ATV31HU40N4A
variable speed drive ATV31 - 4kW - 500V 3-phase supply - EMC filter - IP20

Discontinued

Main
- Range of product: Altivar
- Product or component type: Variable speed drive
- Product specific application: Simple machine
- Component name: ATV31
- Assembly style: With heat sink
- Variant: With drive order potentiometer
- EMC filter: Integrated
- [Us] rated supply voltage: 380...500 V - 5...5 %
- Supply frequency: 50...60 Hz - 5...5 %
- Network number of phases: 3 phases
- Motor power kW: 4 kW 4 kHz
- Motor power hp: 5 hp 4 kHz
- Line current: 10.6 A at 500 V
- Apparent power: 13.9 A at 380 V, Isc = 1 kA
- Prospective line Isc: 1 kA
- Nominal output current: 9.5 A 4 kHz
- Maximum transient current: 14.3 A for 60 s
- Power dissipation in W: 150 W at nominal load
- Asynchronous motor control profile: Sensorless flux vector control with PWM type motor control signal
- Factory set: constant torque
- Analogue input number: 4

Complementary
- Product destination: Asynchronous motors
- Supply voltage limits: 323…550 V
- Network frequency: 47.5...63 Hz
- Output frequency: 0.0005…0.5 kHz
- Nominal switching frequency: 4 kHz
- Switching frequency: 2...16 kHz adjustable
- Speed range: 1…50
- Transient overtorque: 150…170 % of nominal motor torque

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

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**Braking torque**
- <= 150 % during 60 s with braking resistor
- 100 % with braking resistor continuously
- 150 % without braking resistor

**Regulation loop**
- Frequency PI regulator

**Motor slip compensation**
- Suppressable
- Automatic whatever the load
- Adjustable

**Output voltage**
- <= power supply voltage

**Electrical connection**
- A1, A2, A3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, L1...L16 terminal 2.5 mm² AWG 14
- L1, L2, L3, U, V, W, PA, PB, PA+, PC/- terminal 2.5 mm² AWG 14

**Tightening torque**
- A1, A2, A3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, L1...L16: 0.6 N.m
- L1, L2, L3, U, V, W, PA, PB, PA+, PC/-: 0.8 N.m

**Insulation**
- Electrical between power and control

**Supply**
- Internal supply for logic inputs: 19...30 V 100 mA, protection type: overload and short-circuit protection
- Internal supply for reference potentiometer (2.2 to 10 kOhm): 10...10.8 V 10 mA, protection type: overload and short-circuit protection

**Analogue input type**
- AI3 configurable current 0...20 mA, impedance: 250 Ohm
- AI1 configurable voltage 0...10 V, input voltage 30 V max, impedance: 30000 Ohm
- AI2 configurable voltage +/- 10 V, input voltage 30 V max, impedance: 30000 Ohm
- AIP potentiometer reference 8 ms 10 bits +/- 4.3 % +/- 0.2 %

**Sampling duration**
- LI1...LI6: 4 ms discrete
- AI1, AI2, AI3: 8 ms analog

**Response time**
- AOV, AOC 8 ms for analog
- R1A, R1B, R1C, R2A, R2B 8 ms for discrete

**Linearity error**
- +/- 0.2 % for output

**Analogue output number**
- 2

**Analogue output type**
- AOC configurable current: 0...20 mA, impedance: 800 Ohm, resolution: 8 bits
- AOV configurable voltage: 0...10 V, impedance: 470 Ohm, resolution: 8 bits

**Discrete input logic**
- Positive logic (source) (LI1...LI6), < 5 V (state 0), > 11 V (state 1)
- Logic input not wired (LI1...LI4), < 13 V (state 1)
- Negative logic (source) (LI1...LI6), > 19 V (state 0)

**Discrete output number**
- 2

**Discrete output type**
- Configurable relay logic: (R1A, R1B, R1C) 1 NO + 1 NC - 100000 cycles
- Configurable relay logic: (R2A, R2B) NC - 100000 cycles

