



PLC Control System DPL: 10188/10189:

DPL Industri A/S introduces a new UV Controlsystem based on PLC technique. This new control system have full control over the UV lamp, Ballast, Chiller and the light sources.

PLC Control System DPL 10188/ 10189 Instruction Manual.

1. Installation

The PLC control system DPL 10188/10189 is a part of the DPL “plug & play” UV system.
The UV system is very user friendly to install and use.

Control cable:

Connect all the control cables to the PLC with the standard “SUB D cables” by following the Sign on the PLC box, and connect the cable to the chiller, ballast and UV lamp.

Power Cable:

Connect the ballast and PLC main power cables to the power section of the printing machine.

Important! The main power to the chiller had always to be connected to main power in order to protect the reflectors. (Cool down).

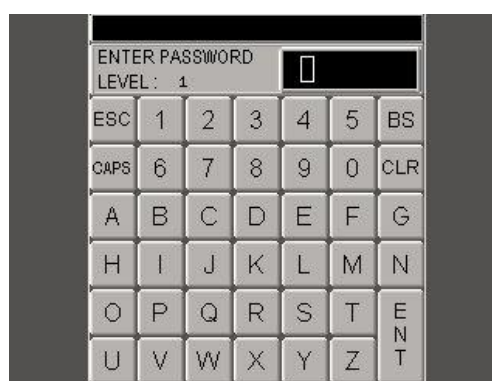
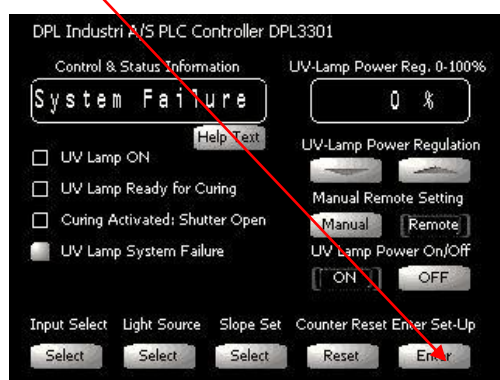
Remote Cable:

The simple version of remote control, is just a switch to start the curing activation.(Switch application mode). The switch and cable is standard accessories.

2. Start up the UV system:

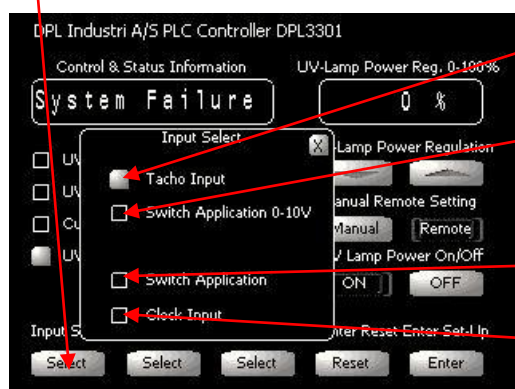
The basic set-up is made by DPL, in order to protect the UV-lamp system.

The set-up is blocked by a pass-word only for distributors and factory set-up.



3. Input Select:

Input select is set up by DPL for your application, but it is possible to change to other input type.
By Input select means different possibility to control the UV curing power.



Tacho Input: The tacho generator on the printing machine, regulate the curing power. (Speed power control)

Switch Application 0-10V The curing will be started by a switch, and the curing power will be regulated by 0-10 V Dc on the remote Input/output.

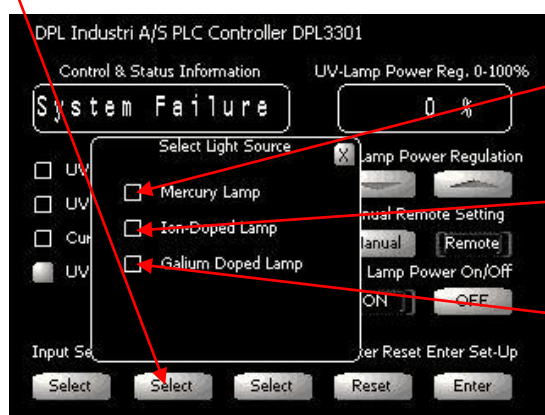
Switch application The curing will be started by a switch, and the curing power will be set manually on the screen.

Clock input: The PLC will be in Slave mode. Only together with a Master with tacho input.

4. Light Source select:

The PLC control system monitors the light sources lifetime, by effective control of start/stop sequence and burning-hours

Light source select is necessary, because there is different Lifetime for different Types.



