

2010

DC Armature Converters

SIEDrive TPD32



...life is experience.

English—Español



GEFRAN

SIEIDrive TPD32

La serie de convertidores digitales SIEIDrive TPD32 surge debido a la creciente exigencia tecnológica de los modernos sistemas industriales, manteniendo al mismo tiempo inalterada la gran experiencia de GEFRAN en el campo del control de velocidad para los motores de corriente continua. Disponible en una amplia gama tanto de potencias de motor como de tensiones de alimentación, y para soluciones en funcionamiento a dos y a cuatro cuadrantes. Estudiado con el objetivo de racionalizar al máximo las prestaciones del sistema, el TPD32 ofrece una serie de funciones integradas y paquetes de aplicaciones dedicadas, con el fin de cubrir las más complejas exigencias de los modernos sistemas de automatización industrial.

Soluciones globales para el control de los motores de C.C.

- Línea de 500Vac
 - . alimentación trifásica: 230Vac...500Vac, 50/60Hz
 - . dos cuadrantes (.-2B): de 20A a 3.300A
 - . cuatro cuadrantes (-4B): de 20A a 3.300A
- Línea de 690Vac
 - . alimentación trifásica: 230Vac...690Vac, 50/60Hz
 - . dos cuadrantes (.-2B): de 1.010A a 3.300A
 - . cuatro cuadrantes (-4B): de 1.010A a 3.300A
- Regulador de campo integrado en toda la gama
 - . alimentación monofásica: 230Vac...460Vac, 50/60Hz
- Realimentación de velocidad a través de dinamo taquimétrica y/o encoder digital o sinusoidal
- Lógica de los comandos E/S digitales PNP y/o NPN
- 3 Entradas analógicas diferenciales $\pm 10\text{Vdc}$ (0..4-20mA)
- 2 Salidas analógicas $\pm 10\text{Vdc}$
- 2 Entradas encoder digitales y/o sinusoidales
- 1 Entrada de dinamo taquimétrica
- 8 Entradas digitales (4 fijas + 4 programables)
- 4 Salidas digitales optoaisladas:
- 2 Salidas digitales por relé:
- 1 Entrada termistor motor
- Línea serie RS485 (protocolo Modbus RTU)
- Sobrecarga programable hasta el 200%
- Interfaz para los buses de campo más comunes: ProfibusDP, CANopen e DeviceNet
- Grado de protección:
 - . IP20 hasta 1000A (.-2B) y 1050A (.-4B)
 - . IP20/IP00 para cortes superiores

SIEIDrive TPD32

The SIEIDrive TPD32 series of digital converters is a product of the ever growing technological demands of modern industrial systems, and draws on Gefran years of experience in the field of DC motor speed control.

TPD32 is available in a wide range of motor power ratings and power supply types for solutions using both two quadrant and four quadrant operation.

Designed to minimise user system requirements, the TPD32 offers a range of functions and dedicated application packages to cover the most complex requirements of modern industrial automation systems.



Global solutions for the DC motors control

- 500Vac Line
 - . 3ph supply: 230Vac...500Vac 50/60Hz
 - . biquadrant (.-2B): from 20A up to 3300A
 - . tetraquadrant (.-4B): from 20A up to 3300A
- 690Vac Line
 - . 3ph supply: 230Vac...690Vac 50/60Hz
 - . biquadrant (.-2B): from 1010A up to 3300A
 - . tetraquadrant (.-4B): from 1010A up to 3300A
- Integrated field regulator on all the range
 - . 1ph supply: 230Vac...460Vac 50/60Hz
- Speed feedback via tachogenerator and/or digital or sinusoidal encoder
- Digital I/O logic control in PNP and/or NPN configuration
- 3 Differential analog inputs $\pm 10\text{Vdc}$ (0..4-20mA)
- 2 Analog outputs ($\pm 10\text{Vdc}$)
- 2 Encoder inputs (digital and/or sinusoidal)
- 1 Tachogenerator input
- 8 Digital inputs (4 fixed + programmable)
- 4 Optocoupled Digital outputs
- 2 Relay outputs
- 1 Motor thermistor input
- RS485 Serial line (ModbusRTU protocol)
- Programmable overload up to 200%
- Interfacing with fieldbus protocol as: ProfibusDP, CANopen and DeviceNet
- Protection degree:
 - . IP20 up to 1000A (.-2B) and 1050A (.-4B)
 - . IP20/IP00 for bigger powers



