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USERGUIDE

CNC900++ Parameters

Version 0.6

⚠ **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This manual is out-of-date and is provided only for its technical information, data and capacities.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containing warnings, information, precautions, and procedures that may be more adequate than those contained in this out-of-date manual.

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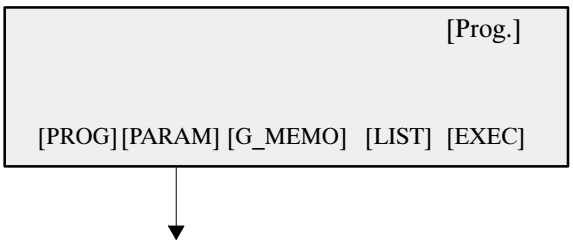
I - MACHINE PARAMETERS

I - 1. USING "PARAMETER" MODE

After pressing "PROG" F1 in STOP or ADJUST mode, the display shows:

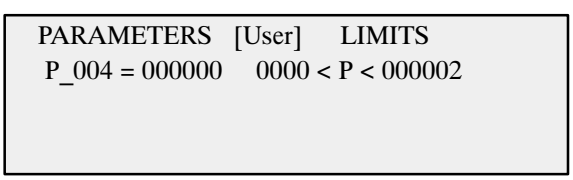


After pressing [Param], F2 :

Limited read/write access to parameters:

. Read access from No. 1 to No. 976
. Read/write access from No. 4 to No. 11 and from No. 14 to No.17

Complete read/write access to parameters No 1 to No 976. A password is requested before accessing the next display in order to limit access. *(Please contact us for attribution or modification of password).*



- Pressing the [↓] key decrements the parameter number by 1 (by 2 for integer parameters).
- Pressing the [↑] key increments the parameter number by 1 (by 2 for integer parameters).
- Pressing the [P + 1] key increments the parameter number by 10.
- Pressing the [P - 1] key decrements the parameter number by 10.

For rapid selection of a parameter area concerning X, Y, Z, B or C axes, pressing the [X] key sets the parameter number to 180 (beginning of parameters for X axis).

- The [Y] key sets parameter number 330.
- The [Z] key sets parameter number 480.
- The [B] key sets parameter number 630.
- The [C] key sets parameter number 780.

Use the number keyboard to enter the the parameter value, followed by [ENR]. The leap to the next step is automatic.

If the value entered on the keyboard is within the maximum and minimum limit values, it is recorded. If not,an error message: ”Parameter out of limits” is displayed.

Leave parameter setting mode by pressing [EXIT].

When creating an axis or modifying its characteristics, (parameters 180, 330, 480, 630, 780), it is advisable to cut the cabinet power supply so that the initial updates performed by the software take this creation into account.

I - 2. MACHINE PARAMETER DESCRIPTION

The following sheets give brief details of the characteristics of the parameters. This description is for information purposes only; it is not shown on the robot readout.

The default value is only given as a guide and corresponds to the values automatically loaded after a general reset. In this case, the operator should work using the robot parameter file (see File S or download using a PC).

An asterisk * indicates that the loaded value is not significant and should be replaced according to your robot’s characterisitics.

II - GENERAL PARAMETERS DEFINING THE CHARACTERISTICS OF S900++ AND P900++

Parameter No.	Description:
001	**Robot type**

Limit values: **0000 < P < 000013**	Value by default: **0000**

Value of parameter	CORRESPONDING OPERATION
No 1 = 0	Machine dialogue for injection moulding machines with **complete** ”Man-Machine” dialogue. In this mode, the robot cycle depends on the following signals: - MO (Machine Open) - Standby MO - PFAB (Part made) - Standby part made (Signals MO and PFAB are monitored and indication is given if they become incoherent).
No 1 = 1	Dialogue for general handling(MG). The robot cycle only takes account of MO and PF (for movement safety).
No 1 = 2	Dialogue for tooling machine (MU). Currently, same as parameter No 1 = 1 (reserved for future use).
No 1 = 3	Machine dialogue for injection moulding machine with **reduced** ”Man-Machine” dialogue.
No 1 = 10	Machine dialogue for injection moulding machine with **complete** ”Man-Machine” dialogue to SPI American standard. VCM maintained until machine is re-opened.
No 1 = 13	Machine dialogue for injection moulding machine with **reduced** ”Man-Machine” dialogue to SPI American standard. VCM maintained until machine is re-opened.

Interaction with other parameter(s):

Parameter No.	Description:
002	**Local command type**

Limit values: **0000 < P < 000002**	Value by default: **0000**

Value of parameter	CORRESPONDING OPERATION
	The commands in question are: - Movements of axes in adjust mode, X+, X-, etc... - Requests: . cycle start . stop at end of cycle . home return . setting to PCO (Tool Changing Position)
No 2 = 0	Commands are only activated from Sepro control unit. *Note* : The button RESET is no longer active (Parameter 151 = 128).
No 2 = 1	Depending on the state of the input whose number is indicated in parameter 151, the commands are activated either from the SEPRO terminal or by external inputs reserved for commands (parameters 123 to 130 and 139 to 150 console commands). *Note* : The button RESET is active (Parameter 151 = 127).
No 2 = 2	Commands are only activated by external inputs (console).
	<u>Note</u>: In "Commands by external inputs" mode, the V+, V- and Stop at End of Cycle keys of the terminal are nonetheless useable.

<u>Interaction with other parameter(s)</u>: Parameter 3
Parameter 151

Parameter No	Description:
003	**Control by Host machine**

Limit values:	**0000 < P < 000001**	Value by default:	**0000**

Value of parameter	CORRESPONDING OPERATION
	Used when changing a mould automatically, used in conjunction with EUROMAP 17 (IMM).
No 3 = 0	The commands are not activated by the IMM.
No 3 = 1	The IMM controls the robot operations: loading of program, execution, cycle start, etc

Remarks:

If Parameter No. 2 = 0, Parameter No. 3 is not used.

Interaction with other parameter(s): Parameter 2

Parameter No.	Description:
004	**Type of program number encoding**

Limit values: **0000 < P < 000002**	Value by default: **0000**

Value of parameter	CORRESPONDING OPERATION
No 4 = 0	Encoding restricted to number on 4 inputs + parity input. Maxi : 16 programs (0 to 15).
No 4 = 1	Encoding extended to number on 7 inputs + parity input. Maxi : 100 programs (0 to 99).
No 4 = 2	Encoding of number by supervisor word (MotCod1, WRD0058).
	Nota : Binary coding (1, 2, 4, 8, ...) must include an even input number at 1 to be taken into account. The parameters of the inputs making up the program number can be set (parameters 131 to 138).

Interaction with other parameter(s): Parameter Nos. 131 à 138

Parameter No.5

Parameter No.	Description:
005	**Automatic program change**

Limit values:	**0000 < P < 000001**	Value by default:	**0000**

Value of parameter	CORRESPONDING OPERATION
	This parameter enables and disables automatic programming change mode.
No 5 = 0	No automatic change.
No 5 = 1	Automatic change. Depending on state of parameter 4, this word is set in different ways: -> parameter 4 at 0 or 1: the code number is given by external inputs (parameters 131 to 138), validation of the code by the input whose number is given by parameter 92. -> parameter 4 at 2: the code number is given by the supervisor system (MotCod1, WRD0058) as well as validation (bit 0 x 80 of MotDial, WRD0046) - Bit No 33.

Interaction with other parameter(s): Parameter 4

Parameter 92

Parameter No.	Description:
006	**Type of Watchog between steps**

Limit values: **0000 < P < 000003**	Value by default: **0000**

Value of parameter	CORRESPONDING OPERATION
	Sequential running of the part program is linked to the presence or absence of data (programmed or implicit). A software "watchdog" whose duration can be set (parameters Nos. 7 and 8) permanently monitors running of the program. If a delay between 2 steps is longer than the watchdog delay due to incorrect data, the robot will switch to fault mode and indicate the cause. However, there are certain cases when switching to fault mode can be inconvenient. It is therefore possible to set all parameters: For a part program (MP), AND/OR For parallel subroutine (SP //)
No 6 = 0	Fault for MP and SP//.
No 6 = 1	Fault only for SP//, signalling in MP.
No 6 = 2	Fault only for MP, signalling in SP//.
No 6 = 3	Signalling for MP and SP//.

Interaction with other parameter(s): Parameter 7
Parameter 8

Parameter No.	Description:
007	**Value of Watchdog between steps 1/10 s**

Limit values:	**0000 < P < 009999**	Value by default:	**0300** *soit 30s*

Value of parameter	CORRESPONDING OPERATION
0000 1/10s to 9999 1/10s	Indicates the authorized waiting time before execution of an action between two steps before a fault is signalled. Validity is conditional on parameter No. 6.

