Product data sheet
Characteristics

ATV6000C538A6666NA3
Medium Voltage Variable Speed Drive
ATV6000 - 6.6 kV - 5380 kVA

Main

Range of product	Altivar Process ATV6000
Product or component type	Medium voltage variable speed drive
Device short name	ATV6000
Product specific application	Process and utilities
Assembly style	In floor-standing enclosure
Provided equipment	Enclosure Phase-shifting transformer Power cells Human machine interface Plinth Cooling fans Medium voltage arrestors
Colour of enclosure	Light grey RAL 7035)
IP degree of protection	IP31 IEC 60529
Type of cooling	Forced convection
Input type	30 pulse diode rectifier bridge
Output type	IGBT inverter cells multilevel PWM
[Us] rated supply voltage	6.6 kV +/- 10 %
Supply frequency	50 Hz +/- 5 %
Phase	3 phase
Prospective line Isc	31.5 kA 150 ms
Output voltage	<= power supply voltage
Permissible temporary current boost	1.2 x In 60 s normal duty) 1.5 x In 3 s normal duty) 1.5 x In 60 s heavy duty) 1.8 x In 3 s heavy duty)
Speed drive output frequency	0.5…120 Hz
Frequency resolution	0.01 Hz
Product destination	Synchronous motors Asynchronous motors Permanent magnet motors
Asynchronous motor control profile	Variable torque standard Dynamic energy saving Sensorless flux vector control Constant torque standard Closed loop vector control
Synchronous motor control profile	Synchronous motor with external exitation Vector control Permanent magnet motor
Apparent power	5380 kVA
Maximum THDI	<3 % IEEE 519-1992
Power factor	96
Motor power kW	3740 KW heavy duty 4300 kW normal duty
Continuous output current	392 A heavy duty 450 A normal duty
Maximum transient current	735 A 3 s heavy duty) 675 A 3 s normal duty)
Line current	406 A heavy duty 471 A normal duty

Energy efficiency ratio	0.98 inverter 0.965 total drive including transformer
Power losses	159.9 KW normal duty 139.3 kW heavy duty
Cable entry	Bottom
Electrical connection	M10 bar main supply M10 bar motor Terminal 0.25...2.5 mm² control Terminal 1.5...16 mm² cooling fan
Cable cross section	0.37 In² (240 mm²) line normal duty 0.23 In² (150 mm²) line heavy duty 0.23 In² (150 mm²) 2 motor heavy duty 0.37 in² (240 mm²) 3 motor normal duty
Maximum Width	238.90 in (6068 mm)
Maximum Depth	66.93 in (1700 mm)
Maximum Height	111.06 in (2821 mm)
Net Weight	30423.82 lb(US) (13800 kg)
Volume of cooling air	8724174.08 Gal/hr(US) (33024 m3/h)
Noise level	86 dB
EMC filter	Integrated EN/IEC 61800-3 category C3 control Integrated EN/IEC 61800-3 category C4 power
Display type	10 inch LCD touch screen multi-language

Complementary

Protection type	Line supply overvoltage drive Line supply undervoltage drive Line supply phase loss drive Overvoltages on the DC bus drive Thermal overload for transformer drive Cabinet overheating drive Overcurrent drive Overload drive Short-circuit protection drive IGBT for each cell drive Thermal protection motor Motor phase break motor Motor earth fault motor Break on the control circuit drive Fan monitoring drive
Option card	Slot A communication module Profibus DP V1 Slot A communication module Profinet Slot A communication module DeviceNet 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 communication module EtherCAT Slot B 5/12 V digital encoder interface module Slot B analog encoder interface module Slot B resolver encoder interface module Slot B HTL encoder interface module Slot A/slot B digital and analog I/O extension module Slot A/slot B output relay extension module
Connector type	2 RJ45 on the control block)Ethernet IP/Modbus TCP 1 RJ45 on the control block)Modbus serial
Communication port protocol	Ethernet IP/Modbus TCP
Supply	Internal supply for digital inputs and PoE 24 V DC 21…27 V, <200 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 External supply for digital inputs 24 V DC 19…30 V External supply for control circuit 100...240 V AC 47...63 Hz External supply for control circuit 120...370 V DC +/- 10 % 1 kVA Auxiliary power supply 230 V AC +/- 10 % External supply for cooling fan 400 V AC +/- 10 % 31 kVA
Analogue input type	Configurable voltage 0...10 V DC 30 kOhm 12 bits Configurable current 0...20 mA 250 Ohm 12 bits
Discrete input number	10
Discrete input type	DI1...DI8 programmable, 24 V DC <= 30 V)3.5 kOhm DI7, DI8 programmable as pulse input 0…30 kHz, 24 V DC <= 30 V) POEA, POEB PWM output enable, 24 V DC <= 30 V)> 2.2 kOhm

