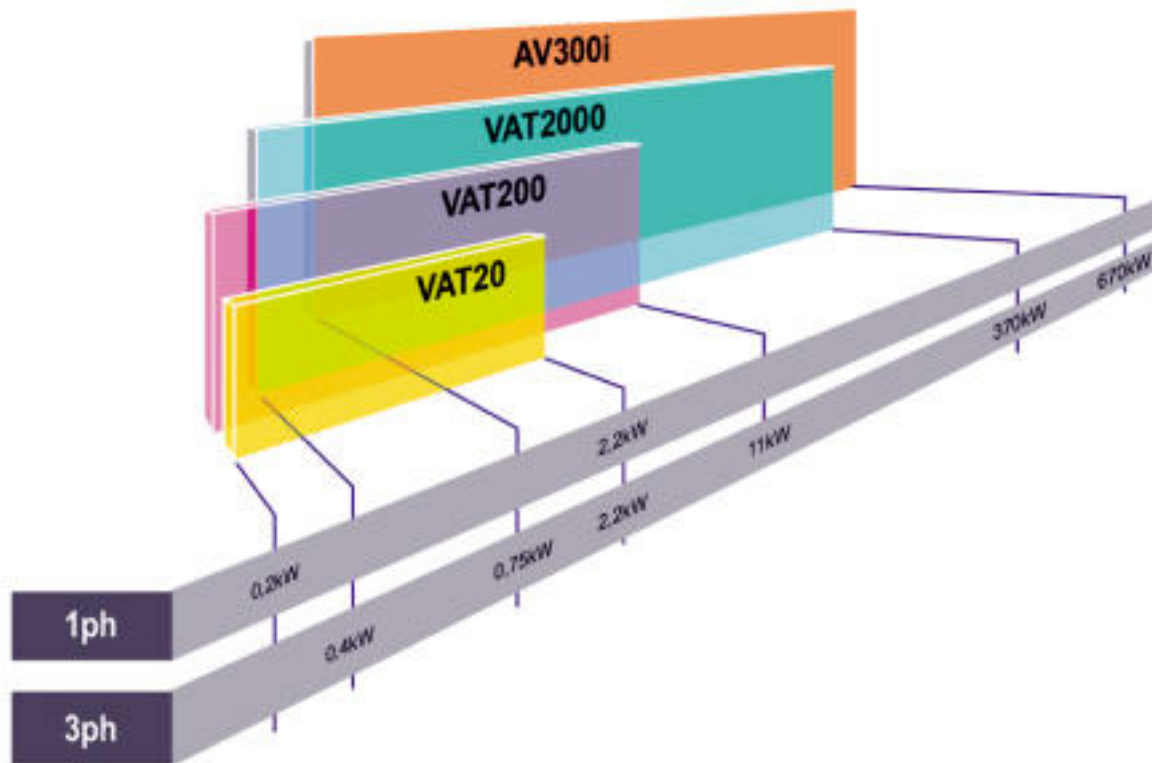
- Single phase supply
 - from 0,4 to 2,2KW at 200-240VAC
- Three phase supply
 - from 0,4 to 7,5KW at 200-240VAC
 - from 0,75 to 11KW at 380-480VAC



Top Ten Advantages

- Compact size
- Built-in removable LED keypad
- Optional multilanguage LCD keypad
- Sensor-less Vector Control or V/f control, selectable
- Built-in with ModBus RTU Communications
- Optional Field bus communication DeviceNet, ProfibusDP
- Integrated EMC filters for U20...FS series
- Built-in with Dynamic Braking
- Performed with simple PLC and PID functions
- Programming software for Windows® and WinCE

Drives offering



VAT20

- Basic functions, covering up to 2,2KW.



VAT200

- General purpose drive covering up to 11KW
- Compact size
- Advanced features including PLC functions



