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Parameters and alarms

APD Towel Folder V0100

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1) Machineparameters

1.1) *Overview machine parameters*

01 Distance between B001 and B002
02 Distance between B002 and 1st length
03 Distance between 1st and 2nd reverse fold
04 Distance between 1st fold and knife fold
05 Distance between 2nd fold and knife fold
06 Standby time
07 Counter in main screen
08 Endurance run active
09 Reserved
10 Reserved
11 Moment fingers 1st length fold up
12 Moment fingers 2nd length fold up
13 Moment fingers 1st length fold down
14 Moment fingers 2nd length fold down
15 Photocell filter time
16 Reserved
17 Reserved
18 Reserved
19 Reserved
20 Reserved
21 Speed of belts
22 Reserved
23 Reserved
24 Reserved
25 Reserved
26 Delay start blowpipe 1st length fold
27 Delay start blowpipe 2nd length fold
28 Delay reverse belts 1st length fold
29 Delay reverse belts 2nd length fold
30 Reserved
31 Reserved
32 Reserved
33 Reserved
34 Reserved
35 Reserved
36 Stack position stacker 1
37 Stack position stacker 2
38 Stack position stacker 3
39 Stack position stacker 4
40 Reserved
41 Delay stop belts / start knife stacker
42 Extra turn time clamp stacker
43 Time stop belts of stacker
44 Reserved
45 Position stacker 1 on central belt
46 Position stacker 2 on central belt
47 Position stacker 3 on central belt
48 Position stacker 4 on central belt
49 Reserved
50 Reserved
51 Reserved
52 Maximum piecelength for stacker

53 Reserved
54 Reserved
55 Reserved
56 Reserved
57 Reserved
58 Reserved
59 Reserved
60 Reserved
61 Delay start conveyor after stacking
62 Conveyor shift time
63 Reserved
64 Direction of central conveyor
65 Speed of central conveyor
66 Width of one stacker
67 Reserved
68 Shift conveyor when next conveyor full
69 Reserved
70 Reserved
71 Reserved
72 Shift stacker at program change
73 Reserved
74 Reserved
75 Time central conveyor buffer belt on
76 Max.runtime central conveyor buffer belt
77 Suppression time central conv. photocell
78 Reserved
79 Reserved
80 Reserved
81 Reserved
82 Reserved
83 Reserved
84 Reserved
85 Reserved
86 Reserved
87 Reserved
88 Reserved
89 Reserved
90 Reserved
91 Reserved
92 Reserved
93 Reserved
94 Reserved
95 Reset counters without password
96 Reserved
97 Reserved
98 Counter to display in overview screen
99 Reserved
100 CAN-bus stationnumber this PLC
101 CAN-bus baudrate
102 Delay return to home screen
103 Reserved
104 Reserved
105 Reserved
106 Reserved
107 Reserved
108 Reserved
109 Reserved
110 Reserved

1.2) Machine parameters details

01 Distance between B001 and B002

The distance between the photocell at the beginning of the feeding conveyor (B001) and the photocell at the end of the feeding conveyor (B002). Value is in millimeters.

02 Distance between B002 and 1st length

The distance between the photocell at the end of the feeding conveyor (B002) and the folding point of the 1st length fold. Value is in millimeters.

03 Distance between 1st and 2nd reverse fold

The distance between the 1st and the 2nd reverse fold in millimeters.

04 Distance between 1st fold and knife fold

The distance between the 1st reverse fold and the 3rd length fold (knife up) in millimeters.

05 Distance between 2nd fold and knife fold

The distance between the 2nd reverse fold and the 3rd length fold (knife up) in millimeters.

06 Standby time

When the machine isn't used for this time, it will automatically switch off. Time is in seconds. A value of 0 disables the standby time.

07 Counter in main screen

The counter values which can be seen in the main screen:

0 = Total counter

1 = Counter per program

2 = Counter of today

3 = Average per hour

08 Endurance run active

If the value is 1, the machine will be in endurance run mode. Value 0 means that normal operation is active.

11 Moment fingers 1st length fold up

The distance between the photocell at the end of the feeding conveyor (B002) and the moment the fingers of the 1st length fold go up. Value is in millimeters.

12 Moment fingers 2nd length fold up

The distance between 1st length fold and the moment the fingers of the 2nd length fold go up. Value is in millimeters.

13 Moment fingers 1st length fold down

The moment the fingers of the 1st length fold go down. Value is in millimeters before the fold is made. So, the higher the value, the earlier the fingers will go down.

