List of related manuals

<table>
<thead>
<tr>
<th>Option manuals and guides</th>
<th>Code (EN)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FEA-03 F-series extension adapter user’s manual</strong></td>
<td>3AUA0000115811</td>
</tr>
<tr>
<td><strong>FDCO-01/02 DDCS communication modules user’s guide</strong></td>
<td>3AUA0000114058</td>
</tr>
<tr>
<td><strong>RDCO-01/02/03/04 DDCS Communication option modules</strong></td>
<td>3AFE64492209</td>
</tr>
<tr>
<td><strong>Manuals and quick guides for I/O extension modules, fieldbus</strong></td>
<td><strong>adapters, etc.</strong></td>
</tr>
</tbody>
</table>

You can find manuals and other product documents in PDF format on the Internet. See section

*Document library on the Internet* on the inside of the back cover. For manuals not available in the

Document library, contact your local ABB representative.
User’s manual

FEA-03 F-series extension adapter

Table of contents

1. Safety instructions

4. Mechanical installation

5. Electrical installation

6. Start-up

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EN
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Table of contents

List of related manuals ................................................. 2

1. Safety instructions
   Contents of this chapter ........................................... 7
   Use of warnings .................................................. 7
   General safety instructions ........................................ 8

2. Introduction to the manual
   Contents of this chapter ........................................... 9
   Applicability ....................................................... 9
   Target audience ................................................... 9
   Purpose of the manual ............................................ 9
   Before you start .................................................. 9
   Contents ........................................................... 10
   Terms and abbreviations .......................................... 10

3. Hardware description
   Contents of this chapter ........................................... 11
   Overview .......................................................... 11
   Layout .............................................................. 12
   Optical component types ........................................ 12

4. Mechanical installation
   Contents of this chapter ........................................... 13
   Examining the delivery ............................................ 13
   Installing the extension adapter ................................ 13
     Installing the adapter vertically on a DIN rail ............ 14
     Installing the adapter horizontally on a DIN rail .......... 15
   Installing an option module on the adapter .................... 16
   Removing an option module from the adapter .................. 17

5. Electrical installation
   Contents of this chapter ........................................... 19
   Connecting the adapter to the drive control unit ............... 19

6. Start-up
   Contents of this chapter ........................................... 21
   Defining node IDs for option modules ......................... 21
   Setting the drive parameters .................................... 21
7. Diagnostics
Contents of this chapter ......................................................... 23
General ................................................................. 23
Diagnostic LEDs ....................................................... 23

8. Dimensions

Further information
Product and service inquiries ...................................................... 27
Product training ............................................................... 27
Providing feedback on ABB Drives manuals .............................. 27
Document library on the Internet .............................................. 27
Safety instructions

Contents of this chapter

This chapter contains the safety instructions which you must obey when you install and operate the drive and do maintenance on the adapter. If you ignore the safety instructions, injury, death or damage can occur.

In addition to these safety instructions, read the complete safety instructions of the specific drive you are working on.

Use of warnings

Warnings tell you about conditions which can cause injury or death, or damage to the equipment. They also tell you how to prevent the danger. Notes draw attention to a particular condition or fact, or give information on a subject.

The manual uses these warning symbols:

- **Electricity warning** tells about hazards from electricity which can cause injury or death, or damage to the equipment.

- **General warning** tells about conditions, other than those caused by electricity, which can cause injury or death, or damage to the equipment.
General safety instructions

These warnings are intended for all who work on the drive, motor cable or motor.

**WARNING!** Obey these instructions. If you ignore them, injury or death, or damage to the equipment can occur.

- If you are not a qualified electrician, do not do grounding work.
- Always ground the drive, the motor and adjoining equipment. This is necessary for the personnel safety. Proper grounding also reduces electromagnetic emission and interference.
- Do not work on a powered drive. After switching off the input power, always allow the intermediate circuit capacitors 5 minutes to discharge before working on the drive, the motor or the motor cable.
- The motor cable terminals of the drive are at a dangerously high voltage when input power is applied, regardless of motor operation.
- There can be dangerous voltages inside the drive from external control circuits even when the drive input power is shut off. Exercise appropriate care when working on the unit.
Introduction to the manual

Contents of this chapter
This chapter introduces this manual.

Applicability
This manual applies to the FEA-03 F-series extension adapter.

Target audience
You must have a basic knowledge of electrical fundamentals, electrical wiring practices and how to operate the drive.

