ENG

MOTION CONTROL

AXV300 AND XVy-EV SERVODRIVES
SBM BRUSHLESS MOTORS

GEFRAN

COD. 82141A - 10/2015

Gefran, With forty years of experience, Gefran is the world's leading designer and producer of solutions for **measuring, controlling, and driving industrial production processes**.
We have 14 branches in 12 countries and a network of over 80 worldwide distributors.

QUALITY AND TECHNOLOGY

Gefran components are a **concentration of technology**, the result of constant research and of **cooperation with major research centers**.
This makes Gefran synonymous with quality and expertise in the design and production of:

- **sensors** for measuring main variables such as **temperature, pressure, position and force**
- **state-of-the-art components and solutions for indication and control**, satisfying demands for optimization of processes and intelligent management of energy consumption
- **automation platforms** of various complexities
- **electronic drives and electric motors** in AC and DC for all industrial automation, HVAC, water treatment and lift needs.

Gefran's know-how and experience guarantee continuity and tangible solutions.

SERVICES

A team of Gefran experts works with each customer to select the ideal product for its application and to help install and configure devices (technohelp@gefran.com).

Gefran offers a wide range of courses at different levels for the technical-commercial study of its product as well as specific courses *on demand*.

PLASTIC

METAL

TEXTILE

INDUSTRIAL HOISTING

TEST BENCHES

MATERIAL HANDLING

CONVEYORS

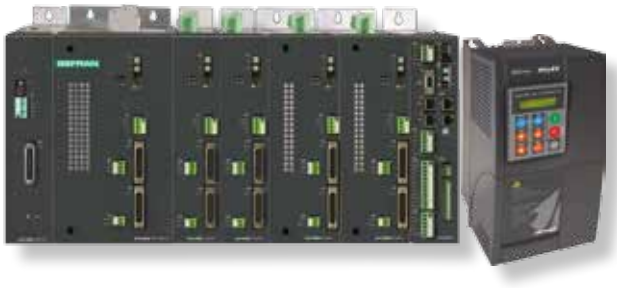
MATERIAL RECYCLING MACHINERY

MIXER / HIGH DYNAMICS CENTRIFUGEE

In addition to foreseeing the market's application needs, Gefran forms partnerships with its customers to find **the best way to optimise and boost the performance of various applications**.
Gefran products communicate with one another to provide integrated solutions, and can dialogue with devices by other companies thanks to compatibility with numerous fieldbuses.

CANopen EtherCAT GDNET DeviceNet EtherNet/IP Modbus PROFIBUS PROFINET

DESCRIPTION



The Gefran servodrive line in the "Motion Control" sector represents the result of the experience gained in over 30 years of working in close partnership with the leading industrial automation manufacturers.
Gefran servodrives offer a high technological content in the field of drives for motion control applications and, thanks to a powerful DSP and high-bandwidth and a power stage able to offer a wide range of powers, they are able to provide excellent control for brushless servo and asynchronous motors.
The line implements next generation functions as a standard, to perfectly meet the most advanced architectures of the most modern industrial servo systems.
The integration of dedicated application software on board the drive allows full product customisation for specific control of complex machinery in areas such as plastics, sheet metal processing, textiles, wood, marble and printing machines, as well as in the most advanced automation solutions.
In order to be able to satisfy the various market requirements, Gefran provides two different servodrive lines, a line of "Stand Alone" solutions, **XVy-EV**, and a modular line, **AXV300**, for complex multi-axis systems.
The **XVy-EV** line offers in the "Basic" configuration, supplied as standard, a full set of advanced features that make it perfect for creating machines in various sectors.
For specific applications, the **XVy-EV** drive can be programmed as a PLC in compliance with the IEC 61131-3 standard.

The **AXV300** modular line offers maximum performance for the control of brushless and asynchronous (*) motors used in multi-motor production lines that require high dynamics, accuracy and rapid operating sequences.
Thanks to the standard use of Active Front End technology powering each "multi-axis" system by means of a "common DC bus" ensures the Gefran clean power formula, of increased dynamic performance with guaranteed energy efficiency. Regeneration into the grid also avoids unnecessary energy waste on brake resistors.
The **AXV300** implements advanced application solutions based on positioning and interpolation, structured in IEC 61131-3 programming environments.

(*) Asynchronous motors currently being developed, please contact Gefran Sales Office.

GENERAL CHARACTERISTICS

Power supply
3 x 230Vac...480Vac, 50/60Hz

Motor powers range
from 4kW (5Hp) to 315kW (450Hp)

Current ratings [Arms]
from 8A up to 560A nominal
(from 16A up to 800A of peak)

Maximum output frequency
up to 450Hz (according to the drive power)

Braking Unit and Resistor integrated
up to 15kW (20Hp) drive size

Optional integrated Braking Unit
up to 55kW (60Hp) drive size and special version XVy-EV-...-EWHR

Protection degree standard
IP20 (external heatsink predisposition for IP54 mounting 32550 size).
IP00 protection degree for sizes 9470650-C and 9560650-CP.

