Section 18

AC Drives and Soft Starters

Altivar™ 212

Altivar™ 320

Altivar™ 340

Altivar™ 680/980
Low Harmonic

Altivar™ 650

Altivar™ 930

Altistart™ 22
Soft Starters

Altistart™ 480
Soft Starters

Overview of Altivar™ 12

Type of Motor Control		Simple Machines
Key Application/Market Segment		• Conveyors • Mixers • Gate control • Machine movement
Drives		**Altivar 12**
		
Distribution voltage ranges for 50/60 Hz line supply		Single-phase 100–120 V Single-phase 200–240 V Three-phase 200–230 V
Horsepower ratings for three-phase motors		1/4–1 hp, 115/230 V single-phase input 1/4–3 hp, 208/230 V single-phase input 1/4–5 hp, 208/230 V
Drives	Output frequency	0.5– 400 Hz
	Type of Control	
	Asynchronous motor	Sensorless flux vector control Kn2 quadratic ratio for pump and fan
	Synchronous motor	—
	Transient overtorque	150% to 170% of nominal motor torque
Functions Number of Functions		40
Number of I/O	Analog inputs	1
	Analog outputs	1
	Logic inputs	4
	Logic/Relay outputs	1 L.O., 1 N.O./1 N.C. relay contacts
Communication	Integrated	Modbus™
	Available as an option	—
Other Option Cards		—
Enclosure Rating		IP20
Standards and Certifications		EC/EN 61800-5-1, IEC/EN 61800-3 (Environments 1 and 2, categories C1 and C3) CE, UL, CSA, C-Tick, NOM, GOST

Overview of Altivar™ 320

Type of Motor Control		Complex Machines	
Key Application/Market Segment		• Material handling • Packaging • Textiles • Mechanical actuators • Material working • Hoisting	
Drives		**Altivar 320●●●●●C**	**Altivar 320●●●●●B**
			
Distribution voltage ranges for 50/60 Hz line supply		Single-phase 200–240 V Three-phase 200–240 V Three-phase 380–500 V Three-phase 525–600 V	Single-phase 200–240 V Three-phase 380–500 V
Horsepower ratings for three-phase motors		1/4–3 hp, 200/240 V single-phase input 1/4–20 hp, 200/240 V three-phase input 1/2–5 hp, 380/500 V three-phase input 1–20 hp, 525/600 V three-phase input	1/4–3 hp, 200/240 V single-phase input 1/2–20 hp, 380/500 V three-phase input
Drives	Output frequency	0.1–599 Hz	
	Type of Control		
	Asynchronous motor	U/F ratio (2 points, 5 points, energy saving, quadratic), Flux vector control without sensor (Standard and Energy saving)	
	Synchronous motor	Vector control without sensor	
	Transient overtorque	Up to 200% Tn in an open loop	
Functions Number of Functions		>150 + ATVLogic	
Number of I/O	Analog inputs	3: 1 Bipolar differential ±10 V, 1 with Voltage ±10 V, and 1 with current (0–20 mA)	
	Analog outputs	1: Configurable as voltage (0–10 V) or current (0–20 mA)	
	Logic inputs	6: 4 configurable (positive or negative logic), 1 with PTC probe input, 1 x 20 kHz pulse input	
	Logic/Relay outputs	Logic output—1: Configurable as voltage or current Relay outputs—2: 1 with NO/NC contacts and 1 with NC contact	
Communication	Integrated	Single port compatible with CANopen and Modbus serial line	
	Available as an option	Ethernet IP; Modbus TCP; CANopen RJ45 Daisy Chain, Sub-D, and screw terminals; PROFINET; Profibus DP V1; EtherCAT; DeviceNet; POWERLINK	
Other Option Cards		—	
Enclosure Rating		IP20	IP20
Standards and Certifications		IEC 61800-5-1; IEC 61800-3 (environments 1 and 2, category C2); UL61800–5–1; EN 954–1 category 3; ISO/EN 13849–1/-2 category 3 (PLe); IEC 61508 (parts 1 & 2) SIL 2; EN 50495E; IEC 60721–3–3, classes 3C3 and 3S2; CSA C22.2 No. 274; CE, UL, CSA, RCM, EAC, ATEX	

Overview of Altivar™ 340

Type of Motor Control		Complex Machines		
Key Application/Market Segment		• Material handling • Packaging • Textiles • Mechanical actuators • Material working • Hoisting		
Drives		**Altivar 340●●●●●●**	**Altivar 340●●●N4E**	
				
Distribution voltage ranges for 50/60 Hz line supply		Three-phase 380–480 V		
Horsepower ratings for three-phase motors		1–30 hp	1–30 hp	40–100 hp
Drives	Output frequency	0.1–599 Hz		
	Type of Control			
	Asynchronous motor	Voltage vector control without sensor, Current vector control with sensor, U/F 5 points, Energy saving mode Adaptive Cascade Vector Control (ACVC)		
	Synchronous motor	Open-loop synchronous motor control (with and without stall monitoring), closed-loop synchronous motor control, synchronous reluctance motor control		
	Transient overtorque	Up to 200% Tn in an open loop		Up to 180% Tn in open or closed loop control
Functions Number of Functions		>150		>150
Number of I/O	Analog inputs	2: 1 configurable (voltage/current/thermal probe) and 1 with bipolar differential ±10 Vdc		3: Configurable as voltage (0–±10 Vdc) or current (0–20 mA / 4–20 mA), including 2 for probes (PTC, PT100, PT1000, or KTY84)
	Analog outputs	1: Configurable as voltage (0–10 Vdc) or current (x–20 mA)		2: Configurable as voltage (0–10 Vdc) or current (x–20 mA)
	Logic inputs	5 + 2: 5 configurable (positive or negative logic) and 2 which can be configured as digital input or output		8: Configurable (positive or negative logic)
	Logic/Relay outputs	Logic outputs—2: Assignable Relay outputs—2: 1 with NO/NC contacts and 1 with NC contacts		Logic outputs—1: Assignable Relay outputs—3: 1 with NO/NC and 2 with NO contacts
Communication	Integrated	2 ports for Modbus serial line	Dual port for Ethernet IP/Modbus TCP, 2 ports for Modbus serial line	
	Available as an option	• CANopen RJ45 Daisy Chain • Sub-D and screw terminals • PROFINET • Profibus DP V1 • EtherCAT • DeviceNet • CIP safety options VW3A3809		
Other Option Cards		—		
Enclosure Rating		IP20	IP20	IP20
Standards and Certifications		UL61800-5-1, EN/IEC 61800-3, Environment 1 category C2, EN/IEC 61800-3, Environment 2 category C3, EN/IEC 61800-5-1, IEC 60721-3-3, classes 3C3 and 3S3, IEC 61508, IEC 13849-1, Reach/RoHS, CSA C22.2 No. 274 Ce, UL, CSA, TUV, RoHS, EU, China		

Overview of Altivar™ Process 900

Type of Motor Control		
Key Application/Market Segment		• Material handling • Artificial lift • High performance movement and regulation • Lifts, cranes, hoists • Extruders, shredders • Presses • Positive displacement pumps
Drives		**Altivar Process 900** *New!*
		
Distribution voltage ranges for 50/60 Hz line supply		Three-phase 200–240 V Three-phase 380–480 V Three-phase 500–600 V Three-phase 500–690 V
Horsepower ratings for three-phase motors		1–100 hp, 208/230 V 1–500 hp, 400/480 V 1–100 hp, 400/480 V (ATV950) 3–100 hp, 500/600 V 3–125 hp, 500/690 V
Drives	Output frequency	0.5–599 Hz
	Type of Control	
	Asynchronous motor	Voltage vector control, currrent vector control closed loop, 5-segment V/F profile, energy saving, synchronous reluctance motor, ACVC – Adaptive Cascade Vector Control
	Synchronous motor	Open loop synchronous motor, closed-loop synchronous motor, open-loop synchronous motor variable torque
	Transient overtorque	Normal duty: 120% overcurrent for 60 s. Heavy duty: 150% overcurrent for 60 s.
Functions Number of Functions		45+
Number of I/O	Analog inputs	3–5
	Analog outputs	2
	Logic inputs	8–14
	Logic/Relay outputs	3–6
	Safety function inputs	2
Communication	Integrated	Modbus™ and Ethernet IP /Modbus TCP dual port
	Available as an option	- CANopen: Daisy Chain RJ45, Sub-D and screw terminals - ProfiNet - Profibus DP V1 - DeviceNet - EtherCAT - CIP Safety options VW3A3809
Other Option Cards		I/O extension cards, Encoder input cards, Resolver input cards
Enclosure Rating		Type 1, Type 12 (ATV950 only)
Standards and Certifications		UL 508C, UL File E116875, CSA, TUV, REACH, UL50, EN/IEC 61800-3, EN/IEC 61800-3 environment 1 category C2, EN/IEC 61800-3 environment 2 category C3, EN/IEC 61800-5-1, IEC 61000-3-12, IEC 60721-3, IEC 61508

Overview of Altivar™ 212 and Altivar™ Process 600

Type of Motor Control		Centrifugal Pumps and Fans	Pumps and Fans
Key Application/Market Segment		• Pumps • Fans	• Pumps • Fans • General purpose applications in: – Water & Wastewater – Oil & Gas – Mineral, Mining & Metals – Food & Beverage
Drives		**Altivar 212**	**Altivar Process 600** *New!*
			
Distribution voltage ranges for 50/60 Hz line supply		Three-phase 200–240 V Three-phase 380– 480 V	Three-phase 200–240 V Three-phase 380–480 V Three-phase 500–600 V Three-phase 500–690 V
Horsepower ratings for three-phase motors		30–40 hp, 208/230 V 1–100 hp, 400/480 V	1–100 hp, 208/230 V 1–500 hp, 400/480 V 1–100 hp, 400/480 V (ATV650) 3–100 hp, 500/600 V 3–125 hp, 500/690 V
Drives	Output frequency	0–200 Hz	0.1–500 Hz
	Type of Control		
	Asynchronous motor	Volts per hertz or sensorless flux vector control	Voltage/frequency: quadratic, 2 point or 5 points, or optimized for energy savings
	Synchronous motor	Permanent magnet motor control without speed feedback	Vector control for permanent magnet motors
	Transient overtorque	Transient overload: 110% of the nominal drive current for 60 seconds	Normal Duty: 110% of the nominal motor torque for 60 s. Heavy Duty: 150% of the nominal motor torque for 60 s.
Functions Number of Functions		50	>30 pump dedicated functions, additional for fan and material handling applications
Number of I/O	Analog inputs	2	3–5
	Analog outputs	1	2
	Logic inputs	3	6–12
	Logic/Relay outputs	2: 1 N.O./1 N.C. and 1 N.O. relay contacts	3–6
	Safety function inputs	—	2
Communication	Integrated	Modbus™, Apogee P1, BACnet, Metasys® N2	Modbus/Ethernet TCP and Modbus Serial Link
	Available as an option	- LonWorks	• EtherNet/IP and Modbus/TCP Dual Port • EtherNet/IP and Modbus/TCP Dual Port with MultiVFD • BACnet MS/TP • BACnet MS/TP (supporting Multipump applications) • CANopen: Daisy Chain RJ45, Sub-D, and Screw Terminals • ProfiNet • Profibus DP V1 • DeviceNet
Other Option Cards		—	I/O extension cards Multipump cards VW3A3712
Enclosure Rating		IP20, Type 1 with optional kit, Type 12 @460 Vac	Type 1, Type 12 (ATV650 only)
Standards and Certifications		EN 50178, IEC/EN 61800-3, EN 55011, 55022: class A, class B with option, CE, UL, C-TICK, N998, UL 1995 Plenum-rated AHRI Certified	UL 508C, UL File E116875, CSA, TUV, REACH, UL50, EN/IEC 61800-3, EN/IEC 61800-3 environment 1 category C2, EN/IEC 61800-3 environment 2 category C3, EN/IEC 61800-5-1, IEC 61000-3-12, IEC 60721-3, IEC 61508

