



CDHD Servo Drive

VarCom

Reference Manual

Revision: 6.1

Firmware Version: 1.4.5



Revision History

Document Revision	Date	Remarks
6.1	Jan. 2014	Firmware version 1.4.5
6.0	Oct. 2013	Firmware version 1.4.4
5.2/5.2a	May 2013	Minor corrections. Firmware version 1.3.2
5.1	Feb.2013	Internal, for online Help. Firmware 1.3.2
5.0	Jan. 2013	Firmware version 1.3.2
4.1	Nov. 2012	Firmware version 1.2.12; minor corrections
4.0	Aug. 2012	Firmware version 1.2.12
3.0	Feb.2012	Firmware version 1.0.6
2.2	Jan. 2012	Cross-reference links added; minor corrections
2.1	Jan. 2012	Firmware version 0.0.13
2.0	Dec. 2011	Firmware version 0.0.13 (internal release)
1.2	Sept. 2011	Documentation for firmware version 0.0.12
1.1	July 2011	

Firmware Revision
1.4.5

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1 Introduction

About This Manual

CDHD drive functionality is configured using various commands and variables, which are communicated over the serial port or over CAN bus.

This manual details **VarCom** instructions, which are used with serial communications.

Documentation Set for the CDHD

This manual is part of a documentation set. The entire set consists of the following:

- **CDHD Quick Start Guide.** Basic setup and operation of the drive.
- **CDHD User Manual.** Hardware installation, configuration and operation.
- **CDHD VarCom Reference Manual.** Parameters and commands used to program the CDHD.
- **CDHD CANopen for CAN and EtherCAT Drives Reference Manual.** CDHD implementation of CANopen protocol for CAN and EtherCAT.

Manual Format

The command and variable descriptions are presented here in alphabetical order.

Command and variable descriptions use different formats, as described below.

All commands and variables are presented as follows:

Definition	Short name, used in the graphical user interface software.
Type	Variable (R/W): A read/write variable. Variable (R): A read-only variable. Command
Description	Description of the command or variable.
Syntax	The command format, including any optional or required parameters. Commands are described using the following conventions: [] Indicates an optional parameter. { } Enclose two or more required alternative choices, separated by vertical bars. A vertical bar separates two or more choices, either required arguments enclosed in braces { } or optional arguments enclosed in brackets []. Variable parameters are italicized within < >.
Firmware	The earliest version, or specific versions, in which the described functionality is available.

Drive status	Enabled Disabled Indicates the required state of the drive when the command or variable is issued or invoked.
Range	Discrete values and ranges of values. Parameter values can be written with up to 9 digits following the decimal point. When read, values will show only 3 digits following the decimal point. For example: -->acc 0.123456789 -->acc 0.123 [rpm/s] -->
Default value	The parameter's default value.
Unit	When parameter values imply units of measure, these units are specified.
Non-volatile	Yes No Indicates whether the value of the variable is stored in the non-volatile memory, and thereby available when the drive is rebooted. Not applicable for Command.
Example	Examples of use.
See also	Links to related commands and variables.
CANopen	Where applicable, the equivalent EtherCAT COE and CANopen object code.

2 Variable and Command Functions and Types

Added in this Firmware Release

No new variables or commands

Removed in this Firmware Release

MRT

Functions

Activation and Faults

ACTIVE	MOTORPHASESCAN	STATUS
CLEARFAULTS	READY	SWEN
DISMODE	RELAY	SWENMODE
DISPLAYTEST	RELAYMODE	UVMODE
EN	REMOTE	UVRECOVER
FLT	ST	UVTHRESH
FLTHIST	STALLTIME	UVTIME
FLTHISTCLR	STALLVEL	WRN
K	STAT	

Bus Power

DICONT	PWMFRQ	UVTHRESH
DIPEAK	PWMSATRATIO	UVTIME
KCD	UVMODE	VBUS
OVTHRESH	UVRECOVER	VBUSREADOUT

Communication

ADDR	FBITIDX	MEMF
BAUDRATE	FBITPRD	MEML
CHECKSUM	FBGDS	MEMQ
COMMODE	FBGMS	MEMW
DELAY	FBITIDX	MSGPROMPT
DRIVESCRIPT	FBITPRD	OPMODE
DRIVESCRIPTST	FBPLIGNORE	PASSWORD
ECHO	FBSCALE	SYNCSOURCE
FBGDS	GETMODE	
FBGMS	MEMBIT	

Commutation

CANBITRATE	MENCZPOS	PHASEFINDANGLE
CONFIG	MOTORCOMMTYPE	PHASEFINDDELTA
ELECTANGLE	MOTORSETUP	PHASEFINDGAIN
FEEDBACKTYPE	MOTORSETUPST	PHASEFINDI
GETREC	MPHASE	PHASEFINDMODE
HALLS	MPITCH	PHASEFINDST
HALLSINV	MPOLES	PHASEFINDTIME
HALLSTYPE	MTANGLC	WNSERR
INDEXFIND	MTANGLP	ZERO
INDEXFINDST	MVANGLF	ZEROST
MENCRES	MVANGLH	
MENCTYPE	PHASEFIND	

Controller - Current

ANIN1ISCALE	ILIM	KCP
ANIN2ISCALE	IMAX	MICONT
CLVD	IQ	MIPEAK
CLVQ	IQCMD	ML
CONFIG	IU	MLGAINC
ESTMOTORPARAM	IUOFFSET	MLGAINP
ESTMOTORPARAMST	IV	MOTORPHASESCAN
ESTOPI LIM	IVOFFSET	OPMODE
FRICINEG	KCBEMF	OUTILVL1
FRICIPOS	KCD	OUTILVL2
FRICNVHYST	KCDQCOMP	PWMSATRATIO
FRICPVHYST	KCFF	STOP
I ICMD	KCI	T
ID	KCIMEMD	VBUS
IFFLPHZ	KCIMEMQ	
IGRAV	KCMODE	

Controller - Position

AUTOTUNELOG	KPAFRC	PCMD
DIR	KPAFRV	PE
FRICINEG	KPD	PEINPOS
FRICIPOS	KPE	PEINPOSTIME
FRICNVHYST	KPI	PELOOP
FRICPVHYST	KPISATIN	PEMAX
GEARIN	KPISATOUT	PFB
GEARMODE	KPP	POSCONTROLMODE
GEAROUT	KPVFR	PTPTE
HOLD	MECHANGLE	PTPVCMD
HWPEXT	MFBDIR	STOP
HWPEXTCNTRLR	MOVEABS	STOPPED
HWPEXTMACHN	MOVEINC	UNITSLINPOS
HWPOS	OPMODE	UNITSROTPOS
ICMD	OUTPLVL1	VCMD
INPOS	OUTPLVL2	

Controller - Velocity

ANIN1DB	KVI	VCMD
ANIN1LPFHZ	KVP	VD
ANIN1VSCALE	LMJR	VE
ANIN2LPFHZ	MJ	VELCONTROLMODE
BW	MKT	VELDESIGN
FILTHZ1	MSPEED	VELFILTRFQ
FILTHZ2	NLVELLIMOPMODE	VELFILTMODE
FILTMODE	OUTVLVL1	VF
FRICINEG	OUTVLVL2	VFI
FRICIPOS	STEP	VH
FRICNVHYST	STOP	VLIM
FRICPVHYST	TF	VMAX
ICMD	UNITSLINVEL	VR
J	UNITSROTVEL	
KVFR	V	

Direction

DIR	MECHANGLE	MOTORSETUPSTMPhase
ELECTANGLE	MFBDIR	PFB
HWPOS	MOTORSETUP	V

Emergency Stop

DECDIST	DISMODE	HOLD
DECDIST2	DISSPEED	ISTOP
DECSTOP	DISTIME	STOP
DECSTOPTIME	ESTOPILIM	

Feedback

ABSOFFSET	INDEXFINDST	PFBOffset
DIR	INDEXPFB	RESAMPLRANGE
FEEDBACKTYPE	INDEXST	RESBW
HALLS	IZERO	SDHACK
HALLSFILTAFF	MECHANGLE	SININIT
HALLSFILTT1	MENCAQBFLT	SININITMODE
HALLSFILTT2	MENCRES	SININITST
HALLSFILTVELFF	MENCTYPE	SINPARAM
HALLSINV	MENCZPOS	TMTMP
HALLSTYPE	MFBDIR	TMTURNRESET
HWPEXT	MFBMODE	UNITSLINPOS
HWPEXTCNTRLR	MOTORSETUP	UNITSROTPOS
HWPEXTMACHN	MOTORSETUPST	XENCRES
HWPOS	MRESPOLDS	ZERO
INDEXDURATE	MSININT	ZEROST
INDEXFIND	PFBBackup	

Foldback

DICONT	MFOLD	MICONT
DIPEAK	MFOLDD	MIFOLD
FOLD	MFOLDDIS	MIFOLDFTHRESH
IFOLD	MFOLDF	MIFOLDWTHRESH
IFOLDFTHRESH	MFOLDR	MIPEAK
IFOLDWTHRESH	MFOLDT	

Gearing

GEAR	GEARFILTVELFF	HWPEXT
GEARACCTHRESH	GEARIN	HWPEXTCNTRLR
GEARFILTAFF	GEARINMODE	HWPEXTMACHN
GEARFILTMODE	GEARLIMITSMODE	OPMODE
GEARFILTT1	GEARMODE	PCMD
GEARFILTT2	GEAROUT	XENCRES

HD Controller

ATAVHIST	KNLD	NLANTIVIBSHARP2
AUTOTUNE	KNLI	NLFILTDAMPING
AUTOTUNEAVDR	KNLIDV	NLFILTT1
AUTOTUNEAVMODE1	KNLIINT	NLHBWEN
AUTOTUNEAVMODE2	KNLIV	NLMAXGAIN
AUTOTUNEAVSCR	KNLP	NLNOTCH2BW
AUTOTUNELMJR	KNLUSERGAIN	NLNOTCH2CENTER
AUTOTUNELOG	MOVESMOOTHLPFHZ	NLNOTCHBW
AUTOTUNEMODE	NLAFFLPFHZ	NLNOTCHCENTER
AUTOTUNEPEINPOS	NLANTIVIBGAIN	NLPEAFF
AUTOTUNESCRATCH	NLANTIVIBGAIN2	NLPEDFFRATIO
AUTOTUNESTUDIO1	NLANTIVIBHZ	NLTUNE
AUTOTUNESTUDIO2	NLANTIVIBHZ2	NLTUNEPARAM
AUTOTUNETQF	NLANTIVIBKNLD	NLTUNEST
AUTOTUNEVBL	NLANTIVIBLMJR	NLTUNETIME
CYCLEIDENTTRESH	NLANTIVIBN	NLVELLIM
INERTIAIDENTEST	NLANTIVIBSHARP	PELOOP

Harmonic Correction

AUTOHC	HCFB2	HCICMD2
HCFB	HCICMD	
HCFB1	HCICMD1	

Homing

AUTOHC	HOMEOFFSET	HOMESTATE
HOMEACC	HOMEOFSTMOVE	HOMETYPE
HOMECMD	HOMESPEED1	
HOMEIHARDSTOP	HOMESPEED2	

I/Os - Analog

ANIN1	ANIN2	ANOUT
ANIN1DB	ANIN2DB	ANOUTCMD
ANIN1ISCALE	ANIN2ISCALE	ANOUTISCALE
ANIN1LPFHZ	ANIN2LPFHZ	ANOUTLIM
ANIN1OFFSET	ANIN2MODE	ANOUTMODE
ANIN1VSCALE	ANIN2OFFSET	ANOUTVSCALE
ANIN1ZERO	ANIN2ZERO	OPMODE

I/Os - Digital

ENCOUTMODE	IN	OUTPLVL1
ENCOUTRES	ININV	OUTPLVL2
ENCOUTZPOS	INMODE	OUTPUTS
GEARIN	INPUTS	OUTVLVL1
GEARMODE	OUT	OUTVLVL2
GEAROUT	OUTILVL1	RELAY
HWPEXT	OUTILVL2	RELAYMODE
HWPEXTCNTRLR	OUTINV	SYNCSOURCE
HWPEXTMACHN	OUTMODE	XENCRES

Limits

DICONT	IMAX	MSPEED
DIPEAK	LIMSWITCHNEG	POSLIMMODE
ESTOPILM	LIMSWITCHPOS	POSLIMNEG
FOLD	MFOLD	POSLIMPOS
HOMEIHARDSTOP	MFOLDDIS	STALLTIME
IFOLD	MICONT	STALLVEL
ILIM	MIFOLD	VLIM
ILIMACT	MIPEAK	VMAX

Linear System

MKF	MPITCH	UNITSLINVEL
MMASS	UNITSLINACC	
MOTORTYPE	UNITSLINPOS	

Memory – Non-volatile

DICONT	FACTORYRESTORE	PFBBACKUPMODE
DIPEAK	LOAD	SAVE
DUMP	OVTHRESH	UVTHRESH
EMBER	PFBBACKUP	

Motion

ACC	MOVEINCSPEED1	PEINPOSTIME
DEC	MOVEINCSPEED2	PNUM
DECSTOP	MOVESMOOTHAVG	PTPTE
HOLD	MOVESMOOTHLPFHZ	PTPVCMD
J	MOVESMOOTHMODE	STEP
MB	NLHBWEN	STOPPED
MBST	PATHACC	UNITSLINACC
MOVEABS	PATHCTRL	UNITSLINPOS
MOVEINC	PATHDEC	UNITSLINVEL
MOVEINCCOUNTER	PATHDELAY	UNITSROTACC
MOVEINCDELAY	PATHPOS	UNITSROTPOS
MOVEINCDIST1	PATHSPEED	UNITSROTVEL
MOVEINCDIST2	PDEN	VLIM

Motor

DIR	MIFOLDFTHRESH	MPITCH
ESTMOTORPARAM	MIFOLDWTHRESH	MPOLES
ESTMOTORPARAMST	MIPEAK	MR
FEEDBACKTYPE	MJ	MRESPOLES
MENCRES	MKF	MSPEED
MENCTYPE	MKT	MTANGLC
MENCZPOS	ML	MTANGLP
MFBDIR	MLGAINC	MVANGLF
MFOLD	MLGAINP	MVANGLH
MFOLDD	MMASS	THERM
MFOLDDIS	MOTORCOMMTYPE	THERMCLEARLEVEL
MFOLDF	MOTORNAME	THERMODE
MFOLDR	MOTORSETUP	THERMREADOUT
MFOLDT	MOTORSETUPST	THERMTIME
MICONT	MOTORTYPE	THERMTRIPLEVEL
MIFOLD	MPHASE	THERMTYPE

Recording

GET	RECDONE	RECRDY
GETMODE	RECING	RECTRIG
PRBFRQ	RECLIST	RECTRIGLIST
PRBMODE	RECOFF	
PRBPARAM	RECORD	

Temperature

DRIVETEMP	THERMODE	THERMTRIPLEVEL
THERM	THERMREADOUT	THERMTYPE
THERMCLEARLEVEL	THERMTIME	TMTEMP

Unit - Configurable

ABSOFFSET	HOMESPEED2	PE
ACC	INDEXPFB	PEINPOS
ANIN1VSCALE	J	PELOOP
ANOUTVSCALE	KVP	PEMAX
DEC	MOVEABS	PFB
DECDIST	MOVEINC	PFB OFFSET
DECDIST2	MOVEINCDIST1	PNUM
DECSTOP	MOVEINCDIST2	POSLIMNEG
DISSPEED	MOVEINCSPEED1	POSLIMPOS
FRICNVHYST	MOVEINCSPEED2	PTPTE
FRICPVHYST	MSPEED	PTPVCM
GEARACCTHRESH	NLTUNEPARAM	STALLVEL
HCFB	OUTPLVL1	STEP
HCFB1	OUTPLVL2	V
HCFB2	OUTVLVL1	VCMD
HOMEACC	OUTVLVL2	VE
HOMEOFFSET	PCMD	VLIM
HOMESPEED1	PDEN	VMAX

Unit - Selectable

MOTORTYPE	UNITSLINACC	UNITSROTACC
PDEN	UNITSLINPOS	UNITSROTPOS
PNUM	UNITSLINVEL	UNITSROTVEL

Types

Status

These are read-only variables, serving as status flags that indicate the state of the drive and certain procedures.

ACTIVE	MBST	SININITST
DRIVESCRIPTST	MOTORSETUP	ST
ESTMOTORPARAMST	NLTUNEST	STAT
FLT	PHASEFINDST	STATUS
HOMESTATE	READY	SWEN
INDEXFINDST	RECDONE	WNSERR
INPUTS	RECING	ZEROST
LIMSWITCHNEG	RECRDY	
LIMSWITCHPOS	RELAY	

Information

These are read-only variables that display utility information.

ADDR	INFO	RECTRIGLIST
DRIVENAME	LIST	VELDESIGN
FLTHIST	MOTORNAME	VER
IMAX	PFBBACKUP	VMAX
INERTIAIDENTEST	RECLIST	WRN

Modes

These are variables that define modes of operation and control. Each variable has a set of discrete values, each of which defines a different mode. These variables are also referred to as switch variables.

ANIN2MODE	HOMETYPE	POSCONTROLMODE
ANOUTMODE	INMODE	POSLIMMODE
ABSOFFSET	KCMODE	RELAYMODE
CHECKSUM	MENCAQBFILT	SININITMODE
COMMODE	MENCTYPE	SWENMODE
DIR	MFBDIR	SYNCSOURCE
DISMODE	MFBMODE	THERMODE
ENCOUTMODE	MFOLDDIS	THERMTYPE
FEEDBACKTYPE	MOTORCOMMTYPE	UNITSLINACC
FILTMODE	MOTORPHASESCAN	UNITSLINPOS
GEAR	MOTORTYPE	UNITSLINVEL
GEARFILTMODE	MOVESMOOTHMODE	UNITSROTACC
GEARINMODE	MSGPROMPT	UNITSROTPOS
GEARLIMITSMODE	NLHBWEN	UNITSROTVEL
GEARMODE	OPMODE	UVMODE
GETMODE	OUTMODE	VELCONTROLMODE
HALLSTYPE	PFBBACKUPMODE	VELFILTMODE
HOMEOFSTMOVE	PHASEFINDMODE	

Commands

Commands are instructions sent to the drive for immediate execution.

A	EMBER	MOVEABS
ANIN1ZERO	EN	MOVEINC
ANIN2ZERO	ESTMOTORPARAM	NLTUNE
ANOUTCMD	FACTORYRESTORE	PASSWORD
AUTOHC	FBPLIGNORE	PHASEFIND
AUTOTUNE	FLTHISTCLR	PHASEFINDDELTA
AUTOTUNEAVDR	GET	PRBFRQ
AUTOTUNEAVMODE1	GETREC	PRBMODE
AUTOTUNEAVMODE2	HOLD	PRBPARAM
AUTOTUNELMJR	HOMECMD	RECOFF
AUTOTUNEMODE	INDEXFIND	RECORD
AUTOTUNESTUDIO1	J	RECTRIG
AUTOTUNESTUDIO2	K	SAVE
AUTOTUNEVBL	LOAD	SDHACK
BAUDRATE	MB	SININIT
CLEARFAULTS	MEMBIT	STEP
CONFIG	MEMF	STOP
CYCLEIDENTTRESH	MEML	T
DELAY	MEMQ	TMTURNRESET
DISPLAYTEST	MEMW	ZERO
DUMP	MOTORSETUP	

Signals

These are read-only variables that capture and display changing values (such as current and velocity).

ANIN1	ICMD	PE
ANIN2	ID	PELOOP
ANOUT	IFOLD	PFB
AUTOTUNEPEINPOS	ILIMACT	PTPTE
AUTOTUNETQF	IN	PTPVCMD
CLVD	INPOS	REMOTE
CLVQ	IQ	STOPPED
DRIVETEMP	IQCMD	THERM
ELECTANGLE	IU	THERMREADOUT
FOLD	IV	TMTEMP
HALLS	KCIMEMD	TRUN
HCFB	KCIMEMQ	V
HCICMD	MECHANGL	VBUSREADOUT
HWPEXT	MFOLD	VCMD
HWPEXTCNTRLR	MIFOLD	VE
HWPEXTMACHN	OUT	VELCONTROLOUT
HWPOS	OUTPUTS	
I	PCMD	

Parameters

These are read-write variables that define the drive configuration.

ABSOFFSET	HOMEIHARDSTOP	NLTUNEPARAM
ACC	HOMEOFFSET	NLTUNETIME
ANIN1DB	HOMESPEED1	NLVELLIM
ANIN1ISCALE	HOMESPEED2	OUTILVL1
ANIN1LPFHZ	IFFLPFHZ	OUTILVL2
ANIN1OFFSET	IFOLDFTHRESH	OUTINV
ANIN1VSCALE	IFOLDWTHRESH	OUTPLVL1
ANIN2DB	IGRAV	OUTPLVL2
ANIN2ISCALE	ILIM	OUTVLVL1
ANIN2LPFHZ	INDEXDURATE	OUTVLVL2
ANIN2OFFSET	INDEXPFB	OVTHRESH
ANOUTISCALE	ININV	PATHACC
ANOUTLIM	ISTOP	PATHCTRL
ANOUTVSCALE	IUOFFSET	PATHDEC
AUTOTUNEAVSCR	IVOFFSET	PATHDELAY
AUTOTUNESCRATCH	IZERO	PATHPOS
CANBITRATE	KCD	PATHSPEED
DEC	MENCRES	PDEN
DECDIST	MENCZPOS	PEINPOS
DECDIST2	MFOLDD	PEINPOSTIME
DECSTOP	MFOLDR	PEMAX
DECSTOPTIME	MFOLDT	PFBOFFSET
DICONT	MICONT	PHASEFINDANGLE
DIPEAK	MIFOLDFTHRESH	PHASEFINDTIME
DISSPEED	MIFOLDWTHRESH	PNUM
DISTIME	MIPEAK	POSLIMNEG
ECHO	MJ	POSLIMPOS
ENCOUTRES	MKF	PWMFRQ
ENCOUTZPOS	MKT	PWMSATRATIO
ESTOPI LIM	ML	RESAMPLRANGE
FBGDS	MMASS	RESBW
FBGMS	MOVEINCCOUNTER	SINPARAM
FBITIDX	MOVEINCDELAY	STALLTIME
FBITPRD	MOVEINCDIST1	STALLVEL
FBSCALE	MOVEINCDIST2	THERMCLEARLEVEL
GEARACCTHRESH	MOVEINCSPEED1	THERMTIME
GEARIN	MOVEINCSPEED2	THERMTRIPLEVEL
GEAROUT	MOVESMOOTHAVG	UVRECOVER
HALLSFILTAFF	MPHASE	UVTHRESH
HALLSFILTT1	MPITCH	UVTIME
HALLSFILTT2	MPOLES	VBUS
HALLSFILTVELFF	MR	VLIM
HALLSINV	MRESPOLES	XENCRES
HOMEACC	MSPEED	

Gain

These are read-write variables that define control gain and other parameters that require tuning.

BW	KNLP	NLANTIVIBHZ
FILTHZ1	KNLUSERGAIN	NLANTIVIBHZ2
FILTHZ2	KPAFRC	NLANTIVIBKNLD
FRICINEG	KPAFRV	NLANTIVIBLMJR
FRICIPOS	KPD	NLANTIVIBN
FRICNVHYST	KPE	NLANTIVIBSHARP
FRICPVHYST	KPI	NLANTIVIBSHARP2
GEARFILTAFF	KPISATIN	NLFILTDAMPING
GEARFILT1	KPISATOUT	NLFILT1
GEARFILT2	KPP	NLMAXGAIN
GEARFILTVELFF	KPVFR	NLNOTCH2BW
HCFB1	KVFR	NLNOTCH2CENTER
HCFB2	KVI	NLNOTCHBW
HCICMD1	KVP	NLNOTCHCENTER
HCICMD2	LMJR	NLPEAFF
KCBEMF	MLGAINC	NLPEDFFRATIO
KCDQCOMP	MLGAINP	PHASEFINDGAIN
KCFF	MOVESMOOTHLPFHZ	PHASEFINDI
KCI	MTANGLC	TF
KCP	MTANGLP	VD
KNLD	MVANGLF	VELFILTFRQ
KNLI	MVANGLH	VF
KNLIDV	NLAFFLPFHZ	VFI
KNLIINT	NLANTIVIBGAIN	VH
KNLIV	NLANTIVIBGAIN2	VR

Wizards

Variables and commands used by autotuning processes.

ATAVHIST	AUTOTUNESTUDIO1	NLTUNEST
AUTOTUNE	AUTOTUNESTUDIO2	NLTUNETIME
AUTOTUNEAVDR	AUTOTUNETQF	PHASEFIND
AUTOTUNEAVMODE1	AUTOTUNEVBL	PHASEFINDANGLE
AUTOTUNEAVMODE2	CYCLEIDENTTRESH	PHASEFINDGAIN
AUTOTUNEAVSCR	ESTMOTORPARAM	PHASEFINDI
AUTOTUNELMJR	ESTMOTORPARAMST	PHASEFINDMODE
AUTOTUNELOG	MOTORSETUP	PHASEFINDST
AUTOTUNEMODE	MOTORSETUPST	PHASEFINDTIME
AUTOTUNEPEINPOS	NLTUNE	WNSERR
AUTOTUNESCRATCH	NLTUNEPARAM	

3 Variables and Commands

ABSOFFSET

Definition	Absolute Feedback Offset
Type	Variable (R/W)
Description	The initial absolute position after power-cycle.
Syntax	Read: ABSOFFSET Write: ABSOFFSET <value>
Firmware	1.2.12
Drive status	Enabled Disabled
Range	$\pm(2^{31} - 1)$ [rev]
Default value	0
Unit	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = rev UNITSROTPOS 1 = count UNITSROTPOS 2 = deg If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = pitch UNITSLINPOS 1 = count UNITSLINPOS 3 = mm
Non-volatile	Yes
See also	
CANopen	200Dh, sub-index 0

ACC

Definition	Acceleration
Type	Variable (R/W)
Description	Gets/sets the acceleration value for the commands J (jog) and STEP. In analog velocity mode, ACC serves as an acceleration limit on the velocity command (VCMD).
Syntax	Read: ACC Write: ACC <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	If MOTORTYPE 0 (Rotary): UNITSROTACC 0 = 0.004 to 16666.666 UNITSROTACC 1 = 0.23 to 1000000 UNITSROTACC 2 = 1.38 to 6000000 If MOTORTYPE 2 (Linear): UNITSLINACC 1 = 0.12 to 533333.333
Default value	If MOTORTYPE 0 (Rotary): UNITSROTACC 0 = 10.000 UNITSROTACC 1 = 600.000 UNITSROTACC 2 = 3600.000 UNITSROTACC 3 = 50.000 If MOTORTYPE 2 (Linear): UNITSLINACC 1 = 320.000
Unit	If MOTORTYPE 0 (Rotary): UNITSROTACC 0 = rps/s UNITSROTACC 1 = rpm/s UNITSROTACC 2 = deg/s ² If MOTORTYPE 2 (Linear): UNITSLINACC 1 = mm/s ²
Non-volatile	Yes
See also	ANIN1 DEC DECSTOP J STEP UNITSROTACC
CANopen	6083h, sub-index 0

ACTIVE

Definition	Drive Active Status (Drive Enabled)
Type	Variable (R)
Description	Indicates whether the drive is enabled and power is being applied to the motor. This variable is the drive's general operation status indicator.
Syntax	ACTIVE
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Drive is inactive 1 = Drive is enabled
Default value	Not applicable
Unit	Not applicable
Non-volatile	No
See also	EN FLT J READY REMOTE ST SWEN

ADDR

Definition	Rotary Address Switch
Type	Variable (R)
Description	Indicates the rotary switch position that defines the drive's communication address.
Syntax	ADDR
Firmware	1.0.6
Drive status	Enabled Disabled
Range	00 to 99
Default value	Hardware defined
Unit	Not applicable
Non-volatile	No
Example	-->addr 03 -->
See also	ECHO MSGPROMPT
CANopen	20E1h, sub-index 0

ANIN1

Definition	Analog Input 1 Value
Type	Variable (R)
Description	Indicates the value of analog input 1.
Syntax	ANIN1
Firmware	1.0.6
Drive status	Enabled Disabled
Range	±12.5 V
Default value	Not applicable
Unit	V
Non-volatile	No
See also	ANIN1DB ANIN1ISCALE ANIN1LPFHZ ANIN1OFFSET ANIN1VSCALE ANIN1ZERO ANIN2
CANopen	20F2h, sub-index 0

ANIN1DB

Definition	Analog Input 1 Deadband
Type	Variable (R/W)
Description	Gets/sets the deadband of analog input 1. If the absolute value of the analog input signal is less than this value, no analog command signal is generated.
Syntax	Read: ANIN1DB Write: ANIN1DB <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 10
Default value	0.000
Unit	V
Non-volatile	Yes
See also	ANIN1 ANIN2LPFHZ
CANopen	20F3h , sub-index 0

ANIN1ISCALE

Definition	Analog Input 1 Current Scaling
Type	Variable (R/W)
Description	Gets/sets the scaling value of the analog current command from input 1.
Syntax	Read: ANIN1ISCALE Write: ANIN1ISCALE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	±0.001 to DIPEAK
Default value	DIPEAK/100
Unit	A/V
Non-volatile	Yes
See also	OPMODE
CANopen	20F4h, sub-index 0

ANIN1LPFHZ

Definition	Analog Input 1 Filter
Type	Variable (R/W)
Description	Gets/sets the corner frequency of a first order filter that is applied to analog input 1.
Syntax	Read: ANIN1LPFZ Write: ANIN1LPFZ <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	10 to 10000
Default value	1000
Unit	Hz
Non-volatile	Yes
See also	ANIN1 ANIN1DB
CANopen	20F5h , sub-index 0

ANIN1OFFSET

Definition	Analog Input 1 Offset
Type	Variable (R/W)
Description	Gets/sets the offset voltage for analog input 1. Used to compensate for the analog input signal offset or drift. The offset can also be set by a zeroing procedure, using the command ANIN1ZERO.
Syntax	Read: ANIN1OFFSET Write: ANIN1OFFSET <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	± 10
Default value	0.000
Unit	V
Non-volatile	Yes
See also	ANIN1 ANIN1ZERO
CANopen	20F6h , sub-index 0

ANIN1VSCALE

Definition	Analog Input 1 Velocity Scaling
Type	Variable (R/W)
Description	Gets/sets the scaling of the analog velocity command from input 1.
Syntax	Read: ANIN1VSCALE Write: ANIN1VSCALE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	If MOTORTYPE 0 (Rotary): UNITSROTVEL 0 = $\pm(0.001 \text{ to } 3999.999)$ UNITSROTVEL 1 = $\pm(0.06 \text{ to } 239999.94)$ UNITSROTVEL 2 = $\pm(0.36 \text{ to } 1439999.64)$ If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = $\pm(0.032 \text{ to } 127999.96)$
Default value	If MOTORTYPE 0 (Rotary): UNITSROTVEL 0 = 0.001 UNITSROTVEL 1 = 0.060 UNITSROTVEL 2 = 0.360 If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = 0.032
Unit	If MOTORTYPE 0 (Rotary): UNITSROTVEL 0 = rps/V UNITSROTVEL 1 = rpm/V UNITSROTVEL 2 = (deg/s)/V If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = (mm/s)/V
Non-volatile	Yes
See also	OPMODE
CANopen	20F7h, sub-index 0

ANIN1ZERO

Definition	Analog Input 1 Zeroing
Type	Command
Description	Causes the value of the analog input 1 signal to become 0 by modifying the analog offset value (ANIN1OFFSET).
Syntax	ANIN1ZERO
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not applicable
Default value	Not applicable
Unit	Not applicable
Non-volatile	Not applicable
See also	ANIN1OFFSET
CANopen	20F8h, sub-index 0

