CONAIR
www.conairnet.com

USERGUIDE

S900-II
Can and Axes Configuration

Version 2.0

⚠ **WARNING - Reliance on this Manual Could Result in Severe Bodily Injury or Death!**

This manual is out-of-date and is provided only for its technical information, data and capacities. Portions of this manual detailing procedures or precautions in the operation, inspection, maintenance and repair of the product forming the subject matter of this manual may be inadequate, inaccurate, and/or incomplete and cannot be used, followed, or relied upon. Contact Conair at info@conairgroup.com or 1-800-654-6661 for more current information, warnings, and materials about more recent product manuals containing warnings, information, precautions, and procedures that may be more adequate than those contained in this out-of-date manual.

Logo definitions :

 Warning, risks

 Sepro robotique inventions

 What to do ?

 Document evolutions

 Handy hints

 Example

 Innovation or information concerning a particular software version

– CONTENTS –

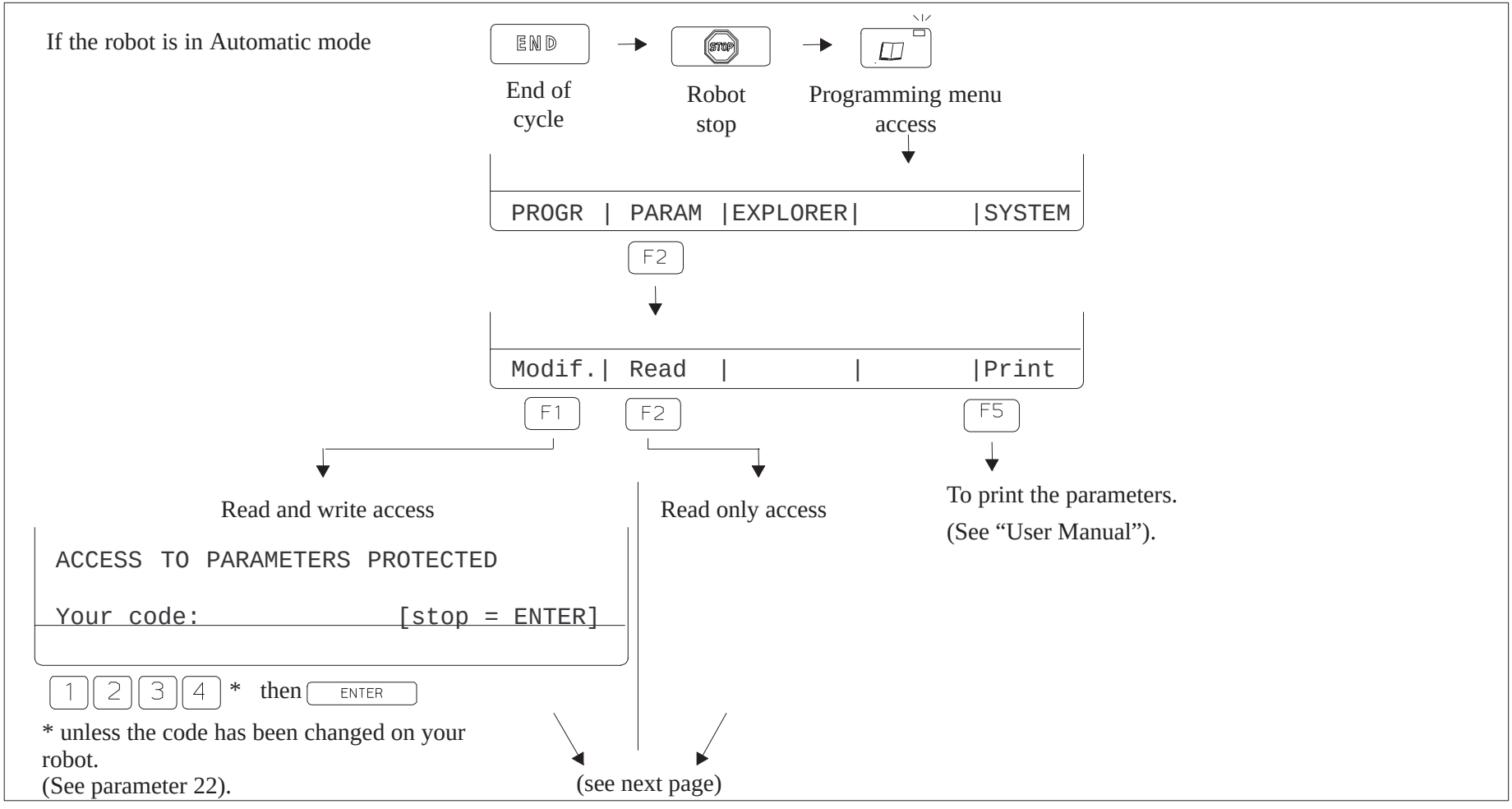
CHARACTERIZATION		General	X	Y	Z	B	C	Page / Manual
ROBOT PARAMETERS		1 –> 44						See Configuration S900–II
Basic configuration (communication, I/O, ...)		and 170 –> 592	–	–	–	–	–	
CAN PARAMETERS								
Management		45	–	–	–	–	–	Page 6
Node 1		46 to 53						Page 7
Nodes 2 to 15		54 to 125						Page 9
FLOPPY DISK DRIVE PARAMETERS		126 –> 131	–	–	–	–	–	Page 10
AXES PARAMETERS								
Rate of the axes boards		600, 604	–	–	–	–	–	Page 11
General		–	610 –> 648	746 –> 784	882 –> 920	1018 –> 1056	1154 –> 1192	Pages 12 to 29
specific to braked asynchronous axes		–	615 –> 617 619, 621	751 –> 753 755, 757	887 –> 889 892, 893	1023 –> 1025 1027, 1029	1159 –> 1101 1163, 1165	Page 15 Pages 17, 18
Geometric correction	Point 1	–	650	652	654	–	–	Page 30
	Point 2	–	786	788	790	–	–	Page 30
	Point 3	–	922	924	926	–	–	Page 30
	Point 4	–	1058	1060	1062	–	–	Page 30
Proportional regulator servo–control (P)		–	656 –> 659 724	792 –> 795 860	928 –> 931 996	1064 –> 1067 1132	1200 –> 1203 1268	Page 31
Predictive regulator servo–control (PFC)		–	662 –> 740	798 –> 876	934 –> 1012	1070 –> 1148	1206 –> 1284	
Measured axes	Numeric (N1, N2)	1290 –> 1314	–	–	–	–		Page 33
	Analogue (A1, A2)	1319 –> 1338 702, 1110	–	–	–	–		Page 35 Page 38
EUROMAP 17 PARAMETERS		1340 –> 1354	–	–	–	–	–	Page 40