Overview of Altistart™ 01 / 22 / 480

Type of Motor Control		Simple Machines	Normal-duty Machines	Heavy-duty Machines
Key Application/Market Segment		• Conveyors • Mixers • Gate control • Machine movement • Small pumps and fans • Positive displacement pumps	• Pumps • Fans • Turbines • Compressors • Conveyors • Conveyor belts • Lifting screws • Escalators	• Pumps • Fans • Punch presses • Band saws • Crushers • Centifuse • Conveyors (high inertia loads
Soft Starters		**Altistart 01**	**Altistart 22**	**Altistart 480**
				
Distribution voltage ranges for 50/60 Hz line supply		Single-phase 110–480 V Three-phase 110– 690 V	Three-phase 208– 600 Vac	Three phase 208 V–690 V
Horsepower ratings for three-phase motors		1/4–2 hp 115/230 V 1/2–30 hp, 208/230 V 1/2–60 hp, 400/480 V 30–75 hp, 575/600 V	3–500 hp	3–1200 hp
Drives	Output frequency	Equals input frequency	—	Equals input frequency
	Type of Control:	Reduced voltage start	Controlled starting and stopping, via voltage and torque	Torque control, voltage control
	Asynchronous motor			
	Synchronous motor	—	—	—
	Typical starts per hour rating	—	6	—
Functions Number of Functions		1	29	
Number of I/O	Analog inputs	—	1 PTC probe	PTC or PT100, 2- or 3-wire probe
	Logic inputs	3	3	4
	Relay outputs	1	2 (N.O./N.C)	3
Communication	Integrated	—	Embedded Modbus	Modbus
	Available as an option	Combined with TeSys™ U-Line self-protected starter	–	Serial link option modules Modbus TCP EtherNet/IP PROFINET PROFIBUS DP V1 CAN open daisy chain Sub-D, and screw terminal block
Other Option Cards		—	—	—
Enclosure Rating		IP20	IP00, IP20	IP20, IP00
Standards and Certifications		EC/EN 60947-4/2, C-Tick, CSA, UL, CE, CCC	UL, CSA, CE, GOST, C-TICK, CCC, and RoHS directive	EC/EN 60947-4/2, EMC class A and B, cULus, UKCA, CCC, RCM, EAC, DNV, ABS, BV, CCS, REACH, RoHs

Overview of S-Flex™ and Altistart™ Enclosed 22 / Enclosed 480

Type of Motor Control	Adjustable Speed Drives Commercial HVAC & Retrofits	Soft Starters Commercial	North America Enclosed Soft Starters
Key Application/Market Segment	• Pumps • Fans • Scroll Compressors	• Pumps • Fans • Conveyors • Centrifuges	• Agitators • Mixers • Grinders • Crushers
Packaged Products	**S-Flex (Altivar™ 212)**	**Altistart Enclosed 22**	**Altistart Enclosed 480**
			 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.
Distribution voltage ranges for 50/60 Hz line supply	208 Vac, 240 Vac, 480 Vac	208 Vac, 230 Vac, 460 Vac, 575 Vac	208 Vac, 240 Vac, 480 Vac, 690 Vac
Horsepower ratings for three-phase motors	**Variable torque** 30–40 hp, 208/230 V 1–100 hp, 460 V	**Type 1 and Type 12:** 3–150 hp, 208 V 5–200 hp, 230 V 10–400 hp, 460 V 15–500 hp, 575 V **Type 3R or 50˚C Rated:** 3–125 hp, 208 V 5–150 hp, 230 V 10–400 hp, 460 V 15–500 hp, 575 V	**Type 1, Type 12, and Type 3R:** 3–200 hp, 208 V 5–250 hp, 230 V 10–500 hp, 480 V 15–600 hp, 575 V
Configurable options	**Configurable products:** Drive with isolation/bypass Non-bypass Drive input disconnect switch Line contactor Communication options	Basic shunt tip Full featured shunt trip non-reversing isolation Reversion isolation Integral Full Voltage Bypass	**Customizable products:** Non-reversing Reversing Shunt Trip Extensive options
Enclosure ratings	Type 1 general purpose Type 12 industrial use (Dust-Tight/Drip-Tight) Type 3R outdoor use	Type 1 general purpose Type 12 industrial use (Dust-Tight/Drip-Tight) Type 3R outdoor use	Type 1 general purpose Type 12 dust/drip proof Type 3R outdoor service entrance
Communication	• Modbus RJ45 (included as standard) • BACnet (embedded) • LonWorks (option card) • Metasys N2 (embedded) • APOGEE FLN (P1) (embedded)	• Modbus (embedded)	• Modbus (embedded) • Modbus TCP • EtherNet/IP • CANopen • PROFINET • PROFIBUS DP
Standards and Certifications	UL 508C, Seismic qualification ICC ES AC156 acceptance test protocol	Service Entrance Rating, UL Listed per UL 508 under category NKJH, Conforms to applicable NEMA ICS, NFPA, and IEC standards, Manufactured under ISO9001 standards, Factory modification E10 provides Canadian cUL certification per C22.2, No.14, Seismic qualification	UL 508, cUL/CSA, Seismic qualification ICC ES AC156 acceptance test protocaol, ABS

Overview of Altivar™ 680/980 Process, and 660/960 Process

	North America Drive Systems	
Key Applications and Market Segment	• Water Waste Water • Regenerative Applications • Oil and Gas • Mining, Minerals, and Metals • Food and Beverage	• Water Waste Water • Regenerative Applications • Oil and Gas • Mining, Minerals, and Metals • Food and Beverage
	Altivar 680/980 Process Drives *New!*	**Altivar 660/960 Process Drives**
		
Brief Description	The world's first three-level low harmonic drive, Altivar 680/980 drive solutions are designed for pumping or mechanical movement applications where harmonic mitigation and overall size is a priority. The ATV680/980 has embedded, industry-leading harmonic mitigation technology, which results in THDi levels of 2.3%. With its small footprint and capability to be customized, the ATV680/980 is a very flexible low harmonic solution. The ATV680/980 is a more efficient, more compact, and higher performing active rectification drive than any of our competitors by the integration of a common mode suppressing filter, and unique active filter resonance control. The ATV680 is capable of 120% regeneration, while the ATV980 is capable of 180% of nameplate current.	The Altivar 660 Process System provides a wide range of fully tested and ready to connect drive solution. Starting from a compact pre engineered system to a fully engineered complex solution.
Special Features	Industry Leading Harmonic Mitigation: 2.3% THDi Common Mode Voltage Suppression Reduction of Bearing Currents Generator Supply Capability	Compact design to save space Dynamic QR Codes 50° C option available Pump curves embedded Multiple options available Process control embedded Embedded web server
Enclosure Ratings	UL Type 12	UL Type 1, UL Type 12, UL Type 3R
Power Range	125–900 hp, Normal Duty (ND)	

	208/340 V	460 V
Type 1	1–60 hp	1–900 hp, ND
Type 12	1–60 hp	1–900 hp, ND
Type 3R	1–60 hp	1–125 hp, ND

Distribution voltage ranges for 50/60 Hz line supply	480 Vac	208/240 Vac, 480 Vac
Standards / Certifications	UL/cUL Listed per UL508A, IEEE519 Compliant (harmonic filter required), Conforms to applicable NEMA ICS, NFPA, and IEC standards, Service entrance available, Manufactured under ISO 9001 standards.	UL/cUL Listed per UL508A, IEEE519 Compliant, Conforms to applicable NEMA ICS, NFPA, and IEC standards, Service entrance available, Manufactured under ISO 9001 standards.
Contact your local Schneider Electric Field Office for further information		

Altivar Outdoor 630/930

Overview of Altivar™ Outdoor 630/930

Key Application/Market Segment	• Oil and Gas • Rod Pump Controls, PCP Controls • ESP Controls, HPS Controls • Irrigation
Brief Description	The Altivar Outdoor 630/930 is a UL Type 3R rated drive designed for pumping solutions in outdoor environments, especially oil and gas.
Special Features	- Door-on-door - 50 °C rated - Optional cold weather option - Wide array of options available - Quick lead time
Enslosure Ratings	Nema Type 3R Outdoor
Power Range	20–250 hp, Heavy Duty
Distribution Voltage Ranges for 50/60 Hz Line Supply	480 Vac
Standards / Certifications	- UL Listed per UL 508A - Conforms to applicable NEMA ICS,NFPA, & IEC standards - Service entrance rated - Manufactured under ISO 9001 standards
Contact your local Schneider Electric Field Office for further information	

ATV212HU15N4

ATV212W075N4

ATV212HD30M3X

ATV212HD37N4

Altivar™ 212 Drives

The AHRI (Air-Conditioning, Heating, & Refrigeration Institute) certified Altivar 212 drive is for use with three-phase asynchronous and permanent magnet motors for variable torque pump, fan, and scroll compressor applications. Select the Altivar 212 drive using the motor nameplate voltage, the full load ampere rating and the table below. The Altivar 212 drive includes 3 logic inputs, 2 analog inputs, 1 analog output, and 2 relay outputs (with 1 NO and 1 NO/NC contacts). The Altivar 212 drive includes an integrated 4 digit, 7 segment LED display with a 7 button keypad and includes an RJ45 Modbus port plus a four-screw terminal block for BACnet, Modbus, Metasys N2 and Apogee P1 communication protocols. LonWorks™ is available in an option card.

Table 18.1: Altivar 212 Selection

AC Input Line Voltage	Three-Phase Motor Power *[1]*		Continuous Output Current	Enclosure Rating		
				IP 20*[2]* Open Style Product	Type 1 Conduit Kit Purchase ATV212 and Conduit Kit for Type 1 Installation	Type 12 / IP54*[3]*
	HP	kW	A *[1]*	Catalog Number	Catalog Number	Catalog Number
	30	22	88	ATV212HD22M3X	VW3A9206	—
	40	30	117	ATV212HD30M3X	VW3A9208	—
380/480 Vac -15%, +10% Three-Phase	1	0.75	2.2	ATV212H075N4	VW3A31814	ATV212W075N4
	2	1.5	3.7	ATV212HU15N4	VW3A31814	ATV212WU15N4
	3	2.2	5.1	ATV212HU22N4	VW3A31814	ATV212WU22N4
	4	3	7.2	ATV212HU30N4	VW3A31815	ATV212WU30N4
	5	4	9.1	ATV212HU40N4	VW3A31815	ATV212WU40N4
	7.5	5.5	12	ATV212HU55N4	VW3A31815	ATV212WU55N4
	10	7.5	16	ATV212HU75N4	VW3A31816	ATV212WU75N4
	15	11	22.5	ATV212HD11N4	VW3A31816	ATV212WD11N4
	20	15	30.5	ATV212HD15N4	VW3A31817	ATV212WD15N4
	25	18.5	37	ATV212HD18N4	VW3A31817	ATV212WD18N4
	30	22	43.5	ATV212HD22N4S	VW3A31817	—
	30	22	43.5	ATV212HD22N4	VW3A9206	ATV212WD22N4
	40	30	58.5	ATV212HD30N4	VW3A9206	ATV212WD30N4
	50	37	79	ATV212HD37N4	VW3A9207	ATV212WD37N4
	60	45	94	ATV212HD45N4	VW3A9207	ATV212WD45N4
	75	55	116	ATV212HD55N4	VW3A9208	ATV212WD55N4
	100	75	160	ATV212HD75N4	VW3A9208	ATV212WD75N4
UL File E116875, CSA 2278406, Plenum rated per UL 508C for UL 1995 installations. NOM, CE						

[1] These horsepower, wattage and continuous ampere ratings apply to the default switching frequency and maximum 40 °C ambient. Refer to the installation manual for derating curves as a function of switching frequency, ambient temperature, and mounting conditions.
[2] IP20 Altivar 212 drives can be installed as UL Type 1 with an optional conduit box by following the instructions in the Installation Manual.
[3] For ATV212W... drives with Class B EMC filter, add the letter “C” to the end of the standard catalog number.


