



# LVD Digital Servo Drive

## VarCom Reference Manual

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## Revision History

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Hardware Revision	Firmware Revision	Software Revision	Remarks
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## Contact Information

Servotronix Motion Control Ltd.  
 21C Yagia Kapayim Street  
 Petach Tikva 49130 Israel  
 Tel: +972 (3) 927 3800  
 Fax: +972 (3) 922 8075  
 Website: [www.servotronix.com](http://www.servotronix.com)  
 Email: [info@servotronix.com](mailto:info@servotronix.com)

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# Contents

<b>1 Introduction</b>	<b>1</b>
About This Manual	1
Documentation Set for the LVD	1
Manual Format	1
<b>2 Variables and Commands</b>	<b>3</b>
ACC	3
ACCLIM	4
ACTIVE	5
ANIN1 – ANIN2	6
ANOFF1 – ANOFF2	7
ANZERO	8
CLREEPROM	9
CLRFLT	10
CLRHST	11
CONFIG	12
DADD	13
DEC	14
DECSTOP	15
DIFFENC	16
DIN1 – DIN6	17
DINFUNC1 – DINFUNC6	18
DINPOL1 – DINPOL6	19
DOUT1 – DOUT2	20
DOUTFUNC1 – DOUTFUNC2	21
DOUTPOL1 – DOUTPOL2	22
DOUTWINHI1 – DOUTWINHI2	23
DOUTWINLO1 – DOUTWINLO2	24
DRIVETEMP	25
DUMP	26
ECHO	27
EN	28
FLT	29
FLTHST	30
GET	31
HALLS	32
HOME	33
HOMEACC	34
HOMED	35
HOMEOFF	36
HOMETYPE	37
HOMEVELFAST	38
HOMEVELSLOW	39
I	40
I2T	41
I2TLIM	42
IA	43
IB	44
IC	45
IAOFF	46
IBOFF	47
ICMD	48
ICOFF	49
ICONT	50

---

IGD .....	51
IGI .....	52
IGP.....	53
IGZ.....	54
IMAX.....	55
INPOS.....	56
ISAT .....	57
ISCALE.....	58
J.....	59
K.....	60
LINMENCRES .....	61
LIST.....	62
LOAD .....	63
LOADDEFAULT .....	64
MA.....	65
MEM .....	66
MEMU .....	67
MEMUW.....	68
MEMW.....	69
MENCDIR.....	70
MENCRES .....	71
MENCTYPE.....	72
MI .....	73
MPHASE .....	74
MMPITCH.....	75
MPOLES .....	76
MSG .....	77
MTYPE.....	78
OPMODE.....	79
PARAMSLIST .....	80
PCMD .....	81
PDMAX .....	82
PE .....	83
PEINPOS .....	84
PEMAX .....	85
PFB.....	86
PGD.....	87
PGFFA.....	88
PGFFV.....	89
PGI.....	90
PGISATIN .....	91
PGP .....	92
PLIMNEG .....	93
PLIMPOS .....	94
POSLOOPOUT.....	95
PRD .....	96
PROMPT .....	97
PSTOP.....	98
PSTOPMODE .....	99
PTPST .....	100
PWMA .....	101
PWMB .....	102
PWMC .....	103
PWMFREQ.....	104
RECDONE .....	105
RECNUMPOINTS .....	106
RECOFF.....	107

---

RECORD .....	108
RECORDABLE .....	109
RECTRIG .....	110
REMOTE .....	111
RTCYCLE .....	112
SAVE .....	113
STARTTYPE .....	114
STAT .....	115
STOP .....	116
T .....	117
TIMEEN .....	118
TIMEON .....	119
V .....	120
VBUS .....	121
VBUSOV .....	122
VBUSUV .....	123
VCMD .....	124
VCRUISE .....	125
VELLOOPUT .....	126
VEMAX .....	127
VER .....	128
VGDF .....	129
VGDR .....	130
VGI .....	131
VGPF .....	132
VGPR .....	133
VLIM .....	134
VLPF .....	135
VOSPD .....	136
VSCALE .....	137





# 1 Introduction

## About This Manual

LVD 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 communication.

## Documentation Set for the LVD

- **LVD User Manual.** Hardware installation, configuration and operation.
- **LVD VarCom Reference Manual.** Parameters and commands used to program the LVD.
- **LVD CANopen Reference Manual.** LVD implementation of CiA 402 and 301 protocols.

## 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:

<b>Type</b>	<b>Variable (R/W):</b> A read/write variable. <b>Variable (R):</b> A read-only variable. <b>Command</b>
<b>Description</b>	Description of the command or variable.
<b>Syntax</b>	Variable parameters are italicized within < >. Commands are described using the following conventions: <b>[ ]</b> Indicates an <b>optional</b> parameter. <b>{ }</b> Enclose two or more <b>required</b> alternative choices, separated by vertical bars. <b> </b> A vertical bar separates two or more choices, either required arguments enclosed in braces { } or optional arguments enclosed in brackets [ ].
<b>Firmware</b>	The earliest version, or specific versions, in which the described functionality is available.
<b>Drive status</b>	<b>Enabled   Disabled</b> Indicates the required state of the drive when the command or variable is issued or invoked.

<b>Range</b>	<p><b>String parameters</b> are based on the 8-bit ASCII character code set, which comprises 256 character codes, with code values from 0 to 255.</p> <p><b>Numeric parameters</b> are limited in their range. In many cases, these limits are imposed by the specific parameter. The following notations are used to indicate these limits:</p> <table border="1" data-bbox="584 412 1402 734"> <tr> <td data-bbox="584 412 831 488">Signed 32-bit variable (Long)</td> <td data-bbox="831 412 1046 488">MaxS32bit MinS32bit</td> <td data-bbox="1046 412 1402 488">Maximum: 2147483647 Minimum: -2147483647</td> </tr> <tr> <td data-bbox="584 488 831 564">Signed 16-bit variable (Short)</td> <td data-bbox="831 488 1046 564">MaxS16bit MinS16bit</td> <td data-bbox="1046 488 1402 564">Maximum: 32767 Minimum: -32767</td> </tr> <tr> <td data-bbox="584 564 831 640">Unsigned 32-bit variable (Long)</td> <td data-bbox="831 564 1046 640">MaxU32bit MinS32bit</td> <td data-bbox="1046 564 1402 640">Maximum: 4294967296 Minimum: 0</td> </tr> <tr> <td data-bbox="584 640 831 716">Unsigned 16-bit variable (Long)</td> <td data-bbox="831 640 1046 716">MaxU16bit MinU16bit</td> <td data-bbox="1046 640 1402 716">Maximum: 65536 Minimum: 0</td> </tr> </table> <p><b>Predefined constants:</b> Certain keywords, or constants, are used in place of an explicit numeric value when a parameter has a discrete or predefined range of values:  MaxCurrent: 16900  MaxBusVoltage: 60000  MinBusVoltage: 11500</p>	Signed 32-bit variable (Long)	MaxS32bit MinS32bit	Maximum: 2147483647 Minimum: -2147483647	Signed 16-bit variable (Short)	MaxS16bit MinS16bit	Maximum: 32767 Minimum: -32767	Unsigned 32-bit variable (Long)	MaxU32bit MinS32bit	Maximum: 4294967296 Minimum: 0	Unsigned 16-bit variable (Long)	MaxU16bit MinU16bit	Maximum: 65536 Minimum: 0
Signed 32-bit variable (Long)	MaxS32bit MinS32bit	Maximum: 2147483647 Minimum: -2147483647											
Signed 16-bit variable (Short)	MaxS16bit MinS16bit	Maximum: 32767 Minimum: -32767											
Unsigned 32-bit variable (Long)	MaxU32bit MinS32bit	Maximum: 4294967296 Minimum: 0											
Unsigned 16-bit variable (Long)	MaxU16bit MinU16bit	Maximum: 65536 Minimum: 0											
<b>Default value</b>	The parameter's default value.												
<b>Units</b>	When parameter values imply units of measure, these units are specified.												
<b>Non-volatile</b>	<p><b>Yes   No</b></p> <p>Indicates whether the value of the variable is stored in the non-volatile memory (EEPROM), and thereby available when the drive is rebooted.</p>												
<b>Example</b>	Examples of use.												
<b>See also</b>	Links to related commands and variables.												

## 2 Variables and Commands

### ACC

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the acceleration value for the point-to-point generator. The minimum acceleration value is 814/MENCRES [rpm/s], due to quantization and sample time limitations. If a value less than 814/MENCRES is set, the effective acceleration will be 814/MENCRES.
<b>Syntax</b>	ACC <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	1 – 130000
<b>Default value</b>	1000
<b>Units</b>	rpm/s
<b>Non-volatile</b>	Yes
<b>Example</b>	-->ACC 150 -->ACC 150
<b>See also</b>	<a href="#">ACCLIM</a> <a href="#">DEC</a>

## ACCLIM

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the maximum acceleration/ deceleration value. If the drive detects acceleration or deceleration that is a higher than the ACCLIM value, it will issue a fault. ACCLIM 0 disables this functionality.
<b>Syntax</b>	ACCLIM <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – 130000
<b>Default value</b>	0
<b>Units</b>	rpm/s
<b>Non-volatile</b>	Yes
<b>Example</b>	-->ACCLIM 150 -->ACCLIM 150
<b>See also</b>	<a href="#">ACC</a> <a href="#">DEC</a>

## ACTIVE

<b>Type</b>	Variable (R)
<b>Description</b>	Returns a value that indicates whether the drive is enabled or disabled.
<b>Syntax</b>	ACTIVE
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 = Drive is disabled 1 = Drive is enabled
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	No
<b>Example</b>	-->ACTIVE 1
<b>See also</b>	<a href="#">EN</a> <a href="#">FLTHST</a> <a href="#">K</a>

