Altivar Process variable speed drives
Your process deserves more than just a drive.

www.schneider-electric.com/drives
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Altivar Process – the smart, connected variable speed drive

The next generation of variable speed drives, Altivar Process is designed to deliver IIoT benefits. A smart, connected **EcoStruxure-ready Drive** with built-in intelligence to gather data and share information to the enterprise level, the Altivar Process can improve operational efficiency, profitability and reduce total cost of ownership (TCO).

As the only range on the market providing a common platform from 0.75 kW to 20 MW in all voltages, Altivar Process is easy-to-use with a consistent experience for usability, functionality and performance, and the added value of peace of mind and flexibility delivered through Drives Services. Altivar Process drives deliver added-value services to enable business and process optimization through improved life cycle asset management and optimized energy consumption. Designed to assist OEMs, system integrators and industrial process owners, Altivar Process drives improve process performance by enabling full information and operational technology convergence.
Discover Altivar Process

Connected products for smarter operations
Drives connectivity integrated at every level of EcoStruxure

Apps, Analytics & Services

Edge Control

Connected Products

LV Product

Web Server

Digital Services Offer

ie: Asset Advisor

MV Drive

LV Drive system

ie: Asset Advisor

Discover Altivar Process
Connected products for smarter operations

EcoStruxure is Schneider Electric’s open, interoperable, IoT-enabled system architecture and platform. At the heart of EcoStruxure for industrial customers, Altivar Process delivers innovative value through the three layers of the stack:

**Apps, analytics, services**
Altivar Process gathers data that can be put into context with the application of analytics from the third layer of the innovation stack. And with embedded Ethernet, it easily integrates into the network architecture with the use of a set of specific libraries for quicker project implementation and commissioning, with monitorability of applications through EcoStruxure Hybrid DCS, EcoStruxure Foxboro and EcoStruxure Asset Advisor. It is also cyber secured to Achilles Level 2, the only drive on the market with this certification.

**Edge Control layer**
In the edge control layer of the innovation stack, Altivar Process acts as a native sensor to gather information on the process that can be put to work to improve plant performance. It facilitates the shift to plant operators becoming business decision-makers by providing real-time data on the state of the plant floor, which can then be used to make business decisions on-the-go.

**Connected Product layer**
Altivar Process optimises its use within the system with advanced motor control technology and application-specific expertise for pumps, conveyors and hoisting contained within the drive. It “speaks the language” specific to customers enhancing usability and decision making. It also enhances energy usage with power monitoring and low-harmonics technology while reducing downtime. Performance of the drive is maintained with predictive maintenance capabilities and asset protection.
Delivering measurable benefits:

Altivar Process drives not only boost efficiency but also improve safety and reliability at your site. In other words, they are able to secure what other drives cannot.

*Based on previous data. Not a guarantee of future performance or performance in your particular circumstances.
Process optimization
A future proof, IIoT-enabled solution

Altivar Process bring intelligence to your system by enabling your assets to provide advanced process data for smarter operations. Save time and exploit the full range of capabilities of your equipment on a single platform:

- EcoStruxure Hybrid DCS and Modicon™ M580-compatible, enabling use of specific libraries for quicker product implementation and commissioning
- DTM library and application function blocks provide full programming and diagnostic functions
- EcoStruxure Asset Advisor uses the drive as a super sensor for predictive maintenance

Pump curves embedded
- Easy-to-set 5-point curve, downloadable in open CSV standard format

Pump monitoring
- Graphic visualization
- Direct view of operation point
- Pump efficiency assessment
Enhance equipment effectiveness

Altivar Process helps you improve your productivity and availability by up to 20%*, thanks to:

• Application expertise to boost efficiency – Increase efficiency using dedicated functions such as M/S torque sharing for conveyors, backspin control for PCP/ESP and optimized energy for multi-pump boosters

• Maximized performance and production output – Ensuring sustainable operation efficiency through making necessary adjustment in case of best efficiency point (BEP) deviation

• Our IIoT-enabled EcoStruxure solution – Provides compatibility and easy integration with Process Expert System (PES) architectures, Modicon M580 controllers, and Foxboro EVO DCS systems thanks to native Ethernet, embedded webserver and dtm/faceplates

