# **Product datasheet**

Specification





# Variable speed drive, Altivar Machine ATV320, 15 kW, 380...500 V, 3 phases, compact

ATV320D15N4C

### Main

Range of product	Altivar Machine ATV320
product or component type	Variable speed drive
Product specific application	Complex machines
variant	Standard version
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	33.0 A
Motor power kW	15.0 kW for heavy duty
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

Jun 28, 2024 Life Is On Schneider

Analogue output type Software-configurable current AQ1: 020 mA impedance 800 Ohm, resolution 10 bits Software-configurable voltage AQ1: 010 V DC impedance 470 Ohm, resolution 10 bits Software-configurable relay logic R1A 1 ND electrical durability 100000 cycles Configurable relay logic R1A 1 ND electrical durability 100000 cycles Configurable relay logic R1A 1 ND electrical durability 100000 cycles Configurable relay logic R2C INC electrical durability 100000 cycles Configurable relay logic R2C INC electrical durability 100000 cycles Configurable relay logic R2C INC electrical durability 100000 cycles Configurable relay logic R2C INC electrical durability 100000 cycles Configurable relay logic R2C INC electrical durability 100000 cycles Configurable relay logic R2C INC electrical durability 100000 cycles Configurable relay logic R2C INC electrical durability 100000 cycles Configurable relay logic R2C INC electrical durability 100000 cycles Configurable relay logic R2C INC electrical durability 100000 cycles Configurable relay logic R2C INC electrical durability 100000 cycles Configurable relay logic R2C INC electrical durability 100000 cycles Configurable relay logic R2C INC electrical durability 100000 cycles Configurable relay logic R2C INC electrical durability 100000 cycles Configurable relay logic R2C INC electrical durability 100000 cycles Configurable relay logic R2C INC electrical control code logic R2C INC electrical logic R2C INC electrical logic R2C INC electrical logic R2C electrical R2C electrical logic R2C electrical logic R2C electrical R2C electrical R2C electrical logic R2C electrical R2C electric		
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 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 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 1 NO Configurable R2A 1 NO electrical relationship 1 1 S A at 250 V AC Relay output R2A, R2C or resistive load, cos pin = 1: 3 A at 250 V AC Relay output R2A, R2C or resistive load, cos pin = 1: 5 A at 20 V DC Relay output R2A, R2C or resistive load, cos pin = 1: 5 A at 24 V DC  Method of access Slave CANopen  True  Voltage/frequency ratio, 5 points  Figure R2A, R2C or resistive load, cos pin = 1: 5 A at 24 V DC  R2A 2 Page R2A 1 NO Page R2A	Analogue output type	bits Software-configurable voltage AQ1: 010 V DC impedance 470 Ohm, resolution 10
Configurable relay logic R18 I NC electrical durability 100000 cycles Configurable relay logic R10 Configurable relay logic R20 Configurable relay control R20 Configurable relation R20 Co		DIES
Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A Configurable relay logic R2A 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 = 0.4 and L/R = 7 ms; 2 A at 250 V AC Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 and L/R = 7 ms; 2 A at 250 V AC Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 and L/R = 7 ms; 2 A at 250 V AC Relay output R1A, R1B, R1C, R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC 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 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 Voltagefrequency ratio. 5 points Flux vector control without sensor; - Fenery Saving, quadrate U/f Flux vector control without sensor; - Fenery Saving Voltagefrequency ratio. 5 points  Synchronous motor control profile Vector control without sensor; - Fenery Saving Voltagefrequency ratio. 5 points  Vector control without sensor; - Fenery Saving Voltagefrequency ratio. 5 points  Vector control without sensor  Transient overtorque  Maximum output frequency  Linear U S CUS Ramp switching Acceleration/deceleration ration automatic stop with DC injection  Motor silp compensation  Automatic whatever the load Adjustable 4.16 kHz with derating factor  Nominal switching frequency  4.18 kHz with derating factor  Nominal switching frequency  4.18 kHz with derating factor  Nominal switching frequency  4.18 kHz  Braking to standstill  By DC injection  Brake chopper integrated  True  Linear  47.3 A at 380 V (heavy duly)  3.3 A at 500 V (heavy duly)  Nowerload  Saving frequency  5.4 Frequency  5.4 Frequency  6.5 Frequency  8.8 KVA at 500 V (heavy duly)  Frence Associ	Relay output type	