14 Moment fingers 2nd length fold down

The moment the fingers of the 2nd length fold go down. Value is in millimeters before the fold is made. So, the higher the value, the earlier the fingers will go down.

15 Photocell filter time

The filter time of the photocells in milliseconds (0,001s). If a photocell is (un)covered for a time shorter than this time, the software will ignore the signal.

21 Speed of belts

The speed of the belts in steps of 0,1 meters/minute. Is used to convert millimeter values to time values.

26 Delay start blowpipe 1st length fold

The delay between the moment the folding point of the 1st length fold is reached and the moment the blowpipe of the 1st length fold is started. Value is in ms (0,001s).

27 Delay start blowpipe 2nd length fold

The delay between the moment the folding point of the 2nd length fold is reached and the moment the blowpipe of the 2nd length fold is started. Value is in ms (0,001s).

28 Delay reverse belts 1st length fold

The delay between the moment the folding point of the 1st length fold is reached and the moment the motor of the the 1st length fold is reversed. Value is in ms (0,001s).

29 Delay reverse belts 2nd length fold

The delay between the moment the folding point of the 2nd length fold is reached and the moment the motor of the the 1st length fold is reversed. Value is in ms (0,001s).

36 Stack position stacker 1

The distance between the stacker photocell and the stack position of stacker 1. Distance is in millimeters.

37 Stack position stacker 2

The distance between the stacker photocell and the stack position of stacker 2. Distance is in millimeters.

38 Stack position stacker 3

The distance between the stacker photocell and the stack position of stacker 2. Distance is in millimeters.

39 Stack position stacker 4

The distance between the stacker photocell and the stack position of stacker 4. Distance is in millimeters.

41 Delay stop belts / start knife stacker

The delay between the moment the belts of a stacker stop and the moment the knife of the stacker is started. Value is in steps of 0,01s.

42 Extra turn time clamp stacker

The time the clamp of a stacker keeps turning after the sensor for the upper position is detected. Value is in steps of 0,01s.

43 Time stop belts of stacker

The time the belts of a stacker are stopped when stacking a piece. Value is in steps of 0,01s.

45 Position stacker 1 on central belt

The position of stacker 1 in relation to the conveyor running along the stackers. Is in steps of 168mm from the start of the conveyor.

46 Position stacker 2 on central belt

The position of stacker 2 in relation to the conveyor running along the stackers. Is in steps of 168mm from the start of the conveyor.

47 Position stacker 3 on central belt

The position of stacker 3 in relation to the conveyor running along the stackers. Is in steps of 168mm from the start of the conveyor.

48 Position stacker 4 on central belt

The position of stacker 4 in relation to the conveyor running along the stackers. Is in steps of 168mm from the start of the conveyor.

52 Maximum piecelength for stacker

The maximum length of a piece at the stacker in centimeters. When a piece is longer than this value, it will not be stacked.

61 Delay start conveyor after stacking

When the stacker stacks the last piece of a stack, the conveyor will wait for this time before the stack is shifted. Time is in 0,01s.

62 Conveyor shift time

The time the motor of a conveyor is activated to shift off a stack. Time is in 0,01s.

64 Direction of central conveyor

The direction of the central conveyor. Value 0 means the conveyor runs from the first to the last stacker (away from the operator). Value 1 means the other way around (towards the operator).

65 Speed of central conveyor

The speed of the central conveyor in dm/minute (0,1 meters/minute).

66 Width of one stacker

The width of a stacker conveyor in steps of 168mm.

68 Shift conveyor when next conveyor full

Value 0 means that pieces will not be stacked in case a complete stack is laying on the conveyor. Value 1 means that the stack will be put onto the conveyor, regardless of other stacks on the conveyor.

72 Shift stacker at program change

The moment the stackers are emptied in case of a program change.

0 = No emptying

1 = When program changes

2 = When first piece arrives at stacker

75 Time central conveyor buffer belt on

The time the belt between the conveyor along the stackers and the central conveyor is activated to put a stack onto the central conveyor. Value is in 0,01s.

76 Max.runtime central conveyor buffer belt

The maximum time the belt between the conveyor along the stackers and the central conveyor is activated. If no stack arrives at the end in this time, the conveyor is stopped. Value is in 0,01s.

77 Suppression time central conv. photocell

If the photocell on the central conveyor system is covered, the buffer belt between the conveyor along the stackers and the central conveyor will be suppressed for this time. Value is in 0,01s.

