

## variable speed drive, Altivar Machine ATV320, 22kW, 400V, 3 phases, compact

ATV320D22N4C

Product availability: Stock - Normally stocked in distribution facility

### 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 %	
Motor power kW	22 kW heavy duty	
IP degree of protection	IP20	

## Complementary

Discrete input number	7	
Discrete input type	STO safe torque off, 24 V DC1.5 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 30 kOhm 10 bits	
	Al2 bipolar differential voltage +/- 10 V DC 30 kOhm 10 bits	
	Al3 current 020 mA (or 4-20 mA, x-20 mA, 20-x mA or other patterns by	
	configuration) 250 Ohm 10 bits	
Analogue output number	1	
Analogue output type	Software-configurable current AQ1 020 mA 800 Ohm 10 bits	
	Software-configurable voltage AQ1 010 V DC 470 Ohm 10 bits	

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

Relay output type	Configurable relay logic R1A 1 NO 100000 cycles Configurable relay logic R1B 1 NC 100000 cycles Configurable relay logic R1C Configurable relay logic R2A 1 NO 100000 cycles Configurable relay logic R2C	
Maximum switching current	Relay output R1A, R1B, R1C resistive, cos phi = 1 3 A 250 V AC Relay output R1A, R1B, R1C resistive, cos phi = 1 3 A 30 V DC Relay output R1A, R1B, R1C, R2A, R2C inductive, cos phi = 0.4 7 ms 2 A 250 V AC Relay output R1A, R1B, R1C, R2A, R2C inductive, cos phi = 0.4 7 ms 2 A 30 V DC Relay output R2A, R2C resistive, cos phi = 1 5 A 250 V AC Relay output R2A, R2C resistive, cos phi = 1 5 A 30 V DC	
Minimum switching current	Relay output R1A, R1B, R1C, R2A, R2C 5 mA 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 - 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	
Maximum output frequency	0.599 kHz	
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	64.6 A 380 V heavy duty) 49.4 A 500 V heavy duty)	
Maximum Input Current per Phase	64.6 A	
Maximum output voltage	500 V	
Apparent power	42.8 kVA 500 V heavy duty)	
Network Frequency	50-60 Hz	
Relative symmetric network frequency tolerance	5 %	
Prospective line Isc	22 kA	
Base load current at high overload	46.0 A	
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 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	7.09 in (180 mm)	
Height	15.4 in (390 mm)	
Depth	9.02 in (229 mm)	
Net Weight	20.9 lb(US) (9.5 kg)	
Transient overtorque	170200 % of nominal motor torque	

## **Environment**

Operating position	Vertical +/- 10 degree	
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	41211.6 Gal/hr(US) (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	-13158 °F (-2570 °C)	
Ambient air temperature for operation	14122 °F (-1050 °C) without derating 122140 °F (5060 °C) with derating factor	
Ambient Air Temperature for Storage	-13158 °F (-2570 °C)	

# Ordering and shipping details

Category	US1CP4B22148
Discount Schedule	CP4B
GTIN	3606486358078

Returnability	Yes	
Country of origin	ID	

# **Packing Units**

Unit Type of Package 1	PCE	
Nbr. of units in pkg.	1	
Package 1 Height	12.205 in (31.000 cm)	
Package 1 Width	8.661 in (22.000 cm)	
Package 1 Length	19.685 in (50.000 cm)	
Package weight(Lbs)	26.010 lb(US) (11.798 kg)	
Unit Type of Package 2	S06	
Number of Units in Package 2	3	
Package 2 Height	29.528 in (75.000 cm)	
Package 2 Width	23.622 in (60.000 cm)	
Package 2 Length	31.496 in (80.000 cm)	
Package 2 Weight	99.863 lb(US) (45.297 kg)	

## **Contractual warranty**

Warranty (in months)



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 >

<b>⊘</b> Environmental footprint		
Carbon footprint (kg CO2 eq, Total Life cycle)	11215	

#### Use Better

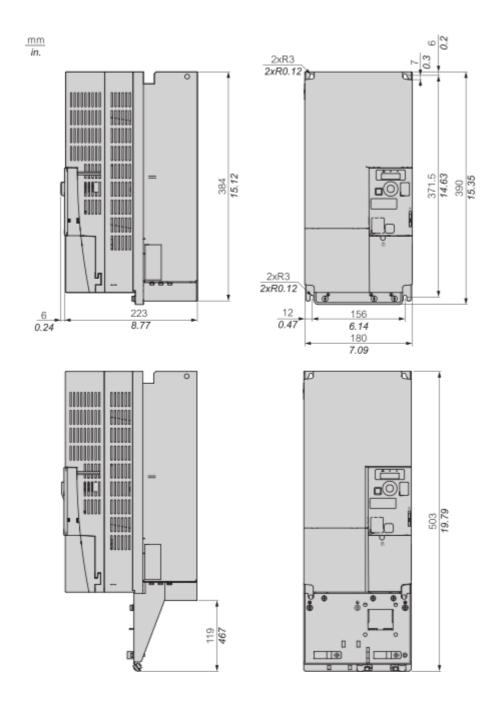
Packaging made with recycled cardboard	Yes
Packaging without single use plastic	No
EU RoHS Directive	Pro-active compliance (Product out of EU RoHS legal scope)
SCIP Number	E8d89f07-2d52-49cc-bf7a-d5f71e3d15c3
REACh Regulation	REACh Declaration
California proposition 65	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

