

Getting Started With Altivar Process ATV900



NHA6157802

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 ([NHA80932](#))
- The Programming manual ([NHA80757](#))



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



You can watch our Video



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

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~

ATV.....M3 = 200/240 V~

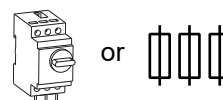
ATV.....N4 = 380/480 V~

ATV.....S6 = 600 V~

ATV.....Y6 = 500/690 V~

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

4 Verify Upstream Protective Device

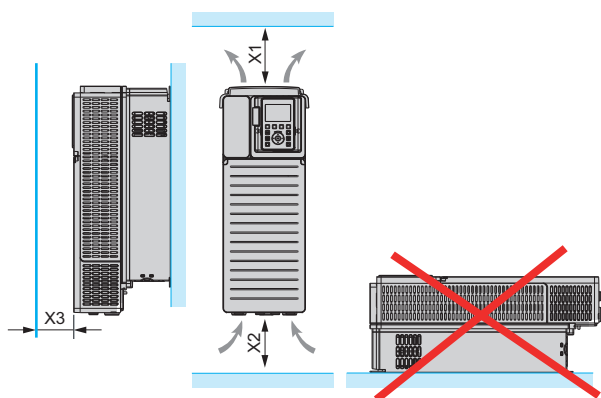


• For IEC, on ATV900 Catalog [DIA2ED2150601EN](#)

or

• For UL fuse rating, with attached SCCR annex [NHA61583](#).

5 Mount The Drive Vertically

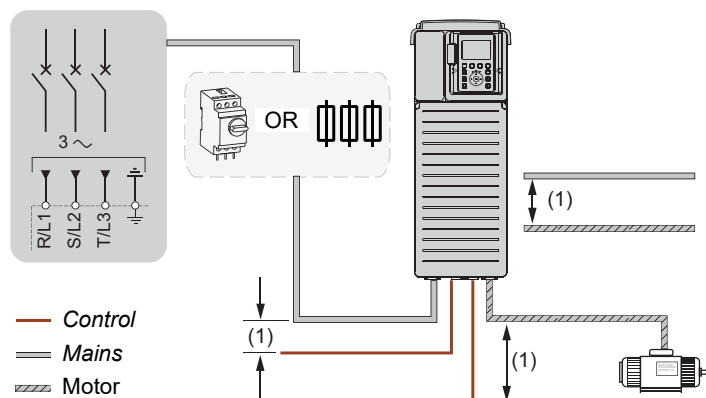


Drive	X1	X2	X3
ATV930U07...ATV930D90N4... ATV930U22S6X...ATV930D15S6X, ATV930...S6, ATV930...Y6, ATV950.....	≥ 100 mm (3.94 in.)	≥ 100 mm (3.94 in.)	≥ 10 mm (0.39 in.)
ATV930D55M3...ATV930D75M3, ATV930C11N4...ATV930C16N4	≥ 250 mm (9.84 in.)	≥ 250 mm (9.84 in.)	≥ 100 mm (3.94 in.)
ATV930C22N4...ATV930C31N4	≥ 200 mm (7.87 in.)	≥ 150 mm (5.91 in.)	≥ 10 mm (0.39 in.)

See thermal conditions in the Installation manual ([NHA80932](#)).

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 ([NHA80932](#)).



xx.x lb.in xx.x N.m

xxx lb.in xx.x N.m

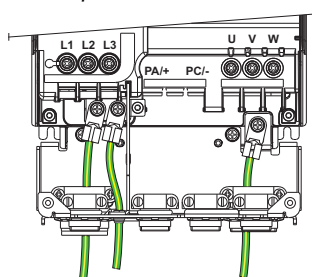
DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

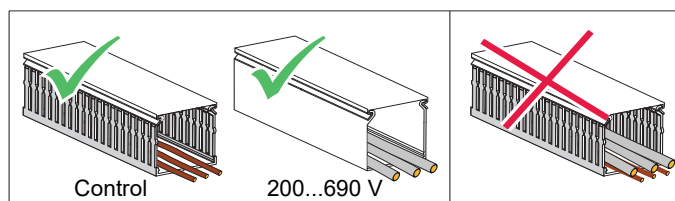
Wire cross sections and tightening torques must comply with the specifications provided in the installation manual.

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

Example on frame size 3



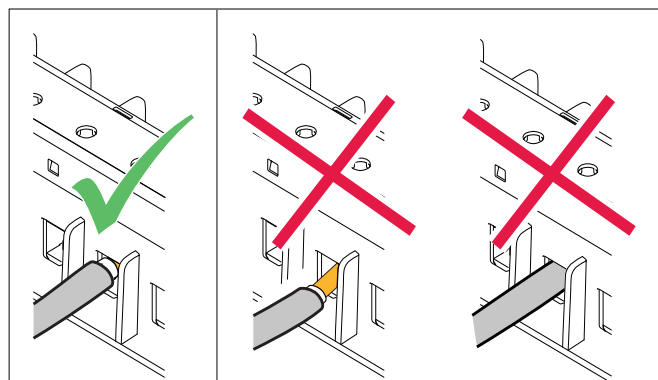
See other Frame sizes in chapter *Wiring the Power Part* of the Installation manual ([NHA80932](#))



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 ([NHA80932](#)).