ANIN2

Definition	Analog Input 2 Value
Type	Variable (R)
Description	Indicates the value of analog input 2.
Syntax	ANIN2
Firmware	1.0.6
Drive status	Enabled Disabled
Range	±12.5
Default value	Not applicable
Unit	V
Non-volatile	No
See also	ANIN1 ANIN2MODE
CANopen	20F9h, sub-index 0

ANIN2DB

Definition	Analog Input 2 Deadband
Type	Variable (R/W)
Description	Gets/sets the deadband of analog input 2. If the absolute value of the analog input signal is less than this value, no analog command signal is generated.
Syntax	Read: ANIN2DB Write: ANIN2DB <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 10
Default value	0.000
Unit	V
Non-volatile	Yes
See also	ANIN2 ANIN2LPFHZ
CANopen	20FAh, sub-index 0

ANIN2ISCALE

Definition	Analog Input 2 Current (Torque) Scaling
Type	Variable (R/W)
Description	Gets/sets the scaling of the analog current command from input 2.
Syntax	Read: ANIN2ISCALE Write: ANIN2ISCALE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	±0.001 to DIPEAK
Default value	DIPEAK/100
Unit	A/V
Non-volatile	Yes
See also	ANIN2 ANIN2MODE
CANopen	20FBh , sub-index 0

ANIN2LPFHZ

Definition	Analog Input 2 Filter
Type	Variable (R/W)
Description	Gets/sets the corner frequency of a first order filter that is applied to analog input 2.
Syntax	Read: ANIN2LPFHZ Write: ANIN2LPFHZ <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	10 to 10000
Default value	1000
Unit	Hz
Non-volatile	Yes
See also	ANIN2 ANIN2DB
CANopen	20FCh , sub-index 0

ANIN2MODE

Definition	Analog Input 2 Mode
Type	Variable (R/W)
Description	Gets/sets a value that defines the function of analog input 2.
Syntax	Read: ANIN2MODE Write: ANIN2MODE <value>
Firmware	1.0.6
Drive status	Disabled
Range	-1 = Hardware defined dual gain. ANIN2 is inactive, ANIN1 has a 16 bit resolution, ANIN2MODE is read only. 0 = Idle. ANIN2 input voltage is read only. 1 = Dual gain - external jumper connection between the analog inputs is required. 2 = Current limit mode - second input limits current command (uses ANIN2ISCALE) Note: Make sure hardware matches this configuration.
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	ANIN2 ANIN2ISCALE
CANopen	2100h, sub-index 0

ANIN2OFFSET

Definition	Analog Input 2 Offset
Type	Variable (R/W)
Description	Gets/sets the offset voltage for analog input 2. Used to compensate for the analog input signal offset or drift. The offset can also be set by a zeroing procedure, using the command ANIN2ZERO.
Syntax	Read: ANIN2OFFSET Write: ANIN2OFFSET <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	± 10
Default value	0.000
Unit	V
Non-volatile	Yes
See also	ANIN2 ANIN2ZERO
CANopen	20FDh , sub-index 0

ANIN2ZERO

Definition	Analog Input 2 Zero Command
Type	Command
Description	Causes the value of the analog input 2 signal to become 0 by modifying the analog offset value (ANIN2OFFSET).
Syntax	ANIN2ZERO
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not applicable
Default value	Not applicable
Unit	Not applicable
Non-volatile	Not applicable
See also	ANIN2 ANIN2OFFSET
CANopen	20FFh, sub-index 0

ANOUT

Definition	Analog Output Value
Type	Variable (R)
Description	Indicates the analog output value, in volts, as set by ANOUTMODE. The drive's analog output capability is $\pm 12V$.
Syntax	ANOUT
Firmware	1.0.6
Drive status	Enabled Disabled
Range	-12.0 to 12.0
Default value	0
Unit	V
Non-volatile	No
See also	ANOUTMODE ANOUTCMD
CANopen	2133h, sub-index 0

ANOUTCMD

Definition	Analog Output Command
Type	Command
Description	The analog output value set by user. Requires ANOUTMODE 6.
Syntax	ANOUTCMD
Firmware	1.0.6
Drive status	Enabled Disabled
Range	-12.0 to 12.0
Default value	0
Unit	V
Non-volatile	No
See also	ANOUT ANOUTLIM ANOUTMODE
CANopen	2134h, sub-index 0

ANOUTISCALE

Definition	Analog Output Current Scaling
Type	Variable (R/W)
Description	Gets/sets the scaling of the analog output voltage that represents the motor current (I) or the current command (ICMD). For example, if ANOUTMODE=4 (current command monitoring): $\text{ANOUT [V]} = \text{ICMD [A]} \div \text{ANOUTISCALE [A/V]}$
Syntax	ANOUTISCALE
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 10
Default value	$.01 \times \text{DIPEAK}$
Unit	A/V
Non-volatile	Yes
See also	ANOUT ANOUTLIM ANOUTMODE
CANopen	2135h, sub-index 0

ANOUTLIM

Definition	Analog Output Voltage Limit
Type	Variable (R/W)
Description	Gets/sets the maximum voltage of the analog output command for all modes.
Syntax	ANOUTLIM
Firmware	1.0.6
Drive status	Enabled Disabled
Range	1 to 12
Default value	10
Unit	V
Non-volatile	Yes
See also	ANOUT ANOUTCMD ANOUTMODE
CANopen	2136h , sub-index 0

ANOUTMODE

Definition	Analog Output Mode
Type	Variable (R/W)
Description	Gets/sets a value that defines the function of the analog output. Known Limitation: For the first 3 seconds after power-up, DAC will output 12V.
Syntax	Read: ANOUTMODE Write: ANOUTMODE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = User command. Uses value set by ANOUTCMD. 1 = Tachometer mode. For velocity feedback. 2 = Equivalent current monitoring. 3 = Velocity error monitoring. 4 = Current command monitoring. 5 = Triangle wave at low frequency (~1Hz). For testing. 6 = Current in-phase component (IQ) monitoring. 7 = Position error monitoring. 8 = Position feedback monitoring. 9 = Reserved (output 0). 10 = Reserved (output 0).
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	ANOUT ANOUTCMD ANOUTISCALE ANOUTLIM ANOUTVSCALE
CANopen	2137h, sub-index 0

ANOUTVSCALE

Definition	Analog Output Velocity Scaling
Type	Variable (R/W)
Description	Gets/sets the scaling of the analog output voltage that represents the actual velocity (V) or the velocity error (VE).
Syntax	Read: ANOUTVSCALE Write: ANOUTVSCALE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	If MOTORTYPE 0 (Rotary): UNITSROTVEL 0 = 0 to 33.333 UNITSROTVEL 1 = 0 to 2000 UNITSROTVEL 2 = 0 to 12000 If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = 0 to 2000
Default value	0
Unit	If MOTORTYPE 0 (Rotary): UNITSROTVEL 0 = rps/V UNITSROTVEL 1 = rpm/V UNITSROTVEL 2 = (deg/s)/V If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = (mm/s)/V
Non-volatile	Yes
See also	ANOUT ANOUTLIM ANOUTMODE
CANopen	2138h , sub-index 0

ATAVHIST

Definition	Autotune Debug
Type	
Description	Not intended for user unless instructed by Technical Support.
Syntax	
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	
Non-volatile	
See also	

AUTOHC

Definition	Autotune Harmonic Correction
Type	
Description	Not intended for user unless instructed by Technical Support.
Syntax	
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	
Non-volatile	
See also	

AUTOTUNE

Definition	Autotune Procedure
Type	
Description	Not intended for user unless instructed by Technical Support.
Syntax	
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	
Non-volatile	
See also	

AUTOTUNEAVDR

Definition	Autotune Anti-Vibration Damping Rate
Type	
Description	Not intended for user unless instructed by Technical Support.
Syntax	
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	
Non-volatile	
See also	

AUTOTUNEAVMODE1

Definition	Autotune Anti-Vibration Mode 1
Type	
Description	Not intended for user unless instructed by Technical Support.
Syntax	
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	
Non-volatile	
See also	

AUTOTUNEAVMODE2

Definition	Autotune Anti-Vibration Mode 2
Type	
Description	Not intended for user unless instructed by Technical Support.
Syntax	
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	
Non-volatile	
See also	

AUTOTUNEAVSCR

Definition	Autotune Anti-Vibration Source
Type	
Description	Not intended for user unless instructed by Technical Support.
Syntax	
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	
Non-volatile	
See also	

AUTOTUNELMJR

Definition	Autotune LMJR Mode
Type	
Description	Not intended for user unless instructed by Technical Support.
Syntax	
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	
Non-volatile	
See also	

AUTOTUNELOG

Definition	Autotune Log
Type	
Description	Not intended for user unless instructed by Technical Support.
Syntax	
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	
Non-volatile	
See also	

AUTOTUNEMODE

Definition	Autotune Mode
Type	
Description	Not intended for user unless instructed by Technical Support.
Syntax	
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	
Non-volatile	
See also	

AUTOTUNEPEINPOS

Definition	Autotune PE for Settling Time Measurement
Type	
Description	Not intended for user unless instructed by Technical Support.
Syntax	
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	
Non-volatile	
See also	

AUTOTUNESCRATCH

Definition	Autotune Defaults Mode
Type	
Description	Not intended for user unless instructed by Technical Support.
Syntax	
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	
Non-volatile	
See also	

AUTOTUNESTUDIO1

Definition	Autotune Drive Studio Command
Type	
Description	Not intended for user unless instructed by Technical Support.
Syntax	
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	
Non-volatile	
See also	

AUTOTUNESTUDIO2

Definition	Autotune Drive Studio Command
Type	
Description	Not intended for user unless instructed by Technical Support.
Syntax	
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	
Non-volatile	
See also	

AUTOTUNETQF

Definition	Autotune Last Total Quality Function
Type	
Description	Not intended for user unless instructed by Technical Support.
Syntax	
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	
Non-volatile	
See also	

AUTOTUNEVBL

Definition	Autotune Vibration Level Threshold
Type	
Description	Not intended for user unless instructed by Technical Support.
Syntax	
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	
Non-volatile	
See also	

BAUDRATE

Definition	Serial Baud Rate
Type	Command
Description	Sets the communication bit rate between the drive and host computer. It is intended to enable more reliable communication in noisy environments. Prior to firmware version 1.4.5, this parameter was not saved in the non-volatile memory. As of firmware version 1.4.5, this parameter is saved in the non-volatile memory. Changing the bit rate requires reestablishing communication with the PC software. At bootup, the 7-segment displays the message b r x x x x (x = selected baud rate) if the baudrate is not the default value.
Syntax	BAUDRATE BAUDRATE <value>
Firmware	1.3.2
Drive status	Enabled Disabled
Range	9600 19200 38400 57600 115200
Default value	115200
Unit	bps
Non-volatile	Yes
See also	

BW

Definition	Velocity Loop Bandwidth for Pole Placement
Type	Variable (R/W)
Description	Gets/sets the velocity control loop bandwidth for the pole placement controller. (VELCONTROLMODE 2 or 4)
Syntax	Read: BW Write: BW <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	10 to 600
Default value	30
Unit	Hz
Non-volatile	Yes
See also	FILTMODE LMJR MJ MKT TF VELCONTROLMODE
CANopen	2010h, sub-index 0

CANBITRATE

Definition	CAN Bit Rate
Type	Variable (R/W)
Description	Gets/sets the CAN bit rate. When the drive is powered, it assumes the bit rate of any existing conversation on the communication bus. If no such communication is detected, the drive sets the communication rate to the CANBITRATE value. For the CANBITRATE setting to take effect, a SAVE command followed by a cycle power sequence must be executed.
Syntax	CANBITRATE CANBITRATE <value>
Firmware	1.3.2
Drive status	Enabled Disabled
Range	1 = 125 kbps 2 = 250 kbps 3 = 500 kbps 4 = 1000 kbps
Default value	3
Unit	Not Applicable
Non-volatile	Yes
See also	

CHECKSUM

Definition	Checksum
Type	Variable (R/W)
Description	Enables/disables checksum protection on messages communicated between drive and host. The checksum is an 8-bit value, displayed within brackets <>. For example, 0x1F checksum is displayed as <1F> at the end of the message before the carriage return.
Syntax	Read: CHECKSUM Write: CHECKSUM <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Message checksum disabled 1 = Message checksum enabled
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	COMMODE ECHO MSGPROMPT

CLEARFAULTS

Definition	Clear Faults
Type	Command
Description	Clears latched faults. Once all faults are cleared, the drive becomes ready for activation (READY). If clearing the faults causes the drive to re-enable, then software enable (SWEN) is disabled to prevent spontaneous re-enable.
Syntax	CLEARFAULTS
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	DISMODE FLT FLTHIST FLTHISTCLR

CLVD

Definition	Voltage Command D Component
Type	Variable (R)
Description	Not intended for user unless instructed by Technical Support. Shows the voltage command to the D component.
Syntax	CLVD
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Internal
Default value	Not Applicable
Unit	V
Non-volatile	No
See also	CLVQ
CANopen	2013h, sub-index 0

CLVQ

Definition	Voltage Command Q Component
Type	Variable (R)
Description	Not intended for user unless instructed by Technical Support. Shows the voltage command to the Q component.
Syntax	CLVQ
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Internal
Default value	Not Applicable
Unit	V
Non-volatile	No
See also	CLVD
CANopen	2014h, sub-index 0

COMMODE

Definition	Communication Mode
Type	Variable (R/W)
Description	Gets/sets the fieldbus communication mode. COMMODE 1 is applicable only for CAN and EtherCAT drives.
Syntax	COMMODE <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 = Serial RS232/USB communication enabled. CANopen communication disabled. Drive can be software enabled at power-up (SWENMODE). 1 = For CAN drive only. CANopen communication is enabled. Serial RS232/USB communication can be used as a utility for monitoring and changing parameters with limited functionality.
Default value	0 = for analog drive 1 = for CAN drive
Unit	Not Applicable
Non-volatile	Yes
See also	CHECKSUM MSGPROMPT SWENMODE

CONFIG

Definition	Configure Drive																																												
Type	Command																																												
Description	Configures the current control and other internal drive mechanisms based on the configuration set. Since this configuration procedure depends on several variables, it is not executed automatically following parameter changes. When configuration is required, the 7-segment display shows -1. CONFIG is required after the value of any of the following parameters is modified: <table><tr><td>DIR</td><td>MENCTYPE</td><td>MOTORCOMMTYPE</td></tr><tr><td>ENCOUTMODE</td><td>MFBDIR</td><td>MOTORTYPE</td></tr><tr><td>ENCOUTRES</td><td>MFBINT</td><td>MPITCH</td></tr><tr><td>FEEDBACKTYPE</td><td>MFBMODE</td><td>MPOLES</td></tr><tr><td>KCBEMF</td><td>MICONT</td><td>MR</td></tr><tr><td>KCD</td><td>MIPEAK</td><td>MRESPOLES</td></tr><tr><td>KCDQCOMP</td><td>MJ</td><td>MSININT</td></tr><tr><td>KCFF</td><td>MKF</td><td>MSPEED</td></tr><tr><td>KCI</td><td>MKT</td><td>PWMFRQ</td></tr><tr><td>KCIV</td><td>ML</td><td>PWMSATRATIO</td></tr><tr><td>KCP</td><td>MLGAINC</td><td>VBUS</td></tr><tr><td>MENCRES</td><td>MLGAINP</td><td>VLIM</td></tr></table> CONFIG is also required after any of the following parameters is sent to the drive, even if its value has not been changed: <table><tr><td>FEEDBACKTYPE</td><td>PWMFRQ</td></tr><tr><td>KCD</td><td>VLIM</td></tr><tr><td>MJ</td><td></td></tr></table>			DIR	MENCTYPE	MOTORCOMMTYPE	ENCOUTMODE	MFBDIR	MOTORTYPE	ENCOUTRES	MFBINT	MPITCH	FEEDBACKTYPE	MFBMODE	MPOLES	KCBEMF	MICONT	MR	KCD	MIPEAK	MRESPOLES	KCDQCOMP	MJ	MSININT	KCFF	MKF	MSPEED	KCI	MKT	PWMFRQ	KCIV	ML	PWMSATRATIO	KCP	MLGAINC	VBUS	MENCRES	MLGAINP	VLIM	FEEDBACKTYPE	PWMFRQ	KCD	VLIM	MJ	
DIR	MENCTYPE	MOTORCOMMTYPE																																											
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KCD	VLIM																																												
MJ																																													
Syntax	CONFIG																																												
Firmware	1.0.6																																												
Drive status	Disabled																																												
Range	Not Applicable																																												
Default value	Not Applicable																																												
Unit	Not Applicable																																												
Non-volatile	Not Applicable																																												
See also	MENCTYPE ML																																												
CANopen	2002h, sub-index 0																																												

CYCLEIDENTTRESH

Definition	Realtime cycle identification delta position command threshold.
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. Gets/sets the position threshold for standstill condition in PCMD units. If this parameter is set to zero then a value for this threshold is automatically calculated.
Syntax	Read: CYCLEIDENTTRESH Write: CYCLEIDENTTRESH <value>
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	Position units
Non-volatile	
See also	AUTOTUNEMODE

DEC

Definition	Deceleration
Type	Variable (R/W)
Description	Gets/sets the deceleration value of the drive.
Syntax	Read: DEC Write: DEC <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	If MOTORTYPE 0 (Rotary): UNITSROTACC 0 = 0.004 to 16666.666 UNITSROTACC 1 = 0.23 to 1000000 UNITSROTACC 2 = 1.38 to 6000000 If MOTORTYPE 2 (Linear): UNITSLINACC 1 = 0.12 to 533333.333
Default value	If MOTORTYPE 0 (Rotary): UNITSROTACC 0 = 10.000 UNITSROTACC 1 = 600.000 UNITSROTACC 2 = 3600.000 UNITSROTACC 3 = 50.000 If MOTORTYPE 2 (Linear): UNITSLINACC 1 = 320.000
Unit	If MOTORTYPE 0 (Rotary): UNITSROTACC 0 = rps/s UNITSROTACC 1 = rpm/s UNITSROTACC 2 = deg/s ² If MOTORTYPE 2 (Linear): UNITSLINACC 1 = mm/s ²
Non-volatile	Yes
See also	ACC ANIN1 DECSTOP J STEP UNITSROTACC
CANopen	6084h, sub-index 0

DECDIST

Definition	Deceleration Distance
Type	Variable (R/W)
Description	The target position offset value, relative to the position captured at a stop triggered by a digital input set to INMODE 16. When the input triggers a stop, a position capture occurs, and a deceleration ramp is generated to stop the motion at DECDIST relative to the captured position. DECDIST is in user defined position units.
Syntax	Read: DECDIST Write: DECDIST <value>
Firmware	1.2.12
Drive status	Disabled
Range	$\pm(2^{31} - 1)$ [rev]
Default value	0
Unit	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = rev UNITSROTPOS 1 = count UNITSROTPOS 2 = deg If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = pitch UNITSLINPOS 1 = count UNITSLINPOS 3 = mm
Non-volatile	Yes
See also	DECDIST2 DISMODE INMODE
CANopen	2047h, sub-index 0

DECDIST2

Definition	Deceleration Distance 2
Type	Variable (R/W)
Description	The target position offset value, relative to the position captured at a stop triggered by a digital input set to INMODE 16. When the input triggers a stop, a position capture occurs, and a deceleration ramp is generated to stop the motion at DECDIST2 relative to the captured position. DECDIST2 is in user defined position units.
Syntax	Read: DECDIST2 Write: DECDIST2<value>
Firmware	1.2.12
Drive status	Disabled
Range	$\pm(2^{31} - 1)$ [rev]
Default value	0
Unit	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = rev UNITSROTPOS 1 = count UNITSROTPOS 2 = deg If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = pitch UNITSLINPOS 1 = count UNITSLINPOS 3 = mm
Non-volatile	Yes
See also	DECDIST DISMODE INMODE
CANopen	2048h, sub-index 0

DECSTOP

Definition	Active Disable Deceleration
Type	Variable (R/W)
Description	Gets/sets the deceleration value for an Active Disable or emergency stop.
Syntax	Read: DECSTOP Write: DECSTOP <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	If MOTORTYPE 0 (Rotary): UNITSROTACC 0 = 0.004 to 16666.666 UNITSROTACC 1 = 0.23 to 1000000 UNITSROTACC 2 = 1.38 to 6000000 If MOTORTYPE 2 (Linear): UNITSLINACC 1 = 0.12 to 533333.333
Default value	If MOTORTYPE 0 (Rotary): UNITSROTACC 0 = 10.000 UNITSROTACC 1 = 600.000 UNITSROTACC 2 = 3600.000 If MOTORTYPE 2 (Linear): UNITSLINACC 1 = 320.000 UNITSLINACC 2 = 10.000
Unit	If MOTORTYPE 0 (Rotary): UNITSROTACC 0 = rps/s UNITSROTACC 1 = rpm/s UNITSROTACC 2 = deg/s ² If MOTORTYPE 2 (Linear): UNITSLINACC 1 = mm/s ²
Non-volatile	Yes
See also	ACC DEC UNITSROTACC
CANopen	6085h, sub-index 0

DECSTOPTIME

Definition	Active Disable Deceleration Time
Type	Variable (R/W)
Description	Gets/sets the deceleration time for an Active Disable or emergency stop. DECSTOP will override DECSTOPTIME if the resulting deceleration level exceeds DECSTOP.
Syntax	Read: DECSTOPTIME Write: DECSTOPTIME <value>
Firmware	1.2.12
Drive status	Disabled
Range	0 to 6500
Default value	0
Unit	ms
Non-volatile	Yes
See also	DECSTOP DISMODE
CANopen	2049h, sub-index 0

DELAY

Definition	Script Delay
Type	Command
Description	Allows a pause during the execution of a drive script command.
Syntax	DELAY <value>
Firmware	1.4.4
Drive status	Enabled Disabled
Range	
Default value	Not Applicable
Unit	ms
Non-volatile	No
See also	DRIVESCRIPT DRIVESCRIPTST

DICONT

Definition	Drive Continuous Current
Type	Variable (R)
Description	The continuous rated current for the drive (sinusoidal peak). This is a hardware-defined read-only variable that is detected automatically by the drive.
Syntax	DICONT
Firmware	1.0.6
Drive status	Disabled
Range	Not Applicable
Default value	Hardware defined
Unit	A (peak)
Non-volatile	Yes
See also	DIPEAK FOLD IFOLD MICON
CANopen	207Ch, sub-index 0

DIPEAK

Definition	Drive Peak Current
Type	Variable (R)
Description	The peak rated current of the drive (sinusoidal peak). This is a hardware-defined read-only variable.
Syntax	DIPEAK
Firmware	1.0.6
Drive status	Disabled
Range	Not Applicable
Default value	Hardware defined
Unit	A (peak)
Non-volatile	Yes
See also	DICONT IMAX MIPEAK
CANopen	207Bh, sub-index 0

DIR

Definition	Feedback Direction
Type	Variable (R/W)
Description	Gets/sets the feedback positive direction. When DIR is set to 1, the variable V is inverted and the positive direction of PFB is reversed. Other variables (MECHANGLE, ELECTANGLE, HWPOS) remain unchanged. Motor rotation is not changed. To reverse the direction of rotation, 180 degrees must be added to MPHASE. When the value of DIR is changed, CONFIG is required.
Syntax	Read: DIR Write: DIR <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 = Feedback direction not inverted 1 = Feedback direction inverted
Default value	0
Unit	Not applicable
Non-volatile	Yes
See also	MFBDIR MOTORSETUP MPHASE PFB V
CANopen	2045h, sub-index 0

DISMODE

Definition	Disabling Mode
Type	Variable (R/W)
Description	Gets/sets a value that defines the Disabling mode. The Disabling mode consists of two mechanisms: (1) active control of deceleration and disable; (2) dynamic brake by controlled motor short circuit (can operate in the event of feedback loss).
Syntax	Read: DISMODE Write: DISMODE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = No active disabling; no dynamic braking. 1 = No active disabling; dynamic braking on fault only. 2 = No active disabling; dynamic braking on any disable. 3 = Active disabling on supported faults*; no dynamic braking. 4 = Active disabling on supported faults*; dynamic braking on fault only. 5 = Active disabling on supported faults*; dynamic braking on any disable. * Faults that require immediate disable (to prevent drive damage) and feedback faults that might cause a runaway will not issue Active Disabling.
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	DECSTOP DISSPEED DISTIME FLT ISTOP
CANopen	2046h, sub-index 0

DISPLAYTEST

Definition	Test 7-Segment Display
Type	Command
Description	Tests the 7-segment LED display on the front panel of the drive.
Syntax	DISPLAYTEST
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	ADDR
CANopen	20E2h, sub-index 0

DISSPEED

Definition	Active Disabling Speed Threshold
Type	Variable (R/W)
Description	Gets/sets the speed threshold for the Active Disable function. The Active Disabling function ramps the motor to zero speed using DECSTOP. DISSPEED is compared to the actual motor speed; when the absolute speed drops below the threshold value, the active disabling timer (DISTIME) begins timing. Once the timer times out, the drive is disabled. Note: To use the Active Disabling function effectively, a position controller must be configured.
Syntax	Read: DISSPEED Write: DISSPEED <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to VMAX
Default value	If MOTORTYPE 0 (Rotary): UNITSROTACC 0 = 166.666 UNITSROTACC 1 = 9999.946 UNITSROTACC 2 = 59999.675 If MOTORTYPE 2 (Linear): UNITSLINACC 1 = 5333.304
Unit	If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 = rps If UNITSROTVEL 1 = rpm If UNITSROTVEL 2 = deg/s If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = mm/s
Non-volatile	Yes
See also	DECSTOP DISMODE DISTIME FLT
CANopen	204Ah, sub-index 0

DISTIME

Definition	Active Disabling Time
Type	Variable (R/W)
Description	Gets/sets the amount of time to wait after motor speed goes below DISSPEED before the drive is disabled by the Active Disabling function. This delay is typically set to accommodate brake engage time. Note: To use the Active Disabling function effectively, a position controller must be configured.
Syntax	Read: DISTIME Write: DISTIME <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 6500
Default value	10
Unit	ms
Non-volatile	Yes
See also	DECSTOP DISMODE DISSPEED FLT
CANopen	204Bh, sub-index 0

DRIVENAME

Definition	Drive Name
Type	Variable (R/W)
Description	Gets/sets the name assigned to the drive unit. The name may contain up to 15 alphanumeric characters. A quotation mark (") always precedes the name. Additional valid characters for use in the text string: () / - . :
Syntax	Read: DRIVENAME Write: DRIVENAME <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
Example	<pre>-->drivename "robot-axis1 -->drive name "ROBOT-AXIS1 --></pre>
See also	INFO MOTORNAME
CANopen	2015h, sub-index 0

DRIVESCRIPT

Definition	Drive Script Command
Type	Command
Description	Triggers a predefined sequence of terminal commands according to the combined status of defined digital inputs. The drive supports up to 32x2 scripts, each with a maximum of 128 characters. Up to 5 digital inputs can be defined to activate the scripts with an additional digital input that serves as a trigger to define whether the up or down of the address is to be used.
Syntax	DRIVESCRIPT <i>n i</i> "<i>command1~command2~command3</i>; remark <i>n</i> = The identifier of the script based on digital inputs <i>i</i> = The trigger input for script activation " = The start of the script string ~ = Command separator ; = Remark separator
Firmware	1.2.12
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
Example	-->drivescript 1 2 "k~opmode 0~en~j -10 ; Slowly Backward
See also	DRIVESCRIPTST

DRIVESCRIPTST

Definition	Drive Script Status												
Type	Variable (R)												
Description	Indicates the script that is being executed. If no script is defined for the digital input combination, nothing will run. Digital input definition: <table> <tr> <td>INMODE 5=9</td><td>Script</td></tr> <tr> <td>INMODE 6=10</td><td>Script bit 0</td></tr> <tr> <td>INMODE 7=11</td><td>Script bit 1</td></tr> <tr> <td>INMODE 8=12</td><td>Script bit 2</td></tr> <tr> <td>INMODE 9=13</td><td>Script bit 3</td></tr> <tr> <td>INMODE 10=14</td><td>Script bit 4</td></tr> </table> Digital inputs 6-10 define which script to run. Digital input 5 triggers script execution.	INMODE 5=9	Script	INMODE 6=10	Script bit 0	INMODE 7=11	Script bit 1	INMODE 8=12	Script bit 2	INMODE 9=13	Script bit 3	INMODE 10=14	Script bit 4
INMODE 5=9	Script												
INMODE 6=10	Script bit 0												
INMODE 7=11	Script bit 1												
INMODE 8=12	Script bit 2												
INMODE 9=13	Script bit 3												
INMODE 10=14	Script bit 4												
Syntax	DRIVESCRIPTST												
Firmware	1.2.12												
Drive status	Enabled Disabled												
Range	Not Applicable												
Default value	Not Applicable												
Unit	Not Applicable												
Non-volatile	No												
Example	<pre>-->drivescriptst DriveScript [01][0] Start:J 100:DriveScript [01][0] Stop: --></pre>												
See also	DRIVESCRIPT INMODE												

DRIVETEMP

Definition	Drive Temperature
Type	Variable (R)
Description	Indicates the temperature of the control and power boards in the drive, in Celsius degrees.
Syntax	DRIVETEMP
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	°C
Non-volatile	No
Example	-->drivetemp --> Control: 32[deg C] Power: 29[deg C] -->
See also	FOLD IFOLD THERM
CANopen	2044h, sub-index 1

DUMP

Definition	Dump Drive Parameter Values
Type	Command
Description	Returns the set of configuration parameters that defines the complete functionality of the drive. The command can be used to backup the configuration. Note: Some factory parameters, not intended for users, may appear in the list. Do not attempt to manipulate parameters that are not described in this manual, or are marked as not for users.
Syntax	DUMP
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	LOAD SAVE

ECHO

Definition	Serial Communication Character Echo
Type	Variable (R/W)
Description	Enables/disables the serial port character echo. If echo is enabled, characters received via the serial port are echoed back to the serial port and displayed on the computer monitor. ECHO 1 is required for proper operation of ServoStudio.
Syntax	Read: ECHO Write: ECHO <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Serial port echo disabled 1 = Serial port echo enabled
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Yes
See also	ADDR MSGPROMPT

ELECTANGLE

Definition	Electrical Position
Type	Variable (R)
Description	Indicates the electrical angle position in 16-bit resolution.
Syntax	ELECTANGLE
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 65535
Default value	Not Applicable
Unit	65536/electrical cycle
Non-volatile	No
See also	MECHANGLE MENCRES MPHASE PHASEFIND
CANopen	2016h, sub-index 0

EMBER

Definition	Firmware Download
Type	Command
Description	Not intended for user unless instructed by Technical Support. Activates the Firmware Download mode. In this mode, new firmware can be downloaded to the drive. When this mode is activated, a steady 'E' appears on the 7-segment display.
Syntax	EMBER
Firmware	1.0.6
Drive status	Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	VER

EN

Definition	Software Enable Command
Type	Command
Description	Initiates a software enable of the drive. This command first attempts to reset any existing fault conditions, then sets SWEN to 1. If both READY and REMOTE have values of 1, the drive is in Active state. The value of ACTIVE indicates whether the EN command successfully enabled the drive.
Syntax	EN
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	ACTIVE FLT K READY REMOTE ST SWEN ■ EN is the Software Enable command. It first attempts to clear any latched faults; if successful, the drive becomes Ready for enabling. When the drive is Ready and the Remote Enable (hardware) signal is on, the drive is enabled. ■ READY (R) indicates whether a drive is ready to be enabled (waiting for Remote Enable ON signal). ■ ACTIVE (R) indicates whether a drive is enabled.

