

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 within the 0 V to 24 V range.
 - Make sure that the voltage between the drive output terminals (D1, D2, D3) and the ground (PE) is close to 0 V.
 - Make sure that the voltage between the drive DC terminals (D+ and D-) and the ground (PE) is close to 0 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 air cooled).

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.
- 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 data.
- Mounting holes in 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, 60 x 4, 50 x 7, 50 x 7, 50 x 7, 50 x 7, 50 x 7).

- 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 fan.

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 holes and install outside plugs or adapters.



1. Short to ground the motor-to-line 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 mounting rail.

2. Set the drive against the rail.

3. To remove the drive, reverse the above steps.

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 drive with the provided screws.

4. Measure the insulation resistance

Measuring the insulation resistance 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 room temperature than at the measurement again.

5. Select the cables

Input power cable (AC/DC): IEC/UL 60309-2 requiring three protective earth (ground) conductors. Prefer a symmetrical shielded cable (S/SC) cable. For the best EMC performance and to meet the European EMC requirements.

Control cable: Use a shielded twisted-pair cable for analog signals. Use a shielded twisted-pair cable for digital signals. For the best EMC performance, use a shielded twisted-pair cable for digital signals.

6. Connect the power cables

Connection diagram (shielded cables)

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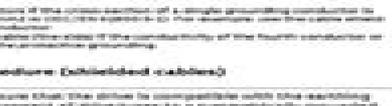
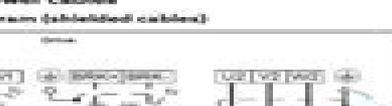
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6. Connect the power cables

Connection diagram (shielded cables)



Power line	Rating	PE
U1, U2, U3	AC 380 V, 50 Hz	
D1, D2, D3	AC 380 V, 50 Hz	
D+	AC 380 V, 50 Hz	
D-	AC 380 V, 50 Hz	

7. Connect the control cables

Default I/O connections

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



1. Cable used as a speed reference (if motor speed reference is not used).

2. Cable used as a speed reference (if motor speed reference is not used).

3. Cable used as a speed reference (if motor speed reference is not used).

4. Cable used as a speed reference (if motor speed reference is not used).

5. Cable used as a speed reference (if motor speed reference is not used).

6. Cable used as a speed reference (if motor speed reference is not used).

7. Cable used as a speed reference (if motor speed reference is not used).

8. Cable used as a speed reference (if motor speed reference is not used).

9. Cable used as a speed reference (if motor speed reference is not used).

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26. Cable used as a speed reference (if motor speed reference is not used).

27. Cable used as a speed reference (if motor speed reference is not used).

28. Cable used as a speed reference (if motor speed reference is not used).

29. Cable used as a speed reference (if motor speed reference is not used).

8. Install the fieldbus module (optional)

9. Install the control panel (if any)

10. Start up the drive

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 switch is in the OFF position. Observe the safety instructions in the drive user's manual.

1. Start up without a control panel

2. Apply input power and wait for a moment.

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

4. 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.

1. Apply input power

2. Apply input power



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**Rébecca Deneckère, Marite
Kirikova, Janis Grabis**



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Computer Safety, Reliability, and Security Rune Winther, Bjoern Axel Gran, Gustav Dahll, 2005-09-19 This book constitutes the refereed proceedings of the 24th International Conference on Computer Safety Reliability and Security SAFECOMP 2005 held in Fredrikstad Norway in September 2005 The 30 revised full papers were carefully reviewed and selected for inclusion in the book The papers address all aspects of dependability and survivability of critical computerized systems in various branches and infrastructures

Plant Intelligent Automation and Digital Transformation Volume II Swapan Basu, 2024-08-11 Plant Intelligent Automation and Digital Transformation Volume II Control and Monitoring Hardware and Software is an expansive four volume collection that reviews every major aspect of the intelligent automation and digital transformation of power process and manufacturing plants including specific control and automation systems pertinent to various power process plants using manufacturing and factory automation systems The book reviews the key role of management Information systems MIS HMI and alarm systems in plant automation in systemic digitalization covering hardware and software implementations for embedded microcontrollers FPGA and operator and engineering stations Chapters address plant lifecycle considerations inclusive of plant hazards and risk analysis Finally the book discusses industry 4.0 factory automation as a component of digitalization strategies as well as digital transformation of power plants process plants and manufacturing industries Reviews supervisory control and data acquisitions SCADA systems for real time plant data analysis Provides practitioner perspectives on operational implementation including human machine interface operator workstation and engineering workstations Covers alarm and alarm management systems including lifecycle considerations Fully covers risk analysis and assessment including safety lifecycle and relevant safety instrumentation