Tecnología de sistema integrada

- Autocalibración del bucle de corriente y velocidad
- 5 Rampas independientes y programables
- Rampa Lineal y en "S" programables
- 7 Multiv velocidades programables
- Límites de velocidad Mín./Máx. con regulación: independiente para cada dirección de la velocidad
- Limitación de corriente en función de la velocidad
- Ganancias adaptativas del regulador de velocidad.
- Gestión independiente de la ganancia integral a velocidad cero
- Control programable de la sobrecarga
- Función de marcha Jog
- Parada controlada y reenganche automático del motor
- Función Motopotenciómetro
- Protección I²t del motor:
- Función PID
- Función Servodiámetro
- Función "Speed Draw"
- Función "Autocapture" (reenganche al vuelo)
- Función "Droop"

Integrated System Technology

- Quick start up
- Autotuning of the speed and current regulators
- 5 Independent programmable Multi-ramps
- Programmable Linear and "S" shaped ramps
- 7 Programmable Multispeeds
- Independent regulation of the Min/Max speed for each direction sense of rotation
- Current limitation in accordance with the speed
- Adaptive gains of the speed regulator
- Independent management of the integral gain at zero speed
- Programmable overload control
- Jog function
- Motorpotentiometer function
- I²t motor protection
- PID function block
- Servodiameter control function
- "Speed Draw" function
- "Autocapture" function (Flying restart)
- "Droop" function





Drive Type Designation

TPD32 series	TPD32	400	470	185	2B	NA
AC Input Voltage						
DC Output Voltage						
Rated Current						
2B = biquadrant type						
4B = tetraquadrant type						
American version						

Opciones

- Teclado de programación KB
- Ampliaciones Entrada/Salida TBO-32
- Interfaz Profibus SBI-PDP-32
- Interfaz DeviceNet SBI-DN
- Interfaz CANopen SBI-COP
- Placa aplicativa programable APC200d
- Interfaz DeviceNet para conectar en APC200d, DNET-1
- Placa para la gestión del encoder suplementario DEII

Accesorios

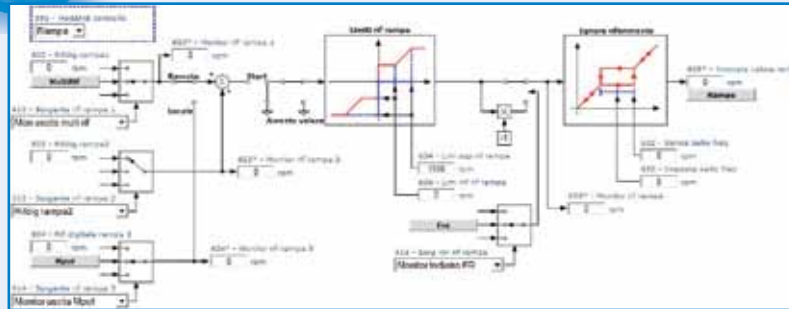
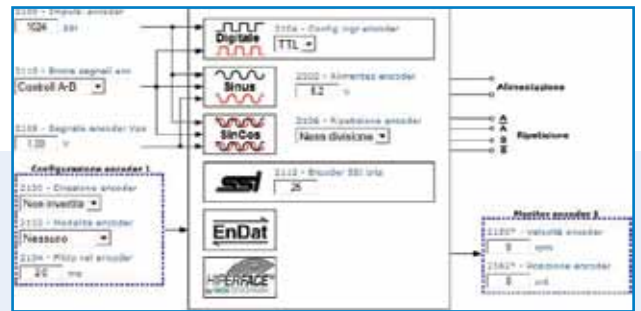
- Filtros EMC dedicados (en cumplimiento de la Directiva Europea CEE - EN 61800-3)
- Inductancia de Entrada y Salida (normalizada en toda la gama)
- Kit para teclado de programación remota
- Kit línea serie RS485 para conexión con PC

Options

- Programming keypad KB
- I/O expansion card TBO-32
- Profibus interface SBI-PDP-32
- DeviceNet interface SBI-DN
- CANopen interface SBI-COP
- Programmable application card APC200d
- DeviceNet interface for use with APC200d, DNET-1
- Supplementary encoders management DEII

Accessories

- Dedicated EMC filters (in accordance with EN61800-3)
- Input and Output choke (standardised for the whole line)
- Programming remote keypad kit
- RS485 serial line kit for direct PC communication



Configurador para PC “GF_eXpress”

GF_eXpress es el software de configuración/parametrización de componentes, automatización, convertidores y sensores del catálogo Gefran.

