

Product data sheet

Specifications



Variable speed drive, Altivar Process ATV600, ATV660 Enclosure

ATV660SYSTEM

Main

Range Of Product	Altivar Process ATV600
Product Or Component Type	Variable speed drive
Device Short Name	ATV660
Device Application	Industrial application
Assembly Style	In floor-standing enclosure compact version
Function Available	Customised provided equipment Customised cable entry Customised option card Customised enclosure colour
Provided Equipment	Enclosure Spacial SF Graphical operating panel in the enclosure door Frequency inverter Main switch Line choke Terminal block main supply Terminal block motor Dv/dt filter choke
Cable Entry	Top Bottom
Colour Of Enclosure	Light grey (RAL 7035)
Ip Degree Of Protection	IP23 conforming to IEC 61800-5-1 IP54 conforming to IEC 61800-5-1
Degree Of Protection	UL type 1 US version UL type 12 US version
Type Of Cooling	Forced convection
[Us] Rated Supply Voltage	380...415 V - 10...6 % 400...415 V ±10% 440 V ±10% 480 V ±10% 500 V ±10% 600 V ±10% 690 V ±10%
Supply Frequency	50/60 Hz +/-5 %
Network Number Of Phases	3 phases
Overvoltage Category	III
Asynchronous Motor Control Profile	Constant torque standard Variable torque standard Optimized torque mode
Synchronous Motor Control Profile	Permanent magnet motor
Output Voltage	<= power supply voltage
Permissible Temporary Current Boost	1.1 x In during 60 s (normal duty) 1.5 x In during 60 s (heavy duty)

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

Nominal Switching Frequency	2.5 kHz
Switching Frequency	2...8 kHz adjustable with derating factor
Speed Drive Output Frequency	0.1...500 Hz
Maximum Thdi	<48 % full load conforming to IEC 61000-3-12
Prospective Line Isc	50 kA for 100 ms
Width	400...1400 mm
Height	2150 mm, IP23 2350 mm, IP54
Depth	600 mm 664 mm including door handle:
Communication Port Protocol	EtherNet/IP with Modbus serial with Modbus TCP with
Safety Function	STO (safe torque off), level SIL 3 STO (safe torque off), level PL = e

Complementary

Product Destination	asynchronous motors synchronous motors
Energy Efficiency Ratio	0.98 nominal mode
Electrical Connection	Control: removable screw terminals 0.5...1.5 mm² Main supply: M12 bar Motor: M12 bar
Option Card	Slot A: communication module for Profibus DP V1 Slot A: communication module for PROFINET Slot A: communication module for DeviceNet Slot A: communication module for Modbus TCP/EtherNet/IP Slot A: communication module for CANopen daisy chain RJ45 Slot A: communication module for CANopen SUB-D 9 Slot A: communication module for CANopen screw terminals Slot A/slot B: digital and analog I/O extension module Slot A/slot B: output relay extension module
Motor Slip Compensation	Can be suppressed Not available in permanent magnet motor law Automatic whatever the load Adjustable
Acceleration And Deceleration Ramps	S, U or customized Linear adjustable separately from 0.01 to 9000 s
Braking To Standstill	By DC injection
Protection Type	Motor: thermal protection Motor: safe torque off Motor: motor phase break Drive: thermal protection Drive: safe torque off Drive: overheating Drive: overcurrent (between output phases and earth) Drive: overload (output) Drive: short-circuit protection Drive: motor phase break Drive: overvoltage (DC bus) Drive: line supply overvoltage Drive: line supply undervoltage Drive: line supply phase loss Drive: overspeed Drive: break on the control circuit Drive: short-circuit protection with semi-conductor fuse (main supply) Drive: fan monitoring
Frequency Resolution	Display unit: 0.1 Hz Analog input: 0.012/50 Hz

