

Options for ABB drives, converters and inverters

User's manual

FDCO-01/02 DDCS communication modules



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## List of related manuals

### Drive manuals and guides

### Code (EN/Multilingual)

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<i>ACS880-01 manuals</i>	<a href="#">9AKK105408A7004</a>
<i>ACS880-04 manuals</i>	<a href="#">9AKK105713A4819</a>
<i>ACS880-07 manuals</i>	<a href="#">9AKK105408A8149</a>

### Option manuals and guides

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<i>FDCO-01/02 DDCS communication modules user's manual</i>	<a href="#">3AUA0000114058</a>
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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.

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## 4 *Table of contents*

# FDCO-01/02 DDCS communication modules

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## Introduction to the manual

### ■ Safety in installation and maintenance

These instructions are for all who install or connect an optional module to a drive, converter or inverter and need to open its front cover or door to do the work.



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

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- If you are not a qualified electrician, do not do installation or maintenance work.
  - Disconnect the drive, converter or inverter from all possible power sources. After you have disconnected the drive, converter or inverter, always wait for 5 minutes to let the intermediate circuit capacitors discharge before you continue.
  - Disconnect all dangerous voltages connected to other control signal connectors in reach. For example, it is possible that 230 V AC is connected from outside to a relay output of the drive, converter or inverter.
  - Always use a multimeter to make sure that there are no parts under voltage in reach. The impedance of the multimeter must be at least 1 Mohm.
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## ■ Target audience

This manual is intended for people who plan the installation, install, start up, use and service the communication module. Before you do work on the module, read this manual and the applicable drive, converter or inverter manual that contains the hardware and safety instructions for the product in question.

You are expected to know the fundamentals of electricity, wiring, electrical components and electrical schematic symbols.

The manual is written for readers worldwide. Both SI and imperial units are shown.

## ■ Terms and abbreviations

Later in this manual, term *drive* substitutes for string drive/converter/inverter.

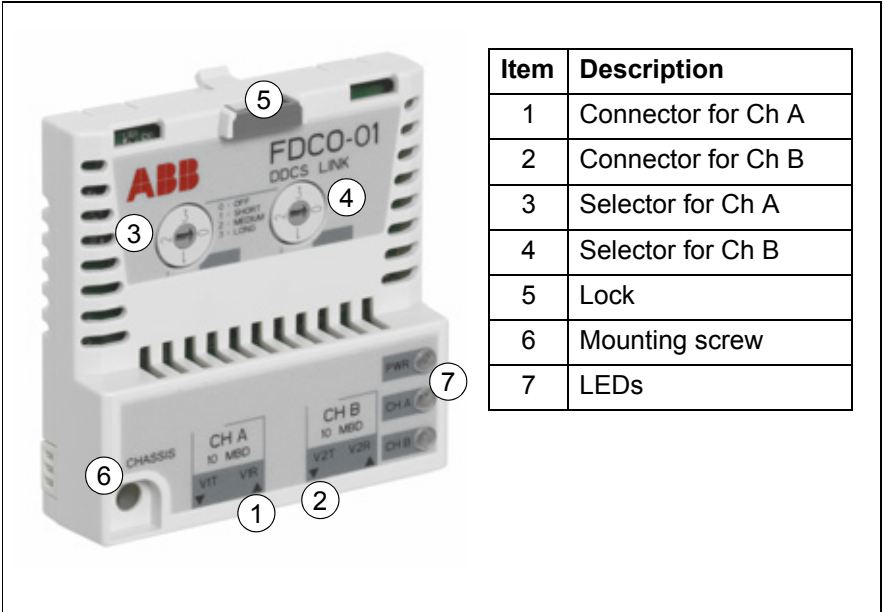
## Hardware description

The FDCO DDCS communication module enables fiber optic connection on the DDCS protocol for ABB drives. The module includes the connectors for fiber optic DDCS channels Ch A and Ch B (see 1 and 2 below) and selectors for both channels to make sure that the transmitter current is optimal for the cable length (see 3 and 4 below).

The module makes the signal and power connection to the drive through a 20-pin connector.

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## Layout



## Mechanical installation

### Unpacking and checking the delivery

1. Open the package.
2. Make sure that the package contains:
  - FDCO-0x module
  - This manual.
3. Make sure that there are no signs of damage.

## ■ Installing the module



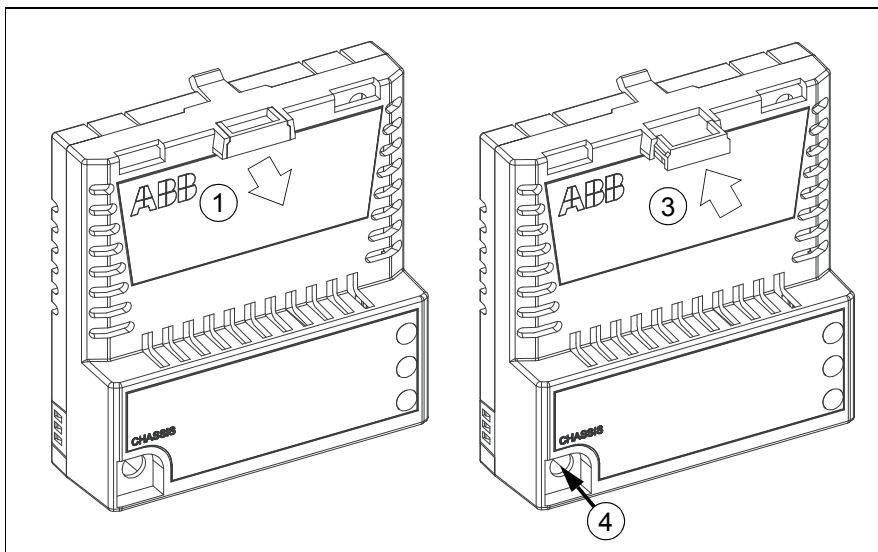
**WARNING!** Obey the safety instructions. If you ignore the safety instructions, injury or death can occur.

