Product data sheet

ATV1200A12506666
medium voltage variable speed drive ATV1200 - 6.6 kV - 1250 kVA

Main
Range of product: Altivar 1200
Product or component type: Medium voltage variable speed drive
Device short name: ATV1200
Product destination: Asynchronous motors
Product specific application: Fan, pump, compressor, conveyor
Assembly style: In floor-standing enclosure with separate air flows

Complementary
Product composition: 2 x plinth
Phase-shifting transformer
Medium voltage arrestors
Cooling fans
Human machine interface
18 x power cells
EMC filter: Integrated
Network number of phases: 3 phases
Input type: 36 pulse diode rectifier bridge
Us rated supply voltage: 6.6 kV +/- 10 %
Supply voltage limits: 2970…3630 V
Uc control circuit voltage: 220 V
Motor power kW: 1045 kW
Line current: 135 A
Drive efficiency with transformer (including fan power): 96 % (standard efficiency)
96.5 % (high efficiency)
Total losses at 100 % load including fan power: 42 kW (standard efficiency)
37 kW (high efficiency)
Apparent power: 1250 kVA
Prospective line Isc: 31.5 kA for 150 ms
Overload withstand: 1.2 In, standard overload, 60 s
1.5 In, standard overload, 3 s
1.5 In, high overload, 60 s
1.85 In, high overload, 3 s
Continuous output current: 109 A (standard overload)
87 A (high overload)
<table>
<thead>
<tr>
<th>Specification</th>
<th>Specification Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum transient current</td>
<td>131 A for 60 s</td>
</tr>
<tr>
<td>Speed drive output frequency</td>
<td>0.5...120 Hz voltage/frequency ratio (V/f)</td>
</tr>
<tr>
<td></td>
<td>0.5...70 Hz vector control with/without speed feedback</td>
</tr>
<tr>
<td>Nominal switching frequency</td>
<td>600 Hz</td>
</tr>
<tr>
<td>Speed range</td>
<td>20...100</td>
</tr>
<tr>
<td>Asynchronous motor control profile</td>
<td>Closed-loop control with encoder</td>
</tr>
<tr>
<td></td>
<td>Vector control with sensor, optional</td>
</tr>
<tr>
<td></td>
<td>Voltage/frequency ratio (V/f)</td>
</tr>
<tr>
<td></td>
<td>Sensorless flux vector control</td>
</tr>
<tr>
<td>Synchronous motor control profile</td>
<td>Closed-loop control with encoder</td>
</tr>
<tr>
<td></td>
<td>Voltage/frequency ratio (V/f)</td>
</tr>
<tr>
<td>Overvoltage category</td>
<td>II conforming to EN/IEC 61800-5-1</td>
</tr>
<tr>
<td>Output voltage</td>
<td>&lt;= power supply voltage</td>
</tr>
<tr>
<td>Isolation</td>
<td>Electrical between power and control</td>
</tr>
<tr>
<td>Electrical connection</td>
<td>Bar - screw type M10, clamping capacity: 6 x 40 mm² (L1/R, L2/S, L3/T) entry from the bottom or from the top</td>
</tr>
<tr>
<td>Supply</td>
<td>External supply for control at 220 V AC, 3 kVA</td>
</tr>
<tr>
<td></td>
<td>Internal supply for cooling fan at 380 V AC</td>
</tr>
<tr>
<td></td>
<td>External supply for control at 220 V AC/DC (optional)</td>
</tr>
<tr>
<td></td>
<td>External supply for cooling fan at 380 V AC (optional)</td>
</tr>
<tr>
<td>Analogue input number</td>
<td>4</td>
</tr>
<tr>
<td>Analogue input type</td>
<td>software-configurable current: 0...20 mA/4...20 mA, 24 V max, impedance: 250 Ohm</td>
</tr>
<tr>
<td>Analogue output number</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>4 (optional)</td>
</tr>
<tr>
<td>Analogue output type</td>
<td>software-configurable current: 0...20 mA/4...20 mA DC, impedance: 250 Ohm</td>
</tr>
<tr>
<td>Discrete output number</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>14 (optional)</td>
</tr>
<tr>
<td>Discrete input number</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>10 (optional)</td>
</tr>
<tr>