Configurable relay logic RZC  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 350 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 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 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, R2C on resistive load, cost phi = 1.5 A at 250 V AC R2A, R2C on resistive load, cost phi = 1.5 A at 250 V AC R2A, R2C on resistive load, cost phi = 1.5 A at 250 V AC R2A, R2C on resistive load, cost phi = 1.5 A at 250 V AC R2A, R2C on resistive load, cost phi = 1.5 A at 250 V AC R2A, R2C on resistive load, cost phi = 1.5 A at 250 V AC R2A, R2C on R2A, R2C on resistive load, cost phi = 1.5 A at 250 V AC R2A, R2C on resistive load, cost phi = 1.5 A at 250 V AC R2A, R2C on R2		
Relay output R1A, R1B, R1C, an esistive 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 350 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 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. 2 points Plux vector control without sensor - Energy Saving, Quadratic Ulf 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 ocntrol 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 Acceleration automatic stop with DC injection  Motor slip compensation Acceleration deceleration automatic stop with DC injection  Motor slip compensation  Automatic wathever the load Aujustable in voltage/frequency ratio (2 or 5 points)  Switching frequency 4 kHz  Braking to standstill By DC injection  Brake chopper integrated True  170200 What is a sol V (heavy duty)  Maximum output voltage 500 V  Apparent power 28.8 kVA at 500 V (heavy duty)  Maximum output voltage 500 V  Apparent power 28.8 kVA at 500 V (heavy duty)  Notwork frequency 5060 Hz  Relative symmetric network frequency lolerance Prospective line los 22 kA  Base load current at high overload		
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 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 Method of access Slave CANopen True  Asynchronous motor control Profile Profile Profile Asynchronous asynchronous asynchronous asynchronous asynchronous asynchrono	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 ms; 2 A al 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  Method of access Slave CANopen 4 quadrant operation possible True  Asynchronous motor control profile Voltageffrequency ratio. 5 points Flux vector control without sensor, standard voltageffrequency ratio. 5 points Flux vector control without sensor - Energy Saving voltageffrequency 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 Tamps  Linear U S S CUS Ramp switching Acceleration ramp adaptation Acceleration Acceleration ramp adaptation Acceleration Acceleration automatic stop with DC injection  Motor silp 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 47.3 A at 380 V (heavy duty)  Maximum input current 47.3 A  Maximum output voltage 500 V  Apparent power 28.8 kVA at 500 V (heavy duty)  Network frequency 5060 Hz  Relative symmetric network frequency tolerance Frospective line lisc 22 kA  Base load current at high overload  With safety function Safety True  With safety function Safety		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 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 4 quadrant operation possible True Asynchronous motor control profile Voltagefrequency ratio, 5 points Flux vector control without sensor, standard Voltagefrequency ratio, 2 points Synchronous motor control profile Vector control without sensor - Energy Saving Voltagefrequency ratio, 2 points Synchronous motor control profile Transient overtorque 170200 % of nominal motor torque Maximum output frequency 0.599 kHz Acceleration and deceleration ramps  Linear U S CUS Ramp switching Acceleration ramp adaptation Acceleration/deceleration automatic stop with DC injection  Motor silp compensation Automatic whatever the load Adjustable of SHz with derating factor  Nominal 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  47.3 A at 380 V (heavy duty) 33.3 A at 500 V (heavy duty)  Maximum input current 47.3 A  Maximum output voltage 5060 Hz  Relative symmetric network frequency Prospective line isc 22 kA  Base load current at high overload 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
