

ACS355 drives

Quick installation and start-up guide



Safety instructions

WARNING! Observe these instructions, if you ignore them, injury or death, or damage to the equipment can occur. If you are not a qualified electrical professional, do not do electrical installation or maintenance work.

- Keep the drive in its package until you install it. After unpacking, protect the drive from dust, debris and moisture.
- Use the required personal protection equipment, safety shoes with antistatic sole, safety glasses, protective gloves and long sleeves, etc.
- When the drive is connected to equipment, do not do work on the drive, input cables, motor, control cables or control circuitry.
- Do not do work on the drive when a rotating permanent magnet motor is connected to it. A rotating permanent magnet motor energizes the drive, including the input power supply terminals.

Electrical safety precautions

- Clearly identify the work location and equipment.
- Disconnect all possible voltage sources. Make sure that reconnection is not possible. Lock out and tag out.
 - Open the main disconnecting device of the drive.
 - If you have a permanent magnet motor connected to the drive, disconnect the motor from the drive.
 - Disconnect any dangerous external voltages from the control circuitry.
 - After you disconnect power from the drive, always wait 5 minutes to let the intermediate circuit capacitors discharge before you continue.
- Protect any other energized parts in the work location against contact.

- Take special precautions when close to bare conductors.
- Measure the insulation resistance in the conductors.
 - Use a multimeter with a minimum impedance of 1 M Ω .
 - Make sure that the voltage between the drive input power terminals (U1, U2, U3) and the ground (PE) is above 50 V.
 - Make sure that the voltage between the drive output terminals (D1, D2, D3) and the ground (PE) is above 50 V.
 - Make sure that the voltage between the drive DC terminals (D+ and D-) and the ground (PE) is above 50 V.
- Install temporary grounding as required by the local regulations.
- Apply the process to control of the electrical installation work for a period to comply.

See the drive user's manual for the complete safety instructions.

1. Examine the installation area

The drive is intended for cabinet installation and has a degree of protection of IP20 (2 M, open type as standard).

- Make sure that in the installation area:
- There is sufficient space above and below the drive for cooling, and that air flows and circulates. Refer to the cooling air flow diagram in the user's manual.
 - The ambient conditions are suitable. Refer to ambient conditions.
 - The mounting surface is non-flammable and can hold the weight of the drive. Refer to the weight of the drive.
 - Mounting holes near the drive are non-flammable.
 - There are no sources of strong magnetic fields, such as high-current straight-line conductors or conductors with near the drive. A strong magnetic field can cause interference in the operation of the drive.

2. Install the drive

Use the provided drive with screws or for a DIN rail (Type M4, M 6×1 , M 6×1.5 or M 6×2 , max. 2.0 kg).

- Make sure that there is a minimum of 10 mm (2 in) of free space above and below the drive for cooling.
- When gluing drives on top of each other in a panel or cabinet, make sure that the fan air from the drives below do not directly enter the drive above.

WARNING! Do not install the drive upside down. Make sure that the cooling air does not get into the cooling air side of the cabinet.

To install the drive with screws

- Cut out the mounting bracket from the enclosure and use it to mark the locations for the mounting holes.
- Mark the location for the mounting screws and install outside plugs or adapters.



1. Short to ground the terminals like the mounting holes.

2. Place the drive into the mounting screws.

3. Tighten the mounting screws securely.

4. To install the drive to a DIN rail

1. Place the top of the drive onto the DIN bracket like the mounting holes.

2. Set the drive against the rail.

3. To remove the drive, reverse the above steps in reverse order of the drive.

3. Attach the clamping plates

1. Fasten the clamping plate to the bottom of the drive with the provided screws.

2. Fasten the top clamping plate to the top of the drive with the provided screws.

4. Measure the insulation resistance

Measuring the insulation is typically not required in North America.

Notes: Do not do voltage tolerance or insulation resistance tests on the drive, because this can cause damage to the drive.

Input power cable: Before you connect the input power cable, measure the insulation resistance of the input power cable. Observe the local regulations.

Motor and motor cable:

1. Make sure that the motor cable is connected to the motor and disconnected from the drive output terminals (D1, D2 and D3).

2. Use a voltage of 500 V or DC to measure the insulation resistance between each phase conductor and the protective earth conductor. The insulation resistance of an AC motor should be more than 500 M Ω (at 25 °C/77 °F). For the insulation resistance of other motors, refer to the manufacturer's documentation. Measure in the motor because the insulation resistance of any electrical device is higher at a lower temperature. Measure the motor and do the measurement again.

5. Select the cables

Input power cable (AC/DC): IEC/UL 60300-1 requires three protective earth (ground) conductors. Prefer a symmetrical shielded cable (S/SC) cable. For the best EMC performance, use a shield that meets the European EMC requirements.

