

# variable speed drive, ATV320, 2.2 kW, 380...500 V, 3 phases, compact

ATV320U22N4C

## Main

Range of product	Altivar Machine ATV320	
Product or component type	Variable speed drive	
Product specific application	Complex machines	
Variant	Standard version With disconnect switch	
Format of the drive	Compact	
Mounting mode	Wall mount	
communication port protocol	Modbus serial CANopen	
Option card	Communication module, CANopen Communication module, EtherCAT Communication module, Profibus DP V1 Communication module, PROFINET Communication module, Ethernet Powerlink Communication module, EtherNet/IP Communication module, DeviceNet	
[Us] rated supply voltage	380500 V - 1510 %	
nominal output current	5.5 A	
Motor power kW	2.2 kW for heavy duty	
EMC filter	Class C2 EMC filter integrated	
IP degree of protection	IP20	

# Complementary

Discrete input number	7	
Discrete input type	STO safe torque off, 24 V DC, impedance: 1.5 kOhm	
	DI1DI6 logic inputs, 24 V DC (30 V)	
	DI5 programmable as pulse input: 030 kHz, 24 V DC (30 V)	
Discrete input logic	Positive logic (source)	
	Negative logic (sink)	
Discrete output number	3	
Discrete output type	Open collector DQ+ 01 kHz 30 V DC 100 mA	
	Open collector DQ- 01 kHz 30 V DC 100 mA	
Analogue input number	3	
Analogue input type	Al1 voltage: 010 V DC, impedance: 30 kOhm, resolution 10 bits	
	Al2 bipolar differential voltage: +/- 10 V DC, impedance: 30 kOhm, resolution 10 bits	
	Al3 current: 020 mA (or 4-20 mA, x-20 mA, 20-x mA or other patterns by	
	configuration), impedance: 250 Ohm, resolution 10 bits	
Analogue output number	1	

Price is "List Price" and may be subject to a trade discount – check with your local distributor or retailer for actual price.