VW3A1101


VW3A1101
VW3A1102
VW3A1103
VW3A1104R10


VW3A8121


LonWorks Option Card
VW3A21212

Altivar™ 212 Accessories

Table 18.2: Altivar 212 Options and Accessories

Description		For Use on Drives	Catalog Number
User Interface Options			
Remote LCD Display Keypad	8 line, 24 characters per line, plain text, 8 keys, rotary wheel, 60 °C IP54 rated	Altivar 212, 320, 630, and 930	VW3A1101 *[4]*
Remote LCD Keypad Mounting Accessories	IP54 rated kit for remote mounting LCD keypad on enclosure door. Clear plastic door for use with VW3A1102 for IP65 rating and tamper resistant. Female / Female right angle RJ45 adaptor, to connect cable and keypad. *[5]*	VW3A1101	VW3A1102 *[4]*
		VW3A1102	VW3A1103 *[4]*
		VW3A1101	VW3A1105 *[4]*
	Remote LCD Keypad Mounting Cables — Equipped with two RJ45 connectors 1 meter length	VW3A1101	VW3A1104R10 *[6]*
	3 meter length	VW3A1101	VW3A1104R30 *[6]*
	5 meter length	VW3A1101	VW3A1104R50 *[6]*
	10 meter length	VW3A1101	VW3A1104R100 *[6]*
Multi-loader	Use to copy configurations between like drives, PC Soft, or SoMove PC Software	Altivar 12, 212, 320, 630, 930, and Altistart 22	VW3A8121
Potentiometer	Operator, mounting collar, 2.5 kilohm, ½ watt potentiometer	Altivar 212	ATVPOT25K
Software			
Altivar and Altistart Programming Cable	For use with the iPad Configuration App. 30–pin Mobile to RS-485 Converter Cable	Altivar 12, 212, and SFLEX, Altistart 22, 480	VW3A8151R20U
SoMove	This software enables the user to configure, set, debug and organize maintenance task for the complete Altivar product line and the Altistart 22 and Altistart 48 soft starters. It can also be used to customize the integrated display terminal menus. It can be used with a direct connection or a Bluetooth® wireless connection. Free download www.schneider-electric.us		
USB/RS485 cable: equipped with USB connector and RJ45 connector		Altivar and Altistart	TCSMCNAM3M002P *[6]*
Communication Option			
LonWorks Communication Card Option	Provides a four-screw terminal block for connecton to LonWorks network. Install in place of standard control board that comes mounted in the Altivar 212 drive. The I/O count is reduced to 3LI, 1 AI and 1 NO/NC relay	Altivar 212	VW3A21212
Mounting Kit			
DIN Rail Mounting Kit	For installation on 35 mm wide DIN rail	Altivar 212H075M3X–U22M3X Altivar 212H075N4–U22N4	VW3A31852

[4] IP20 Altivar 212 drives can be installed as UL Type 1 with an optional conduit box by following the instructions in the installation manual.
[5] Not required if using VW3A1102.
[6] For ATV212W... drives with Class B EMC filter, add the letter “C” to the end of the standard catalog number.

Altivar 12 Drive

Altivar™ 12 Drives

Big function in a small footprint. The Altivar 12 variable frequency drive combines flexibility, reliability, and the most advanced sensorless flux vector technology into very small space. This drive features an integrated communications port, user-friendly navigation wheel on the faceplate, and an optional multi-loader that streamlines set-up by making programming quick and easy. All of this comes with the versatility to handle applications from simple to complex, across industries, and harsh environments.

Table 18.3: Altivar 12 Selection

Voltage, +10%, -15%, 50/60 Hz		Motor Power		Nominal Current Rating A (Note 1)	Catalog Number (Note 2)
Input	Output	kW	hp		
11 V Single Phase	230 V Three Phase	0.18	0.25	1.4	ATV12H018F1
		0.37	0.5	2.4	ATV12H037F1
		0.37	0.5	2.4	ATV12P037F1
		0.75	1	4.2	ATV12H075F1
230 V Single Phase	230 V Three Phase	0.18	0.25	1.4	ATV12H018M2
		0.37	0.5	2.4	ATV12H037M2
		0.37	0.5	2.4	ATV12P037M2
		0.55	0.75	3.5	ATV12H055M2
		0.55	0.75	3.5	ATV12P055M2
		0.75	1	4.2	ATV12H075M2
		0.75	1	4.2	ATV12P075M2
		1.5	2	7.5	ATV12HU15M2
		2.2	3	10	ATV12HU22M2
230 V Three Phase	230 V Three Phase	0.18	0.25	1.4	ATV12H018M3
		0.37	0.5	2.4	ATV12H037M3
		0.37	0.5	2.4	ATV12P037M3
		0.75	1	4.2	ATV12H075M3
		0.75	1	4.2	ATV12P075M3
		1.5	2	7.5	ATV12HU15M3
		1.5	2	7.5	ATV12PU15M3
		2.2	3	10	ATV12HU22M3
		2.2	3	10	ATV12PU22M3
		3	-	12.2	ATV12HU30M3
		3	-	12.2	ATV12PU30M3
		3.7	5	16.7	ATV12HU40M3
		3.7	5	16.7	ATV12PU40M3

Altivar™ 12 Accessories

Table 18.4: Altivar 12 Options and Accessories

Description	Part Number	For Use on Drives
Remote Keypad Display for ATV12 (IP54)	VW3A1006	All
Remote Keypad Display for ATV12 (IP65)	VW3A1007	All
Cable for remote mounting: 1 meter	VW3A1104R10	All
Cable for remote mounting: 3 meters	VW3A1104R30	All
Cable for remote mounting: 5 meters	VW3A1104R50	All
Cable for remote mounting: 10 meters	VW3A1104R100	All
EMC Conformity Kit	VW3A9523	ATV12H018F1, H037F1 ATV12H018M2–H075M2 ATV12H018M3–H075M3 ATV12P037F1 ATV12P037M2–P075M2 ATV12P037M3–P075M3
EMC Conformity Kit	VW3A9524	ATV12H075F1 ATV12HU15M2, HU22M2 ATV12HU15M3, HU22M3 ATV12PU15M3, PU22M3
EMC Conformity Kit	VW3A9525	ATV12HU30M3 ATV12HU40M3
EMC Filters for C1, C2, C3	VW3A4416	ATV12H018F1,H037F1 ATV12H018M2–H075M2 ATV12P037F1 ATV12P037M2–P075M2
EMC Filters for C1, C2, C3	VW3A4417	ATV12H075F1 ATV12HU15M2,HU22M2
EMC Filters for C1, C2, C3	VW3A4418	ATV12H018M3–H075M3 ATV12P037M3–P075M3
EMC Filters for C1, C2, C3	VW3A4419	ATV12HU15M3, HU22M3 ATV12PU15M3, PU22M3
15/24 voltage converter	VW3A9317	All
Mounting Plate for 35 mm DIN rail	VW3A9804	ATV12H018F1, H037F1 ATV12H018M2–H075M2 ATV12H018M3–H075M3
Mounting Plate for 35 mm DIN rail	VW3A9805	ATV12H075F1 ATV12HU15M2, HU22M2 ATV12HU15M3, HU22M3

Table 18.5: Altivar 12 Configuration Tools

Description	Part Number	For Use on Drives
Simple Loader: to transfer configuration between like drives. For use with the Altivar product line.	VW3A8120	ATV12, ATV312, ATV61, and ATV71
Multi-loader: to transfer a configuation from a drive or from SoMove via an SD card, and transferring to another drive or to a PC	VW3A8121	ATV12, ATV312, ATV61, and ATV71
Cable: for connection between the MultiLoader and an ATV12 that is in its packaging	VW3A8126	All
USB to RJ45 adaptor: for use in connecting to a PC with a USB port	TCSMCNAM3M002P	Compatible device families: Advantys™ OTB, Altistart™ soft starters, Altivar series including HMI, Altivar controller


ATV320HU15M2


ATV320U04M2C

Altivar™ 320 Machine

The new benchmark in machine performance. Altivar 320, part of the new Altivar™ Machine range, is a powerful combination of safety, reliability, and simplicity which makes it a versatile choice that reduces costs both during installation and throughout the machine's life cycle. Altivar 320 has a number of out-of-the-box features for building more effective machines.

Table 18.6: Altivar 320 Selection

Input Line Voltage[7]	HP	kW	Continuous Output Current	Catalog Number	Catalog Number
			A	Compact	Book
208/230 Vac Single-Phase	0.25	0.18	1.5	ATV320U02M2C	ATV320U02M2B
	0.5	0.37	3.3	ATV320U04M2C	ATV320U04M2B
	0.75	0.55	3.7	ATV320U06M2C	ATV320U06M2B
	1	0.75	4.6	ATV320U07M2C	ATV320U07M2B
	1.5	1.1	6.9	ATV320U11M2C	ATV320U11M2B
	2	1.5	8	ATV320U15M2C	ATV320U15M2B
	3	2.2	11	ATV320U22M2C	ATV320U22M2B
208/230 Vac Three-Phase	0.25	0.18	1.5	ATV320U02M3C	—
	0.5	0.37	3.3	ATV320U04M3C	—
	0.75	0.55	3.7	ATV320U06M3C	—
	1	0.75	4.8	ATV320U07M3C	—
	1.5	1.1	6.9	ATV320U11M3C	—
	2	1.5	8	ATV320U15M3C	—
	3	2.2	11	ATV320U22M3C	—
	4	3	13.7	ATV320U30M3C	—
	5	—	17.5	ATV320U40M3C	—
	7.5	5.5	27.5	ATV320U55M3C	—
	10	7.5	33	ATV320U75M3C	—
	15	11	54	ATV320D11M3C	—
	20	15	66	ATV320D15M3C	—
400/480 Vac Three-Phase	0.5	0.37	1.5	ATV320U04N4C	ATV320U04N4B
	0.75	0.55	1.9	ATV320U06N4C	ATV320U06N4B
	1	0.75	2.3	ATV320U07N4C	ATV320U07N4B
	1.5	1.1	3	ATV320U11N4C	ATV320U11N4B
	2	1.5	4.1	ATV320U15N4C	ATV320U15N4B
	3	2.2	5.5	ATV320U22N4C	ATV320U22N4B
	4	3	7.1	ATV320U30N4C	ATV320U30N4B
	5	—	9.5	ATV320U40N4C	ATV320U40N4B
	7.5	5.5	14.3	—	ATV320U55N4B
	10	7.5	17	—	ATV320U75N4B
	15	11	27.7	—	ATV320D11N4B
	20	15	33	—	ATV320D15N4B
575/600 Vac Three-Phase	1	0.75	1.7	ATV320U07S6C	—
	2	1.5	2.7	ATV320U15S6C	—
	3	2.2	3.9	ATV320U22S6C	—
	5	3.7/4.0	6.1	ATV320U40S6C	—
	7.5	5.5	9	ATV320U55S6C	—
	10	7.5	11	ATV320U75S6C	—
	15	11	17	ATV320D11S6C	—
	20	15	22	ATV320D15S6C	—

[7] Reference the ATV320 Getting Started Annex SCCR NVE21777 for SCCR ratings, branch circuit protection, and additional single phase ratings.