Analogue output number	2
Analogue output type	Configurable voltage 0...10 V DC 470 Ohm 10 bits Configurable current 0...20 mA 500 Ohm 10 bits
Discrete output number	2
Discrete output type	Logic output <= 30 V DC 100 mA
Relay output number	3
Relay output type	Configurable relay logic R1 fault relay NO/NC Configurable relay logic R2 sequence relay NO Configurable relay logic R3 sequence relay NO
Isolation	Electrical between power and control
Overvoltage category	II EN/IEC 61800-5-1 motor side III EN/IEC 61800-5-1 line side III EN/IEC 61800-5-1 low voltage connections

Environment

Electromagnetic compatibility	Electrostatic discharge immunity test level 3 IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 IEC 61000-4-3 Electrical fast transient/burst immunity test level 4 IEC 61000-4-4 1.2/50 µs - 8/20 µs surge immunity test level 3 IEC 61000-4-5 Conducted radio-frequency immunity test level 3 IEC 61000-4-6
Pollution degree	2 EN/IEC 61800-5-1
Environmental characteristic	3K3 EN/IEC 60721-3-3 3B1 EN/IEC 60721-3-3 3C2 EN/IEC 60721-3-3 3S1 EN/IEC 60721-3-3 3M1 EN/IEC 60721-3-3
Relative humidity	5…95 % without condensation IEC 60068-2-3
Ambient air temperature for operation	32…104 °F (0…40 °C) 104…122 °F (40…50 °C) with current derating of 2 % per °C -13…158 °F (-25…70 °C) during transport
Ambient air temperature for storage	32…122 °F (0…50 °C)
Operating altitude	<= 3280.84 ft (1000 m) without 3280.84...6561.68 ft (1000...2000 m) with current derating 1 % per 100 m
Standards	EN/IEC 61800-3 EN/IEC 61800-4 EN/IEC 61800-5-1 EN/IEC 60529 IEEE 519:1992 EN/IEC 60076
Marking	CE EAC

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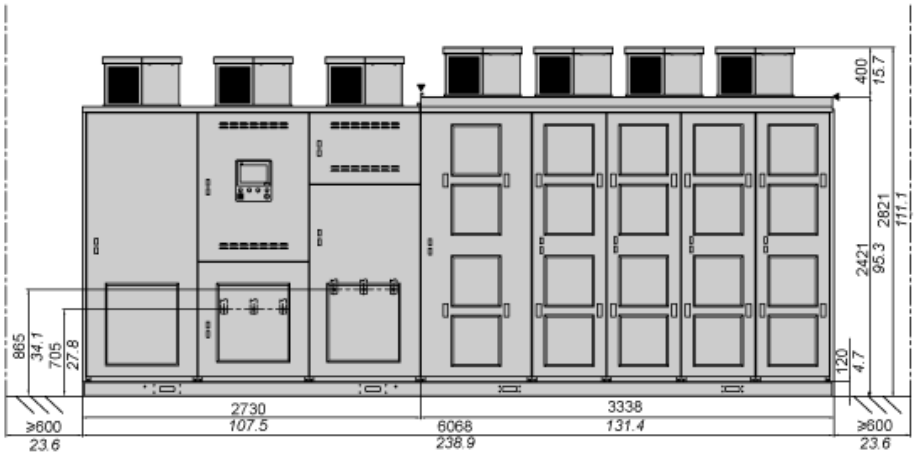
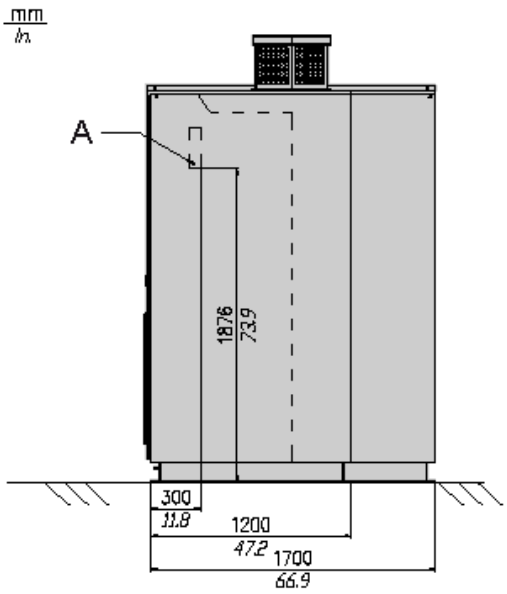
Dimensions and Clearance