Analogue output type Schware-configurable voltage AQ1: 010 V DC impedance 400 Ohm, resolution 10 bits Schware-configurable voltage AQ1: 010 V DC impedance 470 Ohm, resolution 10 bits Relay output type Configurable relay logic R14 1 NO electrical durability 100000 cycles Configurable relay logic R15 NC electrical durability 100000 cycles Configurable relay logic R10 NC electrical durability 100000 cycles Configurable relay logic R10 NC electrical durability 100000 cycles Configurable relay logic R10 NC electrical durability 100000 cycles Configurable relay logic R10 NC electrical durability 100000 cycles Configurable relay logic R10 NC electrical durability 100000 cycles Configurable relay logic R10 NC electrical durability 100000 cycles Configurable relay logic R10 NC electrical durability 100000 cycles Configurable relay logic R10 NC electrical durability 100000 cycles Configurable relay logic R10 NC electrical durability 100000 cycles Configurable relay logic R10 NC electrical durability 100000 cycles Configurable relay logic R10 NC electrical durability 100000 cycles Configurable relay logic R10 NC electrical durability 100000 cycles Configurable relay logic R10 NC electrical durability 100000 cycles Configurable relay logic R10 NC electrical durability 100000 cycles Configurable relay logic R10 NC electrical durability 100000 cycles Configurable relay logic R10 NC electrical durability 100000 cycles Configurable relay logic R10 NC electrical durability 100000 cycles Configurable relay logic R10 NC electrical durability 100000 cycles Configurable relay logic R10 NC electrical durability 100000 cycles Configurable relay logic R10 R20 NC confidurable load, cosp pil = 1.5 A at 250 V AC Relay couptr R14 R18, R10, R10, R10, R10, R20, R20 NC electrical durability 100000 pile R10 NC electrical durability 1000000 pile R10 NC electrical durability 1000000000000000000000000000000000000			
Relay output type  Configurable relay logic R1A 1 NO electrical durability 100000 cycles Configurable relay logic R1A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 code of the Relay output R2A R2C on resistive load, cos phi = 1: 3 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 3 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V V R2A	Analogue output type	bits Software-configurable voltage AQ1: 010 V DC impedance 470 Ohm, resolution 10	
Configurable relay logic R18 1 NC electrical durability 100000 cycles Configurable relay logic R10 Configurable relay logic R10 Configurable relay logic R20 Conf		DIES	
Configurable relay logic RZC configurable relations and relationship r	Relay output type		
Configurable relay logic R2C  Maximum switching current Relay output R1A, R1B, R1C on resistive load, cos phi = 1: 3 A at 250 V AC Relay output R1A, R1B, R1C on resistive load, cos phi = 1: 3 A at 30 V DC Relay output R1A, R1B, R1C on resistive load, cos phi = 0.4 and LIR = 7 ms: 2 A at 250 V AC Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 and LIR = 7 ms: 2 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC R2A R2A R2C on resistive load, cos phi = 1: 5 A at 250 V AC R2A R2A R2C on resistive load, cos phi = 1: 5 A at 250 V AC R2A R2A R2C on resistive load, cos phi = 1: 5 A at 250 V AC R2A R2A R2C on resistive load, cos phi = 1: 5 A at 250 V AC R2A R2A			
Relay output R1A, R1B, R1C on resistive load, cos phi = 1.3 A at 30 V DC Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 and LIR = 7 ms: 2 A at 250 V AC Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 and LIR = 7 ms: 2 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1.5 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1.5 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1.5 A at 30 V DC  Minimum switching current Relay output R1A, R1B, R1C, R2A, R2C; 5 mA at 24 V DC  Minimum switching current Relay output R1A, R1B, R1C, R2A, R2C; 5 mA at 24 V DC  Minimum switching current Voltage/frequency ratio, 5 points Filture control without sensor, standard Voltage/frequency ratio, 2 points Filture vector control without sensor - Energy Saving, quadratic U/f Filture vector control without sensor - Energy Saving Voltage/frequency ratio, 2 points Filture vector control without sensor - Energy Saving Voltage/frequency ratio, 2 points Filture vector control without sensor - Energy Saving Voltage/frequency at 170200 % of nominal motor torque  Maximum output frequency  0.599 kHz  Acceleration and deceleration Acceleration ramp adaptation Acceleration adoresidate residence residence adoresidate residence adoresidate residence adaptation Acceleration deceleration ramp adaptation Acceleration deceleration ramp adaptation Acceleration frequency  2.16 kHz adjustable 4.16 kHz with derating factor  Motor slip compensation  Motor slip compensation  Motor slip compensation  4 kHz  Braking to standatill  By DC injection  Brake chopper integrated  True  1.7 A at 380 V (heavy duty)  Maximum output voltage  5.7 kVA at 500 V (heavy duty)  Maximum output voltage  5.7 kVA at 500 V (heavy duty)  Maximum output voltage  5.7 kVA at 500 V (heavy duty)  Network frequency  5.7 kVA at 500 V (heavy duty)  Filtor service requency of the proper of the proper output frequency of the proper output frequency of the proper output frequency of the proper output freque			
Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 and L/R = 7 ms; 2 A at 25 V AC Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 and L/R = 7 ms; 2 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 35 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC  Minimum switching current Relay output R1A, R1B, R1C, R2A, R2C; 5 mA at 24 V DC  Minimum switching current Method of access Slave CANopen 1 rue  Asynchronous motor control Asynchronous motor control Profile  Asynchronous motor control Voltage/frequency ratio. 5 points Flux vector control without sensor standard Voltage/frequency ratio. 2 points Synchronous motor control profile  Vector control without sensor - Energy Saving, quadratic U/I Flux vector control without sensor - Energy Saving Voltage/frequency ratio. 2 points  Synchronous motor control profile  Vector control without sensor - Energy Saving Voltage/frequency ratio. 2 points  Synchronous motor control profile  170200 % of nominal motor torque  Maximum output frequency  Acceleration and deceleration Acceleration automatic stop with DC injection  Motor slip compensation Automatic whatever the load Adjustable 0300 % Not available in voltage/frequency ratio (2 or 6 points)  Switching frequency  216 kHz adjustable 416 kHz with derating factor  Nominal switching frequency  4 kHz  Braking to standatill  By DC injection  Brake chopper integrated  True  Line current  8.7 A at 380 V (heavy duty)  6.6 A at 500 V (heavy duty)  Maximum input current  8.7 A Maximum output voltage  500 V  Apparent power  5.7 kVA at 500 V (heavy duty)  Network frequency  5.6 KA  Base load current at high overload  80.0 A  Prover dissipation in W  Fan: 74.0 W at 380 V, switching frequency 4 kHz  With safety function Safety  True	Maximum switching current	Relay output R1A, R1B, R1C on resistive load, cos phi = 1: 3 A at 250 V AC	
