

Customized high-power drive solutions to withstand the harshest environments

Altivar™ Process Modular Drives



se.com/drives

Life Is On

Schneider
Electric

Meets the most demanding requirements in industrial applications.



Energies and Chemicals



Power and Grid



Water and Wastewater



Consumer Packaged Goods



Mining, Minerals, and Metals

Field-tested performance for air- and liquid-cooled applications

Altivar Process Modular drives seamlessly integrate into your existing drive systems and maintenance plan.

Developed for industrial applications, such as Water & Wastewater to Mining, Minerals & Metals, Energies & Chemicals, and Food & Beverage manufacturing, Altivar Process Modular drives provide flexible solutions that offer exceptional performance, protection, and customization with two variable speed drive offerings:

- **ATV600** – Fluid management, optimizing processing, and energy-saving
- **ATV900** – Solids management, improving productivity, motor control, and connectivity



Altivar Process Modular drive benefits

1 Process optimization

- **Dedicated functions for increased efficiency**, such as master/slave torque sharing for conveyors, backspin control for Progressing Cavity Pumps (PCP)/Electrical Submersible Pumps (ESP)
- **IIoT-enabled EcoStruxure™ integration** for seamless compatibility and integration with other architectures, controllers, and systems
- **Enhanced sustainability** via monitoring the best efficiency point (BEP) for necessary adjustment

Up to
20%
Improved
productivity

2 Energy management

- **Embedded power management** with <5% measurement error
- **Lifetime energy use monitoring** and key performance indicators (KPIs)
- **Real-time data collection** of energy consumption
- **Low harmonics/Regen** technology 3-level design

Up to
30%
Energy savings

3 Asset management

- **Dedicated protection functions** for motor and process (e.g., anti-jam, dry running, pump cyclic)
- **Improved drive reliability** in extreme conditions via rugged design and multi-drive architecture over Ethernet
- **Predictive maintenance** with EcoStruxure Asset Advisor
- **Faster maintenance** via dynamic product QR codes
- **Easy replacement** and simplified spare parts management with identical power modules and control units

Up to
20%
Enhanced asset
management with
reduced downtime

A customizable solution for precise power needs

Optimized cabinet-mounted drive solution accelerates time-to-market and reduces costs.

Altivar Process Modular drives use sub-assemblies to locally build custom high-power solutions in compact sizes, with power ranges 75-2600 kW/125-2600 HP.

Combine up to six modules in parallel to reach your desired power level; see **Figure 1**.

- A power module section is combined with different drive architectures
- Control units differentiate the architecture between ATV600 and ATV900 drives
- Optional kits and accessories provide easy enclosure integration

