

# Fișă tehnică produs

Specificatii



## Variator de viteza ATV320 Book, 2.2 kW, 380...500 V, trifazat

ATV320U22N4B

### Principale

|                                      |                                                                                                                                                                                                                                                        |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| gama de produse                      | Altivar Machine ATV320                                                                                                                                                                                                                                 |
| Tip produs sau componenta            | Variator de viteza                                                                                                                                                                                                                                     |
| aplicatie specifica produsului       | Mașini complexe                                                                                                                                                                                                                                        |
| varianta                             | Standard version                                                                                                                                                                                                                                       |
| formatul unitatii                    | Book                                                                                                                                                                                                                                                   |
| mod de montare                       | Cabinet mount                                                                                                                                                                                                                                          |
| Port protocol de comunicare          | Serial Modbus<br>CANopen                                                                                                                                                                                                                               |
| card optional                        | modul de comunicare, CANopen<br>modul de comunicare, EtherCAT<br>modul de comunicare, Profibus DP V1<br>modul de comunicare, PROFINET<br>modul de comunicare, Ethernet Powerlink<br>modul de comunicare, Ethernet/IP<br>modul de comunicare, DeviceNet |
| [Us] tensiune nominala de alimentare | 380...500 V - 15...10 %                                                                                                                                                                                                                                |
| curent nominal de iesire             | 5,5 A                                                                                                                                                                                                                                                  |
| putere motor kW                      | 2,2 kW pentru pentru sarcini grele                                                                                                                                                                                                                     |
| filtru EMC                           | Clasa C2 filtru EMC integrat                                                                                                                                                                                                                           |
| grad de protectie IP                 | IP20                                                                                                                                                                                                                                                   |

### Suplimentare

|                            |                                                                                                                                                                                                                                                                                   |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| numar intrare discreta     | 7                                                                                                                                                                                                                                                                                 |
| tip de intrare discreta    | STO cuplu de siguranță, 24 V c.c., impedanță: 1.5 kOhm<br>DI1...DI6 logic inputs, 24 V c.c. (30 V)<br>DI5 programmable as pulse input 0...30 kHz, 24 V c.c. (30 V)                                                                                                                |
| logica de intrare discreta | Logica pozitiva (sursa)<br>Logica negativa (derivatie)                                                                                                                                                                                                                            |
| numar iesire discreta      | 3                                                                                                                                                                                                                                                                                 |
| tip de iesire discreta     | Colector deschis DQ+ 0...1 kHz 30 V c.c. 100 mA<br>Colector deschis DQ- 0...1 kHz 30 V c.c. 100 mA                                                                                                                                                                                |
| numarul intrarii analogice | 3                                                                                                                                                                                                                                                                                 |
| tip de intrare analogica   | AI1 tensiune 0...10 V c.c., impedanță: 30 kOhm, rezoluție 10 bits<br>AI2 tensiune diferențială bipolară +/- 10 V c.c., impedanță: 30 kOhm, rezoluție 10 bits<br>AI3 curent 0...20 mA (sau 4-20 mA, x-20 mA, 20-x mA sau alte configurații), impedanță: 250 Ohm, rezoluție 10 bits |
| numarul iesirii analogice  | 1                                                                                                                                                                                                                                                                                 |

Declinare de responsabilitate: Această documentație nu se substituie și nu trebuie utilizată pentru stabilirea adecvării sau fiabilității acestor produse pentru aplicații utilizator

