

Installation Instructions

Top-entry Sub D9 Connector Kit for Enclosure Sizes D and E with PROFIBUS Option

VLT[®] FC Series FC 102, FC 103, FC 202, and FC 302

Description

The top-entry sub D9 connector kit is designed for enclosure sizes D1h–D8h, E1–E2, and E1h–E4h with VLT[®] PROFIBUS DP MCA 101 option. It fits the following drives:

- 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 drive up to IP54.

Part number	Kit description
176F1742	Top-entry sub D9 connector kit for enclosure sizes D and E with PROFIBUS option

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

The kit contains the following parts:

Item	Quantity
Connector plate	1
Gasket, connector plate	1
Sub D9 connector with wire assembly	1
Ground strap	1
Strain relief	1
Rubber cover	1
Jack screw	2
M4 screw, thread cutting	2

Table 1.2 Items Supplied in Top-entry Sub D9 Connector Kit

Safety Instructions

Only qualified, Danfoss authorized personnel are allowed to install the parts described in these installation instructions. Handling of the drive and its parts must be done in accordance with the corresponding *operating guide*.

⚠ WARNING

ELECTRICAL SHOCK HAZARD

VLT[®] FC series drives 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 drive from all power sources before installation or service.
- Treat the drive as live whenever the mains voltage is connected.
- Follow the guidelines in these instructions and local electrical safety codes.

⚠ WARNING

DISCHARGE TIME

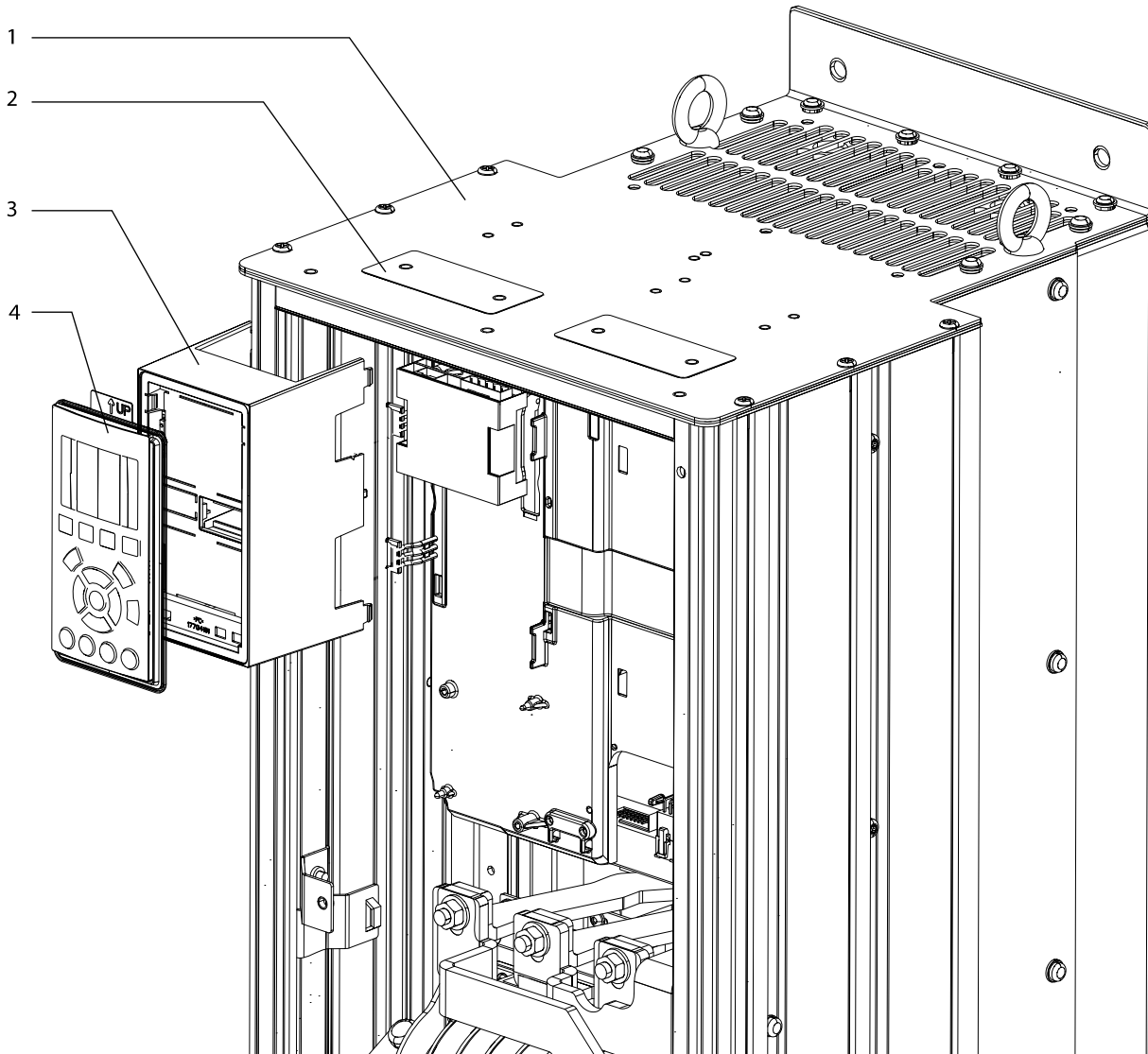
The drive contains DC-link capacitors, which can remain charged even when the drive is not powered. High voltage can be present even when the warning LED indicator lights are off. Failure to wait 40 minutes after power has been removed before performing service or repair work can result in death or serious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

