Specifications



# Variable speed drive, Altivar Machine ATV340, 0.75 kW Heavy Duty, 400 V, 3 phases

ATV340U07N4

#### Main

wain			
Range of product	Altivar Machine ATV340		
Product or component type	Variable speed drive		
Product specific application	Machine		
Variant	Standard version		
Mounting mode	Cabinet mount		
Communication port protocol	Modbus serial		
Option card	Communication module, Profibus DP V1 Communication module, PROFINET Communication module, DeviceNet Communication module, CANopen Communication module, EtherCAT		
Network number of phases	3 phases		
Supply frequency	5060 Hz +/- 5 %		
[Us] rated supply voltage	380480 V - 1510 %		
Nominal output current	2.2 A		
Motor power kW	1.1 kW for normal duty 0.75 kW for heavy duty		
Motor power hp	1.5 hp for normal duty 1 hp for heavy duty		
EMC filter	Class C3 EMC filter integrated		
IP degree of protection	IP20		
Complementary			
Discrete input number	5		
Discrete input type	PTI programmable as pulse input: 0…30 kHz, 24 V DC (30 V) DI1DI5 safe torque off, 24 V DC (30 V), impedance: 3.5 kOhm programmable		
Number of preset speeds	16 preset speeds		
Discrete output number	2.0		
Discrete output type	Programmable output DQ1, DQ2 30 V DC 100 mA		
Analogue input number	2		
Analogue input type	Al1 software-configurable current: 020 mA, impedance: 250 Ohm, resolution 12 bits Al1 software-configurable temperature probe or water level sensor Al1 software-configurable voltage: 010 V DC, impedance: 31.5 kOhm, resolution 12 bits		

Al2 software-configurable voltage: - 10...10 V DC, impedance: 31.5 kOhm, resolution 12 bits