<td>Acceleration and deceleration ramps</td>
<td>Linear from 0...3200 s</td>
</tr>
<tr>
<td>Protection type</td>
<td>Ground fault protection: drive</td>
</tr>
<tr>
<td>Dielectric strength</td>
<td>20 kV AC between earth and power terminals</td>
</tr>
<tr>
<td>Communication port protocol</td>
<td>Human machine interface: Modbus with 2-wire RS485(1) - SUB-D 9</td>
</tr>
<tr>
<td></td>
<td>Human machine interface: Modbus TCP with (1) - RJ45</td>
</tr>
<tr>
<td></td>
<td>Human machine interface: Ethernet/IP with (1) - RJ45</td>
</tr>
<tr>
<td></td>
<td>Human machine interface: Profibus with (1) - SUB-D 9</td>
</tr>
<tr>
<td></td>
<td>Human machine interface: DeviceNet with (1) - SUB-D 9</td>
</tr>
<tr>
<td>Operating position</td>
<td>Vertical +/- 10 degree</td>
</tr>
<tr>
<td>Colour of enclosure</td>
<td>Grey (RAL 7032)</td>
</tr>
<tr>
<td>Width</td>
<td>3960 mm (standard efficiency)</td>
</tr>
<tr>
<td></td>
<td>4260 mm (high efficiency)</td>
</tr>
<tr>
<td>Depth</td>
<td>1600 mm (high efficiency)</td>
</tr>
<tr>
<td></td>
<td>1500 mm (standard efficiency)</td>
</tr>
<tr>
<td>Height</td>
<td>2670 mm high efficiency</td>
</tr>
<tr>
<td></td>
<td>2670 mm standard efficiency</td>
</tr>
<tr>
<td>Net weight</td>
<td>5000 kg (standard efficiency)</td>
</tr>
<tr>
<td></td>
<td>5900 kg (high efficiency)</td>
</tr>
<tr>
<td>Environment</td>
<td></td>
</tr>
<tr>
<td>IP degree of protection</td>
<td>IP31</td>
</tr>
<tr>
<td></td>
<td>IP41</td>
</tr>
<tr>
<td></td>
<td>IP42</td>
</tr>
<tr>
<td>Standards</td>
<td>EN/IEC 60204-11</td>
</tr>
<tr>
<td></td>
<td>EN/IEC 60529</td>
</tr>
<tr>
<td></td>
<td>EN/IEC 61800-3</td>
</tr>
<tr>
<td></td>
<td>EN/IEC 61800-4</td>
</tr>
<tr>
<td></td>
<td>EN/IEC 61800-5-1</td>
</tr>
<tr>
<td></td>
<td>IEEE 519:1992</td>
</tr>
<tr>
<td>Marking</td>
<td>CE</td>
</tr>
<tr>
<td>Pollution degree</td>
<td>2 conforming to EN/IEC 61800-5-1</td>
</tr>
<tr>
<td>Noise level</td>
<td>80 dB</td>
</tr>
<tr>
<td>Specification</td>
<td>Details</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td><strong>Vibration resistance</strong></td>
<td>4.9 m/s² (f= 10…50 Hz)</td>
</tr>
<tr>
<td><strong>Relative humidity</strong></td>
<td>0…90 %</td>
</tr>
<tr>
<td></td>
<td>0…95 % optional</td>
</tr>
<tr>
<td><strong>Ambient air temperature for operation</strong></td>
<td>0…40 °C</td>
</tr>
<tr>
<td></td>
<td>40…50 °C (with current derating of 2 % per °C)</td>
</tr>
<tr>
<td><strong>Ambient air temperature for storage</strong></td>
<td>-10…60 °C</td>
</tr>
<tr>
<td><strong>Volume of cooling air</strong></td>
<td>19800 m³/h (high efficiency)</td>
</tr>
<tr>
<td></td>
<td>16500 m³/h (standard efficiency)</td>
</tr>
<tr>
<td><strong>Type of cooling</strong></td>
<td>Forced convection</td>
</tr>
<tr>
<td><strong>Operating altitude</strong></td>
<td>&lt;= 1000 m without</td>
</tr>
<tr>
<td></td>
<td>1000…2000 m with current derating 0.6 % per 100 m</td>
</tr>
</tbody>
</table>
Dimensions

Standard Efficiency

High Efficiency
Clearance
Connections and Schema

Standard Wiring Diagram

1. Integrated power supply
2. Control power supply
3. 4-20mA speed setpoint
4. Input reserved
5. VFD is ready
6. Local 1 remote control
7. VFD running
8. Alarming
9. Detected fault
10. 4-20mA Output current
11. 4-20mA Output speed
12. Stop
13. Start
14. Main circuit breaker enable to close
15. Trip main circuit breaker
16. Undervoltage release module of circuit breaker
17. 4-20mA reserved inputs
18. Reserved outputs
19. QF1 Main circuit breaker
Power Derating of Output Current

Temperature Derating

Ambient temperature vs. Derating

Altitude Derating

Altitude vs. Derating