



Service, Maintenance & Support

Legacy Fault Codes

Below are Generic Fault Codes listed. For legacy reasons this system is used on old products and products with old firmware versions.

Err. No.	Errors shown in display	Auto Reset	Ext. buzzer activation at Alert Level	Description	Action
1	Motor Overcurrent		2 ⁽²⁾ , 3	Motor current too high.	"Thruster must be serviced by authorized personnel, reset or power OFF/ON PPC ⁽¹⁾ ."
2	Motor Overtemp	Yes	2 ⁽²⁾ , 3	"Motortemp has been over 120°C/248°F."	Motor cool down below 110°C /230°F.
3	Controller Overtemp		2 ⁽²⁾ , 3	"PPC ⁽¹⁾ temp has been over 80°C/176°F."	PPC ⁽¹⁾ cool down below 45°C/113°F.
4	Controller Overtemp		2 ⁽²⁾ , 3	"SR150000 temp has been over 80°C/176°F."	SR150000 cool down below 45°C /113°F.
5	Low Voltage		2 ⁽²⁾ , 3	Low motor voltage alarm when motor is running. 12V thruster below 8.00V 24V thruster below 12.00V	Recharge battery, reset or power OFF/ON device.
6	Thermoswitch	Yes	2 ⁽²⁾ , 3	Thermo switch input is activated and there is an open circuit.	The thruster needs to cool down before operating again.
7	IPC Error		2 ⁽²⁾ , 3	Motor relay fault	"Turn off thruster battery main switch. Thruster must be serviced by authorized personnel."
8	Critical Error		2 ⁽²⁾ , 3	PPC ⁽¹⁾ output fail	PPC ⁽¹⁾ must be sent for service.
9	Low Motor Current		2 ⁽²⁾ , 3	Thruster uses no power	Check thruster connections or motor dead!
10	Motor Contactor		2 ⁽²⁾ , 3	No current on motor relay coil.	Check motor relay connections, short circuit or relay dead!
11	System Error		2 ⁽²⁾ , 3	Fatal error	Device must be serviced by authorized personnel
12	No Communication		2 ⁽²⁾ , 3	No communication with device	Check S-Link cables and power connections.
13	Motor Temp Sensor		2 ⁽²⁾ , 3	Motor temperature sensor fail	Check for an open circuit on the temp sensor on the motor
14	Supply Voltage Fault		2 ⁽²⁾ , 3	No power	Check power connections
15	Fuse Blown		2 ⁽²⁾ , 3	Fuse blown	Replace fuse or check if main cable from battery and main cable to thruster has been switched
16	Manual Override	Yes	2 ⁽²⁾ , 3	Main switch manually overridden	Pull main switch
17	Motion OUT Fault		2 ⁽²⁾ , 3	Retract obstructed while deploying	Turn off all panels. Go for lower speed/deeper water and retry.
18	Motion IN Fault		2 ⁽²⁾ , 3	Retract obstructed while retracting	Turn panel on and manually override main switch. Remove obstruction and try again.

