

# Getting Started With Altivar HVAC ATH600



NAT1614100

## 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](http://www.se.com) or scan the QR code in front of the Drive.

- The Installation manual (NAT19018)
- The Programming manual (NAT19027)



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



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

You can watch our Video  
FAQ000275266



## DANGER

### HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Only appropriately trained persons who are familiar with and understand the contents of this manual and all other pertinent product documentation and who have received safety 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.

- The system integrator is responsible for compliance with all local and national electrical code requirements as well as all other applicable regulations with respect to grounding of all equipment.
- Many components of the product, including the printed circuit boards, operate with mains voltage.
- Only use properly rated, electrically insulated tools and measuring equipment.
- Do not touch unshielded components or terminals with voltage present.
- Motors can generate voltage when the shaft is rotated. Prior to performing any type of work on the drive system, block the motor shaft to prevent rotation.
- AC voltage can couple voltage to unused conductors in the motor cable. 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.
  - Follow the instructions given in the chapter "Verifying the Absence of Voltage" in the installation manual of the product.
- 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

#### HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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~

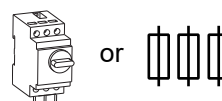
Drive mains voltage: \_\_\_\_\_ V~

ATH.....N4• = 380/480 V~

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

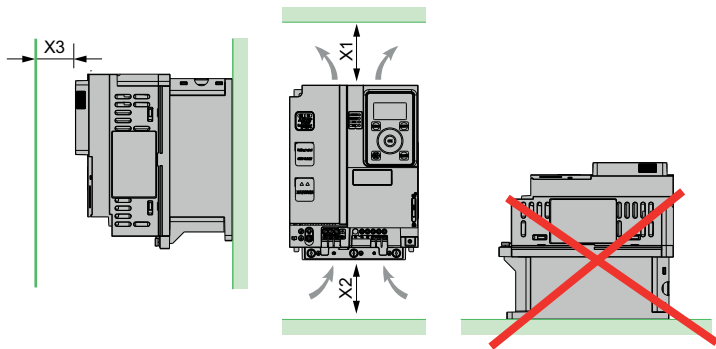
For more information, refer to the [Electrical Installation Wiki \(https://www.electrical-installation.org/\)](https://www.electrical-installation.org/).

## 4 Verify Upstream Protective Device



- For IEC, on ATH600 Catalog [DIA2ED2260301EN](#) and additional information in the Installation Manual (NAT19018) or
- For UL fuse rating, with attached SCCR annex [NAT16152](#).

## 5 Mount The Drive Vertically

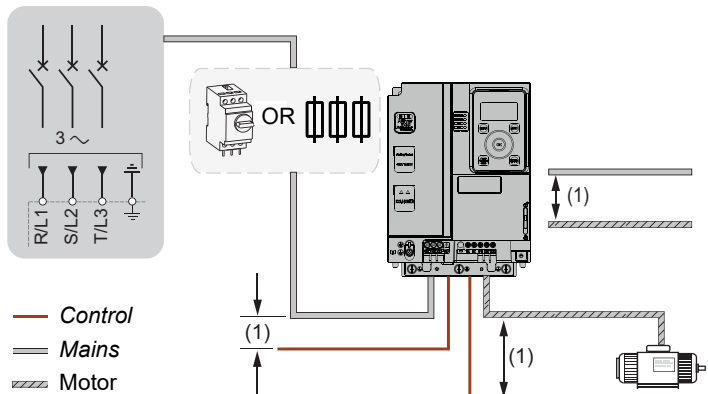


Drive	X1	X2	X3
ATH630U07●●●...ATH630D90N4● ATH650●●●●●●●●	≥ 100 mm (3.94 in.)	≥ 100 mm (3.94 in.)	≥ 10 mm (0.39 in.)
ATH630C11N4●...ATH630C16N4●	≥ 250 mm (9.84 in.)	≥ 250 mm (9.84 in.)	≥ 100 mm (3.94 in.)
ATH630C22N4●...ATH630C25N4●	≥ 200 mm (7.87 in.)	≥ 150 mm (5.91 in.)	≥ 10 mm (0.39 in.)

See thermal conditions and side-by-side distance in the Installation manual ([NAT19018](#)).

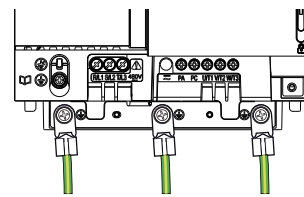
## 6 Connect The Drive: Ground and Power

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.

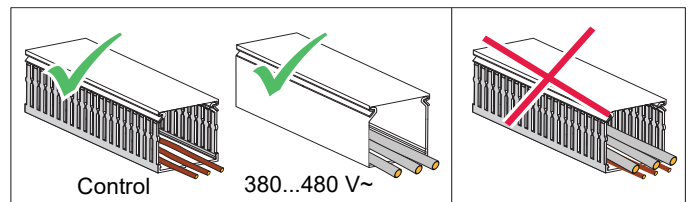


(1) Defined by *Practical Installation guidelines* ([deg999en](#)).

