

# variable speed drive, Altivar Machine ATV340, 3kW, heavy duty, 400V, 3 phases

ATV340U30N4

# Main

Range of product	Altivar Machine ATV340			
Product or component type	Variable speed drive			
Product specific application	Machine			
Mounting mode	Cabinet mount			
Variant	Standard version			
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	7.2 A			
Motor power kW	4 kW for normal duty 3 kW for heavy duty			
Motor power hp	3 hp for heavy duty 5 hp for normal duty			
EMC filter	Class C3 EMC filter integrated			
IP degree of protection	IP20			

# Complementary

J				
Discrete input number	5			
Discrete input type	PTI programmable as pulse input: 030 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: - 1010 V DC, impedance: 31.5 kOhm, resolution			

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12 bits

Analogue output number	1				
Analogue output type	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				
Relay output number	2				
Output voltage	<= power supply voltage				
Relay output type	Relay outputs R1A Relay outputs R1C electrical durability 100000 cycles Relay outputs R2A Relay outputs R2C electrical durability 100000 cycles				
Maximum switching current	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 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 on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 30 V DC				
Minimum switching current	Relay output R1B: 5 mA at 24 V DC Relay output R2C: 5 mA at 24 V DC				
Physical interface	2-wire RS 485				
Connector type	1 RJ45				
Method of access	Slave Modbus RTU				
Transmission rate	4.8 kbit/s 9.6 kbit/s 19.2 kbit/s 38.4 kbit/s				
Transmission frame	RTU				
Number of addresses	1247				
Data format	8 bits, configurable odd, even or no parity				
Type of polarization	No impedance				
4 quadrant operation possible	True				
Asynchronous motor control profile	Variable torque standard Optimized torque mode Constant torque standard				
Synchronous motor control profile	Reluctance motor Permanent magnet motor				
Pollution degree	2 conforming to IEC 61800-5-1				
Maximum output frequency	0.599 kHz				
Acceleration and deceleration ramps	Linear adjustable separately from 0.019999 s S, U or customized				
Motor slip compensation	Not available in permanent magnet motor law Can be suppressed Automatic whatever the load Adjustable				
Switching frequency	216 kHz adjustable 716 kHz with derating factor				
Nominal switching frequency	4 kHz				
Braking to standstill	By DC injection				
Brake chopper integrated	True				

Line current	8.6 A at 380 V (normal duty)
	6.8 A at 480 V (normal duty)
	10.7 A at 380 V (heavy duty)
	8.5 A at 480 V (heavy duty)
Line current	10.7 A at 380 V without line choke (heavy duty)
	8.5 A at 480 V without line choke (heavy duty)
	8.6 A at 380 V with external line choke (normal duty)
	6.8 A at 480 V with external line choke (normal duty)
	6.6 A at 380 V with external line choke (heavy duty)
	5.3 A at 480 V with external line choke (heavy duty)
Maximum input current	10.7 A
Maximum output voltage	480 V
Apparent power	6.7 kVA at 480 V (normal duty)
	7.1 kVA at 480 V (heavy duty)
Maximum transient current	10.2 A during 60 s (normal duty)
	12.6 A during 2 s (normal duty)
	13 A during 2 s (heavy duty)
	11 A during 60 s (heavy duty)
Electrical connection	Screw terminal, clamping capacity: 1.54 mm² for line side
	Screw terminal, clamping capacity: 46 mm² for DC bus
	Screw terminal, clamping capacity: 1.54 mm² for motor
	Screw terminal, clamping capacity: 0.22.5 mm² for control
Prospective line Isc	5 kA
Base load current at high overload	7.2 A
Base load current at low overload	9.3 A
Power dissipation in W	Natural convection: 78 W at 380 V, switching frequency 4 kHz (heavy duty)
	Forced convection: 78 W at 380 V, switching frequency 4 kHz (heavy duty)
	Natural convection: 96 W at 380 V, switching frequency 4 kHz (normal duty)
	Forced convection: 96 W at 380 V, switching frequency 4 kHz (normal duty)
Electrical connection	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	True
Limited Speed (SLS)	
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	False
Direction (SDI)	

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			
	Input supply loss: drive			
	Exceeding limit speed: drive			
	Break on the control circuit: drive			
Width	85.0 mm			
Height	270.0 mm			
Depth	232.5 mm			
Net weight	2.1 kg			
Continuous output current	9.3 A at 4 kHz for normal duty			
	7.2 A at 4 kHz for heavy 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	IEC 61800-3 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	19.0 m3/h				
type of cooling	Forced convection				
Overvoltage category	Class III				