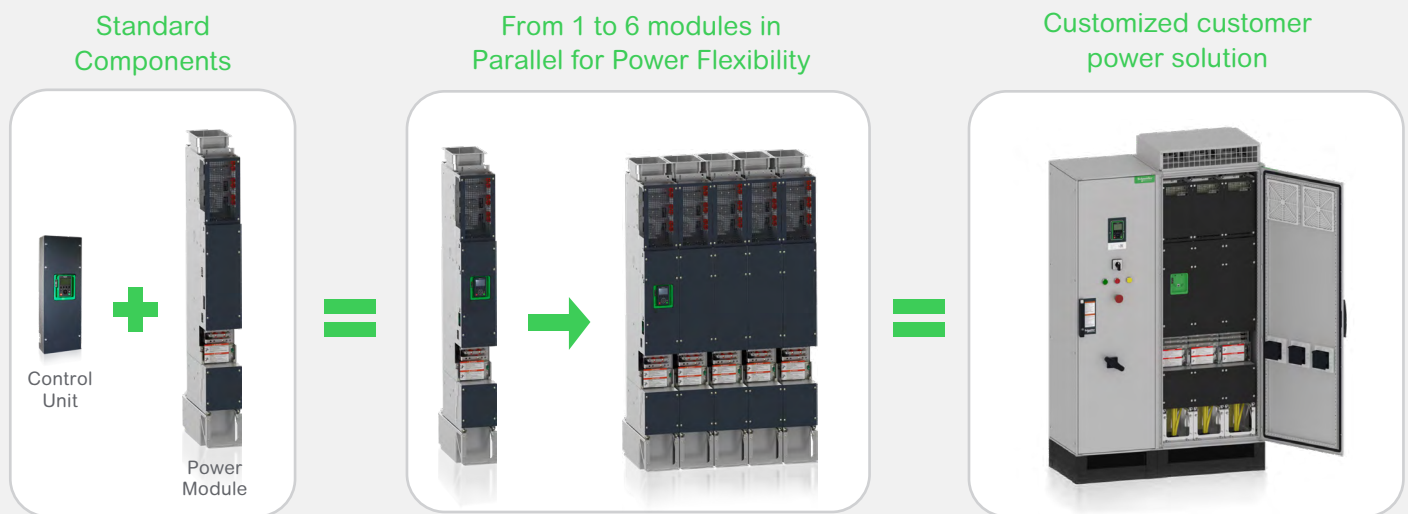


Figure 1

Cabinet integration benefits



Simplified design and installation: Easy setup and installation, quick commissioning, and cost-effective solutions for high-power drive applications.



Easy maintenance to optimize uptime: Core components are easy to replace, reducing downtime and maintenance costs.

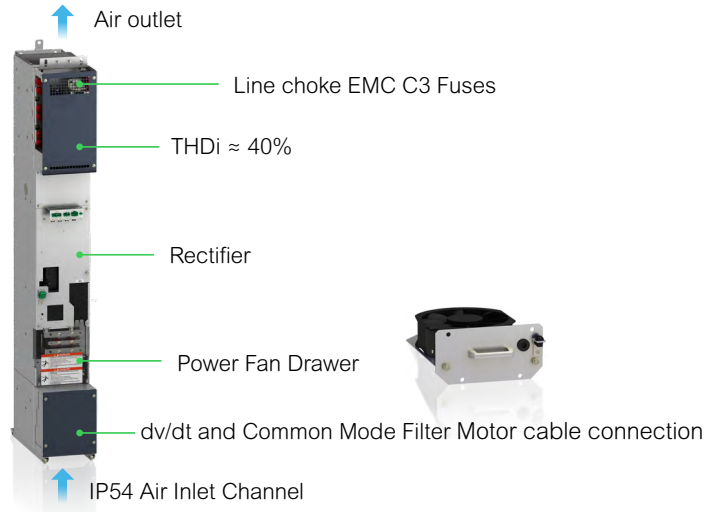


Flexibility, efficiency, and reliability: Options for low harmonic and liquid-cooled drives, meeting demanding application requirements and enclosure standards.

Altivar Process Modular Offers

1 Standard modular drives

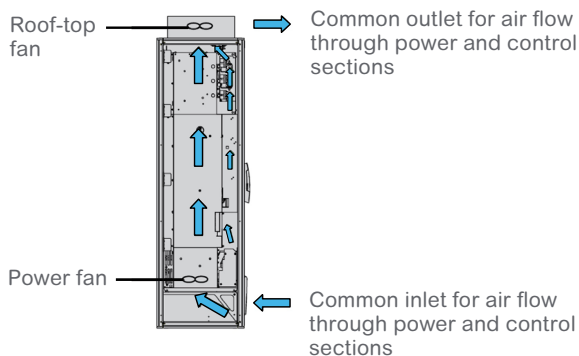
Altivar Process Modular drives deliver high-power solutions with enhanced standard features, including semiconductor protection fuses for each module, line chokes to limit total harmonic distortion (THDi) levels, and an output filter that safeguards motors against the effects of the rate of voltage change over time (dv/dt).



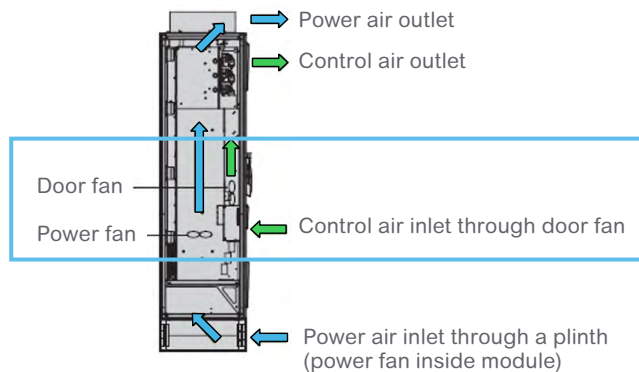
Air-cooled concept

Two cooling integration concepts optimize the drive unit's heat dissipation and encapsulation:

IP21 (UL Type 1) – Enables shared cooling airflow for power and control sections.