95 Reset counters without password

When this parameter has a value of 1, counters per program can be reset without the need of a password.

100 CAN-bus stationnumber this PLC

Stationnumber of this PLC. Every PLC in a CAN network has to have a unique stationnumber.

101 CAN-bus baudrate

Baudrate/communicationspeed of this PLC. Every PLC in a CAN network has to be adjusted to the same baudrate.

102 Delay return to home screen

When the main screen is not activated, and the screen isn't used for this time, the main screen will be activated again. Steps of seconds (0=disabled).

2) Program parameters, general adjustments

2.1) Overview program parameters, general adjustments

- 01 Lengthlimit piece type A/B
- 02 Lengthlimit piece type B/C
- 03 Lengthlimit piece type C/D
- 04 Reserved
- 05 Reserved
- 06 Minimum piece length
- 07 Minimum distance between pieces
- 08 Reserved
- 09 Reserved
- 10 Reserved
- 11 Fingers 1st length fold down early
- 12 Reserved
- 13 Reserved
- 14 Reserved
- 15 Reserved
- 16 Reserved
- 17 Reserved
- 18 Reserved
- 19 Reserved
- 20 Reserved

2.2) Program parameters, general adjustments details

01 Lengthlimit piece type A/B

The limit in centimetres between pieces of type A and type B. Pieces shorter than this limit will be of type A.

02 Lengthlimit piece type B/C

The limit in centimetres between pieces of type B and type C. Pieces shorter than this limit will be of type B.

03 Lengthlimit piece type C/D

The limit in centimetres between pieces of type C and type D. Pieces longer than this limit will be of type D.

06 Minimum piece length

The minimum length of a piece in centimeters. Pieces shorter than this length will be ignored.

07 Minimum distance between pieces

The minimum distance between 2 pieces in millimeters. If the distance between 2 pieces is shorter, this will be handled as a hole in the piece.

11 Fingers 1st length fold down early

Value 1 means that the fingers of the 1st length fold will go down earlier instead of just before the fold is made. Is used in case of very long pieces. Value 0 disables this function.

3) Program parameters, adjustments per piece type

3.1) Overview program parameters, adjustments per piece type

- 01 Lengthfold type
- 02 Fold with points outside at stacker
- 03 Reserved
- 04 Reserved
- 05 Reserved
- 06 Folding point/overlap 1st length fold
- 07 Folding point/overlap 2nd length fold
- 08 Folding point/overlap 3rd length fold
- 09 Reserved
- 10 Reserved
- 11 Blowtime 1st reverse fold
- 12 Blowtime 2nd reverse fold
- 13 Knife up time knife up fold
- 14 Reserved
- 15 Reserved
- 16 Stacker number
- 17 Stacking height
- 18 Extra time knife up stacker
- 19 Use stop belts of stacker
- 20 Reserved
- 21 Reserved
- 22 Reserved
- 23 Reserved
- 24 Reserved
- 25 Reserved
- 26 Reserved
- 27 Reserved
- 28 Reserved
- 29 Reserved
- 30 Reserved

3.2) Program parameters, adjustments per piece type details

01 Lengthfold type

Lengthfold setting

0 = No lengthfold

1 = 1 length fold

2 = 2 length folds

3 = 3 length folds

4 = French fold

5 = 1 length fold on fixed distance from the front

6 = 1 length fold on fixed distance from the back

7 = 2 length folds on fixed distance from the front

8 = 2 length folds on fixed distance from the back

9 = 3 length folds on fixed distance from the front

10 = 3 length folds on fixed distance from the back

11 = French fold and 1 length fold

02 Fold with points outside at stacker

If this parameter is set to 1 and the number of length folds is 2, the knife fold will be used instead of the 2nd reverse fold. This means that the piece will be reversed at the stacker.

06 Folding point/overlap 1st length fold

The folding point or overlap of the 1st length fold in millimeters. The standard value of this parameter is 100.

07 Folding point/overlap 2nd length fold

The folding point or overlap of the 2nd length fold in millimeters. The standard value of this parameter is 100.

08 Folding point/overlap 3rd length fold

The folding point or overlap of the 3rd length fold in millimeters. The standard value of this parameter is 100.

11 Blowtime 1st reverse fold

The time the blowpipe of the 1st reverse fold is activated. Value is in 0,01s.