2         Software-configurable voltage AQ1: 010 V DC impedance 470 Ohm, resolution 10 bits         Software-configurable current AQ1: 020 mA impedance 500 Ohm, resolution 10 bits         2         <= power supply voltage         Relay outputs R1A         Relay outputs R1A (align outputs R1C) electrical durability 100000 cycles         Relay outputs R2A         Relay outputs R2C electrical durability 100000 cycles         Relay output R1C on resistive load, cos phi = 1: 3 A at 250 V AC         Relay output R1C on resistive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 250 V AC         Relay output R1C on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 250 V AC         Relay output R2C on resistive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 250 V AC         Relay output R2C on resistive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 250 V AC         Relay output R2C on resistive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 250 V AC         Relay output R2C on resistive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 30 V DC         Relay output R2C on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 30 V DC         Relay output R1B: 5 mA at 24 V DC         Relay output R1B: 5 mA at 24 V DC         Slave Modbus RTU         4.8 kbit/S         9.6 kbit/S         9.2 kbit/S         9.2 kbit/S         9.2 kbit/S         9.2 kbit/S	
Software-configurable current AQ1: 020 mA impedance 500 Ohm, resolution 10 bits 2	
<= power supply voltage          Relay outputs R1A         Relay outputs R1C electrical durability 100000 cycles         Relay outputs R2A         Relay outputs R2C electrical durability 100000 cycles         Relay outputs R2C electrical durability 100000 cycles         Relay output R1C on resistive load, cos phi = 1: 3 A at 250 V AC         Relay output R1C on resistive load, cos phi = 1: 3 A at 30 V DC         Relay output R1C on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 250 V AC         Relay output R2C on resistive load, cos phi = 1: 5 A at 250 V AC         Relay output R2C on resistive load, cos phi = 1: 5 A at 30 V DC         Relay output R2C on resistive load, cos phi = 1: 5 A at 30 V DC         Relay output R2C on resistive load, cos phi = 1: 5 A at 30 V DC         Relay output R2C on inductive load, cos phi = 1: 5 A at 30 V DC         Relay output R2C on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 250 V AC         Relay output R2C in inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 30 V DC         Relay output R2C is mA at 24 V DC         Relay output R2C: 5 mA at 24 V DC         Relay output R2C: 5 mA at 24 V DC         Slave Modbus RTU         4.8 kbit/s         9.6 kbit/s         19.2 kbit/s         8.4 kbit/s	
Relay outputs R1A         Relay outputs R1C electrical durability 100000 cycles         Relay outputs R2A         Relay outputs R2C electrical durability 100000 cycles         Relay output R1C on resistive load, cos phi = 1: 3 A at 250 V AC         Relay output R1C on resistive load, cos phi = 1: 3 A at 30 V DC         Relay output R1C on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 250 V AC         Relay output R2C on resistive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 30 V DC         Relay output R2C on resistive load, cos phi = 1: 5 A at 250 V AC         Relay output R2C on resistive load, cos phi = 1: 5 A at 30 V DC         Relay output R2C on resistive load, cos phi = 1: 5 A at 250 V AC         Relay output R2C on resistive load, cos phi = 1: 5 A at 30 V DC         Relay output R2C on resistive load, cos phi = 1: 5 A at 30 V DC         Relay output R2C on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 250 V AC         Relay output R2C on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 30 V DC         Relay output R2C is mA at 24 V DC         Relay output R2C: 5 mA at 24 V DC         2-wire RS 485         1 RJ45         Slave Modbus RTU         4.8 kbit/s         9.6 kbit/s         19.2 kbit/s         38.4 kbit/s	
Relay outputs R1C electrical durability 100000 cycles         Relay outputs R2A         Relay outputs R2C electrical durability 100000 cycles         Relay output R1C on resistive load, cos phi = 1: 3 A at 250 V AC         Relay output R1C on resistive load, cos phi = 1: 3 A at 30 V DC         Relay output R1C on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 250 V AC         Relay output R1C on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 30 V DC         Relay output R2C on resistive load, cos phi = 1: 5 A at 250 V AC         Relay output R2C on resistive load, cos phi = 1: 5 A at 250 V AC         Relay output R2C on resistive load, cos phi = 1: 5 A at 250 V AC         Relay output R2C on inductive load, cos phi = 1: 5 A at 30 V DC         Relay output R2C on inductive load, cos phi = 1: 5 A at 250 V AC         Relay output R2C on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 250 V AC         Relay output R1B: 5 mA at 24 V DC         Relay output R2C: 5 mA at 24 V DC         Relay output R2C: 5 mA at 24 V DC         2-wire RS 485         1 RJ45         Slave Modbus RTU         4.8 kbit/s         9.6 kbit/s         9.2 kbit/s         38.4 kbit/s	
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1 RJ45 Slave Modbus RTU 4.8 kbit/s 9.6 kbit/s 19.2 kbit/s 38.4 kbit/s	
Slave Modbus RTU 4.8 kbit/s 9.6 kbit/s 19.2 kbit/s 38.4 kbit/s	
4.8 kbit/s 9.6 kbit/s 19.2 kbit/s 38.4 kbit/s	
9.6 kbit/s 19.2 kbit/s 38.4 kbit/s	
RTU	
1247	
8 bits, configurable odd, even or no parity	
No impedance	
True	
Constant torque standard Variable torque standard Optimized torque mode	
Permanent magnet motor Reluctance motor	
2 conforming to EN/IEC 61800-5-1	
0.599 kHz	
S, U or customized Linear adjustable separately from 0.019999 s	
Can be suppressed Not available in permanent magnet motor law Automatic whatever the load Adjustable	
216 kHz adjustable 1416 kHz with derating factor	
4 kHz	
By DC injection	
True	
2.6 A at 380 V (normal duty) 2.1 A at 480 V (normal duty) 3.4 A at 380 V (heavy duty) 2.6 A at 480 V (heavy duty)	
<ul> <li>2.6 A at 480 V without line choke (heavy duty)</li> <li>2.6 A at 380 V with external line choke (normal duty)</li> <li>2.1 A at 480 V with external line choke (normal duty)</li> <li>1.9 A at 380 V with external line choke (heavy duty)</li> <li>1.6 A at 480 V with external line choke (heavy duty)</li> <li>3.4 A at 380 V without line choke (heavy duty)</li> </ul>	
3.4 A	

