VAT 200

Mini AC Drive

GE Power Controls

gepowercontrols.com

GE imagination at work

VAT 200

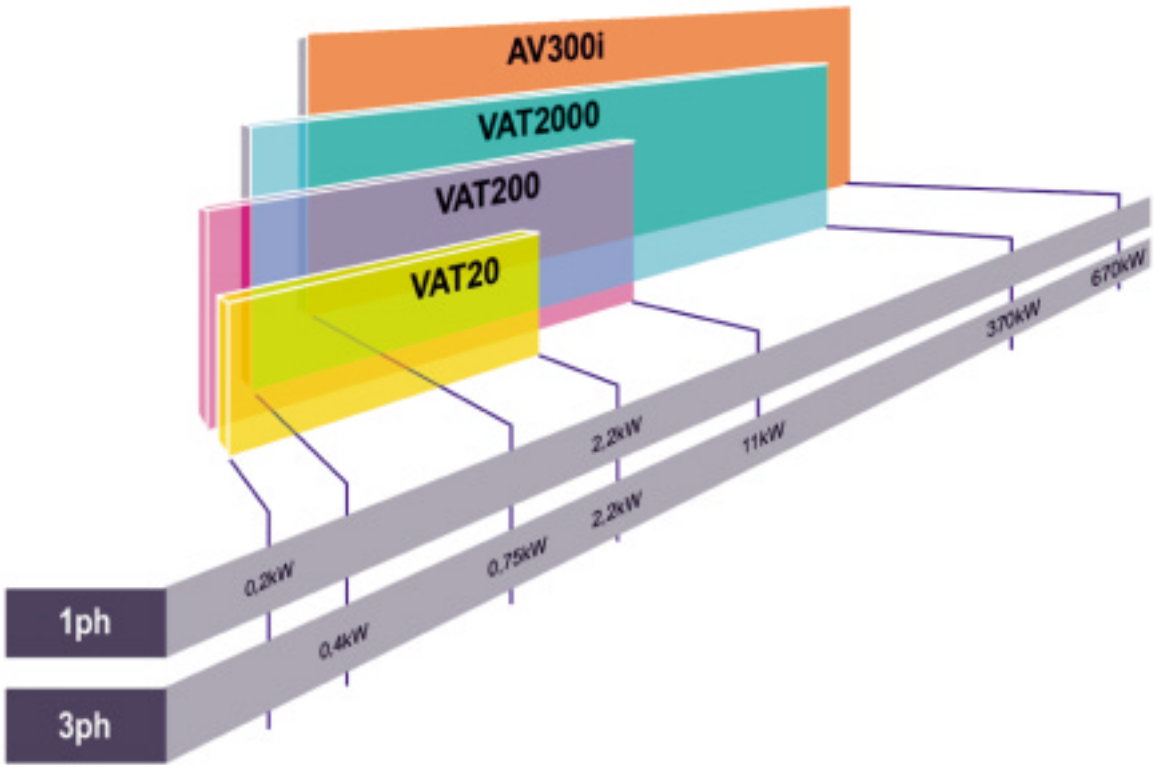
VAT200 is a variable speed drive for AC standard motors, available in the following ranges:

- **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

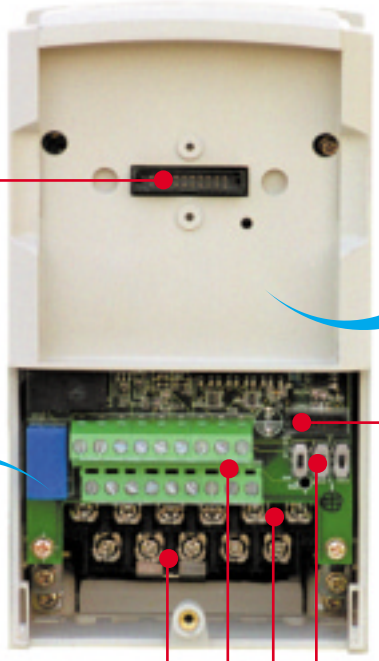
AV300i

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

Simple and Reliable

Removable keypad
- LED keypad as standard
- LCD keypad as option

Keypad port



Wiring
- Terminal cover removed by just one screw

Serial Port

For Copy unit and Communications

Configuration switches
- For analogue I/O
- For PNP/NPN digital input selection

I/O terminals

Supply and Motor

I/O terminals

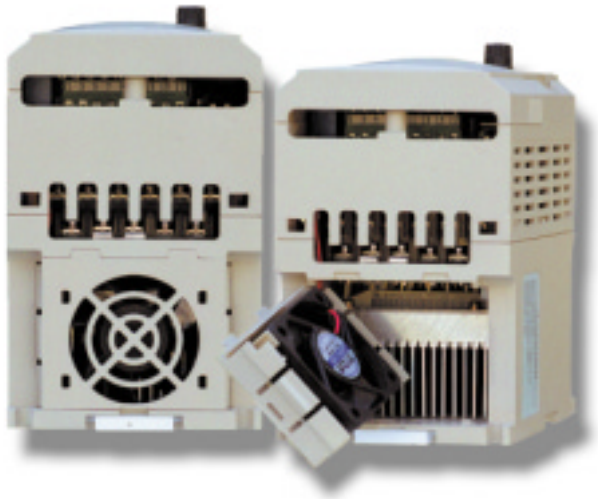
Control

I/O terminal

DC reactor

Easy maintenance

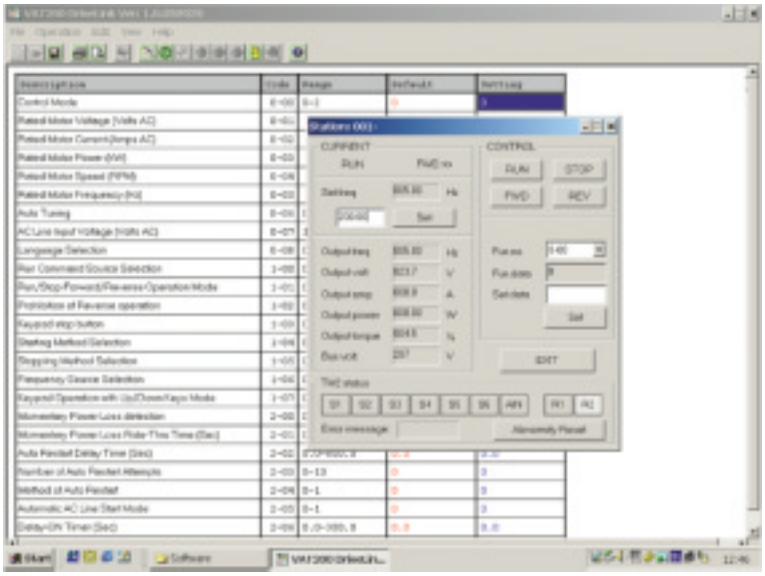
- Fans easely removed
- Easy access to I/O wiring
- Quick access to PC board and power block



