

Need more flexibility & performance
from your motor control solution?

Altivar® & Altistart® line of drives & soft starts delivers.



Make the most of your energySM

Schneider
Electric

Performance you can count on from a single provider of AC drives & soft starts

> Pump & fan applications

Ideal for office buildings, data centers, water wastewater plants and other industrial and commercial facilities

Altivar 21 Mid-featured AC Drives

Offering unmatched value in installed cost and functionality for centrifugal pump and fan applications, the Altivar 21 AC drive offers just the right solution for OEMs and control panel builders. The Altivar 21 AC drive can communicate through its native Modbus® port or be fitted with an option card for connectivity to Lonworks, BACnet, Johnson Controls N2 or Apogee P1 networks.



Altivar 61 Full-featured AC Drives

The Altivar 61 AC drive defines ease of use for variable speed drives used in centrifugal pump and fan applications offering the highest level of features, functions and flexibility. Its evolutionary design will reduce installation and start-up time while providing reliable operation. It is designed for OEMs, end-users and system integrators requiring an easy-to-use product with a high level of functionality and customization that is also easy to maintain. It provides connection options to the major building automation networks, including Lonworks, BACnet, Johnson Controls N2 and Apogee P1, as well as other industrial networks. The Altivar 61 AC drive can be internally fitted with an option card to manage multiple pump installations and can also be fitted with the “Controller Inside” option board, which allows custom programming via the IEC 1131 programming methods.



S-Flex™ Enclosed Drives

The Square D® brand S-Flex enclosed drive is for commercial pump and fan applications. Designed as an off-the-shelf product, the S-Flex enclosed drive is an economical, yet feature-rich package that includes a circuit breaker disconnect and bypass contactors. In addition, the S-Flex enclosed drive is rated as a NEMA Type 1 general-purpose enclosure and is ideal for use in residential high rise and mixed-use buildings, commercial office buildings, schools and campus environments.



E-Flex™ Enclosed Drives

The Square D brand E-Flex enclosed AC drive controller is an efficient and economical enclosed solution for commercial and industrial HVAC, pump and fan applications. The E-Flex enclosed drive features the Altivar 61 AC drive on the inside and provides 100 kAIC rating with a circuit breaker and with an option for bypass contactors. Built to conform to international building code (IBC) and ASCE seismic standards for ground and roof-level installations, the E-Flex enclosed drive meets both indoor and outdoor application requirements with Type 1, Type 12/12K and Type 3R enclosures.



PowerGard™ 18-Pulse Enclosed Drives

Combining adjustable speed drives and power quality solutions for municipal and industrial pumping applications, the Square D brand PowerGard Series C 18-Pulse enclosed drive controller features the Altivar 61 and 71 AC drives. They are ideal for installations specifying “clean power” low harmonic content in compliance with IEEE 519 guidelines for harmonic mitigation. PowerGard 18-Pulse enclosed drive are UL 508 listed and are available in Type 1 general purpose or with fan filter options.



> Machine builder & industrial process applications

Defining ease of use, reliability and cost savings for OEMs, panel builders and system integrators and flexible, robust operation for end-user installations.

Altivar 11 AC Nano-drives

The Altivar 11 AC nano-drive offers excellent drive reliability and performance in a nano-drive form factor. Additional features include adjustable switching frequencies up to 16 kHz and operation in ambient temperatures from -10 °C to +50 °C without derating. Developed for small machine applications, the multi-functional Altivar 11 AC nano-drives can also be configured for use as substitutes for two-speed motor applications or as replacements for DC speed control applications. The contactor style, top in/bottom out wiring and DIN rail mounting option simplify installation. Power Suite™ software connectivity allows for easy configuration of multiple units.



Altivar 31 Mini-drives

The Altivar 31 mini-drive provides a unique mini-drive targeted for small machine OEMs for industrial and commercial applications. The Altivar 31 mini-drive's native Modbus port can be used to integrate into a communication network. As a compact product, the Altivar 31 mini-drive can also take a component approach, which requires side-by-side mounting, while featuring available options to meet specific target market requirements or specifications.



Altivar 71 Full-featured AC Drives

The Altivar 71 full-featured AC drive is designed for the control of three-phase asynchronous motors and synchronous constant-torque applications. Offering increased functionality and adaptable control protocols, it simplifies the user interface with an easy-to-read display and navigation wheel that allows users to scroll through drop-down menus. The Altivar 71 full-featured AC drive simplifies complex applications with customizable capability and can be internally fitted with the "Controller Inside" option board, which allows custom programming via the IEC 1131 programming methods. Reliable, expandable and easy to control, it saves machine builders, panel builders and system integrators time and money.