Maximum output voltage	480 V	
Apparent power	2.2 kVA at 480 V (normal duty) 2.2 kVA at 480 V (heavy duty)	
Maximum transient current	<ul> <li>3.1 A during 60 s (normal duty)</li> <li>3.3 A during 60 s (heavy duty)</li> <li>3.8 A during 2 s (normal duty)</li> <li>4 A during 2 s (heavy duty)</li> </ul>	
Electrical connection	Screw terminal, clamping capacity: 1.54 mm <sup>2</sup> for line side Screw terminal, clamping capacity: 46 mm <sup>2</sup> for DC bus Screw terminal, clamping capacity: 1.54 mm <sup>2</sup> for motor Screw terminal, clamping capacity: 0.22.5 mm <sup>2</sup> for control	
Prospective line Isc	5 kA	
Base load current at high overload	2.2 A	
Base load current at low overload	2.8 A	
Power dissipation in W	Natural convection: 28 W at 380 V, switching frequency 4 kHz (heavy duty) Forced convection: 28 W at 380 V, switching frequency 4 kHz (heavy duty) Natural convection: 33 W at 380 V, switching frequency 4 kHz (normal duty) Forced convection: 33 W at 380 V, switching frequency 4 kHz (normal duty)	
	Line side: screw terminal 1.54 mm²/AWG 14AWG 12 DC bus: screw terminal 46 mm²/AWG 12AWG 10 Motor: screw terminal 1.54 mm²/AWG 14AWG 12 Control: screw terminal 0.22.5 mm²/AWG 24AWG 12	
With safety function Safely Limited Speed (SLS)	True	
With safety function Safe brake management (SBC/SBT)	True	
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	Thermal protection: motor Safe torque off: motor Motor phase loss: motor Thermal protection: drive Safe torque off: drive Overheating: drive Overcurrent: drive Output overcurrent between motor phase and earth: drive Output overcurrent between motor phases: drive Short-circuit between motor phase and earth: drive Short-circuit between motor phases: drive Motor phase loss: drive DC Bus overvoltage: drive Line supply overvoltage: drive Line supply undervoltage: drive Exceeding limit speed: drive Break on the control circuit: drive	
Width	85.0 mm	
Height	270.0 mm	

Danth	222 E mm		
Depth	232.5 mm		
Net weight	1.7 kg		
Continuous output current	2.2 A at 4 kHz for heavy duty 2.8 A at 4 kHz for normal duty		
Environment			
Operating altitude	<= 3000 m with current derating above 1000m		
Operating position	Vertical +/- 10 degree		
Product certifications	UL CSA TÜV EAC CTick		
Marking	CE		
Standards	EN/IEC 61800-3 EN/IEC 61800-5-1 IEC 60721-3 IEC 61508 IEC 13849-1 UL 618000-5-1 UL 508C		
Assembly style	With heat sink		
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		
Environmental class (during operation)	Class 3C3 according to IEC 60721-3-3 Class 3S3 according to IEC 60721-3-3		
Maximum acceleration under shock impact (during operation)	70 m/s² at 22 ms		
Maximum acceleration under vibrational stress (during operation)	5 m/s² at 9200 Hz		
Maximum deflection under vibratory load (during operation)	1.5 mm at 29 Hz		
Permitted relative humidity (during operation)	Class 3K5 according to EN 60721-3		
Volume of cooling air	18.0 m3/h		
Type of cooling	Forced convection		
Overvoltage category	Class III		
Regulation loop	Adjustable PID regulator		
Noise level	52.7 dB		
	2		
Ambient air transport temperature	-4070 °C		
Ambient air temperature for operation	-1550 °C without derating (vertical position) 5060 °C with derating factor (vertical position)		
Ambient air temperature for storage	-4070 °C		
Isolation	Between power and control terminals		
Packing Units			
Unit Type of Package 1	PCE		

#### Number of Units in Package 1

1

Package 1 Height	10.7 cm
Package 1 Width	35.3 cm
Package 1 Length	28.8 cm
Package 1 Weight	2.432 kg
Unit Type of Package 2	P06
Number of Units in Package 2	14
Package 2 Height	75 cm
Package 2 Width	60 cm
Package 2 Length	80 cm
Package 2 Weight	47.048 kg

