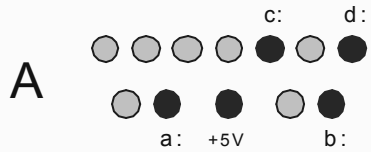


SYSTEM POWER UP:

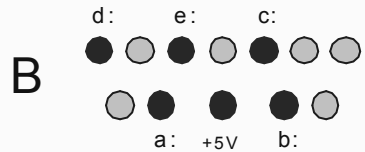
INTERLOCK (door) is open, F-STOP is on



- a: green: Interlock is open
- b: green: F-STOP is on
- c: green: Shutter is closed
- d: red: Fault LED on

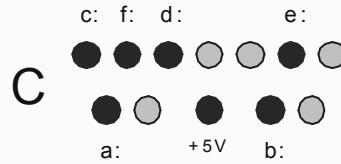
Main relay deenergized, PWM to laser is switched off
Laser is in tickle mode (no power)

F-STOP off, Fault reset button pressed
Main power relay closes



- a: green: interlock (door) is still open
 - b: yellow: F-STOP is off
 - c: green: Shutter remains closed
 - d: blue: enable signal to laser
 - e: orange: : Laser returns laser ready signal
- PWM zum laser is still disabled

Interlock (door) is closed, shutter opens
PWM is passed to laser



- a: gelb: interlock (door) is closed
 - b: yellow: F-Stop disengaged
 - c: blue: enable to laser
 - d: orange: laser returns laser ready signal
 - e: orange: Shutter is open
 - f: white: PWM to laser is on
- (Intensity is in relation to pulse width)
System is now in normal operation

Further information

Meaning of both F-STOP or Interlock LED's on or off:
Short circuit, wrong cabling or contact fault
Fault LED (red) is on

Laser enable (blue) on, laser ready (orange) off means:
no ready signal from laser, shutter remains closed
No PWM to laser (Laser remains in tickle mode)

Watercooled systems:

External input cooler fault low, cooler led (red) is on
Laser is disabled (blue led off), shutter is closed
PWM to laser is disabled

Reasons for fault led (red) on:

- Shutter does not reach endposition
- Fault F-Stop or interlock contacts
- Fault feedback contacts of main power relays A and B
- Timing Faults
(Shutter closing time slow, toggle of F-STOP or Interlock contacts slow)
- F-STOP is pressed:
Shutter is closed, Relay A and B remove AC power from main Laser supply
- After F-STOP is released, FAULT must be cleared by fault reset button!

Privat/SLCU13_LED_E

Title			LED EVALUATION of SLCU13DN		
Size	Number	Revision			
B		20.10.15 KHW			
Date:	30-Oct-2015	Sheet of			
File:	C:\Program Files\Design Explorer 99 SE\Drawings\Private.dbb				

LED MEANING and EVALUATION SLCU13DN with SHUTTER ELS11-Axx