Altivar™ 320 Accessories

Table 18.7: Altivar 320 Accessories

Catalog Number	Description
VW3A1006	Remote display terminal, IP54
VW3A1007	Remote display terminal, IP65
VW3A1104R10	Remote-mounting cord set, 1 m (3.28 ft)
VW3A1104R30	Remote-mounting cord set, 3 m (9.84 ft)
VW3A1104R50	Remote-mounting cord set, 5 m (16.4 ft)
VW3A1104R100	Remote-mounting cord set, 10 m (32.81 ft)
VW3A1101	Remote graphic display terminal
VW3A1105	Female/female RJ45 adapter for use with VW3A1101
VW3A1102	Remote mounting kit for use with VW3A1101
VW3A1103	Door for use with VW3A1102
VW3A1111	Advanced graphic display
VW3A1112	Remote mounting kit for use with VW3A1111
VW3A8120	Simple Loader configuration tool
VW3A8121	Multi-Loader configuration tool
VW3A8126	Cord set for Multi-Loader tool
TCSWAAC13FB	Universal Bluetooth Interface
VW3A3600	Communication module adapter for ATV320 Compact
VW3A3608	CANopen daisy chain communication module, two RJ45 ports
VW3A3618	CANopen daisy chain communication module, 9–pin male SUB-D connector
VW3A3628	CANopen daisy chain communication module, removable 5–position screw connector
VW3CANCARR03	CANopen cable with 2 RJ45 connectors, 0.3 m
VW3CANCARR1	CANopen cable with 2 RJ45 connectors, 1 m
TCSCAR013M120	CANopen end-of-line terminator with RJ45 connector
VW3CANTAP2	IP20 CANopen junction boxes
VW3A3616	Modbus TCP and EtherNet/IP network module
VW3A3607	PROFIBUS DP V1 communication module
VW3A3609	DeviceNet communication module
VW3A3601	EtherCAT communication module
VW3A3619	Ethernet POWERLINK communication module
VW3A3627	ProfiNet communication module
VW3A3620	Speed monitoring module
VW3A9804	DIN Rail Mounting Kit for use with ATV320U02M•C–ATV320U07M•C
VW3A9805	DIN Rail Mounting Kit for use with ATV320U11M•C–ATV320U22M•C, ATV320U04N4C–ATV320U15N4C, ATV320U07S6C, ATV320U15S6C
VW3A95811	UL Type 1 conformity kit for use with ATV320U02M•C–ATV320U07M•C
VW3A95812	UL Type 1 conformity kit for use with ATV320U11M2C–ATV320U22M2C, ATV320U04N4C–ATV320U15N4C, ATV320U07S6C, ATV320U15S6C
VW3A95813	UL Type 1 conformity kit for use with ATV320U11M3C–ATV320U22M3C
VW3A95814	UL Type 1 conformity kit for use with ATV320U22N4C–ATV320U40N4C, ATV320U22S6C, ATV320U40S6C
VW3A95815	UL Type 1 conformity kit for use with ATV320U30M3C–ATV320U40M3C
VW3A95816	UL Type 1 conformity kit for use with ATV320U55M3C–ATV320U75M3C, ATV320U55S6C, ATV320U75S6C
VW3A95817	UL Type 1 conformity kit for use with ATV320U55N4B, ATV320U75N4B
VW3A95818	UL Type 1 conformity kit for use with ATV320D11M3C–ATV320D15M3C, ATV320D11S6C, ATV320D15S6C
VW3A95819	UL Type 1 conformity kit for use with ATV320D11N4B, ATV320D15N4B
VW3A9920	Adapter for mounting the control module at 90° for use with ATV320•••M2B, ATV320U04N4B–ATV320U40N4B
VW3A9921	Bracket for GV2/ATV320B direct mounting for use with ATV320•••M2B, ATV320U04N4B–ATV320U40N4B
GV2AF5	Adapter plate when using GV2 with ATV320 for use with ATV320•••M2B, ATV320U04N4B–ATV320U40N4B
VW3M7101R01	Daisy chain DC bus cord with two connectors for use with ATV320•••M2B, ATV320U04N4B–ATV320U40N4B
VW3M7102R150	Daisy chain DC bus cord with one connector and flying leads at one end; Shielded cable for use with ATV320•••N4B
VW3M2207	Daisy chain DC bus cord with two connectors Connection kit for VW3M7102R150 Cable for use with ATV320•••N4B

Altivar 340 Machine Drives

Altivar™ 340 Machine

Stay on top of the Smart Machine Era! Altivar Machine ATV340 is engineered for high performance application requirements by maximizing the machine performance thanks to real time variable speed drive operation, more connectivity, flexibility, and scalable safety. The ATV340 is available from 1 to 100 hp with the ability to control any kind of motor in open and closed loop.

Table 18.8: Altivar 340 Selection

Drive	Normal Duty			Heavy Duty			Catalog Number
	hp	kW	Continuous Output Current	hp	kW	Continuous Output Current	
			A			A	
400/480 Vac Three-Phase Modular Drive	1.5	1.1	2.6	1	0.75	2.1	ATV340U07N4
	3	2.2	4.8	2	1.5	3.4	ATV340U15N4
	3	3	6.8	3	2.2	4.8	ATV340U22N4
	5	4	7.6	3	3	6.2	ATV340U30N4
	7.5	5.5	11	5	4	7.6	ATV340U40N4
	10	7.5	14	7.5	5.5	11	ATV340U55N4
	15	11	21	10	7.5	14	ATV340U75N4
	20	15	27	15	11	21	ATV340D11N4
	25	18.5	34	20	15	27	ATV340D15N4
	30	22	40	25	18.5	34	ATV340D18N4
	40	30	52	30	22	40	ATV340D22N4
400/480 Vac Three-Phase Ethernet Drive	1.5	1.1	2.6	1	0.75	2.1	ATV340U07N4E
	3	2.2	4.8	2	1.5	3.4	ATV340U15N4E
	3	3	6.8	3	2.2	4.8	ATV340U22N4E
	5	4	7.6	3	3	6.2	ATV340U30N4E
	7.5	5.5	11	5	4	7.6	ATV340U40N4E
	10	7.5	14	7.5	5.5	11	ATV340U55N4E
	15	11	21	10	7.5	14	ATV340U75N4E
	20	15	27	15	11	21	ATV340D11N4E
	25	18.5	34	20	15	27	ATV340D15N4E
	30	22	40	25	18.5	34	ATV340D18N4E
	40	30	52	30	22	40	ATV340D22N4E
	50	37	74.5	40	30	61.5	ATV340D30N4E
	60	45	88	50	37	74.5	ATV340D37N4E
	75	55	106	60	45	88	ATV340D45N4E
	100	75	145	75	55	106	ATV340D55N4E
	125	90	173	100	75	145	ATV340D75N4E

Altivar™ 340 Accessories

Table 18.9: Altivar 340 Accessories

Catalog Number	Description
VW3A1111	Advanced graphic display
VW3A1112	Remote mounting kit for use with VW3A1111
VW3A1113	Plain text display terminal
VW3A8120	Simple Loader configuration tool
VW3A8121	Multi-Loader configuration tool
VW3A8126	Cord set for Multi-Loader tool
VW3A3608	CANopen daisy chain communication module, two RJ45 ports
VW3A3618	CANopen daisy chain communication module, 9–pin male SUB-D connector
VW3A3628	CANopen daisy chain communication module, removable 5–position screw connector
VW3CANCARR03	CANopen cable with 2 RJ45 connectors, 0.3 m
VW3CANCARR1	CANopen cable with 2 RJ45 connectors, 1 m
TCSCAR013M120	CANopen end-of-line terminator with RJ45 connector
VW3CANTAP2	IP20 CANopen junction boxes
VW3A3607	PROFIBUS DP V1 communication module
VW3A3609	DeviceNet communication module
VW3A3601	EtherCAT communication module
VW3A3619	Ethernet POWERLINK communication module
VW3A3627	ProfiNet communication module
VW3A3620	Speed monitoring module
VW3M7101R01	Daisy chain DC bus cord with two connectors for use with ATV320•••M2B, ATV320U04N4B–ATV320U40N4B
VW3M7102R150	Daisy chain DC bus cord with one connector and flying leads at one end; Shielded cable for use with ATV320•••N4B
VW3M2207	Daisy chain DC bus cord with two connectors Connection kit for VW3M7102R150 Cable for use with ATV320•••N4B

Altivar Process 630

New!

Altivar™ Process 630/650

Table 18.10: Altivar Process 630/650 Selection

Input Line Voltage	Normal Duty [8]			Heavy Duty [9]			Catalog Number
	Three-phase Motor Power [10]		Continuous Output Current [11]	Three-phase Motor Power [10]		Continuous Output Current [11]	
	HP	kW	A	HP	kW	A	
208/240 Vac Three Phase	1	0.75	4.6	0.5	0.37	3.3	ATV630U07M3
	2	1.5	8	1	0.75	4.6	ATV630U15M3
	3	2.2	11.2	2	1.5	8	ATV630U22M3
	4	3.0	13.7	3	2.2	11.2	ATV630U30M3
	5	4.0	18.7	4	3	13.7	ATV630U40M3
	7.5	5.5	25.4	5	4	18.7	ATV630U55M3
	10	7.5	32.7	7.5	5.5	25.4	ATV630U75M3
	15	11	46.8	10	7.5	32.7	ATV630D11M3
	20	15	63.4	15	11	46.8	ATV630D15M3
	25	18.5	78.4	20	15	63.4	ATV630D18M3
	30	22	92.6	25	18.5	78.4	ATV630D22M3
	40	30	123	30	22	92.6	ATV630D30M3
	50	37	149	40	30	123	ATV630D37M3
	60	45	176	50	37	149	ATV630D45M3
	75	55	211	60	45	176	ATV630D55M3
	100	75	282	75	55	211	ATV630D75M3
400/480 Vac Three Phase	1	0.75	2.2	0.5	0.37	1.5	ATV630U07N4 ATV650U07N4U
	2	1.5	4	1	0.75	2.2	ATV630U15N4 ATV650U15N4U
	3	2.2	5.6	2	1.5	4	ATV630U22N4 ATV650U22N4U
	4	3	7.2	3	2.2	5.6	ATV630U30N4 ATV650U30N4U
	5	4	9.3	4	3	7.2	ATV630U40N4 ATV650U40N4U
	7.5	5.5	12.7	5	4	9.3	ATV630U55N4 ATV650U55N4U
	10	7.5	16.5	7.5	5.5	12.7	ATV630U75N4 ATV650U75N4U
	15	11	23.5	10	7.5	16.5	ATV630D11N4 ATV650D11N4U
	20	15	31.7	15	11	23.5	ATV630D15N4 ATV650D15N4U
	25	18.5	39.2	20	15	31.7	ATV630D18N4 ATV650D18N4U
	30	22	46.3	25	18.5	39.2	ATV630D22N4 ATV650D22N4U
	40	30	61.5	30	22	46.3	ATV630D30N4 ATV650D30N4U
	50	37	74.5	40	30	61.5	ATV630D37N4 ATV650D45N4U
	60	45	88	50	37	74.5	ATV630D45N4 ATV650D55N4U
	75	55	106	60	45	88	ATV630D55N4 ATV650D55N4U
	100	75	145	75	55	106	ATV630D75N4 ATV650D75N4U
	125	90	173	100	75	145	ATV630D90N4 ATV650D90N4U
	150	110	211	125	90	173	ATV630C11N4
	200	130	250	150	110	180	ATV630C13N4
	250	160	302	200	132	240	ATV630C16N4
	350	220	324	250	160	246	ATV630C22N4
	400	250	366	300	220	301	ATV630C25N4
	450	310	461	400	250	375	ATV630C31N4
690 Vac Three Phase	3	2.2	3.1	2	1.5	2.4	ATV630U22Y6
	—	3	4.2	3	2.2	3.1	ATV630U30Y6
	5	4	5.4	—	3	4.2	ATV630U40Y6
	7.5	5.5	7.2	5	4	5.4	ATV630U55Y6
	10	7.5	9.5	7.5	5.5	7.2	ATV630U75Y6
	15	11	13.5	10	7.5	9.5	ATV630D11Y6
	20	15	18	15	11	13.5	ATV630D15Y6
	25	18	24	20	15	18	ATV630D18Y6
	30	22	29	25	18	24	ATV630D22Y6
	40	30	34	30	22	29	ATV630D30Y6
	50	37	45	40	30	34	ATV630D37Y6
	60	45	55	50	37	45	ATV630D45Y6
	75	55	66	60	45	55	ATV630D55Y6
	100	75	83	75	55	66	ATV630D75Y6
	125	90	108	100	75	83	ATV630D90Y6

[8] Normal duty applications requiring an overload up to 110% for 60 seconds. Typical for variable torque loads.
[9] Heavy duty applications requiring an overload up to 150% for 60 seconds. Typical for constant torque loads.
[10] These values are given for a nominal switching frequency of 4 kHz up to ATV630D45N4, or 2.5 kHz for ATV630D55N4...D90N4 for use in continuous operation. The switching frequency is adjustable from 1...16 kHz for all ratings. Above 2.5 or 4 kHz (depending on the rating), the drive will automatically reduce the switching frequency in the event of an excessive temperature rise. For continuous operation above the nominal switching frequency, derate the nominal drive current (see the derating curves on our website www.schneider- electric.com).
[11] Typical value for the indicated motor power and for the maximum prospective line Isc.

