CDE3000 Positioning controller

External Update Service for Basic Firmware V5.xx-xx

Stand: 17.05.2013

File: CDE_Basis_EN_Homepage.doc

Introduction

As part of our product maintenance process, we are continuously extending the firmware of the drive system. This software update service is intended to provide you with information on new releases and improvements of the various software versions.

For version V5.xx-xx an E²PROM with min. 16kB is absolutely necessary!

Hardware index of device has to be 2.4 or higher!

Index:

1 Version 5.00-00

Changes to version:	New Version	V5.00-00 CS (XOR): 39E8

1.1 New functions

No.:	Function
1.	**PLC** • Number of lines of PLC increased from 498 to 700, additional parameter PLCC3 (485) implemented • All PLC-Variables and flags can be saved again in the backup range • Password protection of PLC implemented • CanOpen Master with new PLC-commands (see application manual Can Master) • STOP 1 added (switches-off at standstill, TargetReached only if STOP 0 necessary)

2.	**Hardware Support**
	• Fully support of larger E²PROMS
	• Voltage thresholds adapted according to the requirements in China
	For 230V devices:
	Pre-load ON: 200V Pre-load OFF: 160V
	Uzk-OFF: 175V Uzk-ON 212V
	For 400V devices:
	Pre-load ON: 400V Pre-load OFF: 340V
	Uzk-OFF: 360V Uzk-ON 430V
	• Switching frequency change over at E-OL5 robust performance
	• Error correction at Bios-loader made (in connection with large E²PROM)
	• OpenLoop-operation reduced and further different measures performed to save flash-memory (Preset solutions for OpenLoop removed !!!)
	• Adjustments made at switching-frequency changeover
	• Update of output stage data CDE3000
	• Functionality changeover included
	  • Open brake at ICOM
	  • State machine more robust
	  • Delete limit flag

3.	**Motor / Geber** • Supports 2 phase motors: Parameter MONMP (859) • Modification of Ixt-control for 2 phase motors • Cogging compensation and non-linear characteristic line of motor implemented (see manual cogging compensation) • Parameter 165 – 169 for TorqueChampion cogging compensation • Field wakening of synchronous motors changed. Limit $isd^2 + isq^2$ • Supports analogue multiplexer • Supports HIPERFACE and SinCos-Encoder (SRM50, SEK37/52, SEL37/52, SKS36, SKM36) • State machine of TTL-monitoring more robust

4.	**Fieldbus**
	• Parameter FSCAN and ESMAP for encoder simulation applied via Can
	• Encoder simulation / cam disk via Can (see application manual cam disk)
	• Error at master encoder cleared via CAN. Gear factor included in speed
	• Interruption of CAN-Master initialization if set cycle time is wrong in parameter ASSYT
	• Adaption of condition for interpolation of CAN-references in Slave at CAN-Mater-Slave-coupling. No interpolation in SCON and speed references
	• Can ModeOfOperation implemented in Scope
	• Via CAN-Synchronization controller various errors cleared, interpolation of output activated.
	• Adaption for CANopen IP Mode with MotionOne:
	  • Taking-over of RxPDOs in SYNC ISR implemented.
	  • Setting "2" resp. "ON_2" for Parameter ASSEL to select this function.
	  • ASSEL setting "1" resp. "ON" is unchanged! → Downwards compatible!
	  • Taking-over of RxPDO data by CAN controller directly via interrupt routine, released via achieving the Sync. That means RxPDO taking-over causes a higher runtime of the SYNC Interrupt! (Therefore own ASSEL setting, too). Target shall be to use only a few RxPDOs in IP Mode (for busload and due to SYNC ISR runtime).
	  • Functionality only for CANopen IP Mode, which means only RxPDO Transmission Types 1 to 240 operates. RxPDOs with other Transmission Types (e.g. 0, 254, 255) will be picked up outside the SYNC ISR of CAN Controller as usual
	• **New CANopen mode (-6) – ProfilePositionModeForceUpdate**
	Hereby it deals with a variant of the Profile Position Mode, taking-over all driving commands with rising edge at the NewSetPoint Bit immediately. Target resp. background of the implementation is to attach relative driving commands (during a running process) to the last target position without stopping in the meantime.
	Activation:
	Set parameter H6060 resp. CANopen Object 0x6060 (modes of Operation) = **-6**
	Behavior in drive:
	Absolute target positions will be taken over immediately (independently from the ChangeSetImmediately).
	Relative target positions WITHOUT ChangeSetImmediately will be attached to the last target position.
	Relative target positions WITH ChangeSetImmediately will be attached to the actual position.

