



## 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  | Sercos<br>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 |
| Network number of phases     | 3 phases                                                                                                                                                                     |
| Supply frequency             | 50...60 Hz +/- 5 %                                                                                                                                                           |
| [Us] rated supply voltage    | 380...480 V - 15...10 %                                                                                                                                                      |
| Nominal output current       | 16.5 A                                                                                                                                                                       |
| Motor power kW               | 11 kW for normal duty<br>7.5 kW for heavy duty                                                                                                                               |
| Motor power hp               | 15 Hp for normal duty<br>10 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 safe torque off: 0...30 kHz, 24 V DC (30 V)<br>DI1...DI5 discrete input, 24 V DC (30 V), impedance: 3.5 kOhm                                                                                                                                                                                                                                     |
| 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  | 2                                                                                                                                                                                                                                                                                                                                                    |
| 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 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  | Variable torque standard<br>Constant torque standard<br>Optimized torque mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Synchronous motor control profile   | Permanent magnet motor<br>Reluctance motor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Pollution degree                    | 2 conforming to EN/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             | Automatic whatever the load<br>Can be suppressed<br>Adjustable<br>Not available in permanent magnet motor law                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 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                        | 22.0 A at 380 V (normal duty)<br>17.7 A at 480 V (normal duty)<br>25.6 A at 380 V (heavy duty)<br>20.4 A at 480 V (heavy duty)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Line current                        | 25.6 A at 380 V without line choke (heavy duty)<br>20.4 A at 480 V without line choke (heavy duty)<br>22 A at 380 V with external line choke (normal duty)<br>17.7 A at 480 V with external line choke (normal duty)<br>14.6 A at 380 V with external line choke (heavy duty)<br>12.1 A at 480 V with external line choke (heavy duty)                                                                                                                                                                                                                                                                                                                                   |
| Maximum input current               | 25.6 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Maximum output voltage              | 480 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Apparent power                      | 17 KVA at 480 V (normal duty)<br>17 kVA at 480 V (heavy duty)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Maximum transient current           | 26.4 A during 60 s (normal duty)<br>24.8 A during 60 s (heavy duty)<br>32.4 A during 2 s (normal duty)<br>29.7 A during 2 s (heavy duty)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Electrical connection               | Screw terminal, clamping capacity: 4...6 mm <sup>2</sup> for DC bus<br>Screw terminal, clamping capacity: 0.2...2.5 mm <sup>2</sup> for control<br>Screw terminal, clamping capacity: 1.5...6 mm <sup>2</sup> for motor<br>Screw terminal, clamping capacity: 2.5...6 mm <sup>2</sup> for line side                                                                                                                                                                                                                                                                                                                                                                      |
| Prospective line I <sub>sc</sub>    | 22 kA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Base load current at high overload  | 16.5 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

|                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Base load current at low overload                     | 24.0 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Power dissipation in W                                | Natural convection: 180 W at 380 V, switching frequency 4 kHz (heavy duty)<br>Forced convection: 180 W at 380 V, switching frequency 4 kHz (heavy duty)<br>Natural convection: 249 W at 380 V, switching frequency 4 kHz (normal duty)<br>Forced convection: 249 W at 380 V, switching frequency 4 kHz (normal duty)                                                                                                                                                                                                                                                                                                              |
| Electrical connection                                 | DC bus: screw terminal 4...6 mm <sup>2</sup> /AWG 12...AWG 10<br>Control: screw terminal 0.2...2.5 mm <sup>2</sup> /AWG 24...AWG 12<br>Motor: screw terminal 1.5...6 mm <sup>2</sup> /AWG 14...AWG 10<br>Line side: screw terminal 2.5...6 mm <sup>2</sup> /AWG 12...AWG 10                                                                                                                                                                                                                                                                                                                                                       |
| 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                                                 | 110.0 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Height                                                | 270.0 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Depth                                                 | 234.0 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Net weight                                            | 3.0 kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Continuous output current                             | 24 A at 4 kHz for normal duty<br>16.5 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              | EN/IEC 61800-3<br>EN/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                                            | 76.0 m³/h                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Type of cooling                                                  | Forced convection                                                                                                                                                                                                                                                                                                                                                                                                                |
| Overvoltage category                                             | Class III                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Regulation loop                                                  | Adjustable PID regulator                                                                                                                                                                                                                                                                                                                                                                                                         |
| Noise level                                                      | 46.5 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                              | -25...70 °C                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Isolation                                                        | Between power and control terminals                                                                                                                                                                                                                                                                                                                                                                                              |

