

# ATV340D15N4S

Variable speed drive, Altivar Machine ATV340,  
15 kW Heavy Duty, 400 V, 3 phases, Sercos



## 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                 |
| Phase                        | 3 phase                                 |
| Supply frequency             | 50...60 Hz +/- 5 %                      |
| [Us] rated supply voltage    | 380...480 V - 15...10 %                 |
| Nominal output current       | 32.0 A                                  |
| Motor power kW               | 18.5 KW normal duty<br>15 kW heavy duty |
| Maximum Horse Power Rating   | 25 Hp normal duty<br>20 hp 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)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 250 Ohm 12 bits<br>AI1 software-configurable temperature probe or water level sensor<br>AI1 software-configurable voltage 0...10 V DC 31.5 kOhm 12 bits<br>AI2 software-configurable voltage - 10...10 V DC 31.5 kOhm 12 bits                                                                                                                                                                                                            |
| Analogue output number    | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Analogue output type      | Software-configurable voltage AQ1 0...10 V DC 470 Ohm 10 bits<br>Software-configurable current AQ1 0...20 mA 500 Ohm 10 bits                                                                                                                                                                                                                                                                                                                                                         |
| Relay output number       | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Output voltage            | <= power supply voltage                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Relay output type         | Relay outputs R1A<br>Relay outputs R1C 100000 cycles<br>Relay outputs R2A<br>Relay outputs R2C 100000 cycles                                                                                                                                                                                                                                                                                                                                                                         |
| Maximum switching current | Relay output R1C resistive, cos phi = 1 3 A 250 V AC<br>Relay output R1C resistive, cos phi = 1 3 A 30 V DC<br>Relay output R1C inductive, cos phi = 0.4 7 ms 2 A 250 V AC<br>Relay output R1C inductive, cos phi = 0.4 7 ms 2 A 30 V DC<br>Relay output R2C resistive, cos phi = 1 5 A 250 V AC<br>Relay output R2C resistive, cos phi = 1 5 A 30 V DC<br>Relay output R2C inductive, cos phi = 0.4 7 ms 2 A 250 V AC<br>Relay output R2C inductive, cos phi = 0.4 7 ms 2 A 30 V DC |
| Minimum switching current | Relay output R1B 5 mA 24 V DC<br>Relay output R2C 5 mA 24 V DC                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Physical interface        | 2-wire RS 485                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

