

SSD Parvex SAS

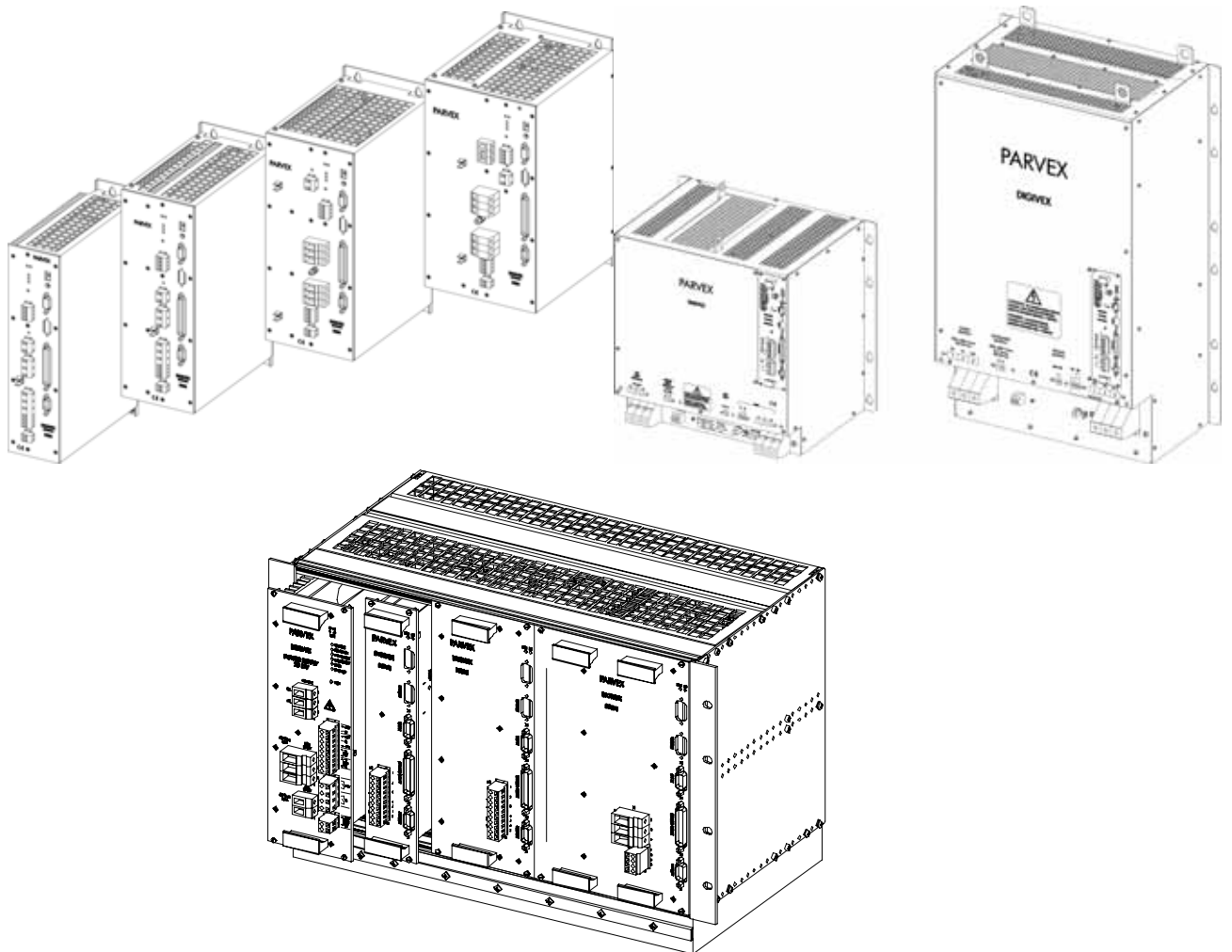
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DIGIVEX Motion

DIRECTORY OF VARIABLES

PVD 3527 GB – 07/2005



PRODUCT RANGE

1 - « BRUSHLESS » SERVODRIVES

TORQUE OR POWER RANGES

- **BRUSHLESS SERVOMOTORS, LOW INERTIA, WITH RESOLVER**
 Very high torque/inertia ratio (high dynamic performance machinery):
 - ⇒ NX -HX - HXA 1 to 320 N.m
 - ⇒ NX - LX 0.45 to 64 N.m
 High rotor inertia for better inertia load matching:
 - ⇒ HS - LS 3.3 to 31 N.m
 Varied geometrical choice :
 - ⇒ short motors range HS - LS 3.3 to 31 N.m
 - ⇒ or small diameter motors : HD, LD 9 to 100 N.m
 Voltages to suit different mains supplies :
 - ⇒ 230V three-phase for «série L - NX»
 - ⇒ 400V, 460V three-phase for «série H - NX»
- **"DIGIVEX DRIVE" DIGITAL SERVOAMPLIFIERS**
 - ⇒ SINGLE-AXIS DSD
 - ⇒ COMPACT SINGLE-AXIS D μ D, DLD
 - ⇒ POWER SINGLE-AXIS DPD
 - ⇒ MULTIPLE-AXIS DMD
- "PARVEX MOTION EXPLORER" ADJUSTING SOFTWARE

2 - SPINDLE DRIVES

- **SPINDLE SYNCHRONOUS MOTORS**
 - ⇒ "HV" COMPACT SERIES
 - ⇒ "HW" ELECTROSPINDLE, frameless, water-cooled motor From 5 to 110 kW
up to 60,000 rpm
- **"DIGIVEX" DIGITAL SERVOAMPLIFIERS**

3 - DC SERVODRIVES

- **"AXEM", "RS" SERIES SERVOMOTORS** 0.08 to 13 N.m
- **"RTS" SERVOAMPLIFIERS**
- **"RTE" SERVOAMPLIFIERS** for DC motors + resolver giving position measurement

4 - SPECIAL ADAPTATION SERVODRIVES

- **"EX" SERVOMOTORS** for explosive atmosphere
- **"AXL" COMPACT SERIES SERVOREDUCTERS** 5 to 700 N.m

5 - POSITIONING SYSTEMS

- **Numerical Controls « CYBER 4000 »** 1 to 4 axes
- **"CYBER 2000" NC** 1 to 2 axes
- **VARIABLE SPEED DRIVE - POSITIONER**
 - ⇒ SINGLE-AXIS DSM
 - ⇒ POWER SINGLE-AXIS DPM
 - ⇒ MULTIPLE-AXIS DMM
- **ADJUSTMENT AND PROGRAMMING SOFTWARE PARVEX MOTION EXPLORER**

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Characteristics and dimensions subject to change without notice

YOUR LOCAL CORRESPONDENT

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1. INTRODUCTION

1.1 List of published DIGIVEX Motion manuals

◆ DIGIVEX Single Motion (DSM) User Manual	(DSM)	PVD3515
◆ DIGIVEX Power Motion (DPM) User Manual	(DPM)	PVD3522
◆ DIGIVEX Multi Motion (DMM) User Manual	(DMM)	PVD3523
◆ DIGIVEX Motion - CANopen		PVD3518
◆ DIGIVEX Motion - Profibus		PVD3554
◆ PME-DIGIVEX Motion Adjustment Manual		PVD3516
◆ DIGIVEX Motion Directory of Variables		PVD3527
◆ DIGIVEX Motion Programming		PVD3517
◆ DIGIVEX Motion - Cam Function		PVD3538
◆ PME Tool kit User and Commissioning Manual		PVD3528
◆ CANopen - CAN Bus Access via CIM03		PVD3533
◆ CANopen - Remote control using PDO messages		PVD3543
◆ "Block Positioning" Application Software		PVD3519
◆ "Fly shear linear cutting" software application		PVD3531
◆ "Rotary blade cutting" software application		PVD3532

1.2 Directory of Variables

The *Directory of Variables* lists the *variables* available to the user and describes their main functions.

1.3 Definitions

A *variable* is a specific vector of information whose value may change. Each *variable* is defined by the following information:

- *name*
- *number*
- *CAN or PROFIBUS index*
- *format*
- *unit*
- *range of variation*
- *type*
- *access enable*

name : This is the name assigned to the variable.

number : This is the identification number of the variable.

Index : This is a number giving access to the variable via the CAN bus or PROFIBUS.

- To get the *index* just add 10240 to the variable's identification number.
- Each variable has a *sub-index*. It is 0 for the variables described in this document.

format : This is the way the binary coded decimal is represented. The formats assigned to variables are shown below:

format :	Characteristics :
double precision D	40-bit real ($\pm 3.4 \cdot 10^{38}$ with 10 significant figures)
floating F	32-bit real 32-bit real ($\pm 3.4 \cdot 10^{38}$ with 7 significant figures)
floating F2	32-bit real coded in format " 9.123456789E 99" and presented as a 16-character string
integer E	32-bit integer ($\pm 2\ 147\ 483\ 647$).
bit B	binary value (0 or 1).
string C1	string of up to 16 characters

Attention :

When magnitudes coded in double precision (*D*) or floating (*F*) format exceed the number of significant figures of their format, an exponent is introduced and precision may be lost...

DIGIVEX Motion directory of variables

units : These are the units of magnitude expressed by each variable.

range of variation: This is the interval of values allowed for each variable.

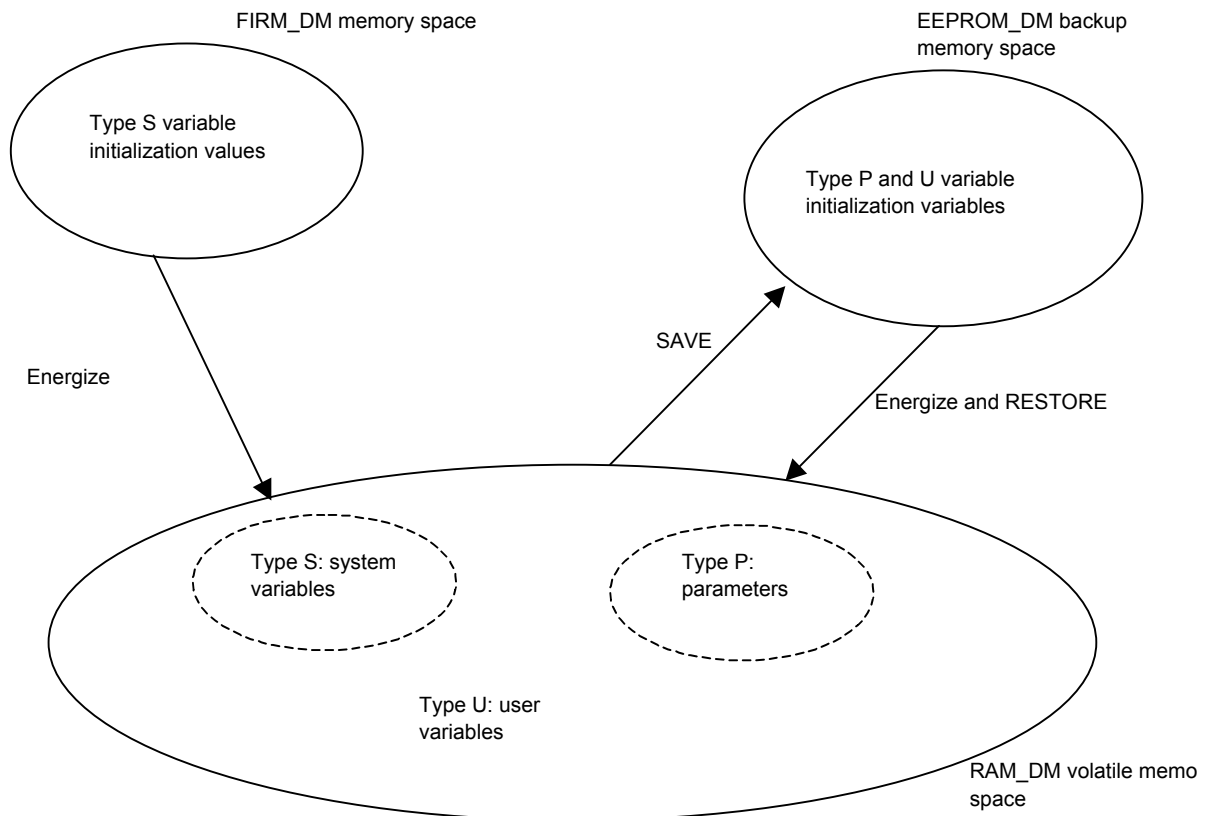
type : There are three types of variables designated as *U*, *S* or *P*.

type :	Characteristics :
U	These are user variables . They are specially assigned to application programming: counter control, specific calculations, safeguard registers, loop indices, miscellaneous tests, etc. They are available in all formats.
S	These are system variables . These variables are recalculated in real time. They change with the parameters set and the dynamic status of the motor / drive assembly.
P	These variables are parameters . They present constant values which may be changed: <ul style="list-style-type: none"> - by PME software parameter setting tools - by the program (intentional action in the user program by means of instructions) - by the CAN bus or PROFIBUS (transmission of an appropriate signal) Attention : <ul style="list-style-type: none"> • Changing certain <i>parameters</i> may entail recalculation of certain <i>system variables</i>. • Certain <i>parameters</i> can only be changed when " torque is off ".

access enable: This is the mode of access to the variable. It may be of the "write only" or "read and write" type.

Access enable:	Characteristics :
R	All variables can be accessed in "read only" mode by default.
R**	The CAN bus or PROFIBUS can access all variables in "read only" mode by default. It is not possible to read these variables with a program written in BASIC_DM.
R / W	Variables that can be accessed in read and write mode are marked R / W in the tables. The user may change them at will.
R / W*	When a variable can only be changed if the "motor at zero torque" condition is met, access enable is marked by R / W*.
R / W** W**	This type of variable can only be accessed at "zero torque" <u>and</u> via the CAN bus or PROFIBUS (these variables cannot be altered with a program written in BASIC_DM).

1.4 Memory



- The *variables* share a volatile memory space termed RAM_DM. This is their common working space. When the user accesses a variable and changes its value, it is the RAM_DM space that is modified.
- The *system variables* have their initialization values "engraved" in a flash_eprom memory space termed FIRM_DM. These initialization values cannot be modified by the user. When the device is energized, the contents of the FIRM_DM space are copied into the RAM_DM space.
- The initialization values of the *parameters* are stored in an eeprom memory space termed EEPROM_DM. The R /W parameter initialization data may be modified by the user. When a value is changed, it is the RAM_DM space that is changed. The *parameter* is saved in the EEPROM_DM space by the PME software SAVE command. When the device is energized or in response to a PME software RESTORE command, the contents of the EEPROM_DM memory space are copied to the RAM_DM space.
- Certain *user variables* may be saved to EEPROM_DM memory space. They are indicated explicitly in the description tables below by the words "*user variables that can be stored in EEPROM_DM*".

1.5 Remarks

- The positioner drive has an open software architecture. This means that all the *variables* are accessible. Those for which *access enable* allows read and write modes (R / W) can be modified by the program without restriction.



So think first before modifying *variables*!

- This document lists all the available variables. They are classified as in the entry windows proposed by *PME Module DIGIVEX Motion* software.
- The *variables* that are commonly used and will probably be of interest to the operator are shaded in the lists, e.g.

<i>home_made</i> [information origine faite]
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2. OPERATING MODES

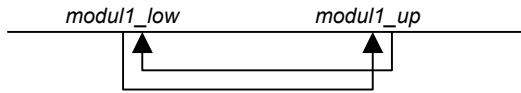
2.1 Configuration

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables entered in <i>Operating Modes</i> environment, <i>Set-up</i> thumb index.								
<i>axis1</i> [Axis Name]	Name of slave axis (axis 1)	1269	11509	C1	none	16 characters	P	R/W
<i>unit1</i> [Units]	Description of slave axis unit of measurement (axis 1)	1270	11510	C1	none	16 characters	P	R/W
<i>kunit_resolver</i> [Units / resolver Revolutions]	Correspondence factor between units of displacement and resolver revolution (motor revolution)	1253	11493	F	unit1/rev.	positive	P	R/W*
<i>kunit_resolver_d</i> [Units / tour resolver]	Correspondence coefficient between displacement units and motor revolutions expressed in D format	1613	11853	D	unit1/rev.	positive	P	R/W*
<i>modul1_en</i> [Apply the specified modulo]	<i>modul1_en</i> = 1 validates acknowledgement of modulo, applied to slave axis	1272	11512	B	none	0 or 1	P	R/W*
<i>modul1_up</i> [Upper Threshold Modulo]	Upper value of modulo on slave axis (axis 1) (modulo = <i>modul1_up</i> - <i>modul1_low</i>)	1282	11522	F	unit1	positive or zero	P	R/W
<i>modul1_up_d</i> [Upper Threshold Modulo]	Servocontrolled axis upper modulo value expressed in D format	1616	11856	D	unit1	positive or zero	P	R/W
<i>modul1_low</i> [Lower Threshold Modulo]	Lower value of modulo on slave axis (axis 1) (modulo = <i>modul1_up</i> - <i>modul1_low</i>)	1281	11521	F	unit1	negative or zero	P	R/W
<i>modul1_low_d</i> [Lower Threshold Modulo]	Servocontrolled axis lower modulo value expressed in D format	1615	11855	D	unit1	negative or zero	P	R/W
List of supplementary variables								
<i>kmul1</i>	Number of <i>unit1s</i> per axis 1 pulse (correspondence factor between displacement units and pulses from axis 1 position sensor) <i>kmul1</i> = number of <i>unit1s</i> / axis 1 pulse	1271	11511	D	unit1 / pulse	positive	S	R
<i>res_resolver</i>	Resolver resolution in marks per resolver revolution (1 mark = 4 pulses) <i>res_resolver</i> = constant = 16384	1252	11492	E	mark/rev.	positive	P	R/W*
<i>kmul_resolver</i>	Number of <i>unit1s</i> per pulse from resolver processing <i>kmul_resolver</i> = number <i>unit1s</i> / resolver pulse	1254	11494	D	unit1 / pulse	positive	S	R
<i>modul_type</i>	Type of modulo applied <i>modul_type</i> = 0 / standard modulo (see description of modulo types below)	1273	11513	B	none	0 or 1	P	R/W*

remarks. *kmul1* = *kmul_resolver* when the servocontrol uses position feedback from the resolver
kmul1 = *kmul2* when the servocontrol uses position feedback from the external encoder (external encoder input option).

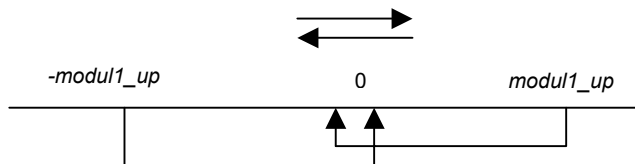
Types of modulo:

modul_type = 0 / modulo standard



- When the current motion reaches the upper position *modul1_up*, the "modulo" position is referenced to the lower position *modul1_low*.
- When the current motion reaches the lower position *modul1_low*, the "modulo" position is referenced to the upper position *modul1_up*.

modul_type = 1



- When the current motion reaches the upper position *modul1_up*, the "modulo" position is referenced to position 0.
- When the current motion reaches the lower position *-modul1_up*, the "modulo" position is referenced to position 0.
- The "modulo" position extends into the interval $[-modul1_up, 0]$ when the current motion, from the zone $[0, modul1_up]$, exceeds the zero position.
- The "modulo" position extends into the interval $[0, modul1_up]$ when the current motion, from the zone $[-modul1_up, 0]$, exceeds the zero position.