## Packing Units

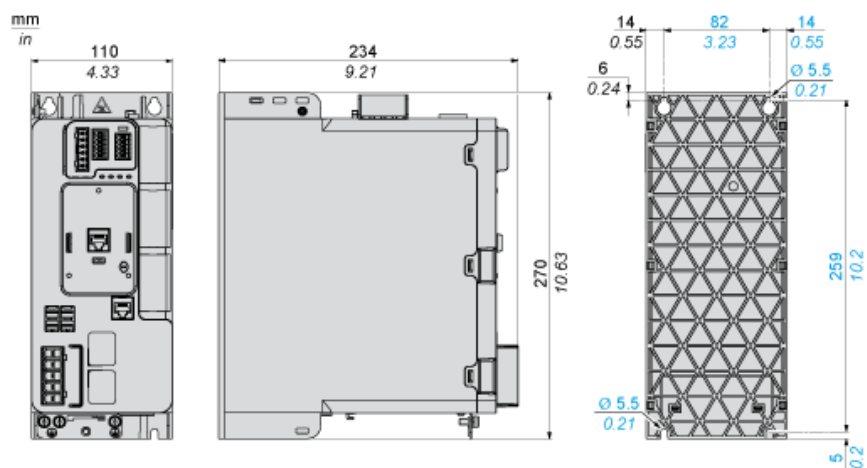
|                  |            |
|------------------|------------|
| Package 1 Weight | 3640.000 g |
| Package 1 Height | 132.000 mm |
| Package 1 width  | 288.000 mm |
| Package 1 Length | 353.000 mm |

## Offer Sustainability

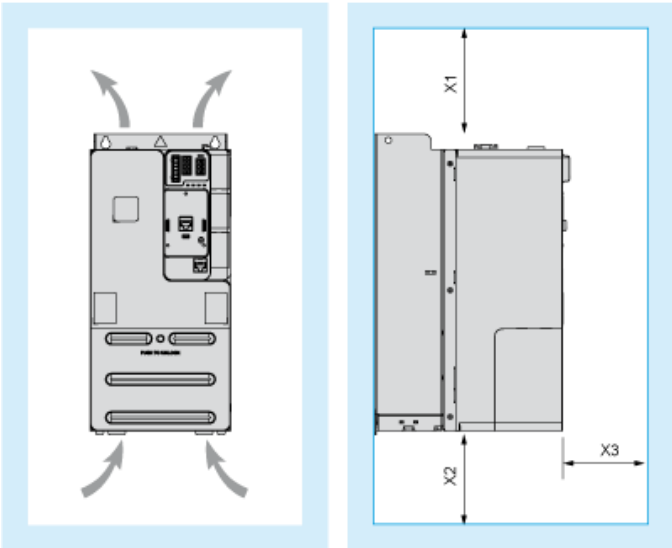
|                            |                                                                                                                                                                                      |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sustainable offer status   | Green Premium product                                                                                                                                                                |
| REACH Regulation           | <a href="#"> REACH Declaration</a>                                                                |
| EU RoHS Directive          | Pro-active compliance (Product out of EU RoHS legal scope) <a href="#"> EU RoHS Declaration</a> |
| Mercury free               | Yes                                                                                                                                                                                  |
| RoHS exemption information | <a href="#"> Yes</a>                                                                              |
| China RoHS Regulation      | <a href="#"> China RoHS Declaration</a>                                                           |
| Environmental Disclosure   | <a href="#"> Product Environmental Profile</a>                                                    |
| Circularity Profile        | <a href="#"> End Of Life Information</a>                                                          |
| WEEE                       | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins                                                          |
| PVC free                   | Yes                                                                                                                                                                                  |

