

ATV340U55N4

frekventni pretvarač - 5,5kW - 400V - 3 faze -
ATV340



Glavno

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|------------------------------------|---|
| Range of product | Altivar Machine ATV340 |
| Product or component type | Variable speed drive |
| Device application | Machine |
| Device short name | ATV340 |
| Variant | Standard version |
| Product destination | Asynchronous motors Synchronous motors |
| Mounting mode | Cabinet mount |
| EMC filter | Integrated with <= 20 m motor cable maxi conforming to EN/IEC 61800-3 category C3 |
| IP degree of protection | IP20 conforming to IEC 60529 IP20 conforming to IEC 61800-5-1 |
| Type of cooling | Forced convection |
| Supply frequency | 50...60 Hz +/- 5 % |
| Network number of phases | 3 phases |
| [Us] rated supply voltage | 380...480 V - 15...10 % |
| Motor power kW | 7.5 kW (normal duty) 5.5 kW (heavy duty) |
| Motor power hp | 10 hp (normal duty) 7 hp (heavy duty) |
| Line current | 20 A at 380 V without line choke (heavy duty) 16 A at 480 V without line choke (heavy duty) 15.3 A at 380 V with external line choke (normal duty) 12.2 A at 480 V with external line choke (normal duty) 11.6 A at 380 V with external line choke (heavy duty) 9.4 A at 480 V with external line choke (heavy duty) |
| Prospective line I _{sc} | 22 kA |
| Apparent power | 12.1 kVA at 480 V (normal duty) 13.3 kVA at 480 V (heavy duty) |
| Continuous output current | 16.5 A at 4 kHz (normal duty) 12.7 A at 4 kHz (heavy duty) |
| Maximum transient current | 19.1 A during 60 s (heavy duty) 18.2 A during 60 s (normal duty) 22.3 A during 2 s (normal duty) 22.9 A during 2 s (heavy duty) |
| Asynchronous motor control profile | Constant torque standard Variable torque standard Optimized torque mode |
| Synchronous motor control profile | Permanent magnet motor Reluctance motor |
| Speed drive output frequency | 0.1...599 Hz |
| Nominal switching frequency | 4 kHz |
| Switching frequency | 2...16 kHz adjustable 7...16 kHz with derating factor |
| Safety function | STO (safe torque off) SIL 3 |

Komplementarno

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| Discrete input logic | 16 preset speeds |
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Informacije dane u ovoj dokumentaciji sadrže opće opise i/ili tehničke karakteristike o performansama ovdje sadržanih proizvoda. Ova dokumentacija nije namijenjena kao zamjena za niti bi se trebala koristiti za određivanje prikladnosti ili pouzdanosti predmetnih proizvoda za konkretne korisničke primjene. Svaki takav korisnik ili integrator dužan je provesti odgovarajuću i potpunu analizu rizika, procjenu i ispitivanje proizvoda u odnosu na odgovarajuću specifičnu primjenu ili uporabu istog. Niti društvo Schneider Electric Industries SAS niti bilo koje od njegovih povezanih poduzeća ili podružnica neće preuzeti obvezu ili snositi odgovornost za pogrešnu upotrebu ovdje sadržanih informacija.