Connector Type	RJ45 for Modbus serial on the control block RJ45 for Ethernet IP/Modbus TCP on the control block
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 IP/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
Supply	External supply for digital inputs: 24 V DC (19...30 V), <1.25 mA, protection type: overload and short-circuit protection Internal supply for reference potentiometer (1 to 10 kOhm): 10.5 V DC +/- 5 %, <10 mA, protection type: overload and short-circuit protection Internal supply for digital inputs and STO: 24 V DC (21...27 V), <200 mA, protection type: overload and short-circuit protection
Local Signalling	LCD display unit front door operation function, status and configuration
Analogue Input Number	3
Analogue Input Type	AI1, AI2, AI3 software-configurable voltage: 0...10 V DC, impedance: 30 kOhm, resolution 12 bits AI1, AI2, AI3 software-configurable current: 0...20 mA, impedance: 250 Ohm, resolution 12 bits
Discrete Input Number	8
Discrete Input Type	DI1...DI6 programmable, 24 V DC (<= 30 V), impedance: 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), impedance: > 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 Number	2
Analogue Output Type	Software-configurable voltage AQ1, AQ2: 0...10 V DC impedance 470 Ohm, resolution 10 bits Software-configurable current AQ1, AQ2: 0...20 mA, resolution 10 bits
Sampling Duration	2 ms +/- 0.5 ms (DI1...DI4) - discrete input 5 ms +/- 1 ms (DI5, DI6) - discrete input 5 ms +/- 1 ms (AI1, AI2, AI3) - analog input 10 ms +/- 1 ms (AQ1, AQ2) - analog output
Accuracy	+/- 0.6 % AI1, AI2, AI3 for a temperature variation 60 °C analog input +/- 1 % AQ1, AQ2 for a temperature variation 60 °C analog output
Linearity Error	AI1, AI2, AI3: +/- 0.15 % of maximum value for analog input AQ1, AQ2: +/- 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)
Minimum Switching Current	Relay output R1, R2, R3: 5 mA at 24 V DC

Maximum Switching Current	Relay output R1, R2, R3 on resistive load, cos phi = 1: 3 A at 250 V AC Relay output R1, R2, R3 on resistive load, cos phi = 1: 3 A at 30 V DC Relay output R1, R2, R3 on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 250 V AC Relay output R1, R2, R3 on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 30 V DC
Isolation	Between power and control terminals
Ambient Air Temperature For Storage	-25...70 °C
Standards	EN/IEC 61800-5-1 EN/IEC 61800-2 EN/IEC 61800-3 EN/IEC 60204-1
Marking	CE

Environment

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 EN/IEC 61800-5-1, IP23 3 conforming to EN/IEC 61800-5-1, IP54
Vibration Resistance	1.5 mm peak to peak (f= 3...10 Hz) conforming to IEC 60068-2-6 0.6 gn (f= 10...200 Hz) conforming to IEC 60068-2-6 3M3 conforming to IEC 60721-3-3
Shock Resistance	4 gn for 11 ms conforming to IEC 60068-2-27 3M2 conforming to IEC 60721-3-3
Relative Humidity	5...95 % without condensation conforming to IEC 60068-2-3
Ambient Air Temperature For Operation	-10...0 °C without derating (with option enclosure heating) 0...40 °C without derating 40...50 °C with derating factor
Operating Altitude	<= 1000 m without derating 1000...2000 m with current derating 1 % per 100 m 2000...3800 m with current derating 1 % per 100 m for TT earthing system 2000...3800 m with current derating 1 % per 100 m for TN earthing system 2000...3800 m with current derating 1 % per 100 m for IT earthing system 3800...4800 m with current derating 1 % per 100 m for TT earthing system 3800...4800 m with current derating 1 % per 100 m for TN earthing system
Environmental Characteristic	Chemical pollution resistance class 3C3 conforming to EN/IEC 60721-3-3 Dust pollution resistance class 3S3 conforming to EN/IEC 60721-3-3 Humidity resistant class 3K3 conforming to EN/IEC 60721-3-3
Product Certifications	ATEX C-Tick EAC UL US version