

# Product datasheet

Specifications



Variable speed drive. Altivar Machine ATV340. 2.2 kW Heavy Duty. 400 V. 3 phases. Ethernet

ATV340U22N4E

Price: 18,825.06 ZAR

## Main

|                              |                                               |
|------------------------------|-----------------------------------------------|
| 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 TCP<br>Modbus serial<br>EtherNet/IP    |
| Network Number Of Phases     | 3 phases                                      |
| Supply Frequency             | 50...60 Hz +/- 5 %                            |
| [Us] Rated Supply Voltage    | 380...480 V - 15...10 %                       |
| Nominal Output Current       | 5.6 A                                         |
| Motor Power Kw               | 3 kW for normal duty<br>2.2 kW for heavy duty |
| Motor Power Hp               | 3 hp for normal duty<br>3 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)<br>DI1...DI5 safe torque off, 24 V DC (30 V), impedance: 3.5 kOhm<br>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     | AI1 software-configurable current: 0...20 mA, impedance: 250 Ohm, resolution 12 bits<br>AI1 software-configurable temperature probe or water level sensor<br>AI1 software-configurable voltage: 0...10 V DC, impedance: 31.5 kOhm, resolution 12 bits<br>AI2 software-configurable voltage: - 10...10 V DC, impedance: 31.5 kOhm, resolution 12 bits |
| Analogue Output Number  | 1                                                                                                                                                                                                                                                                                                                                                    |

Excluding VAT and subject to change. Please check with your local distributor through "Where to buy"

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Analogue Output Type                | Software-configurable voltage AQ1: 0...10 V DC impedance 470 Ohm, resolution 10 bits<br>Software-configurable current AQ1: 0...20 mA impedance 500 Ohm, resolution 10 bits                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Relay Output Number                 | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Output Voltage                      | <= power supply voltage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Relay Output Type                   | Relay outputs R1A<br>Relay outputs R1C electrical durability 100000 cycles<br>Relay outputs R2A<br>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<br>Relay output R1C on resistive load, cos phi = 1: 3 A at 30 V DC<br>Relay output R1C on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 250 V AC<br>Relay output R1C on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 30 V DC<br>Relay output R2C on resistive load, cos phi = 1: 5 A at 250 V AC<br>Relay output R2C on resistive load, cos phi = 1: 5 A at 30 V DC<br>Relay output R2C on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 250 V AC<br>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<br>Relay output R2C: 5 mA at 24 V DC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Physical Interface                  | 2-wire RS 485                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Connector Type                      | 3 RJ45                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Method Of Access                    | Slave Modbus RTU<br>Slave Modbus TCP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Transmission Rate                   | 4.8 kbit/s<br>9.6 kbit/s<br>19.2 kbit/s<br>38.4 kbit/s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Transmission Frame                  | RTU                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Number Of Addresses                 | 1...247                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Data Format                         | 8 bits, configurable odd, even or no parity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Type Of Polarization                | No impedance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 4 Quadrant Operation Possible       | True                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Asynchronous Motor Control Profile  | Constant torque standard<br>Variable torque standard<br>Optimized torque mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Synchronous Motor Control Profile   | Permanent magnet motor<br>Reluctance motor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Pollution Degree                    | 2 conforming to IEC 61800-5-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Maximum Output Frequency            | 0.599 kHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Acceleration And Deceleration Ramps | S, U or customized<br>Linear adjustable separately from 0.01...9999 s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Motor Slip Compensation             | Not available in permanent magnet motor law<br>Automatic whatever the load<br>Adjustable<br>Can be suppressed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Switching Frequency                 | 2...16 kHz adjustable<br>4...16 kHz with derating factor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Nominal Switching Frequency         | 4 kHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Braking To Standstill               | By DC injection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Brake Chopper Integrated            | True                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Line Current                        | 6.6 A at 380 V (normal duty)<br>5.3 A at 480 V (normal duty)<br>8.4 A at 380 V (heavy duty)<br>6.6 A at 480 V (heavy duty)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