Relay output R1A. R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 and L/R = 7 mis: 2 A at 30 V DC Relay output R2A. R2C on resistive load, cos phi = 1: 5 A at 30 V DC Relay output R2A. R2C on resistive load, cos phi = 1: 5 A at 30 V DC  Minimum switching current Relay output R1A, R1B, R1C, R2A, R2C: 5 mA at 24 V DC  Minimum switching current Relay output R1A, R1B, R1C, R2A, R2C: 5 mA at 24 V DC  Method of access Slave CANopen 4 quadrant operation possible True  Asynchronous motor control profile Voltage/frequency ratio. 5 points Flux vector control without sensor, standard voltage/frequency ratio. 5 points Flux vector control without sensor - Energy Saving voltage/frequency ratio. 2 points Synchronous motor control profile Vector control without sensor Transient overtorque 170200 % of nominal motor torque Maximum output frequency 0.599 kHz  Acceleration and deceleration Linear U S CUS Ramp switching Acceleration automatic stop with DC injection  Motor slip compensation Automatic whatever the load Adjustable 0300 % Not available in voltage/frequency ratio (2 or 5 points)  Switching frequency 216 kHz adjustable 416 kHz with derating factor  Nominal switching frequency 4 kHz  Braking to standstill By DC injection  True  Line current 8.7 A at 380 V (heavy duty) Maximum input current 8.7 A at 380 V (heavy duty)  Maximum input current 8.7 A at 380 V (heavy duty)  Network frequency 5060 Hz  Relative symmetric network requency 5060 Hz  Relative symmetric network requency 5060 Hz  Relative symmetric network requency 170 W at 380 V, switching frequency 4 kHz  With safety function Safety True		Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 and L/R = 7	
Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC  Minimum switching current Relay output R1A, R1B, R1C, R2A, R2C: 5 mA at 24 V DC  Method of access Slave CANopen  True  Asynchronous motor control Profile  Asynchronous motor control Profile  Asynchronous motor control Profile  Asynchronous motor control Profile  Vector control without sensor, standard Flux vector control without sensor, standard Flux vector control without sensor - Energy Saving Voltage/frequency ratio, 2 points  Synchronous motor control profile  Vector control without sensor  Transient overtorque  170200 % of nominal motor torque  Maximum output frequency  0.599 kHz  Acceleration and deceleration Acceleration automatic stop with DC injection  Motor slip compensation  Automatic whatever the load Adjustable 0300 % Not available in voltage/frequency ratio (2 or 5 points)  Switching frequency  4 kHz  Braking to standstill  By DC injection  Brake chopper integrated  True  Line current  8.7 A at 380 V (heavy duty) 6.6 A at 500 V (heavy duty)  Maximum output voltage  500 V  Apparent power  5.7 kVA at 500 V (heavy duty)  Network frequency  5.4 KA  Base load current at high overload  8.0 A  Prover dissipation in W  Fan: 74.0 W at 380 V, switching frequency 4 kHz  With safety function Safety  True  With safety function Safety  True  With safety function Safety  True		Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 and L/R = 7	
Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC  Minimum switching current Relay output R1A, R1B, R1C, R2A, R2C: 5 mA at 24 V DC  Method of access Slave CANopen True Asynchronous motor control profile Voltage/frequency ratio, 5 points Flux vector control without sensor, standard Voltage/frequency ratio, 2 points Synchronous motor control profile Vector control without sensor - Energy Saving Voltage/frequency ratio, 2 points  Synchronous motor control profile Vector control without sensor Transient overtorque 170200 % of nominal motor torque  Maximum output frequency 0.599 kHz Acceleration and deceleration Tramps  Linear U S CUS Ramp switching Acceleration ramp adaptation Acceleration/deceleration automatic stop with DC injection  Motor slip compensation Automatic whatever the load Adjustable 0.300 % Not available in voltage/frequency ratio (2 or 5 points)  Switching frequency 216 kHz adjustable 416 kHz adjustable 416 kHz adjustable 516 kHz adjustable 616 kHz with derating factor  Nominal switching frequency 17ue  Braking to standstill By DC injection  Brake chopper integrated True  8.7 A at 380 V (heavy duty)  Maximum input current 8.7 A  Maximum output voltage Sou V  Apparent power 5.7 kVA at 500 V (heavy duty)  Network frequency Sou60 Hz  Ralative symmetric network frequency bolerance Prospective line isc 5 kA  Base load current at high overfload With safety function Safety True  With safety function Safety True			
Method of access  Slave CANopen  True  Asynchronous motor control profile  Asynchronous motor control profile  Flux vector control without sensor, standard Voltage/frequency ratio, 5 points  Flux vector control without sensor, standard Voltage/frequency ratio, 2 points  Synchronous motor control profile  Vector control without sensor  Transient overtorque  170200 % of nominal motor torque  Maximum output frequency  0.599 kHz  Acceleration and deceleration ramps  CUS Ramp switching Acceleration ramp adaptation Acceleration/deceleration ramp adaptation Acceleration/deceleration automatic stop with DC injection  Motor slip compensation  Automatic whatever the load Adjustable 0300 % Not available in voltage/frequency ratio (2 or 5 points)  Switching frequency  216 kHz adjustable 416 kHz with derating factor  Nominal switching frequency  4 kHz  Braking to standstill  By DC injection  Brake chopper integrated  True  Line current  8.7 A at 380 V (heavy duty)  6.6 A at 500 V (heavy duty)  Maximum input current  8.7 A (At 500 V (heavy duty)  Apparent power  5.7 kVA at 500 V (heavy duty)  Network frequency  5.8 KA  Base load current at high overload  Power dissipation in W  Fan: 74.0 W at 380 V, switching frequency 4 kHz  With safety function Safety  True  With safety function Safety  True  With safety function Safety			
