PFAFF® Industrial

P40 CD

Parameter list

1246

For Motor N°. 73-071 010-91 (MS FE 5540)

This Parameter list applies to machines from the following software version 79-0011 **0435/007** onwards.

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1 Parameter

The parameter list helps the user quickly locate and change a parameter. The structure of the parameter list has already been explained in the instructions for use. Some parameters have been grouped into categories which can be found on several levels and reflect their importance and their resulting minor or major effect on the sewing behavior of the machine.

1.1 Operator level

E	C	P	Min	Max	Preset value	Unit	Description
Bobbin stitch counter/ remaining thread monitor/piece counter							
o	06	00	0	4	0	-	Bobbin stitch counter / remaining thread monitor 0 = Off; 1 = Bobbin stitch counter A; 2 = Bobbin stitch counter B; 3 = Bobbin stitch counter C; 4 = Remaining thread monitor
o	06	01	1	9999	3000	x o0604	Reset value of bobbin stitch counter A
o	06	02	1	9999	2000	x o0604	Reset value of bobbin stitch counter B
o	06	03	1	9999	1000	x o0604	Reset value of bobbin stitch counter C
o	06	04	1	255	10	x stitches	Factor of bobbin stitch counters A, B and C
o	06	05	0	9999	0	Stitches	Number of stitches for the remaining thread monitor
o	06	06	0	1	0	-	Stop sewing motor when the counter reaches 0 0 = Off; 1 = On
o	06	07	0	1	0	-	Sewing foot stays down after thread cutting 0 = Off; 1 = On
o	06	08	0	1	0	-	When a counter has elapsed, a reset must occur after thread cutting 0 = Off; 1 = On
o	06	10	0	1	0	-	Display of the piece counter 0 = Off; 1 = On
o	06	20	0	1	0	-	Needle thread monitor up 0 = Off; 1 = On

E	C	P	Min	Max	Preset value	Unit	Description
o	06	30	0	1	0	-	Needle thread monitor down 0 = Off; 1 = On
Needle cooling/fan							
o	13	00	0	1	0	-	Needle cooling 0 = Off; 1 = On
Light barrier							
o	16	00	0	255	0	Stitches	Equalizing stitches for normal stitch length
o	16	01	0	255	0	Stitches	Equalizing stitches for long stitch length
o	16	10	1	255	1	Seams	Number of light barrier seams
o	16	20	0	255	0	Stitches	Equalizing stitches for knitted garment filter
Stitch loosening device							
o	25	00	0	2	0	-	Mode of automatic stitch loosening device 0 = Only stitch loosening; 1 = Stitch loosening and 2nd stitch length; 2 = Stitch loosening, 2nd stitch length, and quick stroke adjustment;

1.2 Technician level

E	C	P	Min	Max	Preset value	Unit	Description
Bartack							
t	00	00	300	6000	800	rpm	Start bartack speed
t	00	01	0	254	15	10°	Feed-forward angle when the bartack magnet is switched on (Switching from forward to backward during bartacking)
t	00	02	0	254	15	10°	Forward-feed angle when the bartack magnet is switched off (Switching from backward to forward during bartacking)
t	00	03	0	1	0	-	Start bartack can be interrupted by setting pedal to 0 position 0 = Off; 1 = On
t	00	04	0	2	0	-	Mode for end of start bartack 0 = Sewing continues after end; 1 = Machine stops and must be restarted using the pedal; 2 = Thread cutting after start bartack
t	00	05	0	1	0	-	Pedal release only after additional A path 0 = Off; 1 = On
t	00	06	0	500	0	ms	Delay time to speed release after start bartack
t	00	07	0	255	0	ms	Fall time of bartack magnet
t	00	09	0	1	0	-	Additional forward path at start bartack with the number of backward stitches 0 = Off; 1 = On
t	00	10	300	6000	1000	rpm	End bartack speed
t	00	11	0	254	15	10°	Feed-forward angle when the bartack magnet is switched on (Switching from forward to backward during bartacking)
t	00	12	0	254	36	10°	Forward-feed angle when the bartack magnet is switched off (Switching from backward to forward during bartacking)

E	C	P	Min	Max	Preset value	Unit	Description
t	00	13	0	1	0	-	Bartack magnet stays switched on during the last backward path (simple end bartack and multiple end bartack) until position 2 has been reached 0 = Off; 1 = On
t	00	19	0	1	0	-	Additional forward path at end bartack with the number of back-ward stitches 0 = Off; 1 = On
t	00	20	300	6000	2800	rpm	Multiple start bartack speed (only during darning program)
t	00	21	0	254	33	10°	Feed-forward angle when the bartack magnet is switched on (Switching from forward to back-ward during bartacking) (only during darning program)
t	00	22	0	254	40	10°	Forward-feed angle when the bartack magnet is switched off (Switching from backward to forward during bartacking) (only for darning program)
t	00	23	0	1	0	-	Multiple start bartack as darning program 0 = Off; 1 = On
t	00	24	0	1	0	-	Pedal-dependent speed for darning program 0 = Off; 1 = On
t	00	25	0	1	0	-	First path with different number of stitches (C) in multiple start bartack 0 = Off; 1 = On
t	00	26	0	1	0	-	Last path with different number of stitches (B) in multiple end bartack 0 = Off; 1 = On
t	00	30	0	1	1	-	Ornamental-stitch bartack 0 = Off; 1 = On
t	00	31	0	2500	800	rpm	Speed of ornamental-stitch bartack
t	00	32	0	1000	100	ms	Ending time during ornamental-stitch bartack

E	C	P	Min	Max	Preset value	Unit	Description
t	00	35	0	1	0	-	Speed decrease when feed dog is repositioned 0 = Off; 1 = On
t	00	36	0	6000	1000	rpm	Level to which the speed is supposed to be reduced when the feed dog is repositioned
t	00	40	0	2	1	-	Type of start bartack when the bartack activation switch is engaged 0 = Simple start bartack; 1 = Double start bartack; 2 = Multiple start bartack
t	00	41	0	2	1	-	Type of end bartack when the bartack activation switch is engaged 0 = Simple end bartack; 1 = Double end bartack; 2 = Multiple end bartack
t	00	44	0	3	1	-	Handling of manual bartack 0 = Manual bartack engages immediately; 1 = Manual bartack engages depending on parameters t 00 45 and t 00 46; 2 = During manual bartacking, the drive stops in the position set under parameters t 00 45 and t 00 46; 3 = During manual bartacking, the drive stops in the position set under parameters t 00 45 and t 00 46 (only if parameter t 00 30 = 1)
t	00	45	0	1	0	-	Switch on the manual bartack 0 = Needle down; 1 = Needle up
t	00	46	0	1	0	-	Switch off the manual bartack 0 = Needle down; 1 = Needle up
t	00	47	0	3	0	-	Speed limit for manual bartack 0 = Off; 1 = Limit to DB3000 if t 00 44 = 0 – 1 2 = Limit to ornamental-stitch bartack speed if t 00 44 = 2 – 3

E	C	P	Min	Max	Preset value	Unit	Description
t	00	50	0	999	100	ms	Activation time of bartack magnet in period t1
t	00	51	5	100	100	%	Duty cycle in period t1
t	00	52	0,0	600,0	0,0	s	Activation time of bartack magnet in period t2 (if 0, the bartack magnet remains continuously switched on)
t	00	53	5	100	100	%	Duty cycle in period t2
t	00	54	0	1	1	-	Increase in U_{mag} when the bartack magnet is activated 0 = No; 1= Yes
t	00	60	0	359	80	°	Angle at which the feed dog repositioner is to supposed switch
t	00	61	0	200	14	ms	Switch on inertia
t	00	62	0	200	16	ms	Switch off inertia
t	00	63	0	1	0	-	Switch feed dog repositioner depending on angle 0 = No; 1= Yes
t	00	70	0	255	0	Stitches	Catch Backtack forward
t	00	71	0	255	0	Stitches	Catch Backtack backward
Thread clamp (TC)							
t	01	00	0	10	0	-	Mode of thread clamp 0 = TC switch-on angle = t 01 01, TC switch-off angle = t 01 02, Without FL; 1 = TC switch-on angle = 108°, TC switch-off angle = 268°, Without FL; 2 = TC switch-on angle = 49°, TC switch-off angle = 110°, Without FL; 3 = TC switch-on angle = 49°, TC switch-off angle = 190°, Without FL; 4 = TC switch-on angle = 108°, TC switch-off angle = 268°, FL switch-on angle = 108°, FL switch-off angle = 154°; 5 = TC switch-on angle = 108°, TC switch-off angle = 268°, FL switch-on angle = 44°, FL switch-off angle = 154°;