Example on Frame Size 1

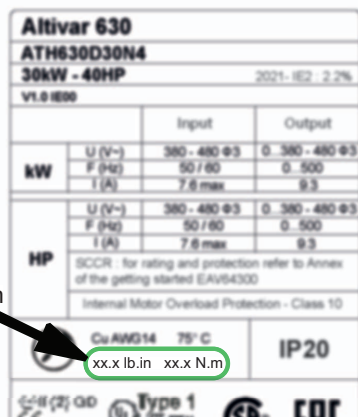


See other Frame Sizes in chapter *Wiring the Power Part* of the Installation manual ([NAT19018](#))



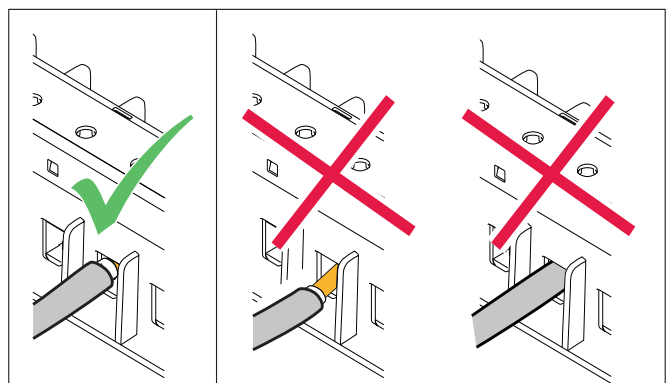
For more information, download the white paper *An Improved Approach for Connecting VSD and Electric Motors* ([998-2095-10-17-13AR0\\_EN](#)).

5. Refer to the tightening torque instructions on the nameplate or in the installation manual ([NAT19018](#))



## Stripping lengths and Cabling

Refer to the instructions given in the installation manual ([NAT19018](#)).



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



### DANGER

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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.**

## 7 Connect The Drive: Control

**7.1** **HAND** Control with the display terminal, no wiring needed go to: **8.1** + **9** + **10** + **11** + **12** + **13.1**

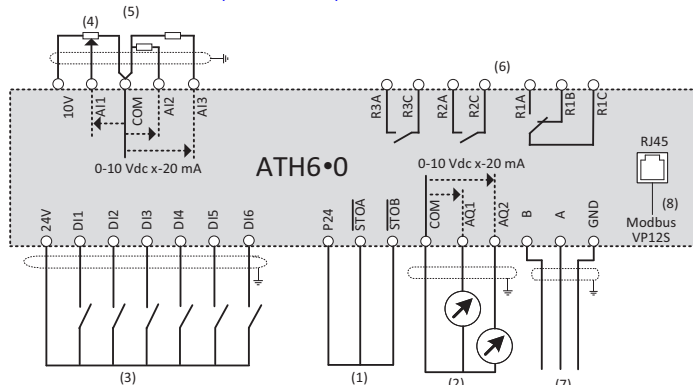
OR

**7.2** **AUTO** Control with the terminal:

### Wiring Example

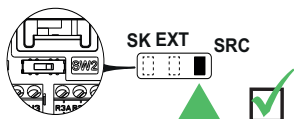
- For reference frequency, connect **A11**, **10V** and **COM** with a potentiometer 1...10 kΩ (example: [SZ1RV1202](#)).
- Connect the command **DI1** to **24V** with a switch. **DI1** = forward (control command 2-wire - factory setting).

See other wiring diagrams and details in the installation manual ([NAT19018](#)).



- (1) STO Safe Torque Off, (2) Analog Outputs, (3) Digital Inputs, (4) Reference potentiometer 1...10 kΩ (example: [SZ1RV1202](#)), (5) Analog Inputs, (6) Relay Outputs, (7) Bacnet MS/TP, (8) See Catalog [DIA2ED2260301EN](#) for cable references

Verify that the switch **SW2** 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 ([NAT19018](#)).

And do steps: **8.1** or **8.2** + **9** + **10** + **11** + **12** + **13.2**

### NOTICE

#### INCORRECT VOLTAGE

Only supply the digital inputs with 24 Vdc.

Failure to follow these instructions can result in equipment damage.

