

ENGINEERING  
TOMORROW



Operating Guide

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





## Contents

<b>1 Introduction</b>	<b>5</b>
1.1 Purpose of this Operating Guide	5
1.2 Additional Resources	5
1.3 Document and Software Version	5
1.4 Product Overview	6
1.4.1 Intended Use	6
1.4.2 Hardware	6
1.4.3 Performance	7
<b>2 Safety</b>	<b>8</b>
2.1 Safety Symbols	8
2.2 Qualified Personnel	8
2.3 Safety Precautions	8
<b>3 Installation</b>	<b>11</b>
3.1 Introduction to Installation	11
3.2 Electrical Installation	11
3.2.1 Supply and Motor Terminals	11
3.2.2 Control Signal Connectors	13
3.2.3 EMC Precautions	16
<b>4 Configuring the System</b>	<b>18</b>
4.1 Preparing for Configuration	18
4.2 PROFIBUS Address Set via Hardware Switches	18
4.3 PROFIBUS Address Set via Parameter or SSA Command	20
4.4 Commissioning	20
4.5 LED Behavior	20
4.6 Factory Settings	22
<b>5 Parameter Mapping Lists</b>	<b>25</b>
5.1 FCD 300 Parameter Group 0	25
5.2 FCD 300 Parameter Group 1	31
5.3 FCD 300 Parameter Group 2	39
5.4 FCD 300 Parameter Group 3	48
5.5 FCD 300 Parameter Group 4	56
5.6 FCD 300 Parameter Group 5	65
5.7 FCD 300 Parameter Group 6	73
5.8 FCD 300 Parameter Group 8	78
5.9 FCD 300 Parameter Group 9	80

<b>6 Troubleshooting</b>	<b>86</b>
6.1 Troubleshooting Hints	86
<b>7 Appendix</b>	<b>87</b>
7.1 Abbreviations	87
7.2 Conventions	87

## 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](http://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.

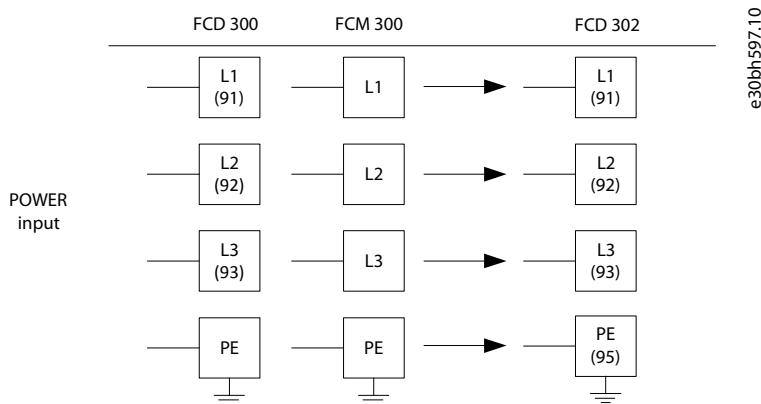
### 3.2 Electrical Installation

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.

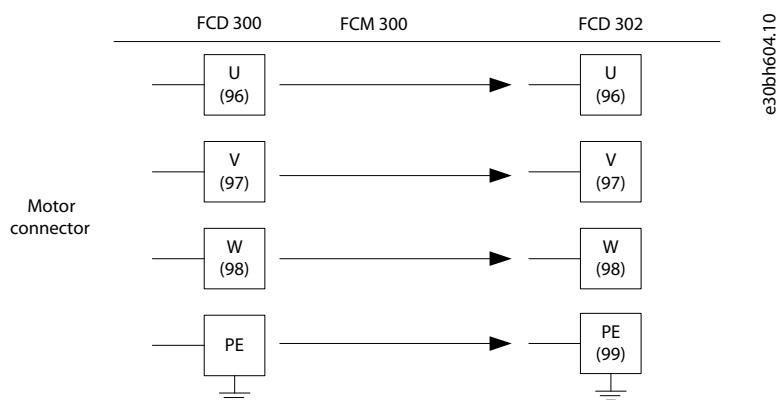
The following sections contain illustrations showing the old terminal number and their equivalents in the new drive. If a box in a drawing is empty, there is no equivalent in the VLT® Decentral Drive FCD 302. In most cases, it is possible to program the FCD 302 to deliver the same function on 1 of the 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

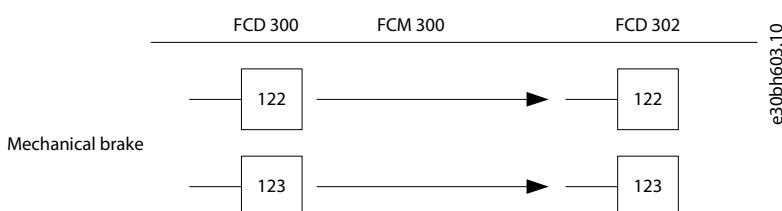
Power cable terminals are 1:1 compatible between VLT® Decentral Drive FCD 300/VLT® DriveMotor FCM 300 and the VLT® Decentral Drive FCD 302. If shielded cables are used, ensure that the shield is mounted as stated in the VLT® Decentral Drive FCD 302 Operating Guide.