1. PPC520, PPC820, PPC800, PPC840

2. The relay output for external buzzer is only activated when a control device is sending thrust on the S-Link bus.

3. The relay output for external buzzer is only activated when operating HOLD function.

Err. No.	Errors shown in display	Auto Reset	Ext. buzzer activation at Alert Level	Description	Action
19	Actuator Fault		2 ⁽²⁾ , 3	Actuator not getting any power	"Check actuator connection or power to actuator. Reset alarm in alarm menu on PJC 211/212/221/222 or recycle power."
20	Pos.Sensor Fault		2 ⁽²⁾ , 3	Retract position sensor fail	Check position sensor cables and for sensor damage.
21	In Service Mode	Yes	2 ⁽²⁾ , 3	"Retract controller in service mode. Switch no. 4 is ON."	Check dip switch setting on retract control box.
22	High Oil Temp	Yes	1, 2 ⁽²⁾ , 3	"Hydraulic oil temperature is higher than 75°C /167°F."	"Stop running and wait for temperature to drop. Check if cooling pump is running."
23	Low Oil Level		1, 2 ⁽²⁾ , 3	Hydraulic oil level is to low	Fill more hydraulic oil to the hydraulic tank.
24	Warning Return Filter	Yes	2 ⁽²⁾ , 3		Return filter element required replacing.
25	Warning Pressure Filter	Yes	2 ⁽²⁾ , 3		Pressure filter element required replacing.
26	Warning High Speed	Yes	1, 2 ⁽²⁾ , 3	"WARNING! High Speed. Stabilizer not active!"	
27	Stabilizer Fault	Yes	1, 2 ⁽²⁾ , 3	Any Stabilizer alarm.	See stabilizer panel for more info.
28	AC Motor Overtemp	Yes	1, 2 ⁽²⁾ , 3	"Hydraulic AC motor power pack overtemp. Higher than 120°C/248°F."	Stop running and wait for temperature to drop.
29	AC Motor Sensor Fail		2 ⁽²⁾ , 3	"Hydraulic AC motor power pack temp sensor open circuit"	Check sensor cables.
30	Temperature Warning	Yes	2 ⁽²⁾ , 3 ⁽³⁾	High temperature warning.	Warns that the motor temperature is getting high.
31	Motor Overtemp	Yes	1, 2 ⁽²⁾ , 3	High temperature Alarm.	See SAC manual for more details.
32	VFD Warning	Yes	2 ⁽²⁾ , 3	There is an warning from VFD.	Check VFD for more details.
33	VFD Not Ready	Yes	2 ⁽²⁾ , 3	The VFD is not ready.	Check VFD for more details.
34	VFD Fault		1, 2 ⁽²⁾ , 3	VFD has an Alarm.	Check VFD for more details.
35	Warning Low Voltage	Yes	2 ⁽²⁾ , 3 ⁽³⁾	Low motor voltage warning when motor is running. 12V thruster below 9.30V 24V thruster below 17.50V	
36	Not Calibrated	Yes	2 ⁽²⁾ , 3	Shaft Not Calibrated	See manual for how to calibrate.
37	VFD Com. Fault		2 ⁽²⁾ , 3	No Modbus communication with VFD	Check VFD Modbus cables and power.
38	Cooling Fan Fault		2 ⁽²⁾ , 3	Cooling fan stopped running, or running too slow	Device must be sent for service
39	Interlock		2 ⁽²⁾ , 3	S-Link communication between PPC and retract controller are missing	-Check PPC or retract controller has power. -Check S-Link connections to PPC and retract controller. -Check if not PPC or SR150000/SR61242 is wrongly setup as SRP or SRVP/SRLP.














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Fault Number	Fault Description	Helm Station	Version - MK1 / MK 2 (Possible Cause)	Version - MK3 (Possible Cause)	Check / Action / Comments
1	Steering stopped working, no alarms		No power	No power	-Check Circuit Breaker -Check voltage on B+/B- terminals
			Motor broken	Motor broken	Replace Motor
			Worn Brushes		-ESPE 600/700 motor without fan, replace complete motor -Other motors, replace brushes
			Motor Starter Relay broken	N/A (Will cause alarm)	Change Relay
			Loom ECU to relay broken	N/A (Will cause alarm)	
			Corrosion on motor relay spade terminals.	N/A (Will cause alarm)	
2	No end stop	Both helms:	Pressure switch adjustment	Pressure switch adjustment	Check end stop LED (orange) at PCB, adjust switch
			Broken pressure switch	Broken pressure switch	Replace switch
		Lower helm only:	Pressure switch adjustment	Pressure switch adjustment	Check end stop LED (orange) at PCB, adjust switch
			Broken pressure switch	Broken pressure switch	Replace switch
			Lock valve sticking in open position	Lock valve sticking in open position	-Remove valve cartridge from main valve unit. -Connect 24V to coil and check spool movement.
		Upper helm only:	No oil in helm/system not pressurized	No oil in helm/system not pressurized	Refill, and run air purging procedure.
			End stop brake broken	End stop brake broken	Connect 24V to brake connector, check brake, check loom
			Brake signal failure	Brake signal failure	
3	Bad performance, weak steering		Worn Cylinder Piston Seals	Worn Cylinder Piston Seals	Replace Seals, or install new Cylinder.
			Worn hydraulic Pump	Worn hydraulic Pump	Replace Pump
4	Creeping Rudder		Leaking load Holding Valves	Leaking load Holding Valves	Valves to be adjusted
			Leaking Cylinder Piston Seal	Leaking Cylinder Piston Seal	Replace Seals, or install new Cylinder.
5	Grey / White oil		Water in oil	Water in oil	-Replace complete system -Replace Cooler kit. NB! To be discussed.
6	Unstable steering, temporary failures no alarms. Grey/ White oil		Water in oil	Water in oil	-Replace complete system -Replace Cooler kit. NB! To be discussed.
7	No steering, no alarms, no fall back to backup from lower helm.		Sticking lock/bypass valve	Sticking lock/bypass valve	Water in oil, see pt. 5 - 6
			Motor stopped, see fault no.1	Motor stopped, see fault no.1	Change complete Motor.
			Sticking rely	N/A (Will cause alarm)	Change relay NB! Switch off circuit breaker for backup
8	No steering from Helm. Works fine from Pilot		Missing signal from helm	Missing signal from helm	Check green/red signal input led on PCB.
9	Alarm during Prt only		Valve coil broken	Valve coil broken	Check Coil resistance, to be 39,3Ω @20°C
			Connector failure or broken loom	Connector failure or broken loom	
10	Alarm during Stb only		Valve coil broken	Valve coil broken	Check Coil resistance, to be 39,3Ω @20°C
			Connector failure or loom failure	Connector failure or loom failure	
11	Alarm, both Prt and Stb		Servo valve coil broken	Servo valve coil broken	Check Coil resistance, to be 21,7Ω @20°C
				Lock Valve Coil Broken	Check Coil resistance, to be 39,3Ω @20°C
			Connector failure or loom failure	Connector failure or loom failure	
			Relay failure	Relay failure	

