Installation Instructions

Top-entry Sub D9 Connector Kit for D1h–D8h and E1–E2 with PROFIBUS Option FC Series FC 102, FC 103, FC 202, and FC 302

The top-entry sub D9 connector kit is designed for D1h–D8h and E1–E2 enclosure sizes with the VLT® PROFIBUS DP MCA 101 option for the following frequency converters:

- VLT® HVAC Drive FC 102
- VLT® Refrigeration Drive FC 103
- VLT® AQUA Drive FC 202
- VLT® AutomationDrive FC 302

This kit provides a top-entry sub D9 PROFIBUS connection that maintains the IP protection rating of the frequency converter up to IP54.

The kit contains the following parts:

- Ground strap (1)
- Cover plate (1)
- Gasket, cover plate (1)
- Sub D9 connector with wire assembly (1)
- Sub D9 rubber cover (1)
- Strain relief (1)
- M4 screw, thread forming (1)
- Jack screws (2)

Kit Part Numbers

Part number	Kit description
176F1742	Top-entry sub D9 connector kit for D1h–D8h and E1–E2 enclosure sizes with the VLT® PROFIBUS DP MCA 101 option

Table 1.1 Part Numbers for the Top-entry Sub D9 Connector Kit

Safety Instructions

Only qualified personnel who are authorized by Danfoss are allowed to install the parts described in these installation instructions. Read and save these instructions. Disassembly and reassembly of the frequency converter must be done in accordance with the corresponding service manual.

⚠WARNING

ELECTRICAL SHOCK HAZARD

VLT® frequency converters contain dangerous voltages when connected to mains voltage. Improper installation, and installing or servicing with power connected, can cause death, serious injury, or equipment failure.
To avoid death, serious injury, or equipment failure:

- **Only use qualified electricians for the installation.**
- **Disconnect the frequency converter from all power sources before installation or service.**
- **Treat the frequency converter as live whenever the mains voltage is connected (including when the frequency converter is tripped or waiting for a command).**
- **Follow the guidelines in these instructions and local electrical safety codes.**

⚠WARNING

DISCHARGE TIME

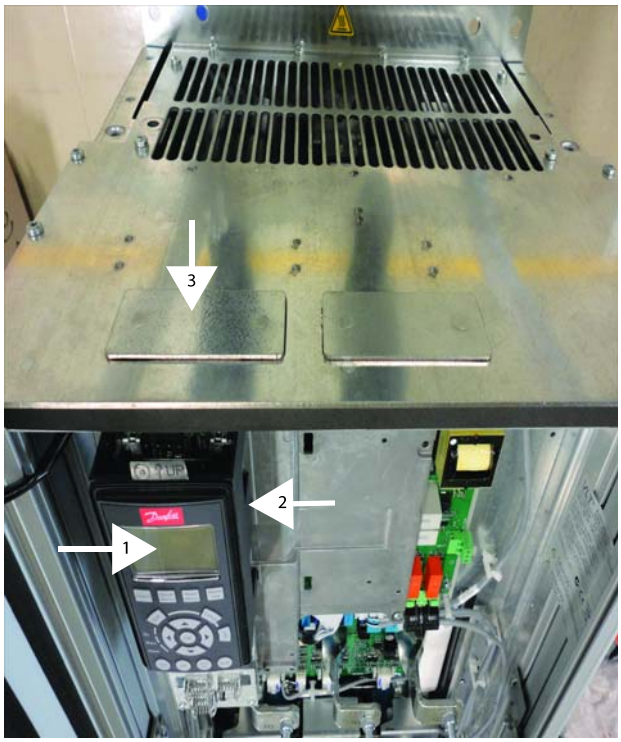
The frequency converter contains DC-link capacitors, which can remain charged even when the frequency converter is not powered. High voltage can be present even when the warning indicator lights are off. Failure to wait for 40 minutes after power has been removed before performing service or repair work can result in death or serious injury.

- **Stop the motor.**
- **Disconnect AC mains and remote DC-link supplies, including battery back-ups, UPS, and DC-link connections to other frequency converters.**
- **Disconnect or lock PM motor.**
- **Wait 40 minutes for the capacitors to discharge fully.**
- **Before performing any service or repair work, use an appropriate voltage measuring device to make sure that the capacitors are fully discharged.**

Danfoss A/S © 09/2015 All rights reserved.

Installation

1. Remove the front cover from the frequency converter.
2. Remove the LCP.
3. Remove the LCP cradle by pulling the cradle straight out. See *Illustration 1.1*.