Mercury Lamp: By select this Lamp, the lifetime counter will be preset to 2000 hours. This is the typical lifetime for a mercury lamp.

Ion-Doped Lamp: By select this lamp, the lifetime counter will be preset to 1000 hours. This is a typical lifetime for a Ion-doped lamp.

Galium- Doped Lamp: By select this lamp, the lifetime counter will be preset to 1200 hours. This is the typical lifetime for a Galium-doped lamp

5. Counter Reset:

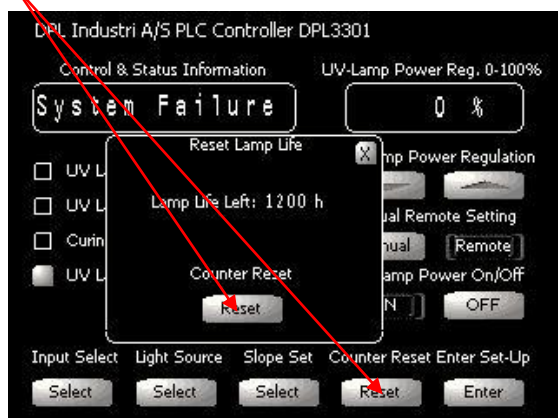
By replacing the UV-Lamp, it is very important to reset (preset) the lifetime counter.

In some application, with low UV Power, the lifetime can be more than the typical value.

Reset (preset) the counter again, and use the next periode before replacing the UV-Lamp.

Lifetime of the lamp, will be 1 hours shorter by start/stop of the Lamp.

Therefore keep the lamp in Stand-by, and only stop the lamp by longer machine-stop.

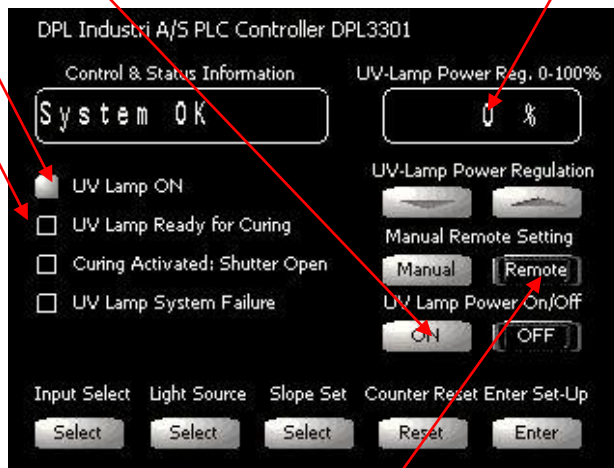


6. Manual Start UV Lamp:

With Manual/Remote setting in: Manual Position.

- Press “Lamp Power” On
- The PLC controller start the chiller. (can take up to 30 second)
- When the water flow is ok, “UV-Lamp On” will indicate that UV Lamp is started.
- The UV Lamp power meter indicate the stand-by level 20%
- The UV Lamp heath-up after 30 sec. and wait for indication of “UV lamp ready for Curing”

The UV System is ready for Curing.



7. Remote Start of UV Lamp:

With Manual/Remote setting in: Remote Position.

- Activate “Start UV lamp” on remote connector JP40 pin 1. active low
- The PLC controller start the chiller. (can take up to 30 second)
- When the water flow is ok, “UV-Lamp On” will indicate that UV Lamp is started.
- The UV Lamp power meter indicate the Stand-by level 20%
- The UV Lamp heath-up after 30 sec. and wait for indication of “UV lamp ready for Curing”

The UV System is ready for Curing.