- Stop the motor.
- Disconnect AC mains and remote DC-link power supplies, including battery back-ups, UPS, and DC-link connections to other drives.
- Disconnect or lock PM motor.
- Wait 40 minutes for 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.

Installing the Top-entry Sub D9 Connector Kit

This kit includes parts for extending PROFIBUS module cabling through the top of the drive enclosure. Use the following steps to install the sub D9 connector in the top of the enclosure. Alternatively, a strain relief is included in the kit and can be used for shield termination in non-IP54 installations. For optional strain relief installation, refer to *Illustration 1.7*.

1. Remove the front cover from the drive.
2. Remove the local control panel (LCP).
3. Remove the LCP cradle by pulling the cradle outward.
4. Unfasten 2 M5 nuts (8 mm) from the underside of the left cover plate, and remove the plate from the drive enclosure. Retain the 2 M5 nuts.



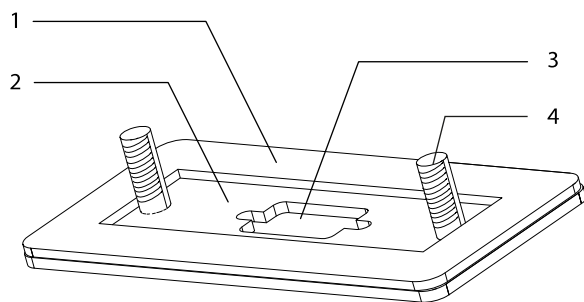
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1	Drive enclosure	3	LCP cradle
2	Left cover plate	4	LCP