### Offer Sustainability

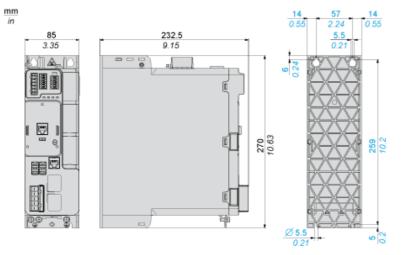
Sustainable offer status	Green Premium product	
REACh Regulation	REACh Declaration	
EU RoHS Directive	Pro-active compliance (Product out of EU RoHS legal scope) EU RoHS Declaration	
Mercury free	Yes	
China RoHS Regulation	China RoHS declaration	
RoHS exemption information	Yes	
Environmental Disclosure	Product Environmental Profile	
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	
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	
Upgradeability	Upgraded components available	



**Dimensions Drawings** 

#### Dimensions

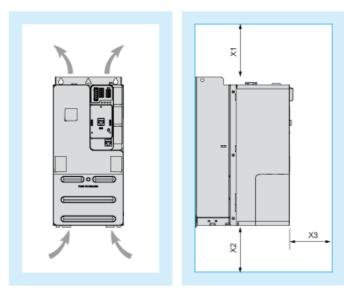
### Views: Front - Left - Rear



# ATV340U07N4

Mounting and Clearance

#### Clearance



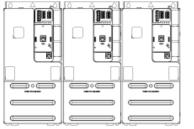
#### Dimensions in mm

X1	X2	X3			
≥ 100	≽ 100	≽ 60			
Dimensions in in.					
X1	X2	X3			
≥ 3.94	≥ 3.94	≥ 2.36			

Mounting and Clearance

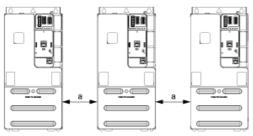
### Mounting Types

### Mounting Type A: Side by Side IP20



Possible, at ambient temperature ≤ 50 °C (122 °F)

### Mounting Type B: Individual IP20



 $a \ge 50 \text{ mm} (1.97 \text{ in.}) \text{ from } 50...60^{\circ}\text{C}, \text{ no restriction below } 50^{\circ}\text{C}$ 

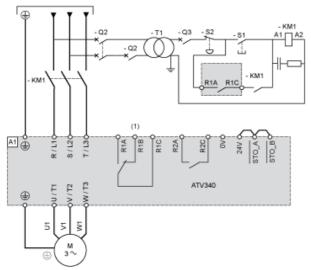
# ATV340U07N4

**Connections and Schema** 

#### **Connections and Schema**

#### Three-phase Power Supply with Upstream Breaking via Line Contactor Without Safety Function STO

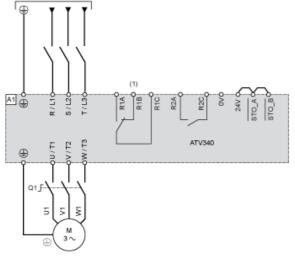
Connection diagrams conforming to standards ISO13849 category 1 and IEC/EN 61508 capacity SIL1, stopping category 0 in accordance with standard IEC/EN 60204-1.



(1) Use relay output R1 set to operating state Fault to switch Off the product once an error is detected.

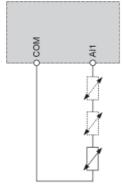
- A1 : Drive
- KM1: Line Contactor
- Q2, Q3 : Circuit breakers
- S1 : Pushbutton S2 :
- Emergency stop T1:
- Transformer for control part

#### Three-phase Power Supply With Downstream Breaking via Switch Disconnector



- (1) A1 : Use relay output R1 set to operating state Fault to switch Off the product once an error is detected.
- Drive Q1 : Switch disconnector

