# Product data sheet

Specifications



## variable speed drive, Altivar Machine ATV340, 2.2kW, heavy duty, 400V, 3 phases

ATV340U22N4

**Product availability: Stock - Normally stocked in distribution facility**

## 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<br>communication module, PROFINET<br>communication module, DeviceNet<br>communication module, CANopen<br>communication module, EtherCAT |
| **Phase** | 3 phase |
| **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 normal duty<br>2.2 kW heavy duty |
| **Maximum Horse Power Rating** | 3 hp normal duty<br>3 hp 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)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 250 Ohm 12 bits<br>AI1 software-configurable temperature probe or water level sensor<br>AI1 software-configurable voltage 0...10 V DC 31.5 kOhm 12 bits<br>AI2 software-configurable voltage - 10...10 V DC 31.5 kOhm 12 bits |
| **Analogue output number** | 1 |

Price is “List Price” and may be subject to a trade discount – check with your local distributor or retailer for actual price.

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 470 Ohm 10 bits<br>Software-configurable current AQ1 0...20 mA 500 Ohm 10 bits |
| **Relay output number** | 2 |
| **Output voltage** | <= power supply voltage |
| **Relay output type** | Relay outputs R1A<br>Relay outputs R1C 100000 cycles<br>Relay outputs R2A<br>Relay outputs R2C 100000 cycles |
| **Maximum switching current** | Relay output R1C resistive, cos phi = 1 3 A 250 V AC<br>Relay output R1C resistive, cos phi = 1 3 A 30 V DC<br>Relay output R1C inductive, cos phi = 0.4 7 ms 2 A 250 V AC<br>Relay output R1C inductive, cos phi = 0.4 7 ms 2 A 30 V DC<br>Relay output R2C resistive, cos phi = 1 5 A 250 V AC<br>Relay output R2C resistive, cos phi = 1 5 A 30 V DC<br>Relay output R2C inductive, cos phi = 0.4 7 ms 2 A 250 V AC<br>Relay output R2C inductive, cos phi = 0.4 7 ms 2 A 30 V DC |
| **Minimum switching current** | Relay output R1B 5 mA 24 V DC<br>Relay output R2C 5 mA 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<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>Optimized torque mode<br>Variable torque standard |
| **Synchronous motor control profile** | Reluctance motor<br>Permanent magnet motor |
| **Pollution degree** | 2 IEC 61800-5-1 |
| **Maximum output frequency** | 0.599 kHz |
| **Acceleration and deceleration ramps** | Linear adjustable separately from 0.01...9999 s<br>S, U or customized |
| **Motor slip compensation** | Can be suppressed<br>Automatic whatever the load<br>Not available in permanent magnet motor law<br>Adjustable |
| **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 380 V normal duty)<br>5.3 A 480 V normal duty)<br>8.4 A 380 V heavy duty)<br>6.6 A 480 V heavy duty) |

| | |
|---|---|
| **Line current** | 8.4 A 380 V without line choke heavy duty)<br>6.6 A 480 V without line choke heavy duty)<br>6.6 A 380 V with external line choke normal duty)<br>5.3 A 480 V with external line choke normal duty)<br>5.1 A 380 V with external line choke heavy duty)<br>4.1 A 480 V with external line choke heavy duty) |
| **Maximum Input Current per Phase** | 8.4 A |
| **Maximum output voltage** | 480 V |
| **Apparent power** | 5.2 kVA 480 V normal duty)<br>5.5 kVA 480 V heavy duty) |
| **Maximum transient current** | 7.9 A 60 s normal duty)<br>9.7 A 2 s normal duty)<br>10.1 A 2 s heavy duty)<br>8 A 60 s heavy duty) |
| **Electrical connection** | Screw terminal 1.5...4 mm² line side<br>Screw terminal 4...6 mm² DC bus<br>Screw terminal 1.5...4 mm² motor<br>Screw terminal 0.2...2.5 mm² control |
| **Prospective line Isc** | 5 kA |
| **Base load current at high overload** | 5.6 A |
| **Base load current at low overload** | 7.2 A |
| **Power dissipation in W** | Natural convection 65 W 380 V 4 kHz heavy duty)<br>Forced convection 65 W 380 V 4 kHz heavy duty)<br>Natural convection 80 W 380 V 4 kHz normal duty)<br>Forced convection 80 W 380 V 4 kHz normal duty) |
| **Electrical connection** | Line side screw terminal 1.5...4 mm² 14 AWG...12 AWG<br>DC bus screw terminal 4...6 mm² 12 AWG...10 AWG<br>Motor screw terminal 1.5...4 mm² 14 AWG...12 AWG<br>Control screw terminal 0.2...2.5 mm² 24 AWG...12 AWG |
| **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<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** | 3.3 in (85.0 mm) |
| **Height** | 10.6 in (270.0 mm) |
| **Depth** | 9.2 in (232.5 mm) |
| **Net Weight** | 4.0 lb(US) (1.8 kg) |
| **Continuous output current** | 7.2 A 4 kHz normal duty<br>5.6 A 4 kHz heavy duty |