Illustration 1.1 Removal of LCP, LCP Cradle, and Left Cover Plate

5. Assemble the connector plate.

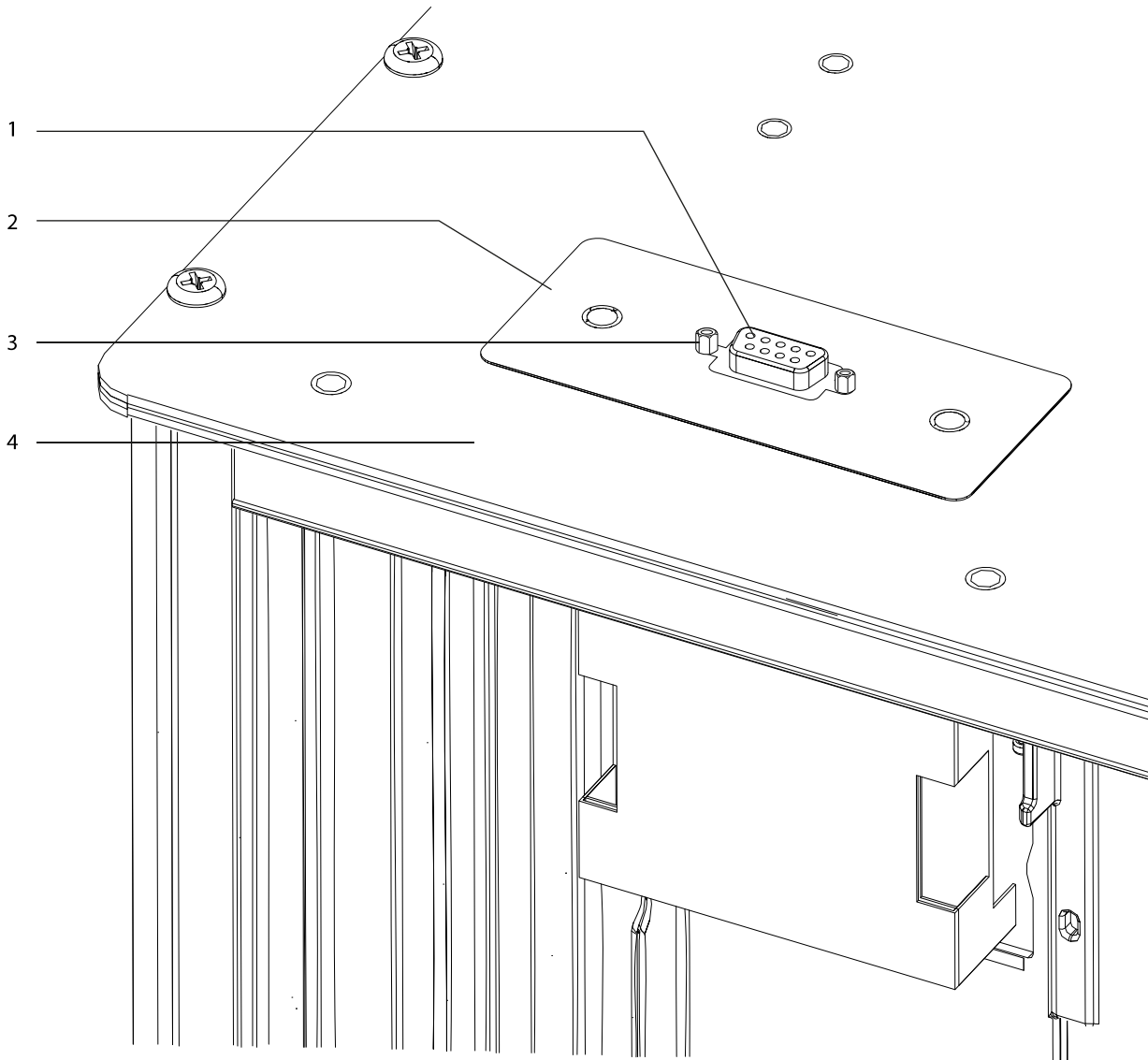
- 5a Remove the paper from the gasket self-adhesive, and attach the gasket to the bottom of the connector plate. See *Illustration 1.2*.
- 5b Fit the sub D9 connector assembly into the opening in the connector plate and secure with 2 jack screws. See *Illustration 1.3*.
- 5c Check that the edges of the sub D9 connector are seated firmly on the metal surface of the plate and not on the gasket.
- 5d Place the assembled connector plate into the opening at the top of the drive enclosure. See *Illustration 1.3*.