E	C	P	Min	Max	Preset value	Unit	Description
							6 = TC switch-on angle = 75°, TC switch-off angle = 215°, FL switch-on angle = 60°, FL switch-off angle = 120°, FL switch-off angle, additionally stroke-dependent; 7 = Without TC, FL switch-on angle = t 01 11, FL switch-off angle = t 01 12, 8 = TC switch-on angle = t 01 01, TC switch-off angle = t 01 02, FL switch-on angle = t 01 11, FL switch-off angle FL = t 01 12; 9 = Without TC, FL switch-on angle = t 01 11, FL switch-off angle = t 01 12, FL switch-off angle, additionally stroke-dependent; 10 = TC switch-on angle = t 01 01, TC switch-off angle = t 01 02, FL switch-on angle = t 01 11, FL switch-off angle = t 01 12, FL switch-off angle, additionally stroke-dependent;
t	01	01	0	359	75	°	Switch-on angle of thread clamp
t	01	02	0	359	215	°	Switch-off angle of thread clamp
t	01	11	0	359	53	°	Switch-on angle of sewing foot lift
t	01	12	0	359	110	°	Switch-off angle of sewing foot lift
t	01	13	0	100	35	%	Duty cycle of sewing foot lift in mode 4-8

E	C	P	Min	Max	Preset value	Unit	Description
t	01	20	0	3	0	-	Thread clamp options 0 = Thread clamp only at seam beginning; 1 = Thread clamp at seam beginning and during reverse; 2 = Thread clamp at seam beginning and during sewing foot lift; 3 = Thread clamp at seam beginning and during reverse and sewing foot lift
t	01	30	0	2	0	-	Neat seam beginning (NSB) 0 = Off; 1 = On when thread clamp is active
t	01	31	0	9999	92	°	Switch-on angle of additional thread clamp
t	01	32	0	9999	201	°	Switch-off angle of additional thread clamp
t	01	33	0	9999	105	°	Switch-on angle of thread advancing device
t	01	34	0	9999	203	°	Switch-off angle of thread advancing device
t	01	35	0	9999	62	°	Switch-on angle of thread tension lift
t	01	36	0	9999	94	°	Switch-off angle of thread tension lift
t	01	50	0	999	100	ms	Activation time of thread clamp in period t1
t	01	51	5	100	100	%	Duty cycle in period t1
t	01	51				%	Duty cycle in period t1
t	01	52	0,1	120,0	30,0	s	Activation time of thread clamp in period t2 (if 0, the thread clamp remains continuously switched on)
t	01	53	5	100	100	%	Duty cycle in period t2
t	01	54	0	1	1	-	Increase in U_{mag} when the thread clamp is activated 0 = No; 1= Yes
Thread cutter (FA)							
t	02	00	50	750	180	rpm	Speed when cutting the thread
t	02	01	0	1	0	-	Pedal position for initiating the cutting process 0 = Position -2; 1 = Position -1

E	C	P	Min	Max	Preset value	Unit	Description
t	02	02	0	1	0	-	Initiate seam end at seam beginning (with single stitch functions activated) 0 = No; 1= Yes
t	02	10	0	359	120	°	Switch-on angle t 08 12 <= t 02 10 < t 02 11
t	02	11	0	359	141	°	Switch-off angle t 02 10 < t 02 11 <= t 08 13
t	02	20	0	255	0	ms	Delay time for repeated switch-on of thread cutting magnet
t	02	21	0	255	0	ms	Delay time for switch-off of thread cutting magnet
t	02	50	0	999	100	ms	Activation time of thread cutter in period t1
t	02	51	5	100	100	%	Duty cycle in period t1
t	02	52	0,1	120,0	0,1	s	Activation time of thread cutter in period t2 (if 0, the thread clamp remains continuously switched on)
t	02	53	5	100	5	%	Duty cycle in period t2
t	02	54	0	1	0	-	Increase in U_{mag} when thread cutter is activated 0 = No; 1= Yes
t	02	55	0	359	0	°	Angle at which duty cycle 2 is activated (0 = deactivated)
Sewing foot lift (FL)							
t	03	00	0	1	1	-	Sewing foot lift 0 = Off; 1 = On
t	03	01	0	1	0	-	No sewing start over push-botton while the sewing foot is lifted 0 = Off; 1 = On
t	03	10	0	9999	80	ms	Startup delay of machine after sewing foot lift is switched off
t	03	11	0	255	40	ms	Activation delay of sewing foot lift during a machine standstill
t	03	12	0,0	9,999	0,80	s	Activation delay of sewing foot lift at seam end
t	03	50	0	999	100	ms	Activation time of sewing foot lift magnet in period t_1
t	03	51	5	100	100	%	Duty cycle in period t_1
t	03	52	0,0	600,0	0,0	s	Activation time of sewing foot lift magnet in period t_2 (if 0, the sewing foot lift magnet remains continuously switched on)

E	C	P	Min	Max	Preset value	Unit	Description
t	03	53	5	100	100	%	Duty cycle in period t_2
t	03	54	0	1	1	-	Increase in U_{mag} when sewing foot lift magnet is activated 0 = No; 1= Yes
t	03	55	0	1	0	-	Activation sound warning before foot is automatically lowered 0 = No; 1 = Yes
Soft start							
t	05	00	120	1000	800	rpm	Soft start speed
t	05	01	1	99	2	Stitches	Number of soft start stitches
Remaining thread monitor/bobbin rotation monitor/skip stitch detector							
t	06	00	0	2	0	-	Activation of the remaining thread monitor 0 = Off; 1 = Right; 2 = Left & right;
t	06	01	0	1	0	-	Remaining thread monitor mode 0 = Dynamic; 1 = Static;
t	06	02	0,0	3,300	0,0	V	Threshold right
t	06	03	0,0	3,300	0,0	V	Intensity right
t	06	04	0,0	3,300	0,0	V	Threshold left
t	06	05	0,0	3,300	0,0	V	Intensity left
t	06	06	0	1	0	-	Confirmation necessary by mes-sages 0 = no; 1 = yes
t	06	10	0	1	0	-	Skip stitch detector (Not if t 06 00 = 2) 0 = Off; 1 = On
t	06	11	0	1	0	-	Bobbin rotation monitor (Not if t 06 00 = 2) 0 = Off; 1 = On
t	06	12	0	255	0	Stitches	Number of stitches at which the bobbin rotation monitor is acti-vated
Needle thread monitor up							
t	06	20	0	1000	180	rpm	Speed at which the monitor is activated
t	06	21	0	255	2	Stitches	Number of stitches at which the monitor is activated

E	C	P	Min	Max	Preset value	Unit	Description
t	06	22	0	1000	3	ms	Debouncing
Needle thread monitor down							
t	06	30	0	1000	180	rpm	Speed at which the monitor is activated
t	06	31	0	255	2	Stitches	Number of stitches at which the monitor is activated
t	06	32	0	1000	3	ms	Debouncing
Seam paths							
t	07	00	0	2	0	-	Handling of position -2 for seam paths 0 = Cancellation of the seam. The next seam path is sewn; the last seam of the program is canceled with thread cutting; 1 = Termination of the seam with thread cutting (even if not active). The next seam procedure is a free seam; 2 = Termination of the seam with thread cutting (even if not active). Seam program is canceled
t	07	01	0	1	0	-	Automatic mode 0 = Off; 1 = On
t	07	02	0	1	0	-	Signal on switch of path 0 = Off; 1 = On
t	07	03	0	1	0	-	Repair mode 0 = Off; 1 = On
t	07	04	0	1	0	-	Mode for cycling the sewing program 0 = Off; 1 = On
Motor							
t	08	00	500	9999	2300	rpm	Maximum speed
t	08	01	10	400	180	rpm	Minimum speed
t	08	02	10	1000	180	rpm	Positioning speed
t	08	03	1	100	35	rpm/ms	Acceleration ramp
t	08	04	1	100	35	rpm/ms	Deceleration ramp
t	08	05	0	1	0	-	Direction of rotation of motor 0 = Left; 1 = Right