XVyA-EV (asynchronous)
The XVyA-EV series is available for "Field oriented Closed Loop" control of asynchronous motors (no Open-Loop).
For more information, please contact the Gefran sales department.

Programming keypad
with alphanumeric display (KBXV -EV).

Special version
Water Cooled, High Temperature (EWH/EWHR).

BASIC mode, supplied as standard, implements functions such as:

- Torque and/or Speed control
- Positioning control (standard positioning device and sequential multi-position controller)
- Electronic Line Shaft
- Programmable digital inputs/outputs
- Internal "Fast Link" bus at 3.125 Mbit/sec (up to 16 drives configurable in slave mode)
- CANopen interface (slave)

PLC mode (optional)
With no requirement for additional HW, offers access to an advanced programming environment compatible with IEC61131-3 standards, which, thanks to the powerful MDPLc development tool, is configurable in accordance with a wide range of standard languages.

Standard configuration	• 2 Differential analog inputs ±10Vdc (11bit + sign) • 2 Analog outputs ±10Vdc (11bit + sign) • Digital I/O commands in PNP and/or NPN logic • 8 Digital inputs • 6 Digital output opto-coupled • 1 Digital relay output (NC-NO) • 1 RS485 serial input (Modbus RTU protocol) • 2 Inputs for internal "Fast Link" bus • 1 CANopen interface input (slave)	• 1 Encoder / resolver input • 1 Auxiliary encoder input / repeater • Selectable speed feedback : - SinCos 5 trackes encoder - Resolver - Absolute SSI/ENDAT encoder - Absolute Hiperface encoder - Digital / Sinusoidal encoder + Hall effect sensors - SinCos 2 trackes encoder
Functions	• Double control for brushless motors and for asyncronous motors • Self-tuning of current regulator • 7 programmable multispeed • 4 independent programmable ramps (Acc/Dec and CW/CCW) • Encoder repetition / Auxiliary encoder • Jog function • Motor potentiometer function • "Speed Draw" function	• Drive overload protection through I x T algorithm (for exceptional performances) and I^2t (for standard overloads IEC146 • Thermal I^2t protection for motor and braking resistor • Motor stationary braking management • "Coast through" and "Power loss stop" functions • "Helper" function via Fast Link
Drive working modes	• Torque and/or Speed • Position: standard positioning device and sequential multi-position controller	• ELS, Electronic Line Shaft
Field bus management	Profibus, CANopen, DeviceNet, Ethernet and internal Fast Link	
Options	• Expansion boards for signal encoder repetition • I/O expansion boards useful according to the machine needs • Absolute encoder management with SSI, EnDat 2.2 and Hyperface protocols • Profibus-DP and GDnet field bus interface	• Communication kit for internal Fast Link • Safety cards (STO safety function) • Developing tool for IEC 61131-3 standards: MDPlc • Software key enabling for DeviceNet interface: CODE DN-XVy • Standardised application SW programs in PLC mode
Accessories	• SHJ and SBM brushless servomotor series with powers up to 442Nm • Dedicated EMC filters (in compliance with CEE - EN 61800-3) • Input and Output chokes (standardized for the whole line)	• Remote programming keypad kit • RS485 serial line kit for PC connection

Environmental conditions	**Rated protection**: IP20 (IP00 size 9470650-C and 9560650-CP)	**Markings and conformity**	**CE**: Complies with the EEC directive concerning low voltage equipment.
	Ambient temperature: 0 ...40°C (+32°F ...+104°F), +40°C...+50°C (+104°F...+122°F) with derating		**UL, cUL**: Complies with directives for the American and Canadian market
	Altitude: Max 2000 m. (up to 1000 m without derating)		**EMC**: in compliance with CEE - EN 61800 - 3 electromagnetic compatibility directive, using optional filters.