Set-up (continued)

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables entered in <i>Operating Modes</i> environment, <i>Set-up</i> thumb index.								
<i>option_card</i>	<i>Option Card</i> <i>option_card</i> = 0 ⇔ no option card <i>option_card</i> = 1 ⇔ encoder input <i>option_card</i> = 2 ⇔ encoder emulation <i>option_card</i> = 3 ⇔ SinCos encoder input The <i>option_card</i> parameter is acknowledged at initialization only.	1233	11473	E	none	0 - 2	P	R/W
<i>encoder_use</i>	<i>Encoder Input</i> <i>encoder_use</i> = 0 ⇔ servo <i>encoder_use</i> = 1 ⇔ master axis <i>encoder_use</i> = 2 ⇔ measured axis	1234	11474	E	none	0 - 2	P	R/W*
<i>filter_type</i> [normal or intensive filtering]	Nature of filter used in synchro mode: <i>filter_type</i> = 0 / normal filtering <i>filter_type</i> = 1 / intensive filtering	1280	11520	B	none	0 or 1	P	R/W
	Type of speed feedback used when <i>encoder_use</i> = 0 and <i>option_card</i> = 1: <i>fb_option</i> = 0 ⇔ speed feedback = encoder <i>fb_option</i> = 1 ⇔ speed feedback = resolver							

Servo-position set-up:

- 1] There is no option card.
In this case the slave position and the speed are controlled by the motor resolver.
option_card = 0
encoder_use = 0
- 2] There is an "encoder emulation" type option card.
option_card = 2
encoder_use = 0
- 3] There is an "external encoder input" type option card.
option_card = 1
 - 3.1] The external encoder provides a measured position; it is used as the master axis in master-slave synchronization.
encoder_use = 1
Filtering is normal: *filter_type* = 0
Filtering is intensive: *filter_type* = 1
 - 3.2] The external encoder is used for slave position control.
encoder_use = 0
The speed feedback is supplied by the encoder: *fb_option* = 0
The speed feedback is supplied by the resolver: *fb_option* = 1
 - 3.3] The external encoder provides a measured position, but this is not used for master / slave synchronization.
encoder_use = 2

N.B. *encoder_use* = 1 or 2 causes identical processing in the positioner drive. This option is used simply to correctly position the switches on the servocontrol algorithm mimic display that can be viewed with the *PME* software parameter editor.

- 4] There is a "SinCos encoder input" type option card
option_card = 3
The external encoder is used to control the slave position (*encoder_use* = 0)
The speed feedback is provided by the encoder (*fb_option* = 0)

Set-up (continued)

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables entered in <i>Operating Modes</i> environment, <i>Set-up</i> thumb index.								
<i>accel_max</i> [Accélération / décélération]	Maximum acceleration of axis expressed as an absolute value	1287	11527	F	unit1/s ²	positive	P	R/W
<i>target</i> [Fenêtre d'arrêt]	Value of target expressed as an absolute value (used to provide <i>in_position</i> information).	1284	11524	F	unit1	positive	P	R/W
<i>speed_max</i> [Vitesse max application]	Maximum axis speed expressed as an absolute value	1288	11528	F	unit1/s	positive	P	R/W
<i>trackerror_max</i> [Erreur de poursuite max]	Maximum permissible tracking error value expressed as an absolute value	1283	11523	F	unit1	positive	P	R/W

2.2 Options

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables entered in the Operating Modes environment, Options tab								
<i>dir_inv</i> [inversion du sens des mouvements programmés]	Inversion + direction / - direction Direction reversal ⇔ <i>dir_inv</i> = 1	1274	11514	B	none	0 or 1	P	R/W
<i>exec_en</i> [enable program execution]	Enable program execution ⇔ <i>exec_en</i> = 1	1224	11464	B	none	0 or 1	P	R/W
<i>userprog_option</i> [Wait for power-up before crossing PROG0 #START address]	Wait for power-up before crossing PROG0 #START address ⇔ <i>userprog_option</i> = 1	1461	11701	B	none	0 or 1	P	R/W
<i>move_en</i> [Enable motion]	Enable motion ⇔ <i>move_en</i> = 1	1340	11580	B	none	0 or 1	P	R/W
<i>torque_cmd</i> [Torque command]	Torque command ⇔ <i>torque_cmd</i> = 1	1336	11576	B	none	0 or 1	P	R/W
<i>drive_mode</i> [Axis control]	Axis drive drive_mode = 0 ⇔ position drive drive_mode = 1 ⇔ speed drive drive_mode = 2 ⇔ power drive drive_mode = 3 to 7 ⇔ axis drive via PDOs (remote control via CANopen bus)	1520	11760	E	without	0 to 7	P	R/W
<i>speed_option</i> [Arrêt de l'axe]	Stop axis before switching from speed control mode to position control mode ⇔ <i>Speed_option</i> = 0	1521	11761	B	None	0 or 1	P	R/W
<i>fault_option</i> [Fault management]	All faults become major faults ⇔ <i>fault_option</i> = 1	1661	11901	B	without	0 or 1	P	R/W
List of supplementary variables								
<i>exec_on</i>	Program running information ⇔ <i>exec_on</i> = 1	1225	11465	B	none	0 or 1	S	R
<i>move_on</i>	Forward enable information ⇔ <i>move_on</i> = 1 This information is given when <i>move_en</i> = 1 and <i>move_sys</i> = 1 (system enable)	1320	11560	B	none	0 or 1	S	R
<i>speed_value</i>	Speed set-point in speed control mode	1479	11719	F	unit1/s	-	S	R/W
<i>torque_value</i>	Torque set-point in current control mode	1523	11763	F	N.m	-	S	R/W

2.3 Origin setting

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables entered in <i>Operating Modes</i> environment, <i>Origin setting</i> thumb index.								
<i>hardlimit_en</i> [Hardware Limits Active]	Validate electrical limit switches ⇔ <i>hardlimit_en</i> = 1	1276	11516	B	none	0 or 1	P	R/W
<i>softlimit_en</i> [Software Limits Active]	Validate software limit switches ⇔ <i>softlimit_en</i> = 1	1277	11517	B	none	0 or 1	P	R/W
<i>softlimit_p</i> [Limit +]	Software limit switch, + limit	1285	11525	F	unit1	positive	P	R/W
<i>softlimit_m</i> [Limit -]	Software limit switch, - limit	1286	11526	F	unit1	negative	P	R/W
<i>switch0_en</i> [Home Cam Acknowledgment]	Validate acknowledgement of origin switch ⇔ <i>switch0_en</i> = 1 (if <i>switch0_en</i> = 0, only the encoder zero mark or resolver zero will be used as home datum)	1278	11518	B	none	0 or 1	P	R/W
<i>home_dir</i> [Direction of Home Setting]	Define origin setting direction + direction ⇔ <i>home_dir</i> = 0 - direction ⇔ <i>home_dir</i> = 1	1275	11515	B	none	0 or 1	P	R/W
<i>home_speed</i> [Home Speed]	Homing speed expressed as an absolute value	1289	11529	F	unit1/s	positive	P	R/W
<i>home_offset</i> [Home Offset]	Home offset	1466	11706	F	unit1	-	P	R/W
List of supplementary variables								
<i>switch0_input</i>	Origin switch input status information <i>switch0_input</i> = 1 ⇔ mobile component at origin switch (<i>switch0_input</i> is acknowledged only if <i>switch0_en</i> = 1)	1341	11581	B	none	0 or 1	S	R/W
<i>switch0</i>	Origin switch status information <i>switch0</i> = <i>switch0_input</i> if <i>switch0_en</i> = 1 <i>switch0</i> is forced to 1 if <i>switch0_en</i> = 0	1313	11553	B	none	0 or 1	S	R
<i>hardp_input</i>	+ hard limit switch input status information the switch is on the running limits + ⇔ <i>hardm_input</i> = 0	1318	11558	B	none	0 or 1	S	R/W
<i>hardm_input</i>	- hard limit switch input status information the switch is on the running limits - ⇔ <i>hardm_input</i> = 0	1319	11559	B	none	0 or 1	S	R/W
<i>home_made</i>	Home made information Origin set ⇔ <i>home_made</i> = 1	1308	11548	B	none	0 or 1	S	R/W
<i>homing</i>	Homing information Origin setting underway ⇔ <i>homing</i> = 1	1310	11550	B	none	0 or 1	S	R
<i>home_cmd</i>	Home command Origin setting requested ⇔ <i>home_cmd</i> = 1	1338	11578	B	none	0 or 1	S	R/W

2.4 Brake

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables entered in <i>Motor / Resolver</i> environment, <i>Motor / Drive</i> thumb index								
<i>brake_en</i> [Moteur avec frein]	Validate brake <i>brake_en</i> = 1 ⇔ motor with brake	1246	11486	B	none	0 or 1	P	R/W*
List of variables entered in <i>Operating Modes</i> environment, <i>Brake</i> thumb index								
<i>brake_management</i> [Gestion du frein par le variateur]	Validate brake control by drive ⇔ <i>brake_management</i> = 1	1439	11679	B	none	0 or 1	P	R/W
<i>brake_init</i>	Type of brake operation at initialization 0 ⇔ no opening at initialization 1 ⇔ open brake if power 2 ⇔ open brake if auxiliary	1248	11488	E	none	0 - 2	P	R/W*
<i>brake_option</i> [Ouverture du frein interdite hors couple ou si puissance non présente]	Brake opening disable option if no torque or if no power ⇔ <i>brake_option</i> = 1	1440	11680	B	none	0 - 1	P	R/W
List of supplementary variables								
<i>brake_inertia</i>	Brake inertia	1247	11487	F2	kgm ²	positive or zero	P	R/W
<i>brake_ton</i>	Brake closing time (typical value)	1249	11489	F2	s	positive or zero	P	R/W
<i>brake_toff</i>	Brake opening time (typical value)	1250	11490	F2	s	positive or zero	P	R/W
<i>brake_cmd</i>	Brake closure command <i>brake_cmd</i> = 1 ⇔ brake closure <i>brake_cmd</i> = 0 ⇔ brake opening	1337	11577	B	none	0 or 1	S	R/W
<i>brake_emergency</i>	Brake emergency closure command ⇔ <i>brake_emergency</i> = 1	1315	11555	B	none	0 or 1	S	R/W
<i>brake_supplied</i>	"Brake supplied" information ⇔ <i>brake_supplied</i> = 1	1317	11557	B	none	0 or 1	S	R

2.5 CANopen

These variables are not available in the event that a DIGIVEX Motion Profibus is being used

Variable name	Function	No.	index	Format	Units	Variations	Type	Access
SDO_server	Number of SDO channels 0 : 2 channels 1 : 4 channels	48	10288	B	without	0 or 1	P	R/W
SYNC_period	Synchronized message frequency	1645	11885	E	µs	1 to 1000000	P	R/W
SYNC_factor	Synchronized message correction factor	1646	11886	F	without	0.0001 to 0.1	P	R/W
PDO1_rx_cfg	Definition of the contents of the PDO Rx 1 message 0 : inactive (default value) 1 : Control Word 2 : Control Word + Mode Of Operation 3 : Control Word + Target Position 4 : Control Word + Target Velocity 5 : Control Word + Target Torque 21 : Control Word + Torque Max (0,01 Nm) + Target Position 22 : Control Word + Torque Max (Nm) + Target Position 23 : Control Word + Current reduction (0,01A) + Target Position	1621	11861	E	without	0 to 21	P	R/W
PDO2_rx_cfg	Definition of the contents of the PDO Rx 2 message	1622	11862	E	without	0 to 21	P	R/W
PDO3_rx_cfg	Definition of the contents of the PDO Rx 3 message	1623	11863	E	without	0 to 21	P	R/W
PDO4_rx_cfg	Definition of the contents of the PDO Rx 4 message	1624	11864	E	without	0 to 21	P	R/W
PDO1_tx_cfg	Definition of the contents of the PDO Tx 1 message 0 : inactive (default value) 1 : Status Word 2 : Status Word + Mode Of Operation Display 3 : Status Word + Position Actual Value 4 : Status Word + Velocity Actual Value 21 : Status Word + Torque Actual Value + Position Actual Value 22 : Status Word + in_port + pos_memo 23 : Master Actual Value (pos2) 24 : PxStatus Word + Torque Actual Value (0,01 Nm) + Position Actual Value 25 : PxStatus Word + Torque Actual Value (Nm) + Position Actual Value 26 : PxStatus Word + id_measure (0,01A) + Position Actual Value	1625	11865	E	without	0 to 21	P	R/W
PDO2_tx_cfg	Definition of the contents of the PDO Tx 2 message	1626	11866	E	without	0 to 21	P	R/W
PDO3_tx_cfg	Definition of the contents of the PDO Tx 3 message	1627	11867	E	without	0 to 21	P	R/W
PDO4_tx_cfg	Definition of the contents of the PDO Tx 4 message	1628	11868	E	without	0 to 21	P	R/W

3. AXIS / MOTOR / RESOLVER / BRAKE

3.1 Axis

Variable name [label]	function	n°	index	format	units	variations	type	access
Manufacturer_Drive	Positioner drive manufacturer's name	140	10380	C1	none	16 characters PARVEX SAS	P	R**
Drive_Type	Positioner drive name and current rating	141	10381	C1	none	16 characters	P	R**
I_nominal_Drive	Positioner drive nominal current	142	10382	F2	A	positive	P	R**
I_peak_Drive	Positioner drive pulse current	143	10383	F2	A	positive	P	R**
I_bus	Bus current	144	10384	F2	A	positive	P	R**
Minimal_Ubus	Minimum bus voltage	145	10385	F2	V	positive	P	R**
Nominal_Ubus	Nominal bus voltage	146	10386	F2	V	positive	P	R**
Threshold_Ubus	Bus detection voltage	147	10387	F2	V	positive	P	R**
Maximal_Ubus	Maximum bus voltage	148	10388	F2	V	positive	P	R**
Average_I	Mean current drive protection time constant	149	10389	F2	s	positive	P	R**
Maximal_Drive_Temperature	Maximum drive temperature	152	10392	F2	°C	positive	P	R**
Dev_Type	"Device_Type" CANopen object indicates device type in coded form (CANopen standard)	4096	4096	E	none	-	P	R**
Dev_Name	"Manufacturer device name" CANopen object = Drive_Type	4104	4104	C1	none	16 characters	P	R**
Hard_Version	"Manufacturer hardware version" CANopen object = Drive_Type	4105	4105	C1	none	16 characters	P	R**
Soft_Version	"Manufacturer software version" CANopen object = Firmware_Version	4106	4106	C1	none	16 characters	P	R**
Set_number_firm	Parameter set number corresponding to firmware	7	10247	E	none	positive or zero	P	R**
Set_number_EEPROM	Parameter set number in EEPROM	8	10248	E	none	positive or zero	P	R**
Firmware_Version	Firmware software version name	9	10249	C1	none	16 characters	P	R**
CAN_Address	Positioner drive CAN address	10	10250	F2	none	1 - 63	P	R**
Serial_Number	Positioner drive serial number	11	10251	C1	none	16 characters	P	R**
Set_number_PME	Parameter set number corresponding to PME software	12	10252	E	none	positive	P	R/W**
CAN_Baud_Rate	CAN bus baud rate in coded form	13	10253	F2	none	positive	P	R/W**
Processor_Type	Name of processor controlling power section	14	10254	C1	none	16 characters	P	R**
Clock_Frequency	Frequency of processor controlling power section	15	10255	F2	none	positive	P	R**
Te	Cycle time of processor controlling power section	16	10256	F2	none	positive	P	R**
Vendor_ID	Positioner drive manufacturer's code	4120	4120	E	none	positive 187	P	R**

3.2 Motor

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables relating to <i>Motor / Resolver</i> environment, <i>Motor / Drive</i> thumb index, <i>Details</i> or <i>Modify</i> key..., <i>Motor Definition</i> Window, page 1								
<i>Nmanufacturer</i>	Motor manufacturer's name	50	10290	C1	none	16 characters	P	R/W**
<i>Nmot</i> [Motor name]	Motor name	51	10291	C1	none	16 characters	P	R/W**
<i>Nvar</i> [Drive name]	Name of drive combined with motor (current rating)	52	10292	C1	none	16 characters	P	R/W**
<i>TypC</i> [Sensor type]	Sensor type	53	10293	F2	none	positive	P	R/W**
<i>TypF</i> [Brake type]	Brake type	54	10294	F2	none	positive	P	R/W**
<i>U</i> [DC supply voltage under load]	DC supply voltage under load	55	10295	F2	V	positive	P	R/W**
<i>limp</i> [Pulse current peak value]	Pulse current peak value	56	10296	F2	A	positive	P	R/W**
<i>I₀</i> [Slow rotation permanent current peak value]	Slow rotation permanent current peak value	57	10297	F2	A	positive	P	R/W**
<i>i_nominal_motor</i>	Peak permanent current in slow rotation [<i>I₀</i>]	1657	1897	F	A	positive	S	R
<i>M₀</i> [Slow rotation torque]	Slow rotation torque	58	10298	F2	Nm	positive	P	R/W* *
<i>torque_nominal_motor</i>	Torque in slow rotation [<i>M₀</i>]	1656	11896	F	Nm	positive	S	R
<i>Kt</i>	Torque coefficient via peak ampere [<i>Kt = M₀ / I₀</i>]	1660	11900	F	nm / A	positive	S	R
<i>Ke</i> [Ke peak between phases]	Peak back emf coefficient between phases (Ke peak volts for 1000 rpm)	59	10299	F2	V	positive	P	R/W**
<i>R</i> [Resistance between phases at 25°C]	Resistance between phases at 25°C	60	10300	F2	Ohms	positive	P	R/W**
<i>L</i> [Self entre phases (axes Id, spindle Iq)]	Inductance between phases	61	10301	F2	mH	positive	P	R/W**
<i>Avirl</i> [Phase advance in electrical degrees at <i>I₀</i>]	Phase advance in electrical degrees at <i>I₀</i>	62	10302	F2	electrical degrees	positive	P	R/W**
<i>Avsat</i> [Maximum phase advance in electrical degrees]	Maximum phase advance in electrical degrees	63	10303	F2	electrical degrees	positive	P	R/W**
<i>Pp</i> [Number of motor pole pairs]	Number of motor pole pairs	64	10304	F2	none	positive	P	R/W**
<i>Nmax</i> [Maximum speed]	Maximum motor speed	65	10305	F2	rpm	positive	P	R/W**
<i>torque_max</i> [Maximum torque (Cmax)]	Maximum motor torque	1243	11483	F2	Nm	positive	P	R/W
<i>NxCx</i> [Maximum speed at Cmax]	Maximum speed at Cmax	67	10307	F2	rpm	positive	P	R/W**

Motor (continued)

