

# ATV312HU55M3

variable speed drive ATV312 - 5.5kW -  
12.8kVA - 292W - 200..240V- 3-phase supply



## 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                     | 5.5 kW                                                                                                                                                                                                                       |
| Maximum Horse Power Rating         | 7.5 hp                                                                                                                                                                                                                       |
| [Us] rated supply voltage          | 200...240 V - 15...10 %                                                                                                                                                                                                      |
| Supply frequency                   | 50...60 Hz - 5...5 %                                                                                                                                                                                                         |
| Phase                              | 3 phase                                                                                                                                                                                                                      |
| Line current                       | 36.8 A 200 V, Isc = 22 kA<br>32 A 240 V                                                                                                                                                                                      |
| EMC filter                         | Without EMC filter                                                                                                                                                                                                           |
| Apparent power                     | 12.8 kVA                                                                                                                                                                                                                     |
| Maximum transient current          | 41.3 A 60 s                                                                                                                                                                                                                  |
| Power dissipation in W             | 292 W at nominal load                                                                                                                                                                                                        |
| Speed range                        | 1...50                                                                                                                                                                                                                       |
| Asynchronous motor control profile | Sensorless flux vector control with PWM type motor control signal<br>Factory set : constant torque                                                                                                                           |
| Electrical connection              | AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6 terminal 0.00 in <sup>2</sup> (2.5 mm <sup>2</sup> ) AWG 14<br>L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- terminal 0.02 in <sup>2</sup> (16 mm <sup>2</sup> ) AWG 6 |
| Supply                             | Internal supply for logic inputs 19...30 V 100 mA overload and short-circuit protection<br>Internal supply for reference potentiometer (2.2 to 10 kOhm) 10...10.8 V 10 mA 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                        | Communication card CANopen daisy chain<br>Communication card DeviceNet<br>Communication card Fipio<br>Communication card Modbus TCP<br>Communication card Profibus DP                                                        |

## Complementary

|                             |              |
|-----------------------------|--------------|
| Supply voltage limits       | 170...264 V  |
| Prospective line Isc        | 22 kA        |
| Continuous output current   | 27.5 A 4 kHz |
| Output frequency            | 0...500 kHz  |
| Nominal switching frequency | 4 kHz        |

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.

|                                     |                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Switching frequency                 | 2...16 kHz adjustable                                                                                                                                                                                                                                                                                                                                                           |
| Transient overtorque                | 170...200 % of nominal motor torque                                                                                                                                                                                                                                                                                                                                             |
| Braking torque                      | 150 % 60 s with braking resistor<br>100 % with braking resistor continuously<br>150 % without braking resistor                                                                                                                                                                                                                                                                  |
| Regulation loop                     | Frequency PI regulator                                                                                                                                                                                                                                                                                                                                                          |
| Motor slip compensation             | Adjustable<br>Suppressable<br>Automatic whatever the load                                                                                                                                                                                                                                                                                                                       |
| Output voltage                      | <= power supply voltage                                                                                                                                                                                                                                                                                                                                                         |
| Tightening torque                   | AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6 5.31 lbf.in (0.6 N.m)<br>L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- 22.13 lbf.in (2.5 N.m)                                                                                                                                                                                                                             |
| Insulation                          | Electrical between power and control                                                                                                                                                                                                                                                                                                                                            |
| Analogue input number               | 3                                                                                                                                                                                                                                                                                                                                                                               |
| Analogue input type                 | AI1 configurable voltage 0...10 V 30 V max 30000 Ohm<br>AI2 configurable voltage +/- 10 V 30 V max 30000 Ohm<br>AI3 configurable current 0...20 mA 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 800 Ohm 8 bits<br>AOV configurable voltage 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           | R1-R2 10 mA 5 V DC                                                                                                                                                                                                                                                                                                                                                              |
| Maximum switching current           | R1-R2 2 A 250 V AC inductive, cos phi = 0.4 7 ms<br>R1-R2 2 A 30 V DC inductive, cos phi = 0.4 7 ms<br>R1-R2 5 A 250 V AC resistive, cos phi = 1 0 ms<br>R1-R2 5 A 30 V DC resistive, cos phi = 1 0 ms                                                                                                                                                                          |
| Discrete input number               | 6                                                                                                                                                                                                                                                                                                                                                                               |
| Discrete input type                 | LI1...LI6) programmable 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               | >= 500 mOhm 500 V DC for 1 minute                                                                                                                                                                                                                                                                                                                                               |
| Local signalling                    | Drive voltage 1 LED red)<br>CANopen bus status four 7-segment display units                                                                                                                                                                                                                                                                                                     |
| 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...127 CANopen<br>1...247 Modbus                                                                                                                                                                                                                                                                                                                                               |
| Number of drive                     | 127 CANopen<br>31 Modbus                                                                                                                                                                                                                                                                                                                                                        |

|                    |                        |
|--------------------|------------------------|
| Marking            | CE                     |
| Operating position | Vertical +/- 10 degree |
| Outer dimension    | 232 x 180 x 170 mm     |
| Maximum Height     | 9.13 in (232 mm)       |
| Maximum Width      | 7.09 in (180 mm)       |
| Maximum Depth      | 6.77 in (172 mm)       |
| Net Weight         | 14.11 lb(US) (6.4 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 µs - 8/20 µs 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                             | IEC 61800-3<br>IEC 61800-5-1                                                                                                                                                                                                                                                              |
| Product certifications                | C-tick<br>NOM<br>CSA<br>GOST<br>UL<br>DNV                                                                                                                                                                                                                                                 |
| 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   | -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                                                                                                                                                                       |

## Ordering and shipping details

|                       |                                              |
|-----------------------|----------------------------------------------|
| Category              | 22152 - ATV320/ATV312/ATV32 (.25 THRU 7.5HP) |
| Discount Schedule     | CP4B                                         |
| GTIN                  | 00785901689355                               |
| Nbr. of units in pkg. | 1                                            |
| Package weight(Lbs)   | 13.22 lb(US) (6.00 kg)                       |
| Returnability         | No                                           |
| Country of origin     | ID                                           |

## Packing Units

|                              |                          |
|------------------------------|--------------------------|
| Unit Type of Package 1       | PCE                      |
| Package 1 Height             | 10.43 in (26.5 cm)       |
| Package 1 width              | 9.25 in (23.5 cm)        |
| Package 1 Length             | 12.01 in (30.5 cm)       |
| Unit Type of Package 2       | P06                      |
| Number of Units in Package 2 | 10                       |
| Package 2 Weight             | 160.76 lb(US) (72.92 kg) |
| Package 2 Height             | 31.50 in (80 cm)         |
| Package 2 width              | 31.50 in (80 cm)         |
| Package 2 Length             | 23.62 in (60 cm)         |

## Offer Sustainability

|                            |                                                                                                                              |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Sustainable offer status   | Green Premium product                                                                                                        |
| EU RoHS Directive          | Pro-active compliance (Product out of EU RoHS legal scope) <a href="#">EU RoHS Declaration</a>                               |
| Mercury free               | Yes                                                                                                                          |
| RoHS exemption information | <a href="#">Yes</a>                                                                                                          |
| China RoHS Regulation      | <a href="#">China RoHS Declaration</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. |

## Contractual warranty

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