ENCOUTMODE

Definition	Encoder Simulation Mode
Type	Variable (R/W)
Description	Gets/sets the value that indicates the state of encoder simulation. When the value of ENCOUTMODE is changed, CONFIG is required. Known Limitation: No index signal available for absolute Tamagawa encoder.
Syntax	Read: ENCOUTMODE Write: ENCOUTMODE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Encoder simulation not active 1 = A/B encoder simulation 2 = The index pulse is routed directly from the motor feedback device (by the FPGA) to the drive, regardless of the value of ENCOUTRES.
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	ENCOUTRES ENCOUTZPOS MENCRES
CANopen	20E3h, sub-index 0

ENCOUTRES

Definition	Encoder Simulation Line Resolution
Type	Variable (R/W)
Description	Gets/sets the resolution, in number of lines, of the encoder equivalent output. Use plus for positive direction; minus for negative direction. When the value of ENCOUTRES is changed, CONFIG is required. Note: Changing the value of ENCOUTRES might cause the encoder emulation to generate extra pulses.
Syntax	Read: ENCOUTRES Write: ENCOUTRES <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	$\pm 10,000,000$, but not 0.
Default value	2048
Unit	If MOTORTYPE =0 (Rotary): lines per revolution (LPR) If MOTORTYPE =2 (Linear): lines per pitch (LPP)
Non-volatile	Yes
See also	ENCOUTMODE ENCOUTZPOS MENCRES
CANopen	20E4h , sub-index 0

ENCOUTZPOS

Definition	Encoder Simulation Index Position
Type	Variable (R/W)
Description	Gets/sets the index offset value of the encoder simulation output.
Syntax	Read: ENCOUTZPOS Write: ENCOUTZPOS <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 400000000
Default value	0
Unit	Count
Non-volatile	Yes
See also	ENCOUTMODE ENCOUTRES MENCRES
CANopen	20E5h , sub-index 0

ESTMOTORPARAM

Definition	Motor Winding Estimation
Type	Command
Description	Not intended for user unless instructed by Technical Support. Executes a procedure that automatically measures motor winding properties. Line to line inductance and resistance are measured and reported in the status completion message. The variables ML and MR are not altered by the procedure. Before issuing the ESTMOTORPARAM command, the drive must be successfully configured (CONFIG), disabled, and ready to be enabled. After issuing the ESTMOTORPARAM command, enable the drive to start the procedure. The drive 7-segment display shows At3 while the procedure is running.
Syntax	ESTMOTORPARAM
Firmware	1.3.2
Drive status	Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	ESTMOTORPARAMST
CANopen	2101h, sub-index 0

ESTMOTORPARAMST

Definition	Motor Winding Estimation Procedure Status
Type	Variable (R)
Description	Not intended for user unless instructed by Technical Support. Reports the status of the ESTMOTORPARAM procedure.
Syntax	ESTMOTORPARAMST
Firmware	1.3.2
Drive status	Enabled Disabled
Range	Not Applicable; see Examples below
Default value	Not Applicable; see Examples below
Unit	Not Applicable; see Examples below
Non-volatile	No
Example	During execution: <pre>-->estmotorparamst Process Running</pre> After a successful execution: <pre>-->estmotorparamst Process Done MR = 2.172[Ohm], ML = 4.442[mH], DT = 10</pre>
Example	When motor phases were disconnected just before execution of ESTMOTOPARAM: <pre>-->estmotorparamst Process Done MR = 0.137[Ohm], ML = 12.660[mH], DT = 318</pre> DT (deadtime voltage) of 318 indicates that the motor is not connected; it does not indicate a problem.
See also	ESTMOTORPARAMST
CANopen	2102h, sub-index 0

ESTOPILIM

Definition	Emergency or Controlled Stop Current Limit
Type	Variable (R/W)
Description	Gets/sets the current limit during an emergency or controlled stop (expressed as factor of ILIM).
Syntax	Read: ESTOPILIM Write: ESTOPILIM <value>
Firmware	1.2.12
Drive status	Enabled Disabled
Range	0.001 to 1
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	DISMODE ILIM
CANopen	208Dh, sub-index 0

FACTORYRESTORE

Definition	Restore Factory Settings
Type	Command
Description	Restores all configuration variables to their factory default settings.
Syntax	FACTORYRESTORE
Firmware	1.0.6
Drive status	Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	DUMP LOAD SAVE
CANopen	204Ch, sub-index 0

FBGDS

Definition	Fieldbus CANopen Gear Driving Shaft Scaling
Type	Variable (R/W)
Description	Fieldbus CANopen gear ratio driving shaft revolution scaling factor (object 6091h sub-index 2).
Syntax	Read: FBGDS Write: FBGDS <value>
Firmware	1.2.12
Drive status	Enabled Disabled
Range	1 to 4294967295
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	FBGMS FBITIDX FBSCALE
CANopen	6091h, sub-index 2

FBGMS

Definition	Fieldbus CANopen Gear Motor Shaft Scaling
Type	Variable (R/W)
Description	Fieldbus CANopen gear ratio motor shaft revolution scaling factor (object 6091 sub-index 1)
Syntax	Read: FBGMS Write: FBGMS <value>
Firmware	1.2.12
Drive status	Enabled Disabled
Range	1 to 4294967295
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	FBGDS FBITIDX FBSCALE
CANopen	6091h, sub-index 1

FBITIDX

Definition	Fieldbus CANopen Interpolation Time Index
Type	Variable (R/W)
Description	Fieldbus CANopen interpolation time index for fieldbus cycle time calculation
Syntax	Read: FBITIDX Write: FBITIDX <value>
Firmware	1.2.12
Drive status	Disabled
Range	-128 to 64
Default value	-3
Unit	Not Applicable
Non-volatile	Yes
See also	FBGDS FBGMS FBSCALE
CANopen	60C2h, sub-index 2

FBITPRD

Definition	Fieldbus CANopen Interpolation Time
Type	Variable (R/W)
Description	Fieldbus CANopen interpolation time period for fieldbus cycle time calculation.
Syntax	Read: FBITPRD Write: FBITPRD <value>
Firmware	1.2.12
Drive status	Disabled
Range	1 to 255
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	
CANopen	60C2h, sub-index 1

FBPLIGNORE

Definition	Fieldbus Ignore Packet Loss Fault
Type	
Description	Not intended for user unless instructed by Technical Support.
Syntax	
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	
Non-volatile	
See also	
CANopen	

FBSCALE

Definition	Fieldbus Unit Scaling
Type	Variable (R/W)
Description	Fieldbus unit scaling for internal counts stating how many bits of 32-bit position are for number of revolutions.
Syntax	Read: FBSCALE Write: FBSCALE <value>
Firmware	1.2.12
Drive status	Enabled Disabled
Range	0 to 20
Default value	12
Unit	Not Applicable
Non-volatile	Yes
See also	
CANopen	200Fh, sub-index 0

FEEDBACKTYPE

Definition	Feedback Type		
Type	Variable (R/W)		
Description	Gets/set the motor feedback type. When the value of FEEDBACKTYPE is changed, CONFIG is required.		
Syntax	Read: FEEDBACKTYPE Write: FEEDBACKTYPE <value>		
Firmware	1.0.6		
Drive status	Disabled		
Range		FEEDBACKTYPE	MENCTYPE
	Resolver	1	0
	Incremental Encoder; A, B and index channels, and Halls (A/B/Z/H)	2	0
	Incremental Encoder; A/B/Z commutation initialization by PHASEFIND command	2	1
	Incremental Encoder; A/B/Z commutation initialization by ENABLE or PHASEFIND command	2	2
	Incremental Encoder; A/B commutation initialization by PHASEFIND command	2	3
	Incremental Encoder; A/B commutation initialization by ENABLE or PHASEFIND command	2	4
	Halls only	2	5
	Incremental Encoder; A/B/H	2	6
	Tamagawa Incremental Encoder (8 wires)	2	11
	Sine Encoder; A/B/Z/H	3	0
	Sine Encoder; A/B/Z commutation initialization by PHASEFIND command	3	1
	Sine Encoder; A/B/Z commutation initialization by ENABLE and PHASEFIND command	3	2
	Sine Encoder; A/B commutation initialization by PHASEFIND command	3	3
	Sine Encoder; A/B ; commutation initialization by ENABLE or PHASEFIND command	3	4

	Sine Encoder; A/B/H	3	6
	Endat 2.1 with Sine Signals	3	9
	Hiperface with Sine Signals	3	10
	Nikon 17 bit Absolute Encoder; Single/Multi turn	4	0
	Tamagawa 17 bit Absolute Encoder; Single Turn	7	0
	Tamagawa 17 bit Absolute Encoder; Multi Turn	6	0
	Endat 2.2	11	0
	ServoSense – not for users	12	0
Default value	2		
Unit	Not Applicable		
Non-volatile	Yes		
See also	MENCTYPE MOTORTYPE MRESPOLES		
CANopen	204Dh, sub-index 0		

FILTHZ1

Definition	Velocity Loop Output Filter Parameter 1
Type	Variable (R/W)
Description	Velocity loop output filter first parameter. A multi-function parameter for setting the output filter of the velocity controller. FILTMODE defines its functionality.
Syntax	Read: FILTHZ1 Write: FILTHZ1 <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	1 to 10000
Default value	200
Unit	Hz
Non-volatile	Yes
See also	FILTHZ2 FILTMODE
CANopen	204Eh, sub-index 0

FILTHZ2

Definition	Velocity Loop Output Filter Parameter 2
Type	Variable (R/W)
Description	Velocity loop output filter second parameter. A multi-function parameter for setting the output filter of the velocity controller. FILTMODE defines its functionality.
Syntax	Read: FILTHZ2 Write: FILTHZ2 <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	1 to 10000
Default value	200
Unit	Hz
Non-volatile	Yes
See also	FILTHZ1 FILTMODE
CANopen	204Fh, sub-index 0

FILTMODE

Definition	Velocity Loop Output Filter Mode
Type	Variable (R/W)
Description	Gets/sets the value that defines the velocity loop output filter.
Syntax	Read: FILTMODE Write: FILTMODE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Transparent feed through; no filtering. 1 = First order low pass filter; sets FILTHZ1 as corner frequency. 2 = Double first order low pass filter; sets FILTHZ1 and FILTHZ2 as corner frequencies. 3 = Notch filter; sets FILTHZ2 as notch center frequency and FILTHZ1 as notch frequency width. 4 = High pass filter; sets FILTHZ1 as corner frequency. 5 = Band pass; sets FILTHZ2 as bandpass center frequency and FILTHZ1 as bandpass frequency width. 6 = User defined polynomial filter; sets VF.
Default value	0
Unit	Not applicable
Non-volatile	Yes
See also	FILTHZ1 FILTHZ2 VELCONTROLMODE VF
CANopen	2050h, sub-index 0

FLT

Definition	Print Faults
Type	Variable (R)
Description	Returns a list of faults latched by the drive. Faults remain latched until cleared by CLEARFAULTS or EN, provided that the fault condition has been removed.
Syntax	FLT
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	DISMODE FLTHIST FLTHISTCLR WRN
CANopen	603F , sub-index 0

FLTHIST

Definition	Fault History
Type	Variable (R)
Description	Returns a list of faults that have occurred since the fault buffer was last cleared. Causes the drive to transmit the fault history buffer to the serial port. The most recent fault is sent first. A time stamp in the format of hours:minutes:seconds is displayed along with each fault, indicating the time at which the fault occurred.
Syntax	FLTHIST
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
Example	<pre>--> flthist 2:28:55 A/B Line Break 2:28:55 Illegal Halls 2:28:49 Illegal Halls --></pre>
See also	FLT FLTHISTCLR WRN

FLTHISTCLR

Definition	Clear Fault History
Type	Command
Description	Clears the fault history buffer.
Syntax	FLTHISTCLR
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	CLEARFAULTS FLT FLTHISTCLR

FOLD

Definition	Drive Foldback Status
Type	Variable (R)
Description	Indicates whether the drive foldback limit (IFOLD) has dropped below the application's current limits (ILIM).
Syntax	FOLD
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Foldback limit above ILIM 1 = Foldback limit below ILIM
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	DICONT IFOLD IFOLDFTHRESH IFOLDWTHRESH ILIM
CANopen	2051h , sub-index 0

FRICINEG

Definition	Friction Compensation Negative Current
Type	Variable (R/W)
Description	Gets/sets the level of current to add to the current command when commanded velocity is negative. Subject to hysteresis of the friction compensation mechanism.
Syntax	Read: FRICINEG Write: FRICINEG <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	±DIPEAK
Default value	0
Unit	A (peak)
Non-volatile	Yes
See also	FRICIPOS FRICNVHYST FRICPVHYST
CANopen	2052h, sub-index 0

FRICIPOS

Definition	Friction Compensation Positive Current
Type	Variable (R/W)
Description	Gets/sets the level of current to add to the current command when commanded velocity is positive. Subject to hysteresis of the friction compensation mechanism.
Syntax	Read: FRICIPOS Write: FRICIPOS <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	±DIPEAK
Default value	0
Unit	A (peak)
Non-volatile	Yes
See also	FRICINEG FRICNVHYST FRICPVHYST
CANopen	2053h , sub-index 0

FRICNVHYST

Definition	Friction Compensation Negative Velocity Hysteresis
Type	Variable (R/W)
Description	Gets/sets the velocity hysteresis in the negative direction for the friction compensation mechanism.
Syntax	Read: FRICNVHYST Write: FRICNVHYST <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	±VLIM
Default value	0.000
Unit	If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 =rps If UNITSROTVEL 1 =rpm If UNITSROTVEL 2 =deg/s If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = mm/s
Non-volatile	Yes
See also	FRICINEG FRICIPOS FRICPVHYST
CANopen	2054h, sub-index 0

FRICPVHYST

Definition	Friction Compensation Positive Velocity Hysteresis
Type	Variable (R/W)
Description	Gets/sets the velocity hysteresis in the positive direction for the friction compensation mechanism.
Syntax	Read: FRICPVHYST Write: FRICPVHYST <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	±VLIM
Default value	0.000
Unit	If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 = rps If UNITSROTVEL 1 = rpm If UNITSROTVEL 2 = deg/s If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = mm/s
Non-volatile	Yes
See also	FRICINEG FRICIPOS FRICNVHYST
CANopen	2055h, sub-index 0

GEAR

Definition	Gear
Type	Variable (R/W)
Description	Engages/disengages the gearing.
Syntax	Read: GEAR Write: GEAR <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Gearing disengaged 1 = Gearing engaged
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	GEARMODE
CANopen	211Eh, sub-index 0

GEARACCTHRESH

Definition	Gear Acceleration Threshold
Type	Variable (R/W)
Description	Maximum acceleration for gearing. Used for the combination of HD position controller (POSCONTROLMODE 1) and gearing input (OPMODE 4). This threshold is used to limit the HD position controller integrator.
Syntax	Read: GEARACCTHRESH Write: GEARACCTHRESH <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	If MOTORTYPE 0 (Rotary): UNITSROTACC 0 = 0 to 16666.666 UNITSROTACC 1 = 0 to 1000000 UNITSROTACC 2 = 0 to 6000000 If MOTORTYPE 2 (Linear): UNITSLINACC 1 = 0 to 533333.333
Default value	If MOTORTYPE 0 (Rotary): UNITSROTACC 0 = 16666.667 UNITSROTACC 1 = 1000000.000 UNITSROTACC 2 = 6000000.000 If MOTORTYPE 2 (Linear): UNITSLINACC 1 = 533333.333
Unit	If MOTORTYPE 0 (Rotary): UNITSROTACC 0 = rps/s UNITSROTACC 1 = rpm/s UNITSROTACC 2 = deg/s ² If MOTORTYPE 2 (Linear): UNITSLINACC 1 = mm/s ²
Non-volatile	Yes
See also	GEARMODE OPMODE POSCONTROLMODE
CANopen	2120h, sub-index 0

GEARFILTAFF

Definition	Gear Filter Acceleration Feedforward
Type	Variable (R/W)
Description	Gets/sets the value of the gear filter acceleration feedforward.
Syntax	Read: GEARFILTAFF Write: GEARFILTAFF <value>
Firmware	1.0.6
Drive status	Disabled
Range	± 2
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	GEARMODE
CANopen	2121h , sub-index 0

GEARFILTMODE

Definition	Gear Filter Mode
Type	Variable (R/W)
Description	Defines whether or not the gear filter is activated.
Syntax	Read: GEARFILTMODE Write: GEARFILTMODE <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 = Gear filter not activated 1 = Gear filter activated
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	GEARFILTT1 GEARFILTT2 GEARMODE
CANopen	2122h, sub-index 0

GEARFILTT1

Definition	Gear Filter Depth
Type	Variable (R/W)
Description	Gear filter depth.
Syntax	Read: GEARFILT1 Write: GEARFILT1 <value>
Firmware	1.0.6
Drive status	Disabled
Range	0.75 to 60
Default value	2
Unit	ms
Non-volatile	Yes
See also	GEARMODE
CANopen	2123h, sub-index 0

GEARFILTT2

Definition	Gear Filter Velocity and Acceleration Depth
Type	Variable (R/W)
Description	Gear filter velocity and acceleration filter depth.
Syntax	Read: GEARFILT2 Write: GEARFILT2 <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 to 60
Default value	4
Unit	ms
Non-volatile	Yes
See also	GEARMODE
CANopen	2124h , sub-index 0

GEARFILTVELFF

Definition	Gear Filter Velocity Feedforward
Type	Variable (R/W)
Description	Gets/sets the gear filter velocity feedforward. (Note: Was GEARFILTVEFF in previous firmware versions)
Syntax	Read: GEARFILTVELFF Write: GEARFILTVELFF <value>
Firmware	1.3.2
Drive status	Disabled
Range	-200 to 200
Default value	0
Unit	ms
Non-volatile	Yes
See also	
CANopen	2125h, sub-index 0

GEARIN

Definition	Gear Ratio Numerator
Type	Variable (R/W)
Description	Gets/sets the numerator of the gearbox equation. The gearing relationship is as follows: $(\text{GEARIN}/\text{GEAROUT}) \times (1/\text{XENCRES})$ Gearing sets up a relationship between the number of input pulses (HWPEXT counts) and the position increments of the motor shaft (or actual motor position, PFB). The rate at which position increments of the motor shaft (motor speed) occur is determined by the gearing relationship and the line frequency of the pulse train. The direction of rotation is determined by the sign of the variable GEARIN.
Syntax	Read: GEARIN Write: GEARIN <value>
Firmware	1.0.6
Drive status	Disabled
Range	± 32767
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	GEARMODE GEAROUT
CANopen	2126h , sub-index 0

GEARINMODE

Definition	Gearing Input Interpolation
Type	Variable (R/W)
Description	Used for gearing that is fed through the Controller I/F connector only. Enables interpolation of the gearing signal and increase of resolution by a factor of 16.
Syntax	Read: GEARIN Write: GEARIN <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 = Gearing input interpolation not activated 1 = Gearing input interpolation activated
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	GEARMODE HWPEXT
CANopen	2127h, sub-index 0

GEARLIMITSMODE

Definition	Gear Following Limits Mode
Type	Variable (R/W)
Description	Gets/sets the type of limits for gearing tracking.
Syntax	Read: GEARLIMITSMODE Write: GEARLIMITSMODE <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 = Gearing limits not active 1 = Gearing acceleration/deceleration limits
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	GEARFILTMODE GEARMODE
CANopen	2128h, sub-index 0

GEARMODE

Definition	Gearing Operation Mode
Type	Variable (R/W)
Description	Gets/sets the gearing source and method.
Syntax	Read: GEARMODE Write: GEARMODE <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 = Encoder (quadrature) follower (controller interface). Signals are received on the Controller connector (C2) at pins 28 and 11 (Quadrature A), and pins 9 and 27 (Quadrature B). 1 = Pulse and direction (controller interface). Signals are received on the Controller connector (C2) at pins 28 and 11 (Pulse), and 9 and 27 (Direction). 2 = Up/down counting (controller interface). Signals are received on the Controller connector (C2) at pins 28 and 11 (Up) and pins 9 and 27 (Down). 3 = Encoder (quadrature) follower (secondary encoder). Signals are received on the Machine connector (C3) at pins 1 and 11 (Quadrature A) and pins 2 and 12 (Quadrature B). 4 = Pulse and direction (secondary encoder). Signals are received on the Machine connector (C3) at pins 1 and 11 (Pulse), and 2 and 12 (Direction).
Default value	3
Unit	Not Applicable
Non-volatile	Yes
See also	GEARIN GEAROUT OPMODE PCMD
CANopen	20B3h, sub-index 0

GEAROUT

Definition	Gear Ratio Denominator
Type	Variable (R/W)
Description	Gets/sets the denominator of the gearbox equation. The gearing relationship is as follows: $(\text{GEARIN}/\text{GEAROUT}) \times (1/\text{XENCRES})$ Gearing sets up a relationship between the number of input pulses (HWPEXT counts) and the position increments of the motor shaft (or actual motor position, PFB). The rate at which position increments of the motor shaft (motor speed) occur is determined by the gearing relationship and the line frequency of the pulse train.
Syntax	Read: GEAROUT Write: GEAROUT <value>
Firmware	1.0.6
Drive status	Disabled
Range	1 to 32767
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	GEARIN GEARMODE
CANopen	2129h, sub-index 0

GET

Definition	Get Recorded Data
Type	Command
Description	Gets the recorded data that was captured using the recording mechanism. The data is retrieved in ASCII or binary format according to the value of GETMODE.
Syntax	GET
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	GETMODE RECORD
CANopen	20E7, sub-index 1

GETMODE

Definition	Recorded Data Transfer Format
Type	Variable (R/W)
Description	Gets/sets the data transfer format used by the GET command.
Syntax	Read: GETMODE Write: GETMODE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = ASCII data transfer format 3 = Binary data transfer format
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	GET RECORD

GETREC

Definition	Packet Retransfer Management
Type	Command
Description	Not intended for user unless instructed by Technical Support. Packet retransfer management
Syntax	GETREC
Firmware	1.3.2
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	

HALLS

Definition	Hall Signals
Type	Variable (R)
Description	Indicates the current state of the Hall commutation sensors.
Syntax	HALLS
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Hall sensor in low position 1 = Hall sensor in high position
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
Example	-->halls Hu Hv Hw 1 1 1 -->
See also	ELECTANGLE FEEDBACKTYPE MECHANGLE MENCTYPE
CANopen	2056h, sub-index 1

HALLSFILTAFF

Definition	Halls-Only Mean-Square Filter Filter Acceleration Feedforward
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. Provides adjustable gain for the acceleration feedforward from the MSQ filter for Halls-only feedback.
Syntax	Read: HALLSFILTAFF Write: HALLSFILTAFF <value>
Firmware	1.4.4
Drive status	Enabled Disabled
Range	-2 to 2
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	FEEDBACKTYPE HALLS HALLSFILTT1 HALLSFILTT2 MENCTYPE

HALLSFILTT1

Definition	Halls-Only Mean-Square Filter Depth (in 125 μ s quanta)
Type	Variable (R/W)
Description	Filtering time-constant for Halls-only position feedback.
Syntax	Read: HALLSFILTAFF1 Write: HALLSFILTAFF1 <value>
Firmware	1.4.4
Drive status	Enabled Disabled
Range	0.375 to 32
Default value	2
Unit	μ s
Non-volatile	Yes
See also	

HALLSFILTT2

Definition	Halls-Only Mean-Square Filter Velocity and Acceleration Filter Depth (in 125 μ s quanta)
Type	Variable (R/W)
Description	Filtering time-constant for Halls-only velocity and acceleration indications.
Syntax	Read: HALLSFILTAFF2 Write: HALLSFILTAFF2 <value>
Firmware	1.4.4
Drive status	Enabled Disabled
Range	0 to 32
Default value	4
Unit	μ s
Non-volatile	Yes
See also	

HALLSFILTVELFF

Definition	Halls-Only Mean-Square (MSQ) Filter Velocity Feedforward
Type	Variable (R/W)
Description	Halls-only filter velocity feedforward output gain.
Syntax	Read: HALLSFILTVELFF Write: HALLSFILTVELFF <value>
Firmware	1.4.4
Drive status	Enabled Disabled
Range	-32 to 32
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	

HALLSINV

Definition	Hall Signals Inversion
Type	Variable (R/W)
Description	Inverts the polarity of individual Hall signals associated with motor phases UVW, thereby providing correction for crossed wiring. This variable is set during the MOTORSETUP procedure.
Syntax	Read: HALLSINV Write: HALLSINV <0 1> <0 1> <0 1>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Hall signal not inverted 1 = Hall signal inverted
Default value	0
Unit	Not Applicable
Non-volatile	Yes
Example	<pre>-->hallsinv 1 1 0 -->halls Hu Hv Hw 0 0 1 -->hallsinv 1 0 0 -->halls Hu Hv Hw 0 1 1 --></pre>
See also	FEEDBACKTYPE HALLS HALLSTYPE MOTORSETUP MENCTYPE
CANopen	2057h, sub-index 1

HALLSTYPE

Definition	Hall Signals Type
Type	Variable (R/W)
Description	Gets/sets the source and method used for Hall sensors.
Syntax	Read: HALLSTYPE Write: HALLSTYPE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Single-ended connection through the main Feedback connector 1 = Differential connection through the main Feedback connector. 2 = Differential connection through the Machine I/F connector. Refer to pinout documentation in product user manual.
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	FEEDBACKTYPE HALLS HALLSINV MOTORSETUP MENCTYPE
CANopen	2058h, sub-index 0

HCFB

Definition	Actual Harmonic Correction Feedback
Type	Variable (R)
Description	Not intended for user unless instructed by Technical Support. Harmonic correction feedback.
Syntax	HCFB
Firmware	1.2.12 – Still in development
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	
CANopen	2059h, sub-index 0

HCFB1

Definition	Harmonic Correction Feedback Parameter 1
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. Harmonic correction feedback parameter 1.
Syntax	Read: HCFB1 Write: HCFB1<value>
Firmware	1.2.12 – Still in development
Drive status	Enabled Disabled
Range	
Default value	
Unit	Not Applicable
Non-volatile	Yes
See also	

HCFB2

Definition	Harmonic Correction Feedback Parameter 2
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. Harmonic correction feedback parameter 2.
Syntax	Read: HCFB2 Write: HCFB2<value>
Firmware	1.2.12 – Still in development
Drive status	Enabled Disabled
Range	
Default value	
Unit	Not Applicable
Non-volatile	Yes
See also	

HCICMD

Definition	Harmonic Correction Current
Type	Variable (R)
Description	Not intended for user unless instructed by Technical Support. Harmonic correction current.
Syntax	HCICMD
Firmware	1.2.12 – Still in development
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	A
Non-volatile	No
See also	
CANopen	205Ch, sub-index 0

HCICMD1

Definition	Harmonic Correction ICMD Parameter 1
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. Harmonic Correction ICMD Parameter 1.
Syntax	Read: HCICMD1 Write: HCICMD1<value>
Firmware	1.2.12 – Still in development
Drive status	Enabled Disabled
Range	
Default value	
Unit	
Non-volatile	Yes
See also	

HCICMD2

Definition	Harmonic Correction ICMD Parameter 2
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. Harmonic Correction ICMD Parameter 2.
Syntax	Read: HCICMD2 Write: HCICMD2<value>
Firmware	1.2.12 – Still in development
Drive status	Enabled Disabled
Range	
Default value	
Unit	
Non-volatile	Yes
See also	

HOLD

Definition	Hold Position Command
Type	Command
Description	Instructs motor whether to maintain its position.
Syntax	HOLD Queries the Hold state HOLD {0 1}
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Do not hold position 1 = Hold position
Default value	0
Unit	Not Applicable
Non-volatile	No
See also	J OPMODE MOVEINC STOPPED
CANopen	2063h, sub-index 0

HOMEACC

Definition	Homing Acceleration
Type	Variable (R/W)
Description	Acceleration (and deceleration) for the homing process. HOMEACC is defined according to the units currently in effect. It is used in acceleration and deceleration of all trajectories (moves) during homing. If and when a limit switch is engaged, DECSTOP will override HOMEACC.
Syntax	Read: HOMEACC Write: HOMEACC <value>
Firmware	1.2.12
Drive status	Enabled Disabled
Range	If MOTORTYPE 0 (Rotary): UNITSROTACC 0 = 0.004 to 16666.666 UNITSROTACC 1 = 0.224 to 1000000 UNITSROTACC 2 = 1.342 to 6000000 If MOTORTYPE 2 (Linear): UNITSLINACC 1 = 0.12 to 533333.333
Default value	4000 [rpm/sec]
Unit	If MOTORTYPE 0 (Rotary): UNITSROTACC 0 = rps/s UNITSROTACC 1 = rpm/s UNITSROTACC 2 = deg/s² If MOTORTYPE 2 (Linear): UNITSLINACC 1 = mm/s²
Non-volatile	Yes
See also	HOMETYPE
CANopen	609Ah, sub-index 0

HOMECMD

Definition	Homing Command
Type	Command
Description	Starts the homing process. Before HOMECMD can be issued, the drive must be in Position Control operation mode (OPMODE 8) and enabled; this means that no faults are in effect. If homing is in progress and needs to be aborted, use the command HOMECMD 0. This will stop all motion. It will also reset the homing state machine, resulting in HOMESTATE 0.
Syntax	HOMECMD Starts the homing process. HOMECMD 0 Aborts homing and stops all motion.
Firmware	1.2.12
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	HOMETYPE
CANopen	2103h, sub-index 0

HOMEIHARDSTOP

Definition	Current Level for Homing on Hard Stop
Type	Variable (R/W)
Description	Gets/sets the current level at which a hard stop is detected. Used when the homing process uses a hard stop for direction-reversal (and not a limit switch).
Syntax	Read: HOMEIHARDSTOP Write: HOMEIHARDSTOP <value>
Firmware	1.3.2
Drive status	Enabled Disabled
Range	0 to 150
Default value	0
Unit	A
Non-volatile	Yes
See also	HOMETYPE
CANopen	2104h, sub-index 0

HOMEOFFSET

Definition	Home Offset
Type	Variable (R/W)
Description	Gets/sets the value that defines an offset from the homing trigger position. The trigger may be an index mark, a transition of a limit switch or the home switch, or another source (as defined by HOMETYPE). HOMEOFFSET is used when the position at which the homing trigger is detected is not considered the home position (PFB 0). Once the trigger source is detected, the drive sets the feedback position (PFB) to the value of HOMEOFFSET, and instructs the motor to move to position 0.
Syntax	Read: HOMEOFFSET Write: HOMEOFFSET <value>
Firmware	1.2.12
Drive status	Enabled Disabled
Range	$\pm(2^{31} - 1)$ [rev]
Default value	0
Unit	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = rev UNITSROTPOS 1 = count UNITSROTPOS 2 = deg If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = pitch UNITSLINPOS 1 = count UNITSLINPOS 3 = mm
Non-volatile	Yes
See also	HOMETYPE
CANopen	607Ch, sub-index 0

HOME OFSTMOVE

Definition	Home Offset Move
Type	Variable (R/W)
Description	Defines whether or not the axis is moved according to HOME OFFSET during the homing process. The HOME OFFSET movement is used to ensure that the value of PFB is 0 at the end of the homing process. HOME OFSTMOVE is ignored if HOMETYPE=35.
Syntax	Read: HOME OFSTMOVE Write: HOME OFSTMOVE <value>
Firmware	1.4.4
Drive status	Enabled Disabled
Range	0 = Once the homing trigger is detected, the axis will move to the location of the trigger; at the end of the homing process the value of PFB will be HOME OFFSET. 1 = Once the homing trigger is detected, the axis will move according to the value of HOME OFFSET; at the end of the homing process the value of PFB will be 0.
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	HOME OFFSET HOMETYPE