M-Flex™ and MCC Enclosed Drives

The Square D brand M-Flex and MCC enclosed drive controllers provide a robust, adjustable-speed solution for government, hospitals, universities, pharmaceutical, industrial facilities and municipal pumping applications. These enclosed packages feature the Altivar 61 and Altivar 71 AC drives and are available in Type 1 general purpose or Type 12/12K drip/dust-proof environmental enclosures in integrated or barriered designs.



Altistart 01, Altistart 48 and Enclosed 48 Soft Starts

Altistart 01 Soft Start

This mini soft start ensures a smooth and controlled motor and equipment start while providing torque surge suppression. This highly functional solution can decrease maintenance and increase up-time by preventing mechanical shocks.

Altistart 48 Soft Start


A full-featured soft start that offers unique torque control on starting and stopping. This patented torque control system reduces mechanical stress on equipment and reduces check value maintenance found in pumping systems. It is also EGSA Class 3 generator compliant for use on emergency/standby generators.

Enclosed 48 Soft Start

This enclosed version of the Altistart 48 soft start offers coordinated 100 kA short circuit current ratings with industry-leading seismic qualification for floor-mounted configurations.







Panel mounted/open products solutions

Type of motor control		Simple machines		
Key application/ market segment		<ul style="list-style-type: none"> • conveyers • mixers • gate control • machine movement • small pumps and fans • positive displacement pumps 		
Starters/drives		Altistart O1  <p>Variable speed drives Soft starters and Soft start/soft stop units</p>	Altivar 11 	Altivar 31 
Distribution voltage ranges for 50/60Hz line supply		Single-phase 110 V to 480 V Three-phase 110 V to 690 V	Single-phase 100 V to 120 V Single-phase 200 V to 240 V Three-phase 200 V to 230 V	Single-phase 200 V to 240 V Three-phase 200 V to 240 V Three-phase 380 V to 500 V
Horsepower ratings for three-phase motors		<ul style="list-style-type: none"> • 1/4 HP to 2 HP, 115 V/230 V single-phase motor • 1/2 HP to 30 HP, 208 V/230 V • 1/2 HP to 60 HP, 400 V/480 V • 30 HP to 75 HP, 575 V/600 V 	<ul style="list-style-type: none"> • 1/4 HP to 1 HP, 115 V/230 V single-phase input • 1/4 HP to 3 HP, 208 V/230 V single-phase input • 1/4 HP to 3 HP, 208 V/230 V 	<ul style="list-style-type: none"> • 1/4 HP to 3 HP, 208 V/230 V single-phase input • 1/4 HP to 20 HP, 208 V/230 V • 1/2 HP to 20 HP, 400 V/480 V • 1 HP to 20 HP, 575 V/600 V
Drive	Output frequency –	Equals input frequency	0.5 Hz to 200 Hz	0 Hz to 500 Hz
	Type of control: Asynchronous motor	Reduced voltage start	Sensorless flux vector control	Sensorless flux vector control
	Synchronous motor	–	–	–
	Transient overtorque	–	150% to 170% of nominal motor torque	170% to 200% of the nominal motor torque
Functions				
Number of functions		1	26	50
Number of I/O	Analog inputs	–	1	3
	Logic inputs	3	4	6
	Relay outputs	1	1	2
Communication	Integrated	–	–	Modbus and CANOpen
	Available as an option	<ul style="list-style-type: none"> • Combined with TeSys® U-Line self-protected starter 	–	Gateway options for: <ul style="list-style-type: none"> • DeviceNet • Ethernet TCP/IP • Fipio • Profibus DP
Cards (available as an option)		–	–	208 V/230 V and 400 V/480 V product available with or without local control option. Option includes speed potentiometer, run key and stop key.
Enclosure rating		IP20	IP20	IP20, Type 1 with optional kit
Standards and certifications		IEC/EN 60947-4/2, C-TICK, CSA, UL, CE, CCC	EN 50178, EN 61800-3, EN 55011 - EN 55022: class B and class A gr.1, NOM 117, C-TICK, CSA, UL, N998, CE	EN 50178, EN 61800-3, EN 55011 - EN 55002: class A, class B with option, C-TICK, UL, N998, CE, CSA