|                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tip iesire analogica                                    | Curent configurabil soft AQ1 0...20 mA 800 Ohm, rezoluție 10 bits<br>Tensiune configurabilă soft AQ1 0...10 V c.c. 470 Ohm, rezoluție 10 bits                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| tip releu iesire                                        | Configurable relay logic R1A 1 NO 100000 cic<br>Configurable relay logic R1B 1 NC 100000 cic<br>Configurable relay logic R1C<br>Configurable relay logic R2A 1 NO 100000 cic<br>Configurable relay logic R2C                                                                                                                                                                                                                                                                                                                                                                            |
| curent maxim de comutatie                               | Relay output R1A, R1B, R1C pornit rezistiv sarcina, cos phi = 1 3 A la 250 V c.a.<br>Relay output R1A, R1B, R1C pornit rezistiv sarcina, cos phi = 1 3 A la 30 V c.c.<br>Relay output R1A, R1B, R1C, R2A, R2C pornit inductiv sarcina, cos phi = 0,4 si stanga/dreapta = 7 ms 2 A la 250 V c.a.<br>Relay output R1A, R1B, R1C, R2A, R2C pornit inductiv sarcina, cos phi = 0,4 si stanga/dreapta = 7 ms 2 A la 30 V c.c.<br>Relay output R2A, R2C pornit rezistiv sarcina, cos phi = 1 5 A la 250 V c.a.<br>Relay output R2A, R2C pornit rezistiv sarcina, cos phi = 1 5 A la 30 V c.c. |
| curentul minim de comutare                              | Relay output R1A, R1B, R1C, R2A, R2C 5 mA la 24 V c.c.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| metoda de acces                                         | Slave CANopen                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 4 quadrant operation possible                           | Adevarat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| profil de control al motorului asincron                 | Raport tensiune/frecvență, 5 puncte<br>Control vectorial de flux fără senzor, standard<br>Raport tensiune/frecvență - economie de energie, pătratic U/f<br>Controlul vectorului fluxului fara senzor - Economie de energie<br>Raport tensiune/frecvență, 2 puncte                                                                                                                                                                                                                                                                                                                       |
| profil de control al motorului sincron                  | Control vectorial fără senzori                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| frecventa maxima de iesire                              | 0,599 kHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| rampe de accelerare si decelerare                       | Liniar<br>U<br>S<br>CUS<br>Comutarea rampelor<br>Adaptarea rampei de accelerare/decelerare<br>Oprire automată prin injecție de c.c. pentru accelerare/decelerare                                                                                                                                                                                                                                                                                                                                                                                                                        |
| compensare alunecare motor                              | Automat indiferent de sarcina<br>Reglabil 0...300 %<br>Indisponibilin raport tensiune/frecventa (2 sau 5 puncte)                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| frecventa de comutare                                   | 2...16 kHz reglabil<br>4...16 kHz cu                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| frecventa de comutare nominala                          | 4 kHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| franare sau imobil                                      | Cu injecție c.c.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Brake chopper integrated                                | Adevarat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| curent de linie                                         | 8,7 A la 380 V (pentru sarcini grele)<br>6,6 A la 500 V (pentru sarcini grele)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Curent maxim de intrare                                 | 8,7 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Maximum output voltage                                  | 500 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| putere aparenta                                         | 5,7 kVA la 500 V (pentru sarcini grele)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| frecventa retea electrica                               | 50...60 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Relative symmetric network frequency tolerance          | 5 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| curent de scurtcircuit prezumat Isc                     | 5 kA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Base load current at high overload                      | 4,8 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| puterea disipata in W                                   | Ventilator 74,0 W la 380 V 4 kHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| cu functia de siguranta Safely Limited Speed (SLS)      | Adevarat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| cu functia de siguranta Safe brake management (SBC/SBT) | Fals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

|                                                       |                                                                                                                                                                                                                 |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cu functia de siguranta Safe Operating Stop (SOS)     | Fals                                                                                                                                                                                                            |
| cu functia de siguranta Safe Position (SP)            | Fals                                                                                                                                                                                                            |
| cu functia de siguranta Safe programmable logic       | Fals                                                                                                                                                                                                            |
| cu functia de siguranta Safe Speed Monitor (SSM)      | Fals                                                                                                                                                                                                            |
| cu functia de siguranta Safe Stop 1 (SS1)             | Adevarat                                                                                                                                                                                                        |
| cu functia de siguranta Safe Stop 2 (SS2)             | Fals                                                                                                                                                                                                            |
| cu functia de siguranta Safe torque off (STO)         | Adevarat                                                                                                                                                                                                        |
| cu functia de siguranta Safely Limited Position (SLP) | Fals                                                                                                                                                                                                            |
| cu functia de siguranta Safe Direction (SDI)          | Fals                                                                                                                                                                                                            |
| tip de protectie                                      | Înterupere fază intrare variator<br>Supracurent între fazele de ieşire şi pământ variator<br>Protectie la supraincalzire variator<br>Scurtcircuit între fazele motorului variator<br>Protectie termica variator |
| latime                                                | 60 mm                                                                                                                                                                                                           |
| inaltime                                              | 325,0 mm                                                                                                                                                                                                        |
| adancime                                              | 245,0 mm                                                                                                                                                                                                        |
| greutate produs                                       | 3,0 kg                                                                                                                                                                                                          |
| cuplu excesiv tranzitoriu                             | 170...200 % cuplul nominal al motorului                                                                                                                                                                         |

