

ENGINEERING
TOMORROW

Danfoss

Operating Guide

VLT® FCD 300 PROFIBUS Converter MCA 117
VLT® Decentral Drive FCD 300 and VLT® Decen-
tral Drive FCM 300

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1 Introduction

1.1 Purpose of this Operating Guide

This operating guide provides information for the installation, commissioning, and parameter mapping of a VLT® FCD 300 PROFIBUS Converter MCA 117 when installed in a VLT® Decentral Drive FCD 302.

The operating guide is intended for use by qualified personnel. Users are assumed to be familiar with:

- VLT® decentral drives.
- PROFIBUS.

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

Essential information for quick installation and setup is found in:

- [1.4.1 Intended Use](#)
- [1.4.2 Hardware](#)
- [3.1 Introduction to Installation](#)
- [3.2 Electrical Installation](#)

Detailed information including the full range of setup options and diagnosis tools is found in:

- [5 Parameter Mapping Lists](#)

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1.2 Additional Resources

The following manuals may be helpful when installing the VLT® FCD 300 PROFIBUS Converter MCA 117:

- VLT® Decentral Drive FCD 302 Operating Guide.
- VLT® Decentral Drive FCD 302 Design Guide.
- VLT® AutomationDrive FC 301/FC 302 Programming Guide.

More manuals are available at www.danfoss.com.

1.3 Document and Software Version

This manual is regularly reviewed and updated. All suggestions for improvement are welcome.

The original language of this manual is English.

NOTICE

The converter is based on the latest firmware release of the VLT® Decentral Drive FCD300 and VLT® Decentral Drive FCM300. The firmware versions are listed in [table 1](#). If the FCD/FCM drive that has to be replaced has a older version (lower number) the converter works, but may not convert parameters correctly.

Table 1: Document, Firmware, and Software Versions

Edition	Remarks	Drive firmware version	PROFIBUS firmware version
AQ2895507549010101	First release	VLT® Decentral Drive FCD 302, version 7.67 or higher	FCD300 Converter, version 2.0x
		VLT® Decentral Drive FCD 300, version 1.6x	PROFIBUS, version 3.x/4.x
		VLT® Decentral Drive FCM 300, version 3.2x	PROFIBUS, version 2.x/4.x

1.4 Product Overview

1.4.1 Intended Use

This manual relates to the VLT® FCD 300 PROFIBUS Converter MCA 117.

The VLT® FCD 300 PROFIBUS Converter MCA 117 is intended for replacing a VLT® Decentral Drive FCD 300 or a VLT® Decentral Drive FCM 300 with a VLT® Decentral Drive FCD 302 in a PROFIBUS network.

With this PROFIBUS converter option, the FCD 302 reacts as an FCD 300 or an FCM 300 on the PROFIBUS network. Changes to PLC programming or configuration are normally not necessary.

The FCD 302 identifies itself either as an FCD 300 or an FCM 300 on the PROFIBUS network. A write command to, for example, ramp-up time in FCD 300 is automatically linked to the corresponding ramp-up time parameter in the VLT® Decentral Drive FCD 302.

NOTICE

Some parameters in the FCD 300 and FCM 300 are not supported in the FCD 302, and some parameters cannot be accessed via the VLT® FCD 300 PROFIBUS Converter MCA 117. Refer to [5 Parameter Mapping Lists](#) for more information. If a write request is attempted to a parameter selection which is not supported, the drive discards the value and issues a positive reply. Only parameters and functions described in this manual are supported.

NOTICE

The replacement drive must match the power size or be bigger than the replaced FCD 300 or FCM 300. Make sure that the brake chopper matches the new drive. Make sure that the new drive meets the local regulations concerning the Machinery Directive, pre-fuses, and other appropriate regulations.

NOTICE

Observe local rules and regulations when replacing a drive in an existing installation.

1.4.2 Hardware

- The VLT® FCD 300 PROFIBUS Converter MCA 117 supports VLT® Decentral Drive FCD 302 only.
- There is no support for PROFIBUS FMS networks.

1.4.3 Performance

- The VLT® Decentral Drive FCD 302 reacts faster on most commands as the VLT® Decentral Drive FCD 300/FCM 300, which can influence the applications. When replacing a VLT® Decentral Drive FCD 300/FCM 300 with the VLT® FCD 300 PROFIBUS Converter MCA 117, the installer must ensure that the functionality is maintained. Due to the different timing, it may be necessary to reprogram the controller, where signals from the drives react faster.
- The motor control algorithm of the VLT® Decentral Drive FCD 302 results in a better motor performance compared to FCD 300/FCM 300.

NOTICE

FACTORY SETTING OF PARAMETERS

After initialization of the FCD 302, most parameters are set to match the factory settings of the FCD 300/FCM 300 parameters.

NOTICE

LINKED SETUPS

To synchronize changes made with a running motor, ensure that setups are linked. Link the setups in *parameter 0-12 This Setup Linked to*.

2 Safety

2.1 Safety Symbols

The following symbols are used in this manual:

⚠ DANGER ⚠

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING ⚠

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION ⚠

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

Indicates information considered important, but not hazard-related (for example, messages relating to property damage).

2.2 Qualified Personnel

Correct and reliable transport, storage, installation, operation, and maintenance are required for the trouble-free and safe operation of the drive. Only qualified personnel are allowed to install and operate this equipment.

Qualified personnel are defined as trained staff, who are authorized to install, commission, and maintain equipment, systems, and circuits in accordance with pertinent laws and regulations. Also, the qualified personnel must be familiar with the instructions and safety measures described in this manual.

2.3 Safety Precautions

⚠ WARNING ⚠

HIGH VOLTAGE

AC drives contain high voltage when connected to AC mains input, DC supply, or load sharing. Failure to perform installation, start-up, and maintenance by qualified personnel can result in death or serious injury.

- Only qualified personnel must perform installation, start-up, and maintenance.

⚠ WARNING ⚠**UNINTENDED START**

When the drive is connected to the AC mains, the motor may start at any time, causing risk of death, serious injury, and equipment or property damage. The motor may start by activation of an external switch, a fieldbus command, an input reference signal from the LCP or LOP, via remote operation using MCT 10 Set-up software, or after a cleared fault condition.

- Press [Off] on the LCP before programming parameters.
- Disconnect the drive from the mains whenever personal safety considerations make it necessary to avoid unintended motor start.
- Check that the drive, motor, and any driven equipment are in operational readiness.

⚠ 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 time for full discharge of the capacitors is minimum 4 minutes for VLT® Decentral Drive FCD 302, 400 V AC, 0.37–3.0 kW (0.5–4.0 hp).
- Before performing any service or repair work, use an appropriate voltage measuring device to make sure that the capacitors are fully discharged.

⚠ WARNING ⚠**LEAKAGE CURRENT HAZARD**

Leakage currents exceed 3.5 mA. Failure to ground the drive properly can result in death or serious injury.

- Ensure the correct grounding of the equipment by a certified electrical installer.

⚠ WARNING ⚠**ROTATING SHAFTS**

Contact with rotating shafts and electrical equipment can result in death or serious injury.

- Ensure that only trained and qualified personnel perform installation, start-up, and maintenance.
- Ensure that electrical work conforms to national and local electrical codes.
- Follow the procedures in this guide.

⚠ WARNING ⚠**UNINTENDED MOTOR ROTATION WINDMILLING**

Unintended rotation of permanent magnet motors creates voltage and can charge the unit, resulting in death, serious injury, or equipment damage.

- Ensure that permanent magnet motors are blocked to prevent unintended rotation.

⚠ CAUTION ⚠**INTERNAL FAILURE HAZARD**

An internal failure in the drive can result in serious injury when the drive is not properly closed.

- Ensure that all safety covers are in place and securely fastened before applying power.

3 Installation

3.1 Introduction to Installation

The VLT® FCD 300 PROFIBUS Converter MCA 117 changes the functionality of a VLT® Decentral Drive FCD 302 so that it can be used as a spare part for a VLT® Decentral Drive FCD 300 or a VLT® DriveMotor FCM 300.

A VLT® Decentral Drive FCD 302 (0.37–2.2 kW (0.5–3.0 hp)) with flat bracket and adapter brackets (order number 134B6775) can be mounted using the same drilling holes as for the FCD 300.

For a 3.0 kW (4.0 hp) FCD 302, mounting with adapter brackets is not possible. Thus, new holes must be drilled to mount the drive.

The FCD 302 cannot be used as a direct replacement of the VLT® Decentral Drive FCM 300 electronic part. For reuse of the existing electric motor, a terminal box has to be fitted to the motor, and a motor cable has to be used as connection between the motor and the FCD 302. Observe local regulations when changing the installation.

Initial power-up

The VLT® FCD 300 PROFIBUS Converter MCA 117 sets the parameters of the VLT® Decentral Drive FCD 302 to FCD 300 defaults in 3 cases:

- At first time power up.
- When the drive has been set to initialize via *parameter 14-22 Operation Mode*.
- When a 3-finger reset is performed from the LCP at power-up.

This gives a short commissioning time and improves the backwards compatibility.

The MCA 117 also changes the default settings of the I/Os of the FCD 302 to match those of the FCD 300.

3.2 Electrical Installation

For electrical installation, local regulations might require further updates. This could be the case where the installation must be updated to fulfill newer standards when machines are updated, or if local regulations have changed since the original decentral drives were installed.

The following sections contain illustrations showing the old terminal number and their equivalents in the new drive. If a box in a drawing is empty, there is no equivalent in the VLT® Decentral Drive FCD 302. In most cases, it is possible to program the FCD 302 to deliver the same function on 1 of the terminals. If there are no boxes at all in an illustration, the drive has no terminal. For example, the VLT® DriveMotor FCM 300 has a limited number of I/Os compared to the FCD 300.

3.2.1 Supply and Motor Terminals

Power cable terminals are 1:1 compatible between VLT® Decentral Drive FCD 300/VLT® DriveMotor FCM 300 and the VLT® Decentral Drive FCD 302. If shielded cables are used, ensure that the shield is mounted as stated in the VLT® Decentral Drive FCD 302 Operating Guide.

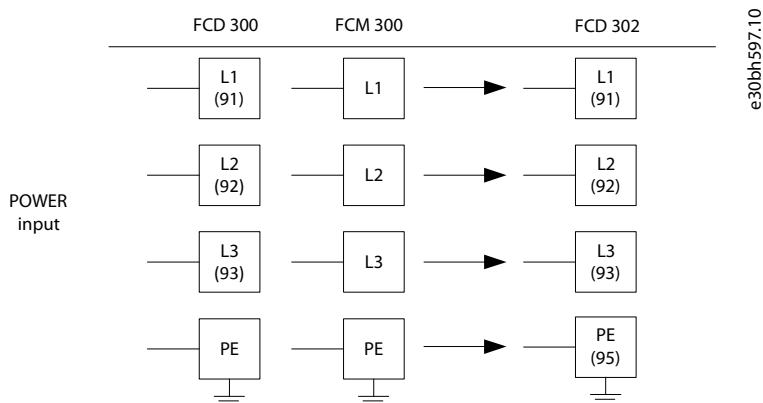


Illustration 1: Power Cable Connections

Motor terminals are 1:1 compatible between FCD 300 and FCD 302. If shielded cables are used, ensure that the shield is mounted as stated in the VLT® Decentral Drive FCD 302 Operating Guide.

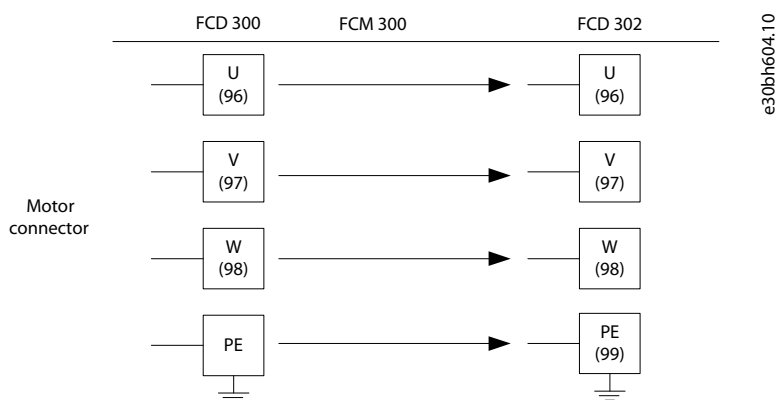


Illustration 2: Motor Cable Connections

Mechanical brake cable terminals are 1:1 compatible between the FCD 300 EB versions and the FCD 302 with brake chopper and mechanical brake supply. If shielded cables are used, ensure that the shield is mounted as stated in the VLT® Decentral Drive FCD 302 Operating Guide. To enable this functionality, the VLT® FCD 300 PROFIBUS Converter MCA 117 sets *parameter 5-40 [1] Function Relay* to [32] *Mech Brake Ctrl*. In the FCD 302, it is not possible to enable mechanical brake control and use relay 2 for another purpose.

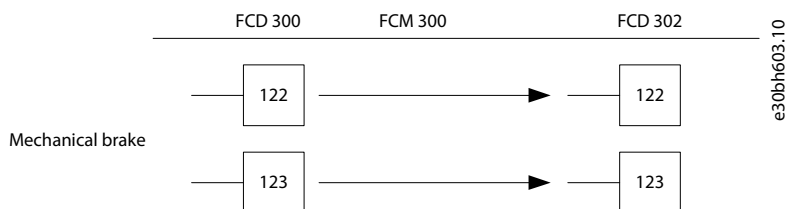


Illustration 3: Mechanical Brake Connection

Brake resistor cable terminals are 1:1 compatible between the FCD 300 EB versions and the FCD 302. If shielded cables are used, ensure that the shield is mounted as stated in the VLT® Decentral Drive FCD 302 Operating Guide.

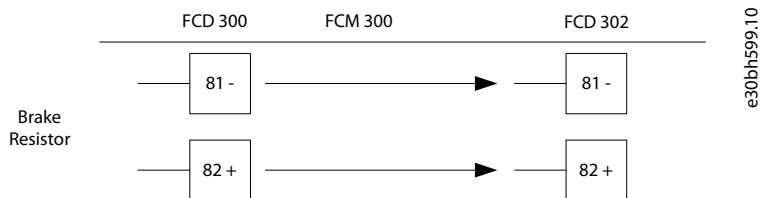


Illustration 4: Brake Resistor Cable Connections

The FCD 300 has dedicated connectors 31A and 31B for connection of the motor thermistors. The FCD 302 with MCA 117 installed uses AI54 as motor thermistor connector. The FCD 302 can also use 1 of the digital inputs as thermistor source, but if multiple sensors are connected in series, it might cause false alarms/warnings. The motor thermistor configuration is done via *parameter 1-90 Motor Thermal Protection* and *parameter 1-93 Thermistor Resource*.

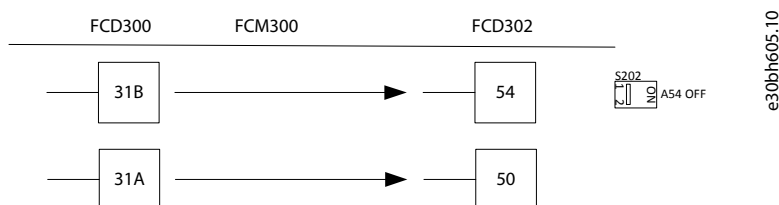


Illustration 5: Motor Thermistor Cable Connection

The 24 V external supply cable terminals are 1:1 compatible between FCD 300 EB versions and the FCD 302. The FCD 302 may draw a higher current from the 24 V supply. The FCD 300 has a power consumption of 12 W, where the FCD 302 consumes up to 50 W. The consumption depends on the configuration of the I/O modules and the sensors connected to the drive.

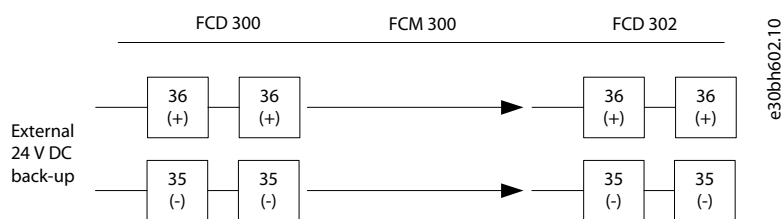


Illustration 6: External 24 V Cable Connection

3.2.2 Control Signal Connectors

Digital input cable connection

Digital input terminals are 1:1 compatible between the VLT® Decentral Drive FCD 300 and the VLT® Decentral Drive FCD 302. If shielded cable is used, ensure that the shield is mounted as stated in the VLT® Decentral Drive FCD 302 Operating Guide.

The FCD 300 reads the digital inputs every 12 ms whereas the FCD 302 reads the digital inputs every 1 ms.

The digital inputs of the FCD 300 are converted fully to the I/Os of the FCD 302. Terminal 3 of the VLT® DriveMotor FCM 300 is not converted to a corresponding terminal in FCD 302. To support terminal 3 in FCM 300, configure the FCD 302 manually.