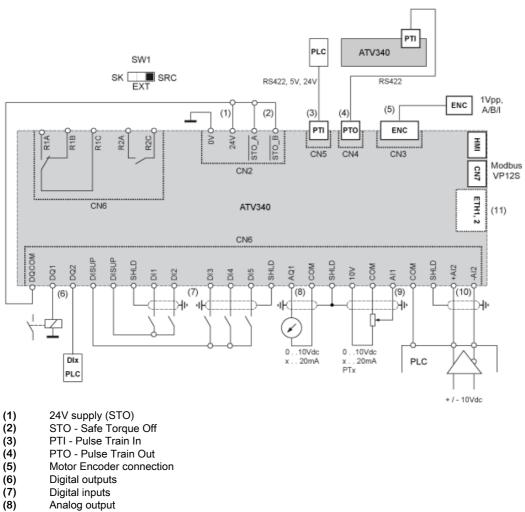
#### **Sensor Connection**



It is possible to connect either 1 or 3 sensors on terminals AI1.

**Connections and Schema** 

### **Control Block Wiring Diagram**



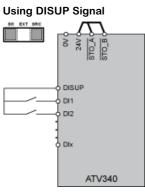
- PTO Pulse Train Out Motor Encoder connection
- Digital outputs
- Digital inputs
- Analog output
- (9) Analog input
- Differential Analog Input
- Ethernet port (only on Ethernet drive version)
- (10) (11) SW1 : Sink/Source switch
- R1A, R1E, Rate Celay R2A, R2CS Equence relay

# ATV340U07N4

Connections and Schema

### **Digital Inputs Wiring**

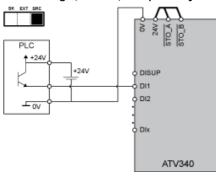
### **Digital Inputs: Internal Supply**



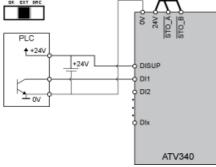
In SRC position DISUP outputs 24 V. In SK position DISUP is connected to 0 V.

### **Digital Inputs: External Supply**

Positive Logic, Source, European Style

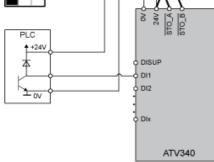


### Negative Logic, Sink, Asian Style



# Digital Inputs: Internal supply

Negative Logic, Sink, Asian Style



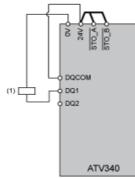
# ATV340U07N4

Connections and Schema

#### **Digital Outputs Wiring**

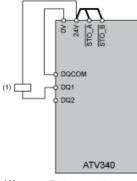
#### **Digital Outputs: Internal Supply**

Positive Logic, Source, European Style, DQCOM to +24V



(1) Relay or valve

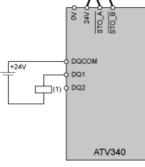
Negative Logic, Sink, Asian Style, DQCOM to 0V



(1) Relay or valve

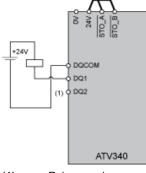
#### **Digital Outputs: External Supply**

Positive Logic, Source, European Style, DQCOM to +24V



(1) Relay or valve

Negative Logic, Sink, Asian Style, DQCOM to 0V

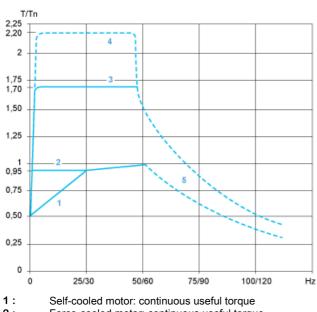


(1) Relay or valve

Life Is On Schneider

**Performance Curves** 

#### **Open Loop Applications**



Force-cooled motor: continuous useful torque

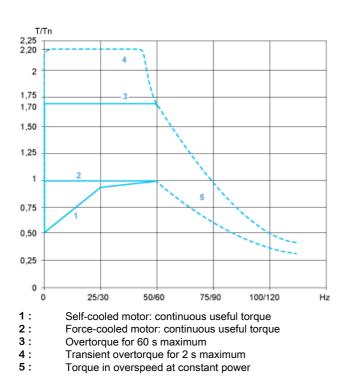
2: 3: Overtorque for 60 s maximum

4: Transient overtorque for 2 s maximum

5: Torque in overspeed at constant power

Performance Curves

#### **Closed Loop Applications**



Recommended replacement(s)