XVy-EV • INPUT AND OUTPUT DATA

		20816	21020	21530	32040	32550	43366	43570	44590	455110	455110-EWH/EWHR	570140	570140 EWH/EWHR	5100180	5100180 EWH/EWHR
ULN AC Input voltage (1)	Vrms	230 V -15% ... 480 V +10%, 3ph													
FLN AC Input frequency	Hz	50/60 Hz ±5%													
IN • AC Input current for continuous service, IEC 146 class 1:															
- Connection with 3-phase choke															
@ 230VAC	Arms	7.0	9.5	14	18.2	25	33	39	55	69	72	84	84	98	98
@ 400VAC	Arms	7.9	10.7	15.8	20.4	28.2	35	44	62	77	80	94	94	110	110
@ 460VAC	Arms	6.5	9.3	13.8	17.8	24.5	39	37	53	66	69	82	82	96	96
- Connection without 3-phase choke															
@ 230VAC	Arms	13.1	15.5	21.5	27.9	35.4	(2)								
@ 400VAC	Arms	14.3	16.9	24.2	30.3	40									
@ 460VAC	Arms	12.1	14.7	21	26.4	34.8									
Inverter output power (3)	kVA	5.5	7.6	10.3	14.1	20.1	22.9	27	36.7	45	47	55.4	55.4	67.2	67,2
PN • Output power for continuous service (recommended motor output), IEC 146 class 1:															
@ ULN=230VAC; fsw=default	kW	2.2	3	4	5.5	7.5	9	11	18.5	22	23	22	22	30	30
@ ULN=400VAC; fsw=default	kW	4	5.5	7.5	11	15	18.5	22	30	37	39	45	45	55	55
@ ULN=460VAC; fsw=default	Hp	5	7.5	10	15	20	25	30	40	50	52	60	60	75	75
U2 • Max output voltage	Vrms	0.98 x Uln (AC Input voltage)													
f2 • Max output frequency	Hz	450	450	450	450	450	450	450	450	450	400	400	400	400	400
Rated output current															
0Hz	Arms	8.0	8.6	12	16	21	26	31	40	50	52	63	63	76	76
from 3Hz	Arms	8.0	11	15	20.3	29	33	39	53	65	68	80	80	97	97
Maximum output current (4)	Arms	16.0	22	30	41	58	66	71	97	118	124	146	146	177	177
Overload duration (5)	Sec	0.9	0.9	0.5	0.9	0.9	0.9	0.9	0.5	0.5	0.5	0.5	0.5	0.5	0.5
fsw • Switching frequency (Default)	kHz	8	8	8	8	8	8	8	8	8	4	4	4	4	4
fsw • Switching frequency (Higher)	kHz	16	16	16	16	16	16	16	16	16	8	8	8	8	8
Derating factor:															
KV at 460/480VAC		0.87	0.96	0.87	0.93	0.90	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
KT for ambient temperature		0.8 @ 50°C (122°F)													
KF for switching frequency		0.7 for higher fsw													
Dimensions: width	mm [inch]	105.5 [4.1]	151.5 [5.9]	151.5 [5.9]	208 [8.2]	208 [8.2]	309 [12.1]	309 [12.1]	309 [12.1]	309 [12.1]	369 [14.5]	376 [14.7]	436 [17.2]	376 [14.7]	436 [17.2]
length	mm [inch]	306.5 [12.0]	306.5 [12.0]	306.5 [12.0]	323 [12.7]	323 [12.7]	489 [19.2]	489 [19.2]	489 [19.2]	489 [19.2]	505 [19.9]	564 [22.2]	564 [22.2]	564 [22.2]	564 [22.2]
depth	mm [inch]	199.5 [7.8]	199.5 [7.8]	199.5 [7.8]	240 [9.5]	240 [9.5]	268 [10.5]	268 [10.5]	308 [12.1]	308 [12.1]	263 [10.3]	308 [12.1]	263 [10.3]	308 [12.1]	263 [10.3]
Weight	kg [lbs]	4.95 [10.9]	4.95 [10.9]	4.95 [10.9]	8.6 [19]	8.6 [19]	18 [39.6]	18 [39.6]	22 [48.5]	22.2 [48.9]	-	34 [74.9]	-	34 [74.9]	-

(1) For DC versions: rectified voltage supply up to 700 Vdc.

(2) For these types an external inductance is mandatory.

(3) Continuous at 400 V.

(4) Overload at 400 V and with a default switching frequency.

(5) Minimum achievable overload duration, which increases automatically for temperature less than 20°C (Tsink <45°C).

(6) 550 Adc @ 600 Vdc for XVy-EV ...-DC version.

(7) 650 Adc @ 600 Vdc for XVy-EV ...-DC version.

Nota: The XVy-EV drive manages two different overload algorithms according to the application:

- IxT algorithm dedicated to high-dynamics solutions where the overload can reach up to 200% of the rated current (values shown in this table, default setting)
- I2xT algorithm dedicated to applications where a limited overload is required for a longer period of time (limit = 136% In Class 1 for 60s every 300s).

Please refer to the XVy-EV user guide for more details.

