



Main

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| Range of Product | Altivar 312 Solar |
| Product or Component Type | Variable speed drive |
| Product destination | Asynchronous motors |
| Product Specific Application | Pumping station with photovoltaic arrays |
| Assembly style | With heat sink |
| Device short name | ATV312 |

Complementary

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| Motor power kW | 0.18 kW |
| Maximum Horse Power Rating | 0.25 hp |
| [Us] rated supply voltage | 200...240 V - 5...5 % |
| Supply voltage limits | 170...264 V |
| Supply frequency | 50...60 Hz - 5...5 % |
| Network Frequency | 47.5...63 Hz |
| Phase | 3 phase |
| Line current | 1.9 A 240 V 2.1 A 200 V, I _{sc} = 1 kA |
| EMC filter | Without EMC filter |
| Apparent power | 0.7 kVA |
| Prospective line I _{sc} | 1 kA |
| Continuous output current | 1.5 A 4 kHz |
| Maximum transient current | 2.3 A 60 s |
| Power dissipation in W | 23 W at nominal load |
| Speed drive output frequency | 0.5...500 Hz |
| 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 | <= 150 % 60 s with braking resistor 100 % with braking resistor continuously 150 % without braking resistor |
| Asynchronous motor control profile | Factory set: energy saving mode |
| Regulation loop | Frequency PI regulator |
| Motor slip compensation | Suppressable Adjustable Automatic whatever the load |
| Output voltage | <= power supply voltage |
| Electrical connection | AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6 terminal 0.00 in ² (2.5 mm ²) AWG 14 L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- terminal 0.00 in ² (2.5 mm ²) AWG 14 |
| Tightening torque | AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6 5.31 lbf.in (0.6 N.m) L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- 7.08 lbf.in (0.8 N.m) |
| Insulation | Electrical between power and control |

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| Supply | Internal supply for logic inputs 19...30 V, <100 A overload and short-circuit protection Internal supply for reference potentiometer (2.2 to 10 kOhm) 10...10.8 V, <10 A overload and short-circuit protection |
| Analogue input number | 3 |
| Analogue input type | AI1 configurable voltage 0...10 V 30 V max 30000 Ohm AI2 configurable voltage +/- 10 V 30 V max 30000 Ohm AI3 configurable current 0...20 mA 250 Ohm |
| Sampling duration | AI1, AI2, AI3 8 ms analog LI1...LI6 4 ms discrete |
| Response time | AOV, AOC 8 ms analog R1A, R1B, R1C, R2A, R2B 8 ms discrete |
| Linearity error | +/- 0.2 % output |
| Analogue output number | 2 |
| Analogue output type | AOC configurable current 0...20 mA 800 Ohm 8 bits AOV configurable voltage 0...10 V 470 Ohm 8 bits |
| Discrete input logic | Logic input not wired LI1...LI4), < 13 V Negative logic (source) LI1...LI6), > 19 V Positive logic (source) LI1...LI6), < 5 V, > 11 V |
| 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 5 V DC |
| Maximum switching current | 2 A 250 V AC inductive cos phi = 0.4 L/R = 7 ms R1-R2) 2 A 30 V DC inductive cos phi = 0.4 L/R = 7 ms R1-R2) 5 A 250 V AC resistive cos phi = 1 L/R = 0 ms R1-R2) 5 A 30 V DC resistive cos phi = 1 L/R = 0 ms R1-R2) |
| Discrete input number | 6 |
| Discrete input type | LI1...LI6) programmable 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 |
| Dielectric strength | 2040 V DC between earth and power terminals 2880 V AC between control and power terminals |
| Insulation resistance | >= 500 mOhm 500 V DC for 1 minute |
| Local signalling | For drive voltage 1 LED (red) For CANopen bus status four 7-segment display units |
| Time constant | 5 ms for reference change |
| Frequency resolution | Analog input 0.1...100 Hz Display unit 0.1 Hz |
| Communication Port Protocol | Modbus CANopen |
| Connector type | 1 RJ45 Modbus/CANopen |
| Physical interface | RS485 multidrop serial link |
| Transmission frame | RTU |
| Transmission Rate | 10, 20, 50, 125, 250, 500 kbps or 1 Mbps CANopen 4800, 9600 or 19200 bps Modbus |
| Number of addresses | 1...127 CANopen 1...247 Modbus |
| Number of drive | 127 CANopen 31 Modbus |
| 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 | IEC 61800-5-1 |
| Marking | CE |

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| Height | 5.71 in (145 mm) |
| Width | 2.83 in (72 mm) |
| Depth | 4.80 in (122 mm) |
| Net Weight | 2.87 lb(US) (1.3 kg) |
| Option card | Communication card CANopen daisy chain Communication card DeviceNet Communication card Fipio Communication card Modbus TCP Communication card Profibus DP |

Environment

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| IP degree of protection | IP20 without cover plate |
| 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 | -13...158 °F (-25...70 °C) |
| Ambient air temperature for operation | 14...122 °F (-10...50 °C) without derating with protective cover on top of the drive) 14...140 °F (-10...60 °C) with derating factor without protective cover on top of the drive) |
| Operating altitude | <= 3280.84 ft (1000 m) without derating >= 3280.84 ft (1000 m) with current derating 1 % per 100 m |
| Operating position | Vertical +/- 10 degree |

Ordering and shipping details

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|-----------------------|----------------------------------------------|
| Category | 22152 - ATV320/ATV312/ATV32 (.25 THRU 7.5HP) |
| Discount Schedule | CP4B |
| GTIN | 3606480508462 |
| Nbr. of units in pkg. | 1 |
| Package weight(Lbs) | 3.09 lb(US) (1.4 kg) |
| Returnability | No |
| Country of origin | ID |

Packing Units

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|------------------------|-------------------|
| Unit Type of Package 1 | PCE |
| Package 1 Height | 5.31 in (13.5 cm) |
| Package 1 width | 6.89 in (17.5 cm) |
| Package 1 Length | 7.09 in (18 cm) |

Contractual warranty

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| Warranty | 18 months |
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