VAT2000

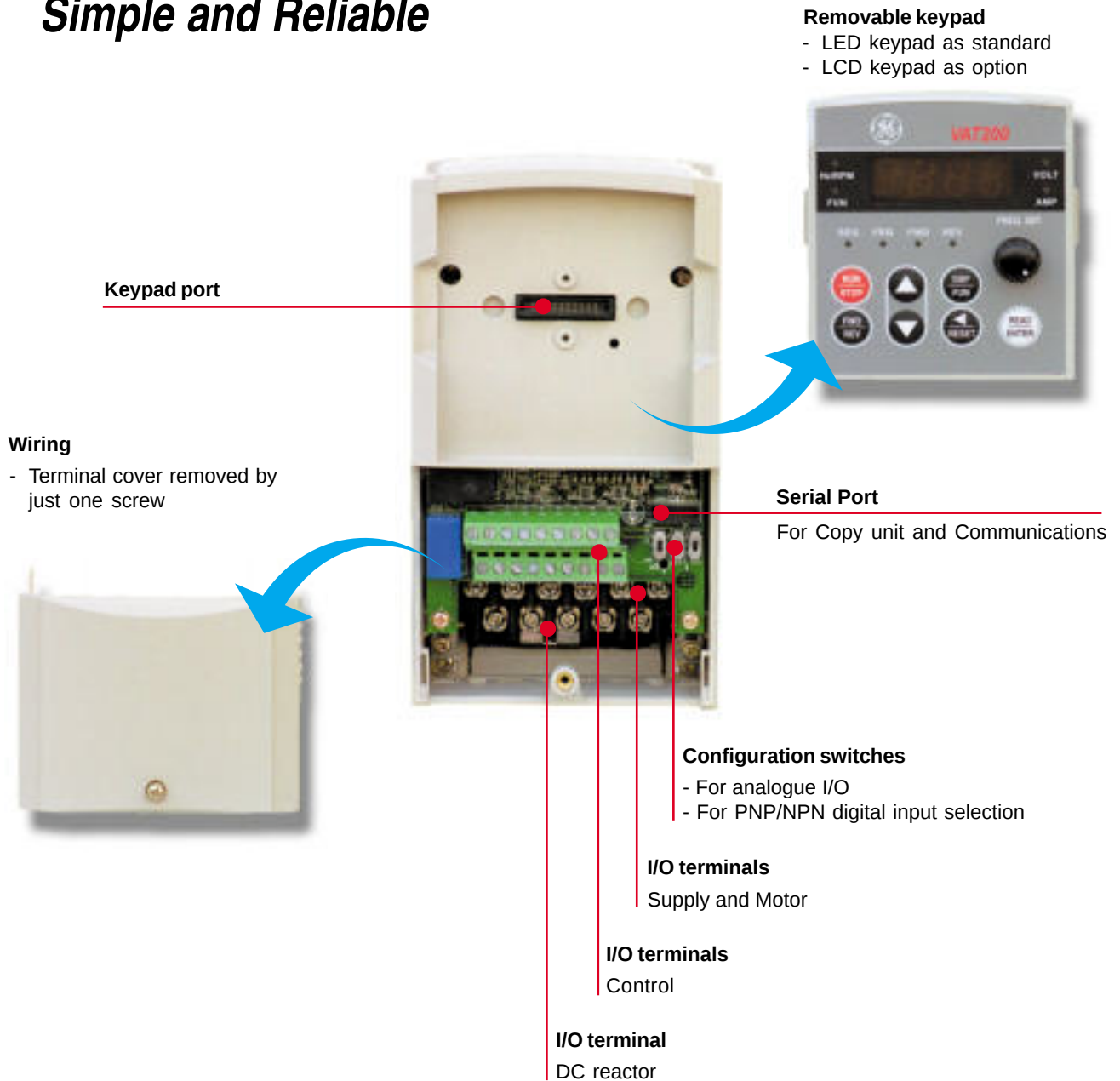
- General purpose with high performance.
- Covering up to 370KW



AV300i

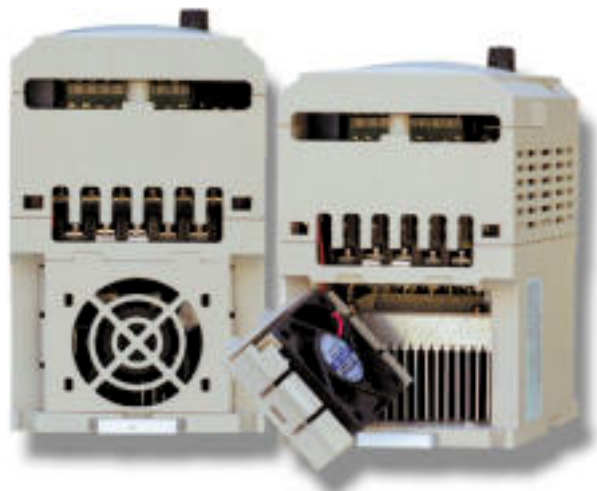
- For vertical markets
- Positioning and coordinated applications
- Covering up to 630KW

Simple and Reliable



Easy maintenance

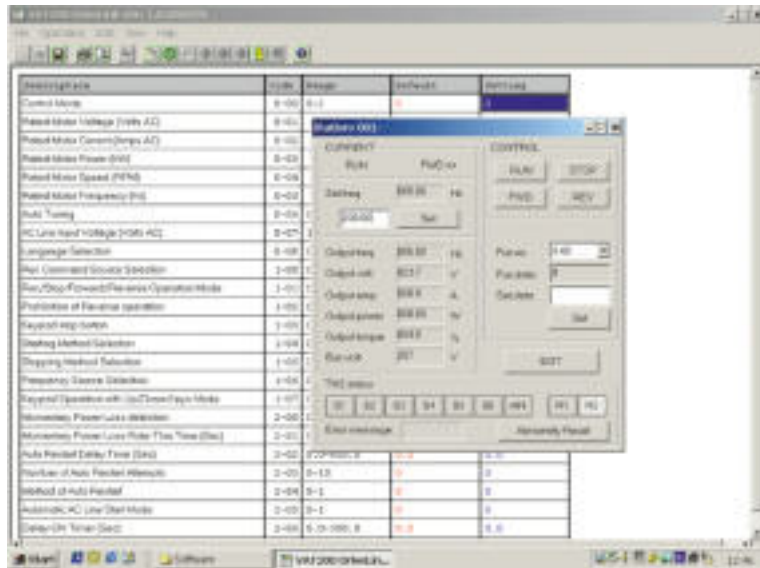
- Fans easily removed
- Easy access to I/O wiring
- Quick access to PC board and power block