|                                                             |                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Line Current</b>                                         | 8.4 A at 380 V without line choke (heavy duty)<br>6.6 A at 480 V without line choke (heavy duty)<br>6.6 A at 380 V with external line choke (normal duty)<br>5.3 A at 480 V with external line choke (normal duty)<br>5.1 A at 380 V with external line choke (heavy duty)<br>4.1 A at 480 V with external line choke (heavy duty) |
| <b>Maximum Input Current</b>                                | 8.4 A                                                                                                                                                                                                                                                                                                                              |
| <b>Maximum Output Voltage</b>                               | 480 V                                                                                                                                                                                                                                                                                                                              |
| <b>Apparent Power</b>                                       | 5.2 kVA at 480 V (normal duty)<br>5.5 kVA at 480 V (heavy duty)                                                                                                                                                                                                                                                                    |
| <b>Maximum Transient Current</b>                            | 7.9 A during 60 s (normal duty)<br>9.7 A during 2 s (normal duty)<br>10.1 A during 2 s (heavy duty)<br>8 A during 60 s (heavy duty)                                                                                                                                                                                                |
| <b>Electrical Connection</b>                                | Screw terminal, clamping capacity: 1.5...4 mm <sup>2</sup> for line side<br>Screw terminal, clamping capacity: 4...6 mm <sup>2</sup> for DC bus<br>Screw terminal, clamping capacity: 1.5...4 mm <sup>2</sup> for motor<br>Screw terminal, clamping capacity: 0.2...2.5 mm <sup>2</sup> for control                                |
| <b>Prospective Line Isc</b>                                 | 5 kA                                                                                                                                                                                                                                                                                                                               |
| <b>Base Load Current At High Overload</b>                   | 5.6 A                                                                                                                                                                                                                                                                                                                              |
| <b>Base Load Current At Low Overload</b>                    | 7.2 A                                                                                                                                                                                                                                                                                                                              |
| <b>Power Dissipation In W</b>                               | Natural convection: 65 W at 380 V, switching frequency 4 kHz (heavy duty)<br>Forced convection: 65 W at 380 V, switching frequency 4 kHz (heavy duty)<br>Natural convection: 80 W at 380 V, switching frequency 4 kHz (normal duty)<br>Forced convection: 80 W at 380 V, switching frequency 4 kHz (normal duty)                   |
| <b>Electrical Connection</b>                                | Line side: screw terminal 1.5...4 mm <sup>2</sup> /AWG 14...AWG 12<br>DC bus: screw terminal 4...6 mm <sup>2</sup> /AWG 12...AWG 10<br>Motor: screw terminal 1.5...4 mm <sup>2</sup> /AWG 14...AWG 12<br>Control: screw terminal 0.2...2.5 mm <sup>2</sup> /AWG 24...AWG 12                                                        |
| <b>With Safety Function Safely Limited Speed (SlS)</b>      | True                                                                                                                                                                                                                                                                                                                               |
| <b>With Safety Function Safe Brake Management (Sbc/Sbt)</b> | True                                                                                                                                                                                                                                                                                                                               |
| <b>With Safety Function Safe Operating Stop (Sos)</b>       | False                                                                                                                                                                                                                                                                                                                              |
| <b>With Safety Function Safe Position (Sp)</b>              | False                                                                                                                                                                                                                                                                                                                              |
| <b>With Safety Function Safe Programmable Logic</b>         | False                                                                                                                                                                                                                                                                                                                              |
| <b>With Safety Function Safe Speed Monitor (Ssm)</b>        | False                                                                                                                                                                                                                                                                                                                              |
| <b>With Safety Function Safe Stop 1 (Ss1)</b>               | True                                                                                                                                                                                                                                                                                                                               |
| <b>With Sft Fct Safe Stop 2 (Ss2)</b>                       | False                                                                                                                                                                                                                                                                                                                              |
| <b>With Safety Function Safe Torque Off (Sto)</b>           | True                                                                                                                                                                                                                                                                                                                               |
| <b>With Safety Function Safely Limited Position (Slp)</b>   | False                                                                                                                                                                                                                                                                                                                              |
| <b>With Safety Function Safe Direction (Sdi)</b>            | False                                                                                                                                                                                                                                                                                                                              |

