



## Main

|                              |                               |
|------------------------------|-------------------------------|
| Range of product             | Altivar 212                   |
| Product or component type    | Variable speed drive          |
| Device short name            | ATV212                        |
| Product destination          | Asynchronous motors           |
| Product specific application | Pumps and fans in HVAC        |
| Assembly style               | With heat sink                |
| Phase                        | 3 phase                       |
| Motor power kW               | 30 kW                         |
| Maximum Horse Power Rating   | 40 hp                         |
| [Us] rated supply voltage    | 200...240 V - 15...10 %       |
| Supply voltage limits        | 170...264 V                   |
| Supply frequency             | 50...60 Hz - 5...5 %          |
| EMC filter                   | Without EMC filter            |
| Line current                 | 113.3 A 200 V<br>89.5 A 240 V |

## Complementary

|                              |                                                          |
|------------------------------|----------------------------------------------------------|
| Apparent power               | 44.6 kVA 240 V                                           |
| Prospective line Isc         | 22 kA                                                    |
| Continuous output current    | 117 A 230 V                                              |
| Maximum transient current    | 128.7 A 60 s                                             |
| Speed drive output frequency | 0.5...200 Hz                                             |
| Nominal switching frequency  | 8 kHz                                                    |
| Switching frequency          | 6...16 kHz adjustable<br>8...16 kHz with derating factor |

\* Price is "List Price" and may be subject to a trade discount – check with your local distributor or retailer for actual price.

|                                    |                                                                                                                                                                                                                                                             |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Speed range                        | 1...10                                                                                                                                                                                                                                                      |
| Speed accuracy                     | +/- 10 % of nominal slip 0.2 Tn to Tn                                                                                                                                                                                                                       |
| Torque accuracy                    | +/- 15 %                                                                                                                                                                                                                                                    |
| Transient overtorque               | 120 % of nominal motor torque +/- 10 % 60 s                                                                                                                                                                                                                 |
| Asynchronous motor control profile | Voltage/frequency ratio, 2 points<br>Voltage/frequency ratio, automatic IR compensation (U/f + automatic Uo)<br>Voltage/frequency ratio - Energy Saving, quadratic U/f<br>Flux vector control without sensor, standard<br>Voltage/frequency ratio, 5 points |
| Regulation loop                    | Adjustable PI regulator                                                                                                                                                                                                                                     |
| Motor slip compensation            | Not available in voltage/frequency ratio motor control<br>Adjustable<br>Automatic whatever the load                                                                                                                                                         |
| Local signalling                   | DC bus energized 1 LED red)                                                                                                                                                                                                                                 |
| Output voltage                     | <= power supply voltage                                                                                                                                                                                                                                     |
| Isolation                          | Electrical between power and control                                                                                                                                                                                                                        |
| Type of cable                      | Without mounting kit 1 IEC cable 113 °F (45 °C), copper 90 °C / XLPE/EPR<br>Without mounting kit 1 IEC cable 113 °F (45 °C), copper 70 °C / PVC<br>With UL Type 1 kit: 3 wire(s)UL 508 cable at 40 °C, copper 75 °C / PVC                                   |
| Electrical connection              | VIA, VIB, FM, FLA, FLB, FLC, RY, RC, F, R, RES terminal 0.00 in <sup>2</sup> (2.5 mm <sup>2</sup> ) / AWG 14<br>L1/R, L2/S, L3/T terminal 0.23 in <sup>2</sup> (150 mm <sup>2</sup> ) 300 kcmil)                                                            |
| Tightening torque                  | 5.31 lbf.in (0.6 N.m) VIA, VIB, FM, FLA, FLB, FLC, RY, RC, F, R, RES)<br>362.88 lbf.in (41 N.m), 360 lb.in L1/R, L2/S, L3/T)                                                                                                                                |
| Supply                             | Internal supply for reference potentiometer (1 to 10 kOhm) 10.5 V DC +/- 5 %, <10 A overload and short-circuit protection<br>Internal supply 24 V DC 21...27 V), <200 A overload and short-circuit protection                                               |
| Analogue input number              | 2                                                                                                                                                                                                                                                           |
| Analogue input type                | VIA switch-configurable voltage 0...10 V DC 24 V max 30000 Ohm 10 bits<br>VIB configurable voltage 0...10 V DC 24 V max 30000 Ohm 10 bits<br>VIB configurable PTC probe 0...6 probes 1500 Ohm<br>VIA switch-configurable current 0...20 mA 250 Ohm 10 bits  |
| Sampling duration                  | 2 ms +/- 0.5 ms F discrete<br>2 ms +/- 0.5 ms R discrete<br>2 ms +/- 0.5 ms RES discrete<br>3.5 ms +/- 0.5 ms VIA analog<br>22 ms +/- 0.5 ms VIB analog                                                                                                     |
| Response time                      | FM 2 ms +/- 0.5 ms analog<br>FLA, FLC 7 ms +/- 0.5 ms discrete<br>FLB, FLC 7 ms +/- 0.5 ms discrete<br>RY, RC 7 ms +/- 0.5 ms discrete                                                                                                                      |
| Accuracy                           | +/- 0.6 % VIA) for a temperature variation 60 °C<br>+/- 0.6 % VIB) for a temperature variation 60 °C<br>+/- 1 % FM) for a temperature variation 60 °C                                                                                                       |
| Linearity error                    | VIA +/- 0.15 % of maximum value input<br>VIB +/- 0.15 % of maximum value input<br>FM +/- 0.2 % output                                                                                                                                                       |
| Analogue output number             | 1                                                                                                                                                                                                                                                           |
| Analogue output type               | FM switch-configurable voltage 0...10 V DC 7620 Ohm 10 bits<br>FM switch-configurable current 0...20 mA 970 Ohm 10 bits                                                                                                                                     |
| Discrete output number             | 2                                                                                                                                                                                                                                                           |
| Discrete output type               | Configurable relay logic FLA, FLC) NO - 100000 cycles<br>Configurable relay logic FLB, FLC) NC - 100000 cycles<br>Configurable relay logic RY, RC) NO - 100000 cycles                                                                                       |
| Minimum switching current          | 3 mA 24 V DC configurable relay logic                                                                                                                                                                                                                       |
| Maximum switching current          | 5 A 250 V AC resistive cos phi = 1 L/R = 0 ms FL, R)<br>5 A 30 V DC resistive cos phi = 1 L/R = 0 ms FL, R)<br>2 A 250 V AC inductive cos phi = 0.4 L/R = 7 ms FL, R)<br>2 A 30 V DC inductive cos phi = 0.4 L/R = 7 ms FL, R)                              |
| Discrete input type                | F programmable 24 V DC level 1 PLC 4700 Ohm<br>R programmable 24 V DC level 1 PLC 4700 Ohm<br>RES programmable 24 V DC level 1 PLC 4700 Ohm                                                                                                                 |
| Discrete input logic               | Positive logic (source) F, R, RES), <= 5 V, >= 11 V<br>Negative logic (sink) F, R, RES), >= 16 V, <= 10 V                                                                                                                                                   |

