S Flex Separation

Parameter List

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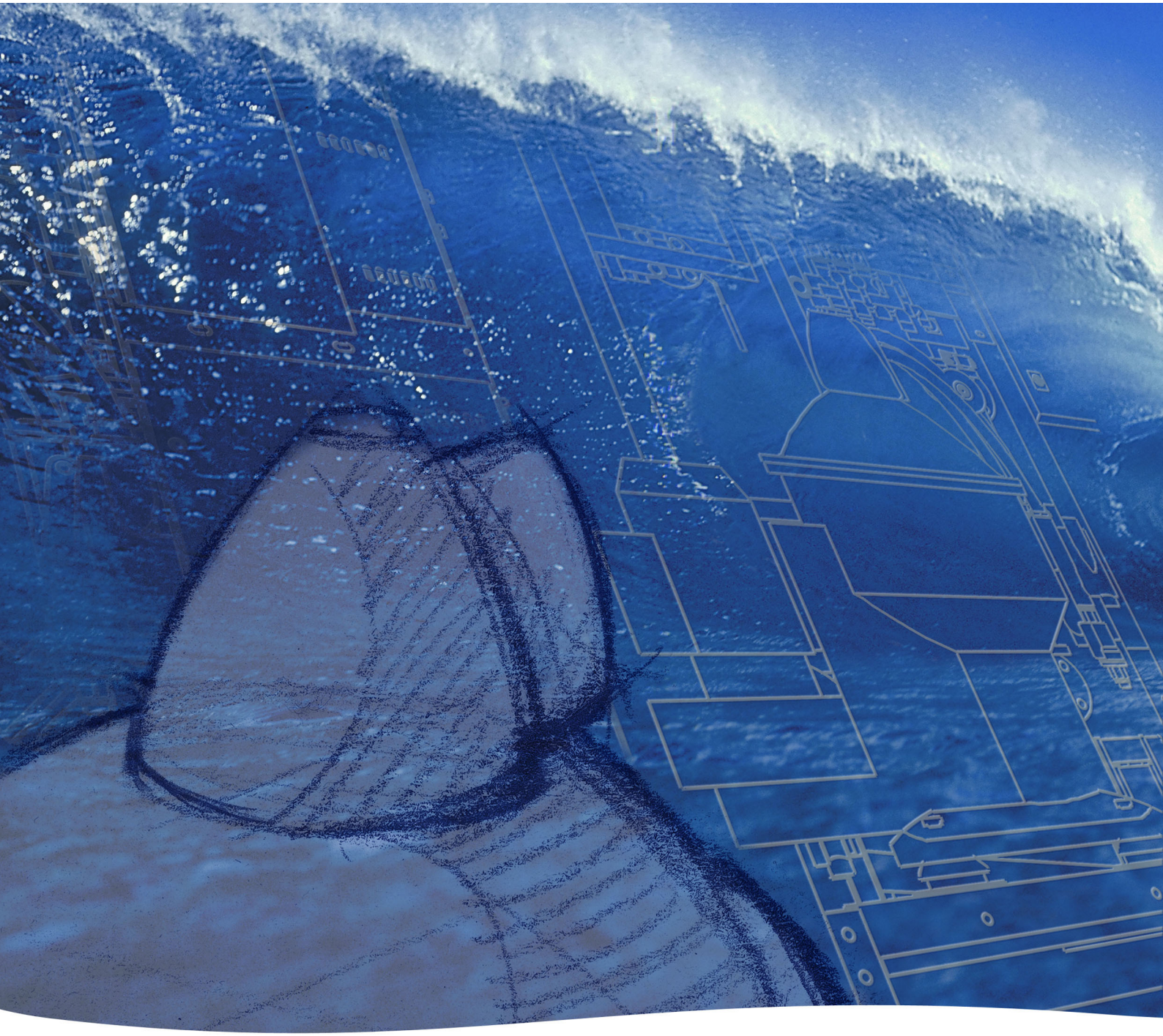