Method of access  Slave CANopen  True  Asynchronous motor control  Profile  Asynchronous motor control  Profile  Asynchronous motor control  Flux vector control without sensor, standard  Voltagelfrequency ratio, 5 points  Flux vector control without sensor, standard  Voltagelfrequency 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 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  47.3 A at 380 V (heavy duty) 33.3 A at 500 V (heavy duty)  Maximum input current  47.3 A  Maximum input current  47.3 A  Maximum input voltage  500 V  Apparent power  28.8 kVA at 500 V (heavy duty)  Network frequency  5060 Hz  Relative symmetric network frequency  Prospective line Isc  22 kA  Base load current at high overload  Power dissipation in W  Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safety  True		
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, 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 ramp adaptation Acceleration ramps  Linear  U S CUS Ramp switching Acceleration/deceleration ramp adaptation Acceleration/deceleration/deceleration ramp adaptation Acceleration/deceleration/deceleration ramp adaptation Acceleration/deceleration/deceleration/deceleration/deceleration/deceleration/deceleration/deceleration/deceleration/deceleration/deceleration/deceleration/deceleration/deceleration/deceleration/d	Minimum switching current	Relay output R1A, R1B, R1C, R2A, R2C: 5 mA at 24 V DC
Asynchronous motor control profile  Voltage/frequency ratio. 5 points 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 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  47.3 A at 380 V (heavy duty) 33.3 A at 500 V (heavy duty)  Maximum input current  47.3 A  Maximum output voltage 500 V  Apparent power  28.8 kVA at 500 V (heavy duty)  Network frequency 5060 Hz  Relative symmetric network frequency bolerance  Prospective line Isc 22 kA  Base load current at high overload  Power dissipation in W Fan: 452.0 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  Yector 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/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  47.3 A at 380 V (heavy duty) 33.3 A at 500 V (heavy duty)  Maximum input current  47.3 A  Maximum output voltage  500 V  Apparent power  28.8 kVA at 500 V (heavy duty)  Network frequency  5060 Hz  Relative symmetric network requency frequency tolerance  Prospective line Isc  22 kA  Base load current at high over 100 process of 1	4 quadrant operation possible	True
Voltagerfrequency ratio - Energy Saving, quadratic U/f Flux vector control without sensor - Energy Saving Voltagerfrequency 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 User School Control without sensor User School Control Vector control without sensor  Transient overtorque 170200 % of nominal motor torque  Maximum output frequency 1.599 kHz  Acceleration/deceleration ramp adaptation Acceleration/deceleration automatic stop with DC injection  Motor slip compensation Automatic whatever the load Adjustable 0300 % Not available in voltagerfrequency 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 47.3 A at 380 V (heavy duty) 33.3 A at 500 V (heavy duty)  Maximum input current 47.3 A  Maximum output voltage 500 V  Apparent power 28.8 kVA at 500 V (heavy duty)  Network frequency 5060 Hz  Relative symmetric network frequence 5 %  Relative symmetric network frequency 15060 Hz  Ralative symmetric network frequency 22 kA  Base load current at high overroad Power dissipation in W Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely True	•	
Fitx vector control without sensor - Energy Saving Voltage/frequency ratio, 2 points - Energy Saving Voltage/frequency ratio (2 points) - Energy Saving Voltage/frequency - Energy Saving Voltage - Energy Saving Voltag	protile	,
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 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  47.3 A at 380 V (heavy duty) 33.3 A at 500 V (heavy duty)  Maximum input current  47.3 A  Maximum output voltage  500 V  Apparent power  28.8 kVA at 500 V (heavy duty)  Network frequency  5060 Hz  Relative symmetric network frequency  5 %  Relative symmetric network frequency  5 %  Relative symmetric network frequency 10 clarance  22 kA  Base load current at high overload  Power dissipation in W  Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely  True		
Transient overtorque 170200 % of nominal motor torque  Maximum output frequency 0.599 kHz  Acceleration and deceleration ramps 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 47.3 A at 380 V (heavy duty) 33.3 A at 500 V (heavy duty)  Maximum input current 47.3 A  Maximum output voltage 500 V  Apparent power 28.8 kVA at 500 V (heavy duty)  Network frequency 5060 Hz  Relative symmetric network frequency 5060 Hz  Relative symmetric network frequency 15060 Hz  Relative symmetric network frequency 22 kA  Base load current at high overload  Power dissipation in W Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely True		Voltage/frequency ratio, 2 points