## Mediu

|                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| pozitie de operare                                                      | Vertical +/- 10 grade                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| certificari produs                                                      | UE<br>ATEX<br>NOM<br>GOST<br>EAC<br>RCM<br>KC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| marcaj                                                                  | CE<br>ATEX<br>UL<br>CSA<br>EAC<br>RCM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| standarde                                                               | IEC 61800-5-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| compatibilitate electromagnetica                                        | Test de imunitate la descarcari electrostatice nivel 3 conforming to IEC 61000-4-2<br>Test de imunitate la frecventa radio radiata nivel 3 conforming to IEC 61000-4-3<br>Tranzienţi rapizi/test de imunitate la impulsuri de ionizare nivel 4 conforming to IEC 61000-4-4<br>1.2/50 µs - 8/20 µs test de imunitate la supratensiuni nivel 3 conforming to IEC 61000-4-5<br>Test de imunitate la radiofrecvenţă condusă nivel 3 conforming to IEC 61000-4-6<br>Test de imunitate la căderi de tensiune şi întreruperi conforming to IEC 61000-4-11 |
| clasa de mediu (in timpul functionarii)                                 | Clasa 3C3 in conformitate cu IEC 60721-3-3-3<br>Clasa 3S2 in conformitate cu IEC 60721-3-3-3                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| acceleratia maxima in cazul unui impact de soc (in timpul functionarii) | 150 m/s² la 11 ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| acceleratia maxima sub tensiune de vibratie (in timpul functionarii)    | 10 m/s² la 13...200 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| deformarea maxima sub sarcină vibratorie (in timpul functionarii)       | 1.5 mm la 2...13 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Permitted relative humidity (during operation)                          | Class 3K5 according to EN 60721-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

|                                              |                                               |
|----------------------------------------------|-----------------------------------------------|
| volumul aerului de racire                    | 11,3 m3/h                                     |
| categorie de supratensiune                   | III                                           |
| bucla de reglare                             | Regulator PID reglabil                        |
| precizie viteza                              | +/- 10 % din alunecarea nominală 0.2 Tn la Tn |
| Grad de poluare                              | 2                                             |
| Temperatura de transport a aerului ambiental | -25...70 °C                                   |
| temperatura ambientala de utilizare          | -10...50 °C fără declarare<br>50...60 °C cu   |
| temperatura ambietala pentru depozitare      | -25...70 °C                                   |

## Unitati de ambalare

|                                                      |           |
|------------------------------------------------------|-----------|
| Unitate de masura pentru prima forma de impachetare  | PCE       |
| Numar unitati in prima forma de impachetare          | 1         |
| Inaltime prima forma de impachetare                  | 9,600 cm  |
| Latime prima forma de impachetare                    | 27,500 cm |
| Lungime prima forma de impachetare                   | 32,500 cm |
| Greutate prima forma de impachetare                  | 2,699 kg  |
| Unitate de masura pentru a doua forma de impachetare | S06       |
| Numar unitati in a doua forma de impachetare         | 20        |
| Inaltime a doua forma de impachetare                 | 75,000 cm |
| Latime a doua forma de impachetare                   | 60,000 cm |
| Lungime a doua forma de impachetare                  | 80,000 cm |
| Greutate a doua forma de impachetare                 | 68,760 kg |

## Garanție contractuală

|          |         |
|----------|---------|
| Garantie | 18 luni |
|----------|---------|

Environmental Data

Schneider Electric isi propune sa atinga nivelul Net Zero pana in 2050 prin parteneriate la nivelul lantului de aprovizionare, materiale cu impact mai redus si circularitate, prin campania „Use Better, Use Longer, Use Again” pentru a extinde durata de viata a produselor si reciclabilitatea.