Optimize your Process, Asset Management and Energy Consumption
Energy management

Altivar Process can help you optimize and reduce your energy consumption by up to 30%*, thanks to:

Better usage of energy
- Embedded power management with <5% measurement error
- Key performance indicators and lifetime monitoring on energy usage
- Smart data collection and access to real-time energy information
- Unprecedented 0 harmonics technology with 3-Level design common mode suppression
- Regen and DC Bus Sharing Features for Demanding Applications

Measure, analyze, and improve energy use
- Single system of records permitting timely analysis and reporting
- Warning through alarm management system when power drift is detected
- Real-time data enables reduced energy consumption by up to 30%*
Asset management

Altivar Process can enhance your asset management by 20% with:

Downtime reduction

• Dedicated motor & process asset protection functions like anti-jam function; dry running protection; pump cyclic protection, backspin for PCP/ESP and more
• Detailed analysis of errors with time stamp logging
• Multi-drive architecture over Ethernet for continuity of services
• Enhanced drive ruggedness for severe conditions
Smarter maintenance
• Reduced process downtime with augmented reality for operators for easy troubleshooting thanks to the dynamic QR code and spare part strategy
• Predictive maintenance – advanced diagnostic data available from the drive to be used in the EcoStruxure Asset Advisor

Faster intervention and optimized management of spare part stock
• Altivar Process Modular design offers you simple parts replacement, quicker maintenance and minimized spare part stock references.
• Easily exchangeable components such as identical power modules with wheel and reduced weight and power fan inside a drawer accessible from front face
• Optimized number of spare parts to ensure fast on-site intervention
Stay ahead of your competition

Altivar Process variable speed drives help you meet challenges and optimize both business and process performance. They have a direct impact on profitability and efficiency within key segments of industry.

Water and Wastewater (WWW)  Consumer Packaged Goods (F&B)  Mining, Minerals, and Metals (MMM)  Oil and Gas (O&G)
Make water and wastewater management efficient, productive, and green

Only 0.3% of our global water resources can be used as clean drinking water and the energy to provide it accounts for 30-50% of total operating costs. In a world of water scarcity, implementing intelligent systems to process data can lead to improved efficiency and better management of water usage.

Altivar Process drives offer the following dedicated features for WWW processes:

- Process monitoring for timely and informed decisions
- Energy management for better energy awareness and sustainable performance
- Asset management to protect the system and its service life time
- Access from everywhere in accordance with the rights and security (as per ISA Secure / Achilles)
- Dedicated multi-pump applications functions for Lift and Booster stations that optimize the specific energy

Reduce your energy consumption by up to 30%*
Increase operational efficiency by up to 25%*
Reduce total cost of ownership by up to 20%*

*Based on previous data. Not a guarantee of future performance or performance in your particular circumstances.
Increase your production output and save energy

In an industry with increasingly tough competition, food safety regulations, and consumer pressure for sustainable products, F&B companies must increase their production outputs, while controlling operation, maintenance, and energy costs.

Altivar Process drives offer dedicated features for F&B processes:
• Condition-based monitoring for waste and downtime reduction and protection of your system/equipment
• Energy management to optimize operating conditions and avoid energy penalties
• Seamless integration into plant architectures and advanced capabilities for improved operations flexibility
• Traceability allows data logging and recording capability to manage information on all drive events

Reduce your energy consumption by up to 30%*
Reduce waste by up to 80%*

Safeguard your brand through better safety compliance

*Based on previous data. Not a guarantee of future performance or performance in your particular circumstances.
Maximize production, overall efficiency, and asset utilization

As commodities remain volatile, increasing efficiency across your supply chain is critical. Sustainability concerns, high energy costs, and a limited talent pool are adding to the constraints. Investing in technology to drive productivity is becoming a business necessity.

Altivar Process drives offer the following dedicated features for MMM processes:

• Predictive maintenance to manage machinery and help prevent workplace injuries or unplanned downtime

• Real-time intelligence with accurate diagnostics, remote control, and remote services capabilities (thanks to embedded Ethernet web server systems) make your process safer and more efficient for a stronger ROI

• Best application performance with multi-drive complete solutions for process cranes, roller conveyors, vertical roller mills, and others

Reduce your energy consumption by up to 30%*

Reduce CO₂ emissions

*Based on previous data. Not a guarantee of future performance or performance in your particular circumstances.
Make your process safer, more reliable, and more productive

As energy demands grow and environmental and safety regulations increasingly impact O&G companies, energy efficiency is key. Energy efficient operations enjoy greater safety, security, and reliability while saving costs. O&G companies need intelligent solutions to monitor, control, and optimize their assets.