Easy start-up & tuning by PC or Keypad

Programming software for Windows® and Win CE

- Programming and run/stop control
- Monitoring
- Copy and Save parameters
- Full management of PLC function with Run Ladder Simulator



Keypad

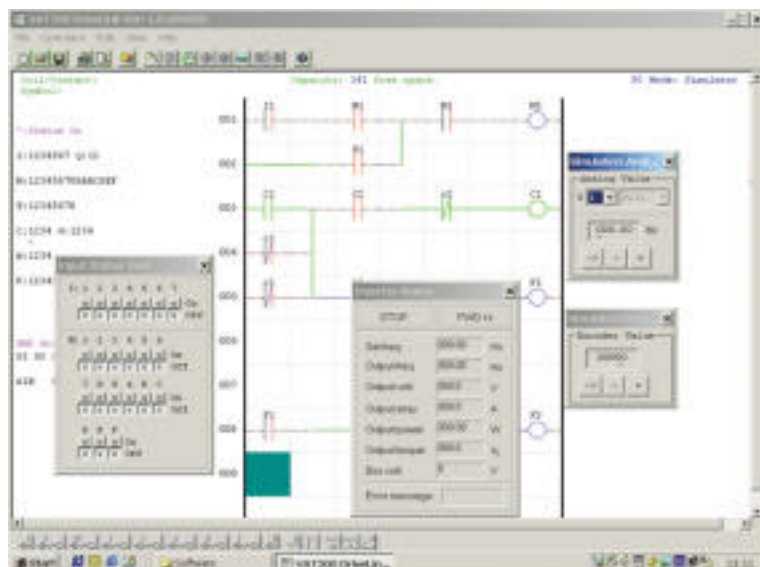
- LED four digit display standard
- Optional multilanguage LCD keypad
- Operator control functions
 - Start/Stop
 - Jog
 - Potentiometer
 - Forward/Reverse
 - Speed Up/Down



Advanced programming and drive control by built-in PLC function

PLC function

- I/O control
- Ladder simulation
- Timers & Counters
- Function trip levels





Mini AC Drive

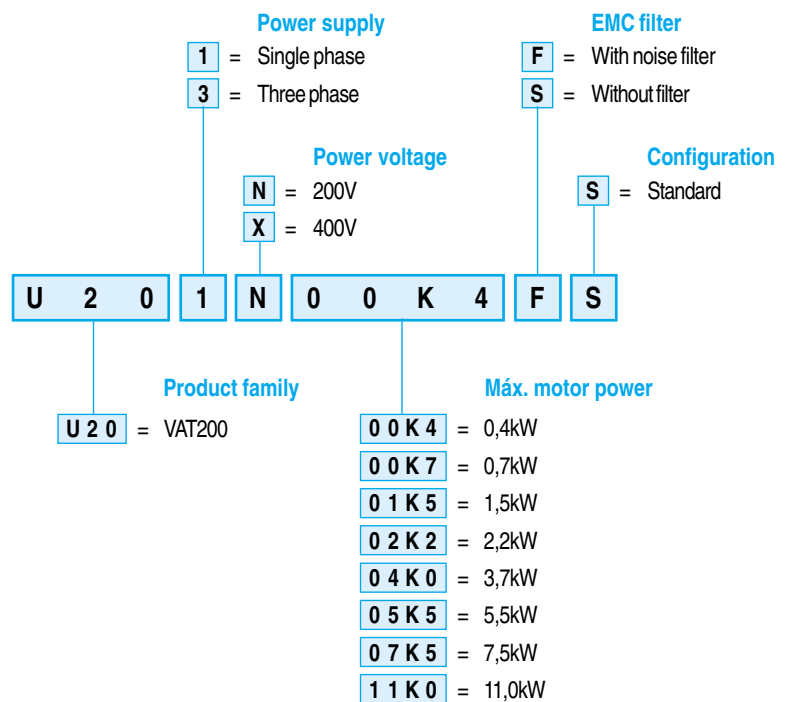
VAT200

The VAT200 is a Medium Performance, Sensor-less Vector VSD AC standard motors available in the following ranges:

- From 0.4 to 2.2kW at 200V, single phase power supply
- From 0.4 to 7.5kW at 200V, three phase power supply
- From 0.75 to 11kW at 400V, three phase power supply

- Compact size
- Built-in removable LED keypad
- Optional multilanguage LCD keypad
- Sensor-less Vector Control or V/f control, selectable
- Built-in with ModBus RTU Communications
- Optional Field bus communication DeviceNet, ProfibusDP
- Integrated Class A, EMC filter
- Built-in with Dynamic Braking
- Performed with simple PLC and PID functions
- Programming software for Windows® and WinCE

Product range configuration



VAT 200 - Codes

Input voltage
+ 10%, -15%, 50/60 Hz (± 5%)



Frame 1



Frame 2



Frame 3

1ph
200V - 240V

With EMC filter

Suitable motor capacity (kW)	Rated output current (A)	Rated capacity (KVA)	Frame	Type	Code	Pack (units)
0,4	3,1	1,2	1	U201N00K4FS	167400	1
0,75	4,5	1,7	1	U201N00K7FS	167401	1
1,5	7,5	2,9	2	U201N01K5FS	167402	1
2,2	10,5	4,0	2	U201N02K2FS	167403	1