Interaction with other parameter(s): Parameter No.6

Parameter No.	Description:
008	**Value of part grip "Watchdog" 1/10 s**

Limit values: **0000 < P < 009999**	Value by default: **0050** *(5s)*

Value of parameter	CORRESPONDING OPERATION
0000 1/10s to 9999 1/10s	If the robot parameters are set for PIP (parameter No 1 = 0, 3, 10 or 13), a special time-out is applied to the *"Grip part in machine"* data. (For example: to avoid leaving the injection machine open for too long). This timeout is applied to the inputs associated with ACT11, ACT19 actions and to the bit 32 for execution of the automatic home return (Parameter No.11).

Interaction with other parameter(s):

Parameter No.1
Parameter No.6
Parameter No.11

Parameter No.	Description:
009	**Copy of robot status on outputs**

Limit values: **0000 < P < 000001**	Value by default: **0000**

Value of parameter	CORRESPONDING OPERATION
	Some applications may require connecting the robot to an external automation controller. The basic "dialogue" which can be envisaged consists in linking via the inputs and outputs of each of the systems. To make this possible it is possible to copy the status of the robot on the outputs whose numbers are given in parameters 109 and 112 to 121. - robot stationary or in auto, semi-auto or adjust mode ; - robot in RO or PCO, in cycle or fault mode, etc.
No 9 = 0	No copy.
No 9 = 1	Copy of status.
	Note: The "faults" (Parameter 110) and "alarm" (Parameter 111) status are not dependent on this parameter.

Interaction with other parameter(s): Parameter No.12
Parameter No. 109
Parameter Nos. 112 to 121

Parameter No.	Description:
010	**Type of rotations for general stacking**

Limit values: **0000 < P < 000001**	Value by default: **0000**

Value of parameter	CORRESPONDING OPERATION
	In the general stacking subroutines, each part can be associated with a rotation word defining the position of the part before removal, when in learning mode.
No 10 = 0	Rotation word (MotRot) uses standard mechanical rotations (ACT09, ACT10, ACT13, ACT14, ACT16) during the teach operation.
No 10 = 1	The rotation word (MotRot) sets the “rotation” bits used in the part program to command nonstandard movements (bits 16 to 20). E.g.: IF BIT.016 OUT 025 The learning has no effect on this parameter setting; a ”MotRot” value must be entered directly.

Interaction with other parameter(s):

Parameter No.	Description:
011	**Type of part grip**

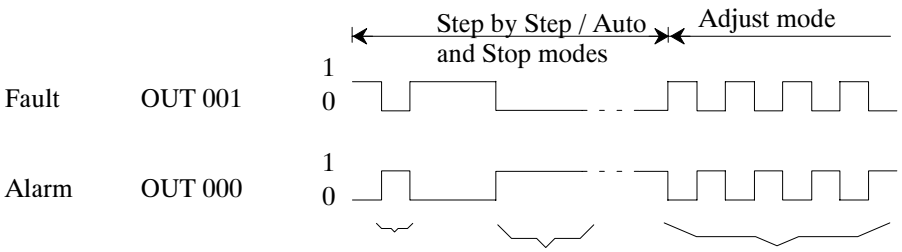
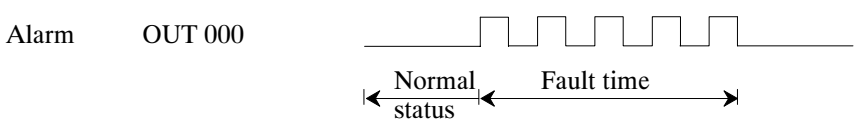
Limit values: **0000 < P < 000003**	Value by default: **0000**

Value of parameter	CORRESPONDING OPERATION
	Checks the part picked up by the robot. Can either be standard (input E-PP) or linked to the state of a bit (bit 32) resulting from a more complex equation (multiple grip) calculated by the PLC.
No 11 = 0	Checks standard PP1 (input of parameter No. 62),linked to the use of ACT.11.
No 11 = 1	Checks Bit 32, linked to the use of ACT.11.
No 11 = 2	Associated checks of PP1. PP2 (input of parameters Nos. 62 and 71) linked to the use of ACT.11 and ACT.19.
No 11 = 3	Checks Bit 32, linked to the use of ACT.11 and ACT.19.
	Note: Testing by bit 32 is only valid in PIP mode (parameter 1 = 0, 3, 10 or 13) and for part grip in the machine.

Interaction with other parameter(s): Parameter Nos. 8, 62 and 71

Parameter No.	Description:
012	**Validation of flashing alarm signal**

Limit values: **0000 < P < 000001**	Value by default: **0001**

Value of parameter	CORRESPONDING OPERATION
No 12 = 0	The corresponding alarm output (Parameter No. 111) is the complement of the fault output (Parameter No.110).  Time when the robot is in fault = Alarm
No 12 = 1	The corresponding alarm output (Parameter No. 111) is flashing. 

Interaction with other parameter(s): Parameter No.111

Parameter No.	Description:
013	**Type of saving memory**

Limit values: **0000 < P < 000002**	Value by default: **0010**

Value of parameter	CORRESPONDING OPERATION
	. Allows to choose the EEPROM capacity on the CPU board or the Memory Extension board used to store the machine parameters and "user" programs. . Also allows to activate a control system to portect against writing errors (for EEPROM XICOR 28C64 and 28C56 memories).
No 13 = 0	16 Kbyte memory - not protected. -> writes one 16 byte page every 20ms.
No 13 = 1	64 Kbyte memory not protected. -> writes one 64 byte page every 20ms.
No 13 = 2	Memory Extension Board : - 256 or 512 Kbytes - Battery backed-up RAM simulating an EEPROM (displayed EEP messages are stored). - The EEPROM memories of the CPU board are only used for the parameters and are not protected.
No 13 = 10	16 Kbyte memory (XICOR 28C64) - protected. -> writes one 16 byte page every 10ms. ⚠ The data contained in the EEPROMs will be lost if you return to the non-protected state (by [Reset T]).
No 13 = 11	64 Kbyte memeory (XICOR 28C256) - protected. -> writes one 64 byte page every 10 ms. ⚠ The data contained in the EEPROMs will be lost if you return to the non-protected state (by [Reset T]).
No 13 = 12	Memory Extension Board : - 256 or 512 Kbytes - RAM saved by a battery as if saved on EEPROM (will be displayed in the EEPROM memory). - The EEPROM memories (XICOR 28C64 or 28C256) of the CPU board are protected and only used for the parameters. ⚠ The data contained in the EEPROMs will be lost if you return to the non-protected state (by [Reset T]).
	N.B. : The protection is activated starting from the first instruction if parameter 13 = 10, 11 or 12.

Interaction with other parameter(s):

Parameter No.	Description:
014	**Robot slave number**

Limit values:	**0000 < P < 000099**	Value by default:	**00001**

Value of parameter	CORRESPONDING OPERATION
	This parameter is used by the JBUS protocol for communication between the robot and the Host machine.
No 14 = 00 to 99	Number assigned to the robot in the dialogue with the environment.

Interaction with other parameter(s):

Parameter No.	Description:
015	**Protocol selection: 0 = PC, 1 = PC/E17**

Limit values: **0000 < P < 00001**	Value by default: **0**

Value of parameter	CORRESPONDING OPERATION
	This parameter indicates to the robot which dialogues may be used.
0	Connection to PC only
1	Connection to PC and IMM (E17)

Interaction with other parameter(s):

Parameter No.	Description:
016	**Dialogue selection input**

Limit values:	**0000 < P < 127**	Value by default:	**127**

Value of parameter	CORRESPONDING OPERATION
	In order to facilitate the passage of dialogue between the injection machine and PC and vice versa, a switch can be installed in the front of the cabinet. Depending on its position, PC or injection machine, an input is set at 0 or 1 (its number should be indicated in this parameter). Input = 0 -> Dialogue with injection machine (E17) Input = 1 -> Dialogue with PC (JBUS) *Comment*: In the case of dialogue with the PC computer only, this input is not used and should be set at 127.

Interaction with other parameter(s):

Parameter No.	Description:
017	**Systematic program download 1 = YES**

Limit values: **0000 < P < 0001**	Value by default: **0**

Value of parameter	CORRESPONDING OPERATION
	The procedure for downloading a program from the injection machine assumes that the latter asks the robot if the program it wants to sends already exists in its memory. If the robot answers Yes, then the transfer does not take place and the resident program in the robot will be executed.
1	YES: If, nevertheless, the program is still to be sent, regardless of whether it already exists in the robot's memory, the parameter should be set at 1.