Regulation loop	Adjustable PID regulator
Noise level	51.2 dB
Pollution degree	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	11.000 cm
Package 1 Width	37.000 cm
Package 1 Length	32.000 cm
Package 1 Weight	2.900 kg
Unit Type of Package 2	S06
Number of Units in Package 2	12
Package 2 Height	75.000 cm
Package 2 Width	60.000 cm
Package 2 Length	80.000 cm
Package 2 Weight	47.000 kg

# **Contractual warranty**

Warranty 18 mois



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	
Total lifecycle Carbon footprint	2670
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	81d6792e-d307-4115-9475-2db3f34c93af
REACh Regulation	REACh Declaration
<sup>☼</sup> Energy efficiency	
Product contributes to saved and avoided emissions	Yes

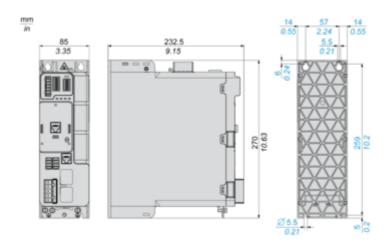
### **Use Again**

○ Repack and remanufacture	
End of life manual availability	End of Life Information
Take-back	No

# **Dimensions Drawings**

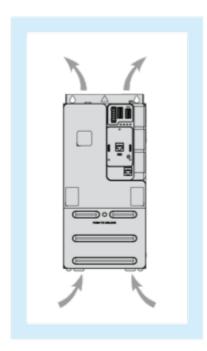
## **Dimensions**

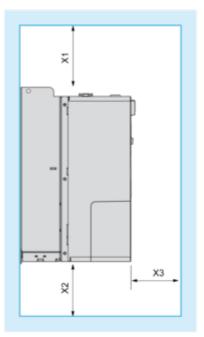
Views: Front - Left - Rear



Mounting and Clearance

# Clearance

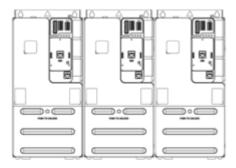




X1	X2	Х3			
mm	in.	mm	in.	mm	in.
≥ 100	≥ 3.94	≥ 100	≥ 3.94	≥ 60	≥ 2.36

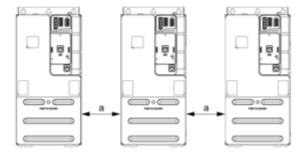
## **Mounting Types**

### Mounting Type A: Side by Side IP20



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

## Mounting Type B: Individual IP20

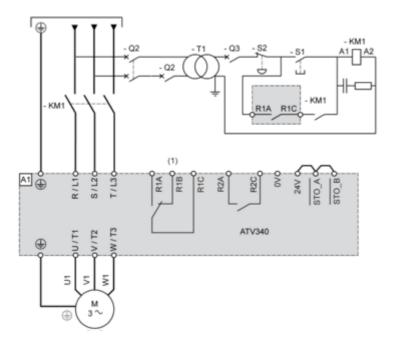


 $a \ge 50$  mm (1.97 in.) from 50...60°C, no restriction below 50°C

Connections and Schema

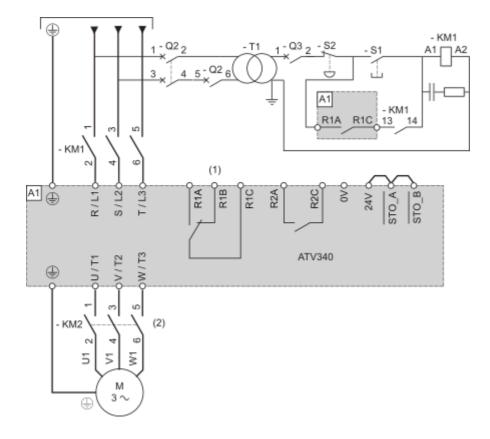
### **Connections and Schema**

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



- (1) : Use relay output R1 set to operating state Fault to switch Off the product once an error is detected. NOTE :
- Press S1 until the initialization of the drive is finished.
- An external 24V power supply can be connected so that the control part of the drive is always power supplied.

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



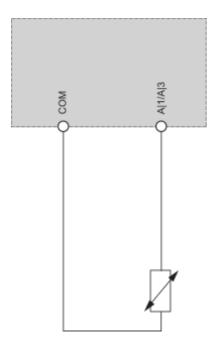
## ATV340U30N4

- (1): Use relay output R1 set to operating state Fault to switch Off the product once an error is detected.
- (2): Command of KM2 can be done by using the [Output contactor cmd] OCC function. For more information, refer to the programming manual.