HOMESPEED1

Definition	Homing Speed 1 - Switch Search
Type	Variable (R/W)
Description	The initial velocity used in the homing process during the search for limit switches, home switches, and hard stops. HOMESPEED1 is defined according to the units currently in effect.
Syntax	Read: HOMESPEED1 Write: HOMESPEED1 <value>
Firmware	1.2.12
Drive status	Disabled
Range	0-VMAX
Default value	If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 =8.333 If UNITSROTVEL 1 =500.000 If UNITSROTVEL 2 =3000.000 If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = 266.667
Unit	If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 =rps If UNITSROTVEL 1 =rpm If UNITSROTVEL 2 =deg/s If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = mm/s
Non-volatile	Yes
See also	HOMETYPE
CANopen	6099h, sub-index 1

HOMESPEED2

Definition	Homing Speed 2 - Zero Search
Type	Variable (R/W)
Description	The velocity used in the homing process during the search for the homing trigger, which may be an index mark, a limit switch transition, a home switch transition, or another source (as defined by HOMETYPE). HOMESPEED2 is defined according to the units currently in effect. The value of HOMESPEED2 should be set much lower than HOMESPEED1 to increase the accuracy of the trigger capture.
Syntax	Read: HOMESPEED2 Write: HOMESPEED2<value>
Firmware	1.2.12
Drive status	Disabled
Range	0-VMAX
Default value	If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 =1.667 If UNITSROTVEL 1 =100.000 If UNITSROTVEL 2 =599.999 If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = 53.333
Unit	If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 =rps If UNITSROTVEL 1 =rpm If UNITSROTVEL 2 =deg/s If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = mm/s
Non-volatile	Yes
See also	HOMETYPE
CANopen	6099h, sub-index 2

HOMESTATE

Definition	Homing Status
Type	Variable (R)
Description	Indicates the state of the homing process (including errors). Typical states: 0 = Idle state (reset by HOMECMD 0) 19 = Homing completed 20 = Homing failed <i>other</i> = Homing in progress or stuck (reset if necessary)
Syntax	HOMESTATE
Firmware	1.2.12
Drive status	Enabled Disabled
Range	0 = Homing idle 1 = Homing setup 2 = Homing configuration 3 = Homing initial state detection 4 = Homing initial direction move 5 = Homing seek first switch 6 = Homing flip first switch move 7 = Homing seek flip first switch 8 = Homing seek home switch move 9 = Homing seek home switch 10 = Homing off home switch move 11 = Homing seek off home switch 12 = Homing on home switch move 13 = Homing seek trigger conditions 14 = Homing trigger arming 15 = Homing seek trigger 16 = Homing set home offset 17 = Homing move zero position 18 = Homing reached 19 = Homing completed 20 = Homing failed
Default value	0
Unit	Not Applicable
Non-volatile	No
See also	HOMETYPE
CANopen	2090h, sub-index 0

HOMETYPE

Definition	Homing Type
Type	Variable (R/W)
Description	Gets/sets a value that defines the type of homing process that will be performed. HOMETYPE defines when direction of motion is reversed during homing, the homing trigger (e.g., switch, index), and other conditions. Homing types 1 through 14, 17 through 30 and 33 through 35 are according to CANopen DS402. Additional homing types have been defined per customer requests. Homing on index mark can be used with resolver motor feedback (HOMETYPE 1-14, 33, 34, -8, -12, -33, -34, -40, -44, -65, -66, -97, -98). The location of the resolver index mark is where the motor mechanical angle (MECHANGLE) is 0. To achieve greater accuracy of the homing procedure (i.e., minimum PFB counts from MECHANGLE 0), reduce the value of HOMESPEED2.
Syntax	Read: HOMETYPE Write: HOMETYPE <value>
Firmware	1.2.12
Drive status	Enabled Disabled
Range	1 = Homing on first index mark after disengaging from negative limit. 2 = Homing on first index mark after disengaging from positive limit. 3 = Homing on first index mark after disengaging from home switch (home switch at positive travel). 4 = Homing on first index mark after engaging home switch (home switch at positive travel). 5 = Homing on first index mark after disengaging from home switch (home switch at negative travel). 6 = Homing on first index mark after engaging home switch (home switch at negative travel). 7 = Homing on first index mark after disengaging from negative side of home switch; initial move positive. 8 = Homing on first index mark after engaging negative side of home switch; initial move positive. 9 = Homing on first index mark after engaging positive side of home switch; initial move positive. 10 = Homing on first index mark after disengaging from positive side of home switch; initial move positive. 11 = Homing on first index mark after disengaging from positive side of home switch; initial move negative. 12 = Homing on first index mark after engaging positive side

	of home switch; initial move negative.
13	= Homing on first index mark after engaging negative side of home switch; initial move negative.
14	= Homing on first index mark after disengaging from negative side of home switch; initial move negative.
15	= Reserved
16	= Reserved
17	= Homing on falling edge of negative limit.
18	= Homing on falling edge of positive limit.
19	= Homing on falling edge of home switch (home switch at positive travel).
20	= Homing on rising edge of home switch (home switch at positive travel).
21	= Homing on falling edge of home switch (home switch at negative travel).
22	= Homing on rising edge of home switch (home switch at negative travel).
23	= Homing on negative side falling edge of home switch; initial move positive.
24	= Homing on negative side rising edge of home switch; initial move positive.
25	= Homing on positive side rising edge of home switch; initial move positive.
26	= Homing on positive side falling edge of home switch; initial move positive.
27	= Homing on positive side falling edge of home switch; initial move negative.
28	= Homing on positive side rising edge of home switch; initial move negative.
29	= Homing on negative side rising edge of home switch; initial move negative.
30	= Homing on negative side falling edge of home switch; initial move negative.
31	= Reserved
32	= Reserved
33	= Homing on index mark, moving negative.
34	= Homing on index mark, moving positive.
35	= Declare present position as home. (PFB reading after homing will always be HOMEOFFSET regardless of HOME OFSTMOVE setting).
-8	= Homing on first index mark after engaging negative side of home switch; initial move positive, retract upon first contact with home switch edge.
-12	= Homing on first index mark after engaging positive side of home switch; initial move negative, retract upon first contact with home switch edge.
-24	= Homing on negative side rising edge of home switch; initial move positive, retract upon first contact with home switch edge.

	-28 = Homing on positive side rising edge of home switch; initial move negative, retract upon first contact with home switch edge. -33 = Homing on index mark after direction reversal on hard stop; initial move negative. -34 = Homing on index mark after direction reversal on hard stop; initial move positive. -40 = Homing on first index mark after engaging negative side of home switch; initial move positive; reverse direction on hard stop. -44 = Homing on first index mark after engaging positive side of home switch; initial move negative; reverse direction on hard stop. -56 = Homing on negative side rising edge of home switch; initial move positive; reverse direction on hard stop; retract upon first contact with home-switch edge. -60 = Homing on positive side rising edge of home switch; initial move negative; reverse direction on hard stop, retract upon first contact with home switch edge. -65 = Homing on index mark; initial move negative; if index mark not found reverse direction on hard stop. -66 = Homing on index mark; initial move positive; if index mark not found reverse direction on hard-stop. -97 = Homing on index mark; initial move negative; if index mark not found reverse direction on negative limit switch. -98 = Homing on index mark; initial move positive; if index mark not found reverse direction on positive limit switch.
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	HOMEACC HOMECMD HOMEOFFSET HOMEOFSTMOVE HOMESPEED1 HOMESPEED2 HOMESTATE
CANopen	6098h, sub-index 0

HWPEXT

Definition	Hardware Position External
Type	Variable (R)
Description	Indicates the position as measured by an external feedback device.
Syntax	HWPEXT
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 65535
Default value	Not Applicable
Unit	65536/revolution
Non-volatile	No
See also	GEARMODE PCMD XENCRES
CANopen	2064h, sub-index 0

HWPEXTCNTRLR

Definition	Hardware Position External (FPGA)
Type	Variable (R)
Description	Not intended for user unless instructed by Technical Support. Indicates the position as measured by an external feedback device (FPGA); 32 bit counter of the pulse and direction input from the controller interface connector.
Syntax	HWPEXTCNTRLR
Firmware	1.3.2
Drive status	Enabled Disabled
Range	Not applicable
Default value	Not applicable
Unit	Count
Non-volatile	No
Example	-->hwpextcntrlr 4294943248 [Counts]
See also	

HWPEXTMACHN

Definition	Hardware Position External (DSP)
Type	Variable (R)
Description	Not intended for user unless instructed by Technical Support. Indicates the position as measured by an external feedback device (DSP); 32 bit counter of the pulse and direction input from the machine interface connector.
Syntax	HWPEXTMACHN
Firmware	1.3.2
Drive status	Enabled Disabled
Range	Not applicable
Default value	Not applicable
Unit	Count
Non-volatile	No
Example	-->hwpextmachn 4294943248 [Counts]
See also	
CANopen	20B6h, sub-index 0

HWPOS

Definition	Hardware Position
Type	Variable (R)
Description	Indicates the position, in counts, as measured by the feedback device.
Syntax	HWPOS
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 65535
Default value	Not Applicable
Unit	count
Non-volatile	No
See also	ELECTANGLE FEEDBACKTYPE MECHANGLE MENCRES MENCTYPE MRESPOLES
CANopen	2065h, sub-index 0

I

Definition	Motor Current
Type	Variable (R)
Description	Indicates the equivalent motor current (equivalent sinusoidal peak).
Syntax	I
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	A
Non-volatile	No
See also	ICMD ID IFOLD ILIM IMAX IU
CANopen	6078h, sub-index 0

ICMD

Definition	Current Command
Type	Variable (R)
Description	Indicates the current command, which is generated either directly (serial or analog), or as output of the position controller.
Syntax	ICMD
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	A
Non-volatile	No
See also	I ID IFOLD ILIM IMAX IU
CANopen	6074h, sub-index 0

ID

Definition	Current D Axis
Type	Variable (R)
Description	In vector control, indicates the value perpendicular to IQ.
Syntax	ID
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	A
Non-volatile	No
See also	I ILIM IMAX IQ IU
CANopen	2066h, sub-index 0

IFFLPPHZ

Definition	Current Feedforward Low Pass Filter
Type	Variable (R/W)
Description	Gets/sets the corner frequency of a first-order filter of the feedforward low pass filter.
Syntax	Read: IFFLPPHZ Write: IFFLPPHZ <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	10 to 1000
Default value	80 Hz
Unit	Hz
Non-volatile	Yes
See also	KCBEMF MKT
CANopen	2068h, sub-index 0

IFOLD

Definition	Drive Foldback Current Limit
Type	Variable (R)
Description	Indicates the current limit derived from the foldback mechanism. A foldback condition occurs when IFOLD drops below ILIM. This variable is useful for checking how close the current is to the foldback limit.
Syntax	IFOLD
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 300
Default value	Not applicable
Unit	A
Non-volatile	No
See also	DICONT FOLD IFOLDFTHRESH IFOLDWTHRESH ILIM
CANopen	2069h, sub-index 0

IFOLDFTHRESH

Definition	Drive Foldback Fault Threshold
Type	Variable (R/W)
Description	Gets/sets the current threshold level for declaring a fault due to foldback. The drive foldback threshold fault is declared when IFOLD drops below IFOLDFTHRESH.
Syntax	Read: IFOLDFTHRESH Write: IFOLDFTHRESH <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 300
Default value	DICONT
Unit	A
Non-volatile	Yes
See also	DICONT FOLD IFOLD IFOLDWTHRESH ILIM
CANopen	206Ah, sub-index 0

IFOLDWTHRESH

Definition	Drive Foldback Warning Threshold
Type	Variable (R/W)
Description	Gets/sets the current threshold level for declaring a warning due to foldback. The drive foldback threshold warning is declared when IFOLD drops below IFOLDWTHRESH.
Syntax	Read: IFOLDWTHRESH Write: IFOLDWTHRESH <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 300
Default value	DIPEAK
Unit	A
Non-volatile	Yes
See also	DICONT FOLD IFOLD IFOLDFTHRESH ILIM
CANopen	206Bh, sub-index 0

IGRAV

Definition	Gravity Compensation
Type	Variable (R/W)
Description	Gets/sets the value of the gravity compensation constant. IGRAV is added to the current loop command to compensate for gravity or similar constant interference.
Syntax	Read: IGRAV Write: IGRAV <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	±DIPEAK
Default value	0.000
Unit	A
Non-volatile	Yes
See also	I FRICINEG FRICIPOS ILIM DIPEAK
CANopen	206Ch, sub-index 0

ILIM

Definition	User Current Limit
Type	Variable (R/W)
Description	Gets/sets the application current limit, allowing the user to limit the drive's peak current. This variable limits the current command that will be accepted from the user (using the T command in OPMODE 2) or issued by the control loops (in OPMODE 0, 1, 3, and 4). ILIM is an independent variable that is not calculated from hardware parameters and is not dependent on any other variables. ILIM is similar to VLIM (which is used in OPMODE 0 and 1) and can be used to protect delicate load equipment.
Syntax	Read: ILIM Write: ILIM <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 to IMAX
Default value	0.000
Unit	A (peak)
Non-volatile	Yes
See also	I IMAX
CANopen	6073h, sub-index 0

ILIMACT

Definition	Drive Actual Current Limit
Type	Variable (R)
Description	Reports the actual current limit. Useful when the limit is dynamic due to analog control over current limit. ILIMACT is the minimum between ILIM and the analog current limit (only for ANIN2MODE 2).
Syntax	ILIMACT
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	A
Non-volatile	No
See also	ANIN2MODE ILIM IMAX

IMAX

Definition	Drive Current Limit
Type	Variable (R)
Description	Displays the maximum current limit for a drive and motor combination.
Syntax	IMAX
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	A (peak)
Non-volatile	No
See also	DIPEAK I ILIM MIPEAK
CANopen	20F0h, sub-index 0

IN

Definition	Inputs Status
Type	Variable (R)
Description	Gets the state of the digital input.
Syntax	IN < <i>input#</i> >
Firmware	1.0.6
Drive status	Enabled Disabled
Range	<i>input#</i> = 1 to 11 0 = Input off 1 = Input on
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
Example	-->IN 1 0
See also	ININV INMODE INPUTS
CANopen	60FDh , sub-index 0

INDEXDURATE

Definition	Index Pulse Duration
Type	Variable (R/W)
Description	Gets/sets the duration of the emulated index pulse in the encoder emulation feature. This function allows users to observe index pulses of very short durations. To be used effectively, the duration of the emulated index pulse must be shorter than the time length of one revolution; otherwise a constant signal will be generated. INDEXDURATE 0 = The drive will issue the emulated index pulse according to the hardware mechanism's defaults.
Syntax	Read: INDEXDURATE Write: INDEXDURATE <value>
Firmware	1.4.4
Drive status	Enabled Disabled
Range	0 to 100
Default value	0
Unit	ms
Non-volatile	Yes
See also	ENCOUTMODE ENCOUTRES ENCOUTZPOS INDEXST MENCRES

INDEXFIND

Definition	Encoder Index Initialization
Type	Command
Description	Encoder index initialization. Detects when the encoder index is crossed, and sets the index commutation offset (MENCZPOS).
Syntax	INDEXFIND
Firmware	1.0.6
Drive status	Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	INDEXFINDST MENCRES MENCTYPE MENCZPOS PHASEFIND
CANopen	206Dh , sub-index 0

INDEXFINDST

Definition	Encoder Initialization Status
Type	Variable (R)
Description	Indicates the state of the index search and initialization procedure (INDEXFIND). This variable is reset to 0 when the user manually sets the index position (MENCZPOS).
Syntax	INDEXFINDST
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Procedure not started 1 = Procedure in progress 2 = Procedure completed
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	INDEXFIND MENCRES MENCTYPE MENCZPOS PHASEFIND
CANopen	206Eh, sub-index 0

INDEXPFB

Definition	Encoder Index Position Feedback
Type	Variable (R)
Description	Indicates the position feedback (PFB) captured at the encoder index position.
Syntax	INDEXPFB
Firmware	1.0.6
Drive status	Enabled Disabled
Range	$\pm(2^{31} - 1)$ [rev]
Default value	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = 0.309 UNITSROTPOS 1 = 2529.69 UNITSROTPOS 2 = 111.168 If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = 0.309 UNITSLINPOS 1 = 2529.69
Unit	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = rev UNITSROTPOS 1 = count UNITSROTPOS 2 = deg If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = pitch UNITSLINPOS 1 = count UNITSLINPOS 3 = mm
Non-volatile	No
See also	FEEDBACKTYPE HWPOS MENCTYPE MENCZPOS PFB UNITSROTPOS
CANopen	206Fh, sub-index 0

INDEXST

Definition	Encoder Index Signal Status
Type	Variable (R)
Description	Indicates the state of the encoder index signal.
Syntax	Read: INDEXST Write: INDEXST <value>
Firmware	1.4.4
Drive status	Enabled Disabled
Range	0 = Encoder index signal inactive ; position not within index 1 = Encoder index signal active; position within index
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Yes
See also	ENCOUTMODE ENCOUTRES ENCOUTZPOS INDEXDURATE MENCRES

INERTIAIDENTEST

Definition	RT Inertia Identification Value
Type	
Description	Not intended for user unless instructed by Technical Support. RT inertia identification value.
Syntax	
Firmware	1.3.2
Drive status	
Range	
Default value	
Unit	
Non-volatile	
Example	
See also	

INFO

Definition	Drive Info
Type	Variable (R)
Description	Returns information about the drive.
Syntax	INFO
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
Example	<pre> 3->INFO Digital Servo Drive ----- Drive model number: CDHD-0062AAF1-00 Peak current : 25.455 A / 18.000 Arms Continuous current: 8.485 A / 6.000 Arms Feedback type : Incremental encoder (A/B/Halls Tamagawa) Interface : Analog Voltage, Pulse Train Ref, CANopen(R), USB, RS232 Voltage : 200 V Product S/N : 111F-00192□□, June 2011 Control board P/N : PRDr90CSCF7z-00 S/N : 32511-000164 HW revision : 07 Eeprom revision : 2 Flash Manufacturer: SST 39VF1601C Power board P/N : PRDr90PACSMz-06 S/N : 32311-000138 HW revision : 15 Eeprom revision : 4 Firmware Version : 1.4.3 FPGA Version : 1.67 September 15 2013 Resident Version : 0.1.7 Runtime : 733:01:15 3-> </pre>
See also	DRIVENAME MOTORNAME TRUN VER

ININV

Definition	Input Polarity
Type	Variable (R/W)
Description	Gets/sets the input polarity of the digital inputs.
Syntax	Read: ININV <input#> Write: ININV <input#> <invert>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	<i>input#</i> = 1 to 11 <i>invert</i> : 0 = Input not inverted 1 = Input inverted
Default value	0
Unit	Not applicable
Non-volatile	Yes
Example	-->ininv 1 0 -->ininv 1 1 -->ininv 1 1 -->
See also	IN INMODE INPUTS
CANopen	2070h, sub-index 1

INMODE

Definition	Input Mode
Type	Variable (R/W)
Description	Gets/sets a value that defines the digital input mode for each of the available digital inputs.
Syntax	Read: INMODE <input#> Write: INMODE <input#> <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	<i>input#</i> = 1 to 11 <i>value</i> : 0 = Idle 1 = Remote enable 2 = Clear fault* 3 = Reserved 4 = Emergency stop, activates Active Disable 5 = Limit switch positive 6 = Limit switch negative 7 = Reserved 8 = Home switch 9 = Script 10 = Script bit 0 11 = Script bit 1 12 = Script bit 2 13 = Script bit 3 14 = Script bit 4 15 = Stop on input (with DECDIST as offset) 16 = Stop on input (with DECDIST2 as offset) 17 = Gearing pulse signal (only for digital input 5) 18 = Gearing direction signal (only for digital input 6) 19 = Script execution upon change in input 20 = Path bit 0 21 = Path bit 1 22 = Path bit 2 23 = Path bit 3 24 = Path bit 4 25 = Path trigger

	* Note: INMODE <i#> 2 will not clear a fault if the condition causing the fault has not been removed. To clear a fault using I/Os, REMOTE must be disabled. Therefore, when a fault occurs, enter the following sequence of commands to prevent the drive from being reenabled unintentionally before the fault is cleared: <pre>REMOTE 0 INMODE <i#> 2 REMOTE 1</pre> If CLEARFAULTS is used, it will also issue a software disable command (K) automatically; thus, if all other conditions for activation are present, the software enable command (EN) will immediately enable the drive.
Default value	If INMODE 1 = 1 If INMODE 2–11 = 0
Unit	Not Applicable
Non-volatile	Yes
Example	<pre>-->INMODE 1 0 -->INMODE 1 0 --></pre>
See also	GEARMODE IN ININV INPUTS SYNCSOURCE
CANopen	20E0h, sub-index 1

INPOS

Definition	In Position Indication
Type	Variable (R)
Description	Indicates that the position error PE has entered the allowed tolerance PEINPOS after the commanded move has been completed. INPOS can be used only when the motion command has been generated by the drive.
Syntax	INPOS
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Not in position 1 = In position
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Yes
See also	PEINPOS PEMAX STOPPED
CANopen	20B5h, sub-index 0

INPUTS

Definition	Input State
Type	Variable (R)
Description	Gets the state of all digital inputs. A header lines identifies each of the inputs.
Syntax	INPUTS
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Input off 1 = Input on
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
Example	-->INPUTS 1 2 3 4 5 6 7 8 9 10 11 1 0 0 0 0 0 0 0 0 0 0 -->
See also	IN ININV INMODE

IQ

Definition	Current Q Axis
Type	Variable (R)
Description	In vector control, indicates the current for the torque. This value is perpendicular to ID.
Syntax	IQ
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	A
Non-volatile	No
See also	I ID ILIM IMAX IU
CANopen	2067h, sub-index 0

IQCMD

Definition	Q Axis Current Command
Type	Variable (R)
Description	Reads Q axis current command
Syntax	IQCMD
Firmware	1.3.2
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	A
Non-volatile	No
See also	

ISTOP

Definition	Dynamic Braking Current
Type	Variable (R/W)
Description	Gets/sets the maximum current allowed during the dynamic braking process. Dynamic braking is a mechanism by which the drive holds the motor during Disabling mode, with only the motor's back EMF used to apply the stopping current.
Syntax	Read: ISTOP Write: ISTOP <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to DIPEAK
Default value	DIPEAK
Unit	A
Non-volatile	Yes
See also	DISMODE DISSPEED FLT
CANopen	2071h, sub-index 0

IU

Definition	Phase U Actual Current
Type	Variable (R)
Description	Indicates the actual current at Phase U (of UVW).
Syntax	IU
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	A
Non-volatile	No
See also	I ID ICMD ILIM IUOFFSET IV
CANopen	2072h, sub-index 0

IUOFFSET

Definition	Phase U Current Offset
Type	Variable (R)
Description	Indicates the current offset of phase U (of UVW)..
Syntax	IUOFFSET
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	A
Non-volatile	Yes
See also	IU
CANopen	2073h, sub-index 0

IV

Definition	Phase V Actual Current
Type	Variable (R)
Description	Indicates the actual current at phase V (of UVW).
Syntax	IV
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	A
Non-volatile	No
See also	I ID ICMD ILIM IU IUOFFSET
CANopen	2074h, sub-index 0

IVOFFSET

Definition	Phase V Current Offset
Type	Variable (R)
Description	Indicates the current offset of phase V (of UVW).
Syntax	IVOFFSET
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	A
Non-volatile	Yes
See also	IV
CANopen	2075h, sub-index 0

IZERO

Definition	Zero Procedure Current
Type	Variable (R/W)
Description	Gets/sets the current for the ZERO procedure.
Syntax	IZERO
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to DIPEAK
Default value	0.100
Unit	A (peak)
Non-volatile	Yes
See also	ILIM MIPEAK ZERO
CANopen	2076h, sub-index 0

J

Definition	Jog Command
Type	Command
Description	Issues a velocity jog. If the drive has been disabled, the jog command is reset to zero.
Syntax	J Queries the command J <i>speed</i> Starts jog at a constant speed. J <i>speed duration</i> Starts jog at a constant speed for specified duration, after which a zero velocity command is issued.
Firmware	1.0.6
Drive status	Enabled
Range	Not Applicable
Default value	Not Applicable
Unit	<i>speed</i>: If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 =rps If UNITSROTVEL 1 =rpm If UNITSROTVEL 2 =deg/s If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = mm/s <i>duration</i>: ms
Non-volatile	Not Applicable
See also	ACC OPMODE STEP STOP

K

Definition	Disable Command
Type	Command
Description	Disables the drive. The behavior of the drive upon disable command is defined by DISMODE. K removes the software enable condition (SWEN) from the activation chain.
Syntax	K
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	ACTIVE EN FLT READY REMOTE ST SWEN

KCBEMF

Definition	Current BEMF Compensation Gain
Type	Variable (R/W)
Description	Gets/sets the feedforward BEMF compensation ratio for the current control. When the value of KCBEMF is changed, CONFIG is required.
Syntax	Read: KCBEMF Write: KCBEMF <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 to 2
Default value	1.000
Unit	Not Applicable
Non-volatile	Yes
See also	IFFLPFHZ MKT
CANopen	2003h, sub-index 0

KCD

Definition	Dead Time Compensation Minimal Level
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. Minimal current level to start compensate dead time effect. When the value of KCD is changed, CONFIG is required.
Syntax	Read: KCD Write: KCD <value>
Firmware	1.3.2
Drive status	Disabled
Range	0 to 10
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	
CANopen	2003h, sub-index 0

KCDQCOMP

Definition	Current DQ Axis Compensation
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. Gets/sets the current controller DQ axis compensation. When the value of KCDQCOMP is changed, CONFIG is required.
Syntax	Read: KCDQCOMP Write: KCDQCOMP <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 to 1
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	ID IQ KCIMEMD KCIMEMQ
CANopen	2004h, sub-index 0

KCFF

Definition	Current KFF Gain
Type	Variable (R/W)
Description	Gets/sets the current controller feedforward (KFF) gain. When the value of KCFF is changed, CONFIG is required.
Syntax	Read: KCFF Write: KCFF <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 to 100
Default value	1.000
Unit	Not Applicable
Non-volatile	Yes
See also	KCBEMF KCI KCP
CANopen	2082h, sub-index 0

KCI

Definition	Current KI Gain
Type	Variable (R/W)
Description	Gets/sets the current controller integrator (Ki) gain. When the value of KCI is changed, CONFIG is required.
Syntax	Read: KCI Write: KCI <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 to 100
Default value	1.000
Unit	Not applicable
Non-volatile	Yes
See also	KCBEMF KCFF KCP
CANopen	2006h, sub-index 0

KCIMEMD

Definition	Current Controller D Integrator
Type	Variable (R)
Description	Not intended for user unless instructed by Technical Support. The value of the current controller D integrator.
Syntax	KCIMEMD
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	KCDQCOMP KCIMEMQ
CANopen	2008h, sub-index 0

KCIMEMQ

Definition	Current Controller Q Integrator
Type	Variable (R)
Description	Not intended for user unless instructed by Technical Support. The value of the current controller Q integrator.
Syntax	KCIMEMQ
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	KCDQCOMP KCIMEMD
CANopen	2009h, sub-index 0

KCMODE

Definition	Current Loop Mode
Type	Variable (R/W)
Description	Gets/sets the type of current control loop. Enables use of the new firmware version while maintaining the existing current control settings. Useful for applications in which the upgrade to the latest current control structure is not desired.
Syntax	Read: KCMODE Write: KCMODE <value>
Firmware	1.3.2
Drive status	Disabled
Range	0 = Current control loop for firmware version 1.3.2 and higher. 1 = Keeps the current control loop from a previous firmware version (SSV file). After changing KCMODE from 0 to 1, you must issue the command SAVE, and recycle the CDHD AC power. 2 = Uses the latest version of the current controller; recommended except in specific cases of backward compatibility issues.
Default value	2
Unit	Not Applicable
Non-volatile	Yes
See also	CONFIG ML
CANopen	2106h, sub-index 0

KCP

Definition	Current Kp Gain
Type	Variable (R/W)
Description	Gets/sets the current controller proportional (Kp) gain. When the value of KCP is changed, CONFIG is required.
Syntax	Read: KCP Write: KCP <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 to 100
Default value	1.000
Unit	Not Applicable
Non-volatile	Yes
See also	KCBEMF KCFF KCI
CANopen	2007h, sub-index 0

KNLD

Definition	HD Derivative Gain
Type	Variable (R/W)
Description	HD derivative gain
Syntax	Read: KNLD Write: KNLD <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 2000
Default value	0
Unit	Hz
Non-volatile	Yes
See also	KNLI KNLP KNLIV POSCONTROLMODE
CANopen	2017h, sub-index 0

KNLI

Definition	HD Integral Gain
Type	Variable (R/W)
Description	HD integral gain
Syntax	Read: KNLI Write: KNLI <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 200
Default value	0
Unit	Hz
Non-volatile	Yes
See also	KNLD KNLP KNLIV POSCONTROLMODE
CANopen	2018h, sub-index 0

KNLIDV

Definition	HD Derivative- Gain
Type	Variable (R/W)
Description	HD derivative gain
Syntax	Read: KNLIDV Write: KNIDV <value>
Firmware	1.3.2
Drive status	Enabled Disabled
Range	0 to 2000
Default value	0
Unit	Hz
Non-volatile	Yes
See also	212Eh, sub-index 0

KNLIINT

Definition	HD Integral Gain Factor
Type	Variable (R/W)
Description	HD integral gain factor
Syntax	Read: KNLIIINT Write: KNLIIINT <value>
Firmware	1.3.2
Drive status	Enabled Disabled
Range	0 to 1
Default value	0
Unit	Not applicable
Non-volatile	Yes
See also	
See also	212Fh, sub-index 0

KNLIV

Definition	HD Derivative-Integral Gain
Type	Variable (R/W)
Description	HD derivative-integral gain
Syntax	Read: KNLIV Write: KNIV <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 400
Default value	0
Unit	Hz
Non-volatile	Yes
See also	KNLD KNLI KNLP POSCONTROLMODE
CANopen	2019h, sub-index 0

KNLP

Definition	HD Proportional Gain
Type	Variable (R/W)
Description	Gets/sets the HD controller proportional gain.
Syntax	Read: KNLP Write: KNLP <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 400
Default value	0
Unit	Hz
Non-volatile	Yes
See also	KNLD KNLI KNLIV POSCONTROLMODE
CANopen	201Ah, sub-index 0

KNLUSERGAIN

Definition	HD Global Gain
Type	Variable (R/W)
Description	HD adaptive gain scaling factor
Syntax	Read: KNLUSERGAIN Write: KNLUSERGAIN <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0.001 to 3.000
Default value	1.000
Unit	Not Applicable
Non-volatile	Yes
See also	
CANopen	201Bh, sub-index 0

KPAFRC

Definition	Position Acceleration Feedforward to Current
Type	Variable (R/W)
Description	Gets/sets the position acceleration feedforward to current loop
Syntax	Read: KPAFRC Write: KPAFRC <value>
Firmware	1.2.12
Drive status	Enabled Disabled
Range	±1000
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	
CANopen	201Ch, sub-index 0

KPAFRV

Definition	Position Acceleration Feedforward
Type	Variable (R/W)
Description	Gets/sets the position acceleration feedforward
Syntax	Read: KPAFR Write: KPAFR <value>
Firmware	1.2.12
Drive status	Enabled Disabled
Range	±1000
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	
CANopen	201Dh, sub-index 0

KPD

Definition	Position Derivative Gain
Type	Variable (R/W)
Description	Gets/sets the position controller derivative (Kd) gain.
Syntax	Read: KPD Write: KPD <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 1000
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	KPE KPI POSCONTROLMODE
CANopen	201Eh, sub-index 0

