Quick Start Guide - ATV212

**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.
- Before performing work on the drive system:
  - Disconnect all power, including external control power that may be present.
  - Place a "Do Not Turn On" label on all power switches.
  - Lock all power switches in the open position.
  - Wait 15 minutes to allow the DC bus capacitors to discharge. The DC bus LED is not an indicator of the absence of DC bus voltage that can exceed 800 Vdc.
  - Measure the voltage on the DC bus between the DC bus terminals (PA/+ and PC/-) using a properly rated voltmeter to verify that the voltage is < 42 Vdc.
  - If the DC bus capacitors do not discharge properly, contact your local Schneider Electric representative.
- Install and close all covers before applying voltage.

**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.

Information below is designed to use single drive connected to single asynchronous motor with a motor cable length less than 50 meters (164 ft). Check your cables before connecting the drive with motor (length, power, shielded or unshielded). In any other case, consult the ATV212 installation manual (S1A53832) and programming manual (S1A53838) on www.schneider-electric.com.

1. **Check the delivery of the drive**
   - Remove ATV212 from the packaging and check that it has not been damaged.

2. **Check the line voltage compatibility**
   - Check that the line voltage is compatible with the supply range of the drive.
   - Line voltage _______ Volts  Drive voltage range _______ Volts
   - Drive range: ATV212-M3X = 200/240 V three-phase / ATV212-N4X = 380/480 V three-phase.

3. **Mount the drive vertically**
   - For a surrounding air temperature up to 40 °C (104 °F).
   - ATV212H
   - ATV212W
   - (a) ≥ 50 mm (2 in.)
   - (b) ≥ 100 mm (4 in.)
   - (c) ≥ 10 mm (0.4 in.)

See installation manual (S1A53832) on www.schneider-electric.com for other thermal conditions.
Connect the drive: Power
- Wire the drive to the ground.
- Check circuit breaker rating or fuse rating.
- Check that the motor voltage is compatible with the drive voltage.
- Motor voltage ______Volts.
- Wire the drive to the motor.
- Wire the drive to the line supply.

Connect the drive: Control choice
- [REMOTE configuration]
  (Control by external reference)
  - Wire the speed reference:
    PP: Internal supply for analogue inputs
    VIA: Analog/logic input
    CC: Common
  - Wire the command:
    Control command 2-wire:
    F: Run forward
    R: Run reverse
    P24: Internal supply for logic inputs
    Control command 3-wire:
    F: Run forward
    R: Stop
    RES: Run reverse
    P24: internal supply for logic inputs

[LOCAL configuration]
(control by internal reference)

Apply power to the drive
- Check that used Logic Inputs are not active (see F, R, RES, P24, open circuit).
- Apply power to the drive.
- At each power on, drive displays **HELLO** message, then run mode:

Set motor parameters
- See on the motor Nameplate to set the following parameters.

<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><strong>P</strong></td>
<td><strong>uL</strong></td>
<td>[Mot. cont. mode sel.]: Motor control mode</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[Constant V/Hz]: Constant V/Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[Variable Torque]: Variable torque</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[Cat V/Hz+Boost]: Constant V/Hz with automatic torque boost</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[SVC]: Sensorless vector control</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[Economy]: Energy saving</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[Reserved]: Reserved</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[PM mode]: Permanent magnet</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nominal motor frequency on motor nameplate (Hz)</td>
<td>50.0</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nominal motor voltage on motor nameplate (V)</td>
<td></td>
<td>drive rating</td>
</tr>
<tr>
<td>F---</td>
<td><strong>F415</strong></td>
<td>[Motor rated current]: Nominal motor current on motor nameplate (A)</td>
<td></td>
<td>drive rating</td>
</tr>
<tr>
<td></td>
<td><strong>F417</strong></td>
<td>[Motor rated speed]: Nominal motor speed on motor nameplate (rpm)</td>
<td></td>
<td>drive rating</td>
</tr>
<tr>
<td></td>
<td><strong>F601</strong></td>
<td>[Motor Current Limit]: Limit current during motoring or braking (%)</td>
<td></td>
<td>1/0</td>
</tr>
</tbody>
</table>

Note: for ATV212H075, ATV212HU15, ATV212HU22, to connect power, open the door, remove the terminal board, connect R/L1, S/L2, T/L3 and fix again the terminal board.
7 Set motor parameters (continued)

<table>
<thead>
<tr>
<th>Menu</th>
<th>Code</th>
<th>Description</th>
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<th>Customer setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>F--- [EXTENDED MENU]</td>
<td>F400</td>
<td>Set F400 [Auto-tuning drive] parameter to 2. The drive displays Atn1, the message disappears after a few seconds. Auto-Tunning for uLu, uL, F415 and F417.</td>
<td>0</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.

