

# ATV61HU22M3

ATV61 2,2 kW 3HP 240V single phase EMC  
IP20 with graph term



## Main

|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Range of Product                  | Altivar 61                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Product or Component Type         | Variable speed drive                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Product Specific Application      | Pumping and ventilation machine                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Component name                    | ATV61                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Motor power kW                    | 1.5 KW, single phase 200...240 V<br>2.2 kW, 3 phase 200...240 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Maximum Horse Power Rating        | 2 Hp, single phase 200...240 V<br>3 hp, 3 phase 200...240 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Power supply voltage              | 200...240 V - 15...10 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Supply number of phases           | 3 phase<br>Single phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Line current                      | 12.8 A 240 V 3 phase 2.2 kW / 3 hp<br>15 A 200 V 3 phase 2.2 kW / 3 hp<br>15.7 A 240 V single phase 1.5 kW / 2 hp<br>18.2 A 200 V single phase 1.5 kW / 2 hp                                                                                                                                                                                                                                                                                                                                                                                              |
| EMC filter                        | Class C2 EMC filter integrated                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Assembly style                    | With heat sink                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Apparent power                    | 3.7 KVA 240 V single phase 1.5 kW / 2 hp<br>5.3 kVA 240 V 3 phase 2.2 kW / 3 hp                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Maximum prospective line Isc      | 5 KA 3 phase<br>5 kA single phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Maximum transient current         | 9.6 A 60 s, single phase<br>13.2 A 60 s, 3 phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Nominal switching frequency       | 12 kHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Switching frequency               | 1...16 kHz adjustable<br>12...16 kHz with derating factor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Asynchronous motor control        | Voltage/Frequency ratio, 5 points<br>Voltage/Frequency ratio - Energy Saving, quadratic U/f<br>Voltage/Frequency ratio, 2 points<br>Flux vector control without sensor, standard                                                                                                                                                                                                                                                                                                                                                                          |
| Synchronous motor control profile | Vector control without sensor, standard                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Communication Port Protocol       | Modbus<br>CANopen                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Type of polarization              | No impedance Modbus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Option card                       | Communication card APOGEE FLN<br>Communication card BACnet<br>Communication card CC-Link<br>Controller inside programmable card<br>Communication card DeviceNet<br>Communication card EtherNet/IP<br>Communication card Fipio<br>I/O extension card<br>Communication card Interbus-S<br>Communication card LonWorks<br>Communication card METASYS N2<br>Communication card Modbus Plus<br>Communication card Modbus TCP<br>Communication card Modbus/Uni-Telway<br>Multi-pump card<br>Communication card Profibus DP<br>Communication card Profibus DP V1 |