Purpose of the manual
The manual gives information on how to install and use the FEA-03 F-series extension adapter.

Before you start
The drive must be installed and ready to operate before you start the installation of the adapter. In addition to conventional installation tools, have the drive manuals available during the installation as they contain important information not included in this manual.
Contents

The manual includes these chapters:

- **Safety instructions** gives the safety instructions which you must obey.
- **Introduction to the manual** introduces this manual.
- **Hardware description** gives a short description of the adapter.
- **Mechanical installation** tells how to install the adapter.
- **Electrical installation** tells how to connect the adapter to the drive.
- **Start-up** gives the start-up instructions for the adapter.
- **Diagnostics** tells how to find faults with the status LEDs on the adapter.
- **Technical data** contains the technical data of the adapter.
- **Dimensions** contains the layout and dimensions of the adapter.

Terms and abbreviations

<table>
<thead>
<tr>
<th>Term / abbreviation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCU</td>
<td>Type of control unit used in the ACS880 drives</td>
</tr>
<tr>
<td>DDCS</td>
<td>Distributed drives communication system</td>
</tr>
<tr>
<td>EMC</td>
<td>Electromagnetic compatibility</td>
</tr>
<tr>
<td>FDCO-xx</td>
<td>Optional DDCS communication module with two pairs of DDCS channels</td>
</tr>
<tr>
<td>FEA</td>
<td>F-series extension adapter</td>
</tr>
<tr>
<td>FEN</td>
<td>Encoder interface module</td>
</tr>
<tr>
<td>FIO</td>
<td>I/O extension module</td>
</tr>
<tr>
<td>HCS</td>
<td>Hard clad silica. HCS® is a registered trademark of SpecTran Corporation.</td>
</tr>
<tr>
<td>POF</td>
<td>Plastic optical fibre</td>
</tr>
<tr>
<td>RDCO-xx</td>
<td>DDCS communication option. Satellite board that installs on the BCU board to increase the number of DDCS channels available.</td>
</tr>
<tr>
<td>ZCU</td>
<td>Type of control unit used in the ACS880 drives</td>
</tr>
</tbody>
</table>
Hardware description

Contents of this chapter

This chapter contains a short description of the FEA-03 F-series extension adapter and the optical component types.

Overview

The FEA-03 is an extension adapter that is used to install I/O extension modules and FEN encoder interface modules outside the drive unit.

The FEA-03 extension adapter increases the number of F-series option modules that can be connected to the control unit of the drive. One or two option modules can be installed on one extension adapter.

The extension adapter is connected to the drive via a fiber-optic link using the DDCS protocol.
Layout

This figure shows the layout of the FEA-03 F-series extension adapter. The F-series module connectors and front components such as the diagnostic LEDs, the fiber-optic transmitter (V1T) and receiver (V1R), and the power supply connector are shown.

You can connect several FEA-03 extension adapters in a ring topology with a fibre-optic cable. See section Connecting the adapter to the drive control unit on page 19.

Optical component types

The FEA-03 F-series extension adapter has a 10 MBd fiber-optic link. The drive must also have a 10 MBd DDCS fiber-optic connection. These optical cable types can be used:

- Plastic optical fibre (POF) cables (max. length 30 m [98 ft]) and
- Hard Clad Silica (HCS®) cables (max. length 200 m [656 ft]).

HCS cables allow longer connection distances because of their lower attenuation.

Note: The optical components (transmitter and receiver) on a fibre-optic link must be of the same type.
Mechanical installation

Contents of this chapter
This chapter contains a delivery checklist and instructions on how to install the extension adapter.

Examining the delivery
The package contains:
• FEA-03 F-series extension adapter
• fastening screws and latches for DIN rail installation
• support bracket for vertical DIN rail installation
• this document.

Installing the extension adapter
The housing of the extension adapter has two spring-loaded latches for vertical or horizontal 35 × 7.5 mm DIN rail installation. Install the DIN rail on a correctly grounded base. If this is not possible, use a separate grounding conductor. Keep the grounding conductor as short as possible. The cross-sectional area must be at least 6 mm².