|                                                       |                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connector Type                                        | 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>Optimized torque mode<br>Constant torque standard                                                                                                                                                                                                                                  |
| Synchronous motor control profile                     | Reluctance motor<br>Permanent magnet motor                                                                                                                                                                                                                                                                     |
| Pollution degree                                      | 2 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>Adjustable<br>Not available in permanent magnet motor law<br>Can be suppressed                                                                                                                                                                                                  |
| Switching frequency                                   | 2...16 kHz adjustable<br>7...16 kHz with derating factor                                                                                                                                                                                                                                                       |
| Nominal switching frequency                           | 4 kHz                                                                                                                                                                                                                                                                                                          |
| Braking to standstill                                 | By DC injection                                                                                                                                                                                                                                                                                                |
| Brake chopper integrated                              | True                                                                                                                                                                                                                                                                                                           |
| Line current                                          | 37.4 A 380 V normal duty)<br>30.2 A 480 V normal duty)<br>44.9 A 380 V heavy duty)<br>35.7 A 480 V heavy duty)                                                                                                                                                                                                 |
| Line current                                          | 44.9 A 380 V without line choke heavy duty)<br>35.7 A 480 V without line choke heavy duty)<br>37.4 A 380 V with external line choke normal duty)<br>30.2 A 480 V with external line choke normal duty)<br>28.7 A 380 V with external line choke heavy duty)<br>23 A 480 V with external line choke heavy duty) |
| Maximum Input Current per Phase                       | 44.9 A                                                                                                                                                                                                                                                                                                         |
| Maximum output voltage                                | 480 V                                                                                                                                                                                                                                                                                                          |
| Apparent power                                        | 28.3 KVA 480 V normal duty)<br>29.7 kVA 480 V heavy duty)                                                                                                                                                                                                                                                      |
| Maximum transient current                             | 42.9 A 60 s normal duty)<br>48 A 60 s heavy duty)<br>52.7 A 2 s normal duty)<br>58 A 2 s heavy duty)                                                                                                                                                                                                           |
| Electrical connection                                 | Screw terminal 0.2...2.5 mm <sup>2</sup> control<br>Screw terminal 6...25 mm <sup>2</sup> line side<br>Screw terminal 6...25 mm <sup>2</sup> DC bus<br>Screw terminal 4...25 mm <sup>2</sup> motor                                                                                                             |
| Prospective line Isc                                  | 22 kA                                                                                                                                                                                                                                                                                                          |
| Base load current at high overload                    | 32.0 A                                                                                                                                                                                                                                                                                                         |
| Base load current at low overload                     | 39.0 A                                                                                                                                                                                                                                                                                                         |
| Power dissipation in W                                | Natural convection 18 W 380 V 4 kHz heavy duty)<br>Forced convection 346 W 380 V 4 kHz heavy duty)<br>Natural convection 21 W 380 V 4 kHz normal duty)<br>Forced convection 411 W 380 V 4 kHz normal duty)                                                                                                     |
| Electrical connection                                 | Control screw terminal 0.2...2.5 mm <sup>2</sup> AWG 24...AWG 12<br>Line side screw terminal 6...25 mm <sup>2</sup> AWG 8...AWG 3<br>DC bus screw terminal 6...25 mm <sup>2</sup> AWG 8...AWG 3<br>Motor screw terminal 4...25 mm <sup>2</sup> AWG 10...AWG 3                                                  |
| 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                                              | 7.09 in (180.0 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Height                                             | 15.16 in (385.0 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Depth                                              | 9.80 in (249.0 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Net Weight                                         | 20.94 lb(US) (9.5 kg)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Continuous output current                          | 39 A 4 kHz normal duty<br>32 A 4 kHz heavy duty                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

## Environment

|                                                                  |                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating altitude                                               | <= 9842.52 ft (3000 m) with current derating above 1000m                                                                                                                                                                                                                                                                                                   |
| Operating position                                               | Vertical +/- 10 degree                                                                                                                                                                                                                                                                                                                                     |
| Product Certifications                                           | UL<br>CSA<br>TÜV<br>EAC<br>CTick                                                                                                                                                                                                                                                                                                                           |
| Marking                                                          | CE                                                                                                                                                                                                                                                                                                                                                         |
| Standards                                                        | 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 IEC 61000-4-2<br>Radiated radio-frequency electromagnetic field immunity test level 3 IEC 61000-4-3<br>Electrical fast transient/burst immunity test level 4 IEC 61000-4-4<br>1.2/50 µs - 8/20 µs surge immunity test level 3 IEC 61000-4-5<br>Conducted radio-frequency immunity test level 3 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                                            | 33814.63 Gal/hr(US) (128.0 m³/h)                                                                                                                                                                                                                                                                                                                           |
| Type of cooling                                                  | Forced convection                                                                                                                                                                                                                                                                                                                                          |

|                                       |                                                                                                                                   |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Overvoltage category                  | Class III                                                                                                                         |
| Regulation loop                       | Adjustable PID regulator                                                                                                          |
| Noise level                           | 55.6 dB                                                                                                                           |
| Pollution degree                      | 2                                                                                                                                 |
| Ambient air transport temperature     | -40...158 °F (-40...70 °C)                                                                                                        |
| Ambient air temperature for operation | 5...122 °F (-15...50 °C) without derating vertical position)<br>122...140 °F (50...60 °C) with derating factor vertical position) |
| Ambient Air Temperature for Storage   | -13...158 °F (-25...70 °C)                                                                                                        |
| Isolation                             | Between power and control terminals                                                                                               |