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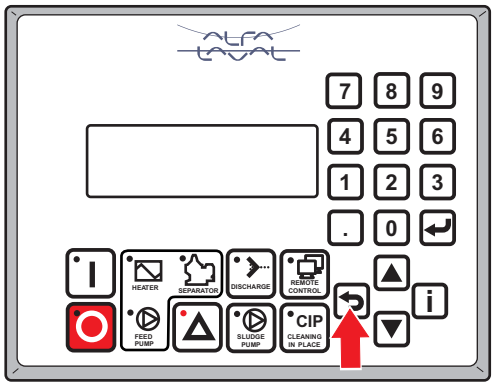
1.1 Setting List

To access the Setting List at any time during the operation process press the ‘Return button’ repeatedly until the Setting List is reached.



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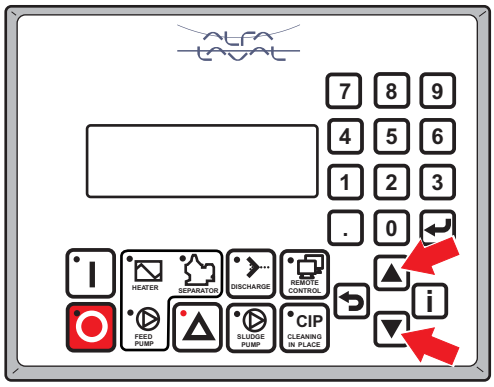
NOTE

Relevant parameters only are shown on the display.

Press the arrow buttons to go up or down in the list. The list consists of the following:



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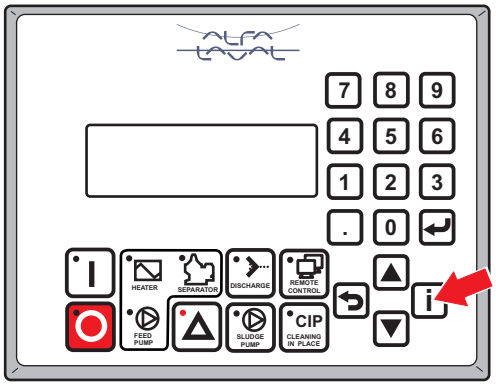
1. Parameter menu – List of all parameters. Password protected.
   To go directly to a parameter, enter the parameter number.
2. Time settings – For setting date, time, etc. Password protected.
   To go directly to a parameter, enter the parameter number.
3. Operation time – Different counters and timers can be read.
4. I/O Test – Here it is possible to activate all outputs and to read the status for all inputs, for testing purposes.
5. Alarm history – List of alarms which have been rectified. The latest alarm shows at the top of the list.
6. System info
7. IP settings
8. Password / Login
9. Set contrast

When in the Parameter Menu a list item is blinking, you can press the ‘Information’ button for help and information. Press the ‘Information’ button again to return to your previous position.

You can also change this setting – see below.



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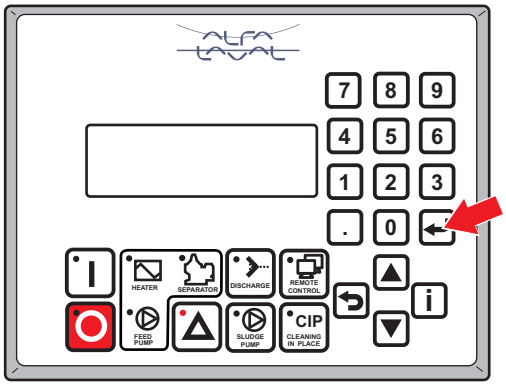
When a list item is blinking, it’s value can be changed. Changes can be made either by using the number buttons to write in a value, or by choosing a value from the list. Save any change by pressing the ‘Enter’ button.



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NOTE

Certain parameters can only be changed by the factory, the chief engineer, or an Alfa Laval service engineer

Parameters are divided into three password levels:

Level 0 – No password needed.

Level 1 – Possible to protect with password.

Level 2 – Alfa Laval password protected.

@ = These configuration parameters can only be adjusted while the system is in STAND STILL (not visible on the HMI in all other modes). The present configuration is displayed in menu "System info".

