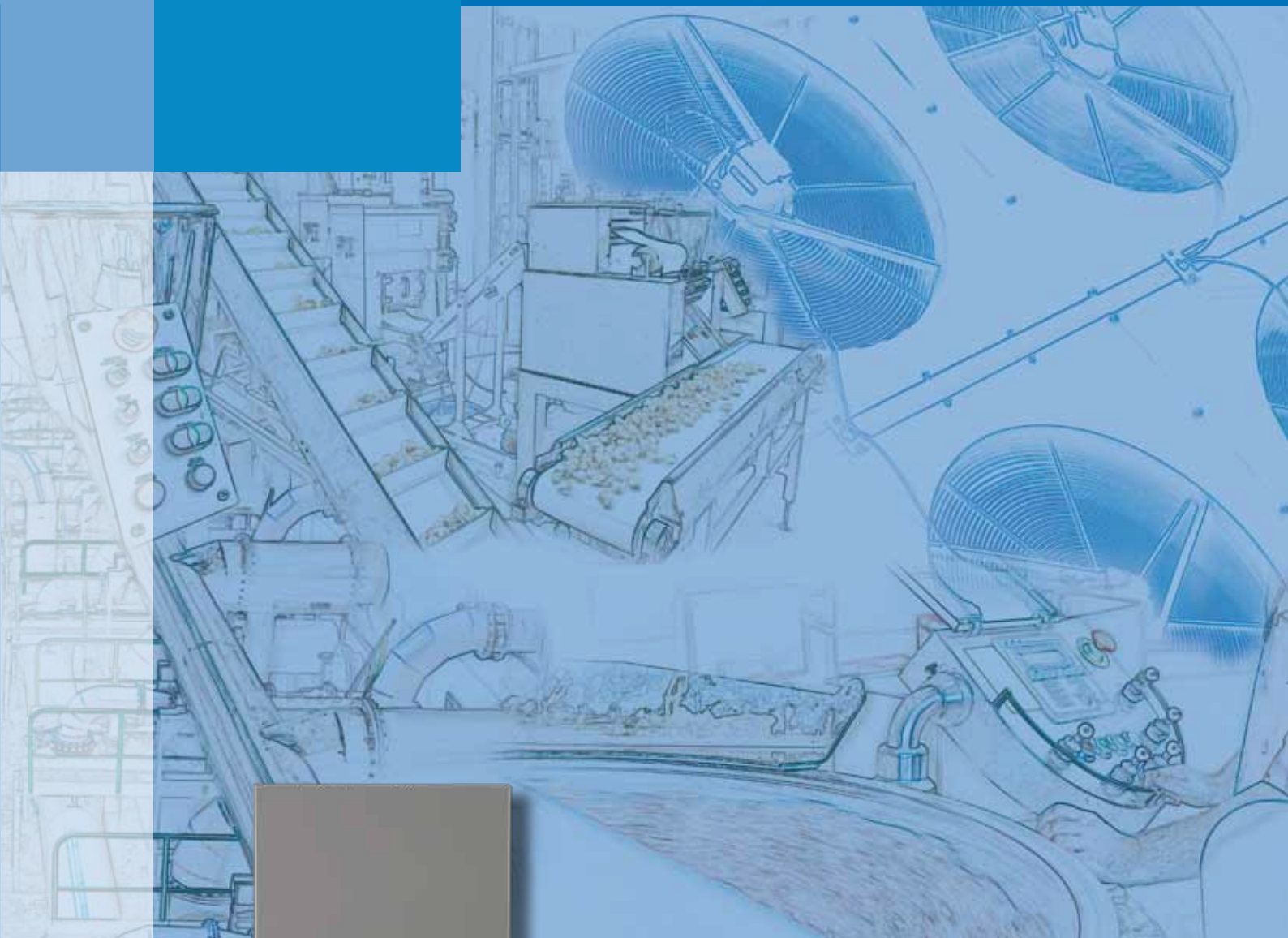


2011

AC Inverter
General Purpose Drive

SIEDrive ADV100



Evolution in AC Drive technology

English



GEFRAN

SIEIDrive ADV100

The GEFTRAN range of **ADV100** inverters is specifically designed to give the utmost **flexibility of application** to modern automation systems and ensure ease of use, while guaranteeing advanced control capabilities for all asynchronous motors.