Control cable: Use a shielded twisted-pair cable for analog signals. Use a shielded twisted-pair cable for digital signals, relay and I/O signals. Do not mix DC and AC/DC signals in the same cable.

6. Connect the power cables

6.1 Connection diagram (shielded cables)



6.2 Connection procedure (shielded cables)

1. Make sure grounding of the cable shield required for the motor cable and the motor cable, recommended for the input power cable.

2. Use a separate grounding cable if the conductivity of the cable shield is not sufficient or there is no permanent connection grounding conductor in the cable.

3. Use a separate grounding cable if the cross-section of a single grounding conductor is less than 16 mm 2 or 0.25 in 2 or 0.25 in 2 or the cable shield cable shield is not suitable for the protection grounding.

4. Use a separate grounding cable if the conductivity of the fourth conductor of the motor cable is not sufficient for the protection grounding.

6.3 Connection procedure (shielded cables)

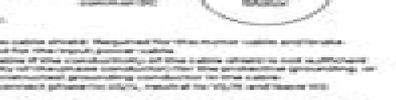
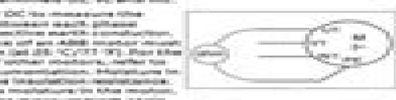
WARNING! Make sure that the drive is compatible with the earthing system of the system. For other systems, see the drive user's manual.

1. Strip the input power cable. Ground the cable shield or shield the grounding clamp. Cut the shield into a bundle, mark it accordingly and connect it to the grounding terminal. Connect the phase conductors to the U1, U2 and U3 terminals.

2. Strip the motor cable. Ground the cable shield under the grounding clamp. Take the motor cable shield into a bundle, mark it accordingly and connect it to the grounding terminal. Connect the phase conductors to the D1, D2 and D3 terminals.

3. If applicable, connect the motor cable to the drive's motor terminals. Use a separate cable and ground the shield under the grounding clamp.

4. Mechanically attach the cables on the outside of the drive.



Power line	AC	UL						
UL	UL	UL	UL	UL	UL	UL	UL	UL
UL	UL	UL	UL	UL	UL	UL	UL	UL
UL	UL	UL	UL	UL	UL	UL	UL	UL

7. Connect the control cables

7.1 Default I/O connections

The diagram shows the I/O connections when parameter 0007 has value 0 (see 7.2.1.1).



1. Cable used as a speed reference (if motor 1) or as a speed feedback (if motor 2).

2. Cable used as a speed reference (if motor 1) or as a speed feedback (if motor 2).

3. Cable used as a speed reference (if motor 1) or as a speed feedback (if motor 2).

4. Cable used as a speed reference (if motor 1) or as a speed feedback (if motor 2).

5. Cable used as a speed reference (if motor 1) or as a speed feedback (if motor 2).

6. Cable used as a speed reference (if motor 1) or as a speed feedback (if motor 2).

7. Cable used as a speed reference (if motor 1) or as a speed feedback (if motor 2).

8. Cable used as a speed reference (if motor 1) or as a speed feedback (if motor 2).

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10. Cable used as a speed reference (if motor 1) or as a speed feedback (if motor 2).

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13. Cable used as a speed reference (if motor 1) or as a speed feedback (if motor 2).

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16. Cable used as a speed reference (if motor 1) or as a speed feedback (if motor 2).

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29. Cable used as a speed reference (if motor 1) or as a speed feedback (if motor 2).

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31. Cable used as a speed reference (if motor 1) or as a speed feedback (if motor 2).

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37. Cable used as a speed reference (if motor 1) or as a speed feedback (if motor 2).

38. Cable used as a speed reference (if motor 1) or as a speed feedback (if motor 2).

39. Cable used as a speed reference (if motor 1) or as a speed feedback (if motor 2).

40. Cable used as a speed reference (if motor 1) or as a speed feedback (if motor 2).

1. **WARNING!** Before you start up the drive, make sure that the installation is complete. Make sure that the cover of the drive is in place. Make sure that the main drive terminal block is properly secured. Observe the safety instructions in the drive user's manual.

7.2 Start up without a control panel

1. Apply input power and wait for a moment.

2. Check that the red LED is not lit and the green LED is lit but not blinking. The drive is now ready for use.

7.3 Start up with a control panel (manual start-up)

You can use the built-in control panel or the optional control panel. The built-in control panel is used for manual start-up. The optional control panel is used for manual start-up.

Before you start up, make sure that you have the motor nameplate data at hand.

WARNING!

1. Apply input power.

2. The built-in control panel is used for manual start-up.

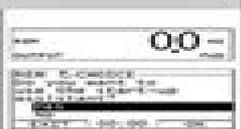
3. The optional control panel is used for manual start-up.

4. The optional control panel is used for manual start-up.

5. The optional control panel is used for manual start-up.

6. The optional control panel is used for manual start-up.

7. The optional control panel is used for manual start-up.



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JA Banks



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