		6125230	6125230-EWH/EWHR	7145290	7190350	7230420	8280400	8350460	9470650-C	9560650-CP
ULN AC Input voltage (1)	Vrms	230 V -15% ... 480 V +10%, 3Ph					400 V -15% ... 480 V +10%, 3Ph			
FLN AC Input frequency	Hz	50/60 Hz ±5%								
IN • AC Input current for continuous service, IEC 146 class 1:										
- Connection with 3-phase choke										
@ 230VAC	Arms	122	122	158	192	231	n.a.	n.a.	n.a.	n.a.
@ 400VAC	Arms	137	137	177	216	242	309	362	520 (6)	600 (7)
@ 460VAC	Arms	120	120	153	188	210	268	316	468 (6)	540 (7)
- Connection without 3-phase choke		(2)								
@ 230VAC	Arms									
@ 400VAC	Arms									
@ 460VAC	Arms									
Inverter output power (3)	kVA	86.6	86.6	110	132	159	194	242	326	388
PN • Output power for continuous service (recommended motor output), IEC 146 class 1:										
@ ULN=230VAC; fSW=default	kW	37	37	55	55	75	90	100	125	160
@ ULN=400VAC; fSW=default	kW	75	75	90	110	132	160	200	250	315
@ ULN=460VAC; fSW=default	Hp	100	100	125	150	175	200	250	300	350
U2 • Max output voltage	Vrms	0.98 x Uln (AC Input voltage)								
f2 • Max output frequency	Hz	400	400	400	400	400	400	400	200	200
Rated output current										
0Hz	Arms	99	99	127	156	170	250	250	420	500
from 3Hz	Arms	125	125	159	190	230	280	350	470	560
Maximum output current (4)	Arms	228	228	290	347	420	400	400	560	560
Overload duration (5)	Sec	1	1	1	1	1	1	1	1	1
fSW • Switching frequency (Default)	kHz	4	2	4	4	4	4	4	2	2
fSW • Switching frequency (Higher)	kHz	8	4	8	8	8	4	4	4	4
Derating factor:										
KV at 460/480VAC		0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.7	0.98
KT for ambient temperature		0.8 @ 50°C (122°F)								
KF for switching frequency		0.7 for higher fsw								
Dimensions: width	mm [inch]	509 [20]	436 [17.2]	509 [20]	509 [20]	509 [20]	509 [20]	509 [20]	776 [30.6]	776 [30.6]
length	mm [inch]	741 [29.2]	564 [22.2]	909 [35.8]	909 [35.8]	909 [35.8]	965 [38]	965 [38]	1091 [43]	1091 [43]
depth	mm [inch]	297.5 [11.7]	263 [10.3]	297.5 [11.7]	297.5 [11.7]	297.5 [11.7]	442 [17.4]	442 [17.4]	450 [17.7]	450 [17.7]
Weight	kg [lbs]	59 [130]	-	75.4 [166.1]	80.2 [176.7]	86.5 [190.6]	109 [240.3]	109 [240.3]	155 [341.7]	155 [341.7]

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(3) Continuous at 400 V.

(4) Overload at 400 V and with a default switching frequency.

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Nota: The XVy-EV drive manages two different overload algorithms according to the application:

- IxT algorithm dedicated to high-dynamics solutions where the overload can reach up to 200% of the rated current (values shown in this table, default setting)
- I2xT algorithm dedicated to applications where a limited overload is required for a longer period of time (limit = 136% In Class 1 for 60s every 300s).

Please refer to the XVy-EV user guide for more details.

AXV300 • GENERAL CHARACTERISTICS

Terminals M1 • M3

AXV300–SM

AXV300–SM and AXV300-SR power supply modules are available with the Basic AC/DC configuration or with regenerative Active Front End technology, which feeds energy back into the grid.

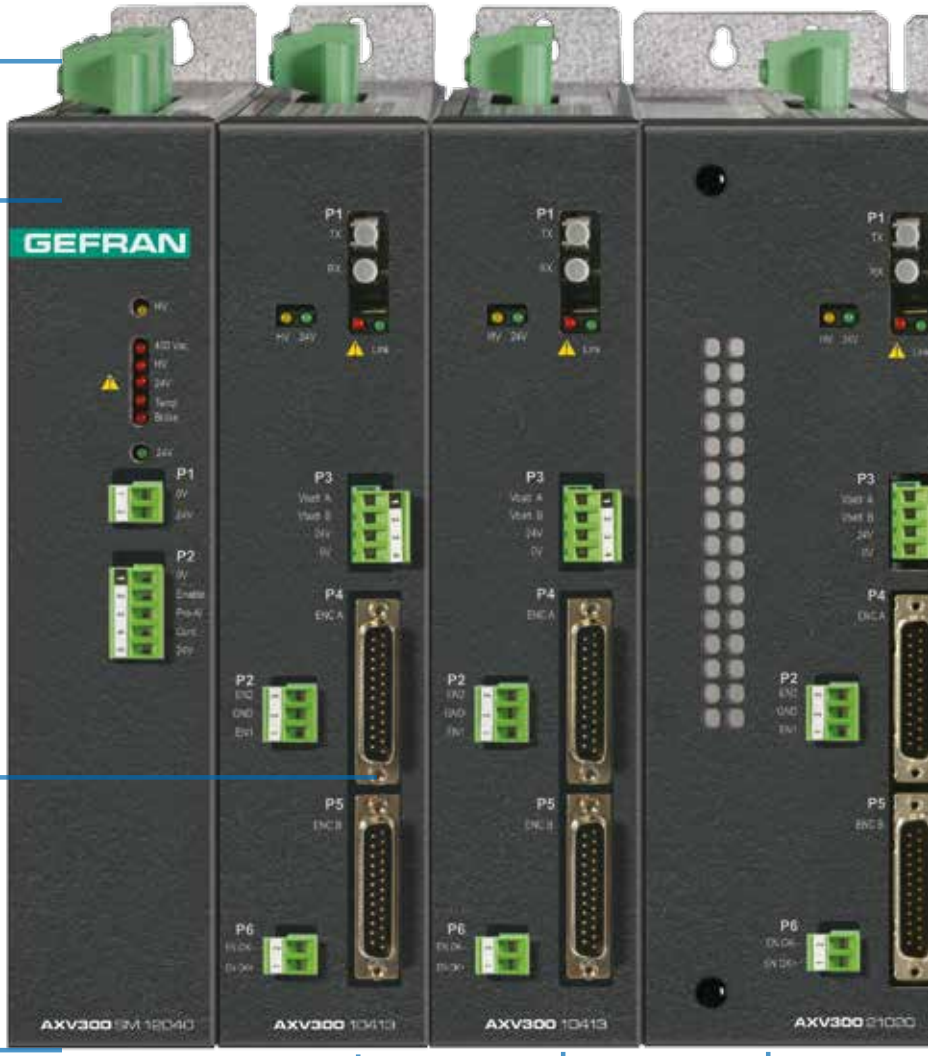
AXV300–SM modules have 6 terminal strips:

- M1 DC high voltage (VDC BUS)
- M2 Main grid terminals
- M3 Auxiliary grid terminals (used as three-phase input for pre-load phase)
- M4 Braking resistor terminals (internal braking unit)
- P1 24V DC auxiliary power supply
- P2 Control input

ENCODER INPUT

for speed loop feedback and management of auxiliary encoders including:

- 5-tracks SinCos
- TTL incremental
- Resolver
- EnDat 2.1
- EnDat 2.2
- SSI/BiSS
- Smart Abs (currently being developed)



TERMINALS M2 • M4

AXV300: AXIS MODULES

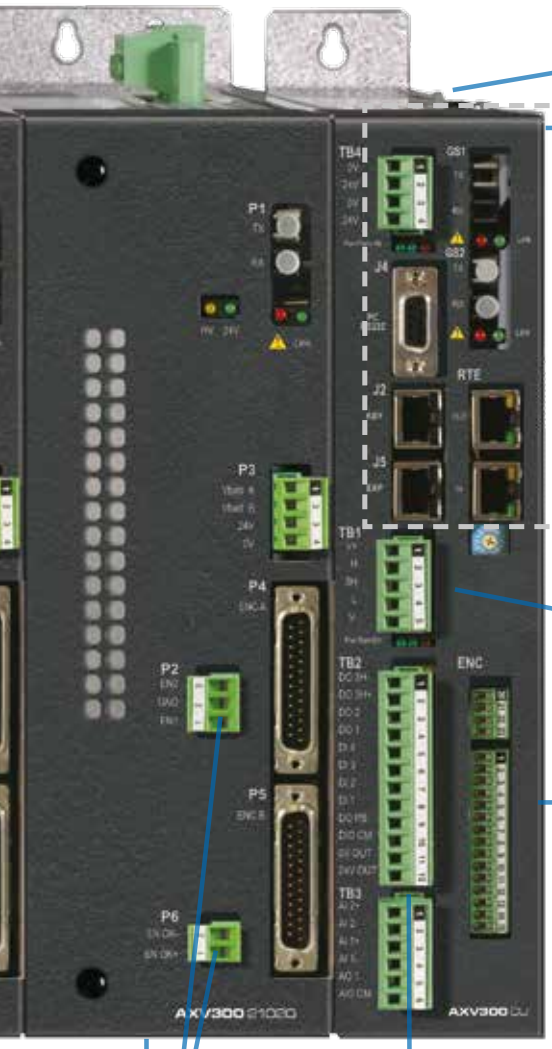
AXV300 axis modules come in a wide range of current ratings, making them the ideal choice for building multi-axis systems.

AXV300 modules interface via an optical fibre system with AXV300-CU control loops.

Synchronous communication via **GStar** optical fibre system.

Each module implements the following software macro-functions:

- motor control loop (brushless synchronous or asynchronous motors)
- 16KHz current loop closing (62.5µsec)
- 4KHz speed loop closing (250µsec)
- management of local encoder for closing current/speed loops
  alarm management
- management of GStar communication from/to the AXV300-CU control module
- 24V power supply separate from main power with possibility of backup.



SD-card for storing configurations and downloading system data;

AXV300-CU: CONTROL UNIT MODULE

The AXV300 CU module, based on an embedded platform with 32 bit floating point processor, coordinates the entire multi-axis system.

The AXV300 CU processes data in order to generate paths and coordinate simultaneous movements of up to 8 axes, calculating positions or interpolation values.

