

# ATV340D22N4

variable speed drive - 22kW- 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	Synchronous motors Asynchronous 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	30 KW normal duty 22 kW heavy duty
Maximum Horse Power Rating	40 Hp normal duty 30 hp heavy duty
Line current	63.5 A 380 V without line choke heavy duty) 50.5 A 480 V without line choke heavy duty) 67.9 A 480 V with external line choke normal duty) 54.4 A 380 V with external line choke heavy duty) 64.1 A 480 V with external line choke heavy duty) 50.8 A 380 V with external line choke normal duty)
Prospective line Isc	22 kA
Apparent power	45.1 KVA 480 V normal duty) 42.1 kVA 480 V heavy duty)
Continuous output current	62 A 4 kHz normal duty 46 A 4 kHz heavy duty
Maximum transient current	68.2 A 60 s normal duty) 69 A 60 s heavy duty) 83.7 A 2 s normal duty) 83 A 2 s heavy duty)
Asynchronous motor control profile	Variable torque standard Constant 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 6...16 kHz with derating factor
Safety function	STO (safe torque off) SIL 3

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## 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	Adjustable Can be suppressed Automatic whatever the load Not available in permanent magnet motor law
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 <sup>2</sup> AWG 24...AWG 12 Motor screw terminal 6...25 mm <sup>2</sup> AWG 8...AWG 3 Line side screw terminal 10...25 mm <sup>2</sup> AWG 6...AWG 3 DC bus screw terminal 10...25 mm <sup>2</sup> AWG 6...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)

Height	15.16 in (385 mm)
Depth	9.80 in (249 mm)
Product weight	22.49 lb(US) (10.2 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	56.7 dB 86/188/EEC
Power dissipation in W	Natural convection 28 W 380 V 4 kHz heavy duty) Forced convection 486 W 380 V 4 kHz heavy duty) Natural convection 39 W 380 V 4 kHz normal duty) Forced convection 631 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

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	CSA UL REACH TÜV
Marking	CE

### Ordering and shipping details

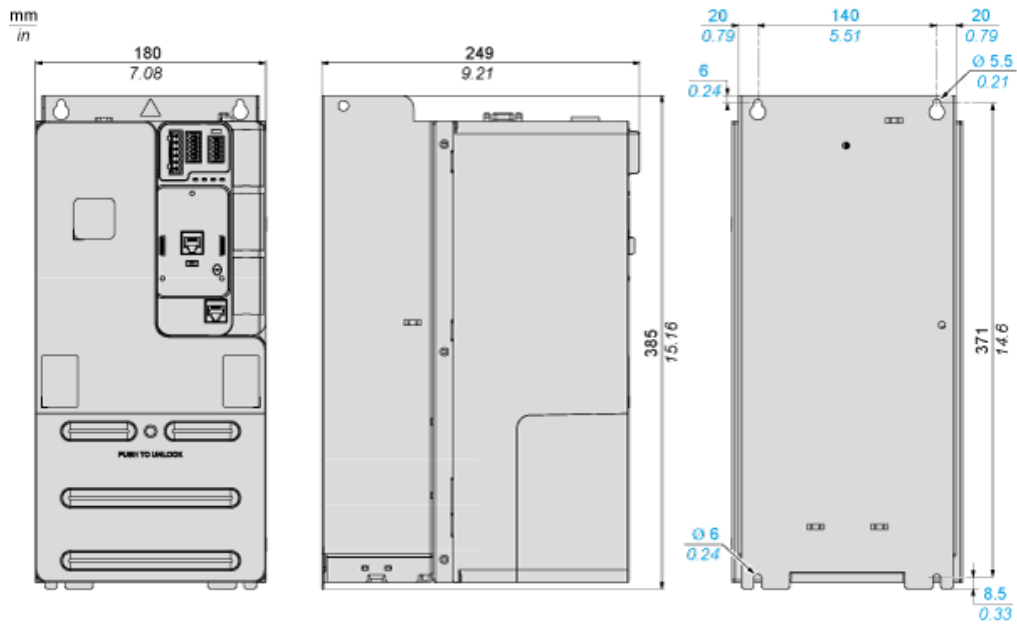
Category	22183 - ATV340 (30 THRU 100 HP)
Discount Schedule	CP4B
GTIN	00785901711711
Package weight(Lbs)	11.86 kg (26.14 lb(US))
Returnability	Yes
Country of origin	ID

