Installation Guide

VLT® PROFIBUS DP MCA 101
VLT® AutomationDrive FC 361

1 Introduction

1.1 Purpose of this Installation Guide

This installation guide provides information for quick replacement of a VLT® PROFIBUS DP MCA 101 in the VLT® AutomationDrive FC 361.

The installation guide is intended for use by qualified personnel. Users are assumed to know the VLT® drive, with PROFIBUS technology, and with the PC or PLC used as a master in the system.

Read the instructions before installation and ensure that instructions for safe installation are observed.

1.2 Trademarks

VLT® is a registered trademark for Danfoss A/S.

2 Safety

2.1 Safety Precautions

⚠ 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 indicator lights are off.

Failure to wait the specified time after power has been removed before performing service or repair work could result in death or serious injury.

- Stop the motor.
- Disconnect AC mains, permanent magnet type motors, and remote DC-link supplies, including battery back-ups, UPS, and DC-link connections to other drives.
- Wait for the capacitors to discharge fully. The minimum waiting time is specified in table *Discharge time* and is also visible on the nameplate on top of the drive.
- Before performing any service or repair work, use an appropriate voltage measuring device to make sure that the capacitors are fully discharged.

Table 1: Discharge Time

Voltage [V]	Power range [kW (hp)]	Minimum waiting time (minutes)
380–480	90–315 kW (125–450 hp)	20

3 Technical Data

3.1 Cabling Requirements

- Terminate the nodes at the physical ends of each segment. If the bus segment is branched, the device furthest from the segment connector represents the end of the segment.
- Terminals 66 and 67 provide a 5 V DC supply, available for external termination.

NOTICE

The PROFIBUS D-sub 9 adapter also features a termination switch. When the D-sub 9 adapter is used, set the termination switch on the fieldbus option to OFF to avoid double termination.

NOTICE

When the fieldbus is extended with a repeater, terminate the extension at both ends.

NOTICE

To avoid impedance mismatch, use the same cable type throughout the entire network.

3.2 Cable Specifications

Table 2: Cable Specifications

Impedance at a measuring frequency from 3–20 MHz	135–165 Ω
Resistance	<110 Ω/km
Capacitance	<30 pF/m
Damping (total wire length)	Maximum 9 dB over the whole wire length.
Cross-section	Maximum 0.34 mm^2, AWG 22.
Cable type	Twisted in pairs, 1 x 2, 2 x 2, or 1 x 4 wires.
Shielding	Copper-braided shield, or braided shield and foil shield.

4 Installation

4.1 Mounting

Procedure

1. Make sure that the power to the drive is disconnected.
2. Remove the front cover from the drive.
3. Remove the LCP (Local Control Panel) or blind cover, and then remove the LCP cradle from the drive.
4. Disconnect the communication cables from the existing MCA option card.
5. Remove the existing MCA option card from the drive.
6. Fit the new VLT® PROFIBUS DP MCA 101 option card into slot A. Mount the option with the connector facing up for top cable entry , or with the connector facing down for bottom cable entry. If an MCB option is installed, only top cable entry is possible.
7. Connect the communication cables.
8. Set the termination switch (shown in the illustration in 4.2 Setting Address Switches) on the fieldbus option to ON, when the drive is the last station on the segment.
9. Set the address switches if needed.
10. Fit the LCP cradle.
11. Fit the LCP or blind cover in the LCP cradle.
12. Fit the front cover on the drive.
13. Connect power to the drive.

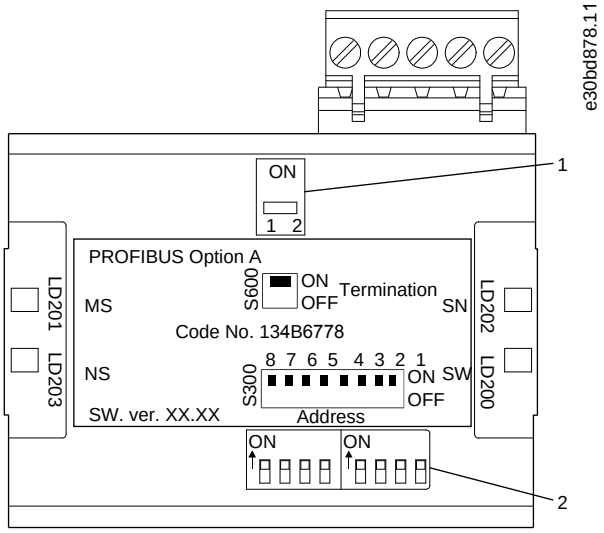
4.2 Setting Address Switches

Set the address switches to give the option a unique ID. Select an address range from 0–125 (factory setting 127) according to table 3.

Table 3: Settings for the Address Switches

Switch	8	7	6	5	4	3	2	1
Address value	Not used	+64	+32	+16	+8	+4	+2	+1
5	Not used	OFF	OFF	OFF	OFF	ON	OFF	ON
35	Not used	OFF	ON	OFF	OFF	OFF	ON	ON
82	Not used	ON	OFF	ON	OFF	OFF	ON	OFF

Alternatively, assign a unique ID from parameter 9-18 Node Address. For setting the address from parameter 9-18 Node Address, ensure that all address switches are set to ON. When the address is already set using address hardware switches, the address value shown in parameter 9-18 Node Address is read-only.



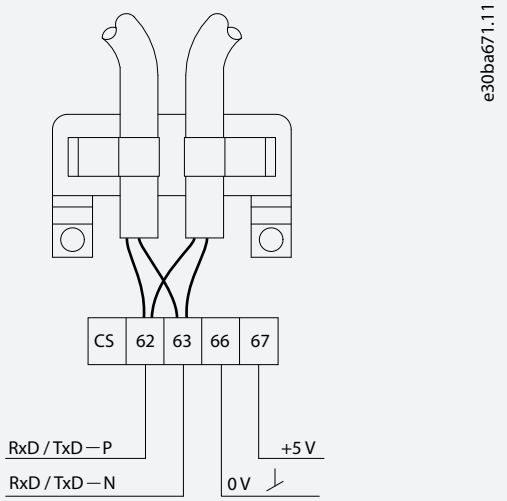
1 Termination switch	**2** Address switches

Illustration 1: Location and Sequence of the Address Switches

4.3 Wiring Procedures

Procedure

1. Mount the fieldbus connector on the fieldbus option (terminals 62, 63, 66, and 67).
2. Prepare the fieldbus cable by stripping a section of the cable insulation, so that the cable screen is in contact with the EMC bracket. Keep the unshielded wire as short as possible. For cable specifications, refer to 3.2 Cable Specifications.
3. Connect the fieldbus cable wires to the terminals according to the color code of the wires, see illustration 2.



62 RxD/TxD-P red cable.	**63** RxD/TxD-N green cable.
66 and 67 5 V DC supply, available for external termination.	**CS** Control select, 5 V DC indicates transmission from the fieldbus option.

Illustration 2: Fieldbus Cable Terminal Connections

4. Fix the cable screen to the metal base plate using cable clamp or cable tie.
5. Tie down the cable and route it with other control wires inside the unit.

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