La selección y la parametrización del instrumento es fácil e intuitivo gracias a un interface gráfico, con una clasificación de los dispositivos por tipologías de productos y funcionalidad.

La selección del producto de parametrización se lleva a cabo mediante un menú contextual y con la selección visual mediante imágenes reales del producto.

Esta gestión permite tener una biblioteca única de dispositivos para todos los productos Gefran.

La adopción del formato XML para la descripción de las informaciones de configuración de todos los dispositivos individuales facilita la ampliación del catálogo y de sus parámetros.

Características

- Selección guiada de los productos
- Ajuste simplificado
- Multilingüe
- Impresión parámetros
- Creación y almacenamiento de fórmulas
- Autoexploración de la red
- Osciloscopio: monitorización de hasta 8 curvas simultáneamente.

“GF_eXpress” PC configuration software

GF_eXpress is the software used to configure the parameters of the automation components, drives and sensors in the Gefran catalogue.

The procedures for selecting and configuring parameters are easy and intuitive, thanks to the graphic interface and devices are grouped according to product type and functions.

Product searches are performed by means of a context search and a visual selection from among actual images of the products.

This makes it possible to have a single library of devices for all Gefran products.

All details for configuration of each single device are set out in XML format to facilitate expansion of the catalogue and parameters.

→ Features:

- Guided product selection
- Simplified settings
- Multiple languages
- Parameter printout
- Creation and storing of recipes
- Network autoscan
- Oscilloscope: simultaneous monitoring of up to 8 curves.



Modbus

DeviceNet

PROFI

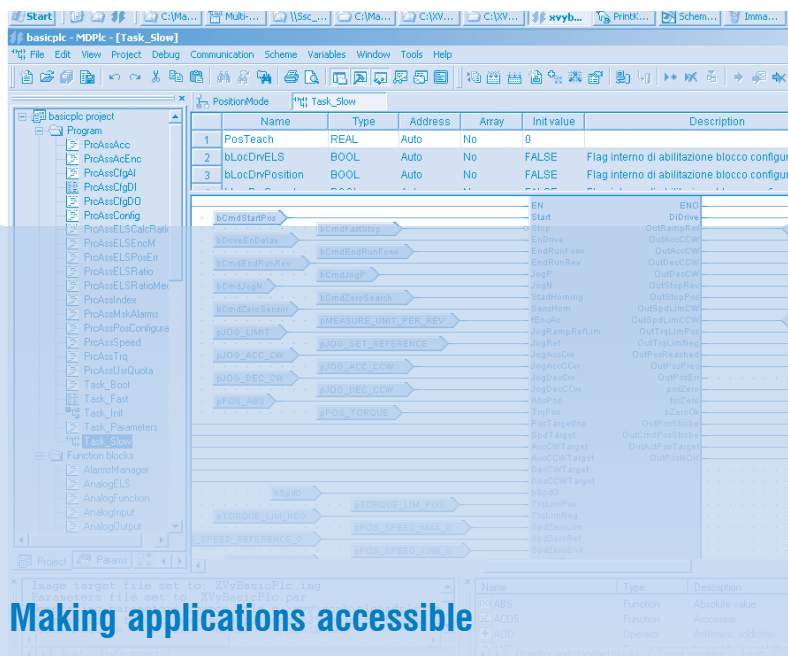
CANopen

La evolucionada tecnología utilizada en la tarjeta de aplicación APC200d, permite al TPD32 satisfacer las exigencias más sofisticadas de los modernos sistemas de automatización.

Aplicaciones dedicadas estándar:

- ELS ELS Control del eje eléctrico estándar
- TL Control de enrollado / desenrollado estándar
 - control de par en anillo abierto o con retroacción de celda de carga.
- PosMono Posicionador monoeje estándar
 - 64 posiciones predefinidas
 - Gestión encoder absoluto

La experiencia GEFRAN en los más importantes sectores de aplicación, pone además a disposición una amplia gama de soluciones específicas y/o personalizadas, para la gestión de las configuraciones más complejas de máquinas como: instalaciones de elevación, fabricación de chapa, posicionadores multiejes, etc...



Making applications accessible

Based on the advanced technology integrated on the APC200d application card, the TPD32 converter is capable of meeting the most advanced application requirements associated with state-of-the-art automation systems.