Without EMC filter

Suitable motor capacity (kW)	Rated output current (A)	Rated capacity (KVA)	Frame	Type	Code	Pack (units)
0,4	3,1	1,2	1	U201N00K4SS	167411	1
0,75	4,5	1,7	1	U201N00K7SS	167412	1
1,5	7,5	2,9	2	U201N01K5SS	167413	1
2,2	10,5	4,0	2	U201N02K2SS	167414	1

3ph
200V - 240V

Without EMC filter

Suitable motor capacity (kW)	Rated output current (A)	Rated capacity (KVA)	Frame	Type	Code	Pack (units)
0,4	3,1	1,2	1	U203N00K4SS	167415	1
0,75	4,5	1,7	1	U203N00K7SS	167416	1
1,5	7,5	2,9	1	U203N01K5SS	167417	1
2,2	10,5	4	2	U203N02K2SS	167418	1
3,7	17,5	6,7	2	U203N04K0SS	167419	1
5,5	26	9,9	3	U203N05K5SS	167420	1
7,5	35	13,3	3	U203N07K5SS	167422	1

3ph
380V - 480V

With EMC filter

Suitable motor capacity (kW)	Rated output current (A)	Rated capacity (KVA)	Frame	Type	Code	Pack (units)
0,75	2,3	1,7	1	U203X00K7FS	167404	1
1,5	3,8	2,9	1	U203X01K5FS	167405	1
2,2	5,2	4	2	U203X02K2FS	167406	1
3,7	8,8	6,7	2	U203X04K0FS	167407	1
5,5	13	9,9	3	U203X05K5FS	167408	1
7,5	17,5	13,3	3	U203X07K5FS	167409	1
11	25	19,1	3	U203X11K0FS	167410	1

Without EMC filter

Suitable motor capacity (kW)	Rated output current (A)	Rated capacity (KVA)	Frame	Type	Code	Pack (units)
0,75	2,3	1,7	1	U203X00K7SS	167424	1
1,5	3,8	2,9	1	U203X01K5SS	167425	1
2,2	5,2	4	2	U203X02K2SS	167426	1
4	8,8	6,7	2	U203X04K0SS	167427	1
5,5	13	9,9	3	U203X05K5SS	167428	1
7,5	17,5	13,3	3	U203X07K5SS	167429	1
11	25	19,1	3	U203X11K0SS	167430	1

VAT 200 - Accessories



U200AMP



U200ARS485



U200ARS232

		Type	Code	Pack (units)
Communications interface	Profibus DP	U200APB	167433	1
	DeviceNet	U200ADN	167434	1
	RS485	U200ARS485	167435	1
	RS232 interface card with wire to PC	U200ARS232	167436	1
Memory pack		U200AMP	167437	1
Keypad	LED	U200ALEDK	167438	1
	LCD	U200ALCDK	167439	1
	Blank cover	U200ABK	167440	1
Remote wire for keypad	0,5m	U200AW05	167441	1
	1,0m	U200AW10	167442	1
	2,0m	U200AW20	167443	1
	3,0m	U200AW30	167444	1
	5,0m	U200AW50	167445	1

Technical specifications

		1ph 200-240V (with / without EMC filt.)						3ph 200-240V (without EMC filter)								3ph 380-480V (with / without EMC filter)							
		U 2 0 1 N _ _ _ _ S						U 2 0 3 N _ _ _ _ S S								U 2 0 3 X _ _ _ _ S							
		00K4	00K7	01K5	02K2			00K4	00K7	01K5	02K2	04K0	05K5	07K5			00K7	01K5	02K2	04K0	05K5	07K5	11K0
Motor ratings	(HP)	0,5	1	2	3			0,5	1	2	3	5,5	7,5	10			1	2	3	5,5	7,5	10	15
	(kW)	0,4	0,75	1,5	2,2			0,4	0,75	1,5	2,2	3,7	5,5	7,5			0,75	1,5	2,2	3,7	5,5	7,5	11
Rated output current	(A)	3,1	4,5	7,5	10,5			3,1	4,5	7,5	10,5	17,5	26	35			2,3	3,8	5,2	8,8	13	17,5	25
Rated capacity	(KVA)	1,2	1,7	2,9	4			1,2	1,7	2,9	4	6,7	9,9	13,3			1,7	2,9	4	6,7	9,9	13,3	19,1
Maximum input voltage	Single phase: 200-240V +10 -15%, 50/60Hz ±5%							Three phase: 200-240V +10 -15%, 50/60Hz ±5%								Three phase: 380-480V, +10 -15%, 50/60Hz ±5%							
Maximum output voltage	Three phases: 0 to 240V							Three phases: 0 to 240V								Three phases: 0 to 480V							
Input current	(A)	8,5	12	19	27			4,5	6,5	11	15,4	20	29	40			4,2	5,6	6	10,2	15	20,5	30,2
Weight	(Kg)	1,3	1,3	1,8	2,3			1,2	1,2	1,2	1,75	1,9	5,6	5,6			1,3	1,3	2,2	2,2	6,6	6,6	6,6