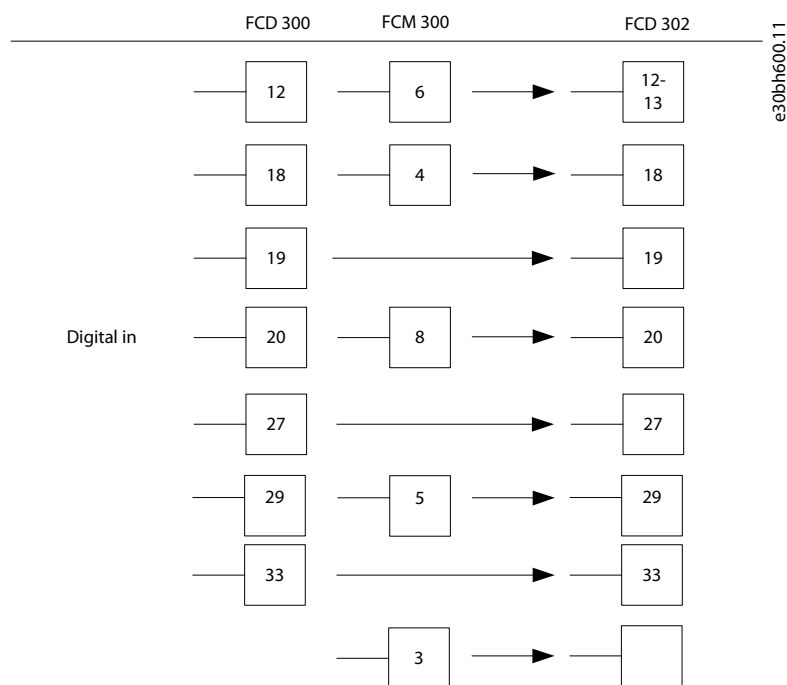


Illustration 7: Digital Input Cable Connections

Digital output cable connections

The FCD 300 has 1 dedicated digital output, which is terminal 46. This terminal is not converted to an existing FCD 302 output.

In FCM 300, terminal 9 could be used as either analog or digital output. To obtain the same functionality in FCD 302, configure an analog or digital output manually.

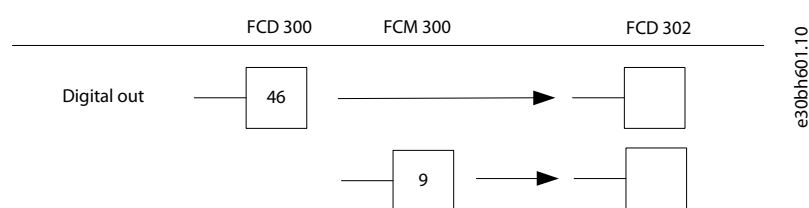


Illustration 8: Digital Output Cable Connections

Analog I/O cable connections

The analog I/Os of the FCD 302 can be configured to cover most use cases. The default conversion from FCD 300 has a limitation as there is no input 60 in the FCD 302. If analog input 54 in the FCD 302 is not used for motor thermistor, this input can be configured to provide the functionality of output 60 in the FCD 300.

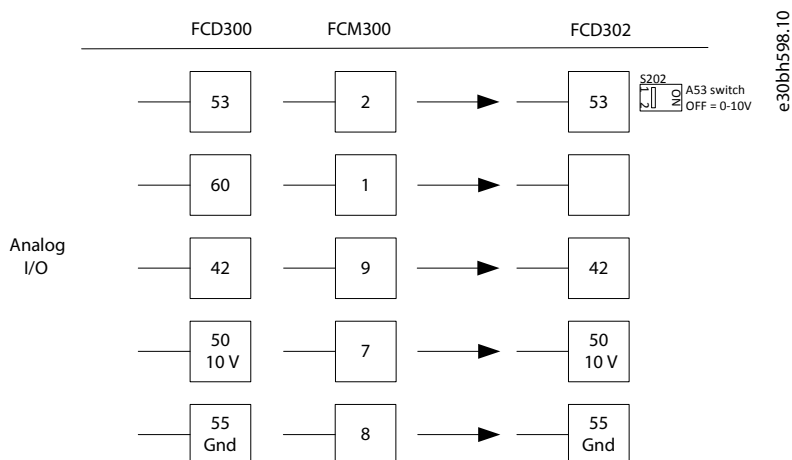


Illustration 9: Analog I/O Cable Connections

The 0–10 V analog input 53 of the FCD 300 is converted into the FCD 302 analog input 53. The analog input 53 of the FCD 302 can be set to 0–10 V or 0–20 mA via switch S201. From factory, the switch is set in OFF position, which sets the analog input to 0–10 V.

Relay cable connections

The relays of the FCD 302 are compatible to the relays in FCD 300.

NOTICE

The relay in FCM 300 is rated to a resistive load of 5 A, 250 V AC, whereas the relay in FCD 302 is rated to a load of 2 A, 240 V AC.

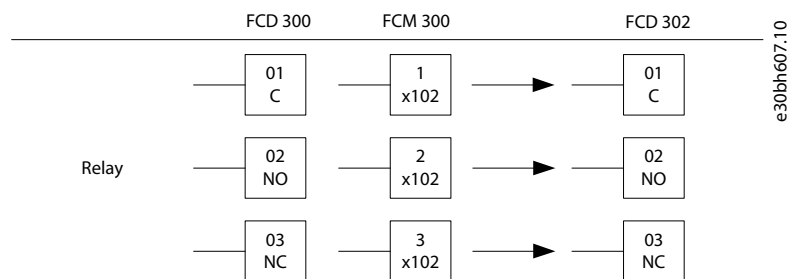


Illustration 10: Relay Cable Connections

PROFIBUS cable connections

The PROFIBUS terminals of the FCD 300/FCM 300 are all converted to the PROFIBUS terminals of the FCD 302. The compensation coils activated by the switches S101 to S104 of the FCD 300 are not needed in the FCD 302 PROFIBUS interface. The Termination of the PROFIBUS line is done via the PROFIBUS termination switch.

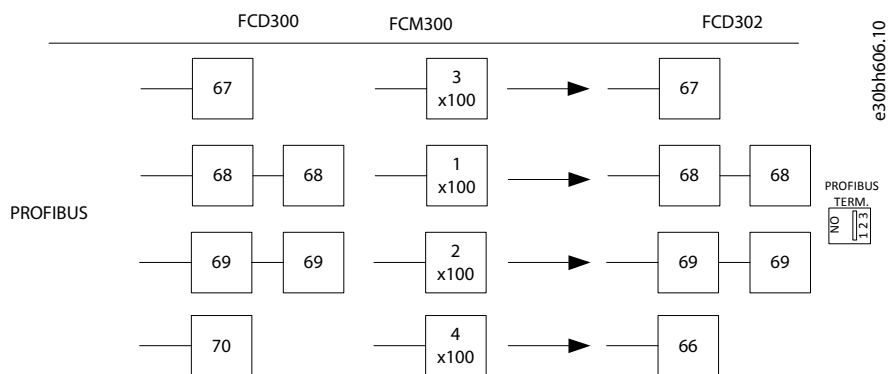


Illustration 11: PROFIBUS Cable Connections

3.2.3 EMC Precautions

To achieve interference-free operation of the PROFIBUS, install the VLT® Decentral Drive FCD 302 and the cables as described in the VLT® Decentral Drive FCD 302 Design Guide: When routing the PROFIBUS cable:

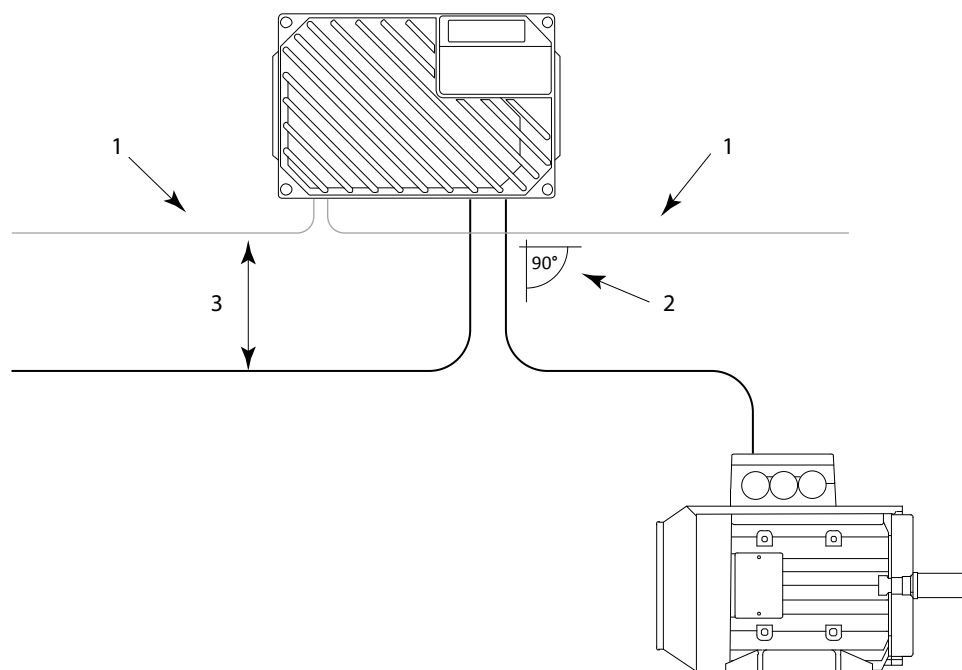
- maintain high distance (minimum 200 mm (8 in)) between the PROFIBUS communication cable and the motor and brake resistor cables to avoid coupling of high-frequency noise from one cable to another.
- ensure that, when crossing is unavoidable, the PROFIBUS cable crosses the motor and brake resistor cables at an angle of 90°.

For installation on machines where the FCD 302 has poor electrical contact to the machine due to paint or high ohmic surface, a special stainless steel plug and bracket exist. The order number is 175N2598.

This plug can be mounted in 1 of the unused cable entry holes and the supplied bracket has to be mounted to the plug and to the metal construction of the machine. This ensures a low ohmic path for high-frequency noise that otherwise would have been added to the shield of the PROFIBUS cable, causing disturbance of the communication.

NOTICE

Observe relevant national and local regulations, for example, regarding protective-earth connection.



e30bh659.10

<p>1 PROFIBUS cable</p>	<p>2 90° intersection</p>
<p>3 ≥200 mm (≥7.9 in)</p>	

Illustration 12: EMC-correct Installation

4 Configuring the System

4.1 Preparing for Configuration

Context:

All PROFIBUS stations connected to the same bus network must have a unique station address.

Prerequisites:

Before replacing an FCD 300 or FCM 300 by a VLT® Decentral Drive FCD 302 with VLT® FCD 300 PROFIBUS Converter MCA 117, configure the station address in the FCD 302. Also, check that the FCD 302 detects which type of drive it has to replace.

Procedure

1. Set the PROFIBUS address of the VLT® Decentral Drive FCD 302 to the same address as the drive that has to be replaced.
 2. Set *parameter 8-02 Control Word Source* to [3] Option A.
 3. Cycle power (400 V AC and 24 V DC back-up if applied) to the FCD 302.
 - The MCA 117 probes for the different FCD300/FCM300 Ident numbers. While probing, the drive flashes the ST/MS LED (see [4.5 LED Behavior](#)). When the matching Ident number used by the master is detected, the VLT® Decentral Drive FCD 302 locks the ident number to the option, and sets the parameters of the FCD 302 to match the functionality of the old drive.
- The master/PLC now recognizes the FCD 302 as an FCD 300 or FCM 300.

4.2 PROFIBUS Address Set via Hardware Switches

⚠ WARNING ⚠**SHOCK HAZARD**

Working with the hardware switches while the power supply is still on may cause personal injuries.

- Switch off the power supply before changing the hardware switches.

NOTICE

The address change comes into effect at the next power-up and can be read in *parameter 9-18 Node Address*.

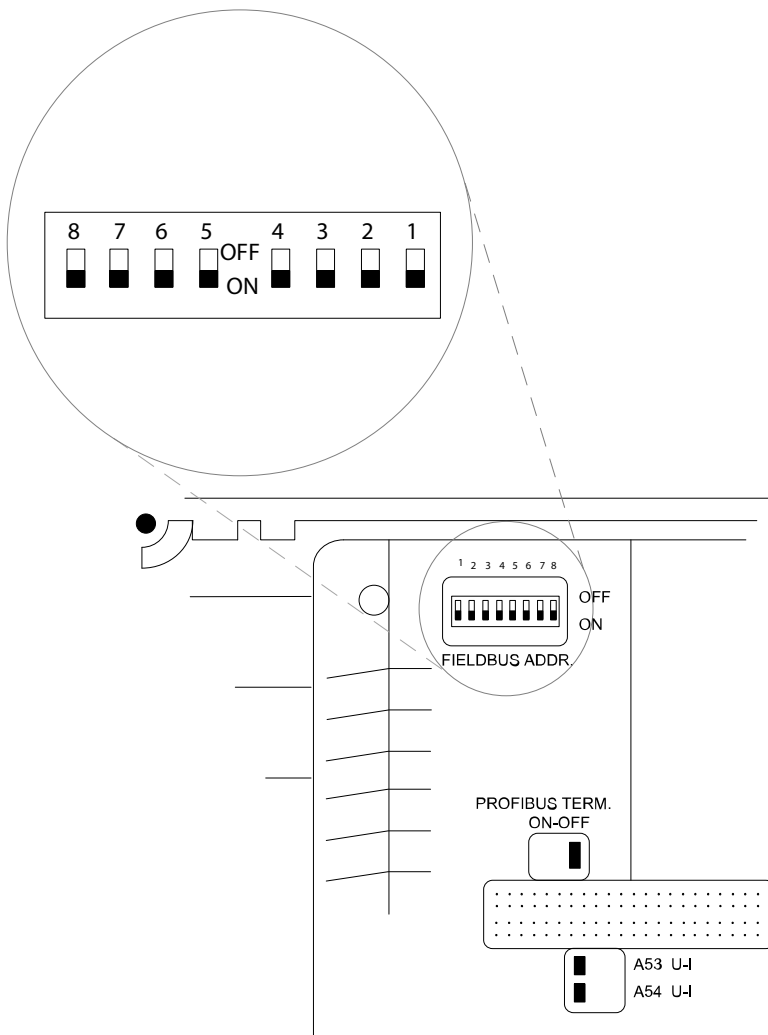


Illustration 13: Setting the PROFIBUS Address via Hardware Switches

Table 2: Hardware Switch Settings

	VLT® Decentral Drive FCD 300								VLT® Decentral Drive FCD 302							
Switch	1	2	3	4	5	6	7	8	8	7	6	5	4	3	2	1
Address	+1	+2	+4	+8	+16	+32	+64	-	-	+64	+32	+16	+8	+4	+2	+1
Example:																
1	1	0	0	0	0	0	0	-	-	0	0	0	0	0	0	1
35	1	1	0	0	0	1	0	-	-	0	1	0	0	0	1	1
82	0	1	0	0	1	0	1	-	-	1	0	1	0	0	1	0

4.3 PROFIBUS Address Set via Parameter or SSA Command

If all hardware switches are set to ON or OFF (factory switch setting), the PROFIBUS address can be set via *parameter 9-18 Node Address* or the PROFIBUS SSA command. The address becomes valid after the next power cycle.

4.4 Commissioning

Prerequisites:

The station address of the VLT® Decentral Drive FCD 302 must be the same as for VLT® Decentral Drive FCD 300.

Procedure

1. Cycle power to the FCD 302.
 - The master/PLC now recognizes FCD 302 as an FCD 300.

Example:

A solid green NS LED on the VLT® FCD 300 PROFIBUS Converter MCA 117 indicates that communication between master and slave is established.

If the NS LED flashes, the master/PLC has not recognized the FCD 302.

For more information, refer to [6.1 Troubleshooting Hints](#).