5.	**Cam disk** • Changeover of the CycleCounter of the cam disk to Up/Down-Counter. Parameter changed: EGVMC, EGSSL, EGCCV (see application manual cam disk) • Number of cam disk segments increased to 64 • FBG-functionality “sine dome“ via switch _FGB_ECAM capsuled • Functions v_norm() and a_norm() to x_norm() standardized and errors cleared • De-coupling of cam disk at STOP x • Macros for sine calculation replaced • New cam disk profile G_U_POLY5 and U_G_POLY5 implemented and errors cleared • Error correction RCAM Break • Error correction MasterCompensation. Error causes drift of cam disk

6.	**Parameter** • Extended Touchprobe with window function and TP1 with interpolation • Value range of parameter 195 FGPOL extended from 0/1 to 0/255 (DS402) • Filter for master encoder speed integrated. Parameter 819 RECTF • Parameter MOMNM increased from 5000Nm to 20000Nm • Scaling of speed pre-control Parameter 814 NPREF implemented • Software end switch evaluation corrected at inherited error • Initialization error IFOUT cleared
7.	**Technology controller** • Online changeable limits and offset of limitation implemented • D-part for technology controller implemented • Library function sscanf() replaced • Technology controller extended by gradient control (see application manual technology controller) • Error at scaling of I-part cleared • Technology controller inactive only via deleting the Bit 1 in PRCTR (but prior to this initialization is necessary) • Adaption of gain of gradient controller to amount of setpoint value
8.	**Others** • New .err and .pit files are created

1.2 Changes, Improvements

No.:	Changes / Improvements
1.	**See new functions**
2.	**Keypad** • KP300 identifies CDE3000 with Firmware V5.xx-xx

1.3 Known problems

No.:	Problem
1.	none

2 Version 5.00-02

Changes to version: V5.00-00	**New Version**	**V5.00-02 CS (XOR):** **D8D5**

2.1 New functions

Nr.:	Function
1.	• Fluxcontrol with nominal current now possible • Encoder overfow of sin/ cos-function removed
2.	**Parameter POOVR** • Expended to TXPDO and RXPDO • Range expended to 0%…500% • Parameter changed to FIXPOINT16, for a resolution of 0.05% steps • <u>Effect:</u> ▪ Percent values must now be transferred via fieldbus (Can) with a factor of 20 (poovr_ram = 35,65% = 35,65 * 20 = 713) ▪ Resolution in ECAM slightly reduced that 500% are possible ▪ Via Profibus only whole percents parameterized. Maximum 255% (usign8) ▪ DM3 datasets stay compatible

2.2 Changes, Improvements

Nr.:	Changes / Improvements
1.	none

2.3 Known problems

Nr.:	Problem
1.	none

LTi DRiVES GmbH

Gewerbestraße 5-9
35633 Lahnau
Germany
Fon +49 (0) 6441/ 96 6-0

Fax +49 (0) 6441/ 96 6-137

Heinrich-Hertz-Straße 18
59423 Unna
Germany
Fon +49 (0) 2303/ 77 9-0

Fax +49 (0) 2303/ 77 9-397

www.lt-i.com
info@lt-i.com

Subject to technical changes.