IP54 (UL Type 12) – A mechanical kit separates cooling airflow between the power and control sections, enabling operation in polluted environments and effectively managing thermal stress.



Compact cabinet design

For special integration constraints with IP21/IP54 protection, there are two robust integration offers:

1. **Standard:** Integration in 2 m (6.56 ft.) height and 600 mm (23.62 in.) depth cabinets
2. **Reduced height:** Integration in 1.6 m (5.25 ft.) height and 600 mm (23.62 in.) depth cabinets

Altivar Process Modular Offers

2 Low harmonic/Regenerative modular drives

Low harmonic/regenerative (regen) drives generate low harmonics on the main power grid. They enable four-quadrant (4Q) operation, **see Figure 2**, and improve application efficiency by feeding energy back to the mains.

When compared with standard 2-level Active Front End (AFE) architectures, see **Figure 3**, the 3-level Altivar Process Modular/Regen drives reach a total THDi of ~2%, in compliance with standard IEEE 519 (<5%). The $\cos \Phi \approx 1$ in each load situation (from 30% Pn) also reduces the line supply load.

The Low harmonic/Regen drive range is ideal for energy efficiency and process optimization.



Enhanced motor service life

The 3-level active infeed converter (AIC) technology significantly reduces the motor's voltage load, while the fluctuating adaptation of the DC link voltage helps extend motor service life.



Reduced losses

Compared to the traditional circuit structure of active mains rectifiers, the switching frequency increases while the current load is reduced.



Compact dimensions

The 3-level technology reduces the dimensions of the integrated filter by almost half due to the increased switching frequency and its location inside the forced cooling air duct.

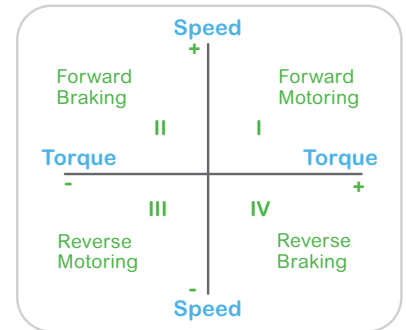


Figure 2

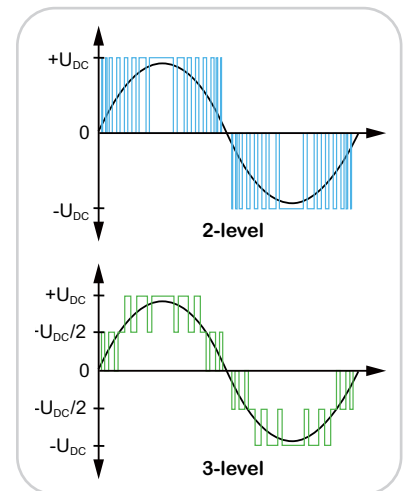


Figure 3



Low harmonic/Regen Power Module and Control Unit



From 1 to 6 modules in Parallel



APM Low harmonic/Regen Enclosure

Altivar Process Modular Offers

3 Liquid-cooled modular drives

Altivar Process Modular liquid-cooled drives for cabinet integration deliver a modular high-power solution for cabinet installation. These drives provide optimal heat loss dissipation with integrated liquid cooling in harsh industrial conditions. See **Figure 4**. A robust design meets the requirements for applications in harsh environments and protects up to IP66.