**Illustration 1: Power Cable Connections**

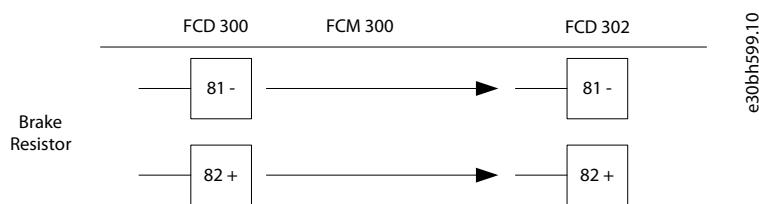
Motor terminals are 1:1 compatible between FCD 300 and FCD 302. If shielded cables are used, ensure that the shield is mounted as stated in the VLT® Decentral Drive FCD 302 Operating Guide.

**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.

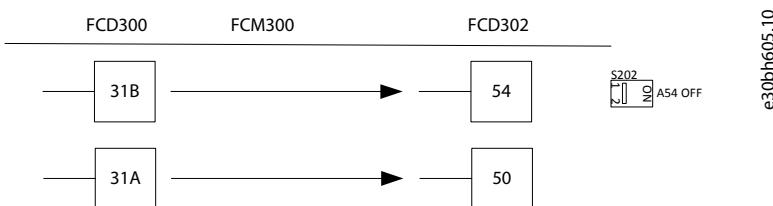
**Illustration 3: Mechanical Brake Connection**

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.



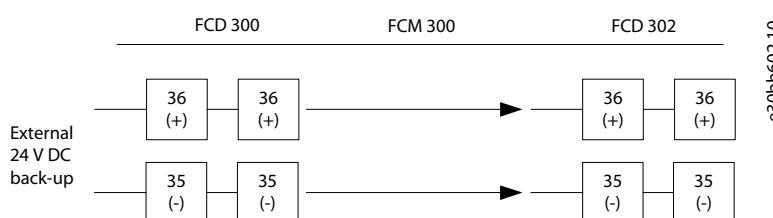
**Illustration 4: Brake Resistor Cable Connections**

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**

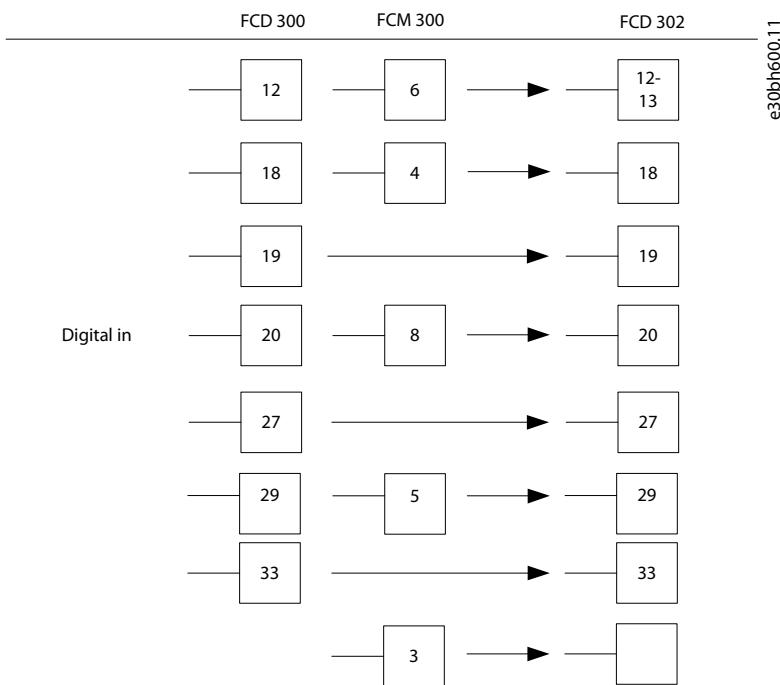
### 3.2.2 Control Signal Connectors

#### 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.

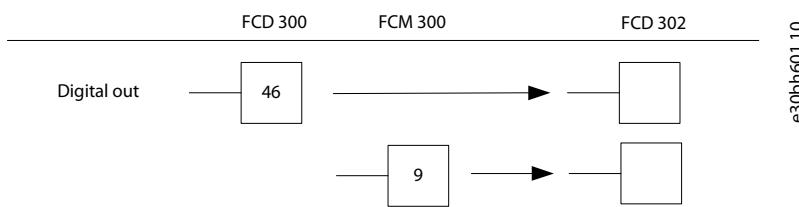


**Illustration 7: Digital Input Cable Connections**

#### 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.

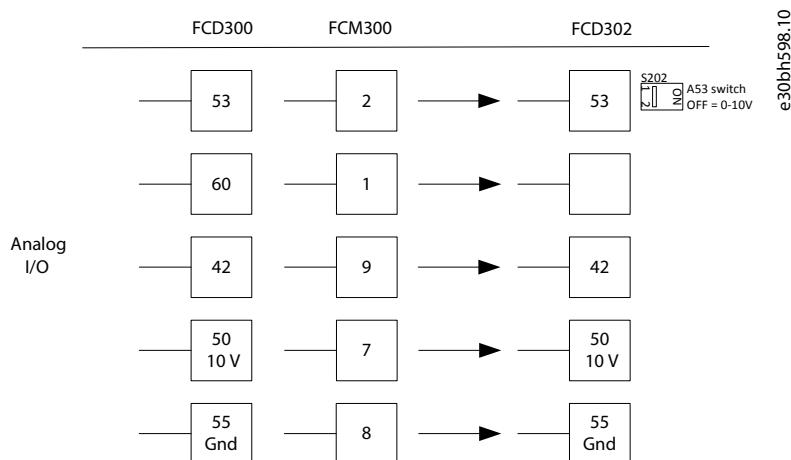
In FCM 300, terminal 9 could be used as either analog or digital output. To obtain the same functionality in FCD 302, configure an analog or digital output manually.