## Environment

| | |
|---|---|
| **Operating altitude** | <= 9842.52 ft (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** | 4755.2 Gal/hr(US) (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…158 °F (-40…70 °C) |
| **Ambient air temperature for operation** | 5…122 °F (-15…50 °C) without derating vertical position)<br>122…140 °F (50…60 °C) with derating factor vertical position) |
| **Ambient Air Temperature for Storage** | -40…158 °F (-40…70 °C) |
| **Isolation** | Between power and control terminals |

## Ordering and shipping details

| | |
|---|---|
| **Category** | US1CP4B22182 |
| **Discount Schedule** | CP4B |
| **GTIN** | 3606480966897 |
| **Returnability** | Yes |
| **Country of origin** | ID |

## Packing Units

| | |
|---|---|
| **Unit Type of Package 1** | PCE |
| **Nbr. of units in pkg.** | 1 |
| **Package 1 Height** | 4.331 in (11.000 cm) |
| **Package 1 Width** | 14.567 in (37.000 cm) |
| **Package 1 Length** | 12.598 in (32.000 cm) |
| **Package weight(Lbs)** | 5.490 lb(US) (2.490 kg) |
| **Unit Type of Package 2** | S06 |
| **Number of Units in Package 2** | 14 |
| **Package 2 Height** | 29.528 in (75.000 cm) |
| **Package 2 Width** | 23.622 in (60.000 cm) |
| **Package 2 Length** | 31.496 in (80.000 cm) |
| **Package 2 Weight** | 105.513 lb(US) (47.860 kg) |

## Contractual warranty

| | |
|---|---|
| **Warranty (in months)** | 18 |

## Environmental Data

Schneider Electric aims to achieve Net Zero status by 2050 through supply chain partnerships, lower impact materials, and circularity via our ongoing “Use Better, Use Longer, Use Again” campaign to extend product lifetimes and recyclability.

Environmental Data explained >

How we assess product sustainability >

### Environmental footprint

| | |
|---|---|
| Total lifecycle Carbon footprint | **2 169 kg CO2 eq.** |
| Carbon footprint of the manufacturing phase [A1 to A3] | **67 kg CO2 eq.** |
| Carbon footprint of the distribution phase [A4] | **0.5 kg CO2 eq.** |
| Carbon footprint of the installation phase [A5] | **0.7 kg CO2 eq.** |
| Carbon footprint of the use phase [B2, B3, B4, B6] | **2 097 kg CO2 eq.** |
| Carbon footprint of the end-of-life phase [C1 to C4] | **4 kg CO2 eq.** |
| Environmental Disclosure | **Product Environmental Profile** |

## Use Better

### Materials and Substances

| | |
|---|---|
| Packaging made with recycled cardboard | **Yes** |
| Packaging without single use plastic | **Yes** |
| SCIP Number | **81d6792e-d307-4115-9475-2db3f34c93af** |
| EU RoHS Directive | **Compliant By Exemption** |
| REACh Regulation | **Reference contains Substances of Very High Concern above the threshold** |
| 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** |

### Energy efficiency

| | |
|---|---|
| Product contributes to saved and avoided emissions | **Yes** |

## Use Again

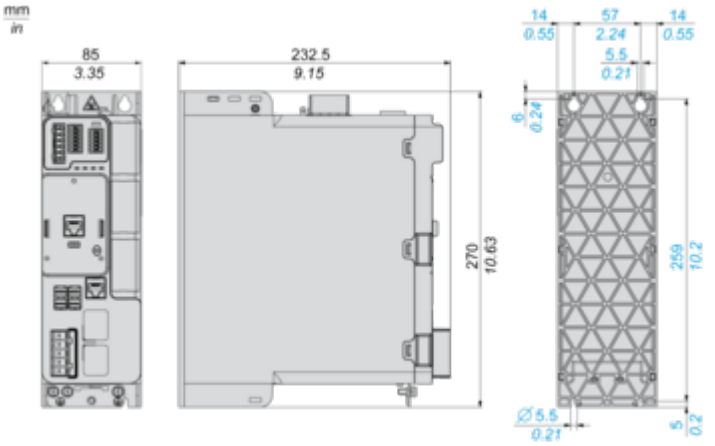
### Repack and remanufacture

| | |
|---|---|
| Recyclability potential, in % | **47** |
| Circularity Profile | **End of Life Information** |
| Take-back | **No** |
| WEEE Label | **The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.** |

