



## Main

|                              |   |
|------------------------------|---|
| Range of product             | Altivar Machine ATV320  |
| Product or component type    | Variable speed drive  |
| Product specific application | Complex machines  |
| Variant                      | Standard version  |
| Format of the drive          | Book  |
| Mounting mode                | Cabinet mount   |
| Communication port protocol  | Modbus serial<br>CANopen  |
| Option card                  | Communication module, CANopen<br>Communication module, EtherCAT<br>Communication module, Profibus DP V1<br>Communication module, PROFINET<br>Communication module, Ethernet Powerlink<br>Communication module, EtherNet/IP<br>Communication module, DeviceNet |
| [Us] rated supply voltage    | 380...500 V - 15...10 %   |
| Nominal output current       | 1.9 A   |
| Motor power kW               | 0.55 KW for heavy duty  |
| EMC filter                   | Class C2 EMC filter integrated  |
| IP degree of protection      | IP20  |

## Complementary

|                        |   |
|------------------------|---|
| Discrete input number  | 7   |
| Discrete input type    | STO safe torque off, 24 V DC, impedance: 1.5 kOhm<br>DI1...DI6 logic inputs, 24 V DC (30 V)<br>DI5 programmable as pulse input: 0...30 kHz, 24 V DC (30 V)  |
| Discrete input logic   | Positive logic (source)<br>Negative logic (sink)  |
| Discrete output number | 3   |
| Discrete output type   | Open collector DQ+ 0...1 kHz 30 V DC 100 mA<br>Open collector DQ- 0...1 kHz 30 V DC 100 mA  |
| Analogue input number  | 3   |
| Analogue input type    | A11 voltage: 0...10 V DC, impedance: 30 kOhm, resolution 10 bits<br>A12 bipolar differential voltage: +/- 10 V DC, impedance: 30 kOhm, resolution 10 bits<br>A13 current: 0...20 mA (or 4-20 mA, x-20 mA, 20-x mA or other patterns by configuration), impedance: 250 Ohm, resolution 10 bits |
| Analogue output number | 1   |

|  |   |
|--|---|
| Analogue output type                                 | Software-configurable current AQ1: 0...20 mA impedance 800 Ohm, resolution 10 bits<br>Software-configurable voltage AQ1: 0...10 V DC impedance 470 Ohm, resolution 10 bits  |
| Relay output type                                    | Configurable relay logic R1A 1 NO electrical durability 100000 cycles<br>Configurable relay logic R1B 1 NC electrical durability 100000 cycles<br>Configurable relay logic R1C<br>Configurable relay logic R2A 1 NO electrical durability 100000 cycles<br>Configurable relay logic R2C   |
| Maximum switching current                            | Relay output R1A, R1B, R1C on resistive load, cos phi = 1: 3 A at 250 V AC<br>Relay output R1A, R1B, R1C on resistive load, cos phi = 1: 3 A at 30 V DC<br>Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 250 V AC<br>Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 30 V DC<br>Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC<br>Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC |
| Minimum switching current                            | Relay output R1A, R1B, R1C, R2A, R2C: 5 mA at 24 V DC   |
| Method of access                                     | Slave CANopen   |
| 4 quadrant operation possible                        | True  |
| Asynchronous motor control profile                   | Voltage/Frequency ratio, 5 points<br>Flux vector control without sensor, standard<br>Voltage/Frequency ratio - Energy Saving, quadratic U/f<br>Flux vector control without sensor - Energy Saving<br>Voltage/Frequency ratio, 2 points  |
| Synchronous motor control profile                    | Vector control without sensor   |
| Maximum output frequency                             | 0.599 KHz   |
| Transient overtorque                                 | 170...200 % of nominal motor torque   |
| Acceleration and deceleration ramps                  | Linear<br>U<br>S<br>CUS<br>Ramp switching<br>Acceleration/Deceleration ramp adaptation<br>Acceleration/Deceleration automatic stop with DC injection  |
| Motor slip compensation                              | Automatic whatever the load<br>Adjustable 0...300 %<br>Not available in voltage/frequency ratio (2 or 5 points)   |
| Switching frequency                                  | 2...16 kHz adjustable<br>4...16 kHz with derating factor  |
| Nominal switching frequency                          | 4 kHz   |
| Braking to standstill                                | By DC injection   |
| Brake chopper integrated                             | True  |
| Line current   | 2.8 A at 380 V (heavy duty)<br>2.2 A at 500 V (heavy duty)  |
| Maximum input current                                | 2.8 A   |
| Maximum output voltage                               | 500 V   |
| Apparent power                                       | 1.9 KVA at 500 V (heavy duty)   |
| Network frequency                                    | 50...60 Hz  |
| Relative symmetric network frequency tolerance       | 5 %   |
| Prospective line I <sub>sc</sub>                     | 5 KA  |
| Base load current at high overload                   | 4.1 A   |
| Power dissipation in W                               | Fan: 27.0 W at 380 V, switching frequency 4 kHz   |
| With safety function Safely Limited Speed (SLS)      | True  |
| With safety function Safe brake management (SBC/SBT) | False   |
| With safety function Safe Operating Stop (SOS)       | False   |
| With safety function Safe Position (SP)              | False   |
| With safety function Safe programmable logic         | False   |
| With safety function Safe Speed Monitor (SSM)        | False   |
| With safety function Safe Stop 1 (SS1)               | True  |
| With sft fct Safe Stop 2 (SS2)                       | False   |
| With safety function Safe torque off (STO)           | True  |
| With safety function Safely Limited Position (SLP)   | False   |
| With safety function Safe Direction (SDI)            | False   |