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| Acceleration and deceleration ramps        | Automatic based on the load<br>Linear adjustable separately from 0.01 to 3200 s                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Braking to standstill                      | By DC injection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Protection type                            | Overheating protection drive<br>Thermal power stage drive<br>Short-circuit between motor phases drive<br>Input phase breaks drive<br>Overcurrent between output phases and earth drive<br>Overvoltages on the DC bus drive<br>Break on the control circuit drive<br>Against exceeding limit speed drive<br>Line supply overvoltage and undervoltage drive<br>Line supply undervoltage drive<br>Against input phase loss drive<br>Thermal protection motor<br>Motor phase break motor<br>With PTC probes motor |
| Dielectric strength                        | 2830 V DC between earth and power terminals<br>4230 V DC between control and power terminals                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Insulation resistance                      | >= 1 mOhm 500 V DC for 1 minute                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Frequency resolution                       | Display unit 0.1 Hz<br>Analog input 0.024/50 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Communication port protocol                | METASYS N2<br>APOGEE FLN<br>BACnet<br>LonWorks<br>Modbus                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Connector type                             | 1 RJ45<br>1 open style                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Physical interface                         | 2-wire RS 485                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Transmission frame                         | RTU                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Transmission rate                          | 9600 bps or 19200 bps                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Data format                                | 8 bits, 1 stop, odd even or no configurable parity                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Type of polarization                       | No impedance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Number of addresses                        | 1...247                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Communication service                      | Write multiple registers (16) 2 words maximum<br>Monitoring inhibitible<br>Time out setting from 0.1 to 100 s<br>Read holding registers (03) 2 words maximum<br>Read device identification (43)<br>Write single register (06)                                                                                                                                                                                                                                                                                 |
| Option card                                | Communication card for LonWorks                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Operating position                         | Vertical +/- 10 degree                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Width                                      | 12.60 in (320 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Height                                     | 24.80 in (630 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Depth                                      | 11.42 in (290 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Net Weight                                 | 85.21 lb(US) (38.65 kg)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Power dissipation in W                     | 1085 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Air flow                                   | 98009.59 Gal/hr(US) (371 m3/h)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Specific application                       | HVAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| IP degree of protection                    | IP21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Variable speed drive application selection | Compressor for scroll Building - HVAC<br>Fan Building - HVAC<br>Pump Building - HVAC                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Motor power range AC-3                     | 30...50 kW 200...240 V 3 phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Motor starter type                         | Variable speed drive                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

