



## Main

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| 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                     | 15 kW 3 phasesat 380...480 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Motor power hp                     | 20 hp 3 phasesat 380...480 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| [Us] rated supply voltage          | 380...480 V (- 15...10 %)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Phase                              | 3 phases                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Line current                       | 39 Afor 480 V 3 phases 15 kW / 20 hp<br>48 Afor 380 V 3 phases 15 kW / 20 hp                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| EMC filter                         | Level 3 EMC filter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Assembly style                     | With heat sink                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Apparent power                     | 31.6 kVAfor 380 V 3 phases 15 kW / 20 hp                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Prospective line Isc               | 22 kA 3 phases                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Maximum transient current          | 39.6 Afor 60 s 3 phases                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Nominal switching frequency        | 12 kHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Switching frequency                | 1...16 kHz adjustable<br>12...16 kHz with derating factor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Asynchronous motor control profile | Voltage/frequency ratio, 2 points<br>Voltage/frequency ratio, 5 points<br>Flux vector control without sensor, standard<br>Voltage/frequency ratio - Energy Saving, quadratic U/f                                                                                                                                                                                                                                                                                                                                                                          |
| Synchronous motor control profile  | Vector control without sensor, standard                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Communication port protocol        | CANopen<br>Modbus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Type of polarization               | No impedance Modbus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Option card                        | APOGEE FLN communication card<br>BACnet communication card<br>CC-Link communication card<br>Controller inside programmable card<br>DeviceNet communication card<br>Ethernet/IP communication card<br>Fipio communication card<br>I/O extension card<br>Interbus-S communication card<br>LonWorks communication card<br>METASYS N2 communication card<br>Modbus Plus communication card<br>Modbus TCP communication card<br>Modbus/Uni-Telway communication card<br>Multi-pump card<br>Profibus DP communication card<br>Profibus DP V1 communication card |

## Complementary

|                           |                                                                               |
|---------------------------|-------------------------------------------------------------------------------|
| Product destination       | Asynchronous motors<br>Synchronous motors                                     |
| Supply voltage limits     | 323...528 V                                                                   |
| Supply frequency          | 50...60 Hz (- 5...5 %)                                                        |
| Network frequency         | 47.5...63 Hz                                                                  |
| Continuous output current | 27 Aat 12 kHz, 460 V 3 phases<br>33 Aat 12 kHz, 380 V 3 phases                |
| 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 torque variation without speed feedback |