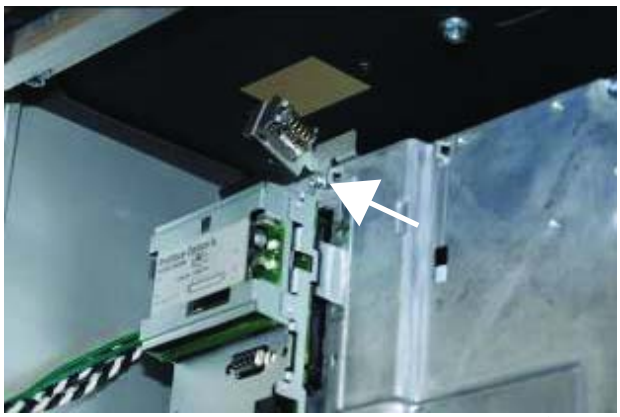
E30BE633.10

Illustration 1.1 Removing the LCP (1), LCP Cradle (2), and the Top Left Cover Plate (3)

NOTICE

STRAIN RELIEF

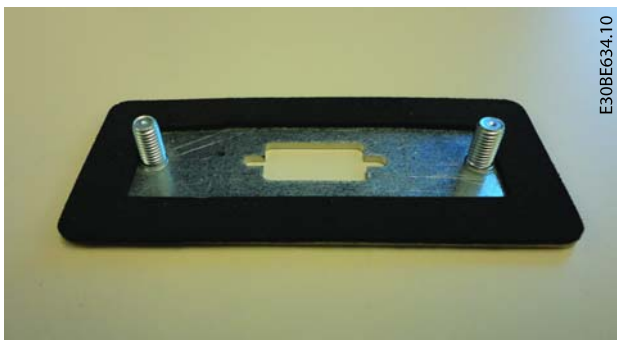
If a sub D9 connector is not used, a strain relief can be used to support the individual conductors. At the upper right corner of the VLT® PROFIBUS DP MCA 101 module, secure the strain relief using the provided M4 thread-forming screw. See *Illustration 1.2*.



E30BE638.10

Illustration 1.2 Installing the Strain Relief

4. Remove the left top cover from the frequency converter. Do not discard the M5 nuts.
5. Assemble the sub D9 cover plate.
   - 5a Place the gasket on the bottom side of the sub D9 cover plate. See *Illustration 1.3*.
   - 5b Fit the sub D9 assembly into the cover plate and secure with the 2 jack screws. See *Illustration 1.4*.
   - 5c Ensure proper sealing by checking that the face of the sub D9 connector is seated firmly on the metal surface of the plate.
   - 5d Install the sub D9 cover plate assembly into the opening on the top of the frequency converter. See *Illustration 1.5*.



E30BE634.10

Illustration 1.3 Gasket Installed onto Sub D9 Cover Plate

Danfoss A/S © 09/2015 All rights reserved.

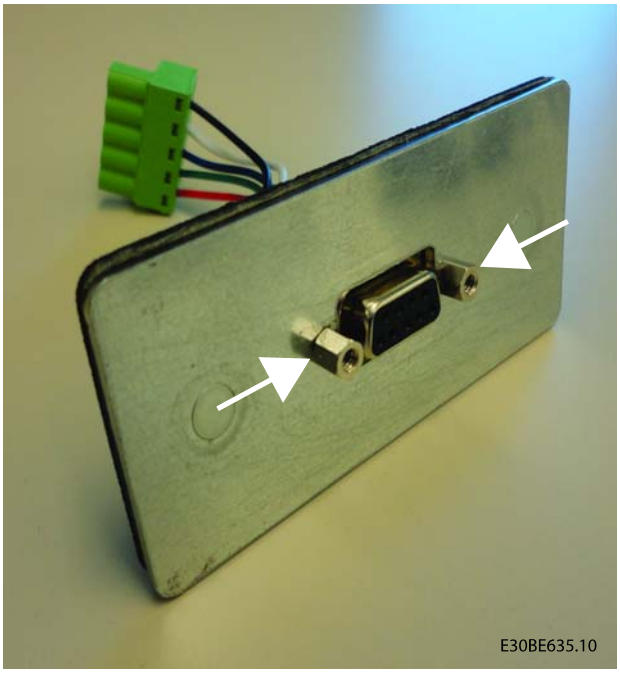


Illustration 1.4 Installing Jack Screws

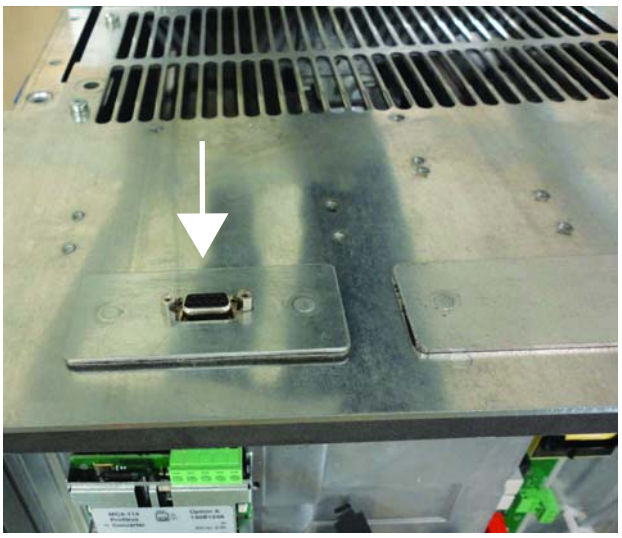


Illustration 1.5 Installing Sub D9 Cover Plate

6. Install the braided ground strap. See *Illustration 1.6*.
   - 6a Attach the smaller hole of the braided ground strap to the M4 thread-forming screw. Secure the M4 screw above the LCP.
   - 6b Attach the other end of the ground strap to the screw securing the sub D9 cover plate with an M5 nut.
   - 6c Secure the other cover plate screw with an M5 nut.