- System initialisation
- System alarm management
- Software updates
- Master control unit communication via fieldbus
- Fast data exchange with all axes
- Set-point calculation/transmission
- Reading of significant values
- Execution of application (e.g. Injection press)
- Fieldbus communication
- Encoder management

CANopen Master/Slave or **DeviceNet** Slave port

EXP-AXV300-ENC

Auxiliary encoder card:

- 5-tracks SinCos
- TTL incremental
- Resolver (currently being developed)
- EnDat 2.1
- EnDat 2.2
- SSI / BiSS (currently being developed)

ENABLE STO

Enable STO function (Safe Torque Off)

(AXV300-...-SI)

SYSTEM IO

- 2 analog inputs
- 1 analog output
- 4 digital inputs
- 3 digital outputs

POWER SUPPLY

24V external

RS232 **Modbus RTU** connection standard

2-way synchronous communication with axes via **optical fibre**

EXP-AXV300-RTE

Real-time Ethernet card:

- Real time GDNet
- Ethercat
- Modbus TCP-IP

Serial port for connection to **auxiliary programming keypad**

EXTERNAL CANOPEN MODULE

I.e. : Gefran - GILOGIK II, with max:

- 64 Digital Input
- 64 Digital Output
- 8 Analog Input 16 Bit
- 8 Analog Output 16 Bit
- Baudrate 125, 250, 500, 1000 KBit/s (default 500 KBit/s).

GDNET™ Gefran Deterministic Network

EtherCAT®

Modbus

AXV300 • CHOOSING THE MODULES - INPUT AND OUTPUT DATA

AXIS MODULES AXV300-...

Module code		10413	21020	22040	33570	350100	480160	5100200	5140210	6200320
VL	[VAC]	400Vac ±10%, 50/60Hz								
VDC BUS	[VDC]	600 ±10%								
IN (output)	[Arms]	4.5	10	20	35	50	80	100	140	200
	[A]	-	-	-	-	-	-	-	-	-
IPEAK (output)	[Arms]	13.5	20	40	70	100	160	200	210	320
	[A]	-	-	-	-	-	-	-	-	-
PN	[kW]	2.7	6	12	21	30	48	60	84	120
PPEAK	[kW]	8.1	12	24	42	60	96	120	126	192
fOUT	[Hz]	400Hz (PWM 4kHz) / 450Hz (PWM 8kHz)								
VEXT AUX	[VDC]	24								
P DISSIP. @ PN	[W]	30	75	140	240	360	550	780	1120	1850
Dimensions: H x D. x Width	[mm]	310x261x **59.7**	310x261x **89.7**	313x261x **89.5**	328x261x **149.5**	328x261x **149.5**	349x261x **209.5**	356x261x **268**	362x261x **268**	362x260x **378**
Weight	[kg]	3	5	5	9	9	13	16	20	25

POWER SUPPLY MODULE AXV300-SM-...

Module code		12040	24080	380140	4140210	4180270	4230345
VL	[VAC]	400Vac ±10%, 50/60Hz					
VDC BUS	[VDC]	565					
IN (output)	[A]	20	40	80	140	180	230
IPEAK (output)	[A]	40	80	140	210	270	345
PN	[kW]	11	22	44	74	95.5	122
PPEAK	[kW]	22	44	80	111	143	183
VEXT AUX	[VDC]	24					
P DISSIP. @ PN	[W]	53	89	192			
Dimensions: H x D. x Width	[mm]	310x257x **59.5**	315x257x **89.5**	349x257x **119.2**	355.4x259x **268**	355.4x259x **268**	355.4x259x **268**
Weight	[kg]	2	4	9	19	19	19

Regenerative Power Supply Module
AXV300-SR-...

Module code		10413	21020	22040	33570	350100	480160	5100200	5140210	6200320
VL	[VAC]	400Vac ±10%, 50/60Hz								
VDC BUS	[VDC]	625								
IN (output)	[Arms]	-	-	-	-	-	-	-	-	-
	[A]	4.5	10	20	35	50	80	100	140	200
IPEAK (output)	[Arms]	-	-	-	-	-	-	-	-	-
	[A]	13.5	20	40	70	100	160	200	210	320
PN	[kW]	2.7	6	12	21	30	48	60	84	120
PPEAK	[kW]	-	-	-	-	-	-	-	-	-
fOUT	[Hz]	-	-	-	-	-	-	-	-	-
VEXT AUX	[VDC]	24								
P DISSIP. @ PN	[W]	30	75	140	240	360	550	780	1120	1850
Dimensions: H x D. x Width	[mm]	310x261x **120**	310x261x **150**	310x261x **150**	330x261x **210**	330x261x **210**	350x261x **270**	360x261x **330**	370x261x **330**	362x260x **210**
Weight	[kg]	5	7	7	11	11	15	18	22	27

CONTROL UNIT MODULE
AXV300-CU

V POWER SUPPLY	24 Vdc
Standard IO	• 2 non-opto-isolated analog inputs -10V...+10V • 1 non-opto-isolated analog output -10V...+10V@5mA • 4 opto-isolated digital inputs HTL 0...30V • 2 opto-isolated digital outputs 30V@40mA • 1 opto-isolated digital output 30V@500mA
Real Time Ethernet (EXP-AXV300-RTE card)	• Real time GDNet • Ethercat • Modbus TCP-IP • ...
IO expansion (external), max	• 64 Digital Input • 64 Digital Output • 8 Analog Input 16 Bit • 8 Analog Output 16 Bit
Encoder expansion (EXP-AXV300-ENC card)	• HTL-TTL encoder input (+5V...+24V) and HTL-TTL encoder repetition (+5V...+24V) • Number of SW-selectable input and output impulses • Integrated encoder power supply unit (+24Vdc...+5Vdc)
Dimensions: Height x Depth x **Width**	310 x 263.5 x **59.7 mm**
Weight	2 kg