**Minimum switching current**
- R1-R2 10 mA at 5 V DC

**Maximum switching current**
- R1-R2: 2 A at 250 V AC inductive load, cos phi = 0.4 and L/R = 7 ms
- R1-R2: 2 A at 30 V DC inductive load, cos phi = 0.4 and L/R = 7 ms
- R1-R2: 5 A at 250 V AC resistive load, cos phi = 1 and L/R = 0 ms
- R1-R2: 5 A at 30 V DC resistive load, cos phi = 1 and L/R = 0 ms

**Discrete input number**
- 6

**Discrete input type**
- (LI1...LI6) programmable at 24 V, 0…100 mA for PLC, impedance: 3500 Ohm

**Acceleration and deceleration ramps**
- S, U or customized
- Linear adjustable separately from 0.1 to 999.9 s

**Braking to standstill**
- By DC injection

**Protection type**
- Input phase breaks: drive
- Line supply overvoltage and undervoltage safety circuits: drive
- Line supply phase loss safety function, for three phases supply: drive
- Motor phase breaks: drive
- Overcurrent between output phases and earth (on power up only): drive
- Overheating protection: drive
- Short-circuit between motor phases: drive
- Thermal protection: motor

**Insulation resistance**
- >= 500 mOhm 500 V DC for 1 minute

**Display type**
- 1 LED (red) for drive voltage
- Four 7-segment display units for CANopen bus status

**Time constant**
- 5 ms for reference change

**Frequency resolution**
- Display unit: 0.1 Hz
- Analog input: 0.1...100 Hz

**Connector type**
- 1 RJ45 for CANopen via VW3 CANTAP2 adaptor
- 1 RJ45 for Modbus

**Physical interface**
- RS485 multidrop serial link for CANopen via VW3 CANTAP2 adaptor
- RS485 multidrop serial link for Modbus
| **Transmission frame** | RTU for CANopen via VW3 CANTAP2 adaptor  
| | RTU for Modbus |
| **Transmission rate** | 10, 20, 50, 125, 250, 500 kbps or 1 Mbps for CANopen via VW3 CANTAP2 adaptor  
| | 4800, 9600 or 19200 bps for Modbus |
| **Number of addresses** | 1…127 for CANopen via VW3 CANTAP2 adaptor  
| | 1…247 for Modbus |
| **Number of drive** | 127 for CANopen via VW3 CANTAP2 adaptor  
| | 31 for Modbus |
| **Marking** | CE |
| **Operating position** | Vertical +/- 10 degree |
| **Net weight** | 3.1 kg |

**Environment**

| **Dielectric strength** | 2410 V DC between earth and power terminals  
| | 3400 V AC 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  
| | 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 |
| **Standards** | EN 50178 |
| **Product certifications** | C-Tick  
| | UL  
| | CSA  
| | N998 |
| **IP degree of protection** | On upper part: IP20 (without cover plate)  
| | On connection terminals: IP21  
| | On upper part: IP31  
| | On upper part: IP41 |
| **Pollution degree** | 2 |
| **Protective treatment** | TC |
| **Vibration resistance** | 1 gn (f= 13…150 Hz) conforming to EN/IEC 60068-2-6  
| | 1.5 mm (f= 3…13 Hz) conforming to EN/IEC 60068-2-6 |
| **Shock resistance** | 15 gn for 11 ms conforming to EN/IEC 60068-2-27 |
| **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 storage** | -25…70 °C |
| **Ambient air temperature for operation** | -10…50 °C without (with protective cover on top of the drive)  
| | -10…60 °C with derating factor (without protective cover on top of the drive) |
| **Operating altitude** | <= 1000 m without  
| | >= 1000 m with current derating 1 % per 100 m |

**Contractual warranty**

| **Warranty** | 18 months |

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**ATV31HU40N4A is replaced by:**

Variable speed drives ATV312HU40N4

variable speed drive ATV312 - 4kW - 9.2kVA - 150 W - 380..500 V - 3-phase supply

Qty 1

Reason for Substitution: End of life | Substitution date: 01 October 2010