

ATV340D15N4

variable speed drive - 15kW- 400V - 3 phases -
ATV340



Product availability: Stock - Normally stocked in distribution facility



Main

| | |
|------------------------------------|--|
| 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 65.62 ft (20 m) EN/IEC 61800-3 category C3 |
| IP degree of protection | IP20IEC 61800-5-1 IP20IEC 60529 |
| Type of cooling | Forced convection |
| Supply frequency | 50...60 Hz +/- 5 % |
| Phase | 3 phase |
| [Us] rated supply voltage | 380...480 V - 15...10 % |
| Motor power kW | 18.5 KW normal duty 15 kW heavy duty |
| Maximum Horse Power Rating | 25 Hp normal duty 20 hp heavy duty |
| Line current | 44.9 A 380 V without line choke heavy duty) 35.7 A 480 V without line choke heavy duty) 42.4 A 380 V with external line choke normal duty) 34.1 A 480 V with external line choke normal duty) 45.5 A 380 V with external line choke heavy duty) 36.0 A 480 V with external line choke heavy duty) |
| Prospective line Isc | 22 kA |
| Apparent power | 28.3 KVA 480 V normal duty) 29.7 kVA 480 V heavy duty) |
| Continuous output current | 39 A 4 kHz normal duty 32 A 4 kHz heavy duty |
| Maximum transient current | 42.9 A 60 s normal duty) 48 A 60 s heavy duty) 52.7 A 2 s normal duty) 58 A 2 s heavy duty) |
| Asynchronous motor control profile | Variable torque standard Optimized torque mode Constant torque standard |
| Synchronous motor control profile | Reluctance motor Permanent magnet 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 |

The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein. 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. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither Schneider Electric Industries SAS nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein.

Complementary

| | |
|-------------------------------------|--|
| Number of preset speeds | 16 preset speeds |
| Communication port protocol | Modbus serial |
| Option card | Slot GP-FB communication module Profibus DP V1 Slot GP-FB communication module Profinet Slot GP-FB communication module DeviceNet Slot GP-FB communication module CANopen daisy chain RJ45 Slot GP-FB communication module CANopen SUB-D 9 Slot GP-FB communication module CANopen screw terminals Slot GP-FB communication module 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 60 s normal duty) 1.35 x In 2 s normal duty) 1.5 x In 60 s heavy duty) 1.8 x In 2 s heavy duty) |
| Motor slip compensation | Automatic whatever the load Adjustable Not available in permanent magnet motor law Can be suppressed |
| Acceleration and deceleration ramps | Linear adjustable separately from 0.01...9999 s S, U or customized |
| Braking to standstill | By DC injection |
| Protection type | Thermal protection motor Safe torque off motor Motor phase loss motor Thermal protection drive Safe torque off drive Overheating drive Overcurrent drive Output overcurrent between motor phase and earth drive Output overcurrent between motor phases drive Short-circuit between motor phase and earth drive Short-circuit between motor phases drive Motor phase loss drive DC Bus overvoltage drive Line supply overvoltage drive Line supply undervoltage drive Input supply loss drive Exceeding limit speed drive Break on the control circuit drive |
| Frequency resolution | Display unit 0.1 Hz Analog input 0.012/50 Hz |
| Electrical connection | Control screw terminal 0.2...2.5 mm ² AWG 24...AWG 12 Line side screw terminal 6...25 mm ² AWG 8...AWG 3 DC bus screw terminal 6...25 mm ² AWG 8...AWG 3 Motor screw terminal 4...25 mm ² AWG 10...AWG 3 |
| Connector type | 1 x RJ45, Modbus serial on front face 1 x RJ45, Modbus serial 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 overload and short-circuit protection Internal supply for reference potentiometer (1 to 10 kOhm) 10.5 V DC +/- 5 %, <10 mA overload and short-circuit protection Internal supply for digital inputs and STO 24 V DC 21...27 V), <200 mA overload and short-circuit protection |
| Local signalling | Local diagnostic 4 LED mono/dual colour) Communication module status 4 LED dual colour) |
| Width | 7.09 in (180 mm) |