Liquid-cooled concept

- Air-cooled drive with internal liquid/air heat exchanger
- Air-cooled drive with external liquid/air heat exchanger to dissipate the heat losses out of the operating room
- Liquid-cooled drive with liquid/liquid heat exchanger, encapsulated solution for harsh environment and “low noise” requirements

Space-saving cabinet design

Altivar Process Modular liquid-cooled drives deliver flexible solutions for special integration constraints with a 6- or 12-pulse supply in two offers:

1. **Universal:** Suitable for different types of grids with integrated mains choke (THDi < 48% at 6-pulse or THDi 9% at 12-pulse supply at 80 to 100% load)
2. **Compact:** Optimized with a dedicated transformer for most compact dimensions

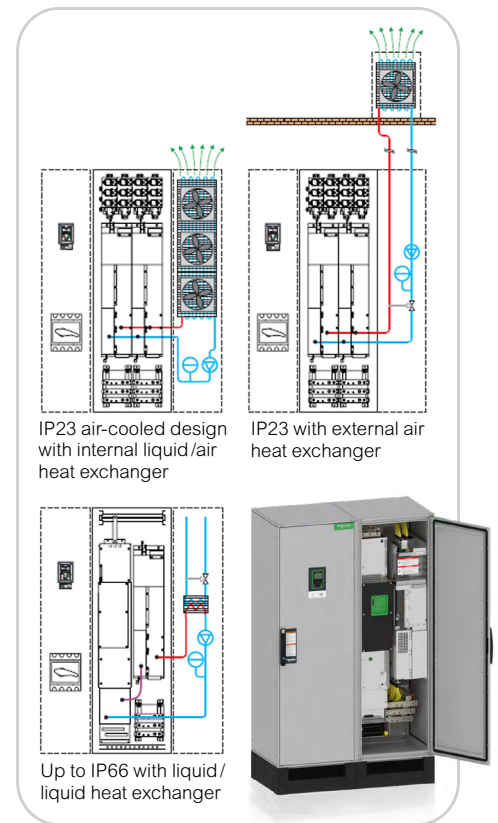


Figure 4

Braking unit modules

Braking units follow the same seamless integration process as our standard power modules, ensuring consistency in the frame, size, integration kits, and DC busbar kits.

They are compatible with all Altivar Process Modular drives, providing flexibility, versatility, and advanced functions:

With Standard and Liquid-cooled drives

- Full braking torque is also in the overload range
- Shorten and monitor the deceleration time for long travel applications
- Temporary regenerative load, such as for hoist applications

With Low harmonic/Regen drives

- Braking operation during energy regeneration is not possible



Altivar Process Modular Offer Panorama



Offer Range	Standard/Reduced Height	Low-Harmonic/Regenerative	Liquid Cooled (Universal/Compact)
Range	ATV6A0/ATV9A0	ATV6B0/ATV9B0	ATV6L0/ATV9L0
Power range			
380...480V	Normal Duty (ND): 110 kW - 1000 kW (150HP - 1400HP) Heavy Duty (HD): 90 kW - 800 kW (125HP - 1100HP)		ND: 132 kW - 1800 kW (200HP - 2500HP) HD: 110 kW - 1400 kW (150HP - 2000HP)
500...690V	ND: 110 kW - 1200 kW (125HP - 1200HP) HD: 90 kW - 1000 kW (100HP - 1000HP)		ND: 200 kW - 2600 kW (200HP - 2600HP) HD: 160 kW - 2100 kW (150HP - 2100HP)
Output Current			
380...480V	ND: 211A - 1770A HD: 173A - 1420A		ND: 250A - 3200A HD: 211A - 2470A
500...690V	ND: 125A - 1230A HD: 105A - 1030A		ND: 215A - 2620A HD: 175A - 2120A
Input Frequency	50/60Hz +/-5%		
Overload Capacity	Normal duty (ND): Overload for 60s every 10min, ATV600: 110%/ATV900: 120% Heavy duty (HD): Overload of 150% for 60s every 10min		
