Product data sheet
Characteristics

ATV6A0C56R4
Altivar Process Modular single drive - ATV600 - 440 V - 560 kW

Main

Range of product	Altivar Process ATV600
Product or component type	Variable speed drive
Product specific application	Process and utilities
Device short name	ATV6A0
Variant	Modular version
Product destination	Synchronous motors Asynchronous motors
Mounting mode	Cabinet mount
Kit composition	1 control unit Power connection Set of fuses Mechanical mounting kits 4 power module 160 kW 3 front cover
EMC filter	Integrated with <= 300 m conforming to EN/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
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	Optimized torque mode Constant torque standard Variable torque standard
Synchronous motor control profile	Permanent magnet motor
Speed drive output frequency	0.1...500 Hz
Nominal switching frequency	2.5 kHz
Switching frequency	2...8 kHz adjustable 2.5...8 kHz with derating factor
Safety function	STO (safe torque off) SIL 3
Discrete input logic	16 preset speeds

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

Complementary

Output voltage	<= power supply voltage
Permissible temporary current boost	1.1 x In during 60 s during normal duty) 1.5 x In during 60 s during heavy duty)
Motor slip compensation	Not available in permanent magnet motor law Automatic whatever the load Can be suppressed Adjustable
Acceleration and deceleration ramps	Linear adjustable separately from 0.01...9999 s S, U or customized
Braking to standstill	By DC injection
Protection type	Line supply overvoltage: drive Line supply phase loss: drive Overheating: drive Thermal protection: drive Break on the control circuit: drive Thermal protection: motor Safe torque off: drive Motor phase break: drive Motor phase break: motor Line supply undervoltage: drive Overcurrent between output phases and earth: drive Safe torque off: motor Short-circuit protection: drive Overspeed: drive Overvoltages on the DC bus: drive Overload of output voltage: drive
Frequency resolution	Analog input: 0.012/50 Hz Display unit: 0.1 Hz
Electrical connection	Motor: M10 x 2 bars Control: removable screw terminals 0.5...1.5 mm²/AWG 20...AWG 16 Line side: screw terminal
Connector type	RJ45 (on the remote graphic terminal)For Ethernet/Modbus TCP RJ45 (on the remote graphic terminal)For Modbus serial
Physical interface	2-wire RS 485For Modbus serial
Transmission frame	RTUFor Modbus serial
Transmission rate	10/100 Mbit/sFor Ethernet IP/Modbus TCP 4.8, 9.6, 19.2, 38.4 kbit/sFor Modbus serial
Exchange mode	Half duplex, full duplex, autonegotiation Ethernet/Modbus TCP
Data format	8 bits, configurable odd, even or no parityFor Modbus serial
Type of polarization	No impedanceFor Modbus serial
Number of addresses	For Modbus serial
Method of access	Slave Modbus TCP
Supply	External supply for digital inputs: 24 V DC (19...30 V) <= 1.25 mA overload and short-circuit protection Internal supply for reference potentiometer (1 to 10 kOhm): 10.5 V DC +/- 5 % <= 10 mA overload and short-circuit protection Internal supply for digital inputs and STO: 24 V DC (21...27 V) <= 200 mA overload and short-circuit protection
Local signalling	Local diagnostic: 3 LEDs Embedded communication status: 3 LEDs (dual colour) Communication module status: 4 LEDs (dual colour)
Analogue input number	3
Analogue input type	AI1, AI2, AI3 software-configurable voltage: 0...10 V DC 30 kOhm 12 bits AI1, AI2, AI3 software-configurable current: 0...20 mA/4...20 mA 250 Ohm 12 bits
Discrete input number	8

Discrete input type	DI1...DI6 programmable 24 V DC (<= 30 V) 3.5 kOhm DI5, DI6 programmable as pulse input: 0...30 kHz 24 V DC (<= 30 V) STOA, STOB safe torque off 24 V DC (<= 30 V) > 2.2 kOhm
Input compatibility	DI1...DI6: discrete input level 1 PLC conforming to EN/IEC 61131-2 DI5, DI6: discrete input level 1 PLC conforming to IEC 65A-68 STOA, STOB: discrete input level 1 PLC conforming to EN/IEC 61131-2
Discrete input logic	Positive logic (source) (DI1...DI6) < 5 V (state 0) > 11 V (state 1) Negative logic (sink) (DI1...DI6) > 16 V (state 0) < 10 V (state 1) Positive logic (source) (DI5, DI6) < 0.6 V (state 0) > 2.5 V (state 1) Positive logic (source) (STOA, STOB) < 5 V (state 0) > 11 V (state 1)
Analogue output type	Software-configurable voltage AO1, AO2: 0...10 V DC impedance 470 Ohm 10 bits Software-configurable current AO1, AO2: 0...20 mA 10 bits
Analogue output number	2
Sampling duration	2 ms +/- 0.5 ms (DI1...DI4) - discrete input 5 ms +/- 1 ms (DI5, DI6) - discrete input 5 ms +/- 0.1 ms (AI1, AI2, AI3) - analog input 10 ms +/- 1 ms (AO1) - analog output
Accuracy	+/- 0.6 % AI1, AI2, AI3 for a temperature variation 60 °C analog input +/- 1 % AO1, AO2 for a temperature variation 60 °C analog output
Linearity error	AI1, AI2, AI3: +/- 0.15 % of maximum valueFor analog input AO1, AO2: +/- 0.2 %For analog output
Relay output number	3
Relay output type	Configurable relay logic R1: fault relay NO/NC electrical durability 100000 cycles Configurable relay logic R2: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles
Refresh time	Relay output (R1, R2, R3): 5 ms (+/- 0.5 ms)
Maximum switching current	Relay output R1, R2, R3 on resistive load 1: 3 A at 250 V AC Relay output R1, R2, R3 on resistive load 1: 3 A at 30 V DC Relay output R1, R2, R3 on inductive load 0.4 and L/R = 7 ms: 2 A at 250 V AC Relay output R1, R2, R3 on inductive load 0.4 and L/R = 7 ms: 2 A at 30 V DC
Minimum switching current	Relay output R1, R2, R3: 5 mA at 24 V DC
Isolation	Between power and control terminals
Number of power modules	4

Environment

Insulation resistance	> 1 mOhm 500 V DC for 1 minute to earth
Noise level	73 dB conforming to 86/188/EEC
Power dissipation in W	Forced convection: 12450 W 2.5 kHz
THDI	<<= 48 % full load conforming to IEC 61000-3-12
Electromagnetic compatibility	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 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 Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2
Pollution degree	2 conforming to EN/IEC 61800-5-1
Vibration resistance	0.5 gn (f= 13...200 Hz) conforming to IEC 60068-2-6 1.5 mm peak to peak (f= 2...13 Hz) conforming to IEC 60068-2-6
Shock resistance	7 gnFor 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	40...50 °C (with derating factor) -10...40 °C (without derating)
Ambient air temperature for storage	-40...70 °C
Operating altitude	1000...4800 m with current derating 1 % per 100 m <= 1000 m without derating
Environmental characteristic	Dust pollution resistance class 3S3 conforming to EN/IEC 60721-3-3 Chemical pollution resistance class 3C3 conforming to EN/IEC 60721-3-3
Standards	IEC 60721-3 EN/IEC 61800-3 IEC 61000-3-12 IEC 13849-1 EN/IEC 61800-5-1 IEC 61508

Product certifications	TÜV REACH
Marking	CE

Product Life Status :	Commercialised