Dimensions

Views: Front - Left - Rear



Clearance



Dimensions in mm

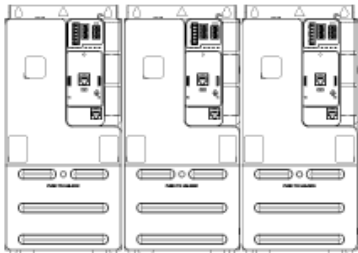
| X1    | X2    | X3   |
|-------|-------|------|
| ≥ 100 | ≥ 100 | ≥ 60 |

Dimensions in in.

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

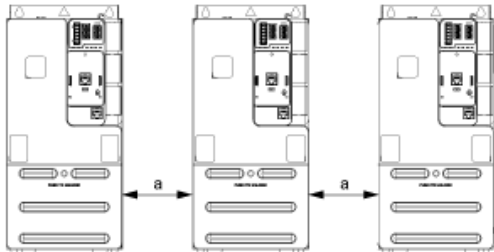
Mounting Types

Mounting Type A: Side by Side IP20



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

Mounting Type B: Individual IP20



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

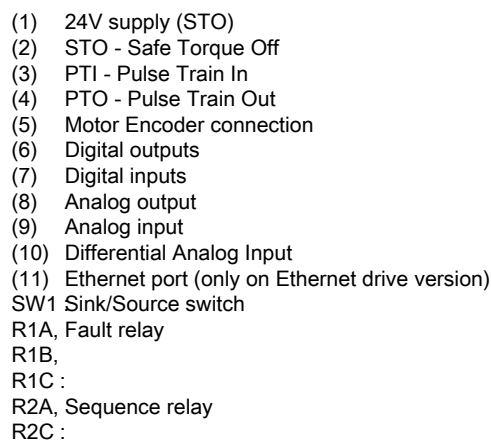
## Three-phase Power Supply with Upstream Breaking via Line Contactor Without Safety Function STO

- (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, Circuit breakers  
Q3 :  
S1 : Pushbutton  
S2 : Emergency stop  
T1 : Transformer for control part

- 7

[illegible]

### Control Block Wiring Diagram

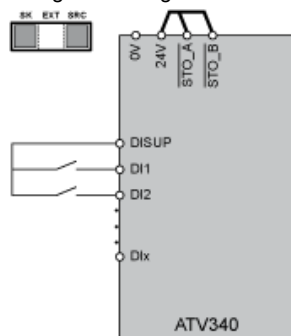


8 Life Is On 



## Digital Inputs: Internal Supply

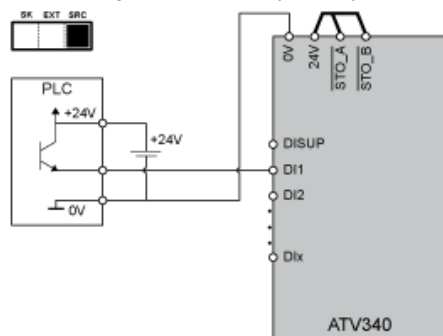
### Using DISUP Signal



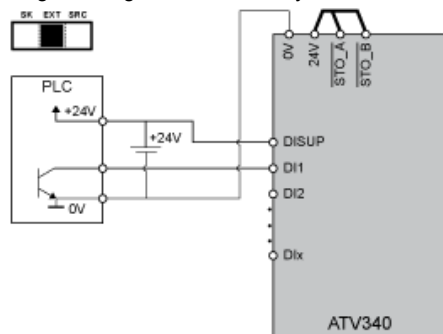
In SRC position DISUP outputs 24 V. In SK position DISUP is connected to 0 V.