### Offer Sustainability

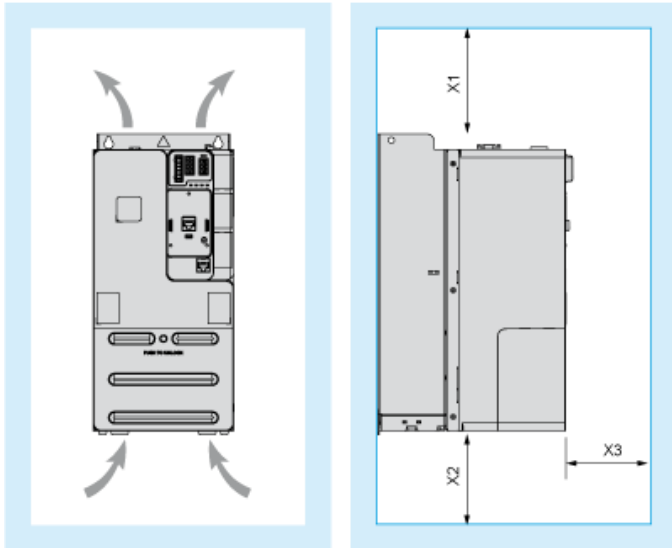
Sustainable offer status	Green Premium product
REACH Regulation	<a href="#">REACH Declaration</a>
EU RoHS Directive	Pro-active compliance (Product out of EU RoHS legal scope) <a href="#">EU RoHS Declaration</a>
Mercury free	Yes
RoHS exemption information	<a href="#">Yes</a>
China RoHS Regulation	<a href="#">China 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.

## Dimensions

Views: Front - Left - Rear



Clearance



Dimensions in mm

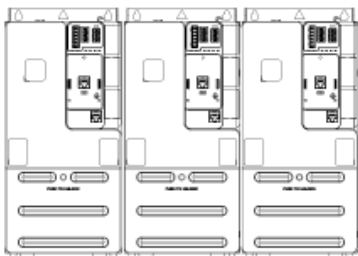
X1	X2	X3
$\geq$ 100	$\geq$ 100	$\geq$ 60

Dimensions in in.

X1	X2	X3
$\geq$ 3.94	$\geq$ 3.94	$\geq$ 2.36

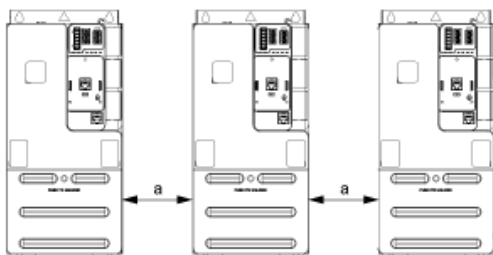
Mounting Types

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

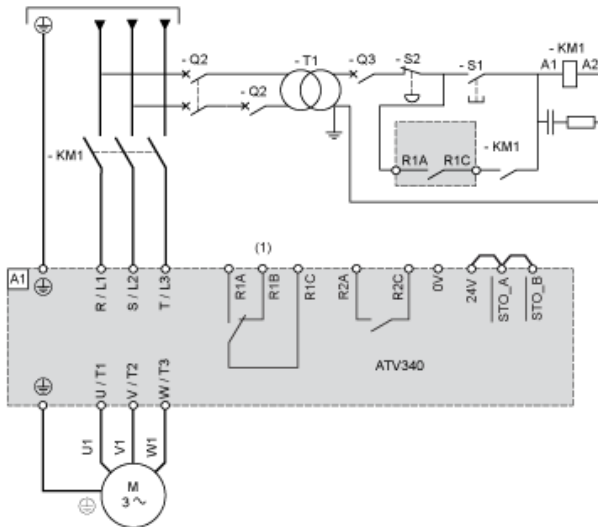


$a \geq 50\text{ mm}$  (1.97 in.) from 50...60 $^{\circ}\text{C}$ , no restriction below 50 $^{\circ}\text{C}$