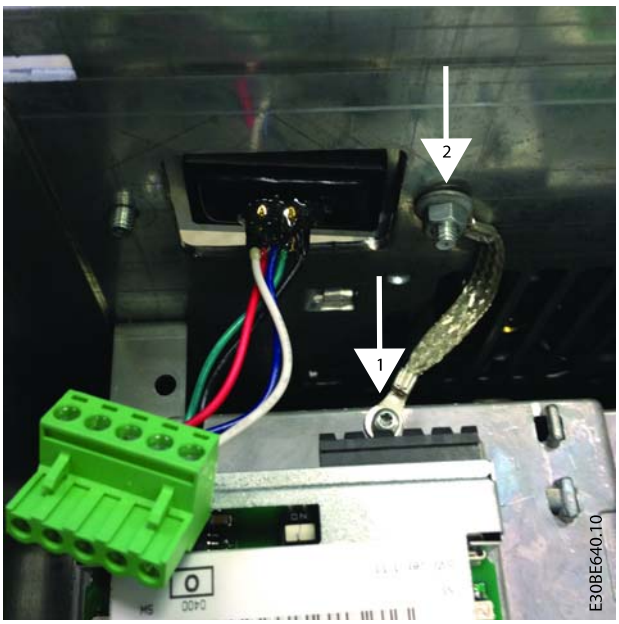


Illustration 1.6 Securing the Ground Strap with the M4 Thread-forming Screw (1) and an M5 Nut (2)

Danfoss A/S © 09/2015 All rights reserved.

7. Plug in the Phoenix connector into the PROFIBUS module. See *Illustration 1.7*.

NOTICE

For easier connector installation, remove the PROFIBUS module before plugging in the Phoenix connector. Then reinstall the PROFIBUS module.

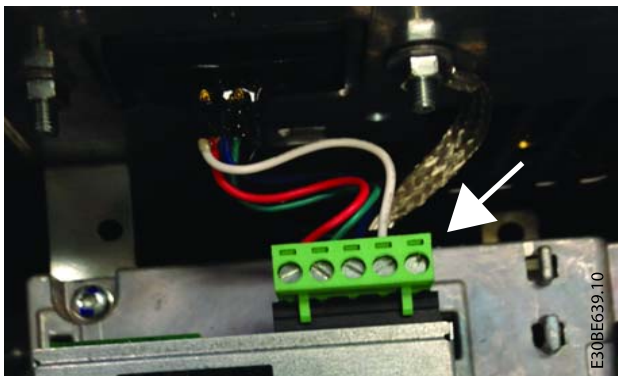
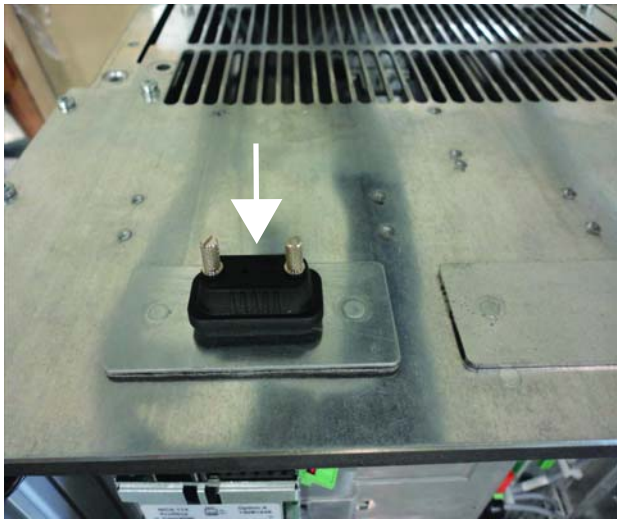


Illustration 1.7 Installing Phoenix Connector

8. Secure the rubber sub D9 cover to the top cover plate when the connector is not in use. See *Illustration 1.8*.



E30BE637.10

Illustration 1.8 Rubber Sub D9 Cover

Danfoss can accept no responsibility for possible errors in catalogues, brochures and other printed material. Danfoss reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequential changes being necessary in specifications already agreed. All trademarks in this material are property of the respective companies. Danfoss and the Danfoss logotype are trademarks of Danfoss A/S. All rights reserved.

Danfoss A/S
Ulsnaes 1
DK-6300 Graasten
vlt-drives.danfoss.com

* M I 3 8 Q 2 0 2 *