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Protection Type           | Thermal protection: motor<br>Safe torque off: motor<br>Motor phase loss: motor<br>Thermal protection: drive<br>Safe torque off: drive<br>Overheating: drive<br>Overcurrent: drive<br>Output overcurrent between motor phase and earth: drive<br>Output overcurrent between motor phases: drive<br>Short-circuit between motor phase and earth: drive<br>Short-circuit between motor phases: drive<br>Motor phase loss: drive<br>DC Bus overvoltage: drive<br>Line supply overvoltage: drive<br>Line supply undervoltage: drive<br>Input supply loss: drive<br>Exceeding limit speed: drive<br>Break on the control circuit: drive |
| Width                     | 85.0 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Height                    | 270.0 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Depth                     | 232.5 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Net Weight                | 1.8 kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Continuous Output Current | 7.2 A at 4 kHz for normal duty<br>5.6 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<br>CSA<br>TÜV<br>EAC<br>CTick                                                                                                                                                                                                                                                                                                                                                                                                 |
| Marking                                                          | CE                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Standards                                                        | IEC 61800-3<br>IEC 61800-5-1<br>IEC 60721-3<br>IEC 61508<br>IEC 13849-1<br>UL 618000-5-1<br>UL 508C                                                                                                                                                                                                                                                                                                                              |
| Assembly Style                                                   | With heat sink                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Electromagnetic Compatibility                                    | Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2<br>Radiated radio-frequency electromagnetic field immunity test level 3 conforming to IEC 61000-4-3<br>Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4<br>1.2/50 µs - 8/20 µs surge immunity test level 3 conforming to IEC 61000-4-5<br>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<br>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 9...200 Hz                                                                                                                                                                                                                                                                                                                                                                                                             |
| Maximum Deflection Under Vibratory Load (During Operation)       | 1.5 mm at 2...9 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                           | 55.4 dB                                                                                                 |
| Pollution Degree                      | 2                                                                                                       |
| Ambient Air Transport Temperature     | -40...70 °C                                                                                             |
| Ambient Air Temperature For Operation | -15...50 °C without derating (vertical position)<br>50...60 °C with derating factor (vertical position) |
| Ambient Air Temperature For Storage   | -40...70 °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              | 37.500 cm |
| Package 1 Length             | 32.000 cm |
| Package 1 Weight             | 2.540 kg  |
| Unit Type Of Package 2       | P06       |
| Number Of Units In Package 2 | 14        |
| Package 2 Height             | 75.000 cm |
| Package 2 Width              | 60.000 cm |
| Package 2 Length             | 80.000 cm |
| Package 2 Weight             | 48.182 kg |

Sustainability



**Green Premium™ label** is Schneider Electric’s commitment to delivering products with best-in-class environmental performance. Green Premium promises compliance with the latest regulations, transparency on environmental impacts, as well as circular and low-CO<sub>2</sub> products.

**Guide to assessing product sustainability** is a white paper that clarifies global eco-label standards and how to interpret environmental declarations.

[Learn more about Green Premium >](#)

[Guide to assess a product’s sustainability >](#)



Transparency   RoHS/REACH

Resource performance

 Upgraded Components Available

Well-being performance

 Mercury Free

 Rohs Exemption Information   [Yes](#)