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control systems in working plants *Plant Flow Measurement and Control Handbook* Swapan Basu,2018-08-22 *Plant Flow Measurement and Control Handbook* is a comprehensive reference source for practicing engineers in the field of instrumentation and controls It covers many practical topics such as installation maintenance and potential issues giving an overview of available techniques along with recommendations for application In addition it covers available flow sensors such as automation and control The author brings his 35 years of experience in working in instrumentation and control within the industry to this title with a focus on fluid flow measurement its importance in plant design and the appropriate control of processes The book provides a good balance between practical issues and theory and is fully supported with industry case studies and a high level of illustrations to assist learning It is unique in its coverage of multiphase flow solid flow process connection to the plant flow computation and control Readers will not only further understand design but they will also further comprehend integration tactics that can be applied to the plant through a step by step design process that goes from installation to operation Provides specification sheets engineering drawings calibration procedures and installation practices for each type of measurement Presents the correct flow meter that is suitable for a particular application Includes a selection table and step by step guide to help users make the best decision Cover examples and applications from engineering practice that will aid in understanding and application

Perspectives in Business Informatics Research Rébecca Deneckère,Marite Kirikova,Janis Grabis,2025-09-09 This book constitutes the proceedings of the 24th International Conference on Perspectives in Business Informatics Research BIR 2025 which took place in Riga Latvia in September 2025 The central theme of BIR 2025 was Bridging Knowledge Process and Systems for Responsible Digital Transformation The 18 full papers and 5 short papers included in the proceedings were carefully reviewed and selected from 61 submissions They were organized in topical sections as follows Intelligent Decision Making and Data Management Human Factors and Well Being in Digital Systems Enterprise Architecture Modeling and Governing Adaptive Organizations Process Mining and Digital Twin Perspectives LLM and Generative AI in Modeling and Engineering Smart Life and Structuring Security for Responsible Digital Systems

Countering Cyber Sabotage Andrew A. Bochman,Sarah Freeman,2021-01-19 *Countering Cyber Sabotage* Introducing Consequence Driven Cyber Informed Engineering CCE introduces a new methodology to help critical infrastructure owners operators and their security practitioners make demonstrable improvements in securing their most important functions and processes Current best practice approaches to cyber defense struggle to stop targeted attackers from creating potentially catastrophic results From a national security perspective it is not just the damage to the military the economy or essential critical infrastructure companies that is a concern It is the cumulative downstream effects from potential regional blackouts military mission kills transportation stoppages water delivery or treatment issues and so on CCE is a validation that engineering first principles can be applied to the most important cybersecurity challenges and in so doing protect organizations in ways current approaches do not The most pressing threat is cyber enabled sabotage and CCE begins with

the assumption that well resourced adaptive adversaries are already in and have been for some time undetected and perhaps undetectable Chapter 1 recaps the current and near future states of digital technologies in critical infrastructure and the implications of our near total dependence on them Chapters 2 and 3 describe the origins of the methodology and set the stage for the more in depth examination that follows Chapter 4 describes how to prepare for an engagement and chapters 5 8 address each of the four phases The CCE phase chapters take the reader on a more granular walkthrough of the methodology with examples from the field phase objectives and the steps to take in each phase Concluding chapter 9 covers training options and looks towards a future where these concepts are scaled more broadly Document Image Processing ,1990

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Modern Technologies in Industrial Engineering

Constantin Carausu,Viorel Cohal,Ioan Doroftei,Andrzej Wróbel,Dumitru Nedelcu,2013-11-08 Selected peer reviewed papers from the ModTech International Conference on Modern Technologies in Industrial Engineering ModTech 2013 June 27 29 2013 Sinaia Romania

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MOX fuel technologies Volume 2 5 Fuel management and performance **Evaluating Practice** Martin Bloom,Joel

Fischer,John G. Orme,2006 Clearly presents all aspects of evaluation for human services including conceptualization

measurement design and analysis Focusing on single system designs this text presents clear and user friendly guidelines on

conceptualizing and measuring problems developing practice oriented evaluation designs understanding and analyzing data

and ethical guidelines for practice evaluation Specifically written for students and practitioners in all the human services

including social work psychology counseling nursing and psychiatry

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