

Operational Instruction

1. **Unpack the system;**
2. **Open the DC-powered heating pad DC-30W12V-9859 (sold separately), connect it to the output of the controller at back end;**
3. **Connect sensor to the controller at front, affix sensor tip to the heating pad;**
4. **Connect the controller to electricity using the power cord provided, and turn on the AC power switch of the controller;**
5. **Check if the microSD card is inserted properly at the back of the controller;** the system will save temperature data collected on each day as a separate file.
6. **Connect the RS232 port at the back of the controller to your PC directly through a serial cable or to USB port through the RS232 adapter cable USB20RS232-PL2303 (sold separately).** Using your own serial port monitor software or download the CoolTerm at <http://freeware.the-meiers.org/#CoolTerm>.
7. **Push the red ON/OFF button at the front of the controller to turn on the machine;**
8. **Adjust clock.**

After the machine having started, check if the date and time is correctly displayed on the LCD screen. Adjust date and time as needed using the menu knob at the lower right corner at front of the controller. Push 1-2 times to enter main menu, turn to select "AdjClock, push again to enter "AdjClock"; turn to select submenu "YYYY", "MM", "DD", "H24", or "Min", push again to enter selected submenu; turn to change the displaying value, push again to confirm/exit value change. After having changed date time values, select and push on "SetClock" to save clock settings.
9. **Adjust target temperature.**

After the machine having started, check if the target temperature is correctly displayed on the LCD screen. Adjust target temperature as needed using the menu knob at the lower right corner at front of the controller. Push 1-2 times to enter main menu, turn to select "SetTemp", push again to enter "SetTemp", turn to select submenu "Set Temp.", push again to enter "Set Temp."; turn to change value, and push again to confirm/exit value change. Wait 20 seconds or using menu items to go back to running mode.
10. **Wait 10-15 minutes for the heating pad temperature becomes stable.**
11. **Transfer animal onto warmed heating pad.**
12. **Insert the temperature sensor tip 1-2 cm into animal rectum for in vivo monitoring and feedback.**
13. **Use default PID setting; you may change the setting through menu system manually or by auto-tune function ("ATune" mode in "PIDcntr" menu).**
14. **For more information please refer to the user's manual at Doccol website.**
15. **Call (888)481-0842 or email to support@doccol.com for support if you need further help.**