Fault Type	Fault Description	Version - MK1 / MK 2 (Possible Cause)	Version - MK3 (Possible Cause)	Check / Action / Comments
1	Motor stops immediately	Coil failure, servo valve	Coil failure, servo valve	Check Coil resistance, to be 21,7Ω @20°C
		Coil failure, directional valves	Coil failure, directional valves	Check Coil resistance, to be 39,3Ω @20°C
		Loom failure	Coil failure, lock valve	Check Coil resistance, to be 39,3Ω @20°C
			Motor starter relay failure	
			Loom failure	
			Low voltage	Alarms < 18V
2	System continue working for 2 minutes. Motor stops if alarm situation is still present after 2 minutes	Oil temperature	Oil temperature	-Check Oil temperature and cooling. -Check Sensor resistance, <130 Ω
		Motor temperature	Motor temperature	Check Switch (NC) Check Motor temp sticker.

LED	PANEL ALARM INDICATION	FAULT	THRUSTER RESPONSE	SOLUTION
1 	1 flash YELLOW & GREEN - pause	Thruster, overtemp	Retracts	Turn off panel, wait for 20 min
2 	2 flash YELLOW & GREEN - pause	Thruster, low power	Retracts	Turn off panel, charge batteries
3 	3 flash YELLOW & GREEN - pause	Deploy operation obstructed	Retracts	Turn off panel, Go for lower speed/ deeper water - Retry.
4 	4 flash YELLOW & GREEN - pause	SR150000 position sensor fail	Retracts	Position sensor short or open circuit Check wiring and connection
5 	5 flash YELLOW & GREEN - pause	SR150000 solenoid output short circuit, port or starboard	Retracts	Check solenoid wiring and connection, and check if solenoid has blown
6 	6 flash YELLOW & GREEN - pause	SR150000 motor temp sensor fail	Retracts	Check motor temp sensor, wiring and connection
1 	1 flash YELLOW & RED - pause	Power failure, Actuator	System shuts down	Turn off panel, check actuator connections - Retry
2 	2 flash YELLOW & RED - pause	Thruster IPC error	Retracts	Turn off panel - Thruster must be serviced by authorised personal
3 	3 flash YELLOW & RED - pause	Retract operation obstructed	Aborts retract, deploys and retries to retract 3 times. If operation still in obstructed, retract stops on obstruction	Press both ON-buttons to deploy thruster. Turn main switch off. Remove obstruction.
1 	1 flash YELLOW, GREEN & RED - pause	Automatic main switch power failure	None	Check power to automatic main switch.
2 	2 flash YELLOW, GREEN & RED - pause	Automatic main switch fuse blown	None	Replace fuse on automatic main switch. If a new installation, check if input and output is connected correctly.
3 	3 flash YELLOW, GREEN & RED - pause	Automatic main switch manual override	None	Pull up automatic main switch
4 	4 flash YELLOW, GREEN & RED - pause	Panel has no contact with thruster	None	Turn off panel. Check main switch, fuse, cables and connections - Retry

(NOTE: THE MAIN SWITCH MUST BE TURNED OFF IMMEDIATELY WHEN AN IPC-ERROR OCCURS, TO PREVENT OVERHEATING OF THE THRUSTER MAIN RELAYS.)

THRUSTER WILL NOT RETRACT WHILE REVERSING AT "HIGH" SPEED. THIS WILL TRIGGER THE "Retract operation obstructed" ALARM.

IF ALARM IS TRIGGERED, REDUCE SPEED AND PRESS BOTH "ON" BUTTONS BEFORE RETRYING "OFF" BUTTON

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SLEIPNER MOTOR AS

P.O. Box 519

N-1612 Fredrikstad

Norway

www.sleipnergroup.com

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