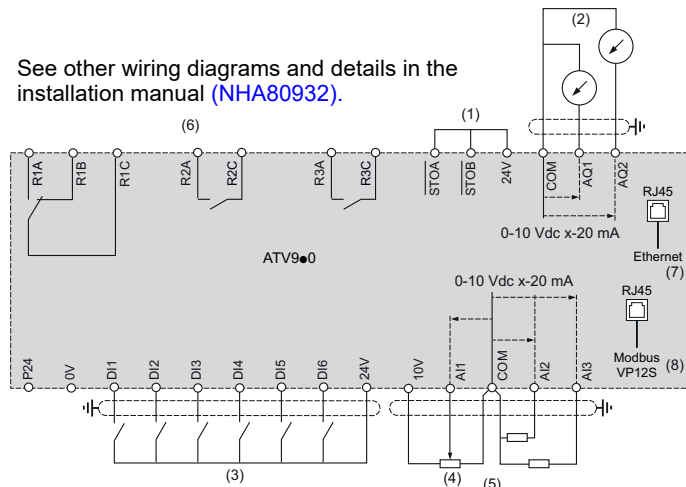


7 Connect The Drive: Control

Wiring Example

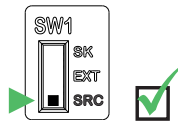
- For reference frequency, connect **A11**, **10V** and **COM** with a potentiometer 1...10 kΩ (ex. SZ1RV1002)
- Connect the command **DI1** to **24V**
DI1 = forward (control command 2-wire - factory setting)

See other wiring diagrams and details in the installation manual ([NHA80932](#)).



- (1) STO Safe Torque Off, (2) Analog Outputs, (3) Digital Inputs, (4) Reference potentiometer 1...10 kΩ (ex. SZ1RV1002), (5) Analog Inputs, (6) Relay 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 [DIA2ED2150601EN](#) for cable references

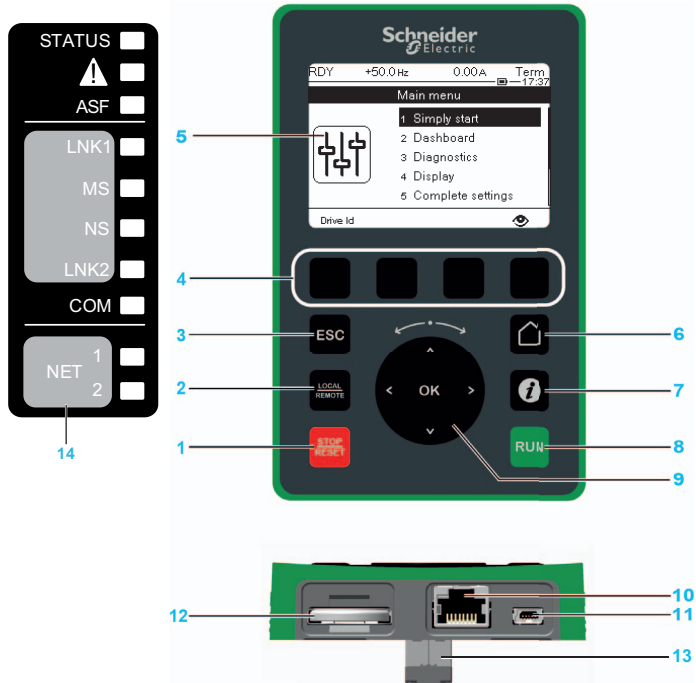
Verify that the switch is on default position = SRC mode (right position)



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 ([NHA80932](#)).

8 LEDs and Graphic Display Terminal



14. For a detailed description of the LEDs, refer to the section *Description of the Product Front LEDs* of the Programming manual ([NHA80757](#)).

NOTICE

INCORRECT VOLTAGE

Only supply the digital inputs with 24 Vdc.

Failure to follow these instructions can result in equipment damage.