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| Height | 15.16 in (385 mm) |
| Depth | 9.80 in (249 mm) |
| Net weight | 20.94 lb(US) (9.5 kg) |
| Analogue input number | 2 |
| Analogue input type | AI1 software-configurable current 0...20 mA 250 Ohm 12 bits AI1 software-configurable temperature probe or water level sensor AI1 software-configurable voltage 0...10 V DC 31.5 kOhm 12 bits AI2 software-configurable voltage - 10...10 V DC 20 kOhm 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)> 2.2 kOhm DI1...DI5 programmable, 24 V DC <= 30 V)4.4 kOhm |
| Input compatibility | DI1...DI5 discrete input level 1 PLC EN/IEC 61131-2 PTI pulse input level 1 PLC IEC 65A-68 STOA, STOB discrete input level 1 PLC EN/IEC 61131-2 |
| Discrete input logic | Positive logic (source) DI1...DI5), < 5 V, > 11 V Negative logic (sink) DI1...DI5), > 16 V, < 10 V Positive logic (source) PTI), < 0.6 V, > 2.5 V Positive logic (source) STOA, STOB), < 5 V, > 11 V |
| Analogue output number | 1 |
| Analogue output type | Software-configurable voltage AQ1 0...10 V DC 470 Ohm 10 bits Software-configurable current AQ1 0...20 mA 500 Ohm 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 | 2 Ms +/- 0.5 ms DI1...DI5) - discrete input 5 Ms +/- 1 ms PTI) - pulse input 1 Ms +/- 1 ms AI1, AI2) - analog input 5 Ms +/- 1 ms AQ1) - analog output 2 ms +/- 0.5 ms DQ1, DQ2) - discrete input/output |
| Accuracy | +/- 0.6 % AI1, AI2 for a temperature variation 60 °C analog input +/- 1 % AQ1 for a temperature variation 60 °C analog output |
| Linearity error | AI1, AI2 +/- 0.15 % of maximum value analog input AQ1 +/- 0.2 % analog output |
| Relay output number | 2 |
| Relay output type | Configurable relay logic R1 fault relay NO/NC 100000 cycles Configurable relay logic R2 sequence relay NO 100000 cycles |
| Refresh time | Relay output R1, R2)5 ms +/- 0.5 ms) |
| Minimum switching current | Relay output R1, R2 5 mA 24 V DC |
| Maximum switching current | Relay output R1 resistive, cos phi = 1 3 A 250 V AC Relay output R1 resistive, cos phi = 1 3 A 30 V DC Relay output R1 inductive, cos phi = 0.4 7 ms 2 A 250 V AC Relay output R1 inductive, cos phi = 0.4 7 ms 2 A 30 V DC Relay output R2 resistive, cos phi = 1 5 A 250 V AC Relay output R2 resistive, cos phi = 1 5 A 30 V DC Relay output R2 inductive, cos phi = 0.4 7 ms 2 A 250 V AC Relay output R2 inductive, cos phi = 0.4 7 ms 2 A 30 V DC |

Environment

| | |
|-------------------------------|--|
| Isolation | Between power and control terminals |
| Insulation resistance | > 1 MOhm 500 V DC for 1 minute to earth |
| Noise level | 55.6 dB 86/188/EEC |
| Power dissipation in W | Natural convection 18 W 380 V 4 kHz heavy duty) Forced convection 346 W 380 V 4 kHz heavy duty) Natural convection 21 W 380 V 4 kHz normal duty) Forced convection 411 W 380 V 4 kHz normal duty) |
| Volume of cooling air | 33814.63 Gal/hr(US) (128 m3/h) |
| Operating position | Vertical +/- 10 degree |
| Electromagnetic compatibility | Electrostatic discharge immunity test level 3 IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 IEC 61000-4-3 Electrical fast transient/burst immunity test level 4 IEC 61000-4-4 1.2/50 µs - 8/20 µs surge immunity test level 3 IEC 61000-4-5 Conducted radio-frequency immunity test level 3 IEC 61000-4-6 |
| Pollution degree | 2 EN/IEC 61800-5-1 |
| Vibration resistance | 1.5 mm peak to peak 2...19 Hz)EN/IEC 60721-3-3 class 3M3 1 gn 9...200 Hz)EN/IEC 60721-3-3 class 3M3 |