Interaction with other parameter(s):

Parameter No.	Description:
018	**Length of operator siren (1/10 s)**

Limit values: **0000 < P < 0001**	Value by default: **20**

Value of parameter	CORRESPONDING OPERATION
20 1/10s to 300 1/10s	Length of alarm signal when the DELAYED START security device is used (parameter 107). Delayed start = parameter 18 + parameter 19 + parameter 107

Interaction with other parameter(s):

Parameters No. 19 and 107

Parameter No.	Description:
019	**Delay before start of robot cycle (1/10 s)**

Limit values: **0000 < P < 0600**	Value by default: **50**

Value of parameter	CORRESPONDING OPERATION
0000 1/10s to 600 1/10s	Length of DELAY when the DELAYED START security device is used (parameter 107). Delayed start= parameter 18 + parameter 19 + parameter 107

Interaction with other parameter(s):

Parameters No. 18 and 107

Parameter Nos.	**Not used**
020	

Value by default = **0000**

Parameter No	CORRESPONDING OPERATION	Limit values

Parameter Nos

21 to 40

Parameters containing the output numbers corresponding to action codes

Limit values: **0000 < P < 000128**

Value = 128 indicates "Not used"

Parameter No	CORRESPONDING OPERATION	Value by default
21	Output corresponding to ACT 02	128
22	Output corresponding to ACT 03	128
23	Output corresponding to ACT 04	128
24	Output corresponding to ACT 05	128
25	Output corresponding to ACT 06	128
26	Output corresponding to ACT 07	128
27	Output corresponding to ACT 08	128
28	Output corresponding to ACT 09	6
29	Output corresponding to ACT 10	7
30	Output corresponding to ACT 11	5
31	Output corresponding to ACT 12	4
32	Output corresponding to ACT 13	8
33	Output corresponding to ACT 14	9
34	Output corresponding to ACT 15	13
35	Output corresponding to ACT 16 (Actuates 90 degrees retractable stop).	11
36	Antagonist output to ACT 16: (Actuates removal of 90 degrees retractable stop when ACT 13 and ACT 14 are actuated).	10
37	Output corresponding to ACT 17	128
38	Output corresponding to ACT 18	128
39	Output corresponding to ACT 19	128
40	Output corresponding to ACT 20	128

Remarks: When recuperating an output corresponding to a non-existant action, remember to set the corresponding parameter to 128.

Parameter No.	Description:
41 to 52	**Parameters containing the output numbers corresponding to action codes**

Limit values: **0000 < P < 000128** *Value = 128 indicates "Not used"*

Value of parameter	CORRESPONDING OPERATION	Value by default
41	Output corresponding to ACT 21	128
42	Output corresponding to ACT 22	128
43	Output corresponding to ACT 23	128
44	Output corresponding to ACT 24	128
45	Output corresponding to ACT 25	128
46	Output corresponding to ACT 26	128
47	Output corresponding to ACT 27	128
48	Output corresponding to ACT 28	128
49	Output corresponding to ACT 29	128
50	Output corresponding to ACT 30	128
51	Output corresponding to ACT 31	128
52	Output corresponding to ACT 32	128

Remarks: When recuperating an ouptput corresponding to a non-existant action, remember to set the corresponding parameter to 128.

Parameter Nos

53 to 72

Parameters containing the input numbers corresponding to action codes

Limit values: **0000 < P < 000128**

Parameter No	CORRESPONDING OPERATION	Value by default
53	Input checking end of action ACT 02	127
54	Input checking end of action ACT 03	127
55	Input checking end of action ACT 04	127
56	Input checking end of action ACT 05	127
57	Input checking end of action ACT 06	127
58	Input checking end of action ACT 07	127
59	Input checking end of action ACT 08	127
60	Input checking end of action ACT 09	22
61	Input checking end of action ACT 10	23
62	Input checking end of action ACT 11	21
63	Input checking end of action ACT 12	21
64	Input checking end of action ACT 13	127
65	Input checking end of action ACT 14	127
66	Input checking end of action ACT 15	127
67	Input checking end of action ACT 16	127
68	Input checking removal of 90-degree stop.	127
69	Input checking end of action ACT 17	127
70	Input checking end of action ACT 18	127
71	Input checking end of action ACT 19	127
72	Input checking end of action ACT 20	127

Notes: When recuperating an input corresponding to a non-existant action, remember to set the corresponding parameter to 127 or 128.

Allocation to 128 is interpreted by the CN as a permanent setting to 1 of the function.

Allocation to 127 is interpreted by the CN as a permanent setting to 0 of the function.

Parameter Nos

73 to 84

Parameters containing the input numbers corresponding to action codes

Limit values: **0000 < P < 000128**

Parameter No	CORRESPONDING OPERATION	Value by default
73	Input checking end of action ACT 21	127
74	Input checking end of action ACT 22	127
75	Input checking end of action ACT 23	127
76	Input checking end of action ACT 24	127
77	Input checking end of action ACT 25	127
78	Input checking end of action ACT 26	127
79	Input checking end of action ACT 27	127
80	Input checking end of action ACT 28	127
81	Input checking end of action ACT 29	127
82	Input checking end of action ACT 30	127
83	Input checking end of action ACT 31	127
84	Input checking end of action ACT 32	127

Notes: When recuperating an input corresponding to a non-existant action, remember to set the corresponding parameter to 127 or 128.

Allocation to 128 is interpreted by the CN as a permanent setting to 1 of the function.

Allocation to 127 is interpreted by the CN as a permanent setting to 0 of the function.

Parameter Nos.

85 to 92
122

Parameters containing the input numbers dedicated to specific functions

Limit values: **0000 < P < 000128**

Parameter No	CORRESPONDING DESCRIPTION	Value by default
85	Number of end of slow approach input	20
86	Number of arm out of mould input	19
87	Number of robot in free area input	18
88	Number of robot on injection machine axis (and machine open) input	17
89	Number of dead man's handle input	02
90	Number of servodrive on input	04
91	Number of power on input	05
92	Number of input allowing automatic change of main routine number	127
122	Number of cycle suspension input.	128

Remarks: *Allocation to 128 is interpreted by the CN as a permanent setting to 1 of the function.*
Allocation to 127 is interpreted by the CN as a permanent setting to 0 of the function.

Parameter Nos.	**Parameters linked to dialogue with the machine served by the robot**
93 to 101	

Limit values: **0000 < P < 000128**

Parameter No	CORRESPONDING DESCRIPTION	Value by default
	Corresponding outputs are not cut by stopping of the robot.	
93	Number of mould closed input (part made).	14
94	Number of safety devices input (door closed).	16
95	Number of mould open input.	15
96	Number of enable operation input (auto / semi-auto).	13
97	Number of output validating machine cycle.	28
98	Number of output validating ejectors forward	30
99	Number of output validating ejectors back	29
100	Number of output validating movement of core pullers to position 1	128
101	Number of output validating movement of core pullers to position 2	128
	Note: Parameter No.1 defines the type of dialogue with the machine. The settings depend on its value. The value of parameter 1, by default (No 1 = 0) implies the following allocations: Parameter No.97 corresponds to injection machine closure (VCM) Parameter No.98 corresponds to ejectors back (VREJ) Parameter No.99 corresponds to ejectors forward (VSEJ) Parameter No.100 corresponds to the movement of core pullers to position 1 (VN1) Parameter No.101 corresponds to the movement of core pullers to position 2 (VN2)	

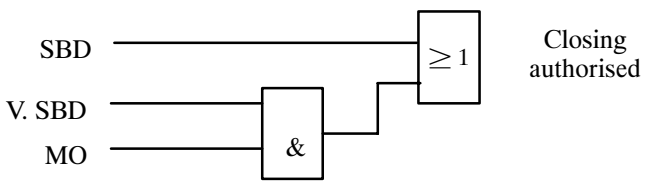
Ouputs: Assignment of the value 128 does not establish a link between a function and an output.

Inputs: Allocation to 128 is interpreted by the CN as a permanent setting to 0 of the function.
Allocation to 127 is interpreted by the CN as a permanent setting to 0 of the function.

Interaction with other parameter(s): Parameter No. 1

Parameter No	Description:
102	**Validation of arm disengaged security device**

Limit values:	**0000 < P < 0128**	Value by default:	**128**

Value of parameter	CORRESPONDING OPERATION
from 000 to 127	Output number that validates the “arm disengaged” security device when the ANTICIPATED RESTART is programmed. This output is set to 1 by the program and then to 0 when the ZHM cam is reached (the ZBD signal is then actually given to the host machine). Principle :  An electrical adaption must be provided.

Interaction with other parameter(s):

Parameters 156 and 157

Parameter No	Description:
103	**Working without the robot**

Limit values:	**0000 < P < 0128**	Value by default:	**128**

Value of parameter	CORRESPONDING OPERATION
from 000 to 127	Number of the WORKING WITHOUT THE ROBOT output that can be programmed in the SR99. An electrical adaption starting from an interface relay must be provided.