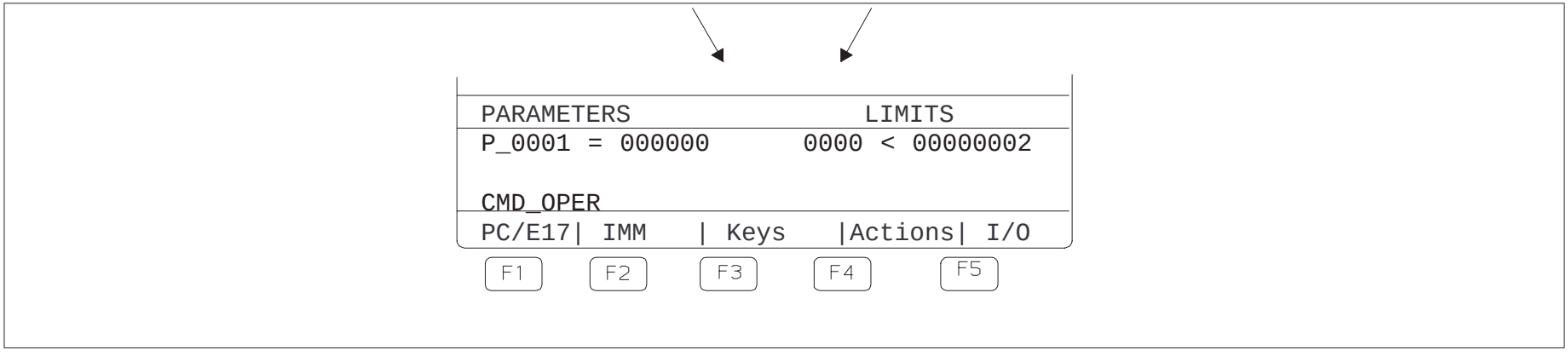
I – PARAMETER DEFINITION

The CAN and AXES parameters are used to characterize the CAN network bus and all the servo–control criteria for the 5 + 2 axes. The two types of servo–control are dealt with : the proportional standard and the “predictive PFC” option.

These parameters must only be modified by people who have followed a Sepro robotique specific training course.

I – 1. Accessing the parameters





Other means of direct access exist :

Keys on keyboard	Direct access to parameters for :
A or B	*1st pulse* : the X axis (Parameter 610) *2nd pulse* : the N1 axis (Parameter 1290)
C or D	*1st pulse* : the Y axis (Parameter 746) *2nd pulse* : the N2 axis (Parameter 1304)
E or F	*1st pulse* : the Z axis (Parameter 882) *2nd pulse* : the A1 axis (Parameter 1319)
G , H or K , L	*1st pulse* : the B axis (Parameter 1018) *2nd pulse* : the A2 axis (Parameter 1331)
O , P or M , N	*1st pulse* : the C axis(Parameter 1154) *2nd pulse* : rate of axis board 1 (Parameter 600)

Moving about in the parameters' list :

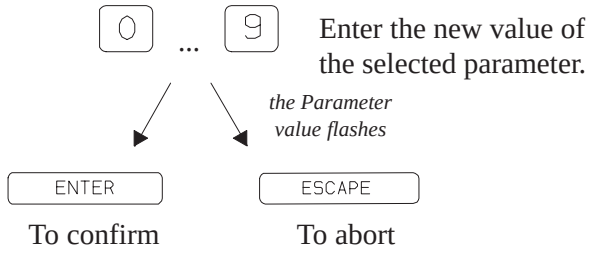
PG UP : To move back 10 parameters.

PG DN : To move forward 10 parameters.

: To move back one parameter (previous parameter).

: To move forward one parameter (following parameter).

I – 1. 1. Changing a parameter



If the value entered on the keyboard is between the min and max limits, the value is saved. Otherwise, the value is not validated and the "`The value is out of range`" message appears on the screen.

Quit the parameter setting mode by pressing ESCAPE once. If the parameters have been changed, the system displays : "`Copying data to FLASHPROM ...`" for about 6 seconds.

I – 2. Parameter functions

The function of each parameter is described in the following pages.

The default value is only indicatory and corresponds to the values automatically downloaded after a general reset. In this case, start again with the parameter file corresponding to your robot (see File S of the robot file or download the "PARAM" file of diskette 1 of set 1, from a compatible PC). See chapter I – 3. page 5.

I – 3. Saving and recovering the parameters

If the robot is equipped with the “floppy disk drive” option, it is possible to transfer the robot’s parameters to the PC and vice versa or on a diskette.

▶ PC

The parameters are saved and recovered using the Sepro AS900–II software. The use of this software is described in the on–line Help.

To save the parameters (robot –> PC), the robot must be out of programming mode.

To recover the parameters (PC –> robot), the robot must be out of programming mode and stopped.

1. “Select” or “Create” the robot if it does not exist.

Saving (Robot –> PC)

2. In the “Communication” menu, choose “Read in a robot”.
3. In the file type, choose “Parameters”
4. At the end of the transfer, “Save the current file”.

Recovering (PC –> Robot)

2. “Select a file”.
3. Choose “Parameters”
4. In the “Communication” menu, choose “Write in the robot”.
5. Enter the password (1234, if it has not been changed).
6. At the end of the transfer, power down the cabinet, then power up again so that the robot takes the new parameters into account.

▶ Floppy disk drive (option)

For the use of the floppy disk drive, see the “S900–II User Manual”.

II – THE CAN PARAMETERS

⚠ Do not modify the CAN parameters (45 –> 165) without the prior accord of Sepro robotique.

PARAMETER	Abbreviation	Description	Criterion	Corresponding value and function
45	**CLASS_MASTER_CAN**	Definition of the Master of the CAN network.	**Management group** according to the CAL DS 203 norm.	0 = No CAN network management 1 = Type 1* management 2 = Type 2* management 3 = Type 3* management 4 = Type 4* management
			Transmission speed	0 = 1 Mbit/s 10 = 500 kbit/s
	The value of the parameter is the sum of the values selected for each of the Criteria.			
	Default value : 2	Possible value : 0 –> 14	Interaction with other parameters : **46** –> 165	

* Definition of the type of Management

Type of Management	Network management	Fault management on the network	Reconfiguration via the network
0			
1	X		
2	X	X	
3	X		X
4	X	X	X

Parameters 46 to 53 define node 1. They are described in detail in the following pages.

The parameters of nodes 2 to 15 are identical. See their allocation in the table on page 9.