#### **Use Again**

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

### **Dimensions Drawings**

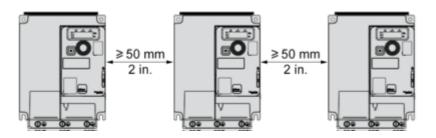
#### **Dimensions**



Mounting and Clearance

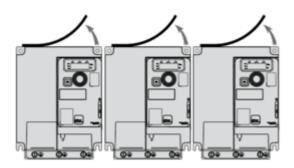
### **Mounting Types**

### Mounting Type A: Individual with Ventilation Cover

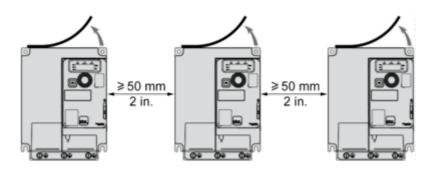


Only Possible at Ambient Temperature Less or Equal to 50 °C (122 °F)

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



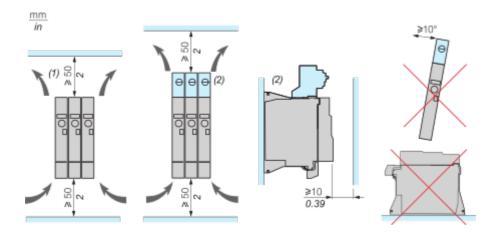
#### Mounting Type C: Individual, Ventilation Cover Removed



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

## ATV320D22N4C

## **Mounting and Clearance**



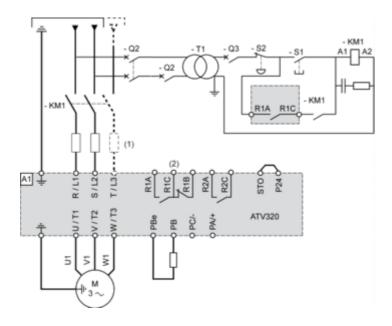
- (1) Minimum value corresponding to thermal constraints.
- (2) Optional GV2 circuit-breaker

### ATV320D22N4C

Connections and Schema

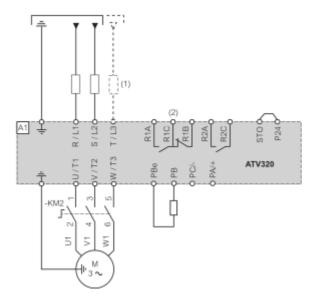
#### **Connection Diagrams**

#### Single or Three-phase Power Supply - Diagram With Line Contactor



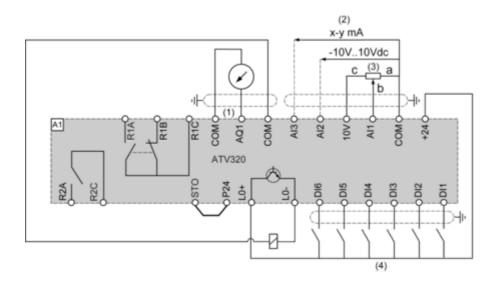
- (1) Line choke (if used)
- (2) Use relay output R1 set to operating state Fault to switch Off the product once an error is detected.

### Single or Three-phase Power Supply - Diagram With Downstream Contactor



- (1) Line choke (if used)
- (2) Use relay output R1 set to operating state Fault to switch Off the product once an error is detected.

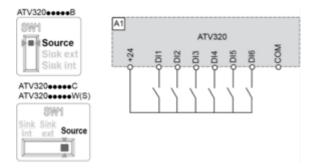
### **Control Block Wiring Diagram**



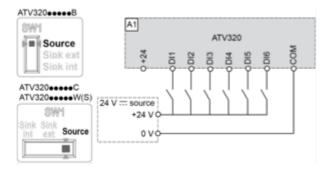
- (1) Analog output
- (2) Analog inputs
- (3) Potentiometer SZ1RV1202 (2.2 k $\Omega$ ) or similar (10 k $\Omega$  maximum)
- (4) Digital Inputs Shielding instructions are given in the Electromagnetic Compatibility section

#### **Digital Inputs Wiring**

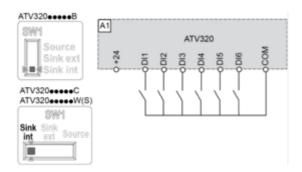
Switch Set to SRC (Source) Position Using the Output Power Supply for the Digital Inputs



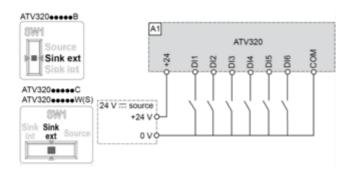
Switch Set to SRC (Source) Position and Use of an External Power Supply for the Digital Inputs



Switch Set to SK (Sink) Position Using the Output Power Supply for the Digital Inputs



Switch Set to EXT Position Using an External Power Supply for the Digital Inputs



#### NOTE:

- STO input is also connected by default on a 24 Vdc terminal. If the external power supply is switched off, the function STO will be triggered.
- To avoid triggering the STO function when switching-on the product, the external power supply must be previously switched on.

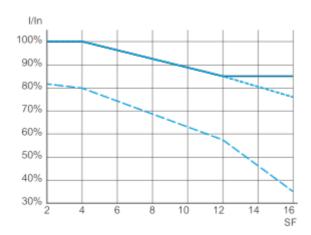
# Product data sheet ATV320D22N4C

## **Product data sheet**

## ATV320D22N4C

#### Performance Curves

#### **Derating Curves**



40 °C (104 °F) - Mounting type A, B and C 50 °C (122 °F) - Mounting type C 60 °C (140 °F) - Mounting type C

In : Nominal Drive Current
SF : Switching Frequency

### **Technical Illustration**

### **Dimensions**