A quadrant operation possible Asynchronous motor control profile  Asynchronous motor control profile  Flux vector control without sensor, standard Voltage/frequency ratio, 2 points  Flux vector control without sensor asyning, quadratic U/f Flux vector control without sensor asyning, quadratic U/f Flux vector control without sensor  Transient overtorque  170200 % of nominal motor torque  Maximum output frequency  5.99 kHz  Acceleration and deceleration Tamps  Linear U S CUS Ramp switching Acceleration ramp adaptation Acceleration/deceleration ramp adaptation Acceleration/deceleration automatic stop with DC injection  Motor slip compensation  Automatic whatever the load Agjustable 0300 % Not available in voltage/frequency ratio (2 or 5 points)  Switching frequency  216 kHz adjustable 416 kHz with derating factor  Nominal switching frequency  4 kHz  Braking to standstill By DC injection  Brake chopper integrated  True  Line current  8.7 A at 380 V (heavy duty) 6.6 A at 500 V (heavy duty)  Maximum input current  8.7 A  Maximum input current  8.7 A  Maximum input current  5.7 kVA at 500 V (heavy duty)  Network frequency  5.8 kA  Base load current at high overload  Power dissipation in W  Fan: 74.0 W at 380 V, switching frequency 4 kHz  With safety function Safety  True  With safety function Safety  True	Minimum switching current	Relay output R1A, R1B, R1C, R2A, R2C: 5 mA at 24 V DC	
Asynchronous motor control profile  Nottage/frequency ratio . 5 points Flux vector control without sensor . standard Voltage/frequency ratio . 2 prints Flux vector control without sensor . Standard Voltage/frequency ratio . 2 points  Synchronous motor control profile  Vector control without sensor  Transient overtorque  170 200 % of nominal motor torque  Maximum output frequency  0.599 kHz  Acceleration and deceleration Linear U S CUS Ramp switching Acceleration/deceleration ramp adaptation Acceleration/deceleration automatic stop with DC injection  Motor slip compensation  Automatic whatever the load Adjustable 0 300 % Not available in voltage/frequency ratio (2 or 5 points)  Switching frequency  2 16 kHz adjustable 4 16 kHz with derating factor  Nominal switching frequency  4 kHz  Braking to standstill  By DC injection  Brake chopper integrated  True  Line current  8.7 A at 380 V (heavy duty) 6.6 A at 500 V (heavy duty) Maximum input current  8.7 A At 500 V (heavy duty)  Maximum output voltage  500 V  Apparent power  5.7 kVA at 500 V (heavy duty)  Network frequency  5.8 A  Base load current at high overload  Power dissipation in W  Fan: 74.0 W at 380 V, switching frequency 4 kHz  With safety function Safety  True	Method of access	Slave CANopen	
Flux vector control without sensor, standard Voltage/frequency ratio - Energy Saving, quadratic U/f Flux vector control without sensor - Energy Saving voltage/frequency ratio, 2 points  Synchronous motor control profile  Vector control without sensor  Transient overtorque  170200 % of nominal motor torque  Maximum output frequency  0.599 kHz  Acceleration and deceleration  Linear U S S CUS Ramp switching Acceleration ramp adaptation Acceleration/deceleration automatic stop with DC injection  Motor slip compensation  Automatic whatever the load Adjustable 0300 % Not available in voltage/frequency ratio (2 or 5 points)  Switching frequency  216 kHz adjustable 416 kHz with derating factor  Nominal switching frequency  4 kHz  Braking to standstill  By DC injection  Brake chopper integrated  True  Line current  8.7 A at 380 V (heavy duty) 6.6 A at 500 V (heavy duty) Maximum input current  8.7 A At 380 V (heavy duty)  Maximum output voltage  500 V  Apparent power  5.7 kVA at 500 V (heavy duty)  Network frequency  5.8 KA  Base load current at high overland  8.0 A  Power dissipation in W  Fan: 74.0 W at 380 V, switching frequency 4 kHz  With safety function Safely  True	4 quadrant operation possible	True	
Voltage/frequency ratio - Energy Saving, quadratic U/f Flux vector control without sensor - Energy Saving Voltage/frequency ratio - 2 points  Synchronous motor control profile Vector control without sensor - Energy Saving Voltage/frequency ratio - 2 points  Synchronous motor control profile Vector control without sensor - Energy Saving Voltage/frequency ratio - 2 points  Synchronous motor control profile Vector control without sensor - Energy Saving Voltage/frequency and so the synchronous motor control profile Vector control without sensor - Energy Saving Voltage/frequency - 2	•		
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Synchronous motor control profile  Vector control without sensor  Transient overtorque  170200 % of nominal motor torque  0.599 kHz  Acceleration and deceleration ramps  Linear U S CUS Ramp switching Acceleration/deceleration automatic stop with DC injection  Motor slip compensation  Automatic whatever the load Adjustable 0300 % Not available in voltage/frequency ratio (2 or 5 points)  Switching frequency  216 kHz adjustable 416 kHz with derating factor  Nominal switching frequency  4 kHz  Braking to standstill  By DC injection  Brake chopper integrated  True  Line current  8.7 A at 380 V (heavy duty) 6.6 A at 500 V (heavy duty) Maximum input current  8.7 A  Maximum output voltage  500 V  Apparent power  5.7 kVA at 500 V (heavy duty)  Network frequency  5060 Hz  Relative symmetric network frequency  5 % Frospective line Isc  5 kA  Base load current at high over of the process of			