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
46	**TYPE_NODE-CAN_1**	Definition of the node on the CAN network.	0 –> 9999	0 = Node does not exist 1 = Pendant 2 = Sepro “ON or OFF” Inputs and Outputs 10 = Input module – Philips DIOS inputs
	Default value : 1	Possible value : 0 –> 9999	Interaction with other parameters :	
47	**CLASS_NODE_ CAN_1**	Type of management of the CAN node.	0 –> 4	0 = No node management 1 = Type 1* management 2 = Type 2* management 3 = Type 3* management 4 = Type 4* management
	Default value : 2	Possible value : 0 –> 4	Interaction with other parameters :	
48	**GUARD_TIME_ CAN_1**	Maximum refresh time on the CAN network in milliseconds (ms).	10 –> 1000	Associated with parameter 49, it defines the maximum time allowed between 2 “time monitoring” messages on one node. maximum time = parameter 48 x parameter 49
	Default value : 150	Possible value : 10 –> 1000	Interaction with other parameters : **49**	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
49	**LIFE_TIME_ CAN_1**	Maximum refresh time on the CAN network (multiplier factor).	2 –> 9	Associated with parameter 48, it defines the maximum time allowed between 2 “time monitoring” messages on one node. maximum time = parameter 48 x parameter 49
	Default value :2	Possible value : 2 –> 9	Interaction with other parameters : **48**	
50	**TOPOLO-GIE_CAN_1**	Input – Output distribution on the CAN node.	0 –> 22222222	0 = not used 1 = 8 Inputs 2 = 8 Outputs
	Default value : 0	Possible value : 0 –> 22222222	Interaction with other parameters : **52–53**	
52	**NUM_BASE_IN_ CAN_1**	Basic number of the module inputs.	136 –> 248	Number of the first module input (block of 8 consecutive inputs).
	Default value : 136	Possible value : 136 –> 248	Interaction with other parameters : **50**	
53	**NUM_BASE_ OUT_CAN_1**	Basic number of the module outputs.	136 –> 248	Number of the first module output (block of 8 consecutive outputs).
	Default value : 136	Possible value : 136 –> 248	Interaction with other parameters : **50**	

CAN node number	PARAMETER NUMBER						
	TYPE_NODE_CAN	CLASS_NODE_CAN	GUARD_TIME_CAN	LIFE_TIME_CAN	TOPOLOGIE_CAN	NUM_BASE_IN_CAN	NUM_BASE_OUT_CAN
1	46	47	48	49	50	52	53
2	54	55	56	57	58	60	61
3	62	63	64	65	66	68	69
4	70	71	72	73	74	76	77
5	78	79	80	81	82	84	85
6	86	87	88	89	90	92	93
7	94	95	96	97	98	100	101
8	102	103	104	105	106	108	109
9	110	111	112	113	114	116	117
10	118	119	120	121	122	124	125

V 2.0 robot
V 1.0 PC Editor

FLOPPY DISK DRIVE OPERATION

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
0126	TRK2TRKT	Track to track time in hexadecimal	0 –> F	Reserved
	Default value : B	Possible value : 0 –> 15	Interaction with other parameters :	
0127	PRECOMP	Precompensation	0 –> 7	Reserved
	Default value : 0	Possible value : 0 –> 7	Interaction with other parameters :	
0128	PRETRK	Precompensation track	0 –> 79	Reserved
	Default value : 0	Possible value : 0 –> 79	Interaction with other parameters :	
0129	HUT	Head unload time in hexadecimal	0 –> 7F	Reserved
	Default value : 0	Possible value : 0 –> 7F	Interaction with other parameters :	
0130	GPL1	Read / write gap	0 –> FF	Reserved
	Default value : 1B	Possible value : 0 –> FF	Interaction with other parameters :	
0131	GPL2	Formatting gap	0 –> FF	Reserved
	Default value : 54	Possible value : 0 –> FF	Interaction with other parameters :	

III – THE AXES' PARAMETERS

III – 1. Rate of the axes boards

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
600	CADENCE_1	Rate of the 3 axes board number 1 in milliseconds	5 –> 15	Delay in ms between 2 processing interrupts for a same axis.
	Default value : 6	Possible value : 5 –> 15	Interaction with other parameters :	

604	CADENCE_2	Rate of the 3 axes board number 2 in milliseconds	5 –> 15	Delay in ms between 2 processing interrupts for a same axis.
	Default value : 6	Possible value : 5 –> 15	Interaction with other parameters :	

III – 2. The robot axes

III – 2. 1. General axes' parameters

PARAMETER	Abbreviation	Description	Criterion	Corresponding value and function
610 **746** **882** **1018** **1154**	**TYP_AXE_X** TYP_AXE_Y TYP_AXE_Z TYP_AXE_B TYP_AXE_C	Definition of the type of axis	**Type of motorization**	0 = Axis not installed. 1 = Brushless. 2 = Asynchronous
			Type of initialization	0 = Initialization on cam and Init pulse. 16 = Initialization on cam only.
			Initialization forced when powered up	0 = If the axis is stopped when the robot is powered down, it relocates its position when powered up. 32 = The axis must be initialized each time the robot is powered up (it will not return to the position at the time it was powered down).
			Counting directions	0 = Counting increases. 64 = Counting decreases.
			Type of speed driver	Asynchronous: 0 = Speed reference +/– 10V and validation input. 128 = Speed reference 0 – 10V and + direction and – direction inputs.
				Brushless: 0 = Validation input only 128 = Validation input and speed or power supply reference selection input.
			Type of regulator	0 = Validation of proportional regulator (P) 256 = Validation of PFC predictive regulator (option)

			Type of control	0 = The axis is stopped by the brakes. 512 = The axis is stopped by the servo–control for the time defined by parameter 626.
			Type of tracking error control	0 = The tracking error is compared to a maximum value (Parameter 612) and a fault is generated if it is greater than this value. 1024 = The maximum value of the dynamic distance is calculated in real time according to the current speed of the axis and the maximum tolerance (Parameter 612). The test is then carried out as in the previous case.
			Releasing	0 = The axis cannot be freed. 2048 = The axis can be freed.
			Type of movement	0 = Linear axis. 4096 = Rotating axis.
	The parameter value is the sum of the values selected by each of the Criteria.			
	Default value : 0	Possible value : 0 –> 65535	Interaction with other parameters : **612, 626**, 748, 762, 884, 898, 1020, 1034, 1156, 1170	

611 **747** **883** **1019** **1155**	**NUM_AXE_X** NUM_AXE_Y NUM_AXE_Z NUM_AXE_B NUM_AXE_C	Output port associated with the axis	1 –> 6	Defines the port attributed to the axis' commands. . 1 to 3 for the axes board 1 (1 = J6, 2 = J7, 3 = J8) . 4 to 6 for the axes board 2 (4 = J9, 5 = J10, 6 = J11)
	Default value : 1 –> 6	Possible value : 1 –> 6	Interaction with other parameters :	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
612 **748** **884** **1020** **1156**	**TOL_AXE_X** TOL_AXE_Y TOL_AXE_Z TOL_AXE_B TOL_AXE_C	Tracking error tolerance in 1/10 mm.	0 –> 9999	Maximum value of the tracking error. The tracking error is cyclically compared to this value and a fault is generated when it becomes larger. If the dynamic distance is used (see parameter 610 = 1024), the maximum value of the tracking error is calculated in real time depending on the current speed. The value of this parameter is the maximum tracking error authorized when the axis is moving at maximum speed.
	Default value : 3000	Possible value : 0 –> 9999	Interaction with other parameters : **610**, 746, 882, 1018, 1154	