## ANIN1 – ANIN2

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the value of analog input 1 and 2, respectively. The analog inputs input can be used as an analog command for torque or velocity.
<b>Syntax</b>	ANIN1 ANIN2
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±20000
<b>Default value</b>	Not Applicable
<b>Units</b>	mV
<b>Non-volatile</b>	No
<b>Example</b>	-->ANIN1 3412
<b>See also</b>	<a href="#">ANOFF1 – ANOFF2</a> <a href="#">ANZERO</a>

## ANOFF1 – ANOFF2

<b>Type</b>	Variable (R/W)
<b>Description</b>	<p>Gets/sets a value that is added to the analog input to the drive, to compensate for offset in analog input 1 (ANIN1), or analog input 2 (ANIN2) signals.</p> <p>The value of ANOFF1 and ANOFF2 can be set automatically by ANZERO. The value of ANOFF1 and ANOFF2 can also be set manually, in which case it overwrites the ANZERO setting.</p>
<b>Syntax</b>	ANOFF1 <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±20000
<b>Default value</b>	11538
<b>Units</b>	mV
<b>Non-volatile</b>	Yes
<b>Example</b>	<pre>--&gt;ANOFF1 100 --&gt;ANOFF1 100</pre>
<b>See also</b>	<a href="#">ANIN1 – ANIN2</a> <a href="#">ANZERO</a>

## ANZERO

<b>Type</b>	Command
<b>Description</b>	Sets the analog offset (ANOFF1/2) to an average value of the drive analog input command, calculated over 64 samples, so that the current reading of the analog input (ANIN1/2) will return 0. Overwrites the ANOFF1/2 setting. After executing ANZERO, use SAVE to save the new value of ANOFF1/2.
<b>Syntax</b>	ANZERO {0 1}
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	1 = analog input 1 2 = analog input 2
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->ANIN1 50 -->ANZERO 1 -->ANIN1 0
<b>See also</b>	<a href="#">ANIN1 – ANIN2</a> <a href="#">ANOFF1 – ANOFF2</a>



## CLREEPROM

<b>Type</b>	Command
<b>Description</b>	<p>Clears the non-volatile memory (EEPROM) in the drive. All parameters in the EEPROM are set to 1, and the drive will boot up with an EEPROM fault.</p> <p>A complete drive configuration (CONFIG) must be performed before drive operation can resume.</p>
<b>Syntax</b>	CLREEPROM
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->CLREEPROM
<b>See also</b>	<a href="#">LOAD</a> <a href="#">SAVE</a>

## CLRFLT

<b>Type</b>	Command
<b>Description</b>	Attempts to clear faults in the drive. The faults will be cleared only if the fault condition has been resolved.
<b>Syntax</b>	CLRFLT
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->CLRFLT
<b>See also</b>	<a href="#">CLRHST</a> <a href="#">FLT</a> <a href="#">FLTHST</a>

## CLRHST

<b>Type</b>	Command
<b>Description</b>	Clears the list of faults (fault history) from the non-volatile memory (EEPROM).
<b>Syntax</b>	CLRHST
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->CLRHST
<b>See also</b>	<a href="#">CLRHST</a> <a href="#">FLT</a> <a href="#">FLTHST</a>

## CONFIG

<b>Type</b>	Command
<b>Description</b>	Configures the values of unit scaling and commutation according to MENCRES and HALLS.
<b>Syntax</b>	CONFIG
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->CONFIG
<b>See also</b>	<a href="#">MENCRES</a> <a href="#">MENCTYPE</a> <a href="#">HALLS</a>

## DADD

<b>Type</b>	Variable (R)
<b>Description</b>	Gets the value of the drive address for communication, as defined by the DIP switch.
<b>Syntax</b>	DADD
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	1 – 127
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	No
<b>Example</b>	-->DADD 14
<b>See also</b>	

## DEC

<b>Type</b>	Variable (R/W)
<b>Description</b>	<p>Gets/sets the deceleration value for the point-to-point generator.</p> <p>The minimum deceleration value is 814/MENCRES [rpm/s], due to quantization and sample time limitations. If a value less than 814/MENCRES is set, the effective deceleration will be 814/MENCRES.</p>
<b>Syntax</b>	DEC <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	1 – 130000
<b>Default value</b>	1000
<b>Units</b>	rpm/s
<b>Non-volatile</b>	Yes
<b>Example</b>	-->DEC 150 -->DEC 150
<b>See also</b>	<a href="#">ACC</a> <a href="#">ACCLIM</a>

## DECSTOP

<b>Type</b>	Variable (R/W)
<b>Description</b>	<p>Gets/sets the deceleration value for STOP.</p> <p>If DECSTOP is less than DEC, DEC will be used in the STOP command.</p> <p>DECSTOP is used by drive commands that require a faster than usual stop. The DECSTOP value is used instead of DEC for end-travel limits and for STOP commands.</p> <p>In torque mode, DEC and DECSTOP parameters are not used, and the torque command is set to 0.</p> <p>The minimum DECSTOP value is <math>814/\text{MENCRES}</math> [rpm/s], due to quantization and sample time limitations.</p>
<b>Syntax</b>	DECSTOP <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	1 - 130000
<b>Default value</b>	10000
<b>Units</b>	rpm/s
<b>Non-volatile</b>	Yes
<b>Example</b>	<pre>--&gt;DEC 154 --&gt;DEC 154</pre>
<b>See also</b>	<a href="#">DEC</a> <a href="#">STOP</a>

## DIFFENC

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the encoder type. <b>Note:</b> For single-ended encoders, line break detection is not available.
<b>Syntax</b>	DIFFENC < <i>boolean</i> >
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 = Single-ended encoder 1 = Differential encoder
<b>Default value</b>	0
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes
<b>Example</b>	-->DIFFENC 1 -->DIFFENC 1
<b>See also</b>	<a href="#">MENCDIR</a> <a href="#">MENCRES</a> <a href="#">MENCTYPE</a>



## DIN1 – DIN6

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the state of digital inputs 1, 2, 3 4, 5 and 6, respectively.
<b>Syntax</b>	DIN1 DIN2 DIN3 DIN4 DIN5 DIN6
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 = Off 1 = On
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->IN1 1
<b>See also</b>	<a href="#">DINFUNC1 – DINFUNC6</a> <a href="#">DINPOL1 – DINPOL6</a>

## DINFUNC1 – DINFUNC6

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the functionality of digital inputs 1, 2, 3, 4, 6 and 6, respectively.
<b>Syntax</b>	DINFUNC1 <value> DINFUNC2 <value> DINFUNC3 <value> DINFUNC4 <value> DINFUNC5 <value> DINFUNC6 <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 = Disabled 1 = General 2 = Homing 3 = Positive limit switch 4 = Negative limit switch 5 = Remote enable
<b>Default value</b>	0
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes
<b>Example</b>	-->DINFUNC1 2 -->DINFUNC1 2
<b>See also</b>	<a href="#">DIN1 – DIN6</a> <a href="#">DINPOL1 – DINPOL6</a>

## DINPOL1 – DINPOL6

<b>Type</b>	Variable (R/W)
<b>Description</b>	Inverts the polarity of digital inputs 1, 2, 3, 4, 5 and 6, respectively.
<b>Syntax</b>	DINPOL1 <boolean> DINPOL2 <boolean> DINPOL3 <boolean> DINPOL4 <boolean> DINPOL5 <boolean> DINPOL6 <boolean>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 = Polarity inverted 1 = Polarity not inverted
<b>Default value</b>	1
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes   No
<b>Example</b>	-->DINPOL1 0 -->DIN1 1 -->DINPOL1 1 -->DIN1 0
<b>See also</b>	<a href="#">DIN1 – DIN6</a> <a href="#">DINFUNC1 – DINFUNC6</a>

## DOUT1 – DOUT2

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the current state of digital outputs 1 and 2, respectively
<b>Syntax</b>	DOUT1 < <i>boolean</i> > DOUT2 < <i>boolean</i> >
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 = Off 1 = On
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes
<b>Example</b>	-->DOUT1 0 -->DOUT1 1 -->DOUT1 1
<b>See also</b>	<a href="#">DOUTFUNC1 – DOUTFUNC2</a> <a href="#">DOUTPOL1 – DOUTPOL2</a>

## DOUTFUNC1 – DOUTFUNC2

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the functionality of digital outputs 1 and 2, respectively.
<b>Syntax</b>	DOUTFUNC1 <value> DOUTFUNC2 <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	<p>0 = The digital output is always low.</p> <p>1 = If the velocity value is greater than DOUTWINLO, the output is set to high.</p> <p>2 = If the current value is greater than DOUTWINLO, the output is set to high.</p> <p>3 = Reserved</p> <p>4 = If the velocity value is less than DOUTWINHI and greater than DOUTWINLO, the output is set to high.</p> <p>5 = Reserved</p> <p>6 = Motion Completed. Set according to STARTTYPE. Output is set to high when STARTTYPE condition is met.</p> <p>7 = In Position. Set according to INPOS.</p> <p>8 = Zero Speed. If the velocity absolute value is less than or equal to DOUTWINLO, the output is set to high.</p> <p>9 = Soft Position Limit. If the position value is less than DOUTWINHI and greater than DOUTWINLO, the output is set to high.</p> <p>10 = Active. Set according to ACTIVE.</p> <p>11 = Reserved.</p> <p>12 = Reserved</p> <p>13 = Set according to the value set in DOUT.</p>
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes
<b>Example</b>	-->DOUTFUNC1 2
<b>See also</b>	<a href="#">ACTIVE</a> <a href="#">DOUT1 – DOUT2</a> <a href="#">DOUTPOL1 – DOUTPOL2</a> <a href="#">DOUTWINHI1 – DOUTWINHI2</a> <a href="#">DOUTWINLO1 – DOUTWINLO2</a> <a href="#">INPOS</a> <a href="#">STARTTYPE</a>

