



GT3000
Voltage Source Frequency Converter



GT3000 - the Answer for your industrial drive needs

Programming Instruments



Reliable, IGBT based solution

The GT3000 is based on IGBT (Insulated Gate Bipolar Transistor) technology and offers matchless reliability and versatility in numerous markets. The easy start-up and running of the inverter, together with its ability to satisfy the most exacting demands in terms of torque performance are the direct result of a sophisticated control algorithm.

Typical Applications

- Material Handling
- Rubber and Plastic
- Cement
- Metals
- Renewable energy

Superior performance to satisfy each and every need

The GT3000, developed primarily for heavy duty applications is - thanks to its versatile, high-performance features - one of the most reliable answers for energy conversion and control needs. The adaptability and efficiency of the GT3000, plus its outstanding performance in terms of low harmonic content make the GT3000 the ideal product for a vast range of applications. The GT3000 also offers a complete range of options and features that make it highly appealing for use in industrial automation and control systems.

Easy to operate

- Windows-based tool that allows configuring, monitoring and troubleshooting directly from your PC
- Keypad with graphical display to facilitate use and configuration
- Quick-start-up
- Applicable macros for easy programming
- Auto-tuning



Product Highlights

Your choice of control

- Open-loop vector control (sensorless)
- Scalar control (V/Hz)
- Closed-loop vector control (FOC) for complex applications

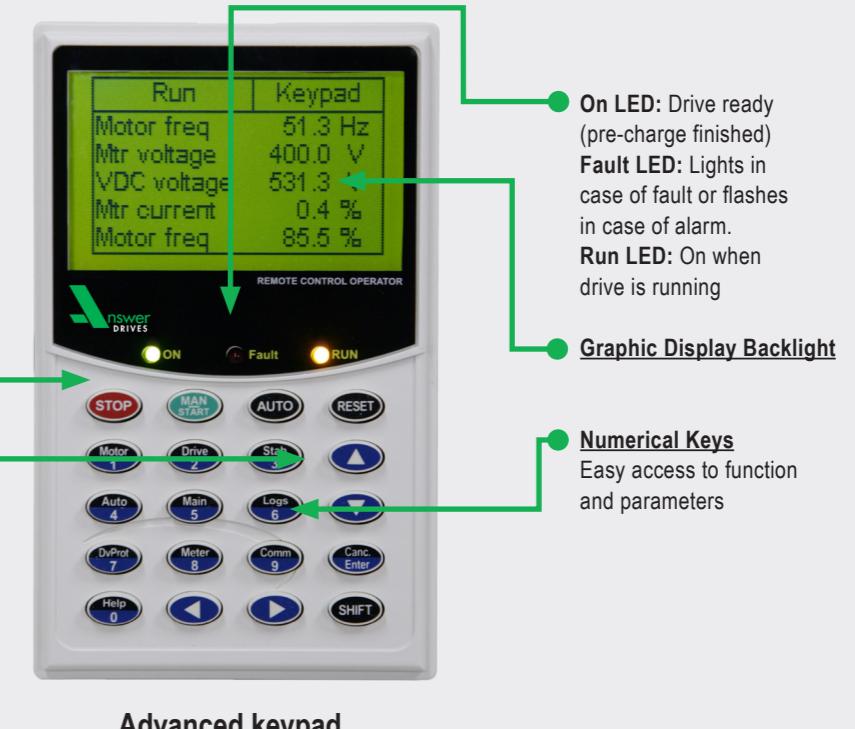
Superior performance

- Energy saving
- Torque boost
- Mains Dip Ride Through
- Current and frequency limits
- Critical frequency/speed avoidance
- 4 pre-selectable programmable pre-set speeds
- 3 sets of acceleration / deceleration ramps
- S-shaped acceleration / deceleration ramp
- Auto reset and restart
- Flying start
- Fault/Alarm Log (list of last 30 protections/ alarms)

Durable & Versatile

- Long-life tin plated bars and coated boards
- AFE (Active Front End) configuration available
- Optional communication and I/O expansion boards

Stop Key: Command for local stop
Man Key: Predispositioned for Manual Mode or Start if in Manual
Reset Key:
Enter Key: Select one Submenu or parameters
 Allows Edit Mode
 Accepts a new value
Auto Key: Prepare for Auto mode
 Auto start command and speed reference from remote
Arrows
 To run through the menu and change parameters



Advanced keypad

ARTICS Drive Manager

ARTICS Drive Manager (DVM) is an extensible configuration and management software based on Microsoft .NET environment. With its versatile functions, software is developed to ease the configuration for system integrators and efficiently monitor parameters and process data in heavy-duty applications.