Easy start-up & tunning 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



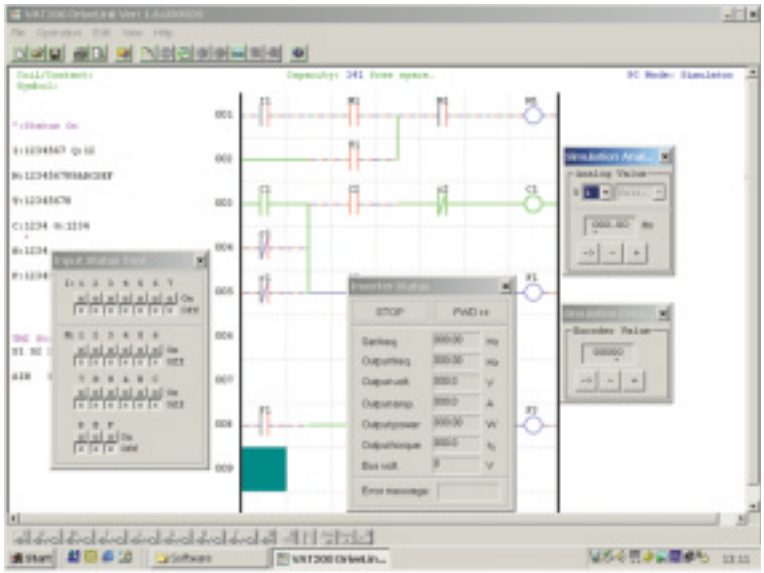
Keypad

- 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

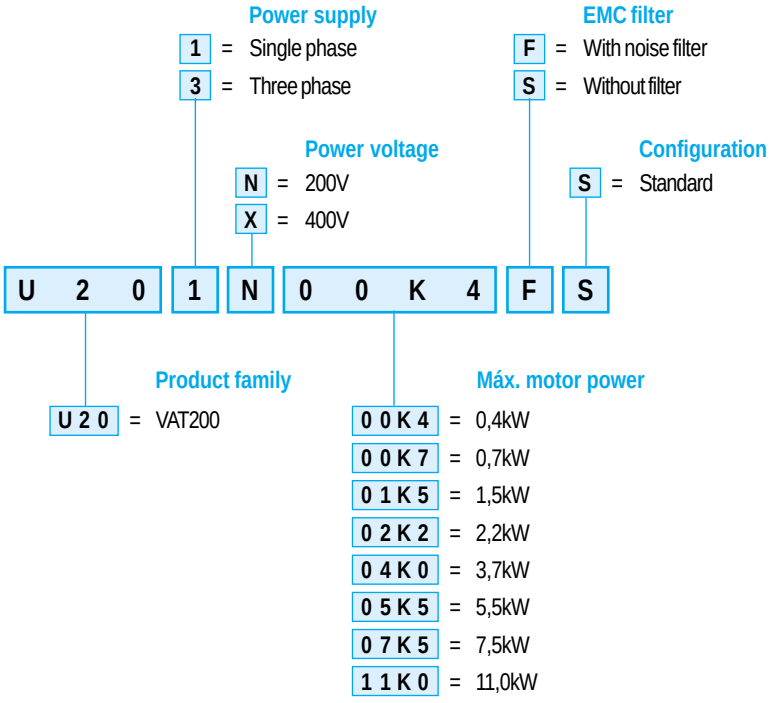
VAT200

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%)

	Suitable motor capacity (kW)	Rated output current (A)	Rated capacity (KVA)	Frame	Type	Code	Pack (units)
1ph 200V - 240V	*With EMC filter*						
	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						
	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*						
	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*						
	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						
	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

Frame 1

Frame 2

Frame 3

VAT 200 - Accessories

		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

U200AMP

U200ARS485

U200ARS232

Technical specifications

		1ph 200-240V (with / without EMC filt.)				3ph 200-240V (without EMC filter)							3ph 380-480V (with / without EMC filter)						
		U201N_____S				U203N____SS							U203X_____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	±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

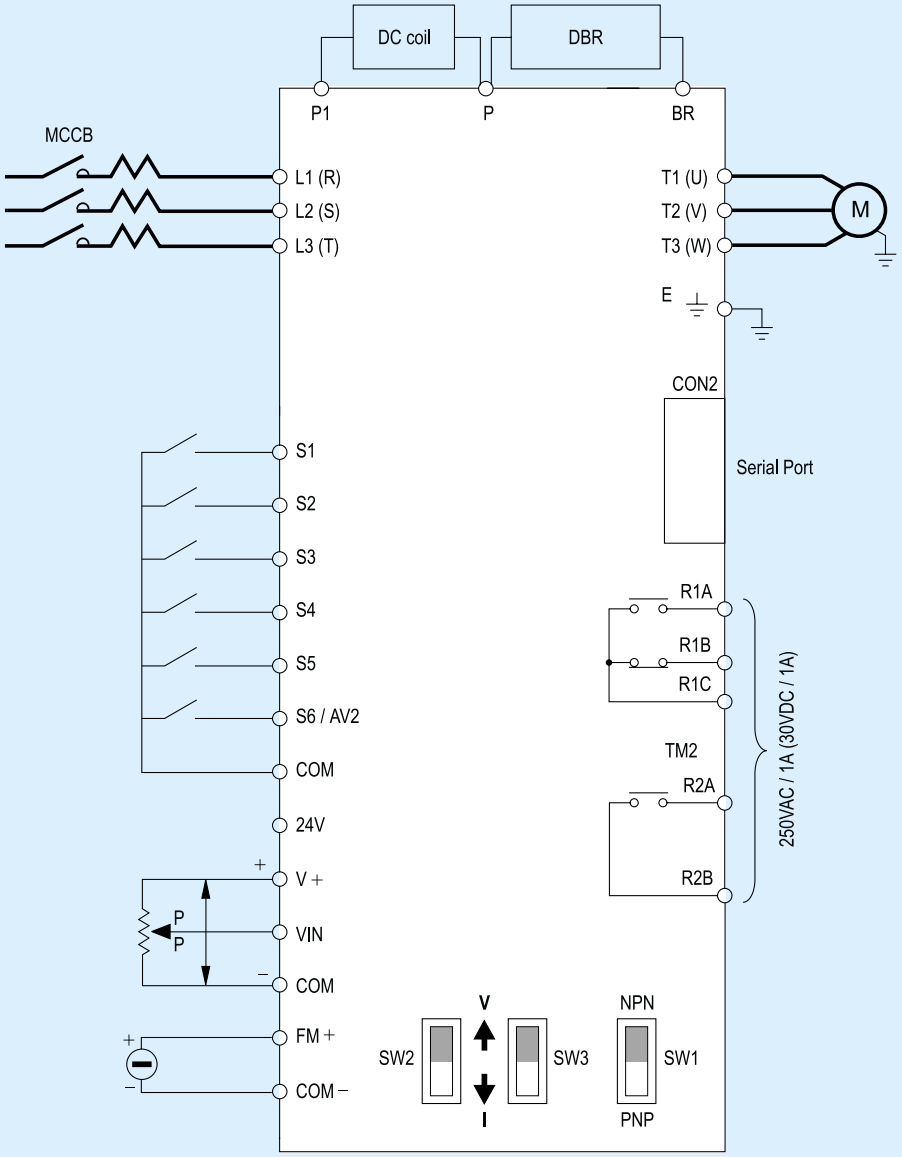
Control

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
Braking torque		About 100% with Braking resistor (20% without braking resistor)
Operation temperature		-10 to +50ºC
Storage temperature		-20 to +60ºC
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		Contact rated capacity 250VAC/1A or 30VDC/1A
R2B			
R1C	Common contact	Multifunctional terminals Normally Open	
R1B	Normally Closed contact		
R1A	Normally Open contact		
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