## Ordering and shipping details

|                   |                             |
|-------------------|-----------------------------|
| Category          | 22182-ATV340 (1 THRU 25 HP) |
| Discount Schedule | CP4B                        |
| GTIN              | 3606489497897               |
| Returnability     | No                          |

## Packing Units

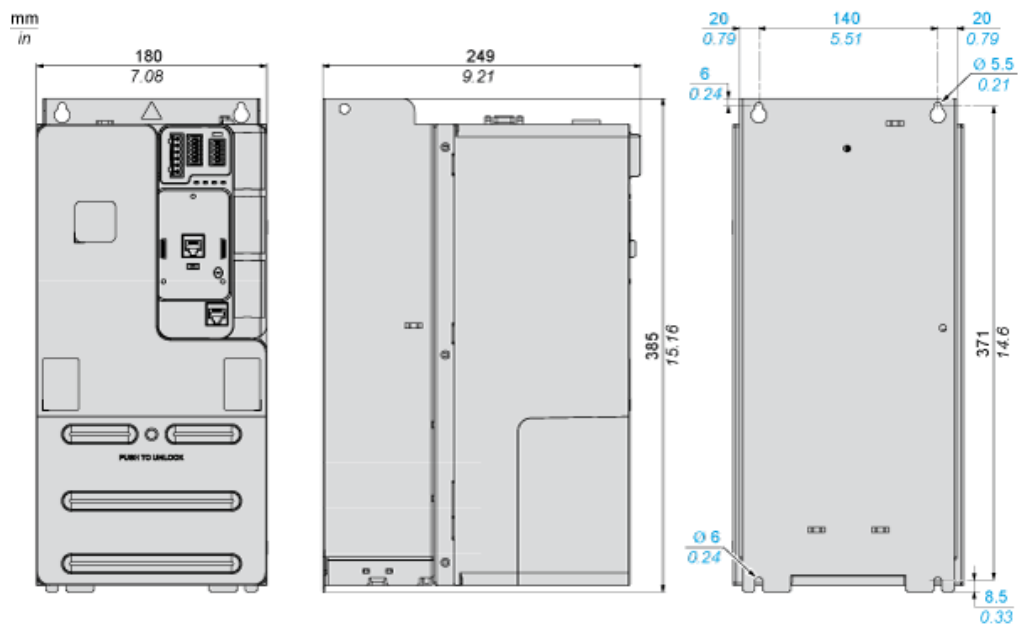
|                              |                          |
|------------------------------|--------------------------|
| Unit Type of Package 1       | PCE                      |
| Number of Units in Package 1 | 1                        |
| Package 1 Height             | 13.39 in (34.0 cm)       |
| Package 1 Width              | 11.81 in (30.0 cm)       |
| Package 1 Length             | 22.05 in (56.0 cm)       |
| Package 1 Weight             | 25.08 lb(US) (11.378 kg) |

## Offer Sustainability

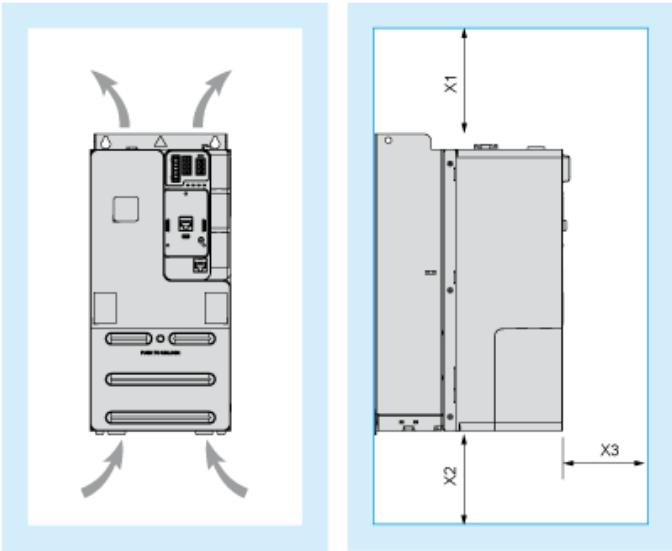
|                            |                                                                                                                                                                                                                                                                                             |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sustainable offer status   | Green Premium product                                                                                                                                                                                                                                                                       |
| California proposition 65  | WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a> |
| 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                                                                                                                                                                                                                                                                                         |
| China RoHS Regulation      | <a href="#">China RoHS Declaration</a>                                                                                                                                                                                                                                                      |
| RoHS exemption information | <a href="#">Yes</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