12 Blowtime 2nd reverse fold

The time the blowpipe of the 2nd reverse fold is activated. Value is in 0,01s.

13 Knife up time knife up fold

The time the knife of the knife up fold is activated when making a fold. Value is in 0,01s.

16 Stacker number

The stacker to use. Value 5 means that all stackers are used sequentially.

17 Stacking height

When a stack reaches this number of pieces, the conveyor is activated and a new stack starts.

18 Extra time knife up stacker

The time the knife of the stacker continues to stay up after the sensor for the upper position is detected. Value is in 0,01s.

19 Use stop belts of stacker

Value 1 means that the belts of the stacker will stop when stacking. Value 0 means no stop of the belts.

4) Alarms

001 EMERGENCY STOP

One of the emergency stops on the machine is/has been pushed. When no emergency switch is active anymore, the emergency stop can be reset with the 'reset' button.

002 MOTOR THERMICAL OFF

The thermal protection of one of the motors is active. Check if the concerning motor is jammed and release the protection again.

003 VARAN-BUS ERROR

The connection with one or more backplanes on the varan IO-bus is lost. As soon as connection is re-established, message will disappear.

006 ERROR INVERTER

One of the frequency inverters is in alarm (motor stuck?). Reset can be done by switching off the inverter with the emergency stop and wait for about 20 seconds.

007 CONVEYOR THERMICAL OFF

The thermal protection of one of the conveyor motors is active. Check if the concerning motor is jammed and release the protection again.

008 POWER SUPPLY FAILURE

The 24VDC power supply gives a failure signal. Check the machine for a short circuit. Reset can be done on the power supply module.

010 OBJECT OVERFLOW

Internal error. Too many pieces in the memory of the PLC. Restart the PLC.

015 TIME-OUT STACKER PHOTOCCELL

A piece did not arrive at the photocell before the stacker section in time. Because this is the 2nd time, the machine is stopped.

016 JAM AT STACKER PHOTOCCELL

The photocell at the beginning of the stacker section is covered too long. This can be caused by a jammed piece.

020 CLAMP BACK TIME-OUT STACKER 1

The clamp of stacker 1 did not return to its home position in time. This can be caused by jammed pieces.

021 CLAMP BACK TIME-OUT STACKER 2

The clamp of stacker 2 did not return to its home position in time. This can be caused by jammed pieces.

022 CLAMP BACK TIME-OUT STACKER 3

The clamp of stacker 3 did not return to its home position in time. This can be caused by jammed pieces.

023 CLAMP BACK TIME-OUT STACKER 4

The clamp of stacker 4 did not return to its home position in time. This can be caused by jammed pieces.

025 TIME-OUT PIECE AT STACKER 2

A piece didn't arrive at the photocell at the beginning of the stacker 2 section. Because this is the 2nd time, the machine is stopped.

026 TIME-OUT PIECE AT STACKER 3

A piece didn't arrive at the photocell at the beginning of the stacker 3 section. Because this is the 2nd time, the machine is stopped.

027 TIME-OUT PIECE AT STACKER 4

A piece didn't arrive at the photocell at the beginning of the stacker 4 section. Because this is the 2nd time, the machine is stopped.

030 TIME-OUT KNIFE UP STACKER 1

The knife of stacker 1 did not reach the upper position in time. Because this is the 2nd time, the machine is stopped.

031 TIME-OUT KNIFE UP STACKER 2

The knife of stacker 2 did not reach the upper position in time. Because this is the 2nd time, the machine is stopped.

032 TIME-OUT KNIFE UP STACKER 3

The knife of stacker 3 did not reach the upper position in time. Because this is the 2nd time, the machine is stopped.

033 TIME-OUT KNIFE UP STACKER 4

The knife of stacker 4 did not reach the upper position in time. Because this is the 2nd time, the machine is stopped.

035 TIME-OUT CLAMP UP STACKER 1

The clamp of stacker 1 did not reach the upper position in time. Because this is the 2nd time, the machine is stopped.

036 TIME-OUT CLAMP UP STACKER 2

The clamp of stacker 2 did not reach the upper position in time. Because this is the 2nd time, the machine is stopped.

037 TIME-OUT CLAMP UP STACKER 3

The clamp of stacker 3 did not reach the upper position in time. Because this is the 2nd time, the machine is stopped.

038 TIME-OUT CLAMP UP STACKER 4

The clamp of stacker 4 did not reach the upper position in time. Because this is the 2nd time, the machine is stopped.

