English

Programming Manual
Amplifier ML2008

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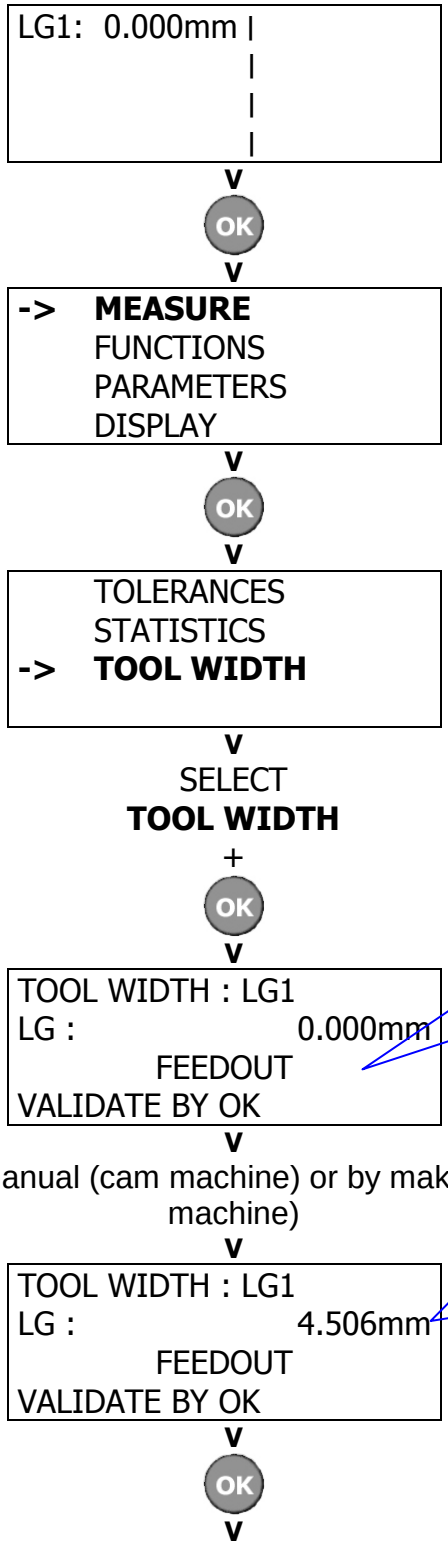
1. PROGRAMMING AND PARAMETER SETTING

The gauge R00 does not need any calibration for the machine.
The only parameters to set are the adjustment for the tool width/part length and the adjustment of the tolerances.

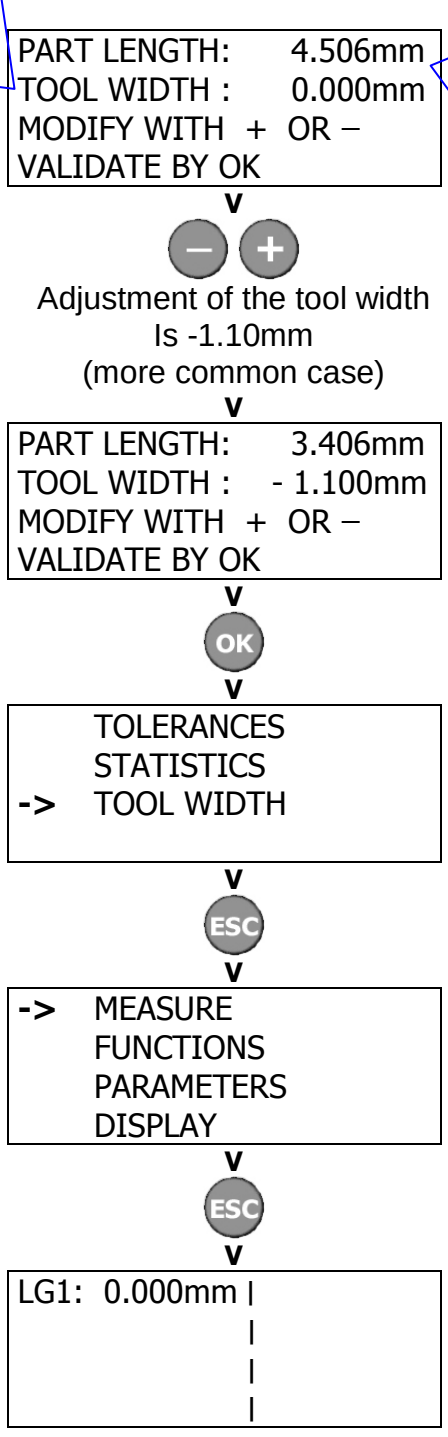
1.1 Adjusting the tool width and feedout



TOOL WIDTH :
1st case: Feed + cutting
Part length = Feed -cutting
>>Adjust the negative tool width, which will be subtracted to obtain the real part length.

2nd case: Plunging + feed
Plunging length = feed + plunging tool width
>>Adjust a positive tool width, which will be added to obtain a real plunging length.

3st case: Traversing
Traversing length = feed
>> Adjust a tool width to 0 to obtain the real traversing length.