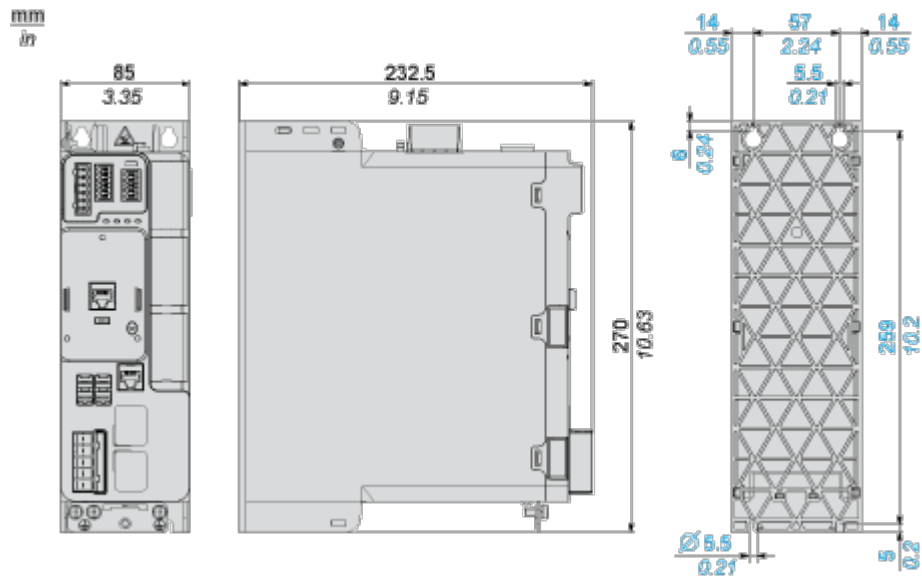
Certifications & Standards

|                          |                                                                                                                             |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Reach Regulation         | <a href="#">REACH Declaration</a>                                                                                           |
| Eu Rohs Directive        | Pro-active compliance (Product out of EU RoHS legal scope)                                                                  |
| China Rohs Regulation    | <a href="#">China RoHS declaration</a>                                                                                      |
| Environmental Disclosure | <a href="#">Product Environmental Profile</a>                                                                               |
| Weee                     | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins |
| Circularity Profile      | <a href="#">End of Life Information</a>                                                                                     |

Dimensions Drawings

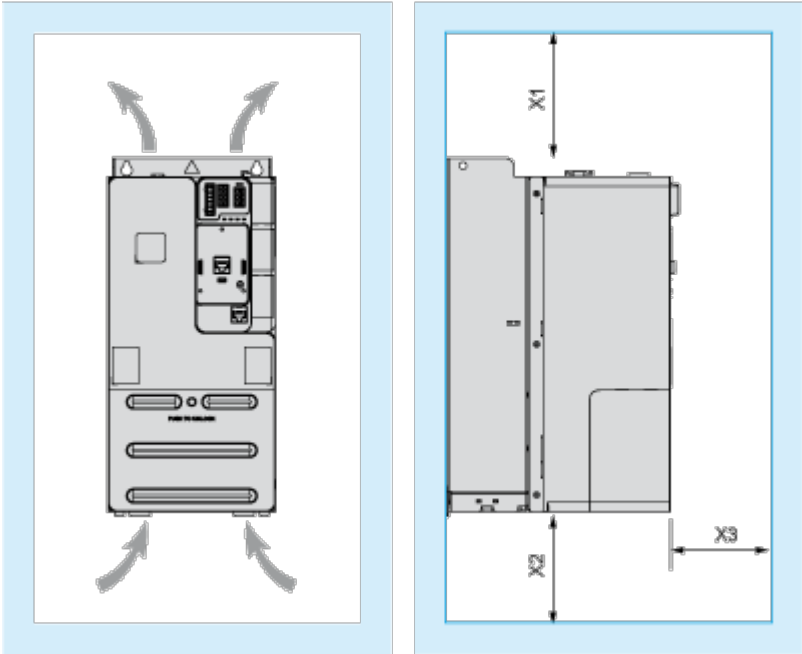
Dimensions

Views: Front - Left - Rear



Mounting and Clearance

Clearance



Dimensions in mm

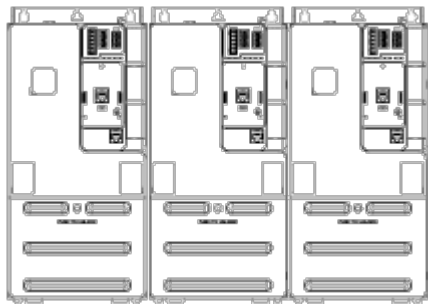
| X1  | X2  | X3 |
|-----|-----|----|
| 100 | 100 | 60 |

Dimensions in in.

| X1   | X2   | X3   |
|------|------|------|
| 3.94 | 3.94 | 2.36 |

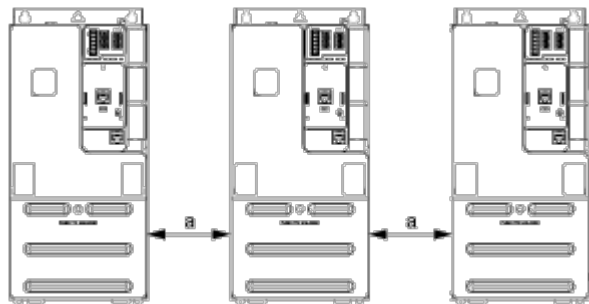
Mounting Types

Mounting Type A: Side by Side IP20



Possible, at ambient temperature  $\leq 50\text{ }^{\circ}\text{C}$  (122  $^{\circ}\text{F}$ )