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Maximum output frequency  Acceleration and deceleration ramps  Linear U S CUS Ramp switching Acceleration/deceleration ramp adaptation Acceleration/deceleration automatic stop with DC injection  Motor slip compensation  Automatic whatever the load Adjustable 0300 % Not available in voltage/frequency ratio (2 or 5 points)  Switching frequency  216 kHz adjustable 416 kHz with derating factor  Nominal switching frequency  4 kHz  Braking to standstill  By DC injection  Brake chopper integrated  True  Line current  8.7 A at 380 V (heavy duty)  6.6 A at 500 V (heavy duty)  Maximum input current  8.7 A  Maximum output voltage  500 V  Apparent power  5.7 kVA at 500 V (heavy duty)  Network frequency  5060 Hz  Relative symmetric network frequency  5 % frequency lolerance  Prospective line Isc  5 kA  Base load current at high over Osafely  True  With safety function Safely  True  With safety function Safely  True  With safety function Safely  True	Synchronous motor control profile	Vector control without sensor	
Acceleration and deceleration Tramps  Linear U S CUS Ramp switching Acceleration/deceleration ramp adaptation Acceleration/deceleration automatic stop with DC injection  Motor slip compensation  Automatic whatever the load Adjustable 0300 % Not available in voltage/frequency ratio (2 or 5 points)  Switching frequency  216 kHz adjustable 416 kHz with derating factor  Nominal switching frequency  4 kHz  Braking to standstill  By DC injection  Brake chopper integrated  True  Line current  8.7 A at 380 V (heavy duty) 6.6 A at 500 V (heavy duty) Maximum input current  8.7 A  Maximum output voltage  500 V  Apparent power  5.7 kVA at 500 V (heavy duty)  Network frequency  5060 Hz  Relative symmetric network frequency  5 kA  Base load current at high overload  Power dissipation in W  Fan: 74.0 W at 380 V, switching frequency 4 kHz  With safety function Safely  True	Transient overtorque	170200 % of nominal motor torque	
Tamps  U S CUS Ramp switching Acceleration/deceleration ramp adaptation Acceleration/deceleration automatic stop with DC injection  Motor slip compensation Automatic whatever the load Adjustable 0300 % Not available in voltage/frequency ratio (2 or 5 points)  Switching frequency 216 kHz adjustable 416 kHz with derating factor  Nominal switching frequency 4 kHz  Braking to standstill By DC injection  Brake chopper integrated True  Line current 8.7 A at 380 V (heavy duty) 6.6 A at 500 V (heavy duty) Maximum input current 8.7 A  Maximum output voltage 500 V  Apparent power 5.7 kVA at 500 V (heavy duty)  Network frequency 5060 Hz  Relative symmetric network frequency tolerance Prospective line lsc 5 kA  Base load current at high overload  Power dissipation in W Fan: 74.0 W at 380 V, switching frequency 4 kHz  With safety function Safely True	Maximum output frequency	0.599 kHz	
S CUS Ramp switching Acceleration/deceleration ramp adaptation Acceleration/deceleration automatic stop with DC injection  Motor slip compensation  Automatic whatever the load Adjustable 0300 % Not available in voltage/frequency ratio (2 or 5 points)  Switching frequency  216 kHz adjustable 416 kHz with derating factor  Nominal switching frequency  4 kHz  Braking to standstill  By DC injection  Brake chopper integrated  True  Line current  8.7 A at 380 V (heavy duty) 6.6 A at 500 V (heavy duty) Maximum input current  8.7 A  Maximum output voltage  500 V  Apparent power  5.7 kVA at 500 V (heavy duty)  Network frequency  5060 Hz  Relative symmetric network frequency frequency tolerance  Prospective line Isc  5 kA  Base load current at high overload Power dissipation in W  Fan: 74.0 W at 380 V, switching frequency 4 kHz  With safety function Safely  True			
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Acceleration/deceleration ramp adaptation Acceleration/deceleration automatic stop with DC injection  Motor slip compensation  Automatic whatever the load Adjustable 0300 % Not available in voltage/frequency ratio (2 or 5 points)  Switching frequency  216 kHz adjustable 416 kHz with derating factor  Nominal switching frequency  4 kHz  Braking to standstill  By DC injection  Brake chopper integrated  True  Line current  8.7 A at 380 V (heavy duty) 6.6 A at 500 V (heavy duty) Maximum input current  8.7 A  Maximum output voltage  500 V  Apparent power  5.7 kVA at 500 V (heavy duty)  Network frequency  5060 Hz  Relative symmetric network frequency tolerance  Prospective line Isc  5 kA  Base load current at high overload  Power dissipation in W  Fan: 74.0 W at 380 V, switching frequency 4 kHz  With safety function Safely  True			
Acceleration/deceleration automatic stop with DC injection  Motor slip compensation  Automatic whatever the load Adjustable 0300 % Not available in voltage/frequency ratio (2 or 5 points)  Switching frequency  216 kHz adjustable 416 kHz with derating factor  Nominal switching frequency  4 kHz  Braking to standstill  By DC injection  Brake chopper integrated  True  Line current  8.7 A at 380 V (heavy duty) 6.6 A at 500 V (heavy duty)  Maximum input current  8.7 A  Maximum output voltage  500 V  Apparent power  5.7 kVA at 500 V (heavy duty)  Network frequency  5060 Hz  Relative symmetric network frequency  Frequency tolerance  Prospective line Isc  5 kA  Base load current at high overload  Power dissipation in W  Fan: 74.0 W at 380 V, switching frequency 4 kHz  With safety function Safely  True			
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Maximum input current  8.7 A  Maximum output voltage  500 V  Apparent power  5.7 kVA at 500 V (heavy duty)  Network frequency  5060 Hz  Relative symmetric network frequency tolerance  Prospective line Isc  5 kA  Base load current at high overload  Power dissipation in W  Fan: 74.0 W at 380 V, switching frequency 4 kHz  With safety function Safely  True	Line current	8.7.A. at 380 V (heavy duty)	
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frequency tolerance  Prospective line Isc 5 kA  Base load current at high overload 8.0 A  Power dissipation in W Fan: 74.0 W at 380 V, switching frequency 4 kHz  With safety function Safely True	Network frequency	5060 Hz	
Prospective line Isc 5 kA  Base load current at high overload 8.0 A  Power dissipation in W Fan: 74.0 W at 380 V, switching frequency 4 kHz  With safety function Safely True		5 %	
overload  Power dissipation in W Fan: 74.0 W at 380 V, switching frequency 4 kHz  With safety function Safely True		5 kA	
Power dissipation in W Fan: 74.0 W at 380 V, switching frequency 4 kHz  With safety function Safely True		8.0 A	
		Fan: 74.0 W at 380 V, switching frequency 4 kHz	
	With safety function Safely Limited Speed (SLS)	True	