It features an intuitive programming environment to enable immediate motor start-up and system functions to implement control architectures for the most advanced application solutions, all with maximum **energy efficiency**.

The ADV100 is based on a **fully modular** structure with a choice of standard configurations, optional cards and integrated accessories such as EMC filters and mains chokes. All these elements offer real advantages in terms of product optimisation and **savings in panel space and wiring costs**, bringing considerable economic benefits.

I/O configuration

The ADV100 inverter features a new I/O card, as standard, specially developed for standard application **configuration and to limit costs**; a higher card can be supplied on request for advanced applications:

EXP-IO-D6A4R2-F-ADL card, standard on ADV110 and ADV120::

- 1 enable input (Enable)
- 6 digital inputs (DI)
- 2 differential analog inputs (AI), 1 voltage ($\pm 10V$, 11 bit + sign) and 1 voltage/current ($\pm 10V$, 11 bit + sign; 0... 20 mA, 11 bit).
- 2 analog outputs (AO); $\pm 10V$, 11 bit + sign
- 2 relay outputs (RO), single contact

Optional cards on request:

- **EXP-IO-D4-ADL:** 1DI (Enable) + 2 (Prog.DI) + 2 (RO)
- **EXP-IO-D5R3-F-ADL:** 1DI (Enable) + 5 (Prog.DI) + 3 (RO)
- **EXP-IO-D8R4-ADL:** 1DI (Enable) + 8 (Prog. DI) + 4 (RO)
- **EXP-IO-D8A4R4-ADL:** 1DI (Enable) + 8 (Prog. DI) + 2 (AI) + 2 (AO) + 4 (RO)
- **EXP-IO-D12A2R4-ADL:** 1DI (Enable) + 8 (Prog. DI) + 4 (DO) + 2 (AI) + 4 (RO)
- **EXP-IO-D16R4-ADL:** 1DI (Enable) + 12 (Prog. DI) + 4 (DO) + 4 (RO)

Encoder

The ADV100 interfaces with **incremental digital encoders (DE)** for field-oriented vector control (FOC) of asynchronous motors:

EXP-DE-I1-ADL card, standard on ADV120:

- channels A+ A-, B+ B-, differential line drivers, optoisolated
- management of loss of encoder signals
- TTL and HTL electrical interface.

EXP-DE-I1R1F2-ADL card, optional upon request:

- channels A+ A-, B+ B-, Z+ Z-, differential line drivers, optoisolated
- management of loss of encoder signals
- encoder signal repetition
- TTL and HTL electrical interface.

SD Card

The SD memory card (standard on ADV120-...-C models) makes **saving and loading data and configurations** with the ADV100 very simple.



Special adapter required (Key SD-Card)



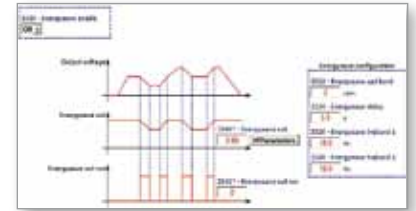
Two self-tuning modes

Self-tuning of motor parameters:

- "Reduced" for faster start-up
- "Complete" to obtain maximum efficiency.

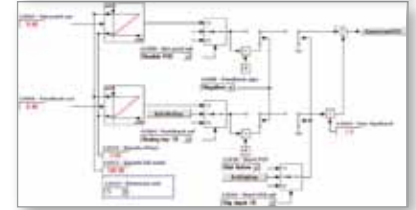
Energy Saving

The ADV100 has a dedicated function that **decreases** the voltage applied at the motor terminals, and thus **current absorption**, in reduced load conditions.



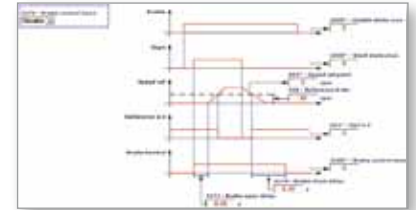
PID control

The ADV100 **integrates** a complete, easy-to-program, smart **PID controller**, with value settings in engineering units, leakage function and programmable stand-by.



Brake Control

The SIEIDrive ADV100 can control an **electromechanical parking brake** mounted on the motor.