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| Communication port protocol | Modbus serial |
| Option card | Slot GP-FB : communication module for Profibus DP V1 Slot GP-FB : communication module for Profinet Slot GP-FB : communication module for DeviceNet Slot GP-FB : communication module for CANopen daisy chain RJ45 Slot GP-FB : communication module for CANopen SUB-D 9 Slot GP-FB : communication module for CANopen screw terminals Slot GP-FB : communication module for EtherCAT Slot GP-X : digital and analog I/O extension module Slot GP-X : output relay extension module Slot GP-ENC : 5/12 V digital encoder interface module Slot GP-ENC : analog encoder interface module Slot GP-ENC : resolver encoder interface module |
| Output voltage | <= power supply voltage |
| Permissible temporary current boost | 1.1 x In for 60 s (normal duty) 1.5 x In for 60 s (heavy duty) 1.35 x In for 2 s (normal duty) 1.8 x In for 2 s (heavy duty) |
| Motor slip compensation | Adjustable Automatic whatever the load Can be suppressed Not available in permanent magnet motor law |
| Acceleration and deceleration ramps | S, U or customized Linear adjustable separately from 0.01...9999 s |
| Braking to standstill | By DC injection |
| Protection type | Motor: thermal protection Drive: thermal protection Drive: overheating Drive: line supply overvoltage Drive: line supply undervoltage Drive: break on the control circuit Motor: safe torque off Drive: safe torque off Drive: short-circuit between motor phases Motor: motor phase loss Drive: overcurrent Drive: output overcurrent between motor phase and earth Drive: output overcurrent between motor phases Drive: short-circuit between motor phase and earth Drive: motor phase loss Drive: DC Bus overvoltage Drive: input supply loss Drive: exceeding limit speed |
| Frequency resolution | Display unit: 0.1 Hz Analog input: 0.012/50 Hz |
| Electrical connection | Screw terminal with clamping capacity: 4...6 mm ² , AWG 12...AWG 10 on DC bus Screw terminal with clamping capacity: 0.2...2.5 mm ² , AWG 24...AWG 12 on control Screw terminal with clamping capacity: 1.5...6 mm ² , AWG 14...AWG 10 on line side Screw terminal with clamping capacity: 1.5...6 mm ² , AWG 14...AWG 10 on motor |
| Connector type | Connector(s) 1 x RJ45, Modbus serial on front face Connector(s) 1 x RJ45, Modbus serial for HMI on front face |
| Physical interface | 2-wire RS 485 Modbus serial |
| Transmission frame | RTU Modbus serial |
| Transmission rate | 4800 bps, 9600 bps, 19200 bps, 38.4 Kbps Modbus serial |
| Data format | 8 bits, configurable odd, even or no parity Modbus serial |
| Type of polarization | No impedance Modbus serial |
| Number of addresses | 1...247 Modbus serial |
| Method of access | Slave Modbus RTU |
| Supply | External supply for digital inputs: 24 V DC (19...30 V), <= 1.25 mA, protection type: overload and short-circuit protection Internal supply for reference potentiometer (1 to 10 kOhm): 10.5 V DC +/- 5 %, <= 10 mA, protection type: overload and short-circuit protection Internal supply for digital inputs and STO: 24 V DC (21...27 V), <= 200 mA, protection type: overload and short-circuit protection |
| Local signalling | 4 LED, mono/dual colour for local diagnostic 4 LED, dual colour for communication module status |
| Width | 110 mm |
| Height | 270 mm |
| Depth | 234 mm |