KPE

Definition	Position Proportional Adaptive Gain
Type	Variable (R/W)
Description	The position proportional adaptive gain
Syntax	Read: KPE Write: KPE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 4
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	KPD KPI POSCONTROLMODE
CANopen	201Fh, sub-index 0

KPI

Definition	Position Integral Gain
Type	Variable (R/W)
Description	Gets/sets the position controller integral gain.
Syntax	Read: KPI Write: KPI <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 1000
Default value	0
Unit	Hz
Non-volatile	Yes
See also	KPE KPD POSCONTROLMODE
CANopen	2020h, sub-index 0

KPISATIN

Definition	Position Integral Saturation Input
Type	Variable (R/W)
Description	The position integral saturation input
Syntax	Read: KPISATIN Write: KPISATIN <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 10000
Default value	0
Unit	If MOTORTYPE 0 (Rotary): rev If MOTORTYPE 2 (Linear): mm
Non-volatile	Yes
See also	KPI KPISATOUT POSCONTROLMODE
CANopen	2077h , sub-index 0

KPISATOUT

Definition	Position Integral Saturation Output
Type	Variable (R/W)
Description	The position integral saturation output
Syntax	Read: KPISATOUT Write: KPISATOUT <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 10000
Default value	0
Unit	rps
Non-volatile	Yes
See also	KPI KPISATIN POSCONTROLMODE
CANopen	2021h, sub-index 0

KPP

Definition	Position Proportional Gain
Type	Variable (R/W)
Description	Gets/sets the proportional gain for the linear position controller (POSCONTROLMODE=0)
Syntax	Read: KPP Write: KPP <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 1200
Default value	1
Unit	Rotary: rps/rev Linear: (mm/sec)/mm
Non-volatile	Yes
See also	KPD KPE KPI KPVFR POSCONTROLMODE
CANopen	2022h, sub-index 0

KPVFR

Definition	Position Velocity Feedforward
Type	Variable (R/W)
Description	The position control velocity feedforward.
Syntax	Read: KPVFR Write: KPVFR <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 1000
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	KPD KPE KPI KPP POSCONTROLMODE
CANopen	2023h , sub-index 0

KVFR

Definition	Velocity Feedforward Ratio
Type	Variable (R/W)
Description	Gets/sets the velocity feedforward ratio.
Syntax	Read: KVFR Write: KVFR <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0.000 to 1.000
Default value	0.000
Unit	Not Applicable
Non-volatile	Yes
See also	KPD KPE KPI KPP POSCONTROLMODE
CANopen	2025h , sub-index 0

KVI

Definition	Velocity Integral Gain
Type	Variable (R/W)
Description	Gets/sets the velocity integral gain
Syntax	Read: KVI Write: KVI <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 200000
Default value	0.000
Unit	Hz
Non-volatile	Yes
See also	FILTMODE KVFR KVP VELCONTROLMODE
CANopen	2026h, sub-index 0

KVP

Definition	Velocity Proportional Gain
Type	Variable (R/W)
Description	Gets/sets the velocity proportional gain.
Syntax	Read: KVP Write: KVP <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 1000000
Default value	0.010
Unit	If MOTORTYPE 0 (Rotary): A/rps If MOTORTYPE 2 (Linear): A/(mm/s)
Non-volatile	Yes
See also	FILTMODE KVFR KVI VELCONTROLMODE
CANopen	2027h , sub-index 0

LIMSWITCHNEG

Definition	Limit Switch Negative Status
Type	Variable (R)
Description	Indicate the status of the hardware limit switches as configured by the digital inputs (INMODE 5 and 6), in the negative direction.
Syntax	LIMSWITCHNEG
Firmware	1.2.12
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	HOMETYPE INMODE LIMSWITCHPOS POSLIMMODE
CANopen	2078h , sub-index 0

LIMSWITCHPOS

Definition	Limit Switch Positive Status
Type	Variable (R)
Description	Indicate the status of the hardware limit switches as configured by the digital inputs (INMODE 5 and 6), in the positive direction.
Syntax	LIMSWITCHNEG
Firmware	1.2.12
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	HOMETYPE INMODE LIMSWITCHNEG POSLIMMODE
CANopen	2079h, sub-index 0

LIST

Definition	List Commands
Type	Variable (R)
Description	Returns a list of valid variables and commands. Only the variables names, and not their values, are transmitted. Note: Some factory variables and commands, not intended for users, may appear in the list. Do not attempt to use commands and variables that are not described in this manual, or are marked as not for users.
Syntax	LIST
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	INFO RECLIST RECTRIGLIST

LMJR

Definition	Load to Motor Inertia Ratio
Type	Variable (R/W)
Description	Gets/sets the ratio of the load inertia to the motor inertia. If LMJR=2, for example, the total inertia is 3 times the inertia of the motor: $J_{\text{total}} = MJ \times (1 + \text{LMJR})$ The motor rotor inertia (MJ) and the load moment of inertia ratio (LMJR) define the total system moment of inertia. The variables MJ and LMJR are used by the HD position controller POSCONTROLMODE 1) and the standard pole-placement velocity controller (POSCONTROLMODE 0, VELCONTROLMODE 2 and 4) to determine the controller gain. LMJR can be set by the user or determined by an autotuning procedure.
Syntax	Read: LMJR Write: LMJR <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 600
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	BW MJ TF VELCONTROLMODE
CANopen	207Ah , sub-index 0

LOAD

Definition	Load Commands to RAM
Type	Command
Description	Loads configuration variables from non-volatile memory to RAM. Any changes in configuration parameters which have been made since the last SAVE will be overwritten by the values loaded from the non-volatile memory.
Syntax	LOAD
Firmware	1.0.6
Drive status	Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	DUMP FACTORYRESTORE SAVE
CANopen	1011h, sub-index 1

MB

Definition	Motion Buffer Command
Type	Command
Description	Activates the motion buffer sequence, as defined by: MOVEINCCOUNTER, MOVEINCDIST1, MOVEINCDIST2, MOVEINCSPEED1 and MOVEINCSPEED2. PEINPOS and PEINPOSTIME must also be defined. A set of two incremental position moves are repeated a number of times, as defined by the counter. The next move is performed when the PEINPOS condition is met.
Syntax	MB
Firmware	1.0.6
Drive status	Enabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	MBST MOVEINCCOUNTER MOVEINCDelay MOVEINCDIST1 MOVEINCDIST2 MOVEINCSPEED1 MOVEINCSPEED2

MBST

Definition	Motion Buffer Execution Status
Type	Variable (R)
Description	Returns the motion buffer repetition count during operation, and returns the total duration as soon as the motion sequence is completed.
Syntax	MBST
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable; see Example below
Default value	Not Applicable; see Example below
Unit	Not Applicable; see Example below
Non-volatile	No
Example	Running the following command sequence produces the following MBST response. <pre>-->MOVEINCCOUNTER=5 -->MOVEINCDIST1=2 -->MOVEINCDIST2=-2 -->MOVEINCSPEED1=200 -->MOVEINCSPEED2=300 -->MB -->MBST Running. Iteration: 1/5 Execution Time: 8ms -->MBST Running. Iteration: 1/5 Execution Time: 1020ms -->MBST Running. Iteration: 2/5 Execution Time: 2033ms -->MBST Running. Iteration: 3/5 Execution Time: 3044ms -->MBST Running. Iteration: 4/5 Execution Time: 4056ms -->MBST Running. Iteration: 5/5 Execution Time: 5068ms -->MBST Done. Execution Time: 5501ms</pre>
See also	MB MOVEINCCOUNTER MOVEINCDIST1 MOVEINCDIST2 MOVEINCSPEED1 MOVEINCSPEED2

MECHANGLE

Definition	Motor Mechanical Angle
Type	Variable (R)
Description	The position of the motor in revolutions
Syntax	MECHANGLE
Firmware	1.0.6
Drive status	Disabled
Range	0 to 65535
Default value	Not applicable
Unit	If MOTORTYPE 0 (Rotary): 65536/rev If MOTORTYPE 2 (Linear): 65536/pitch
Non-volatile	No
See also	ELECTANGLE FEEDBACKTYPE MENCRES MPHASE
CANopen	2028h, sub-index 0

MEMBIT

Definition	Memory Bit
Type	Command.
Description	Not intended for user unless instructed by Technical Support. Memory bit peek/poke command for direct RAM access.
Syntax	Read: MEMBIT <addr> <bit#> Write: MEMBIT <addr> <bit#> {1 0}
Firmware	1.0.6
Drive status	Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	1 bit
Non-volatile	Not Applicable
See also	MEMF MEML MEMQ MEMW

MEMF

Definition	Memory Float
Type	Command
Description	Not intended for user unless instructed by Technical Support. Memory float peek/poke command for direct RAM access.
Syntax	Read: MEMF <addr> Write: MEMF <addr> <value>
Firmware	1.0.6
Drive status	Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	MEMBIT MEML MEMQ MEMW

MEML

Definition	Memory Long
Type	Command
Description	Not intended for user unless instructed by Technical Support. Memory long peek/poke command for direct RAM access.
Syntax	Read: MEML <addr> Write: MEML <addr> <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	32 bit
Non-volatile	No
See also	MEMBIT MEMF MEMQ MEMW

MEMQ

Definition	Memory Quadlet
Type	Command
Description	Not intended for user unless instructed by Technical Support. Memory quadlet peek/poke command for direct RAM access.
Syntax	Read: MEMQ <addr> Write: MEMF <addr> <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	64 bit
Non-volatile	No
See also	MEMBIT MEMF MEML MEMW

MEMW

Definition	Memory Word
Type	Command
Description	Not intended for user unless instructed by Technical Support. Memory word peek/poke command for direct RAM access.
Syntax	Read: MEMW <addr> Write: MEMW <addr> <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	MEMBIT MEMF MEML MEMQ

MENCAQBFILT

Definition	Motor Encoder A Quad B Filter
Type	Variable (R/W)
Description	Enables/disables the FPGA filter on A and B signals from incremental encoders. Disabling the filter prevents the drive from losing commutation without sensing a fault.
Syntax	MENCAQBFILT
Firmware	1.4.4
Drive status	Disable
Range	1 - Enables filter on incremental encoder A and B signals. 0 - Disables filter on incremental encoder A and B signals. Recommended for use with high resolution incremental encoders, or incremental encoders whose A and B phase difference is not 90°.
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	

MENCRES

Definition	Motor Encoder Resolution
Type	Variable (R/W)
Description	For encoder feedback systems, gets/sets the resolution of the motor encoder, in number of lines per revolution of the motor. When the value of MENCRES is changed, CONFIG is required.
Syntax	Read: MENCRES Write: MENCRES <value>
Firmware	1.0.6
Drive status	Disabled
Range	16 to 10000000
Default value	2048
Unit	MOTORTYPE=0 (Rotary): lines per revolution (LPR) MOTORTYPE=2 (Linear): lines per pitch (LPP)
Non-volatile	Yes
See also	FEEDBACKTYPE MENCTYPE

MENCTYPE

Definition	Motor Encoder Type		
Type	Variable (R/W)		
Description	Gets/sets the motor encoder type. Incremental encoders: 0, 1, 2, 3, 4, 5, 6, 11 Sine encoders: 0, 1, 2, 3, 4, 6, 9,10 When the value of MENCTYPE is changed, CONFIG is required.		
Syntax	Read: MENCTYPE Write: MENCTYPE <value>		
Firmware	1.0.6		
Drive status	Disabled		
Range		MENCTYPE	FEEDBACKTYPE
	Resolver	0	1
	Incremental Encoder; A, B and index channels, and Halls (A/B/Z/H)	0	2
	Sine Encoder; A/B/Z/H	0	3
	Nikon 17 bit Absolute Encoder; Single/Multi turn	0	4
	Tamagawa 17 bit Absolute Encoder; Single Turn	0	7
	Tamagawa 17 bit Absolute Encoder; Multi Turn	0	6
	Endat 2.2	0	11
	ServoSense – not for users	0	12
	Incremental Encoder; A/B/Z commutation initialization by PHASEFIND command	1	2
	Sine Encoder; A/B/Z commutation initialization by PHASEFIND command	1	3
	Incremental Encoder; A/B/Z commutation initialization by ENABLE or PHASEFIND command	2	2
	Sine Encoder; A/B/Z commutation initialization by ENABLE and PHASEFIND command	2	3
	Incremental Encoder; A/B commutation initialization by PHASEFIND command	3	2

	Sine Encoder; A/B commutation initialization by PHASEFIND command	3	3
	Incremental Encoder; A/B commutation initialization by ENABLE or PHASEFIND command	4	2
	Sine Encoder; A/B ; commutation initialization by ENABLE or PHASEFIND command	4	3
	Halls only	5	2
	Incremental Encoder; A/B/H	6	2
	Sine Encoder; A/B/H	6	3
	Endat 2.1 with Sine Signals	9	3
	Hiperface with Sine Signals	10	3
	Tamagawa Incremental Encoder (8 wires)	11	2
Default value	6		
Unit	Not Applicable		
Non-volatile	Yes		
See also	FEEDBACKTYPE HALLS INDEXFIND PHASEFIND		
CANopen	2029h, sub-index 0		

MENCZPOS

Definition	Motor Encoder Index Position
Type	Variable (R/W)
Description	For encoder feedback systems only, gets/sets the encoder index position. This variable can be set automatically using INDEXFIND.
Syntax	Read: MENCZPOS Write: MENCZPOS <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 to 359
Default value	0
Unit	Electrical degrees
Non-volatile	Yes
See also	INDEXFIND INDEXFINDST PHASEFIND MENCTYPE
CANopen	202Ah , sub-index 0

MFBDIR

Definition	Motor and Feedback Direction				
Type	Variable (R/W)				
Description	Gets/sets several direction and polarity options. MFBDIR is set by the MOTORSETUP procedure. When the value of MFBDIR is changed, CONFIG is required.				
Syntax	Read: MFBDIR Write: MFBDIR <value>				
Firmware	1.0.6				
Drive status	Disabled				
Range	MFBDIR	Swap U-V	Swap Halls	Invert Index	Invert Sin-Cos
	0	= No	No	No	No
	1	= Yes	No	No	No
	2	= No	Yes	No	No
	3	= Yes	Yes	No	No
	4	= No	No	Yes	No
	5	= Yes	No	Yes	No
	6	= No	Yes	Yes	No
	7	= Yes	Yes	Yes	No
	8	= No	No	No	Yes
	9	= Yes	No	No	Yes
	10	= No	Yes	No	Yes
	11	= Yes	Yes	No	Yes
	12	= No	No	Yes	Yes
	13	= Yes	No	Yes	Yes
	14	= No	Yes	Yes	Yes
	15	= Yes	Yes	Yes	Yes
	Alternately, MFBDIR can be interpreted by its binary representation: Bit 1: Swap U-V Bit 2: Swap Halls Bit 3: Invert Index Bit 4: Swap Sine-Cosine				
Default value	0				
Unit	Not Applicable				
Non-volatile	Yes				

See also	DIR MOTORSETUP MPHASE PFB V
CANopen	202Bh, sub-index 0

MFBMODE

Definition	Motor Feedback Mode
Type	Variable (R/W)
Description	Enables the resolution enhancement mechanism. MFBMODE is applicable only for incremental encoders (FEEDBACKTYPE 2, MENCTYPE 0, 1, 2, 3, 4, 6). When MFBMODE is enabled PFB is displayed with a decimal fraction. When the value of MFBMODE is changed, CONFIG is required.
Syntax	Read: MFBMODE Write: MFBMODE <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 = Resolution enhancement disabled 1 = Resolution enhancement enabled
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	
CANopen	202Dh, sub-index 0

MFOLD

Definition	Motor Foldback Status
Type	Variable (R)
Description	Indicates whether the motor foldback limit (MIFOLD) has dropped below the application current limits (ILIM).
Syntax	MFOLD
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Foldback limit above ILIM 1 = Foldback limit below ILIM
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	ILIM MIFOLD MIFOLDFTHRESH MIFOLDWTHRESH
CANopen	202Eh, sub-index 0

MFOLDD

Definition	Motor Foldback Delay Time
Type	Variable (R/W)
Description	Gets/sets the time delay for motor foldback. This is the amount of time that the system current can exceed MICONT before the drive enters the motor foldback state (MFOLD=1). The timing units assume a worst-case scenario, in which the drive is applying MIPEAK current. A current level that is less than MIPEAK can be allowed for longer time.
Syntax	Read: MFOLDD Write: MFOLDD <value>
Firmware	1.0.6
Drive status	Disabled
Range	0.1 to 2400
Default value	5.000
Unit	second
Non-volatile	Yes
See also	MFOLDDIS MFOLDR MFOLDT MICONT MIPEAK
CANopen	202Fh, sub-index 0

MFOLDDIS

Definition	Motor Foldback Disable
Type	Variable (R/W)
Description	Gets/sets a value that defines whether motor foldback protection is activated.
Syntax	Read: MFOLDDIS Write: MFOLDDIS <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 = Motor foldback protection activated. 1 = Motor foldback protection not activated.
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	MFOLD MFOLDD MFOLDR MFOLDT MICON MIFOLD MIPK
CANopen	2030h , sub-index 0

MFOLDF

Definition	Motor Foldback Factor
Type	Variable (R/W)
Description	MFOLDF is used to increase the effective continuous current setting of the motor (MICON _T) for the motor foldback protection mechanism. When MFOLDF>1, the effective MICON _T =MFOLDF × MICON _T .
Syntax	Read: MFOLDF Write: MFOLDF <value>
Firmware	1.4.4
Drive status	Disabled
Range	1 to 1.5
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	MFOLDDIS MFOLDT MICON_T

MFOLDER

Definition	Motor Foldback Recovery Time
Type	Variable (R)
Description	Gets/sets the recovery time for motor foldback. After the drive enters the motor foldback state (MFOLD=1), and the current folds back to MICON, this is the minimum amount of time that the current must be held at 0 before it can be MIPEAK for the full MFOLDD time.
Syntax	Read: MFOLDER Write: MFOLDER <value>
Firmware	1.0.6
Drive status	Disabled
Range	Not Applicable
Default value	70.000
Unit	second
Non-volatile	No
See also	MFOLDD MFOLDDIS MFOLDT MICON MIPEAK
CANopen	2031h , sub-index 0

MFOLDT

Definition	Motor Foldback Time Constant
Type	Variable (R/W)
Description	Gets/sets the time constant for motor foldback. After the drive enters the motor foldback state (MFOLD 1), this variable defines how long it will take the drive to reduce the system current level to MICON.
Syntax	Read: MFOLDT Write: MFOLDT <value>
Firmware	1.0.6
Drive status	Disabled
Range	1 to 1200
Default value	5.000
Unit	second
Non-volatile	Yes
See also	MFOLDD MFOLDDIS MFOLDR MICON MIPEAK
CANopen	2032h , sub-index 0

MICONT

Definition	Motor Continuous Current
Type	Variable (R/W)
Description	Gets/sets the motor's continuous rated current. When the value of MICONT is changed, CONFIG is required.
Syntax	Read: MICONT Write: MICONT <value>
Firmware	1.0.6
Drive status	Disabled
Range	0.1 to 150
Default value	0.000
Unit	A (peak)
Non-volatile	Yes
See also	DICONT ILIM MFOLD MIFOLD MIPEAK
CANopen	6075h , sub-index 0

MIFOLD

Definition	Motor Foldback Current
Type	Variable (R)
Description	Indicates the current limit derived from the motor foldback mechanism. A foldback condition occurs when MIFOLD goes below ILIM. This variable is useful for checking how close the current is to the foldback limit.
Syntax	MIFOLD
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 300
Default value	Not Applicable
Unit	A
Non-volatile	No
See also	ILIM MFOLD MIFOLDFTHRESH MIFOLDWTHRESH
CANopen	2033h, sub-index 0

MIFOLDFTHRESH

Definition	Motor Foldback Fault Threshold
Type	Variable (R/W)
Description	Gets/sets the motor foldback fault threshold.
Syntax	Read: MIFOLDFTHRESH Write: MIFOLDFTHRESH <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 300
Default value	0.000
Unit	A
Non-volatile	Yes
See also	ILIM MFOLD MIFOLD MIFOLDWTHRESH
CANopen	2034h , sub-index 0

MIFOLDWTHRESH

Definition	Motor Foldback Warning Threshold
Type	Variable (R/W)
Description	Gets/sets the motor foldback fault warning threshold.
Syntax	Read: MIFOLDWTHRESH Write: MIFOLDWTHRESH <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 300
Default value	0.000
Unit	A
Non-volatile	Yes
See also	ILIM MFOLD MIFOLD MIFOLDFTHRESH
CANopen	2035h , sub-index 0

MIPEAK

Definition	Motor Peak Current
Type	Variable (R/W)
Description	Gets/sets the motor's peak rated current. When the value of MIPEAK is changed, CONFIG is required.
Syntax	Read: MIPEAK Write: MIPEAK <value>
Firmware	1.0.6
Drive status	Disabled
Range	0.1 to 150
Default value	0.000
Unit	A (peak)
Non-volatile	Yes
See also	DIPEAK ILIM IMAX MICON MIFOLD
CANopen	2036h , sub-index 0

MJ

Definition	Rotor Inertia
Type	Variable (R/W)
Description	Gets/sets the motor's rotor inertia (rotary motors). The motor rotor inertia (MJ) and the load moment of inertia ratio (LMJR) define the total system moment of inertia. The variables MJ and LMJR are used by the HD position controller POSCONTROLMODE 1) and the standard pole-placement velocity controller (POSCONTROLMODE 0, VELCONTROLMODE 2 and 4) to determine the controller gain. When the value of MJ is changed, CONFIG is required.
Syntax	Read: MJ Write: MJ <value>
Firmware	1.0.6
Drive status	Disabled
Range	0.000 to 2000000.000
Default value	0.02
Unit	$\text{kg} \times \text{m}^2 \times 10^{-3}$
Non-volatile	Yes
See also	LMJR MKT VELCONTROLMODE
CANopen	2037h, sub-index 0

MKF

Definition	Torque Constant for Linear Motor
Type	Variable (R/W)
Description	Linear motor torque constant. When the value of MKF is changed, CONFIG is required.
Syntax	Read: MKF Write: MKF <value>
Firmware	1.0.6
Drive status	Disabled
Range	0.001 to 1000
Default value	0.016
Unit	Newton/A
Non-volatile	Yes
See also	MKT MMASS MOTORTYPE MPITCH
CANopen	2038h , sub-index 0

MKT

Definition	Torque Constant
Type	Variable (R/W)
Description	Gets/sets the motor's torque constant (Kt) in metric units. This value is used for current loop controller design, KCBEMF, compensation algorithm, and standard pole-placement velocity controller design (VELCONTROLMODE 2 or 4). When the value of MKT is changed, CONFIG is required.
Syntax	Read: MKT Write: MKT <value>
Firmware	1.0.6
Drive status	Disabled
Range	0.001 to 65
Default value	0.016
Unit	Nm/A
Non-volatile	Yes
See also	KCBEMF LMJR MJ VELCONTROLMODE
CANopen	2039h, sub-index 0

ML

Definition	Motor Inductance
Type	Variable (R/W)
Description	Gets/sets the motor's minimum line-to-line inductance. This variable is used for current loop controller design and as an input to the vector control algorithms. When the value of ML is changed, CONFIG is required.
Syntax	Read: ML Write: ML <value>
Firmware	1.0.6
Drive status	Disabled
Range	0.001 to 1000
Default value	0.000
Unit	mH
Non-volatile	Yes
See also	KCP VBUS
CANopen	203Ah, sub-index 0

MLGAINC

Definition	Adaptive Gain at Continuous Motor Current
Type	Variable (R/W)
Description	Gets/sets the current loop adaptive gain value at continuous motor current (MICON). MLGAINC and MLGAINP define the adaptive gain algorithm that is based on motor current. When the value of MLGAINP is changed, CONFIG is required.
Syntax	Read: MLGAINC Write: MLGAINC <value>
Firmware	1.0.6
Drive status	Disabled
Range	0.1 to 1
Default value	1.000
Unit	None
Non-volatile	Yes
See also	ML MLGAINP
CANopen	203Bh, sub-index 0

MLGAINP

Definition	Adaptive Gain at Peak Motor Current
Type	Variable (R/W)
Description	Get/sets the current loop adaptive gain value at peak motor current (MIPEAK). MLGAINC and MLGAINP define the adaptive gain algorithm that is based on motor current. When the value of MLGAINP is changed, CONFIG is required.
Syntax	Read: MLGAINP Write: MLGAINP <value>
Firmware	1.0.6
Drive status	Disabled
Range	0.1 to 1
Default value	1.000
Unit	None
Non-volatile	Yes
See also	ML MLGAINC
CANopen	203Ch, sub-index 0

MMASS

Definition	Mass of Linear Motor Without Load
Type	Variable (R/W)
Description	Gets/sets the mass of the linear motor carriage without any additional payload. It is used as the base for estimating the total moving mass.
Syntax	Read: MMASS Write: MMASS <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 10000 Known Limitation: Range of 0 to 10 is currently supported
Default value	0
Unit	kg
Non-volatile	Yes
See also	MJ MKF MOTORTYPE MPITCH
CANopen	203Dh, sub-index 0

MOTORCOMMTYPE

Definition	Motor Commutation Type
Type	Variable (R/W)
Description	Gets/sets a variable that defines the type of motor commutation When the value of MOTOCOMMTYPE is changed, CONFIG is required.
Syntax	Read: MOTORCOMMTYPE Write: MOTORCOMMTYPE <value>
Firmware	1.2.12
Drive status	Disabled
Range	0 = Brushless motor 1 = Brush motor
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	
CANopen	203Eh, sub-index 0

MOTORNAME

Definition	Motor Name
Type	Variable (R/W)
Description	Gets/sets the name assigned to the motor. The name may contain up to 15 alphanumeric characters. A quotation mark (") always precedes the name. Additional valid characters for use in the text string: () / - . :
Syntax	Read: MOTORNAME Write: MOTORNAME <text>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	"
Unit	Not applicable
Non-volatile	Yes
See also	DRIVENAME FACTORYRESTORE MOTORTYPE
CANopen	203Fh , sub-index 0

MOTORPHASESCAN

Definition	Phase Disconnect Scan
Type	Variable (R/W)
Description	Enables/disables detection of wire breaks in motor phases. When enabled, if a wire break is detected in one or more of the motor phases, this mechanism issues a fault: "phase – disconnected" and the 7-segment display shows r27 . Detection can occur only when drive is enabled and a current command is issued by the user, or by velocity or position controllers.
Syntax	Read: MOTORPHASESCAN Write: MOTORPHASESCAN <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Motor phases wire break detection disabled 1 = Motor phases wire break detection enabled
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	FLT ST
CANopen	2040h, sub-index 0

MOTORSETUP

Definition	Motor Setup Command
Type	Command
Description	Runs an automatic procedure for setting commutation related variables. The procedure involves finding the electrical phase and detecting the direction of motor movement, Hall switches and index crossing. MOTORSETUP sets MFBDIR, MENCRES, MPOLES, MPHASE, MENCZPOS. The procedure takes approximately 30 seconds and a motor rotation of about one revolution is expected. The procedure is supported for incremental encoders and sine encoder with MENCTYPE 0, 1, 2, 3, 4, 6, 11. While the Motor Setup procedure is in progress (even when the drive is disabled), the drive's 7-segment display shows a flashing "A". When the procedure finishes successfully, the display returns to its normal state. If the procedure fails, the display shows "-5".
Syntax	MOTORSETUP
Firmware	1.0.6
Drive status	Disabled
Range	Not applicable
Default value	Not applicable
Unit	Not applicable
Non-volatile	Not applicable
See also	FEEDBACKTYPE MENCRES MENCTYPE MENCZPOS MFBDIR MOTORSETUPST MPHASE MPOLES
CANopen	2041, sub-index 0

MOTORSETUPST

Definition	Motor Setup Status
Type	Variable (R)
Description	Reports the internal stages of the MOTORSETUP procedure together with the message that includes the running state, actions taken or failure cause.
Syntax	MOTORSETUPST
Firmware	1.0.6
Drive status	Disabled
Range	Not Applicable; see Example below
Default value	Not Applicable; see Example below
Unit	Not Applicable; see Example below
Non-volatile	No
Example	<pre>-->motorsetupst Motor Setup Not Issued Stage: 0/27 --></pre>
Example	<pre>1->motorsetupst Motor Setup Active Stage: 20/36 1->motorsetupst Motor Setup Active Stage: 23/36 1->motorsetupst Motor Setup Active Stage: 24/36 1->motorsetupst Motor Setup Succeeded Current Pulse: 125 mA 195 ms Stage: 0/36 1-></pre>
See also	INDEXFINDST MOTORSETUP PHASEFINDST
CANopen	2042h, sub-index 0

MOTORTYPE

Definition	Motor Type
Type	Variable (R/W)
Description	Gets/sets a value that defines the motor type. When the value of MOTORTYPE is changed, CONFIG is required.
Syntax	Read: MOTORTYPE Write: MOTORTYPE <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 = Rotary motor 2 = Linear motor
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	FEEDBACKTYPE
CANopen	2024h, sub-index 0

MOVEABS

Definition	Move Absolute Command
Type	Command
Description	Executes an absolute position movement according to the acceleration settings that are in effect. STOPPED and PEINPOS indicate completion of motion.
Syntax	MOVEABS { <i>destination</i> } { <i>velocity</i> }
Firmware	1.0.6
Drive status	Enabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	MB MOVEINC OPMODE PFB

MOVEINC

Definition	Move Incremental Command
Type	Command
Description	Executes an incremental position movement according to the acceleration settings that are in effect. STOPPED and PEINPOS indicate completion of motion.
Syntax	MOVEINC { <i>destination</i> } { <i>velocity</i> }
Firmware	1.0.6
Drive status	Enabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Yes
See also	MB MOVEABS OPMODE PFB

MOVEINCCOUNTER

Definition	Move Incremental Iterations
Type	Variable (R/W)
Description	Gets/sets the number of repetitions which the motion buffer will execute.
Syntax	Read: MOVEINCCOUNTER Write: MOVEINCCOUNTER <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 32767
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	MB MBST MOVEINCDIST1 MOVEINCSPEED1

MOVEINCDELAY

Definition	Move Incremental Delay
Type	Variable (R/W)
Description	The delay between the preset incremental moves.
Syntax	Read: MOVEINCDELAY Write: MOVEINCDELAY <value>
Firmware	1.3.2
Drive status	Enabled Disabled
Range	0 to 100000
Default value	0
Unit	ms
Non-volatile	Yes
See also	MB MBST MOVEINCCOUNTER

MOVEINCDIST1

Definition	Move Incremental Distance 1
Type	Variable (R/W)
Description	Gets/sets the first incremental move distance for the motion buffer cycle.
Syntax	Read: MOVEINCDIST1 Write: MOVEINCDIST1 <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	$\pm(2^{31} - 1)$ [rev]
Default value	0
Unit	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = rev UNITSROTPOS 1 = count UNITSROTPOS 2 = deg If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = pitch UNITSLINPOS 1 = count UNITSLINPOS 3 = mm
Non-volatile	Yes
See also	MB MBST MOVEINCCOUNTER MOVEINCSPEED1

MOVEINCDIST2

Definition	Move Incremental Distance 2
Type	Variable (R/W)
Description	Gets/sets the second incremental move distance for the motion buffer cycle.
Syntax	Read: MOVEINCDIST2 Write: MOVEINCDIST2 <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	$\pm(2^{31} - 1)$ [rev]
Default value	0
Unit	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = rev UNITSROTPOS 1 = count UNITSROTPOS 2 = deg If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = pitch UNITSLINPOS 1 = count UNITSLINPOS 3 = mm
Non-volatile	Yes
See also	MB MBST MOVEINCCOUNTER MOVEINCSPEED2