With safety function Safe brake	
management (SBC/SBT)	False
With safety function Safe Operating Stop (SOS)	False
With safety function Safe Position (SP)	False
With safety function Safe programmable logic	False
With safety function Safe Speed Monitor (SSM)	False
With safety function Safe Stop 1 (SS1)	True
With sft fct Safe Stop 2 (SS2)	False
With safety function Safe torque	True
off (STO)	
	False
off (STO) With safety function Safely	False
off (STO)  With safety function Safely Limited Position (SLP)  With safety function Safe	
off (STO)  With safety function Safely Limited Position (SLP)  With safety function Safe Direction (SDI)	False  Input phase breaks: drive Overcurrent between output phases and earth: drive Overheating protection: drive Short-circuit between motor phases: drive
off (STO) With safety function Safely Limited Position (SLP) With safety function Safe Direction (SDI) Protection type	False  Input phase breaks: drive Overcurrent between output phases and earth: drive Overheating protection: drive Short-circuit between motor phases: drive Thermal protection: drive
off (STO) With safety function Safely Limited Position (SLP) With safety function Safe Direction (SDI) Protection type	Input phase breaks: drive Overcurrent between output phases and earth: drive Overheating protection: drive Short-circuit between motor phases: drive Thermal protection: drive

# **Environment**

Operating position	Vertical +/- 10 degree	
Product certifications	CE ATEX NOM GOST EAC RCM KC	
Marking	CE ATEX UL CSA EAC RCM	
Standards	IEC 61800-5-1	
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 Voltage dips and interruptions immunity test conforming to IEC 61000-4-11	
Environmental class (during operation)	Class 3C3 according to IEC 60721-3-3 Class 3S2 according to IEC 60721-3-3	
Maximum acceleration under shock impact (during operation)	150 m/s² at 11 ms	
Maximum acceleration under vibrational stress (during operation)	10 m/s² at 13200 Hz	
Maximum deflection under vibratory load (during operation)	1.5 mm at 213 Hz	
Permitted relative humidity (during operation)	Class 3K5 according to EN 60721-3	

