

Schneider Series Service Manual

ATV320U55N4C

1. Description

Variable speed drive, Altivar

3. Product Information

Variable speed drive, Altivar

Machine ATV320, 5.5 kW, 380...500

V, 3 phases, compact

Local distributor code:

408899800 ATV320U55N4C

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 380...500 V - 15...10 %

Nominal output current 14.3 A

Motor power kW 5.5 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

DI1...DI6 logic inputs, 24 V DC (30 V)

DI5 programmable as pulse input: 0...30 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+ 0...1 kHz 30 V DC 100 mA

Open collector DQ- 0...1 kHz 30 V DC 100 mA

Analogue input number 3

Analogue input type AI1 voltage: 0...10 V DC, impedance: 30 kOhm, resolution 10 bits

AI2 bipolar differential voltage: +/- 10 V DC, impedance: 30 kOhm, resolution 10 bits

AI3 current: 0...20 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

Analogue output type Software-configurable current AQ1: 0...20 mA impedance 800 Ohm, resolution 10 bits

Software-configurable voltage AQ1: 0...10 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 170...200 % 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 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 20.7 A at 380 V (heavy duty)

14.5 A at 500 V (heavy duty)

Maximum input current 20.7 A

Maximum output voltage 500 V

Apparent power 12.6 kVA at 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

14.3 A

Power dissipation in W Fan: 195.0 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
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
Net 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 μ s - 8/20 μ s 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 13...200 Hz

Maximum deflection under
vibratory load (during operation)
1.5 mm at 2...13 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
-25...70 °C
Ambient air temperature for
operation
-10...50 °C without derating
50...60 °C with derating factor
Ambient air temperature for
storage
-25...70 °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 22.500 cm
Package 1 Length 33.000 cm
Package 1 Weight 4.696 kg