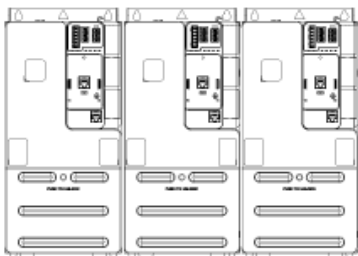
| X1    | X2    | X3   |
|-------|-------|------|
| ≥ 100 | ≥ 100 | ≥ 60 |

Dimensions in in.

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

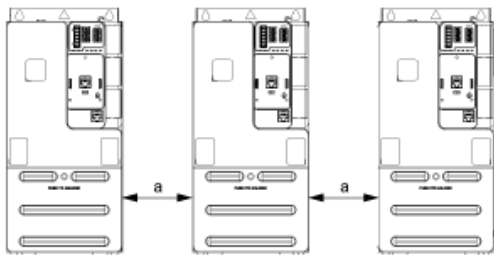
Mounting Types

Mounting Type A: Side by Side IP20



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

Mounting Type B: Individual IP20

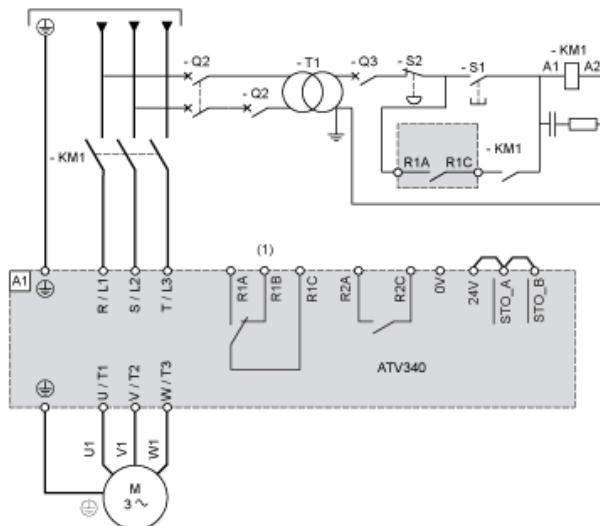


a ≥ 50 mm (1.97 in.) from 50...60°C, no restriction below 50°C

## 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

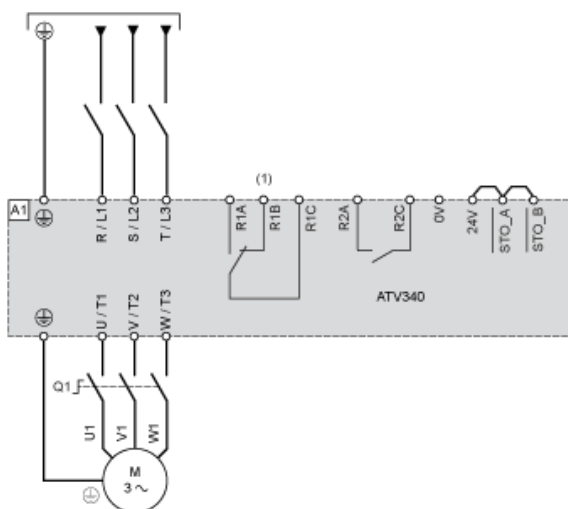
Q3 :

S1 : Pushbutton

S2 : Emergency stop

T1 : Transformer for control part

### Three-phase Power Supply With Downstream Breaking via Switch Disconnecter

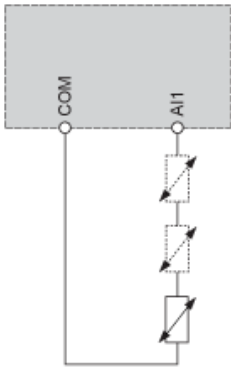


(1) Use relay output R1 set to operating state Fault to switch Off the product once an error is detected.