Dimensions Drawings

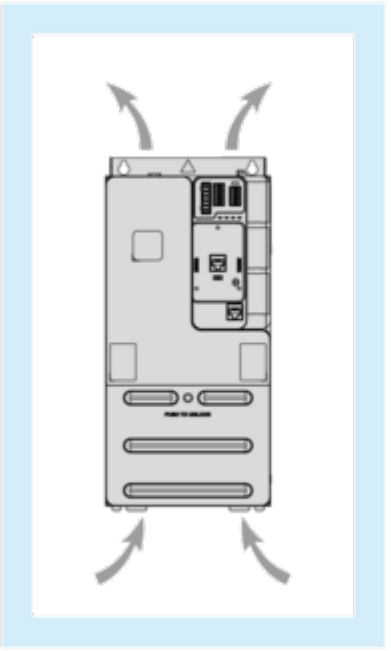
## Dimensions

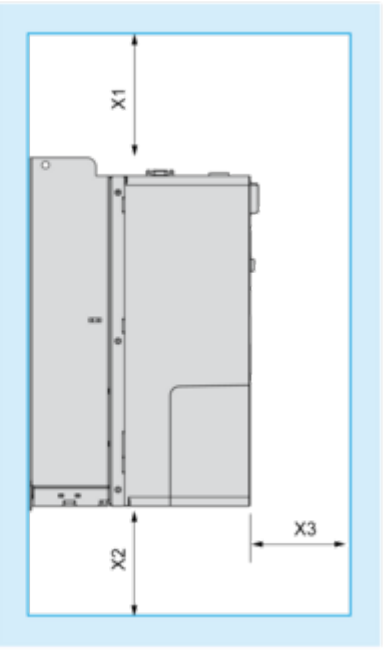
### Views: Front - Left - Rear



Mounting and Clearance

## Clearance

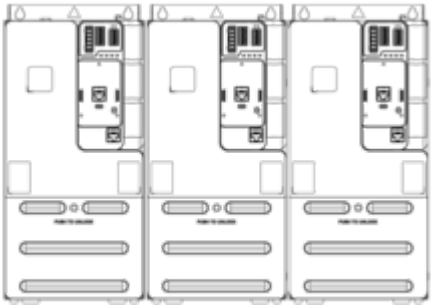





| X1 | X2 | X3 | | | |
|---|---|---|---|---|---|
| **mm** | **in.** | **mm** | **in.** | **mm** | **in.** |
| ≥ 100 | ≥ 3.94 | ≥ 100 | ≥ 3.94 | ≥ 60 | ≥ 2.36 |

