

Getting Started With Altivar Machine ATV340



NVE3764302

1 Download The Manuals

You must have detailed information to be able to carry out the installation and commissioning. This information can be found in the following manuals that can be downloaded on www.se.com or scan the QR code in front of the Drive.

- The Installation manual (NVE61069)
- The Programming manual (NVE61643)

The Getting Started manual does not replace the Installation and the Programming manuals.



Verify the Key Points
of your installation,
identified by this
symbol.



You can
watch our Video



DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Only appropriately trained persons who are familiar with and fully understand the contents of the present manual and all other pertinent product documentation and who have received all necessary training to recognize and avoid hazards involved are authorized to work on and with this drive system. Installation, adjustment, repair and maintenance must be performed by qualified personnel.
- Verify compliance with all local and national electrical code requirements as well as all other applicable regulations with respect to grounding of all equipment.
- Only use properly rated, electrically insulated tools and measuring equipment.
- Do not touch unshielded components or terminals with voltage present.
- Prior to performing any type of work on the drive system, block the motor shaft to prevent rotation.
- Insulate both ends of unused conductors of the motor cable.
- Do not short across the DC bus terminals or the DC bus capacitors or the braking resistor terminals.
- Before performing work on the drive system:
 - Disconnect all power, including external control power that may be present. Take into account that the circuit breaker or main switch does not de-energize all circuits.
 - Place a **Do Not Turn On** label on all power switches related to the drive system.
 - Lock all power switches in the open position.
 - Wait 15 minutes to allow the DC bus capacitors to discharge.
 - Verify the absence of voltage.
- Before applying voltage to the drive system:
 - Verify that the work has been completed and that the entire installation cannot cause hazards.
 - If the mains input terminals and the motor output terminals have been grounded and short-circuited, remove the ground and the short circuits on the mains input terminals and the motor output terminals.
 - Verify proper grounding of all equipment.
 - Verify that all protective equipment such as covers, doors, grids is installed and/or closed.

Failure to follow these instructions will result in death or serious injury.

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this product.

2 Verify The Delivery Of The Drive

Unpack the drive and verify that it has not been damaged. Damaged products or accessories may cause electric shock or unanticipated equipment operation.

DANGER

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Do not use damaged products or accessories.
Failure to follow these instructions will result in death or serious injury.

Contact your local Schneider Electric sales office if you detect any damage whatsoever.

Verify compatibility between your drive and your application with our

Product Selector



3 Verify The Supply Mains Compatibility With The Drive



3-phase supply mains: _____ V~

Drive mains voltage: _____ V~

Verify the quality of the supply mains (harmonics, voltage...).

4 Verify Upstream Protective Device

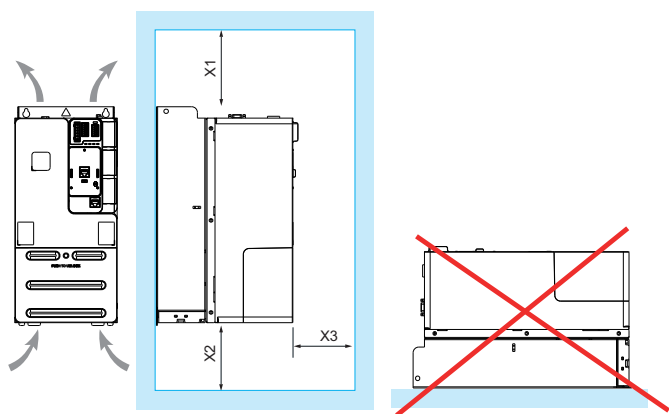


or



- For IEC, on ATV340 Catalog [DIA2ED2160701EN](#)
- or
- For UL fuse rating, with attached SCCR annex [NVE37641](#).