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| Product weight | 2.9 kg |
| Analogue input number | 2 |
| Analogue input type | AI1 software-configurable current: 0...20 mA, impedance 250 Ohm, resolution 12 bits AI1 software-configurable temperature probe or water level sensor AI1 software-configurable voltage: 0...10 V DC, impedance 31.5 kOhm, resolution 12 bits AI2 software-configurable voltage: - 10...10 V DC, impedance 20 kOhm, resolution 12 bits |
| Discrete input number | 8 |
| Discrete input type | PTI programmable as pulse input: 0...30 kHz, 24 V DC (<= 30 V) STOA, STOB safe torque off, 24 V DC (<= 30 V), impedance > 2.2 kOhm DI1...DI5 programmable, 24 V DC (<= 30 V), impedance 4.4 kOhm |
| Input compatibility | DI1...DI5: discrete input level 1 PLC conforming to EN/IEC 61131-2 PTI: pulse input level 1 PLC conforming to IEC 65A-68 STOA, STOB: discrete input level 1 PLC conforming to EN/IEC 61131-2 |
| Discrete input logic | DI1...DI5 positive logic (source) at State 0: < 5 V, at State 1: > 11 V DI1...DI5 negative logic (sink) at State 0: > 16 V, at State 1: < 10 V PTI positive logic (source) at State 0: < 0.6 V, at State 1: > 2.5 V STOA, STOB positive logic (source) at State 0: < 5 V, at State 1: > 11 V |
| Analogue output number | 1 |
| Analogue output type | Software-configurable voltage AQ1: 0...10 V DC impedance 470 Ohm, resolution 10 bits Software-configurable current AQ1: 0...20 mA impedance 500 Ohm, resolution 10 bits |
| Input/output type | Programmable as logic input/output DQ1: 0...1 kHz, <= 30 V DC, 100 mA Programmable as logic input/output DQ2: 0...1 kHz, <= 30 V DC, 100 mA |
| Sampling duration | Discrete input DI1...DI5: 2 ms (+/- 0.5 ms) Pulse input PTI: 5 ms (+/- 1 ms) Analog input AI1, AI2: 1 ms (+/- 1 ms) Analog output AQ1: 5 ms (+/- 1 ms) Discrete input/output DQ1, DQ2: 2 ms (+/- 0.5 ms) |
| Accuracy | Analog input AI1, AI2: +/- 0.6 % for a temperature variation 60 °C Analog output AQ1: +/- 1 % for a temperature variation 60 °C |
| Linearity error | AI1, AI2: +/- 0.15 % of maximum value for analog input AQ1: +/- 0.2 % for analog output |
| Relay output number | 2 |
| Relay output type | Configurable relay logic R1: fault relay NO/NC 100000 cycles at maximum switching current Configurable relay logic R2: sequence relay NO 100000 cycles at maximum switching current |
| Refresh time | Relay output R1, R2: 5 ms (+/- 0.5 ms) |
| Minimum switching current | Relay output R1, R2: 5 mA at 24 V DC |
| Maximum switching current | Relay output R1: 3 A at 250 V AC on resistive load (cos phi = 1) Relay output R1: 3 A at 30 V DC on resistive load (cos phi = 1) Relay output R1: 2 A at 250 V AC on inductive load (cos phi = 0.4 and L/R = 7 ms) Relay output R1: 2 A at 30 V DC on inductive load (cos phi = 0.4 and L/R = 7 ms) Relay output R2: 5 A at 250 V AC on resistive load (cos phi = 1) Relay output R2: 5 A at 30 V DC on resistive load (cos phi = 1) Relay output R2: 2 A at 250 V AC on inductive load (cos phi = 0.4 and L/R = 7 ms) Relay output R2: 2 A at 30 V DC on inductive load (cos phi = 0.4 and L/R = 7 ms) |

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| isolation | Between power and control terminals |
| insulation resistance | > 1 MOhm 500 V DC for 1 minute to earth |
| noise level | 46.6 dB conforming to 86/188/EEC |
| power dissipation in W | Natural convection: 134 W at 380 V, switching frequency 4 kHz (heavy duty) Forced convection: 134 W at 380 V, switching frequency 4 kHz (heavy duty) Natural convection: 164 W at 380 V, switching frequency 4 kHz (normal duty) Forced convection: 164 W at 380 V, switching frequency 4 kHz (normal duty) |
| operating position | Vertical +/- 10 degree |
| electromagnetic compatibility | 1.2/50 µs - 8/20 µs surge immunity test level 3 conforming to IEC 61000-4-5 Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4 Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 conforming to IEC 61000-4-3 Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6 |
| pollution degree | 2 conforming to EN/IEC 61800-5-1 |