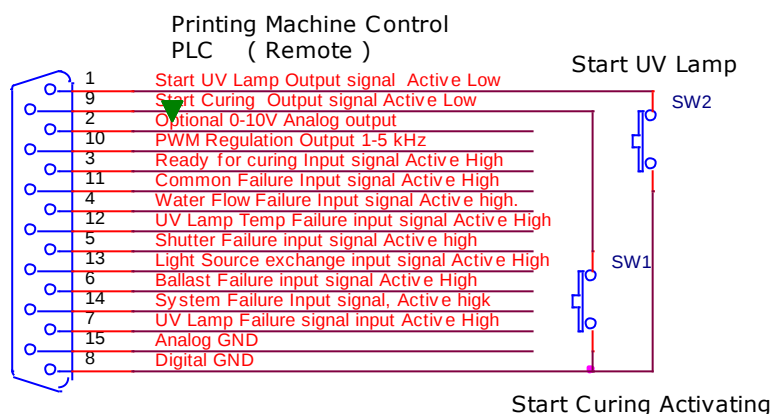
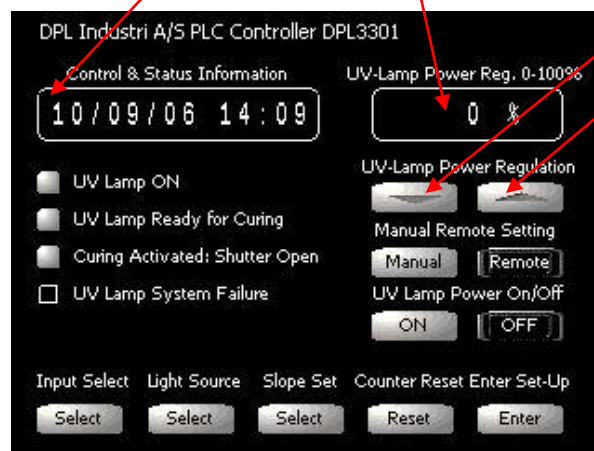
8. Curing activation:

The curing activation is only possible by the remote connector JP40 Pin 9 active low or by a switch between Pin 9 and GND Pin 8.

By using tacho or clock input, the curing activation is generated by the tacho speed.

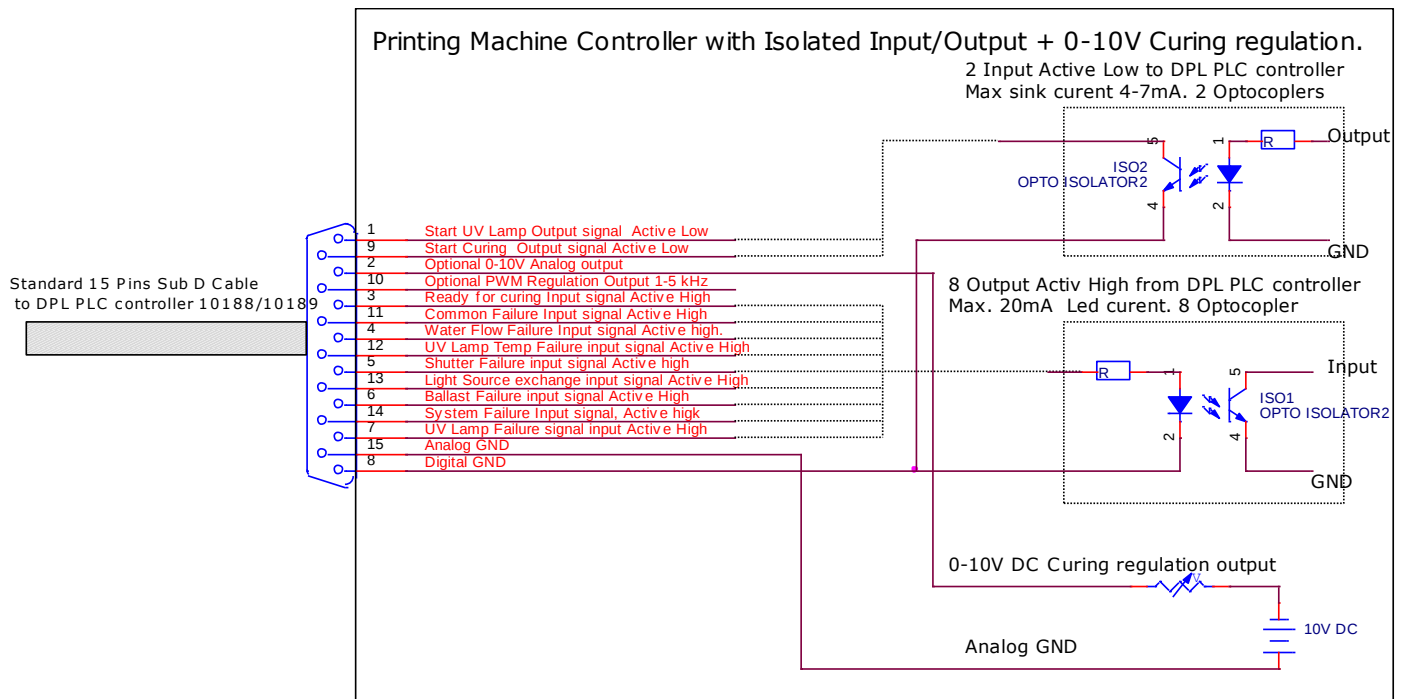
By Curing activation:

- The UV lamp shutter will open, and the indicator be active.
- The default UV-Lamp curing power, will be applied to the UV-Lamp
- The UV Lamp power can be set from 0-100% power by press on button down/Up.
- By activating the switch, the Power meter is moving from Stand-by 20%, to 100% if the curing power is regulated to 100%, with the up/down button.



