Specifications



## Variable speed drive, Altivar Machine ATV320, 5.5 kW, 200...240 V, 3 phases, compact

ATV320U55M3C

## Main

Altivar Machine ATV320	
Variable speed drive	
Complex machines	
Standard version	
Compact	
Wall mount	
Modbus serial CANopen	
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	
200240 V - 1510 %	
27.5 A	
5.5 kW for heavy duty	
Without EMC filter	
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	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	
Relay output type	Configurable relay logic R1A 1 NO electrical durability 100000 cycles Configurable relay logic R1B 1 NC electrical durability 100000 cycles Configurable relay logic R1C Configurable relay logic R2A 1 NO electrical durability 100000 cycles	
	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, 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 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 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	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 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	35.4 A at 200 V (heavy duty) 29.8 A at 240 V (heavy duty)	
Maximum input current	35.4 A	
Maximum output voltage	240 V	
Apparent power	12.4 kVA at 240 V (heavy duty)	
Network frequency	5060 Hz	
Relative symmetric network frequency tolerance	5 %	
Prospective line Isc	22 kA	
Base load current at high overload	27.5 A	
Power dissipation in W	Fan: 242.0 W at 200 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 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	150 mm
Height	232.0 mm
Depth	178.0 mm
Product weight	3.5 kg

## 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	60 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	19.500 cm
Package 1 Width	22.000 cm
Package 1 Length	33.000 cm
Package 1 Weight	4.185 kg
Unit Type of Package 2	P06
Number of Units in Package 2	10
Package 2 Height	75.000 cm
Package 2 Width	60.000 cm
Package 2 Length	80.000 cm
Package 2 Weight	55.260 kg

## 🜔 Environmental Data

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 >

# Image: Carbon footprint (kg.eq.CO2 per CR, Total Life cycle) 4969 Image: Environmental Disclosure Product Environmental Profile

#### **Use Better**

Packaging made with recycled cardboard	Yes
Packaging without single use plastic	Yes
SCIP Number	14d809d0-5292-4a40-b69a-c03476cca11b
China RoHS Regulation	China RoHS declaration
ℰ Energy efficiency	
Product contributes to saved and avoided emissions	Yes

#### Use Again

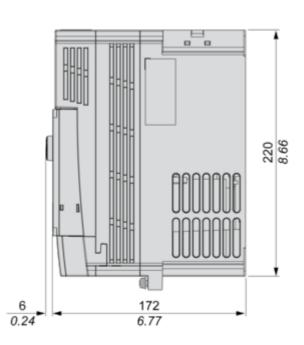
$\circlearrowright$ Repack and remanufacture	
Circularity Profile	End of Life Information
WEEE	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins
Take-back	No

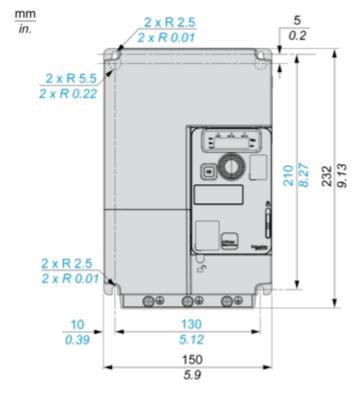
**Dimensions Drawings** 

## Dimensions

## **Right and Front View**

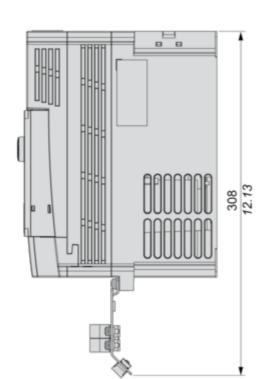




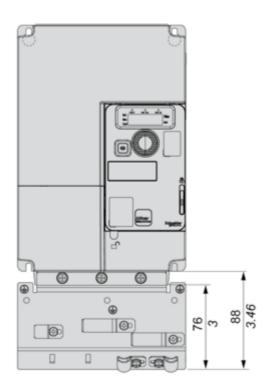


**Right and Front View with EMC Plate** 





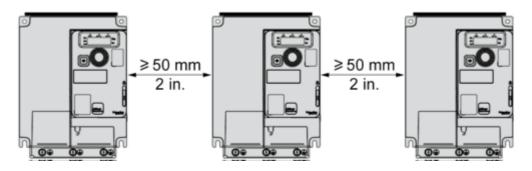
mm in.