E	C	P	Min	Max	Preset value	Unit	Description
t	08	06	0	2	0	-	Motor brake during normal stop 0 = Braking for period of t 08 09; 1 = Brake continuously active when stopped; 2 = Position is continuously maintained
t	08	07	0,1	6,0	0,4	A	No-damage current when machine down
t	08	08	0	255	20	-	Response time to changes in position
t	08	09	0	999	200	ms	Duration of motor brake
t	08	10	-	-	-	-	Reference position
t	08	11	-	-	-	-	Needle positions
t	08	12	0	359	120	°	Needle in the low position (bottom dead center) (position 1)
t	08	13	0	359	330	°	Thread lever at top dead center (position 2)
t	08	14	0	359	350	°	Point position
t	08	15	0	359	296	°	Threading position (needle thread)
t	08	16	0	1	0	-	Drive to bearing position via pedal
t	08	19	1	9999	695	-	Transmission ratio = (motor diameter / machine diameter) * 1000
t	08	20	-	-	-	-	Calibrate pedal
t	08	21	1	64	24	Levels	Number of speed levels of pedal
t	08	22	0	7	3	-	Speed curve
t	08	23	1	255	90	ms	Debouncing of position -1
t	08	24	1	255	15	ms	Debouncing of position -2
t	08	25	0	1	0	-	Selection of pedal 0 = Analog; 1 = Digital
t	08	26	0	1	0	-	Inverting signals of the digital pedal 0 = No; 1 = Yes (Efka pedal with adapter)
t	08	27	0	2	0	-	Handling of position -1 (only with digital pedal) 0 = Not stored; 1 = Stored
t	08	28	40	70	60	-	Factor of position -1 This parameter can be used to adjust the response between -1 and 0

E	C	P	Min	Max	Preset value	Unit	Description
t	08	29	20	70	49	-	Factor of position -2 This parameter can be used to adjust the response between -2 and 0
t	08	30	0	1	0	-	Display of speed 0 = Off; 1 = On
t	08	31	0	1	0	-	Display of current position 0 = Off; 1 = On
t	08	32	0	1	0	-	After power-on and a tap on the pedal, the needle is moved to the "Needle up" position 0 = No; 1= Yes
t	08	33	0	6	0	-	Output of position signals (signal to X1.21 and X1.26) 0 = No signals are output; 1 = Pos. 1; 2 = Pos. 2; 3 = Pos. 1 & Pos. 2; 4 = Motor operation signal; 5 = Motor operation signal & Pos. 1; 6 = Motor operation signal & Pos. 2
t	08	34	0	255	75	°	Angle for the length of the Pos. 1 signal
t	08	35	0	255	75	°	Angle for the length of the Pos. 2 signal
t	08	36	10	9999	10	rpm	Speed at which the motor operation signal is activated
t	08	40	150	9999	3000	rpm	Speed limit DB3000
t	08	41	150	9999	2000	rpm	Speed limit DB2000
t	08	44	1	255	40	ms	Debouncing of position 0
t	08	50	10	500	180	rpm	Preset speed value for single stitch functions (half or full stitch, etc.)
t	08	51	1	6000	180	rpm	Speed for manual sewing per push button
t	08	52	0	1	0	-	Sewing functions via push button also in manual mode 0 = No; 1= Yes
t	08	60	0	64	0	Level	Shifting of position 1 Number of speed levels is reduced

E	C	P	Min	Max	Preset value	Unit	Description
Thread tension							
t	09	00	0	3	0	°	Mode of thread tension and thread tension reduction when sewing foot lift is active 0 = no thread tension lift; 1 = Thread tension lift in the seam; 2 = Thread tension lift after thread cutting; 3 = Thread tension lift in the seam and after thread cutting
t	09	01	0	1	1	°	Thread tension with threader (needle thread) lifted 0 = No; 1= Yes
t	09	02	0,0	2,55	0,0	s	Activation delay of thread tension lift after thread cutting when sewing foot is lifted (only active if t 09 00 = 2 or 3)
t	09	03	0	2	0	°	Coupling of additional thread tension with quick stroke adjust-ment 0 = no coupling; 1 = Additional thread tension during quick stroke adjustment; 2 = Additional thread tension when quick stroke adjustment speed is reached
t	09	10	0	359	274	°	Switch-on angle t 08 12 <= t 09 10 < t 09 11 during cutting pro-cess
t	09	11	0	359	330	°	Switch-off angle t 09 10 < t 09 11 <= t 08 13 during cutting process
t	09	20	0	255	0	ms	Delay time for repeated switch-on of thread tension magnet during cutting process
t	09	21	0	255	40	ms	Delay time for switch-off of thread tension magnet
t	09	30	0	1	0	-	Open additional thread tension during start bartacking 0 = No; 1 = Yes;
t	09	31	0	1	0	-	Open additional thread tension during end bartacking 0 = No; 1 = Yes;
t	09	32	0	1	0	-	Open additional thread tension during manual bartacking 0 = No; 1 = Yes;

E	C	P	Min	Max	Preset value	Unit	Description
t	09	33	0	1	0	-	Open additional thread tension for thread clamp 0 = No; 1 = Yes;
t	09	34	0	1	0	-	Open additional thread tension during soft start 0 = No; 1 = Yes;
t	09	35	0	1	0	-	Open additional thread tension during stitch shortening 0 = No; 1 = Yes;
t	09	36	0	1	0	-	Open additional thread tension during quick stroke adjustment 0 = No; 1 = Yes;
t	09	37	0	1	0	-	Open additional thread tension during single stitch functions 0 = No; 1 = Yes;
t	09	50	0	999	80	ms	Activation time of thread tension magnet in period t_1
t	09	51	5	100	100	%	Duty cycle in period t_1
t	09	52	0,0	600,0	60,0	s	Activation time of thread tension magnet in period t_2. (if 0, the thread tension magnet remains continuously switched on)
t	09	53	5	100	70	%	Duty cycle in period t_2
t	09	54	0	1	0	-	Increase in U_{mag} when the thread tension magnet is activated 0 = No; 1= Yes
Stroke adjustment							
t	10	00	0	1	0	-	Stroke adjustment 0 = No; 1= Yes
t	10	01	0	9999	1800	rpm	Stroke adjustment speed
t	10	02	1	21	10	Level	Lower threshold
t	10	03	1	21	19	Level	Upper threshold
t	10	04	-	-	-	-	Display of current level and corresponding speed, e. g. 3: 2800 3: = current level 2800 = corresponding speed

E	C	P	Min	Max	Preset value	Unit	Description
t	10	06	0	1	0	-	Speed limit during quick stroke adjustment 0 = Limitation of speed to stroke adjustment speed for 500 ms; 1 = Continuous limitation of speed to stroke adjustment speed
t	10	07	0,0	2,55	0,0	s	Stopping time of stroke adjustment speed
t	10	08	0	255	0	Stitches	Number of stitches for automatic switch-off of quick stroke adjustment (when 0, quick stroke adjustment is deactivated)
t	10	09	0	1	0	-	Type of quick stroke adjustment potentiometer 0 = 9880 867105; 1 = 9880 867119
t	10	10	0	9999	0	rpm	Automatic of activation/deactivation of quick stroke adjustment Quick stroke adjustment activated ⇔ n < t 10 11 Quick stroke adjustment deactivated ⇔ n >= t 10 11 Stored stroke adjustment is deactivated
t	10	20	0	1000	500	-	Low stroke adjustment. Take value of potentimeter by pressing reset key.
t	10	21	0	1000	500	-	High stroke adjustment. Take value of potentimeter by pressing reset key.

E	C	P	Min	Max	Preset value	Unit	Description
Function module							
t	11	00	0	16	0	-	Function of function module 1 (X1.30) 0 = No function; 1 = Additional thread tension; 2 = Stitch length switching; 3 = Single stitch with stitch length switching; 4 = Single backward stitch with stitch length switching; 5 = Raise/lower carrier roll-er/seam middle guide/puller; 6 = Raise/lower edge stop; 7 = Raise/lower edge cutter; 8 = Stitch length switching (Triflex) with DB2000 speed limit and bartack suppres-sion; 9 = Fullness with DB3000 speed limit; 10 = Fullness without DB3000 speed limit; 11 = Step cutting; 12 = Contour guide; 13 = Stacker; 14 = Output function 15 = Tape cutter; 16 = Biphasic edge cutter
t	11	01	0	1	0	-	Invert output of function module 1 (X1.30) 0 = No; 1= Yes
t	11	02	1	3	1	-	Condition of function module 1 (X1.30) after thread cutting 1 = Unchanged; 2 = Deactivated; 3 = Activated
t	11	03	1	3	1	-	Condition of function module 1 (X1.30) after power on 1 = Unchanged; 2 = Deactivated; 3 = Activated
t	11	04	0	1	0	-	Function module stored (only if t 11 00 = 14) 0 = Stored; 1 = Not Stored