A1 : Drive

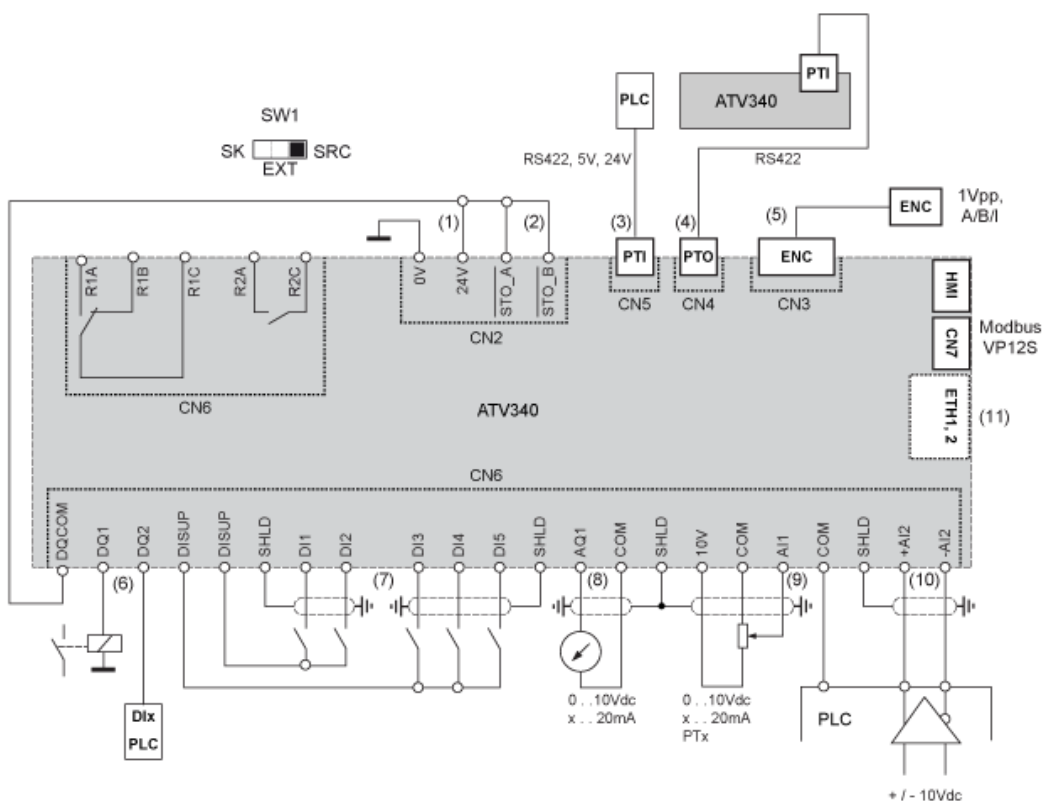
Q1 : Switch disconnector

## Sensor Connection



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

## Control Block Wiring Diagram

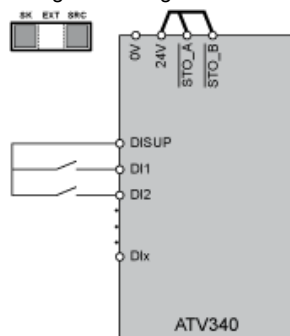


- (1) 24V supply (STO)
- (2) STO - Safe Torque Off
- (3) PTI - Pulse Train In
- (4) PTO - Pulse Train Out
- (5) Motor Encoder connection
- (6) Digital outputs
- (7) Digital inputs
- (8) Analog output
- (9) Analog input
- (10) Differential Analog Input
- (11) Ethernet port (only on Ethernet drive version)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

