

**S Flex Separation**



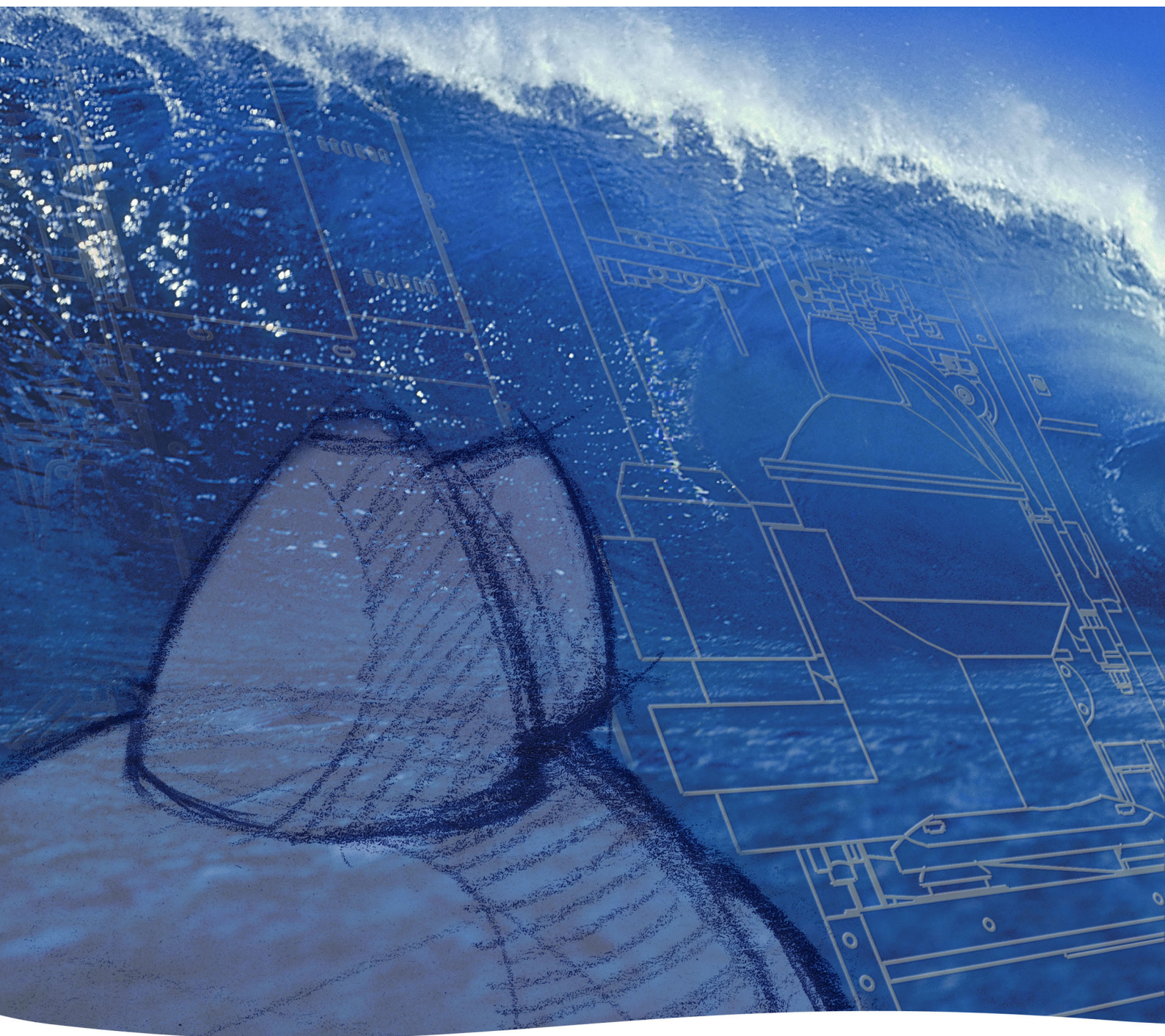
# **Alarms and Fault Finding**

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# ***Contents***

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<b>1</b>	<b>Alarms</b>	<b>5</b>
1.1	Alarms List	5
1.2	Alarm History List	8
<b>2</b>	<b>Display Alarms and Actions</b>	<b>9</b>
<b>3</b>	<b>EPC 60 Control panel</b>	<b>21</b>