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1	Gasket
2	Connector plate
3	Opening for connector
4	Screw post

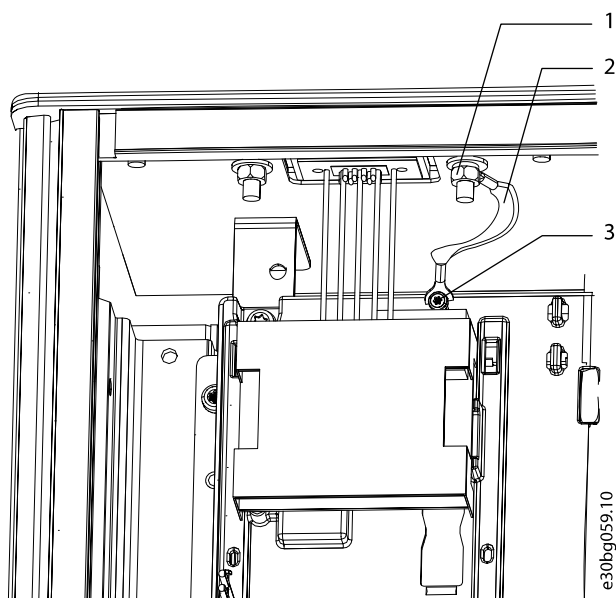
Illustration 1.2 Gasket Installed on Connector Plate



1	Sub D9 connector	3	Jack screw
2	Connector plate	4	Top of drive enclosure

Illustration 1.3 Connector Plate Installation

6. Install the braided ground strap. See *Illustration 1.4*.
 - 6a Place the smaller hole of the braided ground strap over the M4 thread-cutting screw provided with the kit.
 - 6b Fasten the M4 thread-cutting screw (T10) in the hole above the PROFIBUS module.
 - 6c Place the other end of the ground strap over the right screw post on the bottom of the connector plate. Secure with 1 M5 nut (8 mm).
 - 6d Secure 1 M5 nut (8 mm) on the other screw post of the sub D9 cover plate.



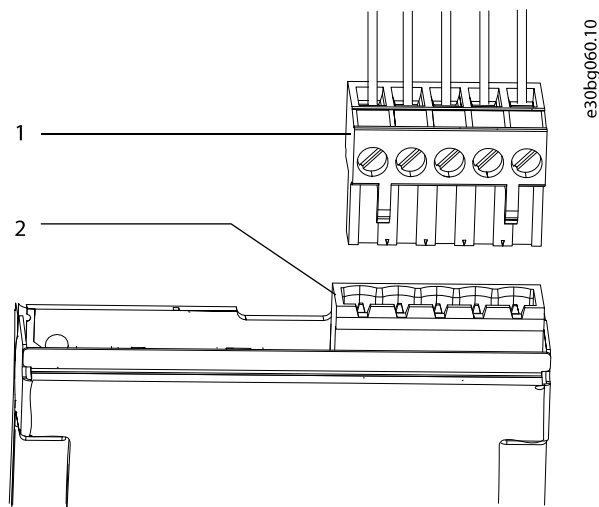
1	M5 nut on right screw post
2	Ground strap
3	M4 thread-cutting screw

Illustration 1.4 Ground Strap Installation

NOTICE

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

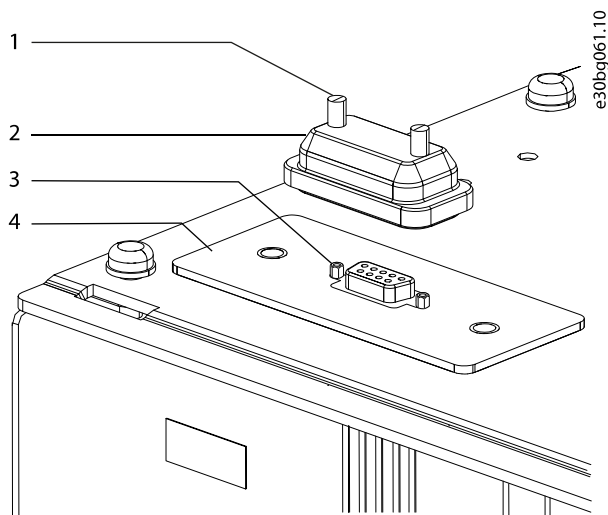
7. Plug the Phoenix connector into the PROFIBUS module. See *Illustration 1.5*.



