Product data sheet

Specifications



variable speed drive APM, ATV600, Low Harmonic drive, 480 V, 500 hp

ATV6B0C31T4

Main

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 Asynchronous motors
Mounting mode	Cabinet mount
Kit composition	1 control unit mechanical mounting kits power connection set of fuses 2.0 power module 160 kW 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 IP00 (for IP21 or IP54 cabinet integration) conforming to IEC 60529
Degree of protection	UL type 1 conforming to UL 61800-5-1 (cabinet integration) UL type 12 conforming to UL 61800-5-1 (cabinet integration)
Type of cooling	Forced convection
Supply frequency	50...60 Hz - 5...5 %
Network number of phases	3 phases
[Us] rated supply voltage	480 V - 10...10 %
Prospective line Isc	50 kA
Asynchronous motor control profile	Constant torque standard Variable torque standard Optimized torque mode
Synchronous motor control profile	Permanent magnet motor 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 2...8 kHz adjustable
Safety function	STO (safe torque off) SIL 3
Communication port protocol	Ethernet Modbus serial 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

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

Complementary

Motor power kW	315.0 kW at 480 V normal duty 250.0 kW at 480 V heavy duty
Motor power hp	500.0 hp at 480 V normal duty 400.0 hp at 480 V heavy duty
Line current	484.0 A at 480 V (normal duty) 387.0 A at 480 V (heavy duty)
Apparent power	402 kVA at 480 V normal duty 322 kVA at 480 V heavy duty
Continuous output current	590.0 A at 2.5 kHz normal duty 477.0 A at 2.5 kHz heavy duty
Maximum transient current	649 A during 60 s (normal duty) 715.5 A during 60 s (heavy duty)
Permissible temporary current boost	1.1 x In during 60 s (normal duty) 1.5 x In during 60 s (heavy duty)
Output voltage	<= power supply voltage
Motor slip compensation	Can be suppressed Adjustable Automatic whatever the load Not available in permanent magnet motor law
Acceleration and deceleration ramps	S, U or customized Linear adjustable separately from 0.01...9999 s
Braking to standstill	By DC injection
Protection type	Thermal protection: motor Safe torque off: motor Motor phase break: motor Thermal protection: drive Safe torque off: drive Overheating: drive Overcurrent between output phases and earth: drive Overload of output voltage: drive Short-circuit protection: drive Motor phase break: drive Overvoltages on the DC bus: drive Line supply overvoltage: drive Line supply undervoltage: drive Line supply phase loss: drive Overspeed: drive Break on the control circuit: drive
Frequency resolution	Display unit: 0.1 Hz Analog input: 0.012/50 Hz
Electrical connection	Control: removable screw terminals 0.5...1.5 mm²/20 AWG...16 AWG Line side: screw terminal 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 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
Number of addresses	1…247 for Modbus serial
Method of access	Slave Modbus TCP

Environment

Noise level	73 dB conforming to 86/188/EEC
Power dissipation in W	Forced convection: 14740 W, switching frequency 2.5 kHz (normal duty) Forced convection: 11320 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 Radiated radio-frequency electromagnetic field immunity test level 3 conforming to IEC 61000-4-3 Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4 1.2/50 µs - 8/20 µs surge immunity test level 3 conforming to IEC 61000-4-5 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 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 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 Dust pollution resistance class 3S3 conforming to IEC 60721-3-3 Humidity resistant class 3K3 conforming to IEC 60721-3-3
Standards	IEC 61800-3 IEC 61800-5-1 IEC 61000-3-12 IEC 60721-3 IEC 61508 IEC 13849-1
Product certifications	cULus TÜV
Marking	CE

Contractual warranty

Warranty (in months)	18