4.5 LED Behavior

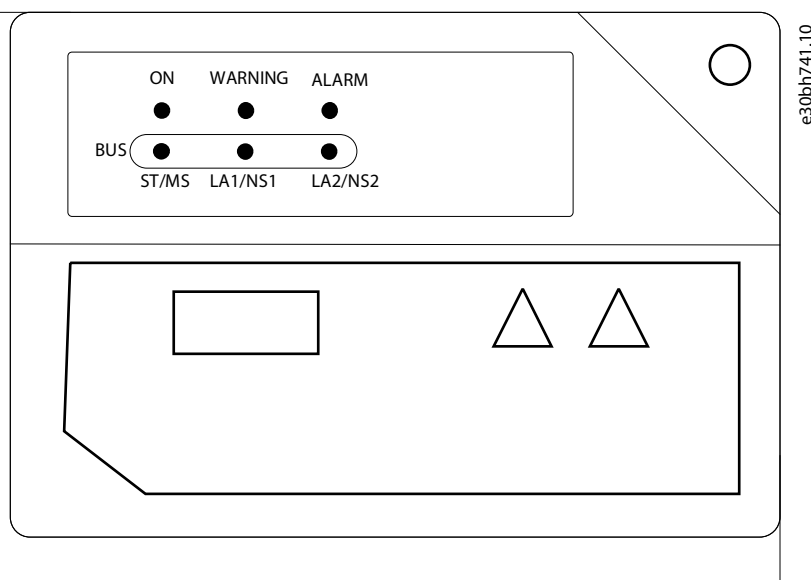


Illustration 14: Overview of LEDs

Table 3: Bicolored LEDs

LED label	Description
LA1/NS1	Network status

LED label	Description
ST/MS	Module status (DP-V1 communication and Ident number detection)
LA2/NS2	Not used

Table 4: Net Status, ST/MS










State	LED	Description
Power on	Red: 	Solid red The option is defect. Contact Danfoss.
	Green: 	Flashing green The option is OK.
Baud rate search	Green: 	Flashing green Searching for the baud rate. Check the connection to the master if the option stays in this state.
Wait parameterizing	Green: 	Long green flash Baud rate found - waiting for parameters from the master.
	Red: 	Long red flash Wrong parameters from the master.
Wait configuration	Green: 	Short green flash Parameters from master OK - waiting for configuration data.
	Red: 	Short red flash Wrong configuration data from the master.
Data exchange	Green: 	Solid green Data exchange between the master and the FCD 302 is active.
	Red: 	Flashing red Clear state. <i>Warning 34, Fieldbus Fault</i> is active and a bus reaction in <i>parameter 8-04 Control Word Timeout Function</i> is executed.

Table 5: Module Status (ST/MS LED while Detecting Ident Number)




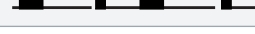





LED description	Description
Green 	One short flash Testing for FCD 300, 12 MB version
Green 	Two short flashes Testing for FCD 300, 3 MB version
Green 	Three short flashes Testing for FCD 302
Green 	One long, one short flash Testing for FCM 300, 3 MB version
Green 	One long, 2 short flashes Testing for FCM 300, 12 MB version

Table 6: Module Status (DP-V1 Communication)

	Description
No light	Off No PROFIBUS DP-V1 communication is active.
Green: 	Short green flash DP-V1 communication from a Master Class 1 (PLC) is active.
Green: 	Long green flash DP-V1 communication from a Master Class 2 (MCT 10, FDT) is active.
Green: 	Solid green DP-V1 communication from a Master Class 1 and 2 is active.
Red: 	Flashing red Internal error.

NOTICE

The LED flash patterns of the VLT® FCD 300 PROFIBUS Converter MCA 117 are not compatible with the patterns of the FCD 300/FCM 300 PROFIBUS LEDs.

4.6 Factory Settings

The VLT® FCD 300 PROFIBUS Converter MCA 117 is delivered from factory with the optimal settings to replace a VLT® Decentral Drive FCD 300. If the VLT® FCD 300 PROFIBUS Converter MCA 117 is moved from one application to another, it is recommend to initialize the drive. This initialization activates the factory settings and re-invoke of the Ident number detection. If the drive has been delivered from factory with the option installed, initialization can be skipped.

Do the initialization via:

- *Parameter 14-22 Operation Mode*, or
- Three-finger reset by removing power to the drive, pressing [Status], [Main Menu], and [OK], and applying 400 V AC or 24 V DC back-up power to the drive.

The MCA 117 sets the parameters of the FCD 302 so that the FCD 302/MCA 117 emulate the FCD 300 in the best way.

The parameters of the VLT® Decentral Drive FCD 302 are set to factory values and some FCD 302 parameters are set to values that match the initial values of VLT® Decentral Drive FCD 300.

Factory copy via the FCD 300 *parameter 006 Setup Copy* is supported and initializes the FCD 302 and sets it to the FCD 300 default settings.

Table 7: Parameters Set During Initialization

Parameter	Initialization setting
<i>Parameter 0-02 Motor Speed Unit</i>	[Hz]
<i>Parameter 1-51 Min Speed Normal Magnetizing [RPM]</i>	30 RPM
<i>Parameter 1-52 Min Speed Normal magnetising [Hz]</i>	1.0 Hz
<i>Parameter 1-64 Resonance Damping</i>	0
<i>Parameter 1-81 Min Speed for Function at Stop [RPM]</i>	3 RPM
<i>Parameter 1-82 Min Speed for Function at Stop [Hz]</i>	0.1 Hz
<i>Parameter 1-93 Thermistor Resource</i>	Analog input 54
<i>Parameter 2-10 Brake Function</i>	[0] Off
<i>Parameter 2-17 Overvoltage Control</i>	[0] Off
<i>Parameter 3-00 Reference Range</i>	min – max
<i>Parameter 3-01 Reference/Feedback Unit</i>	[1]%
<i>Parameter 3-03 Maximum Reference</i>	50.000
<i>Parameter 3-11 Jog Speed [Hz]</i>	10.0 Hz
<i>Parameter 3-16 Reference Resource 2</i>	[0] No function
<i>Parameter 3-19 Jog Speed [RPM]</i>	300 RPM
<i>Parameter 4-13 Motor Speed High Limit [RPM]</i>	3960 RPM

Parameter	Initialization setting
<i>Parameter 4-14 Motor Speed Low Limit [Hz]</i>	132.0 Hz
<i>Parameter 4-16 Torque Limit Motor Mode</i>	355.6
<i>Parameter 4-17 Torque Limit Generator Mode</i>	355.6
<i>Parameter 4-30 Motor Feedback Loss Function</i>	[0] Disabled
<i>Parameter 4-32 Motor Feedback Loss Timeout</i>	1.00 s
<i>Parameter 4-53 Warning Speed High</i>	3960
<i>Parameter 4-56 Warning Feedback Low</i>	-4000000
<i>Parameter 4-57 Warning Feedback High</i>	4000000
<i>Parameter 5-02 Terminal 29 Mode</i>	[1] Output
<i>Parameter 5-10 Terminal 18 Digital Input</i>	[8] Start
<i>Parameter 5-11 Terminal 19 Digital Input</i>	[10] Reversing
<i>Parameter 5-12 Terminal 27 Digital Input</i>	[3] Coast and reset inv
<i>Parameter 5-14 Terminal 32 Digital Input</i>	[14] Jog
<i>Parameter 5-40.0 Function Relay</i>	[22] Ready, No Thermal Warning
<i>Parameter 5-40.1 Function Relay</i>	[32] Mech Brake Ctrl
<i>Parameter 5-41 On Delay, Relay</i>	[23] Remote, Ready, No TW
<i>Parameter 5-51 Term. 29 High Frequency</i>	5000 Hz
<i>Parameter 5-53 Term. 29 High Ref./Feedb. Value</i>	50.000
<i>Parameter 5-56 Term. 33 High Frequency</i>	25000 Hz
<i>Parameter 5-58 Term. 33 High Ref./Feedb. Value</i>	50.000
<i>Parameter 6-10 Terminal 53 Low Voltage</i>	0.00 V
<i>Parameter 6-15 Term. 53 High Ref./Feedb. Value</i>	50.000
<i>Parameter 6-20 Terminal 54 Low Voltage</i>	0.00 V
<i>Parameter 6-22 Terminal 54 Low Current</i>	0.00 V
<i>Parameter 6-25 Terminal 54 High Ref./Feedb. Value</i>	50.000
<i>Parameter 6-50 Terminal 42 Output</i>	[103] Motor current
<i>Parameter 7-04 Speed PID Differentiation Time</i>	0.0
<i>Parameter 7-08 Speed PID Feed Forward Factor</i>	100
<i>Parameter 7-09 Speed PID Error Correction w/Ramp</i>	100000 (max)
<i>Parameter 7-33 Process PID Proportional Gain</i>	0.01
<i>Parameter 8-54 Reversing Select</i>	[0] Digital input
<i>Parameter 8-90 Bus Jog 1 Speed</i>	300 RPM
<i>Parameter 8-91 Bus Jog 2 Speed</i>	300 RPM
<i>Parameter 14-03 Overmodulation</i>	[0] Off
<i>Parameter 14-11 Mains Voltage at Mains Fault</i>	327

Parameter	Initialization setting
<i>Parameter 14-15 Kin. Back-up Trip Recovery Level</i>	1,000.000
<i>Parameter 14-21 Automatic Restart Time</i>	5 s
<i>Parameter 14-32 Current Lim Ctrl, Filter Time</i>	27
<i>Parameter 30-84 Process PID Proportional Gain</i>	0.010
PROFIBUS-specific parameters	
<i>Parameter 9-71 PROFIBUS Save Data Values</i>	[1] Store All Setups

5 Parameter Mapping Lists

5.1 FCD 300 Parameter Group 0

5.1.1 Conversion of Parameter 001 Language Select

Table 8: Parameter 001

	FCD 300 series	FCD 302 series
Parameter	001 Language Select	0-01 Language
Options	[0] English	[0] English
	[1] Deutsch	[1] Deutsch
	[2] French	[2] French
	[3] Dansk	[3] Dansk
	[4] Spanish	[4] Spanish
	[5] Italian	[5] Italian

5.1.2 Conversion of Parameter 002 Operation Site

Table 9: Parameter 002

	FCD 300 series	FCD 302 series
Parameter	002 Operation Site	Not converted
Options	[0] Remote	–
	[1] Local with External Stop	–
	[2] Local	–

5.1.3 Conversion of Parameter 003 Local Reference

Table 10: Parameter 003

	FCD 300 series	FCD 302 series
Parameter	003 Local Reference	Not converted

5.1.4 Conversion of Parameter 004 Active Set-up

Table 11: Parameter 004

	FCD 300 series	FCD 302 series
Parameter	004 Active Set-up	0-10 Active Set-up

	FCD 300 series	FCD 302 series
Options	<i>[0] Factory Setup</i>	<i>[0] Factory Setup</i>
	<i>[1] Setup 1</i>	<i>[1] Setup 1</i>
	<i>[2] Setup 2</i>	<i>[2] Setup 2</i>
	<i>[3] Setup 3</i>	<i>[3] Setup 3</i>
	<i>[4] Setup 4</i>	<i>[4] Setup 4</i>
	<i>[5] Multi Setup</i>	<i>[9] Multi Setup</i>

5.1.5 Conversion of Parameter 005 Edit Setup

Table 12: Parameter 005

	FCD 300 series	FCD 302 series
Parameter	<i>005 Edit Setup</i>	<i>9-70 Set-up Copy</i>
Options	<i>[0] Factory Set-up</i>	<i>[0] Factory Set-up</i>
	<i>[1] Setup 1</i>	<i>[1] Setup 1</i>
	<i>[2] Setup 2</i>	<i>[2] Setup 2</i>
	<i>[3] Setup 3</i>	<i>[3] Setup 3</i>
	<i>[4] Setup 4</i>	<i>[4] Setup 4</i>
	<i>[5] Active Setup</i>	<i>[9] Active Setup</i>

5.1.6 Conversion of Parameter 006 Setup Copy

Table 13: Parameter 006

	FCD 300 series	FCD 302 series
Parameter	<i>006 Setup Copy</i>	<i>0-51 Set-up Copy</i>
Options	<i>[0] No Copy</i>	<i>[0] No Copy</i>
	<i>[1] Copy to 1 from #</i>	<i>[9] Copy to ALL from #</i>
	<i>[2] Copy to 2 from #</i>	<i>[9] Copy to ALL from #</i>
	<i>[3] Copy to 3 from #</i>	<i>[9] Copy to ALL from #</i>
	<i>[4] Copy to 4 from #</i>	<i>[9] Copy to ALL from #</i>
	<i>[5] Copy to ALL from #</i>	<i>[9] Copy to ALL from #</i>

5.1.7 Conversion of Parameter 007 LCP Copy

Table 14: Parameter 007

	FCD 300 series	FCD 302 series
Parameter	007 LCP Copy	0-50 LCP Copy
Options	[0] No copy	Not converted
	[1] Upload all Param	Not converted
	[2] Download All	Not converted
	[3] Download Size Inde	Not converted

5.1.8 Conversion of Parameter 008 Frequency Scale

Table 15: Parameter 008

	FCD 300 series	FCD 302 series
Parameter	008 Frequency Scale	Not converted

5.1.9 Conversions of Parameters 009 to 012 Display Line

Table 16: Parameters 009 to 012

	FCD 300 series	FCD 302 series
Parameter	009 Display Line	0-23 Display Line 2
	010 Display Line	0-20 Display Line 1.1
	011 Display Line	0-21 Display Line 1.2
	012 Display Line	0-22 Display Line 1.3

	FCD 300 series	FCD 302 series
Options	[0] None	[0] None
	[1] Reference %	[1602] Reference %
	[2] Reference [Unit]	[1601] Reference [Unit]
	[3] Feedback [Unit]	[1652] Feedback [Unit]
	[4] Frequency [Hz]	[1613] Frequency [Hz]
	[5] Frequency x scale	[1609] Custom readout
	[6] Motor Current [A]	[1614] Motor Current [A]
	[7] Torque	[1622] Torque [%]
	[8] Power [kW]	[1610] Power [kW]
	[9] Power [HP]	[1611] Power [HP]
	[10] Output energy [kWh]	[1502] kWh counter [kWh]
	[11] Motor voltage [V]	[1612] Motor voltage [V]
	[12] DC link voltage [V]	[1630] DC link voltage [V]
	[13] Thermal load, motor [%]	[1618] Thermal load, motor [%]
	[14] Thermal load, VLT® [%]	[1635] Inverter thermal [%]
	[15] Running hours [hours]	[1501] Running hours [hours]
	[16] Digital input	[1660] Digital input
	[17] Analog input 53 [V]	[1662] Analog input 53 [V]
	[19] Analog input 60 [mA]	[1662] Analog input 53 [mA]
	[20] Pulse reference [Hz]	[1651] Pulse reference [Hz]
	[21] Ext. reference [%]	[1650] Ext. reference [%]
	[22] Status word [hex]	[1603] Status word [hex]
	[24] Brake effect/sec [kW]	[1632] Brake effect/sec [kW]
	[25] Heat sink temp.	[1634] Heat sink temp.
	[26] Alarm word [hex]	–
	[27] Control word [hex]	[1600] Control word [hex]
	[28] Warning word 1 [hex]	–
	[29] Warning word 2 [hex]	–
	[30] Com. Option warning [hex]	[953] Com. Option warning [hex]
	[31] RPM [min]	[1617] Speed RPM [min]
	[32] RPM x scaling [min]	[1609] Custom readout

5.1.10 Conversion of Parameter 013 Local Ctrl./config

Table 17: Parameter 013

	FCD 300 series	FCD 302 series
Parameter	013 Local Ctrl./config	Not converted

5.1.11 Conversion of Parameter 014 Local Stop Key

Table 18: Parameter 014

	FCD 300 series	FCD 302 series
Parameter	014 Local Stop Key	0-41 [Off] Key on LCP
Options	[0] Disable	[0] Disable
	[1] Enable	[1] Enable
	–	[2] Password

5.1.12 Conversion of Parameter 015 Local Jogging

Table 19: Parameter 015

	FCD 300 series	FCD 302 series
Parameter	015 Local Jogging	Not converted
Options	[0] Disable	–
	[1] Enable	–

5.1.13 Conversion of Parameter 016 Local Reversing

Table 20: Parameter 016

	FCD 300 series	FCD 302 series
Parameter	016 Local Reversing	Not converted
Options	[0] Disable	–
	[1] Enable	–

5.1.14 Conversion of Parameter 017 Local Reset of Trip

Table 21: Parameter 017

	FCD 300 series	FCD 302 series
Parameter	017 Local Reset of Trip	0-43 [Reset] Key on LCP

	FCD 300 series	FCD 302 series
Options	[0] Not Active	[1] Disable
	[1] Active	[1] Enable
	–	[2] Password

5.1.15 Conversion of Parameter 018 Lock for Data Change

Table 22: Parameter 018

	FCD 300 series	FCD 302 series
Parameter	018 Lock for Data Change	0-61 Access to Main Menu w/o Password
Options	[0] Not Locked	[0] Full Access
	[1] Lock	[1] LCP: Read Only

5.1.16 Conversion of Parameter 019 Operating Mode at Power-up

Table 23: Parameter 019

	FCD 300 series	FCD 302 series
Parameter	019 Operating Mode at Power-up	0-04 Operating State at Power-up (Hand)
	[0] Auto Restart, Use Saved Ref.	[0] Resume
	[1] Forced Stop, Use Saved Ref.	[1] Forced Stop, Use Saved Ref.
	[2] Forced Stop, Set Ref = 0	[2] Forced Stop, Set Ref = 0

