To install the drive to a DIN rail
1. Move the locking part to the left.
2. Push and hold the locking button.
3. Put the top tabs of the drive onto the top edge of the DIN installation rail.
4. Put the drive against the bottom edge of the DIN installation rail.
5. Release the locking button.
6. Move the locking part to the right.
7. Make sure that the device is correctly inserted.
8. To remove the device, use a flat-head screwdriver to open the locking part.

3. Measure the insulation resistance
Drive: Do not measure 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 of the input power cable. Obey the local regulations.
Motor and power cable: 1. Make sure that the motor cable is connected to the motor and disconnected from the drive output terminals T1U, T2V and T3W.
2. Use a voltage of 500 V AC to measure the insulation resistance between each phase conductor and the protective earth conductor. The insulation resistance of an ABB motor must be more than 100 Mohm at 25°C (“70°F”), For the insulation resistance of other motors, refer to the manufacturer’s documentation.
Motor: If you are not sure of the insulation resistance of the motor, refer to the manufacturer’s documentation, or use a universal meter to measure the insulation resistance of the motor. The motor can only be energized when the insulation resistance of the motor is greater than 100 Mohm at 25°C (“70°F”).

4. Connect the cables
Input power cable: For the best EMC performance, use a symmetrical shielded cable and two grounding conductors.
Motor cable: Use a symmetrical shielded cable.
Control cable: Use a double-shielded twisted-pair cable for analog signals. Use a single-shielded cable for digital, relay and I/O signals. Use separate cables for analog and relay signals.

5. Connect the power cables
Connection diagram

6. Connect the control cables
Connection procedure
Do the connections according to the default control connections of the application macro that you select. For the connections of the factory default macro (ABB standard macro), refer to Default I/O connections (ABB standard macro) for the connections of fieldbus default macro, refer to Fieldbus connections.

7. Connecting EIA-485 Modbus RTU terminal to drive
Connect the fieldbus to the EIA-485 Modbus RTU terminal on the BMD-01 module which is attached on the control unit of the drive. The connection diagram is shown below.

Fieldbus connections
For the connection diagram with the preconfigured fieldbus protocol (type ACS380-044-04).

8. Connecting I/O (Modbus) (Type ACS380-044-04)

Default I/O connections (ABB standard macro)
For the standard variant (I/O & Modbus) (type ACS380-044-04).

WARNING! Obey the safety instructions in the ACS380 Hardware manual (3AXD5000029274 [EN]). If you ignore them, injury or death, or damage to the equipment. If you are not a qualified electrician, do not do electrical installation or maintenance work.

Safety instructions
Read the safety instructions in ACS380 Hardware manual (3AXD5000029274 [EN]).

WARNING! Obey these safety instructions to prevent physical injury or death, or damage to the equipment. If you are not a qualified electrician, do not do electrical installation or maintenance work.

1. Remove the drive from the outside of the drive.
2. Mechanical attach the cables to the outside of the drive.

Quick installation and start-up guide
ACS380 drive

1. Move the locking part to the left.
2. Push and hold the locking button.
3. Put the top tabs of the drive onto the top edge of the DIN installation rail.
4. Put the drive against the bottom edge of the DIN installation rail.
5. Release the locking button.
6. Move the locking part to the right.
7. Make sure that the device is correctly inserted.
8. To remove the device, use a flat-head screwdriver to open the locking part.

To install the drive to a DIN rail
1. Move the locking part to the left.
2. Push and hold the locking button.
3. Put the top tabs of the drive onto the top edge of the DIN installation rail.
4. Put the drive against the bottom edge of the DIN installation rail.
5. Release the locking button.
6. Move the locking part to the right.
7. Make sure that the drive is correctly inserted.
8. To remove the device, use a flat-head screwdriver to open the locking part.

3. Measure the insulation resistance
Drive: Do not measure 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 of the input power cable. Obey the local regulations.
Motor and power cable: 1. Make sure that the motor cable is connected to the motor and disconnected from the drive output terminals T1U, T2V and T3W.
2. Use a voltage of 500 V AC to measure the insulation resistance between each phase conductor and the protective earth conductor. The insulation resistance of an ABB motor must be more than 100 Mohm at 25°C (“70°F”). For the insulation resistance of other motors, refer to the manufacturer’s documentation.
Motor: If you are not sure of the insulation resistance of the motor, refer to the manufacturer’s documentation, or use a universal meter to measure the insulation resistance of the motor. The motor can only be energized when the insulation resistance of the motor is greater than 100 Mohm at 25°C (“70°F”).