## DOUTPOL1 – DOUTPOL2

<b>Type</b>	Variable (R/W)
<b>Description</b>	Inverts the polarity of digital outputs 1 and 2, respectively.
<b>Syntax</b>	DOUTPOL1 < <i>boolean</i> > DOUTPOL2 < <i>boolean</i> >
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 = Polarity inverted 1 = Polarity not inverted
<b>Default value</b>	1
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes
<b>Example</b>	-->DOUTPOL1 0 -->DOUT1 1 -->DOUTPOL1 1 -->DOUT1 0
<b>See also</b>	<a href="#">DOUT1 – DOUT2</a> <a href="#">DOUTFUNC1 – DOUTFUNC2</a> <a href="#">DOUTWINHI1 – DOUTWINHI2</a> <a href="#">DOUTWINLO1 – DOUTWINLO2</a>

## DOUTWINHI1 – DOUTWINHI2

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the value for the upper limit of digital outputs 1 and 2, respectively. DOUTWINHI1 is used by DOUTFUNC1. DOUTWINHI2 is used by DOUTFUNC2.
<b>Syntax</b>	DOUTWINHI1 <value> DOUTWINHI2 <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS32bit
<b>Default value</b>	0
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes
<b>Example</b>	-->DOUTWINHI1 0
<b>See also</b>	<a href="#">DOUT1 – DOUT2</a> <a href="#">DOUTPOL1 – DOUTPOL2</a> <a href="#">DOUTFUNC1 – DOUTFUNC2</a> <a href="#">DOUTWINLO1 – DOUTWINLO2</a>

## DOUTWINLO1 – DOUTWINLO2

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the value for the lower limit of digital outputs 1 and 2, respectively. DOUTWINLO1 is used by DOUTFUNC1. DOUTWINLO2 is used by DOUTFUNC2.
<b>Syntax</b>	DOUTWINLO1 <value> DOUTWINLO2 <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS32bit
<b>Default value</b>	0
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes
<b>Example</b>	-->DOUTWINLO1 0
<b>See also</b>	<a href="#">DOUT1 – DOUT2</a> <a href="#">DOUTPOL1 – DOUTPOL2</a> <a href="#">DOUTFUNC1 – DOUTFUNC2</a> <a href="#">DOUTFUNC1 – DOUTFUNC2</a> <a href="#">DOUTWINLO1 – DOUTWINLO2</a>



## DRIVETEMP

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the value of the drive power board temperature, in Celsius degrees. The drive generates a temperature fault when DRIVETEMP is below 30°C or above 90°C.
<b>Syntax</b>	DRIVETEMP
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	-50 to 250
<b>Default value</b>	Not Applicable
<b>Units</b>	°C
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->DRIVETEMP 45
<b>See also</b>	

## DUMP

<b>Type</b>	Command
<b>Description</b>	Returns the current values of all non-volatile parameters.
<b>Syntax</b>	DUMP
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->DUMP DIPEAK 200 DICONT 105 DEC 154 ACC 150
<b>See also</b>	<a href="#">CLREEPROM</a> <a href="#">LOAD</a> <a href="#">SAVE</a>

## ECHO

<b>Type</b>	Variable (R/W)
<b>Description</b>	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.
<b>Syntax</b>	ECHO <boolean>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 = Serial port echo disabled 1 = Serial port echo enabled
<b>Default value</b>	1
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes
<b>Example</b>	-->ECHO 1
<b>See also</b>	<a href="#">PROMPT</a>

**EN**

<b>Type</b>	Command
<b>Description</b>	Initiates a software enable of the drive. This command attempts to clear any existing fault conditions and then enable the drive. If successful, the drive sets the value of ACTIVE to 1.
<b>Syntax</b>	EN
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->EN
<b>See also</b>	<a href="#">K</a> <a href="#">STAT</a>

**FLT**

<b>Type</b>	Variable (R)
<b>Description</b>	Returns a list of faults latched by the drive. Faults remain latched until cleared by CLRFLT or EN, provided that the fault condition has been cleared.
<b>Syntax</b>	FLT
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->FLT OVER CURRENT UNDER VOLTAGE
<b>See also</b>	<a href="#">CLRFLT</a> <a href="#">EN</a>

## FLTHST

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the history of the faults of the drive. The most recent fault is sent first. Up to 10 fault messages will be issued by the drive.
<b>Syntax</b>	FLTHST
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->FLTHST OVER CURRENT UNDER VOLTAGE
<b>See also</b>	<a href="#">CLRHST</a>

## GET

<b>Type</b>	Variable (R)
<b>Description</b>	Retrieves the recording array, in a CSV format.
<b>Syntax</b>	GET
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->GET
<b>See also</b>	<a href="#">RECDONE</a> <a href="#">RECOFF</a> <a href="#">RECORD</a> <a href="#">RECTRIG</a>

## HALLS

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the current state of the Hall sensors.
<b>Syntax</b>	HALLS
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->HALLS 101
<b>See also</b>	



## HOME

<b>Type</b>	Command
<b>Description</b>	Starts the homing process. <b>Note:</b> The drive must be in homing operation mode (OPMODE 6).
<b>Syntax</b>	HOME
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->HOME
<b>See also</b>	<a href="#">HOMEACC</a> <a href="#">HOMED</a> <a href="#">HOMEOFF</a> <a href="#">HOMETYPE</a> <a href="#">HOMELEVELFAST</a> <a href="#">HOMELEVELSLOW</a>

## HOMEACC

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the value of acceleration and deceleration for the homing process. The minimum acceleration value is 814/MENCRES [rpm/s], due to quantization and sample time limitations. If a value less than 814/MENCRES is set, the effective acceleration will be 814/MENCRES.
<b>Syntax</b>	HOMEACC
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	1 – 130000
<b>Default value</b>	1000
<b>Units</b>	rpm/s
<b>Non-volatile</b>	Yes
<b>Example</b>	-->HOMEACC 1500
<b>See also</b>	<a href="#">HOME</a> <a href="#">HOMED</a> <a href="#">HOMEOFF</a> <a href="#">HOMETYPE</a> <a href="#">HOMELEVELFAST</a> <a href="#">HOMELEVELSLOW</a>

## HOMED

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the home status of the drive.
<b>Syntax</b>	HOMED
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 = Not homed 1 = Homed 2 = Homing failed
<b>Default value</b>	0
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->HOMED 1
<b>See also</b>	<a href="#">HOME</a> <a href="#">HOMEACC</a> <a href="#">HOMEOFF</a> <a href="#">HOMETYPE</a> <a href="#">HOMELEVELFAST</a> <a href="#">HOMELEVELSLOW</a>

## HOMEOFF

<b>Type</b>	Variable (R/W)
<b>Description</b>	Sets the value that will be applied to PFB at the end of the HOME process.
<b>Syntax</b>	HOMEOFF
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS32bit
<b>Default value</b>	0
<b>Units</b>	Encoder counts
<b>Non-volatile</b>	Yes
<b>Example</b>	-->HOMEOFF 1000
<b>See also</b>	<a href="#">HOME</a> <a href="#">HOMEACC</a> <a href="#">HOMED</a> <a href="#">HOMETYPE</a> <a href="#">HOMELEVELFAST</a> <a href="#">HOMELEVELSLOW</a>

## HOMETYPE

<b>Type</b>	Variable (R/W)
<b>Description</b>	Sets the homing method. The values of HOMETYPE are the same as the values defined in CANopen DS402 standard.
<b>Syntax</b>	HOMETYPE <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	1 – 35
<b>Default value</b>	1
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes
<b>Example</b>	-->HOMETYPE 7
<b>See also</b>	<a href="#">HOME</a> <a href="#">HOMEACC</a> <a href="#">HOMED</a> <a href="#">HOMEOFF</a> <a href="#">HOMELEVELFAST</a> <a href="#">HOMELEVELSLOW</a>

## HOMEVELFAST

<b>Type</b>	Variable (R/W)
<b>Description</b>	Sets the velocity of motion during the search for the home switch.
<b>Syntax</b>	HOMEVELFAST <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS32bit
<b>Default value</b>	1000
<b>Units</b>	rpm/100
<b>Non-volatile</b>	Yes
<b>Example</b>	-->HOMEVELFAST 700000
<b>See also</b>	<a href="#">HOME</a> <a href="#">HOMEACC</a> <a href="#">HOMED</a> <a href="#">HOMEOFF</a> <a href="#">HOMETYPE</a> <a href="#">HOMEVELSLOW</a>

## HOMEVELSLOW

<b>Type</b>	Variable (R/W)
<b>Description</b>	Sets the velocity of motion during the search for the index signal.
<b>Syntax</b>	HOMEVELSLOW <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS32bit
<b>Default value</b>	1000
<b>Units</b>	rpm/100
<b>Non-volatile</b>	Yes
<b>Example</b>	-->HOMEVELSLOW 200000
<b>See also</b>	<a href="#">HOME</a> <a href="#">HOMEACC</a> <a href="#">HOMED</a> <a href="#">HOMEOFF</a> <a href="#">HOMETYPE</a> <a href="#">HOMEVELFAST</a>

**I**

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the total current flowing through the motor. The phase currents (IA, IB, IC) are sampled at a rate of 16 kHz, and the total current is calculated at a rate of 4 kHz.
<b>Syntax</b>	I
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS16bit
<b>Default value</b>	Not Applicable
<b>Units</b>	mA
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->I 5500 (for 5.5A)
<b>See also</b>	<a href="#">IA</a> <a href="#">IAOFF</a> <a href="#">IB</a> <a href="#">IBOFF</a> <a href="#">IC</a> <a href="#">ICOFF</a> <a href="#">ICMD</a>