▼ Heating Ventilation Air Conditioning



Centrifugal pumps & fans		Complex, high-power machines	
<ul style="list-style-type: none"> pumps fans 		<ul style="list-style-type: none"> material handling high performance movement and regulation lifts, cranes, hoists extruders, shredders presses 	
Altistart 48  Soft start/soft stop units	Altivar 21  Variable speed drives Building (HVAC)▼	Altivar 61  Industry	Altivar 71  Variable speed drives Industry
Three-phase 230 V to 415 V Three-phase 208 V to 690 V	Three-phase 200 V to 240 V Three-phase 380 V to 480 V	Single-phase 200 V to 240 V Three-phase 200 V to 240 V Three-phase 380 V to 480 V Three-phase 525 V to 600 V	Single-phase 200 V to 240 V Three-phase 200 V to 240 V Three-phase 380 V to 480 V Three-phase 525 V to 600 V
<ul style="list-style-type: none"> 2 HP to 1200 HP 	<ul style="list-style-type: none"> 1 HP to 40 HP, 208 V/230 V 1 HP to 100 HP, 400 V/480 V 	<ul style="list-style-type: none"> 1 HP to 10 HP, 208 V/230 V single-phase input 1 HP to 125 HP, 208 V/230 V 1 HP to 900 HP, 400 V/480 V 1 HP to 900 HP, 575 V/600 V available late 2007 	<ul style="list-style-type: none"> 1 HP to 10 HP, 208 V/230 V single-phase input 1/2 HP to 100 HP, 208 V/230 V 1 HP to 700 HP, 400 V/480 V 1 HP to 700 HP, 575 V/600 V available late 2007
Equals input frequency	0 Hz to 200 Hz	0.5 Hz to 1600 Hz up to 50 HP 0.5 Hz to 500 Hz from 50 HP to 900 HP	0.5 Hz to 1600 Hz up to 50 HP 0.5 Hz to 500 Hz from 50 HP to 700 HP
Reduced voltage start and Reduced voltage start and torque control stop	Volts per hertz or sensorless flux vector control	Volts per hertz or sensorless flux vector control	Sensorless flux vector control
–	–	–	Vector control with or without speed feedback
–	Transient overload: 110% of the nominal drive current for 60 seconds	Transient overload: 110% to 120% of the nominal drive current for 60 seconds	200% of the nominal motor torque for 2 seconds 170% for 60 seconds
36	50	> 150	> 150
1 PTC probe	2	2-4	2-4
4	3	6-20	6-20
1	1	1-3	1-3
Modbus	Modbus	Modbus and CANOpen	Modbus and CANOpen
Gateway options for: <ul style="list-style-type: none"> DeviceNet Ethernet TCP/IP Fipio Profibus DP 	<ul style="list-style-type: none"> APOGEE FLN (P1) BACnet LonWorks METASYS N2 	<ul style="list-style-type: none"> APOGEE FLN (P1) BACnet Modbus/Uni-Telway LonWorks Ethernet TCP/IP Ethernet IP Modbus Plus Interbus DeviceNet Profibus DP METASYS N2 Fipio 	<ul style="list-style-type: none"> DeviceNet Ethernet TCP/IP Fipio Interbus Modbus/Uni-Telway, Modbus Plus Profibus DP Ethernet IP
–	–	I/O extension cards “Controller Inside” programmable card, multi-pump cards	Encoder interface cards I/O extension cards “Controller Inside” programmable card
IP20	IP20, Type 1 with optional kit	IP20, Type 1 with optional kit	IP20, Type 1 with optional kit
IEC/EN 60947-4-2, EMC class A and B, DNV, C-TICK, GOST, CCIB, NOM, UL, CE, CCC, CSA	EN 50178, IEC/EN 61800-3, EN 55011, 55022: class A, class B with option, CE, UL, C-TICK, N998, UL 1995 Plenum-rated	IEC/EN 61800-5-1, IEC/EN 61800-3 (environments 1 and 2, C1 to C3), EN 55011, EN 55022, UL 1995 Plenum-rated, IEC/EN 61000-4-2/4-3/4-4/4-5/4-6/4-11, CE, UL, CSA, DNV, C-TICK, NOM 117, GOST	IEC/EN 61800-5-1, IEC/EN 61800-3 (environments 1 and 2, C1 to C3), EN 55011, EN 55022, IEC/EN 61000-4-2/4-3/4-4/4-5/4-6/4-11, CE, UL, CSA, DNV, C-TICK, NOM 117, GOST