Power ratings, EMI filter and choke



- Size 1 = from 4 to 5.5 kW (*)
- Size 2 = from 7.5 to 11 kW (*)
- Size 3 = from 15 to 22 kW (*)
- Size 4 = from 30 to 45 kW (**)
- Size 5 = from 55 to 90 kW (***)

(*) Without EMI filter and input choke

(**) EMI filter (EN 61800-3 : C3 Category / 2nd Environment / 20m Motor cable length) and choke integrated

(***) EMI filter (EN 61800-3 : C3 Category / 2nd Environment / 30m Motor cable length) and choke integrated

Programming keypad

The optional **KB-ADV100** programming keypad featuring full display of parameters and variables in 5 languages makes the ADV100 extremely intuitive and easy to use.



Serial communication


The ADV100 integrates the RS232 serial line with Modbus RTU protocol as standard for peer-to-peer programming with PC.



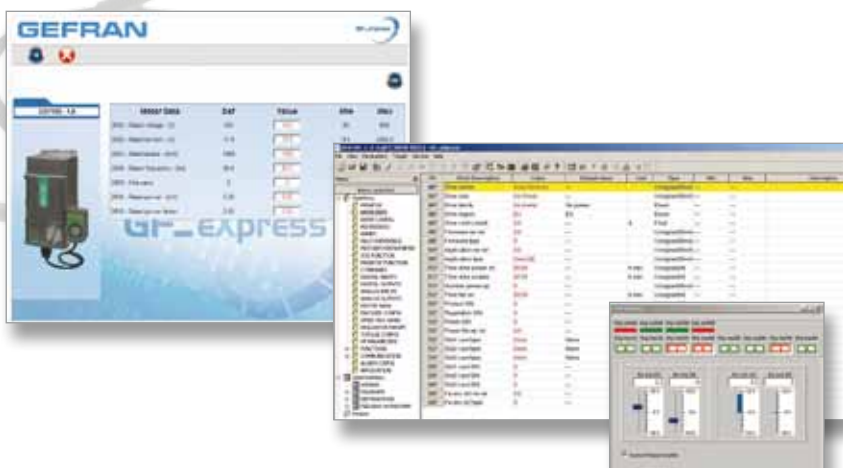
Wide range of power supplies

A single product for all power supply types, from 230VAC to 500VAC.

General Characteristics

Power supply	3 x 230VAC (-15%) ... 3 x 500VAC (+5%)		
Power ratings	from 4kW to 90kW		
Control and Performance	Control mode	Speed control precision (*)	Control range
	Field-oriented vector control with feedback	0.01 % Motor rated speed	1 : 1000
	Open-loop vector control	± 30 % Motor slip rating	1 : 100
	Open-loop V/f control	± 60 % Motor slip rating	1 : 30
<i>(*) for standard 4-pole motor</i>			
Standard supply configuration	ADV100	Neutral version without I/O card and encoder card (on request).	
	ADV110	EXP-IO-D6A4R2-F-ADL card included: 1 enable input (Enable) + 6 digital inputs (DI) + 2 analog inputs (AI) + 2 analog outputs (AO) + 2 relay outputs (RO)	
	ADV120	EXP-IO-D6A4R2-F-ADL card included: 1 enable input (Enable) + 6 digital inputs (DI) + 2 analog inputs (AI) + 2 analog outputs (AO) + 2 relay outputs (RO) + EXP-DE-I1-ADL encoder card (2-channel incremental digital encoder). (*)	
(*) CANopen / DeviceNet and SD-Card port integrated into -C models.			
Conformity	Climatic conditions	EN 60721-3-3	
	Electrical safety:	EN 50178, EN 61800-5-1, UL508C, UL840 pollution level 2 (PD2, OV3)	
	Vibration:	EN 60068-2-6	
	EMC:	EN 61800-3	
	Protection class:	IP20	
Environmental conditions	Ambient temperature:	-10°C ... +40°C (14°F ... 104°F), +40°C...+50°C (104°F...122°F) with derating Operation at temperatures of > 50°C (122°F) is not allowed	
	Altitude of installation:	Max 2000 m a.s.l., up to 1000 m without current limitations	
Maximum output frequency	<ul style="list-style-type: none"> • 500Hz (V/f) • 300Hz (Field-oriented vector control with feedback) • 150Hz (Sensorless) 		
Switching frequency	4 kHz constant, 8/4 kHz variable according to temperature and output frequency		
Line choke	<ul style="list-style-type: none"> • Sizes 1040 .. 3220: external optional • Sizes 4300 .. 5900: integrated standard 		
Temperature control	Motor, drive, brake resistor		
Braking unit	<ul style="list-style-type: none"> • Sizes 1040 .. 3220: internal standard • Sizes 4300 .. 5550: internal optional (ADV...-XBX- models.) • Sizes 5750 .. 5900: external optional 		
RS232 serial line	Modbus RTU or Jbus as standard		
Overload	150% In for 60 seconds every 5 minutes 180% In for 0.5 seconds every 5 minutes		
Options	<ul style="list-style-type: none"> • Multilingual programming keypad with LCD screen (5 lines x 20 characters) and memory for 5 parameter sets • Input choke (standard from size 4300) • Output chokes • Braking resistors • Incremental digital encoder feedback card (EXP-DE-I1R1F2-ADL) • I/O expansion cards • CANopen / DeviceNet communication (integrated in ADV120...-C models) • External EMC filter (4...45 kW: C2 Category / 1st Environment / Motor cable length 30m; ≥ 55kW: C3 Category / 2nd Environment / Motor cable length 100m). 		
Certification			