Frequency control

Control mode	V / f or Sensorless vector control	
Frequency control	Range	0,1 to 650,0Hz
	Starting torque	150% / 1Hz (Sensorless vector)
	Speed control range	1 : 50 (Sensorless vector)
	Speed control accuracy	$\pm 0,5\%$ (Sensorless vector)
	Setting resolution	Digital: 0,01Hz Analog: 0,06Hz / 60Hz (10 bits)
	Keypad setting	Set directly by Δ ∇ keys or by potentiometer on the keypad
	Display function	Four digital LED (or 2x16 LCD) and status indicator; display frequency / speed / line speed / DC voltage / output voltage / current / rotation direction / inverter parameter / trouble log / program version
	Frequency setting	1. External potentiometer / 0-5V / 0-10V / 4-20mA / 5-0V / 10-0V / 20-4mA 2. Performs up/down controls, speed control or automatic procedure control with multifunctional contacts on the terminal block (TM2)
	Frequency limit function	Respectively setting upper/lower frequency limits and three-stage skip frequencies

Control

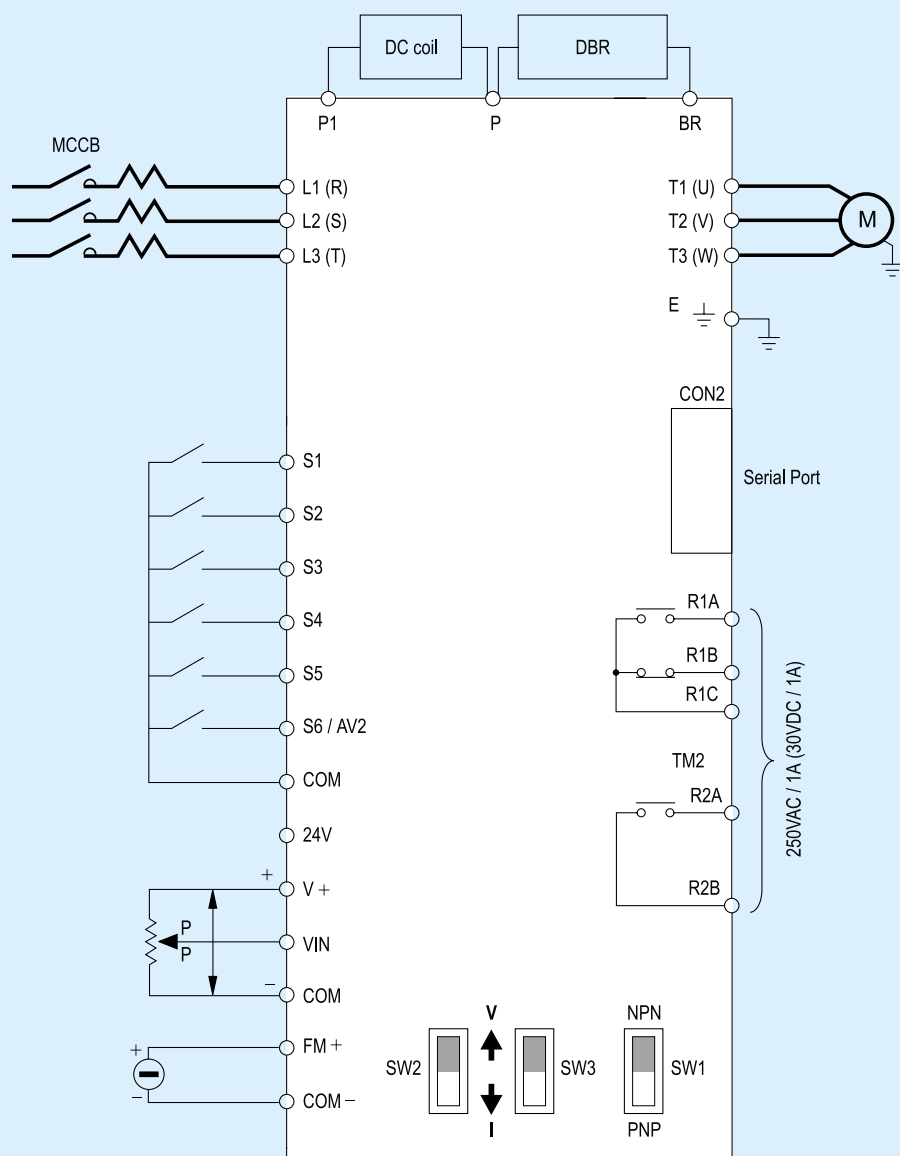
	Carrier frequency	2 to 16kHz
	V / F pattern	18 fixable patterns, 1 programmable pattern
	Acc./Dec. control	Two-stage Acc./Dec. time (0,1 to 3.600 seconds) and two-stage S curve (refer to descriptions on 3-05)
	Multifunctional analog output	5 different functions
	Multifunctional input	Assigned to 28 different functions
	Multifunctional output	Assigned to 15 different functions
	Digital input signal	NPN / PNP toggle
	Other functions	Momentary power loss restart, Speed search, Overload detection, Torque detection, 8 preset speeds, Acc./Dec. switch (2 stages), S curve, 3-wire control, PID control, Torque boost, Slip compensation, Frequency upper/lower limit, Auto energy saving, Modbus slave and control link, Abnormal restart, Sequence control, Built-in simple PLC function