The APC200d card comes with a range of predefined libraries, which means that it can be used to implement advanced control architectures requiring complex management of system variables, along with a high processing capacity.

Standard specialised applications:

- ELS Standard Electronic Line Shaft control
- TL Standard Winding/Un-Winding control
 - torque control in open-loop or closed-loop with load cell
- PosMono Single axis Standard Positioning
 - up to 64 preset registers
 - Absolute encoder management

The experience Gefran has acquired in the major application sectors has also produced an extensive range of specific and/or custom solutions for managing the most complex configurations in machines such as hoisting equipment, sheet metal working machinery, multi-axis positioning devices, etc...



TPD32 - Compact Case

		20	40	70	110	140	185	280	350	420	500	650	770	1000	1050
European Drive Rating		17	35	56	88	112	148	224	280	336	400	450	560	800	850
American Drive Rating (*)		•	•	•	•	•	•	•	•	•	•	•	•	•	-
Two-quadrants: 2B		•	•	•	•	•	•	•	•	•	•	•	•	•	•
Four-quadrants: 4B		•	•	•	•	•	•	•	•	•	•	•	•	•	•
U _{in} AC Input voltage:	[V]	230Vac ... 500Vac ±10% 3-phase													
500Vac Line		230Vac ... 500Vac ±10% 3-phase													
AC Input frequency	[Hz]	50/60Hz ±5%													
I _n Rated output current - European	[A]	20	40	70	110	140	185	280	350	420	500	650	770	1000	1050
I _n Rated output current - American (*)	[A]	17	35	56	88	112	148	224	280	336	400	450	560	800	850
I _{olvd} Output current overload	[A]	Programmable I _n up to 200%													
U _m DC Max output voltage:	[V]	Armature													
500Vac Line - 2B		600Vdc													
500Vac Line - 4B		520Vdc													
AC Input voltage for Field Circuit	[V]	230Vac ±15% or 400Vac ±15% or 460Vac ±10% single-phase, 50/60Hz ±5%													
U _m DC Field voltage (0.85 * U _n)	[V]	Fixed or Adjustable: 200Vdc (for 230Vac) or 310Vdc (for 400Vac) or 360Vdc (for 460Vac)													
I _n Field current @ 40°C	[A]	10				14				20				25	
AC Input voltage of regulation part	[V]	115Vac ±15% or 230Vac ±15% single-phase, 50/60Hz ±5%													
Dimensions (Height)	mm				263					311				521	
	[inch]				[10.4]					[12.2]				[20.5]	
Dimensions (Width)	mm				360					388				510	
	[inch]				[14.2]					[15.3]				[20.1]	
Dimensions (Depth)	mm				274					338		368		402	
	[inch]				[10.8]					[13.3]		[14.5]		[15.8]	
Weight	kg	8.4	8.8			10.8		24.5	25.5	29.5	32	61		65	
	[lbs]	[18.5]	[19.4]			[23.8]		[54.0]	[56.2]	[65.0]	[70.5]	[134.5]		[143.3]	