**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**

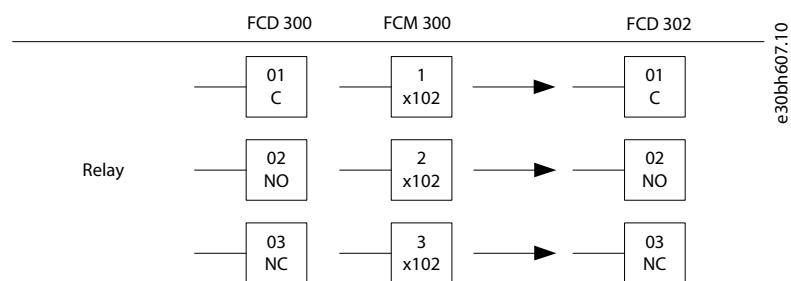
The 0–10 V analog input 53 of the FCD 300 is converted into the FCD 302 analog input 53. The analog input 53 of the FCD 302 can be set to 0–10 V or 0–20 mA via switch S201. From factory, the switch is set in OFF position, which sets the analog input to 0–10 V.

#### Relay cable connections

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

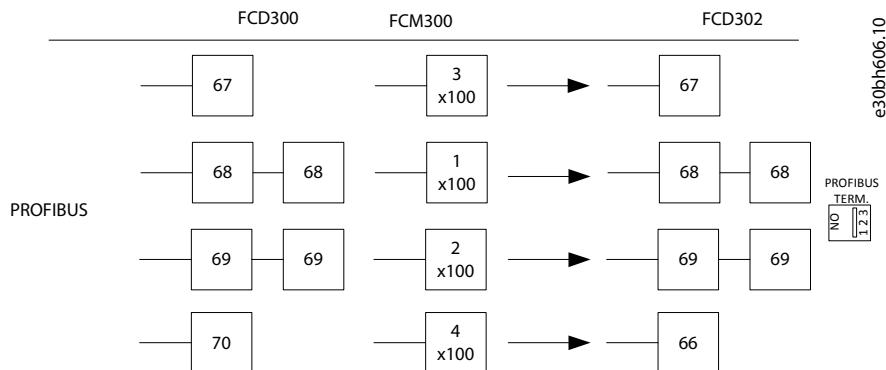
### NOTICE

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:

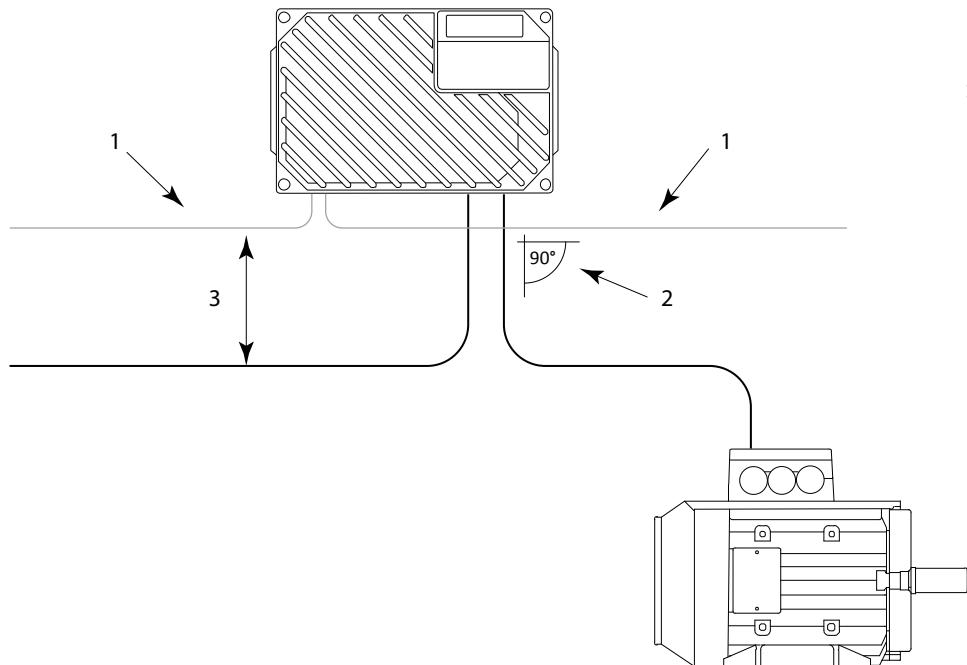
- maintain high distance (minimum 200 mm (8 in)) between the PROFIBUS communication cable and the motor and brake resistor cables to avoid coupling of high-frequency noise from one cable to another.
- ensure that, when crossing is unavoidable, the PROFIBUS cable crosses the motor and brake resistor cables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