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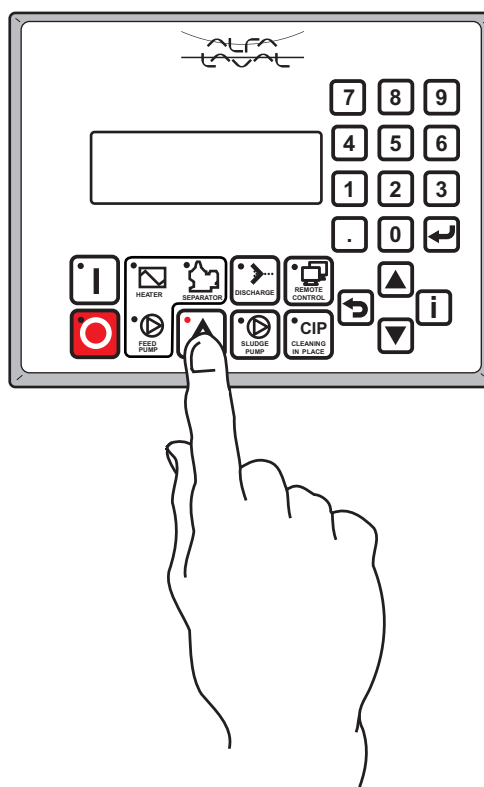
# 1 Alarms

## 1.1 Alarms List

To access the Alarms List press the 'Alarm Button'.

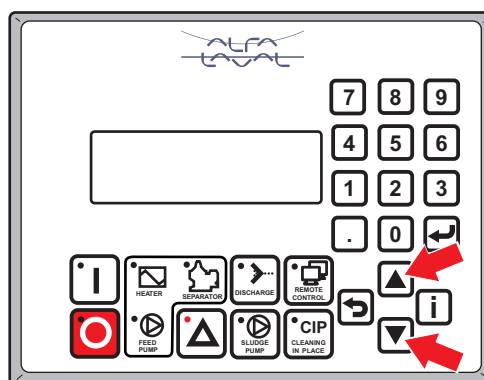
### NOTE

The latest 50 alarms are stored in the Alarm History List. See below.



X023912B

Press the arrow buttons to go up or down in the list.

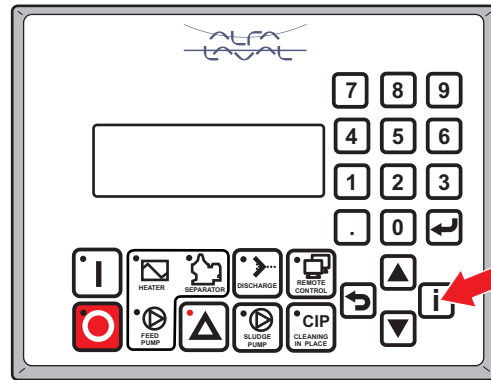


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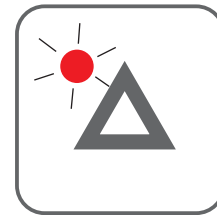
For each item in the list you can press the 'Information' button for help and information. Press the 'Information' button again to return to your previous position.

You can also acknowledge and/or reset this alarm.



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If the system has a fault, the alarm LED blinks. Press the 'Alarm' button once. The alarm shows on the display. Press the 'Alarm' button again to acknowledge the alarm. To go through the alarm list, press the 'Arrow' buttons.



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### NOTE

**After acknowledging an alarm, go through the alarm list to make sure that there are no other unacknowledged alarms!**

If after all alarms have been acknowledged fault(s) remain in the system, the alarm LED stops blinking and remains on. An 'A' appears at the end of an alarm which has not been rectified.

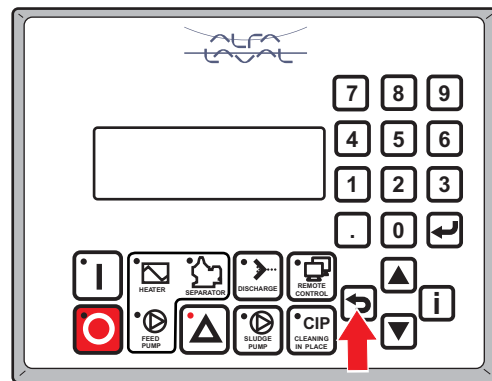
The alarms disappear automatically when the fault is rectified.

When all the alarms have been rectified, the alarm LED goes out.