Volume of cooling air	37.7 m3/h
overvoltage category	III
Regulation loop	Adjustable PID regulator
Speed accuracy	+/- 10 % of nominal slip 0.2 Tn to Tn
pollution degree	2
Ambient air transport temperature	-2570 °C
Ambient air temperature for operation	-1050 °C without derating 5060 °C with derating factor
Ambient air temperature for storage	-2570 °C

# **Packing Units**

Unit Type of Package 1	PCE
Number of Units in Package 1	1
Package 1 Height	24.500 cm
Package 1 Width	19.500 cm
Package 1 Length	26.700 cm
Package 1 Weight	2.652 kg
Unit Type of Package 2	P06
Number of Units in Package 2	12
Package 2 Height	75.000 cm
Package 2 Width	60.000 cm
Package 2 Length	80.000 cm
Package 2 Weight	45.280 kg



Schneider Electric aims to achieve Net Zero status by 2050 through supply chain partnerships, lower impact materials, and circularity via our ongoing "Use Better, Use Longer, Use Again" campaign to extend product lifetimes and recyclability.

#### Environmental Data explained >

How we assess product sustainability >

∇ Environmental footprint	
Carbon footprint (kg.eq.CO2 per CR, Total Life cycle)	1718
Environmental Disclosure	Product Environmental Profile

#### **Use Better**

Materials and Substances	
Packaging made with recycled cardboard	Yes
Packaging without single use plastic	Yes
SCIP Number	6bbbffbe-8a69-47e2-9c29-bc773d0b789b
China RoHS Regulation	China RoHS declaration
Product contributes to saved and avoided emissions	Yes

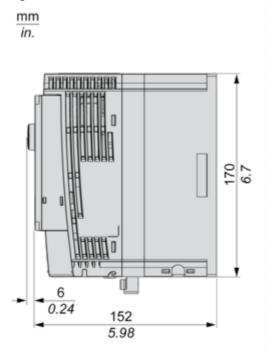
#### **Use Again**

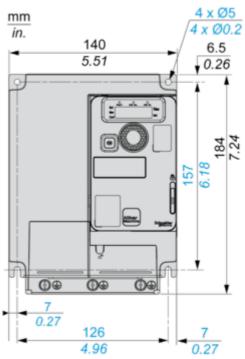
○ Repack and remanufacture	
Circularity Profile	End of Life Information
WEEE	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins
Take-back	No

#### **Dimensions Drawings**

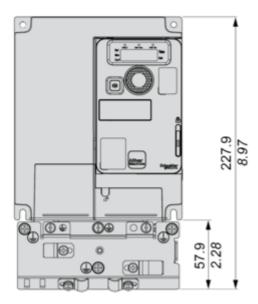
#### **Dimensions**

# Right View, Front View and Front View with EMC Plate





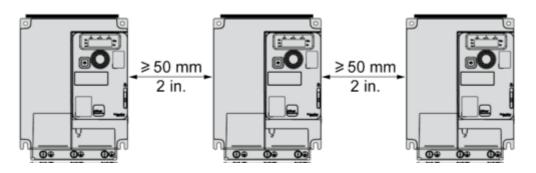
 $\frac{\text{mm}}{in.}$ 



Mounting and Clearance

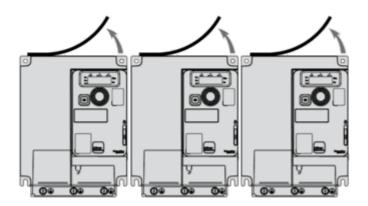
#### **Mounting Types**

#### Mounting Type A: Individual with Ventilation Cover

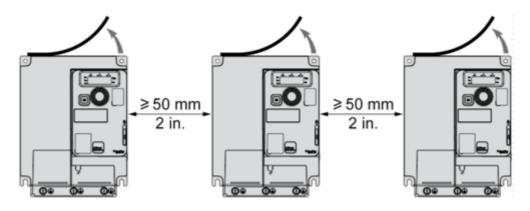


Only Possible at Ambient Temperature Less or Equal to 50 °C (122 °F)

#### Mounting Type B: Side by Side, Ventilation Cover Removed



#### Mounting Type C: Individual, Ventilation Cover Removed



For Operation at Ambient Temperature Above 50  $^{\circ}\text{C}$  (122  $^{\circ}\text{F})$ 

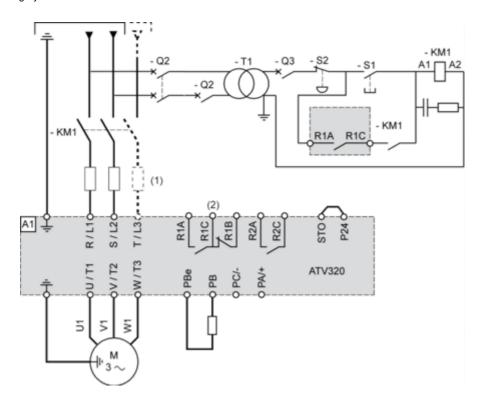
## ATV320U22N4C

Connections and Schema

#### **Connection Diagrams**

#### **Diagram with Line Contactor**

Connection diagrams conforming to standards ISO13849 category 1 and IEC/EN 61508 capacity SIL1, stopping category 0 in accordance with standard IEC/EN 60204-1.