5.1.17 Conversion of Parameter 020 Hand Operation

Table 24: Parameter 020

	FCD 300 series	FCD 302 series
Parameter	020 Hand Operation	Not converted

5.1.18 Conversion of Parameter 024 User Quick Menu

Table 25: Parameter 024

	FCD 300 series	FCD 302 series
Parameter	024 User Quick Menu	Not converted

5.1.19 Conversion of Parameter 025 Quick Menu Setup

Table 26: Parameter 025

	FCD 300 series	FCD 302 series
Parameter	025 Quick Menu Setup	Not converted

5.1.20 Conversion of Parameter 026 LED Status

Table 27: Parameter 026

	FCD 300 series	FCD 302 series
Parameter	026 LED Status	Not converted

5.2 FCD 300 Parameter Group 1

5.2.1 Conversion of Parameter 100 Configuration

Table 28: Parameter 100

	FCD 300 series	FCD 302 series
Parameter	100 Configuration	1-00 Configuration Mode 1-01 Motor Control Principle
Options	[0] Speed Control, Open Loop	Parameter 1-00: [0] Speed Open Loop Parameter 1-01: [1] VVC ⁺
	[1] Speed Control, Closed Loop	Parameter 1-00: [1] Speed Closed Loop Parameter 1-01: [1] VVC ⁺
	[3] Process Control, Closed Loop	Parameter 1-00: [3] Process Parameter 1-01: [1] VVC ⁺

5.2.2 Conversion of Parameter 101 Torque Characteristic

Table 29: Parameter 101

	FCD 300 series	FCD 302 series
Parameter	101 Torque Characteristic	1-03 Torque Characteristics Overload Mode VT Level

	FCD 300 series	FCD 302 series
	[1] High Constant	Parameter 1-03: [0] Constant Torque Parameter 1-04: [0] High
	[2] High Variable Torque Low	Parameter 1-03: [1] Variable Torque Parameter 14-40: 45% Parameter 1-04: [0] High
	[3] High Variable Torque Medium	Parameter 1-03: [1] Variable Torque Parameter 14-40: 66% Parameter 1-04: [0] High
	[4] High Variable Torque High	Parameter 1-03: [1] Variable Torque Parameter 14-40: 85% Parameter 1-04: [0] High
	[5] High Special Motor Characteristic	Parameter 1-01: [0] U/f Parameter 1-04: [0] High
	[6] High Variable Torque with Low Starting Torque	Parameter 1-03: [1] Variable Torque Parameter 14-40: 45% Parameter 1-04: [0] High
	[7] Variable Torque with CT Start	Parameter 1-01: [1] Variable Torque Parameter 14-40: 85% Parameter 1-04: [0] High
	[8] Special Motor Mode	Parameter 1-01: [1] U/f Parameter 1-04: [0] High

5.2.3 Conversion of Parameter 102 Motor Power

Table 30: Parameter 102

	FCD 300 series	FCD 302 series
Parameter	102 Motor Power	1-20 Motor Power [kW]
Range	0.18–4.0 kW	0.09–5.5 kW

5.2.4 Conversion of Parameter 103 Motor Voltage

Table 31: Parameter 103

	FCD 300 series	FCD 302 series
Parameter	<i>103 Motor Voltage</i>	<i>1-22 Motor Voltage</i>
Range	55–999 V	50–1000 V

5.2.5 Conversion of Parameter 104 Motor Frequency

Table 32: Parameter 104

	FCD 300 series	FCD 302 series
Parameter	<i>104 Motor Frequency</i>	<i>1-23 Motor Frequency</i>
Range	24–1000 Hz	20–1000 Hz

5.2.6 Conversion of Parameter 105 Motor Current

Table 33: Parameter 105

	FCD 300 series	FCD 302 series
Parameter	<i>105 Motor Current</i>	<i>1-24 Motor Current</i>
Range	Depending on power size	Depending on power size

5.2.7 Conversion of Parameter 106 Rated Motor Speed

Table 34: Parameter 106

	FCD 300 series	FCD 302 series
Parameter	<i>106 Rated Motor Speed</i>	<i>1-25 Motor Nominal Speed</i>
Range	100–60000	10–60000

5.2.8 Conversion of Parameter 107 Automatic Motor Tuning (AMT)

Table 35: Parameter 107

	FCD 300 series	FCD 302 series
Parameter	<i>107 Automatic Motor Tuning (AMT)</i>	<i>1-29 Automatic Motor Adaptation (AMA)</i>
Options	<i>[0] Adaptation Off</i>	<i>[0] Off</i>
	<i>[1] Adaptation On, Rs and Xs</i>	<i>[1] Enable Complete AMA</i>
	<i>[2] Adaptation On, Rs</i>	<i>[2] Enable Reduced AMA</i>

5.2.9 Conversion of Parameter 108 Stator Resistor

Table 36: Parameter 108

	FCD 300 series	FCD 302 series
Parameter	108 Stator Resistor	1-30 Stator Resistance (Rs)
Range	Depending on power unit	Depending on power unit

5.2.10 Conversion of Parameter 109 Stator Reactance

Table 37: Parameter 109

	FCD 300 series	FCD 302 series
Parameter	109 Stator Reactance	1-35 Main Reactance (Xh)
Range	Depending on power unit	1.0000–10000.0000

5.2.11 Conversion of Parameter 117 Resonance Dampening

Table 38: Parameter 117

	FCD 300 series	FCD 302 series
Parameter	117 Resonance Dampening	1-64 Resonance Dampening
Range	0–500%	0–500%

5.2.12 Conversion of Parameter 119 High Starting Torque

Table 39: Parameter 119

	FCD 300 series	FCD 302 series
Parameter	119 High Starting Torque	Not converted

5.2.13 Conversion of Parameter 120 Start Delay

Table 40: Parameter 120

	FCD 300 series	FCD 302 series
Parameter	120 Start Delay	1-71 Start Delay
Range	0.0–10.0 s	0.0–10.0 s

5.2.14 Conversion of Parameter 121 Start Function

Table 41: Parameter 121

	FCD 300 series	FCD 302 series
Parameter	<i>121 Start Function</i>	<i>1-72 Start Function</i>
Options	<i>[0] DC Hold in Start Delay Time</i>	<i>[0] DC Hold/Delay Time</i>
	<i>[1] DC Brake in Start Delay Time</i>	<i>[1] DC Brake/Delay Time</i>
	<i>[2] Coasting in Start Delay Time</i>	<i>[2] Coast/Delay Time</i>
	<i>[3] Start Frequency/Voltage Clockwise</i>	<i>[3] Start Speed CW</i>
	<i>[4] Start Frequency/Voltage in Reference Direction</i>	<i>[4] Horizontal Operation</i>

5.2.15 Conversion of Parameter 122 Function at Stop

Table 42: Parameter 122

	FCD 300 series	FCD 302 series
Parameter	<i>122 Function at Stop</i>	<i>1-80 Function at Stop</i>
Options	<i>[0] Coasting</i>	<i>[0] Coast</i>
	<i>[1] DC Hold</i>	<i>[1] DC Hold</i>
	–	<i>[2] Motor Check</i>
	–	<i>[3] Pre-magnetizing</i>

5.2.16 Conversion of Parameter 123 Min Frequency for Function at Stop

Table 43: Parameter 123

	FCD 300 series	FCD 302 series
Parameter	<i>123 Min Frequency for Function at Stop</i>	<i>1-82 Min Speed for Function at Stop [Hz]</i>
Range	0.0–10.0 Hz	0.0–20.0 Hz

5.2.17 Conversion of Parameter 126 DC Braking Time

Table 44: Parameter 126

	FCD 300 series	FCD 302 series
Parameter	<i>126 DC Braking Time</i>	<i>2-02 DC Braking Time</i>
Range	0.0–60.0 s	0.0–60.0 s

5.2.18 Conversion of Parameter 127 DC Brake Cut-in Frequency

Table 45: Parameter 127

	FCD 300 series	FCD 302 series
Parameter	<i>127 DC Brake Cut-in Frequency</i>	<i>2-04 DC Brake Cut-in Speed [Hz]</i>
Range	0.0 (Off) to f_{\max} (parameter 202)	0.0 (Off) to f_{\max} (parameter 4-14)

5.2.19 Conversion of Parameter 128 Motor Thermal Protection

Table 46: Parameter 128

	FCD 300 series	FCD 302 series
Parameter	<i>128 Motor Thermal Protection</i>	<i>1-90 Motor Thermal Protection</i>
Options	<i>[0] No Protection</i>	<i>[0] No Protection</i>
	<i>[1] Thermistor Warning</i>	<i>[1] Thermistor Warning</i>
	<i>[2] Thermistor Trip</i>	<i>[2] Thermistor Trip</i>
	<i>[3] ETR Warning 1</i>	<i>[3] ETR Warning 1</i>
	<i>[4] ETR Trip 1</i>	<i>[4] ETR Trip 1</i>
	<i>[5] ETR Warning 2</i>	<i>[5] ETR Warning 2</i>
	<i>[6] ETR Trip 2</i>	<i>[6] ETR Trip 2</i>
	<i>[7] ETR Warning 3</i>	<i>[7] ETR Warning 3</i>
	<i>[8] ETR Trip 3</i>	<i>[8] ETR Trip 3</i>
	<i>[9] ETR Warning 4</i>	<i>[9] ETR Warning 4</i>
	<i>[10] ETR Trip 4</i>	<i>[10] ETR Trip 4</i>

5.2.20 Conversion of Parameter 130 Start Frequency

Table 47: Parameter 130

	FCD 300 series	FCD 302 series
Parameter	<i>130 Start Frequency</i>	<i>1-75 Start Speed [Hz]</i>
Range	0.0–10.0 Hz	0.0–500 Hz, depending on unit

5.2.21 Conversion of Parameter 131 Initial Voltage

Table 48: Parameter 131

	FCD 300 series	FCD 302 series
Parameter	<i>131 Initial Voltage</i>	Not converted.

5.2.22 Conversion of Parameter 132 DC Brake Voltage

Table 49: Parameter 132

	FCD 300 parameter	FCD 302 parameter
Parameter	<i>132 DC Brake Voltage</i>	Not converted

5.2.23 Conversion of Parameter 133 Start Voltage

Table 50: Parameter 133

	FCD 300 series	FCD 302 series
Parameter	<i>133 Start Voltage</i>	Not converted

5.2.24 Conversion of Parameter 134 Load Compensation

Table 51: Parameter 134

	FCD 300 series	FCD 302 series
Parameter	<i>134 Load Compensation</i>	Not converted

5.2.25 Conversion of Parameter 135 U/f-Ratio

Table 52: Parameter 135

	FCD 300 series	FCD 302 series
Parameter	<i>135 U/f-ratio</i>	Not converted

5.2.26 Conversion of Parameter 136 Slip Compensation

Table 53: Parameter 136

	FCD 300 series	FCD 302 series
Parameter	<i>136 Slip Compensation</i>	<i>1-62 Slip Compensation</i>
Range	-500 to +500%	-500 to +500%

5.2.27 Conversion of Parameter 137 DC Hold Voltage

Table 54: Parameter 137

	FCD 300 series	FCD 302 series
Parameter	<i>137 DC Hold Voltage</i>	<i>2-00 DC Hold Current</i>
Range	0–100%	0–160%

5.2.28 Conversion of Parameter 138 Brake Cut Out Value

Table 55: Parameter 138

	FCD 300 series	FCD 302 series
Parameter	138 Brake Cut Out Value	Not converted

5.2.29 Conversion of Parameter 139 Brake Cut In Frequency

Table 56: Parameter 139

	FCD 300 series	FCD 302 series
Parameter	139 Brake Cut In Frequency	2-04 Brake Cut In Speed [Hz]
Range	0.5–132/1000 Hz	0 to parameter 4-14

5.2.30 Conversion of Parameter 140 Current, Minimum Value

Table 57: Parameter 140

	FCD 300 series	FCD 302 series
Parameter	140 Current, Minimum Value	2-20 Release Brake Current
Range	0–100%	0 to parameter 16-37

5.2.31 Conversion of Parameter 142 Leakage Reactance XL

Table 58: Parameter 142

	FCD 300 series	FCD 302 series
Parameter	142 Leakage Reactance XL	1-33 Stator Leakage Reactance 1-34 Rotor Leakage Reactance
Range	0.000–xxx.xxx Ω	0.04–400.00 Ω

5.2.32 Conversion of Parameter 144 Gain AC Brake

Table 59: Parameter 144

	FCD 300 series	FCD 302 series
Parameter	144 Gain AC Brake	2-16 AC Brake Max. Current
Range	1.00–1.50	

5.2.33 Conversion of Parameter 146 Reset Voltage Vector

Table 60: Parameter 146

	FCD 300 series	FCD 302 series
Parameter	146 Reset Voltage Vector	Not converted

5.2.34 Conversion of Parameter 147 Motor Type

Table 61: Parameter 147

	FCD 300 series	FCD 302 series
Parameter	147 Motor Type	Not converted

5.3 FCD 300 Parameter Group 2

5.3.1 Conversion of Parameter 200 Output Frequency Range/Direction

Table 62: Parameter 200

	FCD 300 series	FCD 302 series
Parameter	200 Output Frequency Range/Direction	4-10 Motor Speed Direction
Options	[0] Only Clockwise, 0–132 Hz	[0] Clockwise
	[1] Both Directions, 0–132 Hz	[2] Both Direction
	[2] Only Clockwise, 0–1000 Hz	[0] Clockwise
	[4] Only Counterclockwise, 0–132 Hz	[1] Counterclockwise
	[5] Only Counterclockwise, 0–1000 Hz	[1] Counterclockwise

5.3.2 Conversion of Parameter 201 Output Frequency Low Limit

Table 63: Parameter 201

	FCD 300 series	FCD 302 series
Parameter	201 Output Frequency Low Limit	4-12 Motor Speed Low Limit [Hz]
Range	0.0 to parameter 202, f_{max}	0 to parameter 4-14, f_{max} [Hz]

5.3.3 Conversion of Parameter 202 Output Frequency High Limit

Table 64: Parameter 202

	FCD 300 series	FCD 302 series
Parameter	202 Output Frequency High Limit	4-14 Motor Speed High Limit [Hz] 4-19 Max Output Frequency
Range	0.0–132/1000 Hz	0–1000 Hz

5.3.4 Conversion of Parameter 203 Reference/Feedback Area

Table 65: Parameter 203

	FCD 300 series	FCD 302 series
Parameter	203 Reference/Feedback Area	3-00 Reference Range
Options	[0] Min–Max	[0] Min–Max
	[1] -Max to +Max	[1] -Max to +Max

5.3.5 Conversion of Parameter 204 Minimum Reference

Table 66: Parameter 204

	FCD 300 series	FCD 302 series
Parameter	204 Minimum Reference	3-02 Minimum Reference
Range	-100,000.000 to parameter 205, Ref _{max}	-100,000.000 to parameter 3-03, Ref _{max}

5.3.6 Conversion of Parameter 205 Maximum Reference

Table 67: Parameter 205

	FCD 300 series	FCD 302 series
Parameter	205 Maximum Reference	3-03 Maximum Reference 6-15 Terminal 53 High Ref./Feedb. Value 6-25 Terminal 54 High Ref./Feedb. Value 5-53 Term. 29 High Ref./Feedb. Value 5-58 Term. 33 High Ref./Feedb. Value
Range	Parameter 204, Ref _{min} to 100,000.000	Parameter 3-02 Ref _{min} to 100,000.000

5.3.7 Conversion of Parameter 206 Ramp Type

Table 68: Parameter 206

	FCD 300 series	FCD 302 series
Parameter	206 Ramp Type	3-40 Ramp 1 Type 3-50 Ramp 2 Type 3-82 Quick Stop Ramp Type
Options	[0] Linear	Parameter 3-40: [0] Linear Parameter 3-50: [0] Linear Parameter 3-82: [0] Linear
	[1] Sine Shape (S1)	Parameter 3-40: [2] S-ramp Const Time Parameter 3-45: 1% Parameter 3-46: 25% Parameter 3-47: 1% Parameter 3-48: 25% Parameter 3-50: [2] S-ramp Const Time Parameter 3-55: 1% Parameter 3-56: 25% Parameter 3-57: 1% Parameter 3-58: 25% Parameter 3-82: [2] S-ramp Const Time Parameter 3-83: 1% Parameter 3-84: 25%

	FCD 300 series	FCD 302 series
Options	[2] Sin2 Shape (S2)	<p>Parameter 3-40: [2] S-ramp Constant Time</p> <p>Parameter 3-45: 25%</p> <p>Parameter 3-46: 25%</p> <p>Parameter 3-47: 25%</p> <p>Parameter 3-48: 25%</p> <p>Parameter 50: [2] S-ramp Const Time</p> <p>Parameter 3-55: 25%</p> <p>Parameter 3-56: 25%</p> <p>Parameter 3-57: 25%</p> <p>Parameter 3-58: 25%</p> <p>Parameter 3-82: [2] S-ramp Const Time</p> <p>Parameter 3-83: 25%</p> <p>Parameter 3-84: 25%</p>
	[3] Sin3 Shape (S3)	<p>Parameter 3-40: [2] S-ramp Const Time</p> <p>Parameter 3-45: 50%</p> <p>Parameter 3-46: 50%</p> <p>Parameter 3-48: 50%</p> <p>Parameter 3-50: [2] S-ramp Const Time</p> <p>Parameter 3-55: 50%</p> <p>Parameter 3-56: 50%</p> <p>Parameter 3-57: 50%</p> <p>Parameter 3-58: 50%</p> <p>Parameter 3-82: [2] S-ramp Const Time</p> <p>Parameter 3-83: 50%</p> <p>Parameter 3-84: 50%</p>