Maximum output frequency  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  47.3 A at 380 V (heavy duty) 33.3 A at 500 V (heavy duty) Maximum input current  47.3 A  Maximum output voltage  500 V  Apparent power  28.8 kVA at 500 V (heavy duty)  Network frequency  5060 Hz  Relative symmetric network frequency lolerance Prospective line Isc  22 kA  Base load current at high over/load processing the surface of the surface	Synchronous motor control profile	Vector control without sensor
Acceleration and deceleration Tamps  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  47.3 A at 380 V (heavy duty) 33.3 A at 500 V (heavy duty)  Maximum input current  47.3 A  Maximum output voltage  500 V  Apparent power  28.8 kVA at 500 V (heavy duty)  Network frequency  5060 Hz  Relative symmetric network frequency  5060 Hz  Relative symmetric network frequency  5 %  Relative symmetric network frequency  33.0 A  Power dissipation in W  Fan: 452.0 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 47.3 A at 380 V (heavy duty) 33.3 A at 500 V (heavy duty)  Maximum input current 47.3 A  Maximum output voltage 500 V  Apparent power 28.8 kVA at 500 V (heavy duty)  Network frequency 5060 Hz  Relative symmetric network frequency Frospective line Isc 22 kA  Base load current at high overload  Power dissipation in W Fan: 452.0 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 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 47.3 A at 380 V (heavy duty) 33.3 A at 500 V (heavy duty)  Maximum input current 47.3 A  Maximum output voltage 500 V  Apparent power 28.8 kVA at 500 V (heavy duty)  Network frequency 5060 Hz  Relative symmetric network frequency tolerance Prospective line Isc 22 kA  Base load current at high overload Power dissipation in W Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely True		
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  47.3 A at 380 V (heavy duty) 33.3 A at 500 V (heavy duty)  Maximum input current  47.3 A  Maximum output voltage  500 V  Apparent power  28.8 kVA at 500 V (heavy duty)  Network frequency  5060 Hz  Relative symmetric network frequency tolerance  Prospective line Isc  22 kA  Base load current at high overload  Power dissipation in W  Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely  True		S
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  47.3 A at 380 V (heavy duty) 33.3 A at 500 V (heavy duty)  Maximum input current  47.3 A  Maximum output voltage  500 V  Apparent power  28.8 kVA at 500 V (heavy duty)  Network frequency  5 %  Relative symmetric network frequency tolerance  Prospective line Isc  22 kA  Base load current at high overload  Power dissipation in W  Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely  True		
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  47.3 A at 380 V (heavy duty) 33.3 A at 500 V (heavy duty)  Maximum input current  47.3 A  Maximum output voltage  500 V  Apparent power  28.8 kVA at 500 V (heavy duty)  Network frequency 5060 Hz  Relative symmetric network frequency tolerance  Prospective line Isc  22 kA  Base load current at high overload  Power dissipation in W  Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely  True		Acceleration/deceleration ramp adaptation
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  47.3 A at 380 V (heavy duty) 33.3 A at 500 V (heavy duty)  Maximum input current  47.3 A  Maximum output voltage  500 V  Apparent power  28.8 kVA at 500 V (heavy duty)  Network frequency  5060 Hz  Relative symmetric network frequency tolerance  Prospective line Isc  22 kA  Base load current at high overload  Power dissipation in W  Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely  True		Acceleration/deceleration automatic stop with DC injection
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  47.3 A at 380 V (heavy duty) 33.3 A at 500 V (heavy duty)  Maximum input current  47.3 A  Maximum output voltage  500 V  Apparent power  28.8 kVA at 500 V (heavy duty)  Network frequency  5060 Hz  Relative symmetric network frequency tolerance  Prospective line Isc  22 kA  Base load current at high overload  Power dissipation in W  Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely  True	Motor slip compensation	
A16 kHz with derating factor  Nominal switching frequency 4 kHz  Braking to standstill By DC injection  Brake chopper integrated True  Line current 47.3 A at 380 V (heavy duty) 33.3 A at 500 V (heavy duty)  Maximum input current 47.3 A  Maximum output voltage 500 V  Apparent power 28.8 kVA at 500 V (heavy duty)  Network frequency 5060 Hz  Relative symmetric network frequency tolerance  Prospective line Isc 22 kA  Base load current at high overload  Power dissipation in W Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely True		