Altivar Process 930

Altivar™ Process 930/950

Table 18.11: Altivar Process 930/950 Selection

Input Line Voltage	Normal Duty *[12]*			Heavy Duty *[13]*			Catalog Number
	Three-phase Motor Power *[14]*		Continuous Output Current *[15]*	Three-phase Motor Power *[14]*		Continuous Output Current *[15]*	
	HP	kW	A	HP	kW	A	
208/240 Vac Three Phase	1	0.75	4.6	0.5	0.37	3.3	ATV930U07M3
	2	1.5	8	1	0.75	4.6	ATV930U15M3
	3	2.2	11.2	2	1.5	8	ATV930U22M3
	4	3.0	13.7	3	2.2	11.2	ATV930U30M3
	5	4.0	18.7	4	3	13.7	ATV930U40M3
	7.5	5.5	25.4	5	4	18.7	ATV930U55M3
	10	7.5	32.7	7.5	5.5	25.4	ATV930U75M3
	15	11	46.8	10	7.5	32.7	ATV930D11M3
	20	15	63.4	15	11	46.8	ATV930D15M3
	25	18.5	78.4	20	15	63.4	ATV930D18M3
	30	22	92.6	25	18.5	78.4	ATV930D22M3
	40	30	123	30	22	92.6	ATV930D30M3
	50	37	149	40	30	123	ATV930D37M3
	60	45	176	50	37	149	ATV930D45M3
	75	55	211	60	45	176	ATV930D55M3
	100	75	282	75	55	211	ATV930D75M3
400/480 Vac Three Phase	1	0.75	2.2	0.5	0.37	1.5	ATV930U07N4 ATV950U07N4U
	2	1.5	4	1	0.75	2.2	ATV930U15N4 ATV950U15N4U
	3	2.2	5.6	2	1.5	4	ATV930U22N4 ATV950U22N4U
	4	3	7.2	3	2.2	5.6	ATV930U30N4 ATV950U30N4U
	5	4	9.3	4	3	7.2	ATV930U40N4 ATV950U40N4U
	7.5	5.5	12.7	5	4	9.3	ATV930U55N4 ATV950U55N4U
	10	7.5	16.5	7.5	5.5	12.7	ATV930U75N4 ATV950U75N4U
	15	11	23.5	10	7.5	16.5	ATV930D11N4 ATV950D11N4U
	20	15	31.7	15	11	23.5	ATV930D15N4 ATV950D15N4U
	25	18.5	39.2	20	15	31.7	ATV930D18N4 ATV950D18N4U
	30	22	46.3	25	18.5	39.2	ATV930D22N4 ATV950D22N4U
	40	30	61.5	30	22	46.3	ATV930D30N4 ATV950D30N4U
	50	37	74.5	40	30	61.5	ATV930D37N4 ATV950D45N4U
	60	45	88	50	37	74.5	ATV930D45N4 ATV950D55N4U
	75	55	106	60	45	88	ATV930D55N4 ATV950D55N4U
	100	75	145	75	55	106	ATV930D75N4 ATV950D75N4U
	125	90	173	100	75	145	ATV930D90N4 ATV950D90N4U
	150	110	211	125	90	173	ATV930C11N4C
	200	130	250	150	110	180	ATV930C13N4C
	250	160	302	200	132	240	ATV930C16N4C
	250	160	302	200	132	240	ATV930C16N4
	350	220	324	250	160	246	ATV930C22N4
	400	250	366	300	220	301	ATV930C25N4C
	450	310	461	400	250	375	ATV930C31N4C
690 Vac Three Phase	3	2.2	3.1	2	1.5	2.4	ATV930U22Y6
	—	3	4.2	3	2.2	3.1	ATV930U30Y6
	5	4	5.4	—	3	4.2	ATV930U40Y6
	7.5	5.5	7.2	5	4	5.4	ATV930U55Y6
	10	7.5	9.5	7.5	5.5	7.2	ATV930U75Y6
	15	11	13.5	10	7.5	9.5	ATV930D11Y6
	20	15	18	15	11	13.5	ATV930D15Y6
	25	18	24	20	15	18	ATV930D18Y6
	30	22	29	25	18	24	ATV930D22Y6
	40	30	34	30	22	29	ATV930D30Y6
	50	37	45	40	30	34	ATV930D37Y6
	60	45	55	50	37	45	ATV930D45Y6
	75	55	66	60	45	55	ATV930D55Y6
	100	75	83	75	55	66	ATV930D75Y6
	125	90	108	100	75	83	ATV930D90Y6

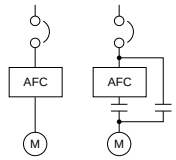
[12] Normal duty applications requiring an overload up to 120% for 60 seconds. Typical for variable torque loads.
[13] Heavy duty applications requiring an overload up to 150% for 60 seconds. Typical for constant torque loads.
[14] These values are given for a nominal switching frequency of 4 kHz up to ATV930D45N4, or 2.5 kHz for ATV930D55N4...D90N4 for use in continuous operation. The switching frequency is adjustable from 1...16 kHz for all ratings. Above 2.5 or 4 kHz (depending on the rating), the drive will automatically reduce the switching frequency in the event of an excessive temperature rise. For continuous operation above the nominal switching frequency, derate the nominal drive current (see the derating curves on our website www.schneider- electric.com).
[15] Typical value for the indicated motor power and for the maximum prospective line Isc.

Altivar™ 600/900 Accessories

Table 18.12: Accessories for Altivar Process 600/900

Description			Catalog Number
Operator Interface	Graphic keypad		VW3A1111
	Door Mounting kit for graphic keypad, Type 12		VW3A1112
	Remote mounting kit RJ45 connector, IP65		VW3A1115
	Cable for remote mounting LCD graphic keypad	1 meter	VW3A1104R10
		3 meters	VW3A1104R30
		5 meters	VW3A1104R50
		10 meters	VW3A1104R100
Wireless Connection	Wifer Wi-Fi Module		TCSEGWB13FA0
I/O Extension Option Cards	Digital and Analog I/O extension module		VW3A3203
	Output Relays extension module		VW3A3204
Communication Option Cards	Ethernet/IP Modbus TCP dual port		VW3A3720
	PROFINET		VW3A3627
	PROFIBUS DPv1 option card		VW3A3607
	DeviceNet option card		VW3A3609
	CANopen	2x RJ45 Daisy Chain	VW3A3608
		SUB-D	VW3A3618
		Screw terminal	VW3A3628
	BACnet MS/TP (ATV600)		VW3A3725
	Ethernet IP / Modbus TCP dual port with MultiVFD (ATV600)		VW3A3721
	EtherCAT (ATV900)		VW3A3601
Encoder Interface Modules	Digital Encoder Interface Module		VW3A3420
	Analog Encoder Interface Module		VW3A3422
	Resolver Encoder Interface Module		VW3A3423
	HTL Encoder Interface Module		VW3A3424
External Heat Sink Mounting Kit	Frame 1		NSYPTDS1
	Frame 2		NSYPTDS2
	Frame 3		NSYPTDS3
	Frame 4		NSYPTDS4
	Frame 5		NSYPTDS5
	Wall Mount kit		NSYAEFPFPTD
Replacement Cooling Fan Kit	Frame 1		VX5VPS1001
	Frame 2		VX5VPS2001
	Frame 3		VX5VPS3001
	Frame 4		VX5VPS4001
	Frame 5		VX5VPS5001
	Frame 6		VX5VPS6001
	Frame A		VX5VP0A001
	Frame B/C		VX5VP0BC001
Common Mode Noise Filters	Frame 1		VW3A5501
	Frame 2		VW3A5502
	Frame 3		VW3A5503
	Frame 4		VW3A5504
	Frame 5		VW3A5505
	Frame 6		VW3A5506

S-Flex 212 Enclosed
Drive Controller Type 1, 12, 3R
Rated +14 to +104 °F
(-10 to +40 °C)



S-Flex™ Variable Torque AC Drive—208 V, 230 V, and 460 V Ratings

The AHRI certified S-Flex enclosed drive features the Altivar 212 drive and provides 100 KAIC rating for commercial pump, fan, and scroll compressor applications.

The S-Flex is an economical package that includes a circuit breaker disconnect and option bypass contactors, drive input disconnect switch or line contactor.

The S-Flex is rated as a UL Type 1, 12, and 3R enclosure an ideal for use in residential high rise and mixed-use buildings, commercial office buildings, schools and campus environments.