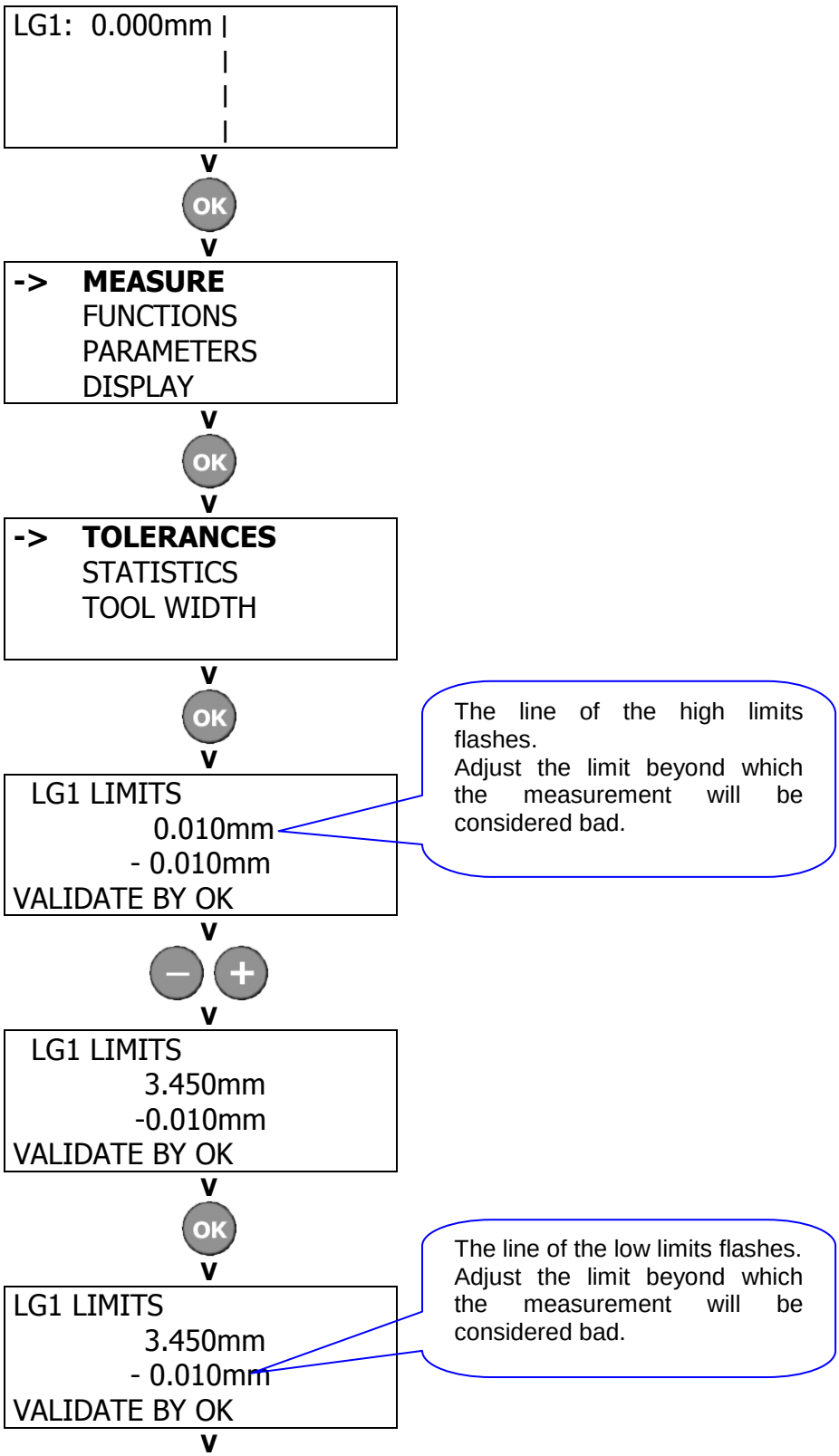


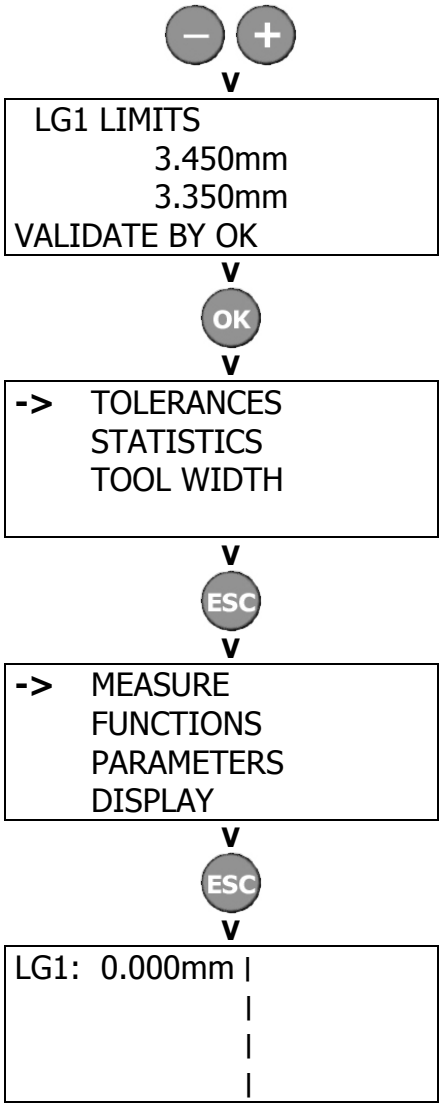
These 2 lines flash to indicate that they can be modified. The buttons + and – are used to change the tool width. During the adjustment of the tool width, the line with the part length will automatically be updated.

The tool width is adjusted. Now the tolerance should be set.

1.2 Adjusting the tolerances

The default display mode of the tolerances is in limits. For different applications, this display mode can be changed. (See the programming chart at the end of the manual)