E	C	P	Min	Max	Preset value	Unit	Description
t	11	05	0	2	0	-	Type of activation delay of function module 1 (X1.30) (only if t 11 00 = 14) 0 = Time 1 = Stitches 2 = Bracket
t	11	06	0	9999	0	s or stitches or °	Activation delay
t	11	07	0	2	0	-	Type of switch-off delay of function module 1 (X1.30) 0 = Time 1 = Stitches 2 = Bracket
t	11	08	0	9999	0	s or stitches or °	Switch-off delay
t	11	09	1	3	1	-	Condition of function module 1 (X1.30) before thread cutting 1 = Unchanged; 2 = Deactivated; 3 = Activated
t	11	30	0	16	0	-	Function of function module 2 (X1.20) For function see t 11 00
t	11	31	0	1	0	-	Invert output of function module 2 (X1.20) 0 = No; 1= Yes
t	11	32	1	3	1	-	Condition of function module 2 (X1.20) after thread cutting 1 = Unchanged; 2 = Deactivated; 3 = Activated
t	11	33	1	3	1	-	Condition of function module 2 (X1.20) after power on 1 = Unchanged; 2 = Deactivated; 3 = Activated
t	11	34	0	1	0	-	Function module stored (only if t 11 30 = 14) 0 = Stored; 1 = Not Stored
t	11	35	0	2	0	-	Type of activation delay of function module 1 (X1.20) (only if t 11 30 = 14) 0 = Time 1 = Stitches 2 = Bracket

E	C	P	Min	Max	Preset value	Unit	Description
t	11	36	0	9999	0	s or stitches or °	Activation delay
t	11	37	0	2	0	-	Type of switch-off delay of function module 1 (X1.20) 0 = Time 1 = Stitches 2 = Bracket
t	11	38	0	9999	0	s or stitches or °	Switch-off delay
t	11	39	1	3	1	-	Condition of function module 2 (X1.20) before thread cutting 1 = Unchanged; 2 = Deactivated; 3 = Activated
t	11	60	0	16	0	-	Function of function module 3 (X1.15) For function see t 11 00
t	11	61	0	1	0	-	Invert output of function module 3 (X1.15) 0 = No; 1= Yes
t	11	62	1	3	1	-	Condition of function module 3 (X1.15) after thread cutting 1 = Unchanged; 2 = Deactivated; 3 = Activated
t	11	63	1	3	1	-	Condition of function module 3 (X1.15) after power on 1 = Unchanged; 2 = Deactivated; 3 = Activated
t	11	64	0	1	0	-	Function module stored (only if t 11 60 = 14) 0 = Stored; 1 = Not Stored
t	11	65	0	2	0	-	Type of activation delay of function module 1 (X1.15) (only if t 11 60 = 14) 0 = Time 1 = Stitches
t	11	66	0	9999	0	s or stitches or °	Activation delay
t	11	67	0	2	0	-	Type of switch-off delay of function module 1 (X1.15) 0 = Time 1 = Stitches 2 = Bracket

E	C	P	Min	Max	Preset value	Unit	Description
t	11	68	0	9999	0	s or stitches or °	Switch-off delay
t	11	69	1	3	1	-	Condition of function module 3 (X1.15) before thread cutting 1 = Unchanged; 2 = Deactivated; 3 = Activated
t	11	90	0	999	100	ms	Activation time of output FF3 in period t_1
t	11	91	5	100	100	%	Duty cycle in period t_1
t	11	92	0,0	600,0	0,0	s	Activation time of output FF3 in period t_2 (if 0, output FF3 remains continuously switched on)
t	11	93	5	100	35	%	Duty cycle in period t_2
t	11	94	0	1	0	-	Increase in U_{mag} when output FF3 is activated 0 = No; 1= Yes
Reversal							
t	12	00	0	1	1	-	Reversal 0 = No; 1= Yes
t	12	01	10	180	40	°	Reversal angle
t	12	02	10	255	50	ms	Waiting time until reversal
t	12	03	0	1	0	-	Reverse before seam beginning 0 = No; 1= Yes
t	12	04	10	180	10	°	Reversal angle at seam begin-ning
Needle cooling/fan							
t	13	00	0	1	0	-	Needle cooling mode 0 = Normal needle cooling; 1 = Speed-dependent needle cooling
t	13	01	0,0	9,999	2,500	s	Switch-off delay of needle cooling
t	13	02	100	9999	1000	rpm	Speed for switching on needle cooling
t	13	03	0	1	0	-	Needle cooling during sewing foot lift 0 = No; 1= Yes
t	13	04	0	1	0	-	Needle cooling during pedal in forward Position ½ 0 = No 1 = Yes

E	C	P	Min	Max	Preset value	Unit	Description
Carrier roller/puller/seam middle guide							
t	14	00	0	3	0	-	Mode for automatic raising of the carrier roller 0 = Do not raise; 1 = With sewing foot lift; 2 = During bartacking; 3 = During bartacking and when sewing foot is lifted
t	14	01	0	1	0	-	Raise carrier roller when stroke adjustment switched on 0 = No; 1= Yes
t	14	02	0	1	0	-	Stitch count delay after sewing foot lift (t 14 03) 0 = No; 1= Yes
t	14	03	0	255	0	Stitches	Number of stitches until carrier roller is lowered
t	14	04	0	1	1	-	Encoder Top 0 = No; 1 = Yes
t	14	05	0	1	1	-	Encoder Bottom 0 = No; 1 = Yes
t	14	10	0	2	0	-	Number of active pullers (Output X1.26 is configured for pressure switch-off) 0 = No puller; 1 = Puller from above; 2 = Puller from above and below
t	14	11	0	1	0	-	Puller feeding type 0 = Continual; 1 = Intermittent
t	14	12	0	359	30	°	Start feed angle
t	14	13	0	359	150	°	End feed angle
t	14	14	0	2	0	-	Puller without pressure (output X1.26 is used for this) 0 = With pressure; 1 = During quick stroke adjustment without pressure; 2 = Continuously without pressure
t	14	15	0	1	0	-	Puller is powered off when sewing stops 0 = No; 1= Yes

E	C	P	Min	Max	Preset value	Unit	Description
t	14	16	0	1	0	-	Puller active even if no carrier roller is active 0 = No; 1= Yes
t	14	17	10	150	90	mm	Maximum feed length
t	14	20	0,1	65,00	1,00	-	Transmission ratio, top puller
t	14	21	1	200	50	-	Material correction, top puller, when feed length is 5 mm
t	14	22	0,1	5,00	3,50	A	Set current, top puller
t	14	23	0,1	3,00	1,00	A	No-damage current, top puller
t	14	24	1	9999	50	mm	Diameter of top carrier roller
t	14	25	0	1	0	-	Direction of rotation 0 = Right; 1 = Left
t	14	26	-10,0	10,0	1,0	mm	Feed length during short stitch, top puller
t	14	30	0,1	65,00	1,00	-	Transmission ratio of bottom puller
t	14	31	1	200	50	-	Material correction, bottom puller, when feed length is 5 mm
t	14	32	0,1	5,00	3,50	A	Set current, bottom puller
t	14	33	0,1	3,00	1,00	A	No-damage current, bottom puller
t	14	34	1	9999	49	mm	Diameter of bottom carrier roller
t	14	35	0	1	0	-	Direction of rotation 0 = Right; 1 = Left
t	14	36	-10,0	10,0	1,0	mm	Feed length during short stitch, bottom puller

E	C	P	Min	Max	Preset value	Unit	Description
Edge cutter							
t	15	00	0	7	0	-	Mode for automatic raising of the edge cutter 0 = Do not raise; 1 = With sewing foot lift; 2 = After cutting or after stitch counting (t 15 04); 3 = After cutting or after stitch counting and when sewing foot is lifted; 4 = During bartacking; 5 = During bartacking and when sewing foot is lifted; 6 = After cutting or after stitch counting and during bartacking; 7 = After cutting or after stitch counting, during bartacking and when sewing foot is lifted
t	15	03	0	255	0	Stitches	Number of stitches until edge cutter is lowered
t	15	04	0	255	0	Stitches	Number of stitches until edge cutter is lifted (t 15 00 = 2 or 3)
t	15	05	0	1	0	-	Deactivate edge cutter when sewing foot is lifted 0 = No; 1= Yes
t	15	10	0	1	0	-	Electric edge cutter 0 = No; 1= Yes
t	15	11	0	1	0	-	Electric edge cutter when sewing stops 0 = No; 1= Yes
t	15	12	0	100	50	%	Minimum PWM for edge cutter
t	15	13	0	100	95	%	Maximum PWM for edge cutter
t	15	14	0	9999	1500	rpm	Maximum speed at which maximum PWM is to be reached
t	15	15	0,0	2,55	0,0	s	Delay for switching off the edge cutter motor
t	15	16	0,0	9,999	0,0	ms	Delay between footlifting and lifting/lowering the edge cutter
Light barrier							
t	16	00	50	9999	1000	rpm	Speed for light barrier equalizing stitches

