

## variable speed drive, Altivar Machine ATV320, 3kW, 200 to 240V, 3 phases, compact

ATV320U30M3C

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 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	200240 V - 1510 %	
nominal output current	13.7 A	
Motor power kW	3.0 kW heavy duty	
EMC filter	Without EMC filter	
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	

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	Software-configurable current AQ1 020 mA 800 Ohm 10 bits Software-configurable voltage AQ1 010 V DC 470 Ohm 10 bits
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	18.7 A 200 V heavy duty) 15.7 A 240 V heavy duty)
Maximum Input Current per Phase	18.7 A
Maximum output voltage	240 V
Apparent power	6.5 kVA 240 V heavy duty)
Network Frequency	50-60 Hz
Relative symmetric network frequency tolerance	5 %
Prospective line Isc	5 kA
Base load current at high overload	3.0 A
Power dissipation in W	Fan 105.0 W 200 V 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 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	5.5 in (140 mm)	
Height	7.2 in (184.0 mm)	
Depth	6.2 in (158.0 mm)	
Net Weight	4.9 lb(US) (2.2 kg)	
Transient overtorque	170200 % of nominal motor torque	

## **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/s <sup>2</sup> 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	4332.5 Gal/hr(US) (16.4 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	US1CP4B22152
Discount Schedule	CP4B
GTIN	3606480966651
Returnability	Yes
Country of origin	ID

# **Packing Units**

Unit Type of Package 1	PCE
Number of Units in Package 1	1
Package 1 Height	9.65 in (24.500 cm)
Package 1 Width	7.52 in (19.100 cm)
Package 1 Length	10.55 in (26.800 cm)
Package 1 Weight	5.719 lb(US) (2.594 kg)
Unit Type of Package 2	P06
Number of Units in Package 2	12
Package 2 Height	29.53 in (75.000 cm)
Package 2 Width	23.62 in (60.000 cm)
Package 2 Length	31.50 in (80.000 cm)
Package 2 Weight	98.899 lb(US) (44.860 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 CO2 eq, Total Life cycle)	2282
Environmental Disclosure	Product Environmental Profile

#### **Use Better**

Packaging made with recycled cardboard	Yes
Packaging without single use plastic	Yes
EU RoHS Directive	Pro-active compliance (Product out of EU RoHS legal scope)
SCIP Number	6bbbffbe-8a69-47e2-9c29-bc773d0b789b
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
Product contributes to saved and avoided emissions	Yes

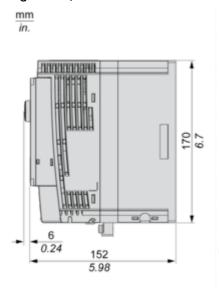
### **Use Again**

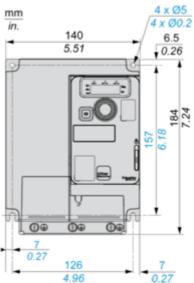
○ Repack and remanufacture	
Circularity Profile	End of Life Information
Take-back	No
WEEE	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.

### **Dimensions Drawings**

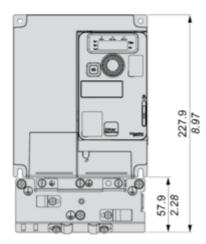
#### **Dimensions**

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





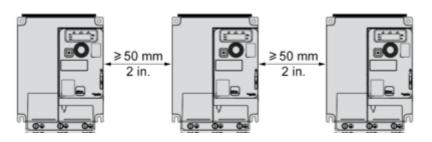
mm in.



Mounting and Clearance

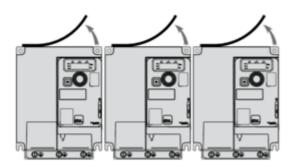
### **Mounting Types**

### Mounting Type A: Individual with Ventilation Cover

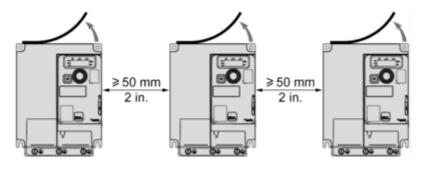


Only Possible at Ambient Temperature Less or Equal to 50 °C (122 °F)

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



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

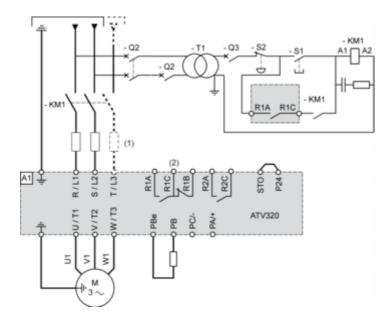


For Operation at Ambient Temperature Above 50 °C (122 °F)

Connections and Schema

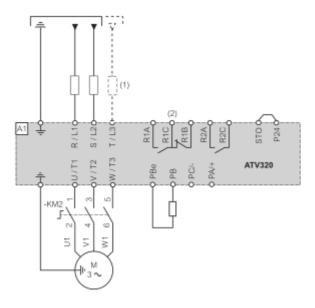
#### **Connection Diagrams**

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



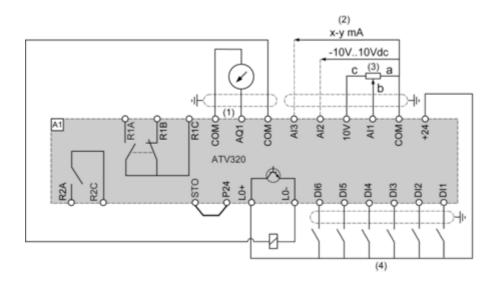
- (1) Line choke (if used)
- (2) Use relay output R1 set to operating state Fault to switch Off the product once an error is detected.

### 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.

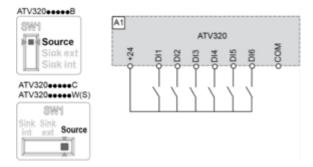
### **Control Block Wiring Diagram**



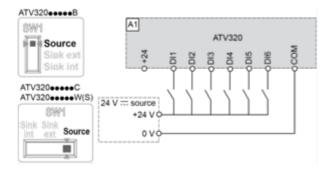
- (1) Analog output
- (2) Analog inputs
- (3) Potentiometer SZ1RV1202 (2.2 k $\Omega$ ) or similar (10 k $\Omega$  maximum)
- (4) Digital Inputs Shielding instructions are given in the Electromagnetic Compatibility section

#### **Digital Inputs Wiring**

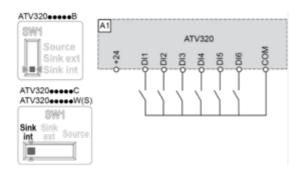
Switch Set to SRC (Source) Position Using the Output Power Supply for the Digital Inputs



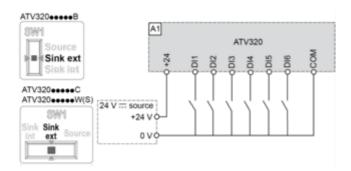
Switch Set to SRC (Source) Position and Use of an External Power Supply for the Digital Inputs



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



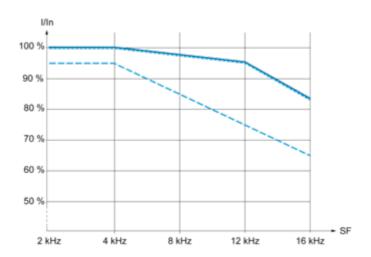
#### NOTE:

- 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 ATV320U30M3C

#### Performance Curves

#### **Derating Curves**



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

60 °C (140 °F) - Mounting type C

In: Nominal Drive Current SF: Switching Frequency

Image of product / Alternate images

### **Alternative**