#### NOTE:

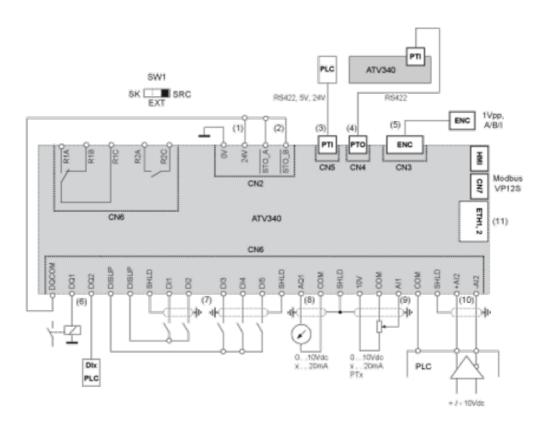
- Close upstream contactor, then press S1 after the initialization of the drive is finished.
- An external 24V power supply can be connected so that the control part of the drive is always power supplied.

### **Sensor Connection**



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#### **Control Block Wiring Diagram**

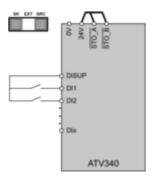


- (1): 24V In, Out, maximum supply current 200 mA is provided,
- (2): STO Safe Torque Off, see ATV340 Embedded safety function manual NVE64143
- (3): PTI Pulse Train In, from external source (eg.PLC) Pulse Direction or A-B signals can be connected
- (4) : PTO Pulse Train Out, can be used to connect to a 2nd ATV340 PTI
- (5): To connect a motor position feedback encoder
- (6) : Digital output, e.g. to connect a contactor, also usable as DI
- (7) : Digital inputs
- (8) : Analog output, e.g. to connect a meter
- (9) : Analog input, e.g. from potentiometer
- (10) : Differential analog input, e.g. as speed reference from external PLC differential, +/– 10 V  $\,$
- (11): 2 advanced Ethernet ports ETH1, ETH2 (ATV340\*\*\*\*\*E) or 2 Sercos III ports S3P1, S3P2 (ATV340\*\*\*\*\*S)

## **Digital Inputs Wiring**

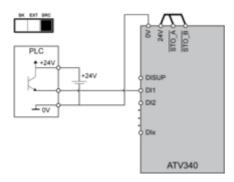
### **Digital Inputs: Internal Supply**

**Using DISUP Signal** 

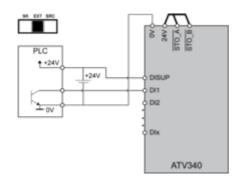


In SRC position DISUP outputs 24 V. In SK position DISUP is connected to 0 V.

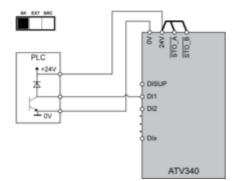
## Digital Inputs: External Supply Positive Logic, Source, European Style



### Negative Logic, Sink, Asian Style



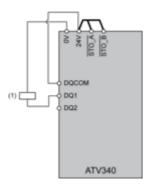
Digital Inputs: Internal supply Negative Logic, Sink, Asian Style



## **Digital Outputs Wiring**

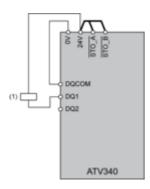
### **Digital Outputs: Internal Supply**

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



### (1) Relay or valve

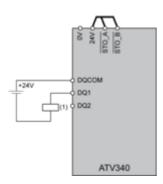
Negative Logic, Sink, Asian Style, DQCOM to 0V



#### (1) Relay or valve

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

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



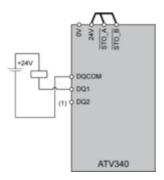
# (1) Relay or valve

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

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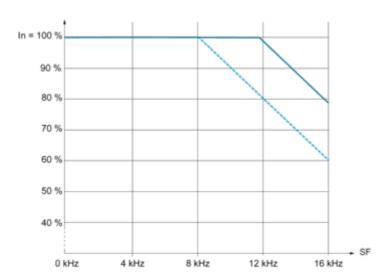


(1) Relay or valve

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### Performance Curves

### **Derating Curves**



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

In : Nominal Drive Current
SF : Switching Frequency

# ATV340U30N4

**Technical Illustration** 

### **Dimensions**