613 **749** **885** **1021** **1157**	**TOL_ARRET_X** TOL_ARRET_Y TOL_ARRET_Z TOL_ARRET_B TOL_ARRET_C	Regulation tolerance in 1/10 mm.	1 –> 300	If, after a delay defined in parameter 627, the axis' position error is greater than this tolerance, there is a regulation fault on the axis.
	Default value : 20	Possible value : 1 –> 300	Interaction with other parameters : **627,** 763, 899, 1035, 1171	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
614 **750** **886** **1022** **1158**	**TOLINIT_X** TOLINIT_Y TOLINIT_Z TOLINIT_B TOLINIT_C	Initialization tolerance in 1/10 mm.	0 –> 600	Value of the window in which there is no discrepancy between the position read (counting) and the physical position of the axis. The counting validity control only occurs in Step by Step and Automatic modes when the axis passes over the initialization cam.
	Default value : 200	Possible value : 0 –> 600	Interaction with other parameters :	

615 **751** **887** **1023** **1159**	**ANTICIPP_X** ANTICIPP_Y ANTICIPP_Z ANTICIPP_B ANTICIPP_C	Braking anticipation in + direction in 1/10 mm. THIS PARAMETER IS ONLY APPLICABLE FOR THE BRAKED ASYNCHRONOUS AXES.	0 –> 255	Value of the window (compared to the programmed position) in which the motor brake should be applied. This parameter is used to take into account the brake reaction time for movements in a positive direction (departure position less than the arrival position). This parameter adjusts itself automatically, during the robot's movements, according to the distances measured at the end of the path.
	Default value : 10	Possible value : 0 –> 255	Interaction with other parameters : **617**, 753, 889, 1025, 1161	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
616 **752** **888** **1024** **1160**	**ANTICIPM_X** ANTICIPM_Y ANTICIPM_Z ANTICIPM_B ANTICIPM_C	Braking anticipation in – direction in 1/10 mm. THIS PARAMETER IS ONLY APPLICABLE FOR THE BRAKED ASYNCHRONOUS AXES.	0 –> 255	Value of the window (compared to the programmed position) in which the motor brake should be applied. This parameter is used to take into account the brake reaction time for movements in a negative direction (departure position greater than arrival position). This parameter adjusts itself automatically, during the robot's movements, according to the distances measured at the end of the path.
	Default value : 10	Possible value : 0 –> 255	Interaction with other parameters : **617**, 753, 889, 1025, 1161	
617 **753** **889** **1025** **1161**	**ATCIP_X** ATCIP_Y ATCIP_Z ATCIP_B ATCIP_C	Maximum braking anticipation in 1/10 mm. THIS PARAMETER IS ONLY APPLICABLE FOR THE BRAKED ASYNCHRONOUS AXES.	0 –> 255	Limit value of braking anticipations in a positive and negative direction (Parameters 615 and 616). The basic task is to monitor the braking anticipations which are automatically updated. When an anticipated value is greater than the value in this parameter, the message "`W_00: $ – Braking faulty` " warns the user that the brake must be adjusted.
	Default value : 250	Possible value : 0 –> 255	Interaction with other parameters : **615–616**, 751–752, 887–888, 1023–1024, 1159–1160	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
618 **754** **890** **1026** **1162**	**DINV_MAX_X** DINV_MAX__Y DINV_MAX_Z DINV_MAX_B DINV_MAX_C	Maximum movement in the opposite direction in 1/10 mm.	1 –> 300	Value of movement in the opposite direction to the command, beyond which the fault "`D_46: $ –MVT IN REVERSE DIRECTION`" is displayed.
	Default value : 300	Possible value : 1 –> 300	Interaction with other parameters :	

619 **755** **891** **1027** **1163**	**ATCP_FM_X** AT_CP_FM_Y AT_CP_FM_Z AT_CP_FM_B AT_CP_FM_C	End of movement anticipation value in 1/10 mm. THIS PARAMETER IS ONLY APPLICABLE FOR THE BRAKED ASYNCHRONOUS AXES.	0 –> 9999	Value defining the difference between the real programmed position and the imaginary position aimed for by the movement manager. This parameter is used to compensate, to a certain extent, the follow–up errors due to the motor sliding and the behaviour of the speed driver.
	Default value : 50	Possible value : 0 –> 9999	Interaction with other parameters :	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
620 **756** **892** **1028** **1164**	**CONS_VM_X** CONS_VM_Y CONS_VM_Z CONS_VM_B CONS_VM_C	Speed driver voltage for the maximum speed in millivolts (mV).	1000 –> 9999	Value of the speed driver voltage when the axis moves at its maximum speed (parameter 631).
	Default value : 9000	Possible value : 1000 –> 9999	Interaction with other parameters : **631**, 767, 903, 1039, 1175	

621 **757** **893** **1029** **1165**	**VMIN_X** VMIN_Y VMIN_Z VMIN_B VMIN_C	Minimum speed allowed in millimetres per second (mm/s). THIS PARAMETER IS ONLY APPLICABLE FOR THE BRAKED ASYNCHRONOUS AXES.	1 –> 1000	Value of the minimum speed of the moving axis.
	Default value : 1	Possible value : 1 –> 1000	Interaction with other parameters :	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
622 **758** **894** **1030** **1166**	**VREG_X** VREG_Y VREG_Z VREG_B VREG_C	Maximum speed in adjust mode in millimetres per second (mm/s).	1 –> 1000	Value of the maximum movement speed in adjust mode. Used to limit the maximum speed in adjust mode.
	Default value : 150	Possible value : 1 –> 1000	Interaction with other parameters :	

623 **759** **895** **1031** **1167**	**AREG_X** AREG_Y AREG_Z AREG_B AREG_C	Maximum acceleration in adjust mode in milllimetres per square second (mm/s^2).	1 –> 50000	Value of maximum acceleration in adjust mode. Used to limit maximum acceleration in adjust mode.
	Default value : 500	Possible value : 1 –> 50000	Interaction with other parameters :	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
624 **760** **896** **1032** **1168**	**TEMPS_V_X** TEMPS_V_Y TEMPS_V_Z TEMPS_V_B TEMPS_V_C	Speed driver reaction time in milliseconds (ms).	1 –> 480	Defines the reaction time of the speed driver. Delay between the moment the command is given and when the speed driver is physically valid.
	Default value : 50	Possible value : 1 –> 480	Interaction with other parameters :	

625 **761** **897** **1033** **1169**	**TEMPS_F_X** TEMPS_F_Y TEMPS_F_Z TEMPS_F_B TEMPS_F_C	Brake reaction time in milliseconds (ms).	1 –> 480	Defines the brake reaction time. Time between the moment the command is given and when the brake is physically applied.
	Default value : 50	Possible value : 1 –> 480	Interaction with other parameters :	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
626 **762** **898** **1034** **1170**	**DUREE_A_X** DUREE_A_Y DUREE_A_Z DUREE_A_B DUREE_A_C	Servo–control positionning length in milliseconds (ms).	0 –> 9999	Defines the duration during which the axis can remain stationary using the servo–control system without the motor over–heating. Beyond this time, the brake blocks the axis.
	Default value : 5000	Possible value : 0 –> 9999	Interaction with other parameters : **610**, 746, 882, 1018, 1154	