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables relating to <i>Motor / Resolver</i> environment, <i>Motor / Drive</i> thumb index, <i>Details</i> or <i>Modify</i> key..., <i>Motor Definition Window</i> , page 2								
<i>CxNx</i> [Maximum torque at Nmax]	Maximum torque at maximum speed	68	10308	F2	Nm	positive	P	R/W**
<i>Cthc</i> [Copper thermal time constant]	Copper thermal time constant	69	10309	F2	s	positive	P	R/W**
<i>Pil</i> [Driving type]	Driving type <i>Pil</i> = 1 ⇔ axis mode <i>Pil</i> = 0 ⇔ spindle mode	70	10310	F2	none	0 or 1	P	R/W**
<i>Vbase</i> [Basic speed in spindle mode]	Basic speed in spindle mode	71	10311	F2	rpm	positive	P	R/W**
<i>motor_inertia</i> [Motor inertia (J)]	Motor inertia	1242	11482	F2	kgm ²	positive	P	R/W
<i>Tmax</i> [Maximum winding temperature]	Maximum winding temperature	73	10313	F2	°C	positive	P	R/W**
<i>Na</i> [Polynomial I = f(N) coefficient a]	Polynomial I = f(N) coefficient a	74	10314	F2	1/(rpm)	-	P	R/W**
<i>Nb</i> [Polynomial I = f(N) coefficient b]	Polynomial I = f(N) coefficient b	75	10315	F2	1/(rpm) ²	-	P	R/W**
<i>ka</i> [Polynomial I = f(C) coefficient a (Ifca)]	Polynomial I = f(C) coefficient a	1244	11484	F2	A/Nm	-	P	R/W
<i>kb</i> [Polynomial I = f(C) coefficient b (Ifcb)]	Polynomial I = f(C) coefficient b	1245	11485	F2	A/(Nm) ³	-	P	R/W
<i>Ld0</i> [Direct inductance between phases for I = 0]	Direct inductance between phases for I = 0	78	10318	F2	mH	positive	P	R/W**
<i>LdImax</i> [Direct inductance between phases for I = Imax]	Direct inductance between phases for I = Imax	79	10319	F2	mH	positive	P	R/W**
<i>Fmot</i> [Motor family]	Motor family	80	10320	F2	none	positive	P	R/W**
<i>Lq</i> [Inductance in quadrature between phases]	Inductance in quadrature between phases	81	10321	F2	mH	positive	P	R/W**
<i>Cthf</i> [Iron loss thermal time constant]	Iron loss thermal time constant	82	10322	F2	s	positive	P	R/W**
<i>Ktpaim</i> [Magnet temperature coefficient]	Magnet temperature coefficient	83	10323	F2	%/°C	-	P	R/W**
<i>Tpt</i> [Thermal sensor presence]	Thermal sensor presence	84	10324	F2	none	positive	P	R/W**

3.3 Resolver

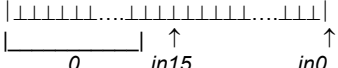
Variable name [label]	function	n°	index	format	units	variations	type	access
RefR	Resolver reference	100	10340	C1	none	16 characters	P	R/W**
NomR	Resolver name	101	10341	C1	none	16 characters	P	R/W**
TypR	Number corresponding to resolver type	102	10342	F2	none	positive	P	R/W**
Ppr	Number of pairs of resolver poles	103	10343	F2	none	positive	P	R/W**
Precr	Resolver precision	104	10344	F2	angular minute	positive	P	R/W**
Dephr	Resolver phase-shift at 8 kHz	105	10345	F2	angular degree	-	P	R/W**
Mr	Resolver transformation ratio	106	10346	F2	none	-	P	R/W**
Ur	Resolver supply rms voltage	107	10347	F2	V	positive	P	R/W**
Ir	Resolver supply current	108	10348	F2	mA	positive	P	R/W**
Nmaxr	Maximum resolver speed	110	10350	F2	rpm	positive	P	R/W**
Par	Active power absorbed by resolver at primary	111	10351	F2	W	positive	P	R/W**
Rpr	Resolver primary resistance (excitation)	112	10352	F2	Ohms	positive	P	R/W**
Rsr	Resolver secondary resistance (sine, cosine)	113	10353	F2	Ohms	positive	P	R/W**
resolver_inertia	Resolver inertia	1251	11491	F2	kgm ²	positive	P	R/W
Cde_Calage	Enable axis switch to timing mode	319	10559	F2	none	0 or 1	P	R/W**
Balance_DC_SIN	Resolver setting balance	213	10453	C1	none	-	P	R/W
Balance_DC_COS	Resolver setting balance	214	10454	C1	none	-	P	R/W
Balance_SIN_COS	Resolver setting balance	215	10455	C1	none	-	P	R/W

3.4 Brake

Variable name [label]	function	n°	index	format	units	variations	type	access
TypFf	Number corresponding to brake type	120	10360	F2	none	positive	P	R/W**
NomF	Brake name	121	10361	C1	none	16 characters	P	R/W**
Uf	Brake supply voltage	122	10362	F2	V	positive	P	R/W**
Cstatf20	Brake static holding torque at 20°C	123	10363	F2	Nm	positive	P	R/W**
Cstatf100	Brake static holding torque at 100°C	124	10364	F2	Nm	positive	P	R/W**
Iff	Brake supply current	125	10365	F2	A	positive	P	R/W**
Lf	Brake inductance	127	10367	F2	mH	positive	P	R/W**
Wf	Single-shot absorbable pulse energy	130	10370	F2	none	positive	P	R/W**
NmaxF	Maximum brake rotary speed	131	10371	F2	none	positive	P	R/W**
JeuF	Brake backlash	132	10372	F2	angular degree	-	P	R/W**
Cdynf100	Brake dynamic holding torque at 100°C	133	10373	F2	Nm	positive	P	R/W**
brake_inertia	Brake inertia	1247	11487	F2	kgm ²	positive	P	R/W
brake_ton	Brake closing time (typical value)	1249	11489	F2	s	positive or zero	P	R/W
brake_toff	Brake opening time (typical value)	1250	11490	F2	s	positive or zero	P	R/W

4. INPUTS / OUTPUTS

4.1 Logic inputs

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables entered in the <i>Inputs / Outputs</i> environment, <i>Logic inputs</i> thumb index								
<i>m_in0</i> à <i>m_in3</i>	Logic input mask 0 ⇔ logic input on connector 1 ⇔ forced logic input <i>f_inx</i> 2 ⇔ forced logic input with flag value 0 3 ⇔ forced logic input with flag value 1	1048 - 1051	11288 - 11291	E	none	0 - 3	P	R/W
<i>m_in4</i> à <i>m_in15</i> [Connector / Force]	Logic input mask 0 ⇔ logic input on connector 1 ⇔ forced logic input <i>f_inx</i>	1052 - 1063	11292 - 11303	B	none	0 or 1	P	R/W
<i>f_in0</i> à <i>f_in15</i> [Forcing Value]	Logic input forcing value 0 ⇔ logic input forced to 0 1 ⇔ logic input forced to 1	1080 - 1095	11320 - 11335	B	none	0 or 1	P	R/W
<i>level_in0</i> à <i>level_in3</i> [Interrupt Edge]	Choice of interrupt edge 0 ⇔ rising edge↑ 1 ⇔ falling edge↓ (<i>level_in0</i> can take value 0 only)	1101 - 1104	11341 - 11344	B	none	0 or 1	P	R/W
<i>delay_in0</i> [Interrupt Edge]	Sensor propagation time: the actual position stored will be the position at the exact time of the rising edge of <i>in0</i> corrected with: $V * delay_in0$ (where V is the mobile component speed)	1462	11702	F	s	0 - 1	P	R/W
<i>a_in11</i> à <i>a_in15</i> [Assignment]	Assignment* of logic inputs <i>in11 - in15</i> 0 ⇔ logic input not assigned 1 ⇔ logic input assigned	1096 - 1100	11336 - 11340	B	none	0 or 1	P	R/W
List of supplementary variables								
<i>c_in0</i> à <i>c_in15</i>	Status of logic inputs present at physical connector 0 ⇔ logic input at 0 1 ⇔ logic input at 1	1064 - 1079	11304 - 11319	B	none	0 or 1	S	R
<i>in0</i> à <i>in15</i>	Status of logic inputs with mask <i>m_in0 - m_in15</i> 0 ⇔ logic input at 0 1 ⇔ logic input at 1	1032 - 1047	11272 - 11287	B	none	0 or 1	S	R
<i>int_in0</i> à <i>int_in3</i>	Validate interruptive logic inputs 0 ⇔ interruptive input non validated 1 ⇔ interruptive input validated This function is provided by IT_OFF = INx and IT_ON = INx instructions	1105 - 1108	11345 - 11348	B	none	0 or 1	S	R/W
<i>in_port</i>	Status of masked logic input port: value expressed as binary  (The 16 most significant bits are not used)	1467	11707	E	none	-	S	R

Logic input assignment::

<i>assignment*</i> :	<i>variable</i> :	<i>label</i> :
<i>a_in11</i> à <i>a_in15</i> = 0	<i>non affectée</i>	situation by default
<i>a_in11</i> = 1	<i>hardp_input</i>	+ hard limit input status
<i>a_in12</i> = 1	<i>hardm_input</i>	- hard limit input status
<i>a_in13</i> = 1	<i>switch0_input</i>	origin switch input status
<i>a_in14</i> = 1	<i>move_en</i>	motion enable
<i>a_in15</i> = 1	<i>exec_en</i>	program execution enable

4.3 Analog input / output

4.3.1 Analog input

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables entered in the <i>Inputs / Outputs</i> environment, <i>Analog input / output</i> thumb index								
<i>unit4</i> [Units]	Describe unit used for analog input	1157	11397	C1	none	16 characters	P	R/W
<i>scale_ina</i> [Scale]	Analog input scale factor (analog-to-digital conversion gradient)	1162	11402	F	unit4/V	-	P	R/W
<i>ina_option</i> [0.1V dead band present]	0.1V dead band present ⇔ <i>ina_option</i>	1522	11762	B	none	0 or 1	P	R/W
<i>ina_offset</i> [Offset]	Offset setting using the analogue input	1649	11889	F	V	-10 to +10	P	R/W
<i>m_ina</i> [Software Forcing]	Analog input mask 0 ⇔ analog input = connector value 1 ⇔ analog input = forced value	1159	11399	B	none	0 or 1	P	R/W
<i>f_ina</i> [Value]	Analog input forced value	1161	11401	F	unit4	-	P	R/W
<i>a_ina</i> [Assignment]	Analog input assignment* 0 ⇔ analog input not assigned 1 ⇔ analog input assigned to <i>ki_red</i> 2 ⇔ input assigned to <i>speed_att</i> 3 ⇔ input assigned to <i>speed_value</i> 4 ⇔ input assigned to <i>torque_value</i>	1163	11403	E	none	0 - 4	P	R/W
List of supplementary variables								
<i>c_ina</i>	Analog input value present at physical connector, expressed in <i>unit4</i>	1160	11400	F	unit4	-	S	R
<i>ina</i>	Value of analog input with mask <i>m_ina</i>	1158	11398	F	unit4	-	S	R

Analog input assignment:

<i>assignment</i>	<i>variable</i>	<i>label:</i>
<i>a_ina</i> = 0	<i>non affecté</i>	situation by default
<i>a_ina</i> = 1	<i>ki_red</i>	current reduction coefficient applied to <i>i_red</i> . analog input = 0 Volt ⇒ <i>ki_red</i> = 0 ⇒ current limitation = 0 * <i>i_red</i> = 0 [A] analog input = 10 Volt ⇒ <i>ki_red</i> = 1 ⇒ current limitation = 1 * <i>i_red</i> = <i>i_red</i> [A]
<i>a_ina</i> = 2	<i>speed_att</i>	attenuation coefficient applied to programmed speed analog input = 0 V ⇒ <i>speed_att</i> = 0 ⇒ attenuated speed = 0 * <i>speed_prog</i> analog input = 10 V ⇒ <i>speed_att</i> = 1 ⇒ attenuated speed = 1 * <i>speed_prog</i>
<i>a_ina</i> = 3	<i>speed_value</i>	speed instruction in speed drive mode
<i>a_ina</i> = 4	<i>torque_value</i>	torque instruction in torque drive mode

Analog acquisition value *ina*:

ina voltage across analog input terminals * *scale_ina*
[*unit4*] = [Volts] * [*unit4*/Volt]

4.3.2 Analog output

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables entered in the <i>Inputs / Outputs</i> environment, <i>Analog input / output</i> thumb index								
<i>unit3</i> [Units]	Describe unit used for analog output	1164	11404	C1	none	16 characters	P	R/W
<i>scale_outa</i> [Scale]	Analog output scale factor (analog-to-digital conversion gradient)	1169	11409	F	V/unit3	-	P	R/W
<i>m_outa</i> [Software Forcing]	Analog output mask 0 ⇔ analog output = programmed value 1 ⇔ analog output = forced value	1166	11406	B	none	0 or 1	P	R/W
<i>f_outa</i> [Value]	Analog output forced value	1168	11408	F	unit3	-	P	R/W
<i>init_outa</i> [Initialization Value]	Analog output initialization value	1171	11471	F	unit3	-	P	R/W
<i>a_outa</i> [Assignment]	Analog output assignment*	1170	11410	E	none	0 - 20	P	R/W
List of supplementary variables								
<i>c_outa</i>	Analog output value present at physical connector, expressed in <i>unit3</i>	1167	11407	F	unit3	-	S	R
<i>outa</i>	Analog output programmed value	1165	11405	F	unit3	-	S	R/W

Analog output assignment:

<i>assignment</i>	<i>variable</i>	<i>label:</i>
<i>a_outa</i> = 0	<i>pas d'affectation</i>	situation by default
<i>a_outa</i> = 1	<i>pos1</i>	slave axis actual position
<i>a_outa</i> = 2	<i>pos2</i>	measured axis position
<i>a_outa</i> = 3	<i>pos_th</i>	position set point
<i>a_outa</i> = 4	<i>tracking_error</i>	tracking error
<i>a_outa</i> = 5	<i>speed1</i>	slave axis actual speed
<i>a_outa</i> = 6	<i>speed2</i>	measured axis speed
<i>a_outa</i> = 7	<i>speed_th</i>	speed set point
<i>a_outa</i> = 8	<i>synchro_error</i>	synchro speed error
<i>a_outa</i> = 9	<i>i_setpoint</i>	current set point
<i>a_outa</i> = 10	<i>uf0</i>	user variable
<i>a_outa</i> = 11	<i>uf1</i>	user variable
<i>a_outa</i> = 12	<i>ui0</i>	user variable
<i>a_outa</i> = 13	<i>ui1</i>	user variable
<i>a_outa</i> = 14	<i>ina</i>	analog input, status after mask
<i>a_outa</i> = 15	<i>cam_outa</i>	cam analog variable
<i>a_outa</i> = 16	<i>torque_setpoint</i>	torque set-point
<i>a_outa</i> = 17	<i>var0</i>	physical variable
<i>a_outa</i> = 18	<i>var1</i>	physical variable
<i>a_outa</i> = 19	<i>filter0</i>	filtered variable
<i>a_outa</i> = 20	<i>filter1</i>	filtered variable

Voltage across analog output terminals of value *outa*:

$$\text{Voltage} = \text{outa} * \text{scale_outa}$$

$$[V] = [\text{unit3}] * [V/\text{unit3}]$$

4.4 Encoder Input / Output

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables entered in the <i>Inputs / Outputs</i> environment, <i>Options</i> thumb index								
<i>option_card</i> [Option Card]	<i>option_card</i> = 0 ⇔ no option card <i>option_card</i> = 1 ⇔ encoder input <i>option_card</i> = 2 ⇔ encoder emulation <i>option_card</i> = 3 ⇔ SinCos encoder input The <i>option_card</i> parameter is acknowledged at initialization only.	1233	11473	E	none	0 to 3	P	R/W
<i>res_encoder</i> [Encoder Resolution]	Encoder resolution expressed in marks per revolution (1 mark = 4 pulses)	1260	11500	E	mark/rev.	positive	P	R/W*
<i>unit2</i> [Units]	Description of measured axis (axis 2) measurement unit	1257	11497	C1	none	16 characters	P	R/W
<i>kunit_encoder</i> [Units / Encoder Resolution]	Correspondence factor between displacement units and encoder revolution	1261	11501	F	unit2 / rev	positif	P	R/W*
<i>kunit_encoder_d</i> [Units / Encoder Resolution]	Correspondence coefficient between displacement units and encoder revolutions expressed in D format	1614	11854	D	unit2 / rev	positif	P	R/W*
<i>modul2_en</i> [Apply specified modulo]	<i>modul2_en</i> = validates acknowledgement of modulo, applied to measured axis (axis 2)	1259	11499	B	none	0 or 1	P	R/W*
<i>modul2_up</i> [Upper Threshold]	Upper value of measured axis (axis 2) modulo (<i>modulo</i> = <i>modul2_up</i> – <i>modul2_low</i>)	1264	11504	F	unit2	positive or zero	P	R/W
<i>modul2_up_d</i> [Upper Threshold]	Measured axis upper modulo value expressed in D format	1618	11858	D	unit2	positive or zero	P	R/W
<i>modul2_low</i> [Lower Threshold]	Lower value of measured axis (axis 2) modulo (<i>modulo</i> = <i>modul2_up</i> – <i>modul2_low</i>)	1263	11503	F	unit2	negative or zero	P	R/W
<i>modul2_low_d</i> [Lower Threshold]	Measured axis lower modulo value expressed in D format	1617	11857	D	unit2	negative or zero	P	R/W
<i>encoder_inv</i> [Inverse the Pulse Counting Direction]	<i>encoder_inv</i> = 1 ⇔ reverse encoder pulse counting direction	1258	11498	B	none	0 or 1	P	R/W*
<i>Encoder_Resolution</i> [Résolution émulation codeur]	Encoder emulation output resolution in marks per revolution	23	10263	F2	marks / revolution	positive	P	R/W**
<i>Encoder_Origin</i> [Prise en compte du top0]	Zero Mark location for encoder emulation output in marks	24	10264	F2	marks	positive or zero	P	R/W**
List of supplementary variables								
<i>kmul2</i>	Number of <i>unit2</i> s obtained for an encoder pulse from axis 2. (Correspondence factor between displacement units on measured axis and encoder pulses) <i>kmul2</i> = number of <i>unit2</i> s / axis 2 pulse	1262	11502	D	unit2/pulse	positive	S	R
<i>Balance_ENC_DC_SIN</i>	SinCos encoder setting balance	216	10456	C1	none	-	P	R/W
<i>Balance_ENC_DC_COS</i>	SinCos encoder setting balance	217	10457	C1	none	-	P	R/W
<i>Balance_ENC_SIN_COS</i>	SinCos encoder setting balance	218	10458	C1	none	-	P	R/W
<i>Encoder_Sinus</i>	SinCos encoder Sinus signal	1417	11657	F	V	-	S	R
<i>Encoder_Cosinus</i>	SinCos encoder Cosine signal	1418	11658	F	V	-	S	R