All S-Flex 212 Enclosed Drives are supplied with:

- Altivar™ 212 power converter
- Square D™ circuit breaker disconnect (Power Fuses for 460 V version only)
- Coordinated short circuit rating for 100,000 A
- Adjustable Frequency Controller-Off-Bypass selector switch
- Local/Remote configurable on controller
- Power On red LED
- Bypass Run green LED
- Fire/Freezestat interlock for Adjustable Frequency Drive and Bypass mode
- Form C Adjustable Frequency Controller fault auxiliary contact
- Modbus RJ-45 communication port
- Smoke Purge Function
- Bypass Run Auxiliary Contact
- Drive Run Auxiliary Contact
- Full Voltage Bypass Power Circuit with overload relay
- 120 Vac fused control power transformer

Table 18.13: Output Amperes

HP	208 V	230 V	460 V
1	—	—	2.1
2	—	—	3.4
3	—	—	4.8
5	—	—	7.6
7.5	—	—	11
10	—	—	14
15	—	—	21
20	—	—	27
25	—	—	34
30	92	80	40
40	120	104	52
50	—	—	65
60	—	—	77
75	—	—	96
100	—	—	124

Table 18.14: S-Flex 212 Type 1 Enclosed Drive Controller Selection

Input Line Voltage	HP	kW	Output Current A	Catalog Number
208 Vac Three-phase	30	22	92	SFD212MG2YB07D07
	40	30	120	SFD212NG2YB07D07
460 Vac Three-phase	1	0.75	2.1	SFD212CG4YB07D07
	2	1.5	3.4	SFD212DG4YB07D07
	3	2.2	4.8	SFD212EG4YB07D07
	5	4	7.6	SFD212FG4YB07D07
	7.5	5.5	11	SFD212GG4YB07D07
	10	7.5	14	SFD212HG4YB07D07
	15	11	21	SFD212JG4YB07D07
	20	15	27	SFD212KG4YB07D07
	25	18.5	34	SFD212LG4YB07D07
	30	22	40	SFD212MG4YB07D07
	40	30	52	SFD212NG4YB07D07
	50	37	65	SFD212PG4YB07D07
	60	45	77	SFD212QG4YB07D07
	75	55	96	SFD212RG4YB07D07
	100	75	124	SFD212SG4YB07D07

Table 18.15: Additional S-Flex Configurations Available Using Product Selector
Example:SFD212CG3YA06X07 (bold text in selection table below)

TYPE (01)	HP (02)	Enclosure (03)	Voltage (04)	Power Circuit (05)	Communication Options (06)	Misc Options (07)
SFD212	**C = 1 hp** D = 2 hp E = 3 hp F = 5 hp G = 7.5 hp H = 10 hp J = 20 hp K= 20 hp L = 30 hp N = 40 hp P = 50 hp (460 V only) Q = 60 hp (460 V only) R = 75 hp (460 V only) S = 100 hp (460 V only)	**G = UL Type 1 General Purpose** **A = UL Type 12K Industrial Use, Dust-Tight/Drip-Tight** **H = UL Type 3R Outdoor Use**	2 = 208 Vac **3 = 230 Vac** 4 = 460 Vac	W = Without Bypass **Y = Full Voltage Bypass**	**A06 = BACnet Setup** B06 = LonWorks® Card C06 = Metasys® N2 Setup D06 = Apogee™ P1 Setup N06 = Modbus *[1]*	A07 = Drive Input Disconnect *[2]* B07 = Line Contactor *[2]* S07 = Seismic Certification D07 = Full Text Keypad K07 = cUL Marking (Canada) T07 = 50 °C Ambient Operation*[3]* **X07 = AC Line Reactor**

Table 18.16: S-Flex Accessories

Description		Catalog Number
Software		
SoMove™	This software enables the user to configure, set, debug and organize maintenance task for the complete Altivar product line and the Altistart 22 and Altistart 48 soft starters. It can also be used to customize the integrated display terminal menus. It can be used with a direct connection or a Bluetooth® wireless connection. Free download www.schneider-electric.us	
User Interface Kits		
USB to RJ45 Adaptor Kit (For use in connecting to a PC with a USB port)		TCSMCNAM3M002P
EZ-M Mounting Channel, 72 in. length		EZM72MC
Altivar and Altistart Programming cable for iPad 30–Pin mobile to RS-485 Converter, 2 meters		VW3A8151R20U

NOTE: See the Instruction Bulletin for set up instructions.

[1] Default selection. For Modbus control, see the Instruction manual.
[2] Options A07 Drive Input disconnect and B07 line contactor are available only when a full voltage bypass option Y is selected. Options A07 and B07 are mutually exclusive.
[3] For UL Type 12 and 3R only.

Altistart™ 22 Soft Starters

The Altistart 22 is designed for commercial and normal duty industrial applications, it uses both voltage and torque control to provide a soft start and soft stop for there-phase asynchronous motors between 17 A and 590 A. The conformal-coated, printed circuit boards provide enhanced resistance to harsh environments, increasing the service life of installations and lowering maintenance costs.

Select the Altistart 22 soft starter using the nameplate full-load ampere rating of the motor and the table below. The horsepower ratings are for reference only.

Table 18.17: Altistart 22 Selection *[1]*

208 V	230 V	400 kW	460 V	575 V	Rated A	Softstart Reference *[2] or [3]*	Dimensions (inches)			Frame Size
							W	H	D	
3	5	5.5	10	15	17	ATS22D17S6,S6U	5.1	9.8	6.6	A
7.5	10	11	20	25	32	ATS22D32S6,S6U	5.1	9.8	6.6	A
— *[4]*	15	18.5	30	40	47	ATS22D47S6,S6U	5.1	9.8	6.6	A
15	20	22	40	50	63	ATS22D62S6,S6U	5.7	10.9	8.1	B
20	25	30	50	60	75	ATS22D75S6,S6U	5.7	10.9	8.1	B
25	30	37	60	75	88	ATS22D88S6,S6U	5.7	10.9	8.1	B
30	40	45	75	100	110	ATS22C11S6,S6U	5.9	13	9	C
40	50	55	100	125	140	ATS22C14S6,S6U	5.9	13	9	C
50	60	75	125	150	170	ATS22C17S6,S6U	5.9	13	9	C
60	75	90	150	200	210	ATS22C21S6,S6U	8.1	15.6	11.8	D
75	100	110	200	250	250	ATS22C25S6,S6U	8.1	15.6	11.8	D
100	125	132	250	300	320	ATS22C32S6,S6U	8.1	15.6	11.8	D
125	150	160	300	350	410	ATS22C41S6,S6U	8.1	15.6	11.8	D
150	—	220	350	400	480	ATS22C48S6,S6U	11.9	16.8	13.4	E
—	200	250	400	500	590	ATS22C59S6,S6U	11.9	16.8	13.4	E

Table 18.18: Maximum Number of Starts/Stops per Hour

Catalog Number	Number of starts/Stops per Hour
ATS22D17S6U–D88S6U	6 (up to 10 with optional fan)
ATS22C11S6U–C17S6U	4 (up to 10 with optional fan)
ATS22C21S6U–C59S6U	4 (comes with fan)

Altistart™ 22 Options: Fans and Accessories

Table 18.19: Altistart 22 Accessories Selection

Description		Length	Catalog Number
Software			
SoMove™	This software enables the user to configure, set, debug and organize maintenance task for the complete Altivar product line and the Altistart 22 and Altistart 48 soft starters. It can also be used to customize the integrated display terminal menus. It can be used with a direct connection or a Bluetooth® wireless connection. Free download www.schneider-electric.us		
User Interface Kits			
Cable	USB/RS485 cord set (equipped with RJ45 socket)		TCSMCNAM3M002P
Remote Keypadad	IP54/NEMA® 12 keypad		VW3G22101
	IP65 keypad		VW3G22102 *[5]*
Remote Keypad Cords Equipped with 2 RJ45 Connectors	3 FT length		VW3A1104R10
	9 FT length		VW3A1104R30
Modbus Serial Link Connection via splitter box and RJ45 connectors	Modbus™ splitter box (with 10 RJ45 Connectors)		LU9GC3
	Cordsets for Modbus serial link (with 2 RJ45 connectors	.3 m	VW3A8306R03
		1 m	VW3A8306R10
		3 m	VW3A8306R30
	Modbus T-junction boxes (with integrated cables)	.3 m	VW3A8306TF03
		1 m	VW3A8306TF10
	RJ45 Line Terminators (Sold in lots of 2)		VW3A8306RC
Altivar and Altistart Programming Cable	30-Pin mobile to RS-485 converter	2 m	VW3A8151R20U

Table 18.20: Altistart 22 Fans Selection

Power Supply Voltage For Control	For Use On Altistart	Catalog Number
The ATS22C21S6,S6U..C59S6,S6U units come with an integrated fan. The ATS22D17S6,S6U..C17S6,S6U units are ventilated by means of natural ventilation. For more demanding applications, such as those with a greater number of starts, the Altistart 22 range offers fans as an option. The fans are powered by the Altistart 22 unit and attach to the back of the device. The fan's noise level is less than 60 dBA.		
220 V	ATS22D17–D47S6	VW3G22400
	ATS22D62–D88S6	VW3G22401
	ATS22C11–C17S6	VW3G22402
110 V	ATS22D17–D47S6U	VW3G22U400
	ATS22D62–D88S6U	VW3G22U401
	ATS22C11–C17S6U	VW3G22U402

[1] Motor full load amperate (FLA) must not exceed the ampere ratings of the soft starter.
[2] S6 = 208–600 line voltage, 220 V control voltage
[3] S6U = 208–600 line voltage, 110 V control voltage
[4] Value not indicated when there is no corresponding standardized motor.
[5] A remote keypad cord set is required.

New!

Altistart™ 430 Soft Starters

Effective Motor Management

Altivar Soft Starter ATS430 is the new comprehensive range of soft starters from Schneider Electric for standard industrial machines. It provides functions for effective motor management, including operational performance, reliability, protection, integration in the automation system, and energy efficiency.

Altivar Soft Starter ATS430 is designed to deliver:

- Best-in-class motor control
- High-durability performance to reduce downtime and extend lifespan
- Superior sustainability through energy efficiency and resources preservation
- Cost reduction at each phase of the life cycle

ATS430 covers the operational voltage range from 208 to 600 V in a single product range from 17 up to 590 A to meet the requirements of the most stringent applications in normal duty. The range embeds best practice cybersecurity functions helping to protect operations, and integrates condition monitoring of its most sensitive parts.

Best-in-class Motor Control

ATS430 integrates the TCS (torque control system) to ensure smooth acceleration, deceleration, and preserve the mechanics and hydraulics. Monitoring of the motor, application, power, and energy is built-in; all the data is available to users and the automation system.

High-durability Performance

Altivar Soft Starter ATS430 is designed to help ensure operational continuity. The high-durability performance of ATS430 allows downtime and operational expenditure to be reduced and equipment lifespan to be extended. Durability encompasses:

- Reliability
- Upgradability
- Repairability

Reliability by Design

ATS430 withstands high stress from several sources, whether environmental or operational. It offers enhanced robustness in:

- Thermal conditions, with an extended operating ambient temperature range from -25 to 60°C/13 to 140°F (with derating above 40°C/104°F)
- Mechanical conditions, by using a long-lasting power connection with integrated EverLink™ technology and complying with class 3M3 and class 3S3 according to IEC 60721-3-3 ed. 2002
- Chemical conditions, by complying with class 3C3 according to IEC 60721-3-3 ed. 2002 with salt mist
- Electrical conditions, thanks to a large mains voltage range from 208 to 600 V and a large mains frequency range from 50 or 60 Hz +/-20%

Torque control, the boost function, and the ATS430 starting capabilities all help to increase the resistance to stress originating from the application.

Cybersecurity Best Practices

As limiting events resulting in downtime can also be caused by operators, the ATS430 embeds best practice cybersecurity functions covering:

- User account management, including user authentication, role-based authorization, access channels, and strong passwords
- Tougher access to restrict ports, functions, or services
- Threat intelligence to manage cybersecurity-related events
- Cybersecurity-compliant firmware upgrade

Table 18.21: Altistart™ 430 Selection

Normal Duty, Soft Starter in-line Connection, 208...600 Vac 50/60 Hz Supply									
Motor								**Soft Starter**	
Normal motor power								Reference	Operational rated current Ie[6]
208 V	230 V		400 V	440 V	460V	500 V	575 V		
HP	HP	kW	kW	kW	HP	kW	HP	Catalog Number	Rated A
3	5	4	7.5	7.5	10	9	15	ATS430D17S6	17
7.5	10	7.5	15	15	20	18.5	25	ATS430D32S6	32
—	15	11	22	22	30	30	40	ATS430D47S6	47
15	20	15	30	30	40	37	50	ATS430D62S6	62
20	25	18.5	37	37	50	45	60	ATS430D75S6	75
25	30	22	45	45	60	55	75	ATS430D88S6	88
30	40	30	55	55	75	75	100	ATS430C11S6	110
40	50	37	75	75	100	90	125	ATS430C14S6	140
50	60	45	90	90	125	110	150	ATS430C17S6	170
60	75	55	110	110	150	132	200	ATS430C21S6	210
75	100	75	132	132	200	160	250	ATS430C25S6	250
100	125	90	160	160	250	220	300	ATS430C32S6	320
125	150	110	220	220	300	250	350	ATS430C41S6	410
150	—	132	250	250	350	315	400	ATS430C48S6	480
—	200	160	315	355	400	400	500	ATS430C59S6	590
The nominal motor current In must not exceed the operational rated current Ie.									