(*)150% Overload factory settings

TPD32 - External Bridge

European Drive Rating		1200	1500	1700	1800	2000	2400	2700	2900	3300	1010	1400	1700	2000	2400	2700	3300	
American Drive Rating (*)		1000	1300	1350	1400	1500	1800	2000	2200	2350	900	1150	1350	1500	1800	2000	2350	
Two-quadrants: 2B		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Four-quadrants: 4B		-	•	•	-	•	•	•	-	-	•	•	•	•	•	•	•	
U _{in} AC Input voltage:	[V]	230Vac ... 500Vac ±10% 3-phase										-						
500Vac Line		230Vac ... 500Vac ±10% 3-phase										-						
690Vac Line		-										230Vac ... 690Vac ±10% 3-phase						
AC Input frequency	[Hz]	50/60Hz ±5%																
I _n Rated output current - European	[A]	1200	1500	1700	1800	2000	2400	2700	2900	3300	1010	1400	1700	2000	2400	2700	3300	
I _n Rated output current - American (*)	[A]	1000	1300	1350	1400	1500	1800	2000	2200	2350	900	1150	1350	1500	1800	2000	2350	
I _{ol} Output current overload	[A]	Programmable I _n up to 200%																
U _m DC Max output voltage:	[V]	Armature																
500Vac Line - 2B		600Vdc										-						
500Vac Line - 4B		520Vdc										-						
690Vac Line - 2B		-										810Vdc						
690Vac Line - 4B		-										720Vdc						
AC Input voltage for Field Circuit	[V]	230Vac ±15% or 400Vac ±15% or 460Vac ±10% single-phase, 50/60Hz ±5%																
U _m DC Field voltage (0.85 * U _n)	[V]	Fixed or Adjustable: 200Vdc (for 230Vac) or 310Vdc (for 400Vac) or 360Vdc (for 460Vac)																
I _n Field current @ 40°C	[A]	40				70					40				70			
AC Input voltage of regulation part	[V]	115Vac ±15% or 230Vac ±15% single-phase, 50/60Hz ±5%																
IP20 REG. CASE:	mm																	
Height x Width x Depth	[inch]	263 [10.4] x 360 [14.2] x 274 [10.8] (Weight : 8.4 kg [18.5 lbs])																
Dimensions (Height)	2B	500	500	-	500	500	620	712	712	780	500	500	620	620	620	712	780	
	mm	[19.7]	[19.7]		[19.7]	[19.7]	[24.4]	[28.0]	[28.0]	[30.7]	[19.7]	[19.7]	[24.4]	[24.4]	[24.4]	[28.0]	[30.7]	
	4B	-	500	500	-	500	712	712	-	-	500	500	620	620	712	712	780	
	[inch]		[19.7]	[19.7]		[19.7]	[28.0]	[28.0]			[19.7]	[19.7]	[24.4]	[24.4]	[28.0]	[28.0]	[30.7]	
Dimensions (Width)	2B	570	760	-	760	760	764	785	775	1180	760	760	764	764	764	775	1180	
	mm	[22.4]	[29.9]		[29.9]	[29.9]	[30.1]	[30.9]	[30.5]	[46.5]	[29.9]	[29.9]	[30.1]	[30.1]	[30.1]	[30.5]	[46.5]	
	4B	-	1310	1310	-	1310	775	1535	-	-	1310	1310	1314	1314	1335	1335	1890	
	[inch]		[51.6]	[51.6]		[51.6]	[30.5]	[60.4]			[51.6]	[51.6]	[51.7]	[51.7]	[52.6]	[52.6]	[74.4]	
Dimensions (Depth)	2B	275	275	-	275	275	360	395	395	420	275	275	360	360	360	395	420	
	mm	[10.8]	[10.8]		[10.8]	[10.8]	[14.2]	[15.6]	[15.6]	[16.5]	[10.8]	[10.8]	[14.2]	[14.2]	[14.2]	[15.6]	[16.5]	
	4B	-	375	375	-	375	395	490	-	-	375	375	475	475	475	475	470	
	[inch]		[14.8]	[14.8]		[14.8]	[15.6]	[19.3]			[14.8]	[14.8]	[18.7]	[18.7]	[18.7]	[18.7]	[18.5]	
Weight	2B	65	70	-	70	70	100	140	140	260	70	70	100	100	100	140	260	
	kg	[143.3]	[154.3]		[154.3]	[154.3]	[220.5]	[308.6]	[308.6]	[573.2]	[154.3]	[154.3]	[220.5]	[220.5]	[220.5]	[308.6]	[573.2]	
	4B	-	130	130	-	130	140	240	-	-	130	130	170	170	240	240	435	
	[lbs]		[286.6]	[286.6]		[286.6]	[308.6]	[529.1]			[286.6]	[286.6]	[374.8]	[374.8]	[529.1]	[529.1]	[959]	

(*)150% Overload factory settings

Environmental Condition

Enclosures	IP20 (IP00 for currents over the 1050A)
Ambient temperature	0 -40°C, +40°C...+55°C with derating
Altitude	up to 1000 m without current limitation

Normative and marks

CE	in compliance with CEE directives, for low voltage devices.
UL, cUL	complies with directives for the American and Canadian market (dedicated series).
EMC	in compliance with CEE - EN61800 - 3 electromagnetic compatibility directive, using optional filters.

Condiciones ambientales

Cajas	IP20 (IP00 para intensidades superiores a 1050A)
Temperatura ambiente	0 ... 40°C, +40°C...+50°C con derating
Altitud	Hasta 1.000 m sin límite de intensidad

Normativa y marcas

CE	de acuerdo con las directivas CEE, para dispositivos de bajo voltaje.
UL, cUL	en cumplimiento de las directivas del mercado Americano (series exclusivas).
EMC	de acuerdo con las directivas de compatibilidad electromagnética CEE - EN61800 - 3, utilizando filtros opcionales.

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