5. SERVOCONTROLS

5.1 Servocontrol settings

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables entered in <i>Servocontrol Settings</i> , <i>Servocontrol</i> thumb index								
<i>kp</i> [Gain]	Servoloop position gain	1365	11605	F	1/s	positive or zero	P	R/W
<i>k_v</i> [Gain]	Servoloop speed gain	1366	11606	F	1/s	positive or zero	P	R/W
<i>f_i</i> [Integral Stop]	PI regulator end of integral action frequency	1383	11623	F	Hz	positive	P	R/W
<i>f_c</i> [Filter]	Filter cut-out frequency (second order)	1371	11611	F	Hz	positive	P	R/W
<i>k_f_accel1</i> [Controlled Acceleration]	Acceleration anticipation (non-synchro)	1369	11609	F	1 ⇔ 100%	0 - 1.5	P	R/W
<i>k_f_accel2</i> [Master Acceleration]	Acceleration anticipation (synchro)	1370	11610	F	1 ⇔ 100%	0 - 1.5	P	R/W
<i>k_f_speed1</i> [Controlled Speed]	Speed anticipation (non-synchro)	1367	11607	F	1 ⇔ 100%	0 - 1.5	P	R/W
<i>k_f_speed2</i> [Master Speed]	Speed anticipation (synchro)	1368	11608	F	1 ⇔ 100%	0 - 1.5	P	R/W
<i>f_p</i> [Position Delay]	Position delay filter frequency	1379	11619	F	Hz	positive	P	R/W
<i>f_v</i> [Speed Delay]	Speed delay filter frequency	1375	11615	F	Hz	positive	P	R/W
<i>f_{static}</i> [Friction]	Dry friction coefficient expressed in Nm	1239	11479	F	Nm	positive or zero	P	R/W
<i>threshold</i> [Threshold]	Friction limit expressed as percentage of maximum speed <i>speed_max</i>	1238	11478	F	sans	< 0.01 < 1%	P	R/W
<i>gravity</i> [Gravity]	Gravity prediction applied to axis 1 expressed in Nm	1237	11477	F	Nm	-	P	R/W
<i>load_inertia</i> [Load]	Load inertia	1235	11475	F	kgm ²	positive or zero	P	R/W
<i>motor_inertia</i> [Motor]	Motor inertia	1242	11482	F2	kgm ²	positive	P	R/W
<i>brake_inertia</i> [Brake]	Brake inertia	1247	11487	F2	kgm ²	positive	P	R/W
<i>inertia</i> [Total]	Total inertia	1236	11476	F	kgm ²	positive	P	R/W
<i>i_red</i> [Limitation]	Limitation current expressed in Amps (current reduction coefficient <i>ki_red</i> applies to <i>i_red</i>)	1240	11480	F	A	positive or zero	P	R/W
<i>overload_management</i> [Continue with Reduction Current]	Enable current reduction application if rms current or mean current become excessive 0 ⇔ stop and switch to fault 1 ⇔ continue with reduced current	1279	11519	B	sans	0 or 1	P	R/W

5.2 Servocontrol algorithm

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables involved in the servocontrol algorithm								
<i>master_Vf</i>	Master axis (synchro measured axis) current speed	1435	11675	F	unit1/s	-	S	R
<i>master_Vn</i>	Theoretical speed from master axis (synchro)	1299	11539	F	unit1/s	-	S	R
<i>slave_Vn</i>	Theoretical speed of slave axis (non-synchro)	1296	11536	F	unit1/s	-	S	R
<i>master_Pn</i>	Master axis position set point (synchro)	1298	11538	D	unit1	-	S	R
<i>slave_Pn</i>	Slave axis position set point (non-synchro)	1295	11535	D	unit1	-	S	R
<i>master_Gn</i>	Master axis theoretical acceleration (synchro)	1300	11540	F	unit1/s ²	-	S	R
<i>slave_Gn</i>	Slave axis theoretical acceleration (non-synchro)	1297	11537	F	unit1/s ²	-	S	R
<i>fp_k1</i>	Position delay filter coefficient	1380	11620	D	-	-	S	R/W
<i>fp_k2</i>	Position delay filter coefficient	1381	11621	D	-	-	S	R/W
<i>fp_k3</i>	Position delay filter coefficient	1382	11622	D	-	-	S	R/W
<i>fp_out</i>	Position delay filter output	1426	11666	D	unit1	-	S	R
<i>pos1</i> [Real position of axis1]	Actual position of slave axis (axis 1) coming from resolver information (or encoder information if <i>option_card</i> = 1 or 3 and <i>encoder_use</i> = 0)	1290	11530	D	unit1	-	S	R
<i>pos1_f</i>	Real position of servocontrolled axis expressed in F format	1611	11851	F	unit1	-	S	R
<i>tracking_error</i> [Tracking Error]	Tracking error position value	1390	11630	F	unit1	-	S	R
<i>kp_out</i>	Position regulator output	1419	11659	F	unit1/s	-	S	R
<i>fv_k1</i>	Speed delay filter coefficient	1376	11616	F	-	-	S	R/W
<i>fv_k2</i>	Speed delay filter coefficient	1377	11617	F	-	-	S	R/W
<i>fv_k3</i>	Speed delay filter coefficient	1378	11618	F	-	-	S	R/W
<i>fv_out</i>	Speed delay filter output	1425	11665	F	unit1/s	-	S	R
<i>pred_speed</i>	Speed prediction	1427	11667	F	unit1/s	-	S	R
<i>resol_speed</i>	Speed measurement from resolver	1256	11496	F	unit1/s	-	S	R
<i>speed_error</i>	Speed tracking error (PI input)	1430	11670	F	unit1/s	-	S	R
<i>pi_k1</i>	PI action filter coefficient	1384	11624	F	-	-	S	R/W
<i>pi_k2</i>	PI action filter coefficient	1385	11625	F	-	-	S	R/W
<i>integrator_en</i>	Integral action validated <i>integrator_en</i> = 1 ⇔ no current reduction (integral action is block if <i>overload</i> = 1)	1394	11634	B	none	0 or 1	S	R
<i>Freq_PWM</i>	Power bridge quench frequency Default value: 0.000000000E+00 4kHz : 4.000000000E+03 8kHz : 8.000000000E+03 Do not modify without good reason !	243	10446	C1	none	-	P	R/W

Servocontrol algorithm (continued)

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables involved in the servocontrol algorithm								
<i>pi_out</i>	PI action speed regulator output	1420	11660	F	unit1/s ²	-	S	R
<i>fstatic_out</i>	Speed component from dry friction predictor	1421	11661	F	Nm	-	S	R
<i>friction_gravity</i>	Speed component from dry friction and gravity predictors	1422	11662	F	unit1/s ²	-	S	R
<i>slave_gamma</i>	Slave axis acceleration prediction	1428	11668	F	unit1/s ²	-	S	R
<i>fc_in</i>	<i>fc</i> frequency filter input	1423	11663	F	unit1/s ²	-	S	R
<i>fc_k1</i>	Second order filter coefficient	1372	11612	F	-	-	S	R/W
<i>fc_k2</i>	Second order filter coefficient	1373	11613	F	-	-	S	R/W
<i>fc_k3</i>	Second order filter coefficient	1374	11614	F	-	-	S	R/W
<i>fc_out</i>	<i>fc</i> frequency filter output	1424	11664	F	unit1/s ²	-	S	R
<i>master_gamma</i>	Master axis acceleration prediction	1429	11669	F	unit1/s ²	-	S	R
<i>accel_setpoint</i>	Acceleration set point	1392	11632	F	unit1/s ²	-	S	R
<i>torque_max</i>	Maximum motor torque	1243	11483	F2	Nm	positive	P	R/W
<i>torque_setpoint</i>	Torque set point	1391	11631	F	Nm	-	S	R
<i>ki_red</i>	Current reduction coefficient applied to <i>i_red</i>	1241	11481	F	none	0 - 1	P	R/W
<i>i_setpoint</i>	Current set point	1393	11633	F	A	-	S	R
<i>id_measure</i>	Current measurement (information can only be visualized through use of the Oscilloscope tool)	-	-	-	A	-	-	-
<i>fp1</i>	Estimated bandwidth of current loop	1386	11626	F	Hz	positive	P	R
<i>fp2</i>	Estimated bandwidth of resolver processing	1387	11627	F	Hz	positive	P	R
<i>fp3</i>	Estimated bandwidth of external encoder processing	1388	11628	F	Hz	positive	P	R
<i>fp4</i>	Estimated bandwidth of ancillary processing	1389	11629	F	Hz	positive	P	R
<i>pos_setpoint</i>	Position set point	1469	11709	D	unit1	-	S	R
<i>speed_setpoint</i>	Speed set point	1470	11710	F	unit1/s	-	S	R

$ki_red = 0 \Rightarrow$ current limitation = $0 * i_red = 0$ [A] \Rightarrow motor is at zero torque

$ki_red = 1 \Rightarrow$ current limitation = $1 * i_red = i_red$ [A] \Rightarrow no current reduction applied to *i_red*

6. USUAL VARIABLES

6.1 User variables

Variable name [label]	function	n°	index	format	units	variations	type	access
List of user variables								
<i>uf0 à uf15</i>	user variables that can be stored in EEPROM_DM	512 - 527	10752 - 10767	F	none	-	U	R/W
<i>uf16 à uf191</i>	user variables	528 - 703	10768 - 10943	F	none	-	U	R/W
<i>ud0 à ud15</i>	user variables that can be stored in EEPROM_DM	704 - 719	10944 - 10959	D	none	-	U	R/W
<i>ud16 à ud63</i>	user variables	720 - 767	10960 - 11007	D	none	-	U	R/W
<i>ui0 à ui15</i>	user variables that can be stored in EEPROM_DM	768 - 783	11008 - 11023	E	none	-	U	R/W
<i>ui16 à ui127</i>	user variables	784 - 895	11024 - 11135	E	none	-	U	R/W
<i>ub0 à ub15</i>	user variables that can be stored in EEPROM_DM	896 - 911	11136 - 11151	B	none	-	U	R/W
<i>ub16 à ub127</i>	user variables	912 - 1023	11152 - 11263	B	none	-	U	R/W
<i>uc0 à uc7</i>	user variables	1024 - 1031	11264 - 11271	C1	none	-	U	R/W

6.2 Timers

Variable name [label]	function	n°	index	format	units	variations	type	access
List of timers								
<i>timer0 à timer3</i>	user timers	1220 - 1223	11460 - 11463	E	ms	positive	S	R/W
<i>clock</i>	Perpetual counter with time count from 0 to 10 s	1527	11767	F	s	0 - 10	S	R

6.3 Constants

Variable name [label]	function	n°	index	format	units	variations	type	access
List of predefined <i>user constants</i>								
<i>k180_pi</i>	constant = $180 / \pi$	1230	11470	F	none	-	S	R
<i>kpi_180</i>	constant = $\pi / 180$	1231	11471	F	none	-	S	R
<i>pi</i>	constant = π	1232	11472	F	none	-	S	R

6.4 Flags

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables concerning <i>user flags</i>								
<i>flag0</i> [flag0 status]	<i>flag0</i> = 1 ⇔ flagged variable belongs to the range [<i>flag0_low</i> , <i>flag0_up</i>]	1172	11412	B	none	0 or 1	S	R
<i>flag1</i> [flag1 status]	<i>flag1</i> = 1 ⇔ flagged variable belongs to the range [<i>flag1_low</i> , <i>flag1_up</i>]	1176	11416	B	none	0 or 1	S	R
<i>flag0_low</i>	<i>flag0</i> , lower limit of test range	1173	11413	F	-	-	P	R/W
<i>flag0_up</i>	<i>flag0</i> , upper limit of test range	1174	11414	F	-	-	P	R/W
<i>flag1_low</i>	<i>flag1</i> , lower limit of test range	1177	11417	F	-	-	P	R/W
<i>flag1_up</i>	<i>flag1</i> , upper limit of test range	1178	11418	F	-	-	P	R/W
<i>a_flag0</i>	<i>flag0</i> assignment* (parameter initialized to 0 by default)	1175	11415	E	none	0 - 20	P	R/W
<i>a_flag1</i>	<i>Flag1</i> assignment* (parameter initialized to 0 by default)	1179	11419	E	none	0 - 20	P	R/W

List of variables that can be flagged:

assignment*	variable	label:
<i>a_flagn</i> = 0	<i>pas d'affectation</i>	situation by default
<i>a_flagn</i> = 1	<i>pos1</i>	slave axis actual position
<i>a_flagn</i> = 2	<i>pos2</i>	measured axis actual position
<i>a_flagn</i> = 3	<i>pos_th</i>	theoretical position
<i>a_flagn</i> = 4	<i>tracking_error</i>	tracking error
<i>a_flagn</i> = 5	<i>speed1</i>	slave axis actual speed
<i>a_flagn</i> = 6	<i>speed2</i>	measured axis actual speed
<i>a_flagn</i> = 7	<i>speed_th</i>	theoretical speed
<i>a_flagn</i> = 8	<i>synchro-error</i>	synchro speed error (<i>master_Vn</i> - <i>master_Vf</i>)
<i>a_flagn</i> = 10	<i>uf0</i>	user variable
<i>a_flagn</i> = 11	<i>uf1</i>	user variable
<i>a_flagn</i> = 12	<i>ui0</i>	user variable
<i>a_flagn</i> = 13	<i>ui1</i>	user variable
<i>a_flagn</i> = 14	<i>ina</i>	analog input (with mask <i>m_ina</i>)
<i>a_flagn</i> = 15	<i>outa</i>	analog output (programmed value)
<i>a_flagn</i> = 16	<i>torque_setpoint</i>	torque set-point
<i>a_flagn</i> = 17	<i>var0</i>	physical variable
<i>a_flagn</i> = 18	<i>var1</i>	physical variable
<i>a_flagn</i> = 19	<i>filter0</i>	filtered variable
<i>a_flagn</i> = 20	<i>filter1</i>	filtered variable

*(*n* = 0 or 1 depending on selected *flag* no.)

6.5 Filters

Variable [entitled]	function	no.	Index	format	units	variations	type	access
List of variables concerned with <i>user flags</i>								
<i>filter0</i>	Filter 0 output value	165 0	11890	F	without	-	S	R
<i>filter1</i>	Filter 1 output value	165 3	11893	F	without	-	S	R
<i>a_filter0</i>	Assignment* of <i>filter0</i> (0 default <i>initialization setting</i>)	165 1	11891	E	without	0 to 18	S	R/W
<i>a_filter1</i>	Assignment* of <i>filter1</i> (0 default <i>initialization setting</i>)	165 4	11894	E	without	0 to 18	S	R/W
<i>f_filter0</i>	Filtering coefficient associated with <i>filter0</i>	165 2	11892	F	without	0 to 1	S	R/W
<i>f_filter1</i>	Filtering coefficient associated with <i>filter1</i>	165 5	11895	F	without	0 to 1	S	R/W

List of variables that may be acknowledged by a *filter*:

<i>assignment*:</i>	<i>variable:</i>	<i>entitled:</i>
<i>a_filtern</i> = 0	<i>no assignment</i>	default setting
<i>a_filtern</i> = 1	<i>pos1</i>	controlled axis actual position
<i>a_filtern</i> = 2	<i>pos2</i>	measured axis actual position
<i>a_filtern</i> = 3	<i>pos_th</i>	theoretical position set-point
<i>a_filtern</i> = 4	<i>tracking_error</i>	tracking error
<i>a_filtern</i> = 5	<i>speed1</i>	controlled axis actual speed
<i>a_filtern</i> = 6	<i>speed2</i>	measured axis actual speed
<i>a_filtern</i> = 7	<i>speed_th</i>	theoretical speed set-point
<i>a_filtern</i> = 8	<i>synchro_error</i>	synchronization speed error (<i>master_Vn</i> - <i>master_Vf</i>)
<i>a_filtern</i> = 10	<i>uf0</i>	user variable
<i>a_filtern</i> = 11	<i>uf1</i>	user variable
<i>a_filtern</i> = 12	<i>ui0</i>	user variable
<i>a_filtern</i> = 13	<i>ui1</i>	user variable
<i>a_filtern</i> = 14	<i>ina</i>	analogue input (fitted with the <i>m_ina</i> mask)
<i>a_filtern</i> = 15	<i>outa</i>	analogue output (programmed value)
<i>a_filtern</i> = 16	<i>torque_setpoint</i>	torque set-point
<i>a_filtern</i> = 17	<i>var0</i>	physical variable
<i>a_filtern</i> = 18	<i>var1</i>	physical variable

*(*n* = 0 or 1 depending on the no. of the chosen *filter*)

7. OTHER VARIABLES

7.1 Program management

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables concerning program management								
<i>exec_en</i>	Enable program execution ⇔ <i>exec_en</i> = 1	1224	11464	B	none	0 or 1	P	R/W
<i>exec_on</i>	Program running information ⇔ <i>exec_on</i> = 1	1225	11465	B	none	0 or 1	S	R
<i>plc1_prog</i>	Type 1 plc program number (generic plc)	1226	11466	E	none	0 - 999	S	R/W
<i>plc2_prog</i>	Type 2 plc program number (cyclic plc)	1227	11467	E	none	0 - 999	S	R/W
<i>defplc1</i>	Maximum authorized cycle time for type 1 plc program (generic plc)	1463	11703	E	ms	1 - 10 ⁶	S	R/W
<i>defplc2</i>	Type 2 plc program cycle time (cyclic plc)	1228	11468	E	ms	1 - 10 ⁶	S	R/W
<i>call_err</i>	Error management program run request ⇔ <i>call_err</i> = 1	1229	11469	B	none	0 or 1	S	R/W
<i>plc1_tick</i>	Type 1 plc program cycle counter (generic plc)	1330	11570	E	cycles	positive	S	R
<i>plc2_tick</i>	Type 2 plc program cycle counter (cyclic plc)	1331	11571	E	cycles	positive	S	R
<i>plc1_en</i>	Enable type 1 plc program execution ⇔ <i>plc1_en</i> = 1	1442	11682	B	none	0 or 1	S	R/W
<i>plc2_en</i>	Enable type 2 plc program execution ⇔ <i>plc2_en</i> = 1	1443	11683	B	none	0 or 1	S	R/W
<i>int0_prog</i>	Priority program number associated with <i>in0</i> (cf. <i>INTERRUPT0</i> = <i>PROGn</i>)	1444	11684	E	none	0 - 999	S	R/W
<i>int1_prog</i>	Priority program number associated with <i>in1</i> (cf. <i>INTERRUPT1</i> = <i>PROGn</i>)	1445	11685	E	none	0 - 999	S	R/W
<i>int2_prog</i>	Priority program number associated with <i>in2</i> (cf. <i>INTERRUPT2</i> = <i>PROGn</i>)	1446	11686	E	none	0 - 999	S	R/W
<i>int3_prog</i>	Priority program number associated with <i>in3</i> (cf. <i>INTERRUPT3</i> = <i>PROGn</i>)	1447	11687	E	none	0 - 999	S	R/W

Program management (continued)

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables concerning program management								
<i>error_prog</i>	Error management program number (cf. <i>ERROR = PROGn</i>)	1448	11688	E	none	0 - 999	S	R/W
<i>user_prog</i>	User program number	1449	11689	E	none	0 - 999	S	R
<i>user_en</i>	Enable user program execution ⇔ <i>user_en = 1</i>	1450	11690	B	none	0 or 1	S	R/W
<i>user_mode</i>	User program operating mode <i>user_prog</i> = 0 ⇔ hold = 1 ⇔ running = 2 ⇔ step	1451	11691	E	none	0 - 2	S	R/W
<i>plc1_mode</i>	Plc program operating mode <i>plc1_prog</i> = 0 ⇔ hold(<i>hold</i>) = 1 ⇔ running = 2 ⇔ step	1452	11692	E	none	0 - 2	S	R/W
<i>plc2_mode</i>	Plc program operating mode <i>plc2_prog</i> = 0 ⇔ hold = 1 ⇔ running = 2 ⇔ step	1453	11693	E	none	0 - 2	S	R/W
<i>user_line</i>	User program line number <i>user_prog</i>	1454	11694	E	none	positive	S	R
<i>plc1_line</i>	Plc program line number <i>plc1_prog</i>	1455	11695	E	none	positive	S	R
<i>plc2_line</i>	Plc program line number <i>plc2_prog</i>	1456	11696	E	none	positive	S	R
<i>int0_line</i>	Priority program line number <i>int0_prog</i>	1457	11697	E	none	positive	S	R
<i>int1_line</i>	Priority program line number <i>int1_prog</i>	1458	11698	E	none	positive	S	R
<i>int2_line</i>	Priority program line number <i>int2_prog</i>	1459	11699	E	none	positive	S	R
<i>int3_line</i>	Priority program line number <i>int3_prog</i>	1460	11700	E	none	positive	S	R
<i>userprog_option</i>	Wait for power up to execute user programs ⇔ <i>userprog_option = 1</i>	1461	11701	B	none	0 or 1	P	R/W
<i>read_ok</i>	Indicate µVision terminal has answered request ⇔ <i>read_ok = 1</i>	1471	11711	B	none	0 or 1	S	R/W

