Product data sheet

Specifications

Discontinued

variable speed drive - ATV21 - 30kW 40HP - 480V - EMC filter class A - IP20

ATV21HD30N4

Discontinued on: Dec 31, 2012

End-of-service on: Dec 31, 2020

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	Class A EMC filter integrated
power supply voltage	380...480 V - 15...10 %
Phase	3 phase
Motor power kW	30 kW
Maximum Horse Power Rating	40 hp
Line current	44.7 A 480 V 56.7 A 380 V
Speed range	1…10
Transient overtorque	120 % of nominal motor torque +/- 10 % 60 s
Asynchronous motor control profile	Constant voltage/frequency ratio with automatic IR compensation Quadratic voltage/frequency ratio Current flux vector control (FVC) without speed feedback Constant voltage/frequency ratio Energy saving ratio
Communication Port Protocol	Modbus
Type of polarization	No impedance
IP degree of protection	IP20 on upper part without blanking plate on cover EN/IEC 60529 IP20 on upper part without blanking plate on cover EN/IEC 61800-5-1 IP21 EN/IEC 60529 IP21 EN/IEC 61800-5-1 IP41 on upper part EN/IEC 60529 IP41 on upper part EN/IEC 61800-5-1
Option card	Communication card APOGEE FLN Communication card BACnet Communication card LonWorks Communication card METASYS N2

Complementary

power supply voltage limits	323…528 V
power supply frequency	50...60 Hz - 5...5 %

Price is “List Price” and may be subject to a trade discount – check with your local distributor or retailer for actual price.

power supply frequency limits	47.5…63 Hz
Apparent power	44.6 kVA 380 V
maximum prospective line Isc	22 kA
maximum continuous output current	58.5 A 380 V 58.5 A 460 V
Maximum transient current	64.4 A 60 s
Speed drive output frequency	0.5…200 Hz
Nominal switching frequency	8 kHz
Switching frequency	6...16 kHz adjustable 8...16 kHz with derating factor
Speed accuracy	+/- 10 % of nominal slip 0.2 Tn to Tn
Torque accuracy	+/- 15 %
Regulation loop	Adjustable PI regulator
Motor slip compensation	Not available in voltage/frequency ratio motor control Adjustable Automatic whatever the load
diagnostic	for DC bus energized 1 LED (red)
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 UL 508 cable 104 °F (40 °C), copper 75 °C / PVC Without mounting kit 1 IEC cable 113 °F (45 °C), copper 70 °C / PVC Without mounting kit 1 IEC cable 113 °F (45 °C), copper 90 °C / XLPE/EPR
Electrical connection	VIA, VIB, FM, FLA, FLB, FLC, RY, RC, F, R, RES terminal 0.004 in² (2.5 mm²) / AWG 14 L1/R, L2/S, L3/T terminal 0.08 in² (50 mm²) / AWG 1/0
Tightening torque	5.3 lbf.in (0.6 N.m) VIA, VIB, FM, FLA, FLB, FLC, RY, RC, F, R, RES) 212.4 lbf.in (24 N.m), 212 lb.in L1/R, L2/S, L3/T)
Supply	Internal supply 24 V DC 21…27 V), <200 mA overload and short-circuit protection Internal supply for reference potentiometer (1 to 10 kOhm) 10.5 V DC +/- 5 %, <10 mA overload and short-circuit protection
Analogue input number	2
Analogue input type	VIA switch-configurable current 0...20 mA 242 Ohm 11 bits VIA switch-configurable voltage 0...10 V DC 24 V max 30000 Ohm 11 bits VIB configurable PTC probe 0...6 probes 1500 Ohm VIB configurable voltage 0...10 V DC 24 V max 30000 Ohm 11 bits
Sampling duration	F 2 ms +/- 0.5 ms discrete R 2 ms +/- 0.5 ms discrete RES 2 ms +/- 0.5 ms discrete VIA 2 ms +/- 0.5 ms analog VIB 2 ms +/- 0.5 ms analog
Response time	FLA, FLC 7 ms +/- 0.5 ms discrete FLB, FLC 7 ms +/- 0.5 ms discrete FM 2 ms +/- 0.5 ms analog RY, RC 7 ms +/- 0.5 ms discrete
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 % output VIA +/- 0.15 % of maximum value input VIB +/- 0.15 % of maximum value input
Analogue output number	1
Analogue output type	FM switch-configurable current 0...20 mA 500 Ohm 10 bits FM switch-configurable voltage 0...10 V DC 470 Ohm 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 24 V DC configurable relay logic
Maximum switching current	2 A 250 V AC inductive cos phi = 0.4 L/R = 7 ms FL, R) 2 A 30 V DC inductive cos phi = 0.4 L/R = 7 ms FL, R) 5 A 250 V AC resistive cos phi = 1 L/R = 0 ms FL, R) 5 A 30 V DC resistive cos phi = 1 L/R = 0 ms FL, R)
Discrete input type	F programmable 24 V DC level 1 PLC 3500 Ohm R programmable 24 V DC level 1 PLC 3500 Ohm RES programmable 24 V DC level 1 PLC 3500 Ohm
Discrete input logic	Negative logic (sink) F, R, RES), >= 16 V, <= 10 V Positive logic (source) F, R, RES), <= 5 V, >= 11 V
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	Read device identification (43) Write multiple registers (16) 2 words maximum Read holding registers (03) 2 words maximum Monitoring inhibitable Write single register (06) Time out setting from 0.1 to 100 s
Marking	CE
Operating position	Vertical +/- 10 degree
Height	16.5 in (420 mm)
Width	9.4 in (240 mm)
Depth	4.8 in (122 mm)
Product Weight	58.2 lb(US) (26.4 kg)