Mounting and Clearance

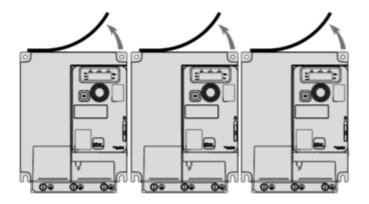
#### Mounting Types

Mounting Type A: Individual with Ventilation Cover

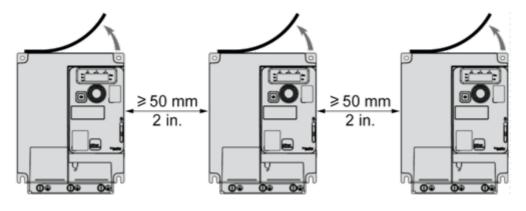


Only Possible at Ambient Temperature Less or Equal to 50 °C (122 °F)

#### 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)

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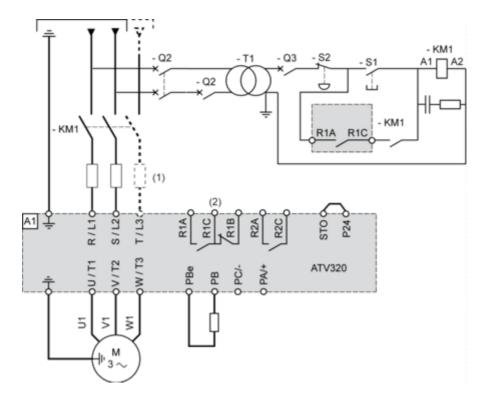
## ATV320U55M3C

#### 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.

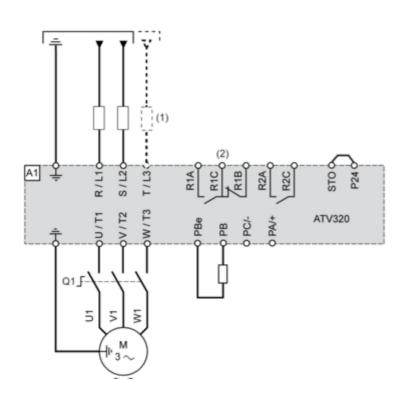


(1) Line choke (if used)

(2) Fault relay contacts, for remote signaling of drive status

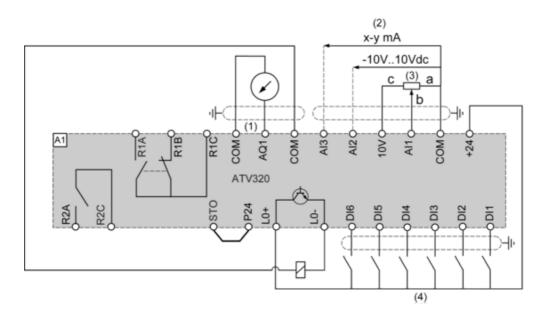
#### **Diagram with Switch Disconnect**

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

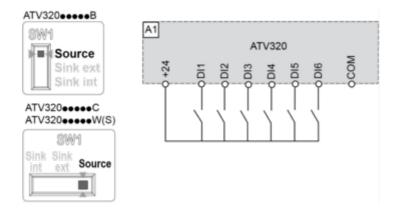
- (2) Analog inputs
- (3) Reference potentiometer (10 kOhm maxi)
- (4) Digital inputs

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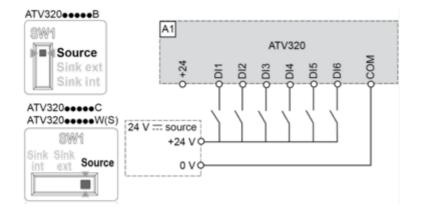
#### **Digital Inputs Wiring**

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

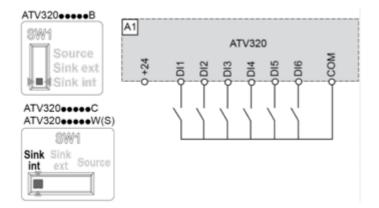
Switch SW1 set to "Source" position and use of the output power supply for the DIs.



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

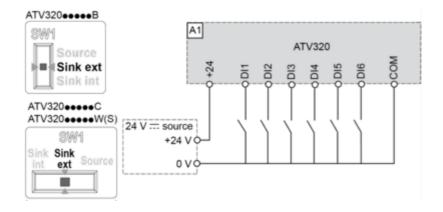


Switch SW1 set to "Sink Int" position and use of the output power supply for the DIs.



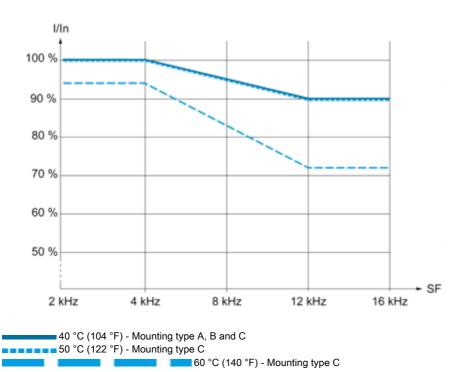
Switch SW1 set to "Sink Ext" position and use of an external power supply for the DIs.

## ATV320U55M3C



#### Performance Curves

#### **Derating Curves**



In : Nominal Drive Current

SF : Switching Frequency