AXV300 • GENERAL CHARACTERISTICS

Space optimisation	The modular structure and wide choice of power ratings, from 3kW to 120kW (5-200Arms), ensure maximum flexibility for the configuration of special machines
Speed of use	The AXV300 features multi-axis control which makes installation simple, fast and economical with fewer system connections
Energy efficiency	Use of a common axis power supply with Active Front End regeneration to deliver clean power with low THD and unitary power factor operation
High-level performance	For controlling brushless synchronous and asynchronous motors used in application systems characterised by high dynamics, when precision and axis coordination are required
Integrated IEC 61131-3 environment	Can be programmed using the main standard languages with the powerful MDPLc tool, to develop custom solutions or Gefran proprietary application libraries
Communication with the main fieldbus systems	System management via the most commonly-used PLC communication environments such as EtherCat, CANopen, GDNet, ProfiNet, etc.
Performance	
Current loop closing	16KHz (62.5µsec)
Speed loop closing	4KHz (250µsec)
GStar optical fibre communication with axes	max 8 axes (2 lines x 4 axes) 250µSec cycle with relative LED indicators
Overload I^2t	slow : 150% In x 60 sec; fast: 200% In x 0.5 sec
Overload IxT	200% In x 10 sec
Operating temperature	0 ... +40°C; +40°C...+50°C with derating
Protection degree	IP21
Installation position	Pollution degree 2 or lower
Altitude	Max 2000 metres above sea level; up to 1000 m with no reduction in current
Atmospheric pressure	[kPa] 86 to 106 (class 3K3 according to EN50178)
Climate	IEC 68-2 Part 2 and 3
Isolation distance	EN 50178, UL508C
Vibration	IEC68-2 Part 6
Interference immunity	IEC801 Part 2, 3 and 4
EMC compatibility	EN61800-3
Safety	STO EN61800-5-2
Certification	CE

SOFTWARE

"GF_EXPRESS" PC CONFIGURATION TOOL

All drives and automation devices manufactured by the GEFRAN group (PLC, HMI, instrumentation, etc.) can be programmed via PC using the **GF_eXpress** configurator, a programming environment that enables complete setup 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.
- Multi-drop network management with up to 32 devices/modules

Connected to the **AXV300-CU** module, it enables programming and monitoring of machine functions and those of individual axes.

MDPLC PROGRAMMING IN IEC 61131-3

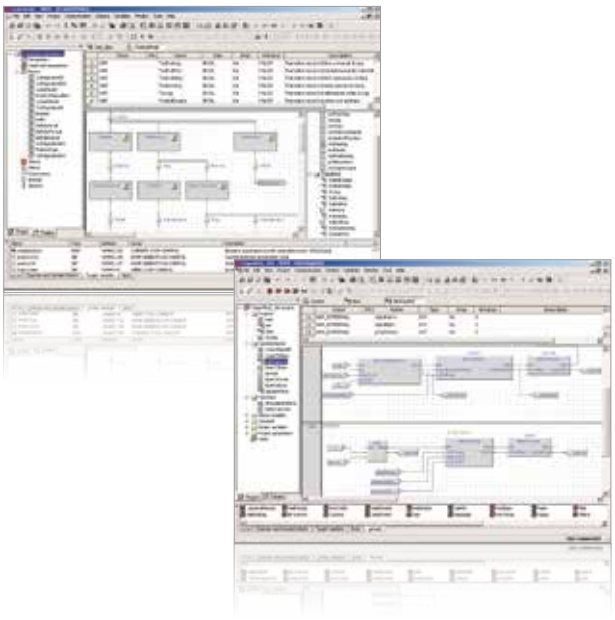
The **MDPlc** environment is a tool for developing high-level application architectures directly implemented by the **AXV300-CU** control module.

MDPlc allows complete customisation of control unit system functions, machine sequences and axis coordination and management. The powerful graphic programming interface makes it intuitive and flexible.

MDPlc generates the application code for the control module directly in machine language, compiling the SW using PLC languages that are all compliant with the IEC 61131-3 international standard.

- Instruction List (IL)
- Ladder Diagram (LD)
- Sequential Flow Chart (SFC)
- Structured Text (ST)
- Function Block Diagram (FBD)

In addition to function blocks that are compiled or predefined, the MDPlc function can also be used to generate custom libraries using dedicated templates.



SBM SERVOMOTORS • DESCRIPTION

The permanent magnet synchronous servomotor with the corresponding servodrive is a servosystem suitable for driving a high performance shaft, in particular when high dynamics and stability are required during transient or steady state conditions.

In general, the servomotors ensure high bandwidths compared to other types of motor thanks to their compact design, providing a high torque/inertia ratio. They do not need brushes, as the name suggests, unlike a DC motor.