5 Mount The Drive Vertically



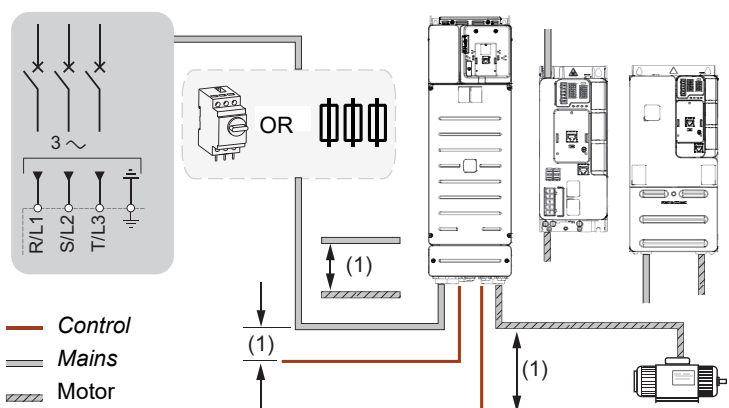
Catalog Number	X1	X2	X3
ATV340U07N4•...	≥ 100mm (3.9 in.) (a)	≥ 100mm (3.9 in.) (a)	≥ 60mm (2.36 in.) (a)
ATV340D22N4•			
ATV340D30N4E...	≥ 100mm (3.9 in.)	≥ 100mm (3.9 in.)	≥ 10mm (0.39 in.) (a)
ATV340D75N4E			

(a) The use of the additional module support VW3A3800 or kit requires to increase this value. See the *Accessories and Options* and *Mounting Conditions* chapters in the Installation manual (NVE61069).

See also the thermal conditions in the *Mounting Conditions* chapter.

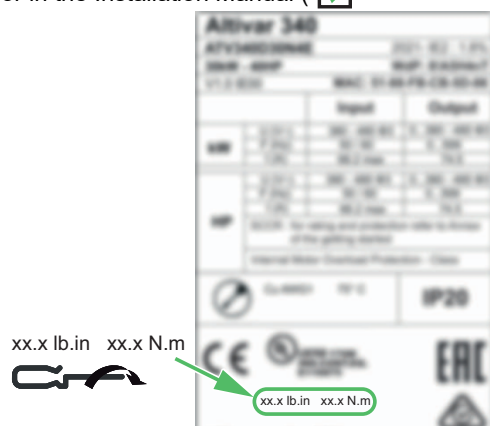
6 Connect The Drive: Ground and Power

1. Connect the ground cables .
2. Connect the drive to the mains (R/L1, S/L2, T/L3).
3. Connect the drive to the motor (U/T1, V/T2, W/T3).
4. Ensure minimum distance between the "Control" and "Power" cables.



(1) Defined by *Practical Installation guidelines* (deg999en).

5. Refer to the tightening torque instructions on the nameplate or in the Installation Manual ().



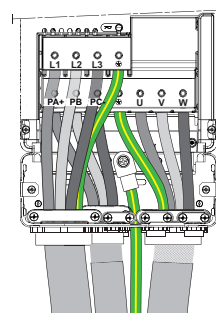
⚡ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

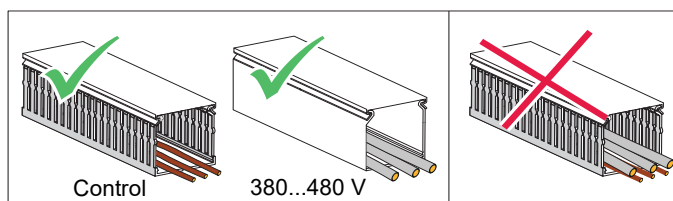
Wire cross sections and tightening torques must comply with the specifications provided in the installation manual.

Failure to follow these instructions will result in death or serious injury.

Example on frame size 4



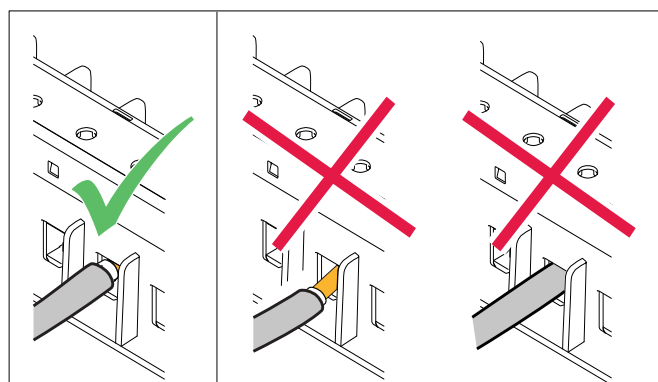
See other Frame sizes in chapter *Wiring the Power Part* of the Installation manual (NVE61069)



For more information, download the white paper *An Improved Approach for Connecting VSD and Electric Motors* (998-2095-10-17-13AR0_EN).