Altivar Process drives offer dedicated features for O&G operations:
• System condition-based monitoring allows alignment of raw data with key performance indicators for sustainable, operational efficiency
• Energy management solution to maintain a system operating at its best efficiency point
• Advanced asset condition diagnostics to optimize predictive maintenance strategies
• Functionalities for upstream downtime reduction and gain on production capability

Cut engineering and commissioning by up to 30%*

Enhance safety for people, environment, and processes by up to 30%*

*Based on previous data. Not a guarantee of future performance or performance in your particular circumstances.
Services for your drives

Through our Drives Services you can maximize your business infrastructure to meet increasingly stringent demands on productivity, safety, equipment availability, and performance optimization. With Schneider Electric Drives Services, we can:

- Deliver availability and reliability of your installation over the long term
- Help control your maintenance costs
- Keep your process running at peak performance for maximum efficiency

**Renew**
Partnering with you to control and renew your ageing equipment at the right time with the most optimal cost.

**Optimize**
Further improve your return of investment by identifying how you can get even more out of your equipment.

**Install**
Delivering services to ensure your equipment is set up reliably and operates efficiently from day one.

**Operate**
Providing services to support you during normal operations as well as during maintenance breaks and emergency situations. Collaborating to maximize your uptime and performance as well as become more proactive in operations.
Enjoy reliable asset performance management

Digital services

Working together, the ATV6000 and EcoStruxure Asset Advisor provide advanced predictive maintenance.

Altivar Process

Customer Site  Encrypted Data  SE Digital Offers  Offer: Base, Base+, Advanced

IoT Box (secured gateway)  EcoStruxure Asset Advisor  Dashboards  Digital Reports  Work Orders

Continuous health monitoring of machine  Risk evaluation of asset and environment  Health Monitoring  Risk Evaluation  Mitigate Risks

Risk evaluation with reports and work orders  Customer dashboard  Expert dashboard service bureau 24/7

Customer dashboard  For customers automatic based on event  Customized report by expert

Enable customer to mitigate the risks themselves  FSE to mitigate the risk on customer site

Mitigate risks with reports and work orders
Get to know EcoStruxure Asset Advisor

Digital services

Improve operation and maintenance of your installation, boosting productivity and user safety, with EcoStruxure.

Continuous Health Monitoring
Health monitoring of asset (drive, transformer, MCB, motor) by level of stress and aging

Risk Evaluation
Looking at asset and environment to constantly evaluate the level of risk

Mitigate Risks
With reports to customers, service bureau, and filed service experts
### Extensive Drive range for End User processes

A common range of Drives with features that deliver innovations to boost connectivity and user experience across Industrial applications.