MOVEINCSPEED1

Definition	Move Incremental Speed 1
Type	Variable (R/W)
Description	Gets/sets the first incremental move velocity for the motion buffer cycle. The actual move speed value will not exceed VLIM.
Syntax	Read: MOVEINCSPEED1 Write: MOVEINCSPEED1 <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 479999.999
Default value	If MOTORTYPE 0 (Rotary): UNITSROTVEL 0 = 0.167 UNITSROTVEL 1 = 10.000 UNITSROTVEL 2 = 60.000 If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = 5.333
Unit	If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 = rps If UNITSROTVEL 1 = rpm If UNITSROTVEL 2 = deg/s If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = mm/s
Non-volatile	Yes
See also	MB MBST MOVEINCCOUNTER MOVEINCDIST1

MOVEINCSPEED2

Definition	Move Incremental Speed 2
Type	Variable (R/W)
Description	Gets/sets the second incremental move velocity for the motion buffer cycle. The actual move speed value will not exceed VLIM.
Syntax	Read: MOVEINCSPEED2 Write: MOVEINCSPEED2 <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 479999.999
Default value	If MOTORTYPE 0 (Rotary): UNITSROTVEL 0 = 0.167 UNITSROTVEL 1 = 10.000 UNITSROTVEL 2 = 60.000 If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = 5.333
Unit	If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 = rps If UNITSROTVEL 1 = rpm If UNITSROTVEL 2 = deg/s If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = mm/s
Non-volatile	Yes
See also	MB MBST MOVEINCCOUNTER MOVEINCDIST2

MOVESMOOTHAVG

Definition	Point-to-Point Move Averaging Number
Type	Variable (R/W)
Description	Gets/sets the averaging time of the point to point motion profile.
Syntax	Read: MOVESMOOTHAVG Write: MOVESMOOTHAVG <value>
Firmware	1.4.4
Drive status	Disabled
Range	0.2 5 to 256
Default value	0.25
Unit	ms
Non-volatile	Yes
See also	MOVESMOOTHMODE
CANopen	2108h, sub-index 0

MOVESMOOTHLPFHZ

Definition	Point-to-Point Move Low Pass Filter
Type	Variable (R/W)
Description	Gets/sets the low pass filter for point-to-point move.
Syntax	Read: MOVESMOOTHLPFHZ Write: MOVESMOOTHLPFHZ <value>
Firmware	1.2.12
Drive status	Disabled
Range	10 to 5000
Default value	5000
Unit	Hz
Non-volatile	Yes
See also	ACC DEC MOVEABS MOVEINC
CANopen	202Ch, sub-index 0

MOVESMOOTHMODE

Definition	Point-to-Point Move Smoothing Mode
Type	Variable (R/W)
Description	Defines the method of smoothing for the PTP move.
Syntax	Read: MOVESMOOTHMODE Write: MOVESMOOTHMODE <value>
Firmware	1.3.2
Drive status	Disabled
Range	0 = no smoothing of profile 1 = LPF smoothing of profile based on MOVESMOOTHLPFHZ 2 = S-curve by averaging based on MOVESMOOTHAVG
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	MOVEABS MOVEINC MOVESMOOTHAVG MOVESMOOTHLPFHZ
CANopen	2109h , sub-index 0

MPHASE

Definition	Commutation Offset
Type	Variable (R/W)
Description	Gets/sets the resolver/encoder phase relative to the standard commutation table. This variable can be used to compensate for resolver offset and should be set to 0 if there is no resolver offset. Changing MPHASE shifts the internal commutation table without affecting the feedback reading.
Syntax	Read: MPHASE Write: MPHASE <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 to 359
Default value	0
Unit	electrical degree
Non-volatile	Yes
See also	MPHASE PHASEFIND ZERO
CANopen	2043h, sub-index 0

MPITCH

Definition	Motor Pitch
Type	Variable (R/W)
Description	Gets/sets linear motor's pitch. When the value of MPITCH is changed, CONFIG is required.
Syntax	Read: MPITCH Write: MPITCH <value>
Firmware	1.0.6
Drive status	Disabled
Range	1 to 100000
Default value	32
Unit	mm
Non-volatile	Yes
See also	MENCRES MMASS MOTORTYPE PFB UNITSLINPOS
CANopen	207Dh , sub-index 0

MPOLES

Definition	Motor Poles
Type	Variable (R/W)
Description	Gets/sets the number of motor poles. This variable is used for commutation control and represents the number of individual magnetic poles of the motor (not pole pairs). When MOTORTYPE =2 (linear motor), this variable will be forced to a value of 2. When the value of MPOLES is changed, CONFIG is required.
Syntax	Read: MPOLES Write: MPOLES <value>
Firmware	1.0.6
Drive status	Disabled
Range	2 to 200
Default value	2
Unit	poles
Non-volatile	Yes
See also	ELECTANGLE MECHANGLE PHASEFIND ZERO
CANopen	207Eh, sub-index 0

MR

Definition	Motor Resistance
Type	Variable (R/W)
Description	The motor resistance. When the value of MR is changed, CONFIG is required.
Syntax	Read: MR Write: MR <value>
Firmware	1.2.12
Drive status	Disabled
Range	0 to 50
Default value	0
Unit	Ohm
Non-volatile	Yes
See also	ML
CANopen	207Fh, sub-index 0

MRESPOLES

Definition	Motor Resolver Poles
Type	Variable (R/W)
Description	Gets/sets the number of individual poles in the resolver feedback device. This variable is used for the commutation function, as well as for velocity feedback scaling, and represents the number of individual poles, not pole pairs. When the value of MRESPOLES is changed, CONFIG is required.
Syntax	Read: MRESPOLES Write: MRESPOLES <value>
Firmware	1.0.6
Drive status	Disabled
Range	2 to 80
Default value	2
Unit	Single poles
Non-volatile	Yes
See also	FEEDBACKTYPE HWPOS MECHANGLE
CANopen	2080h, sub-index 0

MSGPROMPT

Definition	Drive Messages and Prompts
Type	Variable (R/W)
Description	Defines whether drive messages and prompts are enabled or disabled.
Syntax	Read: MSGPROMPT Write: MSGPROMPT <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Messages and prompts disabled. 1 = Messages and prompts enabled.
Default value	1
Unit	Not applicable
Non-volatile	Yes
See also	ADDR ECHO

MSININT

Definition	Motor Sine Interpolation
Type	Read/Write
Description	Used with the sine encoder option and sets the interpolation level of the drive. The equivalent number of counts per revolution is calculated from: $\text{MSININT} \times \text{MENCRES} \times 4$ The equivalent number of counts per revolution is limited by: $\text{MSININT} \times \text{MENCRES} \leq 2^{30}$ When the value of MSININT is changed, CONFIG is required.
Syntax	Read: MSININT Write: MSININT <value>
Firmware	1.4.4
Drive status	Disabled
Range	2 to 16
Default value	16
Unit	bits
Non-volatile	Yes
See also	FEEDBACKTYPE MENCRES MENCTYPE MPITCH

MSPEED

Definition	Motor Maximum Speed
Type	Variable (R/W)
Description	Gets/sets the maximum allowed velocity of the motor. When the value of MSPEED is changed, CONFIG is required.
Syntax	Read: MSPEED Write: MSPEED <value>
Firmware	1.0.6
Drive status	Disabled
Range	If MOTORTYPE 0 (Rotary): 0 to 239999.999 If MOTORTYPE 2 (Linear): 0 to 127999.999
Default value	If MOTORTYPE 0 (Rotary): 0 If MOTORTYPE 2 (Linear): 0
Unit	If MOTORTYPE 0 (Rotary): rpm If MOTORTYPE 2 (Linear): mm/s
Non-volatile	Yes
See also	MVANGLF MVANGLH VLIM VMAX
CANopen	2080h, sub-index 0

MTANGLC

Definition	Torque Commutation Angle Advance at Motor Continuous Current
Type	Variable (R/W)
Description	Gets/sets the value of the torque-related commutation angle advance at the motor's continuous current rating (MICON). This variable helps increase reluctance torque. For surface magnet motors, a typical value is 5. For motors with embedded magnets, a typical value is 8 to 10.
Syntax	Read: MTANGLC Write: MTANGLC <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 to 45
Default value	0
Unit	Electrical degrees
Non-volatile	Yes
See also	MTANGLP MVANGLF MVANGLH
CANopen	2083h , sub-index 0

MTANGLP

Definition	Torque Commutation Angle Advance at Motor Peak Current
Type	Variable (R/W)
Description	Gets/sets the value of the torque-related commutation angle advance at the motor's peak current (MIPEAK). This variable helps increase reluctance torque. For surface magnet motors, a typical value is 10. For motors with embedded magnets, a typical value is 23 to 25.
Syntax	Read: MTANGLP Write: MTANGLP <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 to 45
Default value	0
Unit	Electrical degrees
Non-volatile	Yes
See also	MTANGLC MVANGLF MVANGLH
CANopen	2084h, sub-index 0

MVANGLF

Definition	Velocity Commutation Angle Advance at Motor Maximum Speed
Type	Variable (R/W)
Description	Gets/sets the value of the velocity-related commutation angle advance to be used when the motor is operating at motor maximum speed (MSPEED). Between MSPEED/2 and MSPEED, the angle advance will be linearly interpolated based on MVANGLH and MVANGLF. When the value of MVANGLF is changed, CONFIG is required.
Syntax	Read: MVANGLF Write: MVANGLF <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 to 90
Default value	0
Unit	Electrical degrees
Non-volatile	Yes
See also	MTANGLC MTANGLP MVANGLH
CANopen	2085h, sub-index 0

MVANGLH

Definition	Velocity Commutation Angle Advance at Motor Maximum Speed/2
Type	Variable (R/W)
Description	Gets/sets the value of the velocity-related commutation angle advance to be used when the motor is operating at motor maximum speed/s (MSPEED/2). Between 0 rpm and MSPEED/2, the angle advance will be linearly interpolated based on MVANGLH . When the value of MVANGLH is changed, CONFIG is required
Syntax	Read: MVANGLH Write: MLVANGH <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 to 90
Default value	0
Unit	Electrical degrees
Non-volatile	Yes
See also	MTANGLC MTANGLP MVANGLF
CANopen	2086h, sub-index 0

NLAFFLPHZ

Definition	HD Spring Filter
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. Used (with NLPEAFF) to reduce the vibrations induced to the load by abrupt changes in acceleration (jerk), and reduce tracking error; can also be used to minimize overshoot and settling time. NLAFFLPHZ applies a low pass filter on the acceleration of the command position used to perform the compensation. This acceleration is calculated from the input command position, and may be noisy if the input command position has a relatively low resolution, as for example a pulse train input. Application of the low pass filter NLAFFLPHZ smoothes the calculated acceleration of the command position, and should be used whenever noisy operation is observed while applying the parameter NLPEAFF.
Syntax	Read: NLAFFLPHZ Write: NLAFFLPHZ <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	10 to 7000
Default value	7000
Unit	Hz
Non-volatile	Yes
See also	NLNOTCHBW NLNOTCHCENTER NLPEAFF POSCONTROLMODE
CANopen	2086h, sub-index 0

NLANTVIBGAIN

Definition	HD Anti-Vibration Gain
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. Gets/sets the HD anti-vibration gain.
Syntax	Read: NLANTVIBGAIN Write: NLANTVIBGAIN <value>
Firmware	1.3.2
Drive status	Enabled Disabled
Range	0 to 10000
Default value	0
Unit	Rad×10 ⁻³ /Nm
Non-volatile	Yes
See also	
CANopen	200Ch, sub-index 0

NLANTIVIBGAIN2

Definition	HD PE Filter
Type	
Description	Not intended for user unless instructed by Technical Support. HD PE filter
Syntax	
Firmware	1.3.2 - Still in development
Drive status	
Range	0 to1000
Default value	0
Unit	Not Applicable
Non-volatile	
Example	
See also	
CANopen	200Ah, sub-index 0

NLANTIVIBHZ

Definition	HD Anti-Vibration Filter
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. Gets/sets HD anti-vibration filter.
Syntax	Read: NLANTIVIBHZ Write: NLANTIVIBHZ <value>
Firmware	1.3.2
Drive status	Enabled Disabled
Range	0 to 400
Default value	400
Unit	Hz
Non-volatile	Yes
See also	
CANopen	2096h, sub-index 0

NLANTIVIBHZ2

Definition	HD PE Filter
Type	
Description	Not intended for user unless instructed by Technical Support. HD PE filter.
Syntax	
Firmware	1.3.2 - Still in development
Drive status	
Range	0 to 500
Default value	500
Unit	Hz
Non-volatile	
Example	
See also	
CANopen	2097h, sub-index 0

NLANTIVIBKNLD

Definition	HD Anti-Vibration Reduced Factor for KNLD
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. HD anti-vibration reduced factor for KNLD
Syntax	Read: NLANTIVIBKNLD Write: NLANTIVIBKNLD<value>
Firmware	1.3.2
Drive status	Enabled Disabled
Range	0 to 1
Default value	0
Unit	Not applicable
Non-volatile	
See also	
CANopen	210Ah, sub-index 0

NLANTIVIBLMJR

Definition	Load to Motor Inertia Ratio for Anti-Vibration Only
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. Load to motor inertia ratio for anti vibration only.
Syntax	Read: NLANTIVIBLMJR Write: NLANTIVIBLMJR <value>
Firmware	1.3.2
Drive status	Enabled Disabled
Range	0 to 600
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	
CANopen	210Bh, sub-index 0

NLANTIVIBN

Definition	HD Anti-Resonance Filter Divider
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. HD anti-resonance filter divider.
Syntax	Read: NLANTIVIBN Write: NLANTIVIBN <value>
Firmware	1.3.2
Drive status	
Range	0.01 to 100
Default value	2
Unit	Not Applicable
Non-volatile	
See also	
CANopen	210Ch, sub-index 0

NLANTIVIBSHARP

Definition	HD Anti-Resonance Sharpness
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. Gets/sets HD anti-resonance sharpness.
Syntax	Read: NLANTIVIBSHARP Write: NLANTIVIBSHARP <value>
Firmware	1.3.2
Drive status	Enabled Disabled
Range	0.01 to 10
Default value	0.5
Unit	Not Applicable
Non-volatile	Yes
See also	
CANopen	200Bh, sub-index 0

NLANTIVIBSHARP2

Definition	HD PE Sharpness
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. HD PE sharpness
Syntax	Read: NLANTIVIBSHARP2 Write: NLANTIVIBSHARP2 <value>
Firmware	1.3.2
Drive status	Enabled Disabled
Range	0.01 to 10
Default value	0.5
Unit	Not Applicable
Non-volatile	
See also	
CANopen	212Dh, sub-index 0

NLFILTDAMPING

Definition	HD Current Filter Damping
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. HD current filter damping
Syntax	Read: NLFILTDAMPING Write: <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 100
Default value	0
Unit	%
Non-volatile	Yes
See also	NLFILTT1 POSCONTROLMODE
CANopen	2060h, sub-index 0

NLFILTT1

Definition	HD Current Filter Low Pass Filter Rise Time
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. HD current filter low pass filter rise time.
Syntax	Read: NLFILTT1 Write: NLFILTT1<value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 30
Default value	9
Unit	ms
Non-volatile	Yes
See also	NLFILTDAMPING POSCONTROLMODE
CANopen	210Dh, sub-index 0

NLHBWEN

Definition	HD High BW Enable Flag
Type	
Description	Not intended for user unless instructed by Technical Support.
Syntax	
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	
Non-volatile	
See also	

NLMAXGAIN

Definition	HD Maximum Adaptive Gain
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. HD maximum adaptive gain
Syntax	Read: NLMAXGAIN Write: NLMAXGAIN <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	1 to 5
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	KNLP KNLUSERGAIN POSCONTROLMODE
CANopen	208Ah, sub-index 0

NLNOTCHBW

Definition	HD Current Filter – Notch Filter Bandwidth
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. HD current filter – notch filter bandwidth
Syntax	Read: NLNOTCHBW Write: NLNOTCHBW <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 500
Default value	0
Unit	Hz
Non-volatile	Yes
See also	NLNOTCH2CENTER POSCONTROLMODE
CANopen	2062h, sub-index 0

NLNOTCHCENTER

Definition	HD Current Filter – Notch Filter Center
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. HD current filter – notch filter center
Syntax	Read: NLNOTCHCENTER Write: NLNOTCHCENTER <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	100 to 10000
Default value	100
Unit	Hz
Non-volatile	Yes
See also	NLNOTCH2BW POSCONTROLMODE
CANopen	2061h, sub-index 0

NLNOTCH2BW

Definition	HD Current Filter – Second Notch Filter Bandwidth
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. HD current filter – second notch filter bandwidth
Syntax	Read: NLNOTCH2BW Write: NLNOTCH2BW <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 500
Default value	0
Unit	Hz
Non-volatile	Yes
See also	NLNOTCH2CENTER POSCONTROLMODE
CANopen	208Bh, sub-index 0

NLNOTCH2CENTER

Definition	HD Current Filter – Second Notch Filter Center
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. HD current filter – second notch filter center
Syntax	Read: NLNOTCHCENTER Write: NLNOTCHCENTER <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	100 to 10000
Default value	100
Unit	Hz
Non-volatile	Yes
See also	NLNOTCH2BW POSCONTROLMODE
CANopen	208Ch, sub-index 0

NLPEAFF

Definition	HD Flexibility Compensation
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. Used by the parameter NLPEDFFRATIO. Used (with NLAFFLPHZ) to reduce the vibrations induced to the load by abrupt changes in acceleration (jerk), and reduce tracking error; can also be used to minimize overshoot and settling time. NLPEAFF is set according to the rigidity of the system. Rigid systems require a high value. Systems with high load inertia and flexible couplings require lower values; the normal range is 400 to 30 Hz. If not used, set to 5000 Hz.
Syntax	Read: NLPEAFF Write: NLPEAFF <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 200000
Default value	0
Unit	Hz
Non-volatile	Yes
See also	NLPEDFFRATIO NLAFFLPHZ POSCONTROLMODE
CANopen	208Fh, sub-index 0

NLPEDFFRATIO

Definition	Acceleration/Deceleration Spring Filter Gain										
Type	Variable (R/W)										
Description	Not intended for user unless instructed by Technical Support. Determines the acceleration/deceleration spring filter gain according to the value of NLPEDFFRATIO=$\langle n \rangle$, as follows: <table> <tr> <td>0</td><td>NLPEAFF used during acceleration. NLPEAFF not used during deceleration.</td></tr> <tr> <td>$0 < n < 1$</td><td>NLPEAFF used during acceleration. $n \times$ NLPEAFF used during deceleration.</td></tr> <tr> <td>1</td><td>NLPEAFF used during both acceleration and deceleration.</td></tr> <tr> <td>$1 < n \leq 2$</td><td>NLPEAFF used during deceleration. $(2-n) \times$ NLPEAFF used during acceleration.</td></tr> <tr> <td>2</td><td>NLPEAFF used during deceleration. NLPEAFF not used during acceleration.</td></tr> </table>	0	NLPEAFF used during acceleration. NLPEAFF not used during deceleration.	$0 < n < 1$	NLPEAFF used during acceleration. $n \times$ NLPEAFF used during deceleration.	1	NLPEAFF used during both acceleration and deceleration.	$1 < n \leq 2$	NLPEAFF used during deceleration. $(2-n) \times$ NLPEAFF used during acceleration.	2	NLPEAFF used during deceleration. NLPEAFF not used during acceleration.
0	NLPEAFF used during acceleration. NLPEAFF not used during deceleration.										
$0 < n < 1$	NLPEAFF used during acceleration. $n \times$ NLPEAFF used during deceleration.										
1	NLPEAFF used during both acceleration and deceleration.										
$1 < n \leq 2$	NLPEAFF used during deceleration. $(2-n) \times$ NLPEAFF used during acceleration.										
2	NLPEAFF used during deceleration. NLPEAFF not used during acceleration.										
Syntax	Read: NLPEDFFRATIO Write: NLPEDFFRATIO $\langle value \rangle$										
Firmware	1.2.12										
Drive status	Enabled Disabled										
Range	0 to 2										
Default value	1										
Unit	Not Applicable										
Non-volatile	Yes										
See also											
CANopen	2091h, sub-index 0										

NLTUNE

Definition	HD Autotune Command
Type	Command
Description	Not intended for user unless instructed by Technical Support. Starts the HD autotuning procedure.
Syntax	Read: NLTUNE Write: NLTUNE {0 1 3}
Firmware	1.0.6
Drive status	Enabled Disabled
Range	
Default value	0
Unit	Not Applicable
Non-volatile	Not Applicable
See also	KNLP NLNOTCHBW NLTUNEPARAM NLTUNEST NLTUNETIME POSCONTROLMODE
CANopen	2093h, sub-index 0

NLTUNEPARAM

Definition	HD Autotune Procedure Parameter
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. HD autotuning procedure parameter
Syntax	Read: NLTUNEPARAM Write: NLTUNEPARAM <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	0
Unit	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = rev UNITSROTPOS 1 = count UNITSROTPOS 2 = deg If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = pitch UNITSLINPOS 1 = count UNITSLINPOS 3 = mm
Non-volatile	No
See also	LMJR NLTUNE NLTUNEST NLTUNETIME POSCONTROLMODE
CANopen	2094h, sub-index 0

NLTUNEST

Definition	HD Autotune Status
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. The state of the HD autotuning procedure.
Syntax	NLTUNEST
Firmware	1.0.6
Drive status	Enabled Disabled
Range	
Default value	
Unit	Not Applicable
Non-volatile	No
See also	NLTUNE NLTUNEPARAM NLTUNETIME POSCONTROLMODE
CANopen	20EDh, sub-index 1

NLTUNETIME

Definition	HD Autotune Timeout
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. Timeout of HD autotuning procedure
Syntax	Read: NLTUNETIME Write: NLTUNETIME <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 20000
Default value	0
Unit	ms
Non-volatile	No
See also	NLTUNE NLTUNEPARAM NLTUNEST POSCONTROLMODE
CANopen	2098h, sub-index 0

NLVELLIM

Definition	HD Velocity Control Standstill Tolerance
Type	Variable (R/W)
Description	Used in the Analog Velocity operation mode (OPMODE 1) with the HD velocity control (VELCONTROLMODE 5, 6). Gets/sets a threshold value for the input command voltage. When the input command voltage drops below NLVELLIM, the integral and integral-derivative gains of the controller are reduced by half, hence improving standstill stability.
Syntax	Read: NLVELLIM Write: NLVELLIM < <i>value</i> >
Firmware	1.4.4
Drive status	Disabled
Range	-3.815 to 3.815
Default value	16
Unit	V
Non-volatile	Yes
See also	ANIN1VSCALE OPMODE VELCONTROLMODE

OPMODE

Definition	Drive Operation Mode
Type	Variable (R/W)
Description	Gets/sets a value that defines the drive operation mode.
Syntax	Read: OPMODE Write: OPMODE <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 = Velocity control, using serial commands 1 = Velocity control, using analog input 2 = Current control, using serial commands 3 = Current control, using analog input 4 = Position control, using gearing input 8 = Position control, using serial commands
Default value	2
Unit	Not Applicable
Non-volatile	Yes
See also	ANIN2MODE COMMODE GEARMODE POSCONTROLMODE VELCONTROLMODE

OUT

Definition	Output Status
Type	Variable (R); (R/W in OUTMODE 0)
Description	Gets/sets the state of a digital output.
Syntax	Read: OUT <output#> Write: OUT <output#> <value>
Firmware	1.0.6
Drive status	Disabled
Range	<i>output#</i> = 1 to 7 <i>value</i> : 0 = Output off 1 = Output on
Default value	0
Unit	Not Applicable
Non-volatile	No
Exemplified	-->out 1 0 -->out 1 1 -->out 1 1 -->
See also	OUTINV OUTMODE OUTPUTS
CANopen	60FEh, sub-index 1

OUTILVL1

Definition	Current Level 1 for Digital Output Definition
Type	Variable (R/W)
Description	Gets/sets the first current level used for a condition that controls a digital output.
Syntax	Read: OUTILVL1 Write: OUTILVL1<value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 150
Default value	0
Unit	A
Non-volatile	Yes
See also	OUTILVL2 OUTINV OUTMODE OUTPUTS
CANopen	2099h, sub-index 0

OUTILVL2

Definition	Position Level 2 for Digital Output Definition
Type	Variable (R/W)
Description	Gets/sets the second current level used for a condition that controls a digital output.
Syntax	Read: OUTILVL2 Write: OUTILVL2<value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 150
Default value	0
Unit	A
Non-volatile	Yes
See also	OUTILVL1 OUTINV OUTMODE OUTPUTS
CANopen	209Ah, sub-index 0

OUTINV

Definition	Output Inversion
Type	Variable (R/W)
Description	Gets/sets the inversion of each of the digital outputs.
Syntax	Read: OUTINV <output#> Write: OUTINV <output#> <invert>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	<i>output#</i> = 1 to 7 <i>invert</i> : 0 = Output not inverted 1 = Output inverted
Default value	0
Unit	Not Applicable
Non-volatile	Yes
Example	-->outinv 3 0 -->outinv 3 1 -->outinv 3 1
See also	OUT OUTMODE OUTPUTS
CANopen	209Bh, sub-index 1

OUTMODE

Definition	Output Mode
Type	Variable (R/W)
Description	Gets/sets a value that defines the condition which will activate the specified digital output.
Syntax	Read: OUTMODE <output#> Write: OUTMODE <output#> <condition>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	<i>output#</i> = 1 to 7 <i>condition</i>: 0 = Idle 1 = Active (enabled) 2 = Brake 3 = Fault exists (alarm) 4 = In position indication matching INPOS 5 = Stopped indication (matching STOPPED=2) 6 = Foldback indication (motor or drive) (fault or FOLD) 7 = Average current exceeds OUTILVL1 8 = Average current is above OUTILVL1 and below OUTILVL2 9 = Velocity exceeds OUTVLVL1. Output will be activated when velocity exceeds the level set by OUTVLVL1. 10 = Velocity is above OUTVLVL1 and below OUTVLVL2. Output will be activated when velocity is above the level set by OUTVLVL1 and below the level set by OUTVLVL2. 11 = Position (PFB) is above OUTPLVL1. Output will be activated when position exceeds the level set by OUTPLVL. 12 = Position (PFB) is above OUTPLVL1 and below OUTPLVL2. Output will be activated when position is above the level set by OUTPLVL1 and below the level set by OUTPLVL2. 13 = Battery low voltage fault 14 = Warning on 15 = Faults or disabled 16 = Battery low voltage warning or fault 17 = Wake No Shake failed (Phase Find in Mode 2 failed) 18 = Over-current fault exists 19 = Over-voltage fault exists 20 = Under-voltage fault exists 21 = Phase Find failed 22 = Alarm without a Phase Find failure 23 = Homing complete

	24 = Encoder simulation index 25 = Zero position after homing Modes 9, 10, 11 and 12 accept negative values and operate accordingly; that is, they are direction-sensitive.
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	OUT OUTINV OUTPUTS
CANopen	209Ch, sub-index 1

OUTPLVL1

Definition	Position Level 1 for Digital Output Definition
Type	Variable (R/W)
Description	Gets/sets the first position level used for a condition that controls a digital output.
Syntax	Read: OUTPLVL1 Write: OUTPLVL1 <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	$\pm(2^{31} - 1)$ [rev]
Default value	0
Unit	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = rev UNITSROTPOS 1 = count UNITSROTPOS 2 = deg If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = pitch UNITSLINPOS 1 = count UNITSLINPOS 3 = mm
Non-volatile	Yes
See also	OUTINV OUTMODE OUTPLVL2 OUTPUTS
CANopen	209Dh, sub-index 0

OUTPLVL2

Definition	Position Level 2 for Digital Output Definition
Type	Variable (R/W)
Description	Gets/sets the second position level used for a condition that controls a digital output.
Syntax	Read: OUTPLVL2 Write: OUTPLVL2 <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	$\pm(2^{31} - 1)$ [rev]
Default value	0
Unit	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = rev UNITSROTPOS 1 = count UNITSROTPOS 2 = deg If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = pitch UNITSLINPOS 1 = count UNITSLINPOS 3 = mm
Non-volatile	Yes
See also	OUTINV OUTMODE OUTPLVL1 OUTPUTS
CANopen	209Eh , sub-index 0

OUTPUTS

Definition	Outputs Status
Type	Variable (R)
Description	Indicates the state of all digital outputs. A header lines identifies each of the outputs.
Syntax	OUTPUTS
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Output off 1 = Output on X = Not configured (CDHD 200V)
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
Example	-->OUTPUTS 1 2 3 4 5 6 7 0 0 0 0 0 0 X
See also	OUT OUTINV OUTMODE

OUTVLVL1

Definition	Velocity Level 1 for Digital Output Definition
Type	Variable (R/W)
Description	Gets/sets the first velocity level used for a condition that controls a digital output.
Syntax	Read: OUTVLVL1 Write: OUTVLVL1 <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	±1000000
Default value	0
Unit	If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 =rps If UNITSROTVEL 1 =rpm If UNITSROTVEL 2 =deg/s If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = mm/s
Non-volatile	Yes
See also	OUTINV OUTMODE OUTPUTS OUTVLVL2
CANopen	209Fh, sub-index 0

OUTVLVL2

Definition	Velocity Level 2 for Digital Output Definition
Type	Variable (R/W)
Description	Gets/sets the second velocity level used for a condition that controls a digital output.
Syntax	Read: OUTVLVL2 Write: OUTVLVL2<value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	±1000000
Default value	0
Unit	If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 =rps If UNITSROTVEL 1 =rpm If UNITSROTVEL 2 =deg/s If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = mm/s
Non-volatile	Yes
See also	OUTINV OUTMODE OUTPUTS OUTVLVL1
CANopen	20A0h , sub-index 0

OVTHRESH

Definition	Over-Voltage Threshold
Type	Variable (R)
Description	Indicates the threshold level for bus over-voltage detection.
Syntax	OVTHRESH
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	420
Unit	V
Non-volatile	Yes
See also	UVTHRESH VBUS VBUSREADOUT
CANopen	20A1h, sub-index 0

PASSWORD

Definition	Password
Type	Command
Description	Not intended for user unless instructed by Technical Support. Sets the privilege level of the allowable commands. There are two levels of protection. "factory" – allows all drive commands to be used. "master" – allows certain additional commands to be used. Issue of incorrect password resumes password protection.
Syntax	PASSWORD {password}
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable

PATHACC

Definition	Path Acceleration
Type	Variable (R/W)
Description	Gets/sets the acceleration value for path execution.
Syntax	Read: PATHACC <path#> Write: PATHACC <path#> <value>
Firmware	1.4.4
Drive status	Enable Disable
Range	Path#: 1 - 31 Value: If MOTORTYPE 0 (Rotary): UNITSROTACC 0 = 0.004 to 16666.666 UNITSROTACC 1 = 0.23 to 1000000 UNITSROTACC 2 = 1.38 to 6000000 If MOTORTYPE 2 (Linear): UNITSLINACC 1 = 0.12 to 533333.333
Default value	600 rpm/s
Unit	If MOTORTYPE 0 (Rotary): UNITSROTACC 0 = rps/s UNITSROTACC 1 = rpm/s UNITSROTACC 2 = deg/s ² If MOTORTYPE 2 (Linear): UNITSLINACC 1 = mm/s ²
Non-volatile	Yes
Example	--> PATHACC 4 600.000 [rpm/s] --> PATHACC 4 700 --> PATHACC 4 700.000 [rpm/s]
See also	PATHCTRL PATHDEC PATHDELAY PATHPOS PATHSPEED

