Product datasheet

Specifications

variable speed drive - ATV21 - 11kW 15HP - 240V - IP20

ATV21HD11M3X

Discontinued on: 31 Dec 2012

End-of-service on: 31 Dec 2020

Discontinued

Main

Range of product	Altivar 21
Product or component type	Variable speed drive
Product destination	Asynchronous motors
Product specific application	Pumps and fans in HVAC
Assembly style	With heat sink
Component name	ATV21
EMC filter	Without EMC filter
power supply voltage	200...240 V - 15...10 %
Network number of phases	3 phases
Motor power kW	11 kW
Motor power hp	15 hp
Line current	34.4 A at 240 V 42.1 A at 200 V
Speed range	1…10
Transient overtorque	120 % of nominal motor torque +/- 10 % for 60 s
Asynchronous motor control profile	Current flux vector control (FVC) without speed feedback Quadratic voltage/frequency ratio Energy saving ratio Constant voltage/frequency ratio with automatic IR compensation Constant voltage/frequency ratio
Communication port protocol	Modbus
Type of polarization	No impedance
IP degree of protection	IP20 on upper part without blanking plate on cover conforming to EN/IEC 60529 IP20 on upper part without blanking plate on cover conforming to EN/IEC 61800-5-1 IP21 conforming to EN/IEC 60529 IP21 conforming to EN/IEC 61800-5-1 IP41 on upper part conforming to EN/IEC 60529 IP41 on upper part conforming to EN/IEC 61800-5-1
Option card	Communication card for APOGEE FLN Communication card for BACnet Communication card for LonWorks Communication card for METASYS N2

Complementary

power supply voltage limits	170…264 V
power supply frequency	50...60 Hz - 5...5 %
power supply frequency limits	47.5…63 Hz

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

Apparent power	17.6 kVA at 240 V
maximum prospective line Isc	22 kA
maximum continuous output current	46.2 A at 230 V
Maximum transient current	50.8 A for 60 s
Speed drive output frequency	0.5…200 Hz
Nominal switching frequency	12 kHz
Switching frequency	12...16 kHz with derating factor 6...16 kHz adjustable
Speed accuracy	+/- 10 % of nominal slip for 0.2 Tn to Tn torque variation
Torque accuracy	+/- 15 %
Regulation loop	Adjustable PI regulator
Motor slip compensation	Not available in voltage/frequency ratio motor control Automatic whatever the load Adjustable
diagnostic	1 LED (red) for DC bus energized
Output voltage	<= power supply voltage
Insulation	Electrical between power and control
recommended type of cable for mounting in an enclosure	With UL Type 1 kit: 3 wire(s)UL 508 cable at 40 °C, copper 75 °C / PVC Without mounting kit: 1 wire(s)IEC cable at 45 °C, copper 70 °C / PVC Without mounting kit: 1 wire(s)IEC cable at 45 °C, copper 90 °C / XLPE/EPR
Electrical connection	VIA, VIB, FM, FLA, FLB, FLC, RY, RC, F, R, RES: terminal 2.5 mm² / 14 AWG L1/R, L2/S, L3/T: terminal 25 mm² / 3 AWG
Tightening torque	0.6 N.m (VIA, VIB, FM, FLA, FLB, FLC, RY, RC, F, R, RES) 4.5 N.m, 40 lb.in (L1/R, L2/S, L3/T)
Supply	Internal supply: 24 V DC (21…27 V), <200 mA, protection type: overload and short-circuit protection Internal supply for reference potentiometer (1 to 10 kOhm): 10.5 V DC +/- 5 %, <10 mA, protection type: overload and short-circuit protection
Analogue input number	2
Analogue input type	VIA switch-configurable current: 0...20 mA, impedance: 242 Ohm, resolution 11 bits VIA switch-configurable voltage: 0...10 V DC 24 V max, impedance: 30000 Ohm, resolution 11 bits VIB configurable PTC probe: 0...6 probes, impedance: 1500 Ohm VIB configurable voltage: 0...10 V DC 24 V max, impedance: 30000 Ohm, resolution 11 bits
Sampling duration	F 2 ms +/- 0.5 ms for discrete input(s) R 2 ms +/- 0.5 ms for discrete input(s) RES 2 ms +/- 0.5 ms for discrete input(s) VIA 2 ms +/- 0.5 ms for analog input(s) VIB 2 ms +/- 0.5 ms for analog input(s)
Response time	FLA, FLC 7 ms +/- 0.5 ms for discrete output(s) FLB, FLC 7 ms +/- 0.5 ms for discrete output(s) FM 2 ms +/- 0.5 ms for analog output(s) RY, RC 7 ms +/- 0.5 ms for discrete output(s)
Accuracy	+/- 1 % (FM) for a temperature variation 60 °C +/- 0.6 % (VIA) for a temperature variation 60 °C +/- 0.6 % (VIB) for a temperature variation 60 °C
Linearity error	FM: +/- 0.2 % for output VIA: +/- 0.15 % of maximum value for input VIB: +/- 0.15 % of maximum value for input
Analogue output number	1
Analogue output type	FM switch-configurable current 0...20 mA, impedance: 500 Ohm, resolution 10 bits FM switch-configurable voltage 0...10 V DC, impedance: 470 Ohm, resolution 10 bits
Discrete output number	2