E	C	P	Min	Max	Preset value	Unit	Description
t	16	01	1	3	3	-	Light barrier mode 1 = Seam beginning detection; 2 = Seam end detection; 3 = Seam beginning & seam end detection
t	16	02	0	1	0	-	Mode for seam beginning 0 = Release via light barrier; 1 = Start via front pedal and light barrier
t	16	03	0	1	0	-	Knitted garment filter 0 = Off; 1 = On
t	16	04	0	1	1	-	Light barrier detection 0 = Bright; 1 = Dark
t	16	05	0	1	0	-	Light barrier automatic mode (only if t 16 01 = 2 or 3) 0 = Off; 1 = On
t	16	06	0	9999	0	ms	Time material needs to be detected before machine start
t	16	07	0	1	0	-	Foot lowering only when material is detected. (only with t 16 01 = 1 or 3 and manual sewing) 0 = Off; 1 = On
t	16	08	0	9999	0	ms	Delay between start and foot lowering (only with t 16 07 = 1)
t	16	09	0	9999	0	ms	Delay between foot lowering and sew start (only with t 16 07 = 1)
Electronic handwheel							
t	17	00	0	1	0	-	Electronic handwheel 0 = No; 1 = Yes (t 51 32 and t 51 33 = 0)
t	17	01	1	255	6	-	Step width for electronic handwheel
t	17	02	0	1	0	-	Direction of rotation of electronic handwheel 0 = Right; 1 = Left
Stacker							
t	18	00	0	1	0	-	Stacker 0 = Off; 1 = On
t	18	01	0,0	2,55	0,10	s	Activation delay stacker
t	18	02	0,0	2,55	0,10	s	Time when stacker starts clamping
t	18	03	0,0	2,55	0,10	s	Duty cycle of the stacker

E	C	P	Min	Max	Preset value	Unit	Description
Zigzag							
t	19	00	0	359	112	°	Switch position for zigzag
t	19	01	4	6	6	Stitches	Number of stitches for zigzag
Thread wiper							
t	20	00	0	1	0	-	Thread wiper 0 = Off; 1 = On
t	20	01	10	255	100	ms	Switch-on period for thread wiper
Step cutting/contour guide							
t	21	00	0,0	2,55	0,50	s	Delay after switching off edge cutter for step cutting
t	21	01	0,0	2,55	0,50	s	Delay for extension of stepped cylinder
t	21	02	0,0	2,55	0,50	s	Duration of impulse blowing during extension of stepped cylinder
t	21	03	0,0	2,55	0,50	s	Delay for switching off blowing when sewing stops
t	21	04	0,0	2,55	0,50	s	Delay for switching on edge cutter after switching step cutting on/off
Outfeed roller							
t	22	00	0	3	0	-	Outfeed roller mode 0 = Off; 1 = Seam end; 2 = Seam beginning; 3 = Seam beginning & seam end;
t	22	03	0	255	0	Stitches	Number of stitches until outfeed roller is lowered at seam begin-ning
t	22	04	0	255	0	Stitches	Number of stitches until outfeed roller is lifted at seam beginning
t	22	05	0,0	99,99	0,50	s	Activation delay of the outfeed roller
t	22	06	0,0	99,99	0,50	s	Duty cycle of outfeed roller at seam end
t	22	07	0,0	20,0	5,0	kHz	Speed of outfeed roller at seam end
Hook lubrication							
t	23	00	0	9999	0	Stitches	Number of stitches until hook lubrication is activated
t	23	01	0,0	99,99	0,0	s	Duration of hook lubrication
Chain-sucking							
t	24	00	0	100	30	Stitches	Number of stitches until suction at the beginning is deactivated
t	24	01	0,0	10,0	0,8	s	Duration of the final suction

E	C	P	Min	Max	Preset value	Unit	Description
Stitch loosening device							
t	25	00	0	1	0	-	Mode of automatic stitch loosening device 0 = Only stitch loosening; 1 = Stitch loosening and 2nd stitch length; 2 = Stitch loosening, 2nd stitch length, and quick stroke adjustment; 3 = Stitch loosening, 2nd stitch length, quick stroke adjustment, and 2nd thread tension;
t	25	03				-	Automatic sewing material thickness detection 0 = Off; 1 = On
t	25	05	0	1	1	-	Speed reduction during stitch loosening 0 = Off; 1 = On
t	25	06	0	1200	800	rpm	Level to which speed will be reduced
t	25	07	1	3	1	-	Condition of stitch loosening function after thread cutting process 1 = Unchanged; 2 = Deactivated; 3 = Activated
t	25	10	1	255	1	Stitches	Number of stitches after automatic switching on, when the stitch loosening function is forced
t	25	11	0	255	0	Stitches	Number of stitches with stitch forced loosening function, after which function is deactivated
t	25	15	0	1	0	-	Possibility to interchange fabric thickness threshold for switch on/off (only with t 25 00 = 1)
Tape Cutter							
t	26	00	0	1	0	-	Direction of differential transport 0 = Minus; 1 = Plus
t	26	01	0,0	2,55	0,80	s	Power-up delay tape cutter
t	26	02	0,0	2,55	0,40	s	Switch-on duration tape cutter
Fabric thickness sensor							
t	27	00	0	1	0	-	Fabric thickness sensor 0 = Off; 1 = On

E	C	P	Min	Max	Preset value	Unit	Description
t	27	01	0,0	9,9	0,0	mm	Fabric thickness threshold for switch on
t	27	02	0,0	9,9	0,0	mm	Fabric thickness threshold for switch off
t	27	03	0,0	9,9	0,0	mm	Fabric thickness second thresh-old for switch on
t	27	04	0,0	9,9	0,0	mm	Fabric thickness second thresh-old for switch off
Stitch length switching							
t	30	00	0	2	2	-	Speed limit if stitch length is long 0 = Off; 1 = Speed limit DB2000; 2 = Speed limit DB3000
t	30	01	0	2	0	-	Stitch length during bartacking 0 = Preset stitch length (Long/Normal); 1 = Normal stitch length; 2 = Long stitch length
t	30	02	0	2	0	-	Stitch length after thread cutting 0 = Selected stitch length is retained; 1 = Normal stitch length; 2 = Long stitch length
Stitch shortening							
t	31	00	0	255	0	Stitches	Stitch shortening at seam begin-ning
t	31	01	0	255	0	Stitches	Stitch shortening during thread cutting
Operation lock							
t	50	00	0	1	0	-	Operation lock 0 = Off; 1 = On
t	50	01	0	1	0	-	Method of operation of operation lock switch 0 = Closed contact (NC); 1 = Open contact (NO)
t	50	02	0	1	1	-	Behavior of the motor 0 = Emergency cut-off; 1 = Positioning
Control, other							
t	51	00	-	-	-	-	Display software version
t	51	01	-	-	-	-	Display control serial number
t	51	02	0	1	0	-	Display analog values (see t 51 12) during the sewing process 0 = No; 1= Yes
t	51	04	-	-	-	-	Display class and subclass

E	C	P	Min	Max	Preset value	Unit	Description
t	51	05	-	-	-	-	Display operating hours
t	51	06	-	-	-	-	Display operating stitches
t	51	07	-	-	-	-	Display piece counters
t	51	08	0	1	-	-	M2M 0 = Off; 1 = On
t	51	09	-	-	-	-	Enter/display M2M Customer ID
t	51	10	0	5	-	-	Import data to control 0 = None; 1 = Parameter settings from DA dongle; 2 = Parameter settings from backup area; 3 = Seam paths from DA dongle; 4 = Master reset; 5 = Reset seam paths
t	51	11	0	3	-	-	Saving of parameters 0 = None; 1 = Parameter settings onto DA dongle; 2 = Parameter settings into back-up area; 3 = Seam paths to the DA dongle
t	51	12	-	-	-	-	Hardware test Inputs and outputs in **bold** are only present in the DAC classic. 1. Analog Um: Mains voltage in V U24: power supply outputs in V Imo: current of 24 V power sup-ply PAn: analog value of pedal Nre: X1.4 analog input **Ian:** X1.1 analog input Pst: digitized pedal position I2T: I²T of the motor (caution: pedal and motor are active!) 2. Input X1.5: Manual Backtack X1.6: Nedle up/down X1.7: Input function module 2 X1.8: Input function module 1 **X1.9:** No Function **X1.10:** No Function X1.11: Machine run blockage **X1.12:** No Function X1.13: Light barrier X1.14: Backtack suppres-sion/recall **X2.1:** No Function