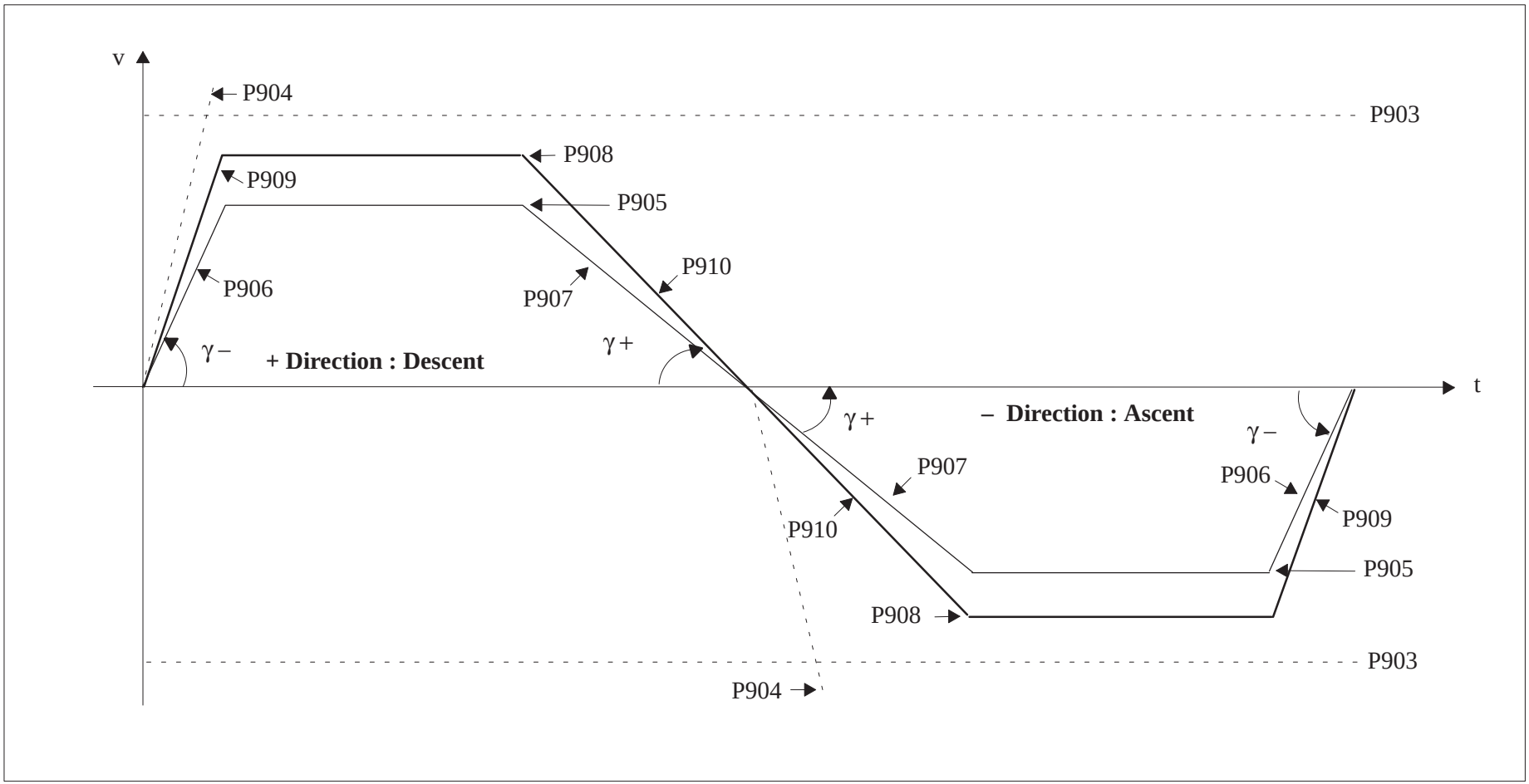
627 **763** **899** **1035** **1171**	**DELAI_B_X** DELAI_B_Y DELAI_B_Z DELAI_B_B DELAI_B_C	Maximum delay before block error in milliseconds (ms).	0 –> 9999	Defines the time during which an axis is considered immobile even though a reference input is generated. Beyond this delay, there will be a fault.
	Default value : 500	Possible value : 0 –> 9999	Interaction with other parameters : **613,** 749, 885, 1021, 1157	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
628 **764** **900** **1036** **1172**	**E_FORC_X** E_FORC_Y E_FORC_Z E_FORC_B E_FORC_C	Forced slowing input number for an axis	0 –> 128	Input at 0 to force the slowing down of the axis (moving to slow approach).
	Default value : 128	Possible value : 0 –> 128	Interaction with other parameters :	

629 **765** **901** **1037** **1173**	**E_FAPL_X** E_FAPL_Y E_FAPL_Z E_FAPL_B E_FAPL_C	End of slow approach input number for an axis	0 –> 128	Input = 0 to indicate "End of slow approach" for the axis with a slow approach.
	Default value : 128	Possible value : 0 –> 128	Interaction with other parameters : **443**	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
630 **766** **902** **1038** **1174**	**V_APL_X** V_APL_Y V_APL_Z V_APL_B V_APL_C	Slow approach maximum speed in millimetres per second (mm/s)	1 –> 6000	Defines the maximum speed of the axis' slow approach.
	Default value : 300	Possible value : 1 –> 6000	Interaction with other parameters :	

Example of a Z vertical movement graph



P903 represents parameter number 903

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
631 **767** **903** **1039** **1175**	**V_LIM_X** V_LIM_Y V_LIM_Z V_LIM_B V_LIM_C	Axis' speed limit in millimetres per second (mm/s).	1 –> 6000	Defines the speed limit for which parameter 620 has been set. Regulation is no longer possible beyond this speed.
	Default value : 4000	Possible value : 1 –> 6000	Interaction with other parameters : **620**, 756, 892, 1028, 1164	