|                           |                                                                                                                                                                                                                                                                                                                                               |
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| Torque accuracy           | +/- 15 % in open-loop mode, without speed feedback                                                                                                                                                                                                                                                                                            |
| Transient overtorque      | 130 % of nominal motor torque, +/- 10 % for 60 s                                                                                                                                                                                                                                                                                              |
| Braking torque            | 30 % without braking resistor<br>≤ 125 % with braking resistor                                                                                                                                                                                                                                                                                |
| Regulation loop           | Frequency PI regulator                                                                                                                                                                                                                                                                                                                        |
| Motor slip compensation   | Adjustable<br>Automatic whatever the load<br>Can be suppressed<br>Not available in voltage/frequency ratio (2 or 5 points)                                                                                                                                                                                                                    |
| Local signalling          | 1 LED red presence of drive voltage                                                                                                                                                                                                                                                                                                           |
| Output voltage            | ≤ power supply voltage                                                                                                                                                                                                                                                                                                                        |
| Isolation                 | Between power and control terminals                                                                                                                                                                                                                                                                                                           |
| Type of cable             | With an IP21 or an IP31 kit: 3-strand IEC cable at 104 °F (40 °C), copper 70 °C PVC<br>Without mounting kit: 1-strand IEC cable at 113 °F (45 °C), copper 70 °C PVC<br>Without mounting kit: 1-strand IEC cable at 113 °F (45 °C), copper 90 °C XLPE/EPR<br>With UL Type 1 kit: 3-strand UL 508 cable at 104 °F (40 °C), copper 75 °C PVC     |
| Electrical connection     | AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1...LI6, PWR terminal 2.5 mm <sup>2</sup> / AWG 14<br>L1/R, L2/S, L3/T, U/T1, V/T2, W/T3, PC/-, PO, PA/+, PA, PB terminal 25 mm <sup>2</sup> / AWG 3                                                                                                                                          |
| Tightening torque         | AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1...LI6, PWR 5.31 lbf.in (0.6 N.m)<br>L1/R, L2/S, L3/T, U/T1, V/T2, W/T3, PC/-, PO, PA/+, PA, PB 47.79 lbf.in (5.4 N.m) / 47.7 lb.in                                                                                                                                                          |
| Supply                    | Internal supply for reference potentiometer (1 to 10 kOhm) 10.5 V DC +/- 5 %, ≤ 10 mA for overload and short-circuit protection<br>Internal supply 24 V DC (21...27 V), ≤ 200 mA for 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, input voltage 24 V max, resolution 11 bits + sign<br>AI2 software-configurable current 0...20 mA, impedance 242 Ohm, resolution 11 bits<br>AI2 software-configurable voltage 0...10 V DC, input voltage 24 V max, impedance 30000 Ohm, resolution 11 bits                                 |
| Sampling duration         | Analog input AI1-/AI1+ 2 ms, +/- 0.5 ms<br>Analog input AI2 2 ms, +/- 0.5 ms<br>Analog output AO1 2 ms, +/- 0.5 ms<br>Discrete input LI1...LI5 2 ms, +/- 0.5 ms<br>Discrete input LI6 (if configured as logic input) 2 ms, +/- 0.5 ms                                                                                                         |
| Accuracy                  | AI1-/AI1+ +/- 0.6 % for a temperature variation 60 °C<br>AI2 +/- 0.6 % for a temperature variation 60 °C<br>AO1 +/- 1 % for a temperature variation 60 °C                                                                                                                                                                                     |
| Linearity error           | AI1-/AI1+ +/- 0.15 % of maximum value<br>AI2 +/- 0.15 % of maximum value<br>AO1 +/- 0.2 %                                                                                                                                                                                                                                                     |
| Analogue output number    | 1                                                                                                                                                                                                                                                                                                                                             |
| Analogue output type      | AO1 software-configurable current, analogue output range 0...20 mA, impedance 500 Ohm, resolution 10 bits<br>AO1 software-configurable logic output 10 V, ≤ 20 mA<br>AO1 software-configurable voltage, analogue output range 0...10 V DC, impedance 470 Ohm, resolution 10 bits                                                              |
| Discrete output number    | 2                                                                                                                                                                                                                                                                                                                                             |
| Discrete output type      | (R1A, R1B, R1C) configurable relay logic NO/NC, electrical durability 100000 cycles<br>(R2A, R2B) configurable relay logic NO, electrical durability 100000 cycles                                                                                                                                                                            |
| Response time             | ≤ 100 ms in STO (Safe Torque Off)<br>R1A, R1B, R1C ≤ 7 ms, tolerance +/- 0.5 ms<br>R2A, R2B ≤ 7 ms, tolerance +/- 0.5 ms                                                                                                                                                                                                                      |
| Minimum switching current | Configurable relay logic 3 mA at 24 V DC                                                                                                                                                                                                                                                                                                      |
| Maximum switching current | R1, R2 on resistive load, 5 A at 30 V DC, cos phi = 1, 0 ms<br>R1, R2 on inductive load, 2 A at 30 V DC, cos phi = 0.4, 7 ms<br>R1, R2 on resistive load, 5 A at 250 V AC, cos phi = 1, 0 ms<br>R1, R2 on inductive load, 2 A at 250 V AC, cos phi = 0.4, 7 ms                                                                                |
| Discrete input number     | 7                                                                                                                                                                                                                                                                                                                                             |
| Discrete input type       | (LI1...LI5) programmable, 24 V DC, voltage limits ≤ 30 V, with level 1 PLC, impedance 3500 Ohm<br>(LI6) switch-configurable, 24 V DC, voltage limits ≤ 30 V, with level 1 PLC, impedance 3500 Ohm<br>(LI6) switch-configurable PTC probe, 0...6, impedance 1500 Ohm<br>(PWR) safety input, 24 V DC, voltage limits ≤ 30 V, impedance 1500 Ohm |
| Discrete input logic      | LI1...LI5 positive logic (source), < 5 V (state 0), > 11 V (state 1)                                                                                                                                                                                                                                                                          |