## Digital Inputs: External Supply

### Positive Logic, Source, European Style

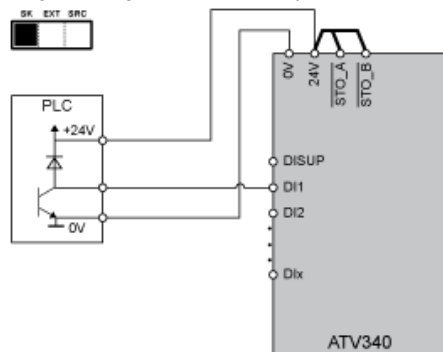


### Negative Logic, Sink, Asian Style



## Digital Inputs: Internal supply

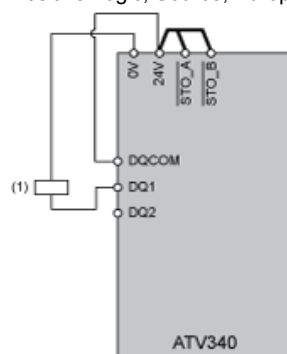
### Negative Logic, Sink, Asian Style



## Digital Outputs Wiring

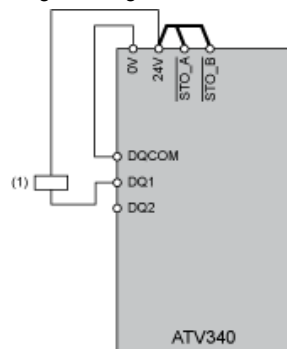
## Digital Outputs: Internal Supply

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



(1) Relay or valve

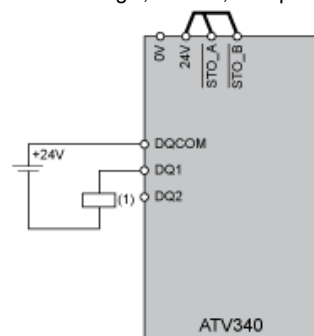
Negative Logic, Sink, Asian Style, DQCOM to 0V



(1) Relay or valve

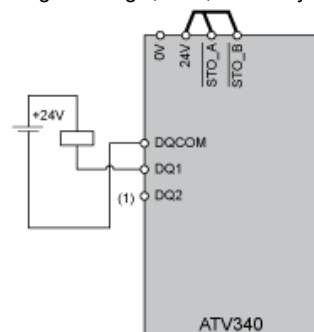
## Digital Outputs: External Supply

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



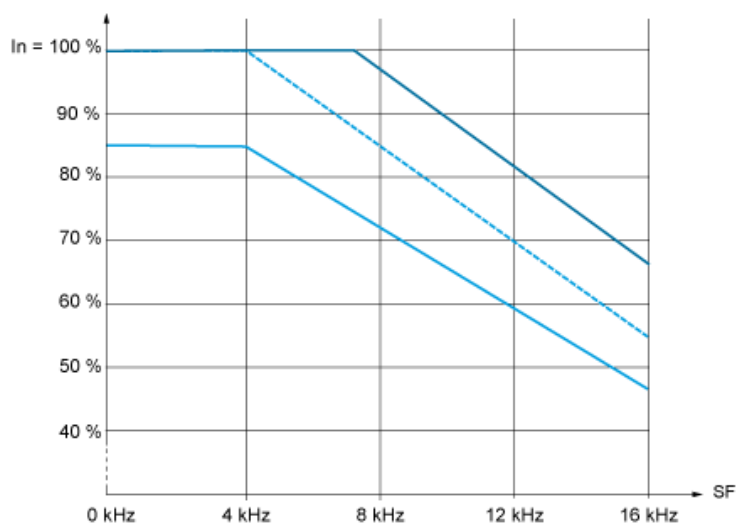
(1) Relay or valve

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



(1) Relay or valve

### Derating Curves



— 40 °C (104 °F) - Mounting type A and B  
- - - 50 °C (122 °F) - Mounting type A and B  
— 60 °C (140 °F) - Mounting type B

In : Nominal Drive Current

SF : Switching Frequency