### 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  
- **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**
  15 kW 4 kHz  
- **Motor power hp**
  20 hp 4 kHz  
- **Line current**
  36.8 A 500 V  
  48.2 A 380 V 1 kA  
- **Apparent power**
  32 kVA  
- **Prospective line Isc**
  1 kA  
- **Nominal output current**
  33 A 4 kHz  
- **Maximum transient current**
  49.5 A 60 s  
- **Power dissipation in W**
  492 W at nominal load  
- **Asynchronous motor control profile**
  Factory set: constant torque  
  Sensorless flux vector control with PWM type motor control signal  
- **Analogue input number**
  3

### 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  
- **Braking torque**
  100 % with braking resistor continuously  
  150 % without braking resistor

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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.
Regulation loop
Frequency PI regulator
Motor slip compensation
Suppressable
Automatic whatever the load
Adjustable
Output voltage
<= power supply voltage
Electrical connection
Terminal 2.5 mm² AWG 14 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/
Tightening torque
0.6 N.m A1, A2, A3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, L1...L16
0.8 N.m L1, L2, L3, U, V, W, PA, PB, PA+, PC/
Insulation
Electrical between power and control
Supply
Internal supply for logic inputs 19...30 V <= 100 mA overload and short-circuit protection
Internal supply for reference potentiometer (2.2 to 10 kOhm) 10...10.8 V <= 10 mA overload and short-circuit protection
Analogue input type
Configurable current A13 0...20 mA 250 Ohm
Configurable voltage A11 0...10 V 30 V max 30000 Ohm
Configurable voltage A12 +/- 10 V 30 V max 30000 Ohm
Sampling duration
4 ms LI1...LI6 discrete
8 ms A11, A12, A13 analog
Response time
8 ms analog AOV, AOC
8 ms discrete R1A, R1B, R1C, R2A, R2B
Linearity error
+/- 0.2 % output
Analogue output number
2
Analogue output type
Configurable current AOC 0...20 mA 800 Ohm 8 bits
Configurable voltage AOV 0...10 V 470 Ohm 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
10 mA 5 V DC R1-R2
Maximum switching current
2 A 250 V AC inductive, cos phi = 0.4 7 ms R1-R2
2 A 30 V DC inductive, cos phi = 0.4 7 ms R1-R2
5 A 250 V AC resistive, cos phi = 1 0 ms R1-R2
5 A 30 V DC resistive, cos phi = 1 0 ms R1-R2
Discrete input number
6
Discrete input type
Programmable LI1...LI6 24 V 0...100 mA PLC 3500 Ohm
Acceleration and deceleration ramps
Linear adjustable separately from 0.1 to 999.9 s
S, U or customized
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 drive voltage
Four 7-segment display units CANopen bus status
Time constant
5 ms for reference change
Frequency resolution
0.1 Hz display unit
0.1...100 Hz analog input
Connector type
1 RJ45 CANopen via VW3 CANTAP2 adaptor
1 RJ45 Modbus
Physical interface
RS485 multidrop serial link CANopen via VW3 CANTAP2 adaptor
RS485 multidrop serial link Modbus
Transmission frame
RTU CANopen via VW3 CANTAP2 adaptor
RTU Modbus
Transmission rate
10, 20, 50, 125, 250, 500 kbps or 1 Mbps CANopen via VW3 CANTAP2 adaptor
<table>
<thead>
<tr>
<th><strong>Number of addresses</strong></th>
<th>4800, 9600 or 19200 bps Modbus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of drive</strong></td>
<td>127 CANopen via VW3 CANTAP2 adaptor</td>
</tr>
<tr>
<td><strong>Marking</strong></td>
<td>CE</td>
</tr>
<tr>
<td><strong>Operating position</strong></td>
<td>Vertical +/- 10 degree</td>
</tr>
<tr>
<td><strong>Outer dimension</strong></td>
<td>330 x 245 x 190 mm</td>
</tr>
<tr>
<td></td>
<td>595 x 234 x 268 mm</td>
</tr>
<tr>
<td></td>
<td>390 x 245 x 190 mm</td>
</tr>
<tr>
<td><strong>Product weight</strong></td>
<td>11 kg</td>
</tr>
</tbody>
</table>

### 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 IEC 61000-4-5 |
|                              | 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 |
| **Standards**                | EN 50178 |
| **Product certifications**   | UL |
|                              | CSA |
|                              | N998 |
|                              | C-Tick |
| **IP degree of protection**  | IP20 on upper part without cover plate |
|                              | IP21 on connection terminals |
|                              | IP31 on upper part |
|                              | IP41 on upper part |
| **Pollution degree**         | 2 |
| **Protective treatment**     | TC |
| **Vibration resistance**     | 1 gn 13...150 Hz EN/IEC 60068-2-6 |
|                              | 1.5 mm 3...13 Hz EN/IEC 60068-2-6 |
| **Shock resistance**         | 15 gn 11 ms EN/IEC 60068-2-27 |
| **Relative humidity**        | 5...95 % without condensation IEC 60068-2-3 |
|                              | 5...95 % without dripping water IEC 60068-2-3 |
| **Ambient air temperature for storage** | -25...70 °C |
| **Ambient air temperature for operation** | -10...50 °C without derating 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 derating |
|                              | >= 1000 m with current derating 1 % per 100 m |

### Contractual warranty

| **Warranty period** | 18 months |

ATV31HD15N4 is replaced by:

Variable speed drives ATV312HD15N4

variable speed drive ATV312 - 15kW - 32kVA - 492 W - 380..500 V - 3-phase supply

Qty 1

Reason for Substitution: End of life | Substitution date: 20 April 2009