Getting started with ATV312

**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. Do not touch. Use only electrically insulated tools.
- 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.

**Verify the delivery of the drive**

1. Remove ATV312 from the packaging and verify that it has not been damaged.

2. **Verify the Supply Mains compatibility**

   - Verify that the supply mains is compatible with the drive.

   Supply mains _______ Volts / Drive mains voltage _______ Volts

   Drive range:  
   - ATV312 = 200/240 V single-phase  
   - ATV312 = 380/500 V three-phase  
   - ATV312 = 525/600 V three-phase

3. **Mount the drive vertically**

   For a surrounding air temperature up to 50 °C (122 °F)

   - (a) ≥50 mm (2 in.)
   - (b) ≥10 mm (0.4 in.)

   See installation manual (BBV46391) on www.schneider-electric.com for other thermal conditions.
4 Wire power part
- Wire the drive to the ground.
- Verify circuit breaker rating or fuse rating (see SCCR annex).
- Verify that the motor voltage is compatible with the drive voltage.
- Motor voltage ______ Volts.
- Wire the drive to the motor.
- Wire the drive to the supply mains.

5 Wire control part and select control configuration:

51 OR 52

51 [REMOTE configuration]
(Control by external reference)
- Ensure SW1 = “SOURCE”
- Wire the speed reference:
- Wire the command:

52 [LOCAL configuration]
(control by internal reference).

6 Apply power to the drive
- Ensure that Logic Inputs are not active (see Li1, Li2, Lix ).
- Apply power to the drive.
- At first power up, the drive displays nSt (3-wire control) or rdY (2-wire control), after pushing drive displays bFr.
- On next start-ups, the drive displays nSt or rdY.

7 Set motor parameters
- Refer to the motor nameplate for the following parameter settings.

<table>
<thead>
<tr>
<th>Menu</th>
<th>Code</th>
<th>Description</th>
<th>Factory setting</th>
<th>Customer setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>d r c</td>
<td>bFr</td>
<td>[Standard mot. freq.]: Standard motor frequency (Hz)</td>
<td>50.0</td>
<td>5.0.0</td>
</tr>
<tr>
<td></td>
<td>r u S</td>
<td>[Rated motor volt.]: Nominal motor voltage on motor nameplate (V)</td>
<td>drive rating</td>
<td>drive rating</td>
</tr>
<tr>
<td></td>
<td>r F s</td>
<td>[Rated motor freq.]: Nominal motor frequency on motor nameplate (Hz)</td>
<td>50.0</td>
<td>5.0.0</td>
</tr>
<tr>
<td></td>
<td>n C r</td>
<td>[Rated mot. current.]: Nominal motor current on motor nameplate (A)</td>
<td>drive rating</td>
<td>drive rating</td>
</tr>
<tr>
<td></td>
<td>n S P</td>
<td>[Rated motor speed]: Nominal motor speed on motor nameplate (rpm)</td>
<td>drive rating</td>
<td>drive rating</td>
</tr>
<tr>
<td></td>
<td>c o 5</td>
<td>[Motor 1 Cosinus Phi.]: Nominal motor cos j on motor nameplate</td>
<td>drive rating</td>
<td>drive rating</td>
</tr>
</tbody>
</table>
7 Set motor parameters (continued)

- Set \( t_{\text{Un}} \) parameter to \( \text{YES} \).

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td></td>
<td>( \text{a} ) ( \text{r} ) ( \text{C} ) [\text{MOTOR CONTROL}]</td>
<td>( t_{\text{Un}} ) [Auto Tuning]: Auto-Tuning for ( n_{\text{5}}, n_{\text{r}}, n_{\text{Cr}}, n_{\text{SP}} ) and ( \text{Cos} )</td>
<td>( \text{na} )</td>
<td></td>
</tr>
</tbody>
</table>

⚠️⚠️ DANGER
HAZARD OF ELECTRIC SHOCK OR ARC FLASH
- During auto-tuning, the motor operates at rated current.
- Do not service the motor during auto-tuning.

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

8 Set basic parameters

<table>
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<th>Customer setting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \text{S} ) ( \text{E} ) ( \text{t} ) ( \text{R} ) [\text{SETTINGS}]</td>
<td>( \text{ACC} ) [\text{Acceleration}]: Acceleration time (s)</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>( \text{dEC} ) [\text{Deceleration}]: Deceleration time (s)</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>( \text{LSP} ) [\text{Low speed}]: Motor frequency at minimum reference (Hz)</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>( \text{HSP} ) [\text{High speed}]: Motor frequency at maximum reference (Hz)</td>
<td>50.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>( \text{tH} ) [\text{Mot. therm. current}]: Nominal current on motor nameplate (A)</td>
<td>drive rating</td>
<td></td>
</tr>
<tr>
<td></td>
<td>( \text{r} ) ( \text{r} ) ( \text{S} ) [\text{INPUTS / OUTPUTS CFG}]</td>
<td>( \text{rrS} ) [\text{Reverse assign.}]: Reverse assignment</td>
<td>( \text{L}, \text{2} )</td>
<td></td>
</tr>
<tr>
<td></td>
<td>( \text{Fun-&gt;PS5-} ) [\text{PRESET SPEEDS}]</td>
<td>( \text{PS2} ) [2 \text{preset speeds}]: Preset speeds</td>
<td>( \text{L}, \text{3} )</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>( \text{PS4} ) [4 \text{preset speeds}]: Preset speeds</td>
<td>( \text{L}, \text{4} )</td>
<td></td>
</tr>
<tr>
<td></td>
<td>( \text{Fun-&gt;S5A-} ) [\text{SUMMING INPUTS}]</td>
<td>( \text{SA2} ) [\text{Summing ref. 2}]: Analog input</td>
<td>( \text{A}, \text{2} )</td>
<td></td>
</tr>
</tbody>
</table>

9 Set control choice

<table>
<thead>
<tr>
<th>Menu</th>
<th>Code</th>
<th>Description</th>
<th>5.1 [REMOTE configuration]</th>
<th>5.2 [LOCAL configuration]</th>
<th>Customer Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \text{C} ) ( \text{t} ) ( \text{L} ) [\text{COMMAND}]</td>
<td>( \text{Fr1} ) [\text{Ref.1 channel}]: Reference control</td>
<td>( \text{RLL} ) (factory setting), ( \text{RL2, RL3} )</td>
<td>( \text{RLu1} )</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>( \text{tCC} ) [\text{2/3 wire control}]: Command control</td>
<td>( \text{2CL}: 2\text{-wire (factory setting)} ), ( \text{3CL}: 3\text{-wire} )</td>
<td>( \text{LoC} )</td>
<td></td>
</tr>
</tbody>
</table>

91 REMOTE configuration] (Factory setting)

Factory settings of parameters:

\( \text{Fr1} = \text{A}, \text{1} \)
\( \text{tCC} = \text{2C} \)

92 [LOCAL configuration]

Factory settings of parameters:

\( \text{Fr1} = \text{A}, \text{1} \)
\( \text{tCC} = \text{LoC} \)
\( \text{rrS} = \text{L}, \text{2} \)
\( \text{PS2} = \text{L}, \text{3} \)
\( \text{PS4} = \text{L}, \text{4} \)

10 Start the motor
Menus structure

Note: The drive goes back to REMOTE configuration after a factory setting operation ([Restore config.] (FCS)) or by modifying the macro configuration ([Macro configuration] (CFG)).

Refer to the programming manual (BBV46385) for comprehensive menu descriptions.