Environmental Data explicate >

Cum evaluam sustenabilitatea produselor >

|                                        |                                                                                                                                                                                                                                            |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 🌱 <b>Amprenta de mediu</b>             |                                                                                                                                                                                                                                            |
| Amprenta de carbon (kg CO2 eq.)        | 2073                                                                                                                                                                                                                                       |
| Raport de mediu                        | <a href="#">Profilul ambiental al produsului</a>                                                                                                                                                                                           |
| Use Better                             |                                                                                                                                                                                                                                            |
| 📦 <b>Materiale si ambalare</b>         |                                                                                                                                                                                                                                            |
| Pachet cu carton reciclabil            | Da                                                                                                                                                                                                                                         |
| Ambalaj fara plastic                   | Nu                                                                                                                                                                                                                                         |
| <a href="#">Directiva RoHS UE</a>      | Conformitate proactiva (Produs in afara domeniului de aplicare a EU RoHS)                                                                                                                                                                  |
| Numar SCIP                             | 48680e86-57e0-4650-bc19-b26dd63dee93                                                                                                                                                                                                       |
| Regulamentul REACH                     | <a href="#">Declaratia REACH</a>                                                                                                                                                                                                           |
| 💡 <b>Eficienta energetica</b>          |                                                                                                                                                                                                                                            |
| Contributiila produs a fost evitata    | Yes                                                                                                                                                                                                                                        |
| Use Again                              |                                                                                                                                                                                                                                            |
| 🔄 <b>Reambalare si refabricare</b>     |                                                                                                                                                                                                                                            |
| Profil circularitate                   | <a href="#">Informatii privind sfarsitul duratei de viata</a>                                                                                                                                                                              |
| Preluare la sfarsitul duratei de viata | No                                                                                                                                                                                                                                         |
| DEEE                                   |  Produsul trebuie sa fie eliminat de pe piata din Uniunea Europeana dupa colectarea specifica a deseurilor si sa nu ajunga niciodata in pubele de gunoi |

Dimensions Drawings

Dimensions

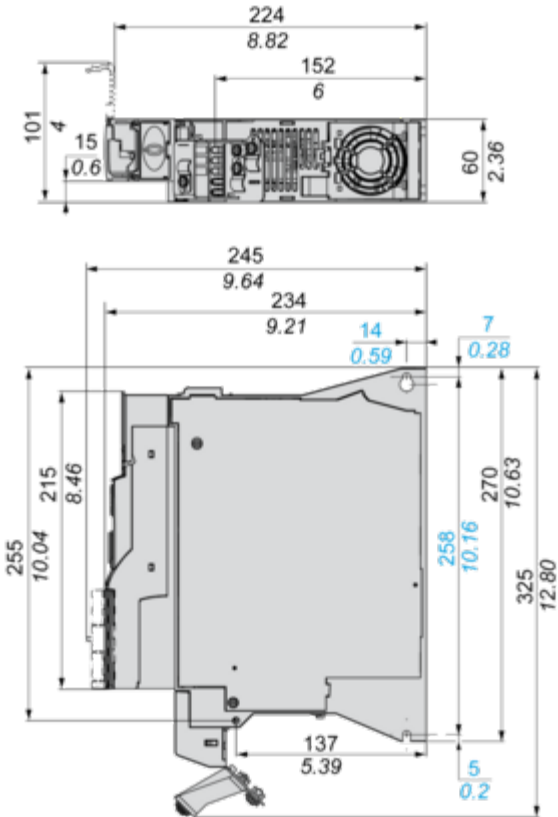
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Bottom, Right and Front View