PATHCTRL

Definition	Path Control										
Type	Variable (R/W)										
Description	Gets/sets the behavior for executing the path.										
Syntax	Read: PATHCTRL <path#> Write: PATHCTRL <path#> <value>										
Firmware	1.4.4										
Drive status	Enable Disable										
Range	Path#: 1 - 31 Value: Not Applicable										
Default value	0										
Unit	Bit 4: Blending (insertion): 1 = On 0 = Off Bit 7: Move type: 1 = Incremental 0 = Absolute Path control options: <table> <thead> <tr> <th><u>Move Type</u></th><th><u>Value</u></th></tr> </thead> <tbody> <tr> <td>Absolute</td><td>0x0 (h0)</td></tr> <tr> <td>Absolute with Blending</td><td>0x10 (h16)</td></tr> <tr> <td>Incremental</td><td>0x80 (h128)</td></tr> <tr> <td>Incremental with Blending</td><td>0x90 (h144)</td></tr> </tbody> </table>	<u>Move Type</u>	<u>Value</u>	Absolute	0x0 (h0)	Absolute with Blending	0x10 (h16)	Incremental	0x80 (h128)	Incremental with Blending	0x90 (h144)
<u>Move Type</u>	<u>Value</u>										
Absolute	0x0 (h0)										
Absolute with Blending	0x10 (h16)										
Incremental	0x80 (h128)										
Incremental with Blending	0x90 (h144)										
Non-volatile	Yes										
Example	<pre>-->PATHCTRL 4 0 -->PATHCTRL 4 h90 -->PATHCTRL 4 144</pre>										
See also	PATHACC PATHDEC PATHDELAY PATHPOS PATHSPEED										

PATHDEC

Definition	Path Deceleration
Type	Variable (R/W)
Description	Gets/sets the deceleration value for path execution.
Syntax	Read: PATHDEC <path#> Write: PATHDEC <path#> <value>
Firmware	1.4.4
Drive status	Enable Disable
Range	Path#: 1 - 31 Value: If MOTORTYPE 0 (Rotary): UNITSROTACC 0 = 0.004 to 16666.666 UNITSROTACC 1 = 0.23 to 1000000 UNITSROTACC 2 = 1.38 to 6000000 If MOTORTYPE 2 (Linear): UNITSLINACC 1 = 0.12 to 533333.333
Default value	600 rpm/s
Unit	If MOTORTYPE 0 (Rotary): UNITSROTACC 0 = rps/s UNITSROTACC 1 = rpm/s UNITSROTACC 2 = deg/s ² If MOTORTYPE 2 (Linear): UNITSLINACC 1 = mm/s ²
Non-volatile	Yes
Example	-->PATHDEC 4 600.000 [rpm/s] -->PATHDEC 4 500 -->PATHDEC 4 500.000 [rpm/s]
See also	PATHACC PATHCTRL PATHDELAY PATHPOS PATHSPEED

PATHDELAY

Definition	Path Delay
Type	Variable (R/W)
Description	Gets/sets a delay value for path execution.
Syntax	Read: PATHDELAY <path#> Write: PATHDELAY <path#> <value>
Firmware	1.4.4
Drive status	Enable Disable
Range	Path#: 1 = 31 Value: 0 = 32767
Default value	0
Unit	ms
Non-volatile	Yes
Example	-->PATHDELAY 4 0 [ms] -->PATHDELAY 4 1500 -->PATHDELAY 4 1500 [ms]
See also	PATHACC PATHCTRL PATHDEC PATHPOS PATHSPEED

PATHPOS

Definition	Path Position Data
Type	Variable (R/W)
Description	Gets/sets the position value for path execution.
Syntax	Read: PATHPOS <path#> Write: PATHPOS <path#> <value>
Firmware	1.4.4
Drive status	Enable Disable
Range	$\pm(231 - 1)$ [rev]
Default value	0
Unit	<i>Path#</i> : 1 - 31 <i>Value</i> : If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = rev UNITSROTPOS 1 = count UNITSROTPOS 2 = deg If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = pitch UNITSLINPOS 1 = count UNITSLINPOS 3 = mm
Non-volatile	Yes
Example	<pre>--> PATHPOS 4 0.000 [Counts] --> PATHPOS 4 12345 --> PATHPOS 4 12345.000 [Counts]</pre>
See also	PATHACC PATHCTRL PATHDEC PATHDELAY PATHSPEED

PATHSPEED

Definition	Path Speed
Type	Variable (R/W)
Description	Gets/sets the speed value for path execution.
Syntax	Read: PATHSPEED <path#> Write: PATHSPEED <path#> <value>
Firmware	1.4.4
Drive status	Enable Disable
Range	Path#: 1 - 31 Value: Not Applicable
Default value	227.5 rpm
Unit	If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 = rps If UNITSROTVEL 1 = rpm If UNITSROTVEL 2 = deg/s If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = mm/s
Non-volatile	Yes
Example	-->PATHSPEED 4 227.500 [rpm] -->PATHSPEED 4 555.5 -->PATHSPEED 4 555.500 [rpm]
See also	PATHACC PATHCTRL PATHDEC PATHDELAY PATHPOS

PCMD

Definition	Position Command
Type	Variable (R)
Description	Gets the value of the position reference command.
Syntax	PCMD
Firmware	1.0.6
Drive status	Enabled Disabled
Range	$\pm(2^{31} - 1)$ [rev]
Default value	Not Applicable
Unit	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = rev UNITSROTPOS 1 = count UNITSROTPOS 2 = deg If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = pitch UNITSLINPOS 1 = count UNITSLINPOS 3 = mm
Non-volatile	No
See also	GEARMODE MOVEINC PE PFB
CANopen	208Eh, sub-index 0

PDEN

Definition	Feed Constant Denominator
Type	Variable (R/W)
Description	The feed constant is the positional movement for any motor movement and is calculated as the following: $\text{Feed constant} = \text{Feed} \div \text{Driving shaft revolutions}$ PDEN defines the denominator (revolutions) of the ratio. Used for scaling the motor revolution (rotary motors) or the motor pitch (linear motors), according to the type of motor (MOTORTYPE).
Syntax	Read: PDEN Write: PDEN <value>
Firmware	1.2.12
Drive status	Enabled Disabled
Range	1 to 4294967295
Default value	36000
Unit	Not Applicable
Non-volatile	Yes
See also	PCMD PNUM
CANopen	6092h, sub-index 2

PE

Definition	Position Error
Type	Variable (R)
Description	Gets the value of the position tracking error. The position error is calculated as the difference between PCMD and PFB.
Syntax	PE
Firmware	1.0.6
Drive status	Enabled Disabled
Range	$\pm(2^{31} - 1)$ [rev]
Default value	Not Applicable
Unit	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = rev UNITSROTPOS 1 = count UNITSROTPOS 2 = deg If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = pitch UNITSLINPOS 1 = count UNITSLINPOS 3 = mm
Non-volatile	No
See also	PCMD PFB PFBOFFSET
CANopen	60F4h, sub-index 0

PEINPOS

Definition	In Position Error Tolerance
Type	Variable (R/W)
Description	Gets the error tolerance for declaring an "in position" state. The motor is considered settled when PE has remained below PEINPOS for a time defined by PEINPOSTIME.
Syntax	Read: PEINPOS Write: PEINPOS <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to $2^{31} - 1$ [rev]
Default value	0
Unit	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = rev UNITSROTPOS 1 = count UNITSROTPOS 2 = deg If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = pitch UNITSLINPOS 1 = count UNITSLINPOS 3 = mm
Non-volatile	Yes
See also	INPOS MOVEINC PEMAX STOPPED
CANopen	6067h, sub-index 0

PEINPOSTIME

Definition	In Position Time
Type	Variable (R/W)
Description	Gets/sets the duration for which position error PE needs to be within PEINPOS before an INPOS status is declared.
Syntax	Read: PEINPOSTIME Write: PEINPOSTIME <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 1000
Default value	1
Unit	ms
Non-volatile	Yes
See also	MOVEABS MOVEINC PE PEINPOS
CANopen	6068h , sub-index 0

PELOOP

Definition	Position Loop Position Error
Type	Variable (R)
Description	Position error value used by the position loop
Syntax	PELOOP
Firmware	1.2.12
Drive status	Enabled Disabled
Range	$\pm(2^{31} - 1)$ [rev]
Default value	Not Applicable
Unit	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = rev UNITSROTPOS 1 = count UNITSROTPOS 2 = deg If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = pitch UNITSLINPOS 1 = count UNITSLINPOS 3 = mm
Non-volatile	No
See also	
CANopen	20A3h, sub-index 0

PEMAX

Definition	Maximum Position Error
Type	Variable (R/W)
Description	Maximum allowed position error without producing a fault.
Syntax	Read: PEMAX Write: PEMAX <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to ($2^{31} - 1$) [rev]
Default value	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = 1.000 UNITSROTPOS 1 = 8192.000 UNITSROTPOS 2 = 360.000 If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = 1.000 UNITSLINPOS 1 = 8192.000 UNITSLINPOS 3 = 32.000
Unit	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = rev UNITSROTPOS 1 = count UNITSROTPOS 2 = deg If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = pitch UNITSLINPOS 1 = count UNITSLINPOS 3 = mm
Non-volatile	Yes
See also	INPOS MOVEINC PEINPOS STOPPED
CANopen	6065h, sub-index 0

PFB

Definition	Position
Type	Variable (R)
Description	Gets the value of the position feedback, in user-defined units, including any offsets that have been added. PFB is the actual motor position.
Syntax	PFB
Firmware	1.0.6
Drive status	Enabled Disabled
Range	$\pm(2^{31} - 1)$ [rev]
Default value	Not Applicable
Unit	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = rev UNITSROTPOS 1 = count UNITSROTPOS 2 = deg If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = pitch UNITSLINPOS 1 = count UNITSLINPOS 3 = mm
Non-volatile	No
See also	PCMD PE PFBOFFSET
CANopen	6064h, sub-index 0

PFBBACKUP

Definition	PFB Backup
Type	Command
Description	Reads the PFB values from non-volatile memory that were saved by the PFB backup process.
Syntax	PFBBACKUP
Firmware	1.3.2
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Count
Non-volatile	Not Applicable
See also	PFB PFBBACKUPMODE
CANopen	2088h, sub-index 0

PFBBACKUPMODE

Definition	PFB Backup Mode
Type	Variable (R/W)
Description	Enables and disables the PFB backup process. In the event of an emergency stop, the PFB backup process saves PFB to non-volatile memory, and restores it at the next power up.
Syntax	Read: PFBBACKUPMODE Write: PFBBACKUPMODE<value>
Firmware	1.3.2
Drive status	Enabled Disabled
Range	0 = PFB backup process disabled 1 = PFB backup process enabled
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	PFB PFBBACKUP
CANopen	2089h, sub-index 0

PFBOFFSET

Definition	Position Offset
Type	Variable (R/W)
Description	Gets/sets a feedback offset that is added to the internal cumulative position counter, to give the value of PFB. When using count units, only integer values can be entered.
Syntax	Read: PFBOFFSET Write: PFBOFFSET <value>
Firmware	1.0.6
Drive status	Disabled
Range	$\pm(2^{31} - 1)$ [rev]
Default value	0
Unit	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = rev UNITSROTPOS 1 = count UNITSROTPOS 2 = deg If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = pitch UNITSLINPOS 1 = count UNITSLINPOS 3 = mm
Non-volatile	Yes
See also	PCMD PE PFB
CANopen	2095h, sub-index 0

PHASEFIND

Definition	Phase Find Command
Type	Command
Description	Initiates a procedure that initializes commutation for incremental encoder systems. See PHASEFINDMODE for the execution options.
Syntax	PHASEFIND
Firmware	1.0.6
Drive status	Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	FEEDBACKTYPE INDEXFIND MENCRES MENCTYPE MPHASE PHASEFINDGAIN PHASEFINDI PHASEFINDMODE PHASEFINDST ZERO
CANopen	20A4h , sub-index 0

PHASEFINDANGLE

Definition	Forced Electrical Position
Type	Variable (R/W)
Description	Gets/sets the position in one revolution. Applicable only for MENCTYPE 11.
Syntax	Read: PHASEFINDANGLE Write: PHASEFINDANGLE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 65535
Default value	0
Unit	65536/electrical cycle
Non-volatile	Yes
See also	PHASEFIND PHASEFINDMODE
CANopen	20A5h, sub-index 0

PHASEFINDDELTA

Definition	Delta Angle for Phase Find Tuning
Type	
Description	Not intended for user unless instructed by Technical Support.
Syntax	
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	
Non-volatile	
See also	

PHASEFINDGAIN

Definition	Phase Find Gain
Type	Variable (R/W)
Description	Adjusts the gain of the phase finding mechanism.
Syntax	Read: PHASEFINDGAIN Write: PHASEFINDGAIN <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 to 10
Default value	1
Unit	Not applicable
Non-volatile	Yes
See also	PHASEFIND PHASEFINDMODE
CANopen	20A6h , sub-index 0

PHASEFINDI

Definition	Phase Find Current
Type	Variable (R/W) .
Description	Adjusts the current of the phase finding mechanism.
Syntax	Read: PHASEFINDI Write: PHASEFINDI <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 to 150
Default value	0
Unit	A
Non-volatile	Yes
See also	PHASEFIND PHASEFINDMODE
CANopen	20A7h , sub-index 0

PHASEFINDMODE

Definition	Phase Find Mode
Type	Variable (R/W)
Description	Gets/sets a value that defines the commutation Phase Find mode.
Syntax	Read: PHASEFINDMODE Write: PHASEFINDMODE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Pulse: Injects test signals and analyzes motor behavior to initialize commutation. Suited for motors with high saliency only. Inductance ratio (L-Lmin/L-Lmax) should be less than 0.85. Works best when rotor is locked with brakes. Type PHASEFIND, and then EN. 2 = Soft start: Sets current command and searches for angle at which no movement occurs, then adds 90 degrees to this angle. Uses PI controller where velocity is an input and commutation angle is an output. Note: The angle found may cause movement in the wrong direction; therefore, the process is performed twice to avoid incorrect detection. Use this mode with motors that have non-limited motion. 1. Set PHASEFINDI - range (0 to DIPEAK) [A peak]. If value is 0, drive will overwrite it to $0.15 \times \text{MIN}(\text{DICONT}, \text{MICONT})$. A high value provides a more exact result but causes a higher rotor jump at start of process. 2. Set PHASEFINDGAIN - range (0.1 to 10). Use a lower value for systems with high inertia, and vice versa. 3. Set PHASEFINDTIME - range (0 to 10000) [ms]. Use a higher value for systems with high inertia, and vice versa. 4. Type PHASEFIND, and then EN

	4 = Smooth start: Sets commutation angle to 180 degrees and increases current until a movement of 1 electrical angle is detected. Divides the angle by half and sets the appropriate sign to move in the opposite direction. Increases current until a movement of 1 electrical angle is detected. Repeats until no movement occurs at maximum current. Adds 90 degree to the found angle. Use this mode with motors that have non-limited motion. 1. Set PHASEFINDGAIN - range (0.1 - 10). In this mode the parameter is used as a factor for total movement. The larger factor will provide less movement but will take more time to execute PHASEFIND process. In systems with low inertia and cogging the actual movement will be unpredictable but never more than 90 electrical degrees. Use a higher value for systems with high inertia, and vice versa. 2. Type PHASEFIND, and then EN
	11 = Manual commutation. Commutation is defined by the value of PHASEFINDANGLE. 1. Set PHASEFINDANGLE - range (0 to 65535), where 1 electrical angle is 65535/359. 2. Type PHASEFIND, and then EN. Use this mode if the angle is known. For example: 1. Set shaft to zero electrical degrees (be sure MPHASE = 0). Use the ZERO command to set the shaft to zero electrical degree placement. 2. Set PHASEFINDANGLE = 0 3. Type PHASEFIND, and then EN
Default value	2
Unit	Not applicable
Non-volatile	Yes
See also	FEEDBACKTYPE INDEXFIND MENCTYPE PHASEFIND (Modes 0, 2, 4, 11) PHASEFINDANGLE (Mode 11) PHASEFINDI(Mode 2) PHASEFINDGAIN(Modes 2, 4) PHASEFINDST (Modes 0, 2, 4,11) PHASEFINDTIME(Mode 2) WNSERR (Modes 2,4) ZERO
CANopen	20A8h, sub-index 0

PHASEFINDST

Definition	Phase Find Status
Type	Variable (R)
Description	Indicates the state of the commutation Phase Find procedure for incremental encoders.
Syntax	PHASEFINDST
Firmware	1.0.6
Drive status	Disabled
Range	0 = Not started 1 = Running 2 = Succeeded 3 = Failed
Default value	Not applicable
Unit	Not applicable
Non-volatile	No
See also	FEEDBACKTYPE INDEXFIND INDEXFINDST MENCTYPE PHASEFIND PHASEFINDMODE ZERO
CANopen	20A9h , sub-index 0

PHASEFINDTIME

Definition	Time of Phase Finding Mechanism
Type	Variable (R/W)
Description	Gets/set the duration of the phase finding mechanism.
Syntax	Read: PHASEFINDTIME Write: PHASEFINDTIME <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 to 10000
Default value	100
Unit	ms
Non-volatile	Yes
See also	PHASEFIND PHASEFINDMODE
CANopen	20AAh , sub-index 0

PNUM

Definition	Feed Constant Numerator
Type	Variable (R/W)
Description	The feed constant is the positional movement for any motor movement and is calculated as the following: $\text{Feed constant} = \text{Feed} \div \text{Driving shaft revolutions}$ PNUM defines the numerator (feed) of the ratio. Used for scaling the motor revolution (rotary motors) or the motor pitch (linear motors), according to the type of motor (MOTORTYPE).
Syntax	Read: PNUM Write: PNUM <value>
Firmware	1.2.12
Drive status	Enabled Disabled
Range	1 to 4294967295
Default value	360
Unit	Not Applicable
Non-volatile	Yes
See also	PCMD PDEN
CANopen	6092h, sub-index 1

POSCONTROLMODE

Definition	Position Loop Controller Mode
Type	Variable (R/W)
Description	Gets/sets a value that defines the type of position loop controller.
Syntax	Read: POSCONTROLMODE Write: POSCONTROLMODE <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 = Standard cascaded position controller 1 = HD position controller
Default value	0
Unit	Not applicable
Non-volatile	Yes
See also	OPMODE VELCONTROLMODE
CANopen	20ABh, sub-index 0

POSLIMMODE

Definition	Software Position Limit Mode
Type	Variable (R/W)
Description	Gets/sets a variable that defines whether the software position limits function is enabled. This function can be enabled only after a successful homing has been performed. When POSLIMMODE is set to 1, POSLIMNEG and POSLIMPOS serve as motion limits. When either limit is crossed, a deceleration occurs according to the value of DECSTOPTIME, unless it exceeds the value of DECSTOP. Once a limit is crossed, only motion commands in the return direction can be executed. When a software limit switch is engaged, the 7-segment LED display shows either "L4" or "L5". If both switches are engaged, the display shows "L6". Software position limits and the Disable mode use the same deceleration settings.
Syntax	Read: POSLIMMODE Write: POSLIMMODE <value>
Firmware	1.2.12
Drive status	Enabled Disabled
Range	0 = Software position limits disabled 1 = Software position limits enabled
Default value	0
Unit	Not Applicable
Non-volatile	Yes No
See also	DECSTOP DECSTOPTIME POSLIMNEG POSLIMPOS
CANopen	20ACh, sub-index 0

POSLIMNEG

Definition	Software Position Limit Minimum
Type	Variable (R/W)
Description	The minimum position for software limit
Syntax	Read: POSLIMNEG Write: POSLIMNEG <value>
Firmware	1.2.12
Drive status	Enabled Disabled
Range	$\pm(2^{31} - 1)$ [rev]
Default value	0
Unit	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = rev UNITSROTPOS 1 = count UNITSROTPOS 2 = deg If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = pitch UNITSLINPOS 1 = count UNITSLINPOS 3 = mm
Non-volatile	Yes
See also	POSLIMMODE POSLIMPOS
CANopen	607Dh, sub-index 2

POSLIMPOS

Definition	Software Position Limit Maximum
Type	Variable (R/W)
Description	The maximum position for software limit
Syntax	Read: POSLIMPOS Write: POSLIMPOS <value>
Firmware	1.2.12
Drive status	Enabled Disabled
Range	$\pm(2^{31} - 1)$ [rev]
Default value	0
Unit	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = rev UNITSROTPOS 1 = count UNITSROTPOS 2 = deg If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = pitch UNITSLINPOS 1 = count UNITSLINPOS 3 = mm
Non-volatile	Yes
See also	POSLIMMODE POSLIMNEG
CANopen	607Dh, sub-index 1

PRBFRQ

Definition	PRB Generator Frequency
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. Defines the frequency for PRB excitation. For pseudo binary noise (PRBPARAM 1), PRBFRQ has no effect. For sine and square wave generators (PRBPARAM 2, PRBPARAM 3), PRBFRQ defines the frequency of the sine and square wave generator, respectively.
Syntax	Read: PRBFRQ Write: PRBFRQ <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 5000
Default value	100
Unit	Hz
Non-volatile	No
See also	PRBMODE PRBPARAM
CANopen	20ADh, sub-index 0

PRBMODE

Definition	PRB Activation Mode
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. Get/sets the activation mode of the PRB signal generator. PRB can either be disabled (PRBMODE 0), continuously activated (PRBMODE 2), or activated only when recording has been triggered (PRBMODE 1).
Syntax	Read: PRBMODE Write: PRBMODE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = PRB generator not activated 1 = PRB generator activated only during recording 2 = PRB generator activated continuously
Default value	0
Unit	Not Applicable
Non-volatile	No
See also	PRBFRQ PRBPARAM RECORD RECTRIG
CANopen	20AEh, sub-index 0

PRBPARAM

Definition	PRB Generator Parameters
Type	Command
Description	Not intended for user unless instructed by Technical Support. The PRB generator enables several advanced tests on the controlled axis. These tests include injecting sine or square wave signals of specified frequency in addition to the current and velocity commands. The PRB noise generator is used to excite the system with a wide uniform spectrum signal for identification purposes.
Syntax	PRBPARAM { <i>Signal_type</i> } { <i>Icmd_amp</i> } { <i>Vcmd_amp</i> } { <i>Update_ratio</i> }
Firmware	1.0.6
Drive status	Enabled Disabled
Range	<i>Signal_type</i>: 0 = Not activated 1 = Pseudo random binary 2 = Sine wave 3 = Square wave <i>Icmd_amp</i> = torque amplitude in [A]. <i>Vcmd_amp</i> = velocity amplitude in velocity units (as defined by UNITSROTVEL or UNITSLINVEL) <i>Update_ratio</i> = update ratio relative to current loop update rate.
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	PRBFRQ PRBMODE
CANopen	20AFh, sub-index 1

PTPTE

Definition	PTP Generator Target Error
Type	Variable (R)
Description	Reports the target error during a motion profile, which is the distance remaining to the destination in a point-to-point move.
Syntax	PTPTE
Firmware	1.0.6
Drive status	Enabled Disabled
Range	$\pm(2^{31} - 1)$ [rev]
Default value	Not Applicable
Unit	If MOTORTYPE 0 (Rotary): UNITSROTPOS 0 = rev UNITSROTPOS 1 = count UNITSROTPOS 2 = deg If MOTORTYPE 2 (Linear): UNITSLINPOS 0 = pitch UNITSLINPOS 1 = count UNITSLINPOS 3 = mm
Non-volatile	No
See also	MOVEABS MOVEINC PCMD PE PTPVCMD
CANopen	20B0h , sub-index 0

PTPVCMD

Definition	PTP Generator Velocity Command
Type	Variable (R)
Description	Reports the derivative of the position command profile in velocity units. PTPVCMD is useful for recording and viewing the actual velocity and the velocity command, which is available only as a derivative of the position profile. In HD control (POSCONTROLMODE 1), the variable VCMD is not used. In cascaded control (POSCONTROLMODE 0), the variable VCMD shows a value similar to PTPVCMD. However, since VCMD is issued by the position controller as a command to the velocity control, it is not strictly a reference signal (as it includes the response of the position control to PFB).
Syntax	PTPVCMD
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 = rps If UNITSROTVEL 1 = rpm If UNITSROTVEL 2 = deg/s If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = mm/s
Non-volatile	No
See also	MOVEABS MOVEINC PCMD PTPTE VCMD
CANopen	20B1h, sub-index 0

PWMFRQ

Definition	PWM Frequency
Type	Variable (R) Variable (W) - Not intended for user unless instructed by Technical Support.
Description	Indicates the frequency of the PWM signals. When the value of PWMFRQ is changed, CONFIG is required.
Syntax	PWMFRQ
Firmware	1.0.6
Drive status	Enabled Disabled
Range	16
Default value	16
Unit	kHz
Non-volatile	Yes
See also	
CANopen	20B2h, sub-index 0

PWMSATRATIO

Definition	PWM Saturation Ratio
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. Gets/sets the duration of current saturation within a commutation cycle. If the value of PWMSATRATIO is exceeded, a PWM limit is activated. When the value of PWMSATRATIO is changed, CONFIG is required.
Syntax	Read: PWMSATRATIO Write: PWMSATRATIO <value>
Firmware	1.0.6
Drive status	Disabled
Range	0.5 to 1.5
Default value	1.5
Unit	Not Applicable
Non-volatile	Yes
See also	PWMFRQ VBUS
CANopen	20B4h, sub-index 0

READY

Definition	Drive Ready
Type	Variable (R)
Description	Indicates whether the drive is ready for activation with only external remote enable still required (ACTIVE).
Syntax	READY
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Faults exist or SWEN 1 = No faults exist and SWEN
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	ACTIVE EN FLT K REMOTE ST SWEN
CANopen	2113h, sub-index 0

RECDONE

Definition	Recording Done
Type	Variable (R)
Description	Indicates whether the RECORD command is done and data is available.
Syntax	RECDONE
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Recording not finished 1 = Recording done; data available
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	GET RECING RECOFF RECORD RECRDY RECTRIG
CANopen	20E6h, sub-index 0

RECING

Definition	Recording
Type	Variable (R)
Description	Indicates if data recording is in progress.
Syntax	RECING
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Recording not in progress 1 = Recording in progress
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	RECDONE RECOFF RECORD RECRDY RECTRIG
CANopen	20EBh , sub-index 0

RECLIST

Definition	Recordable Variables List
Type	Variable (R)
Description	Returns a list of all variables that can be recorded by the RECORD command.
Syntax	RECLIST
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	RECORD

RECOFF

Definition	Cancel Recording
Type	Command
Description	Cancels an active recording.
Syntax	RECOFF
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	RECDONE RECING RECORD RECRDY RECTRIG
CANopen	20E9h, sub-index 0

RECORD

Definition	Record
Type	Command
Description	Captures real-time variables to memory for retrieval/ display by the GET command. RECORD must be set up before the RECTRIG command is used. RECLIST returns the list of the recordable variables.
Syntax	RECORD <i>sample_time num_points var1</i> [<i>var2 ... var6</i>] <i>sample_time</i> = 1 to 1000000 (multiples of 31.25 μs) <i>num_points</i> = 1 to 2000 <i>var</i> = Name of a recordable system variable that appears in RECTRIGLIST. System variables must be preceded by a quotation mark (").
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Refer to Syntax, above
Non-volatile	No
Example	<pre>RECORD 32 100 "VCMD "V "ICMD</pre> Records 100 points for VCMD, V, and ICMD every 1 milliseconds
See also	GET RECDONE RECING RECLIST RECOFF RECRDY RECTRIG
CANopen	20EAh, sub-index 1

RECRDY

Definition	Ready to Record
Type	Variable (R)
Description	Indicates the ready status of the RECORD function. This variable can be polled after a RECORD command is issued to determine if the system is waiting for RECTRIG.
Syntax	RECRDY
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = RECTRIG has been received and record function is armed. 1 = Record function is waiting to be armed by RECTRIG command.
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	RECDONE RECING RECOFF RECORD RECTRIG
CANopen	20ECh, sub-index 0

RECTRIG

Definition	Trigger Recording
Type	Command
Description	Triggers the recorder. RECORD must be set up before a RECTRIG command is issued. The recording mechanism tracks the value of a system variable and starts the recording as soon as the value goes higher or lower than the specified value. The recorder can also record a specified number of points before the trigger condition occurs. Known Limitation: If a trigger occurs before the pre-trigger buffer has been filled, the beginning of the recording will have garbage data.
Syntax	RECTRIG <i>var level pre-trig {above under}</i> <i>var</i> = Name of a recordable system variable that appears in RECTRIGLIST. System variables must be preceded by a quotation mark ("). <i>level</i> = Threshold value for the trigger <i>pre-trig</i> = number of points to be recorded prior to trigger <i>above under</i> = defines whether trigger occurs when value is above or below the threshold RECTRIG "IMM = starts the recording immediately RECTRIG "CMD = starts the recording as soon as the next command is sent to the drive.
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	GET RECDONE RECING RECOFF RECORD RECRDY RECTRIGLIST
	Activation commands ■ RECORD defines the variables to be recorded and the recording time span and sample time. ■ RECTRIG defines the triggering condition for starting a recording, and also pre-trigger duration. ■ RECOFF turns active recording off.