Mounting Type B: Individual IP20



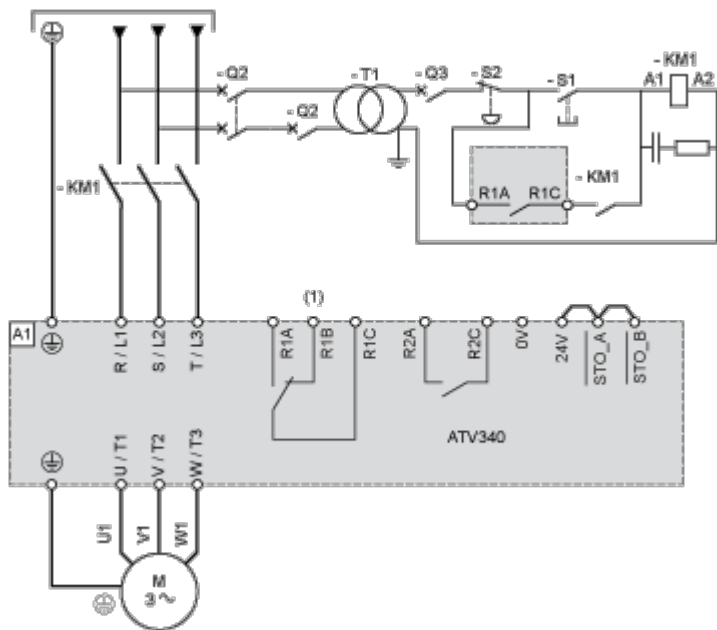
a  50 mm (1.97 in.) from 50...60 $^{\circ}\text{C}$ , no restriction below 50 $^{\circ}\text{C}$