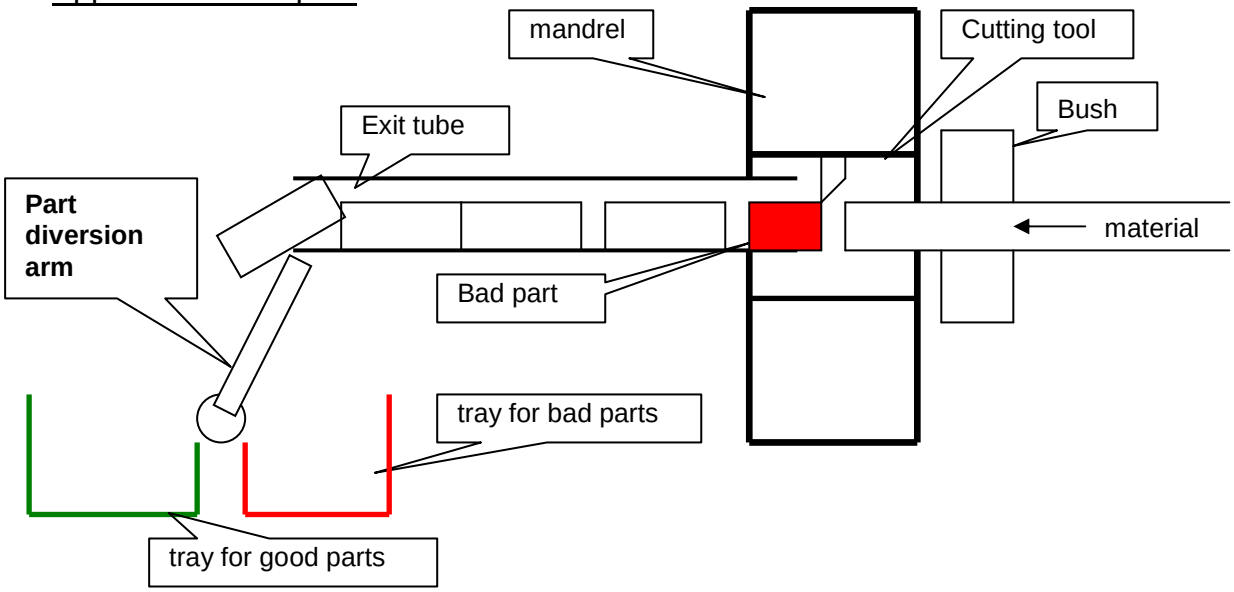
The tolerance limits are adjusted. The gauge is ready to work.

2. CONTROL FUNCTIONS

2.1 Dump

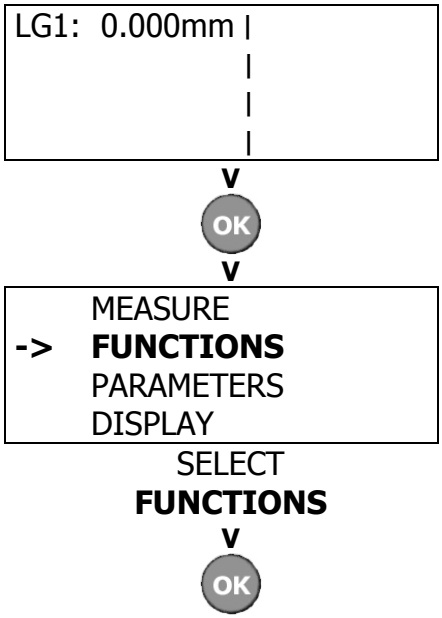
The parameter setting of the function « dump » is very useful if you use a diversion system to separate bad parts.

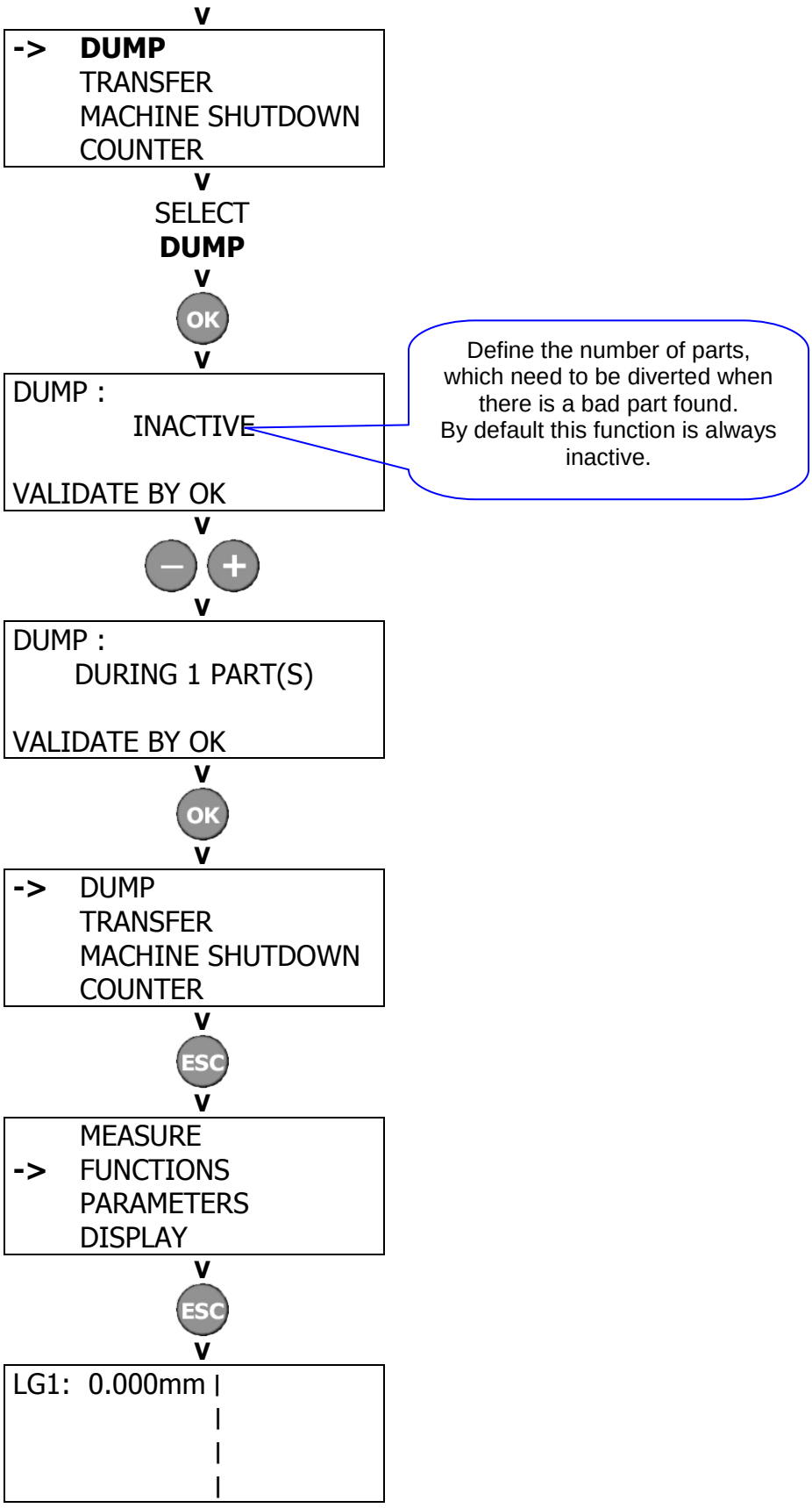
Application example :