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

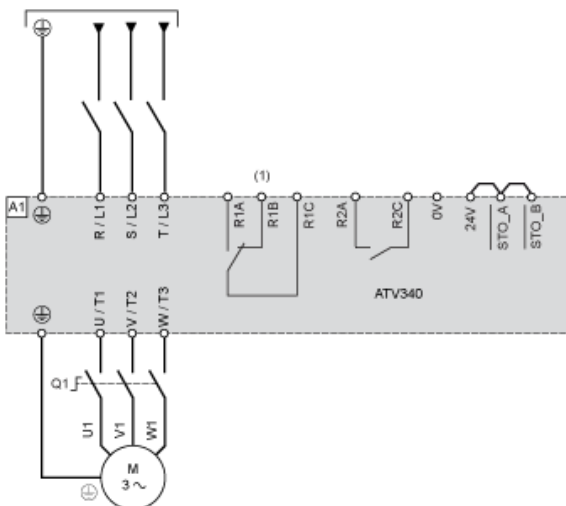
Q2, Q3 : Circuit breakers

S1 : Pushbutton

S2 : Emergency stop

T1 : Transformer for control part

Three-phase Power Supply With Downstream Breaking via Switch Disconnecter

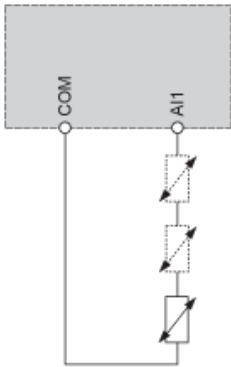


(1) Use relay output R1 set to operating state Fault to switch Off the product once an error is detected.