WARNING! Install the adapter so that air can pass freely through the ventilation holes in the housing. Do not install the adapter directly above heat generating equipment.
14 Mechanical installation

- **Installing the adapter vertically on a DIN rail**
  1. Attach the support bracket in the correct position on the wall.
  2. Attach the latch to the back side of the adapter.
  3. Click the adapter to the DIN rail.
  4. Attach the adapter to the support bracket with two screws.
- **Installing the adapter horizontally on a DIN rail**

1. Attach the latches to the back side of the adapter.
2. Click the adapter to the DIN rail.
Installing an option module on the adapter

1. Remove the cover from the module connector.
2. Pull out the lock on the option module.
3. Put the top edge of the option module into its position and push the module carefully into its position until the retaining clips lock it into position.
4. Push in the lock.
5. Fasten the screw.

**Note:** The screw tightens the connections and grounds the module. It is essential for fulfilling the EMC requirements and for correct operation of the module.
Removing an option module from the adapter

1. Remove the screw.

2. Pull out the lock and remove the module.
Mechanical installation
Electrical installation

Contents of this chapter

This chapter tells how to connect the FEA-03 F-series extension adapter to the drive.

Connecting the adapter to the drive control unit

Connect the adapter to the drive control unit through a DDCS communication module. With the BCU control unit, you can use an RDCO communication module. With the ZCU control unit, you can use an FDCO communication module. See the user’s manual of the communication module for installation instructions.
This connection diagram shows how to connect the adapter to the communication module.

3. If you use an FDCO module, set the switch to agree with the cable length as shown in the table below.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Cable length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>POF, 1 mm</td>
</tr>
<tr>
<td>0 - OFF</td>
<td>Disabled</td>
</tr>
<tr>
<td>1 - SHORT</td>
<td>0.1…20 m</td>
</tr>
<tr>
<td>2 - MEDIUM</td>
<td>20…25 m</td>
</tr>
<tr>
<td>3 - LONG</td>
<td>25…30 m</td>
</tr>
</tbody>
</table>

4. If you use an RDCO module, set the channel parameter values in the drive control program. Use RDCO channel 3. See the applicable drive firmware manual for more information.

5. Set the FDCO or RDCO channel that is used to connect the FEA-03 module in the drive control program (parameter 60.41 Extension adapter com port in ACS880 primary control program).

6. Connect the power supply cable to the power supply connector (XPOW) at the base of the adapter.
Start-up

Contents of this chapter
This chapter contains the start-up instructions for the extension adapter.

Defining node IDs for option modules
You must define a node ID for each option module connected to the FEA-03 F-series extension adapter. The node ID is a two-digit decimal number that must be unique for each option module connected to the drive.

It is possible to set 96 different node IDs (04...99). Values 00, 01, 02, and 03 are reserved.

Define the node IDs using the mechanical switches A and B (Slot 1) and/or C and D (Slot 2). Switches A and C define the first digit and switches B and D the second digit of the node ID.

Setting the drive parameters
Set the node IDs in the drive control program according to the option module type.

For example, in ACS880 primary control program the parameters are:

- I/O extension modules: parameters 14.02 Module 1 location, 15.02 Module 2 location or 16.02. Module 3 location
- FEN encoder interface modules: parameters 91.12 Module 1 location or 91.14 Module 2 location.

See the applicable drive firmware manual for more information.
Start-up
Diagnostics

Contents of this chapter
This chapter explains how to trace faults with the status LEDs on the extension adapter.

General
See the applicable drive firmware manual for fault and warning messages.

Diagnostic LEDs

<table>
<thead>
<tr>
<th>LED</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWR OK</td>
<td>Green</td>
<td>Is lit when power applied to the extension adapter is OK.</td>
</tr>
<tr>
<td>SLOT 1 STATUS</td>
<td>Green</td>
<td>Is lit when the initialization of the option module connected to Slot 1 is OK.</td>
</tr>
<tr>
<td>SLOT 2 STATUS</td>
<td>Green</td>
<td>Is lit when the initialization of the option module connected to Slot 2 is OK.</td>
</tr>
</tbody>
</table>
Dimensions
Further information

Product and service inquiries

Address any inquiries about the product to your local ABB representative, quoting the type designation and serial number of the unit in question. A listing of ABB sales, support and service contacts can be found by navigating to www.abb.com/searchchannels.

Product training

For information on ABB product training, navigate to www.abb.com/drives and select Training courses.

Providing feedback on ABB Drives manuals

Your comments on our manuals are welcome. Go to www.abb.com/drives and select Document Library – Manuals feedback form (LV AC drives).

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You can find manuals and other product documents in PDF format on the Internet. Go to www.abb.com/drives and select Document Library. You can browse the library or enter selection criteria, for example a document code, in the search field.
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