## I2T

<b>Type</b>	Variable (R)
<b>Description</b>	<p>Returns the value of the I<sup>2</sup>T integrator. The drive will generate a fault when this value exceeds the value set in I2TLIM.</p> <p>The I<sup>2</sup>T integrator is calculated as shown in the equation below. It functions continuously from the time the drive is powered up. It limits the energy delivered to the motor to the continuous current rating of the drive.</p> $I2T = \int (I - I_{cont})^2 dt$
<b>Syntax</b>	I2T
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS32bit
<b>Default value</b>	Not Applicable
<b>Units</b>	A <sup>2</sup> ·ms
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->I2T 5500
<b>See also</b>	<a href="#">I2TLIM</a> <a href="#">IA</a> <a href="#">IAOFF</a> <a href="#">IB</a> <a href="#">IBOFF</a> <a href="#">IC</a> <a href="#">ICOFF</a> <a href="#">ICMD</a> <a href="#">ISAT</a>

## I2TLIM

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets I2T integrator limit value. The drive generates a fault if this value is exceeded by the I <sup>2</sup> T integrator. Setting I2TLIM to 0 disables this feature.
<b>Syntax</b>	I2TLIM <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS32bit
<b>Default value</b>	Not Applicable
<b>Units</b>	A <sup>2</sup> ·ms
<b>Non-volatile</b>	Yes
<b>Example</b>	-->I2TLIM 10500 -->I2TLIM 10500
<b>See also</b>	<a href="#">I2T</a>

**IA**

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the total current flowing through phase A of the motor. Sampled at a rate of 16 kHz.
<b>Syntax</b>	IA <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS16bit
<b>Default value</b>	Not Applicable
<b>Units</b>	mA
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->IA 5500 (for 5.5A)
<b>See also</b>	<a href="#">I</a> <a href="#">IAOFF</a> <a href="#">IB</a> <a href="#">IBOFF</a> <a href="#">IC</a> <a href="#">ICOFF</a> <a href="#">ICMD</a>

**IB**

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the total current flowing through phase B of the motor. Sampled at a rate of 16 kHz.
<b>Syntax</b>	IB <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS16bit
<b>Default value</b>	Not Applicable
<b>Units</b>	mA
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->IA 5500 (for 5.5A)
<b>See also</b>	<a href="#">I</a> <a href="#">IA</a> <a href="#">IAOFF</a> <a href="#">IBOFF</a> <a href="#">IC</a> <a href="#">ICOFF</a> <a href="#">ICMD</a>

## IC

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the total current flowing through phase C of the motor. Sampled at a rate of 16 kHz.
<b>Syntax</b>	IC <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS16bit
<b>Default value</b>	Not Applicable
<b>Units</b>	mA
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->IC 5500 (for 5.5A)
<b>See also</b>	<a href="#">I</a> <a href="#">IA</a> <a href="#">IAOFF</a> <a href="#">IB</a> <a href="#">IBOFF</a> <a href="#">ICOFF</a> <a href="#">ICMD</a>

## IAOFF

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the offset value of phase A. This offset is automatically calculated during the startup of the drive.
<b>Syntax</b>	IAOFF
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS16bit
<b>Default value</b>	Not Applicable
<b>Units</b>	mA
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->IAOFF 50  (for 0.05A)
<b>See also</b>	<a href="#">I</a> <a href="#">IA</a> <a href="#">IB</a> <a href="#">IBOFF</a> <a href="#">IC</a> <a href="#">ICOFF</a> <a href="#">ICMD</a>

## IBOFF

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the offset value of phase B. This offset is automatically calculated during the startup of the drive.
<b>Syntax</b>	IBOFF
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS16bit
<b>Default value</b>	Not Applicable
<b>Units</b>	mA
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->IBOFF 50 (for 0.05A)
<b>See also</b>	<a href="#">I</a> <a href="#">IA</a> <a href="#">IAOFF</a> <a href="#">IB</a> <a href="#">IC</a> <a href="#">ICOFF</a> <a href="#">ICMD</a>

## ICMD

<b>Type</b>	Variable (R)
<b>Description</b>	<p>Returns the current (torque) command to the current controller.</p> <p>ICMD is equivalent to:</p> <ul style="list-style-type: none"> <li>■ The analog input command (ANIN) in OPMODE 3</li> <li>■ The torque command (T) in OPMODE 2</li> <li>■ The output of the velocity controller in OPMODE 0 or OPMODE 1.</li> </ul>
<b>Syntax</b>	ICMD
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS16bit
<b>Default value</b>	Not Applicable
<b>Units</b>	mA
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->ICMD 500 (for 0.5A)
<b>See also</b>	<a href="#">I</a> <a href="#">IA</a> <a href="#">IAOFF</a> <a href="#">IB</a> <a href="#">IBOFF</a> <a href="#">IC</a> <a href="#">ICOFF</a>



## ICOFF

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the offset value of phase C. This offset is automatically calculated during the startup of the drive.
<b>Syntax</b>	ICOFF
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS16bit
<b>Default value</b>	Not Applicable
<b>Units</b>	mA
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->IBOFF 50 (for 0.05A)
<b>See also</b>	<a href="#">I</a> <a href="#">IA</a> <a href="#">IAOFF</a> <a href="#">IB</a> <a href="#">IBOFF</a> <a href="#">IC</a> <a href="#">ICMD</a>

## ICONT

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the value of the maximum continuous current for the drive. The maximum continuous energy limit is calculated according to ICONT.
<b>Syntax</b>	ICONT <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxCurrent
<b>Default value</b>	5000
<b>Units</b>	mA
<b>Non-volatile</b>	Yes
<b>Example</b>	-->ICONT 10500 (for 10.5A) -->ICONT 10500
<b>See also</b>	<a href="#">I2T</a> <a href="#">IMAX</a> <a href="#">ISAT</a>

**IGD**

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the derivative gain for the current controller.
<b>Syntax</b>	IGD <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS32bit
<b>Default value</b>	0
<b>Units</b>	PWM duty cycle/mA/62.5μs/2 <sup>16</sup>
<b>Non-volatile</b>	Yes
<b>Example</b>	-->IGD 5000 -->IGD 5000
<b>See also</b>	<a href="#">I</a> <a href="#">ICMD</a> <a href="#">IGI</a> <a href="#">IGP</a> <a href="#">IGZ</a>

## IGI

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the integral gain for the current controller.
<b>Syntax</b>	IGI <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS32bit
<b>Default value</b>	1000
<b>Units</b>	TBD
<b>Non-volatile</b>	Yes
<b>Example</b>	-->IGI 5000 -->IGI 5000
<b>See also</b>	<a href="#">I</a> <a href="#">ICMD</a> <a href="#">IGD</a> <a href="#">IGP</a> <a href="#">IGZ</a>

## IGP

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the proportional gain for the current controller.
<b>Syntax</b>	IGP <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS32bit
<b>Default value</b>	1000
<b>Units</b>	PWM duty cycle/mA
<b>Non-volatile</b>	Yes
<b>Example</b>	-->IGP 5000 -->IGP 5000
<b>See also</b>	<a href="#">I</a> <a href="#">ICMD</a> <a href="#">IGD</a> <a href="#">IGI</a> <a href="#">IGZ</a>

## IGZ

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the separation term for the gain paths of the current controller.
<b>Syntax</b>	IGZ <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxU16bit
<b>Default value</b>	MaxU16bit
<b>Units</b>	None
<b>Non-volatile</b>	Yes
<b>Example</b>	-->GZ 5000 -->IGZ 5000
<b>See also</b>	<a href="#">I</a> <a href="#">ICMD</a> <a href="#">IGD</a> <a href="#">IGI</a> <a href="#">IGP</a>

## IMAX

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the value of the maximum peak current for the drive. If the motor current exceeds 120% of IMAX, the drive will issue a fault.
<b>Syntax</b>	IMAX <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxCurrent
<b>Default value</b>	6000
<b>Units</b>	mA
<b>Non-volatile</b>	Yes
<b>Example</b>	-->IMAX 2000 (for 2.0A) -->IMAX 2000
<b>See also</b>	<a href="#">I</a> <a href="#">ICMD</a> <a href="#">ICONT</a> <a href="#">IGI</a> <a href="#">IGP</a> <a href="#">IGZ</a> <a href="#">ISAT</a>

## INPOS

<b>Type</b>	Variable (R)
<b>Description</b>	Returns a value that indicates whether the drive position error (PE) is more or less than the threshold position error (PEINPOS).
<b>Syntax</b>	INPOS
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 = Position error is greater than PEINPOS value 1 = Position error is less than PEINPOS value
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->INPOS 1
<b>See also</b>	<a href="#">PE</a> <a href="#">PEINPOS</a>



## ISAT

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets current saturation value. If the current command is higher than ISAT, the resulting current command will not exceed the ISAT value. In this case, a fault will not be issued.
<b>Syntax</b>	ISAT <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxCurrent
<b>Default value</b>	Not Applicable
<b>Units</b>	mA
<b>Non-volatile</b>	Yes
<b>Example</b>	-->ISAT 10500 (for 10.5 A) -->ISAT 10500
<b>See also</b>	<a href="#">ICONT</a> <a href="#">IMAX</a>

## ISCALE

<b>Type</b>	Variable (R/W)
<b>Description</b>	An analog current scale factor that scales the analog input to ICMD. Limited to analog torque mode (OPMODE -5).
<b>Syntax</b>	ISCALE <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS32bit
<b>Default value</b>	Not Applicable
<b>Units</b>	mA/V
<b>Non-volatile</b>	Yes
<b>Example</b>	-->ISCALE 2000 -->ISCALE 2000
<b>See also</b>	<a href="#">ANIN1 – ANIN2</a> <a href="#">ANOFF1 – ANOFF2</a> <a href="#">ICMD</a>