For safety reasons, certain alarms must not only be acknowledged, but also rectified before the system can continue in operation, for example alarm A122 'Butterfly valve in sludge outlet closed'.

Also for safety reasons, some alarms will set the system into recirculation or stop. These alarms must be rectified before the operator can put the system into operation.

Press the 'Return' button to leave the list.



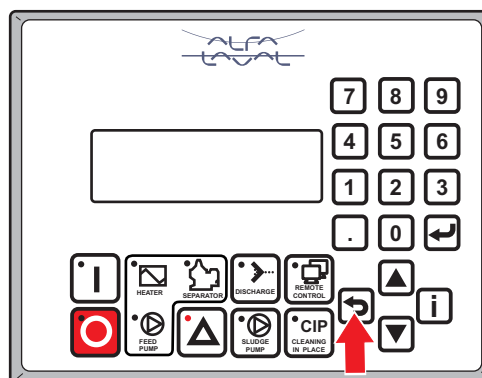
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## 1.2 Alarm History List

To access the Alarm History List at any time during the operation process press the 'Return button' repeatedly until the Alarm History List is reached.

### NOTE

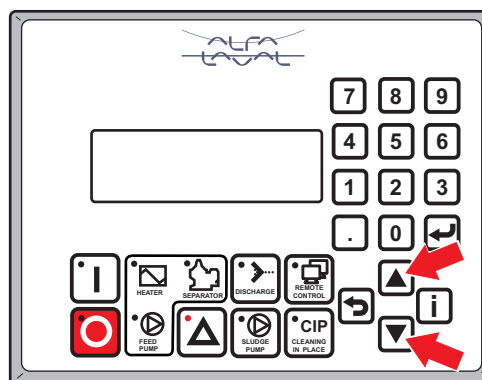
Relevant parameters only are shown on the display



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

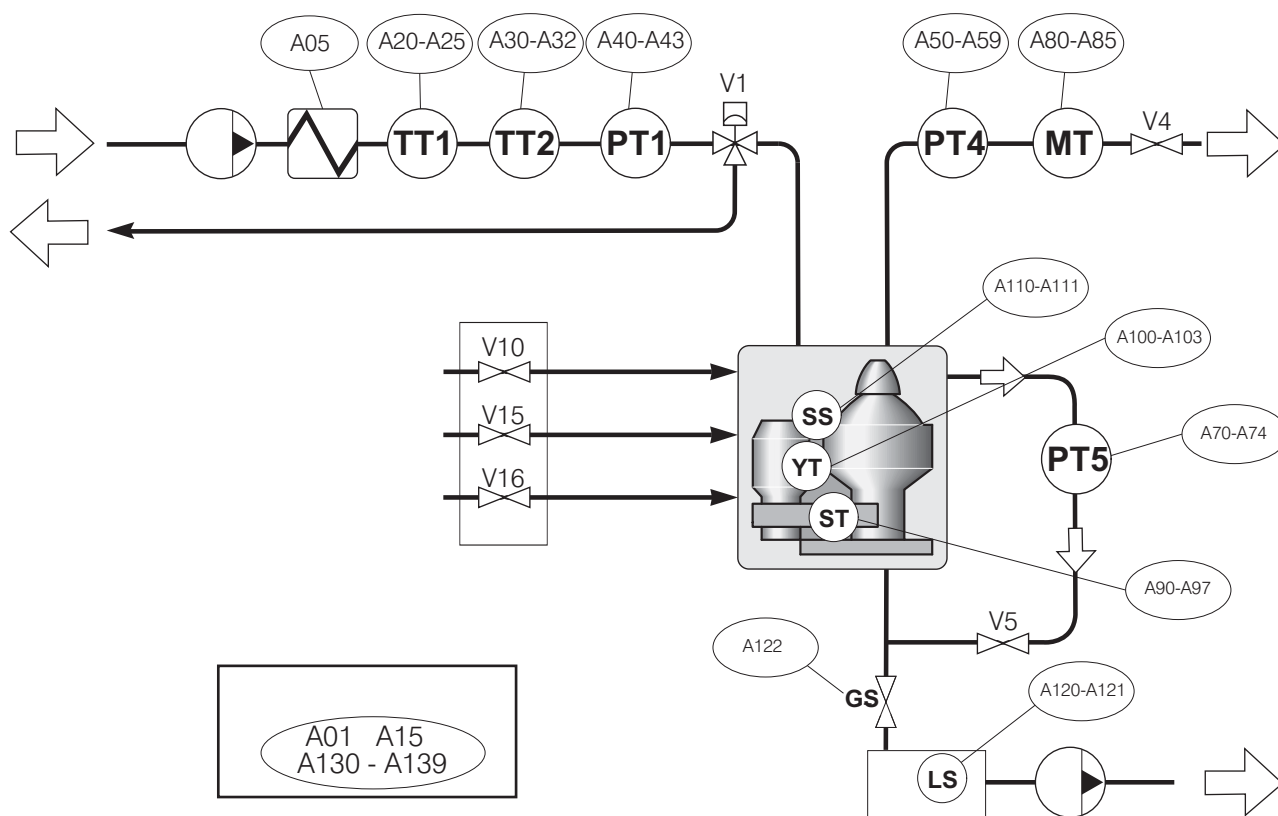
1. Parameter menu – List of all parameters. Password protected.  
To go directly to a parameter, enter the parameter number.
2. Time settings – For setting date, time, etc. Password protected.  
To go directly to a parameter, enter the parameter number.
3. Operation time – Different counters and timers 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