	Utility information ■ RECLIST lists all the variables that can be recorded by the record function. ■ RECTRIGLIST lists all the options for triggering the recording. Status flags ■ RECRDY indicates that a recording is armed and ready. ■ RECING indicates that a trigger condition has occurred and that a recording is active. ■ RECDONE indicates that the recording is completed Data retrieval ■ GETMODE defines the format for the recorded data (binary/ascii) ■ GET retrieves the recorded data
CANopen	20E8h, sub-index 1

RECTRIGLIST

Definition	Recording Trigger Variables List																																										
Type	Variable (R)																																										
Description	Returns a list of all trigger variables and options. The recording trigger is defined by RECTRIG. The variables listed below are the most commonly used trigger sources. To view the complete list of trigger variables, issue the command to the drive. Note: Some factory variables and commands, not intended for users, may appear in the list. Do not attempt to use commands and variables that are not described in this manual, or are marked as not for users.																																										
Syntax	RECTRIGLIST																																										
Firmware	1.0.6																																										
Drive status	Enabled Disabled																																										
Range	Dynamic signal variables: <table><tr><td>ANIN1</td><td>ILIMACT</td><td>PELOOP</td></tr><tr><td>ANIN2</td><td>IN (IN1 – IN11)</td><td>PFB</td></tr><tr><td>ANOUT</td><td>IQ</td><td>PTPTE</td></tr><tr><td>CLVD</td><td>IQCMD</td><td>PTPVCMD</td></tr><tr><td>CLVQ</td><td>IU</td><td>REMOTE</td></tr><tr><td>ELECTANGLE</td><td>IV</td><td>STOPPED</td></tr><tr><td>FOLD</td><td>MECHANGLE</td><td>THERM</td></tr><tr><td>HWPEXT</td><td>MFOLD</td><td>V</td></tr><tr><td>I</td><td>MIFOLD</td><td>VBUSREADOUT</td></tr><tr><td>ICMD</td><td>OUT (OUT1– OUT7</td><td>VCMD</td></tr><tr><td>ID</td><td>PCMD</td><td>VE</td></tr><tr><td>IFOLD</td><td>PE</td><td></td></tr></table> Status variables: <table><tr><td>ACTIVE</td><td>LIMSWITCHNEG</td></tr><tr><td>HOMESTATE</td><td>LIMSWITCHPOS</td></tr></table>			ANIN1	ILIMACT	PELOOP	ANIN2	IN (IN1 – IN11)	PFB	ANOUT	IQ	PTPTE	CLVD	IQCMD	PTPVCMD	CLVQ	IU	REMOTE	ELECTANGLE	IV	STOPPED	FOLD	MECHANGLE	THERM	HWPEXT	MFOLD	V	I	MIFOLD	VBUSREADOUT	ICMD	OUT (OUT1– OUT7	VCMD	ID	PCMD	VE	IFOLD	PE		ACTIVE	LIMSWITCHNEG	HOMESTATE	LIMSWITCHPOS
ANIN1	ILIMACT	PELOOP																																									
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ID	PCMD	VE																																									
IFOLD	PE																																										
ACTIVE	LIMSWITCHNEG																																										
HOMESTATE	LIMSWITCHPOS																																										
Default value	Not Applicable																																										
Unit	Not Applicable																																										
Non-volatile	No																																										
See also	RECTRIG																																										

RELAY

Definition	Fault Relay Status
Type	Variable (R)
Description	Indicates the state of the fault relay.
Syntax	RELAY
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Relay open 1 = Relay closed
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	ACTIVE CLEARFAULTS FLT RELAYMODE REMOTE
CANopen	20B8h, sub-index 0

RELAYMODE

Definition	Relay Fault Mode
Type	Variable (R/W)
Description	Gets/sets a value that defines how the fault relay operates.
Syntax	Read: RELAYMODE Write: RELAYMODE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Relay opens upon fault. 1 = Relay opens upon disable.
Default value	0
Unit	Not applicable
Non-volatile	Yes
See also	ACTIVE CLEARFAULTS FLT RELAY REMOTE
CANopen	20B9h , sub-index 0

REMOTE

Definition	Remote Hardware Enable Status
Type	Variable (R)
Description	Indicates the state of the external hardware enable input line.
Syntax	REMOTE
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Remote enable input off. 1 = Remote enable input on.
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	ACTIVE READY RELAY RELAYMODE
CANopen	20BAh, sub-index 0

RESAMPLRANGE

Definition	Resolver Amplitude Range
Type	Variable (R/W)
Description	Gets/sets the acceptable range of resolver sine/cosine signals, expressed as a percentage, around their nominal value. The default value of 10% means the sine/cosine signals are allowed to deviate up to 10% from the nominal before an Out-Of-Range Fault is declared.
Syntax	Read: RESAMPLRANGE Write: RESAMPLRANGE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 100
Default value	10
Unit	%
Non-volatile	Yes
See also	FEEDBACKTYPE RESBW SININIT SINPARAM
CANopen	20BBh, sub-index 0

RESBW

Definition	Resolver Conversion Bandwidth
Type	Variable (R/W)
Description	Get/sets the resolver conversion bandwidth. High bandwidth produces better dynamic tracking and less phase lag in high frequencies. Lower bandwidth results in better noise reduction. Resolvers typically enable slower dynamic tracking than encoders. RESBW sets the most balanced value according to specific application requirements.
Syntax	Read: RESBW Write: RESBW <value>
Firmware	1.0.6
Drive status	Disabled
Range	200 to 800
Default value	300
Unit	Hz
Non-volatile	Yes
See also	FEEDBACKTYPE SININIT VELFILTMODE
CANopen	20BCh , sub-index 0

SAVE

Definition	Save Parameters
Type	Command
Description	Copies all system configuration variables from working RAM to non-volatile memory. This command must be executed in order to retain setting changes during power cycling.
Syntax	SAVE
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	DUMP FACTORYRESTORE LOAD
CANopen	1010h, sub-index 1

SDHACK

Definition	SDH Acknowledge
Type	
Description	Not intended for user unless instructed by Technical Support.
Syntax	
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	
Non-volatile	
See also	

SININIT

Definition	Sine/Cosine Calibration Command
Type	Command
Description	Activates a procedure that calibrates the resolver sine/cosine signals. The calibration serves to reduce harmonic errors in the resolver reading. The procedure averages resolver signals over several motor turns to determine the gain and offset correction. The progress of the procedure is reported by the SININITST command, and the resulting calibration gains and offsets are reported by SINPARAM.
Syntax	SININIT
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	FEEDBACKTYPE RESBW SININITMODE SININITST SINPARAM
CANopen	20BEh, sub-index 0

SININITMODE

Definition	Sine/Cosine Calibration Mode
Type	Variable (R/W)
Description	Enables/disables the automatic calibration of the resolver sine/cosine signals at power up.
Syntax	Read: SININITMODE Write: SININITMODE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Automatic calibration of resolver disabled 1 = Automatic calibration of resolver enabled
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	FEEDBACKTYPE RESBW SININITST SINPARAM
CANopen	20BFh, sub-index 0

SININITST

Definition	Sine/Cosine Calibration Status
Type	Variable (R)
Description	Reports the status of the resolver calibration procedure.
Syntax	SININIT
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Not started, or completed 1 = In progress 2 = Failed
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	FEEDBACKTYPE HWPOS RESBW SINPARAM SININITMODE
CANopen	20C0h, sub-index 0

SINPARAM

Definition	Sine/Cosine Calibration Parameters
Type	Variable (R)
Description	Returns the parameters that are used for calibration of the resolver sine and cosine signals. The parameters are in hexadecimal representation.
Syntax	SINPARAM
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	SINPARAM SININITST FEEDBACKTYPE
CANopen	20C1h , sub-index 0

ST

Definition	Drive Status Messages
Type	Variable (R)
Description	Returns detailed drive status messages.
Syntax	ST
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	ACTIVE FLT FLTHIST READY REMOTE SWEN
CANopen	2114h, sub-index 1

STALLTIME

Definition	Stall Time
Type	Variable (R/W)
Description	The minimum length of time at which a stall condition generates a stall fault. A stall condition occurs when $[I > \text{MICON T}]$ and $[I > 0.9 \times \text{ILIM}]$ and $[V < \text{STALLVEL}]$. A stall fault occurs whenever a stall condition persists for a duration greater than STALLTIME. The drive's 7-segment display shows F3 when a stall fault occurs.
Syntax	Read: STALLTIME Write: STALLTIME <value>
Firmware	1.3.2
Drive status	Enabled Disabled
Range	0 to 10000
Default value	0 = Fault inhibited
Unit	ms
Non-volatile	Yes
See also	STALLVEL

STALLVEL

Definition	Stall Velocity
Type	Variable (R/W)
Description	The velocity threshold for entering a stall condition. A stall condition occurs when $[I > \text{MICON}]$ and $[I > 0.9 \times \text{ILIM}]$ and $[V < \text{STALLVEL}]$. A stall fault occurs whenever a stall condition persists for a duration greater than STALLTIME.
Syntax	Read: STALLVEL Write: STALLVEL<value>
Firmware	1.3.2
Drive status	Enabled Disabled
Range	0 to VMAX
Default value	10.000 rpm
Unit	If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 = rps If UNITSROTVEL 1 = rpm If UNITSROTVEL 2 = deg/s If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = mm/s
Non-volatile	Yes
See also	STALLTIME

STAT

Definition	Drive Status Summary Word
Type	Command
Description	Outputs a drive status summary word.
Firmware	1.0.6
Syntax	STAT
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Hexadecimal
Non-volatile	No
Example	-->stat H0023 -->
See also	ST STATUS

STATUS

Definition	Drive Status Detail Words
Type	Command
Description	Outputs a series of drive status summary words.
Syntax	STATUS
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Hexadecimal
Non-volatile	No
Example	-->status H0009 H00000000000060800 H00C0 H0000 H0000 H0000 -->
See also	ST STAT

STEP

Definition	Step Command
Type	Command
Description	Generates a step or square wave velocity command. This command is similar to the J command, but allows repetition of STEP to create a square wave velocity command.
Syntax	STEP { <i>duration1</i> } { <i>velocity1</i> } [<i>duration2</i> <i>velocity2</i>]
Firmware	1.0.6
Drive status	Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	<i>Duration</i> = ms <i>Velocity</i> = If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 =rps If UNITSROTVEL 1 =rpm If UNITSROTVEL 2 =deg/s If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = mm/s
Non-volatile	Not Applicable
See also	ACC J OPMODE RECORD STOP VLIM

STOP

Definition	Stop Motion Command
Type	Command
Description	Stops motion in OPMODE 0 (J and STEP commands) and OPMODE 2 (T command). Unlike the K command, the drive is not disabled using the STOP command. In OPMODE 1 or 3, STOP is ignored.
Syntax	STOP
Firmware	1.0.6
Drive status	Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	DEC DECSTOP J STEP

STOPPED

Definition	Position Motion Ended
Type	Variable (R)
Description	Reports whether the position profile generated by MOVEINC and MOVEABS has been completed, therefore allowing the next command to be issued.
Syntax	STOPPED
Firmware	1.0.6
Drive status	Enabled Disabled
Range	-1 = Movement was interrupted (e.g., due to Disable) 0 = Not completed 1 = Profile completed 2 = Profile completed and drive is in position (INPOS)
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	HOLD PEINPOS PEMAX PTPVCMD V VCMD
CANopen	2116h, sub-index 0

SWEN

Definition	Software Enable Status
Type	Variable (R)
Description	Indicates the state of software enable. This condition can be toggled using the EN an K commands.
Syntax	SWEN
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Software enable switch disabled (K command has been issued) 1 = Software enable switch enabled (EN command has been issued)
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	ACTIVE EN FLT K READY REMOTE ST SWENMODE
CANopen	20A2h, sub-index 0

SWENMODE

Definition	Software Enable on Power-Up
Type	Variable (R/W)
Description	Gets/sets the state of the Software Enable switch when the drive is powered up. SWENMODE is applicable only for drives using CANopen and EtherCAT communication (COMMODE=1). SWENMODE is not applicable for drives using serial communication (COMMODE=0).
Syntax	Read: SWENMODE Write: SWENMODE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Software Enable is off at power-up 1 = Software Enable is on at power-up
Default value	0
Unit	Not applicable
Non-volatile	Yes
See also	ACTIVE COMMODEEN READY SWEN

SYNCSOURCE

Definition	Synchronization Mode
Type	Variable (R/W)
Description	Sets the method used to synchronize the drive clock to an external sync signal.
Syntax	Read: SYNCSOURCE Write: SYNCSOURCE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Disabled; no sync 1 = Sync drive clock to controller based on fast digital input 5 2 = Sync drive clock to controller based on fast digital input 6 3 = Sync drive clock based on pulse differential input (Pulse & Direction) 4 = Sync signal source is pulse input from Machine I/F 5 = Sync signal source is EtherCAT 6 = Sync signal source is CANopen
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	INMODE
CANopen	20C2h, sub-index 0

T

Definition	Current Command
Type	Command
Description	Sets the current in OPMODE 2 (serial current mode). This command is subject to current limits, clamps, and digital filtering, and it is set to zero whenever the drive is enabled or disabled. The commands STOP and K, and changing the operating mode, also zero the value of T.
Syntax	T Queries the command T <i>current</i> [<i>duration</i>]
Firmware	1.0.6
Drive status	Enabled
Range	Not Applicable
Default value	Not Applicable
Unit	current = A (peak) duration = ms
Non-volatile	Not Applicable
See also	I ICMD ILIM OPMODE
CANopen	6071h, sub-index 0

TF

Definition	Tracking Factor
Type	Variable (R/W)
Description	Gets/sets the derivative factor for tracking with PDFF velocity controller. 0 = No derivative factor 100 = Derivative factor to match bandwidth and not overshoot. 200 = Derivative factor to match PI control; may overshoot. Intermediate values are interpolated.
Syntax	Read: TF Write: TF <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 200
Default value	100
Unit	%
Non-volatile	Yes
See also	BW LMJR MJ VELCONTROLMODE
CANopen	20C3h, sub-index 0

THERM

Definition	Motor Over-Temperature
Type	Variable (R)
Description	The state of the motor thermostat input, which indicates whether an over-temperature condition exists.
Syntax	Read: THERM Write: THERM <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Thermostat input closed (normal) or ignored (THERMODE 3). 1 = Thermostat input open, indicating overheating
Default value	Not Applicable
Unit	Not applicable
Non-volatile	No
See also	THERMODE THERMREADOUT THERMTRIPLELEVEL THERMCLEARLEVEL THERMTIME THERMTYPE
CANopen	20C4h , sub-index 0

THERMCLEARLEVEL

Definition	Motor Over-Temperature Clear Fault Level
Type	Variable (R/W)
Description	Indicates the motor over-temperature fault level clearing.
Syntax	THERMCLEARLEVEL THERMCLEARLEVEL <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 1000000
Default value	100
Unit	Ohm
Non-volatile	Yes
See also	THERMODE THERMTRIPLEVEL
CANopen	20C5h, sub-index 0

THERMODE

Definition	Motor Over-Temperature Mode
Type	Variable (R/W)
Description	Gets/sets a value that defines how the drive will respond to an over-temperature fault.
Syntax	Read: THERMODE Write: THERMODE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Disable drive immediately. 3 = Ignore thermostat input. 4 = Issue warning only. 5 = Issue warning; if condition persists after THERMTIME, issue fault.
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	THERM THERMCLEARLEVEL THERMREADOUT THERMTIME THERMTRIPLEVEL THERMTYPE
CANopen	20C6h , sub-index 0

THERMREADOUT

Definition	Motor Temperature
Type	Variable (R)
Description	Indicates the value of the motor temperature.
Syntax	THERMREADOUT
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Ohm
Non-volatile	No
See also	THERM THERMODE THERMTIME THERMTYPE
CANopen	20C7h , sub-index 0

THERMTIME

Definition	Motor Over-Temperature Time
Type	Variable (R/W)
Description	Gets/sets the number of seconds the drive will wait after motor over-temperature detection before it opens the fault relay.
Syntax	Read: THERMTIME Write: THERMTIME <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 300
Default value	30
Unit	second
Non-volatile	Yes
See also	THERM THERMODE THERMREADOUT THERMTYPE
CANopen	20C8h, sub-index 0

THERMTRIPLEVEL

Definition	Motor Over-Temperature Fault Level
Type	Variable (R/W)
Description	Indicates the motor over-temperature fault level.
Syntax	THERMTRIPLEVEL
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 1000000
Default value	150
Unit	Ohm
Non-volatile	Yes
See also	THERMCLEARLEVEL THERMODE
CANopen	20C9h, sub-index 0

THERMTYPE

Definition	Motor Over-Temperature Type
Type	Variable (R/W)
Description	Gets/sets the value that indicates the type of motor temperature sensor.
Syntax	Read: THERMTYPE Write: THERMTYPE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Positive temperature coefficient (PTC) 1 = Negative temperature coefficient (NTC)
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	THERM THERMODE THERMREADOUT THERMTIME
CANopen	20CAh , sub-index 0

TMTEMP

Definition	Tamagawa Temperature
Type	Variable (R)
Description	Indicates the temperature of the Tamagawa encoder.
Syntax	TMTEMP
Firmware	1.2.12
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	°C
Non-volatile	No
See also	

TMTURNRESET

Definition	Tamagawa Multi-Turn Reset
Type	Command
Description	Resets the counter of a Tamagawa multi-turn encoder
Syntax	TMTURNRESET
Firmware	1.2.12
Drive status	Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Not Applicable
See also	FEEDBACKTYPE MENCTYPE
CANopen	20CBh, sub-index 0

TRUN

Definition	Run Time
Type	Variable (R)
Description	A counter that reports the total elapsed runtime of the drive (in both enabled and disabled state) since production. Cannot be reset.
Syntax	TRUN
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	hours:minutes:seconds
Non-volatile	No
See also	DRIVENAME
CANopen	20CCh, sub-index 0

UNITSLINACC

Definition	Units Linear Acc/Dec
Type	Variable (R/W)
Description	Gets/sets a value that defines the units of acceleration and deceleration variables in a linear system.
Syntax	Read: UNITSLINACC Write: UNITSLINACC <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	1 = mm/s ²
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	MOTORTYPE UNITSLINPOS UNITSLINVEL UNITSROTACC
CANopen	2117h , sub-index 0

UNITSLINPOS

Definition	Units Linear Position
Type	Variable (R/W)
Description	Gets/sets a value that defines the units of position variables in a linear system.
Syntax	Read: UNITSLINPOS Write: UNITSLINPOS <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = pitch (motor cycles) 1 = count (pulses per revolution - PPR lines) 3 = mm
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	MOTORTYPE UNITSLINACC UNITSLINVEL UNITSROTPOS
CANopen	2118h , sub-index 0

UNITSLINVEL

Definition	Units Linear Velocity
Type	Variable (R/W)
Description	Gets/sets a value that defines the units of velocity variables in a linear system.
Syntax	Read: UNITSLINVEL Write: UNITSLINVEL <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	1 = mm/s
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	MOTORTYPE UNITSLINACC UNITSLINPOS UNITSROTVEL
CANopen	2119h , sub-index 0

UNITSROTACC

Definition	Units Rotary Acc/Dec
Type	Variable (R/W)
Description	Gets/sets a value that defines the units of acceleration and deceleration variables in a rotary system.
Syntax	Read: UNITSROTACC Write: UNITSROTACC <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = rps/s 1 = rpm/s 2 = deg/s ²
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	ACC DEC DECSTOP UNITSROTPOS UNITSROTVEL
CANopen	211Ah, sub-index 0

UNITSROTPOS

Definition	Units Rotary Position
Type	Variable (R/W)
Description	Gets/sets a value that defines the units of position variables in a rotary system.
Syntax	Read: UNITSROTPOS Write: UNITSROTPOS <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = (rev) Motor revolutions 1 = (count) Motor feedback counts, multiplied as follows: • Incremental motor feedback = multiplied by 4 (quad) • Resolver motor feedback = multiplied by MRESPOLES • Sine motor feedback = multiplied by 4 and the interpolation level of the sine encoder 2 = (deg) Degrees
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	UNITSROTACC UNITSROTVEL
CANopen	211Bh, sub-index 0

UNITSROTVEL

Definition	Units Rotary Velocity
Type	Variable (R/W)
Description	Gets/sets a value that defines the units of velocity variables in a rotary system.
Syntax	Read: UNITSROTVEL Write: UNITSROTVEL <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = rps 1 = rpm 2 = deg/s
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	UNITSROTACC UNITSROTPOS V VCMD
CANopen	211Ch, sub-index 0

UVMODE

Definition	Under-Voltage Mode
Type	Variable (R/W)
Description	Gets/sets a value that defines how the drive will respond to an under-voltage fault.
Syntax	Read: UVMODE Write: UVMODE <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Latches fault immediately. 1 = Shows warning only (when disabled, does not display warning). 2 = Shows warning, then waits UVTIME before the fault is latched (when disabled, does not display warning). 3 = Fault only if under-voltage exists and drive is enabled.
Default value	0
Unit	Not Applicable
Non-volatile	Yes
See also	UVRECOVER UVTHRESH UVTIME VBUS VBUSREADOUT
CANopen	20CDh, sub-index 0

UVRECOVER

Definition	Under-Voltage Recovery Mode
Type	Variable (R/W)
Description	Gets/sets a value that defines how the drive will recover from an under-voltage fault.
Syntax	Read: UVRECOVER Write: UVRECOVER <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 = Recovers by toggling drive from disable to enable condition after the under-voltage condition clears. 1 = Automatically recovers when the under-voltage condition clears.
Default value	0
Unit	Not applicable
Non-volatile	Yes
See also	UVMODE UVTHRESH UVTIME VBUS VBUSREADOUT
CANopen	20CEh, sub-index 0

UVTHRESH

Definition	Under-Voltage Threshold
Type	Variable (R/W)
Description	Gets/set the level for detection of an under-voltage condition.
Syntax	Read: UVTHRESH Write: UVTHRESH <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Hardware defined
Default value	Hardware defined
Unit	V
Non-volatile	Yes
See also	UVMODE UVRECOVER UVTIME VBUS VBUSREADOUT
CANopen	20CFh, sub-index 0

UVTIME

Definition	Under-Voltage Time
Type	Variable (R/W)
Description	Gets/sets the amount of time that an under-voltage warning will be displayed ("u") before it is latched in UVMODE 2. In UVMODE 3, the time begins when the drive is enabled.
Syntax	Read: UVTIME Write: UVTIME <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	0 to 300
Default value	30
Unit	second
Non-volatile	Yes
See also	UVMODE UVRECOVER UVTHRESH VBUS VBUSREADOUT
CANopen	20D0h , sub-index 0

V

Definition	Velocity
Type	Variable (R)
Description	Indicates the velocity of the motor measured by the primary feedback.
Syntax	V
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 = rps If UNITSROTVEL 1 = rpm If UNITSROTVEL 2 = deg/s If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = mm/s
Non-volatile	No
See also	UNITSROTVEL VCMD
CANopen	606Ch, sub-index 0

VBUS

Definition	Bus Voltage (DC)
Type	Variable (R/W)
Description	Gets/sets the drive bus voltage, used for current controller design. VBUS also affects the value of VMAX. When the value of VBUS is changed, CONFIG is required.
Syntax	Read: VBUS Write: VBUS <value>
Firmware	1.0.6
Drive status	Disabled
Range	10 to 850
Default value	320
Unit	V
Non-volatile	Yes
See also	OVTHRESH UVMODE UVTHRESH VBUSREADOUT
CANopen	20D1h , sub-index 0

VBUSREADOUT

Definition	Bus Voltage Measured
Type	Variable (R)
Description	Indicates the bus voltage measured by sensors on the power module.
Syntax	Read: VBUSREADOUT Write: VBUSREADOUT <value>
Firmware	1.0.6
Drive status	Disabled
Range	HW defined
Default value	Not Applicable
Unit	V
Non-volatile	No
See also	OVTHRESH UVMODE UVTHRESH VBUS
CANopen	6079h , sub-index 0

VCMD

Definition	Velocity Command
Type	Variable (R)
Description	Indicates the velocity command generated either directly (serial or analog), or as the output of the position controller.
Syntax	VCMD
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 = rps If UNITSROTVEL 1 = rpm If UNITSROTVEL 2 = deg/s If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = mm/s
Non-volatile	No
See also	OPMODE UNITSROTVEL V
CANopen	606Bh, sub-index 0

VD

Definition	Advanced Pole Placement D Polynomial
Type	Variable (R)
Description	Not intended for user unless instructed by Technical Support. D-polynomial extended velocity controller.
Syntax	VD
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Yes
See also	VELCONTROLMODE VF VH VR

VE

Definition	Velocity Error
Type	Variable (R)
Description	The velocity error of velocity loop
Syntax	VE
Firmware	1.2.12
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 = rps If UNITSROTVEL 1 = rpm If UNITSROTVEL 2 = deg/s If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = mm/s
Non-volatile	No
See also	
CANopen	20D3h, sub-index 0

VELCONTROLMODE

Definition	Velocity Loop Controller
Type	Variable (R/W)
Description	Gets/sets a value that defines the type of velocity loop controller.
Syntax	Read: VELCONTROMODE Write: VELCONTROMODE <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 = PI controller (uses KVP, KVI) 1 = PDFF controller (uses KVP, KVI, KVFR) 2 = Standard pole placement controller (uses MJ, MKT, BW, LMJR, TF) 3 = Extended polynomial controller (uses VR, VD, VH, VF) 4 = High frequency pole placement controller (uses MJ, MKT, BW, LMJR, TF) 5 = HD velocity control with integrator (KNLI, KNLIV) 6 = HD velocity control without integrator
Default value	0
Unit	Not applicable
Non-volatile	Yes
See also	FILTMODE
CANopen	20D4h, sub-index 0

VELCONTROLOUT

Definition	Velocity Loop Controller Output
Type	
Description	Not intended for user unless instructed by Technical Support.
Syntax	
Firmware	1.4.4
Drive status	
Range	
Default value	
Unit	
Non-volatile	
See also	

VELDESIGN

Definition	Velocity Design Conversion
Type	Variable (R)
Description	Not intended for user unless instructed by Technical Support. Returns a conversion of the internal velocity controller as set by one of the standard velocity control modes to a general extended polynomial controller structure. Applicable only to standard cascaded position controller (POSCTRLMODE 0).
Syntax	VELDESIGN
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
Example	<pre>-->veldesign VD = 0 0 0 0 0 32767 VH = 31644 20 0 0 0 0 0 0 VR = 31644 20 0 0 0 0</pre>
See also	FILTMODE POSCTRLMODE VD VELCTRLMODE VF VH VR
CANopen	20D5h, sub-index 0

VELFILTRQ

Definition	Velocity Filter Pole Frequency
Type	Variable (R/W)
Description	When VELFILTMODE=1, sets the first order filter, which is applied to the velocity feedback signal before applying the velocity controller.
Syntax	VELFILTMODE <value>
Firmware	1.3.2
Drive status	Disabled
Range	20 to 500
Default value	440
Unit	Hz
Non-volatile	Yes
See also	
CANopen	211Dh, sub-index 0

VELFILTMODE

Definition	Velocity Filter Mode
Type	Variable (R/W)
Description	Gets/sets the type of filter that is used for extraction of a velocity signal from the position feedback.
Syntax	Read: VELFILTMODE Write: VELFILTMODE <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 = No filter 1 = First order filter 2 = Observer type I 3 = Observer type II
Default value	1
Unit	Not Applicable
Non-volatile	Yes
See also	FILTMODE V VELCONTROLMODE
CANopen	20D6h, sub-index 0

VEMAX

Definition	Maximum Velocity Error
Type	Variable (R/W)
Description	Maximum allowed velocity error without producing a fault.
Syntax	Read: VEMAX Write: VEMAX <value>
Firmware	1.4.4
Drive status	Enabled Disabled
Range	0 to 6000 [rpm]
Default value	0
Unit	If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 = rps If UNITSROTVEL 1 = rpm If UNITSROTVEL 2 = deg/s If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = mm/s
Non-volatile	Yes
See also	PEMAX VLIM

VER

Definition	Drive Version
Type	Variable (R)
Syntax	VER
Description	Displays the firmware version.
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	No
See also	INFO
CANopen	20D7h, sub-index 0

VF

Definition	Velocity Loop Output Filter
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. User defined velocity loop output filter. Requires FILTMODE 6. or controller output filter in VELCONTROLMODE 3).
Syntax	Read: VF Write: VF 1 0 0 0 0 0 0
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	1 0 0 0 0 0 0
Unit	Not applicable
Non-volatile	Yes
See also	FILTMODE VD VELCONTROLMODE VH VR
CANopen	20D8h, sub-index 1

VFI

Definition	Velocity Loop Input Filter
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. User defined velocity loop input filter.
Syntax	Read: VFI Write: VFI 1 0 0 0 0 0 0
Firmware	1.2.12
Drive status	Disabled
Range	Not Applicable
Default value	1 0 0 0 0 0 0
Unit	Not Applicable
Non-volatile	Yes
See also	
CANopen	20D9h, sub-index 1

VH

Definition	Advanced Pole Placement H Polynomial
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. Extended velocity controller H-polynomial.
Syntax	Read: VH Write: VH <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not applicable
Non-volatile	Yes
See also	VD VELCONTROLMODE VF VR
CANopen	20DAh, sub-index 1

VLIM

Definition	User Velocity Limit
Type	Variable (R/W)
Description	Gets/sets the application velocity limit, allowing the user to limit the motor's peak velocity. VLIM limits the velocity command that will be accepted from the user (using the J command in OPMODE 0) or issued by the control loops (in OPMODE 1). VLIM is an independent variable that is not calculated from hardware parameters and is not tied to any other variables. VLIM is similar to ILIM (used in OPMODE 2 and OPMODE 3) and can be used to protect delicate load equipment. When the value of VLIM is changed, CONFIG is required.
Syntax	Read: VLIM Write: VLIM <value>
Firmware	1.0.6
Drive status	Disabled
Range	0 to VMAX
Default value	If MOTORTYPE 0 (Rotary): UNITSROTVEL 0 = 16.667 UNITSROTVEL 1 = 1000.000 UNITSROTVEL 2 = 6000.000 If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = 533.333
Unit	If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 = rps If UNITSROTVEL 1 = rpm If UNITSROTVEL 2 = deg/s If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = mm/s
Non-volatile	Yes
See also	MSPEED VMAX
CANopen	607Fh, sub-index 0

VMAX

Definition	Maximum Velocity
Type	Variable (R)
Description	Displays the maximum velocity for a drive and motor combination. VMAX is based on maximum motor speed.
Syntax	VMAX
Firmware	1.0.6
Drive status	Enabled Disabled
Range	10 to MSPEED
Default value	If MOTORTYPE 0 (Rotary): UNITSROTVEL 0 = 161.166 UNITSROTVEL 1 = 9669.946 UNITSROTVEL 2 = 58019.675 If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = 5157.304
Unit	If MOTORTYPE 0 (Rotary): If UNITSROTVEL 0 = rps If UNITSROTVEL 1 = rpm If UNITSROTVEL 2 = deg/s If MOTORTYPE 2 (Linear): UNITSLINVEL 1 = mm/s
Non-volatile	No
See also	MKT MSPEED VBUSVLIM
CANopen	20EEh, sub-index 0

VR

Definition	Advanced Pole Placement R Polynomial
Type	Variable (R/W)
Description	Not intended for user unless instructed by Technical Support. Extended velocity controller R-polynomial.
Syntax	Read: VR Write: VR <value>
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not Applicable
Default value	Not Applicable
Unit	Not Applicable
Non-volatile	Yes
See also	VELCONTROLMODE
CANopen	20DBh, sub-index 1

WNSERR

Definition	Wake No Shake
Type	Variable (R)
Description	Not intended for user unless instructed by Technical Support. PHASEFINDMODE 2 state.
Syntax	WNSERR
Firmware	1.0.6
Drive status	
Range	
Default value	
Unit	
Non-volatile	No
See also	PHASEFIND PHASEFINDMODE PHASEFINDST
CANopen	20DCh, sub-index 0

WRN

Definition	Display Warnings
Type	Variable (R)
Description	Lists the warnings that have occurred since the buffer was last cleared.
Syntax	WRN
Firmware	1.0.6
Drive status	Enabled Disabled
Range	Not applicable
Default value	Not applicable
Unit	Not applicable
Non-volatile	Not applicable
Example	<pre><--wrn WRN 7 Encoder init: Halls switch not found WRN 8 Encoder init: Index not detected <--</pre>
See also	FLT FLTHIST
CANopen	20DDh, sub-index 0

XENCRES

Definition	External Encoder Resolution
Type	Variable (R/W)
Description	Gets/sets the resolution of the external encoder, in number of pulses per revolution. For sine encoder, gets/sets the number of sine cycles per revolution of the motor.
Syntax	Read: XENCRES Write: XENCRES <value>
Firmware	1.0.6
Drive status	Disabled
Range	100 to 10000000
Default value	2048
Unit	MOTORTYPE=0 (Rotary): lines per revolution (LPR) MOTORTYPE=2 (Linear): lines per pitch (LPP)
Non-volatile	Yes
See also	GEARIN GEARMODE GEAROUT
CANopen	20DEh, sub-index 0

ZERO

Definition	Zeroing Mode
Type	Command
Description	Enables and disables the resolver/encoder Zeroing mode. If Zeroing mode is enabled, the drive rotates and locks the motor at an electrical null by placing IZERO current from motor terminal V to terminal W.
Syntax	ZERO {0 1}
Firmware	1.0.6
Drive status	Disabled
Range	0 = Disables Zeroing mode 1 = Enables Zeroing mode (activates OPMODE 2)
Default value	0
Unit	Not Applicable
Non-volatile	Not applicable
See also	FEEDBACKTYPE MPOLES PHASEFIND
CANopen	20DFh, sub-index 0

ZEROST

Definition	Zeroing Phase Offset (MPHASE)
Type	Variable (R)
Description	After running ZERO command and entering the zeroing mode, querying ZEROST returns the value of MPHASE that should be set for proper commutation. This may be useful for cases that MOTORSETUP is unsuccessful. The accuracy of the commutation which is initialized this way depends on the load and friction of the system
Syntax	ZEROST
Firmware	1.4.4
Drive status	Enabled
Range	Not Applicable
Default value	Not Applicable
Unit	Electrical degree
Non-volatile	No
See also	MOTORSETUP MPHASE ZERO



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