**J**

<b>Type</b>	Command
<b>Description</b>	Starts jog at requested speed in velocity profile operation mode (OPMODE 3).
<b>Syntax</b>	J <speed>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled
<b>Range</b>	±MaxS32bit
<b>Default value</b>	Not Applicable
<b>Units</b>	rpm/100
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->J 100000 (for 1000 rpm)
<b>See also</b>	<a href="#">VCMD</a> <a href="#">VLIM</a> <a href="#">VOSPD</a>

**K**

<b>Type</b>	Command
<b>Description</b>	Disables power to motor windings. When this command is issued, the drive is disabled and the motor may coast.
<b>Syntax</b>	K
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->K
<b>See also</b>	<a href="#">EN</a> <a href="#">STAT</a>

## LINMENCRES

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the resolution of the linear encoder. The number of encoder counts per mm is obtained by multiplying LINMENCRES by 4. When linear motor is used (MTYPE 2), MENCRES reads the number of encoder lines per pitch.
<b>Syntax</b>	LINMENCRES <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	4 – 2500000
<b>Default value</b>	2048
<b>Units</b>	Lines/mm
<b>Non-volatile</b>	Yes
<b>Example</b>	--> LINMENCRES 1000 --> LINMENCRES 1000
<b>See also</b>	<a href="#">MENCRES</a> <a href="#">MMPITCH</a>

## LIST

<b>Type</b>	Variable (R)
<b>Description</b>	Returns a list of valid commands and variables to the serial port. Only the variables names, and not their values, are transmitted.
<b>Syntax</b>	LIST
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->LIST ACC ACTIVE ANIN ...
<b>See also</b>	<a href="#">PARAMSLIST</a>

## LOAD

<b>Type</b>	Command
<b>Description</b>	Loads the values of all saved parameters from the non-volatile memory (EEPROM) to the active memory. This command causes the currently active parameter values to be overwritten.
<b>Syntax</b>	LOAD
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->LOAD
<b>See also</b>	<a href="#">SAVE</a>

## LOADDEFAULT

<b>Type</b>	Command
<b>Description</b>	Loads the factory default values for all non-volatile parameters.
<b>Syntax</b>	LOADDEFAULT
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->LOADDEFAULT
<b>See also</b>	<a href="#">SAVE</a>



**MA**

<b>Type</b>	Command
<b>Description</b>	Moves the motor to an absolute position in profile position mode (OPMODE 1) according to VCRUISE velocity. At the end of the motion, a message may be generated, depending upon MSG configuration.
<b>Syntax</b>	MA { <i>position</i> }
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS32bit
<b>Default value</b>	Not Applicable
<b>Units</b>	Encoder counts
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->MA 8000
<b>See also</b>	<a href="#">ACC</a> <a href="#">DEC</a> <a href="#">STARTTYPE</a> <a href="#">VCRUISE</a>

**MEM**

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets a signed short (16 bits) value in a specified memory address. <b>Caution:</b> <i>This function is not protected and can cause unpredicted behavior of the drive.</i>
<b>Syntax</b>	MEM <address> [value]
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxU16bit
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->MEM 0x8000 1000 -->MEM 0x8000 1000
<b>See also</b>	<a href="#">MEMU</a> <a href="#">MEMUW</a> <a href="#">MEMW</a>

## MEMU

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets an unsigned short (16 bits) value in a specified memory address. <b>Caution:</b> <i>This function is not protected and can cause unpredicted behavior of the drive.</i>
<b>Syntax</b>	MEMU <address> [value]
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxU16bit
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->MEMU 0X8000 1000 -->MEMU 0X8000 1000
<b>See also</b>	<a href="#">MEM</a> <a href="#">MEMUW</a> <a href="#">MEMW</a>

## MEMUW

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets an unsigned long (32 bits) value in a specified memory address. <b>Caution:</b> <i>This function is not protected and can cause unpredicted behavior of the drive.</i>
<b>Syntax</b>	MEMUW <address> [value]
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxU16bit
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->MEMUW 0X8000 100000 -->MEMUW 0X8000 100000
<b>See also</b>	<a href="#">MEM</a> <a href="#">MEMU</a> <a href="#">MEMW</a>

## MEMW

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets a signed long (32 bits) value in a specified memory address. <b>Caution:</b> <i>This function is not protected and can cause unpredicted behavior of the drive.</i>
<b>Syntax</b>	MEMW <address> [value]
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS16bit
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->MEMW 0X8000 100000 -->MEMW 0X8000 100000
<b>See also</b>	<a href="#">MEM</a> <a href="#">MEMU</a> <a href="#">MEMUW</a>

## MENCDIR

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the direction of the encoder count; this is comparable to swapping the A and B signals).
<b>Syntax</b>	MENCDIR <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – Swapped 1 – Not swapped
<b>Default value</b>	1
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes
<b>Example</b>	-->MENCDIR 1 -->MENCRES 1
<b>See also</b>	<a href="#">MENCRES</a> <a href="#">MENCTYPE</a>

## MENCRES

<b>Type</b>	Variable (R/W)
<b>Description</b>	<p>Gets/sets the resolution of the motor encoder, in number of lines per revolution of the motor.</p> <p>The number of encoder counts per revolution is obtained by multiplying MENCRES by 4.</p> <p>When the value of MENCRES is changed, CONFIG is required.</p> <p>When linear motor is used (MTYPE 2), MENCRES is read-only, and its value is the number of encoder lines per pitch.</p>
<b>Syntax</b>	MENCRES <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	4 – 2500000
<b>Default value</b>	2048
<b>Units</b>	Lines per motor revolution
<b>Non-volatile</b>	Yes
<b>Example</b>	<pre>--&gt;MENCRES 1000 --&gt;MENCRES 1000</pre>
<b>See also</b>	<a href="#">MENC DIR</a> <a href="#">MENC TYPE</a>

## MENCTYPE

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the type of motor feedback.
<b>Syntax</b>	MENCTYPE <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Disabled
<b>Range</b>	0 = AB Encoder + Halls 1 = ABI Encoder + Halls
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes
<b>Example</b>	-->MENCTYPE 1 -->MENCTYPE 1
<b>See also</b>	<a href="#">MENCDIR</a> <a href="#">MENCRES</a>



**MI**

<b>Type</b>	Command
<b>Description</b>	Incrementally moves the motor a specified distance in profile position mode (OPMODE 1) according to VCRUISE. At the end of the motion, a message may be generated, depending upon MSG configuration.
<b>Syntax</b>	MI { <i>position</i> }
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS32bit
<b>Default value</b>	Not Applicable
<b>Units</b>	Encoder counts
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->MI 80000
<b>See also</b>	<a href="#">ACC</a> <a href="#">DEC</a> <a href="#">STARTTYPE</a> <a href="#">VCRUISE</a>

## MPHASE

<b>Type</b>	Variable (R/W)
<b>Description</b>	<p>Gets/sets the motor phase offset.</p> <p>The motor phase offset is the angle between the motor magnets and the Hall sensors. The MPHASE value can be obtained from the motor data sheet.</p> <p><b>Note:</b> Not applicable for DC motors (MTYPE 1).</p>
<b>Syntax</b>	MPHASE <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – 360
<b>Default value</b>	0
<b>Units</b>	Electrical degrees
<b>Non-volatile</b>	Yes
<b>Example</b>	-->MPHASE 330 -->MPHASE 330
<b>See also</b>	<a href="#">MENCRES</a> <a href="#">MPOLES</a>

## MMPITCH

<b>Type</b>	Variable (R/W)
<b>Description</b>	Sets/gets the linear motor pitch length in mm/100.
<b>Syntax</b>	MMPITCH <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	4 – 2500000
<b>Default value</b>	2048
<b>Units</b>	Lines/mm
<b>Non-volatile</b>	Yes
<b>Example</b>	--> MMPITCH 1000 --> MMPITCH 1000
<b>See also</b>	<a href="#">LINMENCRES</a>

## MPOLES

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the number of motor poles. MPOLES is used for commutation control and represents the number of individual magnetic poles of the motor (not pole pairs). When the value of MPOLES is changed, CONFIG is required. <b>Note:</b> Not applicable for DC motors (MTYPE1).
<b>Syntax</b>	MPOLES <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	2 – 400; must be an even number
<b>Default value</b>	2
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes
<b>Example</b>	-->MPOLES 4 -->MPOLES 4
<b>See also</b>	<a href="#">MPHASE</a> <a href="#">MENCRES</a> <a href="#">CONFIG</a>

## MSG

<b>Type</b>	Variable (R/W)
<b>Description</b>	Enables/disables autonomic message ("!") generation at the end of motion in profile position mode.
<b>Syntax</b>	MSG < <i>boolean</i> >
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 = Autonomic messages are disabled 1 = Autonomic messages are enabled
<b>Default value</b>	0
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes   No
<b>Example</b>	-->MSG 1 -->MSG 1
<b>See also</b>	

## MTYPE

<b>Type</b>	Variable (R/W)
<b>Description</b>	Defines the type of motor.
<b>Syntax</b>	MTYPE <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 = BLDC motor 1 = DC motor 2 = Linear motor
<b>Default value</b>	0
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes
<b>Example</b>	-->MTYPE 1 -->MTYPE 1
<b>See also</b>	<a href="#">MPHASE</a> <a href="#">MPOLES</a>