## Environment

|                               |                                                                                                                                                                                                                                                                                           |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electromagnetic compatibility | Electrostatic discharge immunity test level 3 IEC 61000-4-2<br>Radiated radio-frequency electromagnetic field immunity test level 3 IEC 61000-4-3<br>Electrical fast transient/burst immunity test level 4 IEC 61000-4-4<br>1.2/50 µs - 8/20 µs surge immunity test level 3 IEC 61000-4-5 |
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Conducted radio-frequency immunity test level 3 IEC 61000-4-6  
Voltage dips and interruptions immunity test IEC 61000-4-11

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| Pollution degree                      | 3 IEC 61800-5-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| IP degree of protection               | IP20 on upper part without blanking plate on cover EN/IEC 61800-5-1<br>IP20 on upper part without blanking plate on cover EN/IEC 60529<br>IP21 EN/IEC 61800-5-1<br>IP21 EN/IEC 60529<br>IP41 on upper part EN/IEC 61800-5-1<br>IP41 on upper part EN/IEC 60529                                                                                                                                                                                                                                                                                                                            |
| Vibration resistance                  | 1.5 mm 3...13 Hz)EN/IEC 60068-2-6<br>1 gn 13...200 Hz)EN/IEC 60068-2-8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Shock resistance                      | 15 gn 11 ms IEC 60068-2-27                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Environmental characteristic          | Classes 3C1 IEC 60721-3-3<br>Classes 3S2 IEC 60721-3-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Noise level                           | 63.7 dB conforming to 86/188/EEC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Operating altitude                    | 3280.84...9842.52 ft (1000...3000 m) limited to 2000 m for the Corner Grounded distribution network with current derating 1 % per 100 m<br><= 3280.84 ft (1000 m) without derating                                                                                                                                                                                                                                                                                                                                                                                                        |
| Relative humidity                     | 5...95 % without condensation IEC 60068-2-3<br>5...95 % without dripping water IEC 60068-2-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Ambient air temperature for operation | -10...40 °C (without derating)<br>40...50 °C (with derating factor)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Ambient air temperature for storage   | -13...158 °F (-25...70 °C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Standards                             | IEC 61800-3 environments 2 category C1<br>IEC 61800-3 environments 2 category C2<br>IEC 61800-3 environments 1 category C2<br>EN 61800-3<br>IEC 61800-5-1<br>EN 61800-3 environments 1 category C3<br>EN 61800-3 environments 1 category C1<br>UL Type 1<br>EN 61800-3 environments 1 category C2<br>IEC 61800-3 environments 1 category C1<br>IEC 61800-3 environments 2 category C3<br>EN 61800-3 environments 2 category C1<br>IEC 61800-3 environments 1 category C3<br>IEC 61800-3<br>EN 61800-3 environments 2 category C3<br>EN 61800-3 environments 2 category C2<br>EN 61800-5-1 |
| Product certifications                | NOM 117<br>CSA<br>C-tick<br>UL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Marking                               | CE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

## Ordering and shipping details

|                       |                                    |
|-----------------------|------------------------------------|
| Category              | 22156 - ATV212 30 - 40 HP 230 VOLT |
| Discount Schedule     | CP4D                               |
| GTIN                  | 00785901921981                     |
| Nbr. of units in pkg. | 1                                  |
| Package weight(Lbs)   | 95.7 lb(US) (43.41 kg)             |
| Returnability         | Yes                                |
| Country of origin     | FR                                 |

## Packing Units

|                        |                  |
|------------------------|------------------|
| Unit Type of Package 1 | PCE              |
| Package 1 Height       | 12.99 in (33 cm) |
| Package 1 width        | 21.26 in (54 cm) |
| Package 1 Length       | 31.50 in (80 cm) |

## Offer Sustainability

|                            |                                                                                                                                                                                                                                                                                             |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sustainable offer status   | Green Premium product                                                                                                                                                                                                                                                                       |
| California proposition 65  | WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a> |
| REACH Regulation           | <a href="#">REACH Declaration</a>                                                                                                                                                                                                                                                           |
| EU RoHS Directive          | Pro-active compliance (Product out of EU RoHS legal scope)<br><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 |
|----------|-----------|