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## 2 Display Alarms and Actions



X024968a



Alarm code	Alarm text	Conditions	Why?	What to do
<b>Feed pump (if P127 = yes)</b>				
A01	Pump starter failure	Delayed by P168.	Feedback signal from contactor K3 missing.	<b>Check the contactor function. Check input terminal in the PLC.</b>
A05	Heater fault (electric)	Delayed 2 s.	Power to heater interrupted. High temp. switch released	<b>Check the power supply to the heater. Check temp. setpoint in the control unit. Check the heater and clean if necessary. When the temperature decreases, the switch is automatically reset.</b>

Alarm code	Alarm text	Conditions	Why?	What to do
<b>Heater, electric (if P119 = electric)</b>				
A15	Separator starter failure	Delayed 2s.	Feedback signal from contactor missing.	<b>Check the contactor function. Check input terminal in the PLC</b>
<b>Temperatur transmitter feed inlet TT1</b>				
A20	Oil feed temperature high	Delayed by P150. Limit in P183.	Steam supply valve faulty	<b>Investigate cause and remedy.</b>
			Faulty triac module(s) in the power unit or faulty controller in the control unit. (electric heater).	
			Broken wiring or defective heater resistance, or faulty controller in the control unit.	
A21	Oil feed temperature low	Delayed by P150. Limit in P184	Heater clogged	<b>Investigate cause and remedy.</b>
			Steam supply insufficient	<b>Investigate cause and remedy.</b>
			Steam trap faulty	<b>Investigate cause and remedy.</b>
			Steam supply valve insufficient	<b>Investigate cause and remedy.</b>
			Faulty fuses or burned contactors (electric heater)	<b>Check and renew broken fuses. Reset overcurrent protection (applicable for 8/7 - 24/22 kW power unit). Check wiring and contactor coils.</b>
			Broken wiring or defective heater resistance (electric heater)	<b>Check wiring and heater resistance of each block or heater element.</b>
A22	Temperature alarm sensor error (TT1)	Delayed by P150	Short circuit / broken sensor or cable.	<b>Disconnect cable at sensor. Measure resistance between 1-3. Resistance shall be within 100-142 ohms = 0-110 C/32-230 F. Replace sensor if broken. If no spare sensor available, set parameter P146 = TT1 to be able to run the system.</b>