Stripping lengths and Cabling

Refer to the instructions given in the installation manual (NVE61069).



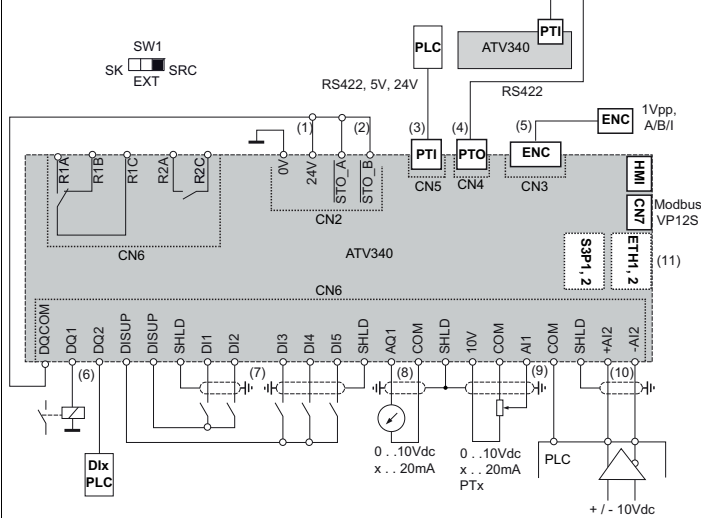
7 Connect The Drive: Control

Wiring Examples

See other wiring diagrams and details in the installation manual ([NVE61069](#)).

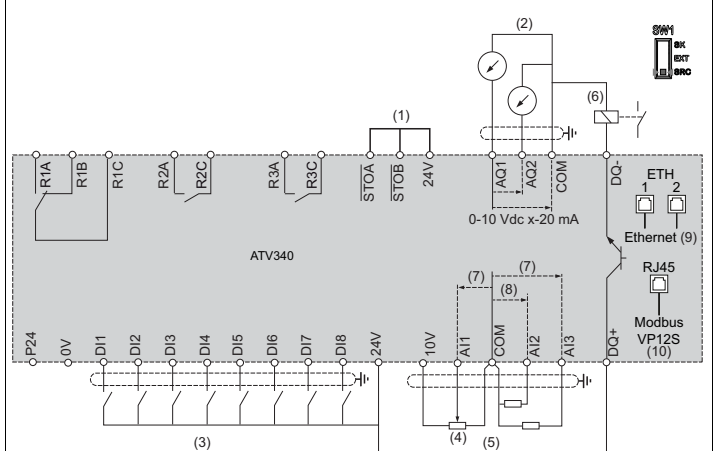
- For reference frequency, connect **AI1**, **10V** and **COM** with a potentiometer 1...10 kΩ (ex. SZ1RV1002)
- Connect the command **DI1** to **24V** **DI1** = forward (control command 2-wire - factory setting)

Frame Sizes 1...3: ATV340U07N4...D22N4•



- (1) 24V In, Out, maximum supply current 200 mA is provided, (2) STO - Safe Torque Off, see ATV340 Embedded safety function manual NVE64143, (3) PTI - Pulse Train In, from external source (eg. PLC) Pulse - Direction or A-B signals can be connected, (4) PTO - Pulse Train Out, can be used to connect to a 2nd ATV340 PTI, (5) To connect a motor position feedback encoder, (6) Digital output, e.g. to connect a contactor, also usable as DI, (7) Digital inputs, (8) Analog output, e.g. to connect a meter, (9) Analog input, e.g. from potentiometer, (10) Differential analog input, e.g. as speed reference from external PLC differential, +/- 10 V, (11) 2 advanced Ethernet ports ETH1, ETH2 (ATV340••••E) or 2 Sercos III ports S3P1, S3P2 (ATV340••••S). See Catalog [DIA2ED2160701EN](#) for cable references