	FCD 300 series	FCD 302 series
Options	[4] Sin2 Filter	Parameter 3-40: [2] S-ramp Const Time Parameter 3-45: 25% Parameter 3-46: 25% Parameter 3-47: 25% Parameter 3-48: 25% Parameter 3-50: [2] S-ramp Const Time Parameter 3-55: 25% Parameter 3-56: 25% Parameter 3-57: 25% Parameter 3-58: 25% Parameter 3-82: [2] S-ramp Const Time Parameter 3-83: 25% Parameter 3-84: 25%

5.3.8 Conversion of Parameter 207 Ramp Up Time 1

Table 69: Parameter 207

	FCD 300 series	FCD 302 series
Parameter	207 Ramp Up Time 1	3-41 Ramp 1 Ramp Up Time
Range	0.05–3600.00 s	0.01–3600.00 s

5.3.9 Conversion of Parameter 208 Ramp Down Time 1

Table 70: Parameter 208

	FCD 300 series	FCD 302 series
Parameter	208 Ramp Down Time 1	3-42 Ramp 1 Ramp Down Time
Range	0.05–3600.00 s	0.01–3600.00 s

5.3.10 Conversion of Parameter 209 Ramp Up Time 2

Table 71: Parameter 209

	FCD 300 series	FCD 302 series
Parameter	<i>209 Ramp Up Time 2</i>	<i>3-51 Ramp 2 Ramp Up Time</i>
Range	0.05–3600.00 s	0.01–3600.00 s

5.3.11 Conversion of Parameter 210 Ramp Down Time 2

Table 72: Parameter 210

	FCD 300 series	FCD 302 series
Parameter	<i>210 Ramp Down Time 2</i>	<i>3-52 Ramp 2 Ramp Down Time</i>
Range	0.05–3600.00 s	0.01–3600.00 s

5.3.12 Conversion of Parameter 211 Jog Ramp Time

Table 73: Parameter 211

	FCD 300 series	FCD 302 series
Parameter	<i>211 Jog Ramp Time</i>	<i>3-80 Jog Ramp Time</i>
Range	0.05–3600.00 s	0.01–3600.00 s

5.3.13 Conversion of Parameter 212 Quick Stop Ramp Time

Table 74: Parameter 212

	FCD 300 series	FCD 302 series
Parameter	<i>212 Quick Stop Ramp Time</i>	<i>3-81 Quick Stop Ramp Time</i>
Range	0.05–3600.00 s	0.01–3600.00 s

5.3.14 Conversion of Parameter 213 Jog Frequency

Table 75: Parameter 213

	FCD 300 series	FCD 302 series
Parameter	<i>213 Jog Frequency</i>	<i>3-11 Jog Speed [Hz]</i>
Range	0.0 to <i>parameter 202</i>	0.0 to <i>parameter 4-14</i>

5.3.15 Conversion of Parameter 214 Reference Function

Table 76: Parameter 214

	FCD 300 series	FCD 302 series
Parameter	<i>214 Reference Function</i>	<i>3-04 Reference Function</i>
Option	<i>[0] Sum</i>	<i>[0] Sum</i>
	<i>[1] Relative</i>	<i>(1)</i>
	<i>[2] External/Preset</i>	<i>[2] External/Preset</i>

¹ *Relative reference is added to MRV from PROFIBUS.*

5.3.16 Conversion of Parameter 215 Preset Reference 1

Table 77: Parameter 215

	FCD 300 series	FCD 302 series
Parameter	<i>Parameter 215 Preset Reference 1</i>	<i>3-10 Preset Reference</i>
Range	<i>-100.00 to +100.00%</i>	<i>-100.00 to +100.00%</i>

5.3.17 Conversion of Parameter 216 Preset Reference 2

Table 78: Parameter 216

	FCD 300 series	FCD 302 series
Parameter	<i>216 Preset Reference 2</i>	<i>3-10 Preset Reference</i>
Range	<i>-100.00 to +100.00%</i>	<i>-100.00 to +100.00%</i>

5.3.18 Conversion of Parameter 217 Preset Reference 3

Table 79: Parameter 217

	FCD 300 series	FCD 302 series
Parameter	<i>217 Preset Reference 3</i>	<i>3-10 Preset Reference</i>
Range	<i>-100.00 to +100.00%</i>	<i>-100.00 to +100.00%</i>

5.3.19 Conversion of Parameter 218 Preset Reference 4

Table 80: Parameter 218

	FCD 300 series	FCD 302 series
Parameter	<i>218 Preset Reference 4</i>	<i>3-10 Preset Reference</i>
Range	<i>-100.00 to +100.00%</i>	<i>-100.00 to +100.00%</i>

5.3.20 Conversion of Parameter 219 Catch Up/Slow Down Value

Table 81: Parameter 219

	FCD 300 series	FCD 302 series
Parameter	<i>219 Catch Up/Slow Down Value</i>	<i>3-12 Catch Up/Slow Down Value</i>
Range	0.00–100%	0.00–100%

5.3.21 Conversion of Parameter 221 Torque Limit for Motor Mode

Table 82: Parameter 221

	FCD 300 series	FCD 302 series
Parameter	<i>221 Current Limit</i>	<i>4-18 Current Limit</i>
Range	0.0 to maximum torque %	0.0 to maximum torque %

5.3.22 Conversion of Parameter 223 Warning: Current Low

Table 83: Parameter 223

	FCD 300 series	FC 302 series
Parameter	<i>223 Warning: Current Low</i>	<i>4-50 Warning Current Low</i> <i>2-20 Release Brake Current</i>
Range	0.0 to <i>parameter 224 Warning: Current High</i>	0.00 to <i>parameter 4-51 Warning Current High</i>

5.3.23 Conversion of Parameter 224 Warning: Current High

Table 84: Parameter 224

	FCD 300 series	FCD 302 series
Parameter	<i>224 Warning: Current High</i>	<i>4-51 Warning Current High</i>
Range	Depending on power unit	Depending on power unit

5.3.24 Conversion of Parameter 225 Warning Low Frequency

Table 85: Parameter 225

	FCD 300 series	FCD 302 series
Parameter	<i>225 Warning Low Frequency</i>	<i>4-52 Warning Speed Low</i> <i>2-22 Activate Brake Speed [Hz]</i>
Range	0.0 to <i>parameter 226</i>	0.0 to <i>parameter 4-53</i>

5.3.25 Conversion of Parameter 226 Warning High Frequency

Table 86: Parameter 226

	FCD 300 series	FCD 302 series
Parameter	<i>226 Warning High Frequency</i>	<i>4-53 Warning Speed High</i>
Range	<i>Parameter 225 to parameter 202</i>	<i>Parameter 4-52 to parameter 4-13</i>

5.3.26 Conversion of Parameter 227 Warning Low Feedback

Table 87: Parameter 227

	FCD 300 series	FCD 302 series
Parameter	<i>227 Warning Low Feedback</i>	<i>4-56 Warning Feedback Low</i>
Range	<i>-100000.000 to parameter 228</i>	<i>-999999.999 to parameter 4-57</i>

5.3.27 Conversion of Parameter 228 Warning High Feedback

Table 88: Parameter 228

	FCD 300 series	FCD 302 series
Parameter	<i>228 Warning High Feedback</i>	<i>4-57 Warning Feedback High</i>
Range	<i>Parameter 227 to 1000000.000</i>	<i>Parameter 4-57 to 999999.999</i>

5.3.28 Conversion of Parameter 229 Frequency Bypass, Bandwidth

Table 89: Parameter 229

	FCD 300 series	FCD 302 series
Parameter	<i>229 Frequency Bypass, Bandwidth</i>	Stored in EEPROM only
Range	0–100%	–

5.3.29 Conversion of Parameter 230 Frequency Bypass 1

Table 90: Parameter 230

	FCD 300 series	FCD 302 series
Parameter	<i>230 Frequency Bypass 1</i>	<i>4-61 Bypass Speed From [Hz]</i> <i>4-63 Bypass Speed To [Hz]</i>
Range	0 to <i>parameter 200</i>	0 to <i>parameter 4-14</i>

5.3.30 Conversion of Parameter 231 Frequency Bypass 2

Table 91: Parameter 231

	FCD 300 series	FCD 302 series
Parameter	231 Frequency Bypass 2	4-61 Bypass Speed From [Hz] 4-63 Bypass Speed To [Hz]
Range	0 to parameter 200	0 to parameter 4-14

5.4 FCD 300 Parameter Group 3

5.4.1 Conversion of Parameters 302 to 307 Terminal Input 18 to 33

Table 92: Parameters 302 to 307

	FCD 300 series	FCD 302 series
Parameter	302 Terminal 18 Input	5-10 Terminal 18 Input
	303 Terminal 19 Input	5-11 Terminal 19 Input
	304 Terminal 27 Input	5-12 Terminal 27 Input
	305 Terminal 29 Input	5-13 Terminal 29 Input
	307 Terminal 33 Input	5-15 Terminal 33 Input

	FCD 300 series	FCD 302 series
Options	[0] No Function	[0] No Operation
	[1] Reset	[1] Reset
	[2] Stop Inverse	[6] Stop Inverse
	[3] Only Start Clockwise, On	[12] Enable Start Forward
	[4] Only Start Counterclockwise, On	[13] Enable Start Reverse
	[5] Jog	[14] Jog
	[6] Preset Reference, On	[15] Preset Reference, On
	[7] Preset Reference, LSB	[16] Preset Reference Bit 0
	[8] Preset Reference, MSB	[17] Preset Reference Bit 1
	[9] Freeze Reference	[19] Freeze Reference
	[10] Freeze Output	[20] Freeze Output
	[11] Speed Up	[21] Speed Up
	[12] Speed Down	[22] Speed Down
	[13] Choice of Setup, LSB	[23] Setup Select Bit 0
	[14] Choice of Setup, MSB	[24] Setup Select Bit 1
	[15] Catch Up	[28] Catch Up
	[16] Slow Down	[29] Slow Down
	[17] Ramp 2	[34] Ramp Bit 0
	[18] Mains Failure Inverted	Not supported
[28] Pulse Reference	[32] Pulse Input	
[29] Data Change Lock	Not supported	

5.4.2 Conversion of Parameter 308 Terminal 53, Analog Input Voltage

Table 93: Parameter 308

	FCD 300 series	FCD 302 series
Parameter	Terminal 53, Analog Input Voltage	3-15 Reference Resource 1 7-00 Speed PID Feedback Source 1-93 Thermistor Resource 4-20 Torque Limit Factor Source
Options	[0] No Operation	Parameter 3-15 Reference Resource 1 set to [0] No Function
	[1] Reference	Parameter 3-15 Reference Resource 1 set to [1] Analog Input 53
	[2] Feedback	Parameter 3-15 Reference Resource 1 set to [1] Analog Input 53 Parameter 7-00 Speed PID Feedback Source set to [6] Analog Input 53.

5.4.3 Conversion of Parameter 309 Terminal 53, Min. Scaling

Table 94: Parameter 309

	FCD 300 series	FCD 302 series
Parameter	309 Terminal 53, Min. Scaling	6-10 Terminal 53 Low Voltage
Range	0–10.0 V	-10.00 to parameter 6-11

5.4.4 Conversion of Parameter 310 Terminal 53, Max Scaling

Table 95: Parameter 310

	FCD 300 series	FCD 302 series
Parameter	310 Terminal 53, Max Scaling	6-11 Terminal 53 High Voltage
Range	0–10.0 V	Parameter 6-10 to 10.00 V

5.4.5 Conversion of Parameter 314 Terminal 60, Analog Input Current

Table 96: Parameter 314

	FCD 300 series	FCD 302 series ⁽¹⁾
Parameter	314 Terminal 60, Analog Input Current	3-17 Reference Resource 3 7-00 Speed PID Feedback Source 1-93 Thermistor Resource 4-20 Torque Limit Factor Source
Options	[0] No Operation	Parameter 3-17 Reference Resource 3 set to [0] No Function
	[1] Reference	Parameter 3-17 Reference Resource 3 set to [2] Analog Input 54 Parameter 7-00 Speed PID Source set to [7] Analog Input 54
	[2] Feedback Signal	Parameter 7-00 Speed PID Feedback Source set to [7] Analog Input 54
	[3] Torque Limit	Parameter 3-17 Reference Resource 3 set to [2] Analog Input 54 Parameter 4-20 Torque Limit Factor Source set to [6] Analog Input 54
	[10] Wobble	Not supported

¹ The HW switch S202 for analog input 54 must be set to current (ON).

5.4.6 Conversion of Parameter 315 Terminal 60, Min. Scaling

Table 97: Parameter 315

	FCD 300 series	FCD 302 series
Parameter	315 Terminal 60, Min. Scaling	6-22 Terminal 54 Low Current

	FCD 300 series	FCD 302 series
Range	0.0–20.0 mA	0.00 to <i>parameter 6-23</i>

5.4.7 Conversion of Parameter 316 Terminal 60, Max. Scaling

Table 98: Parameter 316

	FCD 300 series	FCD 302 series
Parameter	<i>316 Terminal 60, Max. Scaling</i>	<i>6-23 Terminal 54 High Current</i>
Range	0.0–20.0 mA	<i>Parameter 6-23 to 20.00 mA</i>

5.4.8 Conversion of Parameter 317 Time Out

Table 99: Parameter 317

	FCD 300 series	FCD 302 series
Parameter	<i>317 Time Out</i>	<i>6-00 Live Zero Timeout Time</i>
Range	0–99 s	0–99 s

5.4.9 Conversion of Parameter 318 Function After Time Out

Table 100: Parameter 318

	FCD 300 series	FCD 302 series
Parameter	<i>318 Function After Time Out</i>	<i>6-01 Live Zero Timeout Function</i>
Options	<i>[0] Off</i>	<i>[0] Off</i>
	<i>[1] Freeze Output Frequency</i>	<i>[1] Freeze Output Frequency</i>
	<i>[2] Stop</i>	<i>[2] Stop</i>
	<i>[3] Jogging</i>	<i>[3] Jog</i>
	<i>[4] Max Speed</i>	<i>[4] Max Speed</i>
	<i>[5] Stop and Trip</i>	<i>[5] Stop and Trip</i>

5.4.10 Conversion of Parameter 319 Terminal 42, Output

Table 101: Parameter 319

	FCD 300 series	FCD 302 series
Parameter	<i>319 Terminal 42, Output</i>	<i>650 Terminal 42 Output</i>

	FCD 300 series	FCD 302 series
Options	[0] No Function	[0] No Function
	[1] Ref min-max = 0–20 mA	[101] Reference
	[2] Ref min-max = 4–20 mA	[131] Ref. 4–20 mA
	[3] FB min-max = 0–20 mA	[102] Feedback
	[4] FB min-max = 4–20 mA	[132] Feedback 4–20 mA
	[5] 0–fmax = 0–20 mA	[100] Output Frequency
	[6] 0–fmax = 4–20 mA	[130] Output Freq. 4–20 mA
	[7] 0–imax = 0–20 mA	[103] Motor Current
	[8] 0–imax = 4–20 mA	[133] Motor Current 4–20 mA
	[9] 0–Pnom = 0–20 mA	[106] Power
	[10] 0–Pnom = 4–20 mA	[136] Power 4–20 mA
	[11] Temp 20–100 C = 0–20 mA	Not supported
[12] Temp 20–100 C = 4–20 mA	Not supported	

5.4.11 Conversion of Parameter 323 Relay Output

Table 102: Parameter 323

	FCD 300 series	FCD 302 series
Parameter	323 Relay Function	5-40 Function Relay (Index 0)
	01 Relay	Relay 1
Options	[0] No Function	Parameter 5-40 = [0] No Operation
	[1] Control Ready	Parameter 5-40 = [1] Control Ready
	[2] Ready Signal	Parameter 5-40 = [2] Drive Ready
	[3] Ready - Remote Control	Parameter 5-40 = [3] Drive Rdy/Rem Ctrl
	[4] Enabled, No Warning	Parameter 5-40 = [4] Enable/No Warning
	[5] Running	Parameter 5-40 = [5] VLT Running
	[6] Running, No Warning	Parameter 5-40 = [6] Running/No Warning
	[7] Running Within Range, No Warning	Parameter 5-40 = [7] Run In Range/No Warn
	[8] Run At Reference, No Warning	Parameter 5-40 = [8] Run On Ref/No Warn
	[9] Alarm	Parameter 5-40 = [9] Alarm
[10] Alarm Or Warning	Parameter 5-40 = [10] Alarm Or Warning	