Parameter	Pass-word level	Denomination	Default value	Unit	Min. value	Max. value
P100	0	Display language: English/ German/ Spanish/ French/ Italian/ Portuguese/ Finnish/ Swedish	English			
P101	0	Selection of temp. presentation Celsius/Fahrenheit	°C			
P102	0	Selection of feed flow rate presentation m3/h or USG/h	m3/h			
P103	0	Selection of pressure presentation kPa, bar, psi	bar			
User password required for all following parameters if activated!						
System configuration						
P107	1	Flow correction factor	1.00		0,00	2,00
P111	1 @	Separator size	0		See Parameters depending on the setting of P111, page 12.	
P112	1	Oil type	HF380		See Parameters depending on the setting of P112, page 14.	
P114	1 @	Vibration sensor installed yes/no	no		Can be changed in even in STOP. See also "System without vibration sensor" in the Operating instructions manual.	
P115	1 @	Frame cover switch installed yes/no	no		Can be changed in even in STOP. See also "System without frame cover switch" in the Operating instructions manual.	
P116	1	Frame cover switch disabled yes/no (if P115 = yes)	no		See also "System without frame cover switch" in the Operating instructions manual.	
P117		Not used				
P118	1 @	Sludge pump installed yes/no	no		Can be changed in even in STOP.	

Parameter	Password level	Denomination	Default value	Unit	Min. value	Max. value
P119	1 @	Heater installed no/electric/steam/external	no		Can be changed in even in STOP. See also "Control of Heater" in the Operating instructions manual.	
P120	1 @					
	1	If P119 = electric: heater size	16	kW	7	130
P121	1	If P119 = steam: steam valve transition time	120	s	0	999

Parameter	Password level	Denomination	Default value	Unit	Min. value	Max. value
P122	1	Deadband heater	0.5	°C (P101)	0	5
P123	1	P-constant heater (if heater controlled) see also P125/P126 (cold start)	75		10	500
P124	1	I-constant heater (if heater controlled)	0.4	min	0.1	10.0
P125	1	Breakpoint cold start (if heater controlled)	50	°C (P101)	0	99
P126	1	Gain factor cold start (if heater controlled)	40		1	100
P127	1 @	Feed pump controlled yes/no	no		Can be changed in even in STOP.	
P128	1	MT60 on/standby. Standby = MT60 disabled. Discharge every 15 min. (overrides P220). SV10 not activated. No drain sequence.	on			
P129	1	Selection of remote control method digital inputs Modbus	digital inputs			
P130	1	Selection of automatic or stepwise startautomatic, stepwise	stepwise			
P131	1 @	Valve in sludge outlet installed no, manual	no		Can be changed in even in STOP.	
P132	1	Vibration sensor disabled yes/no	no			

Parameter	Password level	Denomination	Default value	Unit	Min. value	Max. value
P133	1	Optional output 1 (Relay)			See also “Programmable in- and outputs” in the Operating instructions manual for all alternatives	
P134	1	Optional output 2 (Relay)				
P135	1	Optional output 3 (Relay)				
P136	1	Optional output 4 (Relay)				
P137	1	Optional output 5 (Relay)				
P138	1	Optional output 6 (Relay)				
P139	1	Optional input 1				
P140	1	Optional input 2				
P141	1	Optional input 3				
P142	1	Optional input 4				
P143	1	Optional input 5				
P144	1	Optional input 6				
P145	1	Cross connection/serial operation	disabled		see also “Cross connection/serial operation”	
P146	1	Temperature sensor disabled no, TT1, TT2, TT2 custom	no			
P148	1	Speed sensor disabled.	no			
P149	1	Level switch disabled. Run sludge pump 30 s at discharge (overrides P234).	no			