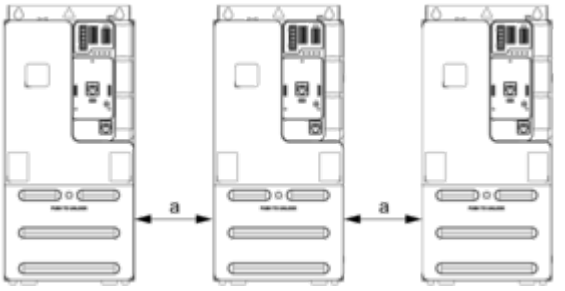
## Mounting Types

### Mounting Type A: Side by Side IP20



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

### Mounting Type B: Individual IP20

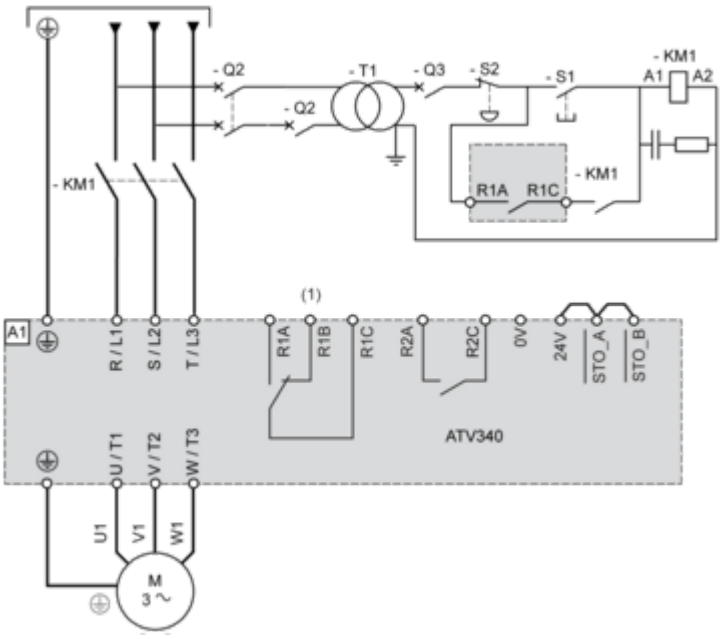



**a** ≥ 50 mm (1.97 in.) from 50...60°C, no restriction below 50°C

Connections and Schema

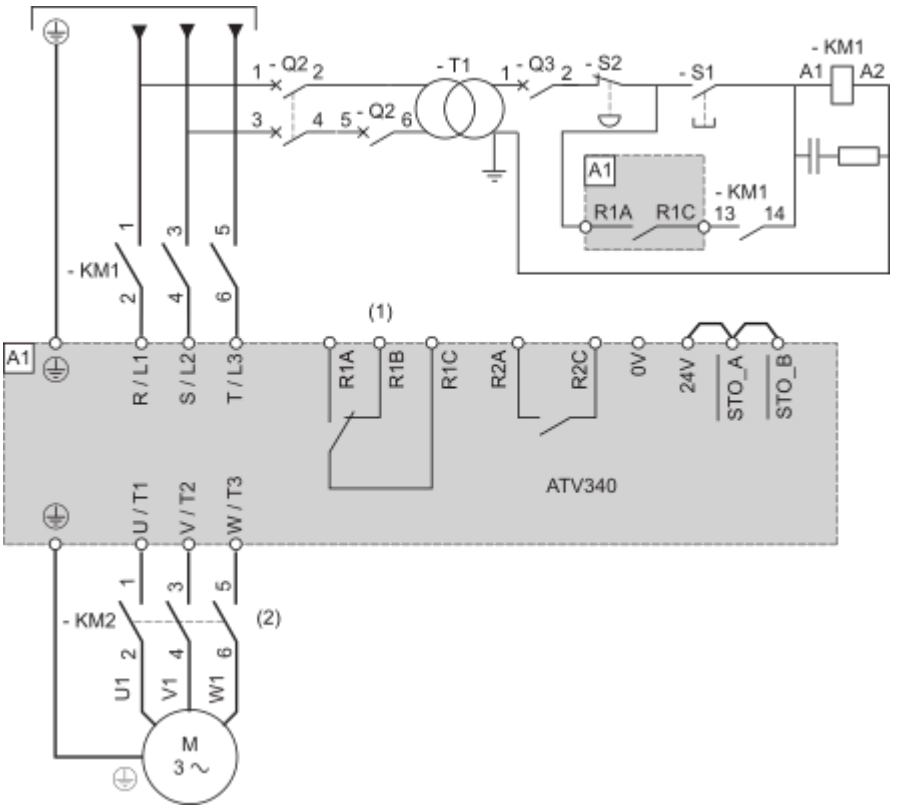
## Connections and Schema

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



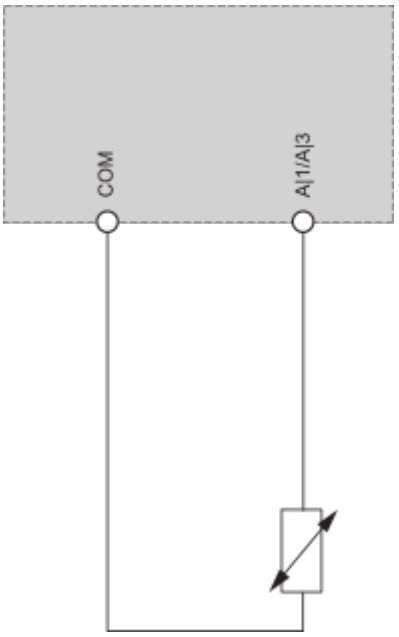

**(1)** : Use relay output R1 set to operating state Fault to switch Off the product once an error is detected.
**NOTE :**
• Press S1 until the initialization of the drive is finished.
• An external 24V power supply can be connected so that the control part of the drive is always power supplied.