The bad part must pass through the exit tube before it can be isolated from the good parts. The number of parts in the tube can change and this can make the sorting uncertain at the end of the tube.
The output “dump” is added at the activation of the diversion arm to assure the bad part is diverted. You need to set the maximum number of parts that can be in the tube + 1.
By default this function is inactive. The max. value is 25.
This function can be used only if the output “dumps”,

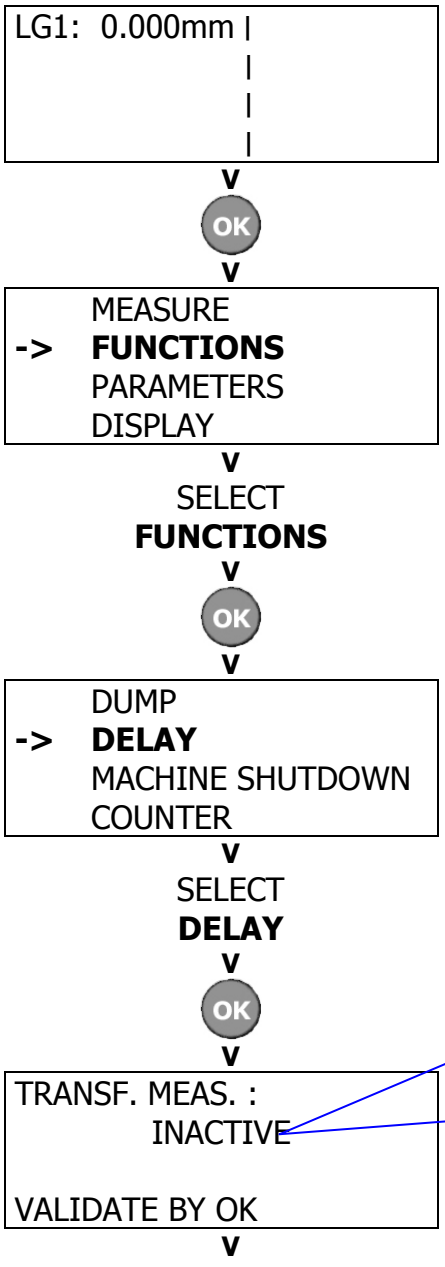
This function can not be used if the « dump » output wiring is in series with the good part output controlling the diversion arm.

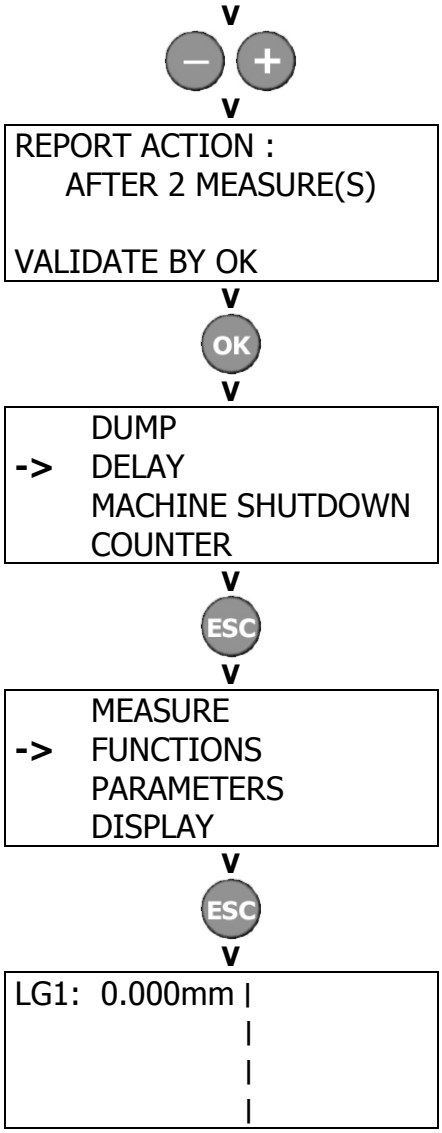



-> DUMP
TRANSFER
MACHINE SHUTDOWN
COUNTER
SELECT
DUMP
OK
DUMP :
INACTIVE
VALIDATE BY OK
Define the number of parts, which need to be diverted when there is a bad part found.
By default this function is always inactive.
DUMP :
DURING 1 PART(S)
VALIDATE BY OK
OK
-> DUMP
TRANSFER
MACHINE SHUTDOWN
COUNTER
ESC
MEASURE
-> FUNCTIONS
PARAMETERS
DISPLAY
ESC
LG1: 0.000mm