[6] Current on operation at a maximum ambient temperature of 40°C (104°F) and up to an ambient temperature of 60°C (140°F), derate current by 1% each °C (1.8°F).

Table 18.22: Starting Capabilities of ATS430 According to the Service Duty

Service Type	Overloading (Starting)		Service Cycle	
	Overcurrent	Duration	No. of Starts/h	Service Factor
From an application standpoint, the overload is defined depending on the service duty of the motor, S1 (continuous operation) or S4 (intermittent operation).				
Normal duty				
S1	4 x In	23 s	Continuous operation after starting	
	3 x In	46 s		
S4	4 x In	13 s	ATS430D17...C17S6: 10	50%
	3 x In	23 s	ATS430C21...C59S6: 6	
A normal duty application corresponds to motor protection Class 10E.				

Table 18.23: Replacement parts

Description	Corresponding Soft Starter	Reference	Weight kg (lb)
Fan kit + instruction sheet	ATS430C14S6…C17S6	VZ3V4902	0.125 (0.276)
	ATS430C21S6…C59S6	VZ3V4903	0.275 (0.606)
Control block + instruction sheet	ATS430D17S6…. ATS430D47S6	VX4G4301	0.350 (0.772)
	ATS430D62S6…. ATS430C59S6	VX4G4302	0.400 (0.882)

Table 18.24: Power options for ATS430

ATS430 reference	Protective covers for power terminals	Line chokes
ATS430D17S6	—	VZ1L015UM17T
ATS430D32S6	—	VZ1L040U600T
ATS430D47S6	—	VZ1L070U350T
ATS430D62S6	—	VZ1L070U350T
ATS430D75S6	—	VZ1L150U170T
ATS430D88S6	—	VZ1L150U170T
ATS430C11S6	—	VZ1L150U170T
ATS430C14S6	VW3G4701	VZ1L150U170T
ATS430C17S6	VW3G4701	VZ1L250U100T
ATS430C21S6	VW3G4702	VZ1L250U100T
ATS430C25S6	VW3G4702	VZ1L250U100T
ATS430C32S6	VW3G4702	VZ1L325U075T
ATS430C41S6	VW3G4702	VZ1L530U045T
ATS430C48S6	VW3G4703	VZ1L530U045T
ATS430C59S6	VW3G4703	VZ1LM10U024T

Altistart™ 480 Soft Starters

The Altivar Soft Starter ATS480 is a controller with six thyristors using the TCS (torque control system) algorithm to control acceleration, deceleration, and stopping of three-phase squirrel cage asynchronous motors up to 900 kW.

The ATS480 is a cost-effective solution designed to:

- Reduce machine operating costs by reducing mechanical stress and improving machine availability
- Reduce the risk of severe damage by reducing fluid shocks
- Reduce the stress on the electrical distribution system by reducing line current peaks and voltage drops during motor starts

Altivar Soft Starter ATS480 consists of one range only covering:

- Operational voltage from 208 V to 690 V
- Operational current from 17 A to 1200 A

ATS480 integrates Modbus serial line communication protocols as standard. Each device is equipped with two RJ45 ports for:

- Connection to configuration and firmware update software
- Connection of the plain text display terminal or graphic display terminal
- Connection to a Modbus fieldbus

In addition, the ATS480 is equipped with one slot for a communication module:

- Modbus TCP
- EtherNet/IP
- CANopen
- PROFINET
- PROFIBUS DP

Table 18.25: Altistart™ 480 Selection

ATS480 in-line, not bypassed								
Motor nameplate							**ATS480**	
Rated operational voltage (Ue) Rated motor power							Reference	Operational rated current (Ie)
230 V	400 V	440 V	500 V	525 V	660 V	690 V		
kW	kW	kW	kW	kW	kW	kW	Catalog Number	Rated A
Normal duty applications								
4	7.5	7.5	9	9	11	15	ATS480D17Y	17
5.5	11	11	11	11	15	18.5	ATS480D22Y	22
7.5	15	15	18.5	18.5	22	22	ATS480D32Y	32
9	18.5	18.5	22	22	30	30	ATS480D38Y	38
11	22	22	30	30	37	37	ATS480D47Y	47
15	30	30	37	37	45	45	ATS480D62Y	62
18.5	37	37	45	45	55	55	ATS480D75Y	75
22	45	45	55	55	75	75	ATS480D88Y	88
30	55	55	75	75	90	90	ATS480C11Y	110
37	75	75	90	90	110	110	ATS480C14Y	140
45	90	90	110	110	132	160	ATS480C17Y	170
55	110	110	132	132	160	200	ATS480C21Y	210
75	132	132	160	160	220	250	ATS480C25Y	250
90	160	160	220	220	250	315	ATS480C32Y	320
110	220	220	250	250	355	400	ATS480C41Y	410
132	250	250	315	315	400	500	ATS480C48Y	480
160	315	355	400	400	560	560	ATS480C59Y	590
—	355	400	—	—	630	630	ATS480C66Y	660
220	400	500	500	500	710	710	ATS480C79Y	790
250	500	630	630	630	900	900	ATS480M10Y	1000
355	630	710	800	800	—	—	ATS480M12Y	1200

Table 18.26: Altistart™ 480 Options

Description		Catalog Number
Software		
SoMove™	This software enables the user to configure, set, debug and organize maintenance task for the complete Altivar product line and the Altistart 22 and Altistart 480 soft starters. It can also be used to customize the integrated display terminal menus. It can be used with a direct connection or a Bluetooth® wireless connection. Free download www.se.com/us/en.	
User Interface Kits		
Door Mounting Kits:		
Display Terminal IP43, delivered with the soft starter		VW3A1113
Door mounting kit — refer to the Instruction Sheet EAV91355		VW3A1114
Graphic Display Terminal IP65		VW3A1111
Door mounting kit for remote graphic terminal IP65 — refer to the Instruction Sheet EAV76406		VW3A1112
Select one of the following RJ45 cables to connect the remote mounting kit to the soft starter: (not included with the remote kit):		
1 meter connection cable		VW3A1104R10
3 meter connection cable		VW3A1104R30
5 meter connection cable		VW3A1104R50
10 meter connection cable		VW3A1104R100
USB to RJ45 Adaptor Kit for connecting to a PC with a USB port		TCSMCNAM3M002P
Ethernet IP/ Modbus TCP Fieldbus Module		VW3A3720
PROFIBUS Module		VW3A3607
PROFINET		VW3A3647
CANopen + complete accessories		VW3A3608 VW3A3618 VW3A3628
Shrouds		LA9F702 LA9F703 LA9F704

IP43 VW31114

IP65 VW3A1112

New!

Altistart™ 490 Soft Starters

Your assets are priority

Altivar Soft Starter ATS490 is the new comprehensive range of soft starters from Schneider Electric providing advanced motor management for the majority of industrial applications. It offers operational performance, reliability, complete monitoring, integration in the automation system, and energy efficiency.

Altivar Soft Starter ATS490 is designed to deliver:

- High-durability performance to maximize uptime with service life
- Superior sustainability
- Cost reduction at each phase of the service life

ATS490 covers the operational voltage range from 208 to 690 V in a single product range up to 1200 A, meets the requirements of the most stringent applications in normal and heavy duty. The range embeds innovative features that simplify the equipment and its design, while minimizing risks through certification.

Improving operational resilience

Altivar Soft Starter ATS490 is designed to help ensure continuity of operation. The high-durability performance of ATS490 applies not only to the product itself but also to the whole system to avoid disruption and reduce downtime.

Enhanced reliability

ATS490 withstands high stress from several origins, whether environmental or operational. It offers enhanced robustness against:

- Thermal conditions with an extended ambient operating temperature from -25 to 60° C/-13 to 140°F (with derating above 40°C/104°F)
- Mechanical conditions by using a long-lasting power connection with integrated EverLink™ technology and complying with class 3S3 according to IEC 60721-3-3
- Chemical conditions by complying with class 3C3 according to IEC 60721-3-3 ed. 2002 with salt mist
- Electrical conditions thanks to a large mains voltage range from 208 to 690 V and a large mains frequency range from 50 or 60 Hz +/-20%

The reliability on operating stress is also reinforced by TCS, the original Torque Control System by Schneider Electric, and by its starting capabilities that include high starting duration and high number of starts per hour.

Certified cybersecurity functions

ATS490 integrates IEC 62443-4-2 cybersecurity features certified by TÜV Rheinland with a development process that is IEC 62443-4-1 certified. The embedded functions include:

- User account management, including user authentication, role-based authorization, access channels, and strong passwords
- Tougher access to restrict communication ports and related functions or services
- Threat intelligence to manage cybersecurity-related events
- Cybersecurity-compliant firmware upgrade

Table 18.27: Altistart™ 490 Selection

Normal Duty, Soft Starter in-line Connection, 208...690 Vac 50/60 Hz Supply										
Motor									**Soft Starter**	
Normal motor power									Reference	Operational rated current Ie [7]
208 V	230 V		400 V	440 V	460V	500 V	575 V	69075 V		
HP	HP	kW	kW	kW	HP	kW	HP	kW	Catalog Number	Rated A
3	5	4	7.5	7.5	10	9	15	15	ATS490D17Y	17
5	7.5	5.5	11	11	15	11	20	18.5	ATS490D22Y	22
7.5	10	7.5	15	15	20	18.5	25	22	ATS490D32Y	32
10	—	9	18.5	18.5	25	22	30	30	ATS490D38Y	38
—	15	11	22	22	30	30	40	37	ATS490D47Y	47
15	20	15	30	30	40	37	50	45	ATS490D62Y	62
20	25	18.5	37	37	50	45	60	55	ATS490D75Y	75
25	30	22	45	45	60	55	75	75	ATS490D88Y	88
30	40	30	55	55	75	75	100	90	ATS490C11Y	110
40	50	37	75	75	100	90	125	110	ATS490C14Y	140
50	60	45	90	90	125	110	150	160	ATS490C17Y	170
60	75	55	110	110	150	132	200	200	ATS490C21Y	210
75	100	75	132	132	200	160	250	250	ATS490C25Y	250
100	125	90	160	160	250	220	300	315	ATS490C32Y	320
125	150	110	220	220	300	250	350	400	ATS490C41Y	410
150	—	132	250	250	350	315	400	500	ATS490C48Y	480
—	200	160	315	355	400	400	500	560	ATS490C59Y	590
200	250	—	355	400	500	—	600	630	ATS490C66Y	660
250	300	220	400	500	600	500	800	710	ATS490C79Y	790
350	350	250	500	630	800	630	1000	900	ATS490M10Y	1000
400	450	355	630	710	1000	800	1200	—	ATS490M12Y	1200
The nominal motor current In must not exceed the operational rated current Ie.										

[7] Current on operation at a maximum ambient temperature of 40°C (104°F). Above 40°C (l04°F) and up to an ambient temperature of 60°C (140°F), derate current by 1% each °C (1.8°F).