<table>
<thead>
<tr>
<th>Power Ranges</th>
<th>ATV600</th>
<th>ATV900</th>
<th>ATV6000</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.75 – 1200 kW</td>
<td></td>
<td></td>
<td>0.3 MW – 20 MW</td>
</tr>
<tr>
<td>Voltage</td>
<td>200 – 400 – 690 V Three-phase</td>
<td></td>
<td>2.4 kV – 13.8 kV</td>
</tr>
<tr>
<td>Motor Type</td>
<td>Induction, PM, Reluctance, IE2-IE3-IE4 motors</td>
<td>Open and Closed Loop</td>
<td>Induction and PM motors</td>
</tr>
<tr>
<td>Motor Control Type</td>
<td>Open Loop</td>
<td>Open and Closed Loop</td>
<td>Open Loop</td>
</tr>
<tr>
<td>Braking</td>
<td></td>
<td>Braking resistor or regenerative drive</td>
<td></td>
</tr>
<tr>
<td>THDI</td>
<td>THDi &lt;%48, THDi &lt;%5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Embedded Functions</td>
<td>• Pump efficiency tracking</td>
<td>• Master-slave load sharing</td>
<td>• Pump efficiency tracking</td>
</tr>
<tr>
<td></td>
<td>• Multi Master-Slave Pump management</td>
<td>• Hoisting management</td>
<td>• Pump and pipe protection</td>
</tr>
<tr>
<td></td>
<td>• Pump and pipe protection</td>
<td>• High accuracy torque control</td>
<td>• Fan Management</td>
</tr>
<tr>
<td></td>
<td>• Fan Management</td>
<td>• Embedded dual-port Ethernet</td>
<td>• &gt;95% Accurate Energy consumption measurement</td>
</tr>
<tr>
<td></td>
<td>• &gt;95% Accurate Energy consumption measurement</td>
<td>• Advanced Safety</td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td>STO (SIL3)</td>
<td>STO - SS1 - SS2 - SOS - SLS - SMS - SBC - SDI (SIL3 Pie)</td>
<td></td>
</tr>
<tr>
<td>Typical Applications</td>
<td>Fluid &amp; Gas Applications:</td>
<td>Demanding Industrial Applications:</td>
<td>Industrial Applications:</td>
</tr>
<tr>
<td></td>
<td>• Water &amp; Waste Water applications</td>
<td>• Hoisting</td>
<td>• MMM Long-distance conveyor</td>
</tr>
<tr>
<td></td>
<td>• Centrifugal and volumetric pumps</td>
<td>• Artificial Lift</td>
<td>• MMM Slurry pump</td>
</tr>
<tr>
<td></td>
<td>• Compressors</td>
<td>• Extruders, crushers</td>
<td>• WWW Raw water pump</td>
</tr>
<tr>
<td></td>
<td>• Fans</td>
<td>• Conveyors, mills</td>
<td>• WWW Lifting station</td>
</tr>
<tr>
<td></td>
<td>• Energy efficiency</td>
<td>• DC Bus Sharing 4 Quadrant applications</td>
<td>• O&amp;G Crude oil transfer pump</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• O&amp;G Pipeline compressor</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Power Plant - Feed water pump</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Power Plant - ID/FD fans</td>
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<tr>
<td>Offer Ranges</td>
<td>Wall-mounting ATV630 / ATV930</td>
<td>Wall-mounting High Protection Degree ATV650 / ATV950</td>
<td>Cabinet Integration ATV600 / ATV900</td>
</tr>
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<td>------------------------------</td>
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<td>----------------------------------------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td><strong>Voltage</strong></td>
<td>Three-phase: 200...240 V</td>
<td>Three-phase: 380...480 V</td>
<td>Three-phase: 200...240 V</td>
</tr>
<tr>
<td></td>
<td>Three-phase: 380...480 V</td>
<td>Three-phase: 380...480 V</td>
<td>Three-phase: 380...480 V</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>0.75 kW to 75 kW</td>
<td>0.75 kW to 90 kW</td>
<td>0.75 kW to 75 kW</td>
</tr>
<tr>
<td></td>
<td>0.75 kW to 315 kW</td>
<td>0.75 kW to 90 kW</td>
<td>0.75 kW to 800 kW</td>
</tr>
<tr>
<td></td>
<td>0.75 kW to 90 kW</td>
<td>0.75 kW to 90 kW</td>
<td>0.75 kW to 1200 kW</td>
</tr>
<tr>
<td><strong>Protection Degree</strong></td>
<td>IP20/21 UL Type 1</td>
<td>IP55 UL Type 12</td>
<td>IP00</td>
</tr>
<tr>
<td></td>
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<tr>
<td><strong>Features</strong></td>
<td>• Ready-to-use for easy integration inside or without an enclosure in an electrical room (IEC/EN60721-3 3C3-3S3, and -15...+50 °C)</td>
<td>• Designed for easy and cost effective integration of drives into cabinets</td>
<td>• Fully customizable drive systems with modular concept</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reduced downtime with easily changeable components such as power module with wheel and power fan inside a drawer accessible from front face</td>
<td>• Ready-to-use and tested at full load</td>
</tr>
</tbody>
</table>
**Offer Range**

**MV drive systems**
- 2.4 kV – 13.8 kV
- 0.3 MW – 20 MW

**ATV660/680 and ATV960/980/990 LV drive systems**
- 200 V – 400 V
- 0.75 kW – 800 kW

**ATV630/650 and ATV930/950 LV drive products**
- 200 V – 400 V
- 0.75 kW – 315 kW

**E House**

**Custom design**