## OPMODE

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the operational mode of the drive according to the CANopen DS402 standard.
<b>Syntax</b>	OPMODE <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Disabled
<b>Range</b>	0 = No mode change/no mode assigned 1 = Profile position mode 2 = Velocity mode 3 = Profile velocity mode 4 = Torque mode 5 = Reserved 6 = Homing mode 7 = Interpolated position mode -1 = Reserved -2 = Burn-in – manufacturer specific -3 = Reserved -4 = Analog Velocity command -5 = Analog Torque command
<b>Default value</b>	4
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes
<b>Example</b>	<pre>--&gt;OPMODE 4 --&gt;OPMODE 4</pre>
<b>See also</b>	

## PARAMSLIST

<b>Type</b>	Variable (R)
<b>Description</b>	Returns a list and details of all the parameters saved in the non-volatile memory (EEPROM). For each parameter, the details include parameter values, range, default value, units, group, CANopen index, and description.
<b>Syntax</b>	PARAMSLIST
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes   No
<b>Example</b>	<pre>--&gt;PARAMSLIST Name Value Max      Min Default Units      Group CANopen-Index Description acc  100  147483647  1   1000  [RPM/100/sec]  16   1619197984  Acceleration</pre>
<b>See also</b>	<a href="#">LIST</a>



## PCMD

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the position command generated by the position profile generator for the position loop. This parameter is used in profile position mode and interpolated position mode (OPMODE 1 and OPMODE 7, respectively).
<b>Syntax</b>	PCMD
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS32bit
<b>Default value</b>	Not Applicable
<b>Units</b>	Encoder counts
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->PCMD 40000
<b>See also</b>	<a href="#">MENCRES</a> <a href="#">PE</a> <a href="#">PFB</a> <a href="#">PGD</a> <a href="#">PGFFA</a> <a href="#">PGFFV</a> <a href="#">PGI</a> <a href="#">PGP</a>

## PDMAX

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the value of the maximum position derivative for the position command that is received from the CANopen master in interpolated position mode (OPMODE 7). PDMAX 0 disables this functionality.
<b>Syntax</b>	PDMAX <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS32bit
<b>Default value</b>	0
<b>Units</b>	Encoder counts per communication cycle time
<b>Non-volatile</b>	Yes
<b>Example</b>	-->PDMAX 300 -->PDMAX 300
<b>See also</b>	

**PE**

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the position error of the position loop. This parameter is used in profile position and interpolated position modes (OPMODE 1 and OPMODE 7, respectively). If the value of PE is greater than PEMAX, the drive is disabled and a fault is generated.
<b>Syntax</b>	PE
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS32bit
<b>Default value</b>	Not Applicable
<b>Units</b>	Feedback Counts
<b>Non-volatile</b>	No
<b>Example</b>	-->PE 4400
<b>See also</b>	<a href="#">MENCRES</a> <a href="#">PCMD</a> <a href="#">PEMAX</a> <a href="#">PFB</a>

## PEINPOS

<b>Type</b>	Variable (R/W)
<b>Description</b>	Sets the threshold position error for the INPOS flag. If PE is less than PEINPOS, the INPOS switch is set, indicating that the drive is in position. If PE is greater than PEINPOS, the INPOS switch is not set. This parameter is used in profile position and interpolated position modes (OPMODE 1 and OPMODE 7, respectively).
<b>Syntax</b>	PEINPOS
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS32bit
<b>Default value</b>	100
<b>Units</b>	Feedback Counts
<b>Non-volatile</b>	Yes
<b>Example</b>	-->PEINPOS 100 -->PEINPOS 100
<b>See also</b>	<a href="#">PCMD</a> <a href="#">PE</a> <a href="#">PEMAX</a> <a href="#">PFB</a>

## PEMAX

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the position error value that triggers the position error fault. This parameter is used in profile position mode and interpolated position mode (OPMODE 1 and OPMODE 7, respectively).
<b>Syntax</b>	PEMAX
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS32bit
<b>Default value</b>	100
<b>Units</b>	Feedback Counts
<b>Non-volatile</b>	Yes
<b>Example</b>	-->PEMAX 10000 -->PEMAX 10000
<b>See also</b>	<a href="#">PCMD</a> <a href="#">PE</a> <a href="#">PEINPOS</a> <a href="#">PFB</a>

## PFB

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the motor position from the feedback device.
<b>Syntax</b>	PFB
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS32bit
<b>Default value</b>	Not Applicable
<b>Units</b>	Feedback counts
<b>Non-volatile</b>	No
<b>Example</b>	-->PFB 440000
<b>See also</b>	<a href="#">PCMD</a> <a href="#">PE</a> <a href="#">PEINPOS</a> <a href="#">PEMAX</a>

## PGD

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the derivative gain for the position control loop.
<b>Syntax</b>	PGD <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS32bit
<b>Default value</b>	0
<b>Units</b>	(rpm/100)/counts/250 $\mu$ s/2 <sup>8</sup>
<b>Non-volatile</b>	Yes
<b>Example</b>	-->PGD 5000 -->PGD 5000
<b>See also</b>	<a href="#">MENCRES</a> <a href="#">PCMD</a> <a href="#">PE</a> <a href="#">PFB</a> <a href="#">PGI</a> <a href="#">PGP</a>

## PGFFA

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the feed-forward acceleration term gain of the position control loop.
<b>Syntax</b>	PGFFA <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS32bit
<b>Default value</b>	0
<b>Units</b>	Counts/(250μs) <sup>2</sup> /2 <sup>8</sup>
<b>Non-volatile</b>	Yes
<b>Example</b>	-->PGFFA 15000 -->PGFFA 15000
<b>See also</b>	<a href="#">MENCRES</a> <a href="#">PCMD</a> <a href="#">PE</a> <a href="#">PFB</a> <a href="#">PGD</a> <a href="#">PGFFV</a> <a href="#">PGI</a> <a href="#">PGP</a>



## PGFFV

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets feed-forward velocity term gain of the position control loop.
<b>Syntax</b>	PGFFV <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS32bit
<b>Default value</b>	0
<b>Units</b>	Counts/250 $\mu$ s/2 <sup>8</sup>
<b>Non-volatile</b>	Yes
<b>Example</b>	-->PGFFV 15000 -->PGFFV 15000
<b>See also</b>	<a href="#">MENCRES</a> <a href="#">PCMD</a> <a href="#">PE</a> <a href="#">PFB</a> <a href="#">PGD</a> <a href="#">PGFFA</a> <a href="#">PGI</a> <a href="#">PGP</a>

## PGI

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the integral gain for the position control loop.
<b>Syntax</b>	PGI <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS32bit
<b>Default value</b>	10
<b>Units</b>	TBD
<b>Non-volatile</b>	Yes
<b>Example</b>	-->PGI 5000 -->PGI 5000
<b>See also</b>	<a href="#">MENCRES</a> <a href="#">PCMD</a> <a href="#">PE</a> <a href="#">PFB</a> <a href="#">PGD</a> <a href="#">PGFFA</a> <a href="#">PGFFV</a> <a href="#">PGP</a>

## PGISATIN

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the input saturation level for the position loop integrator increment.
<b>Syntax</b>	PGISATIN <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS32bit
<b>Default value</b>	100000
<b>Units</b>	Counts
<b>Non-volatile</b>	Yes
<b>Example</b>	-->PGISATIN 100000 -->PGISATIN 100000
<b>See also</b>	<a href="#">PGI</a> <a href="#">PGISATIN</a>

## PGP

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the proportional gain for the position control loop.
<b>Syntax</b>	PGP <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS32bit
<b>Default value</b>	1000
<b>Units</b>	(rpm/100)/counts/2 <sup>8</sup>
<b>Non-volatile</b>	Yes
<b>Example</b>	-->PGP 5000 -->PGP 5000
<b>See also</b>	<a href="#">MENCRES</a> <a href="#">PCMD</a> <a href="#">PE</a> <a href="#">PFB</a> <a href="#">PGD</a> <a href="#">PGI</a> <a href="#">PGFFA</a> <a href="#">PGFFV</a>

## PLIMNEG

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the minimum position limit for motion. The drive will not accept movement commands beyond this position. Upon reaching this limit, the drive executes a STOP command.
<b>Syntax</b>	PLIMNEG <position>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS32bit
<b>Default value</b>	-MaxS32bit
<b>Units</b>	Counts
<b>Non-volatile</b>	Yes   No
<b>Example</b>	-->PLIMNEG 15000 -->PLIMNEG 15000
<b>See also</b>	<a href="#">MENCRES</a> <a href="#">PCMD</a> <a href="#">PE</a> <a href="#">PFB</a> <a href="#">PLIMPOS</a> <a href="#">PSTOPMODE</a>

## PLIMPOS

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets maximum position limit for motion. The drive will not accept movement commands beyond this position. Upon reaching this limit, the drive executes a STOP command.
<b>Syntax</b>	PLIMPOS <position>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS32bit
<b>Default value</b>	+MaxS32bit
<b>Units</b>	Counts
<b>Non-volatile</b>	Yes   No
<b>Example</b>	-->PLIMPOS 15000 -->PLIMPOS 15000
<b>See also</b>	<a href="#">MENCRES</a> <a href="#">PCMD</a> <a href="#">PE</a> <a href="#">PFB</a> <a href="#">PLIMNEG</a> <a href="#">PSTOPMODE</a>

## POSLOOPOUT

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the value of the position loop output (control effort). Applicable in position modes only.
<b>Syntax</b>	POSLOOPOUT
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS32bit
<b>Default value</b>	Not Applicable
<b>Units</b>	rpm/100
<b>Non-volatile</b>	Yes   No
<b>Example</b>	-->POSLOOPOUT 100000
<b>See also</b>	