Others

Communication control	- Control by RS232 or RS485 - One to one or Multilink up to 254 stations (RS485 only) - Can be set Baud rate, Stop bit and Parity bit	
	About 100% with Braking resistor (20% without braking resistor)	
Braking torque	About 100% with Braking resistor (20% without braking resistor)	
Operation temperature	-10 to +50°C	
Storage temperature	-20 to +60°C	
Humidity	0 to 95% relative humidity (without condensation)	
Vibration	1G (9,8m/S ²)	
EMC	Comply with requirement EN 61800-3 with optional filter	
LVD	Comply with requirement EN 50178	
Enclosure	IP20 (Nema 1 by external box attached)	
Safety level	UL 508C	
Protective functions	Overload protection	Inverse characteristic overload protection. Max. 150% inverter current rating / 60 sec.
	Fuse protection	The motor stops after FUSE melt
	Overvoltage	200V class: DC voltage > 410V 400V class: DC voltage > 820V
	Undervoltage	200V class: DC voltage < 190V 400V class: DC voltage < 380V
	Momentary power loss restart	Restart after more than 15ms-power loss possible. Programmed up to 2 sec.
	Stall prevention	Stall prevention for Acceleration / Deceleration / Operation
	Short-circuit output terminal	Electronic circuit protection
	Grounding fault	Electronic circuit protection
	Other protections	Heatsink overtemperature, overtorque detection, error contact control, reverse run restriction, restrictions for direct start after power up, error recovery and parameter lock out.

I/O Power & Control layout

Power terminals	
Power supply input	
L1, L2, L3	
Motor output	
T1, T2, T3	
DC Reactor	
P1,P	
DB Resistor	
P,BR	
Control terminals	
Analog inputs	
Multifunction VIN	
PID feedback S6	
Analog outputs	
Multifunction FM	
Digital inputs	
S1, S2, S3, S4, S5, S6	
(dual use)	
Digital outputs	
R1 (NO-NC dry relay contact)	
R2 (NO dry relay contact)	



I/O Control terminals description

Symbol	Description		
R2A	Multifunctional terminals - Normally Open		
R2B	Contact rated capacity 250VAC/1A or 30VDC/1A		
R1C			Multifunctional terminals Normally Open
R1B			
R1A			
10V	Frequency knob (VR) power source terminal		
AIN	Analog frequency signal input terminal		
24V	Common source for S1 to S5 in PNP input. Selectable by switch on main PCB		
COM	Common terminal for S1 to S5 in NPN input. Selectable by switch on main PCB		
FM +	Multifunction analog output, 0-10V DC		
S1	Multifunction input terminals		
S2			
S3			
S4			
S5			
S6 / AV2	Digital input or PID input terminal (selectable)		



External accessories

	VAT200		AC Reactors		DC Reactors		Encapsulated Resistor		Tubular resistors	
1ph 200-240V										
With EMC filter	U201N00K4FS	167400	ACR8A2H5	129791	DCR4A5H7	168387	ERN00K7	129148	TLR200P200	129165
	U201N00K7FS	167401	ACR12A2H5	129792	DCR6A3H9	168388	ERN00K7	129148	TLR200P200	129165
	U201N01K5FS	167402	ACR18A1H3	129793	DCR9A2H4	168389	ERN01K5	129149	TLR100P200	108223
	U201N02K2FS	167403	ACR22A0H84	129794	DCR12A1H7	168390	ERN02K2	129150	TLR75P200	116300
Without EMC filter	U201N00K4SS	167411	ACR8A2H5	129791	DCR4A5H7	168387	ERN00K7	129148	TLR200P200	129165
	U201N00K7SS	167412	ACR12A2H5	129792	DCR6A3H9	168388	ERN00K7	129148	TLR200P200	129165
	U201N01K5SS	167413	ACR18A1H3	129793	DCR9A2H4	168389	ERN01K5	129149	TLR100P200	108223
	U201N02K2SS	167414	ACR22A0H84	129794	DCR12A1H7	168390	ERN02K2	129150	TLR75P200	116300
3ph 200-240V										
Without EMC filter	U203N00K4SS	167415	ACR4A2H5	129978	DCR4A5H7	168387	ERN00K7	129148	TLR200P200	129165
	U203N00K7SS	167416	ACR6A2H5	129979	DCR6A3H9	168388	ERN00K7	129148	TLR200P200	129165
	U203N01K5SS	167417	ACR9A1H3	129980	DCR9A2H4	168389	ERN01K5	129149	TLR100P200	108223
	U203N02K2SS	167418	ACR12A0H84	129981	DCR12A1H7	168390	ERN02K2	129150	TLR75P200	116300
	U203N04K0SS	167419	ACR18A0H56	129982	DCR18A1H0	168391	ERN04K0	129151	TLR44P600	129166
	U203N05K5SS	167420	ACR27A0H37	129983	DCR32A0H78	168371	ERN05K5	129152	TLR29P600	129167
	U203N07K5SS	167422	ACR35A0H27	129984	DCR45A0H55	168372	ERN07K5	129153	TLR22P600	129168
3ph 380-480V										
With EMC filter	U203X00K7FS	167404	ACR3A8H1	129989	DCR3A15H2	168392	ERX00K7	129154	TLR750P200	116301
	U203X01K5FS	167405	ACR4A5H1	129990	DCR4A9H2	168393	ERX01K5	129155	TLR400P200	116302
	U203X02K2FS	167406	ACR6A3H4	129991	DCR6A6H8	168394	ERX02K2	129156	TLR240P200	108227
	U203X04K0FS	167407	ACR10A2H	129992	DCR9A4H0	168395	ERX04K0	129157	TLR175P600	129173
	U203X05K5FS	167408	ACR14A1H4	129993	DCR18A2H9	168380	ERX05K5	129158	TLR118P600	129174
	U203X07K5FS	167409	ACR18A1H1	129994	DCR25A2H1	168381	ERX07K5	129159	TLR86P600	129175
	U203X11K0FS	167410	ACR27A0H75	129995	DCR32A1H6	168382	-	-	TLR43P1000	129177
Without EMC filter	U203X00K7SS	167424	ACR3A8H1	129989	DCR3A15H2	168392	ERX00K7	129154	TLR750P200	116301
	U203X01K5SS	167425	ACR4A5H1	129990	DCR4A9H2	168393	ERX01K5	129155	TLR400P200	116302
	U203X02K2SS	167426	ACR6A3H4	129991	DCR6A6H8	168394	ERX02K2	129156	TLR240P200	108227
	U203X04K0SS	167427	ACR10A2H	129992	DCR9A4H0	168395	ERX04K0	129157	TLR175P600	129173
	U203X05K5SS	167428	ACR14A1H4	129993	DCR18A2H9	168380	ERX05K5	129158	TLR118P600	129174
	U203X07K5SS	167429	ACR18A1H1	129994	DCR25A2H1	168381	ERX07K5	129159	TLR86P600	129175
	U203X11K0SS	167430	ACR27A0H75	129995	DCR32A1H6	168382	-	-	TLR43P1000	129177