Enclosed & MCC packaged products

<p>Type of motor control</p> <p>Key application/ market segment</p>	<p>Soft starts commercial & industrial</p> <ul style="list-style-type: none"> pumps fans conveyors centrifuges lifts agitators mixers grinders crushers presses 	<p>Adjustable speed drives commercial HVAC & retrofits</p> <ul style="list-style-type: none"> pumps fans 	<p>Adjustable speed drives commercial & industrial HVAC</p> <ul style="list-style-type: none"> pumps fans
<p>Packaged products</p> <p>Integrated controls protected within enclosures, optimized with disconnect means, circuit breakers, push buttons, selector switches, control logic, communication and miscellaneous options designed to meet application requirements.</p> <p>Product platform</p>	<p>Enclosed 48</p>  <p>Altistart 48</p>	<p>S-Flex</p>  <p>Altivar 21</p>	<p>E-Flex</p>  <p>Altivar 61 (variable torque)</p>
<p>Distribution voltage ranges for 50/60Hz line supply</p>	<p>208 VAC, 240 VAC, 480 VAC, 600 VAC</p>	<p>208 VAC, 240 VAC, 480 VAC</p>	<p>208 VAC, 240 VAC, 480 VAC</p>
<p>Horsepower ratings</p>	<ul style="list-style-type: none"> 3 HP to 200 HP, 208 V 5 HP to 250 HP, 230 V 10 HP to 500 HP, 480 V 15 HP to 600 HP, 575 V 	<p>Variable torque:</p> <ul style="list-style-type: none"> 1 HP to 40 HP, 200 V/230 V 1 HP to 100 HP, 460 V 	<p>Variable torque:</p> <ul style="list-style-type: none"> 1 HP to 100 HP, 460 V 1 HP to 50 HP, 208 V/230 V
<p>Configurable options</p>	<p>Customizable product</p> <ul style="list-style-type: none"> non-reversing reversing shunt trip <p>Extensive options</p>	<p>Standard product</p> <ul style="list-style-type: none"> drive with isolation/bypass <p>Communication options</p>	<p>Configurable product</p> <ul style="list-style-type: none"> drive with disconnect means drive with isolation/bypass <p>Limited options</p>
<p>Enclosure ratings</p>	<p>Type 1 general purpose Type 12 dust/drip proof Type 3R outdoor</p>	<p>Type 1 general purpose</p>	<p>Type 1 general purpose Type 12/12K dust/drip proof Type 3R outdoor</p>
<p>Communication</p>	<ul style="list-style-type: none"> Modbus (native) Modbus Plus Ethernet TCP/IP (gateway) DeviceNet (gateway) 	<ul style="list-style-type: none"> Modbus RJ45 (included as standard) BACnet LonWorks Metasys N2 APOGEE FLN (P1) 	<ul style="list-style-type: none"> APOGEE FLN (P1)* BACnet* Ethernet TCP/IP LonWorks MetSYS N2* Modbus Plus* Profibus DP
<p>Standards and certifications</p>	<p>UL 508, cUL/CSA, Seismic qualification ICC ES AC156 acceptance test protocol</p>	<p>UL 508A, Seismic qualification ICC ES AC156 acceptance test protocol</p>	<p>UL 508C, cUL, Seismic qualification ICC ES AC156 acceptance test protocol</p>

▼ Heating Ventilation Air Conditioning, * Available with Altivar 61 based product