**1** PROFIBUS cable

**3**  $\geq 200$  mm ( $\geq 7.9$  in)

**2**  $90^\circ$  intersection

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

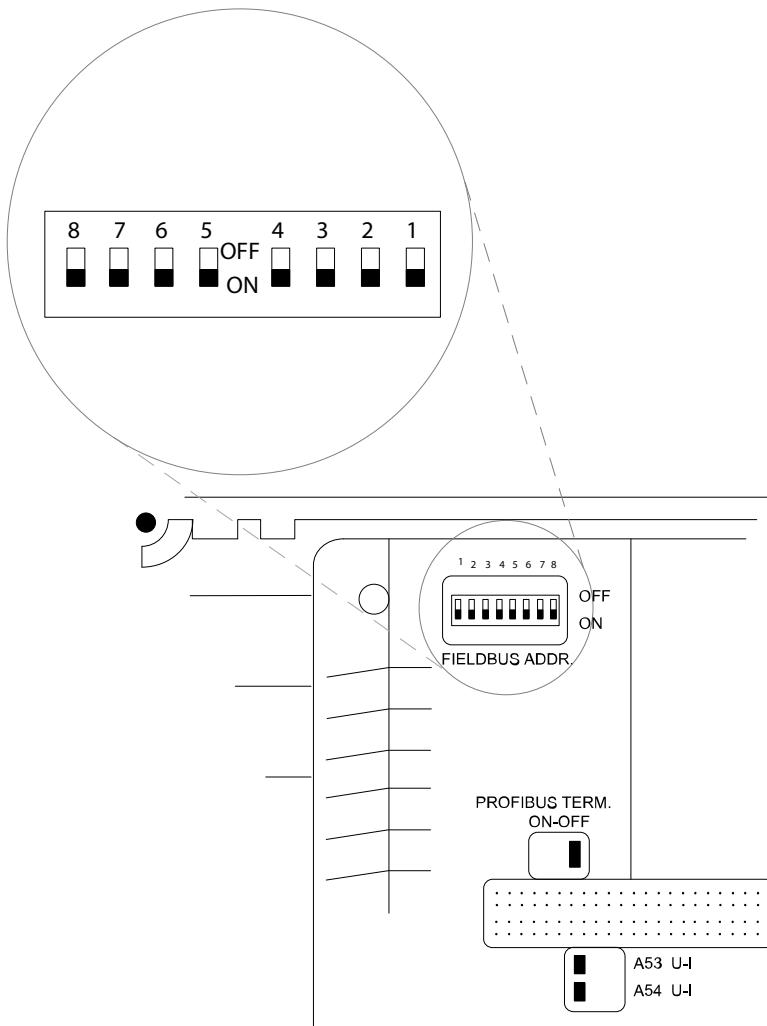
Working with the hardware switches while the power supply is still on may cause personal injuries.

- 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*.

e30bh608.10



**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
<b>Example:</b>																
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.

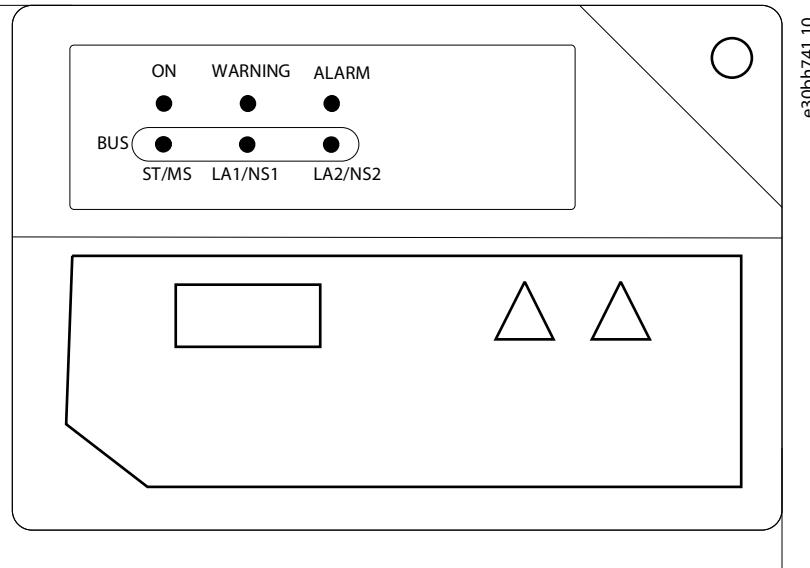
### Example:

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
Baud rate search	Green:		Flashing green
Wait parameterizing	Green:		Long green flash
	Red:		Long red flash
Wait configuration	Green:		Short green flash
	Red:		Short red flash
Data exchange	Green:		Solid green
	Red:		Flashing red

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

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

Parameter	Initialization setting
Parameter 14-15 Kin. Back-up Trip Recovery Level	1,000.000
Parameter 14-21 Automatic Restart Time	5 s
Parameter 14-32 Current Lim Ctrl, Filter Time	27
Parameter 30-84 Process PID Proportional Gain	0.010
<b>PROFIBUS-specific parameters</b>	
Parameter 9-71 PROFIBUS Save Data Values	[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	[0] Factory Setup	[0] Factory Setup
	[1] Setup 1	[1] Setup 1
	[2] Setup 2	[2] Setup 2
	[3] Setup 3	[3] Setup 3
	[4] Setup 4	[4] Setup 4
	[5] Multi Setup	[9] Multi Setup

### 5.1.5 Conversion of Parameter 005 Edit Setup

Table 12: Parameter 005

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

### 5.1.6 Conversion of Parameter 006 Setup Copy

Table 13: Parameter 006

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

### 5.1.7 Conversion of Parameter 007 LCP Copy

**Table 14: Parameter 007**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	<i>007 LCP Copy</i>	<i>0-50 LCP Copy</i>
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**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	<i>008 Frequency Scale</i>	Not converted

### 5.1.9 Conversions of Parameters 009 to 012 Display Line

**Table 16: Parameters 009 to 012**

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

	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 <sup>+</sup>
	[1] Speed Control, Closed Loop	Parameter 1-00: [1] Speed Closed Loop Parameter 1-01: [1] VVC <sup>+</sup>
	[3] Process Control, Closed Loop	Parameter 1-00: [3] Process Parameter 1-01: [1] VVC <sup>+</sup>