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|---------------------------------------|--|
| Shock resistance | 15 gn 11 ms, class 3M3 EN/IEC 60721-3-3 |
| Relative humidity | 5...95 % without condensation EN/IEC 60721-3-3 class 3K3 |
| Ambient air temperature for operation | 5...122 °F (-15...50 °C) without current derating heavy duty) 5...104 °F (-15...40 °C) without current derating normal duty) 122...140 °F (50...60 °C) with current derating heavy duty) 104...140 °F (40...60 °C) with current derating normal duty) |
| Ambient air temperature for storage | -40...158 °F (-40...70 °C) |
| Operating altitude | <= 3280.84 ft (1000 m) without 3280.84...9842.52 ft (1000...3000 m) with current derating 1 % per 100 m |
| Environmental characteristic | Chemical pollution resistance class 3C3 EN/IEC 60721-3-3 Dust pollution resistance class 3S3 EN/IEC 60721-3-3 |
| Standards | EN/IEC 61800-3 Environment 1 category C2 EN/IEC 61800-3 Environment 2 category C3 EN/IEC 61800-3 EN/IEC 61800-5-1 IEC 60721-3 IEC 61508 IEC 13849-1 UL 618000-5-1 |
| Product certifications | TÜV UL REACH CSA |
| Marking | CE |

Ordering and shipping details

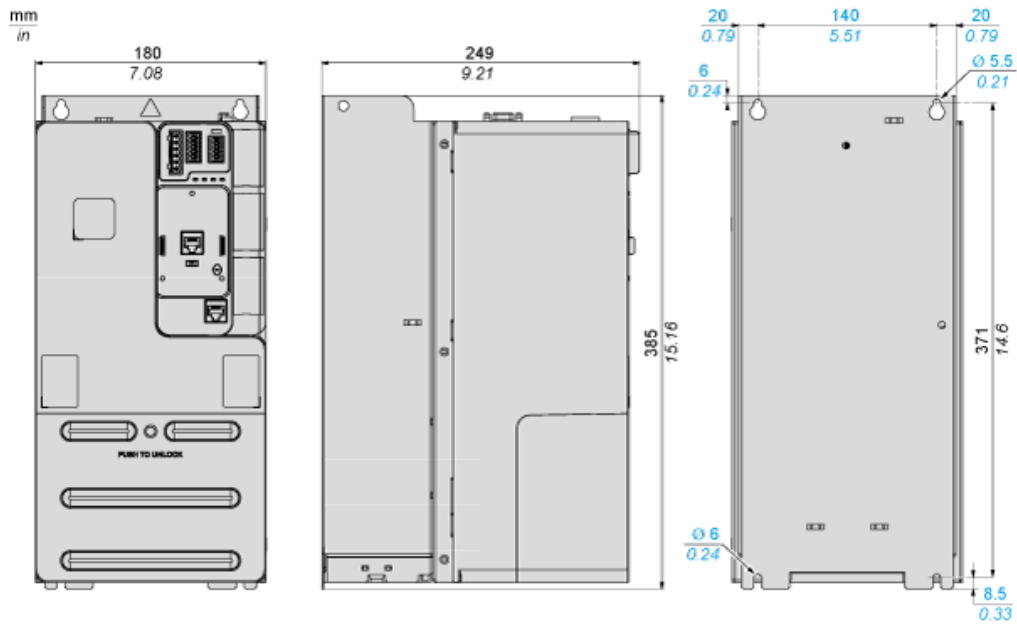
| | |
|---------------------|-------------------------------|
| Category | 22182 - ATV340 (1 THRU 25 HP) |
| Discount Schedule | CP4B |
| GTIN | 00785901705987 |
| Package weight(Lbs) | 11.13 kg (24.54 lb(US)) |
| Returnability | Yes |
| Country of origin | ID |

