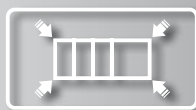


Advantages of the **AXV300**



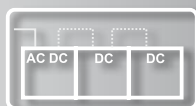
Space optimisation

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 THD < 3% 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.





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ISO 9001
FM 38167



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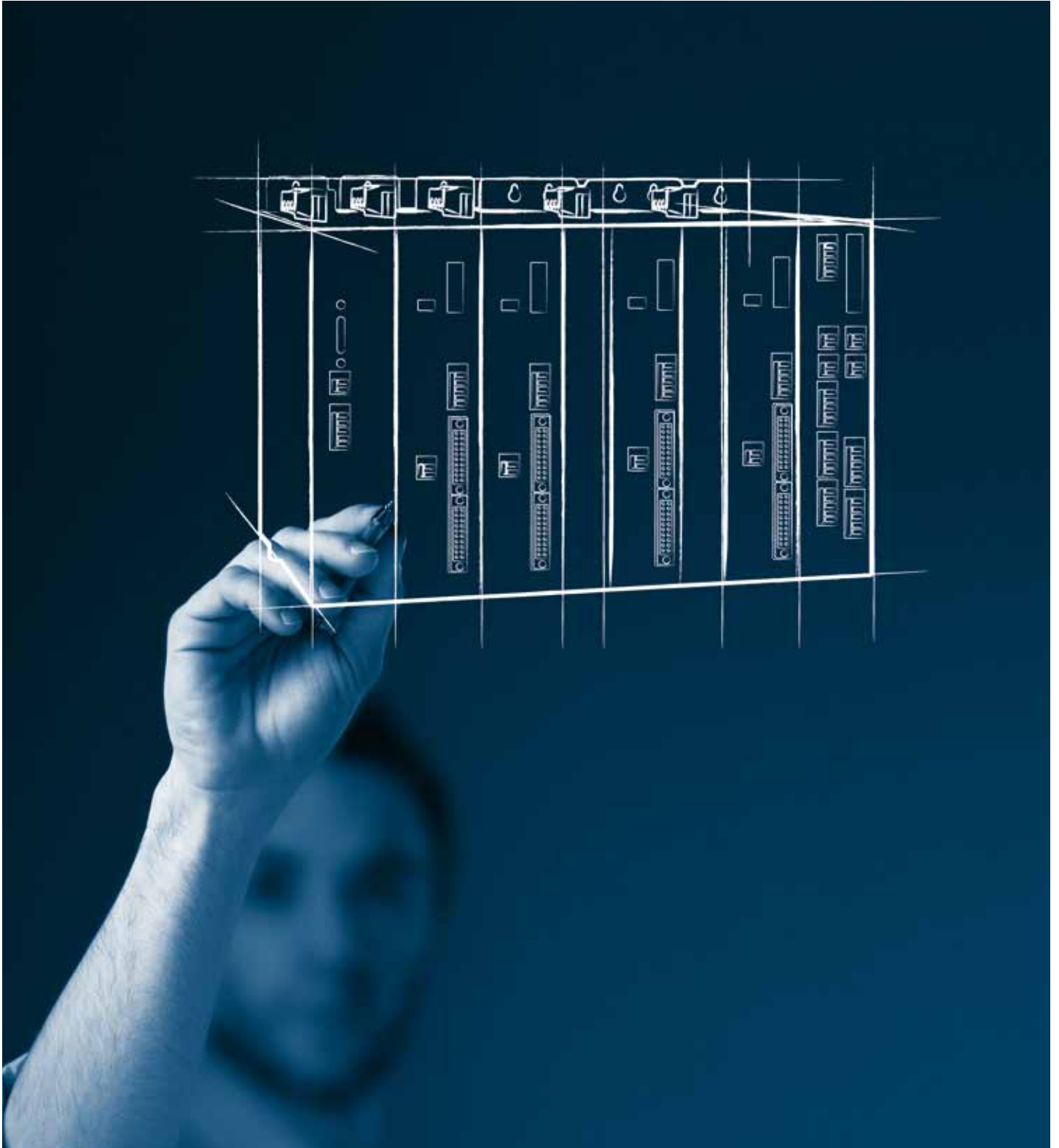
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MODULAR SERVODRIVE SYSTEM

SIEIDrive AXV300**GEFRAN**

AXV300: “High Efficiency” modular servo drives

The new range of **SIEDrive AXV300** modular drives is the result of over 30 years of experience working with leading automation manufactures.

On and off boards panels have been engineered and **optimised** resulting in an **extremely compact mechanical** foot print.

The **AXV300** offers maximum performance for controlling brushless synchronous and asynchronous motors in **high precision, dynamic applications**.

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.

With 7 mechanical sizes and rated currents from 5A to 200A the **AXV300** offers a wide choice of power combinations for up to a total of 120 kW.

Regenerative or AC/DC power supply modules complete the range .

The **AXV300** implements advanced application solutions based on **positioning and interpolation**, structured in IEC 61131-3 programming environments.