### 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**

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

## 5.2.5 Conversion of Parameter 104 Motor Frequency

**Table 32: Parameter 104**

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

## 5.2.6 Conversion of Parameter 105 Motor Current

**Table 33: Parameter 105**

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

## 5.2.7 Conversion of Parameter 106 Rated Motor Speed

**Table 34: Parameter 106**

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

## 5.2.8 Conversion of Parameter 107 Automatic Motor Tuning (AMT)

**Table 35: Parameter 107**

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

### 5.2.9 Conversion of Parameter 108 Stator Resistor

**Table 36: Parameter 108**

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

### 5.2.10 Conversion of Parameter 109 Stator Reactance

**Table 37: Parameter 109**

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

### 5.2.11 Conversion of Parameter 117 Resonance Dampening

**Table 38: Parameter 117**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	<i>117 Resonance Dampening</i>	<i>1-64 Resonance Dampening</i>
Range	0–500%	0–500%

### 5.2.12 Conversion of Parameter 119 High Starting Torque

**Table 39: Parameter 119**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	<i>119 High Starting Torque</i>	Not converted

### 5.2.13 Conversion of Parameter 120 Start Delay

**Table 40: Parameter 120**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	<i>120 Start Delay</i>	<i>1-71 Start Delay</i>
Range	0.0–10.0 s	0.0–10.0 s

## 5.2.14 Conversion of Parameter 121 Start Function

**Table 41: Parameter 121**

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

## 5.2.15 Conversion of Parameter 122 Function at Stop

**Table 42: Parameter 122**

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

## 5.2.16 Conversion of Parameter 123 Min Frequency for Function at Stop

**Table 43: Parameter 123**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	123 Min Frequency for Function at Stop	1-82 Min Speed for Function at Stop [Hz]
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**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	126 DC Braking Time	2-02 DC Braking Time
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	127 DC Brake Cut-in Frequency	2-04 DC Brake Cut-in Speed [Hz]
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	128 Motor Thermal Protection	1-90 Motor Thermal Protection
Options	[0] No Protection	[0] No Protection
	[1] Thermistor Warning	[1] Thermistor Warning
	[2] Thermistor Trip	[2] Thermistor Trip
	[3] ETR Warning 1	[3] ETR Warning 1
	[4] ETR Trip 1	[4] ETR Trip 1
	[5] ETR Warning 2	[5] ETR Warning 2
	[6] ETR Trip 2	[6] ETR Trip 2
	[7] ETR Warning 3	[7] ETR Warning 3
	[8] ETR Trip 3	[8] ETR Trip 3
	[9] ETR Warning 4	[9] ETR Warning 4
	[10] ETR Trip 4	[10] ETR Trip 4

## 5.2.20 Conversion of Parameter 130 Start Frequency

**Table 47: Parameter 130**

	FCD 300 series	FCD 302 series
Parameter	130 Start Frequency	1-75 Start Speed [Hz]
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	131 Initial Voltage	Not converted.

## 5.2.22 Conversion of Parameter 132 DC Brake Voltage

**Table 49: Parameter 132**

	FCD 300 parameter	FCD 302 parameter
Parameter	132 DC Brake Voltage	Not converted

## 5.2.23 Conversion of Parameter 133 Start Voltage

**Table 50: Parameter 133**

	FCD 300 series	FCD 302 series
Parameter	133 Start Voltage	Not converted

## 5.2.24 Conversion of Parameter 134 Load Compensation

**Table 51: Parameter 134**

	FCD 300 series	FCD 302 series
Parameter	134 Load Compensation	Not converted

## 5.2.25 Conversion of Parameter 135 U/f-Ratio

**Table 52: Parameter 135**

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

## 5.2.26 Conversion of Parameter 136 Slip Compensation

**Table 53: Parameter 136**

	FCD 300 series	FCD 302 series
Parameter	136 Slip Compensation	1-62 Slip Compensation
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	137 DC Hold Voltage	2-00 DC Hold Current
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 <sub>max</sub>	-100,000.000 to parameter 3-03, Ref <sub>max</sub>

### 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 <sub>min</sub> to 100,000.000	Parameter 3-02 Ref <sub>min</sub> to 100,000.000

### 5.3.7 Conversion of Parameter 206 Ramp Type

**Table 68: Parameter 206**

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

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

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

### 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**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	209 Ramp Up Time 2	3-51 Ramp 2 Ramp Up Time
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**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	210 Ramp Down Time 2	3-52 Ramp 2 Ramp Down Time
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**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	211 Jog Ramp Time	3-80 Jog Ramp Time
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**

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

### 5.3.14 Conversion of Parameter 213 Jog Frequency

**Table 75: Parameter 213**

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

### 5.3.15 Conversion of Parameter 214 Reference Function

**Table 76: Parameter 214**

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

<sup>1</sup> Relative reference is added to MRV from PROFIBUS.

### 5.3.16 Conversion of Parameter 215 Preset Reference 1

**Table 77: Parameter 215**

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

### 5.3.17 Conversion of Parameter 216 Preset Reference 2

**Table 78: Parameter 216**

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

### 5.3.18 Conversion of Parameter 217 Preset Reference 3

**Table 79: Parameter 217**

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

### 5.3.19 Conversion of Parameter 218 Preset Reference 4

**Table 80: Parameter 218**

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

### 5.3.20 Conversion of Parameter 219 Catch Up/Slow Down Value

**Table 81: Parameter 219**

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

### 5.3.21 Conversion of Parameter 221 Torque Limit for Motor Mode

**Table 82: Parameter 221**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	221 Current Limit	4-18 Curret Limit
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**