Discrete output type	Configurable relay logic: (FLA, FLC) NO - 100000 cycles Configurable relay logic: (FLB, FLC) NC - 100000 cycles Configurable relay logic: (RY, RC) NO - 100000 cycles
Minimum switching current	3 mA at 24 V DC for configurable relay logic
Maximum switching current	2 A at 250 V AC on inductive load - cos phi = 0.4 - L/R = 7 ms (FL, R) 2 A at 30 V DC on inductive load - cos phi = 0.4 - L/R = 7 ms (FL, R) 5 A at 250 V AC on resistive load - cos phi = 1 - L/R = 0 ms (FL, R) 5 A at 30 V DC on resistive load - cos phi = 1 - L/R = 0 ms (FL, R)
Discrete input type	F programmable 24 V DC, with level 1 PLC, impedance: 3500 Ohm R programmable 24 V DC, with level 1 PLC, impedance: 3500 Ohm RES programmable 24 V DC, with level 1 PLC, impedance: 3500 Ohm
Discrete input logic	Negative logic (sink) (F, R, RES), >= 16 V (state 0), <= 10 V (state 1) Positive logic (source) (F, R, RES), <= 5 V (state 0), >= 11 V (state 1)
Acceleration and deceleration ramps	Linear adjustable separately from 0.01 to 3200 s Automatic based on the load
Braking to standstill	By DC injection
Protection type	Against input phase loss: drive Break on the control circuit: drive Input phase breaks: drive Line supply overvoltage and undervoltage: drive Line supply undervoltage: drive Overcurrent between output phases and earth: drive Overheating protection: drive Overvoltages on the DC bus: drive Short-circuit between motor phases: drive Thermal power stage: drive Motor phase break: motor Thermal protection: motor With PTC probes: motor Against exceeding limit speed: drive
Insulation resistance	>= 1 mOhm 500 V DC for 1 minute
Frequency resolution	Analog input: 0.024/50 Hz Display unit: 0.1 Hz
Connector type	1 RJ45
Physical interface	2-wire RS 485
Transmission frame	RTU
Transmission rate	9600 bps or 19200 bps
Data format	8 bits, 1 stop, odd even or no configurable parity
Number of addresses	1…247
Communication service	Monitoring inhibitable Write multiple registers (16) 2 words maximum Write single register (06) Time out setting from 0.1 to 100 s Read device identification (43) Read holding registers (03) 2 words maximum
Marking	CE
Operating position	Vertical +/- 10 degree
Height	329.5 mm
Width	245 mm
Depth	190 mm
Net weight	11.55 kg

Environment

Noise level	54 dB conforming to 86/188/EEC

Dielectric strength	2830 V DC between earth and power terminals 4230 V DC between control and power terminals
Electromagnetic compatibility	1.2/50 µs - 8/20 µs surge immunity test level 3 conforming to IEC 61000-4-5 Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6 Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4 Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 conforming to IEC 61000-4-3 Voltage dips and interruptions immunity test conforming to IEC 61000-4-11
Standards	IEC 61800-5-1 IEC 61800-3 environments 1 category C2 UL Type 1 EN 61800-3 environments 1 category C3 IEC 61800-3 environments 1 category C3 EN 61800-5-1 EN 61800-3 environments 2 category C1 EN 61800-3 environments 2 category C2 EN 61800-3 IEC 61800-3 environments 2 category C3 EN 61800-3 environments 1 category C2 EN 61800-3 environments 1 category C1 IEC 61800-3 environments 2 category C2 IEC 61800-3 IEC 61800-3 environments 1 category C1 IEC 61800-3 environments 2 category C1 EN 61800-3 environments 2 category C3
Product certifications	C-Tick NOM 117 UL CSA
Vibration resistance	1 gn (f= 13…200 Hz) conforming to EN/IEC 60068-2-8 1.5 mm (f= 3…13 Hz) conforming to EN/IEC 60068-2-6
Shock resistance	15 gn for 11 ms conforming to IEC 60068-2-27
Pollution degree	2 conforming to IEC 61800-5-1
Environmental characteristic	Classes 3C1 conforming to IEC 60721-3-3 Classes 3S2 conforming to IEC 60721-3-3
Relative humidity	5…95 % without condensation conforming to IEC 60068-2-3 5…95 % without dripping water conforming to IEC 60068-2-3
Ambient air temperature for operation	-10…40 °C (without derating) 40…50 °C (with derating factor)
Ambient air temperature for storage	-25…70 °C
Operating altitude	<= 2000 m 1000...3000 m limited to 2000 m for the Corner Grounded distribution network

Packing Units

Unit Type of Package 1	PCE
Number of Units in Package 1	1

Contractual warranty

Warranty (in months)	18

Environmental Data

Schneider Electric aims to achieve Net Zero status by 2050 through supply chain partnerships, lower impact materials, and circularity via our ongoing “Use Better, Use Longer, Use Again” campaign to extend product lifetimes and recyclability.

Environmental Data explained >

How we assess product sustainability >

Environmental footprint

Environmental Disclosure	Product Environmental Profile