Offer Sustainability

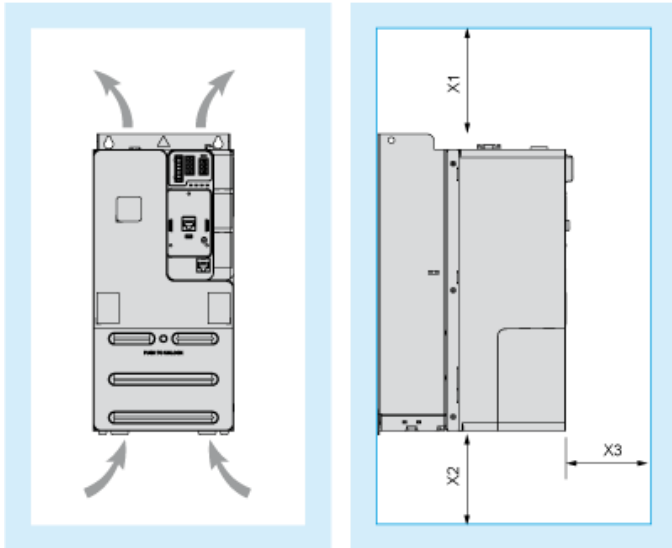
| | |
|----------------------------|--|
| Sustainable offer status | Green Premium product |
| REACH Regulation | REACH Declaration |
| EU RoHS Directive | Pro-active compliance (Product out of EU RoHS legal scope) EU RoHS Declaration |
| Mercury free | Yes |
| RoHS exemption information | Yes |
| China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

Dimensions

Views: Front - Left - Rear



Clearance



Dimensions in mm

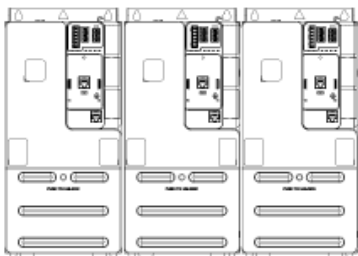
| X1 | X2 | X3 |
|-------|-------|------|
| ≥ 100 | ≥ 100 | ≥ 60 |

Dimensions in in.