Interaction with other parameter(s):

Parameter No	Description:	**Output used to validate the high-speed operation**
104		

Limit values:	**0000 < P < 000128**	Value by default:	**2**

Value of parameter	CORRESPONDING OPERATION
No. 104 = 000 to 127	This output is always at level 1 except when teaching a robot position in step by step mode. (See SAP option).
No. 104 = 128	This output is not validated (available for another use).

Interaction with other parameter(s):

Parameter No	Description:
105	**”Axes OK” output**

Limit values:	**0000 < P < 000128**	Value by default:	**128**

Value of parameter	CORRESPONDING OPERATION
	The ”Axes OK” output has a function similar to that of ”Machine cycle validation” (VCM). This output is set at 1 in the part program by SET OUT (or OUT) and it changes to 0 in the case of an axis fault. It cannot be reset to 1 unless the instruction SET OUT (or OUT) is returned to and the fault disappears.

Interaction with other parameter(s):

Parameter Nos.	**Not used**
106	

Value by default = **0000**

Parameter No	CORRESPONDING OPERATION	Limit values

Parameter No	Description:
107	**Siren output**

Limit values:	**0000 < P < 0128**	Value by default:	**128**

Value of parameter	CORRESPONDING OPERATION
from 0000 to 0127	Output number used to control the siren (ALARM) when the DELAYED START security device is used.

Interaction with other parameter(s): Parameters 18 and 19

Parameter Nos.	**Not used**
108	

Value by default = **0000**

Parameter No	CORRESPONDING OPERATION	Limit values

Parameter Nos.	**Parameters containing the output numbers allocated to indication of robot status**
109 to 121	

Limit values: **0000 < P < 000128**

Parameter No	CORRESPONDING DESCRIPTION	Value by default
109	Shows that robot is in EXECUTION mode	128
110	Output corresponding to a FAULT The status of "FAULT" is continuous, active at zero. 1 — *normal status* | *fault* — 0	1
111	Output corresponding to an ALARM (The "ALARM" status depends on parameter No 12)	0
112	Shows that robot is in CYCLE	128
113	Shows that robot is in STOP	128
114	Shows that robot is in STOP AT END OF CYCLE	128
115	Shows that robot is in TOOL CHANGING POSITION (PCO)	128
116	Shows that robot is in SIMPLE HOME RETURN	128
117	Shows that robot is in TOTAL HOME RETURN	128
118	Shows that robot is in AUTOMATIC HOME RETURN	128
119	Shows that robot is in ADJUST mode	128
120	Shows that robot is in SEMI AUTO mode	128
121	Shows that robot is in AUTO mode	128

Interaction with other parameter(s): Parameter No.9

Parameter No.12 *(for parameter No. 111)*

Parameter Nos.

123 to 130

Parameters containing the input numbers corresponding to the external operation mode

Limit values: **0000 < P < 000128**

Parameter No	CORRESPONDING DESCRIPTION	Value by default
123	”Cycle Start” in external command input number	127
124	”End of cycle stop” in external command input number	128
125	PCO request in external command input number	127
126	Home Return request in external command input number	127
127	Total Home Return request in external command input number	127
128	Adjust Mode input number	03
129	Step Mode input number	01
130	Auto Mode input number	00

Note: The validity of these inputs depends on the choice of the command type – parameter No. 2.

Remarks: *Allocation to 128 is interpreted by the CN as a permanent setting to 1 of the function.*
Allocation to 127 is interpreted by the CN as a permanent setting to 0 of the function.

Interaction with other parameter(s): Parameter No.2

Parameter Nos.	**Parameters containing the external coding input numbers**
131 to 138	

Limit values: **0000 < P < 000128**

Parameter No	CORRESPONDING DESCRIPTION	Value by default
	These inputs allow the external selection of the program number to be executed.	
131	Weight 1 input number	07
132	Weight 2 input number	08
133	Weight 4 input number	09
134	Weight 8 input number	10
135	Weight 16 input number	127
136	Weight 32 input number	127
137	Weight 64 input number	127
138	Parity bit input number	06

Remarks: *Allocation to 128 is interpreted by the CN as a permanent setting to 1 of the function.*
Allocation to 127 is interpreted by the CN as a permanent setting to 0 of the function.

Interaction with other parameter(s): Parameter No.4

Parameter Nos.	**Parameters containing the input numbers enabling external command of robot motions**
139 to 150	

Limit values: **0000 < P < 000128**

Parameter No	CORRESPONDING DESCRIPTION	Value by default
	These parameters allow an external selection of the robot motions.	
139	Incremental global speed input number	127
140	Decremental global speed input number	127
141	X+ motion input number	127
142	X- motion input number	127
143	Y+ motion input number	127
144	Y- motion input number	127
145	Z+ motion input number	127
146	Z- motion input number	127
147	B+ motion input number	127
148	B- motion input number	127
149	C+ motion input number	127
150	C- motion input number	127

Remarks: *Allocation to 128 is interpreted by the CN as a permanent setting to 1 of the function.*
Allocation to 127 is interpreted by the CN as a permanent setting to 0 of the function.

Interaction with other parameter(s): Parameter No.2

Parameter No	Description:
151	**Input for validating external commands**

Limit values:	**0000 < P < 000128**	Value by default:	**128**

Value of parameter	CORRESPONDING OPERATION
	Input number which allows the activation of the commands : . with the Sepro terminal alone if the input is at 1 . With external inputs if the input is at 0 *Note*: In "Commands by external inputs" mode, the V+, V- and Stop at End of Cycle keys of the terminal are nonetheless useable.

Interaction with other parameter(s):

This parameter is taken into account only if parameter 2 = 1.

If it is used, do not forget to define parameters 123 to 130 and 139 to 150.

Parameter No	Description:	**Input for coherence of sensor fault**
152		

Limit values:	**0000 < P < 000128**	Value by default:	**128**

Value of parameter	CORRESPONDING OPERATION
	Loss of the input whose number can be parametrized here, gives rise to fault No. 20.

Interaction with other parameter(s):

Parameter No	Description:
153	**Balance safety device input**

Limit values:	**0000 < P < 000128**	Value by default:	**128**

Value of parameter	CORRESPONDING OPERATION
	Number of the safety device input for air pressure of the balanced electrical arm. Loss of the input whose number can be parametrized here, gives rise to fault No. 9.

Interaction with other parameter(s):

ParameterNo	Description:
154	**Validation of Home Return forcing**

Limit values:	**0000 < P < 000000**	Value by default:	**128**

Value of parameter	CORRESPONDING OPERATION
	In order to avoid certain operator handling errors, particularly after movements in Adjust mode such as arm lowering and cycle restart, it is possible to force the operator to perform an HR (simple or total) before returning to execute mode.
No 154 = 128	After going to Adjust mode, no procedure is requested. This gives great flexibility of use during updating.
No 154 = 0 to 127	After going to Adjust mode (except for positions teaching), an HR request (simple or total) is forced. The new HR requested will be executed from the beginning.

Interaction with other parameter(s):

Parameter No.	Description:
155	**Keeps outputs active in STOP mode**

Limit values:	**0000 < P < 000128**	Value by default:	**128**

Value of parameter	CORRESPONDING OPERATION
No 155 = 0	All outputs remain in their current state irrespective of the type of operation (similar to ejectors forward, ejectors back, core pullers to position 1 and core pullers to position 2). They are only reset by a fault.
No 155 = 001 to 128	Standard operation (any value other than 0).
	Note: In TEST mode, if parameter is set to 0, the output or the action is activated when you press ENR or SET and not when you press CYCLE START !

Interaction with other parameter(s):

Parameter No.	Description:
156	**Type of anticipated restart**

Limit values: **0 < P < 2**	Value by default: **0**

Value of parameter	CORRESPONDING OPERATION
0	Anticipated restart invalid.
1	Reserved for later versions.
2	Delays activation of validation of “Arm up” security device (parameters 157 or WWord 63).

Interaction with other parameter(s):

Parameters 102 and 157

Parameter No.	Description:
157	**Anticipation of machine command (ms)**

Limit values:	**0000 < P < 9999**	Value by default:	**5000**

Value of parameter	CORRESPONDING OPERATION
in 1/10 seconds	Length of delay before activation of outputs for : - machine cycle validation, - “Arm up” security device validation, in the case of an anticipated restart. N.B. : Can be replaced in a program by the WWord 63 value.