|                 |  |
|-----------------|--|
| Protection type | Input phase breaks: drive<br>Overcurrent between output phases and earth: drive<br>Overheating protection: drive<br>Short-circuit between motor phases: drive<br>Thermal protection: drive |
| Width           | 45.0 Mm  |
| Height          | 325.0 Mm   |
| Depth           | 245.0 Mm   |
| Product weight  | 2.5 Kg   |

## Environment

|  |   |
|--|---|
| Operating position   | Vertical +/- 10 degree  |
| Product certifications   | CE<br>ATEX<br>NOM<br>GOST<br>EAC<br>RCM<br>KC   |
| Marking  | CE<br>ATEX<br>UL<br>CSA<br>EAC<br>RCM   |
| Standards  | EN/IEC 61800-5-1  |
| Electromagnetic compatibility                                    | Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2<br>Radiated radio-frequency electromagnetic field immunity test level 3 conforming to IEC 61000-4-3<br>Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4<br>1.2/50 $\mu$ s - 8/20 $\mu$ s surge immunity test level 3 conforming to IEC 61000-4-5<br>Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6<br>Voltage dips and interruptions immunity test conforming to IEC 61000-4-11 |
| Environmental class (during operation)                           | Class 3C3 according to IEC 60721-3-3<br>Class 3S2 according to IEC 60721-3-3  |
| Maximum acceleration under shock impact (during operation)       | 150 m/s <sup>2</sup> at 11 ms   |
| Maximum acceleration under vibrational-stress (during operation) | 10 m/s <sup>2</sup> at 13...200 Hz  |
| Maximum deflection under vibratory load (during operation)       | 1.5 mm at 2...13 Hz   |
| Permitted relative humidity (during operation)                   | Class 3K5 according to EN 60721-3   |
| Volume of cooling air  | 9.4 M3/H  |
| Overvoltage category   | III   |
| Regulation loop  | Adjustable PID regulator  |
| Speed accuracy   | +/- 10 % of nominal slip 0.2 Tn to Tn   |
| Pollution degree   | 2   |
| Ambient air transport temperature                                | -25...70 °C   |
| Ambient air temperature for operation                            | -10...50 °C without derating<br>50...60 °C with derating factor   |
| Ambient air temperature for storage                              | -25...70 °C   |

## Packing Units

|                              |           |
|------------------------------|-----------|
| Unit Type of Package 1       | PCE       |
| Number of Units in Package 1 | 1         |
| Package 1 Height             | 8.500 Cm  |
| Package 1 Width              | 27.500 Cm |
| Package 1 Length             | 32.500 Cm |
| Package 1 Weight             | 2.335 Kg  |
| Unit Type of Package 2       | P06       |
| Number of Units in Package 2 | 24        |
| Package 2 Height             | 75.000 Cm |
| Package 2 Width              | 60.000 Cm |

|                  |           |
|------------------|-----------|
| Package 2 Length | 80.000 Cm |
| Package 2 Weight | 69.808 Kg |

### Offer Sustainability

|                            |   |
|----------------------------|---|
| Sustainable offer status   | Green Premium product   |
| REACH Regulation           | <a href="#">REACH Declaration</a>   |
| EU RoHS Directive          | Pro-active compliance (Product out of EU RoHS legal scope) <a href="#">EU RoHS Declaration</a>  |
| Mercury free               | Yes   |
| China RoHS Regulation      | <a href="#">China RoHS Declaration</a>  |
| RoHS exemption information | <a href="#">Yes</a>   |
| Environmental Disclosure   | <a href="#">Product Environmental Profile</a>   |
| Circularity Profile        | <a href="#">End Of Life Information</a>   |
| WEEE                       | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins   |
| California proposition 65  | WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a> |
| Upgradeability             | Upgraded components available   |

Product Life Status : **Commercialised**