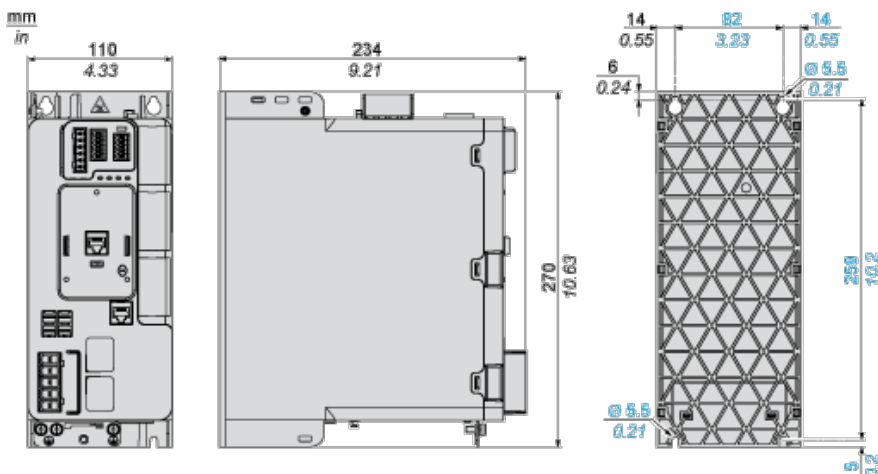
| | |
|---------------------------------------|--|
| vibration resistance | 1.5 mm peak to peak (f= 2...19 Hz) conforming to EN/IEC 60721-3-3 class 3M3 1 gn (f= 9...200 Hz) conforming to EN/IEC 60721-3-3 class 3M3 |
| shock resistance | 15 gn (duration = 11 ms) conforming to EN/IEC 60721-3-3 class 3M3 |
| relative humidity | 5...95 % without condensation conforming to EN/IEC 60721-3-3 class 3K3 |
| ambient air temperature for operation | 0...50 °C without current derating (heavy duty) 0...40 °C without current derating (normal duty) 50...60 °C with current derating (heavy duty) 40...60 °C with current derating (normal duty) |
| ambient air temperature for storage | -25...70 °C |
| operating altitude | <= 1000 m without derating 1000...3000 m with current derating 1 % per 100 m |
| environmental characteristic | Chemical pollution resistance class 3C3 conforming to EN/IEC 60721-3-3 Dust pollution resistance class 3S3 conforming to EN/IEC 60721-3-3 |
| standards | EN/IEC 61800-3 EN/IEC 61800-3 environment 1 category C2 EN/IEC 61800-3 environment 2 category C3 EN/IEC 61800-5-1 IEC 60721-3 IEC 61508 IEC 13849-1 UL 618000-5-1 |
| product certifications | CSA TÜV UL REACH |
| marking | CE |

Offer Sustainability

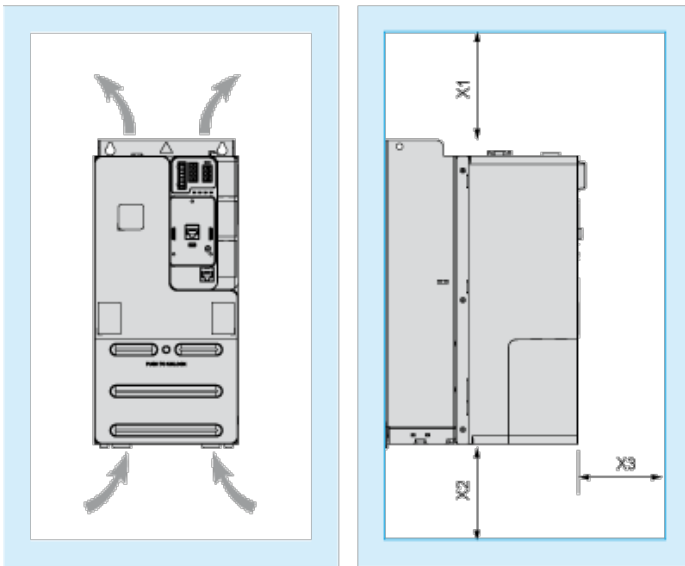
| | |
|---|---|
| Green Premium product | Green Premium product |
| Compliant - since 1635 - Schneider Electric declaration of conformity | Compliant - since 1635 - Schneider Electric declaration of conformity |
| Reference not containing SVHC above the threshold | Reference not containing SVHC above the threshold |
| Available | Available |
| Available | Available |

Dimensions

Views: Front - Left - Rear



Clearance



Dimensions in mm

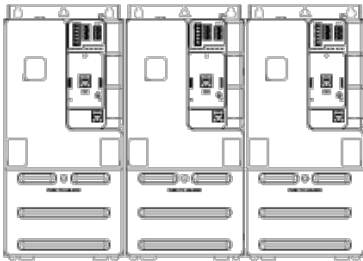
| X1 | X2 | X3 |
|-------|-------|------|
| ≧ 100 | ≧ 100 | ≧ 60 |

Dimensions in in.