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Remote Control Connection:



Remote Control description:

PIN	Type	Function	Note	Machine Input/ Output
1	Active Low Input 24V/0V	Start UV Lamp Input	5,0 mA Sink	Open Collector Output
2	Linear Input 0-10V DC	0-10 V Power Regulation Input		0-10V DC Output
3	Active High Output 0V/24V	Ready for Curing Output	6,0mA Source	Opto-koppler input with Resistor
4	Active High Output 0V/24V	Water Failure Output	6,0mA Source	Opto-koppler input with Resistor
5	Active High Output 0V/24V	Shutter Failure Output	6,0mA Source	Opto-koppler input with Resistor
6	Active High Output 0V/24V	Lamp Driver failure Output	6,0mA Source	Opto-koppler input with Resistor
7	Active High Output 0V/24V	UV Lamp Failure Output	6,0mA Source	Opto-koppler input with Resistor
8	Digital Ground	Digital Gnd		Direct connected Digital GND
9	Active low Input 24V/0V	Start Curing Input	5,0 mA Sink	Open Collector Output
10	PWM Input 0-24V 1-5kHz	PWM Regulation Input	7,0 mA Source	Open Collector Output
11	Active High Output 0V/24V	Common Failure Output	6,0mA Source	Opto-koppler input with Resistor
12	Active High Output 0V/24V	UV Lamp Temp Failure	6,0mA Source	Opto-koppler input with Resistor
13	Active High Output 0V/24V	Light Source Exchange Output	6,0mA Source	Opto-koppler input with Resistor
14	Active High Output 0V/24V	System Failure Output	6,0mA Source	Opto-koppler input with Resistor
15	Analog Ground (0-10V input)	Analog Gnd		Direct Connected Analog GND

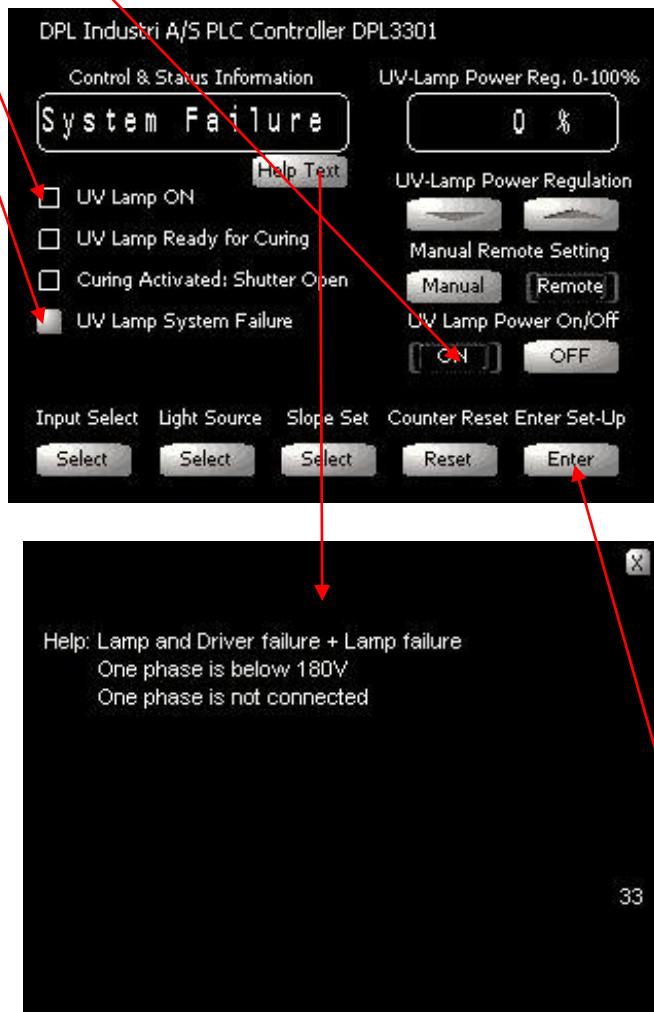
9. UV System Errors:

All UV system failure will be displayed in the Control and Status information display.

All failure will stop the UV-lamp, and the failure be displayed.