It is a modern, user-friendly tool that allows a user to view and modify different drive types at the same time, each one with different firmware versions, using the same interface approach.

DVM allows access to Clients distributed within a network and provides the following functions:

- Quick motor startup
- Virtual keypad
- Store/restore parameter configuration sets
- Start/stop commands
- Language selection
- Centralized database for backup and firmware update
- Oscilloscope and trends
- Alarms and diagnostics
- Help online

Communications Options

To monitor and control the process the user of an inverter needs to interface it with industrial protocols.

Nidec ASI provides serial communication boards that are compatible with the most important protocols and, given the demand for increasingly new protocols and platforms has designed a rapid process for the development of new boards. The GT3000 provides optional serial communication boards for the following systems: Modbus™, Profibus™, DeviceNet™.

Operator Interface

The GT3000 keypad has been developed to provide numerous functions and is available in the basic and advanced versions.

To program the inverter, the advance keypad makes use of a simple and intuitive menu. The display shows a considerable amount of information clearly and five separate actual values simultaneously. The copy function makes it possible to store data and download it into another inverter, thereby simplifying start-up.



GT3000 General Technical Data



Active Front End

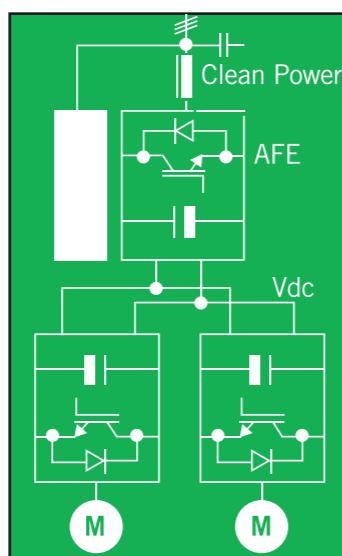
The GT3000 with AFE eliminates harmonic currents and protects devices supplied from the same network from possible damage caused by harmonic distortion.

The AFE dynamically controls the non-linear current required by the load and generates a form of adaptive current wave that compensates the form of the non-linear current portion of the load. By injecting this compensation current in the bus, it blocks out the damaging current at the connection point and corrects the power factor to guarantee improved operating continuity and savings.

The AFE does not require serial components; it is simple to install, even in parallel for high power applications and complies with IEEE 519-1992 standard.

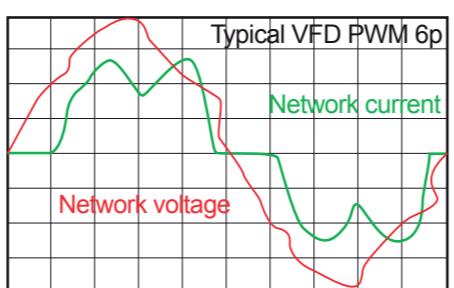
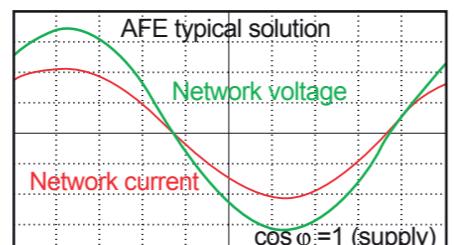
It can be sized for a single inverter or a DC bus with several inverters and is also available in the redundant version.

AFE control is particularly suitable for applications that require high inertia load braking and regenerative braking, such as centrifuges, lifting systems, mine conveyors, etc. As applications of this kind require rapid acceleration and deceleration, the AFE control allows high braking power to be regenerated in the network.