Parameter	Password level	Denomination	Default value	Unit	Min. value	Max. value
Alarm related parameters: delays, limits etc.						
P151		Not used				
P152	1	Power failure alarm used yes/no	yes			
P153	1	High oil pressure limit (PT4), 0.0 = pressure sensor disabled	3,0	bar	0,0	6,0
P154	1	Low oil pressure limit (PT4)	1,2	bar	0,0	6,0
P155	1	High water pressure limit (PT5), 0.0 = water pressure sensor disabled	5,5	bar	0,0	6,0
P156	1	Low water pressure limit (PT5)	0,2	bar	0,0	6,0
P157	1	Alarm limit high feed pressure (PT1), 0.0 = feed pressure sensor disabled	3,0	bar	0,0	6,0
P158	1	Alarm limit low feed pressure (PT1)	0,2	bar	0,0	6,0
P160	1	Alarm limit “A131 Sludge in bowl”	20	%	0	100
P161	1	Alarm limit "A97 Discharge feedback error"	300	rpm	0	2000
P162	2	Alarm limit "A81 Transducer value low"	70	pF	0	320

Parame-ter	Pass-word level	Denomination	Default value	Unit	Min. value	Max. value
P163	2	Alarm limit "A57 Oil leaking from bowl"	1,0	bar	0	4
P164	2	High oil pressure limit (PT4) during leakage test	3,0	bar	0,0	6,0
P165	2	Low oil pressure limit (PT4) during leakage test	1,0	bar	0,0	4,0
P167	1	Not used				
P169	1	Alarm delay "A24 Temperature increase too slow"	15	min	0	60
P173	1	Alarm delay “A25 Temperature not decreasing” 0 = no temperature supervision	5	min	0	30
P175	2	Alarm delay “A59 PT4 pressure high after cold start"	5	s	0	60
P177	1	Alarm limit "A32 Difference TT1/TT2 too large"	10	°C (P10 1)	0	30
P178	1	Time limit in RECIRCULATION	10	min	0	30
Setpoints						
P220	1	Discharge interval	120	min	1	300
P222	1	V5 open time at drain sequence	25	s	0	250
P224	1	MT60 limit stop draining	70	%	0	100
P225	2	Test of MT60 signal frequency (every xxx discharge), 0 = test disabled	5		0	40
P226	2	MT60 low trigger limit at transducer test	250	%	0	900
P227	2	Flush of drain outlet after displacement (every xx discharge)	20		0	100
P228	1	SV16 pulse interval in SEPARATION	5	min	1	30
P229		Not used				

Parame-ter	Pass-word level	Denomination	Default value	Unit	Min. value	Max. value
P231	1	SV15 opening time	3,0	s	0,1	30,0
P232	1	Draining of operating water	15	s	0	30
P233	1	Filling time conditioning water (calculated during calibration)xxx (120 initially)		s	0	120
P234	1	Sludge pump additional/manual running time	15	s	0	60
P236	2	Water drain time during STOP	10	s	0	30
P237	1	Sludge pump running and V5 opening time before discharge	10	s	0	30
P238	2	Feed on after discharge and test of water content in oil outlet	60	s	0	90
P239	2	Time for stabilization of the transducer signal	60	s	0	300
P242	2	Test of calibration value, interval (no. of discharges)	60		0	100
P256	1	Feed pump stop delay at normal STOP	3	min	0	30

Parameters depending on the setting of P111

Separator size (P111, default 0)												
			S 811 S 816 S 200 S 821 S 826 S 921 S 926 S 927	S 820 S 825 S 300 S 830 S 831 S 835 S 836 S 936 S 937	S 400 S 840 S 841 S 845 S 846 S 946 S 947	S 500 S 850 S 851 S 855 S 856 S 956 S 957	S 600 S 860 S 861 S 865 S 866 S 966 S 967	S 700 S 870 S 871 S 875 S 876 S 976 S 977	S 800 S 880 S 881 S 885 S 886 S 986 S 987			
Parameter	**Password level**	**Description**								**Min. value**	**Max. value**	**Unit**
P180	2	Alarm limit bowl speed low	83	90	90	89	82	82	81	0	100	% of max speed
P181	2	Alarm limit high vibration shutdown	0,3	0,3	0,5	0,5	0,5	0,5	0,5	0,0	2,5	mm
P182	1	Alarm limit high vibration warning	0,2	0,2	0,3	0,3	0,3	0,3	0,3	0,0	2,5	mm
P240	1	Filling time displacement water, initial value (calculated during calibration, see also P254)	77	63	108	48	80	61	72	0	150	s
		SV10, constant flow orifice	0,9	1,6	1,6	5,5	5,5	11,0	15,0			l/min
P243	1	SV16 open after dis-charge	15 s	15 s	15 s	15 s	25 s	25 s	60 s	0	120	s
P244	1	SV15 open for priming water during start-up	10 s	10 s	10 s	10 s	15 s	25 s	25 s	0,1	30,0	s
P245	2	V4 closed during bowl leakage test	10	10	10	10	10	10	10	0	30	s
P247	1	V4 closing delay at bowl leakage test	2	2	4	6	8	10	10	0	15	s
P248	2	Delay of PT4 pressure reference value registration at bowl leakage test	5	5	5	10	10	10	10	0	15	s