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

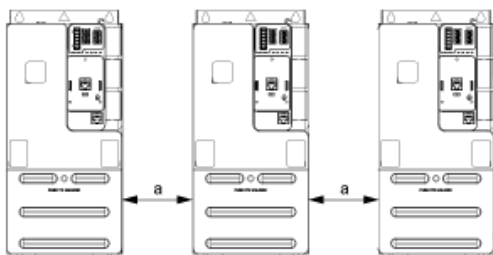
Mounting Types

Mounting Type A: Side by Side IP20



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

Mounting Type B: Individual IP20



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

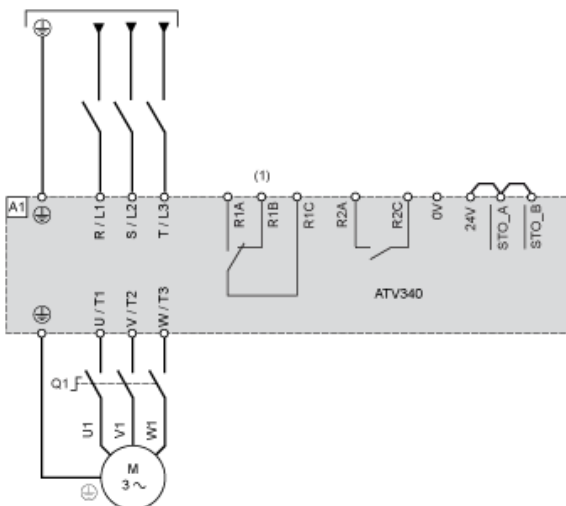
Q2, Q3 : Circuit breakers

S1 : Pushbutton

S2 : Emergency stop

T1 : Transformer for control part

Three-phase Power Supply With Downstream Breaking via Switch Disconnecter



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

A1 : Drive

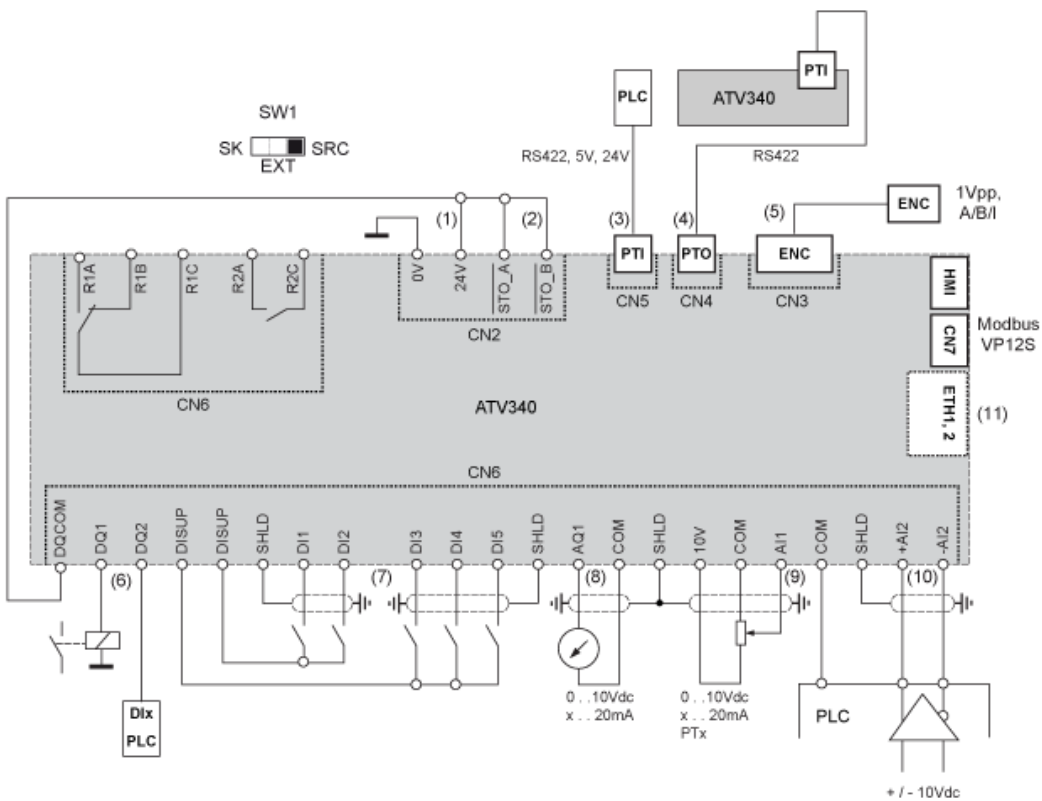
Q1 : Switch disconnecter

Sensor Connection



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

Control Block Wiring Diagram

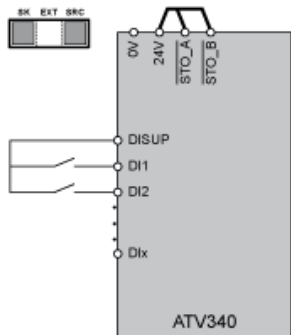


- (1) 24V supply (STO)
 - (2) STO - Safe Torque Off
 - (3) PTI - Pulse Train In
 - (4) PTO - Pulse Train Out
 - (5) Motor Encoder connection
 - (6) Digital outputs
 - (7) Digital inputs
 - (8) Analog output
 - (9) Analog input
 - (10) Differential Analog Input
 - (11) Ethernet port (only on Ethernet drive version)
- SW1 Sink/Source switch
R1A, Fault relay
R1B,
R1C :
R2A, Sequence relay
R2C :

Digital Inputs Wiring

Digital Inputs: Internal Supply

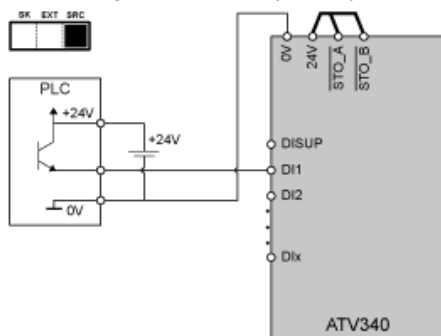
Using DISUP Signal



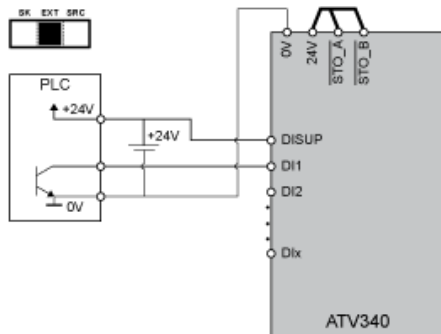
In SRC position DISUP outputs 24 V. In SK position DISUP is connected to 0 V.