## PRD

<b>Type</b>	Variable (R)
<b>Description</b>	<p>Displays the position (angle) of the motor shaft within one mechanical motor revolution.</p> <p>PRD increments from 0 to 65535 in the course of one mechanical motor shaft revolution (360 degrees). The range of PRD does not change. Its resolution is dependent upon the feedback device resolution.</p> <p><math>PRD/65535 \times 360 = \text{Angle}</math></p>
<b>Syntax</b>	PRD
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxU16bit
<b>Default value</b>	Not Applicable
<b>Units</b>	1/182°
<b>Non-volatile</b>	Yes   No
<b>Example</b>	-->PRD 15000
<b>See also</b>	<a href="#">MENCRES</a>



## PROMPT

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the prompt display.
<b>Syntax</b>	PROMPT <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 = Prompt displays: --> 1 = Prompt displays the drive address, followed by -> 2 = No prompt
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes
<b>Example</b>	-->PROMPT 0 -->PROMPT --> -->PROMPT 1 3->PROMPT 3->
<b>See also</b>	<a href="#">ECHO</a>

## PSTOP

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the STOP position for motion. Upon crossing the PSTOP position, the drive executes a STOP command.
<b>Syntax</b>	PSTOP <position>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS32bit
<b>Default value</b>	- MaxS32bit
<b>Units</b>	Counts
<b>Non-volatile</b>	Yes
<b>Example</b>	-->PSTOP 15000 -->PSTOP 15000
<b>See also</b>	<a href="#">MENCRES</a> <a href="#">PCMD</a> <a href="#">PE</a> <a href="#">PFB</a> <a href="#">PLIMNEG</a> <a href="#">PSTOPMODE</a> <a href="#">STOP</a>

## PSTOPMODE

<b>Type</b>	Variable (R/W)
<b>Description</b>	Defines how the drive reacts to the software position limits PLIMPOS, PLIMNEG and PSTOP.
<b>Syntax</b>	PSTOPMODE <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 = Position limited to $\pm$ MaxS32bit 1 = Position limited to PLIMNEG – PLIMPOS 2 = Position limited to PLIMNEG – PLIMPOS, and the drive executes a STOP command upon crossing PSTOP.
<b>Default value</b>	0
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes
<b>Example</b>	-->PSTOPMODE 1 -->PSTOPMODE 1
<b>See also</b>	<a href="#">MENCRES</a> <a href="#">PCMD</a> <a href="#">PE</a> <a href="#">PFB</a> <a href="#">PLIMNEG</a> <a href="#">PSTOP</a> <a href="#">STOP</a>

## PTPST

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the state of the position profile generator that is used by the MI and MA commands.
<b>Syntax</b>	PTPST
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 = Idle 1 = Acceleration 2 = Cruise 3 = Deceleration
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	No
<b>Example</b>	-->PTPST 1
<b>See also</b>	<a href="#">INPOS</a> <a href="#">MA</a> <a href="#">MI</a> <a href="#">PEMAX</a>

## PWMA

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the value of phase A PWM.
<b>Syntax</b>	PWMA
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS16bit
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	No
<b>Example</b>	-->PWMA 132
<b>See also</b>	<a href="#">PWMB</a> <a href="#">PWMC</a>

## PWMB

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the value of phase B PWM.
<b>Syntax</b>	PWMB
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS16bit
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	No
<b>Example</b>	-->PWMB 132
<b>See also</b>	<a href="#">PWMA</a> <a href="#">PWMC</a>

## PWMC

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the value of phase C PWM.
<b>Syntax</b>	PWMC
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS16bit
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	No
<b>Example</b>	-->PWMC 132
<b>See also</b>	<a href="#">PWMA</a> <a href="#">PWMB</a>

## PWMFREQ

<b>Type</b>	Variable (R/W)
<b>Description</b>	Changes the PWM frequency of the drive. <b>Note:</b> The drive must be restarted for the change to take effect.
<b>Syntax</b>	PWMFREQ <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 = 16 kHz standard 1 = 100 kHz for low inductance motors
<b>Default value</b>	0
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes   No
<b>Example</b>	-->PWMFREQ 1
<b>See also</b>	



## RECDONE

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the state of the recording process.
<b>Syntax</b>	RECDONE
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 = Recording not finished 1 = Record process was finished or cancelled by RECOFF
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	No
<b>Example</b>	-->RECDONE 1
<b>See also</b>	<a href="#">GET</a> <a href="#">RECOFF</a> <a href="#">RECORD</a> <a href="#">RECTRIG</a>

## RECNUMPOINTS

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the total number of points available for recording.
<b>Syntax</b>	RECNUMPOINTS
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	No
<b>Example</b>	-->RECNUMPOINTS 2000
<b>See also</b>	<a href="#">GET</a> <a href="#">RECDONE</a> <a href="#">RECORD</a> <a href="#">RECTRIG</a>

## RECOFF

<b>Type</b>	Command
<b>Description</b>	Used to cancel/reset a recording process that has been armed, but not completed.
<b>Syntax</b>	RECOFF
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->RECOFF
<b>See also</b>	<a href="#">GET</a> <a href="#">RECDONE</a> <a href="#">RECORD</a> <a href="#">RECTRIG</a>

## RECORD

<b>Type</b>	Command
<b>Description</b>	Sets up the recording.
<b>Syntax</b>	RECORD { <i>sample period</i> } { <i>number of samples</i> } { <i>channel 0</i> [... <i>channel 3</i> ]}
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	<i>sample period</i> = 1 – 10000 <i>number of samples</i> = 10 – RECNUMPOINTS/(number of recorded channels) <i>channel</i> = see RECORDABLE
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->RECORD 10 1000 PFB PCMD IA
<b>See also</b>	<a href="#">GET</a> <a href="#">RECDONE</a> <a href="#">RECOFF</a> <a href="#">RECORD</a> <a href="#">RECORDABLE</a> <a href="#">RECTRIG</a>

## RECORDABLE

<b>Type</b>	Variable (R)
<b>Description</b>	Returns a list of parameters that are available for recording.
<b>Syntax</b>	RECORDABLE
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	No
<b>Example</b>	-->RECORDABLE ANIN1 ANIN2
<b>See also</b>	<a href="#">GET</a> <a href="#">RECDONE</a> <a href="#">RECORD</a> <a href="#">RECTRIG</a>

## RECTRIG

<b>Type</b>	Command
<b>Description</b>	Sets the trigger for the recording process
<b>Syntax</b>	RECTRIG { <i>channel</i> } { <i>value</i> } { <i>trigger position</i> } { <i>direction</i> } or RECTRIG IMM (trigger recording immediately)
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	<i>channel</i> = defined by RECORDABLE <i>value</i> = the range of the parameter used in channel <i>trigger position</i> = within the number of samples <i>direction</i> = 0 or 1
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes   No
<b>Example</b>	-->RECTRIG PFB 100000 500 1
<b>See also</b>	<a href="#">GET</a> <a href="#">RECDONE</a> <a href="#">RECOFF</a> <a href="#">RECORD</a> <a href="#">RECORDABLE</a>

## REMOTE

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the state of the external hardware enable input signal.
<b>Syntax</b>	REMOTE
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 = Remote enable input is off 1 = Remote enable input is on
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	No
<b>Example</b>	-->REMOTE 1
<b>See also</b>	<a href="#">DIN1 – DIN6</a> <a href="#">DINFUNC1 – DINFUNC6</a>

## RTCYCLE

<b>Type</b>	Variable (R)
<b>Description</b>	Gets the real-time cycle of the drive.
<b>Syntax</b>	RTCYCLE
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Nanoseconds (ns)
<b>Non-volatile</b>	No
<b>Example</b>	-->RTCYCLE 62500
<b>See also</b>	



## SAVE

<b>Type</b>	Command
<b>Description</b>	Saves the current values of all non-volatile parameters to the non-volatile memory (EEPROM). This command causes the previously saved parameters to be overwritten.
<b>Syntax</b>	Save
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	No
<b>Example</b>	-->SAVE
<b>See also</b>	<a href="#">LOAD</a>

## STARTTYPE

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the start type for a point-to-point move (MA and MI). Applicable only in profile position mode (OPMODE 1).
<b>Syntax</b>	STARTTYPE <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 = In position 1 = Immediate 2 = Point-to-point generator finished previous move generation
<b>Default value</b>	2
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Yes
<b>Example</b>	-->STARTTYPE 1
<b>See also</b>	<a href="#">INPOS</a> <a href="#">PEINPOS</a>

## STAT

<b>Type</b>	Variable (R)
<b>Description</b>	Returns a string value that indicates the status of the drive.
<b>Syntax</b>	STAT
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Disabled = The drive is disabled Enabled = The drive is enabled Fault = A fault is active, and has not yet been cleared
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	No
<b>Example</b>	-->STAT Enabled
<b>See also</b>	<a href="#">EN</a> <a href="#">FLT</a> <a href="#">K</a> <a href="#">REMOTE</a>

## STOP

<b>Type</b>	Command
<b>Description</b>	STOP
<b>Syntax</b>	Stops the motion of the drive at DECSTOPdeceleration. If the DEC value is higher than DECSTOP, the value of DEC will be used for the deceleration. <b>Caution:</b> In torque operation mode (OPMODE 4), STOP sets the torque command to 0. In analog operation modes (OPMODE -4 and OPMODE -5), STOP is not applicable.
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	No
<b>Example</b>	-->STOP
<b>See also</b>	<a href="#">DEC</a> <a href="#">DECSTOP</a>

**T**

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the value of the torque command. T is used to set commanded current in torque mode (OPMODE 4). This command is subject to current limits and digital filtering. T is set to 0 whenever the drive enable state changes.
<b>Syntax</b>	T <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxCurrent
<b>Default value</b>	Not Applicable
<b>Units</b>	mA
<b>Non-volatile</b>	Yes   No
<b>Example</b>	-->T 43 -->T 43
<b>See also</b>	<a href="#">IA</a> <a href="#">IAOFF</a> <a href="#">IB</a> <a href="#">IBOFF</a> <a href="#">IC</a> <a href="#">ICOFF</a> <a href="#">ICMD</a> <a href="#">IMAX</a> <a href="#">ISAT</a>