4. Connect the cables
Input power cable: For the best EMC performance, use a symmetrical shielded cable and two grounding conductors.
Motor cable: Use a symmetrical shielded cable.
Control cable: Use a double-shielded twisted-pair cable for analog signals. Use a single-shielded cable for digital, relay and I/O signals. Use separate cables for analog and relay signals.

5. Connect the power cables
Connection diagram

6. Connect the control cables
Connection procedure
Do the connections according to the default control connections of the application macro that you select. For the connections of the factory default macro (ABB standard macro), refer to Default I/O connections (ABB standard macro) for the connections of fieldbus default macro, refer to Fieldbus connections.

7. Connecting EIA-485 Modbus RTU terminal to drive
Connect the fieldbus to the EIA-485 Modbus RTU terminal on the BMD-01 module which is attached on the control unit of the drive. The connection diagram is shown below.

Fieldbus connections
For the connection diagram with the preconfigured fieldbus protocol (type ACS380-044-04).

Default I/O connections (ABB standard macro)
For the standard variant (I/O & Modbus) (type ACS380-044-04).

WARNING! Obey the safety instructions in the ACS380 Hardware manual (3AXD5000029274 [EN]). If you ignore them, injury or death, or damage to the equipment. If you are not a qualified electrician, do not do electrical installation or maintenance work.

Safety instructions
Read the safety instructions in ACS380 Hardware manual (3AXD5000029274 [EN]).

WARNING! Obey these safety instructions to prevent physical injury or death, or damage to the equipment. If you are not a qualified electrician, do not do electrical installation or maintenance work.

1. Remove the drive from the outside of the drive.
2. Mechanical attach the cables to the outside of the drive.

Quick installation and start-up guide
ACS380 drive

1. Move the locking part to the left.
2. Push and hold the locking button.
3. Put the top tabs of the drive onto the top edge of the DIN installation rail.
4. Put the drive against the bottom edge of the DIN installation rail.
5. Release the locking button.
6. Move the locking part to the right.
7. Make sure that the drive is correctly inserted.
8. To remove the device, use a flat-head screwdriver to open the locking part.
Setting (CANopen with BCAN-11 adapter, refer to the exceptions in the table. In EtherCAT, Profibus and Profinet (default in FENA-21 adapter) protocols. If you have a second fieldbus adapter, refer to the exception in the table. In CANopen (BCAN-11) and the applicable fieldbus adapter documentation.

Set the motor control mode:

1. Power up the drive.
2. The drive software recognizes the connected adapter and selects the applicable fieldbus adapter documentation.
3. You can see the selected fieldbus control macro in the Control macros view or configuration menu. In the Control macros view, you can also change some parameters that are not specific to the fieldbus adapter configuration.

When the fieldbus adapter is connected to the drive, the drive control program sets the control parameters on the fieldbus adapter. The preconfigured fieldbus protocols apply to the CANopen (BCAN-11) and the applicable fieldbus adapter documentation.

Fieldbus communications

If you have a configured variant with the preconfigured fieldbus protocol, you can control the drive from an external control system through the fieldbus. When the fieldbus adapter is connected to the drive, the drive control program sets the control parameters on the fieldbus adapter. The preconfigured fieldbus protocols apply to the CANopen (BCAN-11) and the applicable fieldbus adapter documentation.

To configure fieldbus communications:

1. Power up the drive.
2. The drive software recognizes the connected adapter and selects the applicable fieldbus control macro:
3. The changed parameters which apply to all fieldbus adapters:
4. The parameters that apply only to specific fieldbus adapters:

Related documents

- ACS380 User interface guide
- ACS380 Hardware manual
- ACS380 Firmware manual
- Online list of the manuals applicable to this product
- Online videos related to the installation of this product:
  - ACS380-04xx (Frame 2-3, 4-8, 6-12): https://www.youtube.com/watch?v=L-rGHZ8I1zg
  - ACS380-06xx (Frame 2-3, 4-8, 6-12): https://www.youtube.com/watch?v=0aTWO7U2fas

Certifications

The applicable certifications are shown on the product’s type label.