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

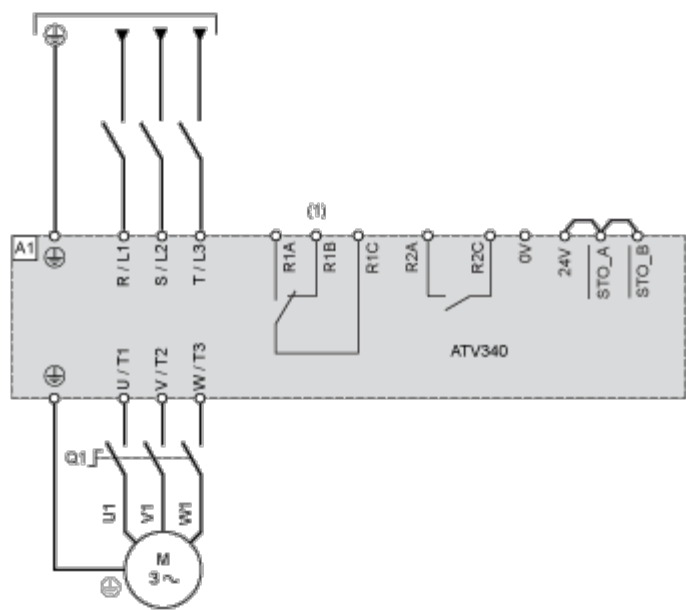
Q2, Q3 : Circuit breakers

S1 : Pushbutton

S2 : Emergency stop

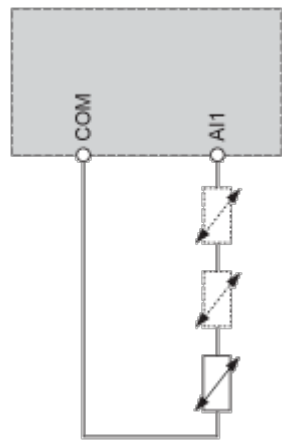
T1 : Transformer for control part

Three-phase Power Supply With Downstream Breaking via Switch Disconnecter



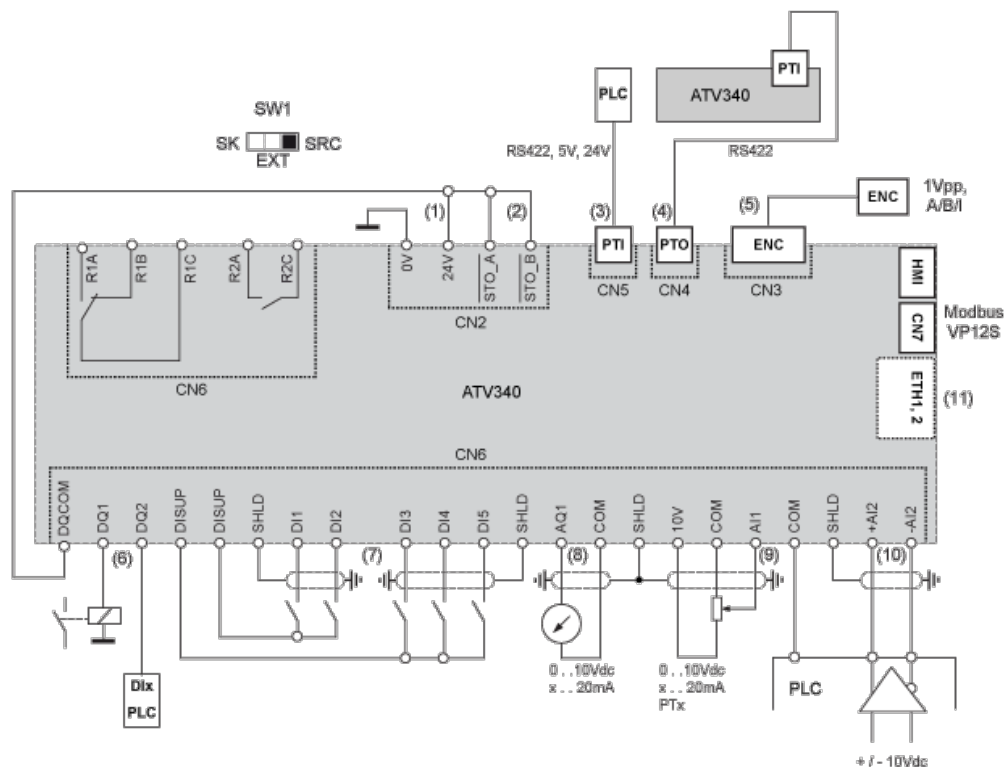
- (1) Use relay output R1 set to operating state Fault to switch Off the product once an error is detected.
- A1 : Drive
- Q1 : Switch disconnector

Sensor Connection



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

Control Block Wiring Diagram



- (1) 24V supply (STO)
- (2) STO - Safe Torque Off
- (3) PTI - Pulse Train In
- (4) PTO - Pulse Train Out
- (5) Motor Encoder connection
- (6) Digital outputs
- (7) Digital inputs
- (8) Analog output
- (9) Analog input
- (10) Differential Analog Input
- (11) Ethernet port (only on Ethernet drive version)