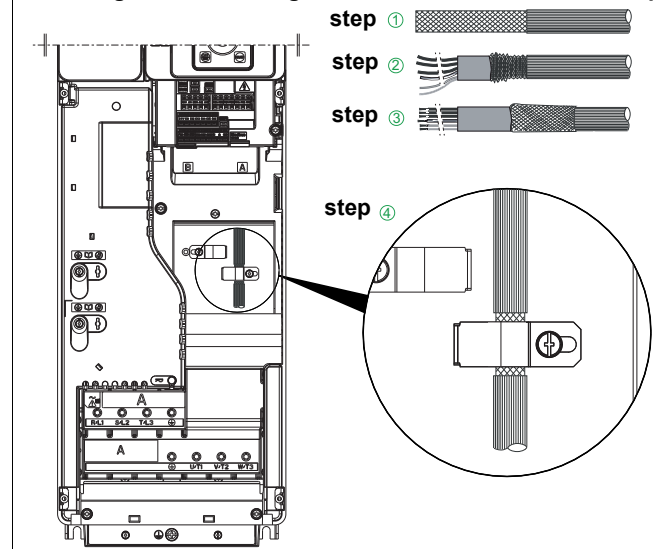
Tightening torque and screwdriver type

0.5 N.m  
4.4 lb.in



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

### Shielding connection to ground: Frame Size 3 for DI example



## 8 Available commissioning tools

**8.1** Display Terminal (to be ordered separately)

OR

**8.2** SoMove

- Connect:  
the Display Terminal ([VW3A1123](#))  
OR  
the Graphic Display Terminal ([VW3A1121](#))

- Download and install the SoMove FDT ([SoMove\\_FDT](#)), the DTM in English ([ATH600\\_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.

## 9 Power-up The Product

- Apply power to the drive.
- At first power on:
  - In the [\[LANGUAGE\]](#) menu, select the desired language.
  - In the [\[Time Zone\]](#) menu, set the local UTC offset.
  - In the [\[Set Date/Time\]](#) menu, set the local time.
  - In the [\[Initial Setup\]](#) menu, scroll to [\[Go to product\]](#) and press the **OK** button.
  - Select [\[Minimum Cybersec\]](#) to set no credentials and access the main menu.  
Or select [\[Advanced Cybersec\]](#) to set credentials then access the main menu.
  - In the [\[Access Level\]](#) menu, select the level of menus and parameters access.
  - Check your latest Altivar Firmware version ([ATH600-Firmware](#)) on [www.se.com](#).

## 10 Set Motor Parameters

- Access [Simply Start] menu.
- See the motor nameplate to set the following

Menu	Parameter	Factory Setting		Customer Setting
		ATH●●●●●N4●●		
[Simply start]	[Motor Standard] BFR: Standard motor frequency	[50 Hz IEC] 50 (Hz)	[60 Hz IEC] 60 (Hz)	
	[Nominal Motor Power] NPR: Nominal motor power on motor nameplate	drive rating (kW)	drive rating (HP)	
	[Nom Motor Voltage] UNS: Nominal motor voltage on motor nameplate	drive rating (Vac)		
	[Nom Motor Current] NCR: Nominal motor current on motor nameplate	drive rating (A)		
	[Nominal Motor Freq] FRS: Nominal motor frequency on motor nameplate	50 (Hz)		
	[Nominal Motor Speed] NSP: Nominal motor speed on motor nameplate	drive rating (rpm)		
	[2/3-Wire Control] TCC: Command control by 2 wire or 3 wire control	2C		
	[Max Frequency] IFR: Maximum motor frequency	60 (Hz)	72 (Hz)	
[Motor Th current] ITH: 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] TUN: Set parameter to [Apply Autotuning] YES. [Autotuning] tUn is done immediately.


## 12 Set Basic Parameters


Menu	Parameter	Factory Setting		Customer Setting
		ATH●●●●●N4●●		
[Simply start]	[Acceleration ] ACC: Acceleration time	Auto		
	[Deceleration] DEC: Deceleration time	Auto		
	[Low speed] LSP: Motor frequency at minimum reference	0 (Hz)		
	[High speed] HSP: Motor frequency at maximum reference	50 (Hz)	60 (Hz)	

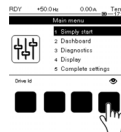
## 13 Start And Stop The Motor

### 13.1 HAND control

#### Start the motor:



- Hold  to switch to control by graphic terminal  
A pop-up message will confirm the switch.

- Press  to start the motor
- Press "F4" to access frequency configuration



- Use  to set the reference frequency, adjustable from [Low speed] LSP to [High speed] HSP.

#### Stop the motor:

- Press  to stop the motor.
- (Optional) Hold  to switch back to the configured command channel (Set to Terminal in factory setting).

### 13.2 AUTO Control

- Switch on DI1 (forward).
- Switch off DI1 (forward) to stop the motor.
- Use the potentiometer on AI1 to set the reference frequency, adjustable from [Low speed] LSP to [High speed] HSP.

## Troubleshooting



To get the error code explanations:

- Scan the QR code on the RED screen when using the Graphic Display Terminal (VW3A1121) to be ordered separately;
- Or scan the QR code on the front of the drive;
- Or refer to the Programming manual (NAT19027)