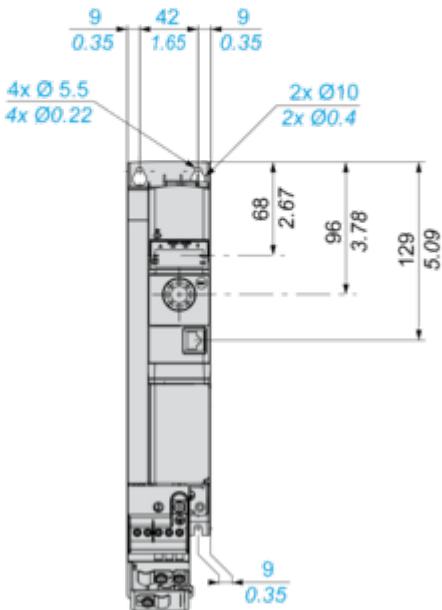
Fișă tehnică produs

ATV320U22N4B

mm  
in.

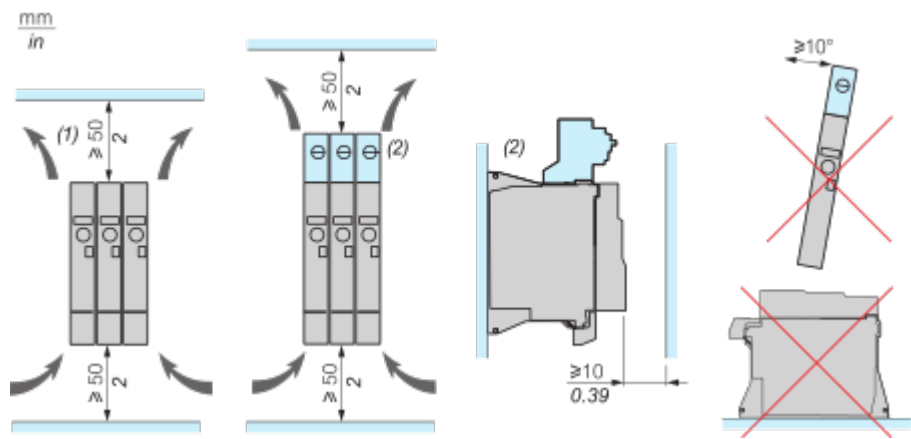


mm  
in.



Mounting and Clearance

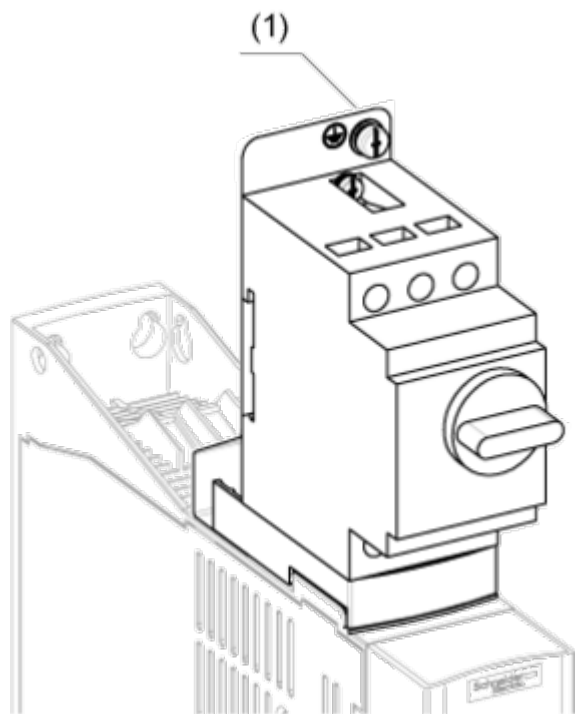
Mounting and Clearance



- (1) Minimum value corresponding to thermal constraints.  
(2) Optional GV2 circuit-breaker

Option: Protection Device, GV2 circuit-breaker

**NOTE:** The product overall height dimension, including GV2 adapter and EMC plate mounted, becomes 424 mm (16.7 in.) instead of 325 mm (12.80 in.)