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

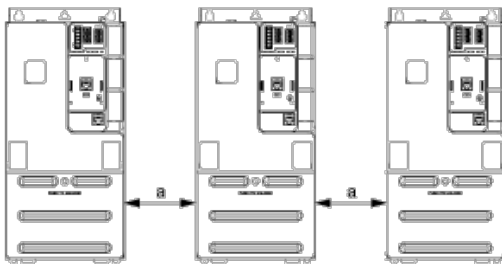
Mounting Types

Mounting Type A: Side by Side IP20



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

Mounting Type B: Individual IP20

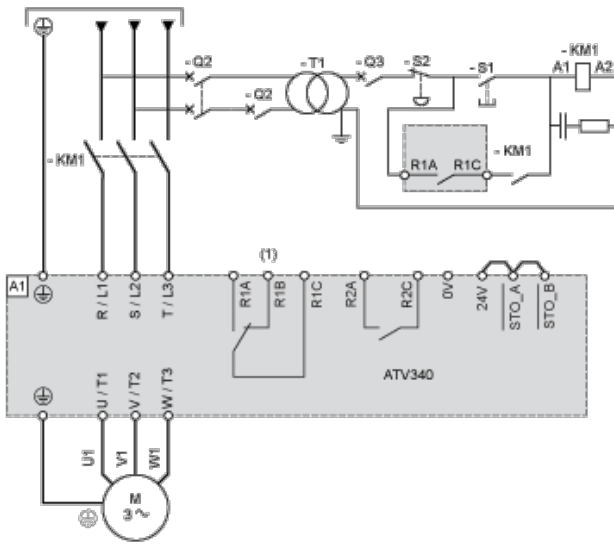


a $\geq 50\text{ mm}$ (1.97 in.) from 50...60 $^{\circ}\text{C}$, no restriction below 50 $^{\circ}\text{C}$

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, Circuit breakers

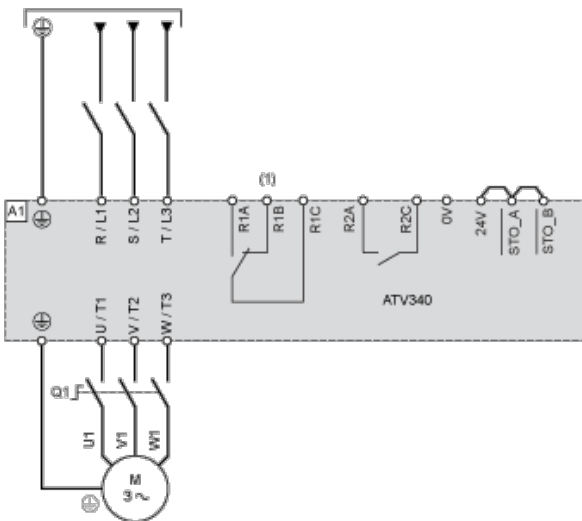
Q3 :

S1 : Pushbutton

S2 : Emergency stop

T1 : Transformer for control part

Three-phase Power Supply With Downstream Breaking via Switch Disconnecter

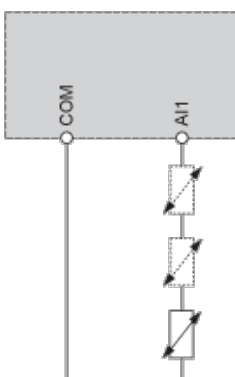


(1) Use relay output R1 set to operating state Fault to switch Off the product once an error is detected.