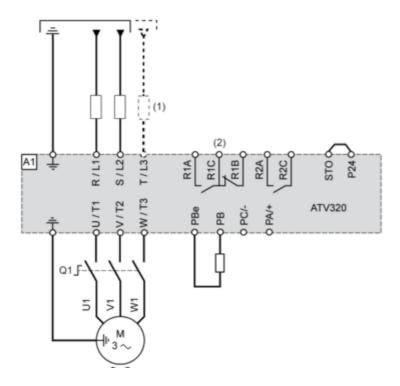
- (1) Line choke (if used)
- (2) Fault relay contacts, for remote signaling of drive status

#### **Diagram with Switch Disconnect**

Connection diagrams conforming to standards EN 954-1 category 1 and IEC/EN 61508 capacity SIL1, stopping category 0 in accordance with standard IEC/EN 60204-1.

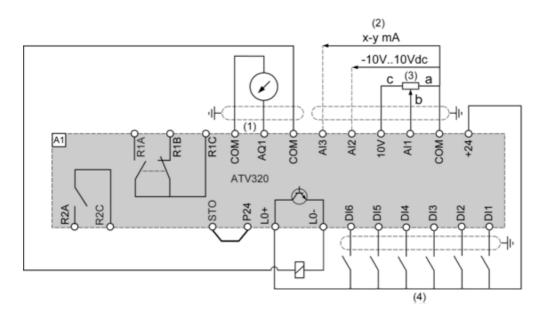
# Product datasheet

# ATV320U22N4C



- (1) Line choke (if used)(2) Fault relay contacts, for remote signaling of drive status

## **Control Connection Diagram in Source Mode**

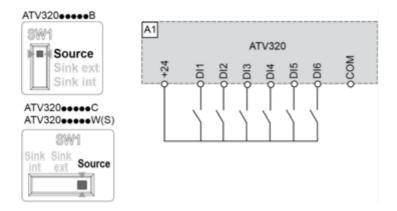


- (1) Analog output
- (2) Analog inputs
- (3) Reference potentiometer (10 kOhm maxi)
- (4) Digital inputs

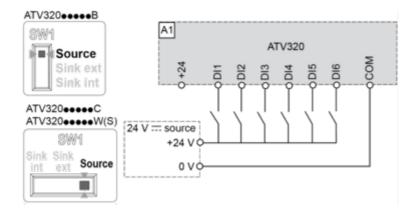
#### **Digital Inputs Wiring**

The logic input switch (SW1) is used to adapt the operation of the logic inputs to the technology of the programmable controller outputs.

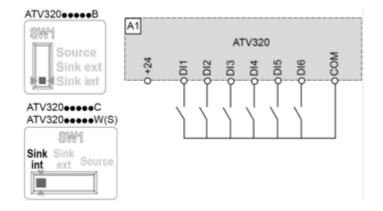
Switch SW1 set to "Source" position and use of the output power supply for the DIs.



Switch SW1 set to "Source" position and use of an external power supply for the DIs.

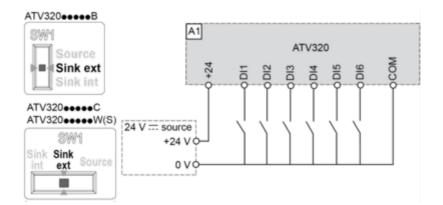


Switch SW1 set to "Sink Int" position and use of the output power supply for the DIs.



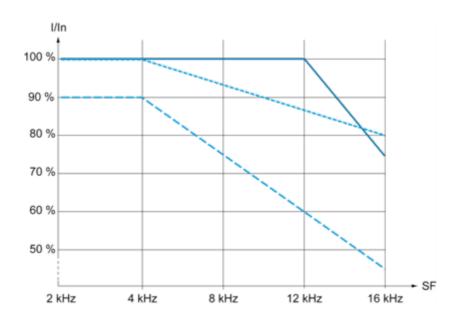
Switch SW1 set to "Sink Ext" position and use of an external power supply for the DIs.

# ATV320U22N4C



#### Performance Curves

#### **Derating Curves**



60 °C (140 °F) - Mounting type C

40 °C (104 °F) - Mounting type A, B and C

In: Nominal Drive Current SF: Switching Frequency

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