LASER ALARM CODE HANDLING GUIDE

1 THE HANDLING OF RFH LASER HEAD ALARM

1.1 ALARM CODE 18/19

The authorization is expired. Please contact the supplier.

1.2 ALARM CODE 31/08

Please check if the humidity of the laser is over 20%. If yes, please contact the supplier for desiccant for laser type EXPERT, EXCELLENT or EXCELLENT II. Laser user is able to replace the desiccant. For other types of laser heads they should be delivered back to the supplier for maintenance. In case the humidity is much lower than 20% or higher than 70% something must be wrong with the laser control box. In this case the laser control box should be delivered back to the supplier for maintenance.

1.3 ALARM CODE 10

Please check if there is alarm with the cooling water system and if the water is sufficient. If the water is sufficient please check if the pin 1 & 2 of the DB terminal on the INTERLOCK are well connected. In case pin 1 & 2 are connected the INTERLOCK internal wire connection must be wrong. In case the alarm is off after reset please check if the cooler is switched on before the laser.

1.4 ALARM 26

Please check if the Q drive lamp is yellow. Yellow lamp indicates the connection failure of the Q drive. Please check connection of the Q drive wire and pins. If the connections are good the problem should be the internal wire connection inside the electric control box.

1.5 OTHER ALARM

Firstly, please check the connection between the electric control box and the laser head. Is the connection wrong? Is any of the pin damaged or deformed? Secondly, please check the display of the screen of the electric control box. Are there any alarm indication of the temperature and current? In case there is alarm but not able to be reset the laser device should be repaired by the supplier. As an option the user can try to replace parts one by one to judge the location of the problem.

2 THE CODE AND THE HANDLING ARE LISTED BELOW.

CODE	EORROR	HANDLING
1	LD over current protection	1. Restart the laser device. 2. Check if the CON4 connection in the electric control box. 3. Return the laser to the supplier to repair if not possible to recover.
2	LD over heat protection	1. Reduce the setting of LD T by 5℃ and check the current of "LD TEC current". If the current is zero or no change or the current is lower than 2.0A the control box needs to be repaired. 2. Check the current of "LD TEC current" and the temperature of "Environ temp". The temperature should be lower than 40℃. Otherwise the dust wire mesh should be cleaned. 3. IF the problem still exists it might be from the TEC in the laser cavity. In this case the laser needs to be repaired.
3	LD TEC over current protection	1. Restart the laser 2. Repair the laser
4	Double frequency over heat protection	1. Reduce the setting of "SHG T" by 5℃ and check the current of "SHG I TEC". If the current is zero and no change or the current is lower than 2.0A the control box needs to be repaired. 2. In case the connection cable is with 26 cords please exchange the cables for double frequency and triple frequency to judge if the problem is from the control box or from the laser.
5	Triple frequency over heat protection	The handling is the same as for the code number 4.
6	Double frequency over current protection	1. Restart the laser 2. Change the cavity of the laser and check the current. 3. If the problem still exists the laser should be repaired.
7	Triple frequency over current protection	1. Restart the laser 2. Change the cavity of the laser and check the current. 3. If the problem still exists the laser should be repaired.
8	Over 40% humidity protection	1. Increase the threshold value.

CODE	EORROR	HANDLING
9	Laser bottom plate over heat protection	1. Check the cooling water system. 2. Check the flow volume of the cooling water.
10	Water protection	1. Check the connection of the INTERLOCK terminal. 2. Check the cooling water flow volume.
11	INTERLOCK protection	1. Check the connection of the INTERLOCK terminal.
13	Fan TEC breaker protection	1. Check the connection of the cooling fan controller aerial plug. 2. Change the cable if necessary.
14	Fan TEC over heat protection	1. Reduce the "FAN T" value by 5℃ and check the current of the "FAN TEC I". If the current is zero and not change, or the current is less than 1.0A the laser needs to be repaired. 2. Check the distance between the fan at the bottom of the laser and the table. The distance should be at least 15mm.
15	LD2 over current protection	The handling is the same as for the alarm code 1
16	LD2 over heat protection	The handling is the same as for the alarm code 2.
17	LD2 TEC over current protection	The handling is the same as for the alarm code 3.
18	The first level authorization protection	Please contact the supplier
19	The second level authorization protection	Please contact the supplier

CODE	EORROR	HANDLING
21	SHG breaker alarm	1. Check "SHG T" and "SHG I TEC". The system is normal if the temperature increases when the current is over 1A. The alarm is caused by the excessive long heating time due to the big temperature difference. 2. If the value of "SHG T" is 56℃ unchanged and the current of "SHG I TEC" is close to 0A the connection on the terminal CON1 should be checked by plug out and in. 3. Interchange the cables for double frequency and triple frequency to judge if the problem is from the control box or from the laser cavity.
22	THG breaker alarm	The handling is the same as for the code 21.
23	SHG temperature feedback breaker alarm	1. Check the CON2 terminal by plug out and in the CON2 terminal. 2. Interchange the cables for double frequency and triple frequency to judge if the problem is from the control box or from the laser cavity.
24	THG temperature feedback breaker alarm	The handling is the same as for the code 23.
25	LD current breaker alarm	1. Check CON4 connection by plug out and in. 2. Check the switch inside the control box. 3. Check the pump source wire connection inside the laser cavity.
26	Q drive breaker alarm	1. Check CON6 connection terminal. Plug out and in the CON6 or change the wire. 2. Check the Q drive output RF cable or change the RF cable. 3. Reset the yellow lamp. The normal color is red.
27	LD TEC breaker alarm	1. Check the CON4 aerial plug connection. Plug out and in the CON4 cable. 2. Check if LD is with TEC.
28	LD TEC temperature feedback breaker alarm.	1. Check CON4 Aerial plug. Plug out and in the CON4 aerial plug or change the cable. 2. Check if the environmental temperature is too low. The cooling water should be over 20℃。

LASER ALARM INDICATOR

CODE	INFORMATION	
31	Humidity over 20%	Increase threshold value
32	Bottom plate temperature over heated	Check the cooling system and the flow volume.
33	Bottom temperature too low.	Switch on the cooling system and run for a period of time. Switch on the LDD lamp when the temperature is over 20℃。