This solution offers high performance with compact size and excellent reliability and reduced maintenance procedures.

Brushless servomotors are used in a wide range of sectors, chosen for their ability to operate with a an almost constant torque and high overloads.

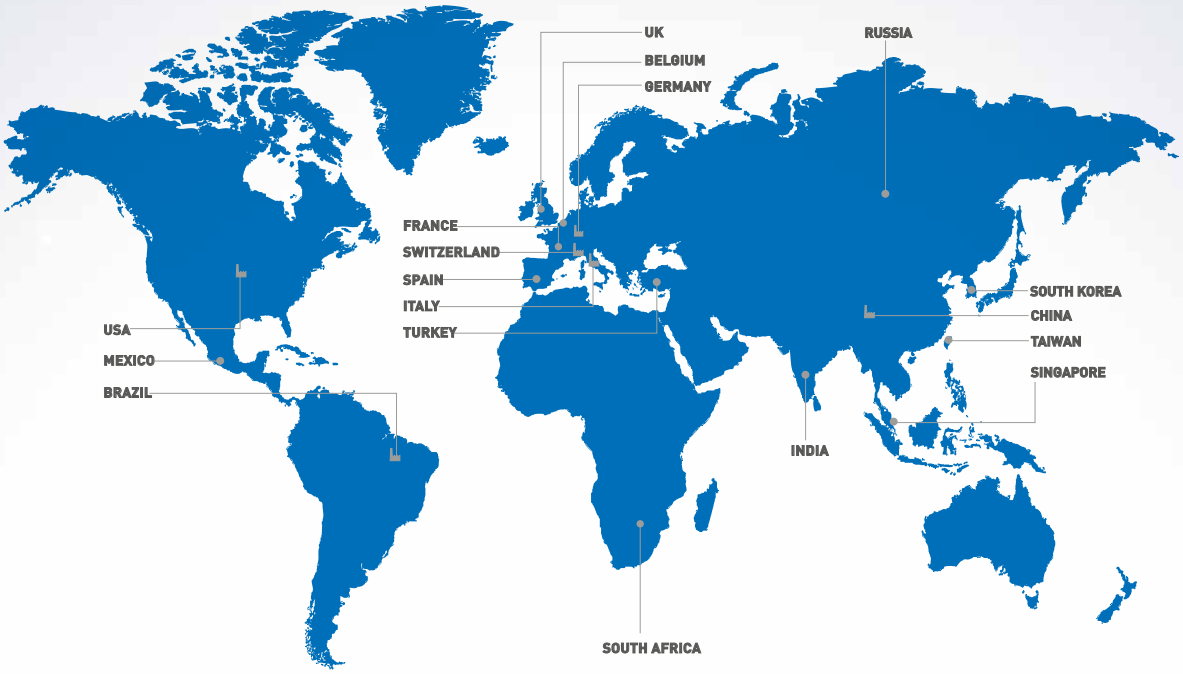
SBM series servomotors were designed to generate a sinusoidal EFM and reduced torque disturbances.

Thanks to the use of high energy magnets, these motors can withstand high overloads without risk of demagnetisation.

The best torque-size ratio makes SBM series motors suitable for applications where high dynamic performance and torque peaks are required.

STANDARD SBM SERVOMOTORS AND AVAILABLE OPTIONS

		SBM 3	SBM 5	SBM 7	SBM 8	SBM 8...F	SBM 9	SBM 9...F
Max Speed	1500 rpm			•				
	2000 rpm		•	•	•	•	•	•
	3000 rpm	•	•	•	•	•	•	
	4000 rpm	•	•					
	6000 rpm	•						
Supply voltage	230 Vac		o	o				
	400 Vac	•	•	•	•	•	•	•
	460 Vac	o	o	o	o	o	o	o
Flange	B5	•	•	•	•	•	•	•
	B3&B5	o	o	o	o	o	o	
Shaft	11 mm	•	o					
	14 mm	o	o					
	19 mm		•	o				
	24 mm			•				
	42 mm				•	•		
	48 mm						•	•
	with key	•	•	•	•	•	•	•
	without key	o	o	o	o	o	o	o
Connections	power connector	•	•	•				
	power terminal strip box	o	o	o	•	•	•	•
	signal connector	•	•	•	•	•	•	•
Protection	IP54	•	•	•	•	•	•	•
	IP65	o	o	o	o		o	
Feedback devices	Resolver 2 poles	•	•	•	•	•	•	•
	Digital (4096 c/rev) + hall sensors		o	o	o	o	o	o
	5-traces SinCos encoder (2048 c/rev)		o	o	o	o	o	o
	Absolute encoder SSI Protocol (multiturn 4096 / incremental 512 c/rev)		o	o	o	o	o	o
	Absolute encoder EN-DAT Protocol (multiturn 4096 / incremental 512 c/rev)	o	o	o	o	o	o	o
Brake		o	o	o	o	o	o	o
Fan				o		•		•
Oil seal		o	o	o	•	•	•	•
Approvals		CE						



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