632 **768** **904** **1040** **1176**	**A_LIM_X** A_LIM_Y A_LIM_Z A_LIM_B A_LIM_C	Axis' acceleration limit in millimetres per square second (mm/s^2).	1 –> 50000	Defines the acceleration limit beyond which the speed driver goes into "voltage stop".
	Default value : 5000	Possible value : 1 –> 50000	Interaction with other parameters :	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
633 **769** **905** **1041** **1177**	**V_HP_X** V_HP_Y V_HP_Z V_HP_B V_HP_C	Maximum speed outside the IMM in millimetres per second (mm/s).	1 –> 6000	Defines the operating speed outside the machine axis.
	Default value : 4000	Possible value : 1 –> 6000	Interaction with other parameters :	
634 **770** **906** **1042** **1178**	**A_HP_P_X** A_HP_P_Y A_HP_P_Z A_HP_P_B A_HP_P_C	Maximum acceleration outside the IMM in + direction in millimetres per square second (mm/s^2).	1 –> 50000	Defines the maximum acceleration outside the machine axis in a + direction (– direction deceleration for a vertical axis).
	Default value : 5000	Possible value : 1 –> 50000	Interaction with other parameters :	
635 **771** **907** **1043** **1179**	**A_HP_M_X** A_HP_M_Y A_HP_M_Z A_HP_M_B A_HP_M_C	Maximum acceleration outside the IMM in – direction in millimetres per square second (mm/s^2).	1 –> 50000	Defines the maximum acceleration outside the machine axis in a – direction (+ direction deceleration for a vertical axis).
	Default value : 5000	Possible value : 1 –> 50000	Interaction with other parameters :	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
636 **772** **908** **1044** **1180**	**V_DP_X** V_DP_Y V_DP_Z V_DP_B V_DP_C	Maximum speed in the IMM in millimetres per second (mm/s).	1 –> 6000	Defines the operating speed in the machine axis.
	Default value : 4000	Possible value : 1 –> 6000	Interaction with other parameters :	
637 **773** **909** **1045** **1181**	**A_DP_P_X** A_DP_P_Y A_DP_P_Z A_DP_P_B A_DP_P_C	Maximum acceleration in IMM Area in + direction in millimetres per square second (mm/s^2).	1 –> 50000	Defines the maximum acceleration in the machine axis in a + direction (– direction deceleration for a vertical axis).
	Default value : 5000	Possible value : 1 –> 50000	Interaction with other parameters :	
638 **774** **910** **1046** **1182**	**A_DP_M_X** A_DP_M_Y A_DP_M_Z A_DP_M_B A_DP_M_C	Maximum acceleration in IMM Area in – direction in millimetres per square second (mm/s^2).	1 –> 50000	Defines the maximum acceleration in the machine axis in a – direction (+ direction deceleration for a vertical axis).
	Default value : 5000	Possible value : 1 –> 50000	Interaction with other parameters :	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
640 **776** **912** **1048** **1184**	**CONVERS_X** CONVERS_Y CONVERS_Z CONVERS_B CONVERS_C	Encoder pulse conversion coefficient in millimetres.	1 –> 25000	Associated with parameter 642, it defines the conversion factor between the metric units and the encoder pulses. It corresponds to the total number of encoder pulses received by the axes board for a movement of 100 mm (number of pulses taking into account the 4 encoder paths A, /A, B et /B).
	Default value : 3183	Possible value : 1 –> 25000	Interaction with other parameters : **642**, 778, 914, 1050, 1186	

642 **778** **914** **1050** **1186**	**KPULSES_X** KPULSES_Y KPULSES_Z KPULSES_B KPULSES_C	Conversion multiplier factor.	1 –> 10000	The complement of parameter 640, it is the multiplier coefficient of the pulse conversion factor in millimetres. Conversion factor = parameter 642 * parameter 640 / 100.
	Default value : 100	Possible value : 1 –> 10000	Interaction with other parameters : **640**, 776, 912, 1048, 1184	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
644 **780** **916** **1052** **1188**	**VALINIT_X** VALINIT_Y VALINIT_Z VALINIT_B VALINIT_C	Initialization value in 1/10 mm.	1 –> 999999	Value corresponding to the axis' initialization position. This value can be entered using the keyboard (as long as you know the exact value of the initialization position) or entered automatically in the "calibration" mode. See File I.4.3.
	Default value : 2000	Possible value : 1 –> 999999	Interaction with other parameters :	

646 **782** **918** **1054** **1190**	**LIMAX_X** LIMAX_Y LIMAX_Z LIMAX_B LIMAX_C	Maximum movement limit in 1/10 mm.	1 –> 999999	Value of the axis' maximum limit.
	Default value : 999999	Possible value : 1 –> 999999	Interaction with other parameters :	

648 **784** **920** **1056** **1192**	**LIMIN_X** LIMIN_Y LIMIN_Z LIMIN_B LIMIN_C	Minimum movement limit in 1/10 mm.	1 –> 999999	Value of the axis' minimum limit.
	Default value : 1	Possible value : 1 –> 999999	Interaction with other parameters :	

III – 2. 2. Geometric correction parameters

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
650 **652** **654**	**CORR_X_P1** **CORR_Y_P1** **CORR_Z_P1**	Coordinates of point 1 for the geometric correction in 1/10 mm.	0 –> 999999	0 indicates "no correction".
	Default value : 0	Possible value : 0 –> 999999	Interaction with other parameters : 786 –> 790, 922 –> 926, 1058 –> 1062 See the "Geometric correction" manual.	
786 **788** **790**	**CORR_X_P2** **CORR_Y_P2** **CORR_Z_P2**	Coordinates of point 2 for the geometric correction in 1/10 mm.	0 –> 999999	0 indicates "no correction".
	Default value : 0	Possible value : 0 –> 999999	Interaction with other parameters : 650 –> 654, 922 –> 926, 1058 –> 1062 See the "Geometric correction" manual.	
922 **924** **926**	**CORR_X_P3** **CORR_Y_P3** **CORR_Z_P3**	Coordinates of point 3 for the geometric correction in 1/10 mm.	0 –> 999999	0 indicates "no correction".
	Default value : 0	Possible value : 0 –> 999999	Interaction with other parameters : 650 –> 654, 786 –> 790, 1058 –> 1062 See the "Geometric correction" manual.	
1058 **1060** **1062**	**CORR_X_P4** **CORR_Y_P4** **CORR_Z_P4**	Coordinates of point 4 for the geometric correction in 1/10 mm.	0 –> 999999	0 indicates "no correction".
	Default value : 0	Possible value : 0 –> 999999	Interaction with other parameters : 650 –> 654, 786 –> 790, 922 –> 926 See the "Geometric correction" manual.	

III – 2. 3. Proportional regulator parameters

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
656 **792** **928** **1064** **1200**	**SENS_X** SENS_Y SENS_Z SENS_B SENS_C	Motor rotation direction.	0	Reference input x 1
			1	Reference input x –1
	Defines the direction of the reference input sent to the speed driver.			
	Default value : 1	Possible value : 0 –> 1	Interaction with other parameters :	

657 **793** **929** **1065** **1201**	**COEFF_AV_X** COEFF_AV_Y COEFF_AV_Z COEFF_AV_B COEFF_AV_C	Speed anticipation coefficient.	0 –> 9999	Value of the proportional coefficient of the calculated speed injected into the regulating loop, for a regulator of the following form : K x Gap + Kv x calculated speed
	Default value : 0	Possible value : 0 –> 9999	Interaction with other parameters :	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
658 **794** **930** **1066** **1202**	**PROPOR_X** PROPOR_Y PROPOR_Z PROPOR_B PROPOR_C	Regulator proportional term.	0 –> 9999	Value of proportional term of P–type regulator.
	Default value : 30	Possible value : 0 –> 9999	Interaction with other parameters : **659**, 795, 931, 1067, 1203	

659 **795** **931** **1067** **1203**	**FPROPOR_X** FPROPOR_Y FPROPOR_Z FPROPOR_B FPROPOR_C	Proportional term scale factor.	1 –> 10000	Sets the scale of the proportional term (parameter 658) in order to improve the servo–control regulation. The real value of the proportional term is parameter 658 / parameter 659.
	Default value : 1000	Possible value : 1 –> 10000	Interaction with other parameters : **658**, 794, 930, 1066, 1202	