052 Time-out stacker photocell

A piece did not arrive at the photocell before the stacker section in time. If this happens twice, the machine will be stopped.

054 Sheet too long 1st length fold

The last piece which has been folded was too long to be folded correct at the 1st length fold. The 1st length fold will not be at the adjusted folding point.

055 Piece too short 1st length fold

The last piece at the 1st length fold was shorter than the limit adjusted in the program parameters. This can be caused by a belt which covers a photocell sometimes.

060 Piece too long stacker 1

A piece at stacker 1 could not be stacked because it was longer than the limit adjusted in the machine parameters.

061 Piece too long stacker 2

A piece at stacker 2 could not be stacked because it was longer than the limit adjusted in the machine parameters.

062 Piece too long stacker 3

A piece at stacker 3 could not be stacked because it was longer than the limit adjusted in the machine parameters.

063 Piece too long stacker 4

A piece at stacker 4 could not be stacked because it was longer than the limit adjusted in the machine parameters.

065 Pieces too close stacker

A piece arrived at the stacker, but the stacker was still busy with another piece. Therefore, the piece is not stacked.

066 Pieces too close 1st length fold

The distance between the front of the current piece and the rear of the previous piece was too small. This can be caused by a hole in the piece.

070 Clamp not home stacker 1

The last piece at stacker 1 could not be stacked because the clamp was not in home position.

071 Clamp not home stacker 2

The last piece at stacker 2 could not be stacked because the clamp was not in home position.

072 Clamp not home stacker 3

The last piece at stacker 3 could not be stacked because the clamp was not in home position.

073 Clamp not home stacker 4

The last piece at stacker 4 could not be stacked because the clamp was not in home position.

075 Time-out knife up stacker 1

The knife of stacker 1 did not reach the upper position in time. If this happens twice, the machine will be stopped.

076 Time-out knife up stacker 2

The knife of stacker 2 did not reach the upper position in time. If this happens twice, the machine will be stopped.

077 Time-out knife up stacker 3

The knife of stacker 3 did not reach the upper position in time. If this happens twice, the machine will be stopped.

078 Time-out knife up stacker 4

The knife of stacker 4 did not reach the upper position in time. If this happens twice, the machine will be stopped.

080 Time-out clamp up stacker 1

The clamp of stacker 1 did not reach the upper position in time. If this happens twice, the machine will be stopped.

081 Time-out clamp up stacker 2

The clamp of stacker 2 did not reach the upper position in time. If this happens twice, the machine will be stopped.

082 Time-out clamp up stacker 3

The clamp of stacker 3 did not reach the upper position in time. If this happens twice, the machine will be stopped.

083 Time-out clamp up stacker 4

The clamp of stacker 4 did not reach the upper position in time. If this happens twice, the machine will be stopped.

085 Conveyor busy stacker 1

A piece at stacker 1 cannot be stacked because the conveyor of this stacker is still busy.

086 Conveyor busy stacker 2

A piece at stacker 2 cannot be stacked because the conveyor of this stacker is still busy.

087 Conveyor busy stacker 3

A piece at stacker 3 cannot be stacked because the conveyor of this stacker is still busy.

088 Conveyor busy stacker 4

A piece at stacker 4 cannot be stacked because the conveyor of this stacker is still busy.

090 Time-out piece at stacker 2

A piece didn't arrive at the photocell at the beginning of the stacker 2 section. If this happens twice, the machine will be stopped.

091 Time-out piece at stacker 3

A piece didn't arrive at the photocell at the beginning of the stacker 3 section. If this happens twice, the machine will be stopped.

092 Time-out piece at stacker 4

A piece didn't arrive at the photocell at the beginning of the stacker 4 section. If this happens twice, the machine will be stopped.

095 Pieces stuck buffer conveyor

The buffer conveyor between the folder and the central conveyor tried to put a stack on the central conveyor, but the photocell stays covered. Remove the jammed pieces.

098 Battery almost empty

The battery in the PLC is almost empty. It has to be replaced every year. Replace the battery as soon as possible to prevent loss of data.

099 CPU temperature too high

The temperature of the PLC-processor is too high. Reason can be a broken fan or a too high environment temperature.

108 Endurance run active

The machine is in endurance run mode because the machine parameter for this mode is set to 1.

113 Waiting for start

The machine is waiting for a start signal to be given by the startbutton.

115 Operating

The machine is running, no alarms or other notifications.