



## Main

|                                    |                                                                                                                                                                                                                                   |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Range of product                   | Altivar 312                                                                                                                                                                                                                       |
| Product or component type          | Variable speed drive                                                                                                                                                                                                              |
| Product destination                | Asynchronous motors                                                                                                                                                                                                               |
| Product specific application       | Simple machine                                                                                                                                                                                                                    |
| Assembly style                     | With heat sink                                                                                                                                                                                                                    |
| Component name                     | ATV312                                                                                                                                                                                                                            |
| Motor power kW                     | 2.2 kW                                                                                                                                                                                                                            |
| Motor power hp                     | 3 hp                                                                                                                                                                                                                              |
| [Us] rated supply voltage          | 200...240 V (- 15...10 %)                                                                                                                                                                                                         |
| Supply frequency                   | 50...60 Hz (- 5...5 %)                                                                                                                                                                                                            |
| Phase                              | 3 phases                                                                                                                                                                                                                          |
| Line current                       | 13 A 240 V<br>14.9 A for 200 V, 5 kA                                                                                                                                                                                              |
| EMC filter                         | Without EMC filter                                                                                                                                                                                                                |
| Apparent power                     | 5.2 kVA                                                                                                                                                                                                                           |
| Maximum transient current          | 16.5 A for 60 s                                                                                                                                                                                                                   |
| Power dissipation in W             | 114 W at nominal load                                                                                                                                                                                                             |
| Speed range                        | 1...50                                                                                                                                                                                                                            |
| Asynchronous motor control profile | Factory set : constant torque<br>Sensorless flux vector control with PWM type motor control signal                                                                                                                                |
| Electrical connection              | AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6 terminal 0 in <sup>2</sup> (2.5 mm <sup>2</sup> ) AWG 14<br>L1, L2, L3, U, V, W, PA, PB, PA+, PC/- terminal 0.01 in <sup>2</sup> (5 mm <sup>2</sup> ) AWG 10          |
| Supply                             | Internal supply for logic inputs at 19...30 V, ≤ 100 mA for overload and short-circuit protection<br>Internal supply for reference potentiometer (2.2 to 10 kΩ) at 10...10.8 V, ≤ 10 mA for overload and short-circuit protection |
| Communication port protocol        | CANopen<br>Modbus                                                                                                                                                                                                                 |
| IP degree of protection            | IP20 on upper part without cover plate<br>IP21 on connection terminals<br>IP31 on upper part<br>IP41 on upper part                                                                                                                |
| Option card                        | CANopen daisy chain communication card<br>DeviceNet communication card<br>Fipio communication card<br>Modbus TCP communication card<br>Profibus DP communication card                                                             |

## Complementary

|                                  |                                          |
|----------------------------------|------------------------------------------|
| Supply voltage limits            | 170...264 V                              |
| Network frequency                | 47.5...63 Hz                             |
| Prospective line I <sub>sc</sub> | 5 kA                                     |
| Continuous output current        | 11 A at 4 kHz                            |
| Output frequency                 | 0...500 kHz                              |
| Nominal switching frequency      | 4 kHz                                    |
| Switching frequency              | 2...16 kHz adjustable                    |
| Transient overtorque             | 170...200 % of nominal motor torque      |
| Braking torque                   | 100 % with braking resistor continuously |

The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein. 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. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither Schneider Electric Industries SAS nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein.