Front view

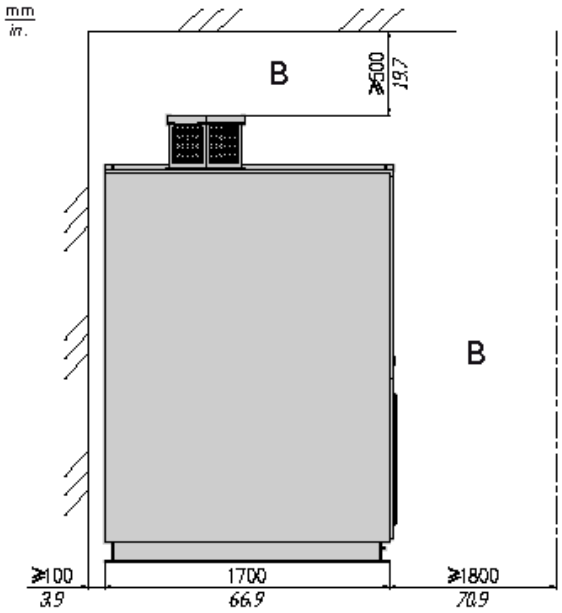


Left view



A Outlet Terminal, Control Circuit

Right view



B Maintenance Space

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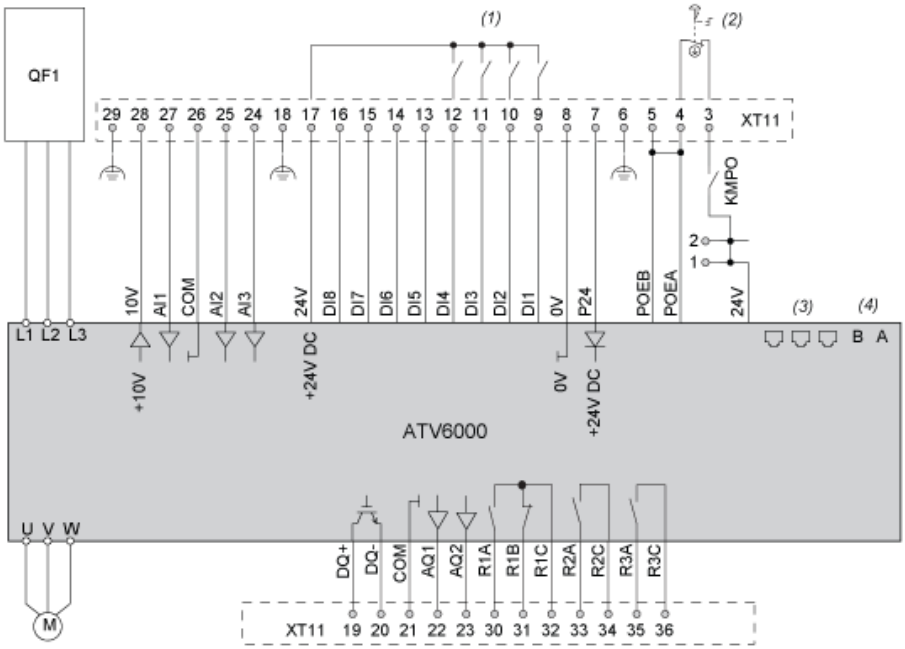
Interface Diagram



(1) : Remote command 3 wires control (external fault, Reverse, Forward, Stop)
(2) : Clients Mains Power Off
(3) : Embedded Modbus
(4) : Embedded Ethernet 1 and 2
SLOTOption Bus I/O, Encoder
A,
SLOT
B :
QF1 :Main circuit breaker
POEA,ower Outputs
POEB :
DI1 Digital Inputs
to
DI8 :
AI1, Analog Inputs
AI2,
AI3 :
DQ : Digital Output
AQ1, Analog Outputs 10/20 mA
AQ2 :
R1, Relay Outputs
R2,
R3 :