SW1 : Sink/Source switch

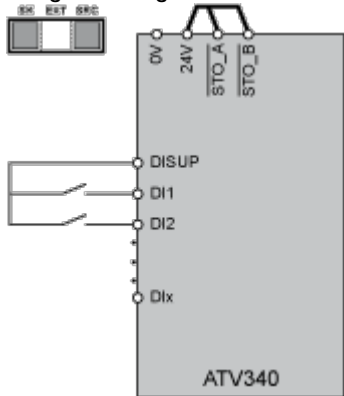
R1A, R1B, R1C : Fault relay

R2A, R2C : Sequence relay

Digital Inputs Wiring

Digital Inputs: Internal Supply

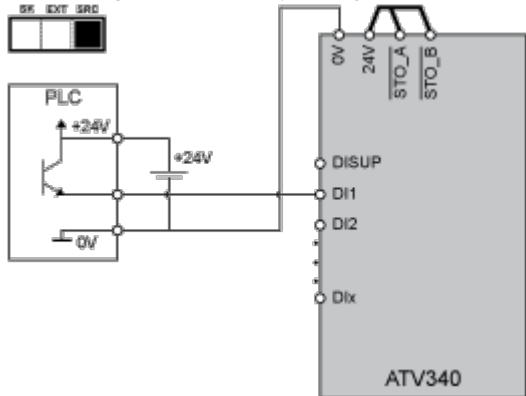
Using DISUP Signal



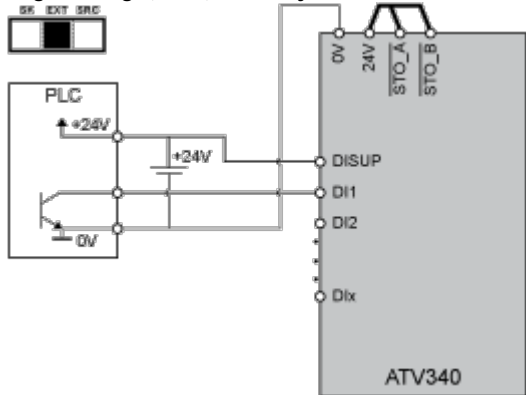
In SRC position DISUP outputs 24 V. In SK position DISUP is connected to 0 V.

Digital Inputs: External Supply

Positive Logic, Source, European Style

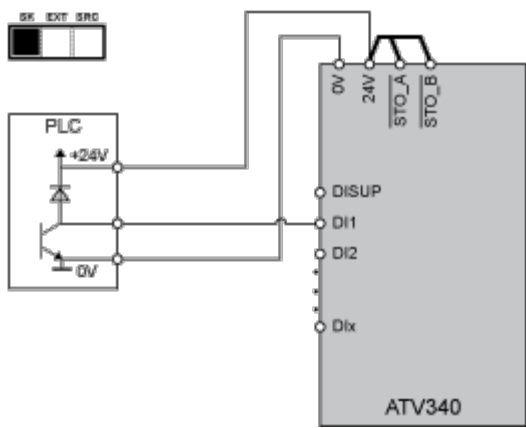


Negative Logic, Sink, Asian Style



Digital Inputs: Internal supply

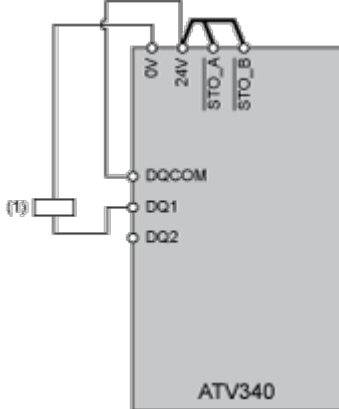
Negative Logic, Sink, Asian Style



Digital Outputs Wiring

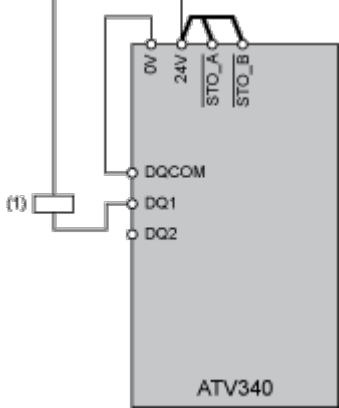
Digital Outputs: Internal Supply

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



(1) Relay or valve

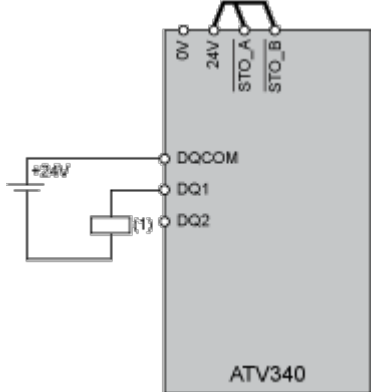
Negative Logic, Sink, Asian Style, DQCOM to 0V



