# Product datasheet
## Characteristics

# ATV320U07M2C
variable speed drive ATV320 - 0.75kW - 200...240V - 1 phase - compact

## Main

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|---|---|
| Range of product | Altivar Machine ATV320 |
| Product or component type | Variable speed drive |
| Product specific application | Complex machines |
| Device short name | ATV320 |
| Format of the drive | Compact |
| Product destination | Synchronous motors<br>Asynchronous motors |
| EMC filter | Class C2 EMC filter integrated |
| IP degree of protection | IP20 conforming to EN/IEC 61800-5-1 |
| Degree of protection | UL type 1 with UL type 1 conformity kit |
| Type of cooling | Fanless |
| Network number of phases | 1 phase |
| [Us] rated supply voltage | 200...240 V (- 15...10 %) |
| Supply frequency | 50...60 Hz (- 5...5 %) |
| Motor power kW | 0.75 kW for heavy duty |
| Motor power hp | 1 hp for heavy duty |
| Line current | 10.1 A at 200 V for heavy duty<br>8.5 A at 240 V for heavy duty |
| Prospective line Isc | <= 1 kA |
| Apparent power | 2 kVA at 240 V for heavy duty |
| Continuous output current | 4.8 A at 4 kHz for heavy duty |
| Maximum transient current | 7.2 A during 60 s for heavy duty |
| Asynchronous motor control profile | Voltage/Frequency ratio - Energy Saving, quadratic U/f<br>Flux vector control without sensor - Energy Saving<br>Flux vector control without sensor, standard<br>Voltage/Frequency ratio, 5 points<br>Voltage/Frequency ratio, 2 points |
| Synchronous motor control profile | Vector control without sensor |
| Speed drive output frequency | 0.1...599 Hz |

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| Nominal switching frequency | 4 kHz |
| Switching frequency | 2...16 kHz adjustable |
| Safety function | STO (safe torque off) SIL 2 |
| Communication port protocol | Modbus<br>CANopen |
| Option card | Communication module: Profibus DP V1<br>Communication module: Ethernet Powerlink<br>Communication module: CANopen SUB-D 9<br>Communication module: EtherCAT RJ45<br>Communication module: CANopen open style terminal block<br>Communication module: Profinet<br>Communication module: DeviceNet<br>Communication module: Ethernet/IP<br>Communication module: CANopen daisy chain RJ45 |

## Complementary

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| Output voltage | <= power supply voltage |
| Permissible temporary current boost | 1.5 x In during 60 s for heavy duty |
| Speed range | 1...100 with asynchronous motor in open-loop mode |
| Speed accuracy | +/- 10 % of nominal slip 0.2 Tn to Tn |
| Torque accuracy | +/- 15 % |
| Transient overtorque | 170...200 % of nominal motor torque |
| Braking torque | < 170 % with braking resistor during 60 s |
| Regulation loop | Adjustable PID regulator |
| Motor slip compensation | Automatic whatever the load<br>Adjustable 0...300 %<br>Not available in voltage/frequency ratio (2 or 5 points) |
| Acceleration and deceleration ramps | CUS<br>Ramp switching<br>Deceleration ramp automatic stop DC injection<br>U<br>Linear<br>Deceleration ramp adaptation<br>S |
| Braking to standstill | By DC injection |
| Protection type | Drive: input phase breaks<br>Drive: overheating protection<br>Drive: overcurrent between output phases and earth<br>Drive: thermal protection<br>Drive: short-circuit between motor phases |
| Frequency resolution | Display unit: 0.1 Hz<br>Analog input: 0.012/50 Hz |
| Electrical connection | Motor/Braking resistor, screw terminal: 2.5...4 mm² AWG 14...AWG 12<br>Control, screw terminal: 0.5...1.5 mm² AWG 20...AWG 16<br>Power supply, screw terminal: 2.5...4 mm² AWG 14...AWG 12 |
| Type of connector | 1 RJ45 for Modbus/CANopen on control terminal |
| Physical interface | 2-wire RS 485 for Modbus |
| Transmission frame | RTU for Modbus |
| Transmission rate | 4.8, 9.6, 19.2, 38.4 kbit/s for Modbus<br>50 kbps, 125 kbps, 250 kbps, 500 kbps, 1 Mbps for CANopen |
| Data format | 8 bits, configurable odd, even or no parity for Modbus |
| Type of polarization | No impedance for Modbus |
| Number of addresses | 1...127 for CANopen<br>1...247 for Modbus |
| Method of access | Slave for CANopen |
| Supply | Internal supply for reference potentiometer (1 to 10 kOhm): 10.5 V DC (+/- 5 %) current <= 10 mA (overload and short-circuit protection) |
| Local signalling | 1 LED red for drive fault<br>1 LED green for CANopen run<br>1 LED red for CANopen error |
| Width | 72 mm |