|                                     |                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                     | 150 % without braking resistor<br>150 % with braking resistor for 60 s                                                                                                                                                                                                                                                                                                          |
| Regulation loop                     | Frequency PI regulator                                                                                                                                                                                                                                                                                                                                                          |
| Motor slip compensation             | Adjustable<br>Automatic whatever the load<br>Suppressable                                                                                                                                                                                                                                                                                                                       |
| Output voltage                      | <= power supply voltage                                                                                                                                                                                                                                                                                                                                                         |
| Tightening torque                   | 5.31 lbf.in (0.6 N.m) AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6<br>10.62 lbf.in (1.2 N.m) L1, L2, L3, U, V, W, PA, PB, PA/+, PC/-                                                                                                                                                                                                                             |
| Insulation                          | Electrical between power and control                                                                                                                                                                                                                                                                                                                                            |
| Analogue input number               | 3                                                                                                                                                                                                                                                                                                                                                                               |
| Analogue input type                 | AI1 configurable voltage 0...10 V, input voltage 30 V max, impedance 30000 Ohm<br>AI2 configurable voltage +/- 10 V, input voltage 30 V max, impedance 30000 Ohm<br>AI3 configurable current 0...20 mA, impedance 250 Ohm                                                                                                                                                       |
| Sampling duration                   | AI1, AI2, AI3 8 ms analog<br>LI1...LI6 4 ms discrete                                                                                                                                                                                                                                                                                                                            |
| Response time                       | AOV, AOC 8 ms analog<br>R1A, R1B, R1C, R2A, R2B 8 ms discrete                                                                                                                                                                                                                                                                                                                   |
| Linearity error                     | +/- 0.2 % output                                                                                                                                                                                                                                                                                                                                                                |
| Analogue output number              | 1                                                                                                                                                                                                                                                                                                                                                                               |
| Analogue output type                | AOC configurable current 0...20 mA, impedance 800 Ohm, resolution 8 bits<br>AOV configurable voltage 0...10 V, impedance 470 Ohm, resolution 8 bits                                                                                                                                                                                                                             |
| Discrete input logic                | (LI1...LI4) logic input not wired, < 13 V (state 1)<br>(LI1...LI6) negative logic (source), > 19 V (state 0)<br>(LI1...LI6) positive logic (source), < 5 V (state 0), > 11 V (state 1)                                                                                                                                                                                          |
| Discrete output number              | 2                                                                                                                                                                                                                                                                                                                                                                               |
| Discrete output type                | (R1A, R1B, R1C) configurable relay logic 1 NO + 1 NC, electrical durability 100000 cycles<br>(R2A, R2B) configurable relay logic NC, electrical durability 100000 cycles                                                                                                                                                                                                        |
| Minimum switching current           | R1-R2 10 mA at 5 V DC                                                                                                                                                                                                                                                                                                                                                           |
| Maximum switching current           | R1-R2 on inductive load, 2 A at 250 V AC, (cos phi = 0.4, and L/R = 7 ms)<br>R1-R2 on inductive load, 2 A at 30 V DC, (cos phi = 0.4, and L/R = 7 ms)<br>R1-R2 on resistive load, 5 A at 250 V AC, (cos phi = 1, and L/R = 0 ms)<br>R1-R2 on resistive load, 5 A at 30 V DC, (cos phi = 1, and L/R = 0 ms)                                                                      |
| Discrete input number               | 6                                                                                                                                                                                                                                                                                                                                                                               |
| Discrete input type                 | (LI1...LI6) programmable, 24 V 0...100 mA with PLC, impedance 3500 Ohm                                                                                                                                                                                                                                                                                                          |
| Acceleration and deceleration ramps | Linear adjustable separately from 0.1 to 999.9 s<br>S, U or customized                                                                                                                                                                                                                                                                                                          |
| Braking to standstill               | By DC injection                                                                                                                                                                                                                                                                                                                                                                 |
| Protection type                     | Input phase breaks drive<br>Line supply overvoltage and undervoltage safety circuits drive<br>Line supply phase loss safety function, for three phases supply drive<br>Motor phase breaks drive<br>Overcurrent between output phases and earth (on power up only) drive<br>Overheating protection drive<br>Short-circuit between motor phases drive<br>Thermal protection motor |
| Insulation resistance               | >= 500 mOhm at 500 V DC for 1 minute                                                                                                                                                                                                                                                                                                                                            |
| Local signalling                    | 1 LED red drive voltage<br>Four 7-segment display units CANopen bus status                                                                                                                                                                                                                                                                                                      |
| Time constant                       | 5 ms for reference change                                                                                                                                                                                                                                                                                                                                                       |
| Frequency resolution                | Analog input 0.1...100 Hz<br>Display unit 0.1 Hz                                                                                                                                                                                                                                                                                                                                |
| 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<br>4800, 9600 or 19200 bps Modbus                                                                                                                                                                                                                                                                                              |
| Number of addresses                 | 1...247 Modbus<br>1...127 CANopen                                                                                                                                                                                                                                                                                                                                               |
| Number of drive                     | 127 CANopen<br>31 Modbus                                                                                                                                                                                                                                                                                                                                                        |
| Marking                             | CE                                                                                                                                                                                                                                                                                                                                                                              |
| Operating position                  | Vertical +/- 10 degree                                                                                                                                                                                                                                                                                                                                                          |

|                 |                      |
|-----------------|----------------------|
| Outer dimension | 143 x 105 x 130 mm   |
| Height          | 5.63 in (143 mm)     |
| Width           | 4.21 in (107 mm)     |
| Depth           | 5.98 in (152 mm)     |
| Product weight  | 3.75 lb(US) (1.7 kg) |

## Environment

|                                       |                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| dielectric strength                   | 2040 V DC between earth and power terminals<br>2880 V AC between control and power terminals                                                                                                                                                                                                                                                      |
| electromagnetic compatibility         | Electrical fast transient/burst immunity test conforming to IEC 61000-4-4 level 4<br>Electrostatic discharge immunity test conforming to IEC 61000-4-2 level 3<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 |
| standards                             | IEC 61800-3<br>IEC 61800-5-1                                                                                                                                                                                                                                                                                                                      |
| product certifications                | CSA<br>C-Tick<br>DNV<br>GOST<br>NOM<br>UL                                                                                                                                                                                                                                                                                                         |
| pollution degree                      | 2                                                                                                                                                                                                                                                                                                                                                 |
| protective treatment                  | TC                                                                                                                                                                                                                                                                                                                                                |
| vibration resistance                  | 1.5 mm (f = 3...13 Hz) conforming to EN/IEC 60068-2-6<br>1 gn (f = 13...150 Hz) conforming to EN/IEC 60068-2-6                                                                                                                                                                                                                                    |
| shock resistance                      | 15 gn 11 ms conforming to EN/IEC 60068-2-27                                                                                                                                                                                                                                                                                                       |
| relative humidity                     | 5...95 % without condensation conforming to IEC 60068-2-3<br>5...95 % without dripping water conforming to 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<br>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<br>3280.84...9842.52 ft (1000...3000 m) with current derating 1 % per 100 m                                                                                                                                                                                                                               |

## Offer Sustainability

|                                                                       |                                                                       |
|-----------------------------------------------------------------------|-----------------------------------------------------------------------|
| Green Premium product                                                 | Green Premium product                                                 |
| Compliant - since 0913 - Schneider Electric declaration of conformity | Compliant - since 0913 - Schneider Electric declaration of conformity |
| Reference not containing SVHC above the threshold                     | Reference not containing SVHC above the threshold                     |
| Available                                                             | Available                                                             |
| Available                                                             | Available                                                             |

## Contractual warranty

|                 |           |
|-----------------|-----------|
| Warranty period | 18 months |
|-----------------|-----------|



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.