Digital Inputs: External Supply

Positive Logic, Source, European Style

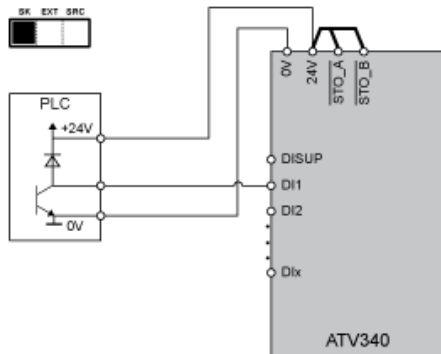


Negative Logic, Sink, Asian Style



Digital Inputs: Internal supply

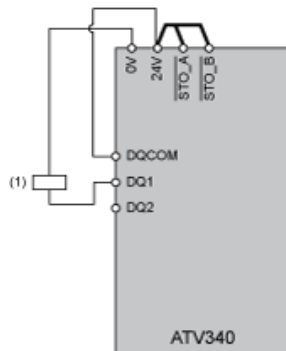
Negative Logic, Sink, Asian Style



Digital Outputs Wiring

Digital Outputs: Internal Supply

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



(1) Relay or valve

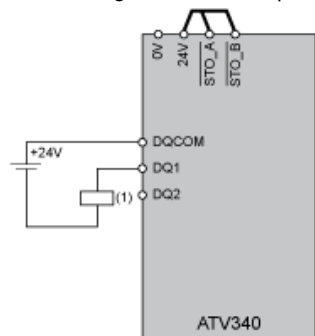
Negative Logic, Sink, Asian Style, DQCOM to 0V



(1) Relay or valve

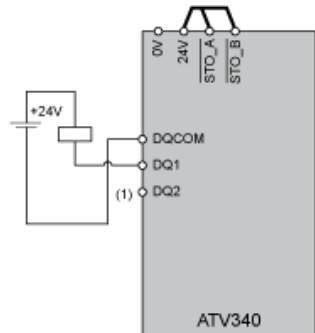
Digital Outputs: External Supply

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



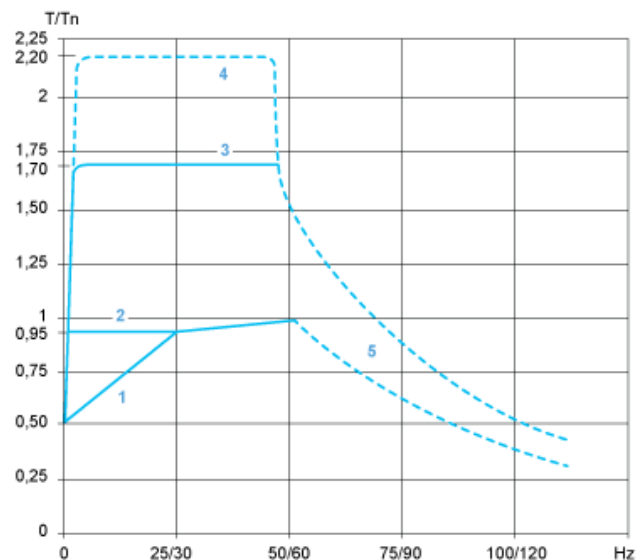
(1) Relay or valve

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



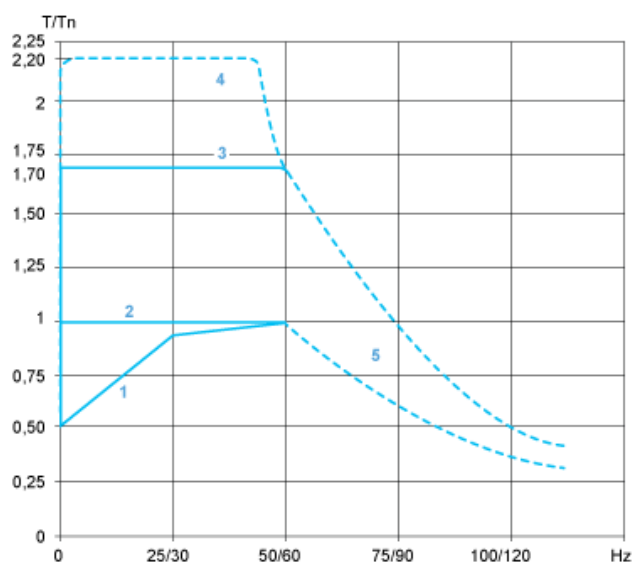
(1) Relay or valve

Open Loop Applications



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

Closed Loop Applications



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