Alarm code	Alarm text	Conditions	Why?	What to do
A23	Temperature alarm sensor disabled	Reminder only, if P146 = TT1		
A24	Temperature increase too slow	Delayed by P169. Limit in P184.	Insufficient heating during start.	Check heater function.
A25	Temperature not decreasing	Delayed by P173. Limit in P184. Stop sequence continues after alarm reset. Disabled if P173 = 0.	Heating on during stop sequence.	Check heater function.
			Recirculating oil not cooling.	Reset alarm to continue.
Temperatur transmitter heater control TT2				
A30	Temperature control sensor error (TT2)	Delayed by P150.	Short circuit / broken sensor or cable.	Disconnect cable at sensor. Measure resistance between 1-3. Resistance shall be within 100-142 ohms = 0-110 C/32-230 F. Replace sensor if broken. If no spare sensor available, set parameter P146 = TT2 to be able to run the system
A31	Temperature control sensor disabled	Reminder only, if P146 = TT2		
A32	Difference TT1/TT2 too large	Delayed by P176. Alarm limit in P177. Blocked if A22, A23, A30, or A31		
Pressure transmitter feed inlet PT1				
A40	Feed pressure PT1 high	Delayed by P150. Limit in P157	Pipe restricted.	Check recirculation for restriction.
A41	Feed pressure PT1 low	Delayed by P150. Limit in P158.	Pump not working	Check pump.
			Pressure in feed line too low	Check feed line and flow regulation. Check heater for fouling.
A42	Feed pressure sensor PT1 error	Delayed by P150.	Sensor or cable damaged.	Check cable connections. Replace sensor. If no spare sensor available, set parameter P157 = 0.
A43	PT1 disabled	Reminder only, if P157 = 0.		
Pressure transmitter oil outlet PT4				
A50	Oil backpressure PT4 high	Delayed by P150. Alarm limit in P153.	Increased throughput	Check. Reduce backpressure.
			Regulating valve too restricted	Adjust valve.


Alarm code	Alarm text	Conditions	Why?	What to do
A51	Oil backpressure PT4 low	Delayed by P150. Alarm limit in P154.	Decreased throughput	<b>Check feed pump and adjust flow.</b>
			Regulating valve open too much	<b>Adjust back pressure valve</b>
			Change over valve V1 in recirculation position	<b>Check air pressure, solenoid valve SV1 and output from EPC 60.</b>
			Bowl opens unintentionally during operation because:	
			Strainer and piping in the operating water supply is clogged.	<b>Clean the strainer and check the whole system fore limestone deposits.</b>
			Too little or no water in the operating water system.	<b>Measure the water flow in the three hoses from the water block and compare with correct values.</b>
			Hoses between the supply valves and separator are incorrectly fitted.	<b>Fit hoses correctly.</b>
			Nozzle in bowl body clogged	<b>Clean the nozzle.</b>
			Rectangular ring in discharge slide is defective.	<b>Renew the rectangular ring.</b>
			Valve plugs are defective.	<b>Renew all plugs.</b>
			Supply valves SV15 and SV 16 are leaking.	<b>Rectify the leak.</b>
A52	Oil pressure sensor PT4 error	Delayed by P150.	Sensor or cable damaged.	<b>Check cable connections. Replace sensor. If no spare sensor available, set parameter P153 = 0.</b>
A53	PT4 disabled	Reminder only, if P153 = 0.		
A54	Oil pressure PT4 high at discharge	Delayed by P171. Alarm limit in P221.	No decrease in oil pressure at discharge.	<b>Check function of change-over valve V1.</b>
A55	No PT4 pressure feedback at conditioning water calibration	Delayed by P170. Alarm limit in P221.	No increase in oil pressure at calibration.	<b>Check supply of displacement water (SV10).</b>
A56	No PT4 pressure feedback at displacement	Delayed by P172. Alarm limit in P221.	No increase in oil pressure at displacement.	<b>Check supply of displacement water (SV10).</b>



Alarm code	Alarm text	Conditions	Why?	What to do
A57	Oil leaking from bowl	Delayed by P245. Alarm limit in P163.	Bowl periphery sealing damaged	Change seal ring in bowl hood. Check/change rubber rings and valve plugs.
			Leakage somewhere in oil outlet	Check for leakage.
			Closing water leaking	Check/change sealings and plugs.
A58	Leak test failure	Limit in P164. No. of attempts in P166.		
A59	PT4 pressure high during Transition	Delayed by P175. Alarm limit in P154		
<b>Pressure transmitter water drain PT5</b>				
A70	Pressure in water outlet PT5 high	Delayed by P150. Limit in P155.	Paring tube not moving correctly.	Check that movement is not impeded by friction.
A71	Pressure in water outlet PT5 low	Delayed by P150. Limit in P156.	Paring tube not moving correctly.	Check that movement is not impeded by friction.
A72	Water pressure sensor PT5 error	Delayed by P150.	Sensor or cable damaged.	Check cable connections. Replace sensor. If no spare sensor available, set parameter P155 = 0.
A73	PT5 disabled	Reminder only, if P155 = 0.		
A74	Water outlet restricted	Delayed 3s.	V5 not opening or line restricted.	Check V5 function. Clean the outlet pipe.
<b>Water transducer MT60</b>				
A80	Transducer value high	Delayed by P150. Limit in P189.	Extremely high water content.	Check where the water is coming from.
			Fouling in the MT60.	Dismantle and clean with detergent.
A81	Transducer value low	Delayed by P150. Limit in P162.	Too much air in oil outlet.	Check oil backpressure.
A82	MT60 in standby more than 24 hours	Reminder only, if P128 = standby more than 24h.		
A83	Transducer no response	Limit in P226.	MT60 test failure.	Check water supply. Check SV10.