**WARNING**
DAMAGED DRIVE EQUIPMENT
- It is essential that the following parameters uLu, uL, F415 and F417 are correctly configured before starting auto-tuning.
- When one or more of these parameters have been changed after auto-tuning has been performed, F400 will return 0 and the procedure will have to be repeated.

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

8 Set basic parameters

<table>
<thead>
<tr>
<th>Menu</th>
<th>Code</th>
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<th>Customer setting</th>
</tr>
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<tbody>
<tr>
<td>RuF [QUICK MENU]</td>
<td>AU1</td>
<td>[Auto ramp] Automatic ramp adaptation: 0 [Disabled], 1 [Enable] - (ACC) and (dEC), 2 [ACC only]</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AUC</td>
<td>[Acceleration time 1]: Acceleration ramp and the time(s)</td>
<td>ATV21 2 ≤ 15KW = 10 s ATV212 &gt; 18KW = 30 s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>dEC</td>
<td>[Deceleration time 1]: Deceleration ramp and the time (s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LL</td>
<td>[Lowlimit frequency]: Motor frequency at minimum reference (Hz)</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UL</td>
<td>[Upper limit freq]: Motor frequency at maximum reference (Hz)</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>tHr</td>
<td>[Motor thermal prot.]: Motor Rated Current Overload Setting (%)</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>F--- [EXTENDED MENU]</td>
<td>F300</td>
<td>[Switch. freq. level] Switching Frequency Level (kHz) Increasing the switching frequency may reduce audible motor noise. See the derating curves in the ATV21 Installation Manual.</td>
<td>8 to 12</td>
<td></td>
</tr>
</tbody>
</table>

9 Set control choice

91 [REMOTE configuration]

Parameters factory settings:

2-wire control

<table>
<thead>
<tr>
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<th>Setting</th>
</tr>
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<tbody>
<tr>
<td>_</td>
<td>C Mod [Command mode sel]</td>
<td>0 [Logic inputs]</td>
</tr>
<tr>
<td>F--- [EXTENDED MENU]</td>
<td>F111 [LI F selection]</td>
<td>2 [forward]</td>
</tr>
<tr>
<td>F112 [LI R selection]</td>
<td>3 [reverse]</td>
<td></td>
</tr>
</tbody>
</table>

3-wire control

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<td>0 [Logic inputs]</td>
</tr>
<tr>
<td>F--- [EXTENDED MENU]</td>
<td>F111 [LI F selection]</td>
<td>2 [forward]</td>
</tr>
<tr>
<td>F112 [LI R selection]</td>
<td>49 [3-wire]</td>
<td></td>
</tr>
<tr>
<td>F113 [LI RES selection]</td>
<td>3 [reverse]</td>
<td></td>
</tr>
</tbody>
</table>

92 [LOCAL configuration]

Start the motor
Menus structure

### Run mode

- **ATV212 drive**
- **Power Up**

### Programming mode

- **PRG MON**
- **RUN**
  - **Run mode**
  - **Programming mode**
  - **Monitoring mode**

### Submenu

- **[Quick menu]**
  - **[ALL PARAM CHANGE]**
  - **[EXTENDED MENU]**
  - **[I/O MENU]**
  - **[COMMUNICATION MENU]**
  - **[SCROLL MENU]**
  - **[PM CONTROL MENU]**

### Submenu

- **[Lower limit frequency]**
- **[Upper limit freq]**
- **[Max frequency]**
- **[Deceleration time 1]**
- **[Acceleration time 1]**
- **[Local mot. direction]**
- **[Parameter reset]**
- **[AO scaling]**
- **[AO func. selection]**
- **[Frequency mode set]**
- **[Command mode set]**
- **[Auto set function]**
- **[Auto ramp]**
- **[LAST PARAM CHANGE]**

### Submenu

- **[Auto-tuning drive]**
- **[Motor Speed Limit]**
- **[Motor Current Limit]**
- **[Local mot. direction]**
- **[AO scaling]**

### Submenu

- **[Drive out. rat. cur. A]**
- **[Motor cont. mode sele]**
- **[Motor overload prot]**
- **[Motor thermal prot]**

### Submenu

- **[Drive service alarm]**
- **[Past fault]**
- **[Comm. counter 1]**
- **[Comm. counter 2]**
- **[Motor speed rpm]**
- **[PID feedback]**
- **[Memory ver]**

### Submenu

- **[CPU MMI ver]**
- **[CPU CTRL ver]**
- **[Relay map]**
- **[LOGIC INPUT MAP]**

### Submenu

- **[Drive run time 100h]**
- **[Mdb com stat]**
- **[Drive service alarm]**
- **[Past fault]**

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Refer to the programming manual (S1A53838) for comprehensive menu description.