A16 kHz with derating factor  Nominal switching frequency 4 kHz  Braking to standstill By DC injection  Brake chopper integrated True  Line current 47.3 A at 380 V (heavy duty) 33.3 A at 500 V (heavy duty)  Maximum input current 47.3 A  Maximum output voltage 500 V  Apparent power 28.8 kVA at 500 V (heavy duty)  Network frequency 5060 Hz  Relative symmetric network frequency tolerance  Prospective line Isc 22 kA  Base load current at high overload  Power dissipation in W Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely True	Switching frequency	2 16 kHz adjustable
Braking to standstill  By DC injection  Brake chopper integrated  True  Line current  47.3 A at 380 V (heavy duty) 33.3 A at 500 V (heavy duty)  Maximum input current  47.3 A  Maximum output voltage  500 V  Apparent power  28.8 kVA at 500 V (heavy duty)  Network frequency  5060 Hz  Relative symmetric network frequency tolerance  Prospective line lsc  22 kA  Base load current at high overload  Power dissipation in W  Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely  True		·
Brake chopper integrated  Line current  47.3 A at 380 V (heavy duty) 33.3 A at 500 V (heavy duty)  Maximum input current  47.3 A  Maximum output voltage  500 V  Apparent power  28.8 kVA at 500 V (heavy duty)  Network frequency  5060 Hz  Relative symmetric network frequency tolerance  Prospective line Isc  22 kA  Base load current at high overload  Power dissipation in W  Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely  True	Nominal switching frequency	4 kHz
Line current  47.3 A at 380 V (heavy duty)  33.3 A at 500 V (heavy duty)  Maximum input current  47.3 A  Maximum output voltage  500 V  Apparent power  28.8 kVA at 500 V (heavy duty)  Network frequency  5060 Hz  Relative symmetric network frequency tolerance  Prospective line lsc  22 kA  Base load current at high overload  Power dissipation in W  Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely  True	Braking to standstill	By DC injection
Maximum input current 47.3 A  Maximum output voltage 500 V  Apparent power 28.8 kVA at 500 V (heavy duty)  Network frequency 5060 Hz  Relative symmetric network frequency tolerance  Prospective line lsc 22 kA  Base load current at high overload  Power dissipation in W Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely True	Brake chopper integrated	True
Maximum output voltage 500 V  Apparent power 28.8 kVA at 500 V (heavy duty)  Network frequency 5060 Hz  Relative symmetric network frequency tolerance  Prospective line Isc 22 kA  Base load current at high overload  Power dissipation in W Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely True	Line current	i i i i i i i i i i i i i i i i i i i
Apparent power 28.8 kVA at 500 V (heavy duty)  Network frequency 5060 Hz  Relative symmetric network frequency tolerance  Prospective line Isc 22 kA  Base load current at high overload  Power dissipation in W Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely True	Maximum input current	47.3 A
Network frequency 5060 Hz  Relative symmetric network frequency tolerance 5 %  Prospective line Isc 22 kA  Base load current at high overload 33.0 A  Power dissipation in W Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely True	Maximum output voltage	500 V
Relative symmetric network frequency tolerance  Prospective line Isc  22 kA  Base load current at high overload  Power dissipation in W  Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely  True	Apparent power	28.8 kVA at 500 V (heavy duty)
frequency tolerance  Prospective line Isc 22 kA  Base load current at high overload 33.0 A  Power dissipation in W Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely True	Network frequency	5060 Hz
Base load current at high overload  Power dissipation in W Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely True		5 %
overload  Power dissipation in W Fan: 452.0 W at 380 V, switching frequency 4 kHz  With safety function Safely True	Prospective line Isc	22 kA
With safety function Safely True		33.0 A
	Power dissipation in W	Fan: 452.0 W at 380 V, switching frequency 4 kHz
		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 off (STO)	True
With safety function Safely Limited Position (SLP)	False
With safety function Safe Direction (SDI)	False
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
Width	180 mm
Height	330 mm
Depth	198.0 mm