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## Complementary

|                                            |                                                                                                                                                                                                                                                                                                       |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product destination                        | Synchronous motors<br>Asynchronous motors                                                                                                                                                                                                                                                             |
| Power supply voltage limits                | 170...264 V                                                                                                                                                                                                                                                                                           |
| Power supply frequency                     | 50...60 Hz - 5...5 %                                                                                                                                                                                                                                                                                  |
| Power supply frequency limits              | 47.5...63 Hz                                                                                                                                                                                                                                                                                          |
| Continuous output current                  | 11 A 12 kHz, 230 V - 3 phase<br>8 A 12 kHz, 230 V - single phase                                                                                                                                                                                                                                      |
| Output frequency                           | 0.1...599 Hz                                                                                                                                                                                                                                                                                          |
| Speed range                                | 1...100 in open-loop mode, without speed feedback                                                                                                                                                                                                                                                     |
| Speed accuracy                             | +/- 10 % of nominal slip 0.2 Tn to Tn without speed feedback                                                                                                                                                                                                                                          |
| Torque accuracy                            | +/- 15 % in open-loop mode, without speed feedback                                                                                                                                                                                                                                                    |
| Transient overtorque                       | 130 % of nominal motor torque +/- 10 % 60 s                                                                                                                                                                                                                                                           |
| Braking torque                             | <= 125 % with braking resistor<br>30 % without braking resistor                                                                                                                                                                                                                                       |
| Regulation loop                            | Frequency PI regulator                                                                                                                                                                                                                                                                                |
| Motor slip compensation                    | Not available in voltage/frequency ratio (2 or 5 points)<br>Adjustable<br>Can be suppressed<br>Automatic whatever the load                                                                                                                                                                            |
| Diagnostic                                 | For drive voltage 1 LED (red)                                                                                                                                                                                                                                                                         |
| Output voltage                             | <= power supply voltage                                                                                                                                                                                                                                                                               |
| Electrical isolation                       | Between power and control terminals                                                                                                                                                                                                                                                                   |
| Type of cable for mounting in an enclosure | With an IP21 or an IP31 kit 3 IEC cable 104 °F (40 °C), copper 70 °C / PVC<br>With UL Type 1 kit 3 UL 508 cable 104 °F (40 °C), copper 75 °C / PVC<br>Without mounting kit 1 IEC cable 113 °F (45 °C), copper 70 °C / PVC<br>Without mounting kit 1 IEC cable 113 °F (45 °C), copper 90 °C / XLPE/EPR |
| Electrical connection                      | Terminal 2.5 mm <sup>2</sup> / AWG 14 AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1...LI6, PWR)<br>Terminal 6 mm <sup>2</sup> / AWG 8 L1/R, L2/S, L3/T, U/T1, V/T2, W/T3, PC/-, PO, PA/+, PA, PB)                                                                                                 |
| Tightening torque                          | 5.31 Lbf.in (0.6 N.m) AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1...LI6, PWR)<br>12.39 lbf.in (1.4 N.m), 12.3 lb.in L1/R, L2/S, L3/T, U/T1, V/T2, W/T3, PC/-, PO, PA/+, PA, PB)                                                                                                                 |
| Supply                                     | Internal supply for reference potentiometer (1 to 10 kOhm) 10.5 V DC, +/- 5 %, <10 mA overload and short-circuit protection<br>Internal supply 24 V DC 21...27 V), <200 mA overload and short-circuit protection<br>External supply 24 V DC 19...30 V)                                                |
| Analogue input number                      | 2                                                                                                                                                                                                                                                                                                     |
| Analogue input type                        | AI1-/AI1+ bipolar differential voltage +/- 10 V DC 24 V max 11 bits + sign<br>AI2 software-configurable current 0...20 mA 242 Ohm 11 bits<br>AI2 software-configurable voltage 0...10 V DC 24 V max 30000 Ohm 11 bits                                                                                 |
| Sampling time                              | 2 Ms +/- 0.5 ms AI1-/AI1+) - analog input<br>2 Ms +/- 0.5 ms AI2) - analog input<br>2 Ms +/- 0.5 ms AO1) - analog output<br>2 Ms +/- 0.5 ms LI1...LI5) - discrete input<br>2 ms +/- 0.5 ms LI6)if configured as logic input - discrete input                                                          |
| Absolute accuracy precision                | +/- 0.6 % AI1-/AI1+) for a temperature variation 60 °C<br>+/- 0.6 % AI2) for a temperature variation 60 °C<br>+/- 1 % AO1) for a temperature variation 60 °C                                                                                                                                          |
| Linearity error                            | +/- 0.15 % of maximum value AI1-/AI1+)<br>+/- 0.15 % of maximum value AI2)<br>+/- 0.2 % AO1)                                                                                                                                                                                                          |
| Analogue output number                     | 1                                                                                                                                                                                                                                                                                                     |
| Analogue output type                       | AO1 software-configurable current 0...20 mA 500 Ohm 10 bits<br>AO1 software-configurable voltage 0...10 V DC 470 Ohm 10 bits<br>AO1 software-configurable logic output 10 V, 20 mA                                                                                                                    |
| Discrete output number                     | 2                                                                                                                                                                                                                                                                                                     |
| Discrete output type                       | Configurable relay logic R1A, R1B, R1C) NO/NC - 100000 cycles<br>Configurable relay logic R2A, R2B) NO - 100000 cycles                                                                                                                                                                                |
| Maximum response time                      | <= 100 ms in STO (Safe Torque Off)<br>R1A, R1B, R1C <= 7 ms +/- 0.5 ms<br>R2A, R2B <= 7 ms +/- 0.5 ms                                                                                                                                                                                                 |