GF-eXpress Programming Software



All drives in the SIEIDrive range and automation devices manufactured by the GEFTRAN group (PLC, HMI, instrumentation, etc.) can be programmed via PC using the **GF-eXpress** configurator. This PC tool enables **complete programming and control of the product**, based on a powerful, user-friendly and intuitive software platform:

- Programming with parameter list or block diagrams
- Integrated oscilloscope
- Programming tool configuration in 5 languages
- Multi-drop network management with up to 32 inverters.

Technical data

Sizes - ADV		1040	1055	2075	2110	3150	3185	3220	4300	4370	4450	5550	5750	5900		
Input																
ULN AC input voltage	VAC	three-phase network 230 VAC (-15%) ... 500 VAC (+5%)														
AC input frequency	Hz	50/60 Hz, ± 2%														
AC input current for continuous duty																
@ ULN = 230 ... 400 VAC	A	11	16	20	28	40	47	53	53	64	74	100	143	171		
@ ULN = 480 VAC	A	10	14	18	26	38	44	49	50	60	71	92	135	165		
Output																
Inverter output for continuous duty	kVA	7.6	11.1	13.9	19.4	27.7	32.6	36.7	36.7	44.3	51.3	69.3	99.1	118.5		
Pn mot (Recommended motor power, fsw = default):																
@ ULN = 400 VAC	kW	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90		
@ ULN = 460 VAC	Hp	5	7.5	10	15	20	25	30	40	50	60	75	100	125		
Rated output current I2N :																
@ ULN = 400 VAC	A	9.5	13	16.5	23	31	38	46	62	75	87	105	150	180		
@ ULN = 460 VAC	A	8.6	11.7	14.9	20.7	27.9	34.2	41.4	55.8	67.5	78	94.5	135	162		
Maximum output voltage U2	V	0.98 x ULN (ULN = AC input voltage)														
Maximum output frequency f2	Hz	500 Hz														
Switching frequency fSW (Default)	kHz	4														
Switching frequency fSW (Max)	kHz	12						8								
Output current derating																
Kt: for ambient temperature		0.9														
Kalt: for installation at more than 1000 metres a.s.l.		1.2 % for every increase of 100 metres at more than 1000 metres a.s.l.)														
Kf: for higher switching frequency		0.5						0.7								
Overload																
150% * IN (1 minute every 5 minutes)	A	14.3	19.5	24.8	34.5	46.5	57.0	69.0	93.0	112.5	130.5	157.5	225.0	270.0		
180% * IN (0.5 seconds every 5 minutes)	A	17.1	23.4	29.7	41.4	55.8	68.4	82.8	111.6	135.0	156.6	189.9	270.0	324.0		
Dimensions																
Width x Height x Depth	mm	159.2 x 331.1 x 158.67			159.2 x 382 x 158.67			227.8 x 387 x 178			268 x 612 x 276			311 x 748 x 330.5		
(Excluding optional power cable shielding kit)	inches	(6.27 x 13.04 x 6.25)			(6.27 x 15.04 x 6.25)			(8.97 x 15.24 x 7.01)			(10.55 x 24.09 x 10.87)			(12.24 x 29.45 x 13.01)		
Weight	kg	5.8			7.8			10.5			32			60		
	(lbs)	(12.8)			(17.2)			(23.15)			(70.6)			(132.28)		

GEFRAN S.p.A. has a policy of the continuous improvement of performance and range of our products and therefore the Company retains the right to modify products, data and dimensions without notice. Although the data and information contained in this document is as accurate as we can make it, it is intended to be used for product description purposes only and must not be interpreted as being legally declared specifications.