1	Phoenix connector
2	PROFIBUS module

Illustration 1.5 Phoenix Connector Installation

8. When the sub D9 connector is not in use:
 - 8a Place the rubber cover over the connector. See *Illustration 1.6*.
 - 8b Hand tighten the cover screws into the tops of the jack screws.



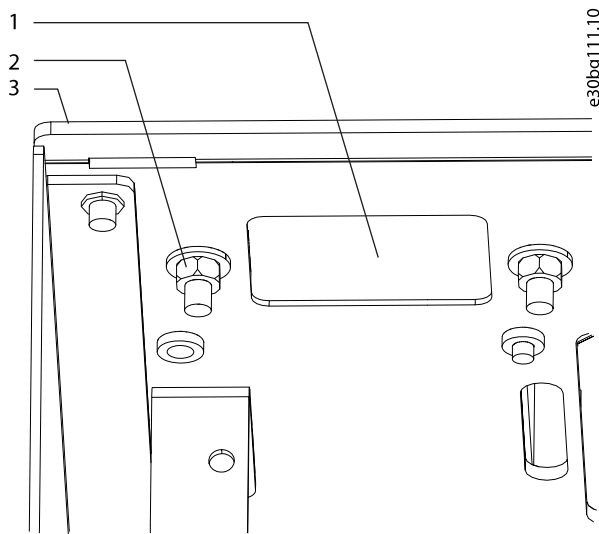
1	Cover screws
2	Rubber cover
3	Jack screws
4	Connector plate

Illustration 1.6 Rubber Cover Installation

Installing the Optional Strain Relief

As an alternative to installing the sub D9 connector, an optional strain relief is included in the kit. It can be used to support the PROFIBUS module cabling and to provide non-IP54 shield termination. If the strain relief is used, do not install the sub D9 connector. Use the following steps to install the strain relief.

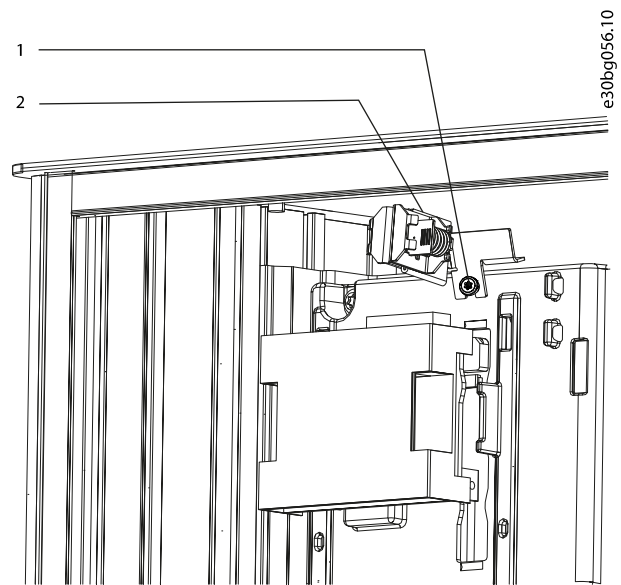
1. Remove the front cover from the drive.
2. Remove the local control panel (LCP). See *Illustration 1.1*.
3. Remove the LCP cradle by pulling the cradle outward.
4. Unfasten 2 M5 nuts (8 mm) from the underside of the left cover plate, and remove the plate from the drive enclosure. See *Illustration 1.7*.
5. Position the strain relief over the screw hole in the upper right corner above the PROFIBUS module. See *Illustration 1.8*.
6. Fasten 1 M4 thread-cutting screw (T10), securing the strain relief in place.



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1	Bottom of left cover plate
2	M5 nut
3	Top of drive enclosure

Illustration 1.7 Bottom View of Left Cover Plate from Inside Enclosure



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1	M4 thread-cutting screw
2	Strain relief

Illustration 1.8 Strain Relief Installation

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