E	C	P	Min	Max	Preset value	Unit	Description
							X2.2: No Function **X2.3:** No Function **X2.4:** No Function **X2.6:** No Function **X2.7:** No Function 3. Output **X1.15:** No Function X1.17: POS2 signal **X1.18:** No Function X1.20: No Function X1.21: No Function **X1.22:** No Function **X1.23:** No Function X1.24: LED Backtack suppres-sion/recall **X1.25:** No Function X1.26: POS1 signal X1.27: Thread clamp **X1.28:** Needle cooling X1.29: LED function module 1 X1.30: Function module 1 X1.31: LED function module 2 **X1.32:** Function module 2 X1.34: Backtacking X1.35: Sewing foot lifting X1.36: Thread tension X1.37: Thread trimmer 4. Flash
t	51	13	-	-	-	-	Display last 10 error messages 1 = most recent error 10 = first error
t	51	14	0	1	-	-	Reset maintenance counter 0 = No; 1= Yes
t	51	15	0	1	-	-	Automatic reset of M2M counters after power-on 0 = No; 1= Yes
t	51	16	0	1	-	-	Reset of M2M counters 0 = No; 1= Yes
t	51	17	0	9999	-	-	Password for the technician level. Password Value 0 disables the password query.
t	51	20	0	57	3	-	Set input function for bartack input (machine connector Pin 5) 0 = No function; 1 = Threader; 2 = Bartack suppres-sion/activation;

E	C	P	Min	Max	Preset value	Unit	Description
							3 = Manual bartack; 4 = Half stitch; 5 = Whole stitch; 6 = Point position; 7 = Reversal; 8 = Function module 1 input (see t 11 00); 9 = Function module 2 input (see t 11 30); 10 = Function module 3 input (see t 11 60); 11 = Needle high; 12 = Ornamental-stitch bartack; 13 = Needle cooling; 14 = Thread wiper; 15 = Normal stitch length during bartacking; 16 = Operation lock when contact open (NO); 17 = Operation lock when contact closed (NC); 18 = Quick stroke adjustment (not stored); 19 = Quick stroke adjustment (stored); 20 = Speed limit DB2000; 21 = Speed limit DB3000; 22 = Light barrier; 23 = Puller feeding type (continu-al/intermittent); 24 = Sewing foot lift with pedal in position 0; 25 = Release for new seam; 26 = Manual bartack stored; 27 = Move to zigzag position; 28 = Zigzag synchronization; 29 = Stacker on/off; 30 = Manual stacking 31 = Function module 1 input on (see t 11 00); 32 = Function module 1 input off (see t 11 00); 33 = Function module 2 input on (see t 11 30); 34 = Function module 2 input off (see t 11 30); 35 = Function module 3 input on (see t 11 60); 36 = Function module 3 input off (see t 11 60);

E	C	P	Min	Max	Preset value	Unit	Description
							37 = Service Call (only with M2M); 38 = Stitch loosening; 39 = Differential transport 40 = Direction of differential transport; 41 = Reverse at seam beginning; 42 = Sewing foot lift after thread cutter; 43 = Manual sewing 44 = Seam end manu-al/automatic sewing; 45 = Automatic sewing 46 = Tape cutter; 47 = Manual tape cutter; 48 = Shoulder seam 3827; 49 = Reset shoulder seam 3827; 50 = Fullness 3827; 51 = No seam end start; 52 = Stitch loosening automatic; 53 = Stitch loosening on/off; 54 = Operation lock on/off 55 = Fast chain cutter 56 = Electronic handwheel for-wards 57 = Electronic handwheel back-wards
t	51	21	0	57	2	-	Set input function for bartack toggle input (machine connector Pin 14) For function see t 51 20
t	51	22	0	57	1	-	Set input function for needle high/low input (machine connect-or Pin 6) For function see t 51 20
t	51	23	0	57	8	-	Set input function for input FF1 (machine connector Pin 8) For function see t 51 20
t	51	24	0	57	9	-	Set input function for input FF2 (machine connector Pin 7) For function see t 51 20
t	51	25	0	57	0	-	Set input function for input FF3 (machine connector Pin 9) For function see t 51 20
t	51	26	0	57	0	-	Set input function for input (ma-chine connector Pin 10) For function see t 51 20
t	51	27	0	57	0	-	Set input function for light barrier input (machine connector Pin 13) For function see t 51 20

E	C	P	Min	Max	Preset value	Unit	Description
t	51	28	0	57	0	-	Set input function IN_EXT1 (additional input interface Pin 1) For function see t 51 20
t	51	29	0	57	0	-	Set input function IN_EXT2 (additional input interface Pin 2) For function see t 51 20
t	51	30	0	57	0	-	Set input function IN_EXT3 (additional input interface Pin 3) For function see t 51 20
t	51	31	0	57	0	-	Set input function IN_EXT4 (additional input interface Pin 4) For function see t 51 20
t	51	32	0	57	0	-	Set input function IN_EXT5 (additional input interface Pin 6) For function see t 51 20
t	51	33	0	57	0	-	Set input function IN_EXT6 (additional input interface Pin 7) For function see t 51 20
t	51	40	0	57	3	-	Set input function for key 1 from 8-keypanel For function see t 51 20
t	51	41	0	57	3	-	Set input function for key 2 from 8-keypanel For function see t 51 20
t	51	42	0	57	4	-	Set input function for key 3 from 8-keypanel For function see t 51 20
t	51	43	0	57	19	-	Set input function for key 4 from 8-keypanel For function see t 51 20
t	51	44	0	57	2	-	Set input function for key 5 from 8-keypanel For function see t 51 20
t	51	45	0	57	8	-	Set input function for key 6 from 8-keypanel For function see t 51 20
t	51	46	0	57	9	-	Set input function for key 7 from 8-keypanel For function see t 51 20
t	51	47	0	57	1	-	Set input function for key 8 from 8-keypanel For function see t 51 20

E	C	P	Min	Max	Preset value	Unit	Description
t	51	50	0	39	0	-	Set output function for output (machine connector Pin 18) 0 = No function; 1 = Thread clamp; 2 = Locking; 3 = Sewing foot lift; 4 = Thread tension; 5 = Auxiliary thread tension; 6 = Second stitch length; 7 = Carrier roller; 8 = Edge stop; 9 = Edge cutter; 10 = Fullness with DB3000; 11 = Fullness without DB3000; 12 = Step cutting; 13 = Contour guide; 14 = Stacker; 15 = Thread cutter; 16 = Quick stroke adjustment; 17 = Needle cooling; 18 = Stitch shortening; 19 = Pulse step cutting; 20 = Open step cutting; 21 = Thread clamp NSB; 22 = Thread puller NSB; 23 = Carrier roller pressure; 24 = Sewing foot pressure; 25 = Ready for sewing start; 26 = Pos. 1; 27 = Pos. 2; 28 = Motor operation; 29 = In the seam; 30 = Outfeed roller; 31 = Transport unit; 32 = Hook lubrication; 33 = Thread wiper 34 = Suction NSB; 35 = Tape cutter; 36 = Edge cutter off; 37 = Stitch loosening; 38 = Fullness top; 39 = Fullness bottom
t	51	51	0	39	0	-	Set output function for output (machine connector Pin 21), For function see t 51 50
t	51	52	0	39	0	-	Set output function for output (machine connector Pin 22), For function see t 51 50

E	C	P	Min	Max	Preset value	Unit	Description
t	51	53	0	39	0	-	Set output function for output (machine connector Pin 26), For function see t 51 50
t	51	54	0	39	0	-	Set output function for output (machine connector Pin 27), For function see t 51 50
t	51	55	0	39	0	-	Set output function for output (machine connector Pin 28), For function see t 51 50
t	51	56	0	39	0	-	Set output function for output (machine connector Pin 32), For function see t 51 50
OP1000							
t	52	00	0	9	4	-	Display contrast of OP1000
t	52	01	0	1	0	-	Button tones 0 = Off; 1 = On
t	52	20	0	57	1	-	Set input function for F button of OP1000 0 = No function; 1 = Threader; 2 = Bartack suppres-sion/activation; 3 = Manual bartack; 4 = Half stitch; 5 = Whole stitch; 6 = Point position; 7 = Reversal; 8 = Function module 1 input (see t 11 00); 9 = Function module 2 input (see t 11 30); 10 = Function module 3 input (see t 11 60); 11 = Needle high; 12 = Ornamental-stitch bartack; 13 = Needle cooling; 14 = Thread wiper; 15 = Normal stitch length during bartacking; 16 = Operation lock when contact open (NO); 17 = Operation lock when contact closed (NC); 18 = Quick stroke adjustment (not stored); 19 = Quick stroke adjustment (stored); 20 = Speed limit DB2000;