7.2 Stimuli generator

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables concerning the <i>stimuli generator</i>								
<i>stimulus_cmd</i>	Stimuli validation command ⇔ <i>stimulus_cmd</i> = 1	1359	11599	B	none	0 or 1	S	R/W
<i>stimulus_on</i>	Stimulus underway information ⇔ <i>stimulus_on</i> = 1	1335	11575	B	none	0 or 1	S	R
<i>stimulus_speed1</i>	Speed 1 for stimuli (signed value)	1360	11600	F	unit1/s	-	P	R/W
<i>stimulus_speed2</i>	Speed 2 for stimuli (signed value)	1361	11601	F	unit1/s	-	P	R/W
<i>stimulus_accel</i>	Acceleration for stimuli expressed as an absolute value	1362	11602	F	unit1/s ²	positive	P	R/W
<i>stimulus_period</i>	Stimulus period	1363	11603	F	s	positive	P	R/W
<i>stimulus_repet</i>	Number of repetitions of stimuli	1364	11604	E	none	positive	P	R/W

7.3 Path generator

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables concerning the <i>path generator</i>								
<i>T</i>	Sampling period value	1294	11534	F	s	positive	S	R
<i>psync</i>	Sum of master axis pulses (synchro)	1307	11547	E	pulses	-	S	R
<i>posa</i>	Absolute position set point (position to reach)	1349	11589	D	unit1	-	S	R/W
<i>posa_f</i>	Absolute destination position expressed in F format	1609	11849	F	unit1	-	S	R/W
<i>posr</i>	Relative position set point	1350	11590	D	unit1	-	S	R/W
<i>posr_f</i>	Relative destination position expressed in F format	1610	11850	F	unit1	-	S	R/W
<i>speed_prog</i>	Programmed speed, expressed as an absolute value	1351	11591	F	unit1/s	positive or zero	S	R/W
<i>fspeed_prog</i>	Speed to reach at end of motion (signed value)	1352	11592	F	unit1/s	-	S	R/W
<i>accel_prog</i>	Programmed acceleration, expressed as absolute value	1353	11593	F	unit1/s ²	positive or zero	S	R/W
<i>speed_move</i>	Speed of motion for future MOVE instruction, expressed as an absolute value	1354	11594	F	unit1/s	positive or zero	S	R/W
<i>fspeed_move</i>	Final speed of motion for future MOVE instruction (signed value)	1355	11595	F	unit1/s	-	S	R/W
<i>accel_move</i>	Motion acceleration for future MOVE instruction expressed as an absolute value	1356	11596	F	unit1/s ²	positive or zero	S	R/W
<i>ksync</i>	Copy ratio	1357	11597	F	unit1/unit2	-	S	R/W
<i>ksync_d</i>	Copy ratio expressed in D format	1619	11859	D	unit1/unit2	-	S	R/W
<i>speed_att</i>	Speed attenuator	1358	11598	F	sans	0 - 1	S	R/W
<i>synchro_att</i>	Perpetual synchro speed attenuator (system variable)	1525	11765	F	none	0 - 1	S	R
<i>master_speedmax</i>	Master axis used in continual synchronization maximum speed information	1524	11764	F	unit2/s	positive	S	R/W
<i>master_speedthreshold</i>	Master axis lower speed limit in perpetual synchro	1526	11766	F	unit2/s	positive or zero	S	R/W

Path generator (continued)

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables concerning the <i>path generator</i>								
<i>pos2</i>	Actual position of measured axis (coming from encoder information) <i>pos2 = kmul2 * poscod2</i>	1265	11505	D	unit2	-	S	R
<i>pos2_c</i>	Corrected actual position of measured axis (used indirectly only by <i>INDEX</i> and <i>SYNCHRO_START</i> instructions)	1465	11705	D	unit2	-	S	R
<i>pos2_f</i>	Real position of measured axis expressed in F format	1612	11852	F	unit2	-	S	R
<i>speed2</i>	Actual speed of measured axis (speed coming from encoder)	1266	11506	F	unit2/s	-	S	R
<i>delta2</i>	Delta pulses (pulse difference) of measured axis per sampling period	1267	11507	E	pulses	-	S	R
<i>poscod2</i>	Measured axis position expressed in pulses	1268	11508	E	pulses	-	S	R
<i>pos1</i>	Actual position of slave axis coming from resolver information (or encoder information if <i>option_card</i> = 1 or 3 and <i>encoder_use</i> = 0) <i>pos1 = kmul1 * poscod1</i>	1290	11530	D	unit1	-	S	R
<i>pos1_c</i>	Corrected actual position of slave axis (used indirectly only by <i>INDEX</i> and <i>SYNCHRO_START</i> instructions)	1464	11704	D	unit1	-	S	R
<i>pos1_f</i>	Real position of servocontrolled axis expressed in F format	1611	11851	F	unit1	-	S	R
<i>speed1</i>	Actual speed of slave axis coming from resolver information (or encoder information if <i>option_card</i> = 1 or 3 and <i>encoder_use</i> = 0)	1291	11531	F	unit1/s	-	S	R
<i>delta1</i>	Delta pulses (pulse difference) of slave axis per sampling period	1292	11532	E	pulses	-	S	R
<i>poscod1</i>	Slave axis position expressed in pulses	1293	11533	E	pulses	-	S	R
<i>delta_resolver</i>	Delta pulses (pulse difference) of resolver processing per sampling period	1255	11495	E	pulses	-	S	R
<i>target_move</i>	Window for declaring completed theoretical motion (used by path generator)	1301	11541	F	unit1	positive	S	R/W
<i>target_speed</i>	Window for declaring zero theoretical speed (used by path generator)	1302	11542	F	unit1/s	positive	S	R/W
<i>pos_th</i>	Theoretical position	1304	11544	D	unit1	-	S	R
<i>speed_th</i>	Theoretical speed (signed value)	1305	11545	F	unit1/s	-	S	R
<i>accel_th</i>	Theoretical acceleration (signed value)	1306	11546	F	unit1/s ²	-	S	R
<i>def_pos1</i>	Reinitialization command of slave axis position ⇔ <i>def_pos1 = 1</i>	1345	11585	B	none	0 or 1	S	R/W
<i>def_pos2</i>	Reinitialization command of measured axis position ⇔ <i>def_pos2 = 1</i>	1346	11586	B	none	0 or 1	S	R/W
<i>val_pos1</i>	Reinitialization value of slave axis position (destination variable of <i>def_pos1</i>)	1347	11587	D	unit1	-	S	R/W
<i>val_pos2</i>	Reinitialization value of measured axis position (destination variable of <i>def_pos2</i>)	1348	11588	D	unit1	-	S	R/W

7.4 Motion control and testing

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables involved in motion control and testing								
<i>move_sys</i>	Enable forward (system command) ⇔ <i>move_sys</i> = 1	1339	11579	B	none	0 or 1	S	R
<i>move_en</i>	Enable motion (user command) ⇔ <i>move_en</i> = 1	1340	11580	B	none	0 or 1	P	R/W
<i>move_on</i>	Enable forward information ⇔ <i>move_on</i> = 1 <i>move_on</i> = <i>move_sys</i> * <i>move_en</i>	1320	11560	B	none	0 or 1	S	R
<i>synchro_en</i>	Synchro validation command ⇔ <i>synchro_en</i> = 1	1342	11582	B	none	0 or 1	S	R/W
<i>synchro_on</i>	Synchro information validated ⇔ <i>synchro_on</i> = 1	1321	11561	B	none	0 or 1	S	R
<i>synchro_ok</i>	Axes in synchronism information ⇔ <i>synchro_ok</i> = 1	1529	11769	B	without	0 or 1	S	R
<i>synchro_error</i>	Speed synchronism deviation between master and slave	1303	11543	F	unit1/s	-	S	R
<i>synchro_poserr</i>	Position synchronism deviation between master and slave	1531	11771	F	unit1	-	S	R
<i>synchro_postarget</i>	Position synchronism axes information window	1528	11768	F	unit1	positive	S	R/W
<i>synchro_speedtarget</i>	Speed synchronism axes information window	1530	11770	F	unit1/s	positive	S	R/W
<i>moving</i>	Motion underway information ⇔ <i>moving</i> = 1	1309	11549	B	none	0 or 1	S	R
<i>move_abort</i>	Stop axis in progress information (ABORT instruction or hard limit switch action) ⇔ <i>move_abort</i> = 1	1343	11583	B	none	0 or 1	S	R
<i>move_end</i>	End of motion information (theoretical) ⇔ <i>move_end</i> = 1	1312	11552	B	none	0 or 1	S	R
<i>in_position</i>	Target reached information: <i>tracking_error</i> < <i>target</i> <u>and</u> <i>move_end</i> = 1 ⇔ <i>in_position</i> = 1	1311	11551	B	none	0 or 1	S	R
<i>abort_cmd</i>	Axis stop command ⇔ <i>abort_cmd</i> = 1	1332	11572	B	none	0 or 1	S	R/W
<i>emergency_cmd</i>	Emergency stop command ⇔ <i>emergency_cmd</i> = 1	1333	11573	B	none	0 or 1	S	R/W
<i>emergency_stop</i>	Emergency stop active information ⇔ <i>emergency_stop</i> = 1	1344	11584	B	none	0 or 1	S	R

7.5 Positioner drive management

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables involved in positioner drive management								
<i>torque_sys</i>	Enable torque (system command) ⇔ <i>torque_sys</i> = 1	1334	11574	B	none	0 or 1	S	R
<i>torque_cmd</i>	Enable torque (user command) ⇔ <i>torque_cmd</i> = 1	1336	11576	B	none	0 or 1	P	R/W
<i>torque_on</i>	Torque validated information ⇔ <i>torque_on</i> = 1 <i>torque_on</i> = <i>torque_sys</i> * <i>torque_cmd</i>	1316	11556	B	none	0 or 1	S	R
<i>drive_ok</i>	Positioner drive OK information (no major fault and power on) ⇔ <i>drive_ok</i> = 1	1314	11554	B	none	0 or 1	S	R
<i>overload</i>	Operational current reduction information [$i = f(t)$ ou $i^2 = f(t)$] ⇔ <i>overload</i> = 1	1322	11562	B	none	0 or 1	S	R
<i>fault</i>	Fault information ⇔ <i>fault</i> = 1	1323	11563	B	none	0 or 1	S	R
<i>fatal_error</i>	Major fault information ⇔ <i>fatal_error</i> = 1	1324	11564	B	none	0 or 1	S	R
<i>status_number</i>	Drive <i>status</i> information (see list of incidents and 7-segment display readouts below)	1325	11565	E	none	positive	S	R
<i>status_0</i>	Drive status information	1326	11566	E	none	positive or zero	S	R
<i>status_1</i>	Drive status information	1327	11567	E	none	positive or zero	S	R
<i>status_2</i>	Drive status information	1328	11568	E	none	positive or zero	S	R
<i>status_3</i>	Drive status information	1329	11569	E	none	positive or zero	S	R
<i>reset_cmd</i>	Fault "reset" command ⇔ <i>reset_cmd</i> = 1	1438	11678	B	none	0 or 1	S	R/W
<i>time_on</i>	Total operating time	1436	11676	E	s	-	S	R
<i>time_torque_on</i>	Operating time under torque	1437	11677	E	s	-	S	R
<i>clock</i>	Perpetual counter with time count from 0 to 10 s	1527	11767	F	s	0 - 10	S	R
<i>Save_Param</i>	Parameter save command	12295	12295	none	none	-	P	W**
<i>Restore_Param</i>	Command to reinitialize parameters with values in EEPROM	12296	12296	none	none	-	P	W**
<i>Calibration_cmd</i>	<i>Instruction "to carry out calibration"</i>	1647	11887	B	without	0 or 1	S	R/W
<i>Cmd_Prog</i>	<i>"apply programs" instruction</i>	12289	12289	without	without	PROG	P	R/W
<i>Cmd_ref</i>	<i>Instruction for position reference acknowledgement</i>	1648	11888	B	without	0 or 1	S	R/W

DIGIVEX Motion directory of variables

The **status_number** variable gives the identification code for an incident as listed below:

<i>Incident description</i>	<i>7-segment display</i>	status_number	<i>Etat</i>
<i>Stand-by (no power) with user program executed</i>	0	36	<i>Information</i>
<i>Stand-by (no power) with user program not executed</i>	0 flashing	1	<i>Information</i>
<i>Power present with user program executed</i>	1	21	<i>Information</i>
<i>Power present with user program not executed</i>	1 flashing	2	<i>Information</i>
<i>Resolver fault</i>	2	3	<i>Major fault</i>
<i>Encoder fault</i>	2 flashing	37	<i>Major fault</i>
<i>Excessive ambient temperature</i>	3	4	<i>Major fault</i>
<i>Excessive dissipater temperature</i>	3	5	<i>Major fault</i>
<i>High dissipater temperature with current reduction</i>	3 flashing	6	<i>Information</i>
<i>Excessive motor speed (rpm)</i>	4	7	<i>Major fault</i>
<i>Excessive application speed (in units/s)</i>	4	35	<i>Major fault</i>
<i>Excessive supply current</i>	5	8	<i>Major fault</i>
<i>Excessive drive current</i>	6	9	<i>Major fault</i>
<i>Excessive di/dt</i>	6	10	<i>Major fault</i>
<i>Excessive mean current</i>	7	11	<i>Major fault</i>
<i>Excessive rms current</i>	7	13	<i>Major fault</i>
<i>Excessive mean current with current reduction</i>	7 flashing	12	<i>Information</i>
<i>Excessive rms current with current reduction</i>	7 flashing	14	<i>Information</i>
<i>Bus overvoltage</i>	8	15	<i>Major fault</i>
<i>Excessive motor temperature</i>	9	16	<i>Major fault</i>
<i>Option board fault</i>	11	29	<i>Major fault</i>
<i>Incompatible axis/spindle definition</i>	A	17	<i>Major fault</i>
<i>CAN or PROFIBUS connection fault</i>	b	18	<i>Major fault</i>
<i>Synchronization message timeout</i>	b flashing	41	<i>Minor fault</i>
<i>Motor not connected</i>	C	19	<i>Major fault</i>
<i>User program memory fault</i>	d	20	<i>Minor fault</i>
<i>Emergency stop</i>	E	38	<i>Minor fault</i>
<i>Customization board not present</i>	F	22	<i>Major fault</i>
<i>Incompatible axis / customization board</i>	F	23	<i>Major fault</i>
<i>Internal parameter calculation fault</i>	F	24	<i>Major fault</i>
<i>Licence missing</i>	F flashing	42	<i>Minor fault</i>
<i>+ electrical limit switch reached</i>	H	25	<i>Minor fault</i>
<i>- electrical limit switch reached</i>	H	26	<i>Minor fault</i>
<i>+ software limit switch reached</i>	L	33	<i>Minor fault</i>
<i>- software limit switch reached</i>	L	34	<i>Minor fault</i>
<i>Program execution fault</i>	P	27	<i>Minor fault</i>
<i>Tracking error fault</i>	U	28	<i>Major fault</i>
<i>CPU C167 fault</i>	.	31	<i>Major fault</i>
<i>CPU DSP fault</i>	. flashing	32	<i>Major fault</i>

A major fault causes the OK relay to open.
A minor fault causes an operating problem indication.

7.6 Observable physical variables

The following set of variables allows certain physical magnitudes relating to the motor or drive to be observed (which are not directly accessible).

Variable name [label]	function	n°	index	format	units	variations	type	access
List of observable physical variables								
<i>var0</i>	Value of physical variable selected	1431	11671	F	none	-	S	R
<i>var1</i>	Value of physical variable selected	1432	11672	F	none	-	S	R
<i>a_var0</i>	<i>var0</i> assignment*	1433	11673	E	none	0 - 15	P	R/W
<i>a_var1</i>	<i>var1</i> assignment*	1434	11674	E	none	0 - 15	P	R/W

List of physical variables that can be assigned to *var0* and *var1*:

<i>assignment*</i>	<i>variable</i>	<i>label :</i>
<i>a_varx = 0</i>	<i>pas d'affectation</i>	
<i>a_varx = 1</i>	<i>id_measure</i>	[A] active component current measurement
<i>a_varx = 2</i>	<i>ud_voltage</i>	[V] active component voltage measurement
<i>a_varx = 3</i>	<i>id_setpoint</i>	[A] active component current control
<i>a_varx = 4</i>	<i>iq_setpoint</i>	[A] reactive component current control
<i>a_varx = 5</i>	<i>iu_measure</i>	[A] phase U current measurement
<i>a_varx = 6</i>	<i>iw_measure</i>	[A] phase W current measurement
<i>a_varx = 7</i>	<i>iq_measure</i>	[V] reactive component current measurement
<i>a_varx = 8</i>	<i>uq_voltage</i>	[V] reactive component voltage control
<i>a_varx = 9</i>	<i>bus_voltage</i>	[V] bus voltage measurement
<i>a_varx = 10</i>	<i>bus_current</i>	[A] bus current measurement
<i>a_varx = 11</i>	<i>filtered_bus_current</i>	[A] filtered current in bus measurement
<i>a_varx = 12</i>	<i>power</i>	[W] power measurement
<i>a_varx = 13</i>	<i>thermic_motor_load</i>	[%] motor thermal load rate 100% = $\sqrt{1.2} \cdot I_{0mot}$
<i>a_varx = 14</i>	<i>thermic_drive_load</i>	[%] drive thermal load rate 100% = $1.1 \cdot I_{Nvar}$
<i>a_varx = 15</i>	<i>heatsink_temp</i>	[°C] dissipater temperature

*(*x* = 0 or 1 depending on whether variable *var0* or *var1* is targetted)

7.7 CANopen variables

The following set of variables is used with specialized BASIC_DM instructions such as ADR, LINE, COL, PRINT, STC, ENQ, etc.

These variables are not available in the event that a DIGIVEX Motion Profibus is being used

Variable name [label]	function	n°	index	format	units	variations	type	access
List of variables (CANopen)								
<i>can_id</i>	Addressed device subscriber number	1472	11712	E	none	[1 - 63]	S	R/W
<i>can_index</i>	Addressed variable index number	1473	11713	E	none	[0 - 65535]	S	R/W
<i>can_subindex</i>	Addressed variable sub_index number	1474	11714	E	none	[0 - 255]	S	R/W
<i>can_page</i>	Page number addressed on a terminal	1475	11715	E	none	[0 - 255]	S	R/W
<i>can_line</i>	Line number on a terminal	1476	11716	E	none	[0 - 255]	S	R/W
<i>can_col</i>	Column number on a terminal	1477	11717	E	none	[0 - 255]	S	R/W

7.8 Profibus variables

These variables are not available in the event that a DIGIVEX Motion CANopen is being used

Variable name [label]]	function	n°	index	format	units	variations	type	access
List of variables (Profibus)								
<i>Param_PB_918</i>	Probibus Adress	3000	918	E	none	-	S	R**
<i>Param_PB_922</i>	Standard telegram	3001	922	E	none	-	S	R**
<i>Param_PB_930</i>	Operation mode	3002	930	E	none	-	S	R**
<i>Param_PB_964</i>	Equipment identification	3003	964	E	none	-	S	R**
<i>Param_PB_965</i>	Profile number	3004	965	E	none	-	S	R**
<i>Param_PB_967</i>	STW1 control word	3006	967	E	none	-	S	R/W
<i>Param_PB_968</i>	ZSW1 status word	3007	968	E	none	-	S	R**
<i>Param_PB_980</i>	List of the defined parameter numbers	3005	980	E	none	-	S	R**

7.9 Cams

7.9.1 Cam No 1 to 4 table

For each variable (column No and index), the first line corresponds to cam array No 1, the second line to cam array No 2, the third line to cam array No 3 and the fourth line to cam array No 4.