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| Height | 143 mm |
| Depth | 138 mm |
| Product weight | 1.1 kg |
| Analogue input number | 3 |
| Analogue input type | Voltage (AI1): 0...10 V DC, impedance 30000 Ohm, resolution 10 bits<br>Bipolar differential voltage (AI2): +/- 10 V DC, impedance 30000 Ohm, resolution 10 bits<br>Current (AI3): 0...20 mA (or 4-20 mA, x-20 mA, 20-x mA or other patterns by configuration), impedance 250 Ohm, resolution 10 bits |
| Discrete input number | 7 |
| Discrete input type | Programmable (sink/source) (DI1...DI4): 24...30 V DC: level 1 PLC<br>Switch-configurable PTC probe (DI6): 24...30 V DC<br>Safe torque off (STO): 24...30 V DC, impedance 1500 Ohm<br>Programmable as pulse input 20 kpps (DI5): 24...30 V DC: level 1 PLC |
| Discrete input logic | Negative logic (sink): : DI1...DI6, > 19 V (state 0) < 13 V (state 1)<br>Positive logic (source): : DI1...DI6, < 5 V (state 0) > 11 V (state 1) |
| Analogue output number | 1 |
| Analogue output type | Software-configurable voltage (AQ1): 0...10 V, impedance 470 Ohm, resolution 10 bits<br>Software-configurable current (AQ1): 0...20 mA, impedance 800 Ohm, resolution 10 bits |
| Sampling duration | Analog input (AI1, AI2, AI3): 2 ms<br>Analog output (AQ1): 2 ms |
| Accuracy | Analog input AI1, AI2, AI3: +/- 0.5 % for a temperature of 25 °C<br>Analog output AQ1: +/- 1 % for a temperature of 25 °C<br>Analog output AQ1: +/- 2 % for a temperature of -10...60 °C<br>Analog input AI1, AI2, AI3: +/- 0.2 % for a temperature of -10...60 °C |
| Linearity error | Analog input (AI1, AI2, AI3): +/- 0.2...0.5 % of maximum value<br>Analog output (AQ1): +/- 0.3 % |
| Discrete output number | 3 |
| Discrete output type | Logic (LO)<br>Configurable relay logic NO (R2A, R2B): electrical durability 100000 cycles<br>Configurable relay logic NO/NC (R1A, R1B, R1C): electrical durability 100000 cycles |
| Refresh time | Relay output (R1A, R1B, R1C): 2 ms<br>Logic input (DI1...DI6): 8 ms (+/- 0.7 ms)<br>Relay output (R2A, R2C): 2 ms |
| Minimum switching current | Relay output (R1, R2): 5 mA at 24 V DC |
| Maximum switching current | Relay output (R2) on resistive load (cos phi = 1: 5 A at 250 V AC<br>Relay output (R1) on resistive load (cos phi = 1: 4 A at 30 V DC<br>Relay output (R1, R2) on inductive load (cos phi = 0.4: 2 A at 250 V AC<br>Relay output (R1, R2) on inductive load (cos phi = 0.4: 2 A at 30 V DC<br>Relay output (R1) on resistive load (cos phi = 1: 3 A at 250 V AC<br>Relay output (R2) on resistive load (cos phi = 1: 5 A at 30 V DC |

## Environment

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|---|---|
| Isolation | Between power and control terminals |
| Insulation resistance | > 1 mOhm at 500 V DC for 1 minute to earth |
| Power dissipation in W | 48.3 W (fanless) at 200 V, 4 kHz |
| Operating position | Vertical +/- 10 degree |
| Electromagnetic compatibility | Conducted radio-frequency immunity test conforming to IEC 61000-4-6 level 3<br>Voltage dips and interruptions immunity test conforming to IEC 61000-4-11<br>Radiated radio-frequency electromagnetic field immunity test conforming to IEC 61000-4-3 level 3<br>1.2/50 µs - 8/20 µs surge immunity test conforming to IEC 61000-4-5 level 3<br>Electrostatic discharge immunity test conforming to IEC 61000-4-2 level 3<br>Electrical fast transient/burst immunity test conforming to IEC 61000-4-4 level 4 |
| Pollution degree | 2 conforming to EN/IEC 61800-5-1 |
| Vibration resistance | 1 gn (f = 13...200 Hz) conforming to EN/IEC 60068-2-6<br>1.5 mm peak to peak (f = 2...13 Hz) conforming to EN/IEC 60068-2-6 |
| Shock resistance | 15 gn during 11 ms conforming to EN/IEC 60068-2-27 |
| Relative humidity | 5...95 % without dripping water conforming to IEC 60068-2-3<br>5...95 % without condensation conforming to IEC 60068-2-3 |
| Ambient air temperature for operation | 50...60 °C with derating factor<br>-10...50 °C without derating |
| Ambient air temperature for storage | -25...70 °C |
| Operating altitude | 1000...3000 m with current derating 1 % per 100 m |

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| | <= 1000 m without derating |
| Standards | EN/IEC 61800-3 environment 1 category C2<br>IEC 13849-1<br>IEC 60721-3<br>IEC 61508<br>EN/IEC 61800-5-1<br>EN/IEC 61800-3 |
| Product certifications | RCM<br>EAC<br>NOM 117<br>CSA<br>UL |
| Marking | CE |

## Offer Sustainability

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|---|---|
| Sustainable offer status | Not Green Premium product |
| RoHS (date code: YYWW) | Compliant - since 1610 - Schneider Electric declaration of conformity<br>Schneider Electric declaration of conformity |
| REACh | Reference not containing SVHC above the threshold<br>Reference not containing SVHC above the threshold |