2.2 Delay a measurement

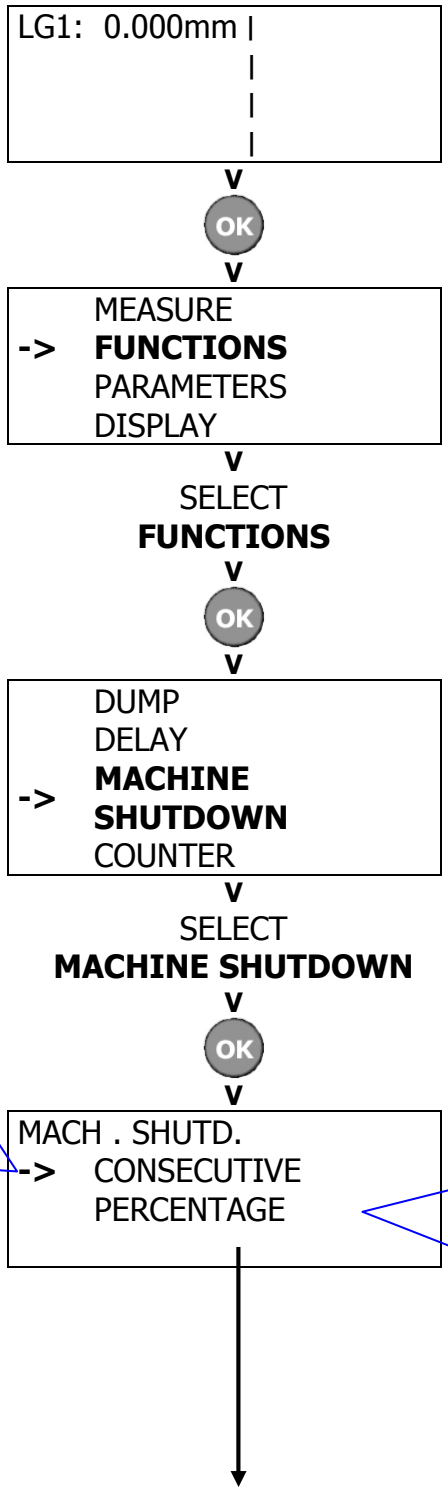
Delaying processing consists of offsetting a relay's fault state to the desired station. An immediate action after a part is detected outside tolerance is not always practical for its removal. Therefore, this function allows triggering the machine shutdown relay when the bad part is accessible, such as when it is located in the pickoff spindle.
This function can be INACTIVE or ACTIVE after n measurement (1 to 25 maximum)




REPORT ACTION :
AFTER 2 MEASURE(S)
VALIDATE BY OK
OK
DUMP
-> DELAY
MACHINE SHUTDOWN
COUNTER
ESC
MEASURE
-> FUNCTIONS
PARAMETERS
DISPLAY
ESC
LG1: 0.000mm

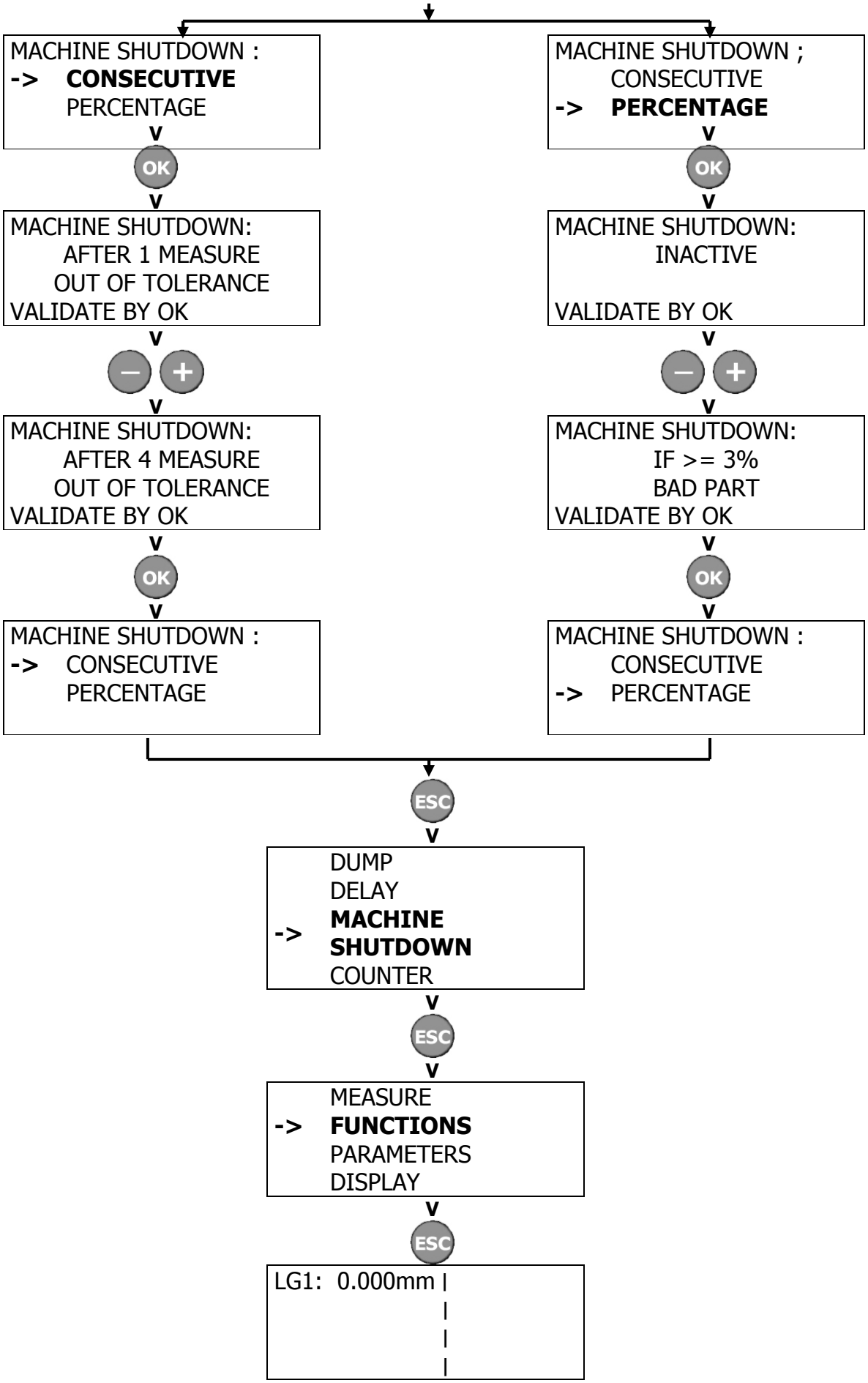
2.3 Setting the machine shutdown parameter

Setting the “machine shutdown” parameter is very useful if you don’t want to penalize productivity by shutting down the machine when the measured bad parts can be isolated from production by a diversion system.
The parameter to be adjusted is the number of consecutive measurements outside tolerance after which the machine will be shutdown. This parameter is adjusted by default to the minimum, that is, after 1 measurement outside of tolerance. The maximum is 25 measurements.