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

### 5.3.23 Conversion of Parameter 224 Warning: Current High

**Table 84: Parameter 224**

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

### 5.3.24 Conversion of Parameter 225 Warning Low Frequency

**Table 85: Parameter 225**

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

### 5.3.25 Conversion of Parameter 226 Warning High Frequency

**Table 86: Parameter 226**

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

### 5.3.26 Conversion of Parameter 227 Warning Low Feedback

**Table 87: Parameter 227**

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

### 5.3.27 Conversion of Parameter 228 Warning High Feedback

**Table 88: Parameter 228**

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

### 5.3.28 Conversion of Parameter 229 Frequency Bypass, Bandwidth

**Table 89: Parameter 229**

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

### 5.3.29 Conversion of Parameter 230 Frequency Bypass 1

**Table 90: Parameter 230**

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

### 5.3.30 Conversion of Parameter 231 Frequency Bypass 2

**Table 91: Parameter 231**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
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**

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

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
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

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
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**

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

### 5.4.4 Conversion of Parameter 310 Terminal 53, Max Scaling

**Table 95: Parameter 310**

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

### 5.4.5 Conversion of Parameter 314 Terminal 60, Analog Input Current

**Table 96: Parameter 314**

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

<sup>1</sup> 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**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	<i>315 Terminal 60, Min. Scaling</i>	<i>6-22 Terminal 54 Low Current</i>

	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	316 Terminal 60, Max. Scaling	6-23 Terminal 54 High Current
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	317 Time Out	6-00 Live Zero Timeout Time
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	318 Function After Time Out	6-01 Live Zero Timeout Funciton
Options	[0] Off	[0] Off
	[1] Freeze Output Frequency	[1] Freeze Output Frequency
	[2] Stop	[2] Stop
	[3] Jogging	[3] Jog
	[4] Max Speed	[4] Max Speed
	[5] Stop and Trip	[5] Stop and Trip

#### 5.4.10 Conversion of Parameter 319 Terminal 42, Output

**Table 101: Parameter 319**

	FCD 300 series	FCD 302 series
Parameter	319 Terminal 42, Output	650 Terminal 42 Output

	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 Rdý/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, Nor 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

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
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 <sup>+</sup> /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 <sup>+</sup> /Flux
	[35] Safety Interlock	Not supported

#### 5.4.12 Conversion of Parameter 327 Pulse Reference, Max. Freq

Table 103: Parameter 327

	<b>FCD 300</b>	<b>FCD 302</b>
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	FCD 302 series
Parameter	328 Pulse Feedback, Max. Freq	<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	341 DO46 Max Pulse	<i>5-31 Terminal 29 Digital Output</i>
Options	[0] No Function	[0] No Function
	[21] Pulse Reference	[55] Pulse Output <i>Parameter 5-63 = Reference</i>
	[26] Pulse Feedback	[55] Pulse Output <i>Parameter 5-63 = Reference</i>
	[27] Output Frequency	[55] Pulse Output <i>Parameter 5-63 = Output Frequency</i>
	[28] Pulse Current	[55] Pulse Output <i>Parameter 5-63 = Motor Current</i>
	[29] Pulse Power	[55] Pulse Output <i>Parameter 5-63 = 5-63 = Power</i>
	[30] Pulse Temperature	Not supported
	[31] Control Word Bit 12	Not supported

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

**Table 106: Parameter 342**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
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**

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

#### 5.4.17 Conversion of Parameter 344 Counter Value

**Table 108: Parameter 344**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	<i>344 Counter Value</i>	<i>1-84 Precise Stop Counter Value</i>
Range	0–999999	0–99999999

#### 5.4.18 Conversion of Parameter 349 Speed Compensated Delay

**Table 109: Parameter 349**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
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	409 Trip Delay Torque	14-25 Trip Delay at Torque Limit
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	411 Switching Frequency	14-01 Switching Frequency
Range	Unsigned 16 (6)	Unsigned 8 (5)
	1.5–14 kHz	<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	413 Overmodulation function	14-03 Overmodulation Function
Options	[0] Off	[0] Off
	[1] On	[1] On

### 5.5.7 Conversion of Parameter 414 Minimum Feedback

**Table 116: Parameter 414**

	FCD 300 series	FCD 302 series
Parameter	414 Minimum Feedback	Not converted

### 5.5.8 Conversion of Parameter 415 Maximum Feedback

**Table 117: Parameter 415**

	FCD 300 series	FCD 302 series
Parameter	415 Maximum Feedback	Not converted

### 5.5.9 Conversion of Parameter 416 Feedback Unit

**Table 118: Parameter 416**

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

	FCD 300 series	FCD 302 series
Options	[16] l/h	[22] l/h
	[17] m <sup>3</sup> /h	[25] m <sup>3</sup> /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 <sup>3</sup> /s	[125] ft <sup>3</sup> /s
	[31] gal/min	[122] gal/min
	[32] ft <sup>3</sup> /min	[126] ft <sup>3</sup> /min
	[33] gal/h	[123] gal/h
	[34] ft <sup>3</sup> /h	[127] ft <sup>3</sup> /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**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	<i>418 Speed PID Integral Time</i>	<i>7-03 Speed PID Integral Time</i>
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**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	<i>419 Speed PID Differentiation Time</i>	<i>7-04 Speed PID Differentiation Time</i>
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**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	<i>420 Speed PID D-gain Limit</i>	<i>7-05 Speed PID Diff. Gain Limit</i>
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**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	<i>421 Speed PID Low-pass Filter</i>	<i>7-06 Speed PID Lowpass Filter Time</i>
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**

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

### 5.5.16 Conversion of Parameter 423 U1 Voltage

**Table 125: Parameter 423**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
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**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
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**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
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**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
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**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
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**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	<i>F3 Frequency</i>	1-56 U/f Characteristic - F
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**