## **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	156.0 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	22.500 cm
Package 1 Width	25.000 cm
Package 1 Length	42.000 cm
Package 1 Weight	7.785 kg
Unit Type of Package 2	P06
Number of Units in Package 2	6
Package 2 Height	75.000 cm
Package 2 Width	60.000 cm
Package 2 Length	80.000 cm
Package 2 Weight	57.500 kg



**Green Premium**<sup>TM</sup> **label** is Schneider Electric's commitment to delivering products with best-inclass environmental performance. Green Premium promises compliance with the latest regulations, transparency on environmental impacts, as well as circular and low-CO<sub>2</sub> products.

**Guide to assessing product sustainability** is a white paper that clarifies global eco-label standards and how to interpret environmental declarations.

Learn more about Green Premium >

Guide to assess a product's sustainability >





Transparency RoHS/REACh

#### Resource performance



Upgraded Components Available

## Well-being performance



Mercury Free



Rohs Exemption Information

Yes

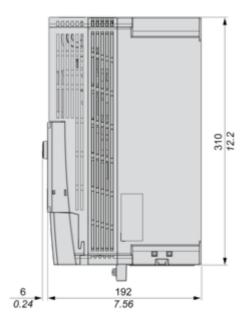
#### **Certifications & Standards**

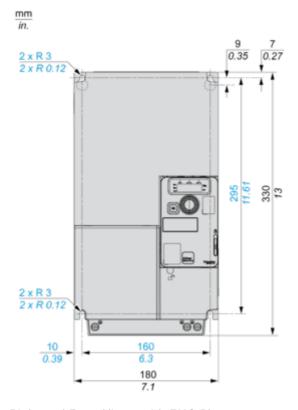
Reach Regulation	REACh Declaration
Eu Rohs Directive	Pro-active compliance (Product out of EU RoHS legal scope)
China Rohs Regulation	China RoHS declaration
Environmental Disclosure	Product Environmental Profile
Weee	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins
Circularity Profile	End of Life Information

#### **Dimensions Drawings**

#### Right and Front Views without EMC Plate

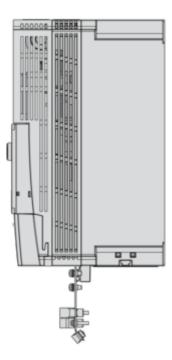
mm in.



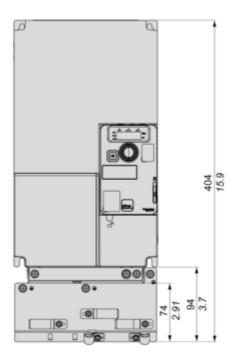


Right and Front Views with EMC Plate

mm in.



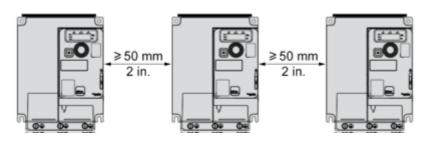
mm in.