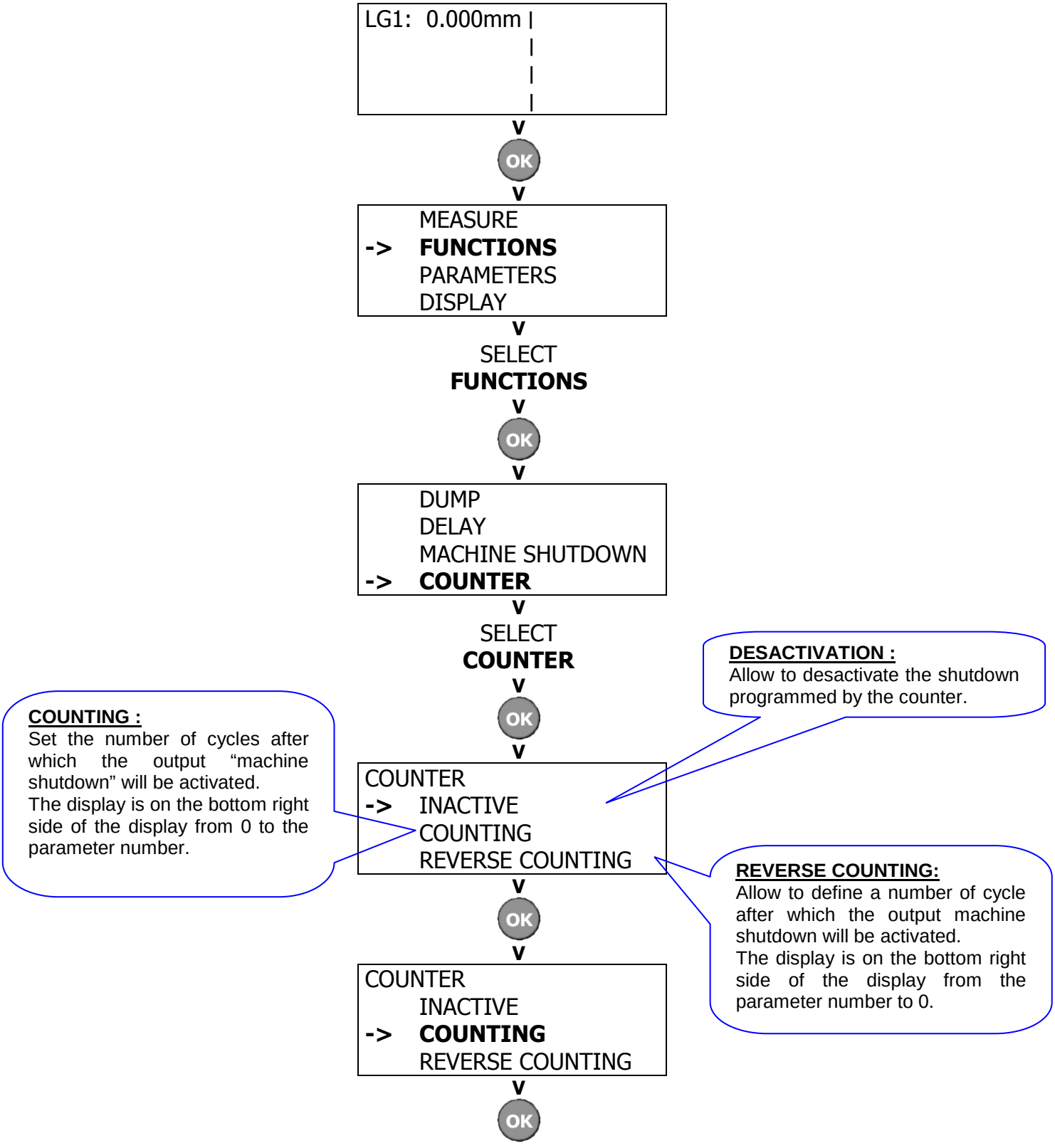
Consecutive :
Allows setting parameter to a number of consecutive measurements out of tolerances after which **the output “machine shutdown” will be activated.**
By default the machine shutdown is activated after 1 measurement out of tolerances.

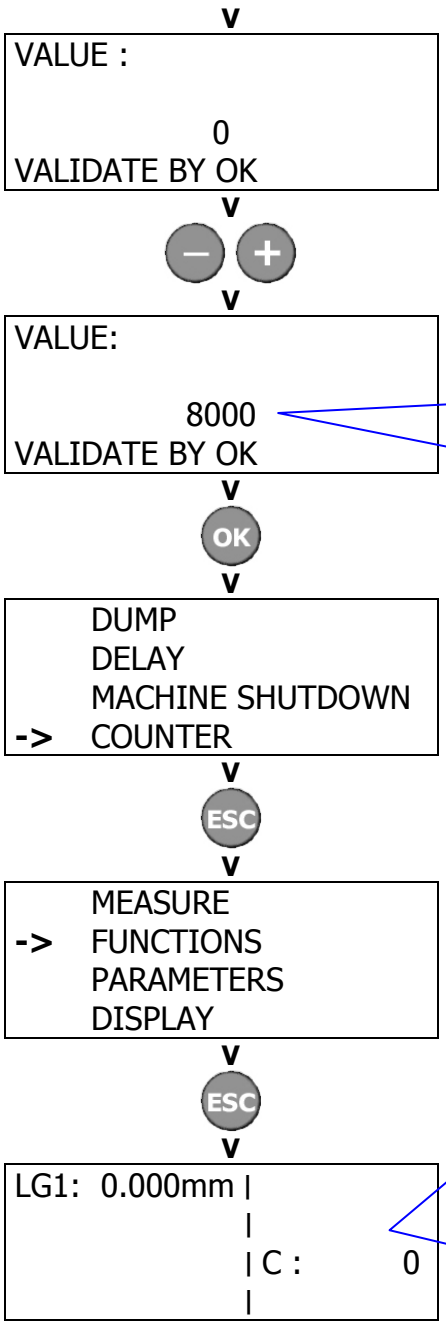
Percentage :
Allows setting parameter to a percentage of bad parts beyond which **the output “machine shutdown” will be activated.**
The difference with the parameter « consecutive » is that the bad parts don’t need to be consecutive to be counted.