Interaction with other parameter(s):

Parameters 102 and 156

Parameter No	Description:
158 to 159	**Not Used**

Limit values: **0000 < P < 000003**	Value by default: **128**

Value of parameter	CORRESPONDING OPERATION

Interaction with other parameter(s):

Parameter Nos.	Designation:
160 and 170	**Timing**

Limit values: 5 < P < 15

Value of parameter	CORRESPONDING OPERATION	Value by default
No. 160	Timing of 3 axes board, No. 1	10 (or 6 with PFC)
No. 170	Timing of 3 axes board, No. 2	10 (or 6 with PFC)

Interaction with other parameter(s):

Parameter No	Description:
161 to 169 **171 to 179**	**NOT USED**

Limit values:	Value by default:

Value of parameter	CORRESPONDING OPERATION

Interaction with other parameter(s):

III - CHARACTERISATION PARAMETERS OF EACH AXIS

Parameter No	Description:	Value by default
180	Type of X-axis	*
330	Type of Y-axis	*
480	Type of Z-axis	*
630	Type of B-axis	*
780	Type of C-axis	*

S900++ / P900++	Limit values: 0 < P < 8192	Size: 16 Bits

CORRESPONDING OPERATION

Defines the type of axis to be controlled. Depending on the parameter value, the specific processing operations to be carried out will be selected.

Example: Speed driver validation, selection of movement direction, regulator type,...

Composition of the TYPE OF AXIS parameter: (The values are expressed in decimals.)

- TYPE OF AXIS
- . 0 = Non-installed axis
- . 1 = Brushless
- . 2 = Asynchronous
- . 3 = Step by step

- TYPE OF INITIALIZATION
- . 0 = Initialization on (CAM and INIT PULSE)
- . 16 = Initialization on the cam only

- INITIALIZATION SET-UP
- . 0 = If the axis is stopped when the machine is switched off, it relocates its position when the machine is switched on.
- . 32 = Every time the machine is switched on the axis must be initialized (the position at the time the machine was switched off is not returned to).

- UP DOWN
- . 0 = The position counter is increased
- . 64 = The position counter is decreased

- TYPE OF SPEED DRIVER
- . 0 = Speed command +/- 10V, validation input
- . 128 = Speed command 0-10V, + direction and - direction inputs.

- TYPE OF REGULATOR
- . 0 = Validation of proportionnal regulator
- . 256 = Validation of predictive PFC regulator.

- TYPE OF CONTROL SYSTEM
- . 0 = The axis is on stationary hold, it is therefore necessary to validate it at the beginning of each movement.
- . 512 = The axis remains valid while stopped during the period defined by parameter P196, the regulator servo-controls the axis in position.

- DYNAMIC DISTANCE
- . 0 = The follow-up distance is compared to the max. value (P182) and a fault is generated if it is greater than this value.
- . 1024 = The max. value of the follow-up distance is calculated in real time time according to the current speed of the axis and the max. tolerance (P182). The test is then carried out as in the previous case.

- FREE
- . 0 = The axis cannot be released
- . 2048 = The axis can be released.

- ROTATING
- . 0 = Linear axis
- . 4096 = Rotating axis

The parameter "value" is the sum of the values selected for each of the criteria.

Interaction with other parameter(s):

Parameter No	Description:	Value by default
181	Associated output : X-axis	*
331	Associated output : Y-axis	*
481	Associated output : Z-axis	*
631	Associated output : B-axis	*
781	Associated output : C-axis	*

S900++ / P900++	Limit values: 1 < P < 6	Size: 8 Bits

Value of parameter	CORRESPONDING OPERATION
	Defines the port attributed to the command of the axis. . 1 to 3 for axis board 1 (1 = J7, 2 = J8, 3 = J9) . 4 to 6 for axis board 2 (4 = J10, 5 = J11, 6 = J12)

Interaction with other parameter(s):

Parameter No. 929
Parameter No. 943

Parameter No.	Description:	Value by default
182	Tracking error tolerance : X-axis	3000
332	Tracking error tolerance : Y-axis	3000
482	Tracking error tolerance : Z-axis	3000
632	Tracking error tolerance : B-axis	3000
782	Tracking error tolerance : C-axis	3000

S900++ / P900++	Limit values: 0 < P < 9999	Size: 16 Bits

	CORRESPONDING OPERATION
in 1/10 mm	This is the maximum value for the tracking error. The tracking error is cyclically compared to this value and if it is found to be greater than it, a fault is generated. If DYNAMIC DISTANCE is used (see parameter 180 for X), the max. value for the tracking error is calculated in real time as a function of the current speed; the maximum value of the tracking error at Vmax takes the value of parameter 182 for X.

Interaction with other parameter(s):

Parameter No. 180

Parameter No.	Description:	Value by default
183	Regulation tolerance : X-axis	5.0 *
333	Regulation tolerance : Y-axis	5.0 *
483	Regulation tolerance : Z-axis	5.0 *
633	Regulation tolerance : B-axis	5.0 *
783	Regulation tolerance : C-axis	5.0 *

S900++ / P900++	Limit values: 1 < P < 60.0	Size: 16 Bits

	CORRESPONDING OPERATION
in 1/10 mm	Value of the window (in relation to the programmed position) in which the requested movement has finished -> authorisation to pass on to the following step.

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
184	Initialisation tolerance : X-axis	200
334	Initialisation tolerance : Y-axis	200
484	Initialiation tolerance : Z-axis	200
634	Initialisation tolerance : B-axis	200
784	Initialisation tolerance : C-axis	200

S900++ / P900++	Limit values: 1 < P < 600	Size: 16 Bits

	CORRESPONDING OPERATION
in 1/10 mm	Value of the window (in relation to initialization position) in which there is no discrepancy between the position read (counted) and the physical position of the axis. Control of counting validity only occurs in STEP by STEP and AUTO modes, when the axis passes over the initialization cam.

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
185	Braking anticipation in + direction : X-axis	10 *
335	Braking anticipation in + direction : Y-axis	10 *
485	Braking anticipation in + direction : Z-axis	10 *
635	Braking anticipation in + direction : B-axis	10 *
785	Braking anticipation in + direction : C-axis	10 *

P900++	Limit values: 0 < P < 255	Size: 16 Bits

	CORRESPONDING OPERATION
in 1/10 mm	THIS PARAMETER IS ONLY APPLICABLE TO ASYNCHRONOUS AXES ON STATIONARY HOLD Value of the window (in relation to the programmed position) in which the brake on the motor should be released. The function of this parameter is to take into account the brake reaction time for displacement in the positive direction (departure position less than arrival position). This parameter is automatically readjusted, as displacement occurs, according to the distance measured at the end of the path.

Interaction with other parameter(s):

Parameter No. 187

Parameter No.	Description:	Value by default
186	Braking anticipation in – direction : X-axis	10 *
336	Braking anticipation in – direction : Y-axis	10 *
486	Braking anticipation in – direction : Z-axis	10 *
636	Braking anticipation in – direction : B-axis	10 *
786	Braking anticipation in – direction : C-axis	10 *

P900++	Limit values: 0 < P < 255	Size: 16 Bits

	CORRESPONDING OPERATION
in 1/10 mm	THIS PARAMETER IS ONLY APPLICABLE TO ASYNCHRONOUS AXES ON STATIONARY HOLD Value of the window (in relation to the programmed position) in which the brake of the motor should be released. The function of this parameter is to take into account the brake reaction time for displacement in the negative direction (departure position greater than arrival position). This parameter is automatically readjusted, as displacement occurs, according to the distance measured at the end of the path.

Interaction with other parameter(s):

Parameter No. 187

Parameter No.	Description:	Value by default
187	Maximum braking anticipation : X-axis	250
337	Maximum braking anticipation : Y-axis	250
487	Maximum braking anticipation : Z-axis	250
637	Maximum braking anticipation : B-axis	250
787	Maximum braking anticipation : C-axis	250

P900++	Limit values: 0 < P < 255	Size: 16 Bits

	CORRESPONDING OPERATION
in 1/10 mm	THIS PARAMETER IS ONLY APPLICABLE TO ASYNCHRONOUS AXES ON STATIONARY HOLD Limited value of positive and negative braking anticipation (P185 and P 186). The basic task monitors the anticipated braking values which are automatically updated. When an anticipated value is greater than P187, a warning is given to the user to adjust the brake.

Interaction with other parameter(s):

Parameter No. 185
Parameter No. 186

Parameter No.	Description:	Value by default
188	Max mvt in reverse direction : X-axis	300
338	Max mvt in reverse direction : Y-axis	300
488	Max mvt in reverse direction : Z-axis	300
638	Max mvt in reverse direction : B-axis	300
788	Max mvt in reverse direction : C-axis	300

S900++ / P900++	Limit values: 1 < P < 9999	Size: 16 Bits

	CORRESPONDING OPERATION
in 1/10 mm	Movement values in the opposite direction to the command, beyond which a ”reverse direction displacement” fault occurs.

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
189	End of mvt anticipation value : X-axis	50
339	End of mvt anticipation value : Y-axis	50
489	End of mvt anticipation value : Z-axis	50
639	End of mvt anticipation value : B-axis	50
789	End of mvt anticipation value : C-axis	50

P900++	Limit values: 0 < P < 9999	Size: 16 Bits

	CORRESPONDING OPERATION
in 1/10 mm	THIS PARAMETER IS ONLY APPLICABLE TO ASYNCHRONOUS AXES ON STATIONARY HOLD Value defining the difference between the real programmed position and the imaginary position aimed for in displacement management. This parameter is used to compensate, to a certain extent, for the follow-up errors due to the motor sliding and the behaviour of the speed driver.