See the drive hardware manual for the position of the module in the drive. Plastic pins, a lock and one screw hold the module in place. The screw also makes an electrical connection between the module and drive frame for cable shield termination.

To install or remove the module from the control unit:

1. Pull out the lock.
2. Put the module carefully into its position on the drive.
3. Push in the lock.
4. Tighten the screw. Tightening torque: 0.8 N·m.

**Note:** It is necessary to tighten the screw correctly to fulfill the EMC requirements and to ensure the correct operation of the module.





## Electrical installation

### Notes:

- Transmitter and receiver have to be of the same type at both ends of the link.
  - Observe color coding and terminal markings so that transmitters are connected to receivers and vice versa.
  - If multiple devices are to be connected to one channel, connect them in a ring.
1. Lead the fiber optic cables from the external device to the appropriate channel(s) of the FDCO.
  2. Inside the drive, route the cables as shown in its hardware manual. Make sure the cables are not kinked or laid against sharp edges.
  3. Select switch positions for both channels to match the cable lengths according to the following table.

Using a transmitter current that is higher than recommended reduces LED lifetime and increases power consumption and heat generation.

Switch position	Transmitter current	Cable length	
		POF, 1 mm	HCS, 200 $\mu\text{m}$ *
0 - OFF	0 mA	Disabled	
1 - SHORT	30 mA	0.1...20 m	0.1...50 m
2 - MEDIUM	40 mA	20...25 m	50...100 m
3 - LONG	50 mA	15...30 m	100...200 m

\* HCS cannot be used with FDCO-02 channel B.

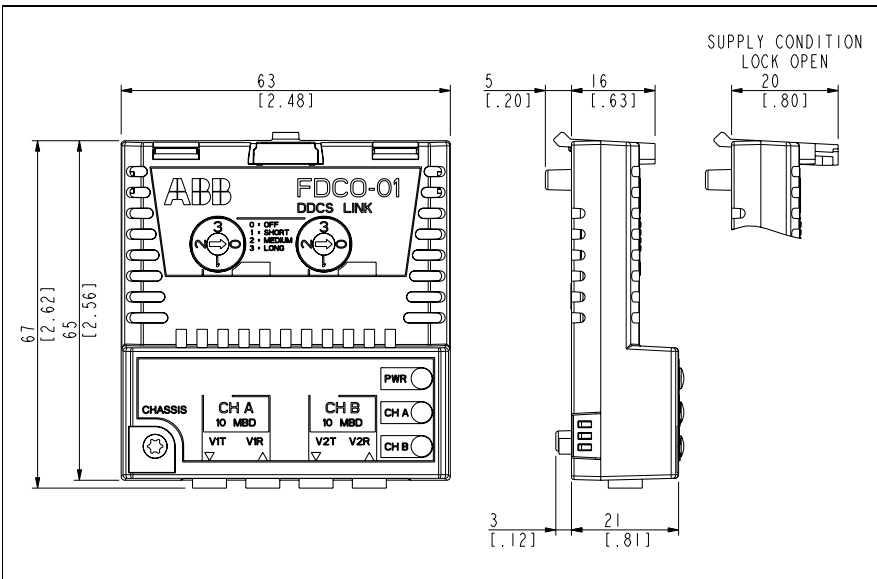
## Diagnostics

### LEDs

Label	Color	Description
PWR OK	Green	Power / Internal 3.3 V OK
Ch A Rx/Tx	Green/Red	DDCS channel A data activity
Ch B Rx/Tx	Green/Red	DDCS channel B data activity

## Technical data

### Dimension drawing



## ■ Installation

Into an option slot on the drive control unit

## ■ Degree of protection

IP20

## ■ Ambient conditions

The applicable ambient conditions specified for the drive in its hardware manual are in effect.

## ■ Package

Cardboard. Plastic wrapping: Antistatic air bubble sheet (PE).

## ■ Connectors

- 20-pin F-series module connector
- 2 transmitter/receiver connector pairs for fiber optic cables
- Baud rates:

Module type	Channel A (Ch A)	Channel B (Ch B)
FDCO-01	10 MBd	10 MBd
FDCO-02	10 MBd	5 MBd

## ■ Operating voltage

3.3 V DC

## ■ Current consumption

300 mA max

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■ **General**

- Complies with standards IEC 61800-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-2, IEC 61000-4-3, RoHS
  - Printed circuit board conformal coated
  - Printed circuit board materials UL Recognized
-

# 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](http://www.abb.com/searchchannels).

## Product training

For information on ABB product training, navigate to [www.abb.com/drives](http://www.abb.com/drives) and select *Training courses*.

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