Inverters without AFE control for high inertia load braking use dynamic braking, which means that the braking energy is dissipated as heat in the braking resistor and consequently lost or wasted.

AFE configuration is also applied to aeolic or wind-driven plants to issue energy in the network without harmonic distortion and to optimise plant yield.



Model	Frame	CI.1 - overl. 110% for 1' every 10'						CI.2 - overl. 150% for 1' every 10'						Dimensions			
		Rated output current		Motor (4p) @460V		Motor (4p) @400V		Rated output current		Motor (4p) @460V		Motor (4p) @400V		Height	Width	Depth	Weight
		A	HP	A	KW	A	A	A	HP	A	KW	A	mm	mm	mm	Kg	
SVGT0P3FDB	I	3.8	2	3.4	1.5	3.6	2.1	1.5	2	0.75	2	271	131	171	3.5		
SVGT0P4FDB	I	5.6	3	4.8	2.2	5	3.8	2	3.4	1.5	3.6	271	131	171	3.5		
SVGT0P6FDB	I	9.5	5	7.6	4	8.6	5.6	3	4.8	2.2	5	271	131	171	3.5		
SVGT008FDB	II	12	7.5	11	5.5	11.5	9.5	5	7.6	4	8.6	341.5	138	219	5		
SVGT011FDB	III	16	10	14	7.5	15.5	12	7.5	11	5.5	11.5	441.5	138	219	7.5		
SVGT015FDB	III	21	15	19.7	9	18.4	16	10	14	7.5	15.5	441.5	138	219	7.5		
SVGT018FDB	IIIX	25	20	25	11	22.5	21	15	19.7	9	18.4	466.5	138	241	7.5		
SVGT022FDB	IIIL	32	25	30.5	15	30.2	25	20	25	11	22.5	466.5	138	241	7.5		
SVGT028FDB	IIIN	40	30	36	18.5	37	32	25	30.5	15	30.2	466.5	138	255	10		
SVGT030FDB	IIIN	40	30	36	18.5	37	34	25	30.5	15	30.2	454	200	279	33		
SVGT036FDB	IVN	52	40	49	22	43	40	30	36	18.5	37	454	200	279	33		
SVGT045FDN	IVN	65	50	62	30	58	52	50	49	22	43	675	250	274	36		
SVGT053FDN	IVN	77	60	71	37	69	65	50	62	30	58	675	250	274	36		
SVGT066FDN	IVN	96	75	86	45	84	77	60	71	37	69	755	250	274	40		
SVGT086FDN	VN	124	100	109	55	100	96	75	86	45	84	755	250	289.5	52		
SVGT108FDN	VN	156	125	139	75	135	124	100	109	55	100	1000	250	289.5	52		
SVGT125FDN	VN	180	150	173	90	160	156	125	139	75	135	1000	260	319.5	88		
SVGT150FDN	VN	217	150	173	110	195	180	150	173	90	160	1000	260	319.5	96		
SVGT166FDN	VN	240	200	226	132	239	200	150	173	110	195	1000	260	319.5	96		
SVGT200FDN	VII	302	250	290	160	288	240	200	230	132	239	1160	540	398	103		
SVGT250FDN	VII	361	300	350	200	355	302	250	290	160	288	1160	540	398	103		
SVGT292FDN	VIII	420	350	400	225	395	370	300	350	200	355	1160	577	398	133		
SVGT340FDN	VIII	510	400	460	250	430	420	350	400	240	420	1160	577	398	150		
SVGT420FDN	VIII	610	500	560	315	554	480	400	460	250	430	1160	577	398	183		
SVGT491FDN	VIII	710	600	676	400	690	520	400	460	250	430	1160	577	398	183		