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
190	Speed driver voltage for max speed : X-axis	*
340	Speed driver voltage for max speed : Y-axis	*
490	Speed driver voltage for max speed : Z-axis	*
640	Speed driver voltage for max speed : B-axis	*
790	Speed driver voltage for max speed : C-axis	*

S900++ / P900++	Limit values: 1000 < P < 9999	Size: 16 Bits

	CORRESPONDING OPERATION
in mVolts	Value of the regulated voltage, applied to the speed variator input, when the axis is moving at maximum speed (P201). For a brushless motor, generally: 9000mV.

Interaction with other parameter(s):

Parameter No. 201

Parameter No.	Description:	Value by default
191	Minimum speed allowed : X-axis	10
341	Minimum speed allowed : Y-axis	10
491	Minimum speed allowed : Z-axis	10
641	Minimum speed allowed : B-axis	10
791	Minimum speed allowed : C-axis	10

P900++	Limit values: 0 < P < 1000	Size: 16 Bits

	CORRESPONDING OPERATION
in mm/s	THIS PARAMETER IS ONLY APPLICABLE TO ASYNCHRONOUS AXES ON STATIONARY HOLD Value of the minimum displacement speed of the axis.

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
192	Max speed in ADJUST mode : X-axis	300
342	Max speed in ADJUST mode : Y-axis	300
492	Max speed in ADJUST mode : Z-axis	300
642	Max speed in ADJUST mode : B-axis	300
792	Max speed in ADJUST mode : C-axis	300

S900++ / P900++	Limit values: 1 < P < 300	Size: 16 Bits

	CORRESPONDING OPERATION
in mm/s	Value of the maximum speed in ADJUST mode. This function allows the limitation of the maximum speed in ADJUST mode, for the different transmission modes.

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
193	Max acceleration in ADJUST mode : X-axis	5000
343	Max acceleration in ADJUST mode : Y-axis	5000
493	Max acceleration in ADJUST mode : Z-axis	5000
643	Max acceleration in ADJUST mode : B-axis	5000
793	Max acceleration in ADJUST mode : C-axis	5000

S900++ / P900++	Limit values: 1 < P < 10 000	Size: 16 Bits

	CORRESPONDING OPERATION
in mm/s^2	Maximum acceleration value in ADJUST mode.

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
194	Speed driver reaction time : X-axis	50
344	Speed driver reaction time: Y-axis	50
494	Speed driver reaction time : Z-axis	50
644	Speed driver reaction time : B-axis	50
794	Speed driver reaction time : C-axis	50

S900++ / P900++	Limit values: 0 < P < 480	Size: 16 Bits

	CORRESPONDING OPERATION
in ms	Defines the reaction time of the speed driver. (Delay between the time when the command is given and when it is physically valid).

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
195	Brake reaction time : X-axis	50
345	Brake reaction time : Y-axis	50
495	Brake reaction time :Z-axis	50
645	Brake reaction time : B-axis	50
795	Brake reaction time : C-axis	50

S900++ / P900++	Limit values: 0 < P < 480	Size: 16 Bits

	CORRESPONDING OPERATION
in ms	Defines the brake reaction time. (Delay between the time when the command is given and when it is physically applied).

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
196	Max time in servo-control : X-axis	5000
346	Max time in servo-control : Y-axis	5000
496	Max time in servo-control : Z-axis	5000
646	Max time in servo-control : B-axis	5000
796	Max time in servo-control : C-axis	5000

S900++ / P900++	Limit values: 0 < P < 9999	Size: 16 Bits

	CORRESPONDING OPERATION
in ms	Defines the time during which the axis can remain in position under servo-control without causing the motor to overheat. After this delay time, the brake is applied.

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
197	Max time before block error : X-axis	500
347	Max time before block error : Y-axis	500
497	Max time before block error : Z-axis	500
647	Max time before block error : B-axis	500
797	Max time before block error : C-axis	500

S900++ / P900++	Limit values: 0 < P < 9999	Size: 16 Bits

	CORRESPONDING OPERATION
in ms	Defines the time during which an axis is immobile while an order is generated. After this time, an error will occur.

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
198	Forced slowing input number : X-axis	128
348	Forced slowing input number : Y-axis	128
498	Forced slowing input number : Z-axis	128
648	Forced slowing input number : B-axis	128
798	Forced slowing input number : C-axis	128

S900++ / P900++	Limit values: 0 < P < 128	Size: 16 Bits

CORRESPONDING OPERATION

Defines the input number for ”forced slowing” in a slow approach situation.

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
199	End of slow approach input number : X-axis	128
349	End of slow approach input number : Y-axis	128
499	End of slow approach input number : Z-axis	128
649	End of slow approach input number : B-axis	128
799	End of slow approach input number : C-axis	128

S900++ / P900++	Limit values: 0 < P < 128	Size: 16 Bits

CORRESPONDING OPERATION

Defines the input number for "End of slow approach" in the case of slow approach displacement.

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
200	Slow approach max speed : X-axis	1000
350	Slow approach max speed : Y-axis	1000
500	Slow approach max speed : Z-axis	1000
650	Slow approach max speed : B-axis	1000
800	Slow approach max speed : C-axis	1000

S900++ / P900++	Limit values: 0 < P < 1000	Size: 16 Bits

	CORRESPONDING OPERATION
in mm/s	Defines the slow approach speed.

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
201	Speed limit : X-axis	*
351	Speed limit : Y-axis	*
501	Speed limit : Z-axis	*
651	Speed limit : B-axis	*
801	Speed limit : C-axis	*

S900++ / P900++	Limit values: 0 < P < 6000	Size: 16 Bits

	CORRESPONDING OPERATION
in mm/s	Defines the speed limit for which the parameter P190 has been set. If this speed is exceeded, the regulation ceases to operate.

Interaction with other parameter(s):

Parameter No. 190

Parameter No.	Description:	Value by default
202	Acceleration limit : X-axis	*
352	Acceleration limit : Y-axis	*
502	Acceleration limit : Z-axis	*
652	Acceleration limit : B-axis	*
802	Acceleration limit : C-axis	*

S900++ / P900++	Limit values: 0 < P < 50 000	Size: 16 Bits

	CORRESPONDING OPERATION
in mm/s^2	Defines the acceleration limit beyond which the speed driver goes into ”current stop”.

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
203	Max speed outside IMM : X-axis	*
353	Max speed outside IMM : Y-axis	*
503	Max speed outside IMM : Z-axis	*
653	Max speed outside IMM : B-axis	*
803	Max speed outside IMM : C-axis	*

S900++ / P900++	Limit values: 0 < P < 6000	Size: 16 Bits

	CORRESPONDING OPERATION
in mm/s	Defines the operating speed outside the machine axis.

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
204	Max acc outside IMM in + direction : X-axis	*
354	Max acc outside IMM in + direction : Y-axis	*
504	Max acc outside IMM in + direction : Z-axis	*
654	Max acc outside IMM in + direction : B-axis	*
804	Max acc outside IMM in + direction : C-axis	*

S900++ / P900++	Limit values: 0 < P < 50 000	Size: 16 Bits

	CORRESPONDING OPERATION
in mm/s^2	Defines acceleration outside the machine axis in a positive direction.

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
205	Max acc outside IMM in - direction : X-axis	*
355	Max acc outside IMM in - direction : Y-axis	*
505	Max acc outside IMM in - direction : Z-axis	*
655	Max acc outside IMM in - direction : B-axis	*
805	Max acc outside IMM in - direction : C-axis	*

S900++ / P900++	Limit values: 0 < P < 50 000	Size: 16 Bits

	CORRESPONDING OPERATION
in mm/s^2	Defines the acceleration outside the machine axis in a negative direction.

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
206	Max speed in IMM : X-axis	*
356	Max speed in IMM : Y-axis	*
506	Max speed in IMM : Z-axis	*
656	Max speed in IMM : B-axis	*
806	Max speed in IMM : C-axis	*

S900++ / P900++	Limit values: 0 < P < 6 000	Size: 16 Bits

	CORRESPONDING OPERATION
in mm/s	Defines the operating speed in the machine axis.

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
207	Max acc in IMM in + direction : X-axis	*
357	Max acc in IMM in + direction : Y-axis	*
507	Max acc in IMM in + direction : Z-axis	*
657	Max acc in IMM in + direction :B-axis	*
807	Max acc in IMM in + direction : C-axis	*

S900++ / P900++	Limit values: 0 < P < 50 000	Size: 16 Bits

	CORRESPONDING OPERATION
in mm/s^2	Defines acceleration in the machine axis in a positive direction.