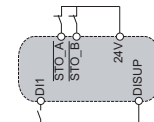
Frame Sizes 4 and 5: ATV340D30N4E...D75N4E



- (1) STO Safe Torque Off, (2) Analog Outputs, (3) Digital Inputs, (4) Reference potentiometer 1...10 kΩ (ex. SZ1RV1002), (5) Analog Inputs, (6) Digital Outputs, (7) Cable specification: min. Cat 5e, twisted-pair, 8 x 0.25 mm² (AWG 22), max. length 100 m (328 ft), (8) See Catalog [DIA2ED2160701EN](#) for cable references, (9) 2 advanced Ethernet ports ETH1, ETH2, (10) Modbus VP12S serial line port.

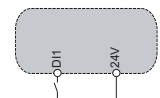
ATV340U07N4•...ATV340D22N4•:

- Connect the command DI1
- Connect the STO_A and STO_B inputs



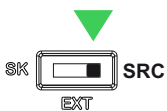
ATV340D30N4E...ATV340D75N4E:

- Connect the command DI1



Verify that the switch is on default position = SRC mode (right or lower position, depending on the drive)

ATV340U07N4•...D22N4• | ATV340D30N4E...D75N4E



Sink (SK) - Sink External (EXT) - Source (SRC)

SOURCE (SRC) position is used for PLC outputs with PNP transistors. Refer to the instructions given in the installation manual ([NVE61069](#)).

NOTICE

INCORRECT VOLTAGE

Only supply the digital inputs with 24 Vdc.

Failure to follow these instructions can result in equipment damage.

Tightening torque and screwdriver type

0.5 N.m
4.4. lb.in



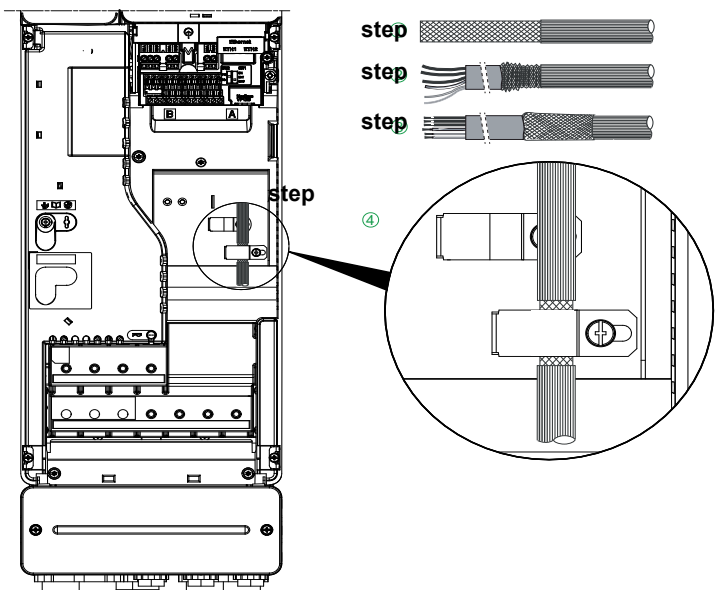
Frame sizes 1,2 & 3

Relay Output Wire Cross Section		Other Wire Cross Section	
Minimum	Maximum	Minimum	Maximum
mm ² (AWG)	mm ² (AWG)	mm ² (AWG)	mm ² (AWG)
0.25 (24)	2.5 (14)	0.25 (24)	1 (16)

Frame sizes 4 & 5

Relay Output Wire Cross Section		Other Wire Cross Section	
Minimum	Maximum	Minimum	Maximum
mm ² (AWG)	mm ² (AWG)	mm ² (AWG)	mm ² (AWG)
0.75 (18)	1.5 (16)	0.5 (20)	1.5 (16)

Shielding connection to ground: DI example



8 [Simply start]

- Download and install the SoMove FDT ([SoMove_FDT](#)), the DTM in English ([ATV340_DTM_Library_EN](#)) and language pack, on [www.se.com](#).
- Connect to the drive with SoMove using a USB to RS485 converter ([TCSMCNAM3M002P](#)) between PC and Modbus connector on the drive.
- Verify that digital input is not active (**DI1** open, see wiring diagrams in step **7**).
- Apply power to the drive.
- Access [\[Simply Start\]](#) menu, by clicking on "Parameters List" tab on DTM based PC software.