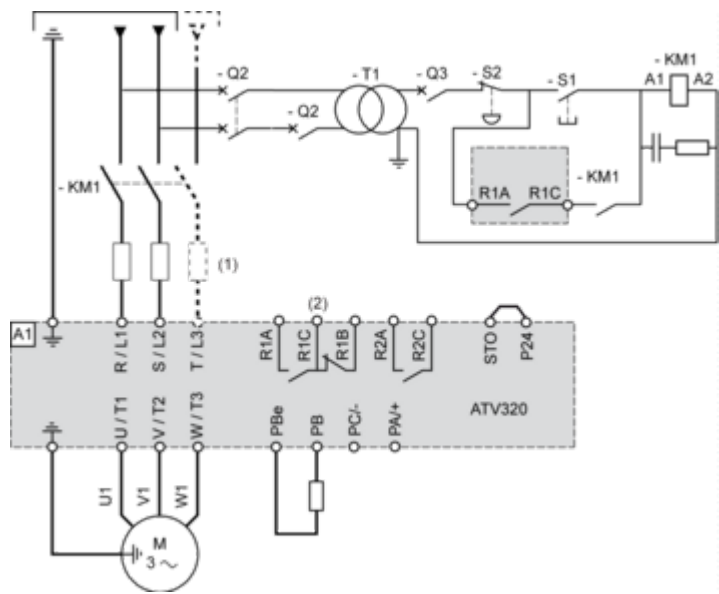


(1) Ground screw (HS type 2 - 5x12)

Connections and Schema

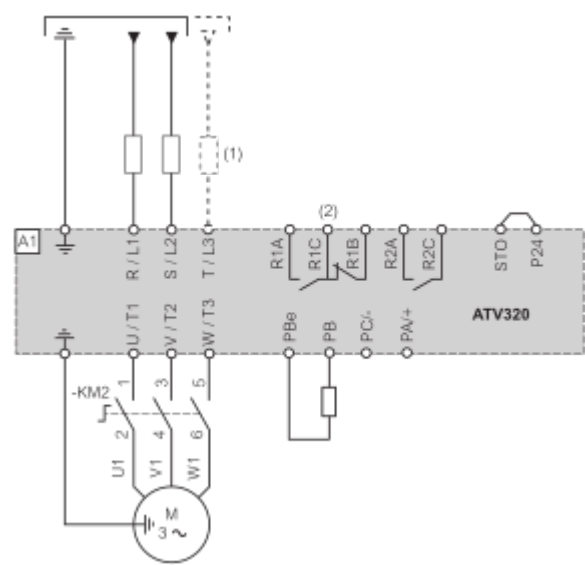
Connection Diagrams

Single or Three-phase Power Supply - Diagram With Line Contactor



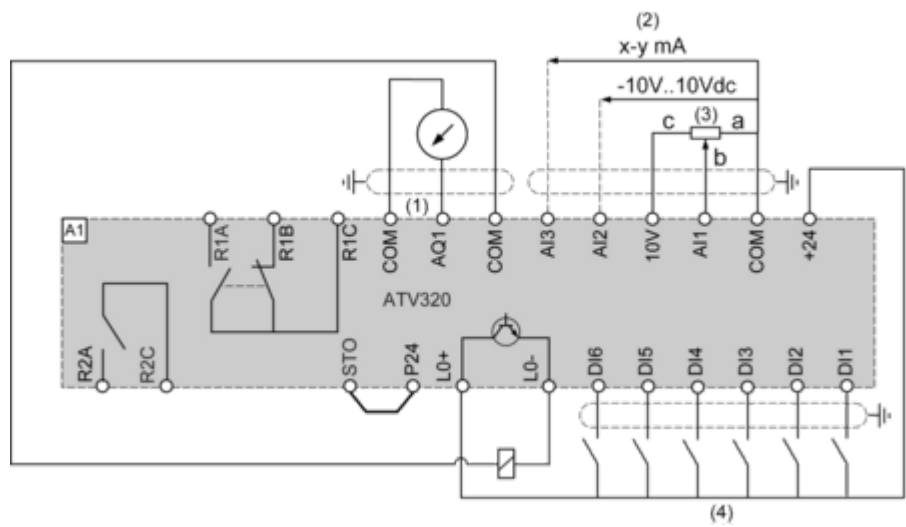
- (1) Line choke (if used)
- (2) Use relay output R1 set to operating state Fault to switch Off the product once an error is detected.