	FCD 300 series	FCD 302 series
Options	[11] Torque Limit	Parameter 5-40 = [11] At Torque Limit
	[12] Out Of Current Range	Parameter 5-40 = [12] Out Of Current Range
	[13] Above I_{low}	Parameter 5-40 = [13] Below Current, Low
	[14] Under I_{high}	Parameter 5-40 = [14] Above Current, High
	[15] Out Of Frequency Range	Parameter 5-40 = [15] Out Of Speed Range
	[16] Over f_{low}	Parameter 5-40 = [16] Below Speed Low
	[17] Under f_{high}	Parameter 5-40 = [17] Above Speed High
	[18] Out Of Feedback Range	Parameter 5-40 = [18] Out Of Feedb. Range
	[19] Over Feedback Low	Parameter 5-40 = [19] Below Feedback Low
	[20] Under Feedback Low	Parameter 5-40 = [20] Above Feedback High
	[21] Thermal Warning	Parameter 5-40 = [21] Thermal Warning
	[22] Ready, No Thermal Warning	Parameter 5-40 = [22] Ready. No Thermal W
	[23] Ready - Remote Control - No Thermal Warning	Parameter 5-40 = [23] Remote, Ready, No TW
	[24] Ready - Mains Voltage Within Range	Parameter 5-40 = [24] Ready, Voltage OK
	[25] Reversing	Parameter 5-40 = [25] Reverse
	[26] Bus OK	Parameter 5-40 = [26] Bus OK
	[27] Torque Limit and Stop	Parameter 5-40 = [27] Torque Limit & Stop
	[28] Brake, No Brake Warning	Parameter 5-40 = [28] Brake, No Brake Warning
	[29] Brake Ready, No Fault	Parameter 5-40 = [29] Brake Ready, No Fault
	[30] Brake Fault	Parameter 5-40 = [30] Brake Fault (IGBT)
	[31] Relay 123	Parameter 5-40 = [31] Relay 123
	[32] Mechanical Brake Control	Parameter 5-40.0 = [32] Mech Brake Ctrl Parameter 1-72 = [5] VVC ⁺ /Flux
	[33] Control Word Bit 11/12	Parameter 5-40 = [36] Control Word Bit 11 Parameter 5-40.1 = [37] Control Word Bit 12
	[34] Extended Mechanical Brake Control	Parameter 5-40.0 = [32] Mech Brake Ctrl Parameter 1-72 = [5] VVC ⁺ /Flux
	[35] Safety Interlock	Not supported

5.4.12 Conversion of Parameter 327 Pulse Reference, Max. Freq

Table 103: Parameter 327

	FCD 300	FCD 302
Parameter	327 Pulse Reference, Max. Freq	5-51 Term. 29 High Frequency

	FCD 300	FCD 302
Range	150–110000 Hz	0–110000 Hz

5.4.13 Conversion of Parameter 328 Pulse Feedback, Max. Freq

Table 104: Parameter 328

	FCD 300 series	FD 302 series
Parameter	<i>328 Pulse Feedback, Max. Freq</i>	<i>Parameter 5-56 Term. 33 High Frequency</i> <i>Parameter 5-50 Term. 29 Low Frequency</i> <i>Parameter 5-55 Term. 33 Low Frequency</i>
Range	100–110000 Hz	0–110000 Hz

5.4.14 Conversion of Parameter 341 DO46 Max Pulse

Table 105: Parameter 341

	FCD 300 series	FCD 302 series
Parameter	<i>341 DO46 Max Pulse</i>	<i>5-31 Terminal 29 Digital Output</i>
Options	<i>[0] No Function</i>	<i>[0] No Function</i>
	<i>[21] Pulse Reference</i>	<i>[55] Pulse Output</i> <i>Parameter 5-63 = Reference</i>
	<i>[26] Pulse Feedback</i>	<i>[55] Pulse Output</i> <i>Parameter 5-63 = Reference</i>
	<i>[27] Output Frequency</i>	<i>[55] Pulse Output</i> <i>Parameter 5-63 = Output Frequency</i>
	<i>[28] Pulse Current</i>	<i>[55] Pulse Output</i> <i>Parameter 5-63 = Motor Current</i>
	<i>[29] Pulse Power</i>	<i>[55] Pulse Output</i> <i>Parameter 5-63 = 5-63 = Power</i>
	<i>[30] Pulse Temperature</i>	Not supported
	<i>[31] Control Word Bit 12</i>	Not supported

5.4.15 Conversion of Parameter 342 Term. 46, Max. Pulse Scaling

Table 106: Parameter 342

	FCD 300 series	FCD 302 series
Parameter	<i>342 Term. 46, Max. Pulse Scaling</i>	<i>5-65 Pulse Output Max Freq. #29</i>
Range	150–10000 Hz	0–32000 Hz

5.4.16 Conversion of Parameter 343 Precise Stop Function

Table 107: Parameter 343

	FCD 300 series	FCD 302 series
Parameter	<i>343 Precise Stop Function</i>	<i>1-83 Precise Stop Function</i>
Options	<i>[0] Normal</i>	<i>[0] Precise Ramp Stop</i>
	<i>[1] Count Stop Reset</i>	<i>[1] Cnt Stop With Reset</i>
	<i>[2] Count Stop No Reset</i>	<i>[2] Cnt Stop W/O Reset</i>
	<i>[3] Spd Cmp Cstop</i>	<i>[3] Speed Comp Stop</i>
	<i>[4] Spd Cmp Cstop W. Reset</i>	<i>[4] Cnt Stop W/Rst</i>
	<i>[5] Spd Cmp Cstop No Reset</i>	<i>[5] Comp Cnt Stop W/O Reset</i>

5.4.17 Conversion of Parameter 344 Counter Value

Table 108: Parameter 344

	FCD 300 series	FCD 302 series
Parameter	<i>344 Counter Value</i>	<i>1-84 Precise Stop Counter Value</i>
Range	0–999999	0–999999999

5.4.18 Conversion of Parameter 349 Speed Compensated Delay

Table 109: Parameter 349

	FCD 300 series	FCD 302 series
Parameter	<i>349 Speed Compensated Delay</i>	<i>1-85 Precise Stop Speed Compensation Delay</i>
Range	0–100 ms	0–100 ms

5.5 FCD 300 Parameter Group 4

5.5.1 Conversion of Parameter 400 Brake Function

Table 110: Parameter 400

	FCD 300 series	FCD 302 series
Parameter	400 Brake Function	2-10 Brake Function 2-17 Over-voltage Control
Options	[0] Off	Parameter 2-10 = [0] Off Parameter 2-17 = [0] Off
	[1] Resistor	Parameter 2-10 = [1] Resistor Brake Parameter 2-17 = [0] Off
	[4] AC Brake	Parameter 2-10 = [0] Off Parameter 2-17 = [2] Enabled

5.5.2 Conversion of Parameter 405 Reset

Table 111: Parameter 405

	FCD 300 series	FCD 302 series
Parameter	405 Reset	14-20 Reset Mode
Options	[0] Manual Reset	[0] Off
	[1] Automatic Reset x 1	[1] Automatic Reset x 1
	[3] Automatic Reset x 3	[3] Automatic Reset x 3
	[10] Automatic Reset x 10	[10] Automatic Reset x 10
	[14] Reset At Power Up	[11] Reset At Power Up

5.5.3 Conversion of Parameter 406 Automatic Restart Time

Table 112: Parameter 406

	FCD 300 series	FCD 302 series
Parameter	406 Automatic Restart Time	14-21 Automatic Restart Time
Range	0–10 s	0–600 s

5.5.4 Conversion of Parameter 409 Trip Delay Torque

Table 113: Parameter 409

	FCD 300 series	FCD 302 series
Parameter	<i>409 Trip Delay Torque</i>	<i>14-25 Trip Delay at Torque Limit</i>
Range	0–60 s (60=OFF)	0–60 s (60=OFF)

5.5.5 Conversion of Parameter 411 Switching Frequency

Table 114: Parameter 411

	FCD 300 series	FCD 302 series
Parameter	<i>411 Switching Frequency</i>	<i>14-01 Switching Frequency</i>
Range	Unsigned 16 (6) 1.5–14 kHz	Unsigned 8 (5) <2.3 = [2] 2.0 kHz 2.3–2.7 = [3] 2.5 kHz 2.8–3.2 = [4] 3.0 kHz 3.3–3.7 = [5] 3.5 kHz 3.8–4.5 = [6] kHz 4.6–5.5 = [7] 5.0 kHz 5.6–6.5 = [8] 6.0 kHz 6.6–7.5 = [9] 7.0 kHz 7.6–9.0 = [10] 8.0 kHz >9.1 = [11] 10.0 kHz

5.5.6 Conversion of Parameter 413 Overmodulation Function

Table 115: Parameter 413

	FCD 300 series	FCD 302 series
Parameter	<i>413 Overmodulation function</i>	<i>14-03 Overmodulation Function</i>
Options	[0] Off [1] On	[0] Off [1] On

5.5.7 Conversion of Parameter 414 Minimum Feedback

Table 116: Parameter 414

	FCD 300 series	FCD 302 series
Parameter	<i>414 Minimum Feedback</i>	Not converted

5.5.8 Conversion of Parameter 415 Maximum Feedback

Table 117: Parameter 415

	FCD 300 series	FCD 302 series
Parameter	<i>415 Maximum Feedback</i>	Not converted

5.5.9 Conversion of Parameter 416 Feedback Unit

Table 118: Parameter 416

	FCD 300 series	FCD 302 series
Parameter	<i>416 Feedback Unit</i>	<i>3-01 Reference/Feedback Unit</i>
Options	<i>[0] None</i>	<i>[0] None</i>
	<i>[1] %</i>	<i>[1] %</i>
	<i>[2] PPM</i>	<i>[5] PPM</i>
	<i>[3] RPM</i>	<i>[2] RPM</i>
	<i>[4] Bar</i>	<i>[71] Bar</i>
	<i>[5] Cycle/min</i>	Not supported
	<i>[6] Pulse/s</i>	<i>[12] Pulse/s</i>
	<i>[7] Unit s/s</i>	Not supported
	<i>[8] Unit s/min</i>	Not supported
	<i>[9] Unit s/h</i>	Not supported
	<i>[10] °C</i>	<i>[60] °C</i>
	<i>[11] Pa</i>	<i>[72] Pa</i>
	<i>[12] l/s</i>	<i>[20] l/s</i>
	<i>[13] m³/s</i>	<i>[23] m³/s</i>
	<i>[14] l/min</i>	<i>[21] l/min</i>
<i>[15] m³/min</i>	<i>[24] m³/min</i>	

	FCD 300 series	FCD 302 series
Options	[16] l/h	[22] l/h
	[17] m ³ /h	[25] m ³ /h
	[18] kg/s	[30] kg/s
	[19] kg/min	[31] Kg/min
	[20] kg/h	[32] kg/h
	[21] t/min	[33] t/min
	[22] t/h	[34] t/h
	[23] m	[45] m
	[24] Nm	[4] Nm
	[25] m/s	[40] m/s
	[26] m/min	[41] m/min
	[27] °F	[160] °F
	[28] in wg	[172] in wg
	[29] gal/s	[121] gal/s
	[30] ft ³ /s	[125] ft ³ /s
	[31] gal/min	[122] gal/min
	[32] ft ³ /min	[126] ft ³ /min
	[33] gal/h	[123] gal/h
	[34] ft ³ /h	[127] ft ³ /h
	[35] lb/s	[130] lb/s
	[36] lb/min	[131] lb/min
[37] lb/h	[132] lb/h	
[38] lb ft	[150] lb ft	
[39] ft/s	[140] ft/s	
[40] ft/min	[141] ft/min	
[41] psi	[170] psi	

5.5.10 Conversion of Parameter 417 Speed PID Proportional Gain

Table 119: Parameter 417

	FCD 300 series	FCD 302 series
Parameter	417 Speed PID Proportional Gain	7-02 Speed PID Proportional Gain
Data range	0.000–0.150	0.000–1.000

5.5.11 Conversion of Parameter 418 Speed PID Integral Time

Table 120: Parameter 418

	FCD 300 series	FCD 302 series
Parameter	418 Speed PID Integral Time	7-03 Speed PID Integral Time
Data range	2.0–999.9	2.0–20000.0

5.5.12 Conversion of Parameter 419 Speed PID Differentiation Time

Table 121: Parameter 419

	FCD 300 series	FCD 302 series
Parameter	419 Speed PID Differentiation Time	7-04 Speed PID Differentiation Time
Data range	0.0–200.0	0.0–200.0

5.5.13 Conversion of Parameter 420 Speed PID D-gain Limit

Table 122: Parameter 420

	FCD 300 series	FCD 302 series
Parameter	420 Speed PID D-gain Limit	7-05 Speed PID Diff. Gain Limit
Data range	5.0–50.0	1.0–20.0

5.5.14 Conversion of Parameter 421 Speed PID Low-pass Filter

Table 123: Parameter 421

	FCD 300 series	FCD 302 series
Parameter	421 Speed PID Low-pass Filter	7-06 Speed PID Lowpass Filter Time
Data range	5.0–200.0 ms	1.0–100.0

5.5.15 Conversion of Parameter 422 U0 Voltage at 0 Hz

Table 124: Parameter 422

	FCD 300 series	FCD 302 series
Parameter	422 U0 Voltage at 0 Hz	1-55 U/f Characteristic - U
Data range	0.0–parameter 103	0.0–1000.0 V

5.5.16 Conversion of Parameter 423 U1 Voltage

Table 125: Parameter 423

	FCD 300 series	FCD 302 series
Parameter	423 U1 Voltage	1-55 U/f Characteristic - U
Data range	0.0–parameter 103	0.0–1000.0 V

5.5.17 Conversion of Parameter 424 F1 Frequency

Table 126: Parameter 424

	FCD 300 series	FCD 302 series
Parameter	424 F1 Frequency	1-56 U/f Characteristic - F
Data range	0.0–parameter 104	0.0–1000.0 Hz

5.5.18 Conversion of Parameter 425 U2 Voltage

Table 127: Parameter 425

	FCD 300 series	FCD 302 series
Parameter	425 U2 Voltage	1-55 U/f Characteristic - U
Data range	0.0–parameter 103	0.0–1000.0 V

5.5.19 Conversion of Parameter 426 F2 Frequency

Table 128: Parameter 426

	FCD 300 series	FCD 302 series
Parameter	426 FC Frequency	1-56 U/f Characteristic - F
Data range	0.0–parameter 104	0.0–1000.0 Hz

5.5.20 Conversion of Parameter 427 U3 Voltage

Table 129: Parameter 427

	FCD 300 series	FCD 302 series
Parameter	427 U3 Voltage	1-55 U/f Characteristic - U
Data range	0.0–parameter 103	0.0–1000.0 V

5.5.21 Conversion of Parameter 428 F3 Frequency

Table 130: Parameter 428

	FCD 300 series	FCD 302 series
Parameter	<i>F3 Frequency</i>	<i>1-56 U/f Characteristic - F</i>
Data range	0.0–parameter 104	0.0–1000.0 Hz

5.5.22 Conversion of Parameter 437 Process PID Normal/Inverse Contr

Table 131: Parameter 437

	FCD 300 series	FCD 302 series
Parameter	<i>437 Process PID Normal/Inverse Contr</i>	<i>7-30 Process PID Normal/Inverse Control</i>
Options	<i>[0] Normal</i>	<i>[0] Normal</i>
	<i>[1] Inverse</i>	<i>[1] Inverse</i>

5.5.23 Conversion of Parameter 438 Process PID Anti Windup

Table 132: Parameter 438

	FCD 300 series	FCD 302 series
Parameter	<i>438 Process PID Anti Windup</i>	<i>7-31 Process PID Anti Windup</i>
Options	<i>[0] Disable</i>	<i>[0] Off</i>
	<i>[1] Enable</i>	<i>[1] On</i>

5.5.24 Conversion of Parameter 439 Process PID Start Frequency

Table 133: Parameter 439

	FCD 300 series	FCD 302 series
Parameter	<i>439 Process PID Start Frequency</i>	<i>7-32 Process PID Start Speed</i>
Data range	f_{\min} – f_{\max}	0–6000 RPM

5.5.25 Conversion of Parameter 440 Process PID Proportional Gain

Table 134: Parameter 440

	FCD 300 series	FCD 302 series
Parameter	<i>440 Process PID Proportional Gain</i>	<i>7-33 Process PID Proportional Gain</i>
Data range	0.00–10.00	0.00–10.00

5.5.26 Conversion of Parameter 441 Process PID Integral Time

Table 135: Parameter 441

	FCD 300 series	FCD 302 series
Parameter	<i>441 Process PID Integral Time</i>	<i>7-34 Process PID Integral Time</i>
Data range	0.01–9999.99	0.01–10000.00

5.5.27 Conversion of Parameter 442 Process PID Differentiation Time

Table 136: Parameter 442

	FCD 300 series	FCD 302 series
Parameter	<i>442 Process PID Differentiation Time</i>	<i>7-35 Process PID Differentiation Time</i>
Data range	0.00–10.00	0.00–10.00