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

### 5.5.23 Conversion of Parameter 438 Process PID Anti Windup

**Table 132: Parameter 438**

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

### 5.5.24 Conversion of Parameter 439 Process PID Start Frequency

**Table 133: Parameter 439**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	439 Process PID Start Frequency	7-32 Process PID Start Speed
Data range	f <sub>min</sub> –f <sub>max</sub>	0–6000 RPM

### 5.5.25 Conversion of Parameter 440 Process PID Proportional Gain

**Table 134: Parameter 440**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	440 Process PID Proportional Gain	7-33 Process PID Proportional Gain
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	441 Process PID Integral Time	7-34 Process PID Integral Time
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	442 Process PID Differentiation Time	7-35 Process PID Differentiation Time
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	443 Process PID Diff. Gain Limit	7-36 Process PID Diff. Gain Limit
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
PÅarameter	444 Process PID Lowpass Filter Time	Not supported

### 5.5.30 Conversion of Parameter 445 Flying Start

**Table 139: Parameter 445**

	FCD 300 series	FCD 302 series
Parameter	445 Flying Start	1-73 Flying Start

	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**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	<i>456 Brake Vol Reduce</i>	Not supported

## 5.6 FCD 300 Parameter Group 5

### 5.6.1 Conversion of Parameter 500 Address

**Table 145: Parameter 500**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	<i>500 Address</i>	<i>8-31 Address</i>
Range	0–126	0–126

### 5.6.2 Conversion of Parameter 501 Baud Rate

**Table 146: Parameter 501**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
Parameter	<i>501 Baud Rate</i>	<i>8-32 FC Port Baud Rate</i>
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**

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

### 5.6.4 Conversion of Parameter 509 Bus Jog 1

**Table 148: Parameter 509**

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

### 5.6.5 Conversion of Parameter 510 Bus Jog 2

**Table 149: Parameter 510**

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

### 5.6.6 Conversion of Parameter 512 Telegram Profile

**Table 150: Parameter 512**

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

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

### 5.6.7 Conversion of Parameter 513 Bus Time Interval

**Table 151: Parameter 513**

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

## 5.6.8 Conversion of Parameter 514 Bus Time Interval Function

**Table 152: Parameter 514**

	FCD 300 series	FCD 302 series
Parameter	514 Bus Time Interval Function	Not converted

## 5.6.9 Conversion of Parameter 515 Reference %

**Table 153: Parameter 515**

	FCD 300 series	FCD 302 series
Parameter	515 Reference %	16-02 Reference %

## 5.6.10 Conversion of Parameter 516 Reference Unit

**Table 154: Parameter 516**

	FCD 300 series	FCD 302 series
Parameter	516 Reference Unit	16-01 Reference [Unit]

## 5.6.11 Conversion of Parameter 517 Feedback

**Table 155: Parameter 517**

	FCD 300 series	FCD 302 series
Parameter	517 Feedback	16-52 Feedback [Unit]

## 5.6.12 Conversion of Parameter 518 Frequency

**Table 156: Parameter 518**

	FCD 300 series	FCD 302 series
Parameter	518 Frequency	16-13 Frequency

## 5.6.13 Conversion of Parameter 519 Frequency x Scaling

**Table 157: Parameter 519**

	FCD 300 series	FCD 302 series
Parameter	519 Frequency x Scaling	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	526 Motor Temp.	16-18 Motor Thermal

### 5.6.21 Conversion of Parameter 527 VLT® Temp.

**Table 165: Parameter 527**

	FCD 300 series	FCD 302 series
Parameter	527 VLT® Temp.	16-35 Inverter Thermal

### 5.6.22 Conversion of Parameter 528 Digital Input

**Table 166: Parameter 528**

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

### 5.6.23 Conversion of Parameter 529 Analog Input 53

**Table 167: Parameter 529**

	FCD 300 series	FCD 302 series
Parameter	529 Analog Input 53	16-62 Analog Input 53

### 5.6.24 Conversion of Parameter 531 Analog Input 60

**Table 168: Parameter 531**

	FCD 300 series	FCD 302 series
Parameter	531 Analog Input 60	16-64 Analog Input 54

### 5.6.25 Conversion of Parameter 532 Pulse Reference

**Table 169: Parameter 532**

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

### 5.6.26 Conversion of Parameter 533 External Reference %

**Table 170: Parameter 533**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
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**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
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**

	<b>FCD 300 series</b>	<b>FC 302 series</b>
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**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
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**

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

### 5.7.8 Conversion of Parameter 607 Data Log: Bus Commands

**Table 188: Parameter 607**

	FCD 300 series	FCD 302 series
Parameter	607 Data Log: Bus Commands	Not converted

### 5.7.9 Conversion of Parameter 608 Data Log: Status Word

**Table 189: Parameter 608**

	FCD 300 series	FCD 302 series
Parameter	608 Data Log: Status Word	Not converted

### 5.7.10 Conversion of Parameter 609 Data Log: Reference

**Table 190: Parameter 609**

	FCD 300 series	FCD 302 series
Parameter	609 Data Log: Reference	Not converted

### 5.7.11 Conversion of Parameter 610 Data Log: Feedback

**Table 191: Parameter 610**

	FCD 300 series	FCD 302 series
Parameter	610 Data Log: Feedback	Not converted

### 5.7.12 Conversion of Parameter 611 Data Log: Motor Frequency

**Table 192: Parameter 611**

	FCD 300 series	FCD 302 series
Parameter	611 Data Log: Motor Frequency	Not converted