Environment

Noise level	59.9 dB 86/188/EEC

Dielectric strength	3535 V DC between earth and power terminals 5092 V DC between control and power terminals
Electromagnetic compatibility	1.2/50 µs - 8/20 µs surge immunity test level 3 IEC 61000-4-5 Conducted radio-frequency immunity test level 3 IEC 61000-4-6 Electrical fast transient/burst immunity test level 4 IEC 61000-4-4 Electrostatic discharge immunity test level 3 IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 IEC 61000-4-3 Voltage dips and interruptions immunity test IEC 61000-4-11
Standards	IEC 61800-3 category C3 IEC 61800-3 UL Type 1 IEC 61800-3 environments 2 category C1 EN 61800-3 environments 1 category C1 EN 61800-3 environments 2 category C2 IEC 61800-5-1 EN 61800-3 environments 2 category C1 IEC 61800-3 environments 2 category C2 EN 61800-5-1 EN 61800-3 environments 1 category C3 IEC 61800-3 environments 1 category C3 IEC 61800-3 environments 1 category C1 EN 61800-3 environments 2 category C3 IEC 61800-3 category C2 EN 61800-3 category C2 EN 61800-3 environments 1 category C2 EN 61800-3 category C3 IEC 61800-3 environments 1 category C2 EN 61800-3 IEC 61800-3 environments 2 category C3 EN 55011 class A group 1
Product Certifications	CSA C-tick UL NOM 117
Vibration resistance	1 gn 13…200 Hz)EN/IEC 60068-2-8 1.5 mm 3…13 Hz)EN/IEC 60068-2-6
Shock resistance	15 gn 11 ms IEC 60068-2-27
Pollution degree	3 IEC 61800-5-1
Environmental characteristic	Classes 3C1 IEC 60721-3-3 Classes 3S2 IEC 60721-3-3
Relative humidity	5…95 % without condensation IEC 60068-2-3 5…95 % without dripping water IEC 60068-2-3
Ambient air temperature for operation	14…104 °F (-10…40 °C) without derating) 104…122 °F (40…50 °C) with derating factor)
Ambient Air Temperature for Storage	-13…158 °F (-25…70 °C)
Operating altitude	<= 6561.68 ft (2000 m) 3280.84...9842.52 ft (1000...3000 m) limited to 2000 m for the Corner Grounded distribution network

Ordering and shipping details

Category	22158-ATV212 30 - 100 HP 460 VOLT
Discount Schedule	CP4D
GTIN	00785901875819
Returnability	No
Country of origin	FR

Contractual warranty

Warranty	18 months