Mounting and Clearance

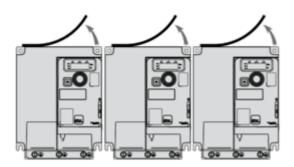
#### **Mounting Types**

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

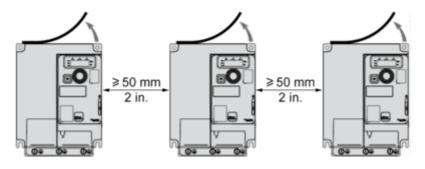


Only Possible at Ambient Temperature Less or Equal to 50 °C (122 °F)

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



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



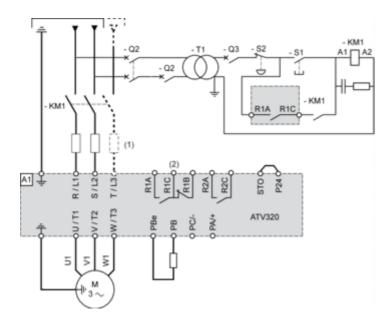
For Operation at Ambient Temperature Above 50 °C (122 °F)

#### Connections and Schema

#### **Connection Diagrams**

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

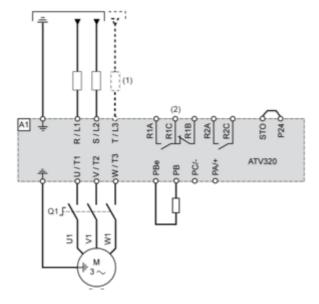
Connection diagrams conforming to standards ISO13849 category 1 and IEC/EN 61508 capacity SIL1, stopping category 0 in accordance with standard IEC/EN 60204-1.



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

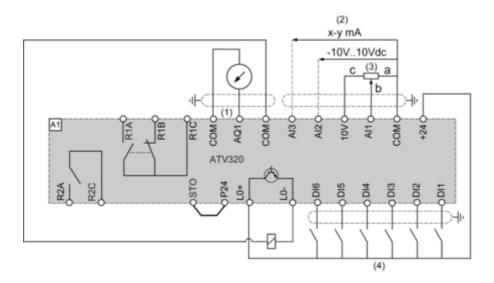
#### **Diagram with Switch Disconnect**

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.



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

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

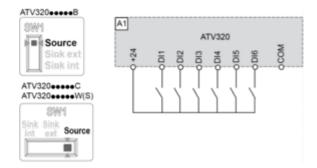


- (1) Analog output
- (2) Analog inputs
- (3) Reference potentiometer (10 kOhm maxi)
- (4) Digital inputs

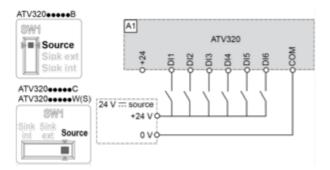
#### **Digital Inputs Wiring**

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

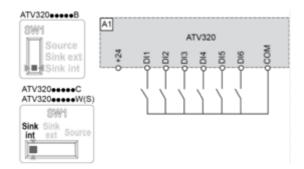
Switch SW1 set to "Source" position and use of the output power supply for the DIs.



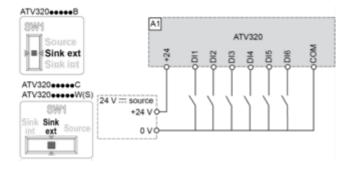
Switch SW1 set to "Source" position and use of an external power supply for the Dls.



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

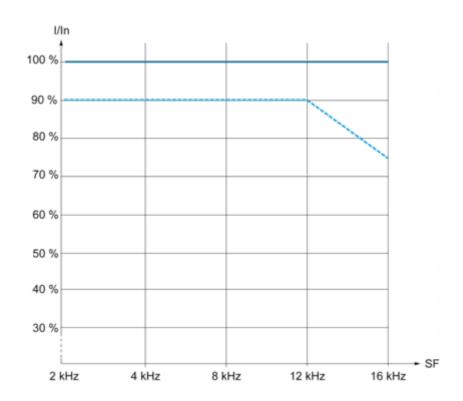


Switch SW1 set to "Sink Ext" position and use of an external power supply for the Dls.



#### Performance Curves

### **Derating Curves**



40 °C (104 °F) - Mounting type A and B 50 °C (122 °F) - Mounting type A and B

In: Nominal Drive Current SF: Switching Frequency