(1) Relay or valve

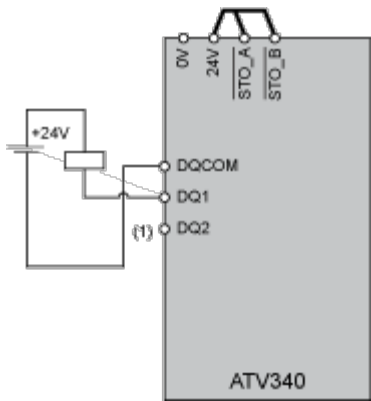
Digital Outputs: External Supply

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



(1) Relay or valve

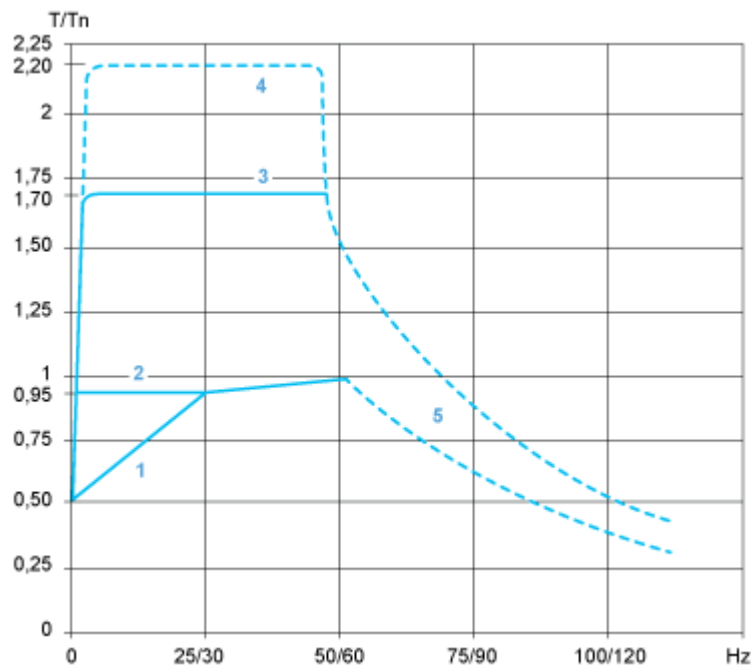
Negative Logic, Sink, Asian Style, DQCOM to 0V



(1) Relay or valve

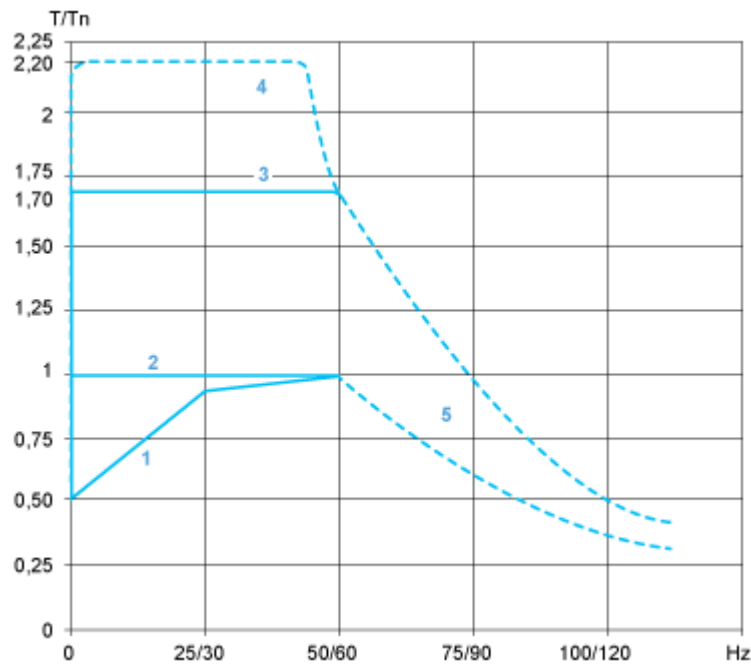
Performance Curves

Open Loop Applications



- 1 : Self-cooled motor: continuous useful torque
- 2 : Force-cooled motor: continuous useful torque
- 3 : Overtorque for 60 s maximum
- 4 : Transient overtorque for 2 s maximum
- 5 : Torque in overspeed at constant power

Closed Loop Applications



- 1 : Self-cooled motor: continuous useful torque
- 2 : Force-cooled motor: continuous useful torque
- 3 : Overtorque for 60 s maximum
- 4 : Transient overtorque for 2 s maximum
- 5 : Torque in overspeed at constant power