If P111 = 0 (default value), the operator is automatically forced to go through a system configuration procedure to setup the system.

Parameters depending on the setting of P112

Oil type (selected with P112)											
Parameter	**Password level**	**Description**	**GO**	**MDO**	**IF30 IF40 IF60 IF100**	**HF180 HF380 HF460 HF600 HF700**	**LO TP Trunk**	**LO CH Cross head**	**Min. value**	**Max. value**	**Unit**
P183	1	High temperature limit	40		105		100	100	0	115	°C (P101)
P184	1	Low temperature limit	20		85		90	85	0	115	°C (P101)
P249	1	Temperature setpoint	30		98		95	90	0	110	°C (P101)
P187	2	Number of drainings before alarm “A84 High water content”	5				2		0	20	
P251		MT60 trigger factor (corresponds to 100% increase of the transducer signal)	3,0				0,6		0,1	10,0	pF
P252	1	MT60 trigger limit	100		100		100		0	250	%
P189	2	Alarm limit “A80 Transducer value high"	110				85	78	0	320	pF
P254	2	Reduction of P240 if DO Calculated as P240 * P254	1,0						0,0	1,0	

2 Operation Modes

2.1 Change-over Sequence

This sequence is run through when the system changes operation mode from RECIRCULATION to SEPARATION after start (supervision similar as in RECIRCULATION).

This transition phase may include calibration of the water flow via SV10, if the operator answers “yes” to all three questions during the start-sequence (see ‘Manual Start from Standstill’ in the *Operating instructions manual*). If “no” to first or third question, the previously calculated filling time (P233) is used.

2.1.1 Change-over without calibration

A discharge sequence (step 2) and bowl leakage/water transducer test (step 3) is run through (see *2.2 Discharge, page XX*).

The opening time of SV15 is in this case set with P244 (not P231). Finally the system ends up in SEPARATION.

2.1.2 Calibration of the water flow via SV10

During 170 seconds, the oil outlet valve V4 is closed and the bowl is filled with water through SV10 until the pressure on PT4 has increased by 0.2 bar.

The conditioning water flow rate is then calculated as the known bowl volume divided by the time needed to fill the bowl.

If the feedback signal from PT4 was not received until 170 seconds has elapsed, the alarm “A55 No PT4 pressure feedback at conditioning water calibration” is given. The bowl is emptied (P231, P232, P243) and the calibration is repeated when the alarm has been acknowledged.

Test of calibration

The calibration is repeated at every (P242) discharge. The measured time to fill the bowl is then compared with the saved time used to calculate the SV10 flow rate (the old value is not changed).

If the **time to fill the bowl has decreased** with the relative value in P160, the alarm ‘A131 Sludge in bowl’ is given and the system goes to STOP. Restart is not possible.

2.2 Discharge

During discharge three different sequences are run through:

- displacement sequence (step 1)
- discharge sequence (step 2)
- bowl leakage/water transducer test (step 3)

The following diagram shows the equipment which is activated during the sequences, the activation pattern and the corresponding timers.

Sequence Diagram

If a combination of low PT4 pressure (P154) and low speed (P180) is detected when the feed is on, the system will go to STOP immediately without waiting the time in P238. Alarm ‘A57 Oil leaking from bowl’.