MACHINE SHUTDOWN :
-> CONSECUTIVE
PERCENTAGE
OK
MACHINE SHUTDOWN:
AFTER 1 MEASURE
OUT OF TOLERANCE
VALIDATE BY OK
MACHINE SHUTDOWN:
AFTER 4 MEASURE
OUT OF TOLERANCE
VALIDATE BY OK
OK
MACHINE SHUTDOWN :
-> CONSECUTIVE
PERCENTAGE
MACHINE SHUTDOWN ;
CONSECUTIVE
-> PERCENTAGE
OK
MACHINE SHUTDOWN:
INACTIVE
VALIDATE BY OK
MACHINE SHUTDOWN:
IF >= 3%
BAD PART
VALIDATE BY OK
OK
MACHINE SHUTDOWN :
CONSECUTIVE
-> PERCENTAGE
ESC
DUMP
DELAY
-> MACHINE SHUTDOWN
COUNTER
ESC
MEASURE
-> FUNCTIONS
PARAMETERS
DISPLAY
ESC
LG1: 0.000mm

2.4 Counter

The function counter is useful if you want to let the machine work unattended, limiting the number of produced parts. (end of run, sharpening limits…)
When the number of parts is reached, the function stopps the machine.
This function activates the output machine "shutdown". It's not necessary to wire other outputs to use this function.





TRICK :
To make the value change faster, keep the button + pushed and push on the button – at the same time.

The counter is in the bottom the right side of the display and will be incremented by 1 each cycle until the parameter value is reached.
If this is a reverse counting, a D will appear instead of the letter C and the parameter value in the function will be decremented of 1 on each cycle until 0.

2. TABLE OF THE PROGRAMMING MODES

This table is a summary of all the menus and the adjustments present in the amplifier.

>MEASURE FUNCTIONS PARAMETERS DISPLAY	**>TOLERANCES** STATISTICS PROFILE SELECTOR TOOL WIDTH	Define the high and the low **LIMITS** beyond which the amplifier will consider the measurement bad. (This is the default mode of tolerance)	
		Define the nominal dimension and an interval of tolerance + and – beyond which the amplifier will considered the measurement as bad. (See PARAMETERS>>MEASURE PARAMETERS>>MEAS. MODE/TOL)	
	TOLERANCES **>STATISTICS** PROFILE SELECTOR TOOL WIDTH	STATISTICS CHOICE **> STANDARD** SAMPLING	STANDARD : Display of the measurement statistics: number of measurement, number of measurement undersized, number of measurement oversized. Reset to zero with OK.
		STATISTICS CHOICE STANDARD **>SAMPLING**	SAMPLING : - Choice of the number parts samples (1 to 200) - Measurement in automatic - Calculation of the mean + min. value and max. value maxi.
	TOLERANCES STATISTICS **>PROFILE SELECTOR** TOOL WIDTH	This option allows 2 profiles. These 2 profiles control: DUMP / MEASUREMENT TRANSFER / MACHINE SHUTDOWN.	
	TOLERANCES STATISTICS PROFILE SELECTOR **>TOOL WIDTH**	- Bar feed + valid - adjust the tools width and valid **See subsection 1.1 page 2**	
MEASURE **>FUNCTIONS** PARAMETERS DISPLAY	**>DUMP** DELAY MACHINE SHUTDOWN COUNTER	The adjustment INACTIVE disables the function. Divert from 1 to 25 parts. **See subsection 2.1 page 6**	
	DUMP **>DELAY** MACHINE SHUTDOWN COUNTER	The adjustment INACTIVE disables the function. Delay the measurement action after 1 to 25 measurements. **See subsection 2.2 page 8**	
	DUMP DELAY **> MACHINE SHUTDOWN** COUNTER	MACH. SHUTD. : **>CONSECUTIVE** PERCENTAGE	The adjustment INACTIVE disables the function. Machine shutdown after 1 to 25 consecutive bad parts **See subsection 2.3 page 10**
		MACH. SHUTD.: CONSECUTIVE **>PERCENTAGE**	The adjustment INACTIVE disables the function. Machine shutdown if 1 to 100% of the parts are bad. **See subsection 2.3 page 10**
	DUMP DELAY MACHINE SHUTDOWN **>COUNTER**	COUNTER **>COUNTING** REVERSE COUNTING	Machine shutdown after **n** cycles defined with the value of the counter. Counting from 0 to n. **See subsection 2.4 page 12**
		COUNTER COUNTING **>REVERSE COUNTING**	Machine shutdown after **n** cycles defined with the value of the counter. Discounting from n to 0. **See subsection 2.4 page 12**

Parameters appear only if the option PROFIL is activated in ACTIVE AMPLIFIER.

Parameters appear only if the mode MEASUREMENT/TOLERANCE is parameter in INTERVAL.