Arrayn = array1 to array4

Variable name (title)	Function	No.	index	Format	Units	Variations	Type	Access
<i>cam_arrayn_size</i>	cam array size	1553	11793	E	None	Positive	P	R/W
		1567	11807					
		1581	11821					
		1595	11835					
<i>cam_arrayn_delta</i>	increment step of cam array	1554	11794	F	None	Positive	P	R/W
		1568	11808					
		1582	11822					
		1596	11836					
<i>cam_arrayn_type</i>	cam array type 0: time function 1: master function	1555	11795	B	None	0 or 1	P	R/W
		1569	11809					
		1583	11823					
		1597	11837					
<i>cam_arrayn_cyc</i>	cam array execution 0: once 1: cyclical	1556	11796	B	None	0 or 1	P	R/W
		1570	11810					
		1584	11824					
		1598	11838					
<i>cam_arrayn_io</i>	cam array composition 0: position 1: position + variables	1557	11797	B	None	0 or 1	P	R/W
		1571	11811					
		1585	11825					
		1599	11839					
<i>cam_arrayn_rel</i>	cam array position setpoint type 0: absolute setpoint 1: relative setpoint	1558	11798	B	None	0 or 1	P	R/W
		1572	11812					
		1586	11826					
		1600	11840					
<i>cam_arrayn_master_origin</i>	position of master at first point of cam array	1566	11806	F	unit2	-	P	R/W
		1580	11820					
		1594	11834					
		1608	11848					
<i>cam_arrayn_en</i>	cam array validation	1565	11805	B	None	0 or 1	P	R/W
		1579	11819					
		1593	11833					
		1607	11847					
<i>cam_arrayn_index</i>	cam array current point index no.	1559	11799	E	None	>= 0 < cam_arrayn_size	P	R/W
		1573	11813					
		1587	11827					
		1601	11841					
<i>cam_arrayn_data_pos</i>	cam array current point position setpoint	1560	11800	F	unit1	-	P	R/W
		1574	11814					
		1588	11828					
		1602	11842					
<i>cam_arrayn_data_out</i>	logic variable combination for cam array current point	1561	11801	E	None	0 - 255	P	R/W
		1575	11815					
		1589	11819					
		1603	11843					
<i>cam_arrayn_data_outa</i>	analog variable value for cam array current point	1562	11802	F	None	-	P	R/W
		1576	11816					
		1590	11830					
		1604	11844					
<i>cam_arrayn_offset</i>	offset added to position setpoint	1563	11803	F	None	-	P	R/W
		1577	11817					
		1591	11831					
		1605	11845					
<i>cam_arrayn_mul</i>	Multiplier applied to position setpoint	1564	11804	F	None	-	P	R/W
		1578	11818					
		1592	11832					
		1606	11846					

7.9.2 Cam No 5 to 8 table

For each variable (column n° and index), the first line corresponds to cam array No 5, the second line to cam array No 6, the third line to cam array No 7 and the fourth line to cam array No 8.

Arrayn = array5 to array8

CAUTION ! These variables are available from firmware version AP704V12

Variable name (title)	Function	n°	index	format	units	variations	type	access
<i>cam_arrayn_size</i>	cam array size	1669	11909	E	None	positive	P	R/W
		1683	11923					
		1697	11937					
		1711	11951					
<i>cam_arrayn_delta</i>	Increment step of cam array	1670	11910	F	None	positive	P	R/W
		1684	11924					
		1698	11938					
		1712	11952					
<i>cam_arrayn_type</i>	cam array type 0: time function 1: master function	1671	11911	B	None	0 or 1	P	R/W
		1685	11925					
		1699	11939					
		1713	11953					
<i>cam_arrayn_cyc</i>	cam array execution 0: once 1: cyclical	1672	11912	B	None	0 or 1	P	R/W
		1686	11926					
		1700	11940					
		1714	11954					
<i>cam_arrayn_io</i>	cam array composition 0: position 1: position + variables	1673	11913	B	None	0 or 1	P	R/W
		1687	11927					
		1701	11941					
		1715	11955					
<i>cam_arrayn_rel</i>	Cam array position setpoint type 0: absolute setpoint 1: relative setpoint	1674	11914	B	None	0 or 1	P	R/W
		1688	11928					
		1702	11942					
		1716	11956					
<i>cam_arrayn_master_origin</i>	Position of master at first point of cam array	1682	11922	F	unit2	-	P	R/W
		1696	11936					
		1710	11964					
		1724	11964					
<i>cam_arrayn_en</i>	Cam array validation	1681	11921	B	None	0 or 1	P	R/W
		1695	11935					
		1709	11949					
		1723	11963					
<i>cam_arrayn_index</i>	Cam array current point index no.	1675	11915	E	None	>= 0 < cam_arrayn_size	P	R/W
		1689	11929					
		1703	11943					
		1717	11957					
<i>cam_arrayn_data_pos</i>	Cam array current point position setpoint	1676	11916	F	unit1	-	P	R/W
		1690	11930					
		1704	11944					
		1718	11958					
<i>cam_arrayn_data_out</i>	Logic variable combination for cam array current point	1677	11917	E	None	0 - 255	P	R/W
		1691	11931					
		1705	11945					
		1719	11959					
<i>cam_arrayn_data_outa</i>	Analog variable value for cam array current point	1678	11918	F	None	-	P	R/W
		1692	11932					
		1706	11946					
		1720	11960					
<i>cam_arrayn_offset</i>	Offset added to position setpoint	1679	11919	F	None	-	P	R/W
		1693	11933					
		1707	11947					
		1721	11961					
<i>cam_arrayn_mul</i>	multiplier applied to position setpoint	1680	11920	F	None	-	P	R/W
		1694	11934					
		1708	11948					
		1722	11962					

7.9.3 General variables

Variable name (title)	Function	No.	index	Format	Units	Variations	Type	Access
<i>cam_maxsize</i>	Maximum size available for cams	1548	11788	E	None	Positive	P	R
<i>cam_availsz</i>	Remaining available size for cams	1549	11789	E	None	Positive	P	R
<i>cam_on</i>	read mode: request for cam execution write mode: cam nformation is in the course of execution	1532	11772	B	None	0 or 1	P	R/W
<i>cam_active_array</i>	Active array number	1533	11773	E	None	1 to 8	P	R/W
<i>cam_end</i>	cam completed indication	1534	11774	B	None	0 or 1	P	R
<i>cam_out0</i>	Cam logic variables	1535	11775	B	None	0 or 1	P	R
<i>cam_out1</i>	Cam logic variables	1536	11776	B	None	0 or 1	P	R
<i>cam_out2</i>	Cam logic variables	1537	11777	B	None	0 or 1	P	R
<i>cam_out3</i>	Cam logic variables	1538	11778	B	without	0 or 1	P	R
<i>cam_out4</i>	Cam logic variables	1539	11779	B	without	0 or 1	P	R
<i>cam_out5</i>	Cam logic variables	1540	11780	B	without	0 or 1	P	R
<i>cam_out6</i>	Cam logic variables	1541	11781	B	without	0 or 1	P	R
<i>cam_out7</i>	Cam logic variables	1542	11782	B	without	0 or 1	P	R
<i>cam_outa</i>	Cam analog variables	1543	11783	F	without	-	P	R

7.9.4 Variables related to cam loading

Variable name (title)	Function	No.	index	Format	Units	Variations	Type	Access
<i>cam_load_number</i>	number of cam to be loaded	1544	11784	E	None	1 - 100	P	R/W
<i>cam_load_array</i>	number of target array	1545	11785	E	None	1 to 8	P	R/W
<i>cam_load_ok</i>	state of loading 1: loading OK 0: loading in process negative: error	1546	11786	E	None	-4 - 1	P	R
<i>cam_load_on</i>	write mode: request of cam loading read mode: loading cam Information	1547	11787	B	None	0 or 1	P	R/W

Please refer to the "PVD 3538 - Cam Function" manual for further information concerning the use of these variables.

7.10 Oscilloscope

variable [entitled]	function	no.	index	format	units	variations	type	access
<i>osc_channel0</i>	Variable containing the points of the curve that corresponds to channel 1	1180	11420	Specific	without	-	S	R
<i>osc_channel1</i>	Variable containing the points of the curve that corresponds to channel 2	1181	11421	Specific	without	-	S	R
<i>osc_channel2</i>	Variable containing the points of the curve that corresponds to channel 3	1182	11422	Specific	without	-	S	R
<i>osc_channel3</i>	Variable containing the points of the curve that corresponds to channel 4	1183	11423	Specific	without	-	S	R
<i>osc_num0</i>	Integer that defines the registration number of the variable associated with channel 1	1184	11424	E	without	positive	S	R/W
<i>osc_num1</i>	Integer that defines the registration number of the variable associated with channel 2	1185	11425	E	without	positive	S	R/W
<i>osc_num2</i>	Integer that defines the registration number of the variable associated with channel 3	1186	11426	E	without	positive	S	R/W
<i>osc_num3</i>	Integer that defines the registration number of the variable associated with channel 4	1187	11427	E	without	positive	S	R/W
<i>osc_trig_level</i>	Trigger triggering threshold	1188	11428	F	without	-	S	R/W
<i>osc_trig_channel</i>	Trigger channel number (0=channel1, 1=channel2, 2=channel3, 3=channel4)	1189	11429	E	without	0, 1, 2 or 3	S	R/W
<i>osc_trig_edge</i>	Trigger direction 0 : positive direction (increasing value) 1 : negative direction (decreasing value)	1190	11430	B	without	0 or 1	S	R/W
<i>osc_pretrig</i>	Pre-Trig value expressed as a percentage (% of the plot before the trigger)	1191	11431	F	without	positive	S	R/W
<i>osc_timebase</i>	Integer giving oscilloscope time base (value expressed in multiples of 250 μ s)	1192	11432	E	without	positive	S	R/W
<i>osc_trig_on</i>	Triggering type 0 : immediate triggering 1 : triggering via trigger	1193	11433	B	without	0 or 1	S	R/W
<i>osc_on</i>	Acquisition triggering if set to 1	1194	11434	B	without	0 or 1	S	R/W
<i>osc_data_ready</i>	Integer indicating the number of "divisions" ready	1195	11435	E	without	positive	S	R

Please refer to the PVD 3528 - PME Tool Kit" manual for further information concerning the use of these variables.

8. ALPHABETICAL INDEX

Variable name	Brief description	No.	index	sub-index	Section	
<i>a_filter0</i>	<i>filter0</i> assignment	1651	11891	0	6.5 Filters	A
<i>a_filter1</i>	<i>filter1</i> assignment	1654	11894	0	6.5 Filters	
<i>a_flag0</i>	<i>flag0</i> assignment	1175	11415	0	6.4 Flags	
<i>a_flag1</i>	<i>flag1</i> assignment	1179	11419	0	6.4 Flags	
<i>a_in11</i> à <i>a_in15</i>	Assignment of logic <i>in11 - in15</i>	1096 à 1100	11336 à 11340	0	4.1 Logic inputs	
<i>a_ina</i>	Analog input assignment	1163	11403	0	4.3.1 Analog inputs	
<i>a_out0</i> à <i>a_out7</i>	Logic output assignment	1141 à 1148	11381 à 11388	0	4.2 Logic outputs	
<i>a_outa</i>	Analog output assignment	1170	11410	0	4.3.2 Analog outputs	
<i>a_var0</i>	<i>var0</i> assignment	1433	11673	0	7.6 Observable physical variables	
<i>a_var1</i>	<i>var1</i> assignment	1434	11674	0	7.6 Observable physical variables	
<i>abort_cmd</i>	Axis stop command	1332	11572	0	7.4 Motion control and testing	
<i>accel_max</i>	Maximum acceleration of axis	1287	11527	0	2.1 Configuration	
<i>accel_move</i>	Motion acceleration for future MOVE instruction	1356	11596	0	7.3 Path generator	
<i>accel_prog</i>	Programmed acceleration	1353	11593	0	7.3 Path generator	
<i>accel_setpoint</i>	Acceleration set point	1392	11632	0	5.2 Servocontrol algorithm	
<i>accel_th</i>	Theoretical acceleration	1306	11546	0	7.3 Path generator	
<i>Average_I</i>	Mean current drive protection time constant	149	10389	0	3.1 Axis	
<i>Avirl</i>	Phase advance in electrical degrees at I_0	62	10302	0	3.2 Motor	
<i>Avsat</i>	Maximum phase advance in electrical degrees	63	10303	0	3.2 Motor	
<i>axis1</i>	Axis name	1269	11509	0	2.1 Configuration	B
<i>Balance_DC_SIN</i>	Resolver setting balance	213	10453	0	3.3 Resolver	
<i>Balance_DC_COS</i>	Resolver setting balance	214	10454	0	3.3 Resolver	
<i>Balance_SIN_COS</i>	Resolver setting balance	215	10455	0	3.3 Resolver	
<i>Balance_ENC_DC_SIN</i>	SinCos encoder setting balance	216	10456	0	4.4 Encoder Input / Output	
<i>Balance_ENC_DC_COS</i>	SinCos encoder setting balance	217	10457	0	4.4 Encoder Input / Output	
<i>Balance_ENC_SIN_COS</i>	SinCos encoder setting balance	218	10458	0	4.4 Encoder Input / Output	
<i>brake_cmd</i>	Brake closure command	1337	11577	0	2.4 Brake	
<i>brake_emergency</i>	Brake emergency closure command	1315	11555	0	2.4 Brake	
<i>brake_en</i>	Validate brake	1246	11486	0	2.4 Brake 3.2 Motor	
<i>brake_inertia</i>	Brake inertia	1247	11487	0	2.4 Brake 3.4 Brake 5.1 Servocontrol settings	
<i>brake_init</i>	Type of brake operation at initialization	1248	11488	0	2.4 Brake	
<i>brake_management</i>	Validate brake control by drive	1439	11679	0	2.4 Brake	
<i>brake_option</i>	Brake opening disable option if no torque or if no power	1440	11680	0	2.4 Brake	
<i>brake_supplied</i>	"Brake supplied" information	1317	11557	0	2.4 Brake	
<i>brake_toff</i>	Brake opening time	1250	11490	0	2.4 Brake 3.4 Brake	
<i>brake_ton</i>	Brake closing time	1249	11489	0	2.4 Brake 3.4 Brake	

DIGIVEX Motion directory of variables

Variable name	Brief description	No.	index	sub-index	Section
<i>cam_ ...</i>	Cam management variables				7.9 Cams
<i>c_in0 à c_in15</i>	Status of logic inputs present at physical connector	1064 à 1079	11304 à 11319	0	4.1 Logic inputs
<i>c_ina</i>	Analog input value present at physical connector, expressed in <i>unit4</i>	1160	11400	0	4.3.1 Analog inputs
<i>c_out0 à c_out7</i>	Status of logic outputs present at physical connector	1125 à 1132	11365 à 11372	0	4.2 Logic outputs
<i>c_outa</i>	Analog output value present at physical connector, expressed in <i>unit3</i>	1167	11407	0	4.3.2 Analog outputs
<i>call_err</i>	Error management program run request	1229	11469	0	7.1 Program management
<i>CAN_Address</i>	Positioner drive CAN address	10	10250	0	3.1 Axis
<i>CAN_Baud_Rate</i>	CAN bus baud rate in coded form	13	10253	0	3.1 Axis
<i>can_col</i>	Column number on a terminal	1477	11717	0	7.7 CANopen variables
<i>can_id</i>	Addressed device subscriber number	1472	11712	0	7.7 CANopen variables
<i>can_index</i>	Addressed variable index number	1473	11713	0	7.7 CANopen variables
<i>can_line</i>	Line number on a terminal	1476	11716	0	7.7 CANopen variables
<i>can_page</i>	Page number addressed on a terminal	1475	11715	0	7.7 CANopen variables
<i>can_subindex</i>	Addressed variable sub_index number	1474	11714	0	7.7 CANopen variables
<i>Cde_Calage</i>	Enable axis switch to timing mode	319	10559	0	3.3 Resolver
<i>Cdynf100</i>	Brake dynamic holding torque at 100°C	133	10373	0	3.4 Brake
<i>clock</i>	Perpetual counter with time count from 0 to 10 s	1527	11767	0	6.2 Timers 7.5 Positioner drive management
<i>Clock_Frequency</i>	Frequency of processor controlling power section	15	10255		3.1 Axis
<i>Calibration_cmd</i>	<i>Instruction to carry out calibration</i>	1647	11887	0	7.5 Positioner drive management
<i>Cmd_Prog</i>	<i>"apply programs" instruction</i>	12289	12289	0	7.5 Positioner drive management
<i>Cmd_ref</i>	<i>Instruction for position reference acknowledgement</i>	1648	11888	0	7.5 Positioner drive management
<i>Cstaff100</i>	Brake static holding torque at 100°C	124	10364	0	3.4 Brake
<i>Cstaff20</i>	Brake static holding torque at 20°C	123	10363	0	3.4 Brake
<i>Cthc</i>	Copper thermal time constant	69	10309	0	3.2 Motor
<i>Cthf</i>	Iron loss thermal time constant	82	10322	0	3.2 Motor
<i>CxNx</i>	Maximum torque at maximum speed	68	10308	0	3.2 Motor

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DIGIVEX Motion directory of variables

Variable name	Brief description	No.	index	sub-index	Section
<i>def_pos1</i>	Reinitialization command of slave axis position	1345	11585	0	7.3 Path generator
<i>def_pos2</i>	Reinitialization command of measured axis position	1346	11586	0	7.3 Path generator
<i>defplc1</i>	Maximum authorized cycle time for type 1 plc program	1463	11703	0	7.1 Program management
<i>defplc2</i>	Type 2 plc program cycle time (cyclic plc)	1228	11468	0	7.1 Program management
<i>delay_in0</i>	Sensor propagation time	1462	11702	0	4.1 Logic inputs
<i>delta_resolver</i>	Delta pulses (pulse difference) of resolver processing per sampling period	1255	11495	0	7.3 Path generator
<i>delta1</i>	Delta pulses (pulse difference) of slave axis per sampling period	1292	11532	0	7.3 Path generator
<i>delta2</i>	Delta pulses (pulse difference) of measured axis per sampling period	1267	11507	0	7.3 Path generator
Dephr	Resolver phase-shift at 8 kHz	105	10345	0	3.3 Resolver
Dev_Name	"Manufacturer device name" CANopen object = Drive_Type	4104	4104	0	3.1 Axis
Dev_Type	"Device_Type" CANopen object indicates device type in coded form (CANopen standard)	4096	4096	0	3.1 Axis
<i>dir_inv</i>	Inversion + direction / - direction	1274	11514	0	2.1 Configuration
drive_mode	Axis control	1520	11760	0	2.2 Options
<i>drive_ok</i>	Positioner drive OK information (no major fault and power on)	1314	11554	0	7.5 Positioner drive management
Drive_Type	Positioner drive name and current rating	141	10381		3.1 Axis
<i>emergency_cmd</i>	Emergency stop command	1333	11573	0	7.4 Motion control and testing
<i>emergency_stop</i>	Emergency stop active information	1344	11584	0	7.4 Motion control and testing
<i>encoder_inv</i>	Reverse encoder pulse counting direction	1258	11498	0	4.4 Encoder Input / Output
<i>Encoder_Origin</i>	Zero Mark location for encoder emulation output in marks	24	10264	0	4.4 Encoder Input / Output
<i>Encoder_Resolution</i>	Encoder emulation output resolution in marks per revolution	23	10263	0	4.4 Encoder Input / Output
<i>encoder_use</i>	Use encoder input	1234	11474	0	2.1 Configuration
<i>Encoder_Sinus</i>	SinCos encoder Sinus signal	1417	11657	0	4.4 Encoder Input / Output
<i>Encoder_Cosinus</i>	SinCos encoder Cosine signal	1418	11658	0	4.4 Encoder Input / Output
<i>error_prog</i>	Error management program number	1448	11688	0	7.1 Program management
<i>exec_en</i>	Enable program execution	1224	11464	0	2.2 Options 7.1 Program management
<i>exec_on</i>	Program running information	1225	11465	0	2.2 Options 7.1 Program management