5.5.28 Conversion of Parameter 443 Process PID Diff. Gain Limit

Table 137: Parameter 443

	FCD 300 series	FCD 302 series
Parameter	<i>443 Process PID Diff. Gain Limit</i>	<i>7-36 Process PID Diff. Gain Limit</i>
Data range	5.0–50.0	0.00–10.00

5.5.29 Conversion of Parameter 444 Process PID Lowpass Filter Time

Table 138: Parameter 444

	FCD 300 series	FCD 302 series
Parameter	<i>444 Process PID Lowpass Filter Time</i>	Not supported

5.5.30 Conversion of Parameter 445 Flying Start

Table 139: Parameter 445

	FCD 300 series	FCD 302 series
Parameter	<i>445 Flying Start</i>	<i>1-73 Flying Start</i>

	FCD 300 series	FCD 302 series
Options	[0] Disabled	[0] Disable
	[1] OK Same Direct.	Parameter 1-73 = [1] Enable Parameter 4-10 = [0] Clockwise
	[2] OK Both Direct.	Parameter 1-73 = [1] Enable Parameter 4-10 = [2] Both Dir.
	[3] DC Brake Bef. St.	Parameter 1-73 = [1] Enable Parameter 4-10 = [3] DC Brake

5.5.31 Conversion of Parameter 446 Switching Pattern

Table 140: Parameter 446

	FCD 300 series	FCD 302 series
Parameter	446 Switching Frequency	14-00 Switching Pattern
Options	[0] 60 AVM	[0] 60 AVM
	[1] SFAVM	[1] SFAVM

5.5.32 Conversion of Parameter 451 Speed PID Feedforward

Table 141: Parameter 451

	FCD 300 series	FCD 302 series
Parameter	451 Speed PID Feedforward	7-08 Speed PID Feed Forward Factor
Range	0–500%	0–500%

5.5.33 Conversion of Parameter 452 PID Control Range

Table 142: Parameter 452

	FCD 300 series	FCD 302 series
Parameter	455 PID Control Range	Not supported

5.5.34 Conversion of Parameter 455 Frequency Range Monitor

Table 143: Parameter 455

	FCD 300 series	FCD 302 series
Parameter	455 Frequency Range Monitor	Not supported

5.5.35 Conversion of Parameter 456 Brake Vol Reduce

Table 144: Parameter 456

	FCD 300 series	FCD 302 series
Parameter	456 Brake Vol Reduce	Not supported

5.6 FCD 300 Parameter Group 5

5.6.1 Conversion of Parameter 500 Address

Table 145: Parameter 500

	FCD 300 series	FCD 302 series
Parameter	500 Address	8-31 Address
Range	0-126	0-126

5.6.2 Conversion of Parameter 501 Baud Rate

Table 146: Parameter 501

	FCD 300 series	FCD 302 series
Parameter	501 Baud Rate	8-32 FC Port Baud Rate
Options	[0] 300	Not supported
	[1] 600	Not supported
	[2] 1200	Not supported
	[3] 2400	[0] 2400
	[4] 4800	[1] 4800
	[5] 9600	[2] 9600

5.6.3 Conversion of Parameters 502 to 508

Table 147: Parameter 502–508

	FCD 300 series	FCC 302 series
Parameters	<i>502 Coasting</i> <i>503 Quick Stop</i> <i>504 DC Brake</i> <i>505 Start</i> <i>506 Reversing</i> <i>507 Setup Select</i> <i>508 Preset Reference Select</i>	<i>8-50 Coasting Select</i> <i>8-51 Quick Stop Select</i> <i>8-52 DC Brake Select</i> <i>8-53 Start Select</i> <i>8-54 Reversing Select</i> <i>8-55 Set-up Select</i> <i>8-56 Preset Reference Select</i>
Parameter type	Unsigned 8 (5)	Unsigned 8 (5)
Options	<i>[0] Digital Input</i>	<i>[0] Digital Input</i>
	<i>[1] Bus</i>	<i>[1] Bus</i>
	<i>[2] Logic AND</i>	<i>[2] Logic AND</i>
	<i>[3] Logic OR</i>	<i>[3] Logic OR</i>

5.6.4 Conversion of Parameter 509 Bus Jog 1

Table 148: Parameter 509

	FCD 300 series	FCD 302 series
Parameter	<i>509 Bus Jog 1</i>	<i>8-90 Bus Jog 1 Speed</i>
Range	<i>0.0–parameter 202</i>	<i>0.0–parameter 4-13</i>

5.6.5 Conversion of Parameter 510 Bus Jog 2

Table 149: Parameter 510

	FCD 300 series	FCD 302 series
Parameter	<i>510 Bus Jog 2</i>	<i>8-91 Bus Jog 2 Speed</i>
Range	<i>0.0–parameter 202</i>	<i>0.0–parameter 4-13</i>

5.6.6 Conversion of Parameter 512 Telegram Profile

Table 150: Parameter 512

	FCD 300 series	FCD 302 series
Parameter	<i>512 Telegram Profile</i>	<i>8-10 Control Word Profile</i>

	FCD 300 series	FCD 302 series
Options	[0] Fieldbus Profile	Parameter 8-10 = [1] ProfiDrive Profile Parameter 8-13 [5] = [1] Profile Default Parameter 8-13[12] = [1] Profile Default Parameter 8-13[13] = [1] Profile Default Parameter 8-13[14] = [1] Profile Default Parameter 8-13[15] = [1] Profile Default Parameter 8-14[11] = [1] Profile Default Parameter 8-14[15]=[1] Profile Default
	[1] FC Profile	Parameter 8-10 = [0] FC Profile Parameter 8-13 [5] = [1] Profile Default Parameter 8-13[12] = [1] Profile Default Parameter 8-13[13] = [1] Profile Default Parameter 8-13[14] = [1] Profile Default Parameter 8-13[15] = [1] Profile Default Parameter 8-14[11] = [1] Profile Default Parameter 8-14[15]=[1] Profile Default
	[2] Fast I/O, Custom 1	Parameter 8-10 = [0] FC Profile Parameter 8-13 [5] = [12] T27 Status Parameter 8-13[12] = [10] T18 Status Parameter 8-13[13] = [11] T19 Status Parameter 8-13[14] = [11] T29 Status Parameter 8-13[15] = [11] T33 Status Parameter 8-14[11] = [07] Ramp Bit 0 Parameter 8-14[15]=[05] Relay 1

5.6.7 Conversion of Parameter 513 Bus Time Interval

Table 151: Parameter 513

	FCD 300 series	FCD 302 series
Parameter	Bus Time Interval	Not converted

5.6.8 Conversion of Parameter 514 Bus Time Interval Function

Table 152: Parameter 514

	FCD 300 series	FCD 302 series
Parameter	<i>514 Bus Time Interval Function</i>	Not converted

5.6.9 Conversion of Parameter 515 Reference %

Table 153: Parameter 515

	FCD 300 series	FCD 302 series
Parameter	<i>515 Reference %</i>	<i>16-02 Reference %</i>

5.6.10 Conversion of Parameter 516 Reference Unit

Table 154: Parameter 516

	FCD 300 series	FCD 302 series
Parameter	<i>516 Reference Unit</i>	<i>16-01 Reference [Unit]</i>

5.6.11 Conversion of Parameter 517 Feedback

Table 155: Parameter 517

	FCD 300 series	FCD 302 series
Parameter	<i>517 Feedback</i>	<i>16-52 Feedback [Unit]</i>

5.6.12 Conversion of Parameter 518 Frequency

Table 156: Parameter 518

	FCD 300 series	FCD 302 series
Parameter	<i>518 Frequency</i>	<i>16-13 Frequency</i>

5.6.13 Conversion of Parameter 519 Frequency x Scaling

Table 157: Parameter 519

	FCD 300 series	FCD 302 series
Parameter	<i>519 Frequency x Scaling</i>	Not converted

5.6.14 Conversion of Parameter 520 Current

Table 158: Parameter 520

	FCD 300 series	FCD 302 series
Parameter	520 Current	16-14 Motor Current

5.6.15 Conversion of Parameter 521 Torque

Table 159: Parameter 521

	FCD 300 series	FCD 302 Series
Parameter	521 Torque	16-21 Torque [%] High Resolution 16-22 Torque [%]

5.6.16 Conversion of Parameter 522 Power, kW

Table 160: Parameter 522

	FCD 300 series	FCD 302 series
Parameter	522 Power, kW	16-10 Power [kW]

5.6.17 Conversion of Parameter 523 Power, hp

Table 161: Parameter 523

	FCD 300 series	FCD 302 series
Parameter	523 Power, hp	16-11 Power [hp]

5.6.18 Conversion of Parameter 524 Motor Voltage

Table 162: Parameter 524

	FCD 300 series	FCD 302 series
Parameter	524 Motor Voltage	16-12 Motor Voltage

5.6.19 Conversion of Parameter 525 DC Link Voltage

Table 163: Parameter 525

	FCD 300 series	FCD 302 series
Parameter	525 DC Link Voltage	16-30 DC Link Voltage

5.6.20 Conversion of Parameter 526 Motor Temp.

Table 164: Parameter 526

	FCD 300 series	FCD 302 series
Parameter	<i>526 Motor Temp.</i>	<i>16-18 Motor Thermal</i>

5.6.21 Conversion of Parameter 527 VLT® Temp.

Table 165: Parameter 527

	FCD 300 series	FCD 300 series
Parameter	<i>527 VLT® Temp.</i>	<i>16-35 Inverter Thermal</i>

5.6.22 Conversion of Parameter 528 Digital Input

Table 166: Parameter 528

	FCD 300 series	FCD 302 series
Parameter	<i>528 Digital Input</i>	<i>16-60 Digital Input</i>
Options	<i>Term. 18 (binary 0000 0100)</i>	<i>Term. 18 (binary)</i>
	<i>Term. 19 (binary 0000 1000)</i>	<i>Term. 19 (binary)</i>
	<i>Term. 27 (binary 0001 0000)</i>	<i>Term. 27 (binary)</i>
	<i>Term. 32 (binary 0010 0000)</i>	<i>Term. 32 (binary)</i>
	<i>Term. 33 (binary 0100 0000)</i>	<i>Term. 33 (binary)</i>

5.6.23 Conversion of Parameter 529 Analog Input 53

Table 167: Parameter 529

	FCD 300 series	FCD 302 series
Parameter	<i>529 Analog Input 53</i>	<i>16-62 Analog Input 53</i>

5.6.24 Conversion of Parameter 531 Analog Input 60

Table 168: Parameter 531

	FCD 300 series	FCD 302 series
Parameter	<i>531 Analog Input 60</i>	<i>16-64 Analog Input 54</i>

5.6.25 Conversion of Parameter 532 Pulse Reference

Table 169: Parameter 532

	FCD 300 series	FCD 302 series
Parameter	<i>Pulse Reference</i>	<i>16-51 Pulse Reference</i>

5.6.26 Conversion of Parameter 533 External Reference %

Table 170: Parameter 533

	FCD 300 series	FCD 302 series
Parameter	<i>External Reference %</i>	<i>16-50 External Reference</i>

5.6.27 Conversion of Parameter 534 Status Word, Binary

Table 171: Parameter 534

	FCD 300 series	FCD 302 series
Parameter	<i>534 Status Word, Binary</i>	<i>16-03 Status Word</i>

5.6.28 Conversion of Parameter 535 Brake Power/2 Min

Table 172: Parameter 535

	FCD 300 series	FC 302 series
Parameter	<i>535 Brake Power/2 Min</i>	<i>16-33 Brake Energy/2 Min</i>

5.6.29 Conversion of Parameter 537 Heat Sink Temp

Table 173: Parameter 537

	FCD 300 series	FCD 302 series
Parameter	<i>537 Heat Sink Temp</i>	<i>16-34 Heatsink Temp</i>

5.6.30 Conversion of Parameter 538 Alarm Word

Table 174: Parameter 538

	FCD 300 series	FCD 302 series
Parameter	<i>538 Alarm Word</i>	<i>14-72 Legacy Alarm Word</i>

5.6.31 Conversion of Parameter 539 VLT® Control Word

Table 175: Parameter 539

	FCD 300 series	FCD 302 series
Parameter	539 VLT® Control Word	16-00 Control Word

5.6.32 Conversion of Parameter 540 Warning Word

Table 176: Parameter 540

	FCD 300 series	FCD 302 series
Parameter	540 Warning Word	14-73 Legacy Warning Word

5.6.33 Conversion of Parameter 541 Extended Status Word

Table 177: Parameter 541

	FCD 300 series	FCD 302 series
Parameter	541 Extended Status Word	14-74 Leg. Ext. Status Word

5.6.34 Conversion of Parameter 544 Pulse Count

Table 178: Parameter 544

	FCD 300 series	FCD 302 series
Parameter	544 Pulse Count	16-74 Prec. Stop Counter

5.6.35 Conversion of Parameter 545 Pulse Input 29

Table 179: Parameter 545

	FCD 300 series	FCD 302 series
Parameter	Pulse Input 29	14-67 Pulse Input #29 [Hz]

5.6.36 Conversion of Parameter 553 Display Text 1

Table 180: Parameter 553

	FCD 300 series	FCD 302 series
Parameter	553 Display Text 1	Not converted

5.7 FCD 300 Parameter Group 6

5.7.1 Conversion of Parameter 600 Operating Hours

Table 181: Parameter 600

	FCD 300 series	FCD 302 series
Parameter	600 Operating Hours	15-00 Operating Hours

5.7.2 Conversion of Parameter 601 Hours Run

Table 182: Parameter 601

	FCD 300 series	FCD 302 series
Parameter	601 Hours Run	15-01 Running Hours

5.7.3 Conversion of Parameter 602 kWh Counter

Table 183: Parameter 602

	FCD 300 series	FCD 302 series
Parameter	602 kWh Counter	15-02 kWh Counter

5.7.4 Conversion of Parameter 603 Numbers of Power Up

Table 184: Parameter 603

	FCD 300 series	FCD 302 series
Parameter	603 Numbers of Power Up	15-03 Power Up's

5.7.5 Conversion of Parameter 604 Number of Over Temp.

Table 185: Parameter 604

	FCD 300 series	FCD 302 series
Parameter	604 Number of Over Temp.	15-04 Over Temp's

5.7.6 Conversion of Parameter 605 Numbers of Over Voltage

Table 186: Parameter 605

	FCD 300 series	FCD 302 series
Parameter	605 Numbers of Over Voltage	15-05 Over Volt's

5.7.7 Conversion of Parameter 606 Data Log: Digital Input

Table 187: Parameter 606

	FCD 300 series	FCD 302 series
Parameter	<i>606 Data Log: Digital Input</i>	Not converted

5.7.8 Conversion of Parameter 607 Data Log: Bus Commands

Table 188: Parameter 607

	FCD 300 series	FCD 302 series
Parameter	<i>607 Data Log: Bus Commands</i>	Not converted

5.7.9 Conversion of Parameter 608 Data Log: Status Word

Table 189: Parameter 608

	FCD 300 series	FCD 302 series
Parameter	<i>608 Data Log: Status Word</i>	Not converted

5.7.10 Conversion of Parameter 609 Data Log: Reference

Table 190: Parameter 609

	FCD 300 series	FCD 302 series
Parameter	<i>609 Data Log: Reference</i>	Not converted

5.7.11 Conversion of Parameter 610 Data Log: Feedback

Table 191: Parameter 610

	FCD 300 series	FCD 302 series
Parameter	<i>610 Data Log: Feedback</i>	Not converted

5.7.12 Conversion of Parameter 611 Data Log: Motor Frequency

Table 192: Parameter 611

	FCD 300 series	FCD 302 series
Parameter	<i>611 Data Log: Motor Frequency</i>	Not converted

5.7.13 Conversion of Parameter 612 Data Log: Motor Voltage

Table 193: Parameter 612

	FCD 300 series	FCD 302 series
Parameter	<i>612 Data Log: Motor Voltage</i>	Not converted

5.7.14 Conversion of Parameter 613 Data Log: Motor Current

Table 194: Parameter 613

	FCD 300 series	FCD 302 series
Parameter	<i>613 Data Log: Motor Current</i>	Not converted

5.7.15 Conversion of Parameter 614 Data Log: DC Link Voltage

Table 195: Parameter 614

	FCD 300 series	FCD 302 series
Parameter	<i>614 Data Log: DC Link Voltage</i>	Not converted

5.7.16 Conversion of Parameter 615 Fault Log: Error Code

Table 196: Parameter 615

	FCD 300 series	FCD 302 series
Parameter	<i>615 Fault Log: Error Code</i>	<i>15-30 Fault Log: Error Code</i>

5.7.17 Conversion of Parameter 616 Fault Log: Time

Table 197: Parameter 616

	FCD 300 series	FCD 302 series
Parameter	<i>616 Fault Log: Time</i>	<i>15-32 Fault Log: Time</i>

5.7.18 Conversion of Parameter 617 Fault Log: Value

Table 198: Parameter 617

	FCD 300 series	FCD 302 series
Parameter	<i>617 Fault Log: Value</i>	<i>15-31 Fault Log: Value</i>