GEFRAN BENELUX

Lammerdries-Zuid, 14A
B-2250 OLEN
Ph. +32 (0) 14248181
Fax. +32 (0) 14248180
info@gefran.be

**GEFRAN BRASIL
ELETRÔELETRÔNICA**

Avenida Dr. Altino Arantes,
377/379 Vila Clementino
04042-032 SÃO PAULO - SP
Ph. +55 (0) 1155851133
Fax +55 (0) 1132974012
gefran@gefran.com.br

GEFRAN DEUTSCHLAND

Philipp-Reis-Straße 9a
63500 SELIGENSTADT
Ph. +49 (0) 61828090
Fax +49 (0) 6182809222
vertrieb@gefran.de

SIEI AREG - GERMANY

Gottlieb-Daimler-Strasse 17/3
D-74385 Pleidelsheim
Ph. +49 7144 89 736 0
Fax +49 7144 89 736 97
info@sieiareg.de

GEFRAN ESPAÑA

Josep Pla, 163 2º-6º
08020 BARCELONA
Ph. +34 934982643
Fax +34 932662713
comercial.espana@gefran.es

GEFRAN FRANCE

4, rue Jean Desparmet - BP 8237
69355 LYON Cedex 08
Ph. +33 (0) 478770300
Fax +33 (0) 478770320
commercial@gefran.fr

GEFRAN SUISSE SA

Rue Fritz Courvoisier 40
2302 La Chaux-de-Fonds
Ph. +41 (0) 329684955
Fax +41 (0) 329683574
office@gefran.ch

GEFRAN - UK Ltd.

7 Pearson Road, Central Park
TELFORD, TF2 9TX
Ph. +44 (0) 845 2604555
Fax +44 (0) 845 2604556
sales@gefran.co.uk

GEFRAN Inc.

8 Lowell Avenue
WINCHESTER - MA 01890
Toll Free 1-888-888-4474
Ph. +1 (781) 7295249
Fax +1 (781) 7291468
info@gefraninc.com

GEFRAN SIEI - ASIA

Blok. 30 Loyang way
03-19 Loyang Industrial Estate
508769 SINGAPORE
Ph. +65 6 8418300
Fax. +65 6 7428300
info@gefransiei.com.sg

**GEFRAN SIEI Drives Technology
(Shanghai) Co., Ltd.**

No. 1285, Beihe Road, Jiading District,
Shanghai, China 201807
Ph. +86 21 69169898
Fax +86 21 69169333
info@gefransiei.com.cn

GEFRAN SIEI Electric (Shanghai) Pte. Ltd.

No. 1285, Beihe Road, Jiading District,
Shanghai, China 201807
Ph. +86 21 69169898
Fax +86 21 69169333
info@gefransiei.com.cn

GEFRAN INDIA Pvt. Ltd.

Head office (Pune office)
Survey No: 182/1 KH, Bhukum,
Paud road, Taluka - Mulshi,
Pune - 411 042. MH, INDIA
Ph: +91-20-3939 4400
Fax: +91-20-3939 4401
gefran.india@gefran.in

Branch office (Mumbai office)

Laxmi Palace, M.G. Road
Naupada, Thane (W)
400602 Mumbai
Ph. +91 22 2540 3384
Ph. +91 22 2542 6640
Fax +91 22 2542 7889
support.india@gefran.in

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GEFRAN

GEFRAN S.p.A.

Via Sebina 74
25050 Provaglio d'Iseo (BS) ITALY
Ph. +39 030 98881
Fax +39 030 9839063
info@gefran.com
www.gefran.com

Drive & Motion Control Unit

Via Carducci 24
21040 Gerenzano [VA] ITALY
Ph. +39 02 967601
Fax +39 02 9682653
infomotion@gefran.com

Technical Assistance :
technohelp@gefran.com

Customer Service :
motioncustomer@gefran.com
Ph. +39 02 96760500
Fax +39 02 96760278



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