Control Type			
Asynchronous Motor	Standard constant torque, variable standard torque, optimized torque mode		
Synchronous Motor	Permanent magnet motor, synchronous reluctance motor		
Output Frequency	ATV600: 0.1...500 Hz ATV900: 0.1...599 Hz		
Communication			
Safety Function	Safe Torque Off (STO) and Safety Integrity Level (SIL) 3		
Long Cable	Integrated dv/dt and common mode filter for motor cable lengths up to 300 m/980 ft with shielded cable (category C3 environment) and 500 m/1,640 ft with unshielded cable (category C4 environment)		
Integrated	ATV600: Modbus/TCP, Modbus serial link ATV900: EtherNet/IP, Modbus/TCP Dual port, Modbus serial link		
Optional	ATV600: Ethernet/IP, Modbus TCP and MD-Link dual port, CANopen daisy chain, SUB-D, and screw terminal block, PROFINET, PROFIBUS DP V1, DeviceNet, BACnet MS/TP, POWERLINK ATV900: CANopen daisy chain, SUB-D, and screw terminal block, PROFINET, PROFIBUS DP V1, DeviceNet, EtherCAT, POWERLINK		
Protection Degree	Module: IP00 Enclosure: IP21 (UL Type 1)/IP54 (UL Type 12)		Module: IP00 Enclosure: IP21 (UL Type 1) up to IP66
Cooling	Forced Ventilation		Liquid-Cooled
Environment Characteristics			
Operating Temperature	-10...40°C, up to 50°C with derate	-5...40°C, up to 50°C with derate	-10...40°C, up to 50°C with derate
Storage Temperature	-40°C to 70°C		
Relative humidity without condensing	5...95%		
Altitude	1000m without derate. Up to 4800m with derate		
Noise Level	Approx. 80 dB (A), depending on the power range		
Environmental protection IEC/EN 60721-3-3	3C3: Chemical class 3S3: Mechanical class 3K3: Climatic class		
Harmonics	6 pulses: THDi ≈ 40%	THDi ≤ 5% Compatible with standard IEEE 519	6 pulses: THDi ≈ 40% 12 pulses: THDi ≤ 9%
Main Benefits			
	<ul style="list-style-type: none"> Standard Design Flexible solution for cabinet integration Reduced Height for integration in 1.6 m/5.25 ft height cabinets 	<ul style="list-style-type: none"> The 3-level AIC technology reduces the voltage peak at the motor Less heat loss compared to classic AFE inverters 	<ul style="list-style-type: none"> Modules ready for 12 pulses Flexible cooling concept, liquid/air or liquid/liquid heat exchanger Universal: Suitable for all kind of grids with integrated mains choke Compact: Optimized with a dedicated transformer for most compact dimensions