EMC compliance

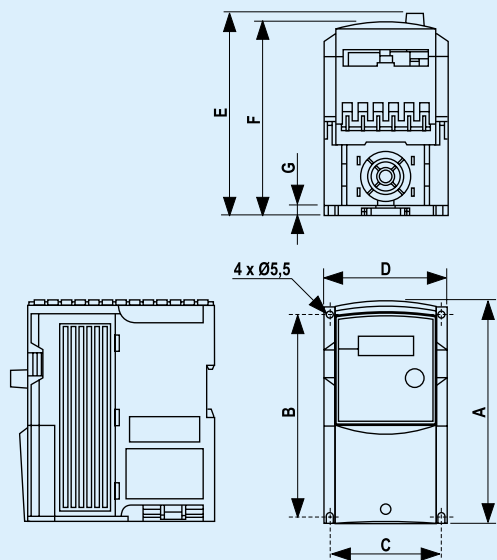
Drives with built-in filter type U20....FS, comply with EN 61800-3 second environment.
To comply with first environment restricted sector, or to allow EMC compliance to U20....SS drives, an external filter has to be used according following table

	VAT200		Second environment		First environment	
1ph 200-240V						
With EMC filter	U201N00K4FS	167400	Not needed	-	U200F611TA1	167453
	U201N00K7FS	167401	Not needed	-	U200F611TA1	167453
	U201N01K5FS	167402	Not needed	-	U200F627TA2	167454
	U201N02K2FS	167403	Not needed	-	U200F627TA2	167454
Without EMC filter	U201N00K4SS	167411	U200F611TA1	167453	-	-
	U201N00K7SS	167412	U200F611TA1	167453	-	-
	U201N01K5SS	167413	U200F627TA2	167454	-	-
	U201N02K2SS	167414	U200F627TA2	167454	-	-
3ph 200-240V						
Without EMC filter	U203N00K4SS	167415	U200F709TA1	167456	-	-
	U203N00K7SS	167416	U200F709TA1	167456	-	-
	U203N01K5SS	167417	U200F709TA1	167456	-	-
	U203N02K2SS	167418	U200F719TA2	167457	-	-
	U203N04K0SS	167419	U200F719TA2	167457	-	-
	U203N05K5SS	167420	U200F739TA3	167458	-	-
	U203N07K5SS	167422	U200F739TA3	167458	-	-
3ph 380-480V						
With EMC filter	U203X00K7FS	167404	Not needed	-	U200F905TA1	167459
	U203X01K5FS	167405	Not needed	-	U200F905TA1	167459
	U203X02K2FS	167406	Not needed	-	U200F910TA2	167460
	U203X04K0FS	167407	Not needed	-	U200F910TA2	167460
	U203X05K5FS	167408	Not needed	-	(1)	-
	U203X07K5FS	167409	Not needed	-	(1)	-
	U203X11K0FS	167410	Not needed	-	(1)	-
Without EMC filter	U203X00K7SS	167424	U200F905TA1	167459	-	-
	U203X01K5SS	167425	U200F905TA1	167459	-	-
	U203X02K2SS	167426	U200F910TA2	167460	-	-
	U203X04K0SS	167427	U200F910TA2	167460	-	-
	U203X05K5SS	167428	U200F928TA3	167461	-	-
	U203X07K5SS	167429	U200F928TA3	167461	-	-
	U203X11K0SS	167430	U200F928TA3	167461	-	-