5.7.19 Conversion of Parameter 618 Reset of kWh Counter

Table 199: Parameter 618

	FCD 300 series	FCD 302 series
Parameter	<i>618 Reset of kWh Counter</i>	<i>15-06 Reset kWh Counter</i>
Options	<i>[0] No reset</i>	<i>[0] Do not reset</i>
	<i>[1] Reset</i>	<i>[1] Reset Counter</i>

5.7.20 Conversion of Parameter 619 Reset of Hours Run

Table 200: Parameter 619

	FCD 300 series	FCD302 series
Parameter	<i>619 Resert of Hours Run</i>	<i>15-07 Reset Running Hours Counter</i>
Options	<i>[0] No Reset</i>	<i>[0] Do Not Reset</i>
	<i>[1] Reset</i>	<i>[1] Reset Counter</i>

5.7.21 Conversion of Parameter 620 Operation Mode

Table 201: Parameter 620

	FCD 300 series	FCD 302 series
Parameters	<i>620 Operation Mode</i>	<i>14-22 Operation Mode</i>
Options	<i>[0] Normal Operation</i>	<i>[0] Normal Operation</i>
	<i>[1] Function with Deactivated Inverter</i>	Not supported
	<i>[2] Control Card Test</i>	<i>[2] Control Card Test</i>
	<i>[3] Initialisation</i>	<i>[3] Initialisation</i>

5.7.22 Conversion of Parameter 621 Name Plate: VLT® Type

Table 202: Parameter 621

	FCD 300 series	FCD 302 series
Parameter	<i>621 Name Plate: VLT® Type</i>	Not converted

5.7.23 Conversion of Parameter 622 Name Plate: Power Section

Table 203: Parameter 622

	FCD 300 series	FCD 302 series
Parameter	<i>622 Name Plate: Power Section</i>	Not converted

5.7.24 Conversion of Parameter 623 Name Plate: VLT® Ordering No.

Table 204: Parameter 623

	FCD 300 series	FCD 302 series
Parameter	623 Name Plate: VLT® Ordering No.	Not converted

5.7.25 Conversion of Parameter 624 Name Plate: Software Version No.

Table 205: Parameter 624

	FCD 300 series	FCD 302 series
Parameter	624 Name Plate: Software Version No.	Not converted

5.7.26 Conversion of Parameter 625 Name Plate: LCP ID No.

Table 206: Parameter 625

	FCD 300 series	FCD 302 series
Parameter	625 Name Plate: LCP ID No.	Not converted

5.7.27 Conversion of Parameter 626 Name Plate: Data Base ID

Table 207: Parameter 626

	FCD 300 series	FCD 302 series
Parameter	626 Name Plate: Data Base ID	Not converted

5.7.28 Conversion of Parameter 627 Name Plate: Power ID No.

Table 208: Parameter 627

	FCD 300 series	FCD 302 series
Parameter	627 Name Plate: Power ID No.	Not converted

5.7.29 Conversion of Parameter 628 Name Plate: Application Type

Table 209: Parameter 628

	FCD 300 series	FCD 302 series
Parameter	628 Name Plate: Application Type	Not converted

5.7.30 Conversion of Parameter 629: Name Plate: Application Type No.

Table 210: Parameter 629

	FCD 300 series	FCD 302 series
Parameter	<i>629 Name Plate: Application Type No.</i>	Not converted

5.7.31 Conversion of Parameter 630 Name Plate: Com Type

Table 211: Parameter 630

	FCD 300 series	FCD 302 series
Parameter	<i>630 Name Plate: Com Type</i>	Not converted

5.7.32 Conversion of Parameter 631 Name Plate: Com. Type No.

Table 212: Parameter 631

	FCD 300 series	FCD 302 series
Parameter	<i>631 Name Plate: Com. Type No.</i>	Not converted

5.8 FCD 300 Parameter Group 8

5.8.1 Conversion of Parameter 800 PROFIBUS DP

Table 213: Parameter 800

	FCD 300 series	FCD 302 series
Parameter	<i>800 PROFIBUS DP</i>	Not converted

5.8.2 Conversion of Parameter 801 Baud Rate Selection

Table 214: Parameter 801

	FCD 300 series	FCD 302 series
Parameter	<i>801 Baud Selection</i>	Not converted

5.8.3 Conversion of Parameter 802 Minimum Station Delay

Table 215: Parameter 802

	FCD 300 series	FCD 302 series
Parameter	<i>802 Minimum Station Delay</i>	Not converted

5.8.4 Conversion of Parameter 803 Time Out After Bus Error

Table 216: Parameter 803

	FCD 300 series	FCD 302 series
Parameter	<i>803 Time Out After Bus Error</i>	<i>8-03 Control Word Timeout Time</i>
Range	1–99	0.1–18000.0

5.8.5 Conversion of Parameter 804 Response After Bus Time Out

Table 217: Parameter 804

	FCD 300 series	FCD 302 series
Parameter	<i>804 Response After Bus Time Out</i>	<i>8-04 Control Word Timeout Function</i> <i>8-02 Control Word Source</i>
Options	<i>[0] Off</i>	<i>[0] Off</i>
	<i>[1] Freeze Output Frequency</i>	<i>[1] Freeze Output Frequency</i>
	<i>[2] Stop</i>	<i>[2] Stop</i>
	<i>[3] Jogging</i>	<i>[3] Jogging</i>
	<i>[4] Max Speed</i>	<i>[4] Max Speed</i>
	<i>[5] Stop and Trip</i>	<i>[5] Stop and Trip</i>
	<i>[6] No Com. Option Control</i>	<i>Parameter 8-02 set to RS485</i>
	<i>[7] Select Set Up 4</i>	<i>[10] Select Set Up 4</i>

5.8.6 Conversion of Parameter 805 Function of Control Word Bit 10

Table 218: Parameter 805

	FCD 300 series	FCD 302 series
Parameter	<i>805 Function of Control Word Bit</i>	<i>8-14 Configurable Control Word CTW</i>
Options	<i>[0] No Function</i>	<i>[0] None</i>
	<i>[1] Bit 10 = 1 ⇒ CTW active</i>	<i>[1] Profile Default</i>
	<i>[2] Bit 10 = 0 ⇒ CTW active</i>	<i>[2] CTW Valid, Active Low</i>
	<i>[3] Bit 10 = 1 ⇒ Timeout</i>	<i>[1] CTW Valid, Active High</i>

5.8.7 Conversion of Parameter 806 SAP Selection (FMS)

Table 219: Parameter 806

	FCD 300 series	FCD 302 series
Parameter	<i>806 SAP Selection (FMS)</i>	Not converted

5.8.8 Conversion of Parameter 833 Fieldbus Select

Table 220: Parameter 833

	FCD 300 series	FCD 302 series
Parameter	833 Fieldbus Select	Not converted

5.8.9 Conversion of Parameter 849 Extended Diagnose

Table 221: Parameter 849

	FCD 300 series	FCD 302 series
Parameter	849 Extended Diagnose	8-07 Diagnosis Trigger
Options	[0] Disable	[0] Disable
	[1] Alarm	[1] Trigger On Alarm
	[2] Alarm And Warnings	[2] Trigger On Alarm/Warn.

5.9 FCD 300 Parameter Group 9

5.9.1 Conversion of Parameter 904 PPO Type Select for DP

Table 222: Parameter 904

	FCD 300 series	FCD 302 series
Parameter	904 PPO Type Select for DP	Not converted

5.9.2 Conversion of Parameter 915 PCD Config Write

Table 223: Parameter 915

	FCD 300 series	FCD 302 series
Parameter	915 PCD Config Write	9-15 PCD Write Configuration

	FCD 300 series	FCD 302 series
Options	[0] None	[0] None
	[509] Bus Jog 1 Speed	[890] Bus Jog 1 Speed
	[510] Bus Jog 2 Speed	[891] Bus Jog 2 Speed
	[201] Motor Low Limit [Hz]	[412] Motor Speed Low Limit [Hz]
	[202] Motor High Limit [Hz]	[414] Motor Speed High Limit [Hz]
	[204] Minimum Reference	[302] Minimum Reference
	[205] Maximum Reference	[203] Maximum Reference
	[207] Ramp1 Ramp Up Time	[341] Ramp 1 Ramp Up Time
	[208] Ramp 1 Ramp Down Time	[342] Ramp 1 Ramp Down Time
	[209] Ramp 2 Ramp Up Time	[351] Ramp 2 Ramp Up Time
	[210] Ramp 2 Ramp Down Time	[352] Ramp 2 Ramp Down Time
	[211] Jog Ramp Time	[380] Jog Ramp Time
	[212] Quick Stop Ramp Time	[381] Quick Stop Ramp Time
	[219] Catch Up/Slow Down Value	[312] Catch Up/Slow Down Value
	[221] Torque Limit Motor Mode	[416] Torque Limit Motor Mode
[222] Torque Limit Generator Mode	[417] Torque Limit Generator Mode	

5.9.3 Conversion of Parameter 916 PCD Config Read

Table 224: Parameter 916

	FCD 300 series	FCD 302 series
Parameter	916 PCD Config Read	9-16 PCD Read Configuration

	FCD 300 series	FCD 302 series
Options	[0] None	[0] None
	[538] Alarm Word	[1472] VLT Alarm Word
	[540] Warning Word	[1473] VLT Warning Word
	[541] Ext. Status Word	[1474] VLT Ext. Status Word
	[600] Operating Hours	[1500] Operating Hours
	[601] Running Hours	[1501] Running Hours
	[602] kWh Counter	[1502] kWh Counter
	[539] Control Word	[1600] Control Word
	[516] Reference [Unit]	[1601] Reference [Unit]
	[515] Reference %	[1602] Reference %
	[534] Status Word	[1603] Status Word
	[522] Power [kW]	[1610] Power [kW]
	[523] Power [hp]	[1611] Power [hp]
	[524] Motor Voltage	[1612] Motor Voltage
	[518] Motor Frequency	[1613] Motor Frequency
	[520] Motor Current	[1614] Motor Current
	[557] Motor RPM	[1617] Motor Speed
	[526] Motor Thermal	[1618] Motor Thermal
	[521] Torque	[1622] Torque %
	[525] DC Link Voltage	[1630] DC Link Voltage
	[536] Brake Energy/s	[1632] Brake Energy/s
	[535] Brake Energy/2 Min	[1633] Brake Energy/2 Min
	[537] Heat Sink Temp.	[1634] Heat Sink Temp.
	[527] Inverter Thermal	[1635] Inverter Thermal
	[533] External Reference	[1650] External Reference
	[532] Pulse Reference	[1651] Pulse Reference
	[517] Feedback [Unit]	[1652] Feedback [Unit]
	[528] Digital Input	[1660] Digital Input
	[529] Analog Input 53	[1662] Analog Input 53
	[530] Analog Input 54	[1664] Analog Input 54
[531] Analog Input 60	[1664] Analog Input 54	

5.9.4 Conversion of Parameter 917 Spontaneous Messages

Table 225: Parameter 917

	FCD 300 series	FCD 302 series
Parameter	917 Spontaneous Messages	Not converted

5.9.5 Conversion of Parameter 918 Station Address

Table 226: Parameter 918

	FCD 300 series	FCD 302 series
Parameter	918 Station Address	9-18 Node Address
Range	0–125	0–125

5.9.6 Conversion of Parameter 927 Parameter Edit

Table 227: Parameter 927

	FCD 300 series	FCD 302 series
Parameter	927 Parameter Edit	9-27 Parameter Edit
Options	[0] Disable	[0] Disable
	[1] Enable	[1] Enable

5.9.7 Conversion of Parameter 928 Control Authority

Table 228: Parameter 928

	FCD 300 series	FCD 302
Parameter	928 Control Authority	9-28 Process Control
Options	[0] Disable	[0] Disable
	[1] Enable	[1] Enable Cyclic Master

5.9.8 Conversion of Parameter 953 Warning Parameter

Table 229: Parameter 953

	FCD 300 series	FCD 302 series
Parameter	953 Warning Parameter	9-53 PROFIBUS Warning Word

5.9.9 Conversion of Parameter 964 Identification

Table 230: Parameter 964

	FCD 300 series	FCD 302 series
Parameter	964 Identification	9-64 Device Identification

5.9.10 Conversion of Parameter 965 Profile Number

Table 231: Parameter 965

	FCD 300 series	FCD 302 series
Parameter	965 Profile Number	9-65 Profile Number

5.9.11 Conversion of Parameter 967 Control Word (FMS)

Table 232: Parameter 967

	FCD 300 series	FCD 302 series
Parameter	967 Control Word (FMS)	Not converted

5.9.12 Conversion of Parameter 968 Status Word (FMS)

Table 233: Parameter 968

	FCD 300 series	FCD 302 series
Parameter	968 Status Word (FMS)	Not converted

5.9.13 Conversion of Parameter 970 Parameter Set-up Selection

Table 234: Parameter 970

	FCD 300 series	FCD 302 series
Parameter	970 Parameter Set-up Selection	9-70 Edit Set-up
Options	[0] Factory Setting	[0] Factory Setting
	[1] Parameter Setup 1	[1] Parameter Setup 1
	[2] Parameter Setup 2	[2] Parameter Setup 2
	[3] Parameter Setup 3	[3] Parameter Setup 3
	[4] Parameter Setup 4	[4] Parameter Setup 4
	[5] Active Setup	[9] Active Setup

5.9.14 Conversion of Parameter 971 Save Data Values

Table 235: Parameter 971

	FCD 300 series	FCD 302 series
Parameter	<i>970 Save Data Values</i>	<i>9-71 PROFIBUS Save Data Values</i>
Parameter range	Unsigned 8 (5)	Unsigned 8 (5)
Options	<i>[0] Not active</i>	<i>[0] Off</i>
	<i>[1] Save Active Setup</i>	<i>[1] Store All Setups</i>
	<i>[2] Save Edit Setup</i>	<i>[1] Store All Setups</i>
	<i>[3] Save All Setups</i>	<i>[1] Store All Setups</i>

5.9.15 Conversion of Parameters 980–982 and 990–992 Modified Parameters

Table 236: Parameters 980–982 and 990–992

	FCD 300 series	FCD 302 series
Parameter	<i>980–982, 990–992 Modified Parameters</i>	Not converted

6 Troubleshooting

6.1 Troubleshooting Hints

The VLT® Decentral Drive FCD 300 was available as:

- 3 MBaud.
- 12 MBaud.

The VLT® FCD 300 PROFIBUS Converter MCA 117 detects the correct version by probing with the 3 MBaud and the 12 MBaud. If 3 MBaud leads to a negative result, the MCA 117 probes with 12 MBaud.

During the shift from 3 MBaud to 12 MBaud, the VLT® Decentral Drive FCD 302 resets and does a power-down/power-up sequence.

When a positive result is achieved, the MCA 117 stores the result in the flash memory and uses it as default at the next power-up.

When cyclic communication has been established, the NS LED on the MCA 117 is solid green, indicating that communication between master and slave is established.

If the NS LED flashes, the master/PLC has not recognized the FCD 302. Check the following:

- Check that the station address in the FCD 302 is the same as in the replaced FCD 300.
- Check *parameter 9-63 Actual Baud Rate*. If the drive has a connection to the master, this parameter shows the detected baud rate. If no master has been detected, the parameter reads: *No baud rate found*.
- Check *parameter 9-53 PROFIBUS Warning Word*.

Table 237: Descriptions, Warning Words

Bit	Warning Word (Hex)	Description
0	0001	Connection with DP-master is not OK.
1	0002	Unused
2	0004	FDL (Fieldbus Data link Layer) is not OK.
3	0008	Clear data command received.
4	0010	Actual value is not updated.
5	0020	Baud rate search.
6	0040	PROFIBUS ASIC is not transmitting.
7	0080	Initializing of PROFIBUS is not OK.
8	0100	The drive is tripped.
9	0200	Internal CAN error.
10	0400	Wrong configuration data from PLC.
11	0800	Wrong ID sent by PLC.
12	1000	Internal fault occurred.
13	2000	Not configured.
14	4000	Timeout active.
15	8000	Warning 34 active.

- Check [1.4.1 Intended Use](#) and [1.4.2 Hardware](#) for more information on limitations.

7 Appendix

7.1 Abbreviations

AOC	Application-oriented control
CTW	Control word
EMC	Electromagnetic compatibility
I/O	Input/output
LED	Light-emitting diode
LSB	Least significant bit
MAV	Main actual value (actual output)
MOC	Motor-oriented control
MSB	Most significant bit
N/A	Not applicable
PCD	Peripherals communication data (process data)
PCV	Parameter characteristics (parameter channel)
PLC	Programmable logic controller
PNU	Parameter number
PPO	Parameter process data object
PU	Power unit
REF	Reference (=MRV)
STW	Status word

7.2 Conventions

- Numbered lists indicate procedures.
- Bullet lists indicate other information and description of illustrations.
- Italicized text indicates:
 - Cross reference.
 - Link.
 - Footnote.
 - Parameter name.
 - Parameter group name.
 - Parameter option.
- All dimensions are in mm (inch).

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