By UV System Failure:

- UV lamp Power ON/OFF will return to OFF.
- UV Lamp On indication disappears
- UV Lamp system Failure: indication for failure



10. Help Function:

Press Help to get a failure hint.

11. Start again after UV system failure

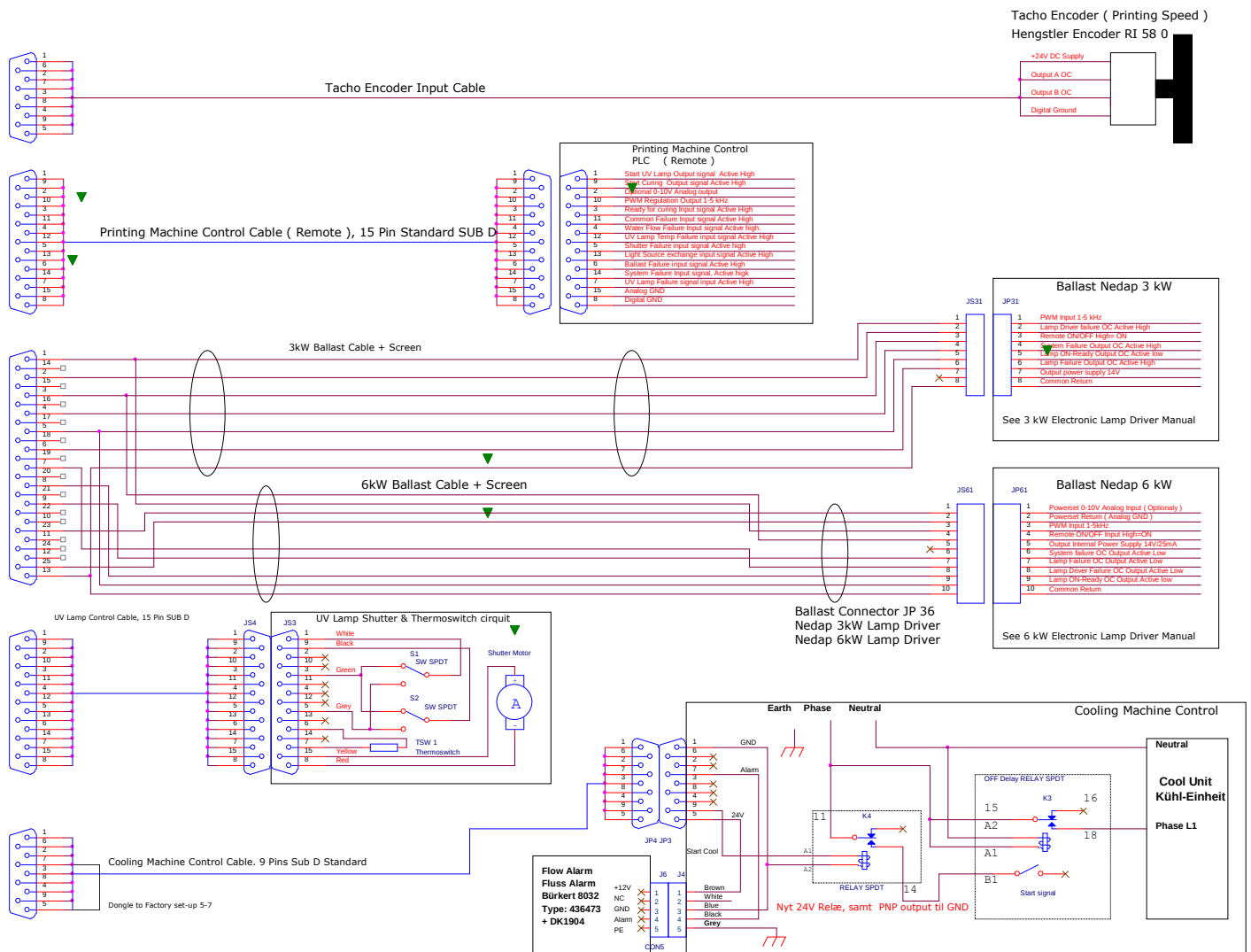
The PLC controller latch all fail information. To reset the failure press "UV Lamp OFF".

The UV System is ready to start again. If the failure come back, try to solve the problem

Or contact DPL Industri A/S for Help.

12. PLC Connection Diagram:

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DPL Industri A/S, Fabriksvangen 1, 3550 Slangerup, Denmark.

Instruction manual 10188 1a