GT3000 PLUS - 6 pulse version - 380/480Vac + 10%																	
Model	Frame	CI.1 - overl. 110% for 1' every 10'						CI.2 - overl. 150% for 1' every 10'						Dimensions			
		Rated output current		Motor (4p) @460V		Motor (4p) @400V		Rated output current		Motor (4p) @460V		Motor (4p) @400V		Height	Width	Depth	Weight
		A	HP	A	KW	A	A	A	HP	A	KW	A	mm	mm	mm	Kg	
SVGT030FEB	IIIN	40	30	36	18.5	37	32	25	30.5	15	30.2	454	200	279	33		
SVGT036FEB	IIIN	52	40	49	22	43	40	30	36	18.5	37	454	200	279	33		
SVGT045FEN	IVN	65	50	62	30	58	52	40	49	22	43	675	250	274	36		
SVGT053FEN	IVN	77	60	71	37	69	65	50	62	30	58	675	250	274	36		
SVGT066FEN	IVN	96	75	86	45	84	77	60	71	37	69	675	250	274	40		
SVGT086FEN	VN	124	100	109	55	100	96	75	86	45	84	755	250	289.5	52		
SVGT108FEN	VN	156	125	139	75	135	124	100	109	55	100	755	250	289.5	52		
SVGT125FEN	VIN	180	150	173	90	160	156	125	139	75	135	1000	260	319.5	88		
SVGT150FEN	VIN	217	150	173	110	195	180	150	173	90	160	1000	260	319.5	96		
SVGT166FEN	VIN	240	200</td														

GT3000 General Technical Data

Output Data	GT3000 Chassis /Cube	400 V	0.75 - 1000 kW
		460 V	2 - 1000 HP
		500 V	1- 1250 kW
		525 V	37 - 600 kW
		575 V	50 - 700 HP
		600 V	45 - 700 kW
		690 V	60 - 800 HP
	Output voltage	From 0 to input voltage	
	Output current	Class 1: 110% of rated current per 1min every 10 min. Class 2: 150% of rated current per 1 min every 10 min.	
		Usually, higher overloads are possible as the motor current is generally lower than the rated current of the GT3000	
Input Data	Starting torque	Class 1: 110% - Class 2: 150%	
	Output frequency	0 - 200 Hz	
	Frequency resolution	0.1 Hz	
	Frequency	From 48 to 63 Hz	
Control Characteristics	Voltage	"F" 400 - 460 V, +/-10%	
		"G" 500 V, +/-10%	
		"K" 525 - 690 V, +10% -15%	
	Control method	V/Hz, open-loop vector (sensorless) closed-loop vector (FOC)	
Standard functions	Switching frequency	Programmable: from 2 to 12 kHz	
	Speed/Frequency reference	From analog input: resolution 0,1 Hz From keypad: 0,01 Hz resolution	
	Acceleration/deceleration time	from 0,1 to 262 seconds	
	Braking torque	DC injection: from 0 to 100% of rated voltage	
	• Selection of speed reference source	• Ramps	
	• Pre-set speeds	• Digital motopotentiometer	
	• Speed reference loss (4-20 mA)	• Critical Speed Avoidance	
	• Self-adaptive acceleration	• Self-adaptive deceleration	
	• Motor overload protection	• Stoppage by inertia	
	• Automatic reset and restart	• Automatic restart after network failure	
Applicative macros	• HOA/pulsed start/stop	• Auto On/Off	
	• Input phase failure	• Mains Dip Ride Through	
	• Flying Restart in both directions	• Energy saving	
	• Current oscillation compensation	• External speed limits	
	• Jog speed	• Output phase failure	
	• Minimum load	• PID regulator for process control	
	• Helper - load sharing between two motor mechanically coupled (FOC)	• Internal or cross drooping	
	• PTC/NTC motor management	• Torque limit control	
	• Torque control	• Speed deviation	
	• Motor stalling	• Crane control	
Faults/alarm log	• Safety override	• Programmable password	
	• Back-lash compensation		
	• AND/OR function for I/O digital expansion board		
	• Fault/alarm log (list of last 30 faults/alarms in real time)		
	• Tracelog (cyclic memory of data up to 10 variables, used to record events related to a trip)		