Single or Three-phase Power Supply - Diagram With Downstream Contactor



- (1) Line choke (if used)
- (2) Use relay output R1 set to operating state Fault to switch Off the product once an error is detected.

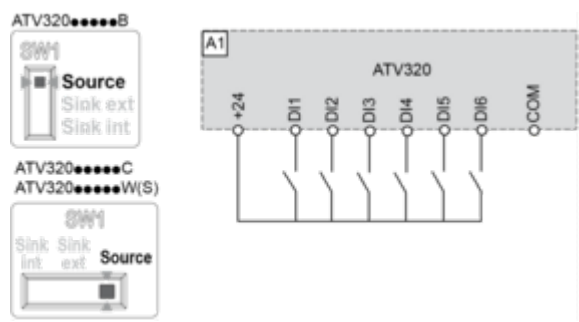
Control Block Wiring Diagram



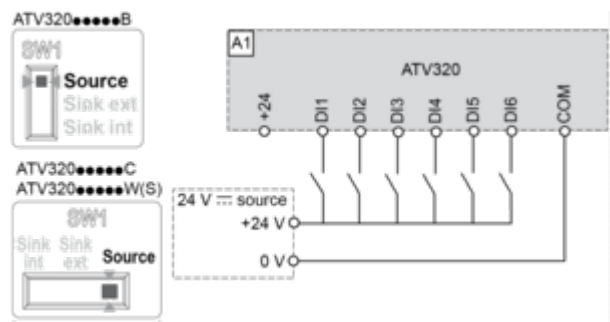
- (1) Analog output
- (2) Analog inputs
- (3) Potentiometer SZ1RV1202 (2.2 k $\Omega$ ) or similar (10 k $\Omega$  maximum)
- (4) Digital Inputs - Shielding instructions are given in the Electromagnetic Compatibility section

Digital Inputs Wiring

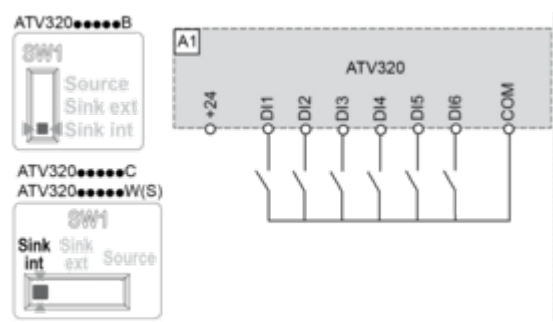
Switch Set to SRC (Source) Position Using the Output Power Supply for the Digital Inputs



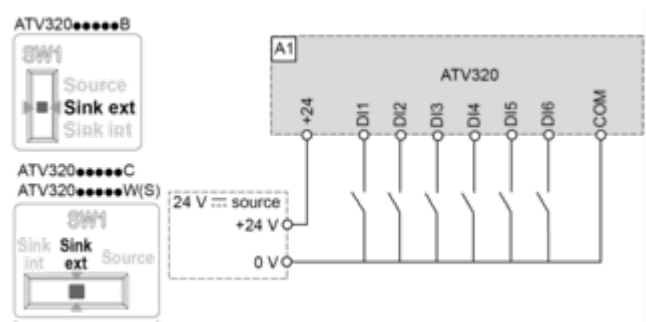
Switch Set to SRC (Source) Position and Use of an External Power Supply for the Digital Inputs



Switch Set to SK (Sink) Position Using the Output Power Supply for the Digital Inputs



Switch Set to EXT Position Using an External Power Supply for the Digital Inputs



NOTE :