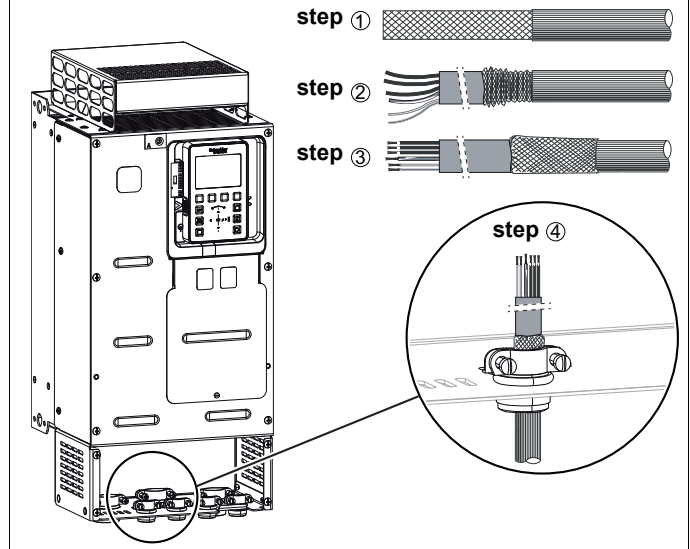
Tightening torque and screwdriver type

0.5 N.m
4.4. lb.in



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



- STOP / RESET: Stop command / apply a Fault Reset.
- LOCAL / REMOTE: used to switch between local and remote control of the drive.
- ESC: used to quit a menu/parameter or remove the currently displayed value in order to revert to the previous value retained in the memory.
- F1 to F4: function keys used to access drive id, QR code, quick view, and submenus.
- Graphic display.
- Home: used to access directly at the home page.
- Information: to get more information about parameters.
- RUN: executes the function assuming it has been configured.
- Touch wheel / OK: used to save the current value or access the selected menu/parameter. The touch wheel is used to scroll fast into the menus. Up/down arrows are used for precise selections, right/left arrows are used to select digits when setting a numerical value of a parameter.
- RJ45 Modbus serial port: used to connect the Graphic Display Terminal to the drive. This connection requires specific cables to be ordered separately, see the Catalog ([DIA2ED2150601EN](#)).
- Mini USB port: used to connect the Graphic Display Terminal to a computer.
- Battery (10 years service life. Type: CR2032).
- RJ45 male connector to plug on the drive or on the door mounting kit.

9 [Simply start]

- Verify that digital input is not active (**DI1** open, see step 7 wiring diagram).
- Apply power to the drive.
- If requested, set the date, time, and language.

10 Set Motor Parameters For Asynchronous Motor

NOTE: For other motor types, refer to the Programming manual (NHA80757).

See the motor nameplate to set the following

Menu	Parameter	Factory Setting		Customer Setting
		ATV●●●●●M3 ATV●●●●●N4●● ATV●●●●●Y6	ATV●●●●●S6●	
[Simply start]	[Motor Standard] <i>b F r</i> : Standard motor frequency	[50 Hz IEC] 50 (Hz)	[60 Hz IEC] 60 (Hz)	
	[Nominal Motor Power] <i>n P r</i> : Nominal motor power on motor nameplate	drive rating (kW)	drive rating (HP)	
	[Nom Motor Voltage] <i>u n S</i> : Nominal motor voltage on motor nameplate	drive rating (Vac)		
	[Nom Motor Current] <i>n I r</i> : Nominal motor current on motor nameplate	drive rating (A)		
	[Nominal Motor Freq] <i>F r S</i> : Nominal motor frequency on motor nameplate	50 (Hz)		
	[Nominal Motor Speed] <i>n S P</i> : Nominal motor speed on motor nameplate	drive rating (rpm)		
	[2/3-Wire Control] <i>E C C</i> : Command control by 2 wire or 3 wire control	2 C		
	[Max Frequency] <i>E F r</i> : Maximum motor frequency	60 (Hz)	72 (Hz)	
[Motor Th current] <i>i E H</i> : Motor thermal current on motor nameplate	drive rating (A)			

11 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] <i>E u n</i> : Set parameter to [Apply Autotuning] <i>Y E S</i> . [Autotuning] <i>E u n</i> is done immediately.

12 Set Basic Parameters

Menu	Parameter	Factory Setting		Customer Setting
		ATV●●●●●M3 ATV●●●●●N4●● ATV●●●●●Y6	ATV●●●●●S6●	
[Simply start]	[Acceleration] <i>A C C</i> : Acceleration time	3.0 (s)		
	[Deceleration] <i>d E C</i> : Deceleration time	3.0 (s)		
	[Low speed] <i>L S P</i> : Motor frequency at minimum reference	0 (Hz)		
	[High speed] <i>H S P</i> : Motor frequency at maximum reference	50 (Hz)	60 (Hz)	

13 Start And Stop The Motor

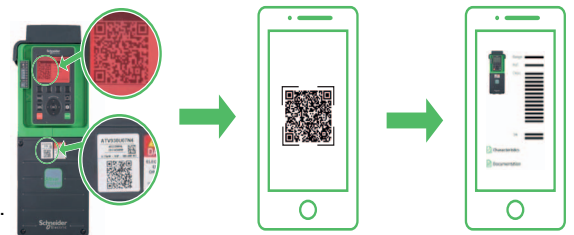
- Switch on **DI1** (forward).
- Use the potentiometer on **AI1** to set the reference frequency, adjustable from [Low speed] *L S P* to [High speed] *H S P*.
- Switch off **DI1** (forward) to stop the motor.

Troubleshooting



To get the error code explanation:

- Scan the QR code on the RED screen;
- Or scan the QR code on the front of the drive and go to: Documentation > Technical Guidance at Glance > Diagnostics;
- Or refer to the Programming manual (NHA80757).



Other Tools To Configure The Drive

- **SoMove** is a setup software for PC designed to configure Schneider Electric motor control devices. You can download the SoMove FDT (SoMove_FDT), the DTM in English (ATV9xx_DTM_Library_EN) and language pack, on www.se.com.
- **Embedded Webserver**: See the Embedded Ethernet manual (NHA80940) for more information.