Alarm code	Alarm text	Conditions	Why?	What to do
A84	High water content	Number of drainings in P187. Limit in P224.	Too much water in oil outlet.	<b>Investigate cause and remedy.</b>
			Much water in the feed.	<b>Check where the water is coming from.</b>
			Paring tube not moving properly.	<b>Check that movement is not impeded by friction.</b>
A85	MT60 fault	Delayed by P150.	Sensor or cable damaged.	<b>Check cable connections. Replace sensor. If no spare sensor available, set parameter P128 = standby.</b>
<b>Speed sensor separator (if P113 = yes)</b>				
A90	Bowl speed high	Delayed 5 s. Limit in P179.	High power (net) frequency.	<b>Check power supply before restart.</b>
			Incorrect transmission parts (50 Hz belt pulley and belt for 60 Hz power supply).	 <b>WARNING</b> <b>Disintegration hazard</b> Stop and change the belt transmission to suit the power supply frequency.
A91	Bowl speed low	Delayed 5 s. Limit in P180.	Slipping belt	<b>Change belt.</b>
			Worn coupling pads	<b>Check / change pads.</b>
			Bowl not properly closed	<b>Check closing water supply (valve SV 16). Check bowl operating system for leakage. Check nozzle.</b>
			Bowl not properly assembled	<b>Check that the lock ring is in place.</b>
			Low power net frequency	<b>Check power.</b>
			Motor failure	<b>Repair the motor.</b>
			Bearing(s) damaged	<b>Renew all bearings.</b>
			Incorrect transmission parts (60 Hz belt pulley and belt for 50 Hz power supply).	 <b>WARNING</b> <b>Disintegration hazard</b> Stop and change the belt transmission to suit the power supply frequency.

Alarm code	Alarm text	Conditions	Why?	What to do
A92	Bowl speed sensor error	Delay 4s. Timer stop.	Sensor or cable damaged.	<b>Replace sensor. If no spare sensor available, set parameter P179 = 0 to be able to run the system.</b>
A93	A93 Speed sensor disabled	Reminder only, if P148 = yes.		
A94	Bowl speed high during STOP	Delayed by P174. Alarm limit in P180.	Power still on to the motor	<b>Check reason and remedy.</b>
A95	Separator motor run-up time too long	Delayed by P230. Limit in P180.	Separator friction blocks slipping	<b>Check the friction blocks.</b>
			Belt slipping	<b>Check the belt.</b>
			Height position of paring disc is incorrect.	<b>Stop. Check and adjust the height.</b>
			Motor failure	<b>Repair the motor.</b>
			Bearing(s) damaged or worn in coupling or spindle drive.	<b>Renew all bearings.</b>
A96	Slow start acceleration	Speed < 90 rpm 10s after response from motor contactor.		
A97	Discharge feedback error	Alarm limit in P161. Test during P232, one extra discharge before alarm.	Strainer in the operating water supply is clogged.	<b>Clean the strainer.</b>
			Water flow too low.	<b>Check opening water flow (SV 15) into the bowl.</b>
			Hoses between the supply valves and separator are incorrectly fitted.	<b>Fit hoses correctly.</b>
			Rectangular ring in the operating slide is defective.	<b>Replace the rectangular ring.</b>



Alarm code	Alarm text	Conditions	Why?	What to do
<b>Vibration sensor separator (if P114 = yes)</b>				
A100	High vibration warning	Delayed by P150. Alarm limit in P182.	Sludge remaining in part of the bowl	<b>Dismantle, clean and check the bowl before restart.</b>    <b>Disintegration hazard</b> The separator bowl must be manually cleaned before starting up again.
			Bowl wrongly mounted.	<b>Check assembly.</b>
			Disc stack compression incorrect.	<b>Check assembly.</b>
			Bowl assembled with parts from other separators.	<b>Check assembly.</b>
			Height position of paring disc is incorrect	<b>Stop the separator, measure and if necessary adjust the height.</b>
			Bowl spindle bent	<b>Renew the bowl spindle</b>
			Bearing(s) damaged or worn	<b>Renew all bearings.</b>
			The frame feet are worn out.	<b>Renew the frame feet.</b>
			Spindle top bearing spring broken.	<b>Renew all springs.</b>