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| Minimum switching current           | 3 mA 24 V DC configurable relay logic                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 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               | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Discrete input type                 | Programmable LI1...LI5) 24 V DC <= 30 V)level 1 PLC - 3500 Ohm<br>Switch-configurable LI6) 24 V DC <= 30 V)level 1 PLC - 3500 Ohm<br>Switch-configurable PTC probe LI6)0...6 - 1500 Ohm<br>Safety input PWR) 24 V DC <= 30 V) - 1500 Ohm                                                                                                                                                                                                                                                                         |
| Discrete input logic                | Negative logic (sink) LI1...LI5), > 16 V, < 10 V<br>Positive logic (source) LI1...LI5), < 5 V, > 11 V<br>Negative logic (sink) LI6)if configured as logic input, > 16 V, < 10 V<br>Positive logic (source) LI6)if configured as logic input, < 5 V, > 11 V                                                                                                                                                                                                                                                       |
| Acceleration and deceleration ramps | Automatic adaptation of ramp if braking capacity exceeded, by using resistor S, U or customized<br>Linear adjustable separately from 0.01 to 9000 s                                                                                                                                                                                                                                                                                                                                                              |
| Braking to standstill               | By DC injection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Protection type                     | Against exceeding limit speed drive<br>Against input phase loss drive<br>Break on the control circuit drive<br>Input phase breaks drive<br>Line supply overvoltage drive<br>Line supply undervoltage drive<br>Overcurrent between output phases and earth drive<br>Overheating protection drive<br>Overvoltages on the DC bus drive<br>Power removal drive<br>Short-circuit between motor phases drive<br>Thermal protection drive<br>Motor phase break motor<br>Power removal motor<br>Thermal protection motor |
| Insulation resistance               | > 1 mOhm 500 V DC for 1 minute to earth                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Frequency resolution                | Analog input 0.024/50 Hz<br>Display unit 0.1 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Connector type                      | 1 RJ45 on front face)Modbus<br>1 RJ45 on terminal)Modbus<br>Male SUB-D 9 on RJ45CANopen                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Physical interface                  | 2-wire RS 485 Modbus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Transmission frame                  | RTU Modbus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Transmission rate                   | 4800 bps, 9600 bps, 19200 bps, 38.4 Kbps Modbus on terminal<br>9600 bps, 19200 bps Modbus on front face<br>20 kbps, 50 kbps, 125 kbps, 250 kbps, 500 kbps, 1 Mbps CANopen                                                                                                                                                                                                                                                                                                                                        |
| Data format                         | 8 bits, 1 stop, even parity Modbus on front face<br>8 bits, odd even or no configurable parity Modbus on terminal                                                                                                                                                                                                                                                                                                                                                                                                |
| Number of addresses                 | 1...127 CANopen<br>1...247 Modbus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Method of access                    | Slave CANopen                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Marking                             | CE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Operating position                  | Vertical +/- 10 degree                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Net Weight                          | 8.82 lb(US) (4 kg)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Width                               | 6.10 in (155 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Height                              | 10.24 in (260 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Depth                               | 7.36 in (187 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

## Environment

|                                       |                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Noise level                           | 54.5 dB 86/188/EEC                                                                                                                                                                                                                                                                                                                                       |
| Dielectric strength                   | 2830 V DC between earth and power terminals<br>4230 V DC between control and power terminals                                                                                                                                                                                                                                                             |
| Electromagnetic compatibility         | Conducted radio-frequency immunity test level 3 IEC 61000-4-6<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<br>Voltage dips and interruptions immunity test IEC 61000-4-11 |
| Standards                             | IEC 60721-3-3 class 3C1<br>EN/IEC 61800-5-1<br>EN 55011 class A group 1<br>EN/IEC 61800-3<br>EN 61800-3 environments 1 category C2<br>IEC 60721-3-3 class 3S2<br>EN 61800-3 environments 2 category C2<br>UL Type 1                                                                                                                                      |
| Product Certifications                | UL<br>GOST<br>CSA<br>C-tick<br>DNV<br>NOM 117                                                                                                                                                                                                                                                                                                            |
| Pollution degree                      | 2 EN/IEC 61800-5-1                                                                                                                                                                                                                                                                                                                                       |
| Degree of protection                  | IP20 on upper part without blanking plate on cover EN/IEC 60529<br>IP20 on upper part without blanking plate on cover EN/IEC 61800-5-1<br>IP21 EN/IEC 60529<br>IP21 EN/IEC 61800-5-1<br>IP41 on upper part EN/IEC 60529<br>IP41 on upper part EN/IEC 61800-5-1<br>IP54 on lower part EN/IEC 60529<br>IP54 on lower part EN/IEC 61800-5-1                 |
| Vibration resistance                  | 1 gn 13...200 Hz)EN/IEC 60068-2-6<br>1.5 mm peak to peak 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 operation | 14...122 °F (-10...50 °C) without derating)<br>122...140 °F (50...60 °C) with derating factor)                                                                                                                                                                                                                                                           |
| Ambient Air Temperature for Storage   | -13...158 °F (-25...70 °C)                                                                                                                                                                                                                                                                                                                               |
| 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              | 22136 - ATV61 1/2 THRU 5 HP DRIVES |
| Discount Schedule     | CP4C                               |
| GTIN                  | 00785901749196                     |
| Nbr. of units in pkg. | 1                                  |
| Package weight(Lbs)   | 12.2 lb(US) (5.53 kg)              |
| Returnability         | No                                 |
| Country of origin     | ID                                 |

## Packing Units

|                  |          |
|------------------|----------|
| Package 1 Height | 3.050 dm |
| Package 1 width  | 3.140 dm |
| Package 1 Length | 3.820 dm |

## Contractual warranty

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

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