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

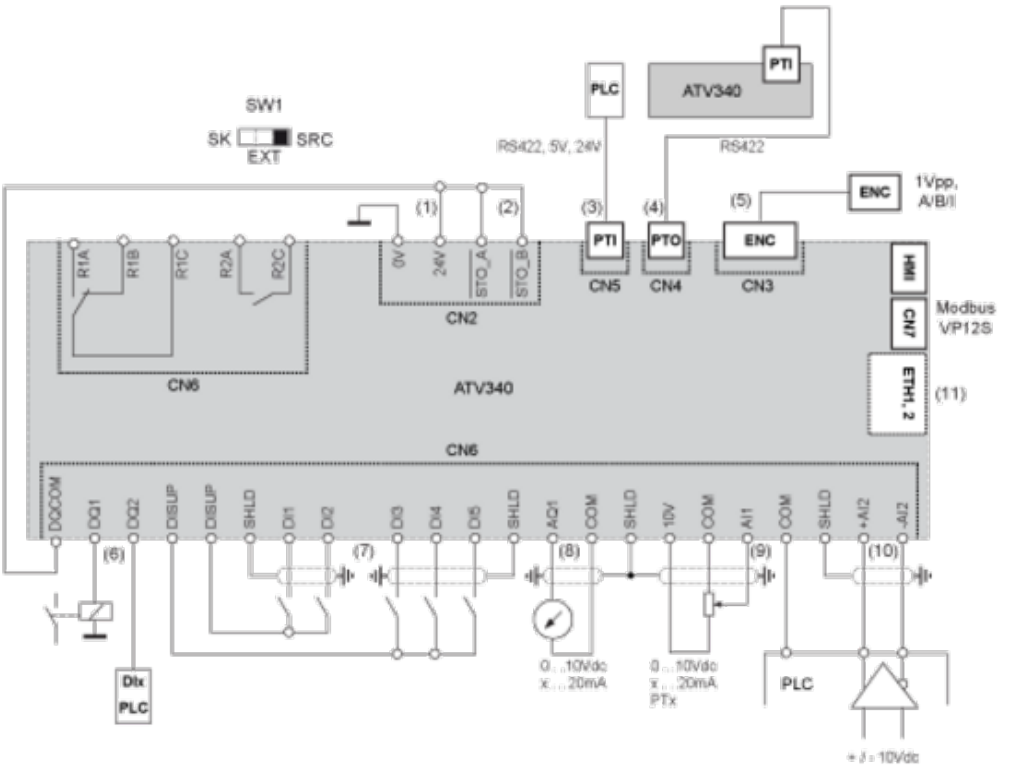


**(1)** : Use relay output R1 set to operating state Fault to switch Off the product once an error is detected.
**(2)** : Command of KM2 can be done by using the **[Output contactor cmd]** OCC function. For more information, refer to the programming manual.
**NOTE :**
• Close upstream contactor, then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



## Control Block Wiring Diagram

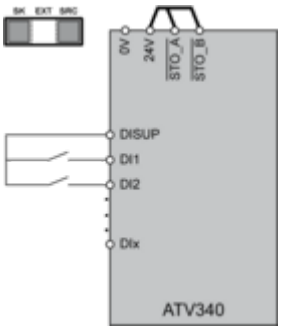



**(1)** : 24V In, Out, maximum supply current 200 mA is provided,
**(2)** : STO - Safe Torque Off, see ATV340 Embedded safety function manual NVE64143
**(3)** : PTI - Pulse Train In, from external source (eg.PLC) Pulse - Direction or A-B signals can be connected
**(4)** : PTO - Pulse Train Out, can be 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

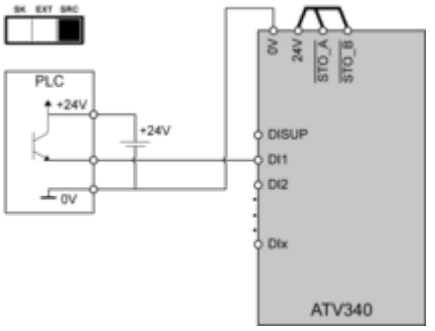
**Using DISUP Signal**



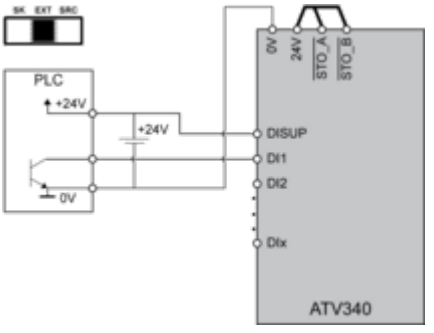

In SRC position DISUP outputs 24 V. In SK position DISUP is connected to 0 V.