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|                                     | LI1...LI5 negative logic (sink), > 16 V (state 0), < 10 V (state 1)<br>LI6 (if configured as logic input) negative logic (sink), > 16 V (state 0), < 10 V (state 1)<br>LI6 (if configured as logic input) positive logic (source), < 5 V (state 0), > 11 V (state 1)                                                                                                                                                                                                                                             |
| Acceleration and deceleration ramps | Automatic adaptation of ramp if braking capacity exceeded, by using resistor<br>Linear adjustable separately from 0.01 to 9000 s<br>S, U or customized                                                                                                                                                                                                                                                                                                                                                           |
| Braking to standstill               | By DC injection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Protection type                     | Drive against exceeding limit speed<br>Drive against input phase loss<br>Drive break on the control circuit<br>Drive input phase breaks<br>Drive line supply overvoltage<br>Drive line supply undervoltage<br>Drive overcurrent between output phases and earth<br>Drive overheating protection<br>Drive overvoltages on the DC bus<br>Drive power removal<br>Drive short-circuit between motor phases<br>Drive thermal protection<br>Motor motor phase break<br>Motor power removal<br>Motor thermal protection |
| Insulation resistance               | > 1 mOhm at 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 Modbus on front face<br>1 RJ45 Modbus on terminal<br>Male SUB-D 9 on RJ45 CANopen                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Physical interface                  | 2-wire RS 485 Modbus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Transmission frame                  | RTU Modbus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Transmission rate                   | 20 kbps, 50 kbps, 125 kbps, 250 kbps, 500 kbps, 1 Mbps CANopen<br>4800 bps, 9600 bps, 19200 bps, 38.4 Kbps Modbus on terminal<br>9600 bps, 19200 bps Modbus on front face                                                                                                                                                                                                                                                                                                                                        |
| 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...247 Modbus<br>1...127 CANopen                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Method of access                    | Slave CANopen                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Marking                             | CE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Operating position                  | Vertical +/- 10 degree                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Product weight                      | 48.5 lb(US) (22 kg)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Width                               | 9.06 in (230 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Height                              | 15.75 in (400 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Depth                               | 8.39 in (213 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

## Environment

|                               |                                                                                                                                                                                                                     |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| noise level                   | 60.2 dB conforming to 86/188/EEC                                                                                                                                                                                    |
| dielectric strength           | 3535 V DC between earth and power terminals<br>5092 V DC between control and power terminals                                                                                                                        |
| electromagnetic compatibility | Conforming to IEC 61000-4-2 level 3<br>Conforming to IEC 61000-4-11<br>Conforming to IEC 61000-4-6 level 3<br>Conforming to IEC 61000-4-3 level 3<br>Conforming to IEC 61000-4-4 level 4                            |
| standards                     | EN 55011 class A group 2<br>EN 61800-3 environments 1 category C3<br>EN 61800-3 environments 2 category C3<br>EN/IEC 61800-3<br>EN/IEC 61800-5-1<br>IEC 60721-3-3 class 3C1<br>IEC 60721-3-3 class 3S2<br>UL Type 1 |
| product certifications        | CSA<br>C-Tick<br>DNV<br>GOST<br>NOM 117<br>UL                                                                                                                                                                       |

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| pollution degree                      | 2 conforming to EN/IEC 61800-5-1                                                                                                                                                                                                                                                                                                                                                                                                                         |
| IP degree of protection               | IP20 on upper part without blanking plate on cover conforming to EN/IEC 60529<br>IP20 on upper part without blanking plate on cover conforming to EN/IEC 61800-5-1<br>IP21 conforming to EN/IEC 60529<br>IP21 conforming to EN/IEC 61800-5-1<br>IP41 on upper part conforming to EN/IEC 60529<br>IP41 on upper part conforming to EN/IEC 61800-5-1<br>IP54 on lower part conforming to EN/IEC 60529<br>IP54 on lower part conforming to EN/IEC 61800-5-1 |
| vibration resistance                  | 1.5 mm peak to peak (f = 3...13 Hz) conforming to EN/IEC 60068-2-6<br>1 gn (f = 13...200 Hz) conforming to EN/IEC 60068-2-6                                                                                                                                                                                                                                                                                                                              |
| shock resistance                      | 15 gn 11 ms conforming to EN/IEC 60068-2-27                                                                                                                                                                                                                                                                                                                                                                                                              |
| relative humidity                     | 5...95 % without condensation conforming to IEC 60068-2-3<br>5...95 % without dripping water conforming to IEC 60068-2-3                                                                                                                                                                                                                                                                                                                                 |
| ambient air temperature for 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                                                                                                                                                                                                                                                                                                                                      |

### Contractual warranty

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

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

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- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
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- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

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«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели,  
кабельные сборки и микроволновые компоненты:

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