Altivar Process Modular Power Ratings and Services

Power Rating 380V...480V					
Air-Cooled (Standard/Low Harmonic)			Liquid-Cooled		
Motor Power	Degree of Protection	Reference*	Motor Power	Degree of Protection	Reference*
110...1000 kW	IP00	ATV6A0C11•4...M10•4	132...1800 kW	IP00	ATV6A0C11•6...M12•6
150...1400 HP		ATV9A0C11•4...M10•4	200...2500 HP		ATV6A0C11•6...M12•6
110...1000 kW		ATV6B0C11•4...M10•4			
150...1400 HP		ATV9B0C11•4...M10•4			

Power Rating 500V...690V					
Air-Cooled (Standard/Low Harmonic)			Liquid-Cooled		
Motor Power	Degree of Protection	Reference*	Motor Power	Degree of Protection	Reference*
75...1200 kW	IP00	ATV6A0C11•6...M12•6	132...2600 kW	IP00	ATV6L0C20•6...M26•6
125...1200 HP		ATV9A0C11•6...M12•6	200...2600 HP		ATV9L0C20•6...M26•6
75...1200 kW		ATV6B0C11•6...M12•6			
125...1200 HP		ATV9B0C11•6...M12•6			

*Product Ranges
ATV6=ATV600
ATV9=ATV900

Offer Ranges
A0=Air-Cooled Standard
B0=Air-Cooled Low harmonic
L0=Liquid-Cooled

Power Range In Normal Duty
C11...M26=110kW-2600kW

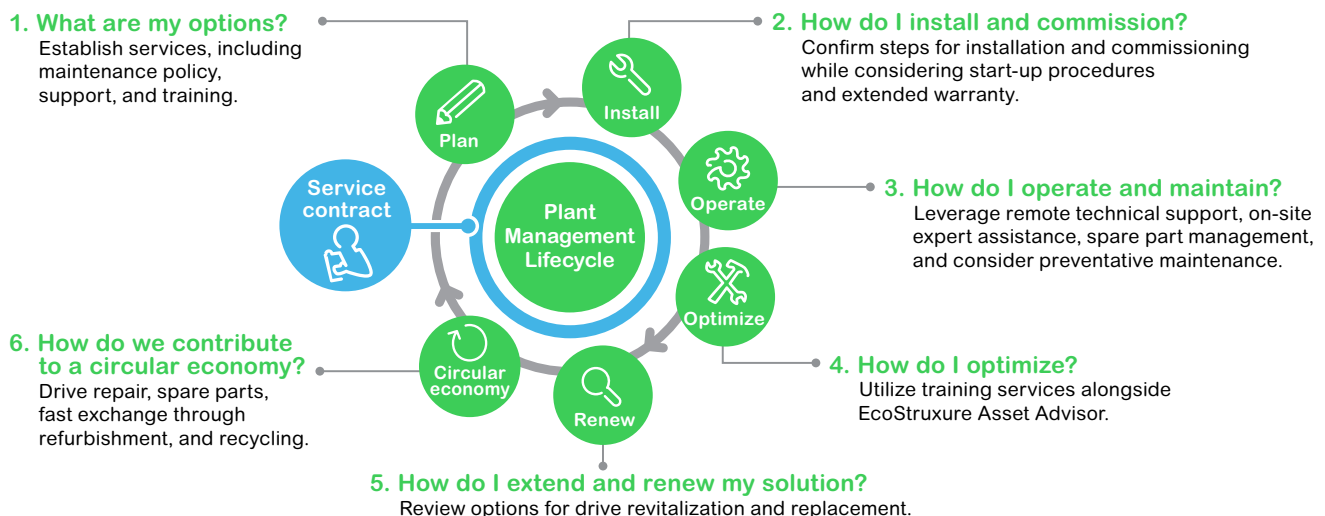
Voltage Range In Normal Duty
Q4, R4, T4 - 400V...480V
N6, T6, Q6 - 500V...690V

Access detailed product specs

ATV600 ATV900

Protect your investment with drive services

Drives are crucial for maximizing operational uptime. Schneider Electric's comprehensive services help ensure optimal performance throughout the equipment's lifecycle while reducing environmental impact with a circular approach.



Integration with EcoStruxure™

EcoStruxure Power Monitoring Expert

Simplify the management of complex power systems for more efficient control and monitoring. [EcoStruxure Power Monitoring Expert](#) takes full advantage of IoT connectivity and distributed intelligence to help maximize your uptime and operational efficiency.

This solution offers smart event and alarm clustering, graphical timelines for analysis, advanced energy visualization tools, and compliance with IEC 62443 cybersecurity standards.



Keep people and assets safer: Detect abnormal conditions, locate insulation faults, and reduce the risk of electrical fires.



Optimize reliability and continuity: Monitor protection settings, track system capacity, and optimize backup power systems.



Maximize operational lifecycle efficiency: Identify savings opportunities, avoid penalties, track consumption patterns, and analyze equipment performance.



Simplify compliance: Align with energy efficiency standards, track energy performance, and comply with IT and cybersecurity best practices.

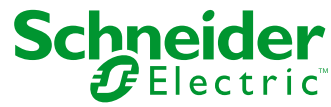
EcoStruxure Asset Advisor

Variable speed drives and motors link electrical systems to business processes, accounting for up to 60% of total energy consumption and up to 90% in heavy process industries. Downtime is costly — [EcoStruxure Asset Advisor](#), backed by our analytics and expert engineers, protects your drives 24/7 to help mitigate risks before problems occur by analyzing and modeling drive data for predictive maintenance and improved efficiency.

- 1 Drive maintenance:** Inspections, preventive maintenance, and electrical/mechanical checks.
- 2 Data collection:** Extract data from critical equipment on-premise or remotely and securely upload it to the cloud.
- 3 Analysis:** Use patented algorithms and motor current signature analysis (MCSA) to identify potential issues.
- 4 Report discussion:** A Schneider Electric expert interprets and summarizes issues and schedules a review of findings.
- 5 Issues prevented/corrected:** Address issues efficiently based on report findings and expert guidance during the next maintenance or on-demand visit.
- 6 Follow-up:** Review corrective actions, ensure issue resolution, and provide additional guidance.



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To learn more about Altivar Process Modular Drives, visit:
se.com/drives

Schneider Electric Industries SAS
35, rue Joseph Monier - CS 30323
F92506 Rueil-Malmaison Cedex