A1 : Drive

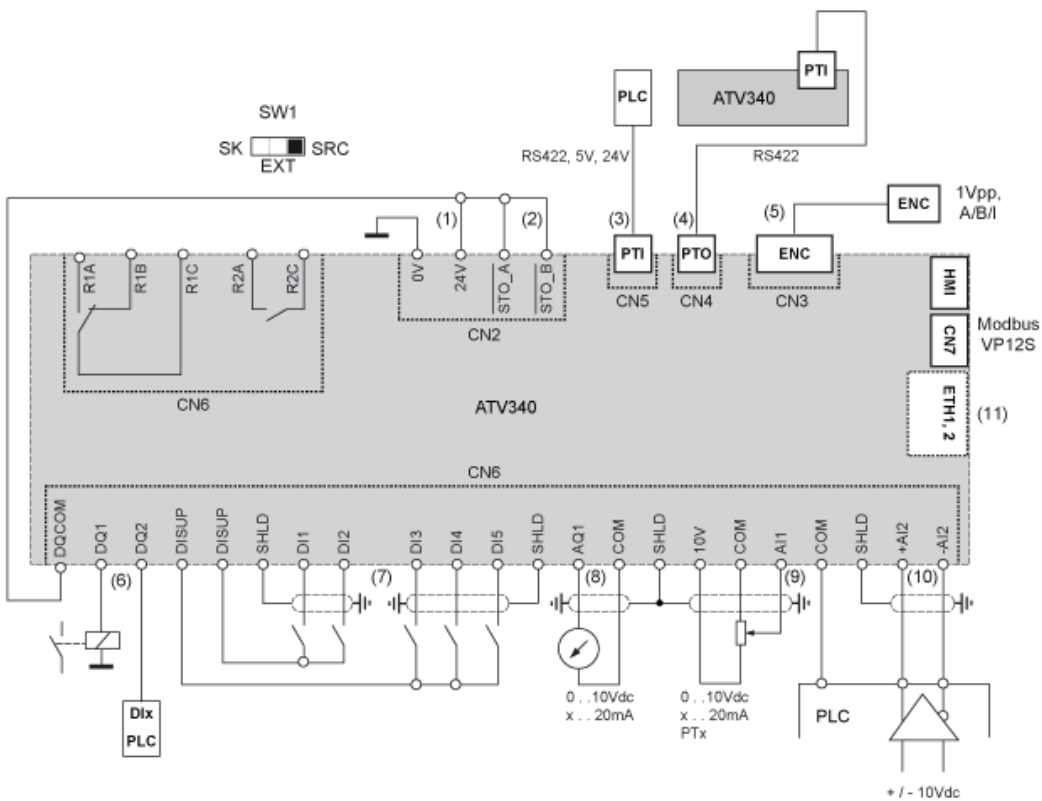
Q1 : Switch disconnecter

## Sensor Connection



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

## Control Block Wiring Diagram



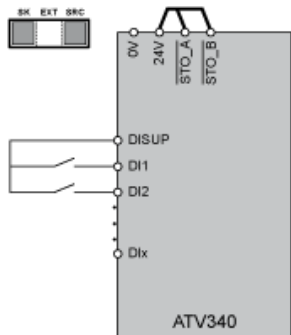
- (1) 24V supply (STO)
  - (2) STO - Safe Torque Off
  - (3) PTI - Pulse Train In
  - (4) PTO - Pulse Train Out
  - (5) Motor Encoder connection
  - (6) Digital outputs
  - (7) Digital inputs
  - (8) Analog output
  - (9) Analog input
  - (10) Differential Analog Input
  - (11) Ethernet port (only on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

## Digital Inputs Wiring



## Digital Inputs: Internal Supply

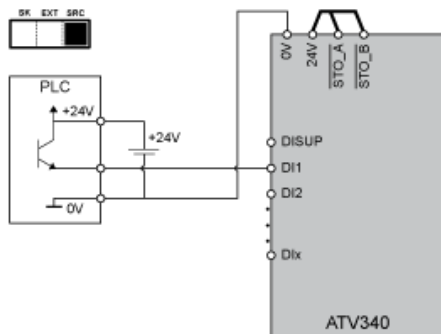
Using DISUP Signal



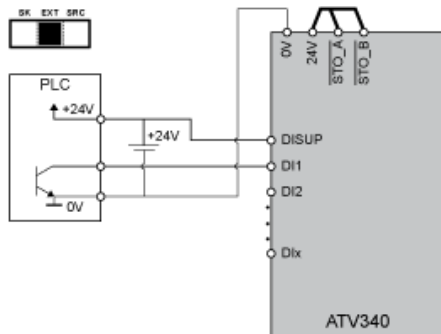
In SRC position DISUP outputs 24 V. In SK position DISUP is connected to 0 V.