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
208	Max acc in IMM in – direction : X-axis	*
358	Max acc in IMM in – direction : Y-axis	*
508	Max acc in IMM in – direction : Z-axis	*
658	Max acc in IMM in – direction : B-axis	*
808	Max acc in IMM in – direction : C-axis	*

S900++ / P900++	Limit values: 0 < P < 50 000	Size: 16 Bits

	CORRESPONDING OPERATION
in mm/s^2	Defines acceleration in the machine axis in a negative direction.

Interaction with other parameter(s):

Parameter No.	Description:
209	Reserved

Limit values:

Value of parameter	CORRESPONDING OPERATION	Value by default

Parameter No.	Description:	Value by default
210	Conversion pulses coeff : X-axis	*
360	Conversion pulses coeff : Y-axis	*
510	Conversion pulses coeff : Z-axis	*
660	Conversion pulses coeff : B-axis	*
810	Conversion pulses coeff : C-axis	*

S900++ / P900++	Limit values: 1 < P < 25 000	Size: 32 Bits

	CORRESPONDING OPERATION
scalar	Associated with parameter P212, it defines the conversion factor between metric units and encoder pulses.

Interaction with other parameter(s):

Parameter 212

Parameter No.	Description:	Value by default
212	Multiple conversion factor : X-axis	100
362	Multiple conversion factor : Y-axis	100
512	Multiple conversion factor : Z-axis	100
662	Multiple conversion factor : B-axis	100
812	Multiple conversion factor : C-axis	100

S900++ / P900++	Limit values: 1 < P < 10 000	Size: 32 Bits

	CORRESPONDING OPERATION
scalar	Complement of parameter P210, it is the multiplier coefficient of the conversion factor 1/10 mm in pulses. Conversion factor = P212 * P210/100

Interaction with other parameter(s):

Parameter 210

Parameter No.	Description:	Value by default
214	Initialisation value : X-axis	*
364	Initialisation value : Y-axis	*
514	Initialisation value : Z-axis	*
664	Initialisation value : B-axis	*
814	Initialisation value : C-axis	*

S900++ / P900++	Limit values: 0 < P < 99999.9	Size: 32 Bits

	CORRESPONDING OPERATION
in 1/10 mm	Absolute position which corresponds to the initial positioning of the cam coinciding with the initialisation value of the encoder. This value can be entered via the keyboard (assuming that the value of the initialization position is accurately known) or automatically given by calling the ”calibration” mode.

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
216	Max displacement : X-axis	999999
366	Max displacement : Y-axis	999999
516	Max displacement : Z-axis	999999
666	Max displacement : B-axis	999999
816	Max displacement : C-axis	999999

S900++ / P900++	Limit values: 0 < P < 99999.9	Size: 32 Bits

	CORRESPONDING OPERATION
in 1/10 mm	Value of the stop in the positive direction of the axis.

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
218	Min displacement : X-axis	1
368	Min displacement : Y-axis	1
518	Min displacement : Z-axis	1
668	Min displacement : B-axis	1
818	Min displacement C-axis	1

S900++ / P900++	Limit values: 0 < P < 99999.9	Size: 32 Bits

	CORRESPONDING OPERATION
in 1/10 mm	Value of the stop in the negative direction of the axis.

Interaction with other parameter(s):

Parameter No.	Description:
220 to 229	Reserved

Limit values:

Value of parameter	CORRESPONDING OPERATION	Value by default

IV - PROPORTIONAL REGULATOR PARAMETERS

Parameter No.	Description:	Value by default
230	Motor rotation direction : X-axis	*
380	Motor rotation direction : Y-axis	*
530	Motor rotation direction : Z-axis	*
680	Motor rotation direction : B-axis	*
830	Motor rotation direction : C-axis	*

S900++ / P900++	Limit values: 0 < P < 1	Size: 16 Bits

	CORRESPONDING OPERATION
Boolean	Defines the direction of the command sent to the speed driver.
0	Command x 1
1	Command x-1

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
231	Speed anticipation coeff : X-axis	*
381	Speed anticipation coeff : Y-axis	*
531	Speed anticipation coeff : Z-axis	*
681	Speed anticipation coeff : B-axis	*
831	Speed anticipation coeff : C-axis	*

S900++ / P900++	Limit values: 0 < P < 9999	Size: 16 Bits

	CORRESPONDING OPERATION
scalar	Value of the proportional coefficient of the calculated speed inserted in the regulatory loop for a regulator of the form: K x distance + Kv x calculated speed

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
232	Regulator proportional term : X-axis	*
382	Regulator proportional term : Y-axis	*
532	Regulator proportional term : Z-axis	*
682	Regulator proportional term : B-axis	*
832	Regulator proportional term : C-axis	*

S900++ / P900++	Limit values: 0 < P < 9999	Size: 16 Bits

	CORRESPONDING OPERATION
scalar	Value of the proportional term of the P-type regulator.

Interaction with other parameter(s):

Parameter No.	Description:	Value by default
233	Proportional term scale : X-axis	1000
383	Proportional term scale : Y-axis	1000
533	Proportional term scale : Z-axis	1000
683	Proportional term scale : B-axis	1000
833	Proportional term scale : C-axis	1000

S900++ / P900++	Limit values: 0 < P < 10 000	Size: 16 Bits

	CORRESPONDING OPERATION
scalar	Sets the scale of the proportional term (P232) in order to improve servo-control regulation. The real value of the proportional term is P232/P233.

Interaction with other parameter(s):

Parameter No. 232

Parameter No.	Description :	Value by default
234 to 239	Reserved	*
334 to 339		*
384 to 389		*
684 to 689		*
834 to 839		*

S900++ / P900++	Limits :	Size :

Value of parameter	CORRESPONDING OPERATION	Value by default

Interaction with other parameter(s):

V - PFC PARAMETERS

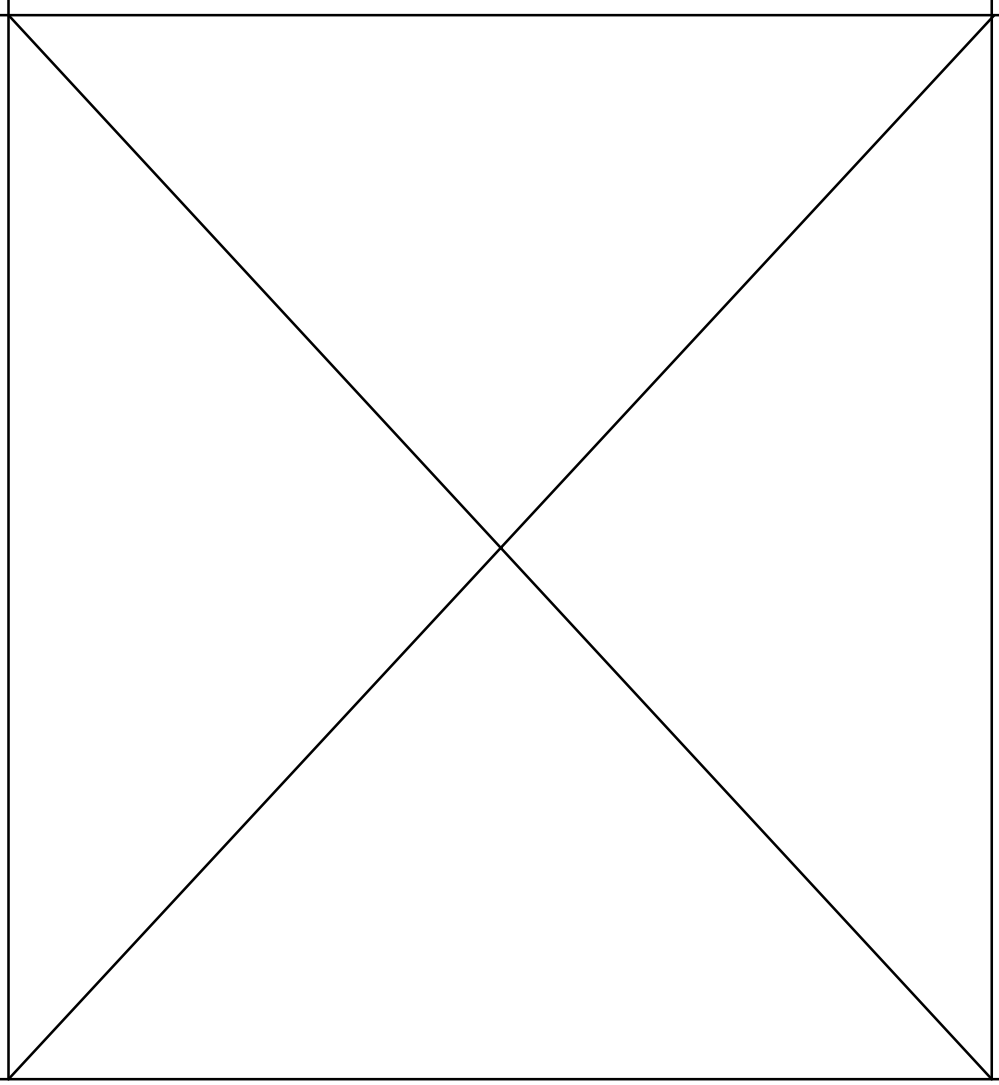
Parameters 240 to 318 X-Axis
390 to 468 Y-Axis
540 to 618 Z-Axis
690 to 768 B-Axis
840 to 918 C-Axis

Definition parameters of the axes controlled by PFC.