A1 : Drive

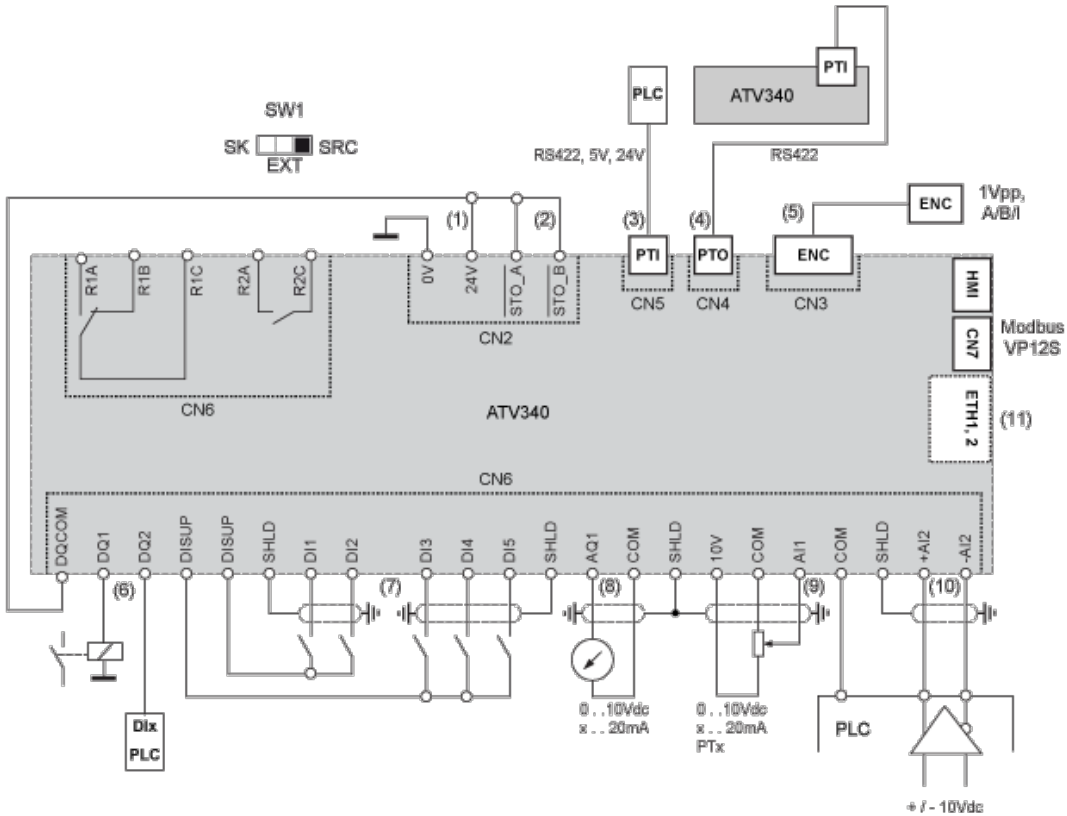
Q1 : Switch disconnecter

Sensor Connection



It is possible to connect either 1 or 3 sensors on terminals A1.

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, Fault relay

R1B,

R1C :

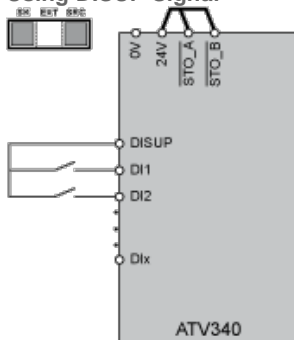
R2A, Sequence relay

R2C :

Digital Inputs Wiring

Digital Inputs: Internal Supply

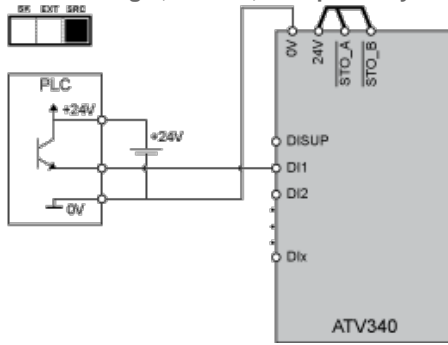
Using DISUP Signal



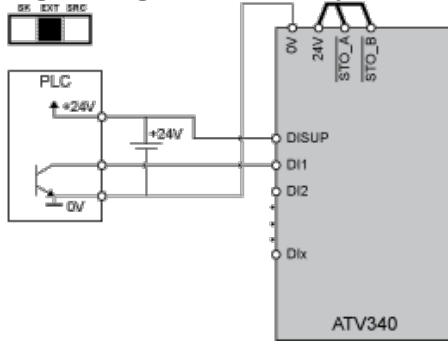
In SRC position DISUP outputs 24 V. In SK position DISUP is connected to 0 V.