Alarm code	Alarm text	Conditions	Why?	What to do
A101	High vibration shutdown	Delay 1s. Alarm limit in P181.	Sludge remaining in part of the bowl	<b>Dismantle, clean and check the bowl before restart. See Service Manual.</b>
		 <p><b>Disintegration hazard</b> If excessive vibration occurs, stop separator and keep bowl filled with liquid during rundown. The cause of the vibration must be identified and corrected before the separator is restarted.</p>		 <p><b>Disintegration hazard</b> The separator bowl must be manually cleaned before starting up again.</p>
			Bowl wrongly mounted	<b>Check assembly.</b>
			Disc stack compression incorrect	<b>Check assembly.</b>
			Bowl assembled with parts from other separators	<b>Check assembly.</b>
			Height position of paring disc is incorrect.	<b>Stop the separator, measure and if necessary adjust the height.</b>
			Bowl spindle bent.	<b>Renew the bowl spindle.</b>
			Bearing(s) damaged or worn.	<b>Renew all bearings.</b>
			The frame feet are worn out	<b>Renew the frame feet.</b>
			Spindle top bearing spring broken.	<b>Renew all springs.</b>
A102	Vibration sensor error	Delayed by P150.	Sensor or cable damaged	<b>Replace sensor. If no spare sensor available, set parameter P132 = yes to be able to run the system.</b>
A103	Vibration sensor disabled	Reminder only. If P132 = yes.		

Alarm code	Alarm text	Conditions	Why?	What to do
<b>Frame cover switch separator (if P115 = yes)</b>				
A110	Frame cover open	Delay 1s. Start not possible.	Separator not properly assembled	<b>Assemble the separator according to instructions.</b>
			Faulty frame cover switch	<b>Replace cover switch. If no spare switch available, set parameter P116 = yes to be able to run the system.</b>
A111	Cover switch disabled	Reminder only, if P116 = yes.		
<b>Sludge handling</b>				
A120	Sludge tank level high	At high level: Start not possible. Sludge pump running until level signal normal + 10s. Alarm delay and max pump running time 60s in all modes without feed flow, P159 in Separation. Discharge blocked.	Pump has not drained the tank	<b>Check the pump function.</b>
A121	Level switch disabled	Reminder only, if P149 = yes.		
A122	Valve in sludge outlet closed Discharge not possible. Start not possible.	Delayed by P150.	Valve closed.	<b>Open manual valve.</b>
A123		External alarm. Delay 2 s		
<b>System</b>				
A130	Emergency stop button pushed	Delay 1s. No restart.	Emergency stop button pushed	<b>Check for the cause. Reset pushbutton.</b>
A131	Sludge in bowl	Alarm limit in P160.	Too much sludge in bowl	<b>This alarm is given if the bowl is extremely dirty and cannot be acknowledged. The separator will be stopped. Wait until STAND STILL is indicated. Investigate cause and remedy.</b>
A132	Power failure	Disabled with P152 = no.	Black-out has occurred during operation	<b>Check plant conditions and restart.</b>
A133	Too long time in RECIRCULATION	Delayed by P178. System goes to STOP.	Time in RECIRCULATION expired.	
A136	Communication error			
A137	Cabinet over temperature	Reminder only		

A138	Too many start attempts		Contactors activated 5 times within last 60 minutes.	
A139	EPC60 internal failure	Delay 2 s	IO-card status or PLC status not OK	<b>Check IO cards have no red LEDs</b>
			PLC has detected an IO-configuration that does not exist	<b>Check if IO-configuration is right or verify electrical drawings</b>
A140	Too long time out of operation	IO-card status or PLC status not OK	Alarm is created if the separator has been out of operation for one month or more. It is reset if the separator has been running for at least 5 hours.	<b>Pre-lubricate spindle bearings. After service always run the separator continuously for at least 5 hours to ensure proper lubrication.</b>
A145	Panel communication error			<b>Check wiring</b>



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## **3    *EPC 60 Control panel***

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<b>Fault</b>	<b>Remedy</b>
Black screen	Press and hold Enter button and adjust contrast with up and down button. This can be done regardless of which page is currently displayed.