⚠ **Do not change under any circumstances: high risk of dysfunctioning.**

Parameter No.	Description :	Value by default
320 to 329	Reserved	*
470 to 479		*
620 to 629		*
770 to 779		*
920 to 927		*

S900++ / P900++	Limits :	Size :

Value of parameter	CORRESPONDING OPERATION	Value by default
		

Interaction with other parameter(s):

VI - PARAMETERS FOR EXTERNAL AXIS MONITORING

VI - 1. PARAMETERS FOR NUMERICALLY MEASURED AXES

Parameters	928 to 938	N1-Axis
	942 to 952	N2-Axis
	939 to 941	Reserved for future applications
	953 to 955	

Parameter No.	Description :	Value by default
928	Type of axis for N1-axis	*
942	Type of axis for N2-axis	*

S900++ / P900++	Limits : 0 < P < 35 535	Size : 16 Bits

Value of parameter	COORESPONDING OPERATION
decimal	Defines the type of numerical axis that servocontrols the ”follower” axis. The parameter consists of: **- TYPE OF MEASUREMENT** . 0 = no numerical axis . 1 = position measurement **- DIRECTION OF MEASUREMENT** . 0 = forward . 4 = reverse **- TYPE OF AXIS** . 0 = without initialization, not modulo . 8 = without initialization, modulo . 16 = with initialization, not modulo . 24 = with initialization, modulo **- TYPE OF INITIALIZATION** . 0 = on cam + initialisation pulse of encoder . 32 = only on cam The value of the parameter is the sum of the values selected for each criteria.

Interaction with other parameter(s):

Parameters 930 and 944

Parameter No.	Description :	Value by default
929	Associated output port (1, 2 or 3) for N1-axis	*
943	Associated output port (1, 2 or 3) for N2-axis	*

S900++ / P900++	Limits : 1 < P < 6	Size : 16 Bits

Value of parameter	COORESPONDING OPERATION
	Number of output port associated with the measured axis. . 1 to 3 for axis board 1 (1 = J7, 2 = J8, 3 = J9) . 4 to 6 for axis board 2 (4 = J10, 5 = J11, 6 = J12)

Interaction with other parameter(s):

Parameter No. 181
Parameter No. 331
Parameter No. 481
Parameter No. 631
Parameter No. 781

Parameter No.	Description :	Value by default
930	Value of modulo for N1-axis	*
944	Value of modulo for N2-axis	*

S900++ / P900++	Limits : 1 < P < 99999,9	Size : 32 Bits

Value of parameter	COORESPONDING OPERATION
in 1/10 mm	Value of modulo. Using this parameter, a known and finite value can be associated with a defined position. *Example :* 2000 encoder pulses are required for a cyclic system so that it returns to its ”zero point”. In this case : 1 - choose a modulo 2000 2 - give the type of modulo axis (parameters 928 / 942).

Interaction with other parameter(s):

Parameters 928 / 942

Parameter No.	Description :	Value by default
932	Initialization value for N1-axis	*
946	Initialization value for N2-axis	*

S900++ / P900++	Limits : 1 < P < 99999,9	Size : 32 Bits

Value of parameter	COORESPONDING OPERATION
in 1/10 mm	Absolute position which corresponds to: 1 - Leading edge of an initialization cam (initialization only by cam) 2 - Conjunction of initialization cam signal and encoder initialisation pulse (initialization by cam and initialisation pulse). *Remark:* This value is only used if the measured axis has been declared "with initialization" (parameters 928 / 942)

Interaction with other parameter(s):

Parameters 928 / 942

Parameter No.	Description :	Value by default
934	Conversion factor for N1-axis	*
948	Conversion factor for N2-axis	*

S900++ / P900++	Limits : 1 < P < 25 000	Size : 32 Bits

Value of parameter	COORESPONDING OPERATION
scalar	Associated with parameter 936, it gives the conversion factor between the metric unit and encoder pulses.

Interaction with other parameter(s):

Parameter 936

Parameter No.	Description :	Value by default
936	Conversion multiplier factor for N1-axis	100
950	Conversion multiplier factor for N2-axis	100

S900++ / P900++	Limits : 1 < P < 10 000	Size : 32 Bits

Value of parameter	COORESPONDING OPERATION
scalar	Complement of parameter 934, it is the multiplier coefficient of the conversion factor 1/10 mm in pulses. Conversion factor = P936 * P934 / 100

Interaction with other parameter(s):

Parameter 936

Parameter No.	Description :	Value by default
938	Speed tolerance for N1-axis	*
952	Speed tolerance for N2-axis	*

S900++ / P900++	Limits : 0 < P < 6 000	Size : 32 Bits

Value of parameter	COORESPONDING OPERATION
in 1/10 mm/s	In the case of speed monitoring, the value of the window in which the "follower" axis will be considered as locked onto the measured axis.

Interaction with other parameter(s):

VI - 2. PARAMETERS FOR ANALOGUEA AXES

Parameters	957 to 964	N1-axis
	969 to 976	N2-axis
	954 to 956	Reserved for future applications
	966 tp 968	

Parameter No.	Description :	Value by default
957	Type of axis for A1-axis	*
969	Type of axis for A2-axis	*

S900++ / P900++	Limits : 0 < P < 35 535	Size : 16 Bits

Value of parameter	COORESPONDING OPERATION
decimal	Defines the type of analogue axis that servocontrols the ”follower” axis. This parameter is made up of: **- MEASUREMENT TYPE** . 0 = no analogue axis . 1 = position measurement . 2 = speed measurement **- MEASUREMENT DIRECTION** . 0 = forward . 256 = reverse **- BIPOLARITY OF ANALOGUE SIGNAL** Not used Left at 0.

Interaction with other parameter(s):

Parameter No.	Description :	Value by default
958	Conversion factor for A1-axis	*
970	Conversion factor for A2-axis	*

S900++ / P900++	Limits : 1 < P < 25 000	Size : 32 Bits

Value of parameter	COORESPONDING OPERATION
in m/volts	Value of the variation in m/volts of the analogue input for a movement of 100 mm along the measured axis. d = total distance covered Δv = voltage variation given by the sensor By 958 / 970 = $\frac{\Delta v \times 100}{d}$

Interaction with other parameter(s):

Parameters 960 / 972
Parameters 962 / 974

Parameter No.	Description :	Value by default
960	Conversion multiplier factor for A1-axis	100
972	Conversion multiplier factor for A2-axis	100

S900++ / P900++	Limits : 1 < P < 10 000	Size : 32 Bits

Value of parameter	COORESPONDING OPERATION
scalar	Value used to readjust the Value of parameter 960 (972) when its calculated value exceeds 25,000. Applied conversion factor = P958 (970) * P60 (972) / 100

Interaction with other parameter(s):

Parameters 958 / 970
Parameters 962 / 974

Parameter No.	Description :	Value by default
962	Analogue value offset for A1-axis	*
974	Analogue value offset for A2-axis	*

S900++ / P900++	Limits : 1 < P < 99999,9	Size : 32 Bits

Value of parameter	COORESPONDING OPERATION
in mVolts	Signed value which allows 1 - adjustment of the value displayed by A1 (A2) with respect to the position of the measured analogue axis 2 - the value A1 (A2) to always remain positive whatever the position of the measured analogue axis. Displayed value= $\left[\frac{(\text{measurement} \times \text{direction of measurement}) + P\,962\,(974) \times 10^5}{P\,958\,(970) \times P\,960\,(972)} \right]$

Interaction with other parameter(s):

Parameters 957 / 969
Parameters 958 / 970
Parameters 960 / 972

Parameter No.	Description :	Value by default
964	Speed tolerance for A1-axis	*
976	Speed tolerance for A2-Axis	*

S900++ / P900++	Limits : 1 < P < 99999,9	Size : 32 Bits

Value of parameter	COORESPONDING OPERATION
in 1/10 mm/s	In the case of speed monitoring, the value of the window in which the "follower" axis will be considered as being locked onto the measured axis.

Interaction with other parameter(s):

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.