## Digital Inputs Wiring

## Digital Inputs: Internal Supply

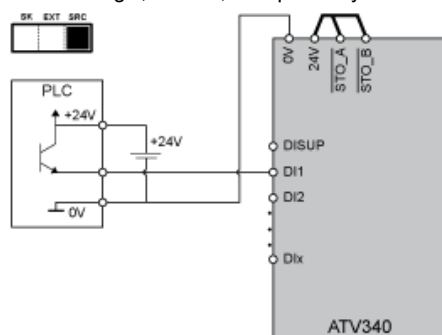
### Using DISUP Signal



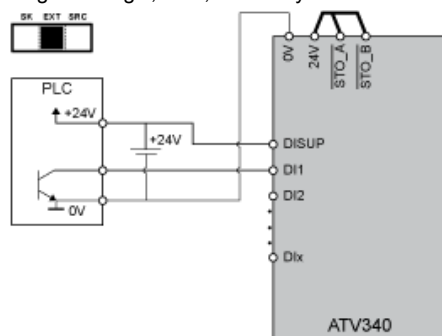
In SRC position DISUP outputs 24 V. In SK position DISUP is connected to 0 V.

## Digital Inputs: External Supply

### Positive Logic, Source, European Style

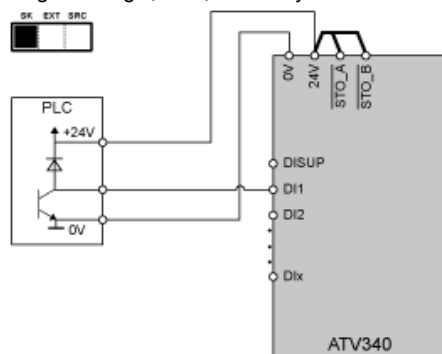


### Negative Logic, Sink, Asian Style



## Digital Inputs: Internal supply

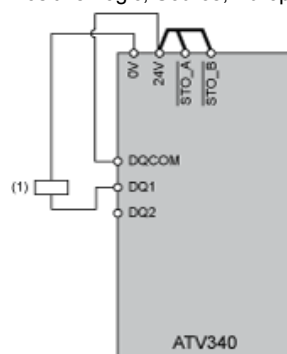
### Negative Logic, Sink, Asian Style



## Digital Outputs Wiring

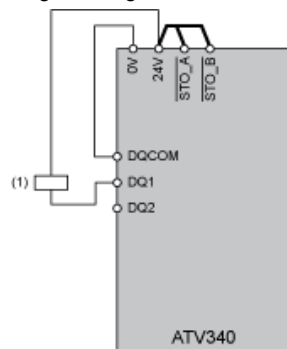
## Digital Outputs: Internal Supply

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



(1) Relay or valve

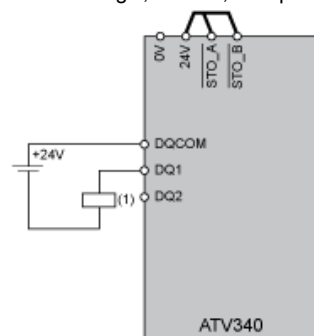
Negative Logic, Sink, Asian Style, DQCOM to 0V



(1) Relay or valve

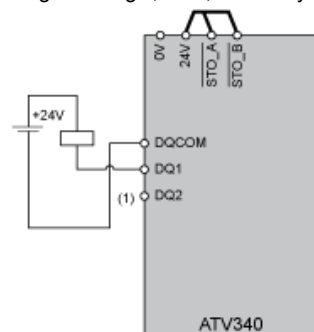
## Digital Outputs: External Supply

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



(1) Relay or valve

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



(1) Relay or valve

### Derating Curves