• CE marking
• EAC marking
• UL marking
• TÜV mark (for North American market)
• RCM marking (for Australia and New Zealand)

Declaration of conformity

This product conforms to the following standards:
- EN 61800-7:2007 + A1:2010
- IEC 61800-5-1:2012
- IEC 61800-7-1:2015
- IEC 61800-9:2015

The product referred to in the Declaration of conformity falls in the following categories of the European Union Directives, which are in full effect on the date of certification (30.04.2013):
- Directive 2014/30/EU (for information about the product's compliance with the harmonized standards, please refer to the Declaration of conformity)

Starting up the drive

For information on the user interface, refer to the ACS380 User interface guides (3AXD50000022224 [English]).

Power up the drive.

2. The drive software recognizes the connected adapter (ACS380-04xx, 06xx or 08xx fieldbus module) and selects the correct settings. For fieldbus communication refer also to Configure fieldbus communications.

3. Select the unit (international or US). In the Motor data view, set the motor type:
   - Asynchronous motor
   - Permanent magnetic synchronous motor
   - Synchronous reluctance motor

4. Set the motor control mode:
   - Vector: Speed reference. This is suitable for most cases. The drive does not switch to DTC (Direct Torque Control) when the drive is started for the first time.
   - Scalar: Frequency reference. Do not use this mode for permanent magnetic synchronous motors. Use this mode when:
     - The number of motors can change.
     - The nominal motor current is less than 20% of the nominal drive current.

5. Set the nominal motor values.

6. Tune the direction of the drive. If it is necessary, set the motor direction with the Phase order setting or with the phase order of the motor cable.

7. In the Motor control view, set the start and stop mode.

8. Set the acceleration and deceleration times.

9. Set the maximum and minimum speeds.

10. Set up the drive (see the ACS380 Firmware manual 3AXD50000022275 [English]).

For the complete list of warnings and faults, refer to the ACS380 Firmware manual 3AXD50000022275 [English].

- For more information on fuses, circuit breakers and manual motor protectors, refer to the ACS380 Application guide 3AXD50000003260 [English].
- For the complete list of warnings and faults, refer to the ACS380 Firmware manual 3AXD50000022275 [English].

Free space requirements

Dimensions and weights

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<tr>
<th>Frame size</th>
<th>Above</th>
<th>Below</th>
<th>Side</th>
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<tr>
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<td>3N</td>
<td>4N</td>
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<tr>
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</table>

Ambient conditions

<table>
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<tr>
<th>Requirement</th>
<th>During operation (based on relay use)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation altitude</td>
<td>0-2000 m above sea level (with derating above 1800 m)</td>
</tr>
<tr>
<td>Air temperature</td>
<td>10–+40 °C; &lt;12% humidity (with derating at 40 °C), 100% humidity allowed</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>≤5% without condensation; ≤20% with condensation</td>
</tr>
</tbody>
</table>

European Directives

- RoHS Directive 2011/65/EU
- WEEE Directive 2012/19/EU
- Waste Electrical and Electronic Equipment (WEEE) Directive 2012/19/EU
- Batteries Directive 2006/66/EC
- EN 61800-7-1:2015 (for instance, do not connect 250 V to Relay Output 1). The maximum switching voltage for integrated Relay Output 1 is 30 V at 4000 m (IEC 60721-3-3). If the conditions are not met, the maximum installation altitude is 2000 m.

For a 3-phase 400 V drive at 2000…4000 m, only the following power systems are permitted: TN-X, TN-C, TN-C-S, TT (not corner earthed).

- For 400 V units:
  - WN = 200…240 V
  - Nominal use Light-duty use Heavy-duty use
  - Nominal use Heavy-duty use

- Specific environment ratings

- For the complete list of warnings and faults, refer to the ACS380 Application guide 3AXD50000003260 [English].

- For more information on fuses, circuit breakers and manual motor protectors, refer to the ACS380 Hardware manual (3AXD50000003274 [English]) and the applicable fieldbus adapter documentation.

- To configure fieldbus communications:

- Power up the drive.
- The drive software recognizes the connected adapter and selects the applicable fieldbus control macro:
- The changed parameters which apply to all fieldbus adapters:
- The parameters that apply only to specific fieldbus adapters:

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