E	C	P	Min	Max	Preset value	Unit	Description
							21 = Speed limit DB3000; 22 = Light barrier; 23 = Puller feeding type (continu-al/intermittent); 24 = Sewing foot lift with pedal in position 0; 25 = Release for new seam; 26 = Manual bartack stored; 27 = Move to zigzag position; 28 = Zigzag synchronization; 29 = Stacker on/off; 30 = Manual stacking 31 = Function module 1 input on (see t 11 00); 32 = Function module 1 input off (see t 11 00); 33 = Function module 2 input on (see t 11 30); 34 = Function module 2 input off (see t 11 30); 35 = Function module 3 input on (see t 11 60); 36 = Function module 3 input off (see t 11 60); 37 = Service Call (only with M2M); 38 = Stitch loosening; 39 = Differential transport 40 = Direction of differential transport; 41 = Reverse at seam beginning; 42 = Sewing foot lift after thread cutter; 43 = Manual sewing 44 = Seam end manu-al/automatic sewing; 45 = Automatic sewing 46 = Tape cutter on/off; 47 = Manual cutting tape cutter; 48 = Shoulder seam 3827; 49 = Reset shoulder seam 3827; 50 = Fullness 3827; 51 = No seam end start; 52 = Stitch loosening automatic; 53 = Stitch loosening on/off; 54 = Operation lock on/off 55 = Fast chain cutter 56 = Electronic handwheel for-ward 57 = Electronic handwheel back-

E	C	P	Min	Max	Preset value	Unit	Description
							wards
t	52	40	0	1	0	-	Button lock for start bartack buttons 0 = Off; 1 = On
t	52	41	0	1	0	-	Button lock for end bartack buttons 0 = Off; 1 = On
t	52	42	0	1	0	-	Button lock for thread buttons 0 = Off; 1 = On
t	52	43	0	1	0	-	Button lock for button group seam program 0 = Off; 1 = On
t	52	44	0	1	0	-	Button lock for button group programming 0 = Off; 1 = On

1.3 Developer level

E	C	P	Min	Max	Preset value	Unit	Description
Bartack							
d	00	01	0	359	75	°	Mechanical switch-over angle for bartack
Thread cutter (FA)							
d	02	00	10	359	130	-	Angle at which thread cutting speed is to be reached before magnets are switched on
d	02	01	0	1	0	-	Chainstitch mode 0 = No; 1= Yes
Seam paths							
d	07	00	150	9999	1500	rpm	Speed limit for seam paths
d	07	01	1	20	6	Stitches	Number of stitches for seam path speed limit
Motor							
d	08	00	1	9999	2500	rpm	Maximum motor speed
d	08	01	1	100	50	rpm/ms	Maximum acceleration or deceleration
d	08	02	0	50	4	Kgcm²	Machine inertia
d	08	04	0	255	100	Inc	Extension of deceleration ramp

E	C	P	Min	Max	Preset value	Unit	Description
d	08	05	0	1	0	-	Acceleration and deceleration ramp halved when I²t increases to over 70 % 0 = No; 1= Yes
d	08	10	0,1	100,0	4,4	Ohm	Stator resistance
d	08	11	1	200	12	mH	Stator inductance
d	08	12	0,1	200,0	37,5	V/1000 rpm	EMF
d	08	13	0,1	15,00	10,00	A	Maximum stator current
d	08	14	1	10	2	-	Number of pole pairs
d	08	20	0	255	25	-	K_{pn} factor of PID speed controller
d	08	21	0	255	20	-	K_{in} factor of PID speed controller
d	08	22	0	255	0	-	K_{dn} factor of PID speed controller
d	08	23	0	255	24	-	Feed-forward of speed control in deceleration process
d	08	30	0	255	0	-	K_{ps} factor of PID distance controller
d	08	31	0	255	0	-	K_{Is} factor of PID distance controller
d	08	32	0	255	0	-	K_{ds} factor of PID distance controller
d	08	40	0	255	38	-	K_{px} factor of PID position controller
d	08	41	0	255	38	-	K_{dx} factor of PID position controller
d	08	42	0	255	32	Inc	Increments for activation of PID position controller
d	08	43	0	1000	0	2.857°	Angle for positioning
d	08	44	0	1000	32	Inc	Increments for duration of activation of positioning speed
d	08	45	10	100	50	rpm	Increase in speed for position controller during thread cutting
d	08	46	0	200	0	Inc	Increase increments for the position controller during thread cutting
d	08	51	0	1	0	-	Continuous operation 0 = No; 1= Yes
d	08	52	0,0	99,99	5,00	s	Motor on duration
d	08	53	0,0	99,99	5,00	s	Motor off duration
d	08	54	1	9999	900	s	Duration of continuous operation
d	08	55	0	2000	180	rpm	Speed for reference run

E	C	P	Min	Max	Preset value	Unit	Description
Thread tension							
d	09	01	5	100	40	%	Duty cycle for threader
Top puller							
d	14	00	0,1	20,00	6,00	kHz	Maximum frequency
d	14	01	1	500	200	rpm/ms	Acceleration ramp
d	14	02	1	500	200	rpm/ms	Deceleration ramp
d	14	03	1	9000	2000	Hz	Start frequency
d	14	04	1	9000	2000	Hz	Stop frequency
d	14	05	1	1000	500	Lines	Encoder lines
d	14	06	1	9000	2000	Steps	Microsteps per turn
d	14	07				-	Encoder 0 = No; 1= Yes
d	14	10	0,1	9,000	1,100	Ohm	Stator resistance
d	14	11	0,1	9,000	2,200	mH	Stator inductance
d	14	12	0	1000	0	-	EMF factor
d	14	13	0,1	10,00	3,50	A	Maximum stator current
d	14	14	1	100	50	-	Number of pole pairs
d	14	15	0,1	10,00	2,00	A	Maximum no-damage current
d	14	16	0,1	10,00	3,50	A	Maximum stator current (controlled)
d	14	17	0,1	10,00	2,00	A	Maximum no-damage current (controlled)
d	14	20	0	9999	0	-	K_{pn} factor of PID speed controller
d	14	21	0	9999	0	-	K_{in} factor of PID speed controller
d	14	22	0	9999	0	-	K_{dn} factor of PID speed controller
d	14	30	0	9999	1500	-	K_{ps} factor of PID distance controller
d	14	31	0	9999	50	-	K_{Is} factor of PID distance controller
d	14	32	0	9999	0	-	K_{ds} factor of PID distance controller
d	14	40	0	9999	1500	-	K_{px} factor of PID position controller
d	14	41	0	9999	0	-	K_{Ix} factor of PID position controller
d	14	42	0	9999	100	-	K_{dx} factor of PID position controller

E	C	P	Min	Max	Preset value	Unit	Description
Bottom puller							
d	14	50	0,1	20,00	6,00	kHz	Maximum frequency
d	14	51	1	500	200	rpm/ms	Acceleration ramp
d	14	52	1	500	200	rpm/ms	Deceleration ramp
d	14	53	1	9000	2000	Hz	Start frequency
d	14	54	1	9000	2000	Hz	Stop frequency
d	14	55	1	1000	500	Lines	Encoder lines
d	14	56	1	9000	2000	Steps	Microsteps per turn
d	14	57				-	Encoder 0 = No; 1= Yes
d	14	60	0,1	9,000	1,100	Ohm	Stator resistance
d	14	61	0,1	9,000	2,200	mH	Stator inductance
d	14	62	0	1000	0	-	EMF factor
d	14	63	0,1	10,00	3,50	A	Maximum stator current
d	14	64	1	100	50	-	Number of pole pairs
d	14	65	0,1	10,00	2,00	A	Maximum no-damage current
d	14	66	0,1	10,00	3,50	A	Maximum stator current (controlled)
d	14	67	0,1	10,00	2,00	A	Maximum no-damage current (controlled)
d	14	70	0	9999	0	-	K_{pn} factor of PID speed controller
d	14	71	0	9999	0	-	K_{in} factor of PID speed controller
d	14	72	0	9999	0	-	K_{dn} factor of PID speed controller
d	14	80	0	9999	1500	-	K_{ps} factor of PID distance controller
d	14	81	0	9999	50	-	K_{Is} factor of PID distance controller
d	14	82	0	9999	0	-	K_{ds} factor of PID distance controller
d	14	90	0	9999	1500	-	Kpx factor of PID position controller
d	14	91	0	9999	0	-	KIx factor of PID position controller
d	14	92	0	9999	100	-	Kdx factor of PID position controller
Control, other							
d	51	00	1	255	100	ms	Time duration for raising U_{mag} to 33 V
d	51	01	1	255	5	ms	Duration for DeEnergizer process