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Variable name	Brief description	No.	index	sub-index	Section
<i>f_filter0</i>	Filtering coefficient associated with <i>filter0</i>	1652	11892	0	6.5 Filters
<i>f_filter1</i>	Filtering coefficient associated with <i>filter1</i>	1655	11895	0	6.5 Filters
<i>f_in0</i> à <i>f_in15</i>	Logic input forcing value	1080 à 1095	11320 à 11335	0	4.1 Logic inputs
<i>f_ina</i>	Analog input forced value	1161	11401	0	4.3.1 Analog inputs
<i>f_out0</i> à <i>f_out7</i>	Logic output forced value	1133 à 1140	11373 à 11380	0	4.2 Logic outputs
<i>f_outa</i>	Analog output forced value	1168	11408	0	4.3.2 Analog outputs
<i>f_static</i>	Dry friction coefficient expressed in Nm	1239	11479	0	5.1 Servocontrol settings
<i>fatal_error</i>	Major fault information	1324	11564	0	7.5 Positioner drive management
<i>fault</i>	Fault information	1323	11563	0	7.5 Positioner drive management
<i>fault_option</i>	Fault management	1661	11901	0	2.2 Options
<i>fb_option</i>	Speed feedback type used	1665	11905	0	2.1 Configuration
<i>fc</i>	Filter cut-out frequency(second order)	1371	11611	0	5.1 Servocontrol settings
<i>fc_in</i>	<i>fc</i> frequency filter input	1423	11663	0	5.2 Servocontrol algorithm
<i>fc_k1</i>	Second order filter coefficient	1372	11612	0	5.2 Servocontrol algorithm
<i>fc_k2</i>	Second order filter coefficient	1373	11613	0	5.2 Servocontrol algorithm
<i>fc_k3</i>	Second order filter coefficient	1374	11614	0	5.2 Servocontrol algorithm
<i>fc_out</i>	<i>fc</i> frequency filter output	1424	11664	0	5.2 Servocontrol algorithm
<i>fi</i>	PI regulator end of integral action frequency	1383	11623	0	5.1 Servocontrol settings
<i>filter0</i>	Filter 0 output value	1650	11890	0	6.5 Filters
<i>filter1</i>	Filter 1 output value	1653	11893	0	6.5 Filters
<i>filter_type</i>	Nature of filter used in synchro mode	1280	11520	0	2.1 Configuration
<i>Firmware_Version</i>	Firmware software version name	9	10249	0	3.1 Axis
<i>flag0</i>	<i>flag0</i> status	1172	11412	0	6.4 Flags
<i>flag0_low</i>	<i>flag0</i> , lower limit of test range	1173	11413	0	6.4 Flags
<i>flag0_up</i>	<i>flag0</i> , upper limit of test range	1174	11414	0	6.4 Flags
<i>flag1</i>	<i>flag1</i> status	1176	11416	0	6.4 Flags
<i>flag1_low</i>	<i>flag1</i> , lower limit of test range	1177	11417	0	6.4 Flags
<i>flag1_up</i>	<i>flag1</i> , upper limit of test range	1178	11418	0	6.4 Flags
<i>Fmot</i>	Motor family	80	10320	0	3.2 Motor
<i>fp</i>	Position delay filter frequency	1379	11619	0	5.1 Servocontrol settings
<i>fp_k1</i>	Position delay filter coefficient	1380	11620	0	5.2 Servocontrol algorithm
<i>fp_k2</i>	Position delay filter coefficient	1381	11621	0	5.2 Servocontrol algorithm
<i>fp_k3</i>	Position delay filter coefficient	1382	11622	0	5.2 Servocontrol algorithm
<i>fp_out</i>	Position delay filter output	1426	11666	0	5.2 Servocontrol algorithm
<i>fp1</i>	Estimated bandwidth of current loop	1386	11626	0	5.2 Servocontrol algorithm
<i>fp2</i>	Estimated bandwidth of resolver processing	1387	11627	0	5.2 Servocontrol algorithm
<i>fp3</i>	Estimated bandwidth of external encoder processing	1388	11628	0	5.2 Servocontrol algorithm
<i>fp4</i>	Estimated bandwidth of ancillary processing	1389	11629	0	5.2 Servocontrol algorithm
<i>Freq_PWM</i>	Power bridge quench frequency	243	10446		5.2 Servocontrol algorithm
<i>friction_gravity</i>	Speed component from dry friction and gravity predictors	1422	11662	0	5.2 Servocontrol algorithm
<i>fspeed_move</i>	Final speed of motion for future MOVE instruction	1355	11595	0	7.3 Path generator
<i>fspeed_prog</i>	Speed to reach at end of motion	1352	11592	0	7.3 Path generator
<i>fstatic_out</i>	Speed component from dry friction predictor	1421	11661	0	5.2 Servocontrol algorithm
<i>fv</i>	Speed delay filter frequency	1375	11615	0	5.1 Servocontrol settings
<i>fv_k1</i>	Speed delay filter coefficient	1376	11616	0	5.2 Servocontrol algorithm
<i>fv_k2</i>	Speed delay filter coefficient	1377	11617	0	5.2 Servocontrol algorithm
<i>fv_k3</i>	Speed delay filter coefficient	1378	11618	0	5.2 Servocontrol algorithm

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Variable name	Brief description	No.	index	sub-index	Section	
<i>fv_out</i>	Speed delay filter output	1425	11665	0	5.2 Servocontrol algorithm	F
<i>gravity</i>	Gravity prediction	1237	11477	0	5.1 Servocontrol settings	G
Hard_Version	"Manufacturer hardware version" CANopen object = Drive_Type	4105	4105	0	3.1 Axis	H
<i>hardlimit_en</i>	Validate electrical limit switches	1276	11516	0	2.3 Origin setting	
<i>hardm_input</i>	- hard limit switch activated	1319	11559	0	2.3 Origin setting	
<i>hardp_input</i>	+ hard limit switch activated	1318	11558	0	2.3 Origin setting	
<i>home_cmd</i>	Home command	1338	11578	0	2.3 Origin setting	
<i>home_dir</i>	Define origin setting direction	1275	11515	0	2.3 Origin setting	
<i>home_made</i>	Home made information	1308	11548	0	2.3 Origin setting	
<i>home_offset</i>	Home offset	1466	11706	0	2.3 Origin setting	
<i>home_speed</i>	Homing speed	1289	11529	0	2.3 Origin setting	
<i>homing</i>	Homing information	1310	11550	0	2.3 Origin setting	
<i>I_bus</i>	Bus current	144	10384	0	3.1 Axis	I
<i>I_nominal_Drive</i>	Positioner drive nominal current	142	10382	0	3.1 Axis	
<i>Ii_peak_Drive</i>	Positioner drive pulse current	143	10383	0	3.1 Axis	
<i>i_red</i>	Limitation current	1240	11480	0	5.1 Servocontrol settings	
<i>i_setpoint</i>	Current set point	1393	11633	0	5.2 Servocontrol algorithm	
<i>id_measure</i>	Current measurement	-	-	-	5.2 Servocontrol algorithm	
<i>I_o</i>	Slow rotation permanent current peak value	57	10297	0	3.2 Motor	
<i>Iff</i>	Brake supply current	125	10365	0	3.4 Brake	
<i>limp</i>	Pulse current peak value	56	10296	0	3.2 Motor	
<i>in_port</i>	Logic input port status	1467	11707	0	4.1 Logic inputs	
<i>in_position</i>	Target reached information	1311	11551	0	7.4 Motion control and testing	
<i>in0 à in15</i>	Status of logic inputs with mask <i>m_in0 - m_in15</i>	1032 à 1047	11272 à 11287	0	4.1 Logic inputs	
<i>ina</i>	Value of analog input with mask <i>m_ina</i>	1158	11398	0	4.3.1 Analog inputs	
<i>ina_offset</i>	Offset setting using the analogue input	1649	11889	0	4.3.1 Analogue input	
<i>ina_option</i>	Dead band present on analogue input	1522	11762	0	4.3.1 Analog inputs	
<i>inertia</i>	Total inertia	1236	11476	0	5.1 Servocontrol settings	
<i>init_out0 à init_out7</i>	Logic output initialization value	1149 à 1156	11389 à 11396	0	4.2 Logic outputs	
<i>init_outa</i>	Analog output initialization value	1171	11471	0	4.3.2 Analog outputs	
<i>i_nominal_motor</i>	Peak permanent current in slow rotation [<i>I_o</i>]	1657	11897	0	3.2 Motor	
<i>int_in0 à int_in3</i>	Validate interruptive logic inputs	1105 à 1108	11345 à 11348	0	4.1 Logic inputs	
<i>int0_line</i>	Priority program line number <i>int0_prog</i>	1457	11697	0	7.1 Program management	
<i>int0_prog</i>	Priority program number associated with <i>in0</i>	1444	11684	0	7.1 Program management	
<i>int1_line</i>	Priority program line number <i>int1_prog</i>	1458	11698	0	7.1 Program management	
<i>int1_prog</i>	Priority program number associated with <i>in1</i>	1445	11685	0	7.1 Program management	
<i>int2_line</i>	Priority program line number <i>int2_prog</i>	1459	11699	0	7.1 Program management	
<i>int2_prog</i>	Priority program number associated with <i>in2</i>	1446	11686	0	7.1 Program management	
<i>int3_line</i>	Priority program line number <i>int3_prog</i>	1460	11700	0	7.1 Program management	
<i>int3_prog</i>	Priority program number associated with <i>in3</i>	1447	11687	0	7.1 Program management	
<i>integrator_en</i>	Integral action validated	1394	11634	0	5.2 Servocontrol algorithm	
<i>Ir</i>	Resolver supply current	108	10348	0	3.3 Resolver	
JeuF	Brake backlash	132	10372	0	3.4 Brake	J

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Variable name	Brief description	No.	index	sub-index	Section
<i>k180_pi</i>	constant = $180 / \pi$	1230	11470	0	6.3 Constants
<i>ka</i>	Polynomial $i = f(C)$	1244	11484	0	3.2 Motor
<i>kb</i>	Polynomial $i = f(C)$	1245	11485	0	3.2 Motor
<i>Ke</i>	Peak back emf coefficient between phases (<i>Ke</i> peak volts for 1000 rpm)	59	10299	0	3.2 Motor
<i>kf_accel1</i>	Acceleration anticipation (non-synchro)	1369	11609	0	5.1 Servocontrol settings
<i>kff_accel2</i>	Acceleration anticipation (synchro)	1370	11610	0	5.1 Servocontrol settings
<i>kff_speed1</i>	Speed anticipation (non-synchro)	1367	11607	0	5.1 Servocontrol settings
<i>kff_speed2</i>	Speed anticipation (synchro)	1368	11608	0	5.1 Servocontrol settings
<i>ki_red</i>	Current reduction coefficient applied to <i>i_red</i>	1241	11481	0	5.2 Servocontrol algorithm
<i>kmul_resolver</i>	Number of <i>unit1</i> s per pulse from resolver processing	1254	11494	0	2.1 Configuration
<i>kmul1</i>	Number of <i>unit1</i> s per axis 1 pulse	1271	11511	0	2.1 Configuration
<i>kmul2</i>	Number of <i>unit2</i> s obtained for an encoder pulse from axis 2	1262	11502	0	4.4 Encoder Input / Output
<i>kp</i>	Servoloop position gain	1365	11605	0	5.1 Servocontrol settings
<i>kp_out</i>	Position regulator output	1419	11659	0	5.2 Servocontrol algorithm
<i>kpi_180</i>	Constant = $\pi / 180$	1231	11471	0	6.3 Constants
<i>ksync</i>	Copy ratio	1357	11597	0	7.3 Path generator
<i>ksync_d</i>	Copy ratio expressed in D format	1619	11859	0	7.3 Path generator
<i>Kt</i>	Torque coefficient via peak ampere [$Kt = M_o / I_o$]	1660	11900	0	3.2 Motor
<i>Ktpaim</i>	Magnet temperature coefficient	83	10323	0	3.2 Motor
<i>kunit_encoder</i>	Correspondence factor between displacement units and encoder revolution	1261	11501	0	4.4 Encoder Input / Output
<i>kunit_encoder_d</i>	<i>kunit_encoder</i> expressed in D format	1614	11854	0	4.4 Encoder Input / Output
<i>kunit_resolver</i>	Correspondence factor between displacement units and resolver revolution (motor revolution)	1253	11493	0	2.1 Configuration
<i>kunit_resolver_d</i>	<i>kunit_resolver</i> expressed in D format	1613	11853	0	2.1 Configuration
<i>kV</i>	Servoloop speed gain	1366	11606	0	5.1 Servocontrol settings
<i>L</i>	Inductance between phases	61	10301	0	3.2 Motor
<i>Ld₀</i>	Direct inductance between phases for $I = 0$	78	10318	0	3.2 Motor
<i>Ld_{lmax}</i>	Direct inductance between phases for $I = I_{max}$	79	10319	0	3.2 Motor
<i>level_in0</i> à <i>level_in3</i>	Interruption edge	1101 - 1104	11341 - 11343	0	4.1 Logic inputs
<i>Lf</i>	Brake inductance	127	10367	0	3.4 Brake
<i>load_inertia</i>	Load inertia	1235	11475	0	5.1 Servocontrol settings
<i>Lq</i>	Inductance in quadrature between phases	81	10321	0	3.2 Motor

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Variable name	Brief description	No.	index	sub-index	Section
<i>m_in0</i> à <i>m_in15</i>	Logic input mask	1048 à 1063	11288 à 11303	0	4.1 Logic inputs
<i>m_ina</i>	Analog input mask	1159	11399	0	4.3.1 Analog inputs
<i>m_out0</i> à <i>m_out7</i>	Logic output mask	1117 à 1124	11357 à 11364	0	4.2 Logic outputs
<i>m_outa</i>	Analog output mask	1166	11406	0	4.3.2 Analog outputs
<i>M₀</i>	Slow rotation torque	58	10298	0	3.2 Motor
Manufacturer_Drive	Positioner drive manufacturer's name	140	10380	0	3.1 Axis
<i>master_speedmax</i>	Master axis used in continual synchronization maximum speed information	1524	11764	0	7.3 Path generator
<i>master_speedthreshold</i>	Master axis lower speed limit in perpetual synchro	1526	11766	0	7.3 Path generator
<i>master_gamma</i>	Master axis acceleration prediction	1429	11669	0	5.2 Servocontrol algorithm
<i>master_Gn</i>	Master axis theoretical acceleration (synchro)	1300	11540	0	5.2 Servocontrol algorithm
<i>master_Pn</i>	Master axis position set point (synchro)	1298	11538	0	5.2 Servocontrol algorithm
<i>master_Vf</i>	Master axis (synchro measured axis) current speed	1435	11675	0	5.2 Servocontrol algorithm
<i>master_Vn</i>	Theoretical speed from master axis (synchro)	1299	11539	0	5.2 Servocontrol algorithm
Maximal_Drive_Temperature	Maximum drive temperature	152	10392	0	3.1 Axis
Maximal_Ubus	Maximum bus voltage	148	10388	0	3.1 Axis
Minimal_Ubus	Minimum bus voltage	145	10385	0	3.1 Axis
<i>modul_type</i>	Type of modulo applied	1273	11513	0	2.1 Configuration
<i>modul1_en</i>	Apply a modulo (axis 1)	1272	11512	0	2.1 Configuration
<i>modul1_low</i>	Lower value of slave axis (axis 1) modulo	1281	11521	0	2.1 Configuration
<i>modul1_low_d</i>	Servocontrolled axis lower modulo value expressed in D format	1615	11855	0	2.1 Configuration
<i>modul1_up</i>	Upper value of slave axis (axis 1) modulo	1282	11522	0	2.1 Configuration
<i>modul1_up_d</i>	Servocontrolled axis upper modulo value expressed in D format	1616	11856	0	2.1 Configuration
<i>modul2_en</i>	Apply a modulo (axis 2)	1259	11499	0	4.4 Encoder Input / Output
<i>modul2_low</i>	Lower value of measured axis (axis 2) modulo	1263	11503	0	4.4 Encoder Input / Output
<i>modul2_low_d</i>	Measured axis lower modulo value expressed in D format	1617	11857	0	4.4 Encoder Input / Output
<i>modul2_up</i>	Upper value of measured axis (axis 2) modulo	1264	11504	0	4.4 Encoder Input / Output
<i>modul2_up_d</i>	Measured axis upper modulo value expressed in D format	1618	11858	0	4.4 Encoder Input / Output
<i>motor_inertia</i>	Motor inertia	1242	11482	0	3.2 Motor 5.1 Servocontrol settings
<i>move_abort</i>	Stop axis in progress information	1343	11583	0	7.4 Motion control and testing
<i>move_en</i>	Enable motion (user command)	1340	11580	0	2.1 Configuration 7.4 Commande et contrôle du mouvement
<i>move_end</i>	End of motion information (theoretical)	1312	11552	0	7.4 Motion control and testing
<i>move_on</i>	Forward enable information	1320	11560	0	2.1 Configuration 7.4 Motion control and testing
<i>move_sys</i>	Enable forward (system command)	1339	11579	0	7.4 Motion control and testing
<i>moving</i>	Motion underway information	1309	11549	0	7.4 Motion control and testing
Mr	Resolver transformation ratio	106	10346	0	3.3 Resolver

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Variable name	Brief description	No.	index	sub-index	Section
<i>Na</i>	Polynomial I = f(N) coefficient a	74	10314	0	3.2 Motor
<i>Nb</i>	Polynomial I = f(N) coefficient b	75	10315	0	3. Moteur / Resolver
<i>Nmanufacturer</i>	Motor manufacturer's name	50	10290	0	3.2 Motor
<i>Nmax</i>	Maximum motor speed	65	10305	0	3.2 Motor
<i>NmaxF</i>	Maximum brake rotary speed	131	10371	0	3.4 Brake
<i>Nmaxr</i>	Maximum resolver speed	110	10350	0	3.3 Resolver
<i>Nmot</i>	Motor name	51	10291	0	3.2 Motor
<i>NomF</i>	Brake name	121	10361	0	3.4 Brake
<i>Nominal_Ubus</i>	Nominal bus voltage	146	10386	0	3.1 Axis
<i>NomR</i>	Resolver name	101	10341	0	3.3 Resolver
<i>Nvar</i>	Drive name	52	10292	0	3.2 Motor
<i>NxCx</i>	Maximum speed at <i>Cmax</i>	67	10307	0	3.2 Motor
<i>option_card</i>	Declared option card	1233	11473	0	2.1 Configuration 4.4 Encoder Input / Output
<i>osc_ ...</i>	Oscilloscope variables				7.9 Oscilloscope
<i>out_port</i>	Logic output port status	1468	11708	0	4.2 Logic outputs
<i>out0 à out7</i>	Programmed value for logic outputs	1109 à 1116	11349 à 11356	0	4.2 Logic outputs
<i>outa</i>	Analog output programmed value	1165	11405	0	4.3.2 Analog outputs
<i>overload</i>	Operational current reduction information	1322	11562	0	7.5 Positioner drive management
<i>overload_management</i>	Enable current reduction application if rms current or mean current become excessive	1279	11519	0	5.1 Servocontrol settings