## Digital Inputs: External Supply

Positive Logic, Source, European Style

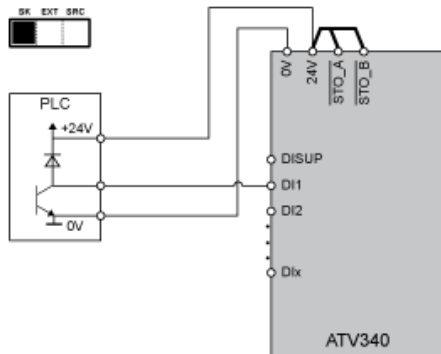


Negative Logic, Sink, Asian Style



## Digital Inputs: Internal supply

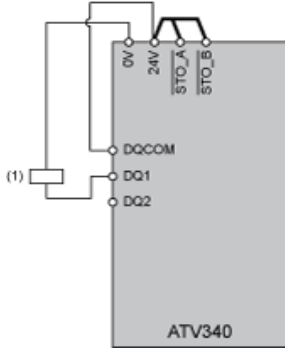
Negative Logic, Sink, Asian Style



## Digital Outputs Wiring

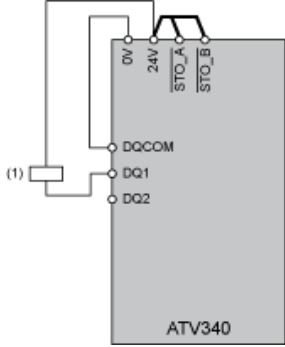
### Digital Outputs: Internal Supply

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



(1) Relay or valve

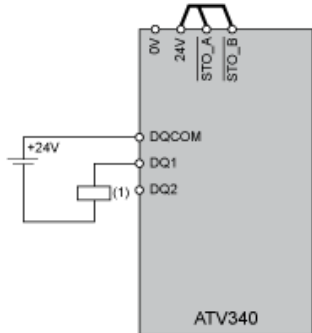
Negative Logic, Sink, Asian Style, DQCOM to 0V



(1) Relay or valve

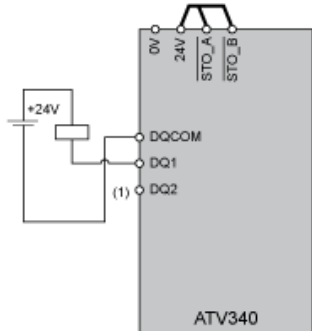
### Digital Outputs: External Supply

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



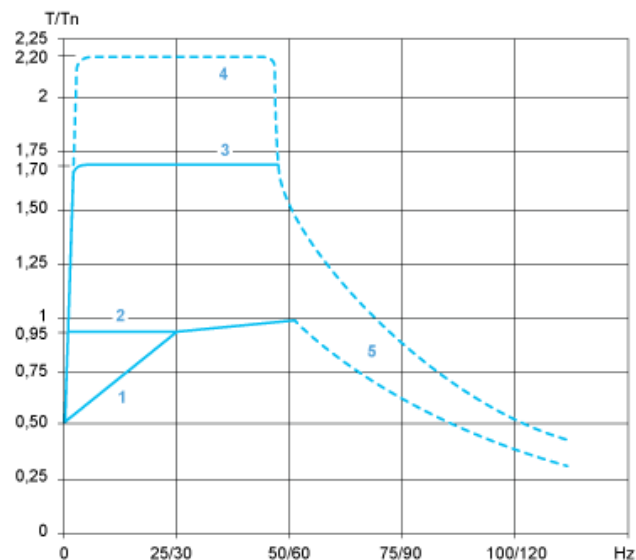
(1) Relay or valve

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



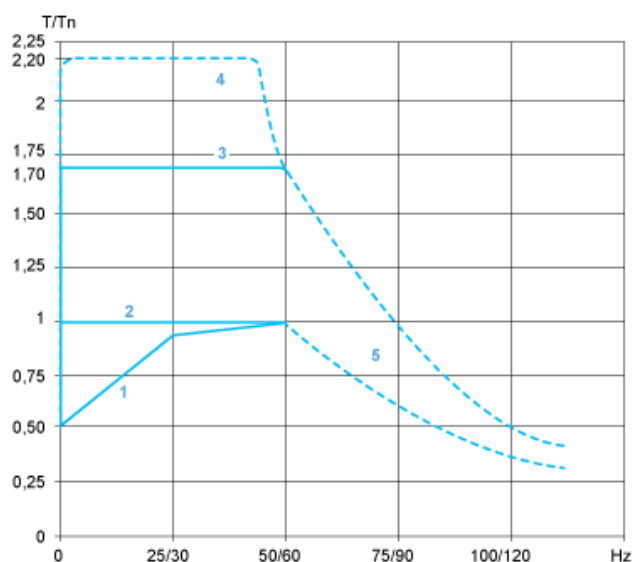
(1) Relay or valve

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