MEASURE FUNCTIONS **>PARAMETERS** DISPLAY	**>MEASURE PARAMETERS** VALID SIGNAL PARA PROGRAM SETTINGS ADMIN	**>CALIBRATION** MEAS. MODE/TOL. PROFIL ACTIVATION MEASURE DIRECTION	This adjustment must be made only if you change the measurement wheel. (Encoder is calibrated in the factory)
		CALIBRATION **>MEAS. MODE/TOL.** PROFIL ACTIVATION MEASURE DIRECTION	2 display modes of the measurement are possible: - **Bar feed**: The displayed value corresponds only to the value of the feedout. There is no subtraction or addition for tool width. - **Parts length**: The measurement corresponds to the value whose the bar has moved forward, at which a tool width is added or subtracted. (adjustment by default) **See subsection 1.1 page 2** 2 display modes of tolerances are possible : - **Limits**: the tolerances are defined by a absolute high and a low limit, which corresponds at the value that the measurement must not exceed. Example : 11,95 and 12,05 **- Intervals**: The nominal dimension is defined by a high and low interval, which corresponds to the min. and max. difference from the nominal dimension. Example : 12±0,05 **See subsection 1.2 page 4**
		CALIBRATION MEAS. MODE/TOL. **>PROFIL ACTIVATION** MEASURE DIRECTION	The adjustment **INACTIV** disables this function. **ACTIV INPUT** : The activation of 2 profiles and the changing of one profile to another is controlled by the amplifier. (See the description Input/Output) The state of the profile (1 or 2) can be seen in the bottom right of the display (P1 or P2). An output on the amplifier can be wired to activate a light or alarm. **ACTIV AMPLIFIER**: The state of the 2 profiles are set and changed from one to the other using the controller : MEASURE >>> PROFILE SELECTOR The state of the profile (1 or 2) can be seen in the bottom right of the display. (P1 or P2)
		CALIBRATION MEAS. MODE/TOL. PROFIL ACTIVATION **> MEASURE DIRECTION**	Define the direction in which the measuring wheel turn : **clockwise (–)** or **counter clockwise (+)** The direction can also be define automatically through the amplifier selecting AUTOMATIC.
MEASURE FUNCTIONS **>PARAMETERS** DISPLAY	MEASURE PARAMETERS **>VAL SIGNAL PARA** PROGRAM SETTINGS ADMIN	**>INPUT** PLC ACN	The valid signal is sent through an input, connected to the amplifier. Only one Feed/Length can be given per cycle.
		INPUT **>PLC** ACN	The valid signal is sent through an input connected to the amplifier. The PLC sends the valid signal at different times of the cycle, which correspond at the different measurements. The valid signal needs to be longer than the other in order that the amplifier identify the beginning of the cycle. 4 feeds/length can be controlled each cycle. This mode is for CNC machines and for the traditional machines with an automate.

		INPUT PLC **>ACN**	The valid signal is electric. It is programmed in the amplifier after that the ACN is installed. Each input must be wired. 4 feeds/length can be controlled each cycle. This mode is for the traditonal cam machines. **See subsection 3 page 14**
	MEASURE PARAMETERS VALID SIGNAL PARA **>PROGRAM SETTINGS** ADMIN	**>CONFIGURATION** GOOD MEASUREMENT	Configuration of the logical outputs : **INACTIVE 60S** : As soon as you enter the programming mode, the machine is stopped. After 60 seconds without any manipulation of the keypad, the measurement mode is returned to and therefore measurements are again taken. . **INACTIVE INF** : Exactly the same as for adjustment INACTIVE 60S ; the only difference is the measurement mode has to be deliberately returned after 60S with no keypad entry. **ACTIVE 60S :** Your entry in the programming mode doesn't stop the machine as in adjustment INACTIVE. After 60seconds without any keypad entry, there is an automatic exit from the programming mode. **ACTIVE INF** : Exactly the same as for adjustment ACTIVE 60S ; the only difference is the measurement mode has to be deliberately returned to because there is no 60S delay when no manipulation.
		CONFIGURATION **>GOOD MEASUREMENT**	Memorization of the output GOOD MEASUREMENT : **MEMORIZED:** When a part is good, the output relay good closes and stays closed until the next valid signal. The state of the output is held. **NOT MEMORIZED:** When a part is good, the output good closes during min. 50ms and then it re-opens. The state of the output is not held. (adjustment by default)
	MEASURE PARAMETERS VAL SIGNAL PARA PROGRAM SETTINGS **>ADMIN**	**>LOCK** UNLOCK CHANGE CODE FACTORY VALUES	This function allows locking all the adjustments (preload, reference, tolerances…) made, leaving only the display for the operator. The original code is 0000.
		LOCK **>UNLOCK** CHANGE CODE FACTORY VALUES	This function allows unlocking all the adjustments (preload, reference, tolerances…)
MEASURE FUNCTIONS **>PARAMETERS** DISPLAY	MEASURE PARAMETERS VAL SIGNAL PARA PROGRAMSETTINGS **>ADMIN**	LOCK UNLOCK **>CHANGE CODE** FACTORY VALUES	Change the original code (0000) to the code you want.
		LOCK UNLOCK CHANGE CODE **>FACTORY VALUES**	Return to the amplifier's original parameters. Warning: This will force you to redo the preload, referencing and adjustment of the tolerances.

MEASURE FUNCTIONS PARAMETERS **>DISPLAY**	**>BRIGHT./CONTRAST** LANGUAGE MEASUREMENT UNIT	Adjust the brightness of the LCD screen. Minimum 0 and maximum 15. NB : After the factory values are returned to, the value will be 8 Adjust the contrast of the LCD screen. Minimum 0 and maximum 15. NB : After the factory values are returned to, the value will be 8
	BRIGHT./CONTRAST **>LANGUAGE** MEASUREMENT UNIT	Select the language, Français, English, Italiano, Espagnol or Deutsch. NB: After the factory values are returned to, the value will be Français
	BRIGHT./CONTRAST LANGUAGE **>MEASUREMENT UNIT**	Select the measurement unit, mm or inch. NB: After the factory values are returned to, the value will be millimeter. In mm: 3 digits are displayed before the decimal point + 3 digits after the decimal point. Maximum: 999.999mm In Inch: 2 digits are displayed before the decimal point + 4 digits after the decimal point. Maximum: 21.4747in

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