<p>Adjustable speed drives commercial, industrial, water/wastewater, strategic accounts</p> <ul style="list-style-type: none"> • aggregates • government • healthcare • schools • industrial facilities • manufacturing process • municipal pumping • pharmaceutical 	<p>Adjustable speed drives (18-Pulse) industrial, water/wastewater, strategic accounts</p> <ul style="list-style-type: none"> • clean power technology • high horsepower • process control applications • fans 	<p>Soft starts & adjustable speed drives industrial, water/wastewater, strategic accounts</p> <ul style="list-style-type: none"> • high density construction • pumps • fans • intelligent networking
<p>M-Flex</p>  <p>Altivar 61 (variable torque) Altivar 71 (constant torque)</p> <p>208 VAC, 240 VAC, 480 VAC</p>	<p>PowerGard Series C</p>  <p>Altivar 61 (variable torque) Altivar 71 (constant torque)</p> <p>480 VAC</p>	<p>Model 6 motor</p>  <p>Altstart 48 Altivar 61 (variable torque) Altivar 71 (constant torque)</p> <p>208 VAC, 240 VAC, 480 VAC, 600 VAC</p>
<p>Variable torque:</p> <ul style="list-style-type: none"> • 1 HP to 500 HP, 460 V • 1 HP to 50 HP, 208 V/230 V <p>Constant torque:</p> <ul style="list-style-type: none"> • 1 HP to 450 HP, 460 V • 1 HP to 40 HP, 208 V/230 V 	<p>Variable torque:</p> <ul style="list-style-type: none"> • 50 HP to 500 HP, 460 V <p>Constant torque:</p> <ul style="list-style-type: none"> • 40 HP to 450 HP, 460 V 	<p>Variable torque:</p> <ul style="list-style-type: none"> • 1 HP to 500 HP, 460 V • 1 HP to 50 HP, 208 V/230 V <p>Constant torque:</p> <ul style="list-style-type: none"> • 1 HP to 450 HP, 460 V • 1 HP to 40 HP, 208 V/230 V <p>Soft start:</p> <ul style="list-style-type: none"> • 3 HP to 200 HP, 208 V • 5 HP to 250 HP, 230 V • 10 HP to 500 HP, 480 V • 15 HP to 600 HP, 575 V
<p>Customizable product</p> <ul style="list-style-type: none"> • drive with disconnect means • drive with integrated bypass • drive with barriered bypass • drive with reduced voltage bypass • drive with soft start bypass <p>Extensive options</p>	<p>Customizable product</p> <ul style="list-style-type: none"> • drive with disconnect means • drive with integrated bypass • drive with barriered bypass • drive with reduced voltage bypass • drive with soft start bypass • soft start with options <p>Extensive options</p>	<p>Customizable product</p> <ul style="list-style-type: none"> • drive with disconnect means • drive with integrated bypass • drive with barriered bypass • drive with reduced voltage bypass • drive with soft start bypass <p>Extensive options</p>
<p>Type 1 general purpose Type 1G general purpose with gasketing Type 12/12K dust/drip proof</p>	<p>Type 1 general purpose Type 1B general purpose with fan filters</p>	<p>Type 1 general purpose, Type 1 gasketed Type 12/12K dust/drip proof Type 3R outdoor</p>
<ul style="list-style-type: none"> • APOGEE FLN (P1)* • BACnet* • DeviceNet • EtherNet TCP/IP • FIPIO • Interbus S • LonWorks* • MetSYS N2* • Modbus/Unitelway • Modbus Plus • Profibus DP 	<ul style="list-style-type: none"> • APOGEE FLN (P1)* • BACnet* • DeviceNet • Ethernet TCP/IP • FIPIO • Interbus S • LonWorks* • MetSYS N2* • Modbus/Uni-Telway • Modbus Plus • Profibus DP 	<ul style="list-style-type: none"> • APOGEE FLN (P1)* • BACnet* • DeviceNet • Ethernet TCP/IP • FIPIO • Interbus S • LonWorks* • MetSYS N2* • Modbus/Uni-Telway • Modbus Plus • Profibus DP
<p>UL 508A, UL 508C, cUL, Seismic qualification ICC ES AC156 acceptance test protocol</p>	<p>UL 508A, UL 508C, cUL, Seismic qualification ICC ES AC156 acceptance test protocol</p>	<p>UL 845, CSA, NOM, Seismic qualification ICC ES AC156 acceptance test protocol</p>

Talk to someone you can trust



The Altivar family of variable speed AC drives and soft starts presents the most advanced and user-friendly solutions in the marketplace. Featuring proprietary motor control algorithms to achieve optimal reaction times and complete scalability to match your application requirements for speed, size and protection, the complete line of Altivar and Altistart products provides the flexibility and performance to:

- Meet the needs of a broad range of industries including HVAC, pump, material handling, hoisting, packaging and many more.
- Reduce your energy costs using proprietary energy saving technologies available only from Schneider Electric.
- Improve your up-time by simplifying installation, configuring and maintenance by providing advanced diagnostics, industry leading voltage ride thru capability and seismic qualified products.

We also work with you to deliver the benefits of a global service and support organization to further increase the value of working with Schneider Electric. Our product specialists, industry experts, distributors, partners and the countless other members of the Schneider Electric family are dedicated to helping you make the most of your energy everyday. Contact your local sales representative today to learn how Schneider Electric can improve operational performance and help your business to achieve a competitive advantage. Or visit www.us.Schneider-Electric.com/Drives.

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