### Digital Inputs: External Supply

**Positive Logic, Source, European Style**

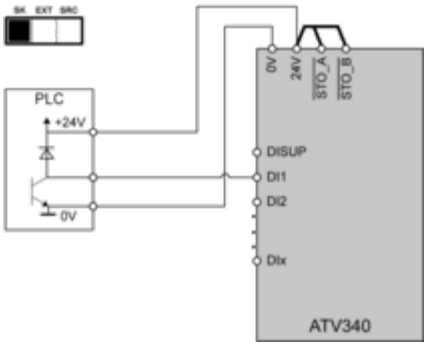



**Negative Logic, Sink, Asian Style**




### Digital Inputs: Internal supply

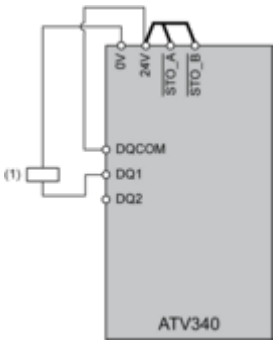
**Negative Logic, Sink, Asian Style**


SK EXT SRC
PLC
+24V
0V
0V
24V
STO_A
STO_B
DISUP
DI1
DI2
DIx
ATV340

## Digital Outputs Wiring

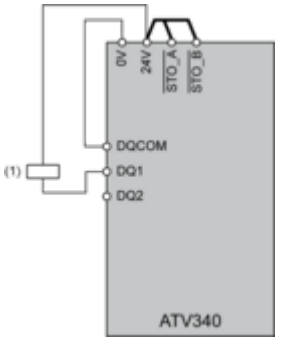
### Digital Outputs: Internal Supply

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




**(1)** Relay or valve

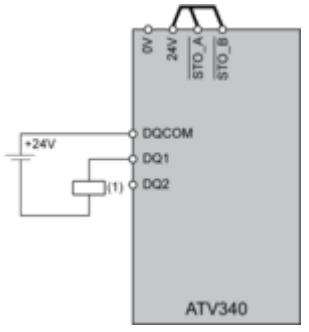
**Negative Logic, Sink, Asian Style, DQCOM to 0V**




**(1)** Relay or valve

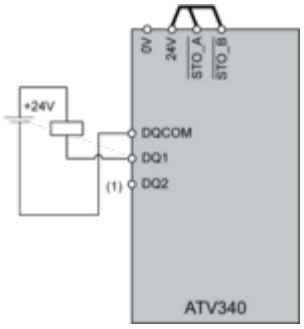
### Digital Outputs: External Supply

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




**(1)** Relay or valve

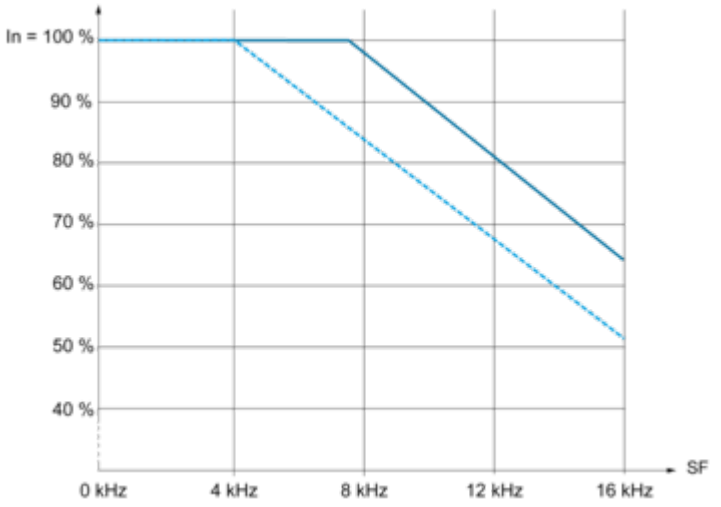
**Negative Logic, Sink, Asian Style, DQCOM to 0V**




**(1)** Relay or valve

Performance Curves

## 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