EXOR® *Tech-note*

Connecting UniOP to the Danfoss VLT-5000 Series Frequency Converters

This Technical Note contains the information and tips for the successful connection between a UniOP operator interface and the Danfoss VLT-5000 Series Frequency converters.

Contents

1. Introduction

The UniOP panel can be connected to a Danfoss VLT-5000 Frequency Converter.
The VLT-5000 unit must have software version V3.00 or higher; the software version can be read in parameter 624. Communication is possible through the standard RS-485 interfaces available on inverter.

This technical note describes the principal points to follow for a successful connection.

2. Communication Setup

This chapter describes the setup procedure for communication between UniOP and Danfoss VLT-5000 Frequency Converter.

2.1. UniOP Communication Setup

In the UniOP Designer software, select the 'Project/Change controller driver' dialog box and make sure that the selected communication driver is 'Danfoss FC'.

The default communication parameters are the following:

Speed: 9600 baud
Parity: even
Data bits: 8
Stop bits: 1

Baud rate can be changed in the Designer dialog box 'Project/Controller setup/PLC comm', but the other parameters should be left at their default values.
Baud rates supported by Danfoss VLT-5000 Frequency converter are 300, 600, 1200, 2400, 4800 and 9600 baud.

2.2. Danfoss VLT-5000 Communication Setup

To change the baud rate and other relevant communication settings in the inverter, follow these steps:
1. Set parameter number 500 (Bus address) to the value specified in your project.
2. Set parameter number 501 (Baud rate) to the value specified in your project.
Other communication parameters are fixed.

3. Parameter conversion factors

In order to give a real meaning to the 'raw' data read from the Danfoss VLT-5000 Frequency converter, some parameters have to be scaled using appropriate conversion factors. These factors and appropriate display formats are described in the manual *Danfoss VLT-5000 Frequency converters – Design Guide.*
As a convenience for the user, for each parameter needing conversion, its factor and display format are offered as defaults in the Define field dialog box. Of course, the user is free to modify these values in any way it suits him.

Important note: *Conversion factors as listed in the manual convert values into basic Metric System measurement units, so if a parameter is converted with default scaling factor, its numeric value shown on UniOP display may differ from the numeric value shown on Danfoss VLT-5000 display.*

Example:
Let's suppose the Danfoss VLT-5000 display shows the value of a parameter expressing power as 1.6 KW. If the same parameter is displayed on UniOP display with default scaling, however, the displayed value will be 1600, because default scaling converts values into basic units, in this case Watts.

4. Communication Cables

The communication can be established through the RS-485 interface available on the inverter.
Use cable CA167 to connect UniOP to the Danfoss VLT-5000 Frequency converter through the RS-485 protocol.

5. Communication Error Codes

Current communication status is displayed in the System Menu of the UniOP.
The error status is described by a message and a numeric error code.
The message reports the current communication status. The number shows the code of the current communication error or, if the communication is correct, the code of the last error encountered.
When the error code 0 is shown, it means there have been no communication errors since this system start-up.

Code	Description	Notes
0	No error	There are no communication errors and there have been no errors since start-up.
5	Communication timeout	No response from device. May indicate that the connection is broken, communication parameters are not matching or that there are other hardware errors
6	Response error	Error in the response from the device
7	General communication error	Should never been reported. Indicates a software error.
11	Line error	Character has not been received correctly