724 **860** **996** **1132** **1268**	**CONS_VMAX_X** CONS_VMAX_Y CONS_VMAX_Z CONS_VMAX_B CONS_VMAX_C	Reference input for the maximum speed (for proportional regulator).	1000 –> 9999	 Parameter is generated and modified automatically.
	Default value : –	Possible value : 1000 –> 9999	Interaction with other parameters :	

III – 2. 4. PFC predictive regulator parameters

Abbreviation	Description	X	Y	Z	B	C
V_GAIN	Gain value of position control loop.	662	798	934	1070	1206
ACCOST	Arrival anticipation in seconds.	664	800	936	1072	1208
VCONTR	Speed constraint in metres per second (m/s).	666	802	938	1074	1210
ACONTR	Acceleration constraints in metres per square second (m/s^2).	668	804	940	1076	1212
K0	K0 Coefficient (to update model).	670	806	942	1078	1214
K1	K1 Coefficient (to update model).	672	808	944	1080	1216
K2	K2 Coefficient (to update model).	674	810	946	1082	1218
K3	K3 Coefficient (to update model).	676	812	948	1084	1220
KD0	KD0 Coefficient (to update model).	678	814	950	1086	1222
KD1	KD1 Coefficient (to update model).	680	816	952	1088	1224
KD2	KD2 Coefficient (to update model).	682	818	954	1090	1226
KD3	KD3 Coefficient (to update model).	684	820	956	1092	1228
FM_00	FM Matrix (0,0)	686	822	958	1094	1230
FM_01	FM Matrix (0,1)	688	824	960	1096	1232
FM_02	FM Matrix (0,2)	690	826	962	1098	1234
FM_10	FM Matrix (1,0)	692	828	964	1100	1236
FM_11	FM Matrix (1,1)	694	830	966	1102	1238
FM_12	FM Matrix (1,2)	696	832	968	1104	1240
FM_20	FM Matrix (2,0)	698	834	970	1106	1242
FM_21	FM Matrix (2,1)	700	836	972	1108	1244
FM_22	FM Matrix (2,2)	702*	838	974	1110*	1246

* parameters also used for the analogue measured axes (see page 39).

Abbreviation	Description	X	Y	Z	B	C
GM_00	GM matrix (0.0)	704	840	976	1112	1248
GM_01	GM matrix (0.1)	706	842	978	1114	1250
GM_02	GM matrix (0.2)	708	844	980	1116	1252
CM_00	CM matrix (0.0)	710	846	982	1118	1254
CM_01	CM matrix (0.1)	712	848	984	1120	1256
CM_02	CM matrix (0.2)	714	850	986	1122	1258
FMD_00	FMD matrix (0.0)	716	852	988	1124	1260
FMD_01	FMD matrix (0.1)	718	854	990	1126	1262
FMD_02	FMD matrix (0.2)	720	856	992	1128	1264
FMD_10	FMD matrix (1.0)	722	858	994	1130	1266
GMD_00	GMD matrix (0.0)	724*	860*	996*	1132*	1268*
GMD_01	GMD matrix (0.1)	726	862	998	1134	1270
CMD_00	CMD matrix (0.0)	728	864	1000	1136	1272
CMD_01	CMD matrix (0.1)	730	866	1002	1138	1274
VX_00	VX matrix (0.0)	732	868	1004	1140	1276
VX_01	VX matrix (0.1)	734	870	1006	1142	1278
VX_02	VX matrix (0.2)	736	872	1008	1144	1280
VXD_00	VXD matrix (0.0)	738	874	1010	1146	1282
VXD_01	VXD matrix (0.1)	740	876	1012	1148	1284

* parameters also used for the proportional regulator (see page 32).

III – 3. The measured axes

III – 3. 1. Numeric measured axes' parameters

See the "Mould chasing" manual for more details.

PARAMETER	Abbreviation	Description	Criterion	Corresponding value and function
1290 **1304**	**TYP_AXE_N1** TYP_AXE_N2	Definition of the type of numeric axis followed.	**Type of measurement**	0 = No numeric axis. 1 = Position measurement.
			Direction of measurement	0 = Counting increases. 4 = Counting decreases
			Type of axis	0 = no initialization, no modulo. 8 = no initialization, modulo. 16 = with initialization, no modulo. 24 = with initialization, modulo
			Type of initialization	0 = Initialization on cam and Init pulse. 32 = Initialization on cam only.
	The value of the parameter is the sum of the values selected for each of the Criteria.			
	Default value : 0	Possible value : 0 –> 65535	Interaction with other parameters :	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
1291 **1305**	**NUM_AXE_N1** NUM_AXE_N2	Output port associated with the axis	1 –> 6	Number of the output port associated with the measured axis. . 1 to 3 for axes board 1 (1 = J6, 2 = J7, 3 = J8) . 4 to 6 for axes board 2 (4 = J9, 5 = J10, 6 = J11)
	Default value : 0	Possible value : 1 –> 6	Interaction with other parameters : 611, 747, 883, 1019, 1155	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
1292 **1306**	**MODULO_N1** MODULO_N2	Modulo value in 1/10 mm.	1 –> 999999	This parameter is used to associate a known and finite value to a defined position. *Example :* 2000 encoder pulses are required for a cyclic system to return to its "zero point". In this case, you would choose : 1 – a 2000 modulo 2 – to declare the type of modulo axis (parameter 1291).
	Default value : 0	Possible value : 1 –> 999999	Interaction with other parameters : **1291**, 1305	

1294 **1308**	**VALINIT_N1** VALINIT_N2	Initialization value in 1/10 mm.	1 –> 999999	Absolution position corresponding to : 1 – Leading edge of an initialization cam (initialization by cam only) 2 – Conjunction of the signals from the initialization cam and the encoder's Init. pulse (initialization by cam and Init. pulse)
	This value is only used if the axis has been declared as being measured with initialization (Parameter 1291)			
	Default value : 0	Possible value : 1 –> 999999	Interaction with other parameters : **1291**, 1305	

1296 **1310**	**CONVERS_N1** CONVERS_N2	Encoder pulse conversion coefficient in millimetres.	1 –> 25000	Associated with parameter 1298, it defines the conversion factor between the metric units and the encoder pulses.
	Default value : 0	Possible value : 1 –> 25000	Interaction with other parameters : **1298**, 1312	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
1298 **1312**	**KPULSES_N1** KPULSES_N2	Conversion multiplier factor.	1 –> 10000	A complement of parameter 1296, it is the multiplier coefficient of the conversion coefficient. Conversion factor = parameter 1298 * parameter 1296 / 100
	Default value : 0	Possible value : 1 –> 10000	Interaction with other parameters : **1296**, 1310	

1300 **1314**	**TOLER_N1** TOLER_N2	Speed tolerance	1 –> 6000	In the case of speed monitoring, the value of the window in which the "following" axis is considered as locked onto the measured axis.
	Default value : 0	Possible value : 1 –> 6000	Interaction with other parameters :	