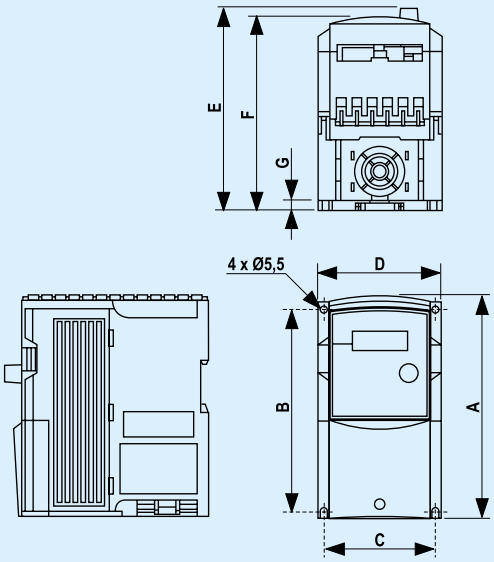
EMC compliance

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

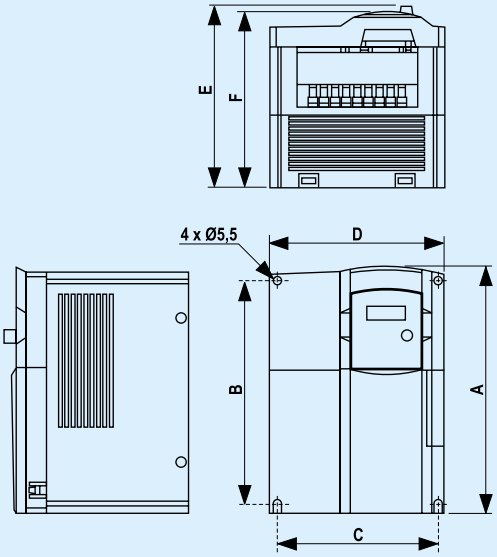
	VAT200		Second environment		First environment	
1ph 200-240V						
With EMC filter	U201N00K4FS	167400	Not needed	-	U200F611TA1	167453
	U201N00K7FS	167401	Not needed	-	U200F611TA1	167453
	U201N01K5FS	167402	Not needed	-	U200F627TA2	167454
	U201N02K2FS	167403	Not needed	-	U200F627TA2	167454
Without EMC 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

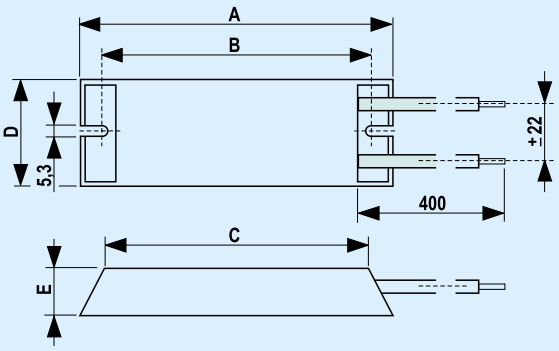
Dimensions



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

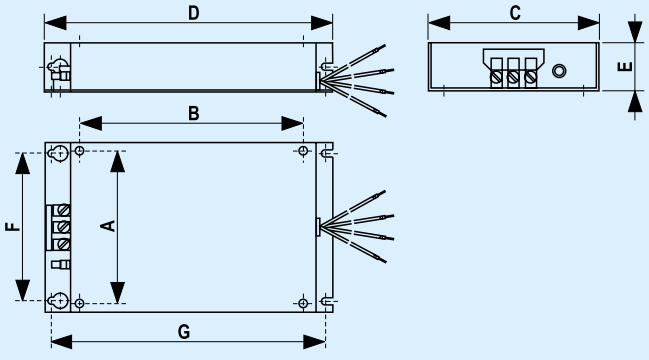


	A	B	C	D	E	F
U203N05K5 U203N07K5 U203X05K5 U203X07K5 U203X11K0	260	244	173	186	195	188



Braking resistor

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



EMC external filter

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

GE Power Controls en Europa

GE Power Controls es un proveedor de primera línea europeo de productos de baja tensión que incluye mecanismos, aparamenta 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

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GE imagination at work

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