E	C	P	Min	Max	Preset value	Unit	Description
d	51	02	0,1	16,00	16,00	kHz	Set PWM frequency
d	51	03	-	-	-	-	Display machine serial number
d	51	04	-	-	-	-	Display production date
d	51	10	0	9999	0	x d5111	Reset value of maintenance counter (counter is deactivated at 0)
d	51	11	1	255	1	x 10000St	Factor of maintenance counter
d	51	12	1	255	1	x d5111	Error message repeated
d	51	13	1	99	1	-	Number of error message repeats

2 Error, warning and information messages

Code	Type	Possible cause	Remedial action
1000	Error	Sewing motor encoder plug (Sub-D, 9-pin) not connected	- Connect encoder cable to the control, use correct connection
1001	Error	Sewing motor error: Sewing motor plug (AMP) not connected	- Check connection and plug in, if necessary - Test sewing motor phases (R= 2.8 Ω, high impedance to PE) - Replace the encoder - Replace the sewing motor - Replace the control
1002	Error	Sewing motor insulation error	- Check motor phase and PE for low-impedance connection - Replace the encoder - Replace the sewing motor
1004	Error	Sewing motor error: Incorrect sewing motor direction of rotation	- Replace the encoder - Check plug assignment and change, if necessary - Check wiring in machine distributor and change it, if necessary - Test motor phases and check for correct value
1005	Error	Motor blocked	- Eliminate stiff movement in the machine - Replace the encoder - Replace the motor
1006	Error	Maximum speed exceeded	- Replace the encoder - Perform reset - Check class (t 51 04)
1007	Error	Error in the reference run	- Replace the encoder - Eliminate stiff movement in the machine
1008	Error	Encoder error	- Replace the encoder
1010	Error	External synchronizer plug (Sub-D, 9-pin) not connected	Connect cable of external synchronizer to control, use correct connection (Sync) - Only required for machines with transmission!
1011	Error	Encoder Z pulse missing	- Switch off the control. Turn handwheel and switch on the control again - If error is not corrected, check encoder
1012	Error	Synchronizer fault	- Replace the synchronizer

Code	Type	Possible cause	Remedial action
1052	Error	Sewing motor overcurrent, internal current increase >25 A	- Check selection of class - Replace the control - Replace the sewing motor - Replace the encoder
1053	Error	Sewing motor overvoltage	- Check selection of class - Replace the control
1054	Error	Internal short circuit	- Replace the control
1055	Error	Sewing motor overload	- Eliminate stiff movement in the machine - Replace the encoder - Replace the sewing motor
1203	Information	Position not reached (during thread cutting, reversal, etc.)	- Check and, if necessary, change controller settings. Mechanical changes to the machine. (e. g. thread cutting setting, belt tension, etc.) - Check position (thread lever at top dead center)
2020	Information	DACextension box not responding	- Check connection cables - Check LEDs of DACextension box - Software update
2021	Information	Sewing motor encoder plug (Sub-D, 9-pin) not connected to DACextension box	- Connect encoder cable to DACextension box using the correct connection
2101	Error	DA stepper card 1 reference run timeout	- Check reference sensor
2103	Error	DA stepper card 1 step losses	- Check for stiff movement
2120	Information	DA stepper card 1 not responding	- Check connection cables - Check LEDs of DACextension box - Software update
2121	Information	DA stepper card 1 encoder plug (Sub-D, 9-pin) not connected	- Connect encoder cable to the control, use correct connection
2122	Information	DA stepper card 1 flywheel position not found	- Check connection cables - Check stepper motor 1 for stiff movement
2155	Error	DA stepper card 1 overload	- Check for stiff movement
2201	Error	DA stepper card 2 reference run timeout	- Check reference sensor
2203	Error	DA stepper card 2 step losses	- Check for stiff movement
2220	Information	DA stepper card 2 not responding	- Check connection cables - Check LEDs of DACextension box - Software update

Code	Type	Possible cause	Remedial action
2221	Information	DA stepper card 2 encoder plug (Sub-D, 9-pin) not connected	- Connect encoder cable to the control, use correct connection
2222	Information	DA stepper card 2 flywheel position not found	- Check connection cables - Check stepper motor 2 for stiff movement
2255	Error	DA stepper card 2 overload	- Check for stiff movement
3100	Error	AC-RDY timeout, intermediate circuit voltage did not reach the defined threshold in the specified time	- Check the mains voltage - If the mains voltage is OK, replace the control
3101	Error	High voltage fault, mains voltage, longer duration >290 V	- Check mains voltage, if nominal voltage is continuously exceeded, stabilize it or use a generator
3102	Error	Low voltage failure (2nd threshold) (mains voltage < 150 V AC)	- Check the mains voltage - Stabilize mains voltage - Use generator
3103	Information	Low voltage warning (1st threshold) (mains voltage < 180 V AC)	- Check the mains voltage - Stabilize mains voltage - Use generator
3104	Warning	Pedal is not in position 0	When switching the control on, take your foot off the pedal
3105	Error	U24 V short circuit	- Disconnect 37-pin plug; if error persists, replace control - Test inputs/outputs for 24 V short circuit
3106	Error	U24 V (I^2T) overload	- One or more magnets defective
3107	Error	Pedal not connected	- Connect analog pedal
3108	Information	Speed limited due to insufficient mains voltage	- Check the mains voltage
3109	Warning	Operation lock	- Check tilt sensor on machine
3150	Information	Maintenance necessary	- For information on lubricating the machine, see the service instructions for the machine
3151	Warning	Maintenance necessary (operation cannot continue unless parameter t 51 14 is reset, see the operating instructions of the machine)	- Service is urgently required, see service instructions for the machine
3155	Information	No release for sewing process	- Parameter t 51 20 – t 51 33 = 25 - Input signal for sewing process release required

Code	Type	Possible cause	Remedial action
3160	Information	Stitch loosening device	- Stitch loosening cannot be performed
3215	Information	Bobbin stitch counter (info value 0 reached)	- Change bobbin, set counter value - press counter reset button
3216	Information	Remaining thread monitor left	- Change left bobbin
3217	Information	Remaining thread monitor right	- Change right bobbin
3218	Information	Remaining thread monitor left and right	- Change left and right bobbin
3223	Information	Skip stitch detected	-
3224	Information	Bobbin failed to rotate	-
6353	Error	Internal EEprom communication error	- Switch off the control, wait until the LEDs are off and then switch on again
6354	Error	External EEprom communication error	- Switch off the control, wait until the LEDs are off, check connection for machine ID, switch on control again
6360	Information	No valid data on external EEprom (internal data structures are not compatible with the external data storage device)	- Software update
6361	Information	No external EEprom connected	- Connect machine ID
6362	Information	No valid data on internal EEprom (internal data structures are not compatible with the external data storage device)	- Check machine ID connection - Switch off the control, wait until the LEDs are off and then switch on again - Software update
6363	Information	No valid data on internal and external EEprom (Software version is not compatible with the internal data storage device, emergency operating features only)	- Check machine ID connection - Switch off the control, wait until the LEDs are off and then switch on again - Software update
6364	Information	No valid data on internal EEprom and external EEprom not connected (the internal data structures are not compatible with the external data storage device, emergency operating features only)	- Check machine ID connection - Switch off the control, wait until the LEDs are off and then switch on again - Software update
6365	Information	Internal EEprom defective	- Replace the control

Code	Type	Possible cause	Remedial action
6366	Information	Internal EEprom defective and external data not valid (emergency operating features only)	- Replace the control
6367	Information	Internal EEprom defective and external EEprom not connected (emergency operating features only)	- Replace the control
7202	Information	DACextension box boot error	- Check connection cables - Software update - Replace DACextension box
7203	Information	Checksum error during update	- Check connection cables - Software update - Replace DACextension box
7212	Information	DA stepper card 1 boot error	- Check connection cables - Software update - Replace DACextension box
7213	Information	Checksum error occurred while updating DA stepper card 2	- Check connection cables - Software update - Replace DACextension box
7222	Information	DA stepper card 2 boot error	- Check connection cables - Software update - Replace DACextension box
7223	Information	Checksum error occurred while updating DA stepper card 2	- Check connection cables - Software update - Replace DACextension box
7801	Information	Software version error (DAC classic only; only the functions of the DAC basic will remain available)	- Software update - Replace the control
7802	Information	Software update error (DAC classic only; only the functions of the DAC basic will remain available)	- Another software update - Replace the control
7803	Information	Communication error (DAC classic only; only the functions of the DAC basic will remain available)	- Restart of the control - Software update - Replace the control
8401	Error	Watchdog	- Software update - Machine ID reset - Replace the control
8402 – 8405	Error	Internal error	- Software update - Machine ID reset - Replace the control

Code	Type	Possible cause	Remedial action
8406	Error	Checksum error	- Software update - Replace the control
8501	Error	Software protection	- the DA tool must always be used for software updates

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