III – 3. 2. Analogue measured axes parameters

PARAMETER	Abbreviation	Description	Criterion	Corresponding value and function
1319 **1331**	**TYP_AXE_A1** TYP_AXE_A2	Definition of the type of analogue axis followed.	**Measurement type**	0 = No analogue axis. 1 = Position measurement. 2 = Speed measurement.
			Measurement direction	0 = Counting increases. 256 = Counting decreases
			Bipolarity of analogue symbol	Not used, leave at 0.
	The value of the parameter is the sum of the values selected for each of the Criteria.			
	Default value : 0	Possible value : 0 –> 65535	Interaction with other parameters :	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
1320 **1332**	**CONVERS_A1** CONVERS_A2	Conversion coefficient of the voltage received in millimetres.	1 –> 25000	Value that represents the variation in mm/mVolts of the axes' board's analogue input for a movement of 100 mm of the measured axis. d = total distance covered in mm Δv = input voltage variation on 3 axes board in mV. This parameter equals Δv * 100 / d
	Default value : 0	Possible value : 1 –> 25000	Interaction with other parameters : **1322–1324**, 1334–1336	

1322 **1334**	**KPULSES_A1** KPULSES_A2	Conversion multiplier factor.	1 –> 10000	Value used to readjust the value of parameter 1320 when it exceeds 25 000. Conversion factor applied = parameter 1320 * parameter 1322 / 100
	Default value : 0	Possible value : 1 –> 10000	Interaction with other parameters : **1320–1324**, 1332–1336	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
1324 **1336**	**OFFSET_A1** OFFSET_A2	Analogue value offset.	–99999 –> +99999	Signed value which allows you to : 1 – adjust the value displayed by A1 (A2) with respect to the position of the measured analogue axis. 2 – make sure that the A1 (A2) value is always positive whatever the position of the measured analogue axis. Value displayed = **[**(measurement * measurement direction) + parameter 1324 * 10^5 **] / [** parameter 1320 * parameter 1322 **]**
	Default value : 0	Possible value : –99999 –> +99999	Interaction with other parameters **1319 –> 1322**, 1331 –> 1334	
1326 **1338**	**TOLER_A1** TOLER_A2	Speed tolerance.	1 –> 6000	In the case of speed monitoring, the value of the window in which the "following" axis will be considered as locked onto the measured axis.
	Default value : 0	Possible value : 1 –> 6000	Interaction with other parameters	
702 **1110**	**A1** A2	Analogue reference input filter.	1 –> 100	Value of the analogue reference input filter. The higher it is, the more the reference input is filtered. Beware ; when you increase it, the reply is reduced. You are advised to start at 1 which indicates no filtering.
	This parameter is only valid for the axes board's analogue axis.			
	Default value : 1	Possible value : 1 –> 100	Interaction with other parameters	

V 2.0 robot

V 1.0 PC Editor

IV – THE EUROMAP 17 PARAMETERS

These parameters are used to configure the new Euromap 17 functionalities. For their use, see the Euromap 17 manual.

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
1340	**MOULD_ORG_POS**	Mould's original position	0 –> 99999.9	
	Default value : 0	Possible value : 0 –> 99999.9	Interaction with other parameters	
1342	**MOULD_SENS_POS**	Mould position direction	0 –> 1	
	Default value : 0	Possible value : 0 –> 1	Interaction with other parameters	
1343	**MOULD_CONV_POS**	Conversion coefficient	0 –> 25000	
	Default value : 1	Possible value : 0 –> 25000	Interaction with other parameters	
1344	**MOULD_K_POS**	Conversion corrective factor	0 –> 10000	
	Default value : 1	Possible value : 0 –> 10000	Interaction with other parameters	

PARAMETER	Abbreviation	Description	Parameter value	Corresponding function
1350	EJECT_ORG_POS	Ejector's original position	0 –> 99999.9	
	Default value : 0	Possible value : 0 –> 99999.9	Interaction with other parameters	
1352	EJECT_SENS_POS	Ejector position direction	0 –> 1	
	Default value : 0	Possible value : 0 –> 1	Interaction with other parameters	
1353	EJECT_CONV_POS	Conversion coefficient	0 –> 25000	
	Default value : 1	Possible value : 0 –> 25000	Interaction with other parameters	
1354	EJECT_K_POS	Conversion corrective factor	0 –> 10000	
	Default value : 1	Possible value : 0 –> 10000	Interaction with other parameters	

We're Here to Help

Conair has made the largest investment in customer support in the plastics industry. Our service experts are available to help with any problem you might have installing and operating your equipment. Your Conair sales representative also can help analyze the nature of your problem, assuring that it did not result from misapplication or improper use.

How to Contact Customer Service

To contact Customer Service personnel, call:

From outside the United States, call: 814-437-6861

You can commission Conair service personnel to provide on-site service by contacting the Customer Service Department. Standard rates include an on-site hourly rate, with a one-day minimum plus expenses.

Before You Call ...

If you do have a problem, please complete the following checklist before calling Conair:

- ❒ Make sure you have all model, serial and parts list numbers for your particular equipment. Service personnel will need this information to assist you.
- ❒ Make sure power is supplied to the equipment.
- ❒ Make sure that all connectors and wires within and between loading control and related components have been installed correctly.
- ❒ Check the troubleshooting guide of this manual for a solution.
- ❒ Thoroughly examine the instruction manual(s) for associated equipment, especially controls. Each manual may have its own troubleshooting guide to help you.
- ❒ Check that the equipment has been operated as described in this manual.
- ❒ Check accompanying schematic drawings for information on special considerations.

Additional manuals and prints for your Conair equipment may be ordered through the Customer Service or Parts Departments for a nominal fee.

EQUIPMENT GUARANTEE

Conair guarantees the machinery and equipment on this order, for a period as defined in the quotation from date of shipment, against defects in material and workmanship under the normal use and service for which it was recommended (except for parts that are typically replaced after normal usage, such as filters, liner plates, etc.). Conair's guarantee is limited to replacing, at our option, the part or parts determined by us to be defective after examination. The customer assumes the cost of transportation of the part or parts to and from the factory.

PERFORMANCE WARRANTY

Conair warrants that this equipment will perform at or above the ratings stated in specific quotations covering the equipment or as detailed in engineering specifications, provided the equipment is applied, installed, operated and maintained in the recommended manner as outlined in our quotation or specifications.

Should performance not meet warranted levels, Conair at its discretion will exercise one of the following options:

- Inspect the equipment and perform alterations or adjustments to satisfy performance claims. (Charges for such inspections and corrections will be waived unless failure to meet warranty is due to misapplication, improper installation, poor maintenance practices or improper operation.)
- Replace the original equipment with other Conair equipment that will meet original performance claims at no extra cost to the customer.
- Refund the invoiced cost to the customer. Credit is subject to prior notice by the customer at which time a Return Goods Authorization Number (RGA) will be issued by Conair's Service Department. Returned equipment must be well crated and in proper operating condition, including all parts. Returns must be prepaid.

Purchaser must notify Conair in writing of any claim and provide a customer receipt and other evidence that a claim is being made.

WARRANTY LIMITATIONS

Except for the Equipment Guarantee and Performance Warranty stated above, Conair disclaims all other warranties with respect to the equipment, express or implied, arising by operation of law, course of dealing, usage of trade or otherwise, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.