# Product data sheet

Specifications



## variable speed drive APM, ATV600, Low Harmonic drive, 400 V, 200 kW

ATV6B0C20R4

## Main

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| **Range of product** | Altivar Process ATV600 |
| **Product specific application** | Process and utilities |
| **Product or component type** | Variable speed drive |
| **Device short name** | ATV6B0 |
| **Variant** | Modular version |
| **Product destination** | Synchronous motors<br>Asynchronous motors |
| **Mounting mode** | Cabinet mount |
| **Kit composition** | 1 control unit<br>mechanical mounting kits<br>power connection<br>set of fuses<br>2.0 power module 160 kW<br>1.0 front cover |
| **EMC filter** | Integrated with 300 m conforming to IEC 61800-3 category C3 |
| **IP degree of protection** | 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 |
| **Type of cooling** | Forced convection |
| **Supply frequency** | 50...60 Hz - 5...5 % |
| **Network number of phases** | 3 phases |
| **[Us] rated supply voltage** | 440 V - 15...10 % |
| **Prospective line Isc** | 50 kA |
| **Asynchronous motor control profile** | Constant torque standard<br>Variable torque standard<br>Optimized torque mode |
| **Synchronous motor control profile** | Permanent magnet motor<br>Synchronous reluctance motor |
| **Speed drive output frequency** | 0…500 Hz |
| **Nominal switching frequency** | 2.5 kHz |
| **Switching frequency** | 2.5...8 kHz with derating factor<br>2...8 kHz adjustable |
| **Safety function** | STO (safe torque off) SIL 3 |
| **Communication port protocol** | 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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| **Option card** | 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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| **Motor power kW** | 200.0 kW at 440 V normal duty<br>160.0 kW at 440 V heavy duty |
| **Line current** | 285.0 A at 440 V (normal duty)<br>229.0 A at 440 V (heavy duty) |
| **Apparent power** | 217 kVA at 440 V normal duty<br>174 kVA at 440 V heavy duty |
| **Continuous output current** | 370.0 A at 2.5 kHz normal duty<br>302.0 A at 2.5 kHz heavy duty |
| **Maximum transient current** | 407 A during 60 s (normal duty)<br>453 A during 60 s (heavy duty) |
| **Permissible temporary current boost** | 1.1 x In during 60 s (normal duty)<br>1.5 x In during 60 s (heavy duty) |
| **Output voltage** | <= power supply voltage |
| **Motor slip compensation** | Can be suppressed<br>Adjustable<br>Automatic whatever the load<br>Not available in permanent magnet motor law |
| **Acceleration and deceleration ramps** | S, U or customized<br>Linear adjustable separately from 0.01...9999 s |
| **Braking to standstill** | By DC injection |
| **Protection type** | 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 |
| **Frequency resolution** | Display unit: 0.1 Hz<br>Analog input: 0.012/50 Hz |
| **Electrical connection** | Control: removable screw terminals 0.5...1.5 mm²/20 AWG...16 AWG<br>Line side: screw terminal<br>Motor: M10 x 2 bars |
| **Physical interface** | 2-wire RS 485 for Modbus serial |
| **Transmission frame** | RTU for Modbus serial |
| **Transmission rate** | 10/100 Mbit/s for Ethernet IP/Modbus TCP<br>4.8, 9.6, 19.2, 38.4 kbit/s for Modbus serial |
| **Exchange mode** | Half duplex, full duplex, autonegotiation Ethernet/Modbus TCP |
| **Data format** | 8 bits, configurable odd, even or no parity for Modbus serial |
| **Type of polarization** | No impedance for Modbus serial |

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| **Number of addresses** | 1…247 for Modbus serial |
| **Method of access** | Slave Modbus TCP |

## Environment

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| **Noise level** | 73 dB conforming to 86/188/EEC |
| **Power dissipation in W** | Forced convection: 8110 W, switching frequency 2.5 kHz (normal duty)<br>Forced convection: 6740 W, switching frequency 2.5 kHz (heavy duty) |
| **Maximum THDI** | <5 % full load conforming to IEEE 519 |
| **Electromagnetic compatibility** | 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 µs - 8/20 µs 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 |
| **Pollution degree** | 2 conforming to IEC 61800-5-1 |
| **Vibration resistance** | 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 |
| **Shock resistance** | 4 gn for 11 ms conforming to IEC 60068-2-27 |
| **Relative humidity** | 5…95 % without condensation conforming to IEC 60068-2-3 |
| **Ambient air temperature for operation** | -10…40 °C without derating<br>40…50 °C with derating factor |
| **Ambient air temperature for storage** | -40…70 °C |
| **Operating altitude** | 1000...4800 m with current derating above 1000m |
| **Environmental characteristic** | 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 |
| **Standards** | IEC 61800-3<br>IEC 61800-5-1<br>IEC 61000-3-12<br>IEC 60721-3<br>IEC 61508<br>IEC 13849-1 |
| **Product certifications** | cULus<br>TÜV |
| **Marking** | CE |

## Contractual warranty

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| **Warranty (in months)** | 18 |