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

3. Measure the insulation resistance
Drive: 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 of the input power cable. Obey 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 T1/U, T2/V and T3/W.
2. Use a voltage of 500 V DC 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 23 °C/73 °F). For the insulation resistance of other motors, refer to the manufacturer's documentation.

Free space:
Make sure there is no moisture in the motor, dry the motor and do the measurement again.

4. Select the cables
Input power cable: For the IEC EMC performance, use a symmetrical shielded cable and a three-conductor cable for grounding.

Motor cable: Use a symmetrical shielded cable.

Control cable: Use a double-shielded twisted-pair cable for the analog signals. Use a double-shielded twisted-pair cable for the digital, relay and I/O signals. Do not mix 24 V and 115/230VAC V signals in the same cable.

5. Connect the power cables
Connection diagram

WARNING! Obey the safety instructions in the ACH480 Hardware manual (3AXD50000245949 [EN]). You can download these manuals from the ABB website or order hard copies of the manuals with the delivery.

Make sure that you keep this guide near the unit at all times.

1. Examine the installation area
The drive is intended for cabinet installation and has an ingress protection rating of IP20.

Make sure that the installation area:
- Is sufficiently cool and hot air does not recirculate.
- 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 Dimensions and weights.
- Materials near the drive are non-flammable.
- There is sufficient space above and below the drive for maintenance work. Refer to Free space requirements.

2. Install the drive
You can install the drive with screws or to a DIN rail.

Install option module:
- Make sure that there is a minimum of 75 mm of free space at the top and bottom of the drive.
- Install R0 drives upright. R0 drives do not have a fan.
- If you can install the R1, R2 and R4 drives tilted by up to 90 degrees, from vertical to fully horizontal orientation.
- You can install several drives side by side. Side-mounted options require approximately 20 mm of space on the right side of the drive.

WARNING! Do not install the drive upside down. Make sure that the cooling air exhaust (at the top) is always above the cooling air inlet (at the bottom).

To install the drive with screws:
1. Mark one or more points for the mounting holes. Refer to Drive mounting bracket. The R3 and R4 drives come with a mounting template.
2. Make the holes for the mounting screws and install suitable plugs or anchors.
3. Start to tighten the screws into the mounting holes.
4. Install the drive onto the mounting screws.
5. Tighten the mounting screws.

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

To install a front option module (I/O module or fieldbus module):
1. Loosen the locking screw of the front cover and lift the front up.
2. If you use a HIO-U module or a fieldbus module, pull the plastic locking tab of the front option module up.
3. Align the contacts on the front option module on to the contacts on the other module, refer to the diagrams and connect the front option module into position.
4. Push the locking tab of the front option module in.
5. Tighten the locking screw to fully attach and electrically ground the front option module.

7. Connect the control cables
Connection procedure
Do the connections according to the default control connections of the application macro (that you selected). For the connections of the factory default macro (ABB standard macro), refer to I/O connections (HVAC default). For the connections of the other macros, refer to the corresponding sections in the manual.

Note! If you do not use the I/O module, select the ABB limited macro.

Keep the signal wire pairs twisted as near to the terminals as possible to prevent inducive coupling.

1. Strip a part of the shield of the control cable for grounding.
2. Use a cable tie to ground the outer shield to the ground tab.
3. Strip the cable and cover conductors.
4. Connect the conductors to the correct control terminals. Torque the terminals to 0.5 N·m (4.4 lbf·in).
5. Connect the shield of the twisted pair and grounding wires to the grounding terminal. Torque the terminals to 0.8 N·m (7 lbf·in).
6. Mechanically attach the control cables on the outside of the drive.
7. Close the front cover and tighten the locking screw.

I/O connections (HVAC default)
For the standard I/O configuration (drive base unit and RIO-01 I/O module), the fixed terminals of the base unit are marked in the table.

3. Connect the fieldbus?

Connecting EIA-485 embedded fieldbus to the drive
Connect the terminal block EIA-485 on the standard I/O extension module RIO-01 to the fieldbus. The connection diagram is shown below.
EU Declaration of Conformity

Machinery Directive 2006/42/EC

Manufacturer:
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Address:
Huippulantie 13, 02280 Espoo, Finland.
Phone: +358 10 221

The undersigned hereby declare that the following products:

Frequency converter ACH480-04

with regard to the safety function

Safety Tüv Off

is in conformity with all the relevant safety component requirements of the Machinery Directive 2006/42/EC.

The following harmonized standards have been applied:

EN 61800-5-2:2016 Adjustable-speed electric drives systems - Part 5-2: Functional safety of electric drives


EN 61800-3-3:2006+AC:2012 Safety of machinery - Electrical equipment of machines

The following other standards have been applied:

IEC 60204.1: 2006

IEC 60204-1:2016

IEC 60947-5-1:2013

IEC 60947-5-11:2014

This product is in this Declaration of conformity fulfills the relevant provisions of various European Directives which are referenced in this Declaration of conformity 3AXD000007047.

Helsinki, 20 August 2018

Manufacturer representative:

Document number: 3AXD000007047

Related documents

Code

Document

ACH480 Firmware manual
3AXD00000247134

ACH480 Quick installation and start-up guide
3AXD00000247141

ACI-AP-A-313 controller panel user's manual
3AXD0000008689

FIBP-21 BACnet adapter module quick guide
3AXD0000039486

FIBP-21 BACnet adapter module user's manual
3AXD0000039487

FCAN-21 CANopen adapter module user's manual
3AXD0000026150

FD4a-01 DeviceNet adapter module user's manual
3AXD0000039488

FECA-01 EtherCAT adapter module user's manual
3AXD0000039489

F8MA-01/11-21 Ether adapter module user's manual
3AXD0000012357

FLOR-01 LONWORKS adapter module user's manual
3AXD0000041017

FIPRA-01 PROBUS® DP adapter module user's manual
3AXD0000012353

UL Type 1 for ACS580 and ACS480 drives, frames R2 to R2
3AXD0000032524

UL Type 1 for ACS580 and ACS480 drives, frames R2 to R4
3AXD0000034273

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For detailed technical information, refer to the ACH480 Hardware manual (3AXD00000248495 [EN]).