## TIMEEN

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the accumulated time in which the drive has been enabled.
<b>Syntax</b>	TIMEEN
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->TIMEEN 0001 DAYS, 1:13:52
<b>See also</b>	<a href="#">TIMEON</a>

## TIMEON

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the accumulated time in which the drive has been powered.
<b>Syntax</b>	TIMEON
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->TIMEON 0005 DAYS, 1:23:54
<b>See also</b>	<a href="#">TIMEEN</a>

**V**

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the velocity of the motor as calculated from the motor feedback.
<b>Syntax</b>	V
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS32bit
<b>Default value</b>	Not Applicable
<b>Units</b>	rpm/100
<b>Non-volatile</b>	No
<b>Example</b>	-->V 4400
<b>See also</b>	<a href="#">VCMD</a>



## VBUS

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the bus voltage measured by the drive.
<b>Syntax</b>	VBUS
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxU16bit
<b>Default value</b>	Not Applicable
<b>Units</b>	mV
<b>Non-volatile</b>	No
<b>Example</b>	-->VBUS 24000
<b>See also</b>	<a href="#">VBUSOV</a> <a href="#">VBUSUV</a>

## VBUSOV

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the over-voltage fault limit for the bus voltage. This value must be greater than VBUSUV.
<b>Syntax</b>	VBUSOV
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	MinBusVoltage – MaxBusVoltage
<b>Default value</b>	MaxBusVoltage
<b>Units</b>	mV
<b>Non-volatile</b>	Yes
<b>Example</b>	-->VBUSOV 40000
<b>See also</b>	<a href="#">VBUS</a> <a href="#">VBUSUV</a>

## VBUSUV

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the under-voltage fault limit for the BUS voltage. This value must be less than VBUSOV.
<b>Syntax</b>	VBUSUV
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	MinBusVoltage – MaxBusVoltage
<b>Default value</b>	MinBusVoltage
<b>Units</b>	mV
<b>Non-volatile</b>	Yes
<b>Example</b>	-->VBUSUV 20000
<b>See also</b>	<a href="#">VBUS</a> <a href="#">VBUSOV</a>

## VCMD

<b>Type</b>	Variable (R/W)
<b>Description</b>	<p>Sets the velocity command for the motor in velocity mode (OPMODE 2).</p> <p>Gets the velocity command applied to the velocity controller. This value is equivalent to the analog input (ANIN) in OPMODE -4, to the jog profiler output in OPMODE 3, and the output of the position controller in OPMODE 1, OPMODE 6 and OPMODE 7.</p>
<b>Syntax</b>	VCMD
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS32bit
<b>Default value</b>	Not Applicable
<b>Units</b>	rpm/100
<b>Non-volatile</b>	No
<b>Example</b>	-->VCMD 4400
<b>See also</b>	<a href="#">V</a> <a href="#">VLIM</a> <a href="#">VOSPD</a>

## VCRUISE

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the cruise velocity in profile position mode (OPMODE 1).
<b>Syntax</b>	VCRUISE <velocity>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS32bit
<b>Default value</b>	1000
<b>Units</b>	rpm/100
<b>Non-volatile</b>	Yes
<b>Example</b>	-->VCRUISE 1000
<b>See also</b>	<a href="#">ACC</a> <a href="#">DEC</a> <a href="#">MA</a> <a href="#">MI</a>

## VELLOOPOUT

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the value of the velocity loop output (control effort). This value is the input of the current loop in all operation modes except torque operation mode (OPMODE 4).
<b>Syntax</b>	VELLOOPOUT
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	±MaxS32bit
<b>Default value</b>	Not Applicable
<b>Units</b>	mA
<b>Non-volatile</b>	No
<b>Example</b>	-->VELLOOPOUT 1000
<b>See also</b>	<a href="#">ICMD</a>

## VEMAX

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the maximum value for the velocity error. VEMAX 0 disables velocity error monitoring.
<b>Syntax</b>	VEMAX
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS32bit
<b>Default value</b>	0
<b>Units</b>	rpm/100
<b>Non-volatile</b>	No
<b>Example</b>	-->VEMAX 10000 -->VEMAX 10000
<b>See also</b>	<a href="#">V</a> <a href="#">VCMD</a>

## VER

<b>Type</b>	Variable (R)
<b>Description</b>	Returns the firmware version of the drive.
<b>Syntax</b>	VER
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	Not Applicable
<b>Default value</b>	Not Applicable
<b>Units</b>	Not Applicable
<b>Non-volatile</b>	Not Applicable
<b>Example</b>	-->VER LVD DRIVE VERSION: 0.3.1.0
<b>See also</b>	



## VGDF

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the feedback derivative gain of the velocity loop.
<b>Syntax</b>	VGDF <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – $2^{24}$
<b>Default value</b>	1000
<b>Units</b>	mA/rpm/100/125 $\mu$ s/ $2^{16}$
<b>Non-volatile</b>	Yes
<b>Example</b>	-->VGDF 5000 -->VGDF 5000
<b>See also</b>	<a href="#">VGDR</a> <a href="#">VGI</a> <a href="#">VGPF</a> <a href="#">VGPR</a>

## VGDR

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the command derivative gain of the velocity loop.
<b>Syntax</b>	VGDR <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – $2^{24}$
<b>Default value</b>	1000
<b>Units</b>	mA/rpm/100/125 $\mu$ s/ $2^{16}$
<b>Non-volatile</b>	Yes
<b>Example</b>	-->VGP 5000 -->VGP 5000
<b>See also</b>	<a href="#">VGDF</a> <a href="#">VGI</a> <a href="#">VGPF</a> <a href="#">VGPR</a>

## VGI

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the integral gain for the velocity loop.
<b>Syntax</b>	VGI <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – 2 <sup>24</sup>
<b>Default value</b>	100
<b>Units</b>	TBD
<b>Non-volatile</b>	Yes
<b>Example</b>	-->VGI 5000 -->VGI 5000
<b>See also</b>	<a href="#">VGDF</a> <a href="#">VGDR</a> <a href="#">VGPF</a> <a href="#">VGPR</a>

## VGPF

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the feedback proportional gain of the velocity loop.
<b>Syntax</b>	VGPF <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – $2^{24}$
<b>Default value</b>	1000
<b>Units</b>	$\text{mA}/(\text{rpm}/100)/2^{16}$
<b>Non-volatile</b>	Yes
<b>Example</b>	-->VGPF 5
<b>See also</b>	<a href="#">VGDF</a> <a href="#">VGDR</a> <a href="#">VGI</a> <a href="#">VGPR</a>

## VGPR

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the command proportional gain for the velocity loop.
<b>Syntax</b>	VGPR <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – $2^{24}$
<b>Default value</b>	1000
<b>Units</b>	$\text{mA}/(\text{rpm}/100)/2^{16}$
<b>Non-volatile</b>	Yes
<b>Example</b>	-->VGPR 5000 -->VGPR 5000
<b>See also</b>	

## VLIM

<b>Type</b>	Variable (R/W)
<b>Description</b>	<p>Sets the application velocity limit, thereby allowing the user to limit the motor's peak velocity.</p> <p>VLIM saturates the user's velocity command (using command J in OPMODE 3, analog velocity command in OPMODE 4 or VCMD in OPMODE 2) or the command that is issued by the control loops (in OPMODE 1, OPMODE 6 and OPMODE 7).</p> <p>VLIM is an independent variable that is not calculated from hardware parameters and is not tied to any other variables. VLIM is similar to ISAT (used in OPMODE -5 and OPMODE 4) and can be used to protect delicate load equipment.</p>
<b>Syntax</b>	VLIM <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS32bit
<b>Default value</b>	100000
<b>Units</b>	rpm/100
<b>Non-volatile</b>	Yes
<b>Example</b>	<pre>--&gt;VLIM 10500 --&gt;VLIM 10500</pre>
<b>See also</b>	<a href="#">VEMAX</a> <a href="#">VOSPD</a>

## VLPF

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the low pass filter cutoff frequency for the velocity loop.
<b>Syntax</b>	VLPF <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	1 – 30000
<b>Default value</b>	450
<b>Units</b>	Hz
<b>Non-volatile</b>	Yes
<b>Example</b>	-->VLPF 550
<b>See also</b>	

## VOSPD

<b>Type</b>	Variable (R/W)
<b>Description</b>	Gets/sets the velocity value that triggers the over-speed protection fault.
<b>Syntax</b>	VOSPD <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0 – MaxS32bit
<b>Default value</b>	2000000
<b>Units</b>	rpm/100
<b>Non-volatile</b>	Yes
<b>Example</b>	-->VOSPD 10500 -->VOSPD 10500
<b>See also</b>	<a href="#">VEMAX</a> <a href="#">VLIM</a>



## VSCALE

<b>Type</b>	Variable (R/W)
<b>Description</b>	An analog velocity scale factor that scales the analog input to VCMD. Applicable only in analog velocity mode (OPMODE -4).
<b>Syntax</b>	VSCALE <value>
<b>Firmware</b>	3.1.0
<b>Drive status</b>	Enabled   Disabled
<b>Range</b>	0-2 <sup>25</sup>
<b>Default value</b>	0
<b>Units</b>	(rpm/100)/V
<b>Non-volatile</b>	Yes
<b>Example</b>	-->VSCALE 2000 -->VSCALE 2000
<b>See also</b>	<a href="#">ANIN1 – ANIN2</a> <a href="#">ANOFF1 – ANOFF2</a>