Communication via **Ethernet or CAN** bus enables total integration into the most commonly-used PLC system architectures.



Examples of Applications



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

Terminals M2 • M4

Double **encoder input** for speed loop feedback and management of auxiliary encoders including:

- 5-tracks SinCos
- TTL incremental
- Resolver
- EnDat 2.1
- EnDat 2.2
- BiSS

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 ($62.5\mu\text{sec}$)
- 4KHz speed loop closing ($250\mu\text{sec}$)
- 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

The AXV300-CU card, 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
- EnDat 2.1
- EnDat 2.2
- SSI
- BiSS

System IO

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

Power supply
24V external

RS232 **Modbus RTU**
connection standard

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



EXP-AXV300-IO

Auxiliary IO card:

- 8 analog inputs
- 4 analog outputs
- 8 digital inputs
- 4 digital outputs
- 2 relays NO
- 2 relays NC

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

EXP-AXV300-RTE


Real-time Ethernet card:

- Real-time GDNNet
- Ethercat
- Modbus TCP-IP



GDNET™
Gefran Deterministic Network

EtherCAT®
Modbus

	Axis Modules AXV300-...									Power Supply AXV300-...	
											
Module code	10413	21020	22040	33570	350100	480160	5100200	5140210	6200320	12040	24000
VL [Vac]	400Vac \pm 10%, 50/60Hz									380Vac \pm 10%	
Vdc bus [Vdc]	600 \pm 10%										
IN [Arms]	4.5	10	20	35	50	80	100	140	200	-	
	[A]	-	-	-	-	-	-	-	-	20	
IPEAK [Arms]	13.5	20	40	70	100	160	200	210	320	-	
	[A]	-	-	-	-	-	-	-	-	40	
PN [kW]	2,7	6	12	21	30	48	60	84	120	11	
PPEAK [kW]	8,1	12	24	42	60	96	120	126	192	22	
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	53	
Dimensions: H x D x Width [mm]	310x261x 59.5	310x261x 89.5	313x261x 89.5	328x261x 149.5	328x261x 149.5	349x261x 209.5	356x261x 268	362x261x 268	357x260x 378	310x257x 59.5	310x257x 89.5
Weight [kg]	3	5	5	9	9	13	16	20	25	2	

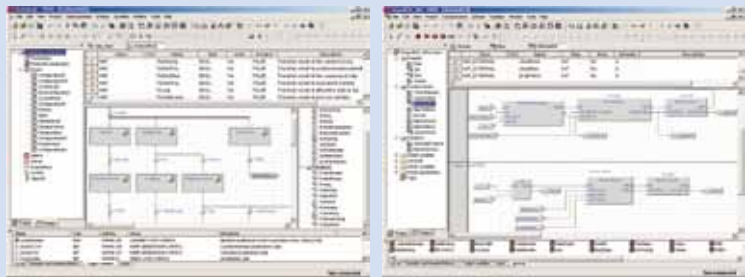
MDPlc programming in IEC 61131-3

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.











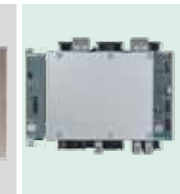
“GF_eXpress” PC Configuration Tool



All drives in the SIEDrive range and automation devices manufactured by the GEFTRAN 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.





Supply Module 00-SM-...		Regenerative Power Supply Module AXV300-SR-...								
										
080	380140	10413	21020	22040	33570	350100	480160	5100200	5140210	6200320
10%, 50/60Hz		380VAc ±10%, 50/60Hz								
565		625								
-	-	-	-	-	-	-	-	-	-	-
40	80	4.5	10	20	35	50	80	100	140	200
-	-	-	-	-	-	-	-	-	-	-
80	140	13.5	20	40	70	100	160	200	210	320
22	44	2,7	6	12	21	30	48	60	84	120
44	80	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
24		24								
89	192	30	75	140	240	360	550	780	1120	1850
310x257x 119.5	310x257x 119.3	310x261x 120	310x261x 150	310x261x 150	330x261x 210	330x261x 210	350x261x 270	360x261x 330	370x261x 330	357x260x 438
4	9	5	7	7	11	11	15	18	22	27

Control Unit AXV300-CU



V POWER SUPPLY	24 Vdc
Standard IO	<ul style="list-style-type: none"> 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)	<ul style="list-style-type: none"> Real-time GDNNet Ethercat Modbus TCP-IP ...
IO expansion (EXP-AXV300-IO card)	<ul style="list-style-type: none"> 8 analog inputs -10V...+10V 4 analog outputs -10V...+10V 15 not opto-isolated digital inputs 24V 8 digital outputs -24V 6 relays 250V @ 5A
Encoder expansion (EXP-AXV300-ENC card)	<ul style="list-style-type: none"> 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: H x D x Width	310x263.5x 59.5 mm
Weight	2 kg

System Specifications

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 I2t	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, IP54 with dedicated tool
Installation position	Pollution degree 2 or lower
Altitude	Max 200 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
Certification	    (in progress)

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