Digital Inputs: External Supply

Positive Logic, Source, European Style

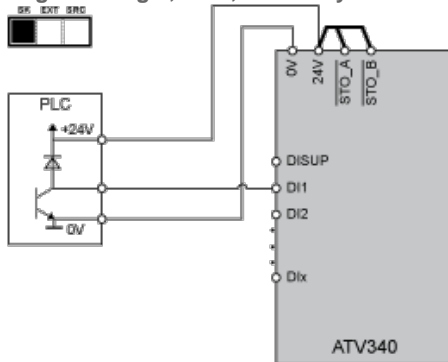


Negative Logic, Sink, Asian Style



Digital Inputs: Internal supply

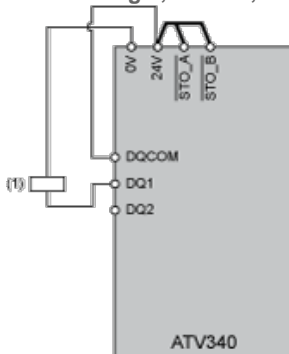
Negative Logic, Sink, Asian Style



Digital Outputs Wiring

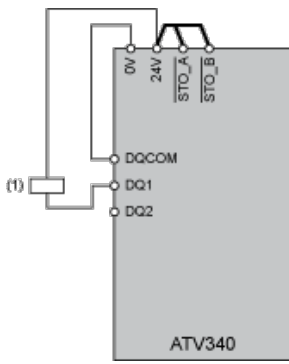
Digital Outputs: Internal Supply

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



(1) Relay or valve

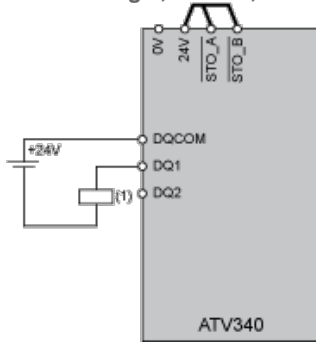
Negative Logic, Sink, Asian Style, DQCOM to 0V



(1) Relay or valve

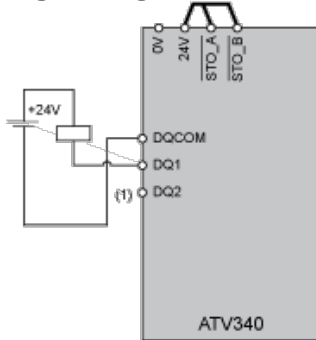
Digital Outputs: External Supply

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



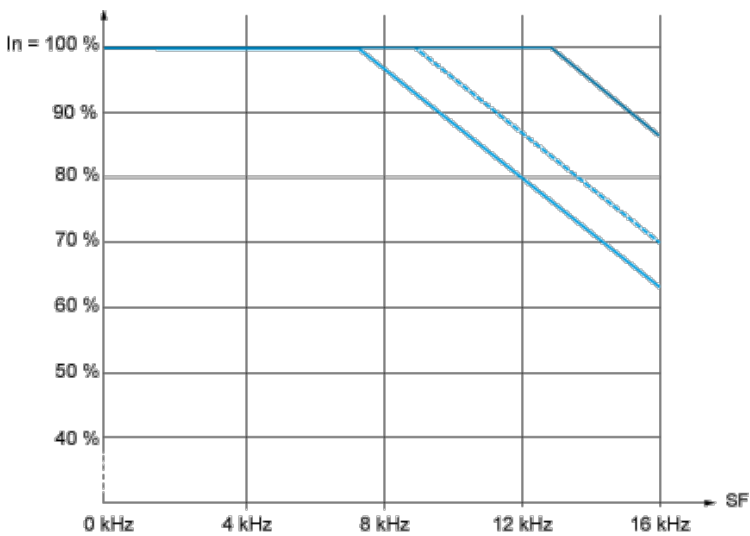
(1) Relay or valve

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



(1) Relay or valve

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