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O

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Variable name	Brief description	No.	index	sub-index	Section
Par	Active power absorbed by resolver at primary	111	10351	0	3.3 Resolver
<i>Param_PB_ ...</i>	Profibus variables				7.8 Profibus variables
PDO1_rx_cfg	Definition of the contents of the PDO Rx 1 message	1621	11861	0	2.5 CANopen
PDO2_rx_cfg	Definition of the contents of the PDO Rx 2 message	1622	11862	0	2.5 CANopen
PDO3_rx_cfg	Definition of the contents of the PDO Rx 3 message	1623	11863	0	2.5 CANopen
PDO4_rx_cfg	Definition of the contents of the PDO Rx 4 message	1624	11864	0	2.5 CANopen
PDO1_tx_cfg	Definition of the contents of the PDO Tx 1 message	1625	11865	0	2.5 CANopen
PDO2_tx_cfg	Definition of the contents of the PDO Tx 2 message	1626	11866	0	2.5 CANopen
PDO3_tx_cfg	Definition of the contents of the PDO Tx 3 message	1627	11867	0	2.5 CANopen
PDO4_tx_cfg	Definition of the contents of the PDO Tx 4 message	1628	11868	0	2.5 CANopen
<i>pi_k2</i>	PI action filter coefficient	1385	11625	0	5.2 Servocontrol algorithm
<i>pi_out</i>	PI action speed regulator output	1420	11660	0	5.2 Servocontrol algorithm
<i>Pil</i>	Driving type	70	10310	0	3.2 Motor
<i>plc1_en</i>	Enable type 1 plc program execution	1442	11682	0	7.1 Program management
<i>plc1_line</i>	Plc program line number <i>plc1_prog</i>	1455	11695	0	7.1 Program management
<i>plc1_mode</i>	Plc program operating mode <i>plc1_prog</i>	1452	11692	0	7.1 Program management
<i>plc1_prog</i>	Type 1 plc program number (normal)	1226	11466	0	7.1 Program management
<i>plc1_tick</i>	Type 1 plc program cycle counter (normal)	1330	11570	0	7.1 Program management
<i>plc2_en</i>	Enable type 2 plc program execution	1443	11683	0	7.1 Program management
<i>plc2_line</i>	Plc program line number <i>plc2_prog</i>	1456	11696	0	7.1 Program management
<i>plc2_mode</i>	Plc program operating mode <i>plc2_prog</i>	1453	11693	0	7.1 Program management
<i>plc2_prog</i>	Type 2 plc program number (cyclic)	1227	11467	0	7.1 Program management
<i>plc2_tick</i>	Type 2 plc program cycle counter (cyclic)	1331	11571	0	7.1 Program management
<i>pos_setpoint</i>	Position set point	1469	11709	0	5.2 Servocontrol algorithm
<i>pos_th</i>	Theoretical position	1304	11544	0	7.3 Path generator
<i>pos1</i>	Actual position of slave axis (axis 1)	1290	11530	0	5.2 Servocontrol algorithm 7.3 Path generator
<i>pos1_c</i>	Corrected actual position of slave axis	1464	11704	0	7.3 Path generator
<i>pos1_f</i>	Real position of servocontrolled axis expressed in F format	1611	11851	0	5.2 Servocontrol algorithm 7.3 Path generator
<i>pos2</i>	Actual position of measured axis (axis 2)	1265	11505	0	7.3 Path generator
<i>pos2_c</i>	Corrected actual position of measured axis	1465	11705	0	7.3 Path generator
<i>pos2_f</i>	Real position of measured axis expressed in F format	1612	11852	0	7.3 Path generator
<i>posa</i>	Absolute position set point	1349	11589	0	7.3 Path generator
<i>posa_f</i>	Absolute destination position expressed in F format	1609	11849	0	7.3 Path generator
<i>poscod1</i>	Slave axis position expressed in pulses	1293	11533	0	7.3 Path generator
<i>poscod2</i>	Measured axis position expressed in pulses	1268	11508	0	7.3 Path generator
<i>posr</i>	Relative position set point	1350	11590	0	7.3 Path generator
<i>posr_f</i>	Relative destination position expressed in F format	1610	11850	0	7.3 Path generator
<i>Pp</i>	Number of motor pole pairs	64	10304	0	3.2 Motor
<i>Ppr</i>	Number of pairs of resolver poles	103	10343	0	3.3 Resolver
<i>Pprec</i>	Resolver precision	104	10344	0	3.3 Resolver
<i>pred_speed</i>	Speed prediction	1427	11667	0	5.2 Servocontrol algorithm
Processor_Type	Name of processor controlling power section	14	10254	0	3.1 Axis
<i>psync</i>	Sum of master axis pulses (synchro)	1307	11547	0	7.3 Path generator

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Variable name	Brief description	No.	index	sub-index	Section
<i>R</i>	Resistance between phases at 25°C	60	10300	0	3.2 Motor
<i>read_ok</i>	Indicate µVision terminal has answered request	1471	11711	0	7.1 Program management
<i>RefR</i>	Resolver reference	100	10340	0	3.3 Resolver
<i>res_encoder</i>	Encoder resolution in marks per revolution	1260	11500	0	4.4 Encoder Input / Output
<i>res_resolver</i>	Resolver resolution in marks per resolver revolution	1252	11492	0	2.1 Configuration
<i>reset_cmd</i>	Fault "reset" command	1438	11678	0	7.5 Positioner drive management
<i>resol_pos</i>	Resolver position (used for resolver timing)	1441	11681	0	3.2 Motor
<i>resol_speed</i>	Speed measurement from resolver	1256	11496	0	5.2 Servocontrol algorithm
<i>resolver_inertia</i>	Resolver inertia	1251	11491	0	3.3 Resolver
<i>Restore_Param</i>	Command to reinitialize parameters with values in EEPROM	12296	12296	0	7.5 Positioner drive management
<i>Rpr</i>	Resolver primary resistance (excitation)	112	10352	0	3.3 Resolver
<i>Rsr</i>	Resolver secondary resistance (sine, cosine)	113	10353	0	3.3 Resolver

R

Variable name	Brief description	No.	index	sub-index	Section
<i>Save_Param</i>	Parameter save command	12295	12295	0	7.5 Positioner drive control
<i>scale_ina</i>	Analog input scale factor	1162	11402	0	4.3.1 Analog Inputs
<i>scale_outa</i>	Analog output scale	1169	11409	0	4.3.2 Analog outputs
<i>SDO_server</i>	Number of SDO channels	48	10288	0	2.5 CANopen
<i>Serial_Number</i>	Positioner drive serial number	11	10251	0	3.1 Axis
<i>Set_number_EEPROM</i>	Parameter set number in EEPROM	8	10248	0	3.1 Axis
<i>Set_number_firm</i>	Parameter set number corresponding to firmware	7	10247	0	3.1 Axis
<i>Set_number_PME</i>	Parameter set number corresponding to PME software	12	10252	0	3.1 Axis
<i>slave_gamma</i>	Slave axis acceleration prediction	1428	11668	0	5.2 Servocontrol algorithm
<i>slave_Gn</i>	Slave axis theoretical acceleration (non-synchro)	1297	11537	0	5.2 Servocontrol algorithm
<i>slave_Pn</i>	Slave axis position set point (non-synchro)	1295	11535	0	5.2 Servocontrol algorithm
<i>slave_Vn</i>	Theoretical speed of slave axis (non-synchro)	1296	11536	0	5.2 Servocontrol algorithm
<i>Soft_Version</i>	"Manufacturer device name" CANopen object = Firmware_Version	4106	4106	0	3.1 Axis
<i>softlimit_en</i>	Validate software limit switches	1277	11517	0	2.3 Origin setting
<i>softlimit_m</i>	Software limit switch, - limit	1286	11526	0	2.3 Origin setting
<i>softlimit_p</i>	Software limit switch, + limit	1285	11525	0	2.3 Origin setting
<i>speed_att</i>	Actual speed of measured axis	1358	11598	0	7.3 Path generator
<i>speed_error</i>	Speed attenuator	1430	11670	0	5.2 Servocontrol algorithm
<i>speed_max</i>	Speed tracking error (PI input)	1288	11528	0	2.1 Configuration
<i>speed_move</i>	Speed of motion for future MOVE instruction	1354	11594	0	7.3 Path generator
<i>speed_option</i>	Speed control option mode	1521	11761	0	2.2 Options
<i>speed_prog</i>	Programmed speed	1351	11591	0	7.3 Path generator
<i>speed_setpoint</i>	Speed set point	1470	11710	0	5.2 Servocontrol algorithm
<i>speed_th</i>	Theoretical speed	1305	11545	0	7.3 Path generator
<i>speed_value</i>	Speed set-point in speed control mode	1479	11719	0	2.2 Options
<i>speed1</i>	Vitesse réelle de l'axe asservi	1291	11531	0	7.3 Path generator
<i>speed2</i>	Actual speed of slave axis	1266	11506	0	7.3 Path generator
<i>SYNC_factor</i>	Synchronized message correction factor	1646	11886	0	2.5 CANopen
<i>SYNC_period</i>	Synchronized message frequency	1645	11885	0	2.5 CANopen

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Variable name	Brief description	No.	index	sub-index	Section
<i>status_0</i>	Drive status	1326	11566	0	7.5 Positioner drive management
<i>status_1</i>	information	1327	11567	0	7.5 Positioner drive management
<i>status_2</i>	Drive status information	1328	11568	0	7.5 Positioner drive management
<i>status_3</i>	Drive status information	1329	11569	0	7.5 Positioner drive management
<i>status_number</i>	Drive status information	1325	11565	0	7.5 Positioner drive management
<i>stimulus_accel</i>	Acceleration for stimuli	1362	11602	0	7.2 Stimuli generator
<i>stimulus_cmd</i>	Stimuli validation command	1359	11599	0	7.2 Stimuli generator
<i>stimulus_on</i>	Stimulus underway information	1335	11575	0	7.2 Stimuli generator
<i>stimulus_period</i>	Stimulus period	1363	11603	0	7.2 Stimuli generator
<i>stimulus_repet</i>	Number of repetitions of stimuli	1364	11604	0	7.2 Stimuli generator
<i>stimulus_speed1</i>	Speed 1 for stimuli	1360	11600	0	7.2 Stimuli generator
<i>stimulus_speed2</i>	Speed 2 for stimuli	1361	11601	0	7.2 Stimuli generator
<i>switch0</i>	Origin switch status information	1313	11553	0	2.3 Origin setting
<i>switch0_en</i>	Validate acknowledgement of origin switch	1278	11518	0	2.3 Origin setting
<i>switch0_input</i>	Origin switch input status information	1341	11581	0	2.3 Origin setting
<i>synchro_att</i>	Perpetual synchro speed attenuator (system variable)	1525	11765	0	7.3 Générateur de trajectoire
<i>synchro_en</i>	Synchro validation command	1342	11582	0	7.4 Motion control and testing
<i>synchro_error</i>	Speed synchronism deviation between master and slave	1303	11543	0	7.4 Motion control and testing
<i>synchro_ok</i>	Axes in synchronism information	1529	11769	0	7.4 Motion control and testing
<i>synchro_on</i>	Synchro information validated	1321	11561	0	7.4 Motion control and testing
<i>synchro_poserr</i>	Position synchronism deviation between master and slave	1531	11771	0	7.4 Motion control and testing
<i>synchro_postarget</i>	Position synchronism axes information window	1528	11768	0	7.4 Motion control and testing
<i>synchro_speedtarget</i>	Speed synchronism axes information window	1530	11770	0	7.4 Motion control and testing

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DIGIVEX Motion directory of variables

Variable name	Brief description	No.	index	sub-index	Section
<i>T</i>	Sampling period value	1294	11534	0	7.3 Path generator
<i>target</i>	Value of target	1284	11524	0	2.1 Configuration
<i>target_move</i>	Target to declare theoretical motion completed	1301	11541	0	7.3 Path generator
<i>target_speed</i>	Target to declare theoretical speed zero	1302	11542	0	7.3 Path generator
<i>Te</i>	Cycle time of processor controlling power section	16	10256	0	3.1 Axis
<i>threshold</i>	Friction limit	1238	11478	0	5.1 Servocontrol settings
<i>Threshold_Ubus</i>	Bus detection voltage	147	10387	0	3.1 Axis
<i>time_on</i>	Total operating time	1436	11676	0	7.5 Positioner drive management
<i>time_torque_on</i>	Operating time under torque	1437	11677	0	7.5 Positioner drive management
<i>timer0 à timer3</i>	User timers	1220 à 1223	11460 à 11463	0	6.2 Timers
<i>Tmax</i>	Maximum winding temperature	73	10313	0	3.2 Motor
<i>torque_cmd</i>	Enable torque (user command)	1336	11576	0	2.1 Configuration 7.5 Positioner drive management
<i>torque_max</i>	Maximum motor torque	1243	11483	0	3.2 Motor 5.2 Servocontrol algorithm
<i>torque_nominal_motor</i>	Torque in slow rotation of the motor [M_0]	1656	11896	0	3.2 Motor
<i>torque_on</i>	Torque validated information	1316	11556	0	7.5 Positioner drive management
<i>torque_setpoint</i>	Torque set point	1391	11631	0	5.2 Servocontrol algorithm
<i>torque_sys</i>	Enable torque (system command)	1334	11574	0	7.5 Positioner drive management
<i>torque_value</i>	Torque set-point in current control mode	1523	11763	0	2.2 Options
<i>Tpt</i>	Thermal sensor presence	84	10324	0	3.2 Motor
<i>trackererror_max</i>	Maximum permissible tracking error value	1283	11523	0	2.1 Configuration
<i>tracking_error</i>	Tracking error position value	1390	11630	0	5.2 Servocontrol algorithm
<i>TypC</i>	Sensor type	53	10293	0	3.2 Motor
<i>TypF</i>	Brake type	54	10294	0	3.2 Motor
<i>TypFf</i>	Number corresponding to brake type	120	10360	0	3.4 Brake
<i>TypR</i>	Number corresponding to resolver type	102	10342	0	3.3 Resolver

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DIGIVEX Motion directory of variables

Variable name	Brief description	No.	index	sub-index	Section		
<i>U</i>	DC supply voltage under load	55	10295	0	3.2 Motor	U	
<i>ub0 à ub15</i>	user variables that can be stored in <i>EEPROM_DM</i>	896 à 911	11136 à 11151	0	6.1 User variables		
<i>ub16 à ub127</i>	user variables	912 à 1023	11152 à 11263	0	6.1 User variables		
<i>uc0 à uc7</i>	user variables	1024 à 1031	11264 à 11271	0	6.1 User variables		
<i>ud0 à ud15</i>	user variables that can be stored in <i>EEPROM_DM</i>	704 à 719	10944 à 10959	0	6.1 User variables		
<i>ud16 à ud63</i>	user variables	720 à 767	10960 à 11007	0	6.1 User variables		
<i>Uf</i>	Brake supply voltage	122	10362	0	3.4 Brake		
<i>uf0 à uf15</i>	user variables that can be stored in <i>EEPROM_DM</i>	512 à 527	10752 à 10767	0	6.1 User variables		
<i>uf16 à uf191</i>	user variables	528 à 703	10768 à 10943	0	6.1 User variables		
<i>ui0 à ui15</i>	user variables that can be stored in <i>EEPROM_DM</i>	768 à 783	11008 à 11023	0	6.1 User variables		
<i>ui16 à ui127</i>	user variables	784 à 895	11024 à 11135	0	6.1 User variables		
<i>unit1</i>	Slave axis unit of measurement (axis 1)	1270	11510	0	2.1 Configuration		
<i>unit2</i>	Measured axis (axis 2) measurement unit	1257	11497	0	4.4 Encoder Input / Output		
<i>unit3</i>	Unit used for analog output	1164	11404	0	4.3.2 Analog outputs		
<i>unit4</i>	Unit used for analog input	1157	11397	0	4.3.1 Analog inputs		
<i>Ur</i>	Resolver supply rms voltage	107	10347	0	3.3 Resolver		
<i>user_en</i>	Enable user program execution	1450	11690	0	7.1 Program management		
<i>user_line</i>	User program line <i>user_prog</i>	1454	11694	0	7.1 Program management		
<i>user_mode</i>	User program operating mode <i>user_prog</i>	1451	11691	0	7.1 Program management		
<i>user_prog</i>	User program number	1449	11689	0	7.1 Program management		
<i>userprog_option</i>	Wait for power up to execute user programs	1461	11701	0	2.1 Configuration 7.1 Program management		
<i>val_pos1</i>	Reinitialization value of slave axis position (destination variable of <i>def_pos1</i>)	1347	11587	0	7.3 Path generator		V
<i>val_pos2</i>	Reinitialization value of measured axis position (destination variable of <i>def_pos2</i>)	1348	11588	0	7.3 Path generator		
<i>var0</i>	Value of physical variable selected	1431	11671	0	7.6 Observable physical variables		
<i>var1</i>	Value of physical variable selected	1432	11672	0	7.6 Observable physical variables		
<i>Vbase</i>	Basic speed in spindle mode	71	10311	0	3.2 Motor		
<i>Vendor_ID</i>	Positioner drive manufacturer's code	4120	4120	1	3.1 Axis		
<i>Wf</i>	Single-shot absorbable pulse energy	130	10370	0	3.4 Brake	W	

9. μ VISION

Variable name	Function	No.	index	sub-index	Format	Units	Variations	Type	Access
Display_Page	Page to be displayed or being displayed	108	8450	0	E	without	0 to 9	S	R/W
Clear_Page1	Request to clear page 1 0 = "delete all lines" 1 = "delete line 1" 2 = "delete line 2"	109	8451	1	E	without	0 to 2	S	W
Clear_Page2	Request to clear page 2	110	8451	2	E	without	0 to 2	S	W
Clear_Page3	Request to clear page 3	111	8451	3	E	without	0 to 2	S	W
Clear_Page4	Request to clear page 4	112	8451	4	E	without	0 to 2	S	W
Dev_Name	CANopen device "manufacturer's device name"	4104	4104	0	C1	without	16 characters	P	R
Dev_Type	CANopen device "Device_Type", indicates the type of appliance in code	4096	4096	0	E	without	-	P	R
Firmware_Version	Name of the firmware version	9	10249	0	C1	without	16 characters	P	R
Hard_Version	CANopen device "manufacturer's hardware version"	4105	4105	0	C1	without	16 characters	P	R
Node_Id	μ Vision CAN address	4107	4107	0	E	without	1 to 63	P	R
Serial_Number	μ Vision serial number	11	10251	0	C1	without	16 characters	P	R
Soft_Version	CANopen device "manufacturer's software version" = Firmware_Version	4105	4105	0	C1	without	16 characters	P	R
time_on	μ Vision total running time	1436	11676	0	E	without	-	S	R
UserName	μ Vision name (user name)	1269	11509	0	C1	without	16 characters	P	R