### 5.7.13 Conversion of Parameter 612 Data Log: Motor Voltage

**Table 193: Parameter 612**

	FCD 300 series	FCD 302 series
Parameter	612 Data Log: Motor Voltage	Not converted

### 5.7.14 Conversion of Parameter 613 Data Log: Motor Current

**Table 194: Parameter 613**

	FCD 300 series	FCD 302 series
Parameter	613 Data Log: Motor Current	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	614 Data Log: DC Link Voltage	Not converted

### 5.7.16 Conversion of Parameter 615 Fault Log: Error Code

**Table 196: Parameter 615**

	FCD 300 series	FCD 302 series
Parameter	615 Fault Log: Error Code	15-30 Fault Log: Error Code

### 5.7.17 Conversion of Parameter 616 Fault Log: Time

**Table 197: Parameter 616**

	FCD 300 series	FCD 302 series
Parameter	616 Fault Log: Time	15-32 Fault Log: Time

### 5.7.18 Conversion of Parameter 617 Fault Log: Value

**Table 198: Parameter 617**

	FCD 300 series	FCD 302 series
Parameter	617 Fault Log: Value	15-31 Fault Log: Value

### 5.7.19 Conversion of Parameter 618 Reset of kWh Counter

**Table 199: Parameter 618**

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

### 5.7.20 Conversion of Parameter 619 Reset of Hours Run

**Table 200: Parameter 619**

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

### 5.7.21 Conversion of Parameter 620 Operation Mode

**Table 201: Parameter 620**

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

### 5.7.22 Conversion of Parameter 621 Name Plate: VLT® Type

**Table 202: Parameter 621**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
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**

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

### 5.7.31 Conversion of Parameter 630 Name Plate: Com Type

**Table 211: Parameter 630**

	FCD 300 series	FCD 302 series
Parameter	630 Name Plate: Com Type	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	631 Name Plate: Com. Type No.	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	800 PROFIBUS DP	Not converted

### 5.8.2 Conversion of Parameter 801 Baud Rate Selection

**Table 214: Parameter 801**

	FCD 300 series	FCD 302 series
Parameter	801 Baud Selection	Not converted

### 5.8.3 Conversion of Parameter 802 Minimum Station Delay

**Table 215: Parameter 802**

	FCD 300 series	FCD 302 series
Parameter	802 Minimum Station Delay	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	803 Time Out After Bus Error	8-03 Control Word Timeout Time
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	804 Response After Bus Time Out	8-04 Control Word Timeout Function 8-02 Control Word Source
Options	[0] Off	[0] Off
	[1] Freeze Output Frequency	[1] Freeze Output Frequency
	[2] Stop	[2] Stop
	[3] Jogging	[3] Jogging
	[4] Max Speed	[4] Max Speed
	[5] Stop and Trip	[5] Stop and Trip
	[6] No Com. Option Control	Parameter 8-02 set to RS485
	[7] Select Set Up 4	[10] Select Set Up 4

### 5.8.6 Conversion of Parameter 805 Function of Control Word Bit 10

**Table 218: Parameter 805**

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

### 5.8.7 Conversion of Parameter 806 SAP Selection (FMS)

**Table 219: Parameter 806**

	FCD 300 series	FCD 302 series
Parameter	806 SAP Selection (FMS)	Not converted

## 5.8.8 Conversion of Parameter 833 Fieldbus Select

**Table 220: Parameter 833**

	<b>FC 300 series</b>	<b>FCD 302 series</b>
Parameter	833 <i>Fieldbus Select</i>	Not converted

## 5.8.9 Conversion of Parameter 849 Extended Diagnose

**Table 221: Parameter 849**

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

## 5.9 FCD 300 Parameter Group 9

### 5.9.1 Conversion of Parameter 904 PPO Type Select for DP

**Table 222: Parameter 904**

	<b>FC 300 series</b>	<b>FCD 302 series</b>
Parameter	904 <i>PPO Type Select for DP</i>	Not converted

### 5.9.2 Conversion of Parameter 915 PCD Config Write

**Table 223: Parameter 915**

	<b>FC 300 series</b>	<b>FCD 302 series</b>
Parameter	915 <i>PCD Config Write</i>	9-15 <i>PCD Write Configuration</i>

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
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**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
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**

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

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

**Table 236: Parameters 980–982 and 990–992**

	<b>FCD 300 series</b>	<b>FCD 302 series</b>
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).

## Index

<b>A</b>	Qualified personnel .....	8
Abbreviations .....	87	
<b>C</b>	S	
Connections	Switches	
Analog I/O Cable .....	Disconnect .....	9
Brake resistor cable .....	Symbols .....	8
Digital Input Cable .....		
Digital Output Cable .....	T	
External 24 V cable .....	Terminal function .....	13
Mechanical brake .....		
Motor Cable .....	U	
Motor thermistor cable .....	Unintended start .....	9
Power Cable .....	V	
PROFIBUS Cable .....	Voltage	
Relay Cable .....	Safety warning .....	8
<b>D</b>	W	
Drive firmware version .....	Warning words .....	86
<b>E</b>		
EMC .....	16	
<b>H</b>		
Hardware switch settings .....	19	
<b>I</b>		
Initial power-up .....	11	
Initialization .....	22	
Intended use .....	6	
<b>L</b>		
Leakage current .....	9	
LED .....	20	
LED pattern .....	21	
<b>P</b>		
PLC programming .....	6	
PROFIBUS firmware version .....	6	
PROFIBUS SSA command .....	20	
<b>Q</b>		



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