

# ATV31HU30M3X

variable speed drive ATV31 - 3kW - 240V 3-phase supply - IP20

## Main

|                                    |  |
|------------------------------------|--|
| Range of product                   | Altivar  |
| Product or component type          | Variable speed drive   |
| Product specific application       | Simple machine   |
| Component name                     | ATV31  |
| Assembly style                     | With heat sink   |
| EMC filter                         | Without EMC filter   |
| [Us] rated supply voltage          | 200...240 V - 5...5 %  |
| Supply frequency                   | 50...60 Hz - 5...5 %   |
| Network number of phases           | 3 phases   |
| Motor power kW                     | 3 kW 4 kHz   |
| Motor power hp                     | 4 kHz  |
| Line current                       | 16.6 A 240 V<br>19.1 A 200 V 1 kA  |
| Apparent power                     | 6.6 kVA  |
| Prospective line I <sub>sc</sub>   | 1 kA   |
| Nominal output current             | 13.7 A 4 kHz   |
| Maximum transient current          | 20.6 A 60 s  |
| Power dissipation in W             | 146 W at nominal load  |
| Asynchronous motor control profile | Factory set : constant torque<br>Sensorless flux vector control with PWM type motor control signal |

## Complementary

|                              |   |
|------------------------------|---|
| Product destination          | Asynchronous motors   |
| Supply voltage limits        | 170...264 V   |
| Network frequency limits     | 47.5...63 Hz  |
| 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               | 100 % with braking resistor continuously<br>150 % without braking resistor<br>≤ 150 % with braking resistor 60 s  |
| Regulation loop              | Frequency PI regulator  |
| Motor slip compensation      | Adjustable<br>Automatic whatever the load<br>Suppressable   |
| Output voltage               | ≤ power supply voltage  |
| Electrical connection        | Terminal 2.5 mm <sup>2</sup> AWG 14 AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6<br>Terminal 2.5 mm <sup>2</sup> AWG 14 L1, L2, L3, U, V, W, PA, PB, PA+, PC/- |
| Tightening torque            | 0.6 N.m AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6<br>0.8 N.m L1, L2, L3, U, V, W, PA, PB, PA+, PC/-   |
| Insulation                   | Electrical between power and control  |

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.

|                                     |   |
|-------------------------------------|---|
| Supply                              | Internal supply for logic inputs 19...30 V $\leq$ 100 mA overload and short-circuit protection<br>Internal supply for reference potentiometer (2.2 to 10 kOhm) 10...10.8 V $\leq$ 10 mA overload and short-circuit protection   |
| Analogue input number               | 3   |
| Analogue input type                 | Configurable current AI3 0...20 mA 250 Ohm<br>Configurable voltage AI1 0...10 V 30 V max 30000 Ohm<br>Configurable voltage AI2 +/- 10 V 30 V max 30000 Ohm  |
| Sampling duration                   | 4 ms LI1...LI6 discrete<br>8 ms AI1, AI2, AI3 analog  |
| Response time                       | 8 ms discrete R1A, R1B, R1C, R2A, R2B<br>8 ms analog AOV, AOC   |
| Linearity error                     | +/- 0.2 % output  |
| Analogue output number              | 2   |
| Analogue output type                | Configurable current AOC 0...20 mA 800 Ohm 8 bits<br>Configurable voltage AOV 0...10 V 470 Ohm 8 bits   |
| Discrete input logic                | Logic input not wired LI1...LI4 < 13 V<br>Negative logic (source) LI1...LI6 > 19 V<br>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<br>Configurable relay logic R2A, R2B NC 100000 cycles  |
| Minimum switching current           | 10 mA 5 V DC R1-R2  |
| Maximum switching current           | 2 A 250 V AC inductive cos phi = 0.4 7 ms R1-R2<br>2 A 30 V DC inductive cos phi = 0.4 7 ms R1-R2<br>5 A 250 V AC resistive cos phi = 1 0 ms R1-R2<br>5 A 30 V DC resistive cos phi = 1 0 ms R1-R2  |
| Discrete input number               | 6   |
| Discrete input type                 | Programmable LI1...LI6 24 V 0...100 mA PLC 3500 Ohm<br>Programmable LI1...LI6 24 V 0...100 mA PLC 3500 Ohm  |
| Acceleration and deceleration ramps | S, U or customized<br>Linear adjustable separately from 0.1 to 999.9 s  |
| 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               | $\geq$ 500 MOhm 500 V DC for 1 minute   |
| Display type                        | 1 LED red drive voltage<br>Four 7-segment display units CANopen bus status  |
| Time constant                       | 5 ms for reference change   |
| Frequency resolution                | 0.1...100 Hz analog input<br>0.1 Hz display unit  |
| Type of connector                   | 1 RJ45 Modbus<br>1 RJ45 CANopen via VW3 CANTAP2 adaptor   |
| Physical interface                  | RS485 multidrop serial link Modbus<br>RS485 multidrop serial link CANopen via VW3 CANTAP2 adaptor   |
| Transmission frame                  | RTU Modbus<br>RTU CANopen via VW3 CANTAP2 adaptor   |
| Transmission rate                   | 10, 20, 50, 125, 250, 500 kbps or 1 Mbps CANopen via VW3 CANTAP2 adaptor<br>4800, 9600 or 19200 bps Modbus  |
| Number of addresses                 | 1...127 CANopen via VW3 CANTAP2 adaptor<br>1...247 Modbus   |
| Number of drive                     | 31 Modbus<br>127 CANopen via VW3 CANTAP2 adaptor  |
| Marking                             | CE  |
| Operating position                  | Vertical +/- 10 degree  |
| Outer dimension                     | 184 x 140 x 150 mm  |
| Product weight                      | 2.9 kg  |

## Environment

|                                       |   |
|---------------------------------------|---|
| Dielectric strength                   | 2040 V DC between earth and power terminals<br>2880 V AC between control and power terminals  |
| Electromagnetic compatibility         | 1.2/50 $\mu$ s - 8/20 $\mu$ s surge immunity test level 3 IEC 61000-4-5<br>Electrical fast transient/burst immunity test level 4 IEC 61000-4-4<br>Electrostatic discharge immunity test level 3 IEC 61000-4-2<br>Radiated radio-frequency electromagnetic field immunity test level 3 IEC 61000-4-3 |
| Standards                             | EN 50178  |
| Product certifications                | C-Tick<br>CSA<br>N998<br>UL   |
| 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  |
| Pollution degree                      | 2   |
| Protective treatment                  | TC  |
| Vibration resistance                  | 1 gn 13...150 Hz EN/IEC 60068-2-6<br>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<br>5...95 % without dripping water IEC 60068-2-3  |
| Ambient air temperature for storage   | -25...70 °C   |
| Ambient air temperature for operation | -10...50 °C without derating with protective cover on top of the drive<br>-10...60 °C with derating factor without protective cover on top of the drive   |
| Operating altitude                    | $\leq$ 1000 m without derating<br>$\geq$ 1000 m with current derating 1 % per 100 m   |
| RoHS EUR conformity date              | 0723  |
| RoHS EUR status                       | Compliant   |