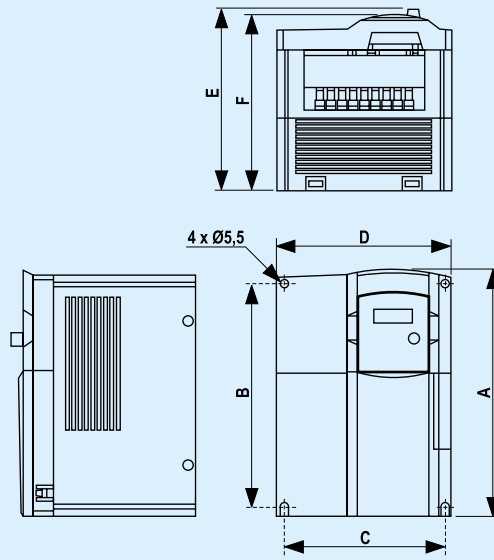
(1) Pending



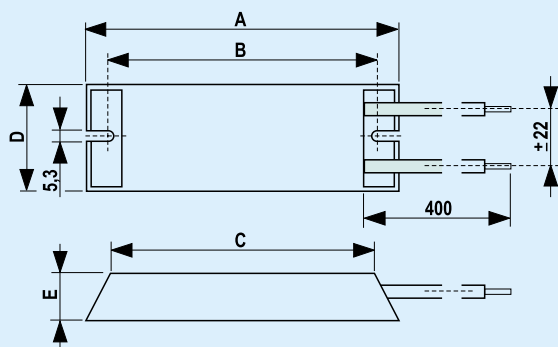
Dimensions



	A	B	C	D	E	F	G
U201N00K4	163	150	78	90	147	141	7
U201N00K7							
U203N00K4							
U203N00K7							
U203N01K5							
U203X00K7							
U203X01K5							
U201N01K5	187	170,5	114,5	128	148	142	7
U201N02K2							
U203N02K2							
U203N04K0							
U203X02K2							
U203X04K0							

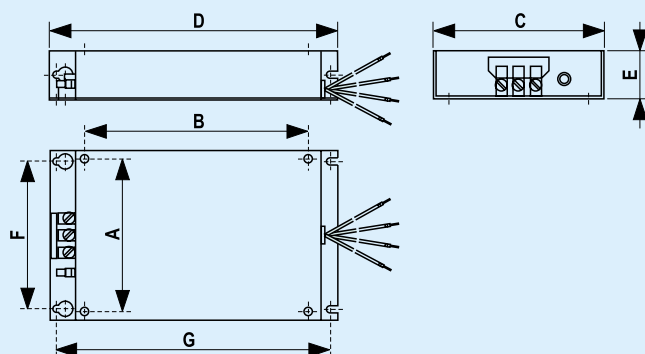


	A	B	C	D	E	F
U203N05K5	260	244	173	186	195	188
U203N07K5						
U203X05K5						
U203X07K5						
U203X11K0						



Braking resistor

	A	B	C	D	E
ERN00K7	115	80	175	40	20
ERX00K7					
ERN01K5	215	200	175	40	20
ERX01K5					
ERN02K2	165	150	125	60	30
ERX02K2					
ERN04K0	215	200	175	60	30
ERX04K0					
ERN05K5	335	320	295	60	30
ERN07K5					
ERX05K5					
ERX07K5					



EMC external filter

	Inverter mounting		External Filter size			External filter mount.	
	A	B	C	D	E	F	G
U200F611TA1	78	150	91	192	28	74	181
U200F709TA1							
U200F905TA1							
U200F627TA2	114,5	170,5	128	215	37	111	204
U200F719TA2							
U200F910TA2							
U200F739TA3	173	244	188	289	42	165	278
U200F928TA3							

GE Power Controls en Europa

GE Power Controls es un proveedor de primera línea europeo de productos de baja tensión que incluye mecanismos, aparatos modular e industrial, automatismos y control, cuadros y armarios. La mayor demanda de nuestros productos viene por parte de distribuidores de material eléctrico, fabricantes de maquinaria, cuadristas e instaladores de todo el mundo.

GE Power Controls es la división europea de GE Industrial Systems, uno de los 10 principales negocios de General Electric Company (USA), conocida internacionalmente por su aproximación a sus clientes, a su gente y al mundo en que vivimos.

Estos son los hechos, ahora la historia que hay detrás de ellos. El nombre de GE Power Controls es sinónimo de experiencia técnica, calidad de producto, servicio y extensa gama. Pero esto no es suficiente para un entorno competitivo y en constante cambio, en el cual nosotros hemos de ofrecer todo esto y más. Dentro de poco tiempo nuestra gama de productos se verá drásticamente ampliada y renovada.

El objetivo marcado para la calidad nos asegura nada menos que el progreso constante, como parte del programa global Six-Sigma de GE para la iniciativa y excelencia en el servicio y productos. Esto no solo se aplica a productos y servicios, también en nuestra conducta en los negocios, donde sólo los más altos estándares son los aceptables. Creemos que nuestra ventaja más importante es la confianza que los clientes depositan en nosotros. La hemos ganado gracias a nuestra búsqueda constante de la mejora en todos los frentes y a nuestro fuerte compromiso hacia la integridad y veracidad.

GE Power Controls

gepowercontrols.com

GE imagination at work