Protections and Alarms	• Overcurrent	• Failed precharge
	• Overspeed	• Communication loss
	• DSP failure (control fault)	• Input phase failure
	• Desaturation (IGTB fault)	• Output phase failure
	• Drive overtemperature	• Over/under voltage (DC bus)
	• Speed reference loss (4-20 mA)	• Speed deviation (stall trip)
	• Ground fault (output)	• Minimum load
	• Motor overload	• External protection
Control Connections	Microprocessor Plus	Microprocessor Base
	1 NO/NC fault relay	1 NO/NC fault relay
	2 programmable relay outputs (1 NO/NC, 1 NO)	1 programmable relay output (1 NO/NC, 1 NO)
	1 programmable open collector output	1 programmable open collector output
	2 isolated analog inputs (12 bit) 0-10 V 40 kohm	2 isolated analog inputs (12 bit) 0-10 V 40 kohm
	4 - 20 mA, 475 ohm	4 - 20 mA, 475 ohm
	2 isolated analog outputs (10 bit) 0-10 V	2 isolated analog outputs (10 bit) 0-10 V
	2 isolated analog outputs (10 bit) 0-10 V, 4-20 A	2 isolated analog outputs (10 bit) 0-10 V
	5 isolated programmable digital inputs	4 isolated programmable digital inputs
	2 isolated digital inputs (start/stop, enable)	2 isolated digital inputs (start/stop, enable)
Digital Inputs	2 terminal programmable as digital I/O (24 VDC)	2 terminal programmable as digital I/O (24 VDC)
	2 outputs: +10V, -10 V 5mA (protected against short circuit)	2 outputs: +10V, -10 V 5mA (protected against short circuit)
	3 encoder inputs (3 channels)	3 encoder inputs (3 channels)
	outputs: +5V 150 mA (encoder supply)	outputs: +5V 150 mA (encoder supply)
	RS232/RS485 HD serial output	RS232 serial output
	Auxiliary power supply: +24VDC, 100 mA	Auxiliary power supply: +24VDC, 100 mA
	RTC to records date and time of the event in real time	
Environmental Conditions	Operating temperature 0°C-40°C (32°F - 104°F)	
	1% output current de-rating for each °C in excess up to a maximum of +55°C (104°F)	
	Storage temperature: from -25°C to +70°C (from 40°F to +158°F)	
	Relative humidity: 95% without condensation	
	Altitude: up to 1000 m (3280 ft.) a.s.l. Over 1000 m (3280 ft.) a.s.l. rated output current is reduced by 1% for each additional 100 m (382 ft.). maximum height 3000 m (9840 ft.)	
	Vibrations during operation: max. 0.3 mm (from 2 to 9 Hz), max. 1 m/s ² (from 9 to 200 Hz) sinusoidal (Class 3 M1)	
	Protection degree: IP20 for frames I-VIN, IP00 for frames VII-VIII (optional IP20)	
	Frames IIIN-IVN are prepared for installation of heatsink in separate duct so as to easily structure cabinets with IP54 protection degree	
	Contamination level (painted boards) Chemical gases: IEC 721-3-3, Class 3C2	
	Solid particles: IEC 721-3. Class 3S2	
Directives and Certifications	Cooling: forced air with built-in fan (water cooling for VII and VIII upon request)	
	Housing: cover in plastic material, frame in galvanised steel sheet	
	EN 60146-1	EN 61800-3 (EMC)
	UL Listed at 690 V	CE Marked (directive 2006/95/EC low voltage)
Options and Accessories	CUL Listed at 690 V	ISO 9001
Options and Accessories	• EMC filters (standard for SVGT030-166F)	• I/O digital expansion boards
	• Input reactors (standard for SVGT030-166F)	• Dynamic braking switch and resistors
	• Output reactors	• 2 channel 0-10 V/4 (0) – 20 mA converter
	• Sinusoidal output filters and dV/dt filters	• Serial board: Profibus DP, Modbus RTU Device Net and others upon request
	• STO" Safe Torque Off kit	• Diode bridges for Bus DC (6, 12 and 18 pulses)
	• Power supply for external control supply	• AFE (DC bus supply and regenerating braking energy to the AC Mains Supply)
	• Basic LED keypad or LCD advanced graphics keypad	• SPDMR (DC bus supply and regenerating braking energy to the AC Mains Supply)
	• Remote mounting keypad kit (2m)	• IP20 protection degree for frames VII-VIII

*The technical data of this publication may change. Please contact our sales team for confirmation.

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