9 Set Motor Parameters For Asynchronous Motor

NOTE: For other motor types, refer to the ATV340 Programming manual ([NVE61643](#)).

See the motor nameplate to set the following

Menu	Parameter	Factory setting	Customer setting
[Simply Start]	[Motor Standard] b F r : Standard motor frequency (Hz)	[50Hz IEC] 5 0	
	[Nominal Motor Power] n P r : Nominal motor power on motor nameplate (KW)	drive rating	
	[Nom Motor Voltage] u n S : Nominal motor voltage on motor nameplate (Vac)	drive rating	
	[Nom Motor Current] n I r : Nominal motor current on motor nameplate (A)	drive rating	
	[Nominal Motor Freq] F r S : Nominal motor frequency on motor nameplate (Hz)	5 0	
	[Nominal Motor Speed] n S P : Nominal motor speed on motor nameplate (rpm)	drive rating	
	[2/3-Wire Control] E C C : Command control by 2 wire or 3 wire control	2 C	
	[Max Frequency] E F r : Maximum motor frequency (Hz)	6 0	
	[Mot. therm. current] I t H : Motor thermal current on motor nameplate (A)	drive rating	

10 Perform A Motor [Autotuning] For Asynchronous Motor

NOTE: Perform autotuning with the motor cold. If you modify motor parameters after having performed autotuning, you must re-perform autotuning.

⚠ WARNING

UNEXPECTED MOVEMENT

Autotuning moves the motor in order to tune the control loops.

- Only start the system if there are no persons or obstructions in the zone of operation.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

During [\[Autotuning\]](#), the motor makes small movements. Noise development and oscillations of the system are normal.

Menu	Parameter
[Simply start]	[Autotuning] E u n : Set parameter to [Apply Autotuning] y E S . [Autotuning] E u n is done immediately.

11 Set Basic Parameters

Menu	Description	Factory setting	Customer setting
[Simply Start]	[Acceleration] R C C : Acceleration time (s)	3.0	
	[Deceleration] d E C : Deceleration time (s)	3.0	
	[Low speed] L S P : Motor frequency at minimum reference (Hz)	0	
	[High speed] H S P : Motor frequency at maximum reference (Hz)	5 0	

12 Start And Stop The Motor

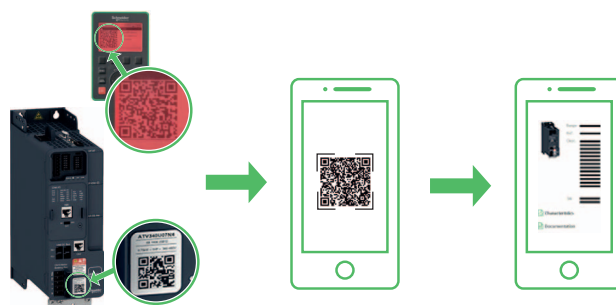
- Switch on **DI1** (forward).
- Use the potentiometer on **AI1** to set the reference frequency, adjustable from [\[Low speed\]](#) [L S P](#) to [\[High speed\]](#) [H S P](#).
- Switch off **DI1** (forward) to stop the motor.

Troubleshooting



To get the error code explanations:

- Scan the QR code on the RED screen when using the Graphic Display Terminal ([VW3A1111](#)) to be ordered separately;
- Or scan the QR code on the front of the drive;
- Or refer to the Programming manual ([NVE61643](#))



Configuration Using the Embedded Webserver

See the Embedded Ethernet manual ([EAV64327](#)) for more information.