

# Product datasheet

Specifications



## Variable speed drive, Altivar Process ATV600, APM, single 500 V, 560 kW

ATV6A0C80N6

### Main

|   |  |
|---|--|
| <b>Range of product</b>                   | Altivar Process ATV600   |
| <b>Product or component type</b>          | Variable speed drive   |
| <b>Product specific application</b>       | Process and utilities  |
| <b>Device short name</b>                  | ATV6A0   |
| <b>Variant</b>                            | Modular version  |
| <b>Product destination</b>                | Synchronous motors<br>Asynchronous motors  |
| <b>mounting mode</b>                      | Cabinet mount  |
| <b>Kit composition</b>                    | 1 control unit<br>mechanical mounting kits<br>power connection<br>set of fuses<br>4.0 power module 200 kW<br>3 front cover                     |
| <b>EMC filter</b>                         | Integrated with 300 m conforming to IEC 61800-3 category C3  |
| <b>IP degree of protection</b>            | IP00 (for IP21 or IP54 cabinet integration) conforming to IEC 61800-5-1<br>IP00 (for IP21 or IP54 cabinet integration) conforming to IEC 60529 |
| <b>Degree of protection</b>               | UL type 1 conforming to UL 61800-5-1 (cabinet integration)<br>UL type 12 conforming to UL 61800-5-1 (cabinet integration)                      |
| <b>Type of cooling</b>                    | Forced convection  |
| <b>Supply frequency</b>                   | 50...60 Hz - 5...5 %   |
| <b>Network number of phases</b>           | 3 phases   |
| <b>[Us] rated supply voltage</b>          | 500 V - 10...15 %  |
| <b>Prospective line Isc</b>               | 50 kA  |
| <b>Asynchronous motor control profile</b> | Constant torque standard<br>Variable torque standard<br>Optimized torque mode  |
| <b>Synchronous motor control profile</b>  | Permanent magnet motor<br>Synchronous reluctance motor   |
| <b>Speed drive output frequency</b>       | 0...500 Hz   |
| <b>Nominal switching frequency</b>        | 2.5 kHz  |
| <b>Switching frequency</b>                | 2...4.9 kHz adjustable with derating factor  |
| <b>Safety function</b>                    | STO (safe torque off) SIL 3  |
| <b>number of preset speeds</b>            | 16 preset speeds   |
| <b>Communication port protocol</b>        | Ethernet<br>Modbus serial<br>Modbus TCP  |

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

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|----------------------|---|
| <b>option module</b> | Slot A: communication module, Profibus DP V1<br>Slot A: communication module, PROFINET<br>Slot A: communication module, DeviceNet<br>Slot A: communication module, Modbus TCP/EtherNet/IP<br>Slot A: communication module, CANopen daisy chain RJ45<br>Slot A: communication module, CANopen SUB-D 9<br>Slot A: communication module, CANopen screw terminals<br>Slot A/slot B: digital and analog I/O extension module<br>Slot A/slot B: output relay extension module |
|----------------------|---|