Table 18.28: Starting Capabilities of ATS490 According to the Service Duty

Application Duty	Overloading (Starting)		Service Cycle	
	Overcurrent	Duration	No. of Starts/h	Conduction
From an application standpoint, the overload is defined depending on the service duty of the motor, S1 (continuous operation) or S4 (intermittent operation).				
S1 (Continuous operation)				
Normal duty	4 x In	23 s	Continuous operation after starting	
	3 x In	46 s		
Heavy duty	4 x In	48 s	Continuous operation after starting	
	3 x In	90 s		
S4 (Intermittent operation)				
ATS490D17Y...C17Y				
Normal duty	4 x In	13 s	10	50%
	3 x In	23 s		
Heavy duty	4 x In	25 s	10	50%
ATS490C21Y...M12Y				
Normal duty	4 x In	13 s	6	50%
	3 x In	23 s		
Heavy duty	4 x In	25 s	6	50%
Each application duty has a corresponding motor protection class: • Normal duty → motor thermal protection Class 10E • Heavy duty → motor thermal protection Class 20E				

Table 18.29: Replacement parts

Description	Corresponding Soft Starter	Reference	Weight kg (lb)
Fan kit + instruction sheet	ATS490D88Y…C17Y	VZ3V4902	0.125 (0.276)
	ATS490C21Y…C66Y	VZ3V4903	0.275 (0.606)
	ATS490C79Y…M12Y	VZ3V4904	1.7 (3.748)
Control block + instruction sheet	All ATS490 soft starters	VX4G4901	0.390 (0.860)

Table 18.30: Power options for ATS490

ATS490 reference	Protective covers for power terminals	Line chokes
ATS490D17Y	—	VZ1L015UM17T
ATS490D22Y	—	VZ1L030U800T
ATS490D32Y	—	VZ1L040U600T
ATS490D38Y	—	VZ1L040U600T
ATS490D47Y	—	VZ1L070U350T
ATS490D62Y	—	VZ1L070U350T
ATS490D75Y	—	VZ1L150U170T
ATS490D88Y	—	VZ1L150U170T
ATS490C11Y	—	VZ1L150U170T
ATS490C14Y	VW3G4701	VZ1L150U170T
ATS490C17Y	VW3G4701	VZ1L250U100T
ATS490C21Y	VW3G4702	VZ1L250U100T
ATS490C25Y	VW3G4702	VZ1L250U100T
ATS490C32Y	VW3G4702	VZ1L325U075T
ATS490C41Y	VW3G4702	VZ1L530U045T
ATS490C48Y	VW3G4703	VZ1L530U045T
ATS490C59Y	VW3G4703	VZ1LM10U024T
ATS490C66Y	VW3G4703	VZ1LM10U024T
ATS490C79Y	—	VZ1LM10U024T
ATS490M10Y	—	VZ1LM10U024T
ATS490M12Y	—	VZ1LM14U016T

Table 18.31: ATS490 Communication Modules

Description	Reference
CANopen daisy chain	VW3A3608
CANopen SUB-D	VW3A3618
CANopen screw terminal block	VW3A3628
Profibus DP V1	VW3A3607

Enclosed Altistart™ 22 Motor Controllers

Enclosed Altistart 22 (ATS22) solid-state combination motor controllers are a pre-engineered, integrated solution for reduced voltage starting and soft stopping of standard three-phase asynchronous induction (squirrel cage) motors. The Enclosed 22 controllers consist of a disconnect means and an ATS22 softstarter in a stand-alone enclosure. Enclosed 22 controllers integrate the ATS22 softstart technology into a combination package for application requirements up to 400 hp at 460 V.

- 3–150 hp, 208 V
- 5–200 hp, 230 V
- 10–400 hp, 460 V
- 15–500 hp, 575V

Table 18.32: Enclosed Altistart 22 Catalog Number Description

Field	Digit	Characteristic	Description
—	—	Controller Class	8638 = Fused Disconnect *[1]* 8639 = Circuit Breaker Disconnect
01	1–3	Controller Style	22F = Altistart 22 with Class J Fuse Clips and Molded Case Switch *[1]* 22T = Altistart 22 with PowerPact Motor Circuit Protector 22U = Altistart 22 with PowerPact Thermal-Magnetic Circuit Breaker
02	4	Horsepower	A = 3 hp B = 5 hp C = 7.5 hp D = 10 hp E = 15 hp F = 20 hp G = 25 hp H = 30 hp J = 40 hp K = 50 hp L = 60 hp M = 75 hp N = 100 hp P = 125 hp Q = 150 hp R=200 hp S= 250 hp T= 300 hp U=350 hp W= 400 hp X= 500 hp
03	5	Enclosure Type	G = UL Type 1 General Purpose A = UL Type 12K Industrial Use, Dust-Tight/Drip-Tight H = UL Type 3R Outdoor Use
04	6	Voltage	2 = 208 Vac 3 = 230 Vac 4 = 460 Vac 5 = 575 Vac
05	7	Power Circuit	B = Basic Shunt Trip S = Full-Featured Shunt Trip N = Non-Reversing Isolation R = Reversing Isolation Y = Integral Full-Voltage Bypass
06	8–10	Control Options *[2] [3]*	A06 = Start-Stop Push Buttons B06 = Forward-Off-Reverse C06 = Hand-Off-Auto (HOA) Selector Switch D06 = Stop-Run Selector Switch E06 = Hand-Auto Selector Switch/Start-Stop Push Buttons
07	11–13	Pilot Device Options *[2] [3]*	A07 = Run Light (Red), Off Light (Green) B07 = Push-to-Test Run Light (Red), Push-to-Test Off Light (Green) C07 = Run Light (Red), Off Light (Green), Tripped Light/Reset (Yellow) D07 = PTT Run Light (Red), PTT Off Light (Green), Tripped Light/Reset (Yellow)
08	14–16	Metering Options	B08 = Elapsed Run Time Meter *[3]*
09	17–19	Miscellaneous Options	A10 = Floor Mounting Kit *[4]* B10 = Additional 150 VA *[5]* C10 = Power-Up On Delay Relay*[6]* D10 = Emergency Stop Push Button *[5]* E10 = cUL Label *[7]* F10 = Auxiliary Run Mode Contacts G10 = Auxiliary FB Bypass Contacts *[8]* H10 = Auxiliary Auto Mode Contacts *[9]* J10 = Auxiliary Trip Indication Contacts L10 = ID Engraved Nameplate *[5]* M10 = 10 Spare Terminal Blocks *[5]* P10 = Permanent Wire Markers *[5]* R10 = MOV-Surge Arrestor *[5]* U10 = Omit Door-Mounted Keypad Display *[10]* X10 = 50 °C Operation Y10 = Seismic qualification label Z10 = Service Entrance Rating *[7] [11]* 910 = American Recovery and Reinvestment Act (ARRA) Option

Table 18.33: Enclosed Altistart 22 Catalog Number Example: 863922UCG4BA06A07

Field							
—	1	2	3	4	5	6	7
8639	22U	C	G	4	B	A06	A07
Controller Class	PowerPact™ Thermal- Magnetic Circuit Breaker	7.5 hp	Type 1 General Purpose	460 Vac	Basic Shunt Trip	Start-Stop Push Button	Run Light (Red), Off Light (Green

[1] This option is not selectable with power circuit option B05.
[2] Select only one option.
[3] To omit, do not include a selection in the catalog number.
[4] This option is available only for enclosure size D.
[5] This option is not selectable with power circuit option B05
[6] This option is not selectable with power circuit option B05. This option is valid only with the following control options: C06, D06, or E06.
[7] Options E10 and Z10 cannot be used together.
[8] This option is not selectable with power circuit option B05. The contacts are available only when power circuit option Y05 is selected.
[9] The contacts are not available when power circuit option R05 is selected. This option is valid only with the following control options: C06, D06, or E06.
[10] If you select option U10, you must separately order the remote keypad (VW3G22101) and cable (VW3A1104R30) to commission the softstarter. Refer to the *ATS22 User Manual*, BBV51330, for serial communication programming and control capabilities.
[11] Options E10 and Z10 cannot be ordered together.

Enclosed Altistart 22 Control Options (pick one)

Mod A06	Start/Stop push buttons
	Provides black start and red stop push buttons (3-wire control scheme).
Mod B06	Forward-Off-Reverse selector switch
	Provides three-position selector switch to select between forward, off and reverse. Uses 2-wire control.
Mod C06	Hand-Off-Auto selector switch
	Provides a three-position selector switch, 2-wire control scheme.
Mod D06	Stop-Run selector switch
	Provides a two-position selector switch.
Mod E06	Hand-Auto selector switch and Start/Stop push buttons
	Provides a two-position selector switch and start/stop push buttons (3-wire control).

Enclosed Altistart 22 Pilot Light Cluster Options (pick one)

Mod A07	Pilot light cluster #1
	Consists of red “RUN” and green “OFF” pilot lights. Provides standard red “RUN (ON)” and green “OFF” pilot lights for status annunciation.
Mod B07	Pilot light cluster #2
	Consists of red “RUN” (push-to-test) and green “OFF” (push-to-test) pilot lights. Provides push-to-test type red “RUN (ON)” and standard green “OFF” pilot lights for status annunciation.
Mod C07	Pilot light cluster #3
	Consists of red “RUN”, green “OFF” and yellow “FAULT” pilot lights. Provides standard red “RUN (ON)” green “OFF” and yellow “FAULT” pilot lights for status annunciation.
Mod D07	Pilot light cluster #4
	Consists of red “RUN (ON)” (push-to-test), green “OFF” (push-to-test) and yellow “FAULT” (push-to-reset) pilot lights. Provides push-to-test type red “RUN (ON)” standard green “OFF”, and push-to-reset type yellow “FAULT” for status annunciation.

Enclosed Altistart 22 Meter Display Options (pick one)

Mod BO8	Elapsed time meter
	Provides a seven-digit analog, non-resettable elapsed run time meter. Not available on Type 3R Enclosures

Enclosed Altistart 22 Miscellaneous Options (multiple compatible options may be selected

Mod A10	Floor mounting kit
	Only available for size D enclosures.
Rules: Available for power options S05, N05, R05, Y05.	
Mod B10	150 VA additional control power capacity
	Provides 150 VA additional control VA capacity for customer use.

Information and Selection of AC Drives

For product information and selection, visit **Variable Speed Drives** on www.se.com/us

Technical Support and Services for AC Drives

Drive Product Support Group

For support and assistance, contact the Drive Product Support Group. The Drive Product Support Group is staffed from 8:00 am until 8:00 pm Eastern time to assist with diagnosis of product problems. For support with applications or product selection, please contact a drive specialist at your local authorized Schneider Electric Distributor. Click here to locate an Automation and Control distributor near you: Find Electrical, Automation, and Control Distributors.
EMERGENCY Technical phone support is available 24 hours a day, 365 days a year.

Toll Free:	888-778-2733
E–mail:	drive.products.support@schneider-electric.com
Fax:	919-217-6508

Schneider Electric Services

Schneider Electric offers a broad range of Services for electrical distribution assets and systems to support the lifecycle of your equipment, for any manufacturer's. With 6,500+ experts and 260+ consultants in electrical and automation asset management services in 140 countries within 430 Services centers, Schneider Electric Services responds to your requests, seven days a week, 24 hours a day.

Toll Free (888-778-2733)

se.com/us/services

Customer Training for AC Drives

Schneider Electric offers a variety of instructor-led, skill enhancing and technical product training programs for customers. For a complete list of drives/soft starter training with dates, locations, and pricing, please call:

Phone:	978-975-9306
Fax:	978-975-2821

Packaged Product Documentation for AC Drives

Standard Documentation

Each adjustable frequency drive or soft starter shipped includes one set of instruction bulletins. Each set of instruction bulletins includes installation, start–up, troubleshooting and wiring diagram information. Separate Approval and/or Record Drawings are not included.

Approval and Record Drawings

All factory orders for enclosed drives and soft starters come with factory supplied user drawings and are identified by a factory order number. The factory supplied drawing set typically includes:

- Enclosure outline drawing
- Power elementary drawing
- Control elementary drawing
- Interconnection drawing

These drawings are also available in DWG, DXF, IGS, Microcad and PDF formats upon customer request.

Product Literature

To view or download product literature visit **Variable Speed Drives** on www.se.com/us or visit our Download Center at www.se.com/us/en/download/.