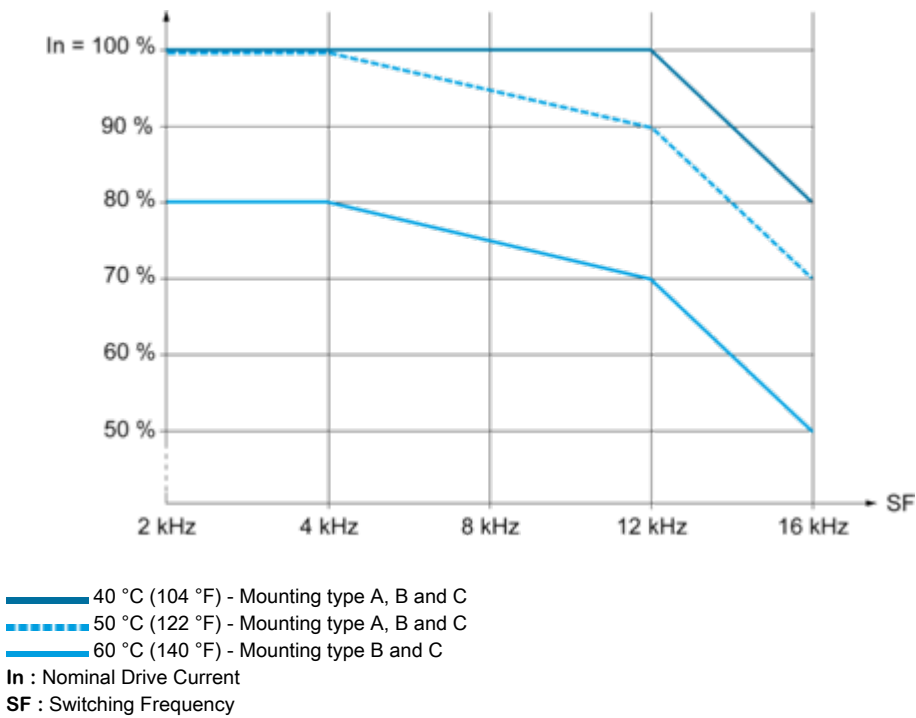
- STO input is also connected by default on a 24 Vdc terminal. If the external power supply is switched off, the function STO will be triggered.
- To avoid triggering the STO function when switching-on the product, the external power supply must be previously switched on.



Performance Curves

Derating Curves

Derating curve for the nominal drive current (In) as a function of temperature and switching frequency (SF).



Technical Illustration

Dimensions

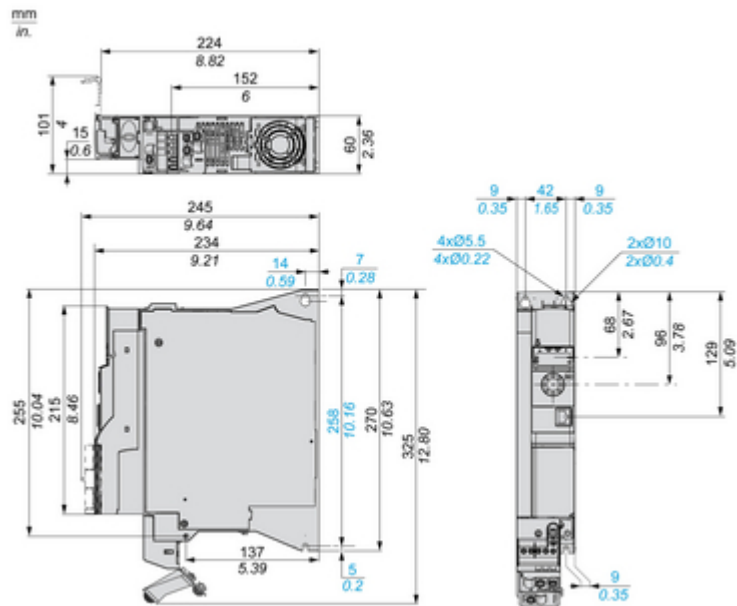


Image of product / Alternate images

Alternative

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