## Complementary

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| <b>Motor power kW</b>                      | 560.0 kW at 500 V normal duty<br>450.0 kW at 500 V heavy duty  |
| <b>Line current</b>                        | 756.0 A at 500 V (normal duty)<br>610.0 A at 500 V (heavy duty)  |
| <b>Apparent power</b>                      | 655 kVA at 500 V normal duty<br>528 kVA at 500 V heavy duty  |
| <b>Continuous output current</b>           | 830.0 A at 2.5 kHz normal duty<br>650.0 A at 2.5 kHz heavy duty  |
| <b>Maximum transient current</b>           | 913 A during 60 s (normal duty)<br>975 A during 60 s (heavy duty)  |
| <b>Permissible temporary current boost</b> | 1.1 x I <sub>n</sub> during 60 s (normal duty)<br>1.5 x I <sub>n</sub> during 60 s (heavy duty)  |
| <b>Output voltage</b>                      | <= power supply voltage  |
| <b>Motor slip compensation</b>             | Can be suppressed<br>Adjustable<br>Automatic whatever the load<br>Not available in permanent magnet motor law  |
| <b>Acceleration and deceleration ramps</b> | S, U or customized<br>Linear adjustable separately from 0.01...9999 s  |
| <b>Braking to standstill</b>               | By DC injection  |
| <b>Protection type</b>                     | Thermal protection: motor<br>Safe torque off: motor<br>Motor phase break: motor<br>Thermal protection: drive<br>Safe torque off: drive<br>Overheating: drive<br>Overcurrent between output phases and earth: drive<br>Overload of output voltage: drive<br>Short-circuit protection: drive<br>Motor phase break: drive<br>Overvoltages on the DC bus: drive<br>Line supply overvoltage: drive<br>Line supply undervoltage: drive<br>Line supply phase loss: drive<br>Overspeed: drive<br>Break on the control circuit: drive |
| <b>Frequency resolution</b>                | Display unit: 0.1 Hz<br>Analog input: 0.012/50 Hz  |
| <b>Electrical connection</b>               | Control: removable screw terminals 0.5...1.5 mm <sup>2</sup> /AWG 20...AWG 16<br>Line side: screw terminal<br>Motor: M10 x 2 bars  |
| <b>Physical interface</b>                  | 2-wire RS 485 for Modbus serial  |
| <b>Transmission frame</b>                  | RTU for Modbus serial  |
| <b>Transmission rate</b>                   | 10/100 Mbit/s for Ethernet IP/Modbus TCP<br>4.8, 9.6, 19.2, 38.4 kbit/s for Modbus serial  |
| <b>Exchange mode</b>                       | Half duplex, full duplex, autonegotiation Ethernet/Modbus TCP  |
| <b>Data format</b>                         | 8 bits, configurable odd, even or no parity for Modbus serial  |
| <b>Type of polarization</b>                | No impedance for Modbus serial   |

|                            |                           |
|----------------------------|---------------------------|
| <b>Number of addresses</b> | 1...247 for Modbus serial |
| <b>Method of access</b>    | Slave Modbus TCP          |

## Environment

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| <b>Noise level</b>                           | 73 dB conforming to 86/188/EEC   |
| <b>Power dissipation in W</b>                | Forced convection: 14100 W, switching frequency 2.5 kHz (normal duty)<br>Forced convection: 11190 W, switching frequency 2.5 kHz (heavy duty)  |
| <b>Maximum THDI</b>                          | <48 % full load conforming to IEC 61000-3-12   |
| <b>Electromagnetic compatibility</b>         | Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2<br>Radiated radio-frequency electromagnetic field immunity test level 3 conforming to IEC 61000-4-3<br>Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4<br>1.2/50 $\mu$ s - 8/20 $\mu$ s surge immunity test level 3 conforming to IEC 61000-4-5<br>Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6 |
| <b>Pollution degree</b>                      | 2 conforming to IEC 61800-5-1  |
| <b>Vibration resistance</b>                  | 1.5 mm peak to peak (f= 2...13 Hz) conforming to IEC 60068-2-6<br>0.5 gn (f= 13...200 Hz) conforming to IEC 60068-2-6  |
| <b>Shock resistance</b>                      | 4 gn for 11 ms conforming to IEC 60068-2-27  |
| <b>Relative humidity</b>                     | 5...95 % without condensation conforming to IEC 60068-2-3  |
| <b>Ambient air temperature for operation</b> | -10...40 °C without derating<br>40...50 °C with derating factor  |
| <b>Ambient air temperature for storage</b>   | -40...70 °C  |
| <b>Operating altitude</b>                    | < 2000 m with current derating above 1000m   |
| <b>Environmental characteristic</b>          | Chemical pollution resistance class 3C3 conforming to IEC 60721-3-3<br>Dust pollution resistance class 3S3 conforming to IEC 60721-3-3<br>Humidity resistant class 3K3 conforming to IEC 60721-3-3   |
| <b>Standards</b>                             | IEC 61800-3<br>IEC 61800-5-1<br>IEC 61000-3-12<br>IEC 60721-3<br>IEC